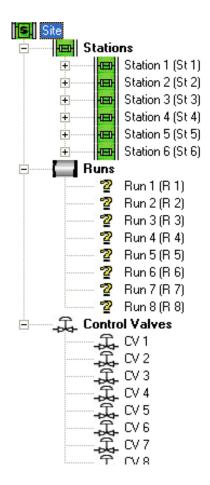
ControlWave[®] Station Manager Configuration Manual

(For Station Manager Version 4.2.1)





Remote Automation Solutions

IMPORTANT! READ INSTRUCTIONS BEFORE STARTING!

Be sure that these instructions are carefully read and understood before any operation is attempted. Improper use of this device in some applications may result in damage or injury. The user is urged to keep this book filed in a convenient location for future reference.

These instructions may not cover all details or variations in equipment or cover every possible situation to be met in connection with installation, operation or maintenance. Should problems arise that are not covered sufficiently in the text, the purchaser is advised to contact Emerson Process Management, Remote Automation Solutions for further information.

EQUIPMENT APPLICATION WARNING

The customer should note that a failure of this instrument or system, for whatever reason, may leave an operating process without protection. Depending upon the application, this could result in possible damage to property or injury to persons. It is suggested that the purchaser review the need for additional backup equipment or provide alternate means of protection such as alarm devices, output limiting, fail-safe valves, relief valves, emergency shutoffs, emergency switches, etc. If additional information is required, the purchaser is advised to contact Remote Automation Solutions.

RETURNED EQUIPMENT WARNING

When returning any equipment to Remote Automation Solutions for repairs or evaluation, please note the following: The party sending such materials is responsible to ensure that the materials returned to Remote Automation Solutions are clean to safe levels, as such levels are defined and/or determined by applicable federal, state and/or local law regulations or codes. Such party agrees to indemnify Remote Automation Solutions and save Remote Automation Solutions harmless from any liability or damage which Remote Automation Solutions may incur or suffer due to such party's failure to so act.

ELECTRICAL GROUNDING

Metal enclosures and exposed metal parts of electrical instruments must be grounded in accordance with OSHA rules and regulations pertaining to "Design Safety Standards for Electrical Systems," 29 CFR, Part 1910, Subpart S, dated: April 16, 1981 (OSHA rulings are in agreement with the National Electrical Code).

The grounding requirement is also applicable to mechanical or pneumatic instruments that include electrically operated devices such as lights, switches, relays, alarms, or chart drives.

EQUIPMENT DAMAGE FROM ELECTROSTATIC DISCHARGE VOLTAGE

This product contains sensitive electronic components that can be damaged by exposure to an electrostatic discharge (ESD) voltage. Depending on the magnitude and duration of the ESD, this can result in erratic operation or complete failure of the equipment. Read supplemental document S14006 for proper care and handling of ESD-sensitive components.

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Chapter 1 – Getting Started

This chapter discusses how to install the Station Manager application and provides some general information about how to use it.

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1.1 What is the Station Manager?

Station Manager is an application that allows the ControlWave Micro controller to manage up to six (6) natural gas measurement stations that include, among all the stations, up to:

- Maximum of six (6) or eight (8) meter runs, depending on the software version.
- Eighteen (18) control valves.
- Eight (8) PID loops per station for control. You can configure each station for tube switching, and Station Manager supports indication of bi-directional measurement for up to three (3) pairs of stations.
- Three general purpose proportional integral derivative (PID) loops.

The Station Manager application consists of:

- A ControlWave project file (*.PRO) pre-programmed for mult-run multi-station natural gas measurement.
- A customized flash configuration profile (*.FCP) file that configures the ports, audit, and archive parameters of the ControlWave Micro for the Station Manager.
- A TechView session. This includes the TechView session file (*.TVS), associated *.INI files, and a set of HTM menus customized for the Station Manager application. You use these menus to configure the application.

Note: Two versions of Station Manager are available for purchase:

- Station Manager 6-Run supports up to six meter runs and also supports communication to HART[®] devices, and a Coriolis Modbus interface. Station Manager 6-Run has Measurement Canada approvals; see *Appendix C* for details.
- Station Manager 8-Run supports up to eight meter runs, without HART[®] support, and without the Coriolis Modbus interface.
- The maximum number of meter runs also affects the number of certain components you can define, for example the number of ultrasonic flow meters (UFMs) or gas chromatographs (GC).

1.2 Before You Begin

- You must install the ControlWave Micro controller on site and connect field devices to its I/O modules. For information on ControlWave Micro hardware, see document *CI-ControlWave Micro*.
- For this version of Station Manager, your ControlWave Micro must have 64MB of SDRAM and 5.60 firmware (or newer).
- For full functionality, your ControlWave Micro should not use the System Controller Module (SCM) used with the ControlWave EFM; you should use a power supply sequence module (PSSM).
- You must install OpenBSI software (5.9 or newer) including TechView on your PC workstation. See the *OpenBSI Utilities Manual (D5081)*, the *BSI_Config User's Manual* (D5128), and the *TechView User Manual* (D5131) for details on installation requirements.
- For optimum results, you should set the screen resolution on your PC to 1280 x 1024, your screen refresh rate to 60 Hz, and DPI to 96 (normal size).
- You must connect the PC workstation to the ControlWave Micro controller. You can communicate using a serial cable or an Ethernet cable. Cable diagrams are included in *CI-ControlWave Micro*.
- The ControlWave Micro must be running a flash configuration profile file (*.FCP) compatible with Station Manager software. For information on updating FCP files, see *Chapter 5* of the *OpenBSI Utilities Manual* (D5081).
- The ControlWave Micro must be running the ControlWave project (*.PRO) file configured for the Station Manager. See *Chapter 7* of the *OpenBSI Utilities Manual* (D5081) for information on downloading a ControlWave project (*.PRO) file.
- Your Station Manager application must be properly licensed; if you purchased a license dongle, you must run the Application Licensing tool and install the dongle in your USB port. You must then reset

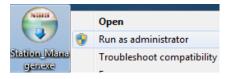
the ControlWave and perform a cold start. See the *ControlWave Designer Programmer's Handbook* (D5125) for more information.

Note: If you ordered your ControlWave Micro with Station Manager software pre-installed, the FCP and PRO files are already loaded when the unit ships from the factory.

1.3 Installing Station Manager Software

Notes:

- Station Manager runs on the following Windows operating systems: Windows XP and Windows 7
- All Station Manager users must have modify privileges to the **\ProgramData\Bristol\StationManager**\ folder.
- 1. Right-click on the Station Manager application's icon and choose **Run as Administrator.**



2. The Station Manager Installer Setup screen opens; allow it to run on its own.

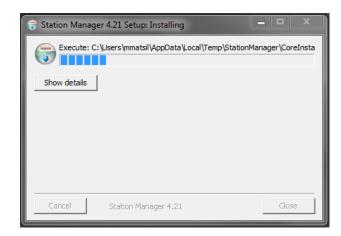


Figure 1-1. Station Manager Installer Setup Screen.

3. Click **Next** on the welcome screen of the installer.



Figure 1-2. Station Manager Installer – Welcome Screen

4. You can look at the Read Me file to view information about this release. Use the scroll bar to view portions not currently on screen. Click **Next** to proceed.

Station Manager 4 2102 Application Setup	
Read Me Please review the following important information.	()
About Station Manager 1, 2102 Applications	
1 Compatibility and Installation ITEM VERSION OpenESI 5.9 CWM Firmware	Click Nex
Click on scrollbar arrows or press Page Down to review the	entire text.
Staton Manager 4.21 < Back	Next > Cancel

Figure 1-3. Station Manager Installer – Read Me

5. Review the license agreement and click the **I Agree** button to proceed with the installation or **Cancel** to abort the installation process

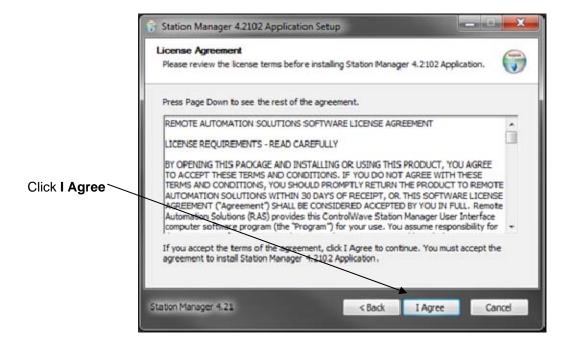


Figure 1-4. License Agreement page

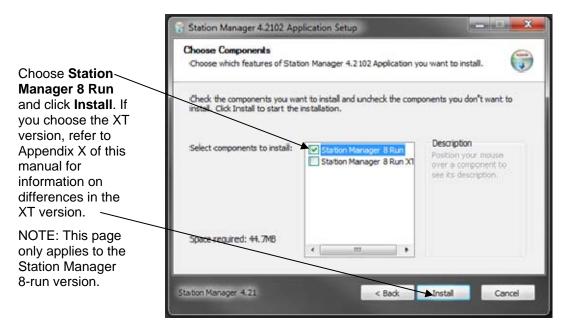


Figure 1-5. Selecting Application (8-Run Version ONLY)

The installation begins.

6. At the completion of the installation, click **Next**.

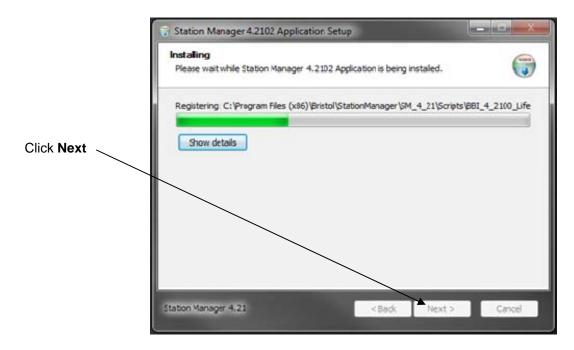


Figure 1-6. Installation Completion

7. Now click **Finish** to exit the installer.



Figure 1-7. Exit the Installer

1.4 Starting Station Manager Software

You start the Station Manager software by invoking the proper TechView file. There are two ways to do this:

serial TVS file, depending upon your type of connection.

Starting Station Manager from the Start Programs Menu	For an IP connection, click: Start > Programs > Station_Manager > SM_4_0_IP_tvs For a serial connection, click: Start > Programs > Station_Manager > SM_4_0_Serial_tvs
	From a desktop icon, similar to those below, or from the \Station_Manager\ SM_4_0\SUPPORT folder, double-click the IP or



Figure 1-8. Station Manager TVS file icons

For IP communication, see Section 1.4.1 Station Manager IP Startup.

For serial communication see *Section1.4.2 Station Manager Serial Startup*.

1.4.1 Station Manager IP Startup

Once you start the TVS file for IP operation, TechView opens the Runtime Configuration Parameters dialog box:

1	Runtime Configuration Parameters
	How many transmitters does the RTU's application load support ?
	What is the IP Address of the RTU that you like to connect to ?
	What port would you like to use ?
	What baud rate would you like to use ? 115200
	ОК

Figure 1-9. IP Runtime Parameters

- **1.** Leave the number of transmitters at the default value.
- **2.** Enter the IP address of the ControlWave Micro IP port to which you are connected.
- 3. Click OK.
- 4. Log onto the ControlWave Micro as described in *Section 1.4.3*.

1.4.2 Station Manager Serial Startup

Once you start the TVS file for serial operation, TechView opens the Runtime Configuration Parameters dialog box:

Runtime Configuration Parameters	
How many transmitters does the RTU's application load support ?	20
What is the Local Address of the RTU that you like to connect to ?	1 🔽
What port would you like to use ?	COM1 -
What baud rate would you like to use ?	115200 -

Figure 1-10. Serial Runtime Parameters

- **1.** Leave the number of transmitters at the default of 12.
- **2.** Enter the BSAP local address of the ControlWave Micro to which you are connected.
- **3.** Select the serial communication port on the PC which you are using to communicate with the ControlWave Micro.
- 4. Select the baud rate on the serial communication line.
- 5. Click OK.
- 6. Log onto the ControlWave Micro as described in *Section 1.4.3*.

1.4.3 Logging Onto the ControlWave Micro

In the SignOn to RTU dialog box, enter a **Username / Password** combination that allows full access to the ControlWave Micro, then click the **SignOn** button.

SignOn to RTU							
It is recommended that you supply a username when signing on to Controlwave type devices							
🕵 Status: Login required							
Username: SYSTEM							
Password: *****							
Signon Cancel							

Figure 1-11. Logging onto the ControlWave Micro

1.5 Accessing Pages of the Station Manager Application

To access various pages of the Station Manager application, click on the tab for the function you want to configure, then click on the buttons which appear on that tab. By default, the I/O tab appears first.

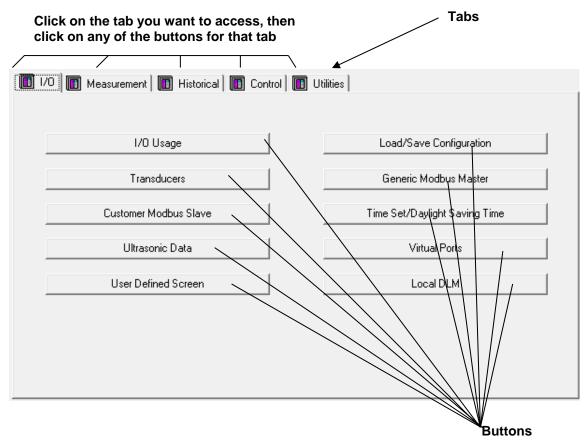


Figure 1-12. Tabs and Buttons in Station Manager

The next several chapters describe the functions available on each tab of the application.

You need not configure all the features of the application; only those that you need for your particular purpose and measurement needs.

1.6 Entering Data in Fields of the Station Manager Application

Whenever you select a field and enter data, or select from a drop-down menu, you must press the **[Enter]** key to confirm and save your choice.

To exit a field without entering data, press the **[Esc]** key.

1.7 Setting the Archive Mode

When you first start Station Manager, you may see a warning indicating that the archive mode is not set (see *Figure 1-13*).



Figure 1-13. Archive Mode Not Set Warning

This warning tells you that until archiving is configured, Station Manager cannot log data into archives.

▲ Caution	 You cannot mix older archive files with new archive files or change archive file parameters after archive collection begins: If you've never configured archives, and you plan to use the default archive mode (Push Down) and no archives exist on this PC workstation or in the ControlWave Micro, you can proceed to set the archive mode as described in Section 1.7.2 Setting the Archive Mode. If old archives already exist, and/or you plan to use Wrap Around mode, or you want to change archiving parameters, you must first follow the instructions in Section 1.7.1 Clearing Old Archive Files and Setting Other Archive Parameters Before You Set the Archive Mode. 						
	You have three choice	es when you see this warning.					
	Field	Description					
	Click to Hide	During initial configuration, the warning doesn't really matter, so you can click here to hide the warning. The warning will not be present until you open another TechView screen or restart TechView.					
	Disable warning for one hour	Check this box to disable the warning for one hour, or until TechView is restarted, after which the warning returns.					
	Click to Set Archives	Click this button to set the archive mode. See <i>Section 1.7.2</i> , below.					

1.7.1 Clearing Old Archive Files and Setting Other Archive Parameters Before You Set the Archive Mode

If you plan to use the default archive mode (Push Down) with default archive parameters, and no older archive files exist on your PC workstation or in the ControlWave Micro, you can skip this section and proceed to *Section 1.7.2*.

A Caution The instructions in this section delete archive data files from your ControlWave Micro and your OpenBSI workstation. Be sure you follow the steps carefully, and in the order shown, so you can save those archives, if you need to preserve them.

You cannot mix older archive files with different storage methods or archive parameters with new archive files. Therefore, if older archive files exist on your PC workstation, or you plan to use Wrap Around mode for your archives or you want to change archive parameters, you must follow these steps in the order shown, first:

Clearing Old 1. Archive Files from Station Manager AND the ControlWave Micro If the ControlWave Micro holds existing archive files you have not yet collected, follow the instructions in *Chapter 4* of this manual, to collect those archives.

Site 1	Jame		Unna	med Si	te		
Storage Fol	der: C:\Use	rs\Public\C)penBsi\St	ation_Ma	anag	Brows	e
Туре	Description			Log #	Tarc	jet File	
Archive Archive Archive Archive Archive Archive Archive Archive Archive Archive	Run 1 Hou Run 2 Hou Run 3 Hou Run 4 Hou Run 5 Hou Run 6 Hou Run 7 Hou GC Stream GC Stream	rly rly rly rly rly rly 1 Hourly 2 Hourly		1 3 5 7 9 11 13 15 17 18			
Start Colle	ection Stop	Collection	View Str	orage	Conver	t to CSV	

Figure 1-14 Collect Local Archives

- 2. To preserve the archive files you just collected,(and any other archives files collected by Station Manager) go to Station Manager's Log area, and copy those files to a different location. By default, the log area is located in the path \OpenBSI\Station Manager\Logs.
- **3.** Now that you have a safe copy of the log files elsewhere (Step 2), delete all files in the \Station Manager\Logs area.
- 4. Cold start the ControlWave Micro. To do this, click Start > Programs > OpenBSI Tools > Debugging Tools > Reset ControlWave then log into the unit, and click the Cold Start button. When the status message shows "Restart Complete," click Close.

Reset ControlWave Unit		×
Node Name: RTU User Name: SYSTEM Password: ******	Select	Reset Unit Cold Start Warm Start Hot Start
Status:		Close

Figure 1-15. Reset ControlWave Unit

5. In TechView, clear all archives from the ControlWave Micro. To do this, click Operations > Clear History. Then select Clear All Archive Files and click Start. Answer the prompts to perform the deletion, and when the status message says "Task Complete," click Exit to close the Clear RTU History utility.

Clear RT	TU History		×
	RTU Typ	e: CWave_Micro	Start
	INGS:		Exit
P	 These functions remove historical r Please verify the history has been col any functions. 		Sign On
	The RTU will be WARM STARTED do	uring this process.	
	C Clear Audit Records		
	C Clear All Archive Files		
	C Clear Single Archive File	GC8_RF - 35	•
	\bigcirc Clear All History (Audit and A	ll Archives)	
Status	:		

Figure 1-16. Clear RTU History

Changing Archive Parameters

Now that you've deleted all existing archive files you can optionally change archive parameters for Enron Modbus collections. These are set in List 20 in the ControlWave Station Manager application. You can call List 20 up using DataView; right click on the RTU icon in TechView, choose **DataView** from the pop-up menu. Once DataView opens, click the Remote List icon and enter 20 in the Remote List Properties dialog box and click **OK**; this opens list 20. You can then click on a value to change it.

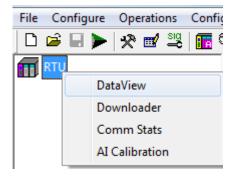


Figure 1-17. – Calling Up DataView

You can change archive parameters through this list. For example, you can change date formats (Parameter 6) for archive entries here through the MB.ENRON_DTFORMAT variable. For details on these different parameters, see the ACCOL3 function block online help in ControlWave Designer for the CUSTOM function block and look up Enron Modbus.

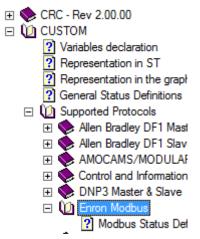


Figure 1-18. Enron Modbus Icon in ACCOL3 Function Block Help

You can now select the archive mode as described in *Section 1.7.2 Setting the Archive Mode* and begin to collect new archives.

1.7.2 Setting the Archive Mode

You may select one of two modes for the way archived data is stored for retrieval via Enron Modbus.

Push Down – This is the default mode. In this mode a request for archive record 1 returns the record with the oldest local sequence number and the oldest timestamp. A request for the highest archive record number (840 for the hourly archives, 62 for the daily archives)

returns the record with the newest local sequence number and the most recent timestamp.

Wrap Around – In this mode, a request for archive record 1 returns the record in the archive with the newest data. A request for the highest record number returns the record in the archive with the oldest data.

Verify Modbus Archive Mode. This can be changed from the Status/Configuration Control->Site Tabs->General Configuration Tab						
Set To	Current State					
Wrap Around	Push Down					
		Next	Cancel			

Figure 1-19. Verify Modbus Archive Mode selection

The **Current State** shows the currently active archive mode. To toggle that to the other mode, click the desired **Set To** mode button. After you have selected the Enron Modbus archive retrieval mode, click **Next**. You must now select the archive storage mode. The selections are **Push Down** and **Wrap Around**, as defined above.

If the archive mode is left as **Not Set**, no archive records will be generated. From this selection screen, once you select a mode, the change will take effect immediately and cannot be changed until the ControlWave Micro performs a cold start.

After selecting the archive mode, click **Done** to close this window.

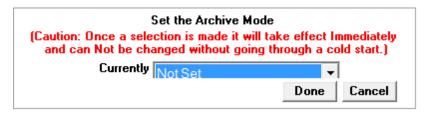
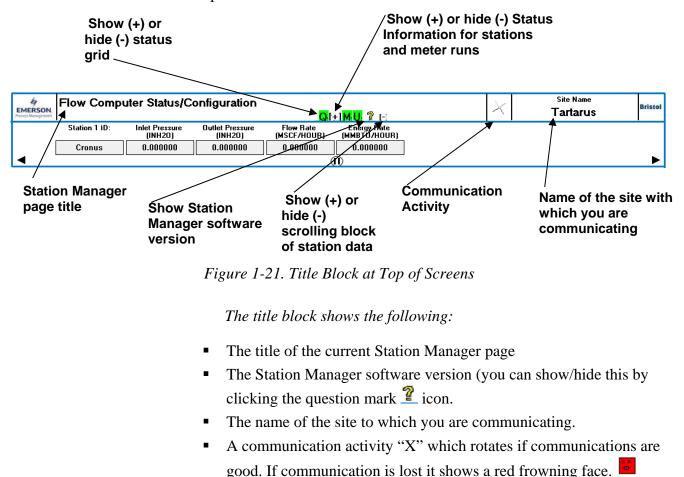


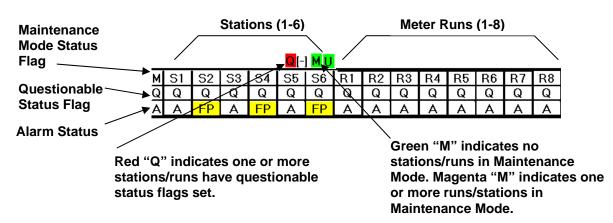
Figure 1-20. Setting the Archive Storage Mode selection

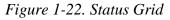
1.8 Checking Status Information on the Page

On the top of most pages in the Station Manager application is the title block. This provides certain status information about Station Manager operation.



In addition, if you click the "+" between the "Q" and "M" you can view status information on all stations and meter runs.





The Q and M icons just above the grid summarize the system status:

- A red "Q" indicates one or more runs/stations have a questionable status.
- A green "M" indicates no stations or runs are in Maintenance Mode.
- A magenta "M" indicates at least one run/station is in Maintenance Mode.

The U icons just above the grid shows the status of communication with ultrasonic flow meters (UFMs).

- A green "U" indicates communications with UFMs are good.
- A red "U" indicates communications with at least one UFM have failed.

This icon only shown in Station Manager 8-Run.

Table 1-1 shows the meaning of the different items in the status grid.

Table 1-1 Status Grid Icons

Line	Stations (S1 to S6)	Meter Runs (R1 to R8)
M (Maintenance)	S <i>n</i> = Station not in Maintenance Mode (White background)	R <i>n</i> = Run not in Maintenance Mode(White background)
	Sn = Station in Maintenance Mode (Magenta background)	R <i>n</i> = Run in Maintenance Mode (Magenta background)
Q (Questionable)	Q = Not questionable -OK (White background)	Q = Not questionable -OK (White background)
	Q = Unspecified questionable (Q) data issue for this station.(Red background)	Q = Unspecified questionable (Q) data issue for this run. (Red background)
	DP = Differential pressure (DP) data is questionable for this station. (Red background)	DP = Differential pressure (DP) data is questionable for this run. (Red background)
	SP = Static pressure (SP) data is questionable for this station. (Red background)	SP = Static pressure (SP) data is questionable for this run. (Red background)
	FT = Flowing temperature (FT) data is questionable for this station. (Red background)	FT = Flowing temperature (FT) data is questionable for this run. (Red background)
	 Multiple (**) questionable data issues for this station. (Red background) 	 Multiple (**) questionable data issues for this run. (Red background)
A (Alarm)	A = OK. No alarm reported. (White background)	A = OK. No alarm reported. (White background)
	FP = Flow Permissive (FP) Mode active for this station.(Yellow background)	FP = Flow Permissive (FP) Mode active for this run.(Yellow background)

Line	Stations (S1 to S6)	Meter Runs (R1 to R8)
	DCP = Direction Change Permissive (DCP) Mode active for this station. (Yellow background)	Direction Change Permissive (DCP) Mode active for this run. (Yellow background)

If an item in the status grid has a non-white background color, you can move your mouse over that location to view an explanatory Detail message box.

					Q[-] <mark>M U</mark>				Detail	X
М	S1	S2	S3	S4	S5	S6	R1	R2	R	Station 4 Information:	
Q	Ø	Q	Q	Q	Q	Q	Q	Q	Q	Flow Permissive	
Α	Α	FP	Α	FP	Α	FP	Α	Α	Α		\sim

Mouse cursor here

Figure 1-23. Viewing the Detail Message

Note: If you make changes to entries on a Station Manager screen, the Detail pane must be visible for screen updates to occur. This page is intentionally left blank

Chapter 2 – Configuring Inputs and Outputs (I/O Tab)

This chapter discusses configuring the Station Manager application to accept field inputs and outputs (I/O). This is accomplished from the Station Manager's I/O tab.

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2.1 I/O Tab

Click the I/O tab to display the various I/O options you can configure. We'll discuss each of these in the sections that follow.

	[10] 1/0 Measurement 11 Historical 11 Control	Utilities
	I/O Usage	Load/Save Configuration
	Transducers	Generic Modbus Master
	Customer Modbus Slave	Time Set/Daylight Saving Time
To configure an	Ultrasonic Data	Virtual Ports
I/O function or feature, click on	User Defined Screen	Local DLM
its button.		

Figure 2-1. I/O Tab in Station Manager

2.2 I/O Usage

When you click the <u>VOUsage</u> button on the I/O tab, the I/O Usage page displays a graphical representation of the ControlWave Micro, showing each of the I/O modules detected by the Station Manager. If Station Manager cannot detect a particular module or an I/O slot is empty, its graphic shows "Not Present."

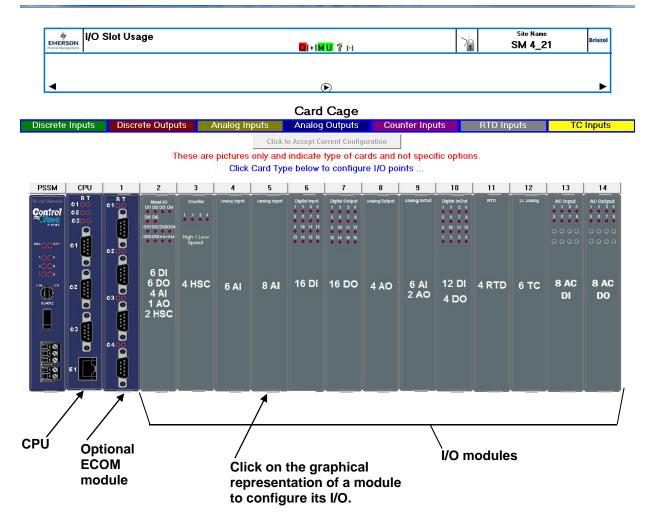


Figure 2-2. I/O Usage Screen Showing I/O Modules Detected

When you move the cursor over the CPU module, an Expansion Communication (ECOM) module, or any I/O module, you'll see a yellow box on the screen. To configure I/O, follow these steps:

- 1. From the I/O tab, click the **I/O Usage** button.
- **2.** Position the cursor over the I/O module you want to configure; a yellow box indicates the cursor position on any configurable module.

3. Click on the module you want to configure. This opens a screen showing the possible choices for I/O. The Mixed I/O Module shows multiple types of I/O (see *Figure 2-3*).

			ON	Point	is On	OFF Point is Off		PV	Valio	d Data		PV Questionable Data
0 2 0 3 0 4 0 5	} 	Discre PNT 1	ete In INV	puts Live <mark>OFF</mark>	PV OFF	Assignment RCV 1 Open Limit	PNT 1	og Inputs – PV -74.9	Zero	Span 300.0	Units In/H2O	Assignment
0 6 0 7 0 8 0 9	3	_		OFF OFF OFF	OFF OFF OFF	RCV 1 Close Limit	2 3 4	-249.7 -25.0 -249.6	0.0	1000.0 100.0 1000.0	PSI DEG_F PSI] []
01	0	5 6 Discre	Y	OFF OFF	OFF		Analo	og Output – PV 0.0	Zero	Span	Units %	Assignment
0 2 0 3 0 4 0 5	} 	РNТ 1 2		PV OFF OFF		Assignment	High PNT	Speed Cou Coun	unters —	Time Sta	mp	Sampler 1
0 0 0 8	5	3 4 5		OFF OFF OFF		RCV 1 Open Command RCV 1 Close Command	1			1013696		
0 9 0 1) 0	6		OFF		ints must be jumpered for desired usage.						

Go Back to IO Page Live is actual value and input, while PV is value in use.

Figure 2-3. Mixed I/O Module

- 4. Click in the Assignment field, and use the drop-down menu to select the function in the Station Manager that you want to connect to a particular I/O point. For example, if remote control valve 1's open limit switch field input is connected to discrete input 1, select RCV 1 Open Limit for the Assignment. (See *Figure 2-5.*) Press the [Enter] key to confirm and save your choice.
- **Note:** You may have noticed that when the cursor is left hovered over an IO point, the graphics to the left display the applicable connection points for direct and remote IO (see *Figure 2-4*).

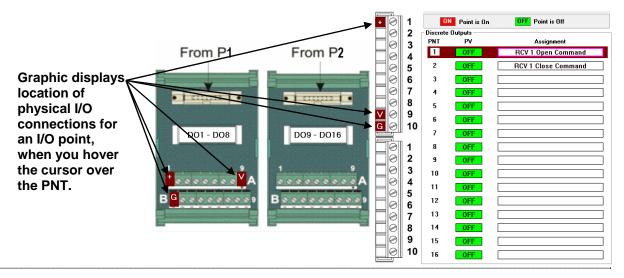


Figure 2-4. Connection Points for Physical I/O

5. Continue assigning Station Manager functions to their applicable field I/O points. See the sub-sections below for information on the different I/O module types.

Notes:

- Only assign a given function to one input I/O point. If you subsequently assign the same function to a different input point, Station Manager re-assigns it to your newer choice and disconnects it from the earlier choice.
- Depending upon your particular configuration, you might not use all the inputs or outputs in a particular meter run or station.
- If you have I/O that comes from an ultrasonic flow meter or a multivariable transmitter that communicates with the Station Manager through a communication port, instead of an I/O module, you configure it from the UFM or Transducer pages, discussed later in this chapter.
- To return to the I/O Usage page from any page underneath it, click the Go Back to IO Page button.

Disc PNT	rete li INV	nputs – Live	PV	Assignment
1	_	OFF	OFF	RCV1 Open Limit 🗾
2		OFF	OFF	RCV 1 Open Limit
3		OFF	OFF	RCV 2 Open Limit RCV 2 Close Limit
4		OFF	OFF	RCV 3 Open Limit RCV 3 Close Limit
5		OFF	OFF	RCV 4 Open Limit
6	Y	OFF	ON	RCV 4 Close Limit RCV 5 Open Limit

Figure 2-5. Assigning Discrete Input 1

Viewing Communication Port Configuration

To view the current port configuration, position the cursor over the CPU or ECOM module (see *Figure 2-2*) and click; this displays the current configuration of ports on the CPU or ECOM module. To alter the configuration, you need to edit the flash configuration profile for the ControlWave Micro. **Note:** Changes made to the flash configuration profile are not reflected within Station Manager screens until you restart the ControlWave Micro.

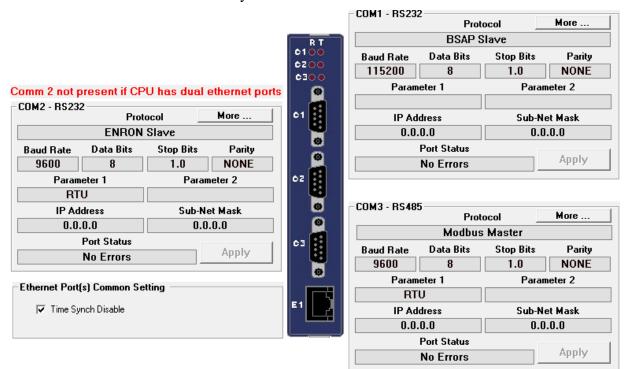


Figure 2-6. Viewing Configuration of Ports

2.2.1 Discrete Inputs (DI)

Discrete inputs (DIs) include the following fields:

Field	Description					
PNT	This read-only field displays the I/O point number. The number varies depending upon the type of I/O module.					
INV	If you check this box for a given I/O point, Station Manager inverts the real-live field value and uses the inverted value as the process value. For example, if the Live value of discrete I/O point 5 is OFF , and INV is checked for that point, PV is set ON and that's what Station Manager uses for control and processing.					
Live	This read-only field shows the actual ON/OFF status of this discrete input point.					
	Points that are ON show in red. ON Points that are OFF show in green. OFF					

PV	This read-only field shows the value of the process variable (PV) used in Station Manager. This matches the Live value unless you invert the input using INV .		
	Points that are ON show in red.		
	Points that are OFF show in green. OFF		
Assignment	Use the drop-down menu to select the function within Station Manager that corresponds to this discrete input.		
	Press [Enter] to save your selection.		

2.2.2 Discrete Outputs (DO)

Discrete outputs (DOs) include the following fields:

Field	Description			
PNT	This read-only field displays the I/O point number. The number varies depending upon the type of I/O module.			
PV	This read-only field shows the value of the process variable (PV) Station Manager will output to the field device.			
Assignment	Use the drop-down menu to select the function within Station Manager that corresponds to this discrete output. Press [Enter] to save your selection.			

2.2.3 Analog Inputs (AI)

Analog inputs (AIs) include the following fields:

Field	Description
PNT	This read-only field displays the I/O point number. The number varies depending upon the type of I/O module.
PV	This read-only field shows the calculated value of the analog input process variable (PV) based on the configured Zero and Span .
	If the value shows in red, the value is questionable -25.0. This could indicate no connection, a communication problem with the field device, data timeout or some other problem that could cause the value to be invalid.
Zero	Enter the value that the process variable should read when the AI field input is 4mA. Press [Enter] to save your selection.
Span	Enter the value that, when added to the Zero value, represents what the process variable should display when the AI field input is 20mA. Press [Enter] to save your selection.

	For example, if Zero is 5 and Span is 20, then:				
	If the AI field input is:PV will be:4mA520mA2512mA15				
Units	The engineering units for this process variable. Click in the field and select the proper units from the drop-down menu. Press [Enter] to save your selection.				
Assignment	Use the drop-down menu to select the function withi Station Manager that corresponds to this analog inp Press [Enter] to save the selection.				

2.2.4 Analog Outputs (AO)

Analog outputs (AOs) include the following fields:

Field	Description				
PNT	This read-only field displays the I/O point number. The number varies depending upon the type of I/O module.				
PV	This read-only field shows the calculated value of the analog output process variable (PV) based on the configured Zero and Span . This value will be sent to the field device.				
Zero	Enter the value that the process variable should read when the AO field output is 4mA. Press [Enter] to save your selection.				
Span	Enter the value that, when added to the Zero value, represents what the process variable should display when the AO field output is 20mA. Press [Enter] to save your selection. For example, if Zero is 5 and Span is 20, then:				
	If PV is: The AO field output is:				
	5 4mA 25 20mA				
	25 20mA 10 8mA				
Units	The engineering units for this process variable. Click in the field and select the proper units from the drop-down menu. Press [Enter] to save your selection.				
Assignment	Use the drop-down menu to select the function within Station Manager that corresponds to this analog output. Press [Enter] to save the selection.				

2.2.5 High Speed Counters (HSC)

Field	Description				
PNT	This read-only field displays the I/O point number. The number varies depending upon the type of I/O module.				
Counts	This read-only field displays the number of counts since the last power cycle.				
Time Stamp	This read-only field displays the timestamp of the last sample from the HSC module. The timestamp is the number of milliseconds since boot.				
Assignment	Use the drop-down menu to select the function within Station Manager that corresponds to this high speed counter input. Press [Enter] to save the selection.				

High speed counters (HSC) include the following fields:

2.2.6 Multi-variable Transmitters (Transducers)

If you have one or more multi-variable transmitters, click the

Transducers

button on the top of the I/O tab to call up the

Transducers page.

The following MVTs have been tested with Station Manager:

- Rosemount 3095
- Rosemount 4088A
- Rosemount 4088B
- Bristol 3808

The Transducers page shows the first three multi-variable transmitters (MVTs) for the station; if you want to view a different group of three MVTs, click the tab corresponding to the range of MVTs you want to see.

MVTs 1-3		MVTs 4.6		Ý	MVTs 7-9		MVTs 10-12		· 12		
MVT 1			MVT 2			MVT 3					
MODBUS	Communicat	ion Protocol		MODBUS	Communicati	on Protocol		MODBUS	Communicat	ion Protocol	
	Port	Address	Xmtr Type		Port	Address	Xmtr Type		Port	Address	Xmtr Type
Disabled	Com 3	1	DP/P/T	Disabled	Com 3	2	None	Disabled	Com 3	3	None
Register S	et			Register Set			Register S	Register Set			
¢	7xxx	C 4xxxx		© 7xxx C 4xxxx			¢	© 7xxx C 4xxxx			
Comm	% Good	Good Polls	Bad Polls	Comm	% Good	Good Polls	Bad Polls	Comm	% Good	Good Polls	Bad Polls
Stats	0.0	0	0	Stats	0.0	0	0	Stats	0.0	0	0
Reset				Reset				Reset			
Current Status		No Errors		Current Status				Current Status	Current No Errors		
Serial Number		0		Serial Number				Serial Number	0		
Time				Time	Time			Time			
Stamp				Stamp				Stamp			
DP	Units	Zero	Span	DP	Units	Zero	Span	DP	Units	Zero	Span
0.0	Invalid	0.0	0.0	0.0	Invalid	0.0	0.0	0.0	Invalid	0.0	0.0
Current Status		No Errors		Current Status	No Errors			Current Status	No Errors		
SP	Units	Zero	Span	SP	Units	Zero	Span	SP	Units	Zero	Span
0.0	Invalid	0.0	0.0	0.0	Invalid	0.0	0.0	0.0	Invalid	0.0	0.0
Current Status				Current Status				Current Status			
FT	Units	Zero	Span	FT	Units	Zero	Span	FT	Units	Zero	Span
0.0	Invalid	0.0	0.0	0.0	Invalid	0.0	0.0	0.0	In∨alid	0.0	0.0
Current Status				Current Status		No Errors		Current Status		No Errors	

Figure 2-7. Transducers Page (Multi-Variable Transmitters)

Each MVT includes the following fields:

Field	Description			
Enabled/Disabled	Click this button to enable communication from this MVT to the Station Manager.			
Communication Protocol (BSAP/MODBUS)	Click the BSAP/MODBUS button to toggle the method used to communicate with this MVT between BSAP protocol and MODBUS protocol.			
Port	Use the dropdown menu to specify the ControlWave Micro serial communication port which connects to this MVT. Press [Enter] to save the selection.			
Address	Enter the address of the MVT here. Press [Enter] to save the selection.			
Xmtr Type	Use the drop-down menu to select the type of data coming from this MVT. Choose either:			
	Type:Data from this type:GP/Tgage pressure and temperatureDP/P/Tdifferential pressure, static pressure, and temperatureTtemperaturePress [Enter] to save your selection.			
Register Set	This field applies only to MODBUS communication. Click either 7xxx or 4xxxx to select the MODBUS register set used by this MVT.			
Comm Stats	·			
% Good	This read-only field shows the percentage of successful communication transactions with this MVT.			

This read-only field shows the number of good poll messages in communications with this MVT.				
This read-only field shows the number of bad poll messages in communications with this MVT.				
This button resets the communication statistics in the %Good , Good Polls , and Bad Polls fields.				
These read-only fields display the most recent status messages from this MVT.				
This read-only field shows the tag name from this MVT. (BSAP only)				
This read-only field shows the serial number from this MVT. (MODBUS only)				
This read-only field shows the time stamp of the most recent value received from this MVT.				
This read-only field shows the most recent differential pressure reading from this MVT.				
This read-only field shows the most recent static pressure reading from this MVT.				
This read-only field shows the most recent temperature reading from this MVT.				
This read-only field shows the engineering units for this variable.				
This read-only field shows the value for this variable when the MVT receives a 4mA field input.				
This read-only field shows the value that, when added to the Zero value, represents what the process variable should display when the field input to the MVT is 20mA.				

2.2.7 HART Transmitters (6-Run Version ONLY)

To configure wired HART transmitters, click on the graphical representation of the HART/BTI module in the I/O Usage screen. This calls up the HART Configuration page.

	HART	Configurati	on
General Number 1 💌 Type DP	Disable Current	Status Enabled	Channel 1 Comm Mode M-drop I/O board
HART		Status	
Tag	HART-01	Comm	0
Device ID	0	Device	0
		Comm Failure	Okay
Descriptor			
Message			
v		Range	
Value	0	Upper	0
Units		Lower	0
		Units	

Figure 2-8. HART Configuration

Field	Description		
General			
Number	Select the HART transmitter number (from 1 to 18).		
Enable/Disable	Click Enable to activate communications with the transmitter or click Disable to turn off communications with the transmitter. When the communication state changes, the Current Status field updates to show the change, and the label on the button toggles to the opposite title. After disabling the transmitter, a cold/warm start of the CPU is necessary to stop the continuous polling of the transmitter.		
Туре	Shows the transmitter type: DP = Differential Pressure SP = Static Pressure FT = Flowing Temperature MVT = Multi-Variable Transducer		
Device	If HART communications is through the HART/BTI module, specify the I/O slot in the ControlWave Micro that holds the HART/BTI module. Only slots 1 and 2 are supported. If HART communication is through a communication port, specify the ControlWave Micro COM port number used for HART.		
Channel	Specify the channel number on the HART/BTI module associated with the transmitter.		
Comm Mode	Select whether HART transmitter data comes from the HART/BTI module or from a COM port.		
HART			
Тад	Shows the tag name read from the HART transmitter.		
Device ID	Shows the Device ID read from the HART transmitter.		
<u>Status</u>			
Comm	Shows the HART communication status code. Valid codes are shown in <i>Table 2-1</i> .		

Binary	Dec	Hex	Description
1000000	28	0x80	When this bit is clear the remaining bits represent the command status response from the device. When this bit is set it indicates there is a communications error defined by the remaining bits.
01000000	64	0x40	The parity of one or more of the bytes received by the device was not odd.
00100000	32	0x20	At least one byte of received data was not processed fast enough and was overwritten before it could be read.
00010000	16	0x10	An expected stop bit for one or more bytes received was not detected.
00001000	8	0x08	The longitudinal parity calculated by the device did not match the check byte at the end of the message.
00000100	4	0x04	Reserved – set to 0.
0000010	2	0x02	The message was too long for the receive buffer of the device.
0000001	1	0x01	Reserved – set to 0.

Device Shows the status code for the HART transmitter. Valid codes are in *Table 2-2*.

Table 2-2. HART Device Status Codes

Binary	Dec	Hex	Description
1000000	128	0x80	The device detected a serious error or failure that compromises device operation.
01000000	64	0x40	An operation was performed that changed the device's configuration.
00100000	32	0x20	A power failure or device reset has occurred.
00010000	16	0x10	More status information is available; use command48 to read the additional status information.
00001000	8	0x08	The loop current is being held at a fixed value and is not responding to process variations.
00000100	4	0x04	The loop current has reached its upper (or lower) endpoint limit and cannot increase (or decrease) any further.
00000010	2	0x02	A device variable not mapped to the PV is beyond its operating limits.
0000001	1	0x01	The primary variable is beyond its operating limit.

Comm Failure	Shows "Okay" in green when communications are working or "FAIL" in red when there is a communication failure with the HART transmitter.
<u>Device</u>	
Descriptor	The descriptive text for this HART transmitter.
Message	The message text read from the HART transmitter.
PV	
Value	Shows the process value read from the HART transmitter.
Units	Shows the engineering units read from the HART transmitter for the given process value.
Range	
Upper	Shows the upper range for the process variable read from the HART transmitter.
Lower	Shows the lower range for the process variable read from the HART transmitter.
Units	Shows the engineering units for the process variable read from the HART transmitter.

2.2.8 *Wireless*HART Transmitters (6-Run Version ONLY)

To configure wireless *Wireless*HART transmitters, click on the graphical representation of the IEC62591 module in the I/O Usage screen. This calls up the Wireless HART Configuration page.

	Vireless HA	RT Configur	ation
General Number 1 💌 Type None	Enable Current S	tatus Disabled	
HART Tag Device ID	0	Status Comm Device	0FF
Device Descriptor Message			
Battery Days		0	
PV Value Units	0	Span Zero Span	0

Figure 2-9. Wireless HART Configuration

Field <u>General</u>	Description
Number	Select the <i>Wireless</i> HART transmitter number (from 1 to 18).
Enable/Disable	Click Enable to activate communications with the transmitter or click Disable to turn off communications with the transmitter. When the communication state changes, the Current Status field updates to show the change, and the label on the button toggles to the opposite title.
Туре	Shows the transmitter type: DP = Differential Pressure SP = Static Pressure FT = Flowing Temperature MVT = Multi-Variable Transducer
HART	
Tag	Shows the tag name read from the <i>Wireless</i> HART transmitter.
Device ID	Shows the Device ID read from the <i>Wireless</i> HART transmitter.
<u>Status</u>	
Comm	Shows the <i>Wireless</i> HART communication status code. Valid codes are listed in <i>Table 2-1</i> .
Device	Shows the status code for the <i>Wireless</i> HART transmitter. Valid codes are listed in <i>Table 2-2</i> .
Device	
Descriptor	The descriptive text for this WirelessHART transmitter.
Message	The message text read from the <i>Wireless</i> HART transmitter.
Battery Days	Shows the number of days of battery life remaining.
PV	
Value	Shows the process value read from the <i>Wireless</i> HART transmitter.
Units	Shows the engineering units read from the <i>Wireless</i> HART transmitter for the given process value.
<u>Span</u>	
Zero	Shows the lowest value for the process variable read from the <i>Wireless</i> HART transmitter.
Span	Shows the value which, when added to the Zero value, represents the full range for the process variable read from the <i>Wireless</i> HART transmitter.

Notes:

- You must specify the Network ID and Join Key for the wireless network in a text file called whart_key.ini. The first four lines of the file represent the Join Key, the fifth line is the Network ID. Once you download the whart_key.ini file into the ControlWave Micro flash, Station Manager reads the file and then deletes it for added security. You use the Flash File Access utility in OpenBSI to download the whart_key.ini file into the ControlWave Micro flash.
- The information from the ini file is retained internally across cold starts so if you ever need to change these parameters, you must download a new whart_key.ini file.

12345678 00000000 00000000 00000000 13684

Figure 2-10. Sample WHART_KEY.INI file

2.3 Local DLM

Notes:

- The local Data Line Monitor (DLM) provides details about lowlevel communication messages sent through a selected serial port used by the Station Manager.
- Typically, you would only use the local DLM if you are a very advanced user and need to perform communication troubleshooting for a particular port.
- The local DLM only displays the first 80 characters of a message.
- The local DLM only captures messages approximately every half second, therefore, it can miss some messages.

Click the	Local DLM	button on the I/O tab to
activate th	ne Data Line Monitor function. T	he DLM includes the
following	fields:	

Field	Description
Monitor Port	Use the dropdown menu to select the ControlWave Micro serial communication port you want the DLM to monitor. Press [Enter] to save the selection. Note: After you collect the data, if you select "None" for the monitor port, you can copy data from the window to the clipboard. You can then paste this data into another file for off-line review.
TX Data	This read-only field shows the most recent message transmitted through this port.
RX Data	This read-only field shows the most recent message received through this port.
window	The window shows successive messages detected by the DLM. Most recent messages appear at the top; you can use the scroll bar to adjust the window to show earlier messages.

TX Data			0C0310	E80012437E]
RX Data]
46	TX>	0C031CE80012437E				~
45	TX>	05030160002C4471				_
44	TX>	0503003E0017658C				
	TX>	0C031CE80012437E				
42	TX>	05030160002C4471				
41	TX>	0503003E0017658C				
40	TX>	0C031CE80012437E				
	TX>	0C031CE80012437E				
38	TX>	05030160002C4471				
37	TX>	0503003E0017658C				
36	TX>	0C031CE80012437E				
35	TX>	05030160002C4471				
34	TX>	0503003E0017658C				
33	TX>	0C031CE80012437E				
32	TX>	05030160002C4471				
31	TX>	0503003E0017658C				
30	TX>	0C031CE80012437E				
29	TX>	05030160002C4471				
28	TX>	0503003E0017658C				
27	TX> TX>	0C031CE80012437E 0C03000600022517				
20						
20	TX> TX>	0C031CE80012437E 05030160002C4471				
24	TX>	0503003E0017658C				
23	TX>	0C031CE80012437E				
22	TX>					
21	TX>	05030160002C4471				
19	TX>	0503003E0017658C				
	TX>	0C031CE80012437E 05030160002C4471				
	TX>	0503003E0017658C				
10	TX>	0C031CE80012437E				
	TX>	0C0301960003E506				
	TX>	0C031CE80012437E				
	TX>	05030160002C4471				
	TX>	0503003E0017658C				
	TX>	0C031CE80012437E				
	TX>	05030160002C4471				
	TX>	0503003E0017658C				
9	TX>	0C031CE80012437E				
	ŤX>	0C031CE80012437E				
ľ	102	UCU31CE0U012437E				20

Figure 2-11. Local DLM

2.4 Customer Modbus Slave

Station Manager supports up to five customer Modbus slave sessions you can configure for the controller. The Station Manager controller then serves as a Modbus slave to those devices.

Click the Customer Modbus Slave button on the I/O tab to bring up the Customer Modbus Slave pages.

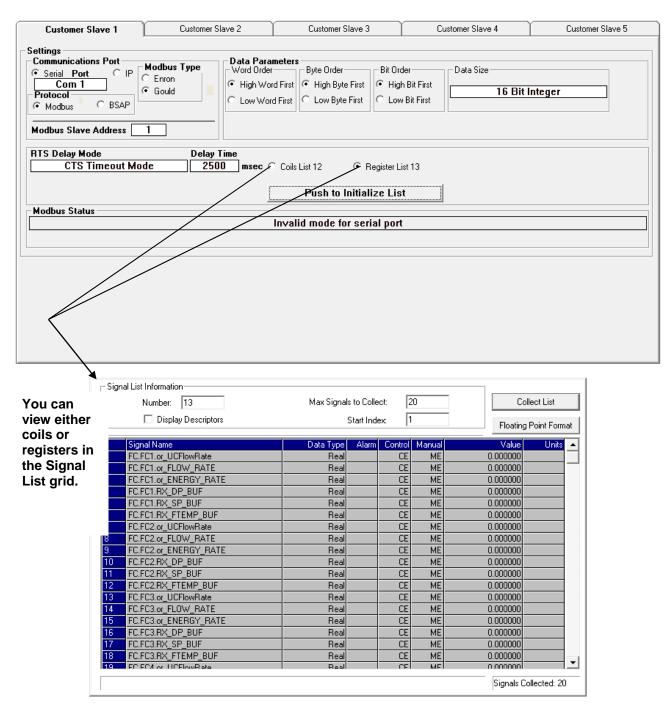


Figure 2-12. Customer Slave Page

These pages include the following fields:

Field	Description			
<u>Settings</u>				
Communications Port	Modbus communications can use either serial or IP communications.			
Serial	Click the Serial button to use serial Modbus communication, and specify the port you want to use. (See Port).			

Field	Description					
Port	Specify the serial communication port on the ControlWave Micro you want to use for Modbus slave					
		on. Use the following code:				
	Enter this:	To select this serial CW Micro port:				
	1	COM1				
	2	COM2				
	3	COM3				
	4	COM4				
	5	COM5				
	6	COM6				
	7	COM7				
	8	COM8				
	9	COM9				
	10	COM10				
	11 Draca (C enter)	COM11				
	Press [Enter	to save the selection.				
	Click the IP button to use IP Modbus (Open Modbu					
IP						
IP	Click the IP to communicati					
Protocol	communicati	on.				
Protocol	communicati	on. ton to configure Modbus				
Protocol Modbus	communicati Click this but communicati	on. ton to configure Modbus				
Protocol Modbus	communicati Click this but communicati	on. ton to configure Modbus on. ose this when configuring Modbus				
Protocol Modbus BSAP	Click this but communicati Do NOT cho communicati Enter the Mc address you either the SC any of the ot you will see a	on. ton to configure Modbus on. ose this when configuring Modbus on. dbus slave address. If the local slave enter has already been assigned to CADA Enron Modbus slave interface, o her Customer Modbus Slave sessions a Loc Addr Conflict message. Modify				
Protocol Modbus BSAP Modbus Slave Address	Click this but communicati Do NOT cho communicati Enter the Mo address you either the SC any of the ot you will see a the Modbus	on. ton to configure Modbus on. ose this when configuring Modbus on. dbus slave address. If the local slave enter has already been assigned to CADA Enron Modbus slave interface, o her Customer Modbus Slave sessions, a Loc Addr Conflict message. Modify				
Protocol Modbus BSAP Modbus Slave Address Modbus Type	Click this but communicati Do NOT cho communicati Enter the Mc address you either the SC any of the ot you will see a the Modbus the conflict.	on. ton to configure Modbus on. ose this when configuring Modbus on. dbus slave address. If the local slave enter has already been assigned to CADA Enron Modbus slave interface, o her Customer Modbus Slave sessions, a Loc Addr Conflict message. Modify Slave Address as required to resolve o communicate using Enron Modbus,				
Protocol Modbus BSAP Modbus Slave Address Modbus Type Enron	communicati Click this but communicati Do NOT cho communicati Enter the Mo address you either the SC any of the ot you will see a the Modbus the conflict.	on. ton to configure Modbus on. ose this when configuring Modbus on. obus slave address. If the local slave enter has already been assigned to ADA Enron Modbus slave interface, o her Customer Modbus Slave sessions a Loc Addr Conflict message. Modify Slave Address as required to resolve o communicate using Enron Modbus, ton.				
IP Protocol Modbus BSAP Modbus Slave Address Modbus Type Enron Gould Data Parameters	communicati Click this but communicati Do NOT cho communicati Enter the Mo address you either the SC any of the ot you will see a the Modbus the conflict.	on. ton to configure Modbus on. ose this when configuring Modbus on. obus slave address. If the local slave enter has already been assigned to ADA Enron Modbus slave interface, o her Customer Modbus Slave sessions, a Loc Addr Conflict message. Modify Slave Address as required to resolve b communicate using Enron Modbus, ton.				

Field	Description
High Word First	Click this to specify that the high word is first.
Low Word First	Click this to specify that the low word is first.
Byte Order	Choose the data byte order to match the data byte order used by the Modbus Master that communicates with this Modbus Slave.
High Byte First	Click this to specify that the high byte is first.
Low Byte First	Click this to specify that the low byte is first.
<u>Bit Order</u>	Choose the data bit order to match the data bit orde used by the Modbus Master that communicates with this Modbus Slave.
High Bit First	Click this to specify that the high bit is first.
Low Bit First	Click this to specify that the low bit is first.
Data Size	Select the appropriate data format for Modbus Register data from the drop down menu. The available selections are:
	Single Bit – Each Register will include a single bit
	Byte Data – Each Register will include a single byte
	16 Bit Integer – Each Register will include a single 16-bit integer
	32 Bit Int., 1 Reg., Cnt*1, Adr*1 – Each Register will include a 32-bit double integer.
	32 Bit Float, 1 Reg., Cnt*1, Adr*1 – Each Register will include a 32-bit floating point number
	32 Bit Int., 2 Reg., Cnt*2, Adr*2 – Two registers wi be used for each 32-bit double integer. The MODBUS Master must poll two registers for each 33 bit integer.
	32 Bit Float, 2 Reg., Cnt*2, Adr*2 – Two registers will be used for each 32-bit floating point number. The MODBUS Master must poll two registers for each 32 bit number.
	32 Bit Int., 2 Reg., Cnt*2, Adr*1 - Two registers wil be used for each 32-bit double integer. The MODBUS Master must poll a single register for each 32 bit integer.

Field	Description
	32 Bit Float, 2 Reg., Cnt*2, Adr*1 - Two registers will be used for each 32-bit floating point number. The MODBUS Master must poll a single register for each 32 bit number.
	Press [Enter] to save the selection. If you don't make a selection, the field shows Not Set
RTS Delay Mode	Select from one of two modes for the Ready-to-Sen (RTS) delay mode.
	Message Delay Mode - After the Modbus Slave por raises RTS, a delay timer starts. The length of the delay is determined by the value in the Delay Time field. No message is sent until after this delay expires. The value of CTS does not affect the operation of this mode.
	CTS Timeout Mode - After the Modbus slave port raises RTS, it uses the Delay Time value as the maximum time to wait for CTS to be received from the master. If the Modbus slave port receives CTS any time before this time expires, the port starts to transmit the message. If the Modbus slave port doe not receive a CTS from the master prior to the expiration of the Delay Time , it does not respond to the master and instead reports an error.
	Press [Enter] to save the selection.
Delay Time msec	Specify the Delay Time (in milliseconds) used by the RTS Delay Mode and CTS Timeout Mode .
Coils List 12	Each Modbus slave session has two dedicated lists one for Modbus Registers and the other for Modbus Coils. To display coils in the signal list grid, click this button. See <i>Section 2.4.1</i> for instructions on using the signal list grid.
Register List 13	Each Modbus slave session has two dedicated lists one for Modbus Registers and the other for Modbus Coils. To display registers in the signal list grid, clic this button. See <i>Section 2.4.1</i> for instructions on using the signal list grid.
Push to Initialize List / Initializing	Click Push to Initialize List to set all coils in list 12 to FALSE or all registers in list 13 to 0.0, depending upon which list you are viewing in the grid The button shows "Initializing" while this is in progress.
Modbus Status	This read-only field displays a status code indicating the health of the Modbus slave communications.

Field	Description
	The fields below are only visible when using BSAP protocol, which makes the ControlWave Micro running Station Manager into a BSAP slave.
BSAP Slave Address Modbus Status	The ControlWave Micro's BSAP slave address.
BSAP Server ID	Specify the ID for the server function block in your ControlWave Micro Station Manager application.
BSAP Send List 12	Click this to display the send list in the signal list grid. This list holds outgoing data sent to the BSAP master.
BSAP Receive List 13	Click this to display the receive list in the signal list grid. This list holds incoming data received from the BSAP master.
BSAP Status	Shows BSAP communication status messages.

2.4.1 Signal List Grid

The Signal List grid displays lists of variables included in the Station Manager application.

	Number: 13	Max Signal	s to Colle	et: 2	20	Co	ollect List
	🔽 Display Descriptors		Start Inde	ex: 1		Floating	Point Form
	Signal Name	Data Type	Alarm	Control	Manual	Value	Units
	FC.FC1.or_UCFlowRate	Real	Aidilli	CONTO	Mariuar	0.000000	Units
2	MR 001 F. Flow Bate	Real	AI	CE	ME	0.000000	MSCF/H
2	FC.FC1.or ENERGY RATE	Real	AI	CE	ME	0.000000	MJCI/II
<u>л</u>	FC.FC1.RX DP BUF	Real		CE	ME	210.000000	
5	FC.FC1.RX_SP_BUF	Real		CE	ME	879.000000	
6	FC.FC1.RX_FTEMP_BUF	Real		CE	ME	92.000000	
7	FC.FC2.or_UCFlowRate	Real		CE	ME	0.000000	
8	MR 001 R, Flow Rate	Real	Al	CE	ME	0.000000	MSCF/H
9	FC.FC2.or ENERGY RATE	Real		CE	ME	0.000000	
10	FC.FC2.RX_DP_BUF	Real		CE	ME	0.000000	
11	FC.FC2.RX_SP_BUF	Real		CE	ME	0.000000	
12	FC.FC2.RX_FTEMP_BUF	Real		CE	ME	0.000000	
13	FC.FC3.or_UCFlowRate	Real		CE	ME	0.000000	
14	Run 3, Flow Rate	Real	Al	CE	ME	0.000000	MSCF/H
15	FC.FC3.or_ENERGY_RATE	Real		CE	ME	0.000000	
16	FC.FC3.RX_DP_BUF	Real		CE	ME	0.000000	
17	FC.FC3.RX_SP_BUF	Real		CE	ME	0.000000	
18	FC.FC3.RX_FTEMP_BUF	Real		CE	ME	0.000000	
19	EC EC/Lor, LICElowBate	Raal		CE.	ME	n nnnnn n	

Figure 2-13. Signal List Grid Control

Field	Description
Signal List Information	The list window shows the contents of lists within the application.
Number	Specifies the number of the list. In some cases, pushing a button elsewhere on the page fills in this number; in other cases, you must enter a list number directly.
Max Signals to Collect	Specifies the number of list items to retrieve into the grid control. Depending upon how many list items are collected, you may need to use a scroll bar to view them.

Field	Description
Display Descriptors	If the application programmer configured descriptors for this list, check this box to view them instead of variable names in the Signal Name field.
Start Index	Normally, the signal list grid displays variables beginning with the first variable in the list. If you want to skip further into the list, enter the number of the first list item you want to see in this field, and the grid starts displaying from that item forward.
Collect List	Click this button to force the Signal List grid to collect the specified list now.
Floating Point Format	Click this to specify the Floating Point Format dialog box. See <i>Figure 2-14</i>
Signal Name	Shows the variable name for this list item, or its descriptor.
Data Type	Shows the variable type, such as Real or Boolean.
Alarm	If this variable is an alarm, and this shows "AI" it indicates the variable is alarm inhibited. If this shows "AE" it indicates that the variable is alarm enabled.
Control	If this shows "CI" it indicates the variable is control inhibited. If this shows "CE" it indicates that the variable is control enabled.
Manual	If this shows "MI" it indicates the variable is manual inhibited. If this shows "ME" it indicates that the variable is manual enabled.
Value	Shows the current value of the variable.
Units	Shows the engineering units (if specified) for this variable.
Signals Collected	Displays a count of the number of variables collected into the signal list grid.

2.4.2 Floating Point Format

The floating point format is the way floating point (real) numbers display within a screen in the Station Manager application.

To change this format, you click the Floating Point Format button on a page, to call up the Float Format dialog box.

Float Forma	t		×
Width	12	-	ОК
Precision	6	-	Cancel
Exponent	f	•	
Example:	123.4	56787	-

Figure 2-14. Floating Point Format dialog box

Field	Description
Width	Choose the total number of characters in the field (including the decimal point) used to display a floating point number.
Precision	Choose the number of places to the right of the decimal point which the floating point number should show.
Exponent	 Select one of these formats: e show number in exponential notation f show number in floating point notation g allow application to choose the "best fit" format for this number.
ОК	Click this to save your entries and exit the dialog box.
Cancel	Click this to discard your entries and exit the dialog box.

2.5 Ultrasonic Data

To access this page, click the Ultrasonic Data

The data displayed for the ultrasonic tests is not the raw Modbus data from the ultrasonic flow meter (UFM). The data is run through a filtering process before being displayed. The displayed data is the rolling output from the filtering process. The filtering process eliminates false alarms caused by variability in the process.

Customers have used the following UFMs with Station Manager:

- Daniel MARK III
- Instromet Q.Sonic 3/4/5/6 Path, CheckSonic 1/2 Path, CheckSonicVx 3/6 Path Series VI and S.Sonic Series III
- Sick Maihak FLOWSIC600

			Ultr	aso	nic ⁻	Test	s Ме	easu	red	Valu	es			
Device Settin	gs	Current S	tate	Port	Add	ress T	ime Out (m	s)*	Туре					
Number 1 👻	Enable	Disabl	ed l	Vone)	0		None					
	Com Select	Current M	ode	IP A	ddress	U	nits System	n Select	Current L	Jnits System				
	IP	Seria	I				SI Un			ial Units		* 0 :	default of 3	3000ms
Alarms		Consecuti		- ^	larm Delay					Auto Alarm		Data		
	Current State	Failures			ianii Deiay	Current St	ate Startuj	o Delav		Auto Alahii	Current State		+ Flow Cutof	if
Disable	Enabled	4.00	0.0	0	Disable	Enable	d 0.	.00 (Mi	nutes)	Enable	Disabled	Alarm	0.000	ft/s
					M Configurat	H	Y		FM Configu		, 	UFM Config	antina D	
_	UFM Status	_			M Configurat	ion i		U	FM Conrigu	uration 2		-	aration 3	
Meter Sta			Meter Perf									rprint Analysis		_
Me	ter Status 0			Vel	SoS	Gain	S/N	Perform	Binary		S1 Dif	0.000		
📕 Meter He	ad Config		Path 1	0.0	0.0	0	0	0	0	0.0	S2 Dif	0.000		
Filter Stati	istics	•	Path 2	0.0	0.0	0	0	0	0	0.0	S3 Dif	0.000		
	Comm % 0	- I 🗖	Path 3	0.0	0.0	0	0	0	0	0.0	S4 Dif	0.000		
			Path 4	0.0	0.0	0	0	0	0	0.0	S5 Dif	0.000		
	ble Flow % 0		Path 5	0.0	0.0	0	0	0	0		S6 Dif			
Meter Perfo	ormance % 0		Path 6	0.0	0.0		0	0	0	-		0.000		_
						<u> </u>		0						
UFM 1 Path Velo	ocities		Average	0.0	0.0]			
UEM 1 P	ath Velo	cities					One or mo	re values O	lut of Ba	nae	Swirl Angl			
	dal Velo	onaeo					0110 01 110			inglos.	Swirl Angle	0.0		
150.00-											Gas Profil	- Analusis		
150.00- 140.00-												V1 0.000		
130.00- 120.00-														
110.00-												V2 0.000		
100.00- 90.00-												V3 0.000		
80.00-												V4 0.000		
70.00-												V5 0.000		
60.00- 50.00-												V6 0.000		
	13:59	:55 14:0	14:08 14:0	02:19	14:03:29	14:04:40	14:05:51	14:07:02	14:08:1	2	Profile Fa	ctor 0.000		
											Symm Fa	ctor 0.000		-
Auto Scal	le Update	Graph Tim				Path 1	/el	0.000000			Cross Fa			
Range Limit		(Secon	L					0100000						_
100.	00	623	[Path 2	/el	0.000000			Zero Flw	Test 0.000		
Add Pen	Edit Graph	🔲 Flag C	hanges											
Additen						Path 31		0.000000						
						. 301 5		0.000000						
						Path 4	/el	0.000000						
						. 301 4		0.000000						
											1			

Figure 2-15. Ultrasonic Tests Measured Values page

Field	Description
Device Settings	If you are running the 6-run version of Station Manager, you will only have 6 items to choose from for many of these fields.
Number	Select the ultrasonic meter number for which you want to view status data.
Enable/Disable	Click Enable to enable communications from Station Manager to the specified UFM. Click Disable to disable communications to the specified UFM. Note: Whenever you change any communication settings, you must first disable communications; then when you've completed all communication setting changes, re-enable communications.
Current State	Shows the current enable/disable state of communications to the UFM.

Port	Use the dropdown menu to specify the ControlWave Micro serial communication port which connects to this UFM.
Address	Specify the address of the UFM.
Time Out	Specify the maximum length of time (in milliseconds) for a UFM to respond to the ControlWave Micro before a communication failure is declared. If you leave this value at 0 Station Manager uses a default timeout of 3000 ms (3 seconds).
Туре	Use the drop-down menu to select the type of UFM.
Com Select IP/Serial	Choose the method of communication to the UFM. Click IP to select IP communication or Serial to select serial communication.
Current Mode	Shows the current method of communication with the UFM, either Serial or IP.
IP Address	When communicating to the UFM via IP, enter its IP address here.
Generic Modbus (base 0) / Sick Modbus (base 1)	Click here to identify for Station Manager the Modbus base offset it should use wher collecting data from a Sick UFM. The buttor label indicates what offset you will use and the Current State updates to reflect your choice (Sick UFM only.)
Current State	Shows the current Modbus base offset Station Manager uses when collecting data from a Sick UFM. (Sick UFM only.)
Alarms	Alarms may be generated from the UFM.
Enable/Disable	Click Enable to turn on alarming for this UFM. Click Disable to turn off alarming for this UFM.
Current State	Shows whether alarming is currently enabled or disabled.
Consecutive Failures	Shows the number of consecutive failures required to trigger an alarm from the UFM.
Checksum	If checksum changes, some configuration change occurred.
<u>Delay</u>	You can optionally set up a delay period at the start of polling during which the system ignores alarms from the UFM.
Enable/Disable	Click Enable to apply a delay during which alarms are ignored at the start of polling.

	Click Disable to turn off the delay.
Current State	Shows whether the delay is enabled or disabled.
Startup Delay	Specifies the delay in minutes during which alarms from this UFM are ignored at the start of polling.
Auto Alarm	Based on velocity min and max values, the auto alarm chooses which ranges to use.
Enable/Disable	Click Enable to turn on the auto-alarm function.
	Click Disable to turn off the auto-alarm function.
Current State	Shows whether the auto-alarm function is currently enabled or disabled.
Data	
Valid	Shows the data valid alarm status from the UFM.
Low Flow Cutoff	Specifies a flow limit below which the data valid alarm is disabled.
UFM Status/Meter Status	
Meter Status	The results of the analysis are displayed as a binary number in the bottom left corner. The binary status is calculated as follows:
	Alarm Alarm 1 Meter performance orange alarm (at least one path orange)
	2 SoS fingerprint alarm
	4 SoS comparisons alarm
	8 Gas profile analysis alarm 16 Zero flow alarm
	32 Meter performance red alarm (at least one path red)
	64 ACF comparisons alarm
	128 Checksum alarm
Motor Hood Config	256 Modbus Comm % alarm The ControlWave polls the meter for the configuration
Meter Head Config	checksums and compares the checksum to values
	stored in the ControlWave. If the values do not match
	the appropriate checksum the light is set to red and the Meter Head Configuration Box light is set to red
Filter Statistics	The filter statistics section displays the results from the last output of the rolling data filter. The size of the filter is configurable and set on the UFM Configuration 1 tab. The filter should default to 20

	which means that the displayed data is the results of the last 20 communications to the meter.
Comm %	The Comm % illustrates the percent of successful Modbus communications to the meter during the last set of data. Stable flow yields good USM data analysis results.
	If the Comm % for any set of rolling filter data is less than the limit then the Comm % box is set to red and the Filter Statics Box light is set to red as shown below:
	Filter Statistics Comm % 63 Stable Flow % 92 Meter Performance % 100
Stable Flow %	The Stable Flow % illustrates the percent of the last set of data on which analysis was performed (see the SoS Fingerpirnt Analysis and Gas Profile Analysis boxes). Flow is considered stable when the average velocity from one poll to the next changes by less than 1 ft/s) and all the paths are OK, and the corrected gas velocity and SoS are OK.
Meter Performance %	The Meter Performance % illustrates the percent of the last set of data where all the path performances were good (Since Stable Flow % depends on Meter Performance %, Stable Flow must be less than or equal to Meter Performance %).
Meter Performance	The Meter Performance Box analyzes the meter's online diagnostics to determine the health of the mete (not the meter system.)
	For each data set that makes up a rolling filter, the path diagnostics are examined. If the path velocity or SoS is outside the limits or the path binary status indicates a failed path then that set of path data is discarded from the rolling filter results. After examining all the data sets the percentage of successful data is calculated and the successful path data processed.
	Colors are used to indicate the success/failure of individual path parameters and the health of the mete
	Green
	Indicates path data passed all tests.
	Orange
	Indicates a minor failure.
	Red
	Indicates a major failure. If the Meter Performance

	SoS Comparisons, and the Velocity Profile Analysis box lights are turned to grey and the interior values set to gray to indicate that the test is not being performed due to the failed meter performance.
Path n	If this path's data passes all the tests then the status light is set to green. If the path data fails a test then the status light turns orange and the offending parameter's box turns orange.
Vel	Shows the average velocity for this path. If this is outside the configured limits, data for this path is discarded from the rolling filter results.
SoS	Shows the average speed of sound for this path. If this is outside the configured limits, data for this path is discarded from the rolling filter results.
Gain	Shows the average gain for this path.
S/N	Shows the average signal to noise ratio for this path.
Perform	Shows the average performance for this path.
Binary	 0= Path is OK 1 = Path Gain above limit 2 = Path S/N below limit 4 = Path Turbulence above limit 8 = Path performance below performance limit The path binary status is set to a 16 if all the binary status in the rolling average indicated that the path is failed or all the velocities or SoS are outside the limits.
Turb	Shows the average turbulence for this path.
SoS Fingerprint Analysis	The SoS Fingerprint Analysis box displays the maximum difference between each path and all the other paths. For example, if there are four paths (S1 through S4) S1 Diff is the maximum of s1-s2, s1-s3, s1-s4, where the sign is kept. For example if s1-s2 = 0.23 and s1-s3 = -0.41 and s1-s4 = 0.11 the S1 Diff should be displayed as -0.41
Sn Diff	If the diff is positive the bar should be dark blue. It the difference is negative it should be light blue. If any of the differences are greater than the limit (the red line) then the SoS Fingerprint Analysis light is turned to red.
Swirl Angle	
Swirl Angle	This is gas profile data read from the UFM.
Gas Profile Analysis	The Gas Profile Analysis Box displays the path velocity ratios. The path ratios are calculated by dividing each path velocity by the average velocity calculated as follows:

- Daniel SS= (v1+v4)*0.1382 + (v2+v3)*0.3618
- Daniel X = (v1+v2+v3+v4)/4
- Sick = (v1+v4)*0.1382 + (v2+v3)*0.3618
- $Q5 = 0.85/3^{*}(v1+v3+v5)+0.15/2^{*}(v2+v4)$
- $Q3 = 0.15^{*}v2 + 0.85/2^{*}(v1 + v3)$

These equations are used to make the ratios independent of the flow calibration. For a Daniel SeniorSonic the Profile ratio, Symmetry ratio, and Cross flow are also displayed and tested. If a ratio fails the test then the ratio box light is turned to red and the Gas Profile Analysis Box light is also turned to red.

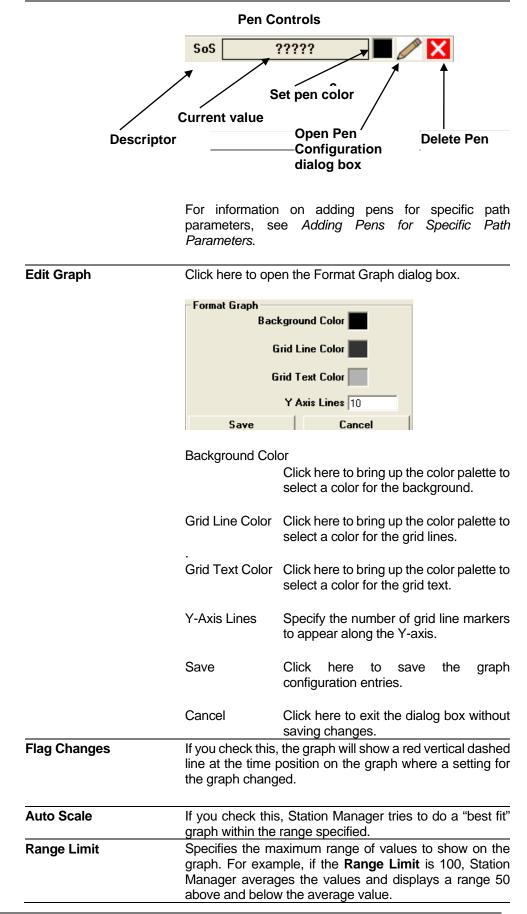
If any of the path velocities average less than 0.05 ft/s then the other velocities are tested to make sure they are also close to zero (check for zero bias). When this condition is true V1, V2, V3, V4 show the actual velocities (not the ratios described above) with positive velocities in dark blue and negative velocities in light blue. The velocities are then tested as follows:

- Daniel or Sick: if any velocity is less than 0.05 ft/s then the average of all four must be less than 0.1 ft/s
- Instromet: if any velocity is less than 0.05 ft/s then all the other velocities must be less than 0.1 ft/s

The average velocity in the Sick or Daniel Test or the maximum velocity calculated in the Instromet test is displayed in the box next to the Zero Flow Test and the value is graphically displayed with the limit.

Vn	•	e ratio of the path velocity to the r the actual path velocity if they all .05 ft/sec.
Profile Factor	Shows the profile fa	ctor of this UFM.
Symm Factor	Shows the symmetr	y factor of this UFM.
Cross Factor	Shows the cross fac	ctor of this UFM.
Zero Flw Test	Shows the zero flow	<i>t</i> test value for this UFM.
Graph		
None Path Velocities Add Graph Make Default Graph	The list box above operations:	the graph lets you perform various
Remove Graph	None	Do not show any graph.
NOTE: This list box applies to Station Manager 8-Run only.	Path Velocities	(Default) – Select this to show the path velocities.
	Add Graph	Choose a path and column heading (as you would when adding a pen) then select Add

		Graph to add a graph.
	Make a Default Graph	
	Remove Graph	To delete the current graph select Remove Graph .
		nager stores graph information in a te rerwritten each time you make a ne
Low Limit	Specify the minim the graph.	num value the system should display o
High Limit	Specify the maxin the graph.	mum value the system should display o
Graph Time Span	Allows you to sp displayed in the g	pecify the number of seconds of da graph window.
	Pen 3 Configuratio	Delete Pen
	Descriptor	
	Descriptor	Cancel
	Pen Color	Cancel Click here to bring up the color palette select a color for the pen.
	Pen Color Signal	Click here to bring up the color palette
	Pen Color Signal Descriptor	Click here to bring up the color palette select a color for the pen. Specify the name of the ControlWay variable which drives this pen; th
	Pen Color Signal Descriptor	Click here to bring up the color palette select a color for the pen. Specify the name of the ControlWay variable which drives this pen; th variable must have been marked PDD Optionally specify a name to appea next to this pen's controls undernea
	Pen Color Signal Descriptor Delete Pen Save	Click here to bring up the color paletter select a color for the pen. Specify the name of the ControlWay variable which drives this pen; th variable must have been marked PDD Optionally specify a name to appear next to this pen's controls undernear the graph.



Update

If you change the **Range Limit**, click the **Update** button to activate the new upper and lower limits. Station Manager only changes the limits on an update to prevent continually changing the upper and lower limits.

Adding Pens to the Graph for Specific Path Parameters

If there is a specific path parameter that you want to include on the graph, click the path name on the left of the Meter Performance area so it is highlighted, then click the desired parameter, so it is highlighted. This adds a pen to the graph for that variable.

	- Meter Perf	ormance —						
		Vel	SoS	Gain	S/N	Perform	Binary	Turb
	Path 1	0.0	0.0	0	0	100	0	0.0
	Path 2	0.0	0.0	1	0	100	0	0.0
	Path 3	0,0	0.0	1	0	100	0	0.0
	Path 4	0.0	0.0	1	0	100	0	0.0
/	Path 5	0.0	0.0	1	0	0	0	
	Average	0.0	0.0					

Click the path name, then click the parameter name to add a pen for that parameter to the graph.

Figure 2-16. Adding Pens

UFM Configuration 1

UFM Sta	us	UFM Configuratio	UFM Configuration 2
Filter Statistics			Gas Velocity Analysis
Comm % Mir	0]	Maximum Zero Flow Velocity 0.0
Monitor Count for Comm % Mir_	0	Push to Reset	Maximum Average Velocity Delta 0.0
-Velocity and SoS L			
sos	Min O	Max O	
Velocity	0	0	
UFM Sta	us	UFM Configuration	n 1) UFM Configuration 2
Comm % Min	0	7	Maximum Zero Flow Velocity 0.0
-		-	
Monitor Count for Comm % Min	0	Push to Reset	Maximum Average Velocity Delta 0.0
	imits		Maximum Average Velocity Delta 0.0
Comm % Min		Push to Reset Max 0	

Figure 2-17. UFM Configuration 1 page

Filter Statistics	
Comm % Min	Enter the minimum communication percentage setting for UFM statistics.
Monitor Count for Comm % Min	Specify the number of communication attempts used to calculate the communication percentage.
Push to Reset	Click here to reset the communication attempt counter to 0.
Gas Velocity Analysis	
Maximum Zero Flow Velocity	Enter the maximum zero flow velocity.
Maximum Average Velocity Delta	This is the alarm setting for the maximum difference (delta) of the average gas velocity between different paths.
Velocity and SoS Limits	These limits are used to check velocity and speed of sound.
SoS Min	Specify the minimum speed of sound alarm limit.
SoS Max	Specify the maximum speed of sound alarm limit.
Velocity Min	Specify the minimum velocity alarm limit.
Velocity Max	Specify the maximum velocity alarm limit.
Comm Failure Alarm Delay	If communication with this UFM fails, this field specifies the number of seconds the Station Manager application waits before generating a communication failure alarm.

UFM Configuration 2

UFM Status		Í	UFM Configu	aration 1		UFM	Configuratio	n 2	Ľ	UFM Con	figuration 3
	1	2	3	4	5	6	7	8	9	10	Alarm Limit
Velocity Ranges											_
Velocity Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Velocity Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000]
Meter Performance											
Outside Gain Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inside Gain Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S/N Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Performance Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Outside Turbulance Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inside Turbulance Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SoS Fingerprint Comparison											
Difference Max	?????	?????	?????	?????	?????	?????	?????	?????	?????	?????	0.000

Figure 2-18. UFM Configuration 2 page

Velocity Ranges	
Velocity Min	The columns represent velocity ranges and allow the user to tune the parameter limits to the velocity range. Velocity Min defines the lower end of the velocity range. The 10 ranges allow the user to select 5 ranges in both the positive and negative direction or 10 ranges in a single direction. If a parameter is left empty on the screens then the test should not be performed for that velocity range.
Velocity Max	The columns represent velocity ranges and allow the user to tune the parameter limits to the velocity range. Velocity Max defines the upper end of the velocity range. The 10 ranges allow the user to select 5 ranges in both the positive and negative direction or 10 ranges in a single direction. If a parameter is left empty on the screens then the test should not be performed for that velocity range.
Meter Performance	
Outside Gain Max	Define the maximum outside gain allowed for this UFM.
Inside Gain Max	Define the maximum inside gain allowed for this UFM.
S/N Min	Define the minimum signal to noise ratio for this UFM.
Performance Min	Define the minimum performance value for this UFM.
Outside Turbulence Max	Define the maximum outside turbulence for this UFM.

Inside Turbulence Max	Define the maximum inside turbulence for this UFM.
Alarm Limit	The current alarm limit in use for auto-alarm. If you disable auto-alarm, you enter your own alarm limit here.
SoS Fingerprint Comparison	_
Difference Max	The maximum allowable difference in the speed of sound fingerprint calculation.

UFM Configuration 3

UFM Status			UFM Configu	aration 1	I	UF№	1 Configuration	2	_	UFM Conf	iguration 3
	1	2	3	4	5	6	7	8	9	10	Alarm Limit
elocity Ranges											
Velocity Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Velocity Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000]
Velocity Profile											
Profile Factor Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Profile Factor Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Symmetry Factor Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Symmetry Factor Min	?????	?????	?????	?????	?????	?????	?????	?????	?????	?????	0.000
Cross Flow Factor Max	?????	?????	?????	?????	?????	?????	?????	?????	?????	?????	0.000
Cross Flow Factor Min	?????	?????	?????	?????	?????	?????	?????	?????	?????	?????	0.000

Figure 2-19. UFM Configuration 1 page

Velocity Ranges	
Velocity Min	The columns represent velocity ranges and allow the user to tune the parameter limits to the velocity range. Velocity Min defines the lower end of the velocity range. The 10 ranges allow the user to select 5 ranges in both the positive and negative direction or 10 ranges in a single direction. If a parameter is left empty on the screens then the test should not be performed for that velocity range.
Velocity Max	The columns represent velocity ranges and allow the user to tune the parameter limits to the velocity range. Velocity Max defines the upper end of the velocity range. The 10 ranges allow the user to select 5 ranges in both the positive and negative direction or 10 ranges in a single direction. If a parameter is left empty on the screens then the test should not be performed for that velocity range.
Velocity Profile	
Profile Factor Max	Specify the maximum profile factor for this UFM.
Profile Factor Min	Specify the minimum profile factor for this UFM.
Symmetry Factor Max	Specify the maximum symmetry factor for this UFM.
Symmetry Factor Min	Specify the minimum symmetry factor for this UFM.
Cross Flow Factor Max	Specify the maximum cross flow factor for this UFM.
Cross Flow Factor Min	Specify the minimum cross flow factor for this UFM.
Alarm Limit	Shows the current alarm limit in use.

2.6 Load/Save Configuration

The Load/Save Configuration function provides a way to save and restore Station Manager configuration files. It uses the ControlWave ScriptTool utility to launch various utilities to accomplish the read/write operations.

▲ Caution	Do not manually rename the files you save with the Load/Save function. Doing so may prevent the Load/Save function from recognizing the proper file type and could result in an invalid restore.
	Notes:
	 If you plan to restore arrays related to a UFM or GC RF you should restore the associated recipes for those arrays first before you attempt to restore the arrays. This ensures the control knows which arrays are available. If you restore arrays and recipes together in the same Load operation, the software restores them in the proper order for you.
	 If you plan to restore batch edits you should restore the associated recipes for the application first, before you attempt to restore the batch edits. If you restore batch edits and recipes together in the same Load operation, the software restores them in the proper order for you.
	 Depending on the version of Station Manager you are using, the number of items may vary (six for six runs, or eight for eight runs).
	 While a load/save operation is in progress, TechView is locked until the ScriptTool operation finishes or is stopped.
	Click the Load/Save Configuration button on the I/O tab to activate the Load/Save Configuration page.

To prevent confusion, the page is divided into two tabs, one for saving configuration files from the RTU, the other for loading configuration files into the RTU. Both tabs share most of the same fields.

File Save Path: C: VProgramData\Bristol\StationManager\SM_4_00\config Browss Site Name: TestSite Date Format: YYYYMDDHHNNSS Root Name: TestSite_20140430163405 Date Format: YYYYMDDHHNNSS Root Name: TestSite_20140430163405 Clear Y Flash Configuration File FCP FCP Browse: Batch Clear Y Batch edits Browse: TestSite_20140430163405.FCP Clear Y List 10 Recipe Feestite_20140430163405.pcP Clear Y List 10 Recipe Feestite_20140430163405_Lin01.arr Clear Y Ookrray Section Browse: TestSite_20140430163405_Lin02.arr Clear Y Moth Function Arrays Section Hin03.arr Browse: TestSite_20140430163405_Lin03.arr Clear Browse: TestSite_20140430163405_Lin02.arr Clear Browse: TestSite_20140430163405_Lin06.arr Clear M02.ar TestSite_20140430163405_Lin02.arr Clear Browse: TestSite_20140430163405_Lin06.arr Clear Browse: TestSite_20140430163405_Lin06.arr Clear Browse: TestSite_20140430163405_Lin06.arr Clear M03.ar	Save Configuration (From RTU)		Load Configuration (To	RTU)
File Save Path: C: VProgramData\Bristol/StationManager\SM_4_00\config Browss Site Name: TestSite Date Format: TypYYMMDDHHNNSS Root Name: TestSite_20140430163405 Date Format: TypYYMMDDHHNNSS Boot Project File Browss BootFile.PR0 Clear 7 Flash Configuration File Clear 7 Flash Configuration File Clear 7 Flash Configuration File Clear 7 Blooks: TestSite_20140430163405.FCP Clear 7 Blooks: TestSite_20140430163405.DEP Clear 7 Blooks: TestSite_20140430163405_Lin02.arr Clear 8 TestSite_20140430163405_Lin02.arr Clear 7 Fload RT Brows: TestSite_20140430163405_Lin02.arr Clear 8 Brows: TestSite_20140430163405_Lin03.arr Clear 8 Brows: TestSite_20140430163405_Lin04.arr Clear 8 Brows: TestSite_20140430163405_Lin05.arr Clear 8 Brows: TestSite_20140430163405_Lin06.arr Clear 8 Brows: TestS			Save	e Configuration
Site Name: TestSite Date Format: YYYMMDDHHNNSS Boot Name: TestSite_20140430163405 JAdvanced Configuration Boores Browse BootFile.PR0 Clear Y Y Flash Configuration File FCP Browse TestSite_20140430163405.FCP Clear Y Batch edits Book Browse Batch Clear Y List 10 Recipe FeetSite_20140430163405.Default8R_10_0.Clear FeetSite_20140430163405_Lin01.ar Clear Y Lobores TestSite_20140430163405_Default8R_10_0.Clear FeetSite_20140430163405_Lin02.ar Clear Y Lobores TestSite_20140430163405_Lin03.ar Clear FeetSite_20140430163405_Lin03.ar Clear Y Math Function Arrays Section FilofS.ar FeetSite_20140430163405_Lin04.ar Clear Browses TestSite_20140430163405_M03.ar Clear FilofS.ar FeetSite_20140430163405_Lin06.ar Clear M02.ar FeetSite_20140430163405_M03.ar Clear FilofS.ar FilofS.ar FilofS.ar FilofS.ar Browses TestSite_20140430163405_M03.ar Clear FilofS.ar FilofS.ar <td< th=""><th>-] File Settings</th><th></th><th></th><th></th></td<>	-] File Settings			
Date Format: YYYYMMDDHHNNSS Boot Protect File Format: Browse Browse Path Configuration File Clear Y Flash Configuration File Clear Y Batch edits Book Browse Batch J Standard Configuration Files Y Turbine Linearization Arrays Section P Lind 10, arr Deavies P Standard Configuration Files Y List 10, Bache Y List 10, Bache TestSite_20140430163405_Default88_10_0.0: Clear Y Loop Configuration Files Y List 10, Bache Y List 10, Bache TestSite_20140430163405_Lin02.arr Browse TestSite_20140430163405_M01.arr Clear Y Math Function Arrays Section Honey M02.arr Browse TestSite_20140430163405_M01.arr Clear Browse TestSite_20140430163405_M02.arr Clear Browse TestSite_20140430163405_Lin02.arr Clear M02.arr Browse TestSite_20140430163405_M03.arr Clear Browse TestSite_20140430163405_Lin06.arr Clear M03.arr FestSite_20140430163405_M03.arr Clear Browse TestSite_20140430163405_Lin06.arr Clear Browse TestSite_20140430163405_M03.arr Clear	File Save Path: C:\ProgramData\Bristol\StationManager\S	6M_4_0	D\config	Browse
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Flash Configuration File FCP Browse TestSite_20140430163405.FCP Clear * Batch Browse Batch Clear * Standard Configuration Files * Clipting Linearization Arrays Section Default87.10_80014.rcp Browse TestSite_20140430163405_Default88_10_0C Clear * Lin01.arr Clear * Lin02.arr * IO Array Section Browse Browse TestSite_20140430163405_Lin02.arr * M01.arr Browse Browse TestSite_20140430163405_Lin03.arr * M02.arr Browse Browse TestSite_20140430163405_M01.arr Browse TestSite_20140430163405_M02.arr Browse TestSite_20140430163405_M02.arr Browse TestSite_20140430163405_M03.arr Browse TestSite_20140430163405_M03.arr Browse TestSite_20140430163405_Lin06.arr Browse TestSite_20140430163405_Lin06.arr Browse TestSite_20140430163405_Lin06.arr Browse TestSite_20140430163405_Lin08.arr Browse TestSite_201404		lear		
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V List 10. Recipe Turbine Linearization Arrays Section Browse TestSite_20140430163405_Default8R_10_0; Clear Browse TestSite_20140430163405_Lin02.arr Clear Browse TestSite_20140430163405_M01.arr Clear M02.arr Browse TestSite_20140430163405_M01.arr Clear M02.arr TestSite_20140430163405_M01.arr Clear M02.arr TestSite_20140430163405_M01.arr Clear M02.arr TestSite_20140430163405_M02.arr Clear M02.arr TestSite_20140430163405_M03.arr Clear M03.arr TestSite_20140430163405_M03.arr Clear M04.arr Browse TestSite_20140430163405_M03.arr Clear M05.arr TestSite_20140430163405_M05.arr Clear TestSite_20140430163405_Lin06.arr Clear M05.arr TestSite_20140430163405_M05.arr Clear TestSite_20140430163405_Lin06.arr Clear M05.arr TestSite_20140430163405_M05.arr Clear TestSite_20140430163405_Lin08.arr Clear Browse TestSite_20140430163405_M05.arr Clear TestSite_20140430163405_Lin08.arr Clear M05.arr TestSite_201404301	Browse Batch	Clear		
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Figure 2-20. Load/Save Configuration – Save Configuration tab

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Figure 2-21. Load/Save Configuration – Load Configuration tab

Specify the folder on your PC where you want to save the files retrieved from the RTU.
Chause the site name as configured in the
Shows the site name as configured in the Status/Configuration pages of the measurement tab. The Site name and year format are used to create the default root filename.
Specify the date format you want to use. The field turns red if you make an invalid entry. This format and the site name are used to create the default root filename. If you don't want to include a date in the root filename, you can blank out this field.
Use the default root filename (made up of the site name and date format) or specify a different root filename here.
The Load Directory section applies only to the Load tab.
Specify the folder on your PC which contains the files you want to load into the RTU.
The boot project (BootFile.pro) is the ControlWave project boot file.

	 Note: By default, the boot project file is not checked to prevent you from accidentally overwriting an existing boot file on your RTU or on the PC. You must specifically check the box if you want to save or load it. On the Save Configuration tab: This field shows the name of the boot project residing in the RTU. Check the box [☞] if you want to save the boot project when you save the configuration. If you don't want to save the bootproject when you save the configuration, either uncheck the section, or click ^{Clear} to erase the name. If you want to restore the name you cleared, click ^{Load}. On the Load Configuration tab: This field shows the path and name of the boot project residing on your PC that you want to load into the RTU. You can use the Browse button to locate and specify the file. Check the box [☞] if you want to load the boot project when you load the configuration. If you don't want to load the bootproject when you load the configuration.
Flash Configuration File	 The flash configuration profile (*.FCP) file holds various configuration parameters for the ControlWave. On the Save Configuration tab: This field shows the name of the FCP file residing in the RTU. Check the box [☞] if you want to save the FCP file when you save the configuration. If you don't want to save the FCP when you save the configuration, either uncheck the box, or click Clear to erase the name. If you want to restore the name you cleared, click Load. On the Load Configuration tab: This field shows the path and name of the FCP file residing on your PC that you want to load into the RTU. You can use the Browse button to locate and specify the file. Check the box [☞] if you want to load the FCP file when you load the configuration. If you don't want to load the FCP file when you load the configuration.
Batch edits	Batch edits refers to a file of changes which occur together. If you are restoring individual sections, always restore recipe files before you restore batch edits.

 name of the batch edits file residing in the RTU. Check the box ^p if you want to save the batch edits file when you save the configuration, either uncheck the box, or click <u>level</u> to erase the name. If you want to restore the name you cleared, click <u>level</u>. On the Load Configuration tab: This field shows the path and name of the batch edits file residing on you PC that you want to load the batch edits file residing on you PC that you want to load into the RTU. You can use the <u>level</u> button to locate and specify the file. Check the box ^p if you want to load the batch edits file when you load the configuration. If you don't want to load the batch edits file when you load the configuration. If you don't want to restore the name you cleared, click <u>level</u>. Standard Configuration Files List 10 Recipe The List 10 recipe specifies several important Station Manager parameters. If you are restoring individua sections separately, you need to restore this recipe before you restore UFM arrays, GC RF arrays, or batch edits. On the Save Configuration tab: This field shows the name of the List 10 recipe file when you save the configuration. If you don't want to asave the List 10 recipe file when you save the configuration. If you don't want to restore the name you cleared, click <u>level</u>. 		
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 name of the IO array file residing in the RTU. Check the box if you want to save the IC array file when you save the configuration. 		Manager parameters. If you are restoring individual sections separately, you need to restore this recipe before you restore UFM arrays, GC RF arrays, or
		 name of the List 10 recipe file residing in the RTU. Check the box if you want to save the List 10 recipe file when you save the configuration. If you don't want to save the List 10 recipe file when you save the configuration, either uncheck the box, or click <u>Clear</u> to erase the name. If you want to restore the name you cleared, click <u>Load</u>. On the Load Configuration tab: This field shows the path and name of the List 10 recipe file residing on your PC that you want to load into the RTU. You can use the <u>Browse</u> button to locate and specify the file. Check the box if you want to load the List 10 recipe file when you load the configuration. If you don't want to load the List 10 recipe file when you load the configuration.
	IO Array Section	 Check the box v if you want to save the List 10 recipe file when you save the configuration. If you don't want to save the List 10 recipe file when you save the configuration, either uncheck the box, or click <u>lear</u> to erase the name. If you want to restore the name you cleared, click <u>load</u>. On the Load Configuration tab: This field shows the path and name of the List 10 recipe file residing on your PC that you want to load into the RTU. You can use the <u>Browse</u> button to locate and specify the file. Check the box v if you want to load the List 10 recipe file when you load the configuration. If you don't want to load the List 10 recipe file when you load the configuration. If you don't want to load the List 10 recipe file when you load the configuration. If you don't want to restore the name you cleared, click <u>load</u>.

	you save the configuration, either unchec the box, or click <u>Clear</u> to erase the name. you want to restore the name you cleared click <u>Load</u> . <u>the Load Configuration tab</u> : This field shows the path and name of the IO array file residing on your PC that you want to load into the RTU. You can use the Browse button to locate and specify the file. • Check the box ^{IC} if you want to load the IC array file when you load the configuration. • If you don't want to load the IO array file when
	you load the configuration, either uncheck the box, or click Clear to erase the name. If you want to restore the name you cleared, clic Load
Math Function Arrays Section	On the Save Configuration tab: These fields show the names of the math function array files residing i the RTU.
	 Check the box if you want to save all (a some) of the math function array files whe you save the configuration. If there are one or more math function array files you don't want to save, but you ar saving at least one, click Clear to erase th name of any math function array file you don want to save. If you want to restore the name you cleared, click Load. On the Load Configuration tab: These fields show the paths and names of the math function array file residing on your PC that you want to load into the RTU. You can use the Prove buttons to locate an specify each file. Check the box if you want to load one or more of the math function array files when you load the configuration. If you don't want to load one or more of the math function array files when you load the configuration. If you don't want to load one or more of the math function array files when you load the configuration.
Turbine Linearization Array	s The linearization configuration arrays are used wit
Section	turbine meters. On the Save Configuration tab: These fields show the names of the turbine linearization array file residing in the RTU.
	 Check the box I if you want to save all (or some) of the turbine linearization array file when you save the configuration. If there are one or more turbine linearizatio array files you don't want to save, but you ar

	you don't want to save. If you want to restor
	the name you cleared, click Load.
	On the Load Configuration tab: These fields show
	the paths and names of the turbine linearization arra
	files residing on your PC that you want to load into th
	RTU. You can use the Browse buttons to locate an
	specify each file.
	 Check the box ^I if you want to load one of
	more of the turbine linearization array file when you load the configuration.
	 If you don't want to load one or more of th turbine linearization array files when you loa
	the configuration, click Clear to erase it
	name. If you want to restore the name yo
	cleared, click Load.
	On the Save Configuration tab: This field shows th
GC Array Section	name of the gas chromatograph (GC) array fil
	residing in the RTU.
	 Check the box ^I if you want to save the G^I
	array file when you save the configuration.
	 If you don't want to save the GC array fil
	when you save the configuration, eithe
	uncheck the box, or click Clear to erase the
	name. If you want to restore the name yo
	cleared, click Load.
	On the Load Configuration tab: This field shows th
	path and name of the GC array file residing on you
	PC that you want to load into the RTU. You can us
	the Browse button to locate and specify the file.
	 Check the box E if you want to load the G
	array file when you load the configuration.
	 If you don't want to load the GC array fil
	when you load the configuration, eithe
	uncheck the box, or click Clear to erase th
	name. If you want to restore the name yo
	cleared, click Load.
UFM Arrays Section	The UFM arrays are used with ultrasonic flow meters
	If you are restoring individual sections, always restor
	recipe files before you restore UFM arrays.
	On the Save Configuration tab: These fields show
	the names of the UFM array files residing in the RTU
	 Check the box if you want to save all (or
	some) of the UFM array files when you sav
	the configuration.
	 If there are one or more UFM array files yo deptement to some but you are applied at least
	don't want to save, but you are saving at leas
	one, click Clear to erase the name of any UFI
	array file you don't want to save. If you war
	to restore the name you cleared, click
	On the Load Configuration tab: These fields show

On the Load Configuration tab: These fields show

	 the paths and names of the UFM array files residing on your PC that you want to load into the RTU. You can use the Browse buttons to locate and specify each file. Check the box ^I if you want to load one o more of the UFM array files when you load the configuration. If you don't want to load one or more of the UFM array files when you load the configuration, click Clear to erase its name. I you want to restore the name you cleared click Load.
GC RF Arrays Section	The GC RF arrays are used with gas chromatographs If you are restoring individual sections, always restore recipe files before you restore GC RF arrays.
	 On the Save Configuration tab: These fields show the names of the GC RF array files residing in the RTU. Check the box ^I if you want to save all (o some) of the GC RF array files when you
	 save the configuration. If there are one or more GC RF array files you don't want to save, but you are saving at leas one, click Clear to erase the name of any GC RF array file you don't want to save. If you want to restore the name you cleared, click Load
	On the Load Configuration tab: These fields show the paths and names of the GC RF array files residing on your PC that you want to load into the RTU. You can use the Browse buttons to locate and specify each file.
	 Check the box if you want to load one o more of the GC RF array files when you load the configuration.
	 If you don't want to load one or more of the GC RF array files when you load the configuration, click Clear to erase its name. you want to restore the name you cleared click Clear.
Save Configuration	Click this button to save the specified files on your PC See Section 2.6.1 for more information.
Load Configuration	Click this button to load the specified files into the RTU.

2.6.1 Save Configuration (From RTU)

The Save Configuration (From RTU) tab lets you save the ControlWave boot project, flash configuration profile (FCP) file, as well as various array files and recipe files used by the Station Manager application.

- **1.** Go to the Save Configuration (From RTU) tab.
- 2. To view the items to be saved in a section, click "+" to expand that section.
- **3.** Use the **Browse** button in the **File Save Path** field to specify the path on your PC where you want to save the configuration files.
- **4.** Optionally use the **Year Format** field to specify the date format used in the root filenames which you will save.
- **5.** Optionally edit the **Root Name** to specify the base filename used for the configuration files which you will save.
- 6. If you want to save the boot project, FCP, and batch edit files, go to the **Advanced Configuration** box, and check those files.
- **7.** In the **Standard Configuration Files** section check the box for any groups of files you want to save.
- 8. If there are certain files in a group that you do **not** want to save, and they don't have their own check box for you to un-check, click the **Clear** button for each of the files you don't want to save; this erases their name so they won't be saved at the PC. If you accidentally clear the wrong one, click **Load** to restore its name.
- **9.** Click the **Save Configuration** button. This activates the ControlWave ScriptTool which in turn sequentially retrieves all of the specified files from your RTU, and saves them on your PC.
- **Note:** Depending upon which files you choose to save, this process could take several minutes. Allow the ScriptTool to run by itself until the script finishes.

▲ Caution

Once you've saved the files, do not manually rename them (for example, in Windows Explorer). Doing so may prevent the Load/Save function from recognizing the proper file type and could result in an invalid restore.

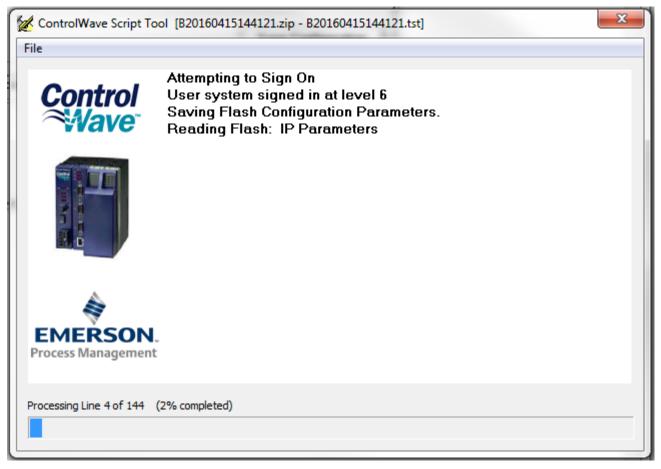


Figure 2-22. ControlWave ScriptTool Performs File Save Operations

2.6.2 Load Configuration (To RTU)

The Load Configuration (To RTU) tab lets you load the ControlWave boot project, flash configuration profile (FCP) file, as well as various array files and recipe files used by the Station Manager application into the ControlWave Micro controller. This is useful if, for example, you took the controller out of service to replace a component and now you want to restore its configuration.

- **Note:** If you restore multiple files, the software restores them in the proper order for you. If you choose to restore individual files separately, be sure you always restore recipes prior to restoring batch edits, GC RF arrays, or UFM arrays.
- 1. In the Load Directory field, use the Browse button to specify the folder on your PC which contains the files you want to load into the RTU. Alternatively, you can choose an existing ZIP file containing configuration files. In either case, the utility automatically populates fields based on the contents of the folder or ZIP file. If a section is unchecked, it won't be populated. If filenames don't match the expected name pattern, they are highlighted in red; this could indicate a potential mismatch in file types.

- 2. Click "+" to expand any sections into which you want to load individual files. You must expand a section to load all files in a section. If a section is unchecked, no files will be loaded from that section.
- **3.** If you want to load the boot project (*.PRO), flash configuration profile files (*.FCP), and batch edit files, go to the **Advanced Configuration** box and check those files.
- **4.** In the **Standard Configuration Files** section check the box for any group of files you want to load.
- 5. If there are certain files in a group that you do **not** want to load, and they don't have their own check box for you to un-check, click the **Clear** button for each of the files you don't want to load; this erases their name so they won't be saved at the PC. If you accidentally clear the wrong one, click **Load** to restore its name.
- 6. Click the Load Configuration button. This activates the ControlWave ScriptTool which in turn sequentially retrieves all of the specified files from the Load Directory on your PC (or from the zip file) and loads them into the RTU. If you are restoring advanced files, you will be required to provide a valid user/password combination.

Notes:

- Depending upon which files you choose to save, this process could take several minutes. Allow the ScriptTool to run by itself until the script finishes. The screen updates to show the progress of the script.
- ScriptTool always loads the recipe files first. When loading individual sections separately, you must load recipes before loading GC RF arrays, UFM arrays, or batch edits.

2.7 Generic Modbus Master

Click the Generic Modbus Master button on the I/O tab to activate the Generic Modbus page. There are multiple pages for Modbus Master 1 (MB1) to Modbus Master 5 (MB5). You click on a tab to call up the appropriate Modbus Master.

Generic MB 1	Generic MB 2	Generic MB 3	Generic MB 4	Generic MB 5
Settings Communications Port Serial Port None Protocol Modbus C BS Modbus Slave Addres	IP IP Address Word C High AP C Low	Word First O High Byte First O H	High Bit First	t Set
RTS Delay Mode Message Dela	· · · · · · · · · · · · · · · · · · ·		msec Register 0	Included Register 0 Count
Disabled	Status	Disabl	ed	

	Number: 31	Max Signal	s to Colle	et 5	iO	Collect List
	Display Descriptors		Start Ind	ex: 1		Floating Point Forma
	Signal Name	Data Type	Alarm	Control	Manual	Value Units
1	GM.GMBM_1.REG_1	Real		CE	ME	0.000000
2	GM.GMBM_1.REG_2	Real		CE	ME	0.000000
3	GM.GMBM_1.REG_3	Real		CE	ME	0.000000
4	GM.GMBM_1.REG_4	Real		CE	ME	0.000000
5	GM.GMBM_1.REG_5	Real		CE	ME	0.00000
6	GM.GMBM_1.REG_6	Real		CE	ME	0.00000
7	GM.GMBM_1.REG_7	Real		CE	ME	0.000000
8	GM.GMBM_1.REG_8	Real		CE	ME	0.000000
9	GM.GMBM_1.REG_9	Real		CE	ME	0.00000
10	GM.GMBM_1.REG_10	Real		CE	ME	0.000000
11	GM.GMBM_1.REG_11	Real		CE	ME	0.000000
12	GM.GMBM_1.REG_12	Real		CE	ME	0.000000
13	GM.GMBM_1.REG_13	Real		CE	ME	0.000000
14	GM.GMBM_1.REG_14	Real		CE	ME	0.000000
15	GM.GMBM_1.REG_15	Real		CE	ME	0.000000
16	GM.GMBM_1.REG_16	Real		CE	ME	0.000000
17	GM.GMBM_1.REG_17	Real		CE	ME	0.000000
18	GM.GMBM_1.REG_18	Real		CE	ME	0.000000
19	GM GMBM 1 REG 19	Raal		CE	ME	n nnnnnn 🛛 🕹 .

Figure 2-23. Generic Modbus Master

This page includes the following fields:

Field <u>Settings</u>	Description
Communications Port	Modbus communications can use either serial or IP communications.
Serial	Click the Serial button to use serial Modbus communication, and specify the port you want to use. (See Port).

Field	Description	
Port	ControlWave	erial communication port on the Micro you want to use for Modbus nunication. Use the following code:
	Enter this:	To select this serial CW Micro port:
	1	COM1
	2	COM2
	3	COM3
	4	COM4
	5	COM5
	6	COM6
	7	COM7
	8	COM8
	9	COM9
	10	COM10
	11	COM11
	Press [Enter]	to save the selection.
IP	Click the IP b communication	outton to use IP Modbus (Open Modbus on.
IP Address		o use IP Modbus (Open Modbus), enter as of the port used by this master.
Protocol		· · · ·
Modbus	Click this but communication	ton to configure Modbus on.
BSAP	Do NOT choo communicatio	ose this when configuring Modbus on.
Data Parameters		
Word Order		lata word order to match the data word y the Modbus Slave that communicates bus Master.
High Word First	Click this to s	specify that the high word is first.
Low Word First	Click this to s	specify that the low word is first.
		lata byte order to match the data byte y the Modbus Slave that communicates
Byte Order	with this Mod	

Field	Description
Low Byte First	Click this to specify that the low byte is first.
<u>Bit Order</u>	Choose the data bit order to match the data bit order used by the Modbus Slave that communicates with this Modbus Master.
High Bit First	Click this to specify that the high bit is first in a byte of data
Low Bit First	Click this to specify that the low bit is first in a byte data.
Data Size	Select the appropriate data format for Modbus Register data from the drop down menu. The available selections are:
	Single Bit – Each Register will include a single bit
	Byte Data – Each Register will include a single byt
	16 Bit Integer – Each Register will include a single 16-bit integer
	32 Bit Int., 1 Reg., Cnt*1, Adr*1 – Each Register will include a 32-bit double integer.
	32 Bit Float, 1 Reg., Cnt*1, Adr*1 – Each Register will include a 32-bit floating point number
	32 Bit Int., 2 Reg., Cnt*2, Adr*2 – Two registers w be used for each 32-bit double integer. The MODBUS Master must poll two registers for each 3 bit integer.
	32 Bit Float, 2 Reg., Cnt*2, Adr*2 – Two registers will be used for each 32-bit floating point number. The MODBUS Master must poll two registers for each 32 bit number.
	32 Bit Int., 2 Reg., Cnt*2, Adr*1 - Two registers wi be used for each 32-bit double integer. The MODBUS Master must poll a single register for eac 32 bit integer.
	32 Bit Float, 2 Reg., Cnt*2, Adr*1 - Two registers will be used for each 32-bit floating point number. The MODBUS Master must poll a single register for each 32 bit number.
	Press [Enter] to save the selection. If you don't make a selection, the field shows Not Se
Function Code	Select the Modbus function from the drop-down men

Field	Description
	Function Code
	Read Coil Status
	Read Coil Status Read Input Status Read Holding Registers
	Read Input Registers Force Single Coil Preset Single Register Read Exception Status Force Multiple Coils Preset Multiple Registers
	Press [Enter] to save the selection.
Modbus Slave Address	Enter the Modbus slave address. If the local slave address you enter has already been assigned to either the SCADA Enron Modbus slave interface, or any of the other Customer Modbus Slave sessions, you will see a Loc Addr Conflict message. Modify the Modbus Slave Address as required to resolve the conflict.
RTS Delay Mode	Select from one of two modes for the Ready-to-Send (RTS) delay mode.
	Message Delay Mode - After the Modbus Master port raises RTS, a delay timer starts. The length of the delay is determined by the value in the Delay field. No message is sent until after this delay expires. The value of CTS does not affect the operation of this mode.
	CTS Timeout Mode - After the Modbus Master port raises RTS, it uses the Delay value as the maximum time to wait for CTS to be received from the slave. If the Modbus Master port receives CTS at any time before this time expires, the port starts to transmit the message. If the Modbus master port does not receive a CTS from the slave prior to the expiration of the Delay it does not respond to the slave and instead reports an error.
	Press [Enter] to save the selection.
Delay msec	Specify the Delay (in milliseconds) used by the RTS Delay Mode and CTS Timeout Mode . Press [Enter] to save the selection.
Time Out msec	Specify the time (in milliseconds) that the Modbus master must wait for a response from the Modbus slave before the master declares that the slave timed out. Press [Enter] to save the selection.
Collection Rate msec	Specify the interval (in milliseconds) between poll attempts by the Modbus master. Press [Enter] to save the selection.

Field	Description
Start Register	Specify the starting address for coil or register operations. The address transmitted to the Slave is one less than the value specified here. For example, the address 7031 is sent as 7030 for Function code 3. Press [Enter] to save the selection.
Register Count	Specify the number of coils or registers the Master should read. The value can range from 1 to 2000 for coils or 1 to 125 for 16-bit registers, or 1 to 62 for 32- bit registers. Press [Enter] to save the selection.
Disabled/Enabled	If this shows Disabled , click on it to enable the Modbus Master.
Status	This read-only field displays a message regarding the health of the Modbus master communications.
BSAP Parameters	The fields below are only visible when using BSAP protocol, which makes the ControlWave Micro running Station Manager into a BSAP master.
BSAP Server ID Status	Specify the number of the Server function block in the BSAP slave.
Mode	Choose Read Only if you only want to receive data from the slave; choose Write Only if you only want to send data to the slave; choose Read/Write if you want to read and write.
Time Out	Specify how long (in tenths of seconds) to wait for a response from the Server function block in the BSAP slave.
Send List	Specify the number of the send list here.
BSAP Server List #	Shows the number of the list in the BSAP slave from which data is sent/received.
Item Count	Not applicable in BSAP mode
BSAP Slave Address	The BSAP slave address of the slave device.
BSAP Receive List	Click this to display the receive list in the signal list grid. This list holds incoming data received from the BSAP slave.
BSAP Send List	Click this to display the send list in the signal list grid. This list holds outgoing data sent to the BSAP slave.

Click the

2.8 Time Set/Daylight Saving Time

open the Time Set/Daylight Saving Time page. Current RTU Date and Time 12/08/2010 11:11:39 **Clear Registers** Current PC Date and Time 12/08/2010 11:11:39 Load Registers with the RTUs Date/Time Load Registers with the PCs Date/Time > 1977 Year 2010 Month 1...12 12 Day 8 1 ... 31 0...23 Hour 11 Minutes 0...59 8 Seconds 6 0...59 Set RTU Date/Time with Register Values Month Sunday Month Sunday March Second November First Beginning Date Ending Date March 14, 2010 02:00:00 November 7, 2010 02:00:00 Daylight Saving Time Disabled Current Time State Standard Time

button on the I/O tab to

Time Set/Daylight Saving Time

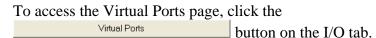
Figure 2-24. Time Set/Daylight Saving Time page

Field	Description
Current RTU Date and Time	This read-only field shows the current date and time setting at the controller.
Current PC Date and Time	This read-only field shows the current date and time at the PC workstation.
Clear Registers	Click this button to set all six time registers (Year , Month, Day, Hour, Minutes and Seconds) to zero.
Load Registers with the RTUs Date/Time	Click this button to store the controller time in the six time registers.
Load Registers with the PCs Date/Time	Click this button to store the PC workstation time in the six time registers.
Year	This time register holds a year value. You can set it by typing in a value, or you can load it by one of the buttons.
Month	This time register holds a month value. You can set it by typing in a value, or you can load it by one of the buttons.

Field	Description
Day	This time register holds a day value. You can set it by typing in a value, or you can load it by one of the buttons.
Hours	This time register holds an hour value. You can set it by typing in a value, or you can load it by one of the buttons.
Minutes	This time register holds a minute value. You can set it by typing in a value, or you can load it by one of the buttons.
Seconds	This time register holds a seconds value. You can set it by typing in a value, or you can load it by one of the buttons.
Set RTU Date/Time with Register Values	Click this button to update the controller's date and time with the values currently in the time registers.
Daylight Saving Time	
Beginning Date	Shows the calculated beginning date for daylight saving time, based on the Month and Sunday rules defined above it.
Month	Select the month in which Daylight Saving Time starts here. Press [Enter] to save your selection.
Sunday	Select the Sunday of the month at which Daylight Saving Time starts here. Press [Enter] to save your selection.
Ending Date	Shows the calculated ending date for daylight saving time, based on the Month and Sunday rules defined above it.
Month	Select the month in which Daylight Saving Time ends here. Press [Enter] to save your selection.
Sunday	Select the Sunday of the month at which Daylight Saving Time ends here. Press [Enter] to save your selection.
Daylight Saving Time Enabled/Disabled	Click this button to toggle between Daylight Saving Time and Standard Time.
Current Time State	This read-only field displays the time state setting to show whether you are in Daylight Saving Time or Standard Time based on the other entries on the page.

2.9 Virtual Ports

UFMs can optionally communicate using virtual ports. A virtual port is a software construct that re-directs messages out an IP port. This allows you to use a terminal server for a communication port. This can be useful when you're working with UFMs, chromatographs, or other third-party devices.



	Vir	tual Po	orte
	VII		л t5
-Virtual Port - 1			
Status	Port	Active	Receive Counts Transmit Counts
-23004	129	ON	0 0
IP Destination	Protocol		
	BSAP Slave	ASCII]
	Poll Period		-
	(seconds)		
	U		
-Virtual Port - 2			
Status	Port	Active	Receive Counts Transmit Counts
-23004	130	ON	0 0
IP Destination	Protocol		
	BSAP Slave	ASCII]
	Poll Period		
	(seconds)		
	U		
-Virtual Port - 3			
Status	Port	Active	Receive Counts Transmit Counts
-23004	131	ON	0 0
IP Destination	Protocol		
	BSAP Slave	ASCII]
	Poll Period		
	(seconds)		
-Virtual Port - 4			
Status	Port	Active	Receive Counts Transmit Counts
-23004	132	ON	0 0
IP Destination	Protocol		
	BSAP Slave	ASCII	
	Poll Period		-

Figure 2-25. Virtual Ports page

Field	Description
Virtual Port n	
Status	Shows the virtual port status code. See the ControlWave Designer online help for VIRT_PORT function block to see what these codes mean.
Port	Shows the virtual port number.
Active	Shows whether the virtual port is currently active.
Receive Counts	Shows a count of messages received on the virtual port.
Transmit Counts	Shows a count of messages transmitted on the virtual port.
IP Destination	Shows the IP address of the remote destination.
Protocol	Shows the communication protocol in use on the virtual port.
Poll Period (Seconds)	Shows the polling period in seconds for the virtual port.

2.10 User Defined Screen

This section discusses the mechanics of developing custom TechView screens. You can add or view screens that display signal data to the TechView Session. You can make custom screens with any PDD signal from the Station Manager Application Load.

To create your own customized Station Manager screens, you need the following tools:

<u>Web page editor (HTML)</u> – You can use any standard HTML development environment (Dreamweaver, Microsoft Visual Web Developer 20xx Express Edition, etc.) to develop TechView Web pages.

<u>JavaScript</u> – You can use any standard JavaScript development environment (Dreamweaver, Microsoft Visual Web Developer 20xx Express Edition, etc.) to develop the JavaScript used in the TechView Web pages.

<u>WebBSI SignalView Grids</u> – Use **SigGen_*.js** (an Emerson-provided helper tool) to configure tables of WebBSI SignalView grids. This configures the tables and creates the SignalView ActiveX controls using a comma separated variable (CSV) file as the source for defining the contents of each cell within a table.

Using this tool provides a level of consistency between developers in the way tables are laid out, the appearance of the tables, and defaults for the WebBSI SignalView controls.

Note: You can locate the *.js, *.htm, and *.css files referenced in this appendix in your Station Manager folder.

To access the User Defined Screens page, click the

User Defined Screen button on the Measurement tab.

Note: See *Chapter 6* for information on using the legacy User Defined Screen feature.

Web Page Development Tutorial

This section is a tutorial to introduce the techniques used to build the TechView Web pages.

For this tutorial, we are going to build a simple display with a table of data that will look this when we are done:

User Al Point	Value	User Al Point	Value	User Al Point	Value	
Jser Al 1	0.000000	User AI 2	0.00000	User AI 3	0.000000	
Jser Al 4	0.000000	User AI 5	0.00000	User AI 6	0.000000	
Jser Al 7	0.000000	User AI 8	0.00000	User Al 9	0.000000	
Jser AI 10	0.000000	User AI 11	0.000000			

Figure 2-26. User Defined Page

HTML

For developing most web pages, the HTML consists mostly of calling JavaScript functions, which create the HTML tables and populates the tables with text and/or WebBSI ActiveX controls.

Review the UDS_V2.htm file.

Observe the first two lines of the file:

These two lines should be left as is. There is no reason to edit them.

Observe that the HTML Head section has been declared as follows:

```
<head>
<title>User Defined Screen</title>
<link href= "Stylesheets/WebBSI.css" rel="stylesheet"
type="text/css">
</head>
```

The only thing that should be modified in the Head section is the text between the html tags <title></title>. This should be modified to be an appropriate title for the html page. The other line is where the **WebBSI.css** (cascading style sheet) is referenced, and should not be modified, unless a new style sheet file is required.

The next two lines reference external JavaScript files that contain functions common to all web pages.

```
<script language="javascript"
src="scripts/Initialize.js"></script>
<script language="javaScript"
src="Scripts/SignalGen.js"></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script
```

The next section, between the <script> and </script> html tags, is JavaScript:

</script>

Review this section and read the comments to understand what each section of the JavaScript is doing.

The body section, between the <body> and </body> html tags, is where the web page layout is defined. The opening body tag (<body>) is shown here:

<body onload="PageInit(); " class="main">

On every web page, there will be a need to call an initialization script. It is recommended that this initialization script be named PageInit, and called with an 'onLoad' function, within the <body> tag,

In addition, we want to apply the same styles to the body of every web page. This is done by referencing the class "main" in the <body> tag. The class "main" is defined in the **WebBSI.css** cascading style sheet.

After the opening <body> tag, we have the next two lines:

```
User Defined Page
User AI Points
```

The formats "title" and "tablehead" are defined in the **WebBSI.css** cascading style sheet. When creating a page, it is recommended you use the "title" for the page title, and the "tablehead" if you want to add a label above a table.

These two lines will look like this on a web page:



Next, we have a division (<div>) tag:

```
<div align="left" id="DivSelect">
```

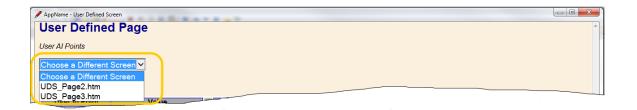
We are aligning everything in this division to the left, we also assigned an id, "DivSelect", to it so that it can be referenced elsewhere if desired.

Then, we have the following lines:

```
<div align="left" id="DivSelect">
<select id="selectScreen"
onchange="pageChange()"style="font-size: 14pt; font-
weight: bold">
<option value="0"> Choose a Different Screen</option>
</select>
```

</div>

This is a standard selection box. In this example, we are choosing to pass a parameter with a value of 0 to n, where n is any number of pages added by the user. The figure shows 0 to 2 pages to select. This will look like this on the page:



Next, we have the following lines:

```
<script type="text/javascript">
  var AliasArray = new Array(0);
  var SymbolArray = new Array(0);
```

This is the absolute minimum amount of JavaScript code required to create an HTML Table with static text and live values from the RTU.

We do have to declare an AliasArray and a SymbolArray, to be passed into the WriteTableWithObjs function.

The key line of code on this web page is this one:

```
WriteTableWithObjs("UDS_V2.csv", 0, 0,
AliasArray, SymbolArray);
```

The WriteTableWithObjs function is a function that will read a comma separated variable file, and return a fully formatted HTML table, including static text and live values from the ControlWave Micro.

The CSV file is created using the following rules:

A new table is indicated by starting a line with an asterisk (*). A new cell is created after each comma. If column labels are required, they may be entered in this line. The cell width will be defined in this line. If you want to include both a column label and a width, separate the two with a semicolon.

Example:

```
*User AI Point;width=150,Value;width=200,;width=15,User AI Point;width=150,Value;width=200,;width=15,User AI Point;width=150,Value;width=200
```

The above CSV data will create an eight column table. The first row of this table will look like this:

User Al Point	Value	User Al Point	Value	User Al Point	Value

When adding additional lines to the table, the following rules apply:

- No other line in the table can start with an asterisk (*), because that indicates a new table.
- If a cell contains just a label, add the text as you wish it to appear.
- If you want to include a SignalView ActiveX control in a cell, the cell must start with the dollar sign (\$) followed immediately by the ControlWave signal name.
- If you want to change the default SignalView ActiveX control properties, the properties must be separated by a semi-colon. Any of

the SignalView ActiveX control properties may be set in the CSV file.

Example:

```
User AI 1
,$IO_1.HWAIs_1.HWAI_86;rights=8;BackColor=000000;ForeColor
=16777215;Format=0;BackColor=000000;ForeColor=16777215,,
User AI 2
,$IO_1.HWAIs_1.HWAI_87;rights=8;BackColor=000000;ForeColor
=16777215;Format=0;BackColor=000000;ForeColor=16777215,,
User AI 3
,$IO_1.HWAIs_1.HWAI_88;rights=8;BackColor=000000;ForeColor
=16777215;Format=0;BackColor=000000;ForeColor=16777215
```

Note: At this time, the WriteTableWithObjs function does not support breaking a line in the CSV file. The above line is wrapped in this document. However, in the original CSV file, this is a single line.

The above CSV (in conjunction with the Table header line) looks like this:

User Al Point	Value	User Al Point	Value	User Al Point	Value
User Al 1	0.000000	User AI 2	0.000000	User Al 3	0.000000

After the end division tag (</div>) we have the remaining code:

```
<div id="Footer">
<div id="Footer">
<div id="Footer">
<div id="Footer">
</div id="Footer"</div id=
</div id=
</div
```

This generates the link at the bottom of the page.

Page Title				
Other Title				
	Instance 1			
ItemReal ValueString01.000Ze				
Links				
L	Template			

Figure 2-27. Example – Links added to page

In our example, it just reopens the **UDS_V2.htm** page.

As the comment states, the CreateFooterLinks is a JavaScript function in the **SignalGen.js** file. This function has the following parameters obj, LinksArray)

obj is the document object id, (i our example it is the division tag id - <div id="Footer"> or Footer). This is where the Html is returned.

LinksArray is an array of fully-formed Html Links – in our example:

Instance=0;

```
LinksArray[0]="<a href=\"UDS_V2.htm?Instance="" + Instance
+ "\"> Template</a>";
```

We pass links into the LinksArray, so that we can have a variable number of Links at the bottom of the page. Although we can pass any number of Links into the LinksArray object, the maximum practical number of links is 10, based on web page sizing and table sizing.

The </body> and </html> tags are the end tags required to close the body of the page and the html section of the page.

2.11 Coriolis Modbus Interface (6-Run Version ONLY)

Click the button to open this page.

Customers have used the following Coriolis meters with Station Manager:

- Micro Motion Series 1000 Transmitters
- Micro Motion Series 2000 Transmitters

Coriolis Number 1 🗾	Enable	Current Status Port Disabled None	:	Address 0
Comm Status OK		Status 1 Status 0 0	2	Status 3 O
arm High Severit	v	Status Co	le Details	
OK Status A Status B 0 0	Status C 0	Aeter 1 Errorcode descriptions: Natus A: 0 NoError NoError NoError NoError NoError NoError		
Status D Status E 0 0	Status F	No Error Status D: 0 «		
a From Meter				
Mass Flow Rate	0	Volume Total	0	
Density	0	Mass Inventory	0	
Temperature	0	Volume Inventory	0	
Volume Flow Rate	0	Pressure Corrected Flow Rate	0	
Pressure	0	Pressure Corrected Density	0	
Mass Total	0	Flow Calibration Pressure	0	
Pressure Input Zero	0	Pressure Input Span	0	
Density Calibration	0	Denisty From Frequency	0	
Mass From Frequency	0	Raw Tube Frequency (Hz)***	0	
Volumn From Frequency	0	Drive Gain***	0	
Left Pick Off Voltage***	0	Right Pick Off Voltage***	0	
Mass Flow Live Zero***	0	7		

Figure 2-28. Coriolis tab

Field Device Settings	Description
Coriolis Number	Select the Coriolis meter number for which you want to view Modbus data.
Enable/Disable	Click Enable to enable communications with the coriolis meter. Click Disable to disable communications with the coriolis meter.
Current State	Shows the whether communications with the coriolis meter are enabled or disabled.
Port	Shows the port used by the coriolis meter.
Address	Shows the address for this coriolis meter.
<u>Status</u>	

Comm Status	Shows the co	ommunication status of the specified coriolis meter.
Status 1	Status of Modbus communications for data block 1.	
Status 2	Status of Modbus communications for data block 2.	
Status 3	Status of Modbus communications for data block 3.	
<u>Alarm</u>		
High Severity	High severity	alarm status from Modbus coil address 0069.
Status A	Shows the sta	atus code from Modbus register address 0419.
	<u>Bit Number</u>	Description
	Bit #0	(E)EPROM checksum error, core processor
	Bit #1	RAM test error, core processor
	Bit #2	Not used
	Bit #3 Bit #4	Sensor not vibrating Temperature sensor out of range
	Bit #5	Calibration failure
	Bit #6	Other failure occurred
	Bit #7	Transmitter initializing/warming up
	Bit #8	Primary variable out of limits
	Bit #9	Non-primary variable out of limits
	Bit #10	Not used
	Bit #11	Not used
	Bit #12	Watchdog error
	Bit #13	Cold start occurred
	Bit #14	Transmitter configuration changed (HART bit)
	Bit #15	High-severity alarm(s) active
Status B		atus code from Modbus register address 0420.
	oter 3 – <u>Bit</u>	oter 4 – <u>Description</u>
	Number	
	Bit #0	Primary mA output saturated
	Bit #1	Secondary mA output saturated
	Bit #2 Bit #3	Primary mA output fixed Secondary mA output fixed
	Bit #4	Density overrange
	Bit #5	Drive overrange
	Bit #6	Not used
	Bit #7	External input failure
	Bit #8	(E)EPROM checksum failure, core processor
	Bit #9	RAM diagnostic failure, core processor
	Bit #10	Sensor not responding (no tube interrupt)
	Bit #11	Temperature sensor out of range
	Bit #12	
	Bit #13	Frequency/pulse output saturated
	Bit #14	Transmitter not characterized (flow calibration factor or senso type)
	Bit #15	Not used
Status C	Shows the sta	atus code from Modbus register address 0421.
. –	Bit Number	Description
	Bit #0	Burst mode enable
	Bit #1	Power reset occurred

	D:1 //0	
	Bit #2	Transmitter initializing/warming up
	Bit #3 Bit #4	Sensor/transmitter communication failure (A28)
	Bit #5	Paper out Event 2 ON
	Bit #6	Event 1 ON
	Bit #7	Sensor/transmitter communication failure (A26)
	Bit #8	Calibration failure
	Bit #9	Zero value too low
	Bit #10	Zero value too high
	Bit #11	Zero too noisy
	Bit #12	Transmitter electronics failure
	Bit #13	Data loss possible
	Bit #14	Calibration in progress
	Bit #15	Slug flow
Status D		atus code from Modbus register address 0422.
Status D	Bit Number	Description
	Bit #0	API: Temperature outside standard range
	Bit #1	API: Density outside standard range
	Bit #2	"Line RTD" temperature out of range
	Bit #3	"Meter RTD" temperature out of range
	Bit #4	Flow direction (0=Forward or Zero flow, 1=Reverse)
	Bit #5	Not used
	Bit #6	Enhanced density: Unable to fit curve data
	Bit #7	Last measured value override active
	Bit #8	Enhanced density extrapolation alarm
	Bit #9	Transmitter not configured (flow calibration factor)
	Bit #10	(E)EPROM checksum error
	Bit #11	RAM test error in transmitter
	Bit #12	Invalid/unrecognized sensor type (K1 value)
	Bit #13	(E)EPROM database corrupt in core processor
	Bit #14	(E)EPROM power down totals corrupt in core processor
	Bit #15	(E)EPROM program corrupt in core processor
Status E	Shows the sta	atus code from Modbus register address 0423.
	<u>Bit Number</u>	<u>Description</u>
	Bit #0	Core processor boot sector fault
	Bit #1	Transmitter software upgrade recommended
	Bit #2	Frequency output fixed
	Bit #3	Not used
	Bit #4	DO1 status (0=OFF, 1=ON)
	Bit #4 Bit #5	DO1 status (0=OFF, 1=ON) DO2 status (0=OFF, 1=ON)
		DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress
	Bit #5	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON)
	Bit #5 Bit #6 Bit #7	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used
	Bit #5 Bit #6 Bit #7 Bit #8	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress High-density calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress
	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress Flowmeter zeroing in progress atus code from Modbus register address 0420.
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u>	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Temperature offset calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress atus code from Modbus register address 0420. Description
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON)
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete input 2 status (0=OFF, 1=ON)
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1 Bit #1 Bit #2	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete output 1 fixed
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1 Bit #2 Bit #3	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete output 1 fixed Discrete output 2 fixed
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1 Bit #2 Bit #3 Bit #4	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress Atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete output 1 fixed Discrete output 2 fixed Discrete output 3 fixed
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1 Bit #2 Bit #3 Bit #4 Bit #5	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress Atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete output 1 fixed Discrete output 2 fixed Discrete output 3 fixed Not used
Status F	Bit #5 Bit #6 Bit #7 Bit #8 Bit #9 Bit #10 Bit #11 Bit #12 Bit #13 Bit #14 Bit #15 Shows the sta <u>Bit Number</u> Bit #0 Bit #1 Bit #2 Bit #3 Bit #4	DO2 status (0=OFF, 1=ON) T-Series D3 calibration in progress T-Series D4 calibration in progress DO3 status (0=OFF, 1=ON) Not used Temperature slope calibration in progress Flowing density calibration in progress High-density calibration in progress Low-density calibration in progress Flowmeter zeroing in progress Atus code from Modbus register address 0420. Description Discrete input 1 status (0=OFF, 1=ON) Discrete output 1 fixed Discrete output 2 fixed Discrete output 3 fixed

	Bit #9	Batch/fill in progress
	Bit #10 Bit #11	Batch end warning Batch overrun
	Bit #12	Batch pump
	Bit #13	Batch/fill primary valve
	Bit #14	Batch/fill secondary valve
	Bit #15	Not used
Status Code Details		ditional information based on the error codes.
Data From Meter		
Mass Flow Rate	The mass	flow rate from Modbus register pair 0247/0248.
Density	The densit	y from Modbus register pair 0249/0250.
Temperature	The tempe	erature from Modbus register pair 0251/0252.
Volume Flow Rate	The volum	e flow rate from Modbus register pair 0253/0254.
Pressure	The internally derived pressure from Modbus register pair 0257/0258.	
Mass Total	The mass	total from Modbus register pair 0259/0260.
Pressure Input Zero	The presso 0273/0274	ure input at 4 mA from Modbus register pair
Density Calibration	The densit pair 0277/0	y for flowing density calibration from Modbus register
Mass From Frequency	The mass 0279/0280	flow rate meter factor from Modbus register pair).
Volume From Frequency	The volum 0281/0282	e flow rate meter factor from Modbus register pair
Left Pick Off Voltage	The left pic 0287/0288	ckoff voltage (in millivolts) from Modbus register pair
Mass Flow Live Zero	The mass 0293/0294	flow live zero flow from Modbus register pair
Volume Total	The volum	e total from Modbus register pair 0261/0262.
Mass Inventory	The mass	inventory from Modbus register pair 0263/0264.

Volume Inventory	The volume inventory from Modbus register pair 0265/0266.
Pressure Corrected Flow Rate	The pressure correction factor for flow from Modbus register pair 0267/0268.
Pressure Corrected Density	The pressure correction factor for density from Modbus register pair 0269/0270.
Flow Calibration Pressure	The flow calibration pressure from Modbus register pair 0271/0272.
Pressure Input Span	The pressure input at 20 mA from Modbus register pair 0275/0276.
Density From Frequency	The density meter factor from Modbus register pair 0283/0284.
Raw Tube Frequency (Hz)	The raw tube frequency (in Hz) from Modbus register pair 0285/0286.
Drive Gain	The drive gain (in %) from Modbus register pair 0291/0292.
Right Pick Off Voltage	The right pickoff voltage (in millivolts) from Modbus register pair 0289/0290.

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Chapter 3 – Configuring Stations, Runs, and Valves (Measurement Tab)

This chapter discusses configuring the stations and meter runs for the Station Manager application as well as all the measurement functions for the various meter runs. This is accomplished from the Station Manager's Measurement tab.

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	_//a//ip/	Direction, Isolated Transmitters	
	Example	e 4– Bi-Directional Control for One Measurement Run, Flow Reverses	
	Example	Direction, Isolated SP and Temp Transmitters, Non-Isolated	
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	_//a//p//	Direction, Multi-Variable Transmitters (MVTs) Used	
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0.0	Gas UII0		5-140

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3.1 Measurement Tab

Click the Measurement tab to display the measurement options you can configure. We'll discuss each of these in the sections that follow.

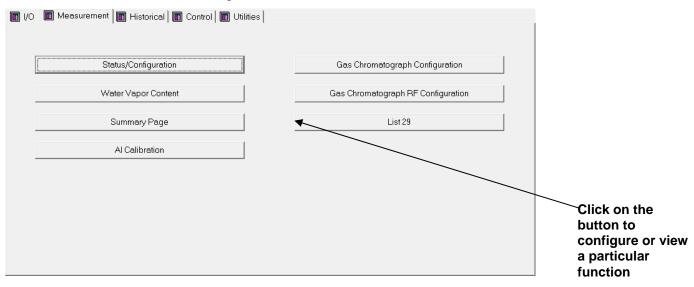


Figure 3-1. Measurement Tab

3.2 Status/Configuration

When you click the <u>Status/Configuration</u> button on the Measurement tab, Station Manager opens up a tree structure with icons showing the site along with the various station, meter run, and control valves you can potentially configure in the Station Manager.

Which ones you configure vary depending upon your site requirements, the type and number of meter runs, and other local characteristics of your system.

Note: The Status/Configuration button allows you to fully configure a station, meter run, or control valve. The screens it opens are slightly modified versions of those available in previous releases of Station Manager. Modifications were made to reduce screen clutter and improve the ease of configuration in Windows 7. If you have Windows XP, you can also use these screens, or you can continue to use the older Status/Configuration screens accessible through the **Legacy Controls** tab. The older Status/Configuration screens on the Legacy Controls tab do not support use under Windows 7.

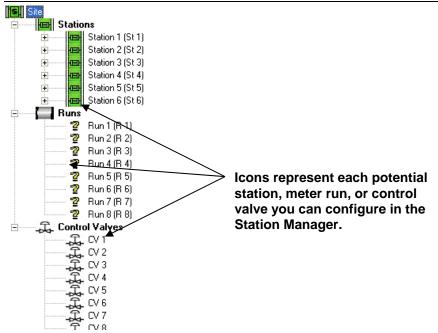


Figure 3-2. Configuration Tree Structure

The tree structure includes several different icons, and icons can change based on your configuration choices. *Table 3-1* shows the icons you may encounter.

lcon	Represents	Usage
	Site	The site icon is for the geographic or organizational site associated with this copy of the Station Manager. The "S" in the icon distinguishes it from the station icon.
	Station	Each station controls one or more meter runs, and typically, one or more control valves. Station Manager supports up to six different stations at a site.
	Runs section of the tree	The different meter runs you can define appear underneath this branch of the tree.
2	Run with undefined measurement type	Until you specify a meter type, the run icon is a question mark.
	Orifice meter run	If you configure the meter type as Orifice you'll see this icon.
- W	Linear meter run	If you configure any of these meter types, you'll see this icon. Turbine (turbine meter) Auto-adjust (auto-adjust turbine meter) Ultrasonic (ultra-sonic meter) PD (positive displacement meter)
Z,	Coriolis meter run	If you configure the meter type as Coriolis you'll see this icon.
\odot	Annubar	If you configure the meter type as Annubar you'll see this icon.
IJ	Venturi meter run	If you configure the meter type as Venturi you'll see this icon.
+	Plus Sign	Click on to expand the tree item to show more branches of information for an item.
	Minus Sign	Click on to hide tree branches to show less information.

Table 3-1. Icons Used in the Configuration Tree

Assigning Runs or Valves to a Station using Drag and Drop

Meter runs and control valves cannot exist independently within the Station Manager; you must assign them to a particular station. There are different ways to assign meter runs or control valves to a particular station. One way to do that is to drag and drop the icon for the run or valve onto the station name to which you want to assign it. When you drag, you'll see a valve or run icon, and you drag it right onto the station name.

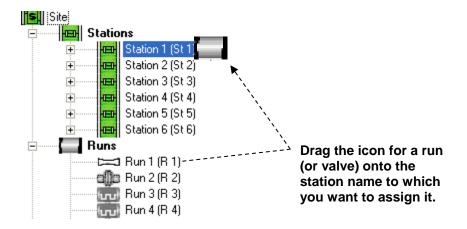
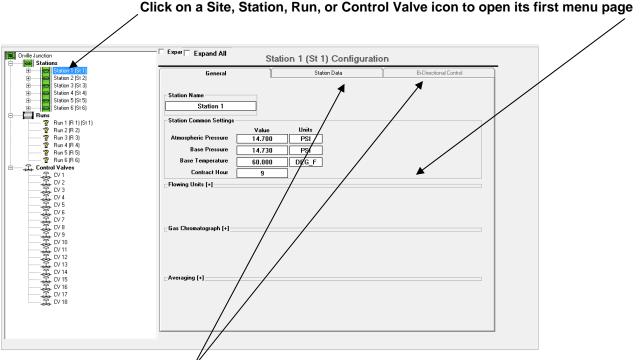


Figure 3-3. Assigning a Run or Valve to a Station Using Drag and Drop

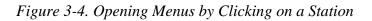
Calling Up Menus

There are different ways you can access pages.

To call up the first page for a particular site, station, run, or control valve, you can just click on its icon, and the first menu opens. Then you can click on page tabs to bring up other configuration pages associated with that site, station, run, or control valve.



Click on tabs to bring up subsequent pages for this site, station, run, or valve



You can also call up the same pages if you *right*-click on the icon for a site, station, run, or control valve, and select an option from the pop-up menus.

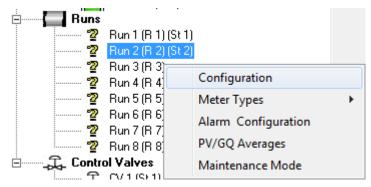


Figure 3-5. Selecting Pages From Pop-up Menus

Showing / Hiding Sections of the Page

Some pages include sections that are initially hidden to reduce screen clutter and allow you to focus on the most important items for the current task at hand.

For example, on the Station Configuration page, the Flowing Units, Gas Chromatograph, and Averaging sections are hidden when you first open the page.

	General	Y	Station Data	Bi-Directional Control
	ueneral	L	Station Data	Biblicctorial Control
	Station Name			
	MS_001_F			
	Station Common Settings			
	Station Common Settings	Value	Units	
	Atmospheric Pressure	14.700	PSI	
	Base Pressure	14.730	PSI	
	Base Temperature	60.000	DEG F	
	Contract Hour	9		
	Flowing Units [+]			
	-			
The Flowing Units, Gas	□ Gas Chromatograph [+]			
Chromatograph and				
Averaging costions are				
Averaging sections are				
hidden when you first				
open the page.	_Averaging [+]			
Ň				
	4			

Figure 3-6. Hidden Sections on the Page

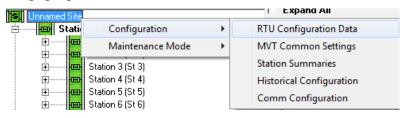
To view any of the hidden sections, select the **Expand All** check box \Box **Expand All** in the upper left corner of the page. The **Expand All** setting applies until you uncheck it.

T T	Expand All MS_001_F (St 1) Configuration	
	General Station Data Bi-Directional Control	
Check "Expand All" to view hidden sections; to hide the	Station Name MS_001_F Station Common Settings	
sections, un-	Value Units	
check "Expand	Atmospheric Pressure 14.700 PSI	
All."	Base Pressure 14.730 PSI	
	Base Temperature 60.000 DEG_F	
	Contract Hour 9	
	Flowing Units [-]	
	Flow Rate Units MSCF/HOUR	
	Energy Rate Units MMBTU Energy Rate Time Units HOUR	
	UC Flow Rate Units MACF/HOUR	
	Mass Rate Units LB Mass Rate Time Units HOUR	
	Gas Chromatograph [-] Chromatograph Data Set Compressibility Calc Select Calc Source Calculations Using	
	Use Run Stream Settings AGA8 Gross Fixed - Scheduled GC	
	Heat Value Type Current Status Gross Method Sat./Wet BTU Dry BTU SG, CO2, N2 HV, SG, CO2	
	Averaging [-] Meter Averaging Method Upon No Flow Condition Use Current Status	
	Flow Dependent Formulaic Avg Straight Average Flow Weighted	
	GC Averaging Method Upon No Flow Condition Use Current Status Flow Dependent Formulaic Avg Straight Average Flow Weighted	

Figure 3-7. Viewing All Fields in a Section

3.2.1 RTU Configuration Tab (Site Configuration)

The RTU Configuration tab shows basic information about the site. You can call it up by clicking on the icon for the site, or right-click on the icon for the site and select **Configuration > RTU Configuration Data** from the pop-up menus.



Note: For information about using Maintenance Mode for the site, see *Section 3.2.26.*

RTU Configuration MVT Common Settings	Station Summaries His	torical Configuration Comm Configuration
Site Name Software Program Name	Revision License	PLC Firmware Lock Major Minor
SM 421 Test Station Manager	LI 4.2102 Licensed	Unlocked 5 75
Load Versions		
RAM: Name RAM: Date	BOOTFILE: Name BOOTFIL	E: Date Status
SM_4_21 03/23/2016 14:26:43	SM_4_21 03/23/2	2016 14:26:43 Match
PLC Time PLC Identification	n	Power
03/23/2016 15:03:40 Bristol:	CWM V05:75:00 09/30	AC Normal DC 12
Hold Last Input Value on Q-Bit	Status	
Enable	Disabled	Battery Status OK
Detected I/O [-]		Total Points [-]
Slot 1 Not Present	Slot 8 Not Presen	t Als 12
Slot 2 Not Present	Slot 9 Not Presen	t AOs 1
Slot 3 4 HSC	Slot 10 Not Presen	t Dis 6
Slot 4 4 AI, 6 DIDO, 2 HSC, 1 AO	Slot 11 Not Presen	t DOs 6
Slot 5 8 Al	Slot 12 Not Presen	t HSCs 6
Slot 6 Not Present	Slot 13 Not Presen	t RTDs 0
Slot 7 Not Present	Slot 14 Not Presen	t TCs 0

			Historical Configuration	Comm Configuration
Site Name Unnamed Site	Software Program Name Station Manager	Revision Licer	nse Lock	C Firmware Major Minor 98 56
Load Versions RAM: Name RA	.M: Date E	OOTFILE: Name BO	DOTFILE: Date	Status
SM_4_00 0	5/02/2013 14:47:43	SM_4_00	05/02/2013 14:47:43	Match
PLC Time 07/19/2013 14:12:3	PLC Identification 5 Bristol: CV	₩M ¥98:56:04 03/18	AC Normal Battery Status	
Detected I/O [-]			- To	otal Points [-]
Slot 1 16 [DC DO	Slot 8 Not F	Present	Als 8
Slot 2	AI	Slot 9 Not F	Present A	NOs 0
Slot 3 Not F	Present	Slot 10 Not F	Present	Dis 0
Slot 4 Not F	Present	Slot 11 Not F	Present	00s 16
Slot 5 Not F	Present	Slot 12 Not F	Present H	SCs 0
Slot 6 Not F	Present	Slot 13 Not F	Present R	TDs 0
Slot 7 Not F	Present	Slot 14 Not F	Present T	Cs 0
Audit Settings Max Number of Alarms 1600	Max Number of E	vents Current Nu	mber of Alarms Currer	nt Number of Events 544

Figure 3-8. RTU Configuration tab (8-Run Top, 6-Run Bottom)

Field <u>Site Name</u>	Description The site refers to the geographical location or an organizational name associated with this Station Manager controller. You might name the site after the RTU node name or a place. Enter a name and press the [Enter] key to save your entry.
Software	
Program Name	This read-only field shows the name of the Station Manager software installed on the RTU.

Revision	This read-only field shows the revision of the Station Manager software running on the RTU.			
	The revision is in the format <i>V.v</i> Rnn			
	Where:			
	 V is the major version number v is the minor version number Rnn is the revision build number, if this is a revision release of the software. 			
License	Shows whether your application is licensed.			
Lock	Shows whether your application is locked.			
PLC Firmware	These fields refer to the ControlWave internal system firmware that controls operation of the ControlWave Micro.			
Major	This read-only field shows the major revision numbe of the system firmware running in the ControlWave Micro.			
Minor	This read-only field shows the minor revision number of the system firmware running in the ControlWave Micro.			
Load Versions	The load version fields let you compare the revisions o the ControlWave project stored in flash (ControlWave bootproject) and the revision of the ControlWave project currently executing in SDRAM.			
RAM: Name	This read-only field shows the name of the ControlWave project executing in the ControlWave Micro's SDRAM.			
RAM: Date	This read-only field shows the date and time stamps of the ControlWave project executing in the ControlWave Micro's SDRAM. Dates use the format <i>mm/dd/yyyy</i> where <i>mm</i> is the two-digit month (01 to 12), <i>dd</i> is the two-digit day (01 to 31), and <i>yyyy</i> is the four-digit year. Timestamps are in the format <i>hh:mm:ss</i> where <i>hh</i> is the 2-digit hour (0 to 23), <i>mm</i> is the 2-digit minute (0 to 59) and ss is the two-digit second (0 to 59).			
BOOTFILE: Name	This read-only field shows the name of the ControlWave bootproject stored in FLASH at the ControlWave Micro.			
BOOTFILE: Date	This read-only field shows the date and time stamps of the ControlWave bootproject stored in FLASH at the ControlWave Micro. Dates use the format <i>mm/dd/yyyy</i> where <i>mm</i> is the two-digit month (01 to 12), <i>dd</i> is the two-digit day (01 to 31), and <i>yyyy</i> is the four-digit year.			

	Timestamps are in the format <i>hh:mm:ss</i> where <i>hh</i> is the 2-digit hour (0 to 23), <i>mm</i> is the 2-digit minute (0 to 59) and ss is the two-digit second (0 to 59).
Status	This read-only field shows Match if the name and date of the ControlWave project executing in SDRAM is identical to that for the bootproject stored in FLASH.
	If this field shows Mismatch this indicates that the ControlWave project executing in SDRAM is not the same as the bootproject.
	This is an error condition because if the unit restarts for any reason, the bootproject overwrites the project executing in SDRAM on restart and you will lose the SDRAM project.
<u>PLC Time</u>	This read-only field shows the current date and time stamps of the ControlWave Micro's real time clock. Dates use the format <i>mm/dd/yyyy</i> where <i>mm</i> is the two-digit month (01 to 12), <i>dd</i> is the two-digit day (01 to 31), and <i>yyyy</i> is the four-digit year. Timestamps are in the format <i>hh:mm:ss</i> where <i>hh</i> is the 2-digit hour (0 to 23), <i>mm</i> is the 2-digit minute (0 to 59) and <i>ss</i> is the two-digit second (0 to 59).
PLC Identification	This read-only field identifies boot PROM firmware installed in the ControlWave Micro. To use the Station Manager application, your boot PROM firmware must have the prefix CWM .
Power	These fields show information about power status a the ControlWave Micro.
AC	This read-only field shows the status of AC power a indicated through a discrete input I/O point.
DC	This read-only field shows the DC voltage level at the ControlWave Micro's power supply sequencer module (PSSM).
Battery Status	This read-only field shows the status of the SRAM backup battery in the ControlWave Micro.
<u>Hold Last Input Value on</u> <u>Q-Bit (</u> 8-Run only)	The Hold Last Input Value on Q-Bit setting determines what happens if flow calculation input values become questionable.
Enable/Disable	Click Enable if you want to use the last good input value (non-questionable value) in your flow calculations if the questionable data bit comes on for one of the inputs. The Status field shows Enabled when this option is active. Click Disable if you always want to use the current input value in your flow calculations even if the questionable data bit is on for an input. The Status

	field shows Disabled when this option is active.
Status Detected I/O	This read-only field shows Disabled if the system always uses the current input values in flow calculations, even if they have questionable data. The field shows Enabled if Station Manager should substitute the last good input value(s) for flow calculation input(s) whenever the questionable data bit is on for those inputs. If the questionable data bit is not on, Station Manager uses the current input values in flow calculations. If not shown, click the [+] to display these fields.These
Delected I/O	fields show the types of I/O modules detected by the Station Manager as being installed in the ControlWave Micro.
Slot n	This read-only field shows details of the installed I/O module that the Station Manager detects in this ControlWave Micro slot. The slot number from 1 to 14 refers to slots in the base and expansion housings.
Total Points	If not shown, click the [+] to display these fields.These fields show the total number of different types of I/O points from all the I/O modules detected by the Station Manager application.
Als	This read-only field shows the total number of analog inputs residing across all I/O modules detected by the Station Manager application.
AOs	This read-only field shows the total number of analog outputs residing across all I/O modules detected by the Station Manager application.
DIs	This read-only field shows the total number of discrete inputs residing across all I/O modules detected by the Station Manager application. Note: This count includes all possible DIs, including a DI/DO point configured as a DO.
DOs	This read-only field shows the total number of discrete outputs residing across all I/O modules detected by the Station Manager application. Note: This count includes all possible DOs, including a DI/DO point configured as a DI.
HSCs	This read-only field shows the total number of high speed counter inputs residing across all I/O modules detected by the Station Manager application.
RTDs	This read-only field shows the total number of resistance temperature device inputs residing across all I/O modules detected by the Station Manager application.

TCs	This read-only field shows the total number of thermocouple inputs residing across all I/O modules detected by the Station Manager application.
<u>Audit Settings</u> (6-Run only)	These settings configure the number of alarms and events that can be stored in the audit log before the application is locked to prevent further configuration changes. This section also shows counts of the current number of alarms and events in the audit log.
Max Number of Alarms	Specify the maximum number of alarms to be kept in the audit log. When the total number of alarms in the log reaches this number, older alarms must be read from the audit log before further configuration changes can be made.
Max Number of Events	Specify the maximum number of events to be kept in the audit log. When the total number of events in the log reaches this number, older events must be read from the audit log before further configuration changes can be made.
Current Number of Alarms	This shows the current number of alarms in the audit log.
Current Number of Events	This shows the current number of events in the audit log.

3.2.2 MVT Common Settings Tab (Site Configuration)

This page configures details for the multivariable transmitter/transducer (MVT). You can call it up by clicking on the **MVT Common Settings** tab, or right-click on the icon for the site and select **Configuration** > **MVT Common Settings** from the pop-up menus.

RTU Configuration	MVT Common Settings	Station Summaries	Historical Configuration	Comm Configuration
Collect Process Var	iable (PV) Data every	750 msecs		
Collect Diagnostic D		msecs		
Lollect Diagnostic L	ata every 60000	msecs		
Indicate Communica	tions Failure when No Resp	onse after 60000	msecs	
Maximum Monitor Co	ount 500			
Percent Below/Abov	e the Zero/Span for Q-bit Al	arm		
	200.0			
Individual DP and SF	0.0 Dite			
	Current State Enabling	this feature is not		
Enable		nded, because it could i er measurement.	result	
Custom Zero Calibrat				
Enter -999 to disable Custom Zero	the Custom Zero and use t	he TechView default of	100 ohm.	
-999 MVT F1	l Units			
* These settings are co	ommon for all MVT devices			
_				

Figure 3-9. MVT Common Settings tab

Field	Description
Collect Process Variable (PV) Data every msecs	Enter how often (in milliseconds) the ControlWave Micro should collect process variable (PV) data. For natural gas measurement in custody transfer applications, the API requires updates no less frequent than 1.0 second (1,000 milliseconds). The ControlWave Micro can communicate with up to eight (8) MVTs per second using a single RS-485 port at 19,200 baud. Press the [Enter] key to save your entry.
Collect Diagnostic Data every msecs	Enter how often to collect diagnostic data from the MVT (in milliseconds). You should not set the interval of this collection to be very short, because it may interfere with the higher priority PV data collection. Press the [Enter] key to save your entry.
Indicate Communications Failure when No Response after msecs	Enter the period (in milliseconds) that the Station Manager application waits before declaring that a loss in communications to the MVT constitutes a communications timeout.

Maximum Monitor Count	Enter the maximum number of polls that the Station Manager application uses to count good/bad polls and determine the %good.
Percent Below/Above the Zero/Span for Q-bit Alarm	This is the percent of span to use for determining a failed PV.
Individual DP and SP Q Bits Disable/Enable button and Current State field	Disables or enables separate DP and SP PV Q (failure) bits. Not recommended as MVTs use common hardware for the DP & SP sensors. The current setting appears in the Current State field.
Custom Zero Calibration	
MVT FT	You can enter a custom zero calibration value for the flowing temperature variable in the MVT here. If you want to use the default zero calibration value of 100 ohms ($\pm 0.01\%$), enter -999 in this field.

3.2.3 Station Summaries Tab (Site Configuration)

The Station Summaries tab shows flow, energy, and volume readings for each configured station. You can call it up by clicking on the **Station Summaries** tab or right-click on the icon for the site and select **Configuration > Station Summaries** from the pop-up menus.

RTU Con	figuration	MVT Common Settings	Station S	ummaries	Historical Conf	guration)	Comm Configur	
Station 1 -	Flow Rate	F	D - 1 -	Tada		т		
Fwd	0.0	Energy	Energy Rate 0.0		Today's Volume 0.0 0.0		Today's Energy 0.0 0.0	
Rev	0.0							
	0.0		·		0.0		0.0	
Station 2-	Flow Rate		р.	T 1		Ŧ		
Fwd	0.0	Energy 0.0		loday	v's Volume 0.0	100	lay's Energy 0.0	
	0.0	0.0						
неч	0.0]0.0			0.0		0.0	
][0.(
- Station 6 -	Flo w Rate	Energy	Rate		0.0 's Volume	Toc	0.0 Jay's Energy	
Station 6 - Fwd Rev			Rate	Today	0.0		0.0	

Figure 3-10. Station Summaries tab

Note: Fields appear grayed out if the station is not configured.

Field	Description
Station n	Identifies one of the six stations.
Flow Rate Fwd	This read-only field shows the instantaneous flow rate at this station. If this station supports bi- directional flow, this is the instantaneous forward flow rate when flow is in the forward direction (odd) or is the instantaneous reverse flow rate (even).
Flow Rate Rev	This read-only field shows the instantaneous reverse flow rate from the corresponding bi-directional even numbered station when flow is in the reverse direction. (Odd stations only.)
Energy Rate Fwd	This read-only field shows the instantaneous energy rate at this station. If this station supports bi- directional flow, this is the instantaneous forward energy rate when flow is in the forward direction (odd) or is the instantaneous reverse energy rate (even).

This read-only field shows the instantaneous reverse energy rate from the corresponding bi-directional even numbered station when flow is in the reverse direction. (Odd stations only.)
This read-only field shows today's accumulated flow total (volume). If this station supports bi-directional flow, this is the accumulated forward flow total when flow is in the forward direction (odd) or is the accumulated reverse flow total (even).
This read-only field shows today's accumulated flow total from the corresponding bi-directional even numbered station when flow is in the reverse direction. (Odd stations only.)
This read-only field shows today's accumulated energy total. If this station supports bi-directional flow, this is the accumulated forward energy total when flow is in the forward direction (odd) or is the accumulated reverse energy total (even).
This read-only field shows today's accumulated energy total from the corresponding bi-directional even numbered station when flow is in the reverse direction. (Odd stations only.)

3.2.4 Historical Configuration Tab (Site Configuration)

The Historical Configuration page lets you configure certain settings common to the entire site. You can call it up by clicking on the **Historical Configuration** tab or right-click on the icon for the site and select **Configuration > Historical Configuration** from the pop-up menus.

RTU Configuration	MVT Common Settings	Station Summaries	Historical Configuration	Comm Configuration
Run Configuration Log Current S Enable Disabl	Break the run histo	rical archive if any conf	iguration item that affects me	asurement is
Gas Composition Log	Break			
Current S Enable Disabl	tate Break the run histo		se" Gas Component changes. mmunicating to a Gas Chroma	
Time Synch Log Break Current S Enable Disabl	tate Break the run histo	rical archive if the time by more than 4 second	on the ControlWave is chang s.	ed (either by
Q-Bit Log Break Current S Enable Disabl	or clears.	ak the run historical arc	hive if a Q-bit, associated wit	h the run, sets
Calibration End Break Current S Enable Disabl	tate This option will bre	ak the log when exiting	maintenance mode.	
Audit Current S Disable Enabl	otate	ects measurement is cha	nged, log the change in the	Audit Trail.
Gas Composition Audi Current S Disable Enabl	itate If an "In Use" Gas		g the change in the Audit Tra mmunicating to a Gas Chroma	
Run Archives Current S Disable Enabl	their own outside the		FC function block to allo w the	e user to create

Figure 3-11. Historical Configuration tab

Field	Description
Run Configuration Log Break	If you change a configuration item which affects measurement this would mean that new readings into the historical archive/log would reflect a different configuration; this could cause confusion, therefore you should allow a log break to end the current archive and start a new archive for data reflecting the new configuration.
Enable / Disable	Click Enable to allow a log break, or Disable to prevent a log break.
Current State	This read-only field shows Enabled if a log break is allowed, or Disabled if a log break is not allowed.
Gas Composition Log Break	If an "in use" gas component changes, you should allow a log break. The exception to this is if the ControlWave Micro is communicating with a gas

	chromatograph; in that case, disable the log break.
Enable / Disable	Click Enable to allow a log break, or Disable to prevent a log break.
Current State	This read-only field shows Enabled if a log break is allowed, or Disabled if a log break is not allowed.
Time Synch Log Break	If the ControlWave Micro's real time clock changes by more than four seconds, either because it receives a time synchronization message from the network, or someone changes the time locally, you can initiate a log break.
Enable / Disable	Click Enable to allow a log break, or Disable to prevent a log break.
Current State	This read-only field shows Enabled if a log break is allowed, or Disabled if a log break is not allowed.
<u>Q-Bit Log Break</u>	If the questionable data flag (Q-bit) status changes to TRUE, indicating incoming data is questionable, you can initiate a log break.
Enable / Disable	Click Enable to allow a log break, or Disable to prevent a log break.
Current State	This read-only field shows Enabled if a log break is allowed, or Disabled if a log break is not allowed.
<u>Calibration End Log</u> <u>Break</u>	If you exit calibration mode, you can initiate a log break.
Enable / Disable	Click Enable to allow a log break, or Disable to prevent a log break.
Current State	This read-only field shows Enabled if a log break is allowed, or Disabled if a log break is not allowed.
Audit	If any change occurs that affects measurement, you can include an audit message about the change in the audit system.
Enable / Disable	Click Enable to allow the system to log an audit entry for changes affecting measurement, or click Disable to prevent this logging.
Current State	This read-only field shows Enabled if audit logging of changes is allowed, or Disabled if audit logging of

Gas Composition Audit	If any change to an "in use" gas component occurs, you should include an audit message about the change in the audit system. The exception to this is if the ControlWave Micro is communicating with a gas chromatograph; in that case, disable the audit logging for this.
Enable / Disable	Click Enable to allow the system to log an audit entry for changes to "in use" gas components, or click Disable to prevent this logging.
Current State	This read-only field shows Enabled if audit logging of "in use" gas component changes is allowed, or Disabled if audit logging of these changes is prevented.
Run Archives	This function lets you optionally turn off the pre- configured FC function block included in the Station Manager application, in order to configure a different ARCHIVE function block according to your own needs.
Enable / Disable	Click Enable to allow the system to perform archiving using the pre-configured FC function block. Click Disable to prevent this archiving, and instead configure a different ARCHIVE function block according to your own needs.
Current State	This read-only field shows Enabled if archiving using the pre-configured FC function block is active or Disabled if you have turned OFF the FC function block operation.

3.2.5 Comm Configuration Tab (Site Configuration)

The Comm Configuration page lets you configure communication settings common to the entire site. You can call it up by clicking on the **Comm Configuration** tab or right-click on the icon for the site and select **Configuration > Comm Configuration** from the pop-up menus.

RTU Configuration	MVT Common	Settings	Station	Summaries	His	storical Configuration	Comm Configuration
Enable Con	Current State Disabled		<u>Scroll Tim</u> 2	e (secs.) ·1=Never Sle	eps)		thod out the DP when it w cutoff. <u>Current State</u> Disabled
Host Modbus Slave	Address	Contract	Hour —			Archive Mode	· · · · · · · · · · · · · · · · · · ·
0		GC		0			Around dbus
A zero will use th Addre		UFM		0		Set To Push Down	Current State
Archive Access Ty		Data Type,	Time Stan Archi	np, LSN, GSN ve	I, Data	3	
Format	Data Type	Time S	tamp	LSN		GSN	Data
0							

Figure 3-12. Comm Configuration tab

Field	Description
Host Communication Port	
Enable/Disable	Click this button to allow (enable) or prevent (disable) communications to a SCADA host computer.
Current State	This read-only field shows Enabled if communications to a host SCADA computer are allowed, or Disabled if communications to a host SCADA computer are not allowed.
Com n	Use the drop-down menu to select the ControlWave Micro communication port used to communicate with the SCADA host computer and press the [Enter] key to save your selection.
Host IP Port	
Enable / Disable	Click this button to allow (enable) or prevent (disable) IP communications to a SCADA host computer.

Current State	This read-only field shows Enabled if IP communication to a SCADA host computer is allowed, or Disabled if IP communication to a SCADA host computer is not allowed.
Host Modbus Slave Address	Enter a slave address for the Modbus host if you don't want to use the RTU's local address.
Display Scroll	
Scroll Time	Enter the desired time (in seconds) the keypad/display should present a particular screen before scrolling to the next screen here and press the [Enter] key to save the value.
Sleep Time	Enter the desired sleep time (in minutes) for the keypad/display. If there is no keypad activity for this length of time, the display shuts off to conserve power. If you set this to "-1" the display does not sleep.
Contract Hour	
GC	Specify the contract hour to start daily GC archives.
UFM	Specify the contract hour to start daily UFM archives.
	value to zero, rather than attempting to include what may be inaccurate low DP values; to do this, click this button so that Enabled shows as the current state. Otherwise, leave it at Disabled .
Current State	state. Otherwise, leave it at Disabled . This read-only field shows Enabled if the low flow cutoff DP averaging method is allowed, or Disabled if it is not allowed.
Archive Mode	
	ntil you configure the archive mode, the Station anager application cannot store any data.
Push Down / Wrap Around	This read-only field shows whether the data is archived in push down mode or wrap around mode. In Push Down Mode each new record of data pushes the previous records further down into the data structure, and the last record is deleted. In Wrap Around Mode each new incoming record data overwrites the oldest record.
Modbus Set To and	Use the button to toggle the archive mode to the one shown on the label of the button:

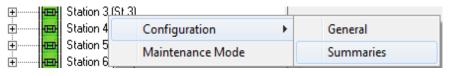
Click **Wrap Around** to set it to Wrap Around; the **Current State** now shows "Wrap Around" and the label on the button changes to "Push Down."

Click **Push Down** to set it to Push Down; the **Current State** now shows "Push Down" and the label on the button changes to "Wrap Around."

Archive Access Type	
Data Type selection box	Choose the type of archive data in the archive you want to view, so Station Manager can display it properly.
Format	Shows the archive mode. For a description of the different modes, see the online help in ControlWave Designer for the ARCHIVE function block.
Data Type	Shows the type of data.
Time Stamp	Shows the time stamp of the archive record.
LSN	Optionally shows the local sequence number of the archive record.
GSN	Optionally shows the global sequence number of the archive record.
Data	Shows the data for the archive record.

3.2.6 Station Configuration Tab (Station Configuration)

Station Manager supports up to six individual stations. Each station supports one or more meter runs. Either left click on a station icon, or right-click on the icon and choose from the pop-up menu to open menus for that station. To access the Station Configuration tab, choose **Configuration > General**.



Note: For information on Maintenance Mode for the station, see *Section* 3.2.27

General	Station Data	Bi-Directional Control				
- Station Name						
Station 2	Set To Current Status (Reverse Forward Enable	Current Status Current Status Disabled Enable Disabled				
Station Common Settings						
	Value Units					
Atmospheric Pressure	14.700 PSI					
Base Pressure	14.730 PSI					
Base Temperature	60.000 DEG_F					
Contract Hour	9					
- Flowing Units [-]						
Flow Rate Units	MSCF/HOUR					
Energy Rate Units	MMBTU Energy Rate Time Units	HOUR				
UC Flow Rate Units	MACF/HOUR					
Mass Rate Units	LB Mass Rate Time Units	HOUR				
– Gas Chromatograph [-] —						
Chromatograph Data 9	et <u>Compressibility Calc</u> Se	lect Calc Source Calculations Using				
Use 1 for all Assigned	Runs AGA8 Gross Fix	ed - Scheduled GC				
Heat Value Type Current Sat./Wet BTU Dry B	Lurrent Method					
Averaging [-]						
Meter Averaging Metho	od Upon No Flow Condition Use C	Current Status				
Flow Dependent Form		ow Weighted				
GC Averaging Metho	od Upon No Flo w Condition Use C	Current Status				
Flow Dependent Form	ulaic Avg Straight Average Fl	ow Weighted				

Figure 3-13. Station Configuration tab

Field	Description
Station Name	The station refers to the natural gas measurement station. Each station has one or more meter runs assigned to it. Enter a name and press the [Enter] key to save your entry.
Station Direction	The Station Direction fields only appear for even numbered (2, 4, or 6) stations; odd numbered stations are always "Forward" direction.
Set To Reverse /	The current direction for the station is reflected in the

Forward	Current Status field. Click this button to toggle the direction to that shown on the button.
	It this station is to be an independent station, not part of a bi-directional pair of stations, then select "Forward."
	If this station is going to be part of a bi-directional pair of stations, select "Reverse." See <i>Section 3.2.8</i> for information on bi-directional control.
Current Status Reverse / Forward	Shows the current direction configured for this station.
Noflow Shutin	When NoFlow Shutin is enabled, if no station flow is detected, Station Manager will shut in the station bi- directional block valves.
Enable/Disable	The current status for NoFlow Shutin is reflected in the Current Status field. Click this button to toggle the state to that shown on the button.
Current Status Enabled / Disabled	Shows the current status of NoFlow Shutin for this station.
Flow Permissive	When Flow Permissive is enabled, Station Manager checks for valid flow conditions before changing the direction or enabling PID control.
Enable/Disable	The current status for Flow Permissive is reflected in the Current Status field. Click this button to toggle the state to that shown on the button.
Current Status Enabled / Disabled	Shows the current status of Flow Permissive for this station.
Station Common Settings	3
Value, Units	Enter the standard atmospheric (barometric) pressur for the station in the Value field and press [Enter] to save your entry. Then select the desired Units of measure from the drop-down menu and press [Enter to save your selection. The default is 14.7 PSI. Note : Units are absolute pressure units.
Units	Enter the base pressure that the Station Manager application should use when it performs AGA calculations in the Value field and press [Enter] to save your entry. Then select the desired Units of measure from the drop-down menu and press [Enter] to save your selection. The default is 14.73 PSI (absolute).
Value, Units	Enter the base temperature that the Station Manager application should use when it performs AGA calculations in the Value field and press [Enter] to save your entry. Then select the desired Units of measure from the drop-down menu and press [Enter]

	to save your sel	to save your selection. The default is 60 Deg F.				
Contract Hour	The contract hour determines the start of the gas day. This is when the current day totals and averages get rolled over to the previous day totals and averages. The contract hour is based on a 24 hour clock; 1 PM is 13, 2 PM is 14, and so on. Midnight is 00. Enter the desired contract hour and press [Enter] to save your entry. The default is 9 (9AM).					
Flowing Units	If not shown, click the [+] to display these fields.You can select units for corrected flow (Flow), Uncorrected (UC) Flow, and Energy rates for the combined station flow and energy rates independently of the meter run rates.					
Flow Rate Units						
	MSCF/YEAR	Thousands of Standard Cubic Feet per Year				
	MSCF/DAY	Thousands of Standard Cubic Feet per Day				
	MSCF/HOUR	Thousands of Standard Cubic Feet per Hour				
	MSCF/MIN	Thousands of Standard Cubic Feet per Minute				
	MSCF/SEC	Thousands of Standard Cubic Feet per Second				
	M3/YEAR	Standard Cubic Meters per Year				
	M3/DAY	Standard Cubic Meters per Day				
	M3/HOUR	Standard Cubic Meters per Hour				
	M3/MIN	Standard Cubic Meters per Minute				
	M3/SEC	Standard Cubic Meters per Second				
	MMSCF/YEAR	Millions of Standard Cubic Feet per Year				
	MMSCF/DAY	Millions of Standard Cubic Feet per Day				
	MMSCF/HOUR					
	MMSCF/MIN	Millions of Standard Cubic Feet per Minute				
	MMSCF/SEC	Millions of Standard Cubic Feet per Second				
	MM3/YEAR	Millions of Cubic Meters per Year				
	MM3/DAY	Millions of Cubic Meters per Day				
	MM3/HOUR	Millions of Cubic Meters per Hour				
	MM3/MIN	Millions of Cubic Meters per Minute				
	MM3/SEC	Millions of Cubic Meters per Second				

CCF/YEAR	Hundreds of Cubic Feet per Year
	Hundreds of Cubic Feet per Day
	Hundreds of Cubic Feet per Hour
	Hundreds of Cubic Feet per Minute
CCF/SEC	Hundreds of Cubic Feet per Second
	ed units of measure for the energy rate own menu and press [Enter] to save
MMBTU	Millions of British Thermal Units
MJ	Megajoules
KJ	Kilojoules
J	Joules
ERG	Ergs
KCAL	Kilocalories
CAL	Calories
CHU	Centigrade Heat Unit
KWH	Kilowatt Hour
QUAD	short scale quadrillion British Therma Units
THERM	Therms
TONTNT	Tons of TNT
TONCOAL	Tons of coal
MMMBTU	Billions of British Thermal Units
GJ	Gigajoules
BTU	British Thermal Units
MMBTU605	Millions of British Thermal Units at 60.5 degrees F.
MMMBTU605	Billions of British Thermal Units at 60.5 degrees F.
BTU605	British Thermal Units at 60.5 degrees F.
Select the desire	ed units of time to associate with the
	CCF/DAY CCF/HOUR CCF/NIN CCF/SEC Select the desire from the drop-do your selection. Energy rate units MMBTU MJ KJ J ERG KCAL CHU KWH QUAD THERM TONTNT TONCOAL MMBTU605 BTU MMBTU605

	YEAR	
	DAY	
	HOUR	
	MIN	
	SEC	
UC Flow Rate Units	flow rate from the save your selection	
	Uncorrected flow	rate units include:
	MACF/YEAR	Thousands of Actual Cubic Feet per Year
	MACF/DAY	Thousands of Actual Cubic Feet per Day
	MACF/HOUR	Thousands of Actual Cubic Feet per Hour
	MACF/MIN	Thousands of Actual Cubic Feet per Minute
	MACF/SEC	Thousands of Actual Cubic Feet per Second
	M3/YEAR	Actual Cubic Meters per Year
	M3/DAY	Actual Cubic Meters per Day
	M3/HOUR	Actual Cubic Meters per Hour
	M3/MIN	Actual Cubic Meters per Minute
	M3/SEC	Actual Cubic Meters per Second
	MMACF/YEAR	Millions of Actual Cubic Feet per Yea
	MMACF/DAY	Millions of Actual Cubic Feet per Day
	MMACF/HOUR	Millions of Actual Cubic Feet per Hou
	MMACF/MIN	Millions of Actual Cubic Feet per Minute
	MMACF/SEC	Millions of Actual Cubic Feet per Second
	MM3/YEAR	Millions of Cubic Meters per Year
	MM3/DAY	Millions of Cubic Meters per Day
	MM3/HOUR	Millions of Cubic Meters per Hour
	MM3/MIN	Millions of Cubic Meters per Minute
	MM3/SEC	Millions of Cubic Meters per Second
	CCF/YEAR	Hundreds of Cubic Feet per Year
	CCF/DAY	Hundreds of Cubic Feet per Day
	CCF/HOUR	Hundreds of Cubic Feet per Hour
	CCF/MIN	Hundreds of Cubic Feet per Minute
	CCF/SEC	Hundreds of Cubic Feet per Second
Mass Rate Units		rate units. Choices are:
		is pounds
		is milligrams

	KG	is kilograms	
	G	is grams	
	USTON	is a United Stat	
	UKTON	is a United King	dom ton
	MTON	is a metric ton	
	OZ	is an ounce	
	TROYOZ	is a troy ounce	
	GRAIN	is a grain	
	SLUG	is a slug	
	CARAT	is a carat	
Mass Rate Time Units	Select the ma	ass rate time units.	Choices are:
	YEAR		
	DAY		
	HOUR		
	MIN		
	SEC		
Gas Chromatograph	If not shown	click the [+] to disp	lav these fields
<u>eae enrematograph</u>	in not onown,		
Heat Value Type Dry	This button to	oddes the Heat Va	lue type. Click the Dry
BTU / Sat. Wet BTU			Manager to use the
			omatograph, or click
			want Station Manage
		urated (wet) RILLY	value from the das
			value from the gas
	chromatograp		value from the gas
			value from the gas
Current Status Dry	chromatograp		
Current Status Dry BTU / Sat. Wet BTU	chromatograp	bh.	
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr	oh. rrent BTU Type for omatograph data so	this station.
•	chromatograp Shows the cu Select the chr Chroma	oh. rrent BTU Type for omatograph data se tograph Data Set	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma	oh. rrent BTU Type for omatograph data so	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all	oh. rrent BTU Type for omatograph data so tograph Data Set Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use Run Str	oh. rrent BTU Type for omatograph data so tograph Data Set Assigned Runs eam Settings	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs eam Settings Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all	oh. rrent BTU Type for omatograph data so tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 6 for all Use 7 for all	oh. rrent BTU Type for tograph data se tograph Data Set Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 7 for all Use 8 for all	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs	this station.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 2 for all Use 2 for all Use 3 for all Use 5 for all Use 6 for all Use 8 for all Use 8 for all If you choose	oh. rrent BTU Type for omatograph data se tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Massigned Runs Assigned Runs Assigned Runs Assigned Runs Massigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 7 for all Use 8 for all If you choose section shows	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run	this station. et you want to use.
BTU / Sat. Wet BTU	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 5 for all Use 6 for all Use 6 for all Use 8 for all If you choose section shows	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run down menu to select	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 7 for all Use 8 for all	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 7 for all Use 8 for all Use 7 for all Use 8 for all Use 8 for all Use 7 for all Use 8 for all Use 7 for all Use 8 for all Use 7 for all	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run down menu to select	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 5 for all Use 6 for all Use 6 for all Use 7 for all Use 8 for all 0 for 9 for	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run down menu to select	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 7 for all Use 8 for all	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run down menu to select Manager to use for o	this station. et you want to use.
BTU / Sat. Wet BTU Chromatograph Data Set	chromatograp Shows the cu Select the chr Chroma Use 1 for all Use 1 for all Use 2 for all Use 3 for all Use 4 for all Use 5 for all Use 6 for all Use 6 for all Use 8 for all Use 8 for all Use 8 for all Section shows Use the drop- want Station N NX-19 AGA8 Detail AGA8 Gross If you choose	oh. rrent BTU Type for omatograph data set tograph Data Set Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Assigned Runs Son the General run down menu to select	this station. et you want to use. Settings," a GC settings <u>n configuration tab.</u> ct the calculation you compressibility.

the gross method used to the other method, click the button; the newly chosen method shows in the **Current Method** field, and the now unused method appears on the label of the button.

	Choices include:	1	
	SG, CO2, N2	The Station Manager application performs calculations using inputs of relative density (specific gravity or SG), and the mole fractions of nitrogen (N2) and carbon dioxide (CO2).	
	HV, SG, CO2	The Station Manager application performs calculations using inputs of the heating value (HV), the relative density (specific gravity or SG), and the mole fraction of carbon dioxide (CO2).	
		anager ignores the method setting for er than AGA8 Gross.	
Select Calc Source Fixed-Scheduled / GC	A GC failure cou range problem a	Id include a communication failure, a nd so on.	
	during a GC failu button if you war during a GC failu	les the calculation source used ure. Click the Fixed - Scheduled ht Station Manager to use fixed data ure. Click the GC button if you want to use in-use GC data during a GC	
Calculations Using	Shows the currer be used during a	nt choice for the calculation source to GC failure.	
Averaging	If not shown, click	k the [+] to display these fields.	
Meter Averaging Method		t Formulaic Avg Linear Avg	
Upon No Flow Condition Use	This button toggles whether the Station Manager application uses a flow weighted average, or a straight average during a no flow condition for meter averaging. Click the Flow Weighted button to use a flow weighted average when there is no flow. Click the Straight Average button to use a straight average when there is no flow.		
Current Status		nt choice for what Station Manager ng for the meter during a no flow	

GC Averaging Method	Use the drop-down menu to select the API 21.1 averaging method you want Station Manager to use.					
	Flow Dependent Linear Avg					
	Flow Dependent Formulaic Avg Flow Weighted Linear Avg Flow Weighted Formulaic Avg					
Upon No Flow Condition Use	This button toggles whether the Station Manager application uses a flow weighted average, or a straight average during a no flow condition for GC averaging. Click the Flow Weighted button to use a flow weighted average when there is no flow. Click the Straight Average button to use a straight average when there is no flow.					
Current Status	Shows the current choice for what Station Manager uses for averaging for the GC during a no flow condition.					

3.2.7 Station Data Tab (Station Configuration)

	The Station Data tab shows the current station flow, energy and mass rates in the units chosen on the General tab. To access the Station Data tab, right click on the station icon and choose Configuration > Summaries from the pop-up menus.
Station Accumulations	The current hour, contract day and contract month, and the previous hour, contract day and contract month accumulations are displayed here.
Station Mass Accumulations	The current hour, contract day and contract month, and the previous hour, contract day and contract month mass accumulations are displayed here.
Forward / Reverse	When configuring for bi-directional flow, the stations must be paired (1 and 2; 3 and 4; or 5 and 6).
	The odd-numbered stations (1, 3, or 5) are the "forward" flowing stations, and the even-numbered stations (2, 4, or 6) are the "reverse" flowing stations.
	When a pair of stations is configured for bi-directional flow, the Station Summary screen for the odd-numbered (forward) stations will indicate flow and energy rates in the "forward" column when flow is in the "forward" direction, and will indicate flow and energy rates in the "reverse" column when flow is in the "reverse" direction.
	However, the Station Summary screen for the even-numbered (reverse) stations, will indicate flow and energy rates in the "forward" column when flow for the combined station is in the "reverse" direction, and

will always indicate no flow or energy rate in the "reverse" column.

General		Station Data	1	Bi-Directional Control
	.00	Forward	0.00	BTU/HOUR)
Reverse 0	<u>1.00</u>	Reverse		
	Mass I Forward	Rate (LB/HOUF	1)	
	Reverse	0.00		
Station Accumulations	Volume (Forward	MSCF) Energy (Forward	MMBTU) Reverse
Current Hour	0.00	0.00	0.00	0.00
Previous Hour	0.00	0.00	0.00	0.00
Current Contract Day	0.00	0.00	0.00	0.00
Previous Contract Day	0.00	0.00	0.00	0.00
Current Contract Month	0.00	0.00	0.00	0.00
Previous Contract Month				
Station Mass Accumulatio	ns [-]			
	Mass (LB]	
Current Hour	Forward 0.00	Reverse 0.00	1	
Previous Hour	0.00]	
L		0.00]	
Current Contract Day	0.00	0.00		
Previous Contract Day	0.00	0.00		
Current Contract Month	0.00	0.00		
Previous Contract Month	0.00	0.00		

Figure 3-14. Station Data tab

3.2.8 Bi-Directional Control Tab (Station Configuration)

Note: The Bi-directional Control tab is only available on even-numbered (2, 4, or 6) stations, and only when the selected direction is "Reverse." You set a station to the reverse direction using the "Station Direction" button on the Station Configuration tab; see *Section 3.2.6* for details. To access the Bi-Directional Control tab, right-click on the station icon, then choose **Configuration > Bi-Directional** from the pop-up menus.

The Station Manager application provides bi-directional measurement; that is, one physical run may measure flow in both the "forward" and "reverse" directions. For measurement purposes, flow in the "forward" direction is accounted for in one run, and flow in the "reverse" direction is accounted for in a separate run.

In the Station Manager controller, this is handled by assigning oddnumbered runs (Run 1, 3, 5, or 7) to odd-numbered stations (Station 1, 3, or 5), which will be designated as the "forward" station, and the evennumbered runs (Run 2, 4, 6, or 8) to the even-numbered stations (Station 2, 4, or 6), which will be designated as the "reverse" station.

The Station Manager controller can accommodate bi-directional measurement where the gas physically travels through the meter run in both directions, or where the gas always travels through the run in one direction.

General		Í	Station Data		Bi	Directional Control	
-Station Direction Indica	tion						_
		Tracaura		1-1	а в ания стр	Forward	
Indication Source	Differential I	ressure		Indicate	d Direction	Forward	

Figure 3-15. Bi-Directional Control tab

	Field	Description			
	Station Direction Indication				
	Indication Source	The "Indication Source" selection controls the "Indication Direction." Your choice determines what variable causes a direction change.			
		Your choice of "Indication Source" also determines the appearance of the Bi-Directional Control tab.			
		See the sub-sections below which describe the tab fields for the possible indication sources.			
	Indicated Direction	Shows the currently selected direction ("Forward" or "Reverse") as determined by the Indication Source. Note: In earlier versions of Station Manager, this field was called Detected Direction .			
Indication Source is "Differential Pressure"	When "Differential Pressure" is chosen as the "Indication Source", the following information is available on the screen: The "Indicated Direction" is determined by the value of the differential pressure. If the differential pressure is positive (greater than or equal to 0.0) the indicated direction will be "Forward".				
	If the differential pressure is negative (less than 0.0) the indicated direction will be "Reverse".				
	than one run, direction is	configured, and there is flow through more determined by a voting scheme. Whatever the cates determines the station direction. Tie allts from previous state.			
	S When "Frequency Input" is chosen as the "Indication Source", thfollowing information is available on the screen: The "Indicated Direction" is determined by the value of the frequency.				
	If the frequency on a forward run is above the cutoff, the Indicated Direction is "Forward."				
	If the frequency on a reve Direction is "Reverse."	erse run is above the cutoff, the Indicated			
	than one run, direction is majority of the runs indic	configured, and there is flow through more determined by a voting scheme. Whatever the cates determines the station direction. A tie alts from the previous state.			

Indication Source is "Single Discrete Input"

When "Single Discrete Input" is chosen as the "Indication Source", the following information is available on the screen: The "Indicated Direction" is determined by the state of the digital input assigned to STx Direction Indicator, (where x = 2, 4, or 6).

- Discrete Inpu	Jt	
-		Current State
Input ID	ST2 Direction Indicator	OFF

Figure 3-16. Fields on Bi-Directional Control Tab for "Single Discrete Input" Choice

Field	Description
Discrete Input	
Input ID	The input ID will be "ST2 Direction Indicator" for Station 2, "ST4 Direction Indicator" for Station 4 or "ST6 Direction Indicator" for Station 6.
Current State	The "Current State" field shows the state of the digital input.
	If the state of digital input is OFF (FALSE), the indicated direction will be "Forward".
	If the state of digital input is ON (TRUE), the indicated direction will be "Reverse".

Sense"

Indication Source is When "Limit Switch/DI Sense" is chosen as the "Indication Source", "Limit Switch / DI the following information is available on the screen: The "Indicated Direction" is determined by the state of multiple digital inputs.

– Limit	Switch	Sensing	/DI

	Evaluated only when an assignment has been made.	Expected State for Forward Direction	Current State
Limit Switch /DI 1	RCV 1 Open Limit	Off	OFF
Limit Switch /DI 2		Off	OFF
Limit Switch /DI 3		Off	OFF
Limit Switch /DI 4		Off	OFF
Limit Switch /DI 5		Off	OFF
Limit Switch /DI 6		Off	OFF

Figure 3-17. Fields on Bi-Directional Control Tab for "Limit Switch / DI Sense" Choice

Field	Description
Limit Switch Sensing / DI	
Limit Switch / DI x	Up to 6 digital inputs may be chosen to be evaluated. These digital inputs may be valve limit switches, or other digital inputs.

Expected State for Forward Direction	In addition to assigning the digital inputs to be evaluated, the state of the digital input (OFF or ON) that indicates "Forward Direction" must be selected.
Current State	The "Current State" field shows the state of each of the digital inputs.

In *Figure 3-18*, there are 6 valve limit switches that determine the direction of flow through the station. When block valves 4, 5, and 6 are open, and the block valves 1, 2, and 3 are closed, there is forward flow through the station.

Station Direction Indic								
Station Direction Indic								
	ation	Station Direction Indication						
Indication Source	Limit Switch/DI Sense	Indicate	ed Direction Forward					
		_						
Limit Switch Sensing /	/DI	E . 10 /						
Ev	valuated only when an assignment has been made.	Expected State for Forward Direction C	urrent State					
Limit Switch /DI 1	ST2 DIR BV 1 Open Limit	Off	OFF					
Limit Switch /DI 2	ST2 DIR BV 2 Open Limit	Off	OFF					
Limit Switch /DI 3	ST2 DIR BV 3 Open Limit	Off	OFF					
Limit Switch /DI 4	ST2 DIR BV 4 Open Limit	On	ON					
Limit Switch /DI 5	ST2 DIR BV 5 Open Limit	On	ON					
Limit Switch /DI 6	ST2 DIR BV 6 Open Limit	On	ON					

Figure 3-18. Limit Switch / Sensing DI

When block valves 4, 5, and 6 are closed, and the block valves 1, 2, and 3 are open, there is reverse flow through the station.

General			Station Data	Ì	Bi	Directional Control
Station Direction In Indication Source		DI Sense		ndicated	d Direction [Reverse
Limit Switch Sensi	ng /DI					
	Evaluated only when a has been ma	n daaigninion (xpected State for Forward Direction	Cu	irrent State	
Limit Switch /DI 1	ST2 DIR BV 1 0	pen Limit	Off		ON	
Limit Switch /DI 2	ST2 DIR BV 2 O	pen Limit	Off		ON	
Limit Switch /DI 3	ST2 DIR BV 3 O	pen Limit	Off		ON	
Limit Switch /DI 4	ST2 DIR BV 4 0	pen Limit	On		OFF	
Limit Switch /DI 5	ST2 DIR BV 5 0	pen Limit	On		OFF	
Limit Switch /DI 6	ST2 DIR BV 6 O	pen Limit	On		OFF	

Figure 3-19. Limit Switch Sensing / DI – Reverse Flow

If there is a tie between the various inputs, no change of indicated direction occurs.

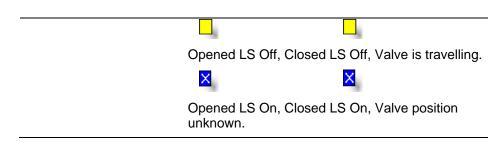
Indication Source is "Block Valve Dual LS Sense"

When "Block Valve Dual LS (Limit Switch) Sense" is chosen as the "Indication Source", the following information is available on the screen: The "Indicated Direction" is determined by the state of a pair of limit switches from one or more valves.

General		Station Data	Bi-Directi	onal Control		
Station Direction Indication Indication Source Block Valve Dual LS Sense Indicated Direction Forward						
Limit Switch Sensing Open LS Limit Evaluated only when an assignment Switch has been made.	Forward State	Closed LS	Limit Swit Open LS	ch Status Close LS		
1 DI	Off					
2 DI	Off					
3 DI	Off					
4 DI	Off					

Figure 3-20. Block Valve Dual LS Sense

Field	Description				
Limit Switch Sensing I	Four pairs of limit switches may be chosen to be evaluated.				
Limit Switch / DI x	Up to 4 pairs of digital inputs may be chosen to be evaluated. These digital inputs may be valve limit switches, or other digital inputs.				
Open LS	Select the digital input representing the opened limit switch for this valve.				
Closed LS	Select the digital input representing the closed limit switch for this valve.				
Forward State	In addition to assigning the limit switches to be evaluated, the state of the digital input (OFF or ON) that indicates "Forward Direction" must be selected for the Open Limit Switch. The opposite state for the Closed Limit Switch is assumed.				
Limit Switch Status	The "Current State" field shows the state of each of the limit switches.				
	The "Open LS" and "Close LS" fields show the state of each of the limit switches.				
	Open LS Close LS				
	Opened LS On, Closed LS Off, Valve is Opened.				
	Opened LS Off, Closed LS On, Valve is Closed				



In *Figure 3-21*, there are two valves used to determine the direction of flow through the station. When block valve 1 for Station 2 is open, and block valve 2 for Station 2 is closed, there is forward flow through the station.

General		Station Data	Bi-Directio	onal Control	
Station Direction Indication Indication Source Block Valve Dual LS Sense Indicated Direction Forward					
Limit Switch Sensing Open LS Limit Evaluated only when an assignment Switch has been made.	Forward State	Closed LS	Limit Swite Open LS	ch Status Close LS	
1 DI ST2 DIR BV 1 Open Limit	On	ST2 DIR BV 1 Close Limit			
2 DI ST2 DIR BV 2 Open Limit	Off	ST2 DIR BV 2 Close Limit		×	
3 DI	Off				
4 DI	On				

Figure 3-21. Block Valve Dual LS Sense

When the block valve 1 for Station 2 is closed, and block valve 2 for Station 2 is open, there is reverse flow through the station.

General	Í	Station Data	Bi-Directi	onal Control
Station Direction Indication	-110.0		n: .: D-	
Indication Source Block Valve Du	al LS Sen:	se Indicated	Direction Re	verse
Limit Switch Sensing				
Dpen LS Limit Evaluated only when an assignment Switch has been made.	Forward State	Closed LS	Limit Swit Open LS	ch Status Close LS
1 DI ST2 DIR BV 1 Open Limit	On	ST2 DIR BV 1 Close Limit		×
2 DI ST2 DIR BV 2 Open Limit	Off	ST2 DIR BV 2 Close Limit		
3 DI	Off			
4 DI	On			

Figure 3-22. Block Valve Dual LS Sense

If there is a tie between the various inputs, then no change of indicated direction occurs.

Indication Source is "Software Switch"	When "Software Switch" is chosen as the "Indication Source", the following information is available on the screen: The "Indicated Direction" is determined by the state of a software switch. This is a variable (BI.STx_DIR, where $x = 1$ or 5) that may be set through either the local or SCADA interface. This may be changed via the SCADA interface when using either the BSAP protocol or the Enron MODBUS protocol.
	If the state of the software switch is "Forward" (OFF), then flow through the station is in the forward direction.
	If the state of the software switch is "Reverse" (ON), then flow through the station is in the reverse direction.
Indication Source is "Run Flow Rates"	When "Run Flow Rate" is chosen as the "Indication Source", the following information is available on the screen: The "Indicated Direction" is determined by the value of the run flow rate. If the run flow rate on a forward run is above the cutoff, the Indicated Direction is "Forward."
	If the run flow rate on a reverse run is above the cutoff, the Indicated Direction is "Reverse."
	If there are multiple runs configured, and there is flow through more than one run, direction is determined by a voting scheme. Whatever the majority of the runs indicates determines the station direction. A tie results in unchanged results from the previous state.
Indication Source is "Station Flow Rates"	When "Station Flow Rates" is chosen as the "Indication Source" the "Indicated Direction" is determined by the value of the station flow rates.
	If the forward station flow rate is greater than the reverse station flow rate, the indicated direction is "forward."
	If the reverse station flow rate is greater than the forward station flow rate, the indicated direction is "reverse."
Indication Source is "Programmed Control"	The Station Manager controller can perform the control necessary to reconfigure a station for "forward" or "reverse" flow. This is done by allowing the user to configure the valves to manipulate, and the sequence by which to operate the valves.
	To configure the Station Manager controller to perform this control, select "Programmed Control" as the "Indication Source". Once you click the Click to Expand>> link, the following will be available from the screen:

mui	cation Source Prog	Indicated	Direct	tion	For	ward							
Progr	ammed Control												
	vard Direction		ammed Control			erse Di							
Valve	es to Open Valves to Cl	ose Be:	1	rent State nahled	Valve	es to Op	_		Clo				
BV #	BV #			liableu	BV #		BV	#					
BV #	BV #		re Mode Local Control S		BV #		BV	#					
BV #	BV #		evert Disabled		BV #		ВУ	#					
BV #			atus Requested Dire	ection	BV #		BV						
BA #	BA #		ctive Forward		BA #		BA	*					
		Time De	elay between Valve Actions	0 Secs	:								
			Block Valve Controls	,									
									_				
¥#	Demand Open LS Clo	osed LS	Control Type	Pulse D	uration	Limit I	Delay	Trave	l Ti				
V# 1	Demand Open LS Clo	osed LS	Control Type No Control	Pulse D	uration Secs	Limit 5	Delay Secs	Trave 30	-				
1		osed LS			-	5			Se				
1	CLOSE	osed LS	No Control	5	Secs	5 5	Secs	30] Se] Se				
1 2	CLOSE CLOSE	osed LS	No Control No Control	5	Secs Secs	5 5 5	Secs Secs	30 30] Se] Se] Se				
1 2 3 4	CLOSE	Desed LS	No Control No Control No Control No Control	5 5 5 5	Secs Secs Secs Secs	5 5 5 5	Secs Secs Secs Secs	30 30 30 30] Se] Se] Se] Se				
2 3 4 5	CLOSE CLOSE CLOSE CLOSE CLOSE		No Control No Control No Control No Control No Control	5 5 5 5 5	Secs Secs Secs Secs Secs	5 5 5 5 5	Secs Secs Secs Secs Secs	30 30 30 30 30 30]Se]Se]Se]Se				
1 2 3 4 5 6	CLOSE	Dised LS	No Control No Control No Control No Control No Control No Control	5 5 5 5 5 5 5	Secs Secs Secs Secs Secs Secs Secs	5 5 5 5 5 5 5	Secs Secs Secs Secs Secs Secs	30 30 30 30 30 30 30] S e] S e] S e] S e] S e				
1 2 3 4 5	CLOSE CLOSE CLOSE CLOSE CLOSE	Desed LS	No Control No Control No Control No Control No Control	5 5 5 5 5	Secs Secs Secs Secs Secs	5 5 5 5 5	Secs Secs Secs Secs Secs	30 30 30 30 30 30] Se] Se] Se] Se] Se				

Figure 3-23. Bi-Directional Control Tab – Programmed Control Section

It is possible to select up to 8 valves to be operated, in a user specified sequence, to change the flow direction from Reverse-to-Forward, and select a different sequence to change the flow direction from Forward-to Reverse.

Field	Description			
Forward Direction / Reverse Direction I	To configure the sequence of operations from Reverse-to-Forward, select the appropriate valves in the "Forward Direction" table.			
	To configure the sequence of operations from Forward-to- Reverse, select the appropriate valves in the "Reverse Direction" table.			
	Note : The two sequences can be independent of each other.			
Valves to Open / Valves to Close	Up to 4 valves may be selected to open when changing direction. These valves may be chosen from any of the 8 block valves available for the station.			
	When changing direction, all valves to close will be closed, and then the valves to open will be opened.			
Failure Mode	In the event of a failure, that is, a valve is not indicated in the demanded position within the travel time of the valve, there are three modes of action that can be configured:			
	Revert			
	The "Revert" failure mode will cause the controller to attempt to return to the previous state in the event of a failure.			
	When commanding the station from the forward-to- reverse direction, if a failure occurs, the valves will			

be commanded back to the "Forward" positions. When commanding the station from the reverse-toforward direction, if a failure occurs, the valves will be commanded back to the "Reverse" positions. ESD The "ESD" or emergency shutdown failure mode will cause the station to be shut-in in the event of a failure. Pause The "Pause" failure mode will cause the sequence to halt, and allow the failed valve indication to be rectified, and will then continue. Status The following Status will be indicated: Active While a "Requested Direction" change is being processed, either until the direction change is successful or a failure occurs, the "Status" indication will be "Active". Disabled When the "Programmed Control" is Disabled, the Status will be "Disabled" ESD If a station "ESD" has occurred, the "Status" indication will be ESD. Failing If a failure is occuring the "Status" indication will be "Failing" Fail-ESD If a failure mode is "ESD" and a failure has occurred, the status indication will be "Fail ESD." Fail-PSD If a failure mode is "Pause" and a failure has occurred, the status indication will be "Fail PSD." Fail-Reverted If a failure mode is "Revert" and a failure has occurred, and the Station Manager has completed going back to the previous state, the status indication will be "Fail-Reverted." Idle When the "Indicated Direction" matches the "Requested Direction" the "Status" indication will be "Idle". Reverting

If a failure mode is "Revert" and a failure has occurred, the status will indicate "Reverting" while the Station Manager commands the valves back to

	the previous position.
Local Control State	The "Local Control State" is controlled by the settings on the "Local/Remote Settings" screen.
	When the "Local Control State" is "Enabled", local control is enabled, and changing the "Requested Direction" will initiate the control action.
	When the "Local Control State" is "Disabled", local control is disabled, changing the "Requested Direction" locally will not initiate the control action. The control action may only be initiated via SCADA using the BC.STn_RDIR_REQ signal, where n = station number.
Requested Direction Forward / Reverse	When the local control state is enabled, toggling this button between "Forward" and "Reverse" will initiate the control action to change the direction of the station to match the direction indicated on the button.
Reset	If a failure has occurred, no further action will occur until the you click the Reset button. The "Enabled" state will be set back to the "Disabled" state when the reset operation is complete.
Programmed Control Enable / Disable	Enable or disable programmed control by toggling this button. Click Enable to enable programmed control; click Disable to disable programmed control.
Current State	Shows Enabled when programmed control is enabled; shows Disabled when programmed control is disabled.
Time Delay Between Valve Actions	This will be the amount of time, in seconds, between valve actions. When set to 0, the next valve in the sequence will operate immediately after the current valve command is done being issued. If it is necessary to wait until one valve is done operating until operating the next valve, the "Time Delay between Valve Actions" setting should be made greater than the travel time of the valve.
Block Valve Controls	
BV#	Up to 8 block valves can be configured for each station. The BV# in this field corresponds with the BV# configured in the "Programmed Control" configuration section of this screen.
Control Type	Each block valve may be configured for one of three control types. The settings for each block valve may be made independently of the other block valves. The "Control Type" selection may be one of the following:
	Single Maintained Output This option should be chosen when a single output is energized to change the position of the valve.

	Dual Maintained Outputs
	This option should be chosen when there are two outputs, one to open the valve, and the other to close the valve, and these outputs should be maintained, even after the appropriate limit switch indicates that the valve is in the demanded position
	Dual Pulsed Outputs
	This option should be chosen when there are two outputs, one to open the valve, and the other to close the valve, and these outputs should pulsed until the appropriate limit switch indicates that the valve is in the demanded position. The "Limit Delay" setting can be used to maintain a pulse for some time after the limit switch is made.
Pulse Duration	The "Pulse Duration" is the amount of time to pulse the output. This setting only applies to the "Control Type" is "Dual Pulsed Outputs", and may only be changed when this control type is selected.
Limit Delay	The "Limit Delay" is the amount of time, in seconds that the output pulse will be maintained after an opened or closed limit is indicated. This only applies for the "Control Type" of "Dual Pulsed Outputs".
Travel Time	The "Travel Time" field is the amount of time, in seconds, it takes the valve to fully travel from the open-to-close or close-to-open position. This entry may be changed from this screen.
Demand	The "Demand" field displays the demanded positio of the Block Valve.
Open / Close LS	The "Open LS" and "Close LS" fields show the stat of each of the limit switches.
	Open LS Close LS
	Opened LS On, Closed LS Off, Valve is Opened.
	Opened LS Off, Closed LS On, Valve is Closed.
	Opened LS Off, Closed LS Off, Valve is travelling.
	× ×
	Opened LS On, Closed LS On, Valve position unknown.

In *Figure 3-24*, there are two valves to be controlled by the Station Manager controller to change flow direction through the station.

General	Station Data	Ì	Bi-D	irectior	nal Cont	trol		
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward								
Programmed Control Failure Mode Local Control State Forward Direction Revert Enabled Valves to Open Valves to Close Requested Direction BV # BV # BV # Forward BV # BV # Programmed Control BV # BV # BV # Disable Forward BV # BV # Disable Enable BV # BV # BV # BV # BV # BV # BV # BV #								
BV# Demand Open LS Closed LS	Control Type	Pulse Dura	ion Limit	Delay	Trave	Time		
1 <u>Open</u>	Single Maintained Output	<u> 5 </u> S	ecs 5	Secs	30	Secs		
2 Close 🗌 🗙	Single Maintained Output	<u> 5 </u> S	ecs 5	Secs	30	Secs		
3 Close	No Control	<u> 5 </u> S	ecs 5	Secs	30	Secs		
4 Close	No Control	<u> 5 </u> S	ecs 5	Secs	30	Secs		
5 Close	No Control	<u> 5 </u> S	ecs 5	Secs	30	Secs		
6 Close	No Control	5 S	ecs 5	Secs	30	Secs		
7 Close	No Control	<u> 5 </u> S	ecs 5	Secs	30	Secs		
8 Close	No Control	<u> 5 </u> S	ecs 5	Secs	30	Secs		

Figure 3-24. Programmed Control – Bi-Directional Control

To direct flow through the station in the "Forward" direction, Block Valve (BV) #1 must be opened, and BV# 2 must be closed.

To change the direction from forward to reverse, the "Programmed Control" must be enabled, and the "Requested Direction" must be set to "Reverse".

The first step is to enable the programmed control:

Immediately upon enabling programmed control, the "Status" indication will go to "Active" for the time delay between valve operations multiplied by the number of valves configured to be operated. In this example, the Status will remain in the "Active" state for 70 seconds.

General	Station Data		Bi-Directi	onal Control					
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward									
Programmed Control Failure Mode Local Control State Forward Direction Revert Enabled Valves to Open Valves to Close Revert BV # BV # BV # BV # BV # Programmed Control BV # BV # Disable BV # BV # Disable BV # BV # BV # BV # BV # BV #									
BV# Demand Open LS Closed LS	Control Type P	ulse Duration	Limit Delay	Travel Tir	ime				
1 OPEN X	Single Maintained Output	5 Secs	5 Sec	s 30 Se	ecs				
2 CLOSE X	Single Maintained Output	5 Secs	5 Sec	s 30 Se	ecs				
3 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				
4 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				
5 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				
6 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				
7 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				
8 CLOSE	No Control	5 Secs	5 Sec	s 30 Se	ecs				

Figure 3-25. Programmed Control – Bi-Directional Control

After this, the "Status" will indicate "Idle".

Change the "Requested Direction" by toggling the button from "Forward" to "Reverse".

General			ľ	Station Data		ſ		Bi-D	irection	nal Coni	trol
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward											
Programmed Control Failure Mode Local Control State Forward Direction Revert Enabled Valves to Open Valves to Open Valves to Open BV # BV # BV # Revert BV # BV # BV # BV # BV # BV # Disable Disable BV # BV # Disable Disable BV # BV # BV # BV # BV # BV # BV # BV #											
BV#	Demand	Open LS Closed LS	Con	trol Type	Pu	ilse Du	iration	Limit I	Delay	Trave	l Tin
1	CLOSE	X []	Single Mai	ntained Output		5	Secs	5	Secs	30	Se
2	CLOSE		Single Mai	ntained Output	Ē	5	Secs	5	Secs	30	Se
3	CLOSE		No	Control		5	Secs	5	Secs	30	Se
4	CLOSE		No	Control	Ē	5	Secs	5	Secs	30	Se
5	CLOSE		No	Control	Ē	5	Secs	5	Secs	30	Se
6	CLOSE		No	Control		5	Secs	5	Secs	30	S
7	CLOSE		No	Control		5	Secs	5	Secs	30	Se
8	CLOSE		No	Control	Ē	5	Secs	5	Secs	30	ÌS∉

Figure 3-26. Programmed Control – Bi-Directional Control

The "Demand" indication for BV#1 changes to "Close", since the first valve operation to change flow through the station to "Reverse" is to close BV#1. Block Valve # 1 should start closing.

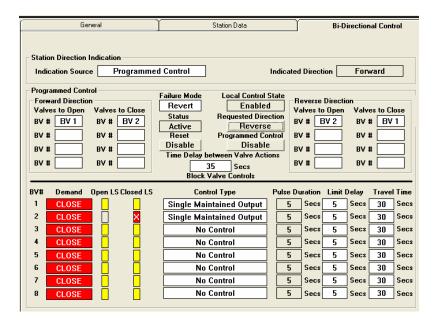


Figure 3-27. Programmed Control – Bi-Directional Control

The indication that the valve is closing should that be both limit switch indicators change to yellow. This indicates both the opened and closed limit switches are Off, and that the valve is traveling.

Block valve 1 should fully close within the travel time entry for the valve,

General		ľ	Bi-D	irection	nal Con	trol					
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward Programmed Control											
Forward Direction	Failure Mode Local Control		Reverse	Directi	nn —						
Valves to Open Valves to Clo		d i	alves to			es to Cl	ose				
BV # BV 1 BV # BV	Status Requested Dire		IV # 🗌	3V 2	BV :	# BV	1				
BV # BV #	Reset Programmed Co	<i>i</i>	IV #		BV :	#					
BV # BV #	Disable Disable	-	IV #		BV :	#					
BV # BV #	35 Secs		BV # [BV	#					
3V# Demand Open LS Close		Pulse [uration	Limit I	Delay	Trave	l Time				
1 CLOSE	Single Maintained Output	5	Secs	5	Secs	30	Secs				
2 CLOSE	Single Maintained Output	5	Secs	5	Secs	30	Secs				
3 CLOSE	No Control	5	Secs	5	Secs	30	Secs				
4 CLOSE	No Control	5	Secs	5	Secs	30	Secs				
5 CLOSE	No Control	5	Secs	5	Secs	30	Secs				
6 CLOSE	No Control	5	Secs	5	Secs	30	Secs				
7 CLOSE	No Control	5	Secs	5	Secs	30	Secs				
8 CLOSE	No Control	5	Secs	5	Secs	30	Secs				

Figure 3-28. Programmed Control – Bi-Directional Control

After BV#1 has fully closed and until the time delay between valve actions has expired, both BV#1 and BV#2 demand should be closed, and the limit switches for both valves should indicate both valves are closed.

After the time delay between valve actions has expired, BV# 2 Demand should change to open.

General	Station Data	Bi-Directional Control							
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward									
Programmed Control Failure Mode Local Control State Forward Direction Revert Enabled Valves to Open Valves to Close Status BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV #									
BV# Demand Open LS Closed LS	Control Type P	ulse Duration Limit Delay Travel Time							
1 CLOSE X	Single Maintained Output	5 Secs 5 Secs 30 Secs							
2 OPEN X	Single Maintained Output	5 Secs 5 Secs 30 Secs							
3 CLOSE	No Control	5 Secs 5 Secs 30 Secs							
4 CLOSE	No Control	5 Secs 5 Secs 30 Secs							
5 CLOSE	No Control	5 Secs 5 Secs 30 Secs							
6 CLOSE	No Control	5 Secs 5 Secs 30 Secs							
7 CLOSE	No Control	5 Secs 5 Secs 30 Secs							
8 CLOSE	No Control	5 Secs 5 Secs 30 Secs							

Figure 3-29. Programmed Control – Bi-Directional Control

This is because all of the valves that need to be closed are closed, and BV# 2 is the first valve that is required to be opened.

Block Valve # 2 should start to open.

General			Station Data		Ľ		Bi-D	irection	nal Cont	trol
	Station Direction Indication Indication Source Programmed Control Indicated Direction Forward									
Forv Valv BV 1 BV 1	Programmed Control Failure Mode Local Control State Reverse Direction Valves to Open Valves to Close BV # BV # <td< td=""></td<>									
BV#	Demand	Open LS Closed LS	Control Type	Р	ulse Du	ıration	Limit I	Delay	Trave	l Time
1	CLOSE		Single Maintained Output] [5	Secs	5	Secs	30	Secs
2	OPEN		Single Maintained Output] [5	Secs	5	Secs	30	Secs
3	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
4	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
5	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
6	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
7	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
8	CLOSE		No Control] [5	Secs	5	Secs	30	Secs
L										

Figure 3-30. Programmed Control – Bi-Directional Control

The indication that the valve is opening should be that both limit switch indicators change to yellow. This indicates both the opened and closed limit switches are Off, and that the valve is traveling.

Block valve 2 should fully open within the travel time entry for the valve.

General	Station Data		Bi-Directio	nal Control	l					
Station Direction Indication Indication Source Programmed Control Indicated Direction Forward										
Programmed Control Failure Mode Local Control State Reverse Direction Forward Direction Valves to Open Valves to Close BV # BV # BV 2 BV # BV # BV # BV # BV # BV # BV # BV # BV # Disable Disable BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV # BV #										
BV# Demand Open LS Closed LS	Control Type Pu	ulse Duration	Limit Delay	Travel Ti	ime					
	Single Maintained Output	5 Secs	5 Secs	30 S	iecs					
2 OPEN X	Single Maintained Output	5 Secs	5 Secs	30 S	iecs					
3 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					
4 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					
5 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					
6 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					
7 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					
8 CLOSE	No Control	5 Secs	5 Secs	30 S	iecs					

Figure 3-31. Programmed Control – Bi-Directional Control

After BV#2 has fully opened and until the time delay between valve actions has expired, the "Indicated Direction" will indicate "Forward".

After the time delay between valve actions has expired, the "Indicated Direction" should indicate "Reverse" and the "Status" should indicate Idle.

General		Station Data	Bi-Directional Control			
Station Direction Indication Source		d Control Indical	ted Direction	Rev	erse	
Programmed Conl Forward Direction Valves to Open BV # BV 1 BV # BV # BV #		Failure Mode Local Control State Revert Enabled Status Requested Direction Idle Reverse Reset Programmed Control Disable Disable Time Delay between Valve Actions 35 Bock Valve Controls Secs	Reverse Direct Valves to Oper BV # BV # BV # BV #		# #	
BV# Demand	Open LS Closed LS		Duration Limit		Trave	-
1 CLOSE		Single Maintained Output 5		Secs	30	Se
2 OPEN		Single Maintained Output 5		Secs	30	Se
3 CLOSE		No Control 5	Secs 5	Secs	30	Se
4 CLOSE		No Control 5	Secs 5	Secs	30	Se
5 CLOSE		No Control 5	Secs 5	Secs	30	Se
6 CLOSE		No Control 5	Secs 5	Secs	30	Se
7 CLOSE		No Control 5	Secs 5	Secs	30	Se
8 CLOSE		No Control 5	Secs 5	Secs	30	Sε

Figure 3-32. Programmed Control – Bi-Directional Control

It is now possible to change the direction from "Reverse" to "Forward". This would be done by toggling the "Requested Direction" button to "Forward", and observing similar action as described above, but for the valve sequence required to direct flow in the forward direction. In this example, block valve #2 would be demanded to close, then 35 seconds after that, if the valve closes successfully, block valve #1 would be demanded to open. If block valve #1 successfully closes and 35 seconds after block valve #1 is demanded closed, the "Indicated Direction" will indicate "Forward" and the "Status" will indicate "Idle". While the valves were being operated, the "Status" would indicate "Active".

Examples for Configuring Bi-Directional Control

The controller may use separate measurement inputs (differential pressure, frequency, static pressure, and flowing temperature) for each direction (isolated transmitters), or it may use the same measurement inputs for both directions (non-isolated transmitters). It is possible to have a combination of isolated and non-isolated transmitters.

What follows are some examples of how to configure bi-directional measurement for some typical cases:

Example 1– Bi-Directional Control with One Orifice Measurement Run, Flow Reverses Direction, Non-Isolated Transmitters

To configure bi-directional measurement for a single physical orifice meter run, where gas flows through the run in both directions, and there are a single set of measurement inputs, follow these steps:

- Run 1 will be configured as an orifice measurement run, assigned to Station 1.
- Run 2 will be configured as an orifice measurement run, assigned to Station 2.
- Station 2 will be configured as a "reverse" measurement station.

Configuring Configure the I/O for the odd-numbered ("forward") run only. In this example, the Run 1 differential pressure, static pressure, and flow temperature inputs are assigned to analog input points 1, 2, and 3 respectively. No assignments are made for the Run 2 measurement inputs.

- Inputs PNT	з Р V	Zero	Span	Units	Assignment
1	180.7	-150.0	300.0	In/H2O	MID-001 Diff. Pressure
2	436.9	0.0	1000.0	PSI	MID-001 Static Pressure
3	68.8	0.0	140.0	DEG_F	MID-001 Temperature
4	16.7	0.0	100.0		

Figure 3-33. Configuring I/O for Bi-Directional Control (Example 1)

Configuring Both Station 1 (the "forward" measurement station) and Station 2 (the "reverse" measurement station) must be configured.

Configure Station 1 by giving it a unique station name, and assigning the other configuration parameters as required.

KS_001_F (St 1) KS_001_R (St 2)	General	Station Data	Bi-Directional Control
20 mm MS_007, F(512) 6 mm Station 4 (514) 8 mm Station 5 (515) 8 mm Station 5 (515) 8 mm Station 6 (516) 8 mm Station 6 (516) 9 MR_007, F(F1) (511) 2 MR_007, F(F2) (512) 2 Run 4 (F14) 2 Run 5 (F15) 9 Run 5	Station Name Station Common Settings Atmospheric Pressure 14.700 Base Pressure 14.730	Units PSI PSI	
2 Ban 6 (R 6) 	Base Temperature 60.000 Construct Hour 11 Flowing Units [-] MSCF/HOU Energy Rate Units MMSTU UC Flow Rate Units MMSTU UC Flow Rate Units MMSTU Gan Rate Units KG Gan Chromotograph H Chromotograph Has Set Set	Energy Rate Time Units R Mass Rate Time Units	HOUR DAY
************************************	Use 1 for all Assigned Runs Heat Value Type Current Status Groot Sat_Wet BTU Dry BTU SG, Averaging (-) Meter Averaging Method Flow Dependent Formulaic Avg		Istatus elghted

Figure 3-34. Configuring Station 1 for Bi-Directional Control (Example 1)

Configure Station 2 by giving it a unique station name and setting the "Station Direction" to "Reverse". Assign the other configuration items as required.

In most cases, these configuration settings should be identical to the configuration settings for Station 1. However, it is possible to use a configuration in Station 1 ("forward") that is different than the configuration in Station 2 ("reverse").

Notice that after changing the "Station Direction" to "Reverse" that the Bi-Directional Control tab has become available for configuration.

ORMILLE_JUNCTION	MS_001_R (St 2) Configuration			
Kan MS_001_F (St 1) Kan MS_001_R (St 2) Kan MS_001_R (St 2) Kan MS_001_R (St 3)	General Station Data Bi-Directional Contro	<u>k</u>		
420 Station 4 (St 4) 420 Station 5 (St 5)		t Status		
B Station 6 (St 6) Buns MR_001_F (R 1) (St 1)	Station Common Settings	abled		
	Atmospheric Pressure 14.700 PSI			
27 Run 4 (R 4) 27 Run 5 (R 5) 28 Run 6 (R 6)	Base Pressure 14.730 PSI Base Temperature 50.000 DEG F			
	Contract Hour 9			
, CV 2 , CV 3	Flowing Units [-] Flow Rate Units MSCF/HOUR			
二,五, CV 4 二,五, CV 5	Energy Rate Units MMBTU Energy Rate Time Units HOUR UC Flow Rate Units MACF/HOUR			
	Mass Rote Units LB Mass Rote Time Units HOUR			
(学校での) 学校 学校 学校 学校 学校 学校 学校 学校 学校 学校	Gas Chromatograph [-] Chromatograph Data Set Compressibility Calc Select Calc Source Calculations U Use 1 for all Assigned Runs AGA8 Gross Fixed - Scheduled GC	Ising		
	Heat Value Type Current Status Sat_Wet BTU Dry BTU SG, CO2, N2 HV, SG, CO2			
二、二、 、 、 、 、 、 、 、 、 、 、 、 、 、	Averaging [-] Meter Averaging Method Upon No Flow Condition Use Current Status			
	Flow Dependent Formulaic Avg Straight Average Flow Weighted			
	GC Averaging Method Upon No Flow Condition Use Current Status Flow Dependent Formulaic Avg Straight Average Flow Weighted			
	[The openant of an and the state of the mediated			

Figure 3-35. Configuring Station 2 for Bi-Directional Control (Example 1)

Configuring the Measurement Runs

Both Run 1 (the "forward" measurement run) and Run 2 (the "reverse"measurement run) must be configured.

On the General tab, configure Run 1 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station

Assignment" to Station 1 (MS_001_F in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

In this example, because there is only a single measurement run, no run staging (also referred to as run switching or tube switching) is possible, so the "Run Staging Rank" may be left at 0.

ORVILLE_JUNCTION	Expand All		MR_0	001_F (R 1) (St 1)		
MS_001_F (St 1)	Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averag	es Linrztion Confid	
MS_001_R (St 2) Station 3 (St 3)	General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Station 4 (St 4) Station 5 (St 5)	Run ID [-]		Measurement T	уре	Direction	Station	Assignment
Station 6 (St 6)	MR_	001_F	Ori	fice	Forward	I MS	6_001_F
Runs MB_001_F (R 1) [Sl 1] 2 MB_001_R (R 2) [Sl 2] 2 Run 3 (R 3) [Sl 1] 2 Run 4 (R 4) [Sl 3]	-				C Isolated C Non-Isolate		aging Rank 0
22 Run 5 (R 5) (St 6) 22 Run 6 (R 6) (St 6)							
Control Valves	Static Pressure			0	ide/Live		
- 🖧 CV 1	Sour						Units
	Hardwar	e Al Non	e Defaul		ive	0.000	PSI
- <u>F</u> -C/3		dundant XMTRS -		-			
	For Redundant	y, Set Point = 0 \		iet Point 0.	.000		
T DV6		Force High XMT at <0 Value of Low		ad Band 0.	000		
完 CV7			AMIII. DO	da bana 0.			
	Flowing Tempe			0	de/Live		
	Sour						Units
T CV 10	Hardwar	e Al Non	e Default	AI L	ive	1 000.0	DEG_F
	Charles I as Da	dundant XMTRS -					
		cy, Set Point = 0 \	alue of	et Point 0.	000		
	Low XMTB. T	o Force High XMT	R to be				
	Used. Set Poir	nt <0 Value of Lov	XMTR. De	ad Band 0.	000		
	Flowing Units	9		Veloc	ity		
	Flow Rate Units MS		JC Flow MACF/	HOUR	locity of Gas	0.00000	Units FT/S
	-		B		elocity of Gas	0.00000	
-bd- CV 10	Rate Units	MMBTU Ene	ngy Hate HO	UR F	Pipe Diameter	4.07100	INCH
	Mass Rate Units		ss Rate HO me Units HO	UR			

Figure 3-36. Configuring Run 1 for Bi-Directional Control (Example 1)

On the "Orifice" tab for Run 1, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

	Ven	turi	V-Cone	Alarm Config	PV/GQ Averag	jes Linrztion Config	
General	Orifice	e [Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Settings [-]							
Orifice Diam			low Cutoff	Material	Pipe	Orifice	
	INCH	0.25000	In/H2O	Type (304/316 SS	304/316 SS	ا r
Pipe Diame					304/310 00	304/310 00	
	INCH			Reference Temp	0.00	0.00	DEG_F
AGA3 Equation			Tap Location			л	
AGA3I (19	92)	Up	Stream]			
Differential Pres	sure [-]						
Source		MVT#	AI#	Overrie	de/Live	Value	Units
Hardware	AI	None	Default A	Al Liv	ve	0.000	NH2O
Stacked or Redu For Redundancy Low XMTR To	, Set Poin	t = 0 Value	he		000		
	, Set Poin Force Hig	t = 0 Value h XMTR to	be _		DOO		
For Redundancy Low XMTR. To Used. Set Point	, Set Poin Force Hig <0 Value	t = 0 Value h XMTR to	be FR. Dead			its	
For Redundancy Low XMTR. To Used. Set Point Current Rates	, Set Poin Force Hig <0 Value Ite	t = 0 Value h XMTR to of Low XM1	s	d Band O.	000		
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	, Set Poin Force Hig <0 Value Ite	t = 0 Value h XMTR to of Low XM1 Unit	s	d Band 0.1	000 Un		
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change	v, Set Poin Force Hig <0 Value Ite	t = 0 Value h XMTR to of Low XM1 Unit	s	d Band 0.1 Energy Rate 0.000	000 Un	<i>i</i> /HOUR	a Ratio_
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	v, Set Poin Force Hig <0 Value Ite	t = 0 Value h XMTR to of Low XM1 Unit	IOUR	d Band 0.1 Energy Rate 0.000	Un DOO	VHOUR Diameter Bet	a Ratio
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change Normal (Ins	, Set Poin Force Hig <0 Value Ite	It = 0 Value h XMTR to of Low XMT Unit MSCF/H	IS Dear	d Band 0.1 Energy Rate 0.000	Un Un MMBTU	VHOUR Diameter Bet	
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change	o, Set Poin Force Hig <0 Value Ite Active for this Ru	it = 0 Value h XMTR to of Low XM Unit MSCF/H	be Dear TR. Dear is iOUR Elapsed 1 00 00:00:1	d Band 0.1 Energy Rate 0.000	000 Un MMBTL New Orifice 2.00000	VHOUR Diameter Bet	
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change Normal (Ina Min/Max Rates I	o, Set Poin Force Hig <0 Value Ite Active for this Ru	it = 0 Value h XMTR to of Low XM Unit MSCF/H	be TR. Dead is IOUR Elapsed 1 00 00:00:1 w Rate DP	d Band 0.1	Un Un MMBTL New Orifice 2.00000 [VHOUR Diameter Bel INCH (m Flow Rate	1.491
For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change Normal (Ina Min/Max Rates I Minimum Flow Ra	o, Set Poin Force Hig <0 Value Ite Active for this Ru	It = 0 Value h XMTR to of Low XM MSCF/H MSCF/H	be TR. Dead is IOUR Elapsed 1 00 00:00:1 w Rate DP	d Band 0.	Un Un MMBTL New Orifice 2.00000 [VHOUR Diameter Bel INCH (m Flow Rate	Units

Figure 3-37. Configuring Run 1 Orifice tab for Bi-Directional Control (Example 1)

On the General tab, configure Run 2 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 2 (MS_001_R in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

Because Run 2 is assigned to Station 2 (which is configured as a "reverse" station), the "Direction" field changes to "Reverse", and the items in the "PVs" box become available for configuration. In this example, since the measurement in both directions is being performed with a single set of measurement inputs, the "Non-Isolated" radio button should be selected.

When the "Non-Isolated" radio button is selected, the live input values for static pressure and flowing temperature applied to Run 1 are also applied to Run 2.

Because this run is assigned to a "reverse" measurement station, the option for changing the "Run Staging Rank" is disabled. It is important that the run staging rank for the reverse runs be left at 0.

Run ID [-] MR_001_R Chromatograph Data Si	et ation GC Data Se Settinos' alc	Turbine easurement Type Orifice thust Be Set To "L To Enable This Fea oss Method	Jse Run Stream	Ultrasonic rection Reverse s Isolated Non-Isolated	PD Co Station Assignmer MS_001_R Run Staging Ban 0	
MR_001_R Chromatograph Data So 1 Compressibility Ca	et ation GC Data Se Settinos' alc	Orifice t Must Be Set To "L ' To Enable This Fe	Jse Run Stream	Reverse Vs Isolated	MS_001_R - Run Staging Ran	
Chromatograph Data So 1 Compressibility Ca	ation GC Data Se Settinos' alc Gr	t Must Be Set To ''L ' To Enable This Fe	Jse Run Stream	Vs Isolated	-Run Staging Ran	k –
1 Compressibility Ca	ation GC Data Se Settinos' alc Gr	' To Enable This Fe	Jse Run Stream	Isolated		k –
		G, CO2, N2 H	V, SG, CO2			
Static Pressure [-] Source Hardware Al	MVT#	AI# Default AI	Override/L Live	ive Value	Units	_
Flowing Temperature [-	-		Override/Li	<u> </u>		
Source Hardware Al	MVT#	AI# Default AI	Live	ve Value 0.000	Units DEG F	-

Figure 3-38. Configuring General tab (for Run 2) in Bi-Directional Control (Example 1)

On the "Orifice" tab for Run 2, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change all other settings to the same values as set on Run 1, except for "Pressure Tap Location". Set the pressure tap location on Run 2 to be the opposite of the pressure tap location on Run 1. For instance, if the pressure tap location on Run 1 is "Upstream," set the pressure tap

location on Run 2 to "Downstream."

Because the "Non-Isolated" PVs radio button was selected on the "General" tab, the live input value for differential pressure from Run 1 is also routed to Run 2. However, the differential pressure value is only applied to Run 2 for measurement when the bi-directional flow indication determines gas is flowing through the physical station in the reverse direction, otherwise, the differential pressure is forced to 0.0.

When the flow direction is indicated as "reverse", the differential pressure will be indicated on Run 2, and the differential pressure for Run 1 will be forced to 0.0.

ettings [-] Orifice Dia	neter	Low	Flow Cutoff	- Material			
2.00000	INCH	0.2500			Pipe	Orifice	
Pipe Diam	eter	L		Туре	304/316 SS	304/316 SS	
4.07100 AGA3 Equation AGA3I (19			re Tap Location wn Stream	Reference Temp	0.00	0.00	DEG_F
ifferential Pres Source	sure [-]	MVT#	AI#	Overri	de/Live Va	alue	Units
	undant XM		Default		ve 0.0	000	NH2O
tacked or Red or Redundanc ow XMTR. To sed. Set Point	undant XM y, Set Poir Force Hig	ITRS	ue of Si to be _	et Point 0.		000 1	NH2O
tacked or Red or Redundanc; ow XMTR. To sed. Set Point urrent Rates Flow R	undant XM y, Set Poir Force Hig < < 0 Value	ITRS — ht = 0 Val ht XMTR of Low X U	ue of So to be MTR. De nits	et Point 0. ad Band 0. Energy Rate	000 000 Units		NH2O
tacked or Red or Redundanc ow XMTR. To sed. Set Point urrent Rates –	undant XM y, Set Poir Force Hig < < 0 Value	ITRS — ht = 0 Val ht XMTR of Low X U	ue of So to be MTR. De	et Point 0.			NH2O
acked or Red or Redundanc ow XMTR. To sed. Set Point urrent Rates Flow R 0.000	undant X⊭ y, Set Poir Force Hig <0 Value	ITRS — ht = 0 Val ht XMTR of Low X U	ue of So to be MTR. De nits	et Point 0. ad Band 0. Energy Rate 0.000	000 000 Units MMBTU/H	IOUR]	NH2O ta Ratio),491
acked or Red or Redundanc; wx XMTR. sed. Set Point urrent Rates Flow Ra 0.000 late Change Normal (In	undant XM v, Set Poir Force Hig c <0 Value ate) active]	ITRS at = 0 Val h XMTR of Low X U MSCF	ue of So to be MTR. De nits 7/HOUR [Elapsed	et Point 0. ad Band 0. Energy Rate 0.000	000 000 Units MMBTU/H	IOUR]	ta Ratio
tacked or Red or Redundanc; ow XMTR. To sed. Set Point uurent Rates – Flow Ra 0.000 late Change –	undant XM y, Set Poir Force Hig < (0 Value ate) active) for this Ru	ITRS tt = 0 Val MXMTR of Low X U MSCF I I I I I I I I I I I I I	ue of So to be De MTR. De nits 7HOUR [Elapsed 00 00:00	et Point 0. ad Band 0. Energy Rate 0.000	000 000 MMBTU/H New Orifice Di 2.00000	IOUR iameter Bet INCH (ta Ratio

Figure 3-39. Configuring Run 2 Orifice tab for Bi-Directional Control (Example 1)

Example 2– Bi-Directional Control for One Measurement Run, Flow in One Direction, Isolated Transmitters

To configure bi-directional measurement for a single physical orifice meter run, where gas flows through the run in one direction, and there are a single set of measurement inputs, follow these steps:

- Run 1 will be configured as an orifice measurement run, assigned to Station 1.
- Run 2 will be configured as an orifice measurement run, assigned to Station 2.
- Station 2 will be configured as a "reverse" measurement station.

Configuring the I/O

Configure the I/O for the odd-numbered ("forward") run only. In this example, the Run 1 differential pressure, static pressure, and

flow temperature inputs are assigned to shared inputs for DP, SP, and FTemp respectively. No assignments are made for the Run 2 measurement inputs.

- Inputs PNT	:	Zero	Span	Units	Assignment
1	-862.5	0.0	300.0	In/H2O	Shared DP 1
2	-2874.9	0.0	1000.0	PSI	Shared SP 1
3	-402.5	0.0	140.0	DEG_F	Shared FTemp 1
4	-287.5	0.0	100.0		

Figure 3-40. Configuring I/O for Bi-Directional Control (Example 2)

Configuring Both Station 1 (the "forward" measurement station) and Station 2 (the "reverse" measurement station) must be configured.

Configure Station 1 by giving it a unique station name, and assigning the other configuration parameters as required.

General		Station Data	Bi-Directional Control
Station Name MS_001_F Station Common Settings			
Atmospheric Pressure	Value 14.700	Units PSI	
Base Pressure	14.730	PSI	
Base Temperature	60.000	DEG_F	
Contract Hour	9		
Flowing Units [-]			
Flow Rate Units	MSCF/HOUR		
Energy Rate Units	MMBTU	Energy Rate Time Units	HOUR
UC Flow Rate Units	MACF/HOUR		
Mass Rate Units	KG	Mass Rate Time Units	DAY
Gas Chromatograph [-]	_		
Chromatograph Data			Calc Source Calculations Using
Use 1 for all Assigned Heat Value Type Current		AGA8 Gross Fixed -	- Scheduled GC
Heat Value Type Current Sat./Wet BTU Dry I		Current Method Current Method CO2, N2 HV, SG, CO2	
Averaging [-]			
Meter Averaging Meth	nod U	pon No Flow Condition Use Curre	ent Status
Flow Dependent Form	nulaic Avg	Straight Average Flow Y	Weighted
GC Averaging Meth			ent Status
Flow Dependent Form	nulaic Avg	Straight Average Flow Y	Weighted

Figure 3-41. Configuring Station 1 for Bi-Directional Control (Example 2)

Configure Station 2 by giving it a unique station name and setting the "Station Direction" to "Reverse". Assign the other configuration items as required.

In most cases, these configuration settings should be identical to the configuration settings for Station 1. However, it is possible to use a configuration in Station 1 ("forward") that is different than the configuration in Station 2 ("reverse").

Notice that after changing the "Station Direction" to "Reverse" that the Bi-Directional Control tab became available for configuration.

General	ľ	Station	Data	Bi-Direction	al Control
Station Name MS_001_R	Se	tion Direction et To Current Status rward Reverse		nt Status sabled Enable	ssive Current Status Disabled
- Station Common Settings-					Disabica
Station Common Sectings	Value	Units			
Atmospheric Pressure	14.700				
Base Pressure	14.730	PSI			
Base Temperature	60.000	DEG_F			
Contract Hour	9				
Flowing Units [-]					
Flow Rate Units	MSCF/HO	UR			
Energy Rate Units	MMBTU	J Energy Ral	te Time Units	HOUR	
UC Flow Rate Units	MACF/HO	UR			
Mass Rate Units	LB	Mass Ral	te Time Units	HOUR	
– Gas Chromatograph [-]					
Chromatograph Data		Compressibility Cal			tions Using
Use 1 for all Assigned		AGA8 Gross	Fixed -	Scheduled	GC
Heat Value Type Current		oss Method Current	Method		
Sat./Wet BTU Dry I	BTU	G, CO2, N2 HV, SO	G, CO2		
Averaging [-]					
Meter Averaging Meth	nod	Upon No Flow Cond	ition Use Curren	nt Status	
Flow Dependent Form		Straight Aver	1	Veighted	
GC Averaging Meth	bod	Upon No Flow Cond	ition Use Curre	nt Status	
Flow Dependent Form		Straight Aver	1	Yeighted	
	3	· · ·		<u> </u>	

Figure 3-42. Configuring Station 2 for Bi-Directional Control (Example 2)

Configuring Both Run 1 (the "forward" measurement run) and Run 2 (the "reverse" measurement run) must be configured.

On the General tab, configure Run 1 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 1 (MS_001_F in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Shared SP 1" and "Shared FT 1" as the "AI#". Change other settings as required.

In this example, because there is only a single measurement run, no run staging (also referred to as run switching or tube switching) is possible, so the "Run Staging Rank" may be left at 0.

Annubar	Venturi	<u> </u>	V-Cone	Alarm Config	PV/GQ A	verages L	inrztion Config	
General 📔	Orifice	Ϋ́ Tu	ırbine	Auto-Adjust	Ultrason	nic 👔	PD	Coriolis
Run ID [-]		Meas	urement Typ	De	Direction		Station A	Assignment —
MR_0	101_F		Orifi	се	For	ward	MS	_001_F
					C Isolat C Non-I	ed	Run Sta	iging Rank 0
Static Pressure								
Source		IVT#	AI#	Overri		Value		Units
Hardware	AI No		Default /		de/Live ve	Value 0.000		Units PSI
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper	Al No undant XMTRS y, Set Point = 0 Force High XM <0 Value of Lo ature [-]	Value of TR to be WXMTR.	Default / Se Dead	Li Point 0.	ve	0.000		PSI
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point	AI No undant XMTRS y, Set Point = 0 Force High XM <0 Value of Lo ature [-] e N	Value of	Default / Se	Al Li	000			
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source	AI Nu undant XMTRS , Set Point = (Force High Xh <0 Value of L: ature [-] e Nu x AI Nt y, Set Point = (Force High Xh	DINE Value of ATR to be bow XMTR. VT# DINE Value of ATR to be	Default / Se Dear Al# Default / Se	AI Li t Point O. d Band O. Overrid AI Li t Point O.	000 000 000 000 000 000 000 000 000 00	0.000 Value		PSI Units
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [- Flow Rate Mac	AI Nu undant XMTRS , Set Point = [Force High XM <0 Value of L ature [-] e N AI Nc undant XMTRS , Set Point = [Force High XM <0 Value of L	UVT# UVT# DNALLED UVT# DNALLED UVT# DNALLED UVT# DNALLED UVT# DNALLED UVT# UVT# UVT# UVT# UVT# UVT# UVT# UVT#	Default A Se Dear Al# Default A Se Dear	Al Li Al Li Al Overrie Al Overrie Al Li Al Li Al Li Al Li Al Li Al Li Al Courter O. Al Overrie Al O	ve [000 000 000 000 000 000 000 000 000 0	0.000 Value 0.000		PSI Units EG_F Units
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [] Flow Rate Units	AI Nu undant XMTRS , Set Point = C Force High XM <0 Value of Lo ature [-] e Nu e Nu undant XMTRS , Set Point = C Force High XM <0 Value of L CF/HOUR	Value of Value of VT# value of VT# value of Value of Value of Value of Value of Value of	Default / Se Dear Al# Default / Se Dear \$ MACF/H	Al Li Al Li Al Overrie Al Li Overrie Al Li Al Li Al Li Al Veloc OUR Veloc	ve [000 000 000 000 000 000 000 000 000 0	0.000 Value 0.000		PSI Units EG_F

Figure 3-43. Configuring Run 1 for Bi-Directional Control (Example 2)

On the "Orifice" tab for Run 1, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Shared DP 1" as the "AI#". Change other settings as required.

Annubar	Vent	uri 📋	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	
General	Orifice		Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Settings [-]							
Orifice Diam			Flow Cutoff	- Material	Pipe	Orifice	
	INCH	0.25000	I In/H2O	Type 3	304/316 SS	304/316 SS	٦ T
Pipe Diame 4.07100	eter INCH						
		D	Tap Location	Reference Temp	0.00	0.00	DEG_F
AGA3 Equation AGA3I (19			Stream	1			
AGASI (15	52	V	oucam	_			
Differential Pres	sure [-]	LIUTA		Пурги	de/Live v.		
Source		MVT#	AI#	0+6110	de/Live Va	ue	Units
					1		
For Redundancy	undant XM , Set Point	t = 0 Value			ve 0.0		1H2O
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	undant XM), Set Point Force Higl <0 Value (TRS t = 0 Value h XMTR to	e of Set be TR. Dea	t Point 0.0			IH20
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates	undant XM 9, Set Point Force Higt <0 Value (TRS t = 0 Value h XMTR to of Low XM	e of Set be TR. Dea	t Point 0.0		100	1H2O
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	undant XM 9, Set Point Force Higt <0 Value (TRS t = 0 Value h XMTR to of Low XM Uni	e of Set be TR. Dea	t Point 0.(d Band 0.(Energy Rate 0.000	000 000 Units		IH2O
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	undant XM y, Set Point Force Higl <0 Value o nte	TRS t = 0 Value h XMTR to of Low XM Uni	ts	t Point 0.0 d Band 0.0 Energy Rate 0.000 Time	000 000 Units MMBTU/Hi	OUR ameter Bet	
Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change	undant XM , Set Point Force Hig <0 Value (atte active] for this Ru	TRS t = 0 Value h XMTR to of Low XM Uni MSCF/H	o of Set be TR. Dea ts HOUR	t Point 0.0 d Band 0.0 Energy Rate 0.000 Time	000 000 MMBTU/H New Orifice Dia 2.00000	OUR ameter Bet	a Ratio

Figure 3-44. Configuring Run 1 Orifice tab for Bi-Directional Control (Example 2)

On the General tab, configure Run 2 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 2 (MS_001_R in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Shared SP 1" and "Shared FT 1" as the "AI#". Change other settings as required.

Because Run 2 is assigned to Station 2 (which is configured as a "reverse" station), the "Direction" field changes to "Reverse", and the items in the "PVs" box become available for configuration. In this example, since the measurement in both directions is being performed with a unique set of measurement inputs, the "Isolated" radio button should be selected.

Because this run is assigned to a "reverse" measurement station, the option for changing the "Run Staging Rank" is disabled. It is important that the run staging rank for the reverse runs be left at 0.

Annubar) Vent	uri 🍸	V-Cone	Alarm Config	PV/GQ Ave	erages 📔 Linrzti	ion Config	
General 🛛	Orifice	Ĭ.	Turbine Y	Auto-Adjust	Ultrasonic	;	'D Ì	Coriolis
Run ID [-]		Me	asurement Ty	pe	Direction		Station Ass	ignment
MR_0)01_R		Orif	ice	Reve	erse	MS_0	01_R
Chromatograph		GC Data Sel	t Must Be Set To	o ''Use Run Stream	PVs Isolated	J t	-Run Stagir O	
1			To Enable This	Feature.	Non-Iso	olated	U	
Compressi	2			Current Method				
AGA8	Gross	SG	G, CO2, N2	HV, SG, CO2				
Static Pressure	[-]							
-								
Sourc	e	MVT#	AI#	Overri	de/Live	Value	Uni	lts
Hardware Stacked or Red For Redundanc	e Al lundant XM y, Set Point	None TRS = 0 Value	Shared S	P1 Li	ve	Value 0.000	Uni	
Hardware Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Temper	e Al lundant XM y, Set Point Force High t <0 Value o rature [-]	None TRS = 0 Value XMTR to I of Low XMT	of Subbe R. Dea	P 1 Li et Point O. ad Band O.	ve	0.000		20
Hardward Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Source	e Al	None TRS = 0 Value XMTR to I of Low XMT MVT#	Shared S of S be R. Dea Al#	P 1 Li et Point O. ad Band O. Overrid	ve	0.000 Value	Uni	20
Hardware Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Temper	e Al	None TRS = 0 Value XMTR to I of Low XMT	of Subbe R. Dea	P 1 Li et Point O. ad Band O. Overrid	ve	0.000		20
Hardward Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Temper Source Hardward Stacked or Red	e AI	None TRS = 0 Value XMTR to I of Low XMT MVT# None TRS t = 0 Value	Shared S of Sube R. Dea All# Shared F	P 1 Li et Point O. ad Band O. Overrid T 1 Li	ve	0.000 Value	Uni	20
Hardware Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Temper Sourc Hardware Stacked or Red	e AI lundant XM y, Set Point Force High t <0 Value of rature [-] re e AI lundant XM y, Set Point o Force High	None TRS = 0 Value > MTR to I of Low XMT MVT# None TRS = 0 Value > XMTR to I	Shared S of So be R. Dea All# Shared F of So be	P 1 Li et Point O.I ad Band O.I Overnia T 1 Li et Point O.I	000 000 de/Live ve	0.000 Value	Uni	20
Hardware Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Sourc Hardware Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Units [-	e AI lundant XM y, Set Point Force High t <0 Value of rature [-] e e AI lundant XM y, Set Point b Force High t <0 Value of Value of V	None TRS	Shared S of So B. Dea All# Shared F of So be R. Dea	P 1 Li et Point O.I ad Band O.I Overrid T 1 Li et Point O.I	ve	0.000 Value		its
Hardware Stacked or Red For Redundanc, Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flowing Units [Flow Rate Winits M	e AI lundant XM y, Set Point Force High t <0 Value of rature [-] e e AI lundant XM y, Set Point b Force High t <0 Value of Value of V	None TRS - = 0 Value = 0 Value = 0 Value = 0 Value = NONE TRS - = 0 Value = = 0 Value = = 0 Value = 1 CFIc Rate Ur	Shared S of So be Dea Ali# Shared F of So be Dea R. Dea	P 1 Li et Point 0. d Band 0. Overrie T 1 Li et Point 0. d Band 0. Veloc	ve	0.000 Value	Uni] Uni	20
Hardware Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red Low XMTR. To Used. Set Point Flow Rate Flow Rate Units	e Al Jundant XM y, Set Point Force High t <0 Value of rature [-] e e Al Jundant XM y, Set Point i Force High t <0 Value of Force High	None TRS = 0 Value > V	Shared S of S. be R. Dec Al# Shared F of S. be R. Dec Of S. be MACF/H ate HOL	P 1 Li et Point O. dd Band O. Overrid T 1 Li et Point O. dd Band O. Veloc 10UR Veloc	ve	0.000 Value 0.000		its à_F

Figure 3-45. Configuring General tab (for Run 2) in Bi-Directional Control (Example 2)

On the "Orifice" tab for Run 2, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Shared DP 1" as the "AI#". Change all other settings to the same values as set on Run 1, including "Pressure Tap Location."

Because the "Isolated" PVs radio button was selected on the "General" tab, the live input values for differential pressure for Run 1 and Run 2 come from independent transmitters.

Annubar	Ven	turi 🔶	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	
General	Orific	e 🗋	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Gettings [-] Orifice Dia		1	Flow Cutoff	– Material			
2.00000		0.2500		Material	Pipe	Orifice	
		0.2300		Туре	304/316 SS	304/316 SS	7
Pipe Diam 4.07100					·		
			. :	Reference Temp	0.00	0.00	DEG_F
AGA3 Equatio			e Tap Location o Stream	1			
AGA3I (19	392J		Jaucani	1			
)ifferential Pre	ssure [-]						
Source		MVT#		Overri	de/Live v	alue	Units
		MYI#	AI#	0 TCIII	•	alue	Units
Hardward Stacked or Red For Redundanc	lundant XM y, Set Poin	None	Shared D	P1			NH20
Stacked or Red	lundant XM y, Set Poin Force Hig	None ITRS	Shared D	P1	ve 0.		
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates – Flow R	lundant XM y, Set Poin) Force Hig t <0 Value ate	None ITRS	Shared Di shared Di se of Set o be dTR. Dea	P 1 Point d Band Energy Rate	ve 0.	000 s	
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates -	lundant XM y, Set Poin) Force Hig t <0 Value ate	None ITRS	Shared D e of Set o be (TR. Dea	P 1 Li	ve 0.	000 s	
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates – Flow R. 0.00	lundant XM y, Set Poin) Force Hig t <0 Value ate	None ITRS	Shared Di shared Di se of Set o be dTR. Dea	P 1 Point d Band Energy Rate	ve 0.	000 s	
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates - Flow R. 0.00 Plate Change -	lundant XM y, Set Poin) Force Hig t <0 Value ate 0	None ITRS	Shared Di be Shared Di be TR. Dea hits HOUR Elapsed	P 1 If Point d Band Energy Rate 0.000 Time	ve 0. 000 000 Units MMBTU/I	s 10UR	
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates – Flow R. 0.00	lundant XM y, Set Poin) Force Hig t <0 Value ate 0	None ITRS	Shared Di o be dTR. Dea hits HOUR	P 1 If Point d Band Energy Rate 0.000 Time	ve 0. 000 000 Units MMBTU/H	s 10UR iameter Bet	NH2O
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates Flow R 0.000 Plate Change Normal (In	lundant XM y, Set Poin) Force Hig t <0 Value ate 0 ate 0	None ITRS	Shared Di be Shared Di be TR. Dea hits HOUR Elapsed	P 1 If Point d Band Energy Rate 0.000 Time	ve 0. 000 000 Units MMBTU/I	s 10UR iameter Bet	NH2O
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates - Flow R 0.000 Plate Change - Normal (In Min/Max Rates	lundant XM y, Set Poin Force Hig t <0 Value ate 0 active) for this Ru	None TRS t = 0 Valu h XMTR t Of Low XM Ur MSCF	Shared Di e of Set o be ATR. Dea nits HOUR [Elapsed 00 00:00:	P 1 Point d Band Energy Rate 0.000 Time 00.000	ve 0. 000 000 MMBTU/I New Orifice D 2.00000	s 10UR iameter Bet INCH (ta Ratio 1.491
Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates Flow R 0.000 Plate Change Normal (In	lundant XM y, Set Poin Force Hig t <0 Value ate 0 active) for this Ru	None TRS t = 0 Valu h XMTR t MSCF _i MSCF _i n aximum FI	Shared Di e of Set o be ATR. Dea nits HOUR [Elapsed 00 00:00:	P 1 If Point d Band Energy Rate 0.000 Time	ve 0. 000 000 MMBTU/I New Orifice D 2.00000	s 10UR iameter Bet INCH (NH2O

Figure 3-46. Configuring Run 2 Orifice tab for Bi-Directional Control (Example 2)

Example 3– Bi-Directional Control For One Measurement Run, Flow Reverses Direction, Isolated Transmitters

To configure bi-directional measurement for a single physical orifice meter run, where gas flows through the run in both directions, and each run has its own set of measurement inputs, follow these steps:

- Run 1 will be configured as an orifice measurement run, assigned to Station 1.
- Run 2 will be configured as an orifice measurement run, assigned to Station 2.
- Station 2 will be configured as a "reverse" measurement station.

Configuring the I/O

Configure the I/O for both the odd-numbered ("forward") run and the even-numbered ("reverse") run.

In this example, the Run 1 differential pressure, static pressure, and flow temperature inputs are assigned to analog input points 1, 2, and 3 respectively on one I/O card.

Input: PNT	s PV	Zero	Span	Units	Assignment
1	180.7	0.0	300.0	In/H2O	Run 1 Diff. Pressure
2	436.7	0.0	1000.0	PSI	Run 1 Static Pressure
3	68.8	0.0	140.0	DEG_F	Run 1 Temperature
4	16.7	0.0	100.0		

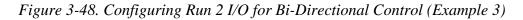
Figure 3-47. Configuring Run 1 I/O for Bi-Directional Control (Example 3)

The Run 2 differential pressure, static pressure, and flow temperature inputs are assigned to analog input points 1, 2, and 3 respectively on a separate I/O card.

Because there are separate transmitters being used for each direction, the Zeroes, Spans and even Units can vary between the "forward" and "reverse" runs.

(Note – If this example were using 8 point analog input cards, the measurement inputs for both runs could have been assigned to a single I/O card, using 6 of the 8 inputs).

- Inputs - PNT	PV	Zero	Span	Units	Assignment
1	90.3	0.0	150.0	In/H2O	Run 2 Diff. Pressure
2	218.4	0.0	500.0	PSI	Run 2 Static Pressure
3	98.2	0.0	200.0	DEG_F	Run 2 Temperature



Configuring Both Station 1 (the "forward" measurement station) and Station 2 (the "reverse" measurement station) must be configured.

Configure Station 1 by giving it a unique station name, and assigning the other configuration parameters as required.

General		Stat	ion Data	Bi-Directional Control
Station Name MS_001_F				
Station Common Settings				
Atmospheric Pressure	Value 14.700	Units D PSI		
Base Pressure	14.730	D PSI		
Base Temperature	60.000	DEG_F		
Contract Hour	9			
Flowing Units [-]				
Flow Rate Units	MSCF/HC	DUR		
Energy Rate Units	MMBT	U Energy	Rate Time Uni	ts HOUR
UC Flow Rate Units	MACF/HC	DUR		
Mass Rate Units	KG	Mass	Rate Time Uni	ts DAY
Gas Chromatograph [-]				
Chromatograph Data 9		Compressibility		Select Calc Source Calculations Using
Use 1 for all Assigned		AGA8 Gros	s	Fixed - Scheduled GC
Heat Value Type Current Sat./Wet BTU Dry E	TU		nt Method SG, CO2	
Averaging [-]				
Averaging Meth	od	Upon No Flow Co	ondition Use	Current Status
Flow Dependent Form	ulaic Avg	Straight Av	rage	Flow Weighted
GC Averaging Meth		Upon No Flow Co		Current Status
Flow Dependent Form	ulaic Avg	Straight Av	verage	Flow Weighted

Figure 3-49. Configuring Station 1 for Bi-Directional Control (Example 3)

Configure Station 2 by giving it a unique station name and setting the "Station Direction" to "Reverse". Assign the other configuration items as required.

In most cases, these configuration settings should be identical to the configuration settings for Station 1. However, it is possible to use a configuration in Station 1 ("forward") that is different than the configuration in Station 2 ("reverse").

Notice that after changing the "Station Direction" to "Reverse" that the Bi-Directional Control tab became available for configuration. Later in this section we will need to configure the "Indication Source".

General		Station D	ata	Bi	-Directional Control
Station Name MS_001_R Station Common Settings	Station D Set To Forward	Current Status		nt Status	w Permissive Current Status nable Disabled
Atmospheric Pressure	Value 14.700	Units PSI			
Base Pressure Base Temperature	14.730 60.000	PSI DEG F			
Contract Hour	9]			
Flowing Units [-] Flow Rate Units	MSCF/HOUR				
Energy Rate Units UC Flo w Rate Units	MMBTU MACF/HOUR	Energy Rate	Time Units	HOUR]
Mass Rate Units	LB	Mass Rate	Time Units	HOUR]
Gas Chromatograph [-] Chromatograph Data Use 1 for all Assigned		ompressibility Calc AGA8 Gross		Calc Source Scheduled	Calculations Using GC
Heat Value Type Current Sat./Wet BTU Dry	DTU	Lethod Current M D2, N2 HV, SG,			
Averaging [-] Meter Flow Dependent For		on No Flo w Condit Straight Avera		nt Status Veighted	
GC Averaging Met		on No Flow Condit Straight Avera		nt Status Veighted	

Figure 3-50. Configuring Station 2 for Bi-Directional Control (Example 3)

Configuring Both Run 1 (the "forward" measurement run) and Run 2 (the "reverse" measurement run) must be configured.

On the General tab, configure Run 1 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 1 (MS_001_F in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

In this example, because there is only a single measurement run, no run staging (also referred to as run switching or tube switching) is possible, so the "Run Staging Rank" may be left at 0.

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averag	ges Linrztion Config	
General 📔	Orifice 🎽	Turbine	Auto-Adjust	Ultrasonic	Ύ PD	Coriolis
Run ID [-]		Measurement T	уре	Direction	Station	Assignment
MR_0	01_F	Or	ifice	Forwar	rd MS	_001_F
L	[C Isolated C Non-Isolat		aging Rank O
– Static Pressure (Source		# AI#	Overri	de/Live	Value	Units
Hardware	Al None	Defaul	t Al Li	ve	0.000	PSI
Low XMTR. To I Used. Set Point	(O Value of Low)			000		
Source	MVT	# AI#	Overrie	le/Live	Value	Units
Hardware	Al None	Defaul	t Al 📃 🗌 🗌	ve	0.000 [DEG_F
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	, Set Point = 0 Va Force High XMTR	to be		000		
Units	Rat	e Units	HOUR Veloc	ity locity of Gas	0.00000	Units FT/S
Rate Units	Tim	e Units	UR P	ipe Diameter	4.07100	INCH
Mass Rate Units		s Rate HO e Units	UR			

Figure 3-51. Configuring Run 1 for Bi-Directional Control (Example 3)

On the "Orifice" tab for Run 1, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

Annubar	Venturi	<u> </u>	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	
General	Orifice		Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Settings [-]							
Orifice Dian 2.00000		Low Flo 0.25000	w Cutoff In/H2O	Material —	Pipe	Orifice	
Pipe Diam		0.23000	INTEO	Туре	304/316 SS	304/316 SS]
4.07100	INCH			Reference	0.00	0.00	DEG F
AGA3 Equation			ap Location	Temp			
AGA3I (19	92]	Up S	tream				
Differential Pres	sure [-]						
Source	• •	JVT#	AI#	Overri	de/Live va	ا مىلە	Inite
For Redundancy	AI N Indant XMTI	= 0 Value o			¥d		Inits H2O
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates	AI undant XMTI Set Point = Force High X <0 Value of	None RS 0 Value o XMTR to b Low XMTR	Default A of Set e A. Dead	Point 0. 1 Band 0.	ve 0.(
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	AI T undant XMTI y, Set Point = Force High X <0 Value of te	None RS 0 Value o KMTR to b	Default A of Set e }. Dead	N Ci	ve 0.(
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	AI T undant XMTI y, Set Point = Force High X <0 Value of te	None SS O Value of KMTR to b Low XMTF Units	Default A of Set e }. Dead	Point 0. I Band 0. Energy Rate 0.000	ve 0.(000 000 Units		
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	AI T Jundant XMTI J. Set Point = Force High X <0 Value of Ite	None SS O Value of KMTR to b Low XMTF Units	Default A of Set e B A Dead	Point 0. I Band 0. Energy Rate 0.000	Ve 0.(000 000 Units MMBTU/H	IOUR ameter Beta	H20
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change	AI T AI T AI T AI T AI T AI T AI T AI T	None [33 -= 0 Value c XMTR to b Low XMTF Units MSCF/H(Default A of Set e Dur Dear DUR	Point 0. I Band 0. Energy Rate 0.000	ve 0.0 000 Units 000 MMBTU/H New Orifice Dia 2.00000	IOUR ameter Beta INCH 0.	Ratio

Figure 3-52. Configuring Run 1 Orifice tab for Bi-Directional Control (Example 3)

On the General tab, configure Run 2 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 2 (MS_001_R in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

Because Run 2 is assigned to Station 2 (which is configured as a "reverse" station), the "Direction" field changes to "Reverse", and the items in the "PVs" box become available for configuration. In this example, since the measurement in each direction is being performed with a different set of measurement inputs, the "Isolated" radio button should be selected.

When the "Isolated" radio button is selected, the live input values for static pressure and flowing temperature for Run 2 come from the physical I/O defined for Run 2 in the I/O configuration section.

Because this run is assigned to a "reverse" measurement station, the option for changing the "Run Staging Rank" is disabled. It is important that the run staging rank for the reverse runs be left at 0.

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config)
General 📔	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD Y	Coriolis
Run ID [-]		- Measurement T	уре	Direction	Station A	ssignment —
MR_0	01_R	Or	ifice	Reverse	MS_	001_R
Chromatograph 1 Compressi	Station GC Da Set bility Calc	ita Set Must Be Set [*] tinos'' To Enable Th Gross Method *	To ''Use Run Stream is Feature. Current Method	PVs Isolated Non-Isolated		jing Rank – 0
AGA8		SG, CO2, N2	HV, SG, CO2			
Static Pressure Source						
	e MV1	[# AI#	Overric	le/Live Va	ilue U	nits
Hardware Stacked or Red For Redundancy Low XMTR. To	Al Non undant XMTRS – , Set Point = 0 V Force High XMT	e Defaul alue of Stope	t Al Liv	ve 0.0		
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper	AI Non undant XMTRS – , Set Point = 0 V Force High XMTI <0 Value of Low ature [-]	e Defaul alue of S R to be XMTR. De	It AI Liv Set Point O.(ead Band O.(ve 0.0	000	
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source	AI Non undant XMTRS - , Set Point = 0 V Force High XMTI <0 Value of Low ature [-] e MV	e Defaul alue of R to be XMTR. De	It AI Lives Set Point 0.0	ve 0.0 100 100 le/Live Va	100 I	nits
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper	AI Non undant XMTRS - , Set Point = 0 V Force High XMTI <0 Value of Low ature [-] e MV	e Defaul alue of R to be XMTR. De	It AI Lives Set Point 0.0	ve 0.0 100 100 le/Live Va	100 I	
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To	AI None n, Set Point = 0 V Force High XMTI <0 Value of Low ature [-] e MVI AI None	alue of Statu alue of Statu R to be XMTR. De F# Al# e Defaul alue of Statu R to be	It AI Liv Set Point O.(aad Band O.(Overrid It AI Liv Set Point O.(ve 0.0 100 100 le/Live Va	100 I	nits
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [- Flow Rate Units MST	AI None undant XMTRS - , Set Point = 0 V Force High XMTI <0 Value of Low ature [-] e MVT AI None undant XMTRS - y, Set Point = 0 V Force High XMTI <0 Value of Low CF/HOUR U Ra	e Defaul alue of S R to be XMTR. De F# Al# e Defaul alue of S R to be XMTR. De C Flow MACF.	It AI Liv Set Point O.(Set Point O.(Overrid It AI Liv Set Point O.(Set Point O.(Veloci	ve 0.0 100 100 100 100 100 100 100 100 100	100 I	nits
Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [- Flow Rate MSG	AI Non- undant XMTRS – , Set Point = 0 V Force High XMTI <0 Value of Low ature [-] e MV1 AI Non- undant XMTRS – , Set Point = 0 V Force High XMTI <0 Value of Low CF/HOUR R IMBTU Ener Tim	e Defaul alue of S R to be XMTR. De If# Al# e Defaul alue of S R to be XMTR. De Z Flow MACF. gy Rate HO	It AI Liv Set Point O.(aad Band O.(Overrid It AI Liv Set Point O.(bad Band O.(Veloci Veloci	ve 0.0 100 100 100 100 100 100 100 100 100	100 lue U 100 DE	nits G_F

Figure 3-53. Configuring General tab (for Run 2) in Bi-Directional Control (Example 3)

On the "Orifice" tab for Run 2, leave the "Differential Pressure Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change all other settings to the same values as set on Run 1, including "Pressure Tap Location".

Because the "Isolated" PVs radio button was selected on the "General" tab, the live input value for differential pressure for Run 2 comes from the physical I/O defined for Run 2 in the I/O configuration section. However, the differential pressure value is only applied to Run 2 for measurement when the bi-directional flow indication determines gas is flowing through the physical station in the reverse direction, otherwise, the differential pressure is forced to 0.0.

When the flow direction is indicated as "reverse", the differential pressure will be indicated on Run 2, and the differential pressure for Run 1 will be forced to 0.0.

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Average:	s Linrztion C	Config
General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Pipe Diame	INCH 0.2 eter INCH	Low Flow Cutoff 5000 _ In/H2O ssure Tap Locatior	Reference	Pipe 304/316 SS 0.00	Orifice 304/316 5	SS DEG_F
AGA3I (19		Up Stream				
Differential Press	sure [-]					
Source	MV.	F# AI#	Overrie	de/Live y	alue	Units
Source Hardware Stacked or Redu	MV Al Nor Indant XMTRS	ne Defaul			/alue .000	Units INH20
Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates	MV AI Nor Indant XMTRS , Set Point = 0 Force High XM <0 Value of Lo	Value of S TR to be w XMTR. De	t AlE et Point ead Band	ve 0	.000	
Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	MV AI Nor Indant XMTRS , Set Point = 0 Force High XM <0 Value of Lo	Ne Default	t AI		.000 [s	
Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change Normal (Ins	MV Al Nor Indant XMTRS , Set Point = 0 Force High XM <0 Value of Lo te MS	Value of S TR to be w XMTR. De Units SCF/HOUR [Elapsed	t AlLi et Point ead Band Energy Rate 0000	ve 0	s HOUR	
Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change	MV' Al Nor indant XMTBS , Set Point = 0 Force High XM (0 Value of Lo te (0 Value of	Value of S TR to be w XMTR. De Units SCF/HOUR [Elapse 00 00:00	t Al C.t. et Point O.t. ead Band O.t. Energy Rate 0.000	ve 0 000 000 000 Unit: MMBTU/I New Orifice D 2.00000	s HOUR	INH20

Figure 3-54. Configuring Run 2 Orifice tab for Bi-Directional Control (Example 3)

Example 4– Bi-Directional Control for One Measurement Run, Flow Reverses Direction, Isolated SP and Temp Transmitters, Non-Isolated DP Transmitter

To configure bi-directional measurement for a single physical orifice meter run, where gas flows through the run in both directions, and there is a single differential pressure input, but each run has its own static pressure and temperature inputs, follow these steps:

- Run 1 will be configured as an orifice measurement run, assigned to Station 1.
- Run 2 will be configured as an orifice measurement run, assigned to Station 2.
- Station 2 will be configured as a "reverse" measurement station.

Configuring Configure the I/O for the static pressure and flowing temperature for both the odd-numbered ("forward") run and the even-numbered ("reverse") run. Instead of assigning a run specific differential pressure, select a shared differential pressure input.

In this example, the Run 1 static pressure, and flowing temperature inputs are assigned to analog input points 2 and 3 respectively on one I/O card.

- Inputs - PNT	PV	Zero	Span	Units	Assignment
1	180.7	0.0	300.0	In/H2O	Shared DP 1
2	437.0	0.0	1000.0	PSI	Run 1 Static Pressure
3	68.8	0.0	140.0	DEG_F	Run 1 Temperature
4	16.7	0.0	100.0		

Figure 3-55. Configuring Run 1 I/O for Bi-Directional Control (Example 4)

The Run 2 static pressure, and flowing temperature inputs are assigned to analog input points 2 and 3 respectively on a separate I/O card.

However, because only one transmitter will be used for differential pressure measurement, the Shared DP 1 is assigned to analog input point 1 on the first I/O card.

Because there are separate static pressure and flowing temperature transmitters being used for each direction, the Zeroes, Spans and even Units can vary between the "forward" and "reverse" runs. Of course, this is not the case with the differential pressure transmitter.

Note: If this example were using 8 point analog input cards, the measurement inputs for both runs could have been assigned to a single I/O card, using 5 of the 8 inputs).

- Inputs PNT	s	Zero	Span	Units	Assignment
1	60.3	0.0	100.0		
2	218.5	0.0	500.0	PSI	Run 2 Static Pressure
3	98.3	0.0	200.0	DEG_F	Run 2 Temperature
4	16.7	0.0	100.0		

Figure 3-56. Configuring Run 2 I/O for Bi-Directional Control (Example 4)

Configuring Both Station 1 (the "forward" measurement station) and Station 2 (the "reverse" measurement station) must be configured.

Configure Station 1 by giving it a unique station name, and assigning the other configuration parameters as required.

General		Station Data	В	i-Directional Control
Station Name MS_001_F Station Common Settings				
Station Common Settings	Value	Units		
Atmospheric Pressure	14.700	PSI		
Base Pressure	14.730	PSI		
Base Temperature	60.000	DEG_F		
Contract Hour	9			
Flowing Units [-]				
Flow Rate Units	MSCF/HOUR]		
Energy Rate Units	MMBTU	Energy Rate Time Ur	nits HOUR]
UC Flow Rate Units	MACF/HOUR]		
Mass Rate Units	KG	Mass Rate Time Ur	nits DAY	
Gas Chromatograph [-] Chromatograph Data Use 1 for all Assigned		mpressibility Calc AGA8 Gross	Select Calc Source Fixed - Scheduled [Calculations Using GC
Heat Value Type Current Sat./Wet BTU Dry	t Status Gross M	ethod Current Method 2, N2 HV, SG, CO2		
Averaging [-] Meter Averaging Mett Flow Dependent For		n No Flow Condition Use Straight Average	Current Status Flow Weighted	
GC Averaging Met		n No Flo w Condition Use Straight Average	Current Status Flow Weighted	

Figure 3-57. Configuring Station 1 for Bi-Directional Control (Example 4)

Configure Station 2 by giving it a unique station name and setting the "Station Direction" to "Reverse". Assign the other configuration items as required.

In most cases, these configuration settings should be identical to the configuration settings for Station 1. However, it is possible to use a configuration in Station 1 ("forward") that is different than the configuration in Station 2 ("reverse").

Notice that after changing the "Station Direction" to "Reverse" that the Bi-Directional Control tab became available for configuration.

General		Station	Data	Bi-Directional	Control
Station Name MS_001_R	Station I Set To Forwar	Current Status	4	nt Status sabled Enable	ive urrent Status Disabled
Station Common Settings Atmospheric Pressure	Value 14.700	Units PSI			
Base Pressure Base Temperature	14.730 60.000	PSI DEG_F			
Contract Hour	9]			
Flowing Units [-] Flow Rate Units	MSCF/HOUR				
Energy Rate Units	MMBTU	Energy Rat	e Time Units	HOUR	
UC Flow Rate Units Mass Rate Units	MACF/HOUR LB	Mass Rat	e Time Units	HOUR	
Gas Chromatograph [-] Chromatograph Data		 Compressibility Cal		Calc Source Calculatio	
Use 1 for all Assigned Heat Value Type Current Sat./Wet BTU Dry	t Status Gross I	AGA8 Gross Method Current D2, N2 HV, SG	Method	Scheduled G	
Averaging [-] Meter Averaging Meth Flow Dependent Forr		oon No Flow Cond Straight Avera		nt Status Veighted	
GC Averaging Meth Flow Dependent Forr		oon No Flow Cond Straight Avera		nt Status Yeighted	

Figure 3-58. Configuring Station 2 for Bi-Directional Control (Example 4)

Configuring the Measurement Runs

Both Run 1 (the "forward" measurement run) and Run 2 (the "reverse" measurement run) must be configured.

On the General tab, configure Run 1 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 1 (MS_001_F in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

In this example, because there is only a single measurement run, no run staging (also referred to as run switching or tube switching) is possible, so the "Run Staging Rank" may be left at 0.

Annubar	Ventu	ri 🔰	V-Cone	Alarm Config	PV/GQ Av	verages	Linrztion Config	
General	Orifice	1 T	Turbine	Auto-Adjust	Ultrasoni	ic Y	PD)	Coriolis
Run ID [-]		M	easurement T	voe	Direction -			ssignment —
MR 0	01 F			fice	For	ward		001 F
					PVs N/A			ging Rank —
					C Isolate			
					C Non-Is	solated		<u> </u>
Static Pressure [MVT#	AI#	Quarri	de/Live	Value		Units
Source					UC/LITC			
			1		ive I			
Hardware		MVI# None	Default		ve	0.000		PSI
Hardware Stacked or Redu	Al Indant XMT	None RS	Default					
Hardware Stacked or Redu For Redundancy	Al Indant XMT , Set Point :	None RS = 0 Value	Default		000			
	AI Indant XMT , Set Point = Force High 2	None RS = 0 Value XMTR to	Default	t Al Li				
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flowing Tempera	AI Indant XMT Set Point Force High <0 Value of ature [-]	None RS = 0 Value XMTR to f Low XM	of S be TR. De	t Al Li Get Point O. Rad Band O.	000	0.000		PSI
Hardware Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source	AI Indant XMT , Set Point Force High <0 Value of sture [-]	None RS = 0 Value XMTR to f Low XM [*] MVT#	Default of S be TR. De Al#	t Al Li Set Point O. ad Band O. Overrig	000 000 de/Live	0.000 Value		Units
Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flowing Tempera	AI Indant XMT , Set Point Force High <0 Value of sture [-]	None RS = 0 Value XMTR to f Low XM	of S be TR. De	t Al Li Set Point O. ad Band O. Overrig	000	0.000		PSI
Hardware Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source	AI	None RS = 0 Value XMTR to f Low XM f Low XM MVT# None	Default of S be TR. De Al#	t Al Li Set Point O. ad Band O. Overrig	000 000 de/Live	0.000 Value		Units
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redu	AI Indant XMT , Set Point = Force High 3 (0 Value of ature [-] AI Indant XMT , Set Point =	None RS	Default of S be TR. De Al# Default	t AI Li Set Point O. ead Band O. Overrie t AI Li	000 000 de/Live	0.000 Value		Units
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redu	AI	None RS	of S be TR. De Al# Default	t AI Li Set Point O. ead Band O. Overrid t AI Li Set Point O.	000 000 de/Live ive	0.000 Value		Units
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flowing Units [-]	AI Set Point : Force High : <0 Value of ature [-] AI Mandant XMT , Set Point : Force High <0 Value of	None RS = 0 Value XMTR to f Low XM [*] MVT# None RS RS f Low XM	Default e of S be TR. De Al# Default e of S tR. De	t AI Li Set Point O. ead Band O. Overrie t AI Li Set Point O.	000 000 de/Live ive	0.000 Value		Units EG_F
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	AI Set Point : Force High : <0 Value of ature [-] AI Mandant XMT , Set Point : Force High <0 Value of	None RS	Default e of S be TR. De Al# Default e of S the TR. De	t AI Li Set Point 0. •ad Band 0. Overrie t AI Li Set Point 0. •ad Band 0.	000 000 de/Live ive	0.000		Units Units
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Units [-] Flow Rate MSC Energy M	AI Set Point : Force High : <0 Value of ature [-] AI Mandant XMT , Set Point : Force High <0 Value of	None RS	Default e of S be TR. De Al# Default e of S rB. De State Hot State Hot	t AI Li Set Point 0. ad Band 0. Overrie t AI Li Set Point 0. ad Band 0. Veloc HOUR Ve	000 000 de/Live ive	0.000 Value 0.000		Units Units FT/S
Hardware Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source Hardware Stacked or Redundancy Low XMTR. To Used. Set Point Flow Rate MSC Units	AI Indant XMT Set Point : Force High (0 Value of sture [-] AI Set Point Set Point Force High (0 Value of F/HOUR	None RS = 0 Value XMTR to f Low XMT MVT# None RS = 0 Value XMTR to f Low XM UC FI Rate U	Default e of S be TR. De Al# Default e of S TR. De Inits MACF/ Rate HO	t AI Li Set Point 0. ad Band 0. Overrie t AI Li Set Point 0. ad Band 0. Veloc HOUR Ve UR P	000 000 de/Live ive [000 000 ity	0.000 Value 0.000		Units Units

Figure 3-59. Configuring Run 1 for Bi-Directional Control (Example 4)

On the "Orifice" tab for Run 1, leave the "Differential Pressure Source" selected as "Hardware AI" and select Shared DP 1 as the "AI#". Change other settings as required.

Annubar	Ventur	ri <u> </u>	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	<u>] </u>
General	Orifice		Turbine	Auto-Adjust	Ultrasonic	PD)	Coriolis
Settings [-]							
Orifice Dia 2.00000		Low Fl 0.25000	ow Cutoff In/H2O	Material	Pipe	Orifice	
Pipe Diam	eter			Туре	304/316 SS	304/316 SS	
4.07100 AGA3 Equatio	INCH n in Use	Pressure ⁻	Tap Location	Reference Temp	0.00	0.00	DEG_F
AGA3I (1	992)	Up S	Stream				
Differential Pre	sure [-]						
Source		MVT#	AI#	Overri	de/Live Va	ilue l	Inits
Hardward Stacked or Red For Redundanc	AI	None RS = 0 Value	Shared DI	P1	Va		Inits H2O
Hardware Stacked or Rec For Redundanc Low XMTR. To Used. Set Poin	AI	None RS = 0 Value XMTR to 1	Shared Di of Set	P 1			
Hardward Stacked or Rec For Redundanc Low XMTR. To	AI lundant XMT y, Set Point Force High t <0 Value of	None RS = 0 Value XMTR to 1	Shared DI of Set be R. Dear	P 1	ve 0.0		
Hardware Stacked or Rec For Redundanc Low XMTR. To Used. Set Poin Current Rates -	AI	None RS = 0 Value XMTR to Low XMT	of Set be R. Dear s	P 1 Point d Band	ve 0.0		
Hardward Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates - Flow R	AI	None RS = 0 Value XMTR to 1 f Low XMT Unit:	shared DI of Set be R. Dear s OUR	P 1 Point d Band Energy Rate 0.000	Ve 0.C	000 IN	H20
Hardward Stacked or Rec For Redundanc Low XMTR. Tc Used. Set Poin Current Rates Flow R 0.00	e Al	None RS = 0 Value XMTR to 1 f Low XMT Unit:	of Set be R. Dear s	P 1 Point d Band Energy Rate 0.000	Ve 0.0	000 IN OUR ameter Beta	
Hardward Stacked or Rece For Redundanc Low XMTR. To Used. Set Poin Current Rates – Flow R 0.00 Plate Change – Normal (In	AI	None RS = 0 Value XMTR to 1 f Low XMT Unit:	Shared DI of Set be R. Dea s OUR	P 1 Point d Band Energy Rate 0.000	Ve 0.(000 000 Units MMBTU/H	000 IN OUR ameter Beta	H2O
Hardward Stacked or Rec For Redundanc Low XMTR. Tc Used. Set Poin Current Rates Flow R 0.00 Plate Change	e Al	None RS = 0 Value XMTR to 0 Low XMT Unit MSCF/H	Shared DI of Set be R. Dea s OUR Elapsed 00 00:00:	P 1 Point d Band Energy Rate 0.000	Ve 0.0	OUR ameter Beta INCH 0.	H2O

Figure 3-60. Configuring Run 1 Orifice tab for Bi-Directional Control (Example 3)

On the General tab, configure Run 2 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making the "Station Assignment" to Station 2 (MS_001_R in this example). Leave the "Static Pressure" and "Flowing Temperature Source" selected as "Hardware AI", using the "Default AI" as the "AI#". Change other settings as required.

Because Run 2 is assigned to Station 2 (which is configured as a "reverse" station), the "Direction" field changes to "Reverse", and the items in the "PVs" box become available for configuration. In this example, since the static pressure and temperature measurement in each direction is being performed with a different set of measurement inputs, the "Isolated" radio button should be selected.

When the "Isolated" radio button is selected, the live input values for static pressure and flowing temperature for Run 2 come from the physical I/O defined for Run 2 in the I/O configuration section.

Because this run is assigned to a "reverse" measurement station, the option for changing the "Run Staging Rank" is disabled. It is important that the run staging rank for the reverse runs be left at 0.

	Venturi	V-Cone	Alarm Config	PV/GQ Averag	es Linrztion Con	ifig
General	Orifice	Turbine	Auto-Adjust	Ultrasonic	Υ PD	Coriolis
Run ID [-]		- Measurement T	уре	Direction	Statio	n Assignment —
MR_0	01_R	Ori	ifice	Revers	e M	IS_001_R
Chromatograph		ita Set Must Be Set T		PVs Isolated		Staging Rank –
		tinas'' To Enable Thi		Non-Isolate	ed	•
Compressi AGA8			Current Method			
	01055	ad, CU2, N2	HV, SG, CO2			
-Static Pressure Source		[# AI#	Overri	de/l ive	Value	Units
Hardware					value 0.000	PSI
					0.000	Fai
	, Set Point = 0 V		Set Point 0.	000		
Used. Set Point Flowing Temper		XMTR. De		000		
Used. Set Point Flowing Temper Source	<0 Value of Low ature [-] e MV	XMTR. De [# Al#	Overrie	de/Live	Value	Units
Used. Set Point Flowing Temper	<0 Value of Low ature [-] e MV	XMTR. De [# Al#	Overrie	de/Live	Value 0.000	Units DEG_F
Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To	<0 Value of Low ature [-] e MV : Al Non	XMTR. De F# AI# e Defaul alue of S R to be	Overrid t Al Li Set Point O.	de/Live		
Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [-	<0 Value of Low ature [-] e MV : Al Non- undant XMTRS - p, Set Point = 0 V Force High XMT <0 Value of Low	XMTR. De III AIII e Defaul alue of S R to be XMTR. De	Overrie t Al Li Set Point O. ad Band O.	de/Live		DEG_F
Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [- Flow Rate Units MSt	<0 Value of Low ature [-] e MV Al Noni undant XMTRS – p, Set Point = 0 V Force High XMT <0 Value of Low CF/HOUR Ra	XMTR. De If Alf Defaul alue of S R to be XMTR. De C Flow MACF/ te Units MACF/	Overrie t Al Li Set Point O. ead Band O.	de/Live		
Used. Set Point Flowing Temper Source Hardware Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Units [- Flow Rate Units	<0 Value of Low ature [-] e MV : AI None undant XMTRS - p, Set Point = 0 V Force High XMT : 40 Value of Low CF/HOUR Ra	XMTR. De T# AI# e Defaul alue of S R to be XMTR. De C Flow MACF/ te Units MACF/	Overrid t AI Li Set Point O. ead Band O. Veloc Veloc Veloc	000 de/Live ve 000 000 ity	0.000	DEG_F Units

Figure 3-61. Configuring General tab (for Run 2) in Bi-Directional Control (Example 4)

On the "Orifice" tab for Run 2, leave the "Differential Pressure Source" selected as "Hardware AI" and select "Shared DP 1" as the "AI#". Change all other settings to the same values as set on Run 1, including "Pressure Tap Location".

Because the "Isolated" PVs radio button was selected on the "General" tab, the live input value for differential pressure for Run 2 comes from the physical I/O defined for the Shared DP 1 in the I/O configuration section. However, the differential pressure value is only applied to Run 2 for measurement when the bi-directional flow indication determines gas is flowing through the physical station in the reverse direction, otherwise, the differential pressure is forced to 0.0.

When the flow direction is indicated as "reverse", the differential pressure will be indicated on Run 2, and the differential pressure for Run 1 will be forced to 0.0.

Annubar	Vent	uri 📃	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config]
General	Orifice	, Ľ	Turbine Y	Auto-Adjust	Ultrasonic	PD Y	Coriolis
Settings [-] Orifice Dia 2.00000 Pipe Dian 4.07100 AGA3 Equatio AGA31 [1	INCH neter INCH on in Use	0.2500 Pressur	Flow Cutoff 0 In/H2O e Tap Location p Stream	Material Type Reference Temp	Pipe 304/316 SS 0.00	Orifice 304/316 SS 0.00	DEG_F
Differential Pre Source		MVT#		Overri	de/Live v.		
Hardward Stacked or Red For Redundanc	e Al dundant XM sy, Set Poin o Force Hig	None TRS t = 0 Valu h XMTR t	o be	P 1 [¥a		nits H2O
Hardward Stacked or Red For Redundand Low XMTR. To	e Al	None TRS t = 0 Valu h XMTR t of Low XI	Shared D	P 1 [ve 0.0		
Hardward Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates Flow R 0.00 Plate Change – Normal (In	e AI	None TRS t = 0 Valu h XMTR t of Low XH UT MSCF	In the second se	P 1	Ve 0.0 000 Units Units New Orifice Dia	000 IN	
Hardward Stacked or Red For Redundanc Low XMTR. To Used. Set Poin Current Rates Flow R 0.00 Plate Change –	e AI	None TRS t = 0 Valu h XMTR t of Low XI MSCF	Shared D Shared D o be 4TR. Dea hits /HOUR [Elapsed 00 00:00:	P 1	000 0.0 000 Units 0.0 MMBTU/H New Orifice Dia 1	OUR ameter Beta NCH 0.4	Ratio

Figure 3-62. Configuring Run 2 Orifice tab for Bi-Directional Control (Example 4)

Example 5– Bi-Directional Control for One Measurement Run, Flow Reverses Direction, Multi-Variable Transmitters (MVTs) Used

To configure bi-directional measurement for a single physical orifice meter run, where gas flows through the run in both directions, and there are single differential pressure, static pressure and temperature inputs, follow these steps:

- Run 1 will be configured as an orifice measurement run, assigned to Station 1.
- Run 2 will be configured as an orifice measurement run, assigned to Station 2.
- Station 2 will be configured as a "reverse" measurement station.

Configuring Both Station 1 (the "forward" measurement station) and Station 2 (the "reverse" measurement station) must be configured.

Configure Station 1 by giving it a unique station name, and assigning the other configuration parameters as required.

General		Station Data	Bi-Directional Control
Station Name MS_001_F Station Common Settings			
	Value	Units	
Atmospheric Pressure	14.700	PSI	
Base Pressure	14.730	PSI	
Base Temperature	60.000	DEG_F	
Contract Hour	9]	
Flowing Units [-]		-	
Flow Rate Units	MSCF/HOUR		
Energy Rate Units	MMBTU	Energy Rate Time Units	HOUR
UC Flow Rate Units	MACF/HOUR		
Mass Rate Units	KG	Mass Rate Time Units	DAY
Gas Chromatograph [-]			
Chromatograph Data			Calc Source Calculations Using Scheduled GC
Use 1 for all Assigned Heat Value Type Curren		Hethod	Scheuuleu GC
	DTU	Current Method 02, N2 HV, SG, CO2	
Averaging [-] Meter Averaging Met Flow Dependent For GC Averaging Met Flow Dependent For	mulaic Avg hod Up	Straight Average Flow Y	nt Status Weighted nt Status Weighted

Figure 3-63. Configuring Station 1 for Bi-Directional Control (Example 5)

Configure Station 2 by giving it a unique station name and setting the "Station Direction" to "Reverse." Assign the other configuration items as required.

In most cases, these configuration settings should be identical to the configuration settings for Station 1. However, it is possible to use a configuration in Station 1 ("forward") that is different than the configuration in Station 2 ("reverse").

Notice that after changing the "Station Direction" to "Reverse" that the Bi-Directional Control tab became available for configuration.

General		Station Data	Ύ.	Bi-Directional Control
Station Name MS_001_R Station Common Settings	Station Dia Set To Forward	rection NoFlow Current Status Reverse Enab	Current Status	Flow Permissive Current Status Enable Disabled
Atmospheric Pressure	Value 14.700	Units PSI		
Base Pressure Base Temperature Contract Hour	14.730 60.000 9	PSI DEG_F		
Flowing Units [-] Flow Rate Units [MSCF/HOUR]		
Energy Rate Units UC Flo w Rate Units	MMBTU MACF/HOUR] Energy Rate Time U		
Mass Rate Units Gas Chromatograph [-] Chromatograph Data		Mass Rate Time U	Select Calc Source	Calculations Using
Use 1 for all Assigned Heat Value Type Current Sat./Wet BTU Dry	Status Gross Me	AGA8 Gross ethod Current Method 2, N2 HV, SG, CO2	Fixed - Scheduled	GC
Averaging [-] Meter Averaging Meter Flow Dependent Forr		n No Flo w Condition Use Straight Average	Current Status Flow Weighted]
GC Averaging Meth		n No Flo w Condition Use Straight Average	Current Status Flow Weighted]

Figure 3-64. Configuring Station 2 for Bi-Directional Control (Example 5)

Configuring the Measurement Runs

Both Run 1 (the "forward" measurement run) and Run 2 (the "reverse" measurement run) must be configured.

On the General tab, configure Run 1 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making a "Station Assignment" of Station 1 (MS_001_F in this example). Change the "Static Pressure" and "Flowing Temperature Source" selection to "MVT", and select "MVT 1" as the "MVT#." Change other settings as required.

In this example, because there is only a single measurement run, no run staging (also referred to as run switching or tube switching) is possible, so the "Run Staging Rank" may be left at 0.

Annubar	Venturi	V-C	Cone 🍸	Alarm Config	YV/GQ Ave	rages Linrzl	tion Config	
General 📔	Orifice	Turbin	ne Y i	Auto-Adjust	Ultrasonic	Γ F	PD Y	Coriolis
Run ID [-]		Measure	ement Type		Direction		Station As	signment
MR_0	01_F		Orifice		Forw	ard	MS_	D01_F
	L				C Isolated		-Run Stag	ing Rank
					C Non-Iso			D
– Static Pressure (1							
Source		#	AI#	Overrie	de/Live	Value	U	nits
MVT								10.0
MV I	MVT 1		Default Al	Li	ve	0.000		120
			Default Al	Li [,]	ve	0.000		120
-Stacked or Redu For Redundancy,	indant XMTRS — , Set Point = 0 Va	lue of	Default Al Set F			0.000		120
Stacked or Redu For Redundancy, Low XMTR. To I	Indant XMTRS — , Set Point = 0 Va Force High XMTR	lue of to be		Point 0.0		0.000	_][INI	120
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	indant XMTRS — , Set Point = 0 Va Force High XMTR <0 Value of Low 3	lue of to be	Set F	Point 0.0		0.000		
Stacked or Redu For Redundancy, Low XMTR. To I	indant XMTRS — , Set Point = 0 Va Force High XMTR <0 Value of Low X	lue of to be KMTR.	Set F	Point 0.0		0.000 Value		120
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point - Flowing Tempera	indant XMTRS — , Set Point = 0 Va Force High XMTR <0 Value of Low X	lue of to be KMTR.	Set F Dead B	Point 0.(Band 0.(Overrid	000 000 le/Live		U	
Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source MVT	indant XMTRS Set Point = 0 Va Force High XMTR <0 Value of Low X iture [-] MVT	lue of to be KMTR.	Set F Dead B Al#	Point 0.(Band 0.(Overrid		Value	U	nits
- Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point - Flowing Tempera Source MVT - Stacked or Redu	INDER TO AN ANTRS Set Point = 0 Ve Force High XMTR (0 Value of Low) Inture [-] MVT MVT 1 INDER XMTRS	ilue of to be KMTR.	Set F Dead B Al#	Point 0.(Band 0.(Overrid	000 000 le/Live	Value	U	nits
Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempers Source MVT Stacked or Redu For Redundancy Low XMTR. To	Indant XMTBS Set Point = 0 Va Force High XMTR (0 Value of Low X sture [-] MVT MVT 1 Indant XMTRS , Set Point = 0 Va Force High XMTF	lue of to be KMTR. #	Set F Dead B Al # Default Al Set F	Point 0.(Band 0.(Overrid	000 000 le/Live ve	Value	U	nits
Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point	Set Point = 0 Va Force High XMTR (0 Value of Low X sture [-] MVT MVT 1 indant XMTRS , Set Point = 0 Va Force High XMTF <0 Value of Low X	lue of to be KMTR. #	Set F Dead B Al # Default Al	Point 0.0	000 000 le/Live ve [Value	U	nits
Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flow Rate Lacc	Indant XMTRS Set Point = 0 Va Force High XMTR (0 Value of Low 3 Iture [-] MVT Indant XMTRS Set Point = 0 Va Force High XMTF (0 Value of Low 3	lue of to be KMTR. # lue of to be XMTR.	Set F Dead B AI# Default AI Set F Dead B	Point 0.0	000 000 le/Live ve [Value	U	nits
Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flowing Units [] Flow Rate MSC	Set Point = 0 Va Force High XMTR (0 Value of Low X sture [-] MVT MVT 1 Set Point = 0 Va Force High XMTR (0 Value of Low F/HOUR	Ilue of to be KMTR. Ilue of to be KMTR. C Flow E Units	Set F Dead B Al# Default Al Set F Dead B MACF/HOU	Point 0.(Band 0.(Overrid Doint 0.(Band 0.(000 000 le/Live ve [Value	U	nits G_F
Stacked or Redu For Redundancy, Low XMTR. To Used. Set Point Flowing Tempera Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flowing Units [] Flow Rate MSC	Set Point = 0 V2 Force High XMTRS (0 Value of Low 3 ature [-] (0 Value of Low 3 (0 Value of Low 3 (0 Value of Low 3 (0 Value of Low 3 Force High XMTF (0 Value of Low 3 (0 Value of Low 3) (0 Value of Low 3) (Ilue of to be KMTR. # Ilue of to be KMTR. C Flow	Set F Dead B AI# Default AI Set F Dead B	Point 0.0 Band 0.0 Overrid Point 0.0 Band 0.0 Veloci UR Vel	000 000 le/Live ve 000 000 100	Value 0.000		nits G_F
Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Flowing Tempera Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Flow Rate Units Energy M	Set Point = 0 Va Force High XMTRS (0 Value of Low 3 Ature [-] MVT MVT 1 Indant XMTRS Set Point = 0 Va Force High XMTF (0 Value of Low 1 F/HOUR MBTU TR Mas Mas	Ilue of to be KMTR. Ilue of to be KMTR. C Flow E Units Up Rate	Set F Dead B Al# Default Al Set F Dead B MACF/HOU	Point 0.0 Band 0.0 Overrid Point 0.0 Band 0.0 Veloci UR Vel	100 100 100 100 100 100 100 100	Value 0.000 0.00000		nits G_F Units FT/S

Figure 3-65. Configuring Run 1 for Bi-Directional Control (Example 5)

On the "Orifice" tab for Run 1, change the "Differential Pressure Source" to "MVT" and select "MVT 1" as the "MVT#". Change other settings as required.

Annubar	Ventu	<u>i ľ</u>	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config]
General	Orifice		Furbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Settings [-]							
Orifice Dian			w Cutoff	Material —	Pipe	Orifice	
		0.25000	In/H2O	Туре	304/316 SS	304/316 SS	1
Pipe Diame 4.07100	INCH			Reference		•	J
AGA3 Equation		Pressure T	ap Location	Temp	0.00	0.00	DEG_F
AGA3I (19			tream	1			
· · · · · · · · ·							
Differential Pres Source							
		MVT#	A1#	Overri	de/Live va	مىلە	Unite
		MVT#	AI#		va		Units
MVT Stacked or Redu For Redundancy	undant XMT	VT 1 RS	Default A		va		Units 1H20
MVT Stacked or Redu	undant XMT , Set Point Force High <0 Value of ite	NVT 1 RS = 0 Value o XMTR to b	Default A of Set a A Dead	Point 0.		1000) 1000) 1000)	
MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	undant XMT , Set Point Force High <0 Value of ite	WVT 1 [RS - = 0 Value o XMTR to b i Low XMTI Units	Default A of Set a A Dead	N Ci Point O. d Band O. Energy Rate	ve 0.0	1000) 1000) 1000)	
MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change	undant XMT , Set Point Force High <0 Value of te	WVT 1 [RS - = 0 Value o XMTR to b i Low XMTI Units	Default A of Set ee DUR DUR	Point 0. d Band 0. Energy Rate 0.000	Ve 0.0 000 Units MMBTU/H New Orifice Dia	OUR ameter Bet	a Ratio
MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	undant XMT , Set Point Force High <0 Value of te	WVT 1 [RS - = 0 Value o XMTR to b i Low XMTI Units	Default A of Set Part Deac	Point 0. d Band 0. Energy Rate 0.000	Ve 0.0 000 Units Units New Orifice Dia	OUR ameter Bet	IH2O
MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change Normal (Ins Min/Max Rates I	Andant XMT Force High <0 Value of te active]	VVT 1	Default A Default A of Set e e DUR Elapsed 1 00 00:00:0	VI C. Point C. d Band O. Energy Rate 0.000	ve 0.0 000 Units 000 MMBTU/H New Orifice Dia 2.00000	OUR ameter Bet INCH 0	a Ratio .491
MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Plate Change Normal (Ind	Andant XMT Force High <0 Value of te active]	VVT 1	DUR Elapsed 1 00 00:00:(Point 0. d Band 0. Energy Rate 0.000	ve 0.0 000 Units 000 MMBTU/H New Orifice Dia 2.00000	OUR ameter Bet INCH 0	a Ratio

Figure 3-66. Configuring Run 1 Orifice tab for Bi-Directional Control (Example 5)

On the General tab, configure Run 2 by giving it a unique "Run ID", selecting a "Measurement Type" of "Orifice", and making a "Station Assignment" of Station 2 (MS_001_R in this example).

Because Run 2 is assigned to Station 2 (which is configured as a "reverse" station), the "Direction" field changes to "Reverse," and the items in the "PVs" box become available for configuration.

When using a single MVT to measure gas in both directions, as in this example, the "Non-Isolated" radio button should be selected.

When the "Non-Isolated" radio button is selected, the live input values for static pressure and flowing temperature applied to Run 1 are also applied to Run 2.

Because this run is assigned to a "reverse" measurement station, the option for changing the "Run Staging Rank" is disabled. It is important that the run staging rank for the reverse runs be left at 0.

Annubar	Venturi		ione 📔 Ala	arm Config 🎽 PV/	/GQ Averages	Linrztion Config	
General 🛛	Orifice	Turbin	ne 🍸 Auto	HAdjust 👔 Ul	Itrasonic Y	PD)	Coriolis
Chromatograph 1 Compressi	Station GC D Se bility Calc	ata Set Must I	ment Type Orifice Be Set To "Use R able This Feature. ethod Current	un sueam 📋 🗕	Reverse	MS_	ssignment 001_R ging Rank 0
AGA8 Static Pressure Sourc		J	2, N2 HV, S	G, CO2	e Valu		Inits
Sourc	e mv	1#	AI#	e remaer en r	• • • • • • •		inits
MVT Stacked or Red	undant XMTRS -	ie [Default Al				IH2O
MVT Stacked or Red For Redundanc Low XMTR. To	Non undant XMTRS - , Set Point = 0 \ Force High XMT <0 Value of Low ature [-]	/alue of R to be XMTR.		t 0.000		0 IN	
MVT Stacked or Red For Redundancy Low XMTR. To Used. Set Point Flowing Temper	Non undant XMTRS - y, Set Point = 0 V Force High XMT <0 Value of Low ature [-]	/alue of R to be XMTR.	Set Poin Dead Band	t 0.000		10 IN	H2O
MVT Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Sourc MVT Stacked or Red For Redundanc; Low XMTR. To	Indant XMTRS - , Set Point = 0 \ Force High XMT <0 Value of Low ature [-] e MV Non	/alue of R to be /XMTR. T# re [] /alue of R to be	Set Poin Dead Band	t 0.000 0 verride/Live Live	0.00	10 IN	Inits
MVT Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Sourc MVT Stacked or Red For Redundanc Low XMTR. To Used. Set Point Flow Rate Inc.	Non undant XMTRS - , Set Point = 0 \ Force High XMT <0 Value of Low ature [-] e MV undant XMTRS - , Set Point = 0 \ Force High XMT <0 Value of Low CF/HOLED	Alue of R to be × XMTR. T# re [Value of R to be × XMTR. UC Flow	Default Al Set Poin Dead Banc Al# Default Al Set Poin	t 0.000 0 verride/Live Live t 0.000 4 0.000 Velocity	• Valu	ie L 10 DI	Inits EG_F
MVT Stacked or Red For Redundanc; Low XMTR. To Used. Set Point Flowing Temper Sourc MVT Stacked or Red Low XMTR. To Used. Set Point Flow Rate MS Units Flow Rate MS	Non undant XMTBS - , Set Point = 0 \ Force High XMT <0 Value of Low ature [-] e MV e MV undant XMTBS - y, Set Point = 0 \ Force High XMT <0 Value of Low CF/HOUR R. MBTLL Ene	/alue of R to be /XMTR. T# re [[/alue of R to be XMTR.	Al# Default Al Dead Banc Al# Default Al Set Poin Dead Banc	0.000 0.000 0verride/Live Live 0.000 0.000		10 IN	Inits EG_F

Figure 3-67. Configuring General tab (for Run 2) in Bi-Directional Control (Example 5)

On the Orifice tab for Run 2, change all other settings to the same values as set on Run 1, except for "Pressure Tap Location" which should be set to the opposite of the setting for Run 1.

Because the "Non-Isolated" PVs radio button was selected on the "General" tab, the live input value for differential pressure for Run 2 comes from the MVT defined by the MVT# for Run 1. However, the differential pressure value is only applied to Run 2 for measurement when the bi-directional flow indication determines gas is flowing through the physical station in the reverse direction, otherwise, the differential pressure is forced to 0.0.

When the flow direction is indicated as "reverse", the differential pressure will be indicated on Run 2, and the differential pressure for Run 1 will be forced to 0.0.

Annubar	Ventu	ri <u> </u>	V-Cone	Alarm Config	PV/GQ Average	es Linrztion Confi	<u> </u>
General	Orifice		Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Pipe Diamo 4.07100 AGA3 Equation AGA3I (19	INCH eter INCH in Use 92)	0.25000 Pressure	low Cutoff In/H2O Tap Location Stream	Material Type Reference Temp	Pipe 304/316 SS 0.00	Orifice 304/316 SS 0.00	 DEG_F
	••			Quarrie	المل		
Differential Pres Source		MVT#	AI#			Value	Units
Source MVT		None	AI# Default /				Units INH20
Source	undant XMT , Set Point Force High <0 Value of te	None RS = 0 Value XMTR to	of Set be TR. Dear	AI Li		0.000	
Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	, Set Point Force High <0 Value of te	None RS	of Set be TR. Dear	Al Liv Point O.(d Band O.(Energy Rate 0.000 Time	ve ()00)00 Uni	ts /HOUR Diameter Be	
Source MVT Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.0000 Plate Change Normal (Ins	Active)	None RS	Default / of Set be IR. Dear S IOUR [Elapsed 00 00:00: w Rate DP [Al Liv Point O.(d Band O.(Energy Rate 0.000 Time	ve (000 000 Uni MMBTU/ New Orifice I 2.00000 [ate Maximum	ts /HOUR Diameter Br INCH	INH2O

Figure 3-68. Configuring Run 2 Orifice tab for Bi-Directional Control (Example 5)

3.2.9 General tab

Depending on the version, Station Manager supports either six or eight meter runs, each of which you must assign to a station. Either left click on a run icon, or right-click on the icon and choose from the pop-up menu to open menus for that run. To open the General tab, choose **Configuration** from the pop-up menu.

10	n 1 (R 1) (St	Cor	nfiguratio	n	
	n 2 (R 2) (St		-		
	n 3 (R 3)	Met	ter Types		•
-	n 4 (R 4)	Ala	rm Confi	guration	
	n 5 (R 5)	DV/	GQ Avera	-	
	n 6 (R 6)		-	-	
	n 7 (R 7) n 8 (R 8)	Mai	intenance	Mode	
Annubar Venturi	V-Cone	Alarm Con	ia PV/GQ A	verages Lipration	n Config
General Orifice	Turbine	Auto-Adjust	Ultrasor		
- Run ID [-]	Measurement	Tune	Direction		tation Assignment
Run 5		onfigured	Fo	rward	No Assignment
Chromatograph Data Set			PVs N/A		Run Staging Rank
1 S	Data Set Must Be Set Settings'' To Enable Th		O Non-		1
Compressibility Calc NX-19	Gross Method SG, CO2, N2	Current Metho HV, SG, CO			
	OC, OOE, NE	111, 30, 00	<u> </u>		
Static Pressure [-]	VT# AI#	0v	erride/Live	Value	Units
Hardware Al No	ne Defau	It Al	Live	0.000	
Stacked or Redundant XMTRS For Redundancy, Set Point = 0		Set Point	0.000		
Low XMTR. To Force High XM Used. Set Point <0 Value of Log	TR to be	ead Band	0.000		
Flowing Temperature [-]					
	VT# AI#		erride/Live	Value	Units
			Live	0.000	
Stacked or Redundant XMTRS For Redundancy, Set Point = 0	Value of	Set Point	0.000		
Low XMTR. To Force High XM Used. Set Point <0 Value of Lo		ead Band	0.000		
Flowing Units [-]			locity		Units
	Rate Units MACT	HOUR	Velocity of Ga	s 0.00000	FT/S
Rate Units MMDTO T	ime Units H(DUR	Pipe Diamete	ar 4.07100	INCH
Mass Hate LB M	ass Rate 🛛 🖬	DUR			

Figure 3-69. General tab (Runs)

Field	Description
Run ID	Enter a name and press the [Enter] key to save your entry. The generic Run ID of Run 1 will be replaced by the user specific Run ID.
Measurement Type	Select the measurement type from the drop-down menu.
Chromatograph Data Set	The chromatograph stream used for measurement of this run may be assigned at the Station level, or at the Run level. If a chromatograph stream is assigned at the Station level, the user will be unable to assign the stream at the run level.

	- Chromatograph Data 1 Compressibility AGA8 Gro	Station GC Da Set Calc	ata Set Must Be Set To "Use Run Stream tinos" To Enable This Feature. Gross Method SG, CO2, N2 HV, SG, CO2		
		, the use	eam is assigned as 0 at r will be able to assign the		
		h Data So ation tab i	this section, the et field on the General must be set to " Use Run		
Compressibility Calc	you want Station and press the [E NX-19 AGA8 Detail AGA8 Gross Note: You can c	n Manager [nter] key [nly set thi	to select the calculation r to use for compressibility to save your selection.		
Gross Method SG,CO2, N2 / HV, SG, CO2	calculations sele method shows in the gross metho button; the newly	the gro the Curr d used to y chosen i field, and	s for your compressibility ss method. The current rent Method field; to toggl the other method, click the method shows in the d the now unused method e button.		
	Choices include:				
	SG, CO2, N2	perform relative SG), an	tion Manager application s calculations using inputs density (specific gravity or d the mole fractions of n (N2) and carbon dioxide		
	HV, SG, CO2	The Sta perform the heat density	tion Manager application s calculations using inputs ting value (HV), the relativ (specific gravity or SG), ar e fraction of carbon dioxide		
	Note: These options are only available for the AGA8 Gross compressibility calculation.				
<u>Direction</u>	station configure	d as a for on this sc	I has been assigned to a ward flowing station, this creen as "Forward", and the d out.		
<u>PVs</u>	station configure will be indicated	ed as a re on this s	d has been assigned to a everse flowing station, this creen as "Reverse." It wil gure the PVs (Process		

Variables) section. The user may then select between Isolated and Non-Isolated PVs. **Isolated PV** is used when the forward run and reverse run each are using different Input Sources.

Non-Isolated PV is used when the forward run and reverse run are using the same Input Sources.

Direction	
Reverse	
- PVs	
📕 Isolated	
Non-Isolated	

To assign the run to a station, click on the Station Assignment box.

	Station Assignment
	Station 2 🔹
	No Assignment
	Station 1
	Station 2
	Station 3
	Station 4
	Station 5
	Station 6
	Select a station from the drop down menu, and press [Enter]. (Note, if the Station ID has been
	changed on the Station Configuration screen, the
	user defined Station Name will appear in the drop
	down menu, instead of the generic Station Name.)
	After assigning a run to a station, the run will
	appear under the station in the Site Tree.
Run Staging Rank	If there is more than one run assigned to a station, and the station will be configured for Meter Run Staging (or Meter Tube Switching), then the Run Staging Rank may be assigned by entering the rank here. The rank entered should be from 1 to the maximum number of runs assigned to the station.
	Note: If this run is set up for Reverse flow, the Run Staging Rank must be assigned as 0.
	Ctation Assignment
	Station Assignment
	Station 1
	Run Staging Rank

Station Assignment

Static Pressure and Flowing Temperature	Every type of measurement requires a static pressure measurement and a temperature measurement.
Source	The source for these measurements may come from either Analog Inputs via the I/O cards (Hardware AI) or via serial communications to the Multi-Variable Transmitters (MVT).
	The selection of the source is made by clicking on the button.
MVT#	If MVT is chosen, the user may select from any of the 12 MVTs. In the 6-run version, you also may select from 18 HART and 18 WiHART transmitters.
	Static Pressure [-]
	Static Pressure [-] Source MVT#
	MVT None 🔻
	Stacked or Redundant > None For Redundancy, Set Po MVT 1 Low XMTR. To Force H MVT 2 Used. Set Point <0 Valu MVT 3
	Flowing Temperature [-] MVT 4 Source MVT 5
	Hardware AI MVT 6 MVT 7
	Stacked or Redundant × MVT 8 -
Al#	If Hardware AI is chosen, the user may select from the Analog Input (AI) to be used from a drop down

v menu.

Static Pressure [-] Source	MVT#	AI#	
Hardware Al	MVT 1	Default Al	•
-Stacked or Redundant X	MTBS	Default Al	
For Redundancy, Set Poi		Shared SP 1	
Low XMTR. To Force Hi	gh XMTR to l	Shared SP 2	Ξ
Used. Set Point <0 Value	of Low XMT	Shared SP 3	1
-Flowing Temperature [-]-		Shared SP 4	-
Source	MVT#	Shared SP 5	
Hardware Al	None	Shared SP 6	
Tialuwale Al	NUTE	Stacked SP 1	
-Stacked or Redundant X	MTRS	Stacked SP 2	Ŧ

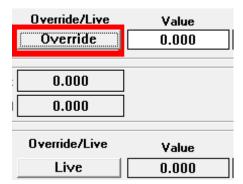
The user may select from the Default AI (this would be the "Run X Static Pressure" or "Run X Temperature" selections from the I/O configuration page), or from a Shared Transmitter ("Shared SP X" or "Shared FTemp X" from the I/O configuration page) or a pair of Stacked transmitters ("Stacked

SP X Lo/Hi" or "Stacked FTemp X Lo/Hi" from the I/O configuration page).

If the Default AI or Shared transmitters are chosen, the measurement source configuration is completed. If Stacked transmitters are chosen, see the "Stacked or Redundant XMTRS" section.

Override/Live

The user may override the measurement values in use by selecting Override instead of Live



When Override is selected, the user may enter the desired value for the measurement to be used.

When Live is selected, the Value will be driven by the appropriate input value.

Note: the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.

Note: These overrides are done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.

Value

The static pressure and flowing temperature values in use are shown here.

Value
0.000

When "Live" is selected via the "Override/Live" button, this value is the value coming from the Static Pressure or Flowing Temperature Source.

When "Override" is selected via the "Override/Live" button, this value may be entered by the user, and the entered value will be used in the measurement

	calculation.			
Units	The units for the measurement inputs come from the input source.			
Stacked or Redundant Transmitters	If Stacked transmitters are chosen, the user must configure the transmitters as Stacked transmitters or Redundant transmitters.			
	Static Pressure [-] Override/Live Source MVT # AI# Override/Live Hardware AI MVT 1 Stacked SP 1 Live Stacked or Redundant XMTRS Event Control 0.000 For Redundancy, Set Point = 0 Value of Low XMTR. To Force High XMTR to be Used. Set Point <0 Value of Low XMTR.			
	Stacked Transmitters operate such that one transmitter measures at a low range of measurement, and a second transmitter measure at a higher range. When using Stacked Transmitters, the user must enter a set point where the measurement will transition from the low range transmitter to the high range transmitte A deadband may be entered, that will prevent the measurement from switching back and forth between the high and low transmitters.			
	Redundant transmitters operate such that one transmitter is used for measurement all of the time, and the second transmitter is available in case the first transmitter fails.			
	To configure the stacked transmitters to be used as redundant transmitters, the user must set the Set Point to 0.0. This will set the Stacked SP X Lo (or Stacked FTemp X Lo) to be the primary transmitter, and the Stacked SP X Hi (or Stacked FTemp X Lo) transmitter will only be used if the L transmitter indicates a failure.			
	To force the Hi transmitter to be used, the user must set the Set Point to a value less than 0.0.			
Flowing Units	Flow Rate, Energy Rate, and Mass Rate units an time units may be assigned on a per run basis.			
	Flowing Units [-] UC Flow Flow Rate MSCF/HOUR Units MSCF/HOUR Energy MMBTU Rate Units HOUR Mass Rate LB Units HOUR			
	<u>Flow Rate Units</u> MSCF/YEAR MSCF/DAY MSCF/HOUR			

MSCF/MIN MSCF/SEC M3/YEAR M3/DAY M3/HOUR M3/HOUR M3/SEC MMSCF/YEAR MMSCF/DAY MMSCF/HOUR MMSCF/HOUR MMSCF/SEC MM3/YEAR MM3/HOUR MM3/HOUR MM3/HOUR MM3/HOUR MM3/HOUR MM3/SEC CCF/YEAR CCF/DAY CCF/HOUR CCF/HOUR CCF/MIN CCF/SEC
where: MSCF – Thousands of Standard Cubic Feet MMSCF – Millions of Standard Cubic Feet M3 – Standard Cubic Meters MIN – Minutes SEC - Seconds MM3 – Millions of Cubic Meters CCF – Hundreds of Cubic Feet <u>Uncorrected (UC) Flow Rate Units</u> MACF/YEAR MACF/DAY MACF/HOUR MACF/HOUR MACF/SEC M3/YEAR M3/DAY M3/HOUR M3/MIN M3/SEC MMACF/DAY MMACF/HOUR MMACF/DAY MMACF/HOUR MMACF/DAY MMACF/HOUR MMACF/MIN MMACF/SEC MM3/YEAR MM3/DAY MM3/HOUR MM3/HOUR MM3/HOUR MM3/HOUR MM3/MIN MM3/SEC CCF/YEAR CCF/YEAR CCF/DAY CCF/HOUR CCF/HOUR CCF/NIN CCF/SEC

where: ACF - Actual Cubic Feet M3 – Actual Cubic Meters MM3 – Millions of Cubic Meters CCF – Hundreds of Cubic Feet **Energy Rate Units** MMBTU MJ KJ J ERG KCAL CAL CHU KWH QUAD THERM TONTNT TONCOAL MMMBTU GJ BTU MMBTU605 MMMBTU605 **BTU605** where: MMBTU - Millions of British Thermal Units MJ – Mega joules KJ – Kilojoules J – Joules ERG - Ergs KCAL - Kilocalories CAL - Calories CHU - Celsius-heat unit KWH – Kilowatt Hours QUAD - short-scale quadrillion THERM - Therms TONTNT - Tons of TNT TONCOAL - Tons of Coal MMMBTU – Billions of BTU GJ – Gigajoules **BTU** – British Thermal Units MMBTU605 - Millions of British Thermal Units at 60.5 degrees F. MMMBTU605 - Billions of British Thermal Units at 60.5 degrees F. BTU605 - British Thermal Units at 60.5 degrees F. Mass Rate Units LB MG KG G USTON UKTON MTON

Pipe Diameter	The diameter of the pipe through which the gas flows.	
Units	The engineering units associated with the velocity of gas, and the pipe diameter.	
Velocity of Gas	The velocity of gas traveling through the pipe.	
Velocity		
Velocity	G is grams USTON is a United States ton UKTON is a United Kingdom ton MTON is a metric ton OZ is an ounce TROYOZ is a troy ounce GRAIN is a grain SLUG is a slug CARAT is a carat <u>Time Units:</u> YEAR DAY HOUR MIN SEC	
	SLUG CARAT Where: LB is pounds MG is milligrams KG is kilograms	
	OZ TROYOZ GRAIN	

3.2.10 Alarm Config Tab (Run Configuration)

The Station Manager program allows for certain items to be configured as alarms.

When an item is configured as an alarm, then any time the value goes into or out of the alarm state, an entry will be made in the Audit Trail.

In addition, if the Station Manager controller is being used in a BSAP network, then these alarms will be reported to the SCADA host, if the SCADA host supports BSAP alarms.

To configure the alarm limits for run specific data, click on the Alarm Config Tab or right click on the run icon and choose **Alarm Configuration** from the pop-up menu.

General	Orifice	Turbine	Auto-Adjust	Ultra	asonic F	D Coriolis
Annubar 🍸	Venturi 🍸 V	-Cone	Alarm Config	PV/GQ A	verages Linrztion (Config
Alarms						
	High High Limit	: High L	.imit Lo	ow Limit	Low Low Limit	Enable/Disable
Flow Rate		0.00)0	0.000		Disabled
Diff. Pressure*	0.000	0.00)0	0.000	0.000	Disabled
Static Pressure	0.000	0.00)0	0.000	0.000	Disabled
Temperature	0.000	0.00)0	0.000	0.000	Disabled
Beta Ratio*		0.60)0	0.150		Disabled
Speed of Sound	XX	0.00)0			Disabled
Frequency***	0.000	0.00)0	0.000	0.000	Disabled
Delta-Abar Alarm	Abnormal High	Abnorma	al Low No	mal High	Normal Low	
	5.000	-5.0	00	2.500	-2.500	
FPV QBit	High	Lov	*			
	1.4138	1.00	00			
Time Delay to Ala Max/Min Flow						
0						
	ifice type measuremen					
	Itrasonic type measure					
Unly active for I	Linear type measureme	int				

This screen opens:

Figure 3-70. Alarm Config tabThe following items may be configured for alarms.

Field	Description
Flow Rate	The High and Low Limits for the flow rate are automatically calculated, based on the Maximum and Minimum flow rates through the meter run.
Diff Pressure	For an orifice meter only, High-High, High, Low, and Low-Low alarm limits may be set for the differential pressure input.

Static Pressure	For all meter types, High-High, High, Low, and Low-Low alarm limits may be set for the static pressure input.
Temperature	For all meter types, High-High, High, Low, and Low-Low alarm limits may be set for the flowing temperature input.
Beta Ratio	For an orifice meter only, High and Low alarm limits may be set for the calculated beta ratio.
Speed of Sound	For an ultrasonic meter only, the High alarm limit for the deviation between the speed of sound as calculated using AGA 10 and the speed of sound reported from the ultrasonic meter may be configured.
Frequency	For linear meter types (ultrasonic, turbine, AutoAdjust, and positive displacement (PD) meters, High-High, High, Low, and Low-Low alarm limits may be set for the frequency input.
Enabled/Disabled	An alarm may be Enabled or Disabled via the Enable/Disable button. By default, the alarms are disabled. When an alarm is disabled, no entries are made into the Audit Trail if the value goes in to or out of alarm.
Delta – Abar Alarm	For auto-adjust meters, this configures the high- high, high, low, and low-low alarm limits. This is only valid where the meter type is auto-adjust.
FPV Q Bit High Low	These fields set the high and low values that trigger the questionable data flag for the FPV calculated using the AGA8 equation. (The questionable data flag shows as a Q in the status grid at the top of the page.)
Time Delay to Alarm Max Min Flow Rate	Specify the amount of time (in seconds) that the flow rate must be continuously above the max value or below the min value to generate the alarm. This acts as a deadband in case the flow should momentarily fluctuate around the min/max limit.

3.2.11 Linearization Config Tab (Run Configuration)

Note: In order to access this tab, you must first configure the measurement type for the meter run to **Turbine**.

The Station Manager program allows for the linearization of the frequency outputs of turbine meters.

To configure the linearization table, click on the Linearization Config tab or right click on the run icon and choose **Meter Types > Turbine > Linearization Configuration** from the pop-up menus.

This screen opens:

General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	
		Lineari	zation	Run 4		
		Lincun	20001	riun 4		
		ACF	'H CFa	ictor		
		0.00	00 1.0	000		
		10.00	1.0	000		
		20.00	00 1.0	000		
		30.00	00 1.0	000		
		40.00		000		
		50.00	1.0	000		
		60.00	1.0	000		
		70.00	1.0	000		
		80.00	1.0	000		
		90.00	1.0	000		
		100.0	000 1.0	000		
		110.0	000 1.0	000		

Figure 3-71. Linearization Config tab

This linearization table must be configured by the user. For up to 12 points, the user must enter an uncorrected flow rate in units of Actual Cubic Feet per hour, and an associated correction factor (C factor). The Station Manager program will interpolate between any two points on this table to calculate the C Factor for a specific flow rate.

▲ Caution

If the user does not configure all 12 points, then the last non-zero entry for ACF/H will be used as the last correction factor. Any uncorrected flow rate above this point will use the correction factor for this point, there will be no interpolation performed.

3.2.12 PV/GQ Averages Tab (Run Configuration)

The Station Manager program calculates and displays averages for the process values used for measurement, and the gas quality data used by the measurement for each run.

To view the averages for the process variables and gas quality data, click on the PV/GQ Averages tab or right click on the run icon and choose **PV/GQ Averages** from the pop-up menu. This screen opens:

General	inO	fice	Turbine	Auto-Adjust	Ultrasonic	F	D	Coriolis
Annubar	Venti	uri V	'-Cone	Alarm Config	PV/GQ Averag	e: Linrztion (Config	1
-PV Averages -	DP SP Ftemp	Current 0.000 0.000 0.000		nt Hour Avg 0.000 0.000 0.000	Previous Ho 0.000 0.000 0.000			
GQ Averages ([-] Current	Current Hour Avg	Previous Hou Avg	11	Current	Current Hou Avg		ous Hour Avg
	0.000	0.000	0.000] 0		0.000).000
sg 🗍	0.000	0.000	0.000	ן כ	7 0.000	0.000		0.000
N2 🗌	0.000	0.000	0.000	C	8 0.000	0.000		0.000
CO2 🗍	0.000	0.000	0.000	ן כ	9 0.000	0.000		0.000
CH4 🗍	0.000	0.000	0.000			0.000		0.000
C2 🗍	0.000	0.000	0.000	H20		0.000		0.000
C3 🗍	0.000	0.000	0.000	H29		0.000		0.000
IC4 🗍	0.000	0.000	0.000	л н:] са		0.000).000
NC4 🗍	0.000	0.000	0.000			0.000).000
IC5 🗔	0.000	0.000	0.000] н		0.000).000
NC5 🗌	0.000	0.000	0.000	AF		0.000		0.000

Figure 3-72. PV/GQ Averages tab

The averaging method for the differential pressure is always flowdependent time-weighted linear averaging.

The averaging method for the static pressure and flowing temperature may be any of the API averaging methods.

The averaging method for the gas quality data is always time-weighted linear averaging.

3.2.13 Orifice Tab (Run Configuration)

To configure a run as an orifice meter, click on the Measurement Type in the General tab and select Orifice from the drop down menu.

Heasurement Type
Orifice

Click the Orifice tab, or right click on the run icon and choose **Meter Types > Orifice** from the pop-up menus and the following screen opens:

General Orifice Turbine Auto-Adjust Ultrasonic PD Settings [-] Orifice Diameter Low Flow Cutoff Material Pipe Orifice 2.00000 INCH 0.25000 In/H20 Type 304/316 SS 304/316 Pipe Diameter 4.07100 INCH 0.25000 In/H20 Type 304/316 SS 304/316 4.07100 INCH 0.25000 Up Stream Reference 0.00 0.00 AGA31 (1992) Up Stream Up Stream Override/Live Value Hardware Al None Default Al Live 0.000 0.000 Stacked or Redundant XMTRS For Redundancy, Set Point = 0 Value of Low XMTR. Set Point 0.000 0.000 Stacked or Redundant XMTRS Dead Band 0.000 0.000 Current Rates Energy Rate Units Flow Rate Units Energy Rate Units 0.000 MMBTU/HOUR Plate Change Elapsed Time New Orifice Diameter 2.00000 INCH Min/Max Bates for this Bun 00 00:00:00.000 2.00000 INCH <	Annubar	Ventu	ri V-Cone	e Alarm Cor	nfig 🔰 PV/GQ Avi	erages Linrztion (Config
Orifice Diameter Low Flow Cutoff Material Pipe Orifice 2.00000 INCH 0.25000 In/H20 Type 304/316 SS 304/316 4.07100 INCH AGA3 Equation in Use Pressure Tap Location Reference 0.00 0.00 AGA3 Equation in Use Pressure Tap Location AGA3 [1992) Up Stream 0.00 0.00 Differential Pressure [-] Source MVT# AI# Override/Live Value Hardware Al None Default Al Live 0.000 [Stacked or Redundant XMTRS Set Point 0.000 0.000 [Stacked or Redundant XMTRS Dead Band 0.000 [0.000 [Current Rates Flow Rate Units Energy Rate Units [MMBTU/HOUR Plate Change Elapsed Time New Orifice Diameter 0.0000 [2.00000 [NCH	General	Orifice	Turbine	Auto-Adjust	Ultrasonio	⇒ Î PD	Coriolis
2.00000 INCH 0.25000 In/H2O Pipe Diameter Type 304/316 SS 304/316 4.07100 INCH Reference 0.00 0.00 AGA3 Equation in Use Pressure Tap Location Reference 0.00 0.00 AGA31 (1992) Up Stream Up Stream 0verride/Live Value Differential Pressure [-] Source MVT# Al# 0verride/Live Value Hardware Al None Default Al Live 0.000 [Stacked or Redundant XMTRS For Redundancy, Set Point = 0 Value of Low XMTR. Set Point 0.000 0.000 [Stacked or Low XMTR] Dead Band 0.000 Current Rates Flow Rate Units Energy Rate Units [MMBTU/HOUR] Plate Change Elapsed Time New Orifice Diameter 2.00000 INCH							
Pipe Diameter Type 304/316 SS 304/316 4.07100 INCH Reference 0.00 0.00 AGA3 Equation in Use Pressure Tap Location Reference 0.00 0.00 AGA3 I (1992) Up Stream Up Stream Value Value Differential Pressure [-] Source MVT# AI# Override/Live Value Hardware Al None Default Al Live 0.000 [Stacked or Redundant XMTRS] For Redundancy, Set Point = 0 Value of Low XMTR. Set Point 0.000 [Stacked or Low XMTR] Dead Band 0.000 Current Rates Flow Rate Units Energy Rate Units Flow Rate Units Energy Rate Units Plate Change Elapsed Time New Orifice Diameter Normal [Inactive] 00 00:00:00.000 2.00000 INCH					Pipe	Orifice	
Pipe Diameter Image: Constraint of the second s			0.25000 In/F		304/316 SS	304/316	SS
AGA3 Equation in Use Pressure Tap Location Temp 0.00 0.00 AGA3 Equation in Use Pressure Tap Location Temp 0.00 0.00 AGA3 Equation in Use Up Stream 0.00 0.00 0.00 Differential Pressure [-] Source MVT# AI# Override/Live Value Hardware Al None Default Al Live 0.000 0.000 Stacked or Redundant XMTRS For Redundancy, Set Point = 0 Value of Low XMTR Set Point 0.000 0.000 Stacked Stacked or Redundant XMTRS Dead Band 0.000 0.000 Current Rates Dead Band 0.000 Current Rates Flow Rate Units Energy Rate Units Flow Rate Units Energy Rate Units Plate Change Elapsed Time New Orifice Diameter Normal [Inactive] 00 00:00:00.000 2.00000 INCH					00 1010 00		
Add 3 Equation in Use Pressure 1 ap Location AGA31 (1992) Up Stream Differential Pressure [-] Source Source MVT# Al# Override/Live Value Hardware Al None Default Al Live Stacked or Redundant XMTRS For Redundancy, Set Point = 0 Value of Low XMTR. Dead Band 0.000 Current Rates Flow Rate Units Energy Rate Units Outron MMBTU/HOUR Plate Change Elapsed Time Normal [Inactive] 00 00:00:00.000				Tomp	0.00	0.00	DEG_F
Differential Pressure [-] Source MVT# AI# Override/Live Value Hardware Al None Default Al Live 0.000 Stacked or Redundant XMTRS Energy 6 Set Point 0.000 Stacked or Redundancy, Set Point = 0 Value of Low XMTR. To Force High XMTR to be Used. Set Point < 0 Value of Low XMTR. Dead Band 0.000 Current Rates Flow Rate Units Energy Rate Units Flow Rate Units Energy Rate Units Plate Change Elapsed Time New Orifice Diameter Normal [Inactive] 00 00:00:00.000 2.00000 INCH	•		•	ation			
Source MYT# AI# Override/Live Value Hardware Al None Default Al Live 0.000 Stacked or Redundant XMTRS	AGAJI (19	aasi	op stream				
Source MY III AIII Contractive Value Hardware Al None Default Al Live 0.000 Stacked or Redundancy, Set Point = 0 Value of Low XMTR. To Force High XMTR to be Used. Set Point < 0 Value of Low XMTR. Set Point 0.000 Current Rates Flow Rate Units Energy Rate Units Flow Rate Units Energy Rate Units Plate Change Elapsed Time New Orifice Diameter Normal (Inactive) 00 00:00:00.000 2.00000 INCH							
Stacked or Redundancy, Set Point 0.000 For Redundancy, Set Point 0.000 Low XMTR. To Force High XMTR to be Used. Set Point <0 Value of Low XMTR. Dead Band Current Rates Flow Rate Units Flow Rate Units Energy Rate Units Plate Change Elapsed Time New Orifice Diameter Normal [Inactive] 00 00:00:00.000 INCH							Units
For Redundancy, Set Point = 0 Value of Low XMTR. To Force High XMTR to be Used. Set Point < 0 Value of Low XMTR. Set Point 0.000 Current Rates Flow Rate Units Energy Rate Units 0.000 MSCF/HOUR 0.000 MMBTU/HOUR Plate Change Elapsed Time New Orifice Diameter Normal (Inactive) 00 00:00:00.000 2.00000 INCH	Hardware	e Al	None Det	fault Al	Live	0.000	INH20
Flow Rate Units Energy Rate Units 0.000 MSCF/HOUR 0.000 MMBTU/HOUR Plate Change Elapsed Time New Orifice Diameter Normal (Inactive) 00 00:00:00.000 2.00000	ow XMTR. To Ised. Set Point	Force High	XMTR to be				
Elapsed Time New Orifice Diameter Normal (Inactive) 00 00:00:00.000 2.00000 INCH	Flow Ra						
Min Man Dates for this Dum		ıactive)		•			Beta Ratio 0.491
Min/Max Hates for this Hun Minimum Flow Rate DP Maximum Flow Rate DP Minimum Flow Rate Maximum Flow Rate		for this Dun			р. н.	imum Flow Rate	
10.000 90.000 0.000 0.000			ximum Flow Rate D	PP Minimum Flo	w Kate Maxi	mum rio n riace	Units

Figure 3-73. Orifice tab

Field Settings	Description
Orifice Diameter	The Orifice Diameter in use is displayed in the "Settings" section of this screen. To change the orifice diameter, see the "Plate Change" section.
Pipe Diameter	The pipe diameter change may be made by clicking on the box with the pipe diameter value in it and entering the desired pipe diameter value. When the new value of the pipe diameter is entered, a new beta ratio will be calculated and displayed in the "Plate Change" section.
Low Flow Cutoff	The low flow cutoff is the minimum value for differential pressure where measurement will be performed. If the differential pressure drops below this value, the measured flow will go to zero.

	The user may change the low flow cutoff value by clicking on the box with the low flow cutoff value and entering a new value, and clicking OK.
	The user may change the units that the low flow cutoff value is measured, by clicking on the units box, and selecting the desired units from the drop down menu.
Pressure Tap Location	The user may change the pressure tap location by clicking on Pressure Tap Location button.
AGA3 Equation in Use	Shows the equation used for AGA3 calculations. In order to use the AGA3 2012 equation, you must have ControlWave Micro firmware 5.6 or newer.
Material	
Ріре Туре	Specify the pipe material.
Orifice Type	Specify the orifice material.
Pipe Reference Temp	Specify the reference temperature of pipe measurement.
Orifice Reference Temp	Specify the reference temperature of orifice material.
Differential Pressure	The source for the Differential Pressure
	measurement may come from either Analog Inputs via the I/O cards (Hardware AI) or via serial communications to the Multi-Variable Transmitters (MVT).
	The selection of the source is made via the Hardware AI/MVT button on the screen:
MVT#	If MVT is chosen, the user may select from any of 12 MVTs. In the Station Manager 6-run version, you can also choose from 18 HART and 18 WiHART transmitters.
	MVT 2 V None
	MVT 3 MVT 4 MVT 5 MVT 6 MVT 7
Al#	If Hardware AI is chosen, the user may select from the Analog Input (AI) to be used from a drop down menu.

	AI#
	Default Al
	Default Al Shared DP 1 Shared DP 2 Shared DP 3 Shared DP 4 Shared DP 5 Shared DP 6 Stacked DP 1 Stacked DP 2
	The user may select from the Default AI (this would be the "Run X Differential Pressure" selection from the I/O configuration page), or from a Shared Transmitter ("Shared DP X" from the I/O configuration page) or a pair of Stacked transmitters ("Stacked DP X Lo/Hi" from the I/O configuration page).
	If the Default AI or Shared transmitters are chosen, the measurement source configuration is completed. If Stacked transmitters are chosen, see the "Stacked or Redundant XMTRS" section.
Override / Live	The user may override the measurement values in use by selecting Override instead of Live
	When Override is selected, the user may enter the desired value for the measurement to be used. When Live is selected, the Value will be driven by the appropriate input value.
	Note : the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Value	The differential pressure value in use is shown here.
	When "Live" is selected via the "Override/Live" button, this value is the value coming from the Differential Pressure Source.
	When "Override" is selected via the "Override/Live" button, this value may be entered by the user, and

	the entered value will be used in the measurement calculation.
Units	The units for the measurement inputs come from the input source.
<u>Stacked or Redundant</u> XMTRs	If stacked transmitters are chosen, the user must configure the transmitters as Stacked or Redundant transmitters.
	Stacked Transmitters operate such that one transmitter measures at a low range of measurement, and a second transmitter measures at a higher range.
	Redundant transmitters operate such that one transmitter is used for measurement all of the time, and the second transmitter is available in case the first transmitter fails.
Set Point	When using Stacked Transmitters, the user must enter a set point where the measurement will transition from the low range transmitter to the high range transmitter.
	To configure the stacked transmitters to be used as redundant transmitters, the user must set the Set Point to 0.0. This will set the Stacked DP X Lo to be the primary transmitter, and the Stacked DP X Hi transmitter will only be used if the Lo transmitter indicates a failure.
	To force the Hi transmitter to be used, the user must set the Set Point to a value less than 0.0.
Dead Band	A deadband may be entered, that will prevent the measurement from switching back and forth between the high and low transmitters.
Current Rate	The current flow and energy rates are displayed on this screen. The units of flow and energy rates are set from the General page.
Plate Change	To change the orifice diameter, the user must change the Plate Change mode from Normal (Inactive) to Plate Change (Active)
	While the Plate Change mode is Active, the Differential Pressure, Static Pressure and Temperature values are frozen.
Elapsed Time	While the Plate Change mode is Active, the elapsed time is displayed.
New Orifice Diameter	The new orifice diameter and orifice diameter units may be entered here.

	New Orifice Diameter 2.00000 INCH
	The orifice diameter in use does not change until the plate change mode changes from "Plate Change (Active)" to "Normal (Inactive)".
	The Orifice Diameter in use appears in the Settings section
Beta Ratio	The beta ratio is the orifice diameter divided by the pipe diameter.
	Beta Ratio 0.491
	The beta ratio is displayed on this screen. If the beta ratio is out of range, it will appear in red text. The low limit for the beta ratio is 0.15 and the high limit for the beta ratio is 0.60.
<u>Min/Max Rates for this</u> <u>Run</u>	The minimum and maximum flow rates for an orifice run are calculated outputs of the AGA3. The DP minimum is calculated using the Minimum Flow Rate DP setting and the DP maximum is calculated using the Maximum Flow Rate DP setting.
	The Minimum Flow Rate DP setting is the DP in inches to use for the minimum flow calculation.
	The Maximum Flow Rate DP setting is the percent of DP span to use for the maximum flow calculation.

3.2.14 Turbine Tab (Run Configuration)

To configure a run as a turbine meter, click on the Measurement Type in the General tab and select **Turbine** from the drop down menu.

h	leasurement Type
	Turbine

Click the Turbine tab, or right click on the run icon and choose **Meter Types > Turbine > General** from the pop-up menus and the following screen opens:

General	- 0 m		Alarm Config	PV/GQ A	verages Lir	rztion Conf	ig
Settings [-]	Orifice	Turbine	Auto-Adjust	Ultrasor	ic T	PD	Coriolis
HSC#	Maximum Inp		Low Flow Cutoff		- Correction		
Default HSC	5000.000	Frequency (Hz)	0	Frequency (Hz)	1.0000		Inits FT3
		(,		(,	1.0000		nt Status
Linearization	C Factor	-			Pulse/Uni		
Disabled	1.0000						
Current							
	Pulse Counte Override/I						
Counts		Fiel	1	Correction Fa		econd	(K) Used
0.000	Live		0.000		0.000		0.0000
Corrected	Flow Rate		Energy Rate		Uncorre	cted Flow	¥ Rate
0.000		0.000			0.00)	
Min/Max Rates for Minimum Flow Rate	e Hz Maximum	1	Minimum Flow	Rate Ma	ximum Flow I	ate	Units
5.000	9	0.000	0.000		0.000		

Figure 3-74. Turbine tab

Field	Description
<u>Settings</u>	
HSC#	The source for the High Speed Counter (HSC) comes from a High Speed Counter Input via the I/O cards. The user may select from the Default HSC (this would be the "Run X AGA7 Hz" selection from the I/O configuration page), or from a Shared Hz input.
Maximum Input	The maximum input is used to calculate the minimum and maximum flow rates through the meter run.
Low Flow Cutoff	The low flow cutoff is the minimum frequency that will still be considered valid for flow measurement. If the frequency of the inputs from the high speed counter fall below this number, volume will not be measured.

Correction Factor (K)	The correction factor represents either the volume (in Cubic Feet) per pulse, or the number of pulses per volume (in Cubic Feet). The choice is reflected in the Current Status field.
	The K factor value is entered in the box, while the K factor units are selected by using the pushbutton. This information is available from the turbine meter data plate.
Linearization Enabled / Disabled	Enables/disables use of the linearization table.
C Factor	The current linearization factor being used.
Current	
Counts	The "Counts" value represents the total number of events (pulses) in the most recent execution cycle coming from the High Speed Counter Input.
Pulse Counter Input Override / Input	The user may override the measurement values in use by selecting Override instead of Live
	Pulse Counter Input Override/Live
	When Override is selected, the user may enter the desired value for the frequency to be used.
	When Live is selected, the Value will be driven by the appropriate high speed counter input value.
	Note: The action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measuremen level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Frequency (Hz)	The frequency value in use is shown here. Frequency (Hz) 0.000
	When "Live" is selected via the "Override/Live" button, this value is the value coming from the HSC

When "Live" is selected via the "Override/Live" button, this value is the value coming from the HSC input.

	When "Override" is selected via the "Override/Live" button, this value may be entered by the user. The entered value will be used in the measurement calculation.
Correction Factor / Pulse/ Second	This is the correction factor calculated by the AGA 7 equation.
	Correction Factor/Pulse/Second 0.000
	This correction factor multiplied by the frequency will provide the corrected flow rate.
(K) Used	The AGA 7 calculation requires the K factor to be input in units of Cubic Feet/Pulse. The (K) Used value always represents the K factor in the units of Cubic Feet/Pulse.
Corrected Flow Rate, Energy Rate, Uncorrected Flow Rate	The current corrected flow, energy rate, and uncorrected flow rate are displayed on this screen. The units of flow and energy rates are set from the General page.
Min / Max Rates for this Run	The minimum and maximum flow rates for a turbine meter run are calculated as follows:
	Minimum Flow Rate = max frequency * AGA7 Factor * (Min /100)
	Maximum Flow Rate = max frequency * AGA7 Factor * (Max/100)
	Where: Min defaults to 5 Max defaults to 90
	Minimum Flow Rate Hz = The percent of maximum frequency to use for the Minimum Flow calculation.
	Maximum Flow Rate Hz = The percent of maximum frequency to use for the Maximum Flow calculation.

3.2.15 Auto-Adjust Tab (Run Configuration)

To configure a run as an auto-adjust turbine meter, click on the Measurement Type in the General tab and select **Auto Adjust** from the drop down menu.

- M	Measurement Type
	Auto Adjust

Click the Auto-Adjust tab or right click on the run icon and choose **Meter Types > Auto-Adjust** from the pop-up menus, and the following screen opens:

Detect A Adam Cutorin Detect A Adam Cutorin 0.000 ACF/s Max. Meter Flow Expected Deviation (ABar) Linearization Current Status Current 9,9189 Main Rotor Status 1 Count Input Override/Live Value (Hz) Good. Sense Rotor Override/Live Count Input Override/Live Value (Hz) Noflow or loss of both rotor pul ACF/s (DeltaVa) Deviation (Deviation)	Coriolis (K) Units FT3 rrent Status nits/Pulse
Low Flow Cutoff Devertide/Live Sense Rotor Factor Mechanical (Ks) Correction Factor 0.000 ACF/s ACF/s Dutput(Kmo) 1.0000 2elta A Alarm Cutoff 3279.6128 5173.5527 1.000 Pulse/Units 0.000 ACF/s Expected Deviation Pulse/Units Ur Max. Meter Flow (ABar) Linearization Current Status C Factor Main Rotor 9.9189 Enable Disabled 1.0000 Current Status 1 Good. 1.0000 Current Urerride/Live Value (Hz) Good. 0 Live 0 Statuses 2, 3, & 4	Units FT3 rrent Status
Linearization Current Status C Factor 0.000 ACF/s Expected Deviation Current Status C Factor 0.000 MACF/s Expected Deviation Current Status C Factor 0.000 MACF/h 9.9189 Enable Disabled 1.0000 Current Sense Rotor Override/Live Value (Hz) Statuses 2, 3, & 4	FT3 rrent Status
Outrant 3279.6128 5173.5527 1.000 Current Outrant ACF/s Pulse/Units Ur Max. Meter Flow Expected Deviation (ABar) Linearization Enable Current Status C Factor 0.000 MACF/h 9.9189 Enable Disabled 1.0000 Current Sense Rotor Override/Live Value (Hz) Good. 0 Live 0 Statuses 2, 3, & 4 Sense Rotor Override/Live Value (Hz) ACF/s (DeltaVa)	rrent Status
0.000 ACF/s Pulse/Units Ur Max. Meter Flow Expected Deviation (ABar) Linearization Current Status C Factor 0.000 MACF/h 9.9189 Enable Disabled 1.0000 Current Status 1 Good. 1.0000 0 Live 0 Statuse 2, 3, & 4 Sense Rotor Override/Live Value (Hz) Notiow or loss of both notor pul Count Input Override/Live Value (Hz) ACF/s (DeltaVa)	nits/Pulse
Max. Meter Flow (ABar) Linearization Current Status C Factor 0.000 MACF/h 9.9189 Enable Disabled 1.0000 Current Status 1 Status 1 Status 1 Status 1 0 Live 0 Statuses 2, 3, & 4 Sense Rotor Override/Live Value (Hz) Notiow or loss of both rotor put Count Input Override/Live Value (Hz) ACF/s (DeltaVa) Deviation (De	
Override/Live Value (Hz) Disabled 1.0000 Count Input Override/Live Value (Hz) Good. 0 Live 0 Statuses 2, 3, & 4 Sense Rotor Override/Live Value (Hz) Notiow or loss of both rotor put Count Input Override/Live Value (Hz) ACF/s (DeltaVa) Deviation (De	
Main Rotor Count Input Override/Live Value (Hz) Status 1 0 Live 0 Statuses 2, 3, & 4 Sense Rotor Count Input Override/Live Value (Hz)	
Sense Rotor Count Input Override/Live Value (Hz) ACF/s (DeltaVa) Deviation (De	
Sense Hotor Count Input Override/Live Value (Hz) ACF/s (DeltaVa) Deviation (De	
0 Live 0 0.000 0.000	
Corrected Flow Rate Energy Rate Uncorrected Flow R	ate
0.000 MSCF/HOUR 0.000 MMBTU/HOUR 0.000 MAC	F/HOUR
	Units
5.000 90.000 0.000 0.000 MSC	CF/HOUR

Figure 3-75. Auto-Adjust tab

Field	Description
<u>Settings</u>	
Low Flow Cutoff	The low flow cutoff is the minimum flow, in units of Actual Cubic Feet per second that will still be considered valid for flow measurement. If the flow rate falls below this number, volume will not be measured.
Main Rotor Factor (Km)	The main rotor is the upstream rotor and has a greater blade angle to the flow of gas.
Sense Rotor Factor (Ks)	The sense rotor is the downstream rotor and has a shallower blade angle to the flow of gas.
Mechanical Output (Kmo)	Used to determine unadjusted volume totals with only main rotor pulses. Set to 0 if these are not needed.

Linearization	Enable / disable use of the linearization table using this					
Enabled / Disabled	button. The Current Status field shows whether the linearization table is in use.					
Max Meter Flow	The maximum meter flow is the maximum flow rate through the meter, in units of thousands of actual cubic feet per hour. This number is used to calculate the Minimum and maximum flow rate through the meter.					
Expected Deviation (Abar)	Average relative adjustment between main and sense rotors.					
C Factor	Current linearization factor.					
Correction Factor (K)	The correction factor represents either the volume (in Cubic Feet) per pulse, or the number of pulses per volume (in Cubic Feet). The choice is reflected in the Current Status field.					
	The K factor value is entered in the box, while the K factor units are selected by using the pushbutton. This information is available from the turbine meter data plate.					
Current						
Main Rotor Count Input	Pulse count from main rotor.					
Sense Rotor Count Input	Pulse count from sense rotor.					
Main Rotor Override / Live,	You can override the measurement value in use by selecting Override instead of Live					
	When Override is selected, you enter the desired value for the frequency to be used in the Main Rotor Value (Hz) field.					
	When Live is selected, the value will be driven by the main rotor high speed counter input value.					
	Note: The action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.					
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.					
Sense Rotor Override / Live	You can override the measurement value in use by selecting Override instead of Live					
	When Override is selected, you enter the desired value for the frequency to be used in the Sense Rotor Value (Hz) field.					

	When Live is selected, the Value will be driven by the sense rotor high speed counter input value.
	Note: The action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Main Rotor Value (Hz)	In Override mode, you can enter a value to use instead of the actual value from the main rotor.
Sense Rotor Value (Hz)	In Override mode, you can enter a value to use instead of the actual value from the sense rotor.
Status 1	The Auto-Adjust function block status code. See the ControlWave Designer online help for the Auto Adjust function block's odiStatus parameter for an explanation of these codes.
Status 2, 3, & 4	The Auto-Adjust function block's abnormal, alarm, and system status codes. See the ControlWave Designer online help for the Auto Adjust function block's odiStatus2 , odiStatus3 , odiStatus4 parameters for an explanation of these codes.
ACF/s (DeltaVa)	The ACF/s (DeltaVa) reading is displayed here.
Deviation (Delta Abar)	The Deviation (Delta ABar) reading is displayed here.
Corrected Flow Rate, Energy Rate, Uncorrected Flow Rate	The current corrected flow, energy rate, and uncorrected flow rate are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.
<u>Min / Max Rates</u> for this Run	The minimum and maximum flow rates for an auto-adjust meter run are calculated as follows:
	Minimum Flow Rate = max frequency * AGA7 Factor * (Min /100)
	Maximum Flow Rate = max frequency * AGA7 Factor * (Max/100)
	Where: Min defaults to 5 Max defaults to 90
	Minimum Flow Rate Hz = The percent of maximum frequency to use for the Minimum Flow calculation.

Maximum Flow Rate Hz = The percent of maximum frequency to use for the Maximum Flow calculation.

3.2.16 Ultrasonic Tab (Run Configuration)

To configure a run as an ultrasonic meter, click on the Measurement Type in the General tab and select **Ultrasonic** from the drop down menu.

reasurement Type	
Ultrasonic	

Click the Ultrasonic tab or right click on the run icon and choose **Meter Types > Ultrasonic** from the pop-up menus, and the following screen opens:

	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config]
General	Orifice T	urbine 🍸 .	Auto-Adjust	Ultrasonic	PD Y	Coriolis
Settings [-] HSC# Default HSC	Maximum Input 5000	Low Flow Cut	toff Frequency (Hz)	Correction Fact	0 FT	3
SOS Alarm Cutof	f 0.000	FT/S		Pulse/U	Current nits Units/I	
Current Counts 0.000	Pulse Counter Inpu Override/Live Live	it Frequenc	<u>, (, , ,)</u>	ection Factor/Puls 0.0000000		K) Used 1.0000
Corrected Flo	w Rate MSCF/HOUR	En 0.000	nergy Rate MMBTU/H		corrected Flow F	ate CF/HOUR
Min/Max Rates Minimum Flow Rate	Hz Maximum Flow	Rate Hz Mir	nimum Flow Rate	e Maximum Fl		Units
5.000	90.00) (0.000	0.00	0 MS	CF/HOUR

Figure 3-76. Ultrasonic tab

Field	Description
<u>Settings</u>	
HSC#	The source for the Counter input comes from a High Speed Counter Input via the I/O cards. The user may select from the Default HSC (this would be the "Run X AGA7 Hz" selection from the I/O configuration page), or from a Shared Hz input.
Maximum Input	The maximum input is used to calculate the minimum and maximum flow rates through the meter run.

Low Flow Cutoff	The low flow cutoff is the minimum frequency that will still be considered valid for flow measurement. If the frequency of the inputs from the high speed counter fall below this number, volume will not be measured.
Correction Factor (K)	The correction factor represents either the volume (in Cubic Feet) per pulse, or the number of pulses per volume (in Cubic Feet). The choice is reflected in the Current Status field.
	The K factor value is entered in the box, while the K factor units are selected by using the push button. This information is available from the UFM meter data plate.
SOS Alarm Cutoff	If the velocity for the run in feet per second is below this setting, this prevents the SOS (Speed-of-Sound) alarm from turning on.
Current	
Counts	The "Counts" value represents the event (pulse) total during the most recent execution cycle coming from the High Speed Counter Input.
Pulse Counter Input Override / Live	The user may override the measurement values in use by selecting Override instead of Live
LIVE	When Live is selected, the Value will be driven by the appropriate high speed counter input value.
	Note: the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Frequency (Hz)	When Override is selected, the user may enter the desired value for the frequency to be used.
Correction Factor / Pulse/ Second	This is the correction factor calculated by the AGA 7 equation.
	This correction factor multiplied by the frequency will provide the corrected flow rate.
(K) Used	The AGA 7 calculation requires the K factor to be input in units of Cubic Feet/Pulse. The (K) Used value always represents the K factor in the units of Cubic Feet/Pulse.
Corrected Flow Rate, Energy Rate, Uncorrected Flow	The current corrected flow, energy rate, and uncorrected flow rate are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.

Rate	
<u>Min / Max Rates</u> for this Run	The minimum and maximum flow rates for a turbine meter run are calculated as follows:
	Minimum Flow Rate = max frequency * AGA7 Factor * (Min /100)
	Maximum Flow Rate = max frequency * AGA7 Factor * (Max/100)
	Where: Min defaults to 5 Max defaults to 90
	Minimum Flow Rate $Hz =$ The percent of maximum frequency to use for the Minimum Flow calculation.
	Maximum Flow Rate Hz = The percent of maximum frequency to use for the Maximum Flow calculation.
<u>Meter Data</u>	If a MODBUS interface to the ultrasonic meter has been configured from the I/O Configuration section, the data collected from the ultrasonic meter is displayed here.
Meter Info	
Meter Number	To select the ultrasonic meter that data is being collected from, click on the Meter Number box, and enter the appropriate meter number.
Pulse Status	This field shows "OK" if pulses from the UFM are read from the UFM.
When the pulse fails, the flow calculation will use flow from the UFM comms	Click the push button to enable/disable this function. Current State shows whether or not this function is enabled.
Frequency From Comms	Shows the current input frequency being read from communications with the UFM.
Speed of Sound	The Speed of Sound (SOS) readings from each path of the ultrasonic meter are displayed, and the average is calculated. At the same time, the Multi-Run Multi-Station controller calculates the Speed of Sound per the AGA 10 equations. The calculated value is compared to the average value from the ultrasonic meter, and if the deviation is greater than the deviation limit, an alarm will be generated. This alarm will be entered into the Audit Trail, and will be available via both the BSAP Slave communications and MODBUS communications interfaces.
<u>Status</u>	Diagnostics information relating to communications with the ultrasonic meter, the gain on each path, and the overall status of the ultrasonic meter is collected and displayed here.

3.2.17 PD Tab (Run Configuration)

Positive displacement (PD) meters are used for measuring very low flow rates. To configure a run as a positive displacement (PD) meter, click on the Measurement Type in the General tab and select **PD** from the drop down menu.

- h	leasurement Type
	PD

Click the PD tab or right click on the run icon and choose **Meter Types > PD** from the pop-up menus, and the following screen opens:

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion C	
General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
ettings [-] Maxii 5000	num Input Frequency (H	z) 0.1 No pulse re	Flow Cutoff O Seconds cieved in this number will zero the flow rate.	Correction Factor) Cur	Units FT3 rent Status its/Pulse
urrent Counts 0.000	Pulse Counte Override/L	ive Frequ	ency (Hz)	Correction Facto /Pulse/Second 0.000		(K) Used 1.0000
0.000	ed Flow Rate MSCF/HOUR	0.000	Energy Rate MMBTU/		ncorrected).000	MACF/HOUR
in/Max Rates inimum Flow R		Flow Bate Hz	Minimum Flow Ra	te Maximum F	low Bate	Units
5.000		0.000	0.000	0.00		MSCF/HOUR

Figure 3-77. PD tab

Field	Description
Settings	
Maximum Input	The maximum input is used to calculate the minimum and maximum flow rates through the meter run.
Low Flow Cutoff	A positive displacement meter typically has very low frequency counts. A valid frequency may be well below 1 Hz, that is, it can be several seconds between pulses. It is not unusual to see 30 seconds or more between pulses from a PD meter, during normal flowing conditions. Therefore, the low flow cutoff for a PD meter is the maximum amount of time allowed between two consecutive pulses before the flow rate is zeroed. However, all pulses received by the Station Manager controller from a PD meter are included in volume totalization for the meter run.
Correction Factor (K)	The correction factor represents either the volume (in Cubic Feet) per pulse, or the number of pulses per volume (in Cubic Feet). The choice is reflected in the Current Status field. The K

	factor value is entered in the box, while the K factor units are selected by using the push button. This information is available from the PD meter data plate.
Current	
Counts	This shows the number of pulses received at the high speed counter input.
Pulse Counter Input Override / Live	The user may override the measurement values in use by selecting Override instead of Live. When Override is selected, the user may enter the desired value for the frequency to be used. When Live is selected, the Value will be driven by the appropriate high speed counter input value.
	Note: The action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Frequency (Hz)	This is the derived frequency. Because a positive displacement meter can have very low frequency pulses (< 1 Hz), this number can be a fraction less than 1.0.
Correction Factor	This is the correction factor calculated by the AGA 7 equation.
/ Pulse/ Second	This correction factor multiplied by the frequency will provide the corrected flow rate.
(K) Used	The AGA 7 calculation requires the K factor to be input in units of Cubic Feet/Pulse. The (K) Used value always represents the K factor in the units of Cubic Feet/Pulse.
Corrected Flow Rate, Energy Rate, Uncorrected Flow Rate	The current corrected flow, energy rate, and uncorrected flow rate are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.
<u>Min / Max Rates</u> for this Run	The minimum and maximum flow rates for a PD meter run are calculated as shown below:
	Minimum Flow Rate = max freq * (Min /100) * AGA7 Factor Maximum Flow Rate = max freq* (Max /100) * AGA7 Factor
	Where: Min defaults to 5 Max defaults to 90
	Minimum Flow Rate Hz = The percent of maximum frequency to use for the Minimum Flow calculation.
	Maximum Flow Rate Hz = The percent of maximum frequency to use for the Maximum Flow calculation.

3.2.18 Coriolis Tab (Run Configuration)

To configure a run as a Coriolis meter, click on the Measurement Type in the General tab and select **Coriolis** from the drop down menu.

Heasurement Type
Coriolis

Click the Coriolis tab or right click on the run icon and choose **Meter Types > PD** from the pop-up menus, and the following screen opens:

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	
General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Settings [-]						
HSC#	Maximum Input	Low Flow C		- Correction Factor	(K) Units	
Default HSC	5000	0	Frequency (Hz)	1.0000		
Air Density			(,	Dula - Ula	Current S	
0.0765				Pulse/Un	its Units/Pu	lise
Current	Pulse Counter I	nput				
Counts	Override/Live	e Freq	uency (Hz) Co	rrection Factor/Pu	lse/Second (K) Used
0.000	Live		0.000	0.000		1.0000
Calit	bration Pressure		Pressure Corre	ction Factor	Meter Fac	tor
0.000			0.00	0	0.000	
Corrected			Energy Rate	Mass Flow HOUR 0.000		
0.000	MSCF/HOUR	0.00	0 MMBTU			3/HOUR
Min/Max Rates for	this Run					
Minimum Flow Rate	e Hz <u>Maximum Fl</u>	ow Rate Hz	Minimum Flow Ra	ate Maximum F	low Rate	Units
5.000	90.0	100	19602.715	352840	3.875 🛛 🗍 MS	CF/HOUR

Figure 3-78. Coriolis tab

Field	Description
<u>Settings</u>	
HSC#	The source for the Counter input comes from a High Speed Counter Input via the I/O cards. (This would be the "Run X AGA7 Hz" selection from the I/O configuration page.)
Maximum Input	The maximum input is used to calculate the minimum and maximum flow rates through the meter run.
Low Flow Cutoff	The low flow cutoff is the minimum frequency that will still be considered valid for flow measurement. If the frequency of the inputs from the high speed counter fall below this number, volume will not be measured.
Correction Factor (K)	The correction factor represents either the volume (in Cubic Feet) per pulse, or the number of pulses per volume (in Cubic Feet). The choice is reflected in the Current Status field. The K factor value is entered in the box, while the K factor units are selected by using the push button.

	This information is available from the Coriolis meter data plate.
Current	
Air Density	The density of air constant.
Counts	The "Counts" value represents the event (pulse) total during the most recent execution cycle coming from the High Speed Counter Input.
Pulse Counter Input Override / Live	The user may override the measurement values in use by selecting Override instead of Live
	When Live is selected, the Value will be driven by the appropriate high speed counter input value.
	Note: the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Frequency (Hz)	When Override is selected, the user may enter the desired value for the frequency to be used.
(K) Used	The Coriolis calculation requires the K factor to be input in units of Cubic Feet/Pulse. The (K) Used value always represents the K factor in the units of Cubic Feet/Pulse.
Calibration Pressure	Shows the pressure at which the Coriolis meter was calibrated.
Pressure Correction Factor	Specify the pressure correction factor specified by the manufacturer of the coriolis meter.
Meter Factor	Shows the meter factor specified by the manufacturer of the coriolis meter.
Corrected Flow Rate, Energy Rate, Mass Flow Rate	The current corrected flow, energy rate, and mass flow rate are displayed on this screen. The units of flow and energy rates are set from the General page.

<u>Min / Max Rates for this</u> <u>Run</u>	The minimum and maximum flow rates for a Coriolis meter run are calculated as shown below:
	Minimum Flow Rate = max freq * (Min /100) * Coriolis Factor
	Maximum Flow Rate = max freq* (Max /100) * Coriolis Factor
	Where: Min defaults to 5 Max defaults to 90
	Minimum Flow Rate Hz = The percent of maximum frequency to use for the Minimum Flow calculation.
	Maximum Flow Rate Hz = The percent of maximum frequency to use for the Maximum Flow calculation.

3.2.19 Annubar Tab (Run Configuration)

Annubar meters lower a probe to measure the gas flow. To configure a run as a Annubar meter, click on the Measurement Type in the General tab and select **Annubar** from the drop down menu.

h	leasurement Type
	Annubar

Click the Annubar tab or right click on the run icon and choose **Meter Types > Annubar** from the pop-up menus, and the following screen opens:

	Orifice	Turbine	_ <u> </u>	o-Adjust	Ultrasonic	∫ PD	Coriol
Annubar	Venturi	V-Cone	Alarm	Config	PV/GQ Averages	Linrztion Co	nfig 🏳
Settings [-]							
Annubar T	уре	Probe Width	1	Pipe I	Diameter	Low F	low Cutoff
Rosemo	unt	2.00000 IN	ICH	4.07100	INCH	0.250	In/H2O
Thermal Expansi	ion Factor	C1 Factor		Isentrop	ic Exponent		
0.0000)	0.0000		0.	0000		
Density	,	C2 Factor					
0.0000)	0.0000					
Differential Press Source		4VT# AI#	:	Override	/Live y	alue	Units
Hardware	AL N	lone Defai	ult Al	Live	. 0.	000	INH20
			Set Point	0.00	10		
Stacked or Redu For Redundancy, Low XMTR. To I Used. Set Point Current Rates Flow Rat	, Set Point = Force High X <0 Value of	0 Value of KMTR to be	Set Point Dead Band				
For Redundancy, Low XMTR. To I Used. Set Point Current Rates	, Set Point = Force High > <0 Value of te	O Value of KMTR to be Low XMTR. [Dead Band	0.00	10		
For Redundancy, Low XMTR. To I Used. Set Point Current Rates Flow Rat	, Set Point = Force High > <0 Value of te	0 Value of (MTR to be Low XMTR. [] Units MSCF/HOUR Elaps	Dead Band	0.00	Units UMMBTU/H	IOUR	Beta Ratio
For Redundancy, Low XMTR. To I Used. Set Point Current Rates Flow Rat 0.000 Probe Change Normal (Ir Min/Max Rates f	, Set Point = Force High > <0 Value of te nactive]	0 Value of (MTR to be Low XMTR. [] Units MSCF/HOUR Elaps	Dead Band Ene Sed Time 00:00.000	0.00	Units UMMBTU/F New Probe V 2.00000	IOUR ₩idth INCH	

Figure 3-79. Annubar tab

Field	Description
<u>Settings</u>	
Annubar Type	Either Rosemount or Verabar.
Probe Width	Width of the annubar probe.
Pipe Diameter	The diameter of the pipe. The pipe diameter change may be made by clicking on the box with the pipe diameter value in it and entering the desired pipe diameter value. When the new value of the pipe diameter is entered, a new beta ratio will be calculated and displayed in the "Plate Change" section.

Low Flow Cutoff	The low flow cutoff is the minimum value for differential pressure where measurement will be performed. If the differential pressure drops below this value, the measured flow will go to zero.
	The user may change the low flow cutoff value by clicking on the box with the low flow cutoff value and entering a new value, and clicking OK.
	The user may change the units that the low flow cutoff value is measured, by clicking on the units box, and selecting the desired units from the drop down menu.
Thermal Expansion Factor	The annubar thermal expansion factor.
C1 Factor	The annubar constant.
Density	The density of gas to use for the mass flow equation.
C2 Factor	The annubar constant.
Isentropic Exponent	The isentropic exponent of the natural gas being measured.
Differential Pressure	
Source	The source for the Differential Pressure measurement may come from either Analog Inputs via the I/O cards (Hardware AI) or via serial communications to the Multi- Variable Transmitters (MVT).
	The selection of the source is made via the Hardware AI/MVT button on the screen:
MVT#	If MVT is chosen, the user may select from any of 12 MVTs. In the Station Manager 6-run version, you can also choose from 18 HART and 18 WiHART transmitters.
AI#	If Hardware AI is chosen, the user may select from the Analog Input (AI) to be used from a drop down menu.
	The user may select from the Default AI (this would be the "Run X Differential Pressure" selection from the I/O configuration page), or from a Shared Transmitter ("Shared DP X" from the I/O configuration page) or a pair of Stacked transmitters ("Stacked DP X Lo/Hi" from the I/O configuration page).
	If the Default AI or Shared transmitters are chosen, the measurement source configuration is completed. If Stacked transmitters are chosen, see the "Stacked or Redundant XMTRS" section.

Override / Live	The user may override the measurement values in use by selecting Override instead of Live
	When Override is selected, the user may enter the desired value for the measurement to be used. When Live is selected, the Value will be driven by the appropriate input value.
	Note : the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Value	The differential pressure value in use is shown here.
	When "Live" is selected via the "Override/Live" button, this value is the value coming from the Differential Pressure Source.
	When "Override" is selected via the "Override/Live" button, this value may be entered by the user, and the entered value will be used in the measurement calculation.
Units	The units for the measurement inputs come from the input source.
Stacked or Redundant XMTRs	If stacked transmitters are chosen, the user must configure the transmitters as Stacked or Redundant transmitters.
<u></u>	Stacked Transmitters operate such that one transmitter
	measures at a low range of measurement, and a second transmitter measures at a higher range.
	transmitter measures at a higher range.
	Redundant transmitters operate such that one transmitter
	is used for measurement all of the time, and the second transmitter is available in case the first transmitter fails.
Set Point	When using Stacked Transmitters, the user must enter a
	set point where the measurement will transition from the low range transmitter to the high range transmitter.
	To configure the stacked transmitters to be used as redundant transmitters, the user must set the Set Point to 0.0. This will set the Stacked DP X Lo to be the primary

	transmitter, and the Stacked DP X Hi transmitter will only be used if the Lo transmitter indicates a failure.
	To force the Hi transmitter to be used, the user must set the Set Point to a value less than 0.0.
Dead Band	A deadband may be entered, that will prevent the measurement from switching back and forth between the high and low transmitters.
Current Rate	The current flow and energy rates are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.
Plate Change	To change the probe diameter, the user must change the plate. Change mode from Normal (Inactive) to Plate Change (Active)
	While the Plate Change mode is Active, the Differential Pressure, Static Pressure and Temperature values are frozen.
Elapsed Time	While the Plate Change mode is Active, the elapsed time is displayed.
New Probe Width	The new probe width and associated units may be entered here.
	The probe width in use does not change until the plate change mode changes from "Plate Change (Active)" to "Normal (Inactive)".
	The probe width in use appears in the Settings section
Beta Ratio	The beta ratio is the probe width divided by the pipe diameter.
	The beta ratio is displayed on this screen. If the beta ratio is out of range, it will appear in red text. The low limit for the beta ratio is 0.15 and the high limit for the beta ratio is 0.60
<u>Min / Max Rates</u> for this Run	The minimum and maximum flow rates for an Annubar run are calculated outputs of the annubar flow equation.
	The DP minimum is calculated using the Minimum Flow Rate DP setting and the DP maximum is calculated using the Maximum Flow Rate DP setting.
	Minimum Flow Rate DP setting= The DP in inches to use for the Minimum Flow calculation.
	Maximum Flow Rate DP setting = The percent of DP span to use for the Maximum Flow calculation.

3.2.20 Venturi (Run Configuration)

Venturi meters force the gas into a narrow tube for measurement. To configure a run as a Venturi-type meter, click on the Measurement Type in the General tab and select **Venturi** from the drop down menu.

Measurement Type
Venturi

Click the Venturi tab, or right click on the run icon and choose **Meter Types > Venturi** from the pop-up menus and the following screen opens:

General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD	Coriolis
Annubar	Venturi 🔰	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Config	Υ
Settings [-]						
Venturi Diame		Pipe Diameter		Flow Cutoff		
2.00000 II	NCH 4.0	07100 INC	CH 0.250	In/H2O		
Discharge Coeff	icient	Expansion Facto	Dr			
0.000		0.000				
Differential Pressu Source	re [-] MVT#	: AI#	Overri	de/Live v	alue	Units
Hardware A	I None	Defau	It Al Li	ve 0.	.000	NH2O
Stacked or Redun	dant XMTRS —					
For Redundancy, S			Set Point 0.	000		
Low XMTR. To Fo Used. Set Point <1			ead Band 0.	000		
Current Rates						
Flow Rate		Units	Energy Rate	Unit		
0.000	MSC	F/HOUR	0.000	MMBTU/I	HOUR	
Tube Change						
_		Elapse	ed Time	New Venturi D)iameter Be	ta Ratio
Normal (Ina	ictive)	00 00:0	0:00.000	2.00000	INCH	0.491
Min/Max Rates for		51 D . DD			FI D ·	
		Flow Rate DP	Minimum Flow R		Flow Rate	Units
Minimum Flow Rate 10.000	1	0.000	3901519349940		000 I M	SCF/HOUR

Figure 3-80. Venturi tab

Field	Description
<u>Settings</u>	
Venturi Diameter	The diameter of the venture meter.
Pipe Diameter	The pipe diameter change may be made by clicking on the box with the pipe diameter value in it and entering the desired pipe diameter value. When the new value of the pipe diameter is entered, a new beta ratio will be calculated and displayed in the "Plate Change" section.
Low Flow Cutoff	The low flow cutoff is the minimum value for differential pressure where measurement will be performed. If the differential pressure drops below this value, the measured

	flow will go to zero.
	The user may change the low flow cutoff value by clicking on the box with the low flow cutoff value and entering a new value, and clicking OK.
	The user may change the units that the low flow cutoff value is measured, by clicking on the units box, and selecting the desired units from the drop down menu.
Discharge Coefficient	The discharge coefficient of the Venturi meter.
Expansion Factor	The thermal expansion factor of the Venturi meter.
<u>Differential</u> Pressure	
Source	The source for the Differential Pressure measurement may come from either Analog Inputs via the I/O cards (Hardware AI) or via serial communications to the Multi- Variable Transmitters (MVT).
	The selection of the source is made via the Hardware AI/MVT button on the screen:
MVT#	If MVT is chosen, the user may select from any of 12 MVTs. In the Station Manager 6-run version, you can also choose from 18 HART and 18 WiHART transmitters.
Al#	If Hardware AI is chosen, the user may select from the Analog Input (AI) to be used from a drop down menu.
	The user may select from the Default AI (this would be the "Run X Differential Pressure" selection from the I/O configuration page), or from a Shared Transmitter ("Shared DP X" from the I/O configuration page) or a pair of Stacked transmitters ("Stacked DP X Lo/Hi" from the I/O configuration page).
	If the Default AI or Shared transmitters are chosen, the measurement source configuration is completed. If Stacked transmitters are chosen, see the "Stacked or Redundant XMTRS" section.
Override / Live	The user may override the measurement values in use by selecting Override instead of Live
	When Override is selected, the user may enter the desired value for the measurement to be used. When Live is selected, the Value will be driven by the appropriate input value.
	Note: the action of changing from Live to Override or

	Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level, not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Value	The differential pressure value in use is shown here.
	When "Live" is selected via the "Override/Live" button, this value is the value coming from the Differential Pressure Source.
	When "Override" is selected via the "Override/Live" button, this value may be entered by the user, and the entered value will be used in the measurement calculation.
Units	The units for the measurement inputs come from the input source.
<u>Stacked or</u> <u>Redundant</u> XMTRs	If stacked transmitters are chosen, the user must configure the transmitters as Stacked or Redundant transmitters.
<u>//////3</u>	Stacked Transmitters operate such that one transmitter measures at a low range of measurement, and a second transmitter measures at a higher range.
	Redundant transmitters operate such that one transmitter is used for measurement all of the time, and the second transmitter is available in case the first transmitter fails.
Set Point	When using Stacked Transmitters, the user must enter a set point where the measurement will transition from the low range transmitter to the high range transmitter.
	To configure the stacked transmitters to be used as redundant transmitters, the user must set the Set Point to 0.0. This will set the Stacked DP X Lo to be the primary transmitter, and the Stacked DP X Hi transmitter will only be used if the Lo transmitter indicates a failure.
	To force the Hi transmitter to be used, the user must set the Set Point to a value less than 0.0.
Dead Band	A deadband may be entered, that will prevent the measurement from switching back and forth between the high and low transmitters.
Current Rate	The current flow and energy rates are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.

Tube Change	To change the venturi diameter, the user must change the Tube Change mode from Normal (Inactive) to Plate Change (Active)
	While the Tube Change mode is Active, the Differential Pressure, Static Pressure and Temperature values are frozen.
Elapsed Time	While the Plate Change mode is Active, the elapsed time is displayed.
New Venturi Diameter	The new Venturi diameter and Venturi diameter units may be entered here.
	The Venturi diameter in use does not change until the plate change mode changes from "Plate Change (Active)" to "Normal (Inactive)".
	The Venturi Diameter in use appears in the Settings section
Beta Ratio	The beta ratio is the Venturi diameter divided by the pipe diameter.
	The beta ratio is displayed on this screen. If the beta ratio is out of range, it will appear in red text. The low limit for the beta ratio is 0.15 and the high limit for the beta ratio is 0.60.
Min / Max Rates for this Run	The minimum and maximum flow rates for a Venturi run are calculated outputs of the Venturi flow equation.
	The DP minimum is calculated using the Minimum Flow Rate DP setting and the DP maximum is calculated using the Maximum Flow Rate DP setting.
	Minimum Flow Rate DP setting= The DP in inches to use for the Minimum Flow calculation.
	Maximum Flow Rate DP setting = The percent of DP span to use for the Maximum Flow calculation.

3.2.21 V-Cone tab (Run Configuration)

To configure a run as a V-Cone-type meter, click on the Measurement Type in the General tab and select **V-Cone** from the drop down menu.

Γ	Measurement Type
	V-Cone

Click the V-Cone tab, or right click on the run icon and choose **Meter Types > V-Cone** from the pop-up menus and the following screen opens:

General	Orifice	Turbine	Auto-Adjust	Ultrasonic	PD PD	Coriol
Annubar Y	Venturi	V-Cone	Alarm Config	PV/GQ Averages	Linrztion Con	nfig
Settings [-]						
Cone Diam 2.00000		Low Flow Cutoff .250 In/H20	Material	Pipe	Cone	e
		.250 InfH20	Type	304/316 SS	304/316	5 SS
Pipe Diamo 4.07100	eter INCH					
				_		
Discharge Coe		entropic Exponent	V-Cone			
0.0000		0.000	specific			
Differential Pres	sure [-]					
Source	MV	T# AI#	Overri	ide/Live	Value	Units
		1# 21#			- diao	onno
For Redundancy	Al No undant XMTRS v, Set Point = 0	ne Defaul		ive -2	5.000	INH20
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates —	Al No undant XMTRS 0, Set Point = 0 Force High XM <0 Value of Lo	Ne Defaul	Set Point 0. ead Band 0.	000	5.000	INH20
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	Al No undant XMTRS 5, Set Point = 0 Force High XM <0 Value of Lo ite	ne Defaul Value of S ITR to be w XMTR. D Units	Set Point 0. ead Band 0. Energy Rate	000 000	ts	INH20
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates —	Al No undant XMTRS 5, Set Point = 0 Force High XM <0 Value of Lo ite	Ne Defaul	Set Point 0. ead Band 0.	000	ts	INH20
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra	Al No undant XMTRS 5, Set Point = 0 Force High XM <0 Value of Lo ite	ne Defaul Value of S ITR to be ww XMTR D Units SCF/HOUR [Set Point 0. ead Band 0. Energy Rate 0.000	000 000 Uni MMBTU,	ts HOUR	
Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Cone Change	AI No undant XMTRS , Set Point = 0 Force High XM <0 Value of Lo ite	Value of S ITR to be ww XMTR. Do Units SCF/HOUR [Set Point 0. ead Band 0. Energy Rate 0.000	000 000 MMBTU, New V-Cone	ts /HOUR Diameter	Beta Ratio
Stacked or Redu For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000	AI No undant XMTRS , Set Point = 0 Force High XM <0 Value of Lo ite	Value of S ITR to be ww XMTR. Do Units SCF/HOUR [Set Point 0. ead Band 0. Energy Rate 0.000	000 000 Uni MMBTU,	ts HOUR	
Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates – Flow Ra 0.000 Cone Change – Normal (I	AI No undant XMTBS , Set Point = 0 Force High XM <0 Value of Lc ite in M nactive]	Value of S ITR to be ww XMTR. Do Units SCF/HOUR [Set Point 0. ead Band 0. Energy Rate 0.000	000 000 MMBTU, New V-Cone	ts /HOUR Diameter	Beta Ratio
Stacked or Red For Redundancy Low XMTR. To Used. Set Point Current Rates Flow Ra 0.000 Cone Change Normal (I Min/Max Rates	Al No undant XMTRS , Set Point = 0 Force High XM <0 Value of Lo ite nactive] for this Run	Value of S ITR to be ww XMTR. Do Units SCF/HOUR [Set Point 0. ead Band 0. Energy Rate 0.000	000 000 Uni MMBTU, New V-Cone 2.00000	ts /HOUR Diameter	Beta Ratio

Figure 3-81. V-Cone tab

Field	Description	
<u>Settings</u>		
Cone Diameter	The diameter of the cone meter.	
Pipe Diameter	The pipe diameter change may be made by clicking on the box with the pipe diameter value in it and entering the desired pipe diameter value. When the new value of the pipe diameter is entered, a new beta ratio will be calculated and displayed in the "Plate Change" section.	
Low Flow Cutoff	The low flow cutoff is the minimum value for differential pressure where measurement will be performed. If the differential pressure drops below this value, the measured flow will go to zero. The user may change the low flow cutoff value by clicking on the box with the low flow cutoff value and entering a new value, and clicking OK.	
	The user may change the units that the low flow cutoff	

value is measured, by clicking on the units box, and selecting the desired units from the drop down menu.		
The discharge coefficient of the V-Cone meter.		
The thermal expansion factor of the V-Cone meter.		
Specify the pipe material.		
Specify the cone material.		
This button shows the type of V Cone calculation; click the button to toggle to the other type.		
The two V Cone calculation types choices are:		
Specific Gravity – The calculation uses the specific gravity from the GC data set assigned to this run.		
Molecular Weight – The calculation uses the summed molecular weight of the GC components from the GC data set assigned to this run.		
The source for the Differential Pressure measurement may come from either Analog Inputs via the I/O cards (Hardware AI) or via serial communications to the Multi- Variable Transmitters (MVT).		
The selection of the source is made via the Hardware AI/MVT button on the screen:		
If MVT is chosen, the user may select from any of 12 MVTs. In the Station Manager 6-run version, you can also choose from 18 HART and 18 WiHART transmitters.		
If Hardware AI is chosen, the user may select from the Analog Input (AI) to be used from a drop down menu.		
The user may select from the Default AI (this would be the "Run X Differential Pressure" selection from the I/O configuration page), or from a Shared Transmitter ("Shared DP X" from the I/O configuration page) or a pair of Stacked transmitters ("Stacked DP X Lo/Hi" from the I/O configuration page).		
If the Default AI or Shared transmitters are chosen, the measurement source configuration is completed. If Stacked transmitters are chosen, see the "Stacked or Redundant XMTRS" section.		

Override / Live	The user may override the measurement values in use by selecting Override instead of Live
	When Override is selected, the user may enter the desired value for the measurement to be used. When Live is selected, the Value will be driven by the appropriate input value.
	Note : the action of changing from Live to Override or Override to Live is entered in the Audit trail. When in Override, any changes made to the Value are entered in the Audit Trail.
	Note: This override is done at the Run Measurement level not at the I/O level. Because of this, care needs to be taken when overriding runs configured for bi-directional measurement, because the logic overriding the measurement values occurs after the logic for routing the measurement inputs to the proper run. Additionally, any input alarms and conditioning are not performed when Override is active.
Value	The differential pressure value in use is shown here.
	When "Live" is selected via the "Override/Live" button, this value is the value coming from the Differential Pressure Source.
	When "Override" is selected via the "Override/Live" button, this value may be entered by the user, and the entered value will be used in the measurement calculation.
Units	The units for the measurement inputs come from the input source.
<u>Stacked or</u> <u>Redundant</u> <u>XMTRs</u>	If stacked transmitters are chosen, the user must configure the transmitters as Stacked or Redundant transmitters.
	Stacked Transmitters operate such that one transmitter measures at a low range of measurement, and a second transmitter measures at a higher range.
	Redundant transmitters operate such that one transmitter is used for measurement all of the time, and the second transmitter is available in case the first transmitter fails.
Set Point	When using Stacked Transmitters, the user must enter a set point where the measurement will transition from the low range transmitter to the high range transmitter.
	To configure the stacked transmitters to be used as redundant transmitters, the user must set the Set Point to 0.0. This will set the Stacked DP X Lo to be the primary transmitter, and the Stacked DP X Hi transmitter will only be used if the Lo transmitter indicates a failure.
	To force the Hi transmitter to be used, the user must set

Dead Band	A deadband may be entered, that will prevent the measurement from switching back and forth between the high and low transmitters.		
Current Rate	The current flow and energy rates are displayed on this screen. The units of flow and energy rates are set from the Run Configuration page.		
Cone Change	To change the V-Cone diameter, the user must change the Plate Change mode from Normal (Inactive) to Plate Change (Active)		
	While the Plate Change mode is Active, the Differential Pressure, Static Pressure and Temperature values are frozen.		
Elapsed Time	While the Plate Change mode is Active, the elapsed time is displayed.		
New V-Cone Diameter	The new V-Cone diameter and Cone diameter units may be entered here.		
	The V-Cone diameter in use does not change until the plate change mode changes from "Plate Change (Active)" to "Normal (Inactive)".		
	The V-Cone Diameter in use appears in the Settings section		
Beta Ratio	The beta ratio is the Venturi diameter divided by the pipe diameter.		
	The beta ratio is displayed on this screen. If the beta ratio is out of range, it will appear in red text. The low limit for the beta ratio is 0.15 and the high limit for the beta ratio is 0.60.		
<u>Min/Max Rates for</u> <u>this Run</u>	The minimum and maximum flow rates for a V-Cone run are calculated outputs of the V-Cone flow equation.		
	The DP minimum is calculated using the Minimum Flow Rate DP setting and the DP maximum is calculated using the Maximum Flow Rate DP setting.		
	Minimum Flow Rate DP setting= The DP in inches to use for the Minimum Flow calculation.		
	Maximum Flow Rate DP setting = The percent of DP span to use for the Maximum Flow calculation.		

the Set Point to a value less than 0.0.

3.2.22 Control Valve Config

Either left-click on a valve icon, or right-click on the icon and choose **Configuration** from the pop-up menu to define some basic characteristics of the valve.

E Control Valves	
Control Valve 1 Dmd -100 - CV Source GP PID 1 Permissive No Assignment - 75 - Valve Raise/Lower - 50 - Action Direct - 25 - Low Range 0.00 0.00 0 0.00 High Range 100.00 0.00 2 Ramp Rate 0.00 Raise / Lower Config PD0 Mode + - Input Valve Travel 0 Min. Pulse Max. Pulse Time (Secs) 0 0.00 0.00	Control Valve 1 Dmd -100 - CV Source GP PID 1 -75 - Permissive No Assignment -75 - Valve Analog -50 - Action Direct -25 - Low Range 0.00 0 0.00 High Range 100.00 0.00 2 Ramp Rate 0.00 0 0.00 2
States Feedback 0.00 Permissive Raise Lower OK Off Off	States Feedback 0.00 Permissive OK

Figure 3-82. Quick Valve Config – Raise Lower (left) or Analog (right)

Field	Description		
Control Valve n	Station Manager supports up to 18 control valves.		
Source	Any one of the six stations or a general purpose (GP) PID loop can control a valve. Select the source from the drop-down menu, then press the [Enter] key to save your selection.		
Permissive	Normally, you should leave this at No Assignment which means that Station Manager can operate the valve at any time. Alternatively, you can specify a run number here; if you do, Station Manager can only operate the valve when the block valve for this run is OPEN .		
Valve Type	Click this button to select the type of mechanism used to control the valve.		
	If you choose Raise/Lower the system sends pulses to open or close the valve based on the demand to and feedback coming from the valve.		
	If you choose Analog the system sends an analog signal to open or close the valve based on the demand.		

Action	Click this button to select how a percentage change affects the valve.		
	If you choose Direct , then a zero calls for 0% request to be sent to the valve.		
	If Indirect , then a zero calls for 100% at the valve.		
Low Range	The minimum output for the valve. Used to limit or spling range the valve.		
High Range	The maximum output for the valve. Used to limit or spl range the valve.		
Manual Mode	Click this button to choose between Auto and Manual mode for valve operation.		
	In Manual mode, you specify the desired percent demand value for the valve. Transfer into Manual mode is bumpless.		
	In Auto mode, the Station Manager application determines the desired percent demand value for the valve. Transfer into Auto mode immediately drives the valve to the desired position as calculated by the Station Manager.		
%	Shows (or sets) the desired percentage of the valve. In manual mode, you can set the percentage by entering it, and pressing the [Enter] key to save your entry. In automatic mode, this field is read-only and displays the requested percentage of the valve.		
Ramp Rate	Enter the maximum allowable percentage change per second for the valve based on the demand.		
Dmd	This bar graph and the field below it show the requested demand from the PID loop.		
cv	This bar graph and the field below it show the current reported demand percentage for the valve.		
Raise/Lower Config			
PDO Mode		plies if the Valve Type is	
	Raise/Lower. Use the drop-down menu to select the		
	type of feedback the valve provides regarding its position and press the [Enter] key to save your		
	selection. Choices are:		
	Selection Meaning		
	+ - Input	The valve operates in Pulse Duration Mode in which the output value is converted into a pulse duration length.	
	Limit SW	The valve transmits when its position is fully opened or fully closed, but not during any other portion of the range of travel.	

	No Feedback	The valve provides no
		information on its position.
	Analog Feedback	The valve transmits its current
		position throughout the entire
		range of travel.
Valve Travel Time	This field only applies	s if the Valve Type is
(Secs)		the amount of time (in seconds) it
	takes for the valve to	travel from fully closed to fully
	open. Press the [Ent	er] key to save your entry.
	Manager in calcula	ical value for the Station ating how often to send pulses ially in configurations when ck from the valve.
Min. Pulse	responding to a signation shorter than some du	ves have a latency period for al and cannot respond to pulses uration. Enter the minimum pulse equired to move the valve. Press
Max. Pulse	Raise/Lower. Enter duration. Typically y	es if the Valve Type is the maximum allowable pulse ou would set this equal to the setting. Press the [Enter] key to
States		
Feedback	This read-only field s from the valve on its	hows the most recent feedback position (%).
Permissive		hows OK if this valve can operate operation is prevented by a block
Raise	This read-only field s asserting this output	hows Raise if Station Manager is command.
Lower	This read-only field s asserting this output	hows Lower if Station Manager is command.

3.2.23 Process Values

The purpose of Maintenance Mode is to prevent maintenance activities (calibration, verification) from adversely affecting the running process. When enabled, Maintenance Mode locks process values so that these maintenance activities do not affect the running process.

To view process values for the site, right-click on the icon for the site, and choose **Maintenance Mode > PVs** from the pop-up menu:

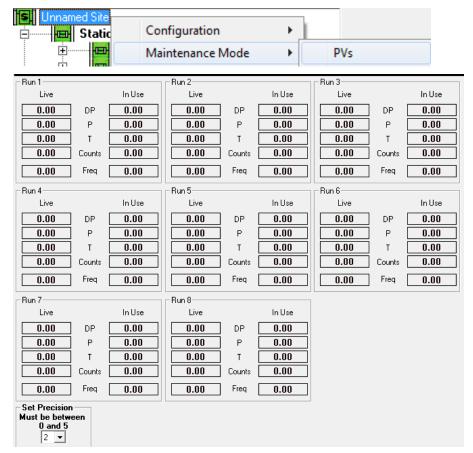


Figure 3-83. Process Values (Station Manager 8-Run screen shown)

The Live values for a run always show the live value coming into the Station Manager controller (either through an analog input, or a multi-variable transmitter (MVT).

The In Use values are the values currently in use for measurement. You can set the precision (number of digits displayed after the decimal point) from 0 to 5.

3.2.24 AI Calibration

Calibration procedures including the order and type of steps involved vary from organization to organization. Based on the type of process variable you want to calibrate, Station Manager allows you to specify what operation you want to perform in a given calibration step.

To begin the configuration process for calibrating an analog input (AI), right-click on the RTU icon in TechView, and choose **AI Calibration** from the menu.

🕵 Te	chView ·	SN	1_IC_4	4_00	IP.tv	s
File	Config	ıre	Ор	eratio	ons	Conf
D	🖻 🔲		$ \hat{\mathbf{x}} $.	sig	B
		Dov Cor	aView vnloa mm S Calibr	Ider tats		

aintenance Mo AI Point	de Summary —							
		Run 2	Run 3	- Run 4	Run 5	Run 6	Run 7	Run 8
Off	Off	Off	Off	Off	Off	Off	Off	Off
		AI Point to be C	Calibrated			Slot N	umber Point Numbe	r
Edit Config. Settings	Cancel	TestRun1 Diff.		Zero Spa	in U	inits Liv	1	
Current PV Sett Differentia	ings: al Pressure	Differential Pre		0.00 100.		H2O -25	.00 -25.00	
Linearizatio	on: Enabled			Verif	cation Not Starte	d		
Deviation Limit (% Full Scale): 0.000000		Step		Actual			Deviation	
0.00	0000	Zero	Shift (As Found)	0.00	0	.00	0.00	
Force: Zero	Shift: Enabled		Zero	0.00	0	0.00	0.00	
			Mid-Point 1	0.00	2	5.00	0.00	
			Zero Shift	0.00	0	0.00	0.00	
Number o	of Steps: 4]						
Enter/Edit	Comments		Pre	ss Start Callibratio	n to put PV & Ru	n into Maintenance I	Mode	
	*			Live Value	Tester Va	alue		
				-25.00	0.00			
			Back	Start	Calibration	Skip		

Figure 3-84. AI Calibration

View/Modify the Calibration Procedure for a Type of Input To view/modify the calibration procedure click **Edit Config Settings**. This displays the **Edit PV Settings** section as well as reset timer selection boxes in the **Maintenance** Summary section for the AI and each meter run. Make changes in these sections as needed, then click **Save Settings & Exit** to save the changes (alternatively, click **Cancel** to discard the changes). Once you save the settings you can start the actual calibration using those new settings.

AI Calibration Tool			
Maintenance Mode Summary AI Point Run 1 Auto Reset Time 02:00:00 Manual V Auto Reset V	Run 2 Run 3 Run 4	02:00:00 02:00:00	Run 7 Run 8 Auto Reset Time Auto Reset Time 02:00:00 02:00:00 Auto Reset T Auto Reset T
Save Settings & Exit Cancel	Edit PV Settings	Step 1	
	Deviation Limit (% Full Scale)	Step 2	
	Force: Adjust Live Value Entry Order Lock Live Value Then Enter Tester Value	Step 5	
Comments	Suggested Tester Values Use Calculated Values Disable Station Control Manual Mode Warning File Save Path	Step 7	
Enter/Edit Comments	C:\ProgramData\Bristol\StationManager\Logs	erification	

Figure 3-85. – AI Calibration – Configuration Settings

Field	Descri	ption				
<u>Maintenance</u> Mode Summary	runs al proces	This section shows whether the AI and one or more meter runs are in Maintenance Mode. Maintenance Mode locks process values so that calibration and verification activities not affect the running process.				
Al Point/Run <i>x</i>	Mainte	nows whether the AI point or meter run are currently in aintenance Mode. Shows "On" if they are in Maintenance ode or "Off" if they are not.				
Auto Reset Time	Reset mainte mainte	Auto Reset is set ON, the Maintenance Mode Auto Timer specifies how long an AI or meter run remains in nance mode before automatically disabling nance mode and returning to normal operation. The me is in the format DD HH:MM:SS.S				
	Where	:				
	DD number of days HH number of hours MM number of minutes SS.S number of seconds (resolution of 10ths)					
	The maximum time allowed for the maintenance mode auto reset timer is:					

	24 20:31:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 seconds)
Auto Reset / Manual	This field enables/disables Auto Reset.
	To enable Auto Reset, select Auto Reset . Maintenance mode for the AI input or meter run will be disabled automatically after the specified time expires.
	To disable Auto Reset, select Manual. This means maintenance mode for the AI input or meter run will not be disabled automatically.
Edit PV Settings	This section lets you specify which calibration commands should execute in a particular calibration step, and also lets you set other calibration parameters. To begin, specify the type of process variable you want to calibrate first.
	Differential Pressure Image: Comparison of the system Not Selected Differential Pressure Pressure Pressure Temperature Other
Deviation Limit (% Full Scale)	Specify the deviation limit (as percent of full scale) which is allowed. This represents maximum allowed difference between the actual value read from the analog input, and the known tester value you apply.
Linearization	Check this box if you want to activate the linearization function during the calibration.
Force: Zero Shift	Check this box if you want to apply a zero shift. Zero shift is a value added or subtracted to the zero value to shift the live value. This is only allowed for the "Differential Pressure" or "Other" type.
Force: Adjust Live Value	You must check the Force Adjust Live Value box in order to use the adjust live value command. The adjust live value command is only allowed in Step 1 of the calibration procedure. Only allowed for the "Temperature" or "Other" type.
Step 1, Step 2,	Use the selection box to choose the calibration command you
Step 3, Step 4,	want to execute at a particular step.
Step 5, Step 6, Step 7	Zero Shift (As Found) Zero Shift (As Found) Zero Mid-Point 1 Mid-Point 2 Mid-Point 3 Full Scale
<u>All PVs</u>	
Entry Order	You can choose to lock the live value either before or after you enter the tester value. Entry Order
	Enter Tester Value Then Lock Live Value Lock Live Value Then Enter Tester Value Enter Tester Value Then Lock Live Value

Suggested Tester Values	You can select suggested tester values based on calculations, or based on the last test performed. Suggested Tester Values
	Use Calculated Values
	Use Calculated Values
	Use Values From Last Test
Disable Station	Check this to disable the station control Manual Mode
Control Manual Mode Warning	Warning. The warning shows up at the end of the calibration process to remind you the station is still in manual mode.
	UsrAICal
	Station(s): 1, are in Manual Control!
	ок
File Save Path	Specify the folder where you want to save calibration logs.
Q-Bit Value for Al	When you check this, the questionable data bit (Q-bit) turns
Point During	ON for all AI process variables whenever calibration or verification operations are in progress.
Calibration and Verification	vernication operations are in progress.
(8-run version	When left unchecked, the questionable data bit (Q-bit) turns
only)	OFF for all AI process variables whenever calibration or
	verification operations are in progress.
Al Point to be	Select the AI point you want to calibrate; the Slot Number and Point Number fields update once you make this selection.
Calibrated	Point Number helds appare once you make this selection.
PV Type	Once you select the AI point you want to calibrate; you must
	specify the type of process variable. If you've previously
	calibrated the point, the point type defaults to your previous
	choice.
Raw Value	Check this box to display the raw value in use.
Slot Number	This is the I/O Slot Number to which this point is assigned.
Point Number	This is the I/O point on the I/O slot to which this variable is assigned.
Zero	Shows the Zero value for this AI. This value represents the zero point for the AI.
Span	Shows the Span value for this AI. This represents 100% of span for the AI.
Units	Shows the engineering units for this AI.
Live	Shows the current reading of the analog input.

In Use	Shows the value being used by the Station Manager application. If the value in use is different than the live value, that can be because the AI is in Maintenance Mode (which locks the value).
Step	This column shows the order is which calibration commands will be executed. The first step shows the first calibration command which will execute, the second step shows the second calibration command which will execute, and so on. This order is determined based on selections in the Edit PV section.
Actual	This column records the actual value read from the AI during a particular step.
Tester	This column records the known good value you applied using a test device during this step.
Deviation	This column shows the difference between the actual value and the tester value. If this difference exceeds the deviation limit linearization will not be performed.
Live Value	Shows the current live reading from the AI.
Tester Value	Enter a known good value for the pressure (or temperature) from a test device here.
Start Calibration / Next	Click here to start the calibration process or proceed to the next step.
Back	Click here to go to the previous calibration step.
Skip	Click here to skip a calibration step.
End	Click here to end the calibration process.
Cancel	Click here to cancel the current calibration step.
<u>Comments</u>	This section lets you optionally enter comments in the calibration log files.
Enter / Edit Comments	Click this to open the Comments dialog box.
	Text you enter in the In Report Comments field gets included in the current calibration log; text you enter in the Between Report Comments field gets added after the current calibration log and before the next log. Click OK to include the comments or Cancel to discard them.

General Calibration Calibration processes and the order of steps vary from organization to organization.

AI Point	de Summary Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Run 8
Off	Off	Off	Off	Off	Off	Off	Off	Off
		AI Point to be	Calibrated				lumber Point Num	
Edit Config. Settings	Cancel	TestRun1 Dit		Zero Sp	an Un	7	0 Point Num 0 0 Ive In Use	
Current PV Sett Differentia	ings: al Pressure	Differential P		0.00 0.0			00 0.00	
Linearizatio	on: Enabled			Veril	lication Not Started	1		
	(% Full Scale):		Step	Actual	Ter	Tester Deviation		
0.000000		Zen	Zero Shift (As Found)		0.0	00	0.00	
Force: Zero S	Shift: Enabled		Zero	0.00	-75	00	0.00	
		Mid-Point 1		0.00	-25	.00	0.00	
			Mid-Point2	0.00	-25	.00	0.00	
			Mid-Point 3	0.00	-75	00	0.00	
Number of	d Channel 7		Full Scale	0.00	300	.05	0.00	
	of Steps: 7		Zero Shift	0.00	0.0	00	0.00	
Comments Enter/Edit	Comments		Pre	ss Start Callibratio	on to put PV & Run	into Maintenance	Mode	
		1		Live Value	Tester Va	lue		
				-59.09	0.00			
			Back	Start	Calibration	Skip		



The general calibration process is as follows:

- 1. First, select the **AI Point to be Calibrated**.
- 2. Next, select the type of point you are calibrating.
- **3.** Enter a tester value appropriate for the particular calibration step and click **Start Calibration**. Watch the status bar for information on the process. When the step completes, click **Next** to proceed to the next step and enter tester values as required. Continue this until the last step.
- 4. When the last step is complete, click **Finish Calibration**.
- 5. You'll be prompted to provide a name for the report. The default name is the site name. Enter a name and click **OK**.

Combined Report File Name	×
Entered the desired file name for the combined report, all invalid characters will be replaced with a "-". Click "Ok" to use the name in the box, a blank field will use the default name.	ОК
TestSite	

Figure 3-87. Combined Report File Name

3.2.25 AI Maintenance

To put an analog input (AI) into maintenance mode, right-click on the icon for the site, and choose **Maintenance Mode > AI Maint** from the pop-up menus:

Unnamed Site	Configuration	•	1
±	Maintenance Mode	•	PVs
	tation 2 (St 2)		AI Maint

Al Maintenance Maint Off Auto Rst 0	Cur Maint	rent State t Mode Off Reset Off	
Maintenance Mo			
-	ed Time	H:MM:SS	
Kemaini	ng Time	H:MM:SS	
			Point to be Calibrated
Live	In Use	Units	:
0.000	0.000		
0.000	Span		
0.000	Zero		
Slot Number	Point Numb	er PV UNAS	SIGNED

Figure 3-88. AI Maintenance

Field Al Maintenance	Description This section of the screen controls the maintenance mode for the selected AI input.
Maint Off / Maintenance	This button takes the AI in and out for maintenance mode. To disable maintenance mode, click Maint Off ; when maintenance mode is successfully disabled the Current State shows Maint Mode Off. To enable maintenance mode, click Maintenance ; when maintenance mode is successfully enabled the Current State shows Maintenance.
Auto Reset / Auto Rst Off	This button enables/disables Auto Reset. To enable Auto Reset, click Auto Reset ; the Current State updates to show Auto Reset is on and maintenance mode for

	the AI input will be disabled automatically after the period set under the Maintenance Mode Time . To disable Auto Reset, click Auto Rst Off ; the Current State updates to show Auto Rst Off. This means maintenance mode for the AI input will never be disabled automatically.	
Maintenance Mode Time	The Maintenance Mode Auto Reset Timer is in the format DD HH:MM:SS.S	
	Where:	
	DD number of days HH number of hours MM number of minutes SS.S number of seconds (resolution of 10ths)	
	The maximum time allowed for the maintenance mode auto reset timer is	
	24 20:31:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 seconds)	
Elapsed Time	This is the amount of time the AI input has been in maintenance mode.	
Remaining Time	When Auto Reset is enabled, this is the time remaining until the maintenance mode is automatically reset.	
	When Auto Reset is disabled, this field remains at 00 00:00:00.0.	
Al Point to be Calibrated	Select the AI point to be calibrated from the drop down menu.	
Live	The live value, coming from the Analog Input.	
In Use	The value in use. When maintenance mode is off, this will be the live value. When maintenance mode is on, this value may be overridden by the user.	
Units	This will be the units of the variable, assigned from the I/O configuration page.	
Span	This will be span of the variable, assigned from the I/O configuration page	
Zero	This will be the zero of the variable, assigned from the I/O configuration page.	
Slot Number	This is the I/O Slot Number that this point is assigned to.	
Point Number	This is the I/O point on the I/O slot that this variable is assigned to.	

3.2.26 Site Maintenance

You can place the entire site in Maintenance Mode. When this occurs, all runs at the site are placed in Maintenance Mode.

To put a site into maintenance mode, right-click on the icon for the site, and choose **Maintenance Mode > Site** from the pop-up menu:

S. Unnamed Site			
E Stati	Configuration	+	
	Maintenance Mode	•	PVs
🕀 🔤 Stat	ion 3 (St 3)		AI Maint
	ion 4 (St 4) ion 5 (St 5)		Site
Site		_	
one	Current State		
Maint Mode On	Maint Mode Off		
Auto Reset On	Auto Reset Off		
Maintenance Mode T	ime 02:00:00 H:MM:S	55	
Elapsed T	ime00:00:00.0H:MM:S	SS	
Remaining T	ime00:00:00.0H:MM:9	6 S	

Figure 3-89. Site Maintenance

The following items are available on the Site Maintenance Mode screen.

Field	Description
Site	This section of the screen controls the maintenance mode for the site.
Maint Mode Off / Maint Mode On	If the Current State says Maint Mode On, you can disable maintenance mode by clicking the Maint Mode Off button. If the Current State says Maint Mode Off, you can enable maintenance mode by clicking the Maint Mode On button.
Auto Reset On / Auto Rst Off	If the Current State says Auto Reset On, you can disable Auto Reset by clicking the Auto Rst Off button. This prevents maintenance mode for the site from being disabled automatically.
	If the Current State says Auto Rst Off, you can enable Auto Reset by clicking the Auto Reset On button. If Auto Reset is enabled, maintenance mode for the site will be disabled automatically after the period set under the Maintenance Mode Auto Reset Timer
	Note : if Auto Reset is set at the Station level or Run Level, it takes precedence over the setting at the site level. To disable Auto Reset, make certain that it is disabled at the site, station, and run level.

Maintenance Mode Time	The Maintenance Mode Auto Reset Timer is in the format DD HH:MM:SS.S	
	Where	
	DD HH MM SS.S	number of days number of hours number of minutes number of seconds (resolution of 10ths)
	The ma reset ti	aximum time allowed for the maintenance mode auto mer is
	24 20:3 second	81:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 ls)
Elapsed Time	This is mode.	the amount of time the site has been in maintenance
Remaining Time		Auto Reset is enabled, this is the time remaining until intenance mode is automatically reset.
	When / 00:00:0	Auto Reset is disabled, this field remains at 00 00.0.

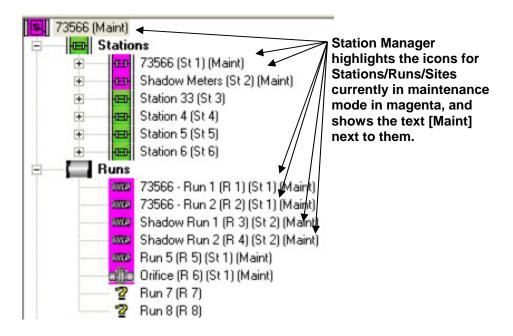


Figure 3-90. Stations, Runs, and Site in Maintenance Mode

3.2.27 Station Maintenance

To put a station into maintenance mode, right-click on the icon for the station, and choose **Maintenance Mode** from the pop-up menu:

	Statio	ns	
÷.	limi	Chation 1	Û

	Station 1 (St 1)	
÷	Station 2 (St 2)	Configuration
÷	Station 2 (St 2) Station 3 (St 3)	Maintenance Mode

-Station 1	Current State
Maint Mode On	Maint Mode Off
Auto Reset On	Auto Reset Off
Maintenance Mode Tim	
Elapsed Tim	e <mark>00:00:00.0</mark> H:MM:SS
Remaining Tim	e <mark>00:00:00.0</mark> H:MM:SS

Figure 3-91. Station Maintenance

Field	Description
Station <u>n</u>	This section of the screen controls the maintenance mode for the selected station.
Maint Mode Off / Maint Mode On	If the Current State says Maint Mode On, you can disable maintenance mode by clicking the Maint Mode Off button. If the Current State says Maint Mode Off, you can enable maintenance mode by clicking the Maint Mode On button.
Auto Reset On / Auto Reset Off	If the Current State says Auto Reset On, you can disable Auto Reset by clicking the Auto Reset Off button. This prevents maintenance mode for the site from being disabled automatically. If the Current State says Auto Reset Off, you can enable Auto Reset by clicking the Auto Reset On button. If Auto Reset is enabled, maintenance mode for the site will be disabled automatically after the period set under the Maintenance Mode Auto Reset Timer Note: If Auto Reset is set at the Station level, it takes precedence over the setting at the site and run level. To disable Auto Reset, make certain that it is disabled at the site, station, and run level.
Maintenance Mode Time	The Maintenance Mode Auto Reset Timer is in the format DD HH:MM:SS.S Where:

	DD HH MM SS.S
	The maximum time allowed for the maintenance mode auto reset timer is
	24 20:31:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 seconds)
Elapsed Time	This is the amount of time the station has been in maintenance mode.
Remaining Time	When Auto Reset is enabled, this is the time remaining until the maintenance mode is automatically reset.
	When Auto Reset is disabled, this field remains at 00 00:00:00.0.

To bring up the maintenance mode screen for all six stations simultaneously, right-click on the icon for the site, and choose **Maintenance Mode > Stations** from the pop-up menus:

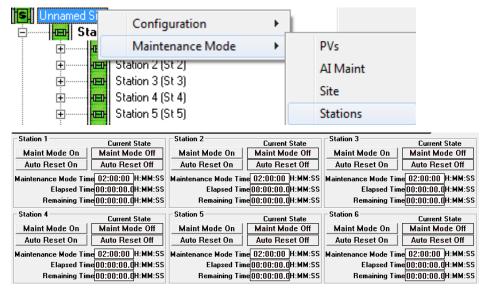


Figure 3-92. All Stations Maintenance

3.2.28 Run Maintenance

To put a meter run into maintenance mode, first right-click on the icon for the meter run, and choose **Maintenance Mode** from the pop-up menu:



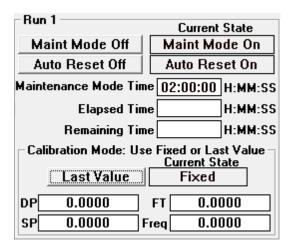


Figure 3-93. Run Maintenance

Field	Description
<u>Run <i>n</i></u>	This section of the screen controls the maintenance mode for the selected run.
Maint Mode Off / Maint Mode On	If the Current State says Maint Mode On, you can disable maintenance mode by clicking the Maint Mode Off button. If the Current State says Maint Mode Off, you can enable maintenance mode by clicking the Maint Mode On button.
Auto Reset Off / Auto Reset On	If the Current State says Auto Reset On, you can disable Auto Reset by clicking the Auto Reset Off button. This prevents maintenance mode for the site from being disabled automatically.
	If the Current State says Auto Reset Off, you can enable Auto Reset by clicking the Auto Reset On button. If Auto Reset is enabled, maintenance mode for the site will be disabled automatically after the period set under the Maintenance Mode Auto Reset Timer
	NOTE – if Auto Reset is set at the Run level, it takes precedence over the setting at the site or station level. To

	disable Auto Reset, make certain that it is disabled at the site station, and run level.
Maintenance Mode Time	The Maintenance Mode Auto Reset Timer is in the format DD HH:MM:SS.S
	Where: DD number of days HH number of hours MM number of minutes SS.S number of seconds (resolution of 10ths)
	The maximum time allowed for the maintenance mode auto reset timer is
	24 20:31:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 seconds)
Elapsed Time	This is the amount of time the run has been in maintenance mode.
Remaining Time	When Auto Reset is enabled, this is the time remaining until the maintenance mode is automatically reset.
	When Auto Reset is disabled, this field remains at 00 00:00:00.0.
Calibration Mode Use Fixed or Last Value	
Fixed / Last Value	If the Current State says Fixed, calibration mode uses fixed values; you can force it to use the last value by clicking the Last Value button. If the Current State says Last Value, calibration mode uses the last values; you can force it to use the fixed values by clicking the Fixed button.
DP	When using fixed values for calibration, you specify the fixed value for differential pressure here.
SP	When using fixed values for calibration, you specify the fixed value for static pressure here.
FT	When using fixed values for calibration, you specify the fixed value for flowing temperature here.
Freq	When using fixed values for calibration, you specify the fixed

To bring up the maintenance mode screen for all meter runs simultaneously, right-click on the icon for the site, and choose **Maintenance Mode > Runs** from the pop-up menus:

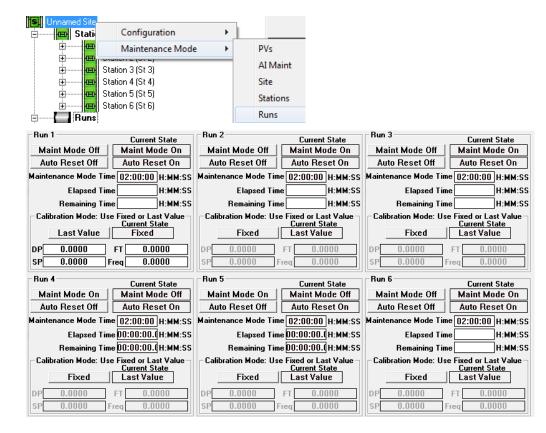


Figure 3-94. All Runs Maintenance (6-Runs Shown)

3.3 Gas Chromatograph Configuration

Gas Chromatograph Configuration

button on the

Measurement tab, Station Manager opens up the Gas Chromatograph Configuration pages.

Customers have used Station Manager with the following gas chromatographs:

- Daniel/Rosemount 2350A
- Daniel/Rosemount with El Paso mapping
- Encal Euro 2000

When you click the

- ABB NGC 8200 series
- COSA HGC 303

The Gas Chromatograph Configuration page includes a general configuration area at the top, and then multiple tabs with additional information.

Gas Chromatograph Configuration									
Data Ster Comm Mode Port Addr. GC IP Address Comms Status GC Type Stream Current Source 1									
Status General No Errors Check Values Source In Use LAST									
Fixed No Errors	Fixed No Errors Scheduled No Errors Date 0 Time 0								
Current Co		-	Pelta Limit Y Normalization Y Custom						
C Allow Local Entry	Us	e Last Good (GC on Disabled and Error, Defaults on WS						
Thermal Units BTU-IT/SCF	PSI 14.730	DegF 60.000	Scheduled Data MMDD HHMM Disabled Date 9999 Time 9999						
Scheduled GC	Fixed 1014.0000	In Use	Scheduled GC Fixed In Use C6 0.0000						
HT Val Sat	0.0000	950.0000	C7 0.0000 0.0000						
56	0.5600	0.6000	C8 0.0000 0.0000						
N2	0.5000	0.0000	C9 0.0000 0.0000						
C02	0.0000	0.0000	C10 0.0000 0.0000						
CH4	99.0000	89.0000	H20 % 0.0000 0.0000						
C2	0.5000	8.0000	H2S 0.0000 0.0000						
C3	0.0000	3.0000	H2 0.0000 0.0000						
IC4	0.0000	0.0000	CO 0.0000 0.0000						
NC4	0.0000	0.0000	02 0.0000 0.0000						
NeoC5	0.0000	0.0000	HE 0.0000 0.0000						
IC5	0.0000	0.0000	AR 0.0000 0.0000						
NC5	0.0000	0.0000	Totals 100.0000						
	obbe Index 0.0000	Compressibil 0.0000	ity Total GPM TotalUnNmMoleP CHDP 0.0000 0.0000 0.0000						

Figure 3-95. Gas Chromatograph Configuration

3.3.1 General

Field	Description					
Field Data Set	The Station Manager can poll from 1 to 8 gas chromatographs (1 to 6 for the 6-run version). The polling can be done for a single stream or multiple streams of data from each chromatograph. Each polled stream is considered a data set.					
	For each data set, the communications mode,					

	chromatograph address, data mapping, and stream must be configured. The data set to be configured is selected from the drop down list.
Comm Mode	Communications to the gas chromatograph may be via either a Serial (RS-232 or RS-485) or an IP (Ethernet) connection. For serial communications to the gas chromatograph, the serial port must be configured for the proper protocol, baud rate, etc. via the Flash Configuration Profile communication port settings.
Port	If the serial communication mode is selected, the serial port on the Station Manager controller that will be connected to the gas chromatograph will be specified here.
	The serial port must be configured for the proper protocol, baud rate, etc. via the Flash Configuration Profile communication port settings.
Addr	The local address of the gas chromatograph will be specified here.
	Every gas chromatograph will have a local address (from 1 to 255).
GC IP Address	If the IP communications mode is selected, the IP address of the gas chromatograph will be specified here.
	It is necessary to configure the IP address and routing for the Station Manager controller so that the IP address of the gas chromatograph is reachable.
Comms	This button will be used to enable or disable communications to the gas chromatograph.
	If communications are disabled, and valid data has never been retrieved from the gas chromatograph for this data set, the default (Fixed) chromatograph values will be seen in the GC column of the Current GC Data section on this page.
	If communications are disabled, and valid data has been retrieved from the gas chromatograph for this data set, the last valid data will be seen in the GC column of the Current GC Data section on this page.
Status	A status code indicating the health of the communications between the Station Manager controller and the chromatograph will be displayed here.
	If any code other than 0 is displayed here, see Appendix $E - Troubleshooting$.
GC Туре	The Station Manager load is configured to communicate to gas chromatographs that emulate the Daniel 2251 MODBUS communications scheme.

	GC Type	Explanation
	Daniel Default Mapping	The Daniel 2251 has a default data map, where the gas components are located in a set of specific registers.
	Daniel Custom Mapping	The Daniel 2251 and other compatible GCs also allow for a custom data map, where the gas components can be assigned to a user defined set of registers. When the gas chromatograph is configured in this way, the Station Manager controller determines the custom register map automatically. However, a Daniel C9+ chromatograph register assignments cannot be auto- detected.
	Daniel User Defined	In the case where the gas chromatograph does not support either the Daniel Default Mapping or the Daniel Custom Mapping, a user defined data map can be configured. If this option is selected, it is then necessary to make the register assignments on the Custom tab. (See Section 3.3.6 for details on configuring a custom map.)
	European Enca 2000	This configuration is rarely used in North America. Most Encal chromatographs deployed in North America support the Daniel 2251 emulation.
		This communication scheme is necessary for the European version of the Encal 2000 chromatograph because not all of the registers required by the Daniel emulation are supported.
	El Paso Mapping	This is a Daniel GC with El Paso data mapping.
	User Defined (List)	Import GC data from List 30 which is populated by another source such as a BSAP or Modbus master. If this option is selected, it is then necessary to make the register assignments on the Custom tab. (See Section 3.3.6 for details on configuring a custom map.)
Stream		graphs can support multiple gas streams. to be collected is specified here.
Current Source	Choose betweer for the source.	n gas chromatograph (GC) or analog input (AI)
Status		

General	There are a number of failure conditions that can be					
	reported. These failure conditions are either reported by the gas chromatograph, or may be derived by the Station Manager controller.					
	The messages are: No Errors – No errors are reported or detected					
	Checksum Fail – A checksum failure has been reported by the gas chromatograph (GC)					
	Analyzer Fail (GC) – The GC reports an analyzer failure					
	PreAmp Fail (GC) – The GC reports a PreAmp failure					
	Component Out of Range – The Station Manager controller has detected a component out of range. One of the components exceeds the out-of-range limits defined on the Component Ranges screen					
	HtVal Checksum Fail – Heating value checksum failure. The Station Manager controller calculates the expected heating value, based on the mole percent of each gas component. I compares the reported heating value with the calculated heating value, and if the values are not within the configured deadband, a HtVal Checksum Fail is reported.					
	SG Checksum Fail – Specific Gravity checksum failure. The Station Manager controller calculates the expected specific gravity, based on the mole percent of each gas component. It compares the reported specific gravity with the calculated specific value, and if the values are not within the configured deadband, an SG Checksum Fail is reported.					
	Total Out of Range – The mole percent of each component is added. If the value is not 100% +/- some limit, the Total Out-of-Range failure is reported.					
	General Fail – General failure from the GC. This comes fror a Modbus register.					
	General Fail DI – General failure from the GC. This comes from a discrete input (DI).					
	Stale Time Fail – If the data from the gas chromatograph han not updated within a specified limit, a Stale Time Failure wil be reported.					
	Comm Fail – This indicates a communication failure between the Station Manager controller and the GC. See th "Comm Status Code" section for more details.					
	Delta Fail – This indicates that the change in one or more or the values reported back by the GC have had a change fror one poll to the next that is larger than the limit allowed.					
	Fixed Data Fail – This message indicates an error in the					

	Fixed Data configured for this data set. The details of this error will be found in the Fixed Properties Status message.
	Timed Data Fail – This message indicates an error in the Scheduled Data configured for this data set. The details of this error will be found in the Scheduled Data Status message.
	Calibration Mode – Indicates the gas chromatograph is in calibration mode. While in calibration mode the source for GC data is either from the fixed values, or from the last good GC data, depending upon settings.
	Stream Error – This indicates a stream number mismatch during an update.
Check Values	You can force the application to detect any existing failure messages without waiting for the next GC poll by clicking on the [Check Values] button.
Fixed	The fixed data status message will be reported here. If the fixed data entries are valid, No Errors will be reported. If there is a problem with the fixed data entries, a "Fixed Data Fail" message will be reported as a "GC Failure Message", and the specific error will be reported here. The errors are:
	No Errors
	Value Out of Range – The Station Manager controller has detected a component out of range. One of the components exceeds the out-of-range limits defined on the Component Ranges screen
	HtVal Check Fail – Heating value checksum failure. The Station Manager controller calculates the expected heating value, based on the mole percent of each gas component. In compares the entered heating value with the calculated heating value, and if the values are not within x %, a HtVal Checksum Fail is reported.
	SG Check Fail – Specific Gravity checksum failure. The Station Manager controller calculates the expected specific gravity, based on the mole percent of each gas component. It compares the entered specific gravity with the calculated specific value, and if the values are not within x %, an SG Checksum Fail is reported.
	Value Sum Fail – The mole percent of each component is added. If the value is not 100% +/- some programmable limit, the Value Sum failure is reported.
Scheduled	The scheduled data status message will be reported here.
	If the scheduled data entries are valid, No Errors will be reported. If there is a problem with the scheduled data entries, a "Timed Data Fail" message will be reported as a "GC Failure Message", and the specific error will be reported

here. The errors are:

No Errors

Value Out of Range – The Station Manager controller has detected a component out of range. One of the components exceeds the out-of-range limits defined on the Component Ranges screen

HtVal Check Fail – Heating value checksum failure. The Station Manager controller calculates the expected heating value, based on the mole percent of each gas component. It compares the entered heating value with the calculated heating value, and if the values are not within x %, a HtVal Checksum Fail is reported.

SG Check Fail – Specific Gravity checksum failure. The Station Manager controller calculates the expected specific gravity, based on the mole percent of each gas component. It compares the entered specific gravity with the calculated specific value, and if the values are not within x %, an SG Checksum Fail is reported.

Value Sum Fail – The mole percent of each component is added. If the value is not 100% +/- some programmable limit, the Value Sum failure is reported.

Data Set	
Source in Use	Shows LAST when the source in use is the last good GC data; shows FIXED when the source is fixed data entries.
Date	The date format is MMDDYYYY.
Time	The time format is hhmmss.

3.3.2 Current Tab (Gas Chromatograph Configuration)

Current	Componen		elta Limit 🏻 🍸	Normalization		Custom
	#hen All Disabled, Use:					
Allow Local Entry		Use Last Good G		nd Error, Defaults on \		
Thermal	Units PSI	DegF	Sc			нмм
BTU-IT,	SCF 14.730	60.000		Disabled Date	9999 Time 9	999
Scheduled	🗆 GC 🔽 Fixed	i In Use		Scheduled GC	Fixed	In Use
HT Val	1014.000	0 1000.0000	C6		0.0000	0.0000
HT Val Sat	0.0000	950.0000	C7		0.0000	0.0000
SG	0.5600	0.6000	C8		0.0000	0.0000
N2	0.5000	0.0000	C9		0.0000	0.0000
C02	0.0000	0.0000	C10		0.0000	0.0000
CH4	99.000	3 89.0000	H2O %		0.0000	0.0000
C2	0.5000	8.0000	H2S		0.0000	0.0000
C3	0.0000	3.0000	H2		0.0000	0.0000
IC4	0.0000	0.0000	CO		0.0000	0.0000
NC4	0.0000	0.0000	02		0.0000	0.0000
NeoC5	0.0000	0.0000	HE		0.0000	0.0000
IC5	0.0000	0.0000	AR		0.0000	0.0000
NC5	0.0000	0.0000	Totals		100.0000	
	Wobbe Index	Compressibili	tyTotal GPM	TotalUnNmMoleP	CHDP	
Non AGA8 Compo	onents 0.0000	0.0000	0.0000	0.0000	0.0000	

The Current gas chromatograph data is reported on this sub tab.

Figure 3-96. Gas Chromatograph Configuration – Current sub-tab

Field	Description				
When All Disabled, Use:	Select from one of these options:				
(Station Manager 8- Run)	Use Last Good GC on Disabled and Error, Defaults on Warm Start Station Manager uses the last good values from the chromatograph if communications to the chromatograph are disabled or if a failure is detected. On warm start, use configured default values.				
	Use Last Good GC on Disabled, Error and Warm Start Station Manager uses the last good values from the chromatograph if communications to the chromatograph are disabled, if a failure is detected, or on a warm start.				
	Used Fixed on Disabled, Error and Warm Start Station Manager uses Fixed properties if communications to the gas chromatograph are disabled, or if there is a failure detected or on a warm start.				
When All Disabled, Use Fixed	Enable or Disable the use of fixed data by toggling this button.				
(Station Manager 6- Run)	When Disabled, fixed properties will not be used if communications to the gas chromatograph are disabled, or if there is a failure detected. Instead, the last good values will be used.				

	When Enabled, the fixed properties will be used if communications to the gas chromatograph are disabled, or if there is a failure detected.
Allow Local Entry	When the "Allow Local Entry" check box is marked, it is possible to enter the Scheduled and Fixed data locally. When is it not marked, this data may only be downloaded via the SCADA Host, using either the Enron MODBUS or BSAP protocols.
Scheduled Data	It is possible to load gas component data to the Station Manager controller, and then schedule when this data will become the in-use data. Scheduled data is written to the fixed data at the scheduled time. To enable this feature, toggle the Scheduled Data Disabled/Enabled button.
Date, Time	The scheduled data and the Date and Time for the scheduled data to be used may be downloaded via the SCADA Host, using either the Enron MODBUS or BSAP protocols. The data may also be entered locally, if the "Allow Local Entry" check box is marked.
Thermal Units	Select the thermal units appropriate for your chromatograph.
PSI	Specify the base pressure in pounds per square inch (PSI) appropriate for your chromatograph.
DegF	Specify the base temperature in degrees Fahrenheit (DegF) appropriate for your chromatograph.
Scheduled	The Scheduled Data appears when you click this box.
	When the "Allow Local Entry" box is marked, this data may be entered locally. Otherwise, the data may only be downloaded via the SCADA Host. By default, these values are 0.0.
	This data will be moved to the In Use data column at the date and time specified in the Scheduled Data Date and Time fields. Format for Date is MMDD, format for Time is hhmm.
GC	The data retrieved from the gas chromatograph appears as shown.
	When there are no errors from the chromatograph, this data will reflect the most recent data polled from the gas chromatograph. If there are errors from the chromatograph, this data will represent the last good data retrieved from the gas chromatograph. The default values are shown above. If no valid

	communications are ever established with a gas chromatograph, these values will be used.
Component name	The name of the component appears in red if the gas component is out-of-range.
Fixed	The Fixed Data appears as shown.
	When the "Allow Local Entry" box is marked, this data may be entered locally. Otherwise, the data may only be downloaded via the SCADA Host. The default values are shown.
	If the Use Fixed Properties state is set to Enabled, this data will be moved to the In Use data column if communications to the gas chromatograph are disabled, or there is a failure indicated with the gas chromatograph.
	However, if there is an error with the fixed data, this data will not be moved to the In Use data column; instead, the last good values from the gas chromatograph will be used.
In Use	The In Use data appears as shown.
	The In Use data is the data that will be used for measurement. The In Use data is the validated data from the source specified (GC, Fixed, or Scheduled). If data from the specified source is not valid, the last good data is used.

3.3.3 Component Tab (Gas Chromatograph Configuration)

The minimum and maximum ranges for each of the gas components may be set here.

[Current	C	omponent		Delta Limit	Norr	nalization) c	ustom	
	BTU Specific Gravity ✓ Allow Local Entry DeadBand 2.0000 0.0010 StaleTime 900 Secs									
	Minimum GC Maximum In Use Minimum GC Maximum In Use									
HT Val	650.0000	0.0000	1200.0000	1000.0000] C6[0.0000	0.0000	1.0000	0.0000	
BTU Sat	0.0000	0.0000	1200.0000	950.0000]C7[0.0000	0.0000	1.0000	0.0000	
SG	0.5540	0.0000	0.8700	0.6000] C8	0.0000	0.0000	1.0000	0.0000	
N2	0.0000	0.0000	15.0000	0.0000	C9	0.0000	0.0000	1.0000	0.0000	
C02	0.0000	0.0000	10.0000	0.0000	C10	0.0000	0.0000	1.0000	0.0000	
CH4	75.0000	0.0000	100.0000	89.0000	H20 %	0.0000	0.0000	0.5000	0.0000	
C2	0.0000	0.0000	20.0000	8.0000	H2S	0.0000	0.0000	0.0200	0.0000	
C3	0.0000	0.0000	12.0000	3.0000	H2	0.0000	0.0000	10.0000	0.0000	
IC4	0.0000	0.0000	6.0000	0.0000) CO	0.0000	0.0000	3.0000	0.0000	
NC4	0.0000	0.0000	6.0000	0.0000	02	0.0000	0.0000	21.0000	0.0000	
NeoC5	0.0000	0.0000	100.0000	0.0000] HE	0.0000	0.0000	0.4000	0.0000	
IC5	0.0000	0.0000	4.0000	0.0000	AR	0.0000	0.0000	1.0000	0.0000	
NC5	0.0000	0.0000	4.0000	0.0000	Totals	99.0000	0.0000	100.5000		-
	Non AGA8 Components									
Wobbe	1000.0000	0.0000	1500.0000	0.0000	Compressibility	0.0000	0.0000	1.5000	0.0000	
fotal GPM	0.0000	0.0000	100.0100	0.0000	TotalUnNmMoleP	90.0000	0.0000	102.0000	0.0000	
	CHDP 0.0000 0.0000 0.0000 0.0000									

Figure 3-97. Gas Chromatograph Configuration – Component sub-tab

Field Description

Allow Local Entry	Allow entry when "Fixed" or "Scheduled" is selected.
Deadband BTU	The Deadband to use between GC BTU and Station Manager calculated BTU from GC components. This is an absolute value.
Specific Gravity	The Deadband to use between GC specific gravity and Station Manager calculated specific gravity from GC components. This is an absolute value.
Stale Time	The stale data time limit is entered here.
	If data from the gas chromatograph has not been updated within this time limit, the data will be declared stale.
Fixed, GC, Scheduled	Choose whether fixed, GC, or scheduled values appear in this column.
	Fixed This data will be moved to the In Use data column if communications to the gas chromatograph are disabled, or there is a failure indicated with the gas chromatograph. However, if there is an error with the fixed data, this data will not be moved to the In Use data column; instead, the last good values from the gas chromatograph will be used.
	GC When there are no errors from the chromatograph, this data will reflect the most recent data polled from the gas chromatograph. If there are errors from the chromatograph, this data will represent the last good data retrieved from the gas chromatograph. If no valid communications are ever established with a gas chromatograph, the default values will be used.
	Scheduled This data will be moved to the In Use data column a the date and time specified for the schedule.
Component name	The name of the component appears in red if the gas component is out-of-range.
Minimum, Maximum	The minimum and maximum values for this gas component
In Use	The In Use data appears as shown.
	The In Use data is the data that will be used for measurement. The In Use data is the validated data from the source specified (GC, Fixed, or Scheduled). Is data from the specified source is not valid, the last good data is used.

3.3.4 Delta Limit Tab (Gas Chromatograph Configuration)

	Serial CIP	Port None	Addr GC	IP Address	Comms Sta Disabled	itus GCType) Use	e er Defined (l	_ist]	Stream Current Source 1 Gas Chrom.
Status General		No F	rrors		Check	/alues	Data Set Source In	1100	LAST
Fixed	No Erro			duled	No Errors		Date	0.00	Time 0
C	urrent	Г с	omponent		Delta Limit	1 Norr	nalization	Ť	Custom
-		-		1 15					
Component	Delta All O	K	HT Val	50.0000	NC6	0.1000	1		
component			BTU Sat	50.0000	NC0				
			SG	0.1000					
			N2	1.0000] исэ				
			C02	1.0000	NC10				
			CH4	3.0000	Н20 %				
			C2	0.5000	H2S	0.1000			
			C3	0.5000	H2				
			IC4	0.2500] со	0.0010			
			NC4	0.2500	j 02	0.0010			
			NeoC5	100.0000] не	0.0010			
			IC5	100.0000] AR	0.0010			
			NC5	100.0000	C6Plus	100.0000			
			C9Plus	100.0000	1				
				Non /	_ \GA8 Components				
			Wobbe Index	100.0000	Compressibility	1.5000			
			Total GPM	100.0000	TotalUnNmMoleP	100.0000			
					CHDP	100.0000			

The maximum change allowed (+/-) per component is entered here.

Figure 3-98. Gas Chromatograph Configuration – Delta Limit sub-tab

Field	Description
Delta Limit	If a gas component has changed beyond the delta limit entered here, Station Manager highlights its name in red.
Component Delta	Shows "All OK" if no gas components have changed beyond the delta limit. Otherwise, it shows the most recently detected component that has changed beyond the delta limit.

3.3.5 Normalization Tab (Gas Chromatograph Configuration)

For chromatographs that support C6+ or C6+/C9+, normalization of that data is done here.

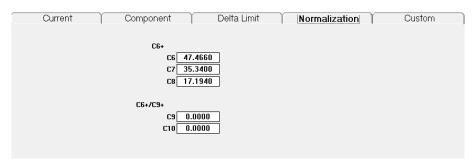


Figure 3-99. Gas Chromatograph Configuration – Normalization sub-tab

The gas chromatograph will report a single value for either C6+ or C6+ and C9+. The percentage applied to each component (C6, C7, C8, C9 and C10) will be how the number reported by the gas chromatograph will be distributed across the components.

3.3.6 Custom Tab (Gas Chromatograph Configuration)

You configure the user defined Custom Data Map here. This map is used when you choose either "Daniel User Defined" or "User Defined (List)" as the **GC Type** on the **Current** tab. (See *Section 3.3.1* for information on setting the GC Type.)

Daniel User Defined When this is the **GC Type**, click on any gas component and use the drop-down menu to select which Modbus register (7001 to 7016) holds that value. (See *Figure 3-100* below.) Otherwise, leave the component "Unassigned." Press the **Enter** key after you make each selection.

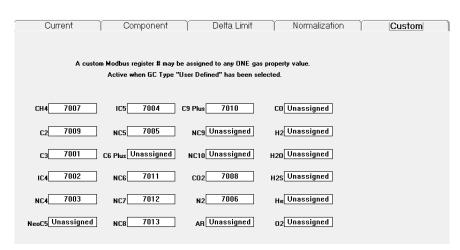


Figure 3-100. Gas Chromatograph Configuration – Custom sub-tab – Daniel User Defined

User Defined (List) When this is the **GC Type**, click on any gas component and enter the list element number (1 to *n* where *n* is the highest numbered list element) which holds that value. (See *Figure 3-101* below.) Otherwise, leave the component as **0** which is equivalent to "Unassigned." Press the **Enter** key after you make each entry. **The default user defined list is list 30.**

Current	Component	Delta Limit	Normalization	Custom
A custor		e assigned to any ONE gas		
	Active when GC Type "	User Defined" has been sel	ected.	SG 0
CH4 0	IC50	C9 Plus 0	CO	BTUO
C2 0	NC5 0	NC9 0	H2	BTU Sat 0
C3 0	C6 Plus 0	NC10 0	H20 0	CHDP 0
C3				
IC4	NC6 0	CO2 0	H2S0	Wobbe 0
NC4 0	NC7 0	N2 0	He O Compr	essability O
NeoC5 0	NC8 0	AR 0	02 TotalUn	NmMoleP 0
			1	otalGPM 0

Figure 3-101. Gas Chromatograph Configuration – Custom sub-tab – User Defined (List)

3.4 Gas Chromatograph RF Configuration

To access the Gas Chromatograph Response Factor page, click the

Gas Chromatograph RF Configuration button on the Measurement tab.

Gas Chromatograph Response Factor					
		comm Status O Disable (Set to		d	Port Com 5 GC IP Address
Metho Danie		Alarm Enable	Current State Disabled		ysis Alarm Delta Alarm LARM! OK
CH4	-0] IC5	0] NC7	0
C2	0	NC5	0	NC8	0
C3	0	NeoC5	0	C9+	0
IC4	0	C6+	0	NC9	0
NC4	0	NC6	0	NC10	0

Figure 3-102. Gas Chromatograph Response Factor

Field	Description
Data Set	Select the data set. The number of data sets is 1 to 8 for the 8-run version or 1 to 6 for the 6-run version.
Use GC Values / Use RF Values	Click this button to choose whether values come from the gas chromatograph (GC) or from the entries on this page.
Current in Use Values	Shows the current source for comm. settings; either the chromatograph or the entries you specify on this page.
GC Туре	Shows the type of gas chromatograph.
Comm Status	Note: If communications are disabled, data fields for the gas components are not shown.
Comm Status	See the ControlWave Designer online help for the CUSTOM function block for an explanation of these status codes.

Disable Comms/Enable Comms	Click Disable Comms to turn off communications to the gas chromatograph.			
	Click Enable Comms to turn on communications to the gas chromatograph.			
Set to IP / Set to Serial	Click Set to IP to use IP communications.			
	Click Set to Serial to use serial communications.			
Current State	These two fields shows whether communications are enabled or disabled and whether communications are serial or IP.			
Addr	Shows the address of the gas chromatograph.			
Port	Shows the communication port on the RTU used for the gas chromatograph.			
GC IP Addr	Shows the IP address of the gas chromatograph.			
Method	Specify the RF evaluation method.			
Set Baseline	Set the RF baseline to use for comparison.			
Alarm Enable/Disable	Relates to calculation done to see if response factor in bounds.			
	Click Alarm Enable to enable the calculation and alarming based on whether the response factor is in bounds.			
	Click Alarm Disable to disable the calculation and alarming.			
Current State	Shows whether alarming based on the response factor being within bounds is enabled or disabled.			
Delta Limit	Specify the limit setting for the delta alarm. This specifies a limit on how much the response factors change; if they exceed the limit it triggers the alarm.			
Analysis Alarm	Shows the current state of the RF analysis alarm.			
Delta Alarm	Shows the current state of the delta alarm.			
CH4	Shows the response factor for the methane component. If no value is shown, communications are disabled.			
C2	Shows the response factor for the ethane component. If no value is shown, communications are disabled.			
С3	Shows the response factor for the propane component. If no value is shown, communications			

	are disabled.
IC4	Shows the response factor for the I-butane component. If no value is shown, communications are disabled.
NC4	Shows the response factor for the N-butane component. If no value is shown, communications are disabled.
IC5	Shows the response factor for the I-pentane component. If no value is shown, communications are disabled.
NC5	Shows the response factor for the N-pentane component. If no value is shown, communications are disabled.
NeoC5	Shows the response factor for the neo-pentane component. If no value is shown, communications are disabled.
C6+	Shows the response factor for the C6+ component. If no value is shown, communications are disabled.
NC6	Shows the response factor for the N-hexane component. If no value is shown, communications are disabled.
NC7	Shows the response factor for the N-heptane component. If no value is shown, communications are disabled.
NC8	Shows the response factor for the N-octane component. If no value is shown, communications are disabled.
C9+	Shows the response factor for the C9+ component. If no value is shown, communications are disabled.
NC9	Shows the response factor for the N-nonane component. If no value is shown, communications are disabled.
NC10	Shows the response factor for the N-decane component. If no value is shown, communications are disabled.

3.5 Summary Pages

When you click the Summary Page button on the

Measurement tab, Station Manager opens up a series of summary pages, which you can access by clicking on its own tabs.

Click on the box(es) for a station you want to view. This displays the basic information for that station, or if you choose "Select All" displays information for all stations for the site.

Stations – Select All – – – –				
Station 1	Station 2			
Station 5	Station 6			
Juliuni	Julia			

3.5.1 Measurement Tab

This tab shows information such as the Station Name, the Inlet and Outlet pressures, Flow & Energy rates, Flow Direction, the Run Name, DP or Frequency, SP, FT, and Flow rate. The Run Switching Valve status is displayed as well.

You can click the "Click to Configure" button to bring you to the Measurement Status and Configuration page (see *Section 3.2*).

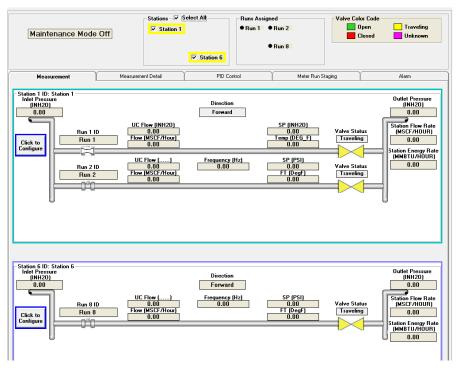
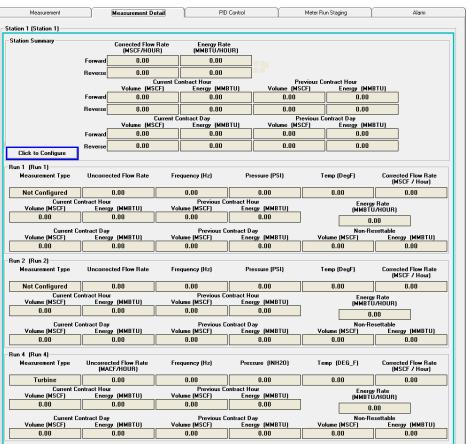


Figure 3-103. Summary Page – Measurement tab

3.5.2 Measurement Detail Tab

The Measurement Detail tab provides detailed information for a station including the station name, the run name, pressure, flow, and temperature, the forward and reverse flow and energy rates, as well as current and previous hour and day totals and non-resettable flow and energy totals.



You can click the "Click to Configure" button to bring you to the Measurement Status and Configuration page (see *Section 3.2*).

Figure 3-104. Summary Page – Measurement Detail tab

3.5.3 PID Control Tab

The PID Control tab provides information on the Station Control Mode, Inlet and Outlet pressures, Forward and Reverse Flow and Energy rates, and PID output percent.

The "Click to Configure" button brings you to the Station Control Overview page. See *Section 5.4.1*.

ation 1 [Station 1] Reverse 0.00 0.00 Control Mode 0.00 Outlet Pressure (INH2O) Click to Configure 0.00 Control Mode 0.00 Demand 0.00 Click to Configure 0.00 Click	ation 1 (Station 1)		stail	PID Control	Meter Run Stag	jing Alarm
Control Mode Intel Pressure (INH20) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MMSTU/HOUR) 0: 25% 50% 75% 100% No Control 0.00 0.00 0.00 0.00 0.00 Click to Configure 0.00 Reverse 0.00 0.00 0.00 Ation 6 (Station 6) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MSCF/HOUR) Demand 0: 25% 50% 75% 100% Station 6 (Station 6) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MSCF/HOUR) Demand 0: 25% 50% 75% 100% Control Mode 0.00 0.00 0.00 0.00 0: 00 No Control 0.00 0.00 0.00 0: 00 0: 00 Control Mode 0.00 0.00 0.00 0: 00 0: 00 Control Mode 0.00 0.00 0.00 0: 00 0: 00						
No Control 0.00 Forward 0.00 0.00 Outlet Pressure (INH20) Reverse 0.00 0.00 0.00 Click to Configure 0.00 Reverse 0.00 0.00 0.00 ation 6 (Station 6) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MSCF/HOUR) Omegaal Omegaal No Control 0.00 0.00 0.00 0.00 0.00		Inlet Pressure (INH2O)		Station Flow Rate	Station Energy Rate	
ation 6 (Station 6) Itation Summary Control Mode No Control 0.00 Outlet Pressure (INH20) Control Mode Forward 0.00 Outlet Pressure (INH20) Control Mode Forward 0.00 Outlet Pressure (INH20) Control Mode Forward 0.00	No Control		Forward			
Demand Demand Demand Control Mode 0.00 Station Flow Rate (MSCF/HOUR) Station Energy Rate (MSCF/HOUR) Demand No Control 0.00 0.00 0.00 0.00	Click to Configure	0.00	Reverse	0.00	0.00	0.00
Lation Summary Inlet Pressure (INH20) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MMSTU/HOUR) Demand No Control 0.00 0						
Demand Demand Demand Control Mode Inlet Pressure (INH20) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MMSTU/HOUR) Demand No Control 0.00 0.00 0.00 0.00 Detter Pressure (INH20) Forward 0.00 0.00 0.00						
ation Summary Inlet Pressure (INH2D) Station Flow Rate (MSCF/HOUR)						
ation Summary Inlet Pressure (INH2D) Station Flow Rate (MSCF/HOUR)						
ation Summary Inlet Pressure (INH2D) Station Flow Rate (MSCF/HOUR)						
Demand Demand Demand Control Mode Inlet Pressure (INH2D) Station Flow Rate (MSEF/HOUR) Station Energy Rate (MMBTU/HOUR) Demand No Control 0.00 0.00 0.00 0.00 Chick to Configure Pressure (INH2D) Pressure 0.00 0.00						
Demand Demand Demand Control Mode Inlet Pressure (INH20) Station Flow Rate (MSCF/HOUR) Station Energy Rate (MMBTU/HOUR) Demand No Control 0.00 0.00 0.00 0.00 Event to Configure Forward 0.00 0.00 0.00	tion 6 (Station 6)					
Control Mode Station Flow Hate (MSC/HOUR) Station Energy Hate (MMBTU/HOUR) 0x 25% 50% 75% 100% Outlet Pressure (INH20) Forward 0.00 0.00		L L I D				
Outlet Pressure (INH2O) Forward 0.00 0.00 Click to Configure Bewares 0.00 0.00 0.00					Station Energy Rate (MMBTU/HOUR)	
	No Control		Forward			
	Click to Configure		Reverse	0.00	0.00	0.00

Figure 3-105. Summary Page – PID Control tab

3.5.4 Meter Run Staging Tab

The Meter Run Staging tab provides information on meter run staging.

This includes information on Inlet and Outlet pressures, flow rate, station direction and ranks, tube switching settings and ranks, valve command and status, block valve assignments, and other parameters.

The "Click to Configure" button brings you to the Station Meter Run Staging page. (See *Section 5.5 Meter Run Staging* in *Chapter 5* for more information on meter run staging.)

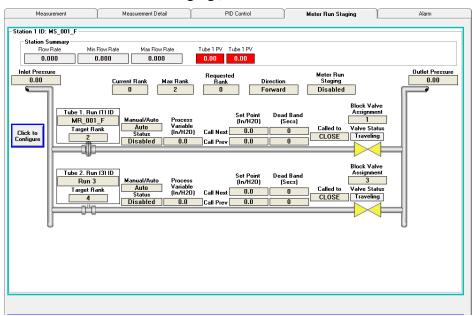


Figure 3-106. Summary Page – Meter Run Staging tab

3.5.5 Alarm Tab

The Alarm tab shows the Run Quality Bit, DP, SP, FT, Beta, Speed of Sound, Delta ABAR, Frequency, and Flow Rate current values and alarm status.

The "Click to Configure" button will bring you to the Measurement Status and Configuration page.

	Quality	Bit	Beta		Speed of Sound		
	OFF		0.4913	1	ON		
Diff. Pressure		Static Pres	Static Pressure				
	0.00	00	0.0000	l i	0.0000		
lick to			Frequence 0.0000	-	Flow Rate		I Show I Alarm Limits
	0.00	UU	0.0000		0.0000		Links
	Alarm Set Points						
	Туре	Hi Hi Limit	Hi Limit	Low Limit	Low Low Limit	Status	
	Flow Rate	Not Applicable	0.0000	13.9323	Not Applicable	OFF	
	Diff. Pressure*	0.0000	0.0000	0.0000	0.0000	OFF]
	Static Pressure	0.0000	0.0000	0.0000	0.0000	OFF	1
	Temperature	0.0000	0.0000	0.0000	0.0000	OFF]
-	Beta Ratio*	Not Applicable	0.6000	0.1500	Not Applicable	OFF]
	Speed of Sound**	Not Applicable	0.0000	Not Applicable	Not Applicable	OFF]
	Frequency***	0.0000	0.0000	0.0000	0.0000	OFF]
33	Only active for orifice type m Only active for ultrasonic type © Only active for Linear type	pe measurement.					

Figure 3-107. Summary Page – Alarm tab

3.6 Water Vapor Content

To go to the Water Vapor Content screen, select the "Measurement" tab, and click on the Water Vapor Content button.

Station Manager calculates the water vapor content of a gas stream using up to six sensors. The 6-run version has up to six streams; the 8-run version has up to eight streams.

The calculation determines the water vapor content of the gas stream using Kahn dew point temperature sensors and the pressure. The equation is from the *Institute of Gas Technology Research Bulletin #8 – "Equilibrium Moisture Content of Natural Gas."*

The equation is:

$$W = A / P + B$$

where:

W = water content (LBS/MMCF)

P = pressure (PSIA)

A = constant proportional to the vapor pressure

B = constant dependent on temperature and gas

The A and B constants come from a lookup table. This implementation does not limit input pressure and dew point temperature.

The calculation for A is:

 $A = PH2O * (18 * 10^{6} * Pb) / (10.73 * (459.6 + Tb) * Zb)$

where:

PH2O = vapor pressure in psia of water at dew point temperature

Pb = base pressure (set as a constant of 14.7 psi)

Tb = base temperature (set as a constant 60.0 degrees F)

Zb = 0.988 base compressibility factor

where:

PH2O = vapor pressure in psia of water at dew point temperature

T = dew point temperature in degrees F (from transducer)

B = Exp(15.40544 - 7093.73 / (T+459.67))

Loss of input of either dew point temperature or pressure will result in an output value of -999999.

This performs a calculation every second for each sensor input. There can be from one to six sensors for a given stream of gas.

0.00
0.00
0.00
0.00
0.00
0.00
0.00

Figure 3-108. Water Vapor Content

For each stream you want to enable, you need to select a pressure source.

For each stream, you can have up to six sensors which are AI inputs.

Once you have a valid pressure source and sensor reading, Station Manager does the calculation for that sensor.

3.7 List 29

To go to the List 29 screen, select the "Measurement" tab, and click on the List 29 button.

List 29 is a modifiable list, and may be edited using the On-Line Edit tool to add or remove items from the list.

The 6-run version has 6 meter runs in List 29; the 8-run version has 8 meter runs in List 29.

▲ Caution The math function (described in Chapter 6) references individual elements of this list. If you insert lines in the list before any referenced elements, those positions will change and you must correct the references within the math function to reflect the new positions.

By default, List 29 includes these values:

Position in the List	Variable Name	Variable Description
1	MVT.MVT_1_DP	MVT 1 Static Pressure
2	MVT.MVT_1_SP	MVT 1 Differential Pressure
3	MVT.MVT_1_FT	MVT 1 Temperature
4	MVT.MVT_2_DP	MVT 2 Static Pressure
5	MVT.MVT_2_SP	MVT 2 Differential Pressure
6	MVT.MVT_2_FT	MVT 2 Temperature
7	MVT.MVT_3_DP	MVT 3 Static Pressure
8	MVT.MVT_3_SP	MVT 3 Differential Pressure
9	MVT.MVT_3_FT	MVT 3 Temperature
10	MVT.MVT_4_DP	MVT 4 Static Pressure
11	MVT.MVT_4_SP	MVT 4 Differential Pressure
12	MVT.MVT_4_FT	MVT 4 Temperature
13	MVT.MVT_5_DP	MVT 5 Static Pressure
14	MVT.MVT_5_SP	MVT 5 Differential Pressure
15	MVT.MVT_5_FT	MVT 5 Temperature
16	MVT.MVT_6_DP	MVT 6 Static Pressure
17	MVT.MVT_6_SP	MVT 6 Differential Pressure
18	MVT.MVT_6_FT	MVT 6 Temperature
19	MVT.MVT_7_DP	MVT 7 Static Pressure
20	MVT.MVT_7_SP	MVT 7 Differential Pressure
21	MVT.MVT_7_FT	MVT 7 Temperature
22	MVT.MVT_8_DP	MVT 8 Static Pressure
23	MVT.MVT_8_SP	MVT 8 Differential Pressure
24	MVT.MVT_8_FT	MVT 8 Temperature
25	MVT.MVT_9_DP	MVT 9 Static Pressure
26	MVT.MVT_9_SP	MVT 9 Differential Pressure
27	MVT.MVT_9_FT	MVT 9 Temperature
28	MVT.MVT_10_DP	MVT 10 Static Pressure
29	MVT.MVT_10_SP	MVT 10 Differential Pressure

30	MVT.MVT_10_FT	MVT 10 Temperature
31	MVT.MVT_11_DP	MVT 11 Static Pressure
32	MVT.MVT_11_SP	MVT 11 Differential Pressure
33	MVT.MVT_11_FT	MVT 11 Temperature
34	MVT.MVT_12_DP	MVT 12 Static Pressure
35	MVT.MVT_12_SP	MVT 12 Differential Pressure
36	MVT.MVT_12_FT	MVT 12 Temperature
37	FC.FC1.OR_FLOW_RATE	Run 1 Flow Rate
38	FC.FC1.OR_UCFLOWRATE	Run 1 Uncorrected Flow Rate
39	FC.FC1.OR_ENERGY_RATE	Run 1 Energy Rate
40	FC.FC2.OR_FLOW_RATE	Run 2 Flow Rate
41	FC.FC2.OR_UCFLOWRATE	Run 2 Uncorrected Flow Rate
42	FC.FC2.OR_ENERGY_RATE	Run 2 Energy Rate
43	FC.FC3.OR_FLOW_RATE	Run 3 Flow Rate
44	FC.FC3.OR_UCFLOWRATE	Run 3 Uncorrected Flow Rate
45	FC.FC3.OR_ENERGY_RATE	Run 3 Energy Rate
46	FC.FC4.OR_FLOW_RATE	Run 4 Flow Rate
47	FC.FC4.OR_UCFLOWRATE	Run 4 Uncorrected Flow Rate
48	FC.FC4.OR_ENERGY_RATE	Run 4 Energy Rate
49	FC.FC5.OR_FLOW_RATE	Run 5 Flow Rate
50	FC.FC5.OR_UCFLOWRATE	Run 5 Uncorrected Flow Rate
51	FC.FC5.OR_ENERGY_RATE	Run 5 Energy Rate
52	FC.FC6.OR_FLOW_RATE	Run 6 Flow Rate
53	FC.FC6.OR_UCFLOWRATE	Run 6 Uncorrected Flow Rate
54	FC.FC6.OR_ENERGY_RATE	Run 6 Energy Rate
55	FC.FC7.OR_FLOW_RATE	Run 7 Flow Rate
56	FC.FC7.OR_UCFLOWRATE	Run 7 Uncorrected Flow Rate
57	FC.FC7.OR_ENERGY_RATE	Run 7 Energy Rate
58	FC.FC8.OR_FLOW_RATE	Run 8 Flow Rate
59	FC.FC8.OR_UCFLOWRATE	Run 8 Uncorrected Flow Rate
60	FC.FC8.OR_ENERGY_RATE	Run 8 Energy Rate
61	FC.STATION_1_FFLOWRATE	Station 1 Forward Flow Rate
62	FC.STATION_1_RFLOWRATE	Station 1 Reverse Flow Rate
63	FC.STATION_1_FENERGYRATE	Station 1 Forward Energy Rate
64	FC.STATION_1_RENERGYRATE	Station 1 Reverse Energy Rate
65	FC.STATION_2_FFLOWRATE	Station 2 Forward Flow Rate
66	FC.STATION_2_RFLOWRATE	Station 2 Reverse Flow Rate
67	FC.STATION_2_FENERGYRATE	Station 2 Forward Energy Rate
68	FC.STATION_2_RENERGYRATE	Station 2 Reverse Energy Rate
69	FC.STATION_3_FFLOWRATE	Station 3 Forward Flow Rate
70	FC.STATION_3_RFLOWRATE	Station 3 Reverse Flow Rate
71	FC.STATION_3_FENERGYRATE	Station 3 Forward Energy Rate
72	FC.STATION_3_RENERGYRATE	Station 3 Reverse Energy Rate
73	FC.STATION_4_FFLOWRATE	Station 4 Forward Flow Rate
74	FC.STATION_4_RFLOWRATE	Station 4 Reverse Flow Rate
75	FC.STATION_4_FENERGYRATE	Station 4 Forward Energy Rate
76	FC.STATION_4_RENERGYRATE	Station 4 Reverse Energy Rate
77	FC.STATION_5_FFLOWRATE	Station 5 Forward Flow Rate
78	FC.STATION_5_RFLOWRATE	Station 5 Reverse Flow Rate

79	FC.STATION_5_FENERGYRATE	Station 5 Forward Energy Rate
80	FC.STATION_5_RENERGYRATE	Station 5 Reverse Energy Rate
81	FC.STATION_6_FFLOWRATE	Station 6 Forward Flow Rate
82	FC.STATION_6_RFLOWRATE	Station 6 Reverse Flow Rate
83	FC.STATION_6_FENERGYRATE	Station 6 Forward Energy Rate
84	FC.STATION_6_RENERGYRATE	Station 6 Reverse Energy Rate
85	SMP.ST1_FFLOWRATE_MSCFH	Station 1 Sampler Forward Flow Rate in MSCFH
86	SMP.ST1_FUCFLOWRATE_MACFH	Station 1 Sampler Forward Uncorrected Flow Rate in MACFH
87	SMP.ST1_FENERGYRATE_MMBTUH	Station 1 Forward Energy Rate in MMBTUH
88	SMP.ST1_RFLOWRATE_MSCFH	Station 1 Reverse Flow Rate in MSCFH
89	SMP.ST1_RUCFLOWRATE_MACFH	Station 1 Reverse Uncorrected Flow Rate in MACFH
	SMP.ST1_RENERGYRATE_MMBTU	
90	Н	Station 1 Reverse Energy Rate in MMBTUH
91	SMP.ST1_FLOWRATE_MSCFH	Station 1 Sampler Flow Rate in MSCFH
92	SMP.ST1_UCFLOWRATE_MACFH	Station 1 Sampler Uncorrected Flow Rate in MACF
93	SMP.ST1_ENERGYRATE_MMBTUH	Station 1 Sampler Energy Rate in MMBTUH
94	SMP.ST1_FFLOWRATE_MSCFD	Station 1 Sampler Forward Flow Rate in MSCFD
95	SMP.ST1_FUCFLOWRATE_MACFD	Station 1 Sampler Forward Uncorrected Flow Rate in MACFD
96	SMP.ST1_FENERGYRATE_MMBTUD	Station 1 Sampler Forward Energy Rate in MMBTUD
97	SMP.ST1_RFLOWRATE_MSCFD	Station 1 Sampler Reverse Flow Rate in MSCFD
98	SMP.ST1_RUCFLOWRATE_MACFD	Station 1 Sampler Reverse Uncorrected Flow Rate in MACFD
99	SMP.ST1_RENERGYRATE_MMBTU D	Station 1 Sampler Reverse Energy Rate in MMBTUD
100	SMP.ST1_FLOWRATE_MSCFD	Station 1 Sampler Flow Rate in MSCFD
		Station 1 Sampler Uncorrected Flow Rate in
101	SMP.ST1_UCFLOWRATE_MACFD	MACFD
102	SMP.ST1_ENERGYRATE_MMBTUD	Station 1 Sampler Energy Rate in MMBTUD
103	SMP.ST2_FFLOWRATE_MSCFH	Station 2 Sampler Forward Flow Rate in MSCFH
104	SMP.ST2_FUCFLOWRATE_MACFH	Station 2 Sampler Forward Uncorrected Flow Rate in MACFH
105	SMP.ST2_FENERGYRATE_MMBTUH	Station 2 Forward Energy Rate in MMBTUH
106	SMP.ST2_RFLOWRATE_MSCFH	Station 2 Reverse Flow Rate in MSCFH
107	SMP.ST2_RUCFLOWRATE_MACFH	Station 2 Reverse Uncorrected Flow Rate in MACFH
108	SMP.ST2_RENERGYRATE_MMBTU	Station 2 Deverse Energy Date in MMDTUU
	H	Station 2 Reverse Energy Rate in MMBTUH
109	SMP.ST2_FLOWRATE_MSCFH	Station 2 Sampler Flow Rate in MSCFH Station 2 Sampler Uncorrected Flow Rate in
110	SMP.ST2_UCFLOWRATE_MACFH	MACF
111	SMP.ST2_ENERGYRATE_MMBTUH	Station 2 Sampler Energy Rate in MMBTUH Station 2 Sampler Forward Flow Rate in
		Station 2 Sampler Forward Flow Rate II
112	SMP.ST2_FFLOWRATE_MSCFD	MSCFD Station 2 Sampler Forward Uncorrected Flow

114	SMP.ST2_FENERGYRATE_MMBTUD	Station 2 Sampler Forward Energy Rate in MMBTUD
115	SMP.ST2_RFLOWRATE_MSCFD	Station 2 Sampler Reverse Flow Rate in MSCFD
116	SMP.ST2_RUCFLOWRATE_MACFD	Station 2 Sampler Reverse Uncorrected Flow Rate in MACFD
117	SMP.ST2_RENERGYRATE_MMBTU D	Station 2 Sampler Reverse Energy Rate in MMBTUD
118	SMP.ST2_FLOWRATE_MSCFD	Station 2 Sampler Flow Rate in MSCFD
119	SMP.ST2_UCFLOWRATE_MACFD	Station 2 Sampler Uncorrected Flow Rate in MACFD
120	SMP.ST2_ENERGYRATE_MMBTUD	Station 2 Sampler Energy Rate in MMBTUD
121	SMP.ST3_FFLOWRATE_MSCFH	Station 3 Sampler Forward Flow Rate in MSCFH
122	SMP.ST3_FUCFLOWRATE_MACFH	Station 3 Sampler Forward Uncorrected Flow Rate in MACFH
123	SMP.ST3_FENERGYRATE_MMBTUH	Station 3 Forward Energy Rate in MMBTUH
124	SMP.ST3 RFLOWRATE MSCFH	Station 3 Reverse Flow Rate in MSCFH
125	SMP.ST3_RUCFLOWRATE_MACFH	Station 3 Reverse Uncorrected Flow Rate in MACFH
	SMP.ST3_RENERGYRATE_MMBTU	
126	Н	Station 3 Reverse Energy Rate in MMBTUH
127	SMP.ST3_FLOWRATE_MSCFH	Station 3 Sampler Flow Rate in MSCFH
128	SMP.ST3_UCFLOWRATE_MACFH	Station 3 Sampler Uncorrected Flow Rate in MACF
129	SMP.ST3_ENERGYRATE_MMBTUH	Station 3 Sampler Energy Rate in MMBTUH
130	SMP.ST3_FFLOWRATE_MSCFD	Station 3 Sampler Forward Flow Rate in MSCFD
131	SMP.ST3_FUCFLOWRATE_MACFD	Station 3 Sampler Forward Uncorrected Flow Rate in MACFD
132	SMP.ST3_FENERGYRATE_MMBTUD	Station 3 Sampler Forward Energy Rate in MMBTUD
133	SMP.ST3_RFLOWRATE_MSCFD	Station 3 Sampler Reverse Flow Rate in MSCFD
101		Station 3 Sampler Reverse Uncorrected Flow
134	SMP.ST3_RUCFLOWRATE_MACFD SMP.ST3_RENERGYRATE_MMBTU	Rate in MACFD Station 3 Sampler Reverse Energy Rate in
135	D	MMBTUD
136	SMP.ST3_FLOWRATE_MSCFD	Station 3 Sampler Flow Rate in MSCFD
407		Station 3 Sampler Uncorrected Flow Rate in
137	SMP.ST3_UCFLOWRATE_MACFD	MACFD
<u> </u>	SMP.ST3_ENERGYRATE_MMBTUD	Station 3 Sampler Energy Rate in MMBTUD Station 4 Sampler Forward Flow Rate in MSCFH
139	SMP.ST4_FFLOWRATE_MSCFH SMP.ST4_FUCFLOWRATE_MACFH	Station 4 Sampler Forward Uncorrected Flow Rate in MACFH
140	SMP.ST4_FENERGYRATE_MMBTUH	Station 4 Forward Energy Rate in MMBTUH
142	SMP.ST4_RFLOWRATE_MSCFH	Station 4 Reverse Flow Rate in MSCFH
143	SMP.ST4_RUCFLOWRATE_MACFH	Station 4 Reverse Uncorrected Flow Rate in MACFH
	SMP.ST4_RENERGYRATE_MMBTU	Station 4 Reverse Energy Rate in MMBTUH
144	11	oration + neverse Energy nate in MiMDTON
<u> </u>	SMP.ST4_FLOWRATE_MSCFH	Station 4 Sampler Flow Rate in MSCFH

147	SMP.ST4_ENERGYRATE_MMBTUH	Station 4 Sampler Energy Rate in MMBTUH
140		Station 4 Sampler Forward Flow Rate in
148	SMP.ST4_FFLOWRATE_MSCFD	MSCFD Station 4 Somplar Forward Upgerregted Flow
149	SMP.ST4_FUCFLOWRATE_MACFD	Station 4 Sampler Forward Uncorrected Flow Rate in MACFD
145		Station 4 Sampler Forward Energy Rate in
150	SMP.ST4_FENERGYRATE_MMBTUD	MMBTUD
		Station 4 Sampler Reverse Flow Rate in
151	SMP.ST4_RFLOWRATE_MSCFD	MSCFD
		Station 4 Sampler Reverse Uncorrected Flow
152	SMP.ST4_RUCFLOWRATE_MACFD	Rate in MACFD
450	SMP.ST4_RENERGYRATE_MMBTU	Station 4 Sampler Reverse Energy Rate in
153		MMBTUD
154	SMP.ST4_FLOWRATE_MSCFD	Station 4 Sampler Flow Rate in MSCFD
155	SMP.ST4_UCFLOWRATE_MACFD	Station 4 Sampler Uncorrected Flow Rate in MACFD
156	SMP.ST4_ENERGYRATE_MMBTUD	Station 4 Sampler Energy Rate in MMBTUD Station 5 Sampler Forward Flow Rate in
157	SMP.ST5_FFLOWRATE_MSCFH	MSCFH
107		Station 5 Sampler Forward Uncorrected Flow
158	SMP.ST5 FUCFLOWRATE MACFH	Rate in MACFH
159	SMP.ST5_FENERGYRATE_MMBTUH	Station 5 Forward Energy Rate in MMBTUH
160	SMP.ST5_RFLOWRATE_MSCFH	Station 5 Reverse Flow Rate in MSCFH
		Station 5 Reverse Uncorrected Flow Rate in
161	SMP.ST5_RUCFLOWRATE_MACFH	MACFH
	SMP.ST5_RENERGYRATE_MMBTU	
162	H	Station 5 Reverse Energy Rate in MMBTUH
163	SMP.ST5_FLOWRATE_MSCFH	Station 5 Sampler Flow Rate in MSCFH
101		Station 5 Sampler Uncorrected Flow Rate in
164	SMP.ST5_UCFLOWRATE_MACFH	MACF
165	SMP.ST5_ENERGYRATE_MMBTUH	Station 5 Sampler Energy Rate in MMBTUH
166	SMP.ST5_FFLOWRATE_MSCFD	Station 5 Sampler Forward Flow Rate in MSCFD
100	SWP.STS_FFLOWRATE_WSCFD	Station 5 Sampler Forward Uncorrected Flow
167	SMP.ST5_FUCFLOWRATE_MACFD	Rate in MACFD
		Station 5 Sampler Forward Energy Rate in
168	SMP.ST5_FENERGYRATE_MMBTUD	MMBTUD
		Station 5 Sampler Reverse Flow Rate in
169	SMP.ST5_RFLOWRATE_MSCFD	MSCFD
		Station 5 Sampler Reverse Uncorrected Flow
170	SMP.ST5_RUCFLOWRATE_MACFD	Rate in MACFD
171	SMP.ST5_RENERGYRATE_MMBTU	Station 5 Sampler Reverse Energy Rate in MMBTUD
	D SMD STE ELOWDATE MSCED	
172	SMP.ST5_FLOWRATE_MSCFD	Station 5 Sampler Flow Rate in MSCFD Station 5 Sampler Uncorrected Flow Rate in
173	SMP.ST5_UCFLOWRATE_MACFD	MACFD
173	SMP.ST5_ENERGYRATE_MMBTUD	Station 5 Sampler Energy Rate in MMBTUD
		Station 6 Sampler Forward Flow Rate in
175	SMP.ST6_FFLOWRATE_MSCFH	MSCFH
		Station 6 Sampler Forward Uncorrected Flow
176	SMP.ST6_FUCFLOWRATE_MACFH	Rate in MACFH
177	SMP.ST6_FENERGYRATE_MMBTUH	Station 6 Forward Energy Rate in MMBTUH
178	SMP.ST6_RFLOWRATE_MSCFH	Station 6 Reverse Flow Rate in MSCFH
170		
		Station 6 Reverse Uncorrected Flow Rate in

	SMP.ST6_RENERGYRATE_MMBTU	
180	H	Station 6 Reverse Energy Rate in MMBTUH
181	SMP.ST6_FLOWRATE_MSCFH	Station 6 Sampler Flow Rate in MSCFH
		Station 6 Sampler Uncorrected Flow Rate in
182	SMP.ST6_UCFLOWRATE_MACFH	MACF
183	SMP.ST6_ENERGYRATE_MMBTUH	Station 6 Sampler Energy Rate in MMBTUH
184	SMP.ST6_FFLOWRATE_MSCFD	Station 6 Sampler Forward Flow Rate in MSCFD
104		Station 6 Sampler Forward Uncorrected Flow
185	SMP.ST6_FUCFLOWRATE_MACFD	Rate in MACFD
		Station 6 Sampler Forward Energy Rate in
186	SMP.ST6_FENERGYRATE_MMBTUD	MMBTUD
407	OND OTO DEL OM/DATE MOOED	Station 6 Sampler Reverse Flow Rate in
187	SMP.ST6_RFLOWRATE_MSCFD	MSCFD Station & Sampler Deverse Upgerroated Flow
188	SMP.ST6_RUCFLOWRATE_MACFD	Station 6 Sampler Reverse Uncorrected Flow Rate in MACFD
100	SMP.ST6_RENERGYRATE_MMBTU	Station 6 Sampler Reverse Energy Rate in
189		MMBTUD
190	SMP.ST6_FLOWRATE_MSCFD	Station 6 Sampler Flow Rate in MSCFD
		Station 6 Sampler Uncorrected Flow Rate in
191	SMP.ST6_UCFLOWRATE_MACFD	MACFD
192	SMP.ST6_ENERGYRATE_MMBTUD	Station 6 Sampler Energy Rate in MMBTUD
193	MFN.MFN1_BOOL	Math function 1 BOOL
194	MFN.MFN1_REAL	Math function 1 REAL
195	MFN.MFN2_BOOL	Math function 2 BOOL
196	MFN.MFN2_REAL	Math function 2 REAL
197	MFN.MFN3_BOOL	Math function 3 BOOL
198	MFN.MFN3_REAL	Math function 3 REAL
199	MFN.MFN4_BOOL	Math function 4 BOOL
200	MFN.MFN4_REAL	Math function 4 REAL
201	MFN.MFN5_BOOL	Math function 5 BOOL
202	MFN.MFN5_REAL	Math function 5 REAL
203	MFN.MFN6_BOOL	Math function 6 BOOL
204	MFN.MFN6_REAL	Math function 6 REAL
205	MFN.MFN7 BOOL	Math function 7 BOOL
206	MFN.MFN7_REAL	Math function 7 REAL
207	MFN.MFN8 BOOL	Math function 8 BOOL
208	MFN.MFN8_REAL	Math function 8 REAL
209	MFN.MFN9_BOOL	Math function 9 BOOL
210	MFN.MFN9 REAL	Math function 9 REAL
211	MFN.MFN10_BOOL	Math function 10 BOOL
212	MFN.MFN10_REAL	Math function 10 REAL
213	MFN.MFN11_BOOL	Math function 11 BOOL
214	MFN.MFN11 REAL	Math function 11 REAL
215	MFN.MFN12_BOOL	Math function 12 BOOL
216	MFN.MFN12_REAL	Math function 12 REAL
217	STC.ST1_INLET	Station Control Station 1 Inlet Pressure
218	STC.ST1_OUTLET	Station Control Station 1 Outlet Pressure
	010.011_001EE1	
	STC ST2_INLET	Station Control Station 2 Inlet Pressure
219 220	STC.ST2_INLET STC.ST2_OUTLET	Station Control Station 2 Inlet Pressure Station Control Station 2 Outlet Pressure

222	STC.ST3_OUTLET	Station Control Station 3 Outlet Pressure
223	STC.ST4_INLET	Station Control Station 4 Inlet Pressure
224	STC.ST4_OUTLET	Station Control Station 4 Outlet Pressure
225	STC.ST5_INLET	Station Control Station 5 Inlet Pressure
226	STC.ST5_OUTLET	Station Control Station 5 Outlet Pressure
227	STC.ST6_INLET	Station Control Station 6 Inlet Pressure
228	STC.ST6_OUTLET	Station Control Station 6 Outlet Pressure
229	STC.ST1_PID_OUT	Station Control Station 1 PID Output
230	STC.ST2_PID_OUT	Station Control Station 2 PID Output
231	STC.ST3_PID_OUT	Station Control Station 3 PID Output
232	STC.ST4_PID_OUT	Station Control Station 4 PID Output
233	STC.ST5_PID_OUT	Station Control Station 5 PID Output
234	STC.ST6_PID_OUT	Station Control Station 6 PID Output
235	MB.SPARE	

List 29 is a user modifiable list used by the following functions: Station Controls, Process Value Monitor, Process Monitor and Control, & Math Function A user can add or delete variables from List 29 using the On-Line Edit function.

	Number: 29	Max Signals to	o Collect:	1000	Collect List
	Display Descriptors	Sta	art Index:	1	Floating Point Form
	Signal Name	Data Type	Alarm Cont	rol Manual	Value Units
1	MVT.MVT_1_DP	Real	(E ME	0.000000
2	MVT.MVT_1_SP	Real	(CE ME	0.000000
3	MVT.MVT_1_FT	Real	(CE ME	0.000000
4	MVT.MVT_2_DP	Real	(CE ME	0.000000
5	MVT.MVT_2_SP	Real	(E ME	0.000000
6	MVT.MVT_2_FT	Real	(CE ME	0.000000
7	MVT.MVT_3_DP	Real	(E ME	0.000000
8	MVT.MVT_3_SP	Real	(E ME	0.000000
9	MVT.MVT_3_FT	Real	(CE ME	0.000000
10	MVT.MVT_4_DP	Real	(CE ME	0.000000
11	MVT.MVT_4_SP	Real	(E ME	0.000000
12	MVT.MVT_4_FT	Real	(E ME	0.000000
13	MVT.MVT_5_DP	Real	(CE ME	0.000000
14	MVT.MVT_5_SP	Real	(CE ME	0.000000
15	MVT.MVT_5_FT	Real	(E ME	0.000000
16	MVT.MVT_6_DP	Real	(E ME	0.000000
17	MVT.MVT_6_SP	Real	(CE ME	0.000000
18	MVT.MVT_6_FT	Real		E ME	
19	MVT MVT 7 DP	Real	1	°E ME	0.000000

Figure 3-109. List 29

3.8 Al Maintenance

Note: This feature, while still available, has been superceded by the AI Calibration feature. See *Section 3.2.24*.

To access the AI Maintenance page, click the

Al Calibration

button on the Measurement tab.

Configure	PV Type	Linearization	Zero Shift	Adjust Live Value
Al Maintenance	Not Selected	Disabled	Disabled	Disabled
Al Maintenance	Test Point	Live Value	Tester Value	Raw Value
Maint Off Auto Rst Off	Zero Shift (As Found)	0.00	0.00	0.00
Maintenance Mode Time 02:00:00 HH:MM:SS Elapsed Time HH:MM:SS Remaining Time HH:MM:SS	Prompt	Se	lect a Valid Process Varia	ble
Al Maintenance Al Point to be Calibrated			Next	
Run 5 Diff. Pressure				
Live In Use Units 0.00 0.00		Cancel	Back Skip	End
0.00 Span	Progress		Verification Not Started	
0.00 Zero Slot Number Point Number 0 0 PV UNASSIGNED		Actual	Tester Devia	tion
AFAL Repot Upload Options C:\Users\Public\openbsi\Station Manager\Logs\Tartaru:	E 14 2012\Bup E			
Browse Value Automatically Create Path If Path				
Array file Upload				
Save Open	Password			

Start Stop	Device File Name:	
PC File Location:	Brows	e
[

Figure 3-110. AI Maintenance page

Field	Description	
Al Maintenance	This section of the screen controls the maintenance mode for the selected AI input.	
Maint Off / Maintenance	To disable the maintenance mode, toggle the button to Maint Off. To enable the maintenance mode, toggle the button to Maintenance.	
Auto Reset / Auto Rst Off	If Auto Reset is enabled, maintenance mode for the AI input will be disabled automatically after the period set under the Maintenance Mode Auto Reset Timer. If Auto Reset is disabled (Auto Rst Off), maintenance mode for the AI input will never be disabled automatically.	

Maintenance ModeMaintenance Mode Auto Reset Timer is in the format DDTimeHH:MM:SS.S

Where:

	DD HH MM SS.S	number of days number of hours number of minutes number of seconds (resolution of 10ths)
	The maximum time allowed for the maintenance mode au reset timer is	
	24 20:3 second	1:23.9 – (24 Days, 20 hours, 31 minutes, 23.9 s)
Elapsed Time		the amount of time the AI input has been in nance mode.
Remaining Time	When Auto Reset is enabled, this is the time remaining until the maintenance mode is automatically reset.	
	When A 00:00:0	Auto Reset is disabled, this field remains at 00 00.0.
Al Point to be Calibrated	Select	the AI point to be calibrated from the drop down menu.
Live	The live value, coming from the Analog Input.	
In Use	The value in use. When maintenance mode is off, this will be the live value. When maintenance mode is on, this value may be overridden by the user.	
Units		Il be the units of the variable, assigned from the I/O ration page.
Span		II be span of the variable, assigned from the I/O ration page
Zero		Il be the zero of the variable, assigned from the I/O ration page.
Slot Number	This is	the I/O Slot Number that this point is assigned to.
Point Number	This is assigne	the I/O point on the I/O slot that this variable is ed to.
РV Туре		the type of AI variable, for example, differential re, pressure, pressure, or other.
Linearization	Shows	whether linearization is enabled or disabled for the AI.

Zero Shift	Shows whether zero shift is enabled/disabled for the Al.
Adjust Live Value	Shows whether adjustments for the live AI value are allowed (enabled) or prevented (disabled).
Test Point	Shows the current test point.
Live Value	Shows the live value of the AI.
Tester Value	Enter the tester value to be applied.
Raw Value	Shows the raw value in use.
Prompt	Shows a prompt message related to the current step.
Next	Click here to proceed to the next step.
Cancel	Click here to cancel the current step.
Back	Click here to go back to the previous step.
Skip	Click here to skip the current step.
End	Click here to go to the end of the linearization process.
Progress	Shows the progress of the linearization process.
Zero Shift (AF) Actual	Shows the ZS AF actual value read.
Zero Shift (AF) Tester	Shows the ZS AF tester value applied.
Zero Shift (AF) Deviation	Shows the ZS AF difference between the actual value and the tester value.
Zero Actual	Shows the zero actual value read.

Zero Tester	Shows the zero tester value applied.
Zero Deviation	Shows the difference between the zero actual value and the zero tester value.
Mid Point 1 Actual	Shows the mid point 1 actual value read.
Mid Point 1 Tester	Shows the mid point 1 tester value applied.
Mid Point 1 Deviation	Shows the difference between the actual mid point 1 value and the tester mid point 1 value.
Mid Point 2 Actual	Shows the mid point 2 actual value read.
Mid Point 2 Tester	Shows the mid point 2 tester value applied.
Mid Point 2 Deviation	Shows the difference between the actual mid point 2 value and the tester mid point 2 value.
Mid Point 3 Actual	Shows the mid point 3 actual value read.
Mid Point 3 Tester	Shows the mid point 3 tester value applied.
Mid Point 3 Deviation	Shows the difference between the actual mid point 3 value and the tester mid point 3 value.
Full Scale Actual	Shows the full scale actual value read.
Full Scale Tester	Shows the full scale tester value applied.
Full Scale Deviation	Shows the difference between the full scale actual value and the full scale tester value.
Zero Shift Actual	Shows the zero shift actual value read.
Zero Shift Tester	Shows the zero shift tester value applied.
Zero Shift Deviation	Shows the difference between the zero shift actual value and the zero shift tester value.

Save	Click here to save the calibration array.
Open	Click here to open the specified calibration array and load it.
Configure	Click here to specify configuration parameters for Al maintenance. See <i>AI Configuration</i> page.
Login for RTU	
User Name	Specify a valid user name for using the Load/Save utility.
Password	Specify the password for the user identified in User Name .
Start	This starts the file transfer.
Stop	This aborts the file transfer. Any partial file will remain on the PC.
Device File Name	This is the name of the file to be transferred from the ControlWave to the PC. Only one file can be transferred at a time
Upload Files	
PC File Location	In Upload mode, this is the destination path on the PC where the file uploaded from the ControlWave will be sent. If not set, the default OpenBSI installation directory will be used as the location. You can use the Browse button to specify the location.

3.8.1 AI Configuration

You click the **Configure** button on the AI Maintenance screen to bring up the AI Configuration page.

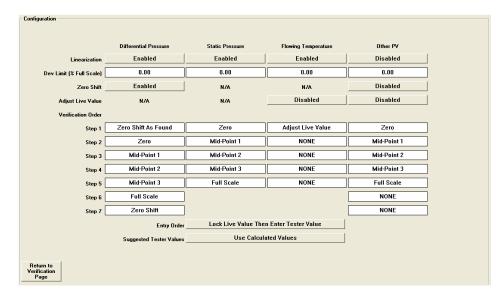


Figure 3-111. AI Configuration page

Field	Description
Linearization Enabled / Disabled	This button shows the current state for linearization. When you click the button you toggle the state.
	Click Disabled to activate the linearization function. The button now displays Enabled .
	Click Enabled to turn off the linearization function. The button now displays Disabled .
Dev Limit (% of Full Scale)	Set the deviation limit here.
Zero Shift	This button shows whether zero shift is enabled or disabled for this process variable (if applicable). When you click the button you toggle the state.
	Click Disabled to activate zero shift for this process variable. The button now displays Enabled .
	Click Enabled to turn off zero shift for this process variable. The button now displays Disabled .
Adjust Live Value	This button shows whether adjustments to the live value are enabled or disabled for this process variable (if applicable). When you click the button you toggle the state.
	Click Disabled to allow adjustments to the live value for this process variable. The button now displays Enabled .

	Click Enabled to prevent adjustments to the live value for this process variable. The button now displays Disabled .
Verification Order Step n	Use these fields to select the order in which various points along the scale for the AI are verified. Depending upon the process variable you can have up to seven steps for the verification.
Entry Order	This button lets you set the entry order for all process variable types. The button displays the current choice; you toggle the choice by clicking the button. Choices for entry order are: Lock Live Value then Enter Tester Value -or- Enter Tester Value then Lock Live Value.
Suggested Tester Values	This button lets you specify whether the application should use tester values calculated base on the zero and span, or, instead, use the values from the last test performed. The button displays the current choice; you toggle the choice by clicking the button.
Return to Verification Page	Click this button to go back to the verification page.

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Chapter 4 – Viewing Historical Data (Historical Tab)

This chapter discusses how you can view the historical data that the Station Manager collects. This includes audit data, archive data, and various logs.

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	5	

4.1 Historical Tab

Click the Historical tab to display the historical data and logs you can view. We'll discuss each of these in the sections that follow:

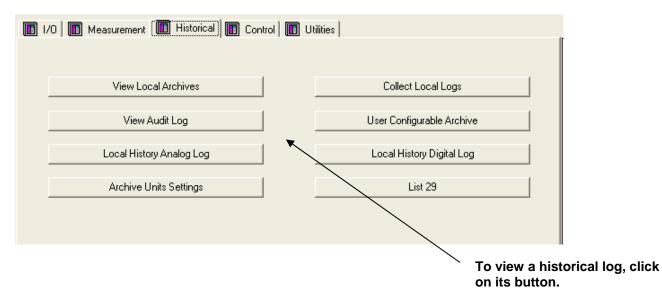


Figure 4-1. Historical Tab in Station Manager

4.2 View Local Archives

Note: To collect the Archives for storage on the PC hard drive, it is recommended that the Collect Local Logs function be used.

The Station Manager controller maintains Hourly Archives (Logs) for each meter run and each gas chromatograph stream. The number of archives varies based on the number of meter runs. To view the Archive, select the Measurement tab, and click on the

button.

View Local Archives

The following screen opens:

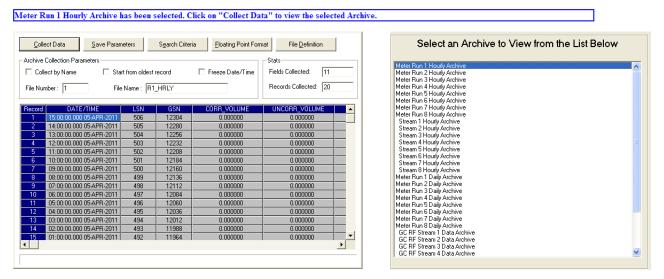


Figure 4-2. Selecting a Log to View

4.2.1 Selecting Logs to View

To view the desired archive:

1. Click on the description for the desired archive in the Select an Archive from the List Below box. This updates the File Number in the Archive Collection Parameters field.

				-	
Record	ACC_ENERGY	AVG_STATIC_PRESS	AVG_TEMPERATURE	AVG_DIFF_PRESS	AVC
1	0.000000	0.000000	0.000000	0.000000	
2	0.000000	0.000000	0.000000	0.000000	
3	0.000000	0.000000	0.000000	0.000000	
4	0.000000	0.000000	0.000000	0.000000	
5	0.000000	0.000000	0.000000	0.000000	
6	0.000000	0.000000	0.000000	0.000000	
7	0.000000	0.000000	0.000000	0.000000	
8	0.000000	0.000000	0.000000	0.000000	
9	0.000000	0.000000	0.000000	0.000000	
10	0.000000	0.000000	0.000000	0.000000	
11	0.000000	0.000000	0.000000	0.000000	
12	0.000000	0.000000	0.000000	0.000000	
13	0.000000	0.000000	0.000000	0.000000	
14	0.000000	0.000000	0.000000	0.000000	
15	0.000000	0.000000	0.000000	0.000000	

2. Now click the [Collect Data] button. (See *Figure 4-2*.)

Figure 4-3. Archive

4.3 View Audit Log

Note: To collect the Audit Trail for storage on the PC hard drive, it is recommended that the Collect Local Logs function be used.

The Station Manager controller maintains an Audit Trail. The audit trail includes entries any time a configuration change is made that could affect measurement.

To view the Audit Trail:

- 1. Select the "Measurement" tab, and click the View Audit Log button.
- **2.** The following screen will appear. Click on the **[Collect Data]** button.
- **3.** This will collect the first set of records (typically 24 records). To view additional records, scroll down using the vertical scroll bars

Date/Time Signal Description Audit Seg# Global Seg# 🔺					
_	15:00:24.260 01-0CT-2010	pg_GC.GC_1.GC_1.S	· · · · ·	11118	46657
	14:58:50.260 01-0CT-2010	pg_GC.GC_1.GC_1.S	0.554 TO 0 VC	11117	46642
	14:58:27.240 01-0CT-2010	PMC.PV Monitor 1.F	-503.4071 TO 0 VC	11116	46641
	14:58:27.240 01-0CT-2010	PMC.PV Monitor 1.F	38.87852 TO 0 VC	11115	46640
	14:58:27.236 01-0CT-2010	PMC.PV_Monitor_1.F	ON E-ALARM	11114	46639
	14:57:28.236 01-0CT-2010	PVM.PV_Monitor_1.H	ON E-ALARM	11113	46638
	14:57:28.236 01-0CT-2010	PVM.PV_Monitor_1.H	ON E-ALARM	11112	46637
	14:57:26.236 01-0CT-2010	PMC.PV_Monitor_1.F	ON E-RETURN TO NORMAL	11111	46636
	14:57:25.944 01-0CT-2010	FC.FC1.RX_DP_BUF	0 TO 210 VC	11110	46635
0	14:57:18.944 01-0CT-2010	FC.FC1.RX_DP_M0	FALSE TO TRUE STATUS CHAP	11109	46634
1	14:57:15.244 01-0CT-2010	PVM.PV_Monitor_1.H	ON E-RETURN TO NORMAL	11108	46633
2	14:57:15.244 01-0CT-2010	PVM.PV_Monitor_1.F	ON E-RETURN TO NORMAL	11107	46632
3	14:57:15.240 01-0CT-2010	PMC.PV_Monitor_1.F	0 TO -503.4071 VC	11106	46631
ſ	14.57-14 044 01 OCT 2010	FORCE DV DD DUE	210 TO 01/C	11105	002238

Figure 4-4. Audit Log

The buttons associated with audit collection are.

Field	Description
Collect Data	To view the current entries in the Audit Trail, click on the Collect Data button.
Data Storage	To store the collected data, click on the Data Storage button.
	Note: It is recommended that the "Collect Local Logs" function be used to collect and store Audit Trail data to the PC hard drive, rather than this function, since more features are available for collecting, storing, and viewing the data.

Search Criteria Click this button to specify search criteria.

4.3.1 Data Storage Parameters dialog box

Data Storage Parameters	×
✓ Store Data on Collection	OK Cancel
- Storage Parameters File: c:\openbsi\AUDIT.000	
 Create File C Append F 	File
Data Delimiter: (Space) 💌	•
Convert Data to Extended F	Format

Figure 4-5. Data Storage Parameters dialog box

Field	Description
Store Data on Collection	When this box is checked, the data will be stored automatically on collection. This means as additional data is collected by scrolling down using the vertical scroll bar, this data is automatically written to the PC hard drive.
Storage Parameters	
File	Define the storage location and file name for the collected data.
Create File	If Create File is selected, a new file will be created every time data is collected. If the name of the file is one previously created, all previous data will be lost.
Append File	If Append File is selected, newly collected data will be added to previously collected data, in the file of the same name.
Data Delimiter	The following data delimiters may be selected – Space, Comma, or Semicolon. This will be the delimiter used to separate the data fields (Date/Time, Signal, Description, Audit Seq#, Global Seq#).
Convert Data to Extended Format	Not applicable

4.3.2 Search Data Collection Criteria dialog box

The following search criteria may be applied:

Select Data Collection Criteria	X
Records Both Alarms & Events C Events Only Alarms Only	OK Cancel
Search Method Collect All Available Records Start Date:	
C Specified Period:	
 From Oldest to Newest From Newest to Oldest 	

Figure 4-6. Select Data Collection Criteria dialog box

Field	Description	n
Records	The user may elect to collect to view Alarms and Events, Events Only, or Alarms Only	
Search Method		ay elect to Collect All Available or may specify the time period.
	Start Date	Enter the start date here. All records that occurred on or after that date will be collected.
	Period	The user may specify a period from which to collect the data. The available selections are Today, This Week, or This Month.
<u>Direction</u>	Oldest entry	ay be collected and viewed from the y to the Newest entry or from the Newest Oldest entry.

4.4 Local History Analog Log

The Local History Analog Log performs an on-demand trend for up to ten analog process variables. You can select the items to log from the Process Monitor List (List 29). You can modify this list, as needed. You can also set the logging interval and the number of log records to collect after the log trigger event.

Once logging parameters are set, logging automatically begins at the selected sampling interval and continues until the selected trigger item generates a log event. Logging then continues for the selected number of post-event records, and then stops. You can manually reset the log event trigger to initiate a new cycle.

To configure the Local History Analog Log, click the

Local History Analog Log button on the Historical tab of the Station Manager. This log is to archive real variables only. If you want to archive Boolean variables, see *Section 4.8*.

Common Settings			
Trigger Type	Sample Rate in Seconds	Trigger High Limit	Trigger High DB Limit
Digital	0	0.00	0.00
	Number of Records After Trigger From 1 to 840	Trigger Low Limit	Trigger Low DB Limit
	0	0.00	0.00
Trigger Status	Trigger Item Index		Trigger Item Name
Not Triggered	0		
Column 1			
	Archive Item Index		Archive Item Index Na
	0		
Column 2			
Column 2	Archive Item Index		Archive Item Index Na
	0		
Column 3			
Column J	Archive Item Index		Archive Item Index Na
	0		
Column 4			
Column 4	Archive Item Index		Archive Item Index Na
	0		
Column 5			
Loiumn o	Archive Item Index		Archive Item Index Na
	0		
Column 6			
Loiumn 6	Archive Item Index		Archive Item Index Na
	0		
Column 7			
Column 7	Archive Item Index		Archive Item Index Na
	0		
Caluma 0			
Column 8	Archive Item Index		Archive Item Index Na
	0		
Caluar 0			
Column 9	Archive Item Index		Archive Item Index Na
	0		
Caluma 10			
Column 10	Archive Item Index		Archive Item Index Na
	0		

Figure 4-7. Local History Analog Log

The fields to configure this are:

Field	Description
Common Settings	The settings in this section are common to all of the analog variables to be stored. These settings pertain to the trigger mechanism that starts archiving the data and the frequency and amount of data to be stored.
Trigger Type	This selects either digital or analog. If digital is selected, a Boolean variable triggers the log event where 0.0000 = FALSE and any value greater than 0.0000 = TRUE. If analog is selected, an analog variable triggers the log event based on the Trigger High Limit/Trigger Low Limit and the associated high and low deadbands.
Sample Rate in Seconds	Specifies how often the specified variables are logged once triggered. This ranges from 2 to 60. For example, if a rate of 2 is entered then the variables will each be sampled every 2 seconds until the specified number of records is reached.
Trigger High Limit	This value sets the upper threshold for the selected trigger item to generate a log event. When the trigger item value exceeds the trigger high limit, a log event is generated.
Trigger High DB Limit	This value, when subtracted from the trigger high limit value, sets the threshold that releases the trigger item from the log event condition. In order for a new log event to occur, the trigger item value must drop below the release threshold first. If the trigger item value stays above the release threshold, then no new log event can occur.
Trigger Low Limit	This value sets the lower threshold for the selected trigger item to generate a log event. When the trigger item value drops below the trigger low limit, a log event is generated.
Trigger Low DB Limit	This value, when added to the trigger low limit value sets the threshold that releases the trigger item from the log event condition. In order for a new log event to occur, the trigger item value must rise above the low release threshold first. If the trigger item value stays below the low release threshold, then no new log event can occur.
Number of Records After Trigger From 1 to 840	This value sets the number of log entries that will occur after a log event is triggered. When this number of log numbers is reached, logging stops automatically. The trigger status must then be reset in order to generate a new logging cycle.
Trigger Status	This shows the current status of the log event trigger. Note that logging begins as soon as the user completes the configuration process (select items to

and sampling interval). Logging therefore occurs before a log event is triggered. Once the archive ha been triggered it will not automatically trigger again until the trigger is reset. This can be done by setting the following variable to true from within DataView: LHA.TRIGGER_RESETTrigger Item IndexSet this to the item number in list 29 that is the trigger item for generating a log event.Trigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items.Archive Item IndexThis field shows the variable names of the items to this field shows the variable names of the items to	and sampling interval). Logging therefore occurs before a log event is triggered. Once the archive has been triggered it will not automatically trigger again until the trigger is reset. This can be done by setting the following variable to true from within DataView: LHA.TRIGGER_RESETTrigger Item IndexSet this to the item number in list 29 that is the trigger item for generating a log event.Trigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function. You can select up to ten items.Archive Item IndexThis field shows the variable names of the items to this field shows the variable names of the items to		
Trigger Item IndexSet this to the item number in list 29 that is the trigger item for generating a log event.Trigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items.Archive Item IndexThis field shows the variable names of the items to	Trigger Item IndexSet this to the item number in list 29 that is the trigger item for generating a log event.Trigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function. You can select up to ten items.Archive Item IndexThis field shows the variable names of the items to		before a log event is triggered. Once the archive has been triggered it will not automatically trigger again until the trigger is reset. This can be done by setting
Column nColumn nColumn nColumn nTrigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items.Archive Item IndexThis field shows the variable names of the items to the items.	Set this to the item number in fist 25 that is the trigger item for generating a log event.Trigger Item NameThis field shows the variable name of the selected trigger item.Column nThe items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.Archive Item IndexThis specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit 		LHA.TRIGGER_RESET
Column n The items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers. Archive Item Index This specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	Column n The items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers. Archive Item Index This specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	Trigger Item Index	
Archive Item Index This specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	Archive Item Index This specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	Trigger Item Name	
Archive Item Index This specifies the item number for the variable in lis 29 to be archived in the column. If the desired item not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	Archive Item Index This specifies the item number for the variable in list 29 to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function. You can select up to ten items. Archive Item Index This field shows the variable names of the items to	<u>Column n</u>	information about each of the columns, where n is 1
Archive Item Index Name This field shows the variable names of the items to	Archive Item Index This field shows the variable names of the items to	Archive Item Index	
			This field shows the variable names of the items to

4.5 List 29

For information on List 29, please see Section 3.6.

4.6 Collect Local Logs

One or more Archives, plus the Audit Trail, can be selected for collection. From the Station Manager Measurement tab, click the Collect Local Logs

button to begin.

4.6.1 Selecting Archives or Audit for Collection

To select an Archive or the Audit trail for collection click on the desired description in the log collection control. The number of logs/archive varies depending upon the number of meter runs.

Storage Fol	der: C:\Station_Manag	er\Logs\	Browse
Туре	Description	Log #	Target File
Archive	Run 1 Hourly	1	
Archive	Run 2 Hourly	3	
Archive	Run 3 Hourly	5	_
Archive	Run 4 Hourly	7	
Archive	Run 5 Hourly	9	
Archive	Run 6 Hourly	11	
Archive	Run 7 Hourly	13	
Archive	Run 8 Hourly	15	
Archive	GC Stream 1 Hourly	17	
Archive	GC Stream 2 Hourly	18	
Arobius	GC Stroom 2 Hourly	10	×
<			>
Start Colle	ction Stop Collection	View Storage	Convert to CSV

Figure 4-8. Selecting Logs for Collection

4.6.2 Collecting a Single Archive or Audit

To collect one of the Archives, or the Audit Trail, listed for collection, highlight the desired item in the list, then click on the **[Start Collection]** button.

Site Name	Orville	Junction	
Storage Fold	der: C:\Station_Mana	ger/Logs/	Browse
Туре	Description	Log #	Target File 🔥 🔥
Archive	Run 1 Hourly	1	
Archive	Run 2 Hourly	3	
Archive	Run 3 Hourly	3 5 7	_
Archive	Run 4 Hourly		
Archive	Run 5 Hourly	9	
Archive	Run 6 Hourly	11	
Archive	Run 7 Hourly	13	
Archive	Run 8 Hourly	15	
Archive	GC Stream 1 Hourly	17	
Archive	GC Stream 2 Hourly	18	~
< .	CC Ctroom 2 Hourly	10	>
Start Colle	ction Stop Collection	View Storage	Convert to CSV

Figure 4-9. Selecting a Single Log for Collection

4.6.3 Collecting Multiple Archives

To collect more than one Archive, and/or the Audit Trail, hold down the **[Ctrl]** key to highlight multiple items, and then click on the "Start Collection" button.

Site Name	Orville J	unction		
Storage Fol	der: C:\Station_Manag	er\Logs\	Browse	:
Туре	Description	Log #	Target File	^
Archive Archive	Run 1 Hourly Run 2 Hourly	1 3		
Archive	Run 3 Hourly	5		
Archive	Run 4 Hourly	7		
Archive	Run 5 Hourly	9		
Archive	Run 6 Hourly	11		
Archive	Run 7 Hourly	13		
Archive	Run 8 Hourly	15		
Archive Archive	GC Stream 1 Hourly	17 18		
Archive	GC Stream 2 Hourly	10		¥
<	1111		>	
Start Colle	ction Stop Collection	View Storage	Convert to CSV	

Figure 4-10. Collecting Multiple Archives

4.6.4 Log Collection Parameters

There are several different log collection parameters and read-only fields which govern or report how the log collections operate.

Field	Description
Site Name	The Site Name is defined by the user on the Site Configuration screen, via the Status/Configuration menu item. The Site Name is used as the base name for the files created by the collection and conversion processes.
Storage Folder	By default, the storage folder for the Archive collections is C:\Station_Manager\Logs.
	This may be changed by clicking on the Browse button, and locating a different folder. However, this change is not permanent, and the next time the "Collect Local Logs" screen is opened, the Storage

	Folder will revert to C:\Station_Manager\Logs.
Туре	The type of log, either Audit or Archive.
Description	A description of the log.
Log #	The log number is populated automatically, when the Archive or Audit is selected from the "Hourly Logs" table
Target File	The Target File name will be automatically created.
	The file base name will be the Site Name (in this case "Unamed Site") and the extension will be one of the following:
	Rnn Where R indicates an Archive for a measurement run, and nn indicates the run number.
	Gnn Where G indicates an Archive for a gas chromatograph stream, and <i>nn</i> indicates the stream number
	AUD Represents the Audit Trail collection.
	If a file of the same name exists in the Storage Folder, any new Archive data collected since the las Archive data was collected will be appended to the file. The Archive Data will not include duplicate data
	However, whenever the Audit Trail is collected, the entire audit trail is collected. If there is an existing Audit Trail file on the PC hard drive, the data from this collection is appended to the existing file. There may be duplicate data in the .AUD file.
Start Collection	Click here to start the log collection.
Stop Collection	While an Archive or the Audit Trail is being collected the user may stop the collection by clicking on the Stop Collection button.
	The following messages will appear in the message window:
View Storage	It is possible to view the stored data locally.
	Select the item that includes local data, and then click on "View Storage" button. Note: Only one item may be selected for the View Storage feature to be

available.

Collection Status Messages While collections are in progress, status messages will be posted in the message window. When the collection is complete, the message "Log Collection Complete will appear.

GC Stream 1 Hourly - Collection cancelled by the user Cancelling log collection GC Stream 1 Hourly - Collecting GC Stream 1 Hourly - Collecting - Column Names

4.7 User Configurable Archive

To configure the user-configurable archive click the

the Station Manager.

The Generic Analog Archive stores the instantaneous, maximum, and minimum value for each of the eight selected List 29 variables.

This is an hourly archive that, by default, is set up to save the last 15 days worth of data.

The variables to be archived are user selected by clicking in the first **Column***x* box and entering an integer representing the position in List 29 of the first variable you want to archive. Press the **[Enter]** key to save your entry. Column 1 of the user configurable archive will log data for this variable. Repeat this process to configure up to eight columns.

Once an index has been set in the left column, the variable name for that item will be displayed in the right column.

Column 1	1	MVT.MVT_1_DP
Column 2	2	MVT.MVT_1_SP
Column 3	5	MVT.MVT_2_SP
Column 4	10	MVT.MVT_4_DP
Column 5	0	
Column 6	0	
Column 7	0	
Column 8	0	

Figure 4-11. User Configurable Archive

4.8 Local History Digital Log

To configure the Local History Digital Log, click the

Local History Digital Log

button on the Historical tab

of	the	Station	Manager.
----	-----	---------	----------

		ny Digital Log (Inc	lov from List 20)	
C C-W	LUCALHISIU	ory Digital Log (Inc	lex nom List 29)	
Common Settings Trigger Type	Sample Rate in Seconds	Trigger High Limit	Trigger High DB Limit	
Digital		0.00		
3	Number of Records After			
	Trigger From 1 to 840	Trigger Low Limit	Trigger Low DB Limit	
	0	0.00	0.00	
Trigger Status	Trigger Item Index		Trigger Item Name	
Not Triggered	0			
Column 1				
	Archive Item Index		Archive Item Index Name	
	0			
Column 2				
	Archive Item Index		Archive Item Index Name	
	0			
Column 3				
	Archive Item Index		Archive Item Index Name	
	0			
Column 4				
Column 4	Archive Item Index		Archive Item Index Name	
	0			
Column 5				
Column 5	Archive Item Index		Archive Item Index Name	
	0			
Column 6				
Columno	Archive Item Index		Archive Item Index Name	
	0			
Column 7				
Column r	Archive Item Index	Archive Item Index Name		
	0			
Column 8				
Column 0	Archive Item Index		Archive Item Index Name	
	0			
Column 9				
Column 3	Archive Item Index		Archive Item Index Name	
	0			
Column 10				
	Archive Item Index		Archive Item Index Name	
	0			

Figure 4-12. Local History Digital Log

The fields to configure this are:

Field	Description	
Common Settings	The settings in this section are common to all of the analog variables to be stored. These settings pertain to the trigger mechanism that starts archiving the user specified data and the frequency and amount of data to be stored.	
Trigger Type	This can be either digital or analog. If digital is selected, you would typically use a Boolean type variable to trigger data storage. If analog is selected, you would typically use an analog variable to trigger	

Sample Rate in Seconds	Specifies how often the specified variables are to be sampled once triggered. For example, if a rate of 2 is entered then the variables will each be sampled every 2 seconds until the specified number of records is reached.		
Trigger High Limit	When the Trigger item exceeds this value for longer than the High DB Limit, archiving begins for the specified items. For digital triggers where you wish to initiate archiving on the transition from "True to False" this value should be set to .5.		
Trigger High DB Limit	This is the amount of time in seconds that the variable specified by the Trigger Item index must exceed the Trigger High Limit to initiate archiving of the specified items.		
Trigger Low Limit	When the Trigger Item is less than the value set here for longer than the specified Trigger Low DB Limit then archiving will begin. For digital triggers where you wish to initiate archiving on the transition from "True to False", this value should be set to .5.		
Trigger Low DB Limit	This is the amount of time in seconds that the variable specified by the Trigger Item Index must be less than the Trigger Low Limit to initiate archiving or the specified items.		
Number of Records After Trigger From 1 to 840	This is the number of records to be stored after archiving has been initiated.		
Trigger Status	This shows whether or not the archiving has been triggered. Note that once the archive has been triggered it will not automatically trigger again until the trigger is reset. This can be done by setting the following variable to true from within DataView:		
	LDA.TRIGGER_RESET		
Trigger Item Index	This common setting sets the index for a list 29 item This is the variable to be used as the trigger to initiate archiving of the specified variables.		
Trigger Item Name	Once the Trigger Item Index is specified, this textbox will display the variable name of the selected Trigger Item.		
<u>Column n</u>	The items in these sections contain settings and information about each of the columns, where n is 1 of 10 possible column numbers.		
Archive Item Index	This specifies the list index from list 29 for the item to be archived in the column. If the desired item is not in list 29, it can be added using the online edit function.		
Archive Item Index Name	Once an Archive Item Index is selected, this text box will show the variable name for the selected Item to be archived.		

the archiving of the specified data.

4.9 Archive Units Settings

The Archive Units page allows you to set the engineering units used in archive files.

To configure the archive units, click the Archive Units Settings button on the Historical tab of the Station Manager.

	Flow	Uncorrected Flow	Energy	Mass
Run 1	MCF	MCF	MMBTU	LB
Run 2	MCF	MCF	MMBTU	LB
Run 3	MCF	MCF	MMBTU	LB
Run 4	MCF	MCF	MMBTU	LB
Run 5	MCF	MCF	MMBTU	LB
Run 6	MCF	MCF	MMBTU	LB
Run 7	MCF	MCF	MMBTU	LB
Run 8	MCF	MCF	MMBTU	LB

Figure 4-13. Archive Units

Select archive units for flow, uncorrected flow, energy, and mass for each meter run.

Note: Any changes in archive units take effect at the next archive interval. For example, if you change units, the hourly archive will not have the new units for the current hour, but they will be used for the next hour, and all subsequent hours.

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Chapter 5 – Configuring Station Control, Meter Run/Valve Staging, and PID Control (Control Tab)

This chapter discusses configuring the station control, meter run staging, meter run ranking, valve staging, and PID tuning. This is accomplished from the Station Manager's Control tab.

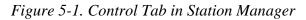
In This Chapter

5.1 5.2		o note Settings	
5.3	Remote Co	ntrol Valves	5-5
5.4	Station n		5-9
	5.4.1	Station <i>n</i> - Overview tab	5-10
	5.4.2	Station <i>n</i> - Configuration tab	5-12
	5.4.3	Station <i>n</i> - Meter Protection Config tab	
	5.4.4	Station <i>n</i> – Local Settings tab	5-14
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	5.6.1	Process Monitor Control Configuration	5-31
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	5.7.1	Process Value Monitor	5-37
5.8	GP PIDs		5-41
5.9	PID Tuning		

5.1 Control Tab

Click the Control tab to configure remote control valves, lockouts, and meter run staging. We'll discuss these in the sections which follow.

1/0	🔲 🕅 Measurement 🕅 Historical 🔲 Control 🕅 Utilities 🗎	
	Local/Remote Settings	Remote Control Valves
	Station 1	Station 2
	Station 3	Station 4
	Station 5	Station 6
	Meter Run Staging	Process Monitor Control
	Process Value Monitor	GP PIDs
	PID Tuning	



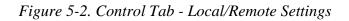
Click on the button to configure a particular control function

5.2 Local / Remote Settings

Local/ Remote mode is used to lock out control either locally (onsite using TechView), or remotely (via SCADA).



		Sit	ewide				
Local/Remote Mode	Sitewide		Remo	ote			
jurable							
Stations			RCVs			General I	Purpose PIDs
	S₩1	S₩2	S₩3	S₩4	S₩5	S₩6	None
	N/A	N/A	N/A	N/A	N/A	N/A	
Station 1	С	С	С	С	С	С	c
Station 2	С	С	С	С	С	С	C
Station 3	С	С	С	С	С	С	C
Station 4	С	С	С	С	С	С	C
Station 5	C	С	С	C	С	С	C
Station 6	С	С	С	С	С	С	c



Local / Remote Settings has two available modes – Sitewide, and Configurable.

Field	Description
Local/Remote Mode	The mode is selected using the button that says either Sitewide or Configurable .
Sitewide / Configurable	The text displayed on the button indicates which mode it is in.
	The Sitewide mode is simply a universal lockout.
	The Remote mode activates additional fields; see the <u>Configurable</u> fields.
<u>Sitewide</u>	The button in the box labeled Sitewide is used to select "Local" or "Remote."
Local / Remote	If "Remote" is displayed, then setpoints can be changed remotely (SCADA), and local changes are locked out.
	If "Local" is displayed, then setpoints can be changed locally via TechView, but no control is allowed remotely via SCADA.
	This is the only item to configure in sitewide mode. The switch assignments and tabs below are for Configurable mode and are grayed out and not available in Sitewide mode. The Sitewide Local / Remote button is grayed out and

		cannot be used in Configurable mode.				
	Configurable Tab	The Configurable mode is more complex due to it increased configurability.				
		Stations , remote control valves (RCVs), and General Purpose PIDs can be assigned to individual switches from their own sub-tabs.				
Configurable	Stations	RCVs General Purpose PIDs				
	SW <i>n</i> Local/Remote	In Configurable mode, functions can be assigned to "switches", SW1 through SW6.				
	or Local	Each switch can then be toggled for Local or Local .				
		Note: In Configurable mode, Local control is never locked out. Your choice is to lock out Remote access or allow both.				
	Station <i>n</i> RCV <i>n</i>	Functions assigned to a switch are then placed in the mode which is selected via that switch.				
	GP PID <i>n</i>	SW1				
		Local/Remote				
		Station 1 📀				
		SW1				
		Local				
		RCV 1 C				
		SW1				
		Local				
		GP PID 1				

In the figure, below, Stations 1-6 are assigned to Switches 1-6. This is for the purposes of this example, however any item can be assigned to any switch, and multiple items can be assigned to the same switch.

Switch 1 and 3 are configured as "Local", indicating that only Local control is allowed – Remote control is locked out. The others are allowing control both locally and remotely.

LocalLocal/RemoteLocal/RemoteLocal/RemoteLocal/RemoteStation 1CCCCCStation 2CCCCCCStation 3CCCCCCStation 4CCCCCCStation 5CCCCCC	Stations			RC	Vs	Ĭ	General Purpose PIDs	
Station 1 C		SW1	S₩2	S₩3	SW4	SW5	S₩6	None
Station 2 C		Local	Local/Remote	Local	Local/Remote	Local/Remote	Local/Remote	
Station 3 C	Station 1	۲	c	с	c	C	0	с
Station 4 C	Station 2	C	œ	с	с	с	C	С
Station 5 C C C C C C C	Station 3	С	C	œ	С	С	С	С
	Station 4	С	С	C	œ	С	С	С
	Station 5	С	C	С	С	۲	С	С
	Station 6	C	C	0	С	С	c	С

Figure 5-3. Stations sub-tab in Local/Remote Settings

5.3 Remote Control Valves

When you click the <u>Remote Control Valves</u> button on the Control tab, Station Manager shows tabs for groups of valves. Station Manager displays three valves on the screen at one time.

Note: For RCV control to function, **Control Enable** on the Process Monitor Control Configuration and Process Value Monitor Configuration pages must be enabled for the associated alarm.

Val	ves 1 - 3				
RCV 1 Control Output	Туре				
		Control			
Pulse D	uration)		sec
Valve Trave	el Time	0	1		sec
Status Open	Close	Vah	/e		
Normal 1	Normal	Norr	nal	F	Reset
Limit Switch	ז			ldle	
De-Energize		t Valve stion	1	[ray	/el
C Execute On	ly	⊙ Arm	and Ex	kecu	te
Local Contro Open Control	ol is	Dis	able	d	
Action	State	Actio			itate
	ldle	Execu	ite		dle
Close Control	State	Actio	n		itate
	Idle	Execi			dle
C Execute On		 Arm 	and Ex	kecu	te
Remote Contro	ol is	En	abled	ł	
– Open Control	Arm S Idl		Exe	cute	State e
Close Control	Arm S Idl		Exe	icute Idl	e State e
-Isolation Cont	rol	Line	Break	Co	ntrol
MFN			M	۶N	
-					

Figure 5-4. Configuring a Valve

Field RCVn	Description This top section is for configuring the physical characteristics of the valve.
Control Output Type	Choices are No Control (disabled), Single Maintained, Dual Maintained, and Dual Pulsed:
	Single Maintained Output This option should be chosen when a single output is energized to change the position of the valve.
	Dual Maintained Output This option should be

	chosen when there are two outputs, one to open the valve, and the other to close the valve, and these outputs should be maintained, even after the appropriate limit switch indicates that the valve is in
	the demanded position. Dual Pulsed Output This option should be chosen when there are two outputs, one to open the valve, and the other to close the valve, and these outputs should pulsed until the appropriate limit switch indicates that the valve is in the demanded position. The "Limit Delay" setting can be used to maintain a pulse for some time after the limit switch is made.
Pulse Duration	This is the amount of time to pulse the output. This setting only applies if the "Control Type" is "Dual Pulsed Outputs", and may only be changed when this control type is selected.
Valve Travel Time	This field is the amount of time, in seconds, it takes the valve to fully travel from the open-to-close or close-to-open position. This entry may be changed from this screen.
<u>Status</u>	
Open, Close, Valve	Open, Close, and Valve refer to whether the valve is failing limit switches. If the valve is configured as blind, these are not meaningful.
Reset	Reset is used to clear limit switch failures.
Limit Switch / Blind	This button selects between Limit Switch Feedback and Blind (no limit switch feedback)
Current Valve Position	The box labeled Current Valve Position will display Travel, Open, Closed, Unknown, or Fail
Open / Closed / Idle Error	This displays the state of the valve command being sent to the outputs. The states are: Open, Closed, Idle, or Error. Prior to receiving any commands, this field reads Idle. In the case of maintained outputs, once a command is given it remains in either Open or Closed state until the opposite command is issued. In the case of pulsed outputs, when a new command is given this field reads Open or Closed (depending on the command) while the output pulse is active and returns to Idle when the output is de-
	energized.
De-Energize	energized. Click this to immediately de-energize all signals to the valve.
De-Energize	Click this to immediately de-energize all signals to

Arm and Execute	Execute Only or Arm and Execute . If Arm and Execute is selected, then both Arm and Execute must be activated within 5 seconds of each other. After 5 seconds, they will de-activate.
Local Control is	Shows whether Local Control is Enabled or Disabled.
Open Control	
Action ARM	Click here to initiate the ARM signal. After 5 seconds this deactivates.
State Idle / Armed	Displays the current state of the ARM function.
Action Execute	Click here to initiate an Execute signal After 5 seconds this deactivates.
State Idle / Execute	Displays the current state of the Execute function.
Close Control	
Action ARM	Click here to initiate the ARM signal. After 5 seconds this deactivates.
State Idle / Armed	Displays the current state of the ARM function.
Action Execute	Click here to initiate an Execute signal. After 5 seconds this deactivates.
State Idle / Execute	Displays the current state of the Execute function.
Remote Control	
Execute Only, Arm and Execute	Local and Remote can both be configured to be Execute Only or Arm and Execute . If Arm and Execute is selected, then both Arm and Execute must be activated within 5 seconds of each other. After 5 seconds, they will de-activate.
Remote Control is	Shows whether Remote Control is Enabled or Disabled.
Open Control	
Arm State	Displays the current state of the ARM function
Execute State	Displays the current state of the Execute function
Close Control	
Arm State	Displays the current state of the ARM function
Execute State	Displays the current state of the Execute function
Isolation Control	You can override valve commands by station isolation (see Section 5.4.2). Select which value should drive the valve for isolation. Choices are MFN (math function), Station 1, Station 2, Station 3, Station 4, Station 5, Station 6, PVM1, PVM2, PVM3, and PVM4. If you choose MFN, MFN1 will drive RCV1, MFN2 will drive RCV2, etc. If you choose one of the PVMs, the PVM's output triggers and clears isolation for the assigned RCV; you can assign multiple RCVs to the same PVM. Using this mode, the valve can be opened/close manually while the triggering condition occurs. If you don't want to use isolation control, choose "Disabled."
Linebreak Control (Station Manager 8-Run	You can override valve commands by station isolation (see Section 5.4.2). Select which value should drive the valve for isolation. Choices are MFN (math function), Station 1, Station 2, Station 3,

only)	Station 4, Station 5, Station 6, PVM1, PVM2, PVM3,
	and PVM4. If you choose MFN, MFN1 will drive
	RCV1, MFN2 will drive RCV2, etc. If you choose one
	of the PVMs, the PVM's output triggers and clears
	isolation for the assigned RCV; you can assign
	multiple RCVs to the same PVM. Using this mode,
	the valve cannot be opened/close manually while
	the triggering condition occurs. If you don't want to
	use linebreak control, choose "Disabled."

5.4	Station <i>n</i>	
		The Station <i>n</i> page includes three primary controls and five override controls. Each of these controls can be individually configured and individually enabled.
	Primary Controls	Primary controls are always active and will open or close the valve as necessary to achieve and maintain the setpoint. At least one primary control must be enabled.
		The three primary controls are:
		 Flow/Energy Control
		Pressure Control
		Configurable Control
	Override Controls	Overrides are only active when the setpoint is exceeded. At that point, they take control from the primary controls until the process variable is back within acceptable range. Once that occurs, control is returned to the primary controls.
		The five override controls are:
		 Maximum Allowable Operating Pressure (MAOP)
		 Minimum Outlet Pressure
		 Maximum Outlet Pressure / Configurable
		 Minimum Inlet Pressure / Configurable
		 Meter Protection per run
		Note: Minimum outlet pressure forces the valve farther open and takes priority over every other control except MAOP. All other overrides force the valve farther closed.
	General	Configurable controls can use the default setup, or can select a process variable from an AI or from List 29.
		All transfers of control are bumpless. PID tuning may make transfers appear to be abrupt, but this is a tuning issue and may in fact be desirable.
		Flow control and Energy control are mutually exclusive – only one of the two can be enabled at a given time.
		Meter protection is on a per-run basis and is dependent upon the type of measurement run. The process variable will be DP for a differential run, and uncorrected flow rate for a linear run.
		All other controls, including disabled controls, are placed in "track" mode to allow bumpless transfer if it later becomes the active control.
	Bi-directional	If a station is identified as bidirectional, the inlet and outlet pressures can be configured to be reversed when the station is reversed. If Station 1 is bidirectional, then Station 2 is the reverse station, but only Station 1 must be configured. This is also true for Stations 3 and 4 and Stations 5 and 6.

Scheduled Setpoints Additionally, flow and energy setpoints can be programmed to be applied at a future time. Up to twelve unique future setpoints can be programmed. The format for time and date for the setpoint to be applied is HHMM (hours,minutes), and MMDD (month,day).

Manual Override Station control allows bumpless transfer in and out of manual override. While in manual override, a valve can be placed at a desired percent open. Upon return to automatic control, the control starts at the current valve position.

5.4.1 Station *n* - Overview tab

To configure station control, go to Station Manager's Control tab and click the **Station** n button corresponding to the station you want to configure. The following screen should appear:

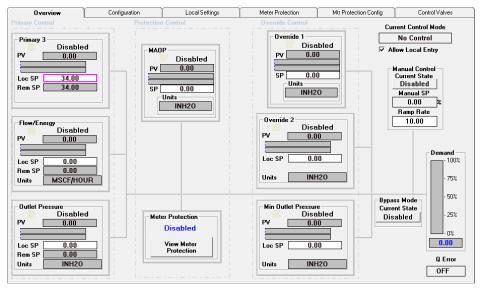


Figure 5-5. Station Overview tab

This first screen is an overview which will indicate which loop is currently in control and displays current setpoints and live values.

Field	Description			
Meter Protection				
View Meter Protection	Selecting this changes the active tab to Meter Protection This field Indicates which PID loop is in control. If the demand is calling for either full open or full closed, this field reads Max / Min Output.			
Current Control Mode				
Allow Local Entry	Check this box to allow entry of setpoints and the ramp rate on this page. De-select the box to prevent accidental entries on this page.			
Manual Control				
Disabled / Enabled	This button enables or disables manual control of the station control demand. Transfer is bumpless.			
Manual SP	Enter the desired station demand when manual control is enabled. This field shows the current station demand when manual control is disabled.			
Ramp Rate	Specify the desired rate of change when a manual setpoint is entered. Units are in percent demand per second.			
Bypass Mode Current State Enabled / Disabled	If you enable the Maintenance Bypass option (from the Local Settings tab) and then enable the Bypass here and place the station into Maintenance Mode, Station Manager does not place outputs under manual control, instead the following occurs:			
	 Manual control is disabled; however, you can enable it if desired. 			
	 The primary control pressure loop continues to execute and automatically controls the station control valve. 			
	 All other loops track and cannot override the primary control pressure loop. 			
	 After you exit Maintenance Mode, you must disable the Maintenance Bypass option to restore other loops to normal operation. 			
	Note: If you manually disable the primary contropressure loop, or Station Manager automatically disables it because of a Q (questionable) error, station control locks into manual mode at the current output value, and you must disable manual control after you exit Maintenance Mode to return to automatic operation.			
	Note: When you finish maintenance, before you disable the Bypass , make sure the control loop PVs have tracked to the setpoints (SP) to avoid excessive valve movement. Then you can disable the Bypass .			

In addition, it includes the following fields:

5.4.2 Station *n* - Configuration tab

The second tab "Configuration" is the place to begin configuring station control:

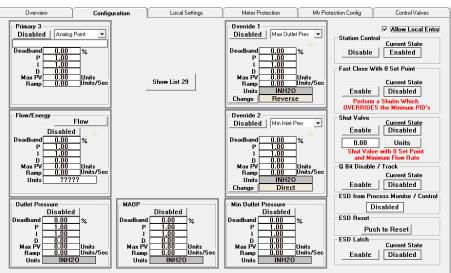


Figure 5-6. Station Configuration tab

Configuring a Loop Configuring each loop follows the same process:

- 1. Check the Allow Local Entry box.
- 2. Set Max PV to the maximum value that could ever be measured the span of the transmitter, or the maximum flow through the station, etc. as appropriate for that loop.
- **3.** Set **Ramp**. This is the **Ramp** rate in units/second that a change to the setpoint will be applied. Leaving the value at 0.0 causes the change to be immediately applied in full rather than ramped.
- 4. Set P, I, and D settings to desired initial values for tuning.
- **5.** Set **Deadband** to desired value. **Deadband** applies to the loop output. A calculated loop output which does not vary by more than the percent selected here will not change the output.
- 6. Enable the loop.

Flow/Energy Flow					
	Enabled				
Deadband	0.00	%			
Р	1.00	_			
I	1.50				
D	0.00				
Max PV	520.00	Units			
Ramp	10.00	Units/Sec			
Units	MSCF/HO	UR			

Figure 5-7. Flow/Energy Loop

Repeat this process for each loop that should be controlled. Having completed this, consider some station-wide settings.

First, there are several settings on the right side of the "Configuration" Station-wide Settings page: **Enable Fast Close with 0 Set Point** – If enabled, then upon a 0.0 setpoint on Flow, Energy, or Pressure the station will immediately call for 0% open – in other words, a full close. **Shut Valve** – If enabled, then upon receiving a 0.0 setpoint on flow or energy, the station begins to close under PID control until the live reading is less than or equal to the value entered in the field. The units of this value can be selected by the button; choices are "units" or "percent". If units are chosen, the field is represented in the units of the PV. If percent is chosen, the field is represented in percent of Max PV. At that time, the station will call for 0% open – in other words, a full close. Note: The preceding two modes should not both be enabled simultaneously. **Enable Q Bit Disable / Track** – If enabled, then a Q-bit (data invalid) signal on a process variable will result in placing the relevant loop into Track mode, thereby disabling it. The loop will be re-enabled upon the clearing of the Q bit. If this is disabled, then the station control continues regardless of the validity of the data. ESD from Process Monitor /Control – Options are Disabled, and PM&C 1, 2, 3, or 4, PVM 1, 2, 3, or 4, and MFN 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12.. PM&C refers to the Process Monitor Control described in Section 5.5.1; PVM refers to the Process Value Monitor described in Section 5.7; and MFN refers to the Math Function described in Section 6.2. If one of these is selected, then the process monitor control, process value monitor control, or math function can force the station shut if it goes into an alarm state.

ESD Reset If station ESD (Emergency Shut Down) is set to latch, you can click this button to clear the ESD.

ESD Latch If ESD Latch is enabled; and an emergency shut down occurs; the emergency shut down remains in force, even if the alarm condition that caused it clears. If ESD Latch is disabled, when the alarm condition that caused the ESD clears, normal operation resumes.

Note: For station control ESD to function, **Control Enable** on the Process Monitor Control Configuration and Process Value Monitor Configuration pages must be enabled for the associated alarm.

5.4.3 Station *n* - Meter Protection Config tab

Meter Protection loops are configured from their own page via the tab "Mtr Protection Config."

Notes:

- You must check the **Allow Local Entry** box to enter values on this page.
- Meter Protection is Enabled/Disabled on a station-wide basis.

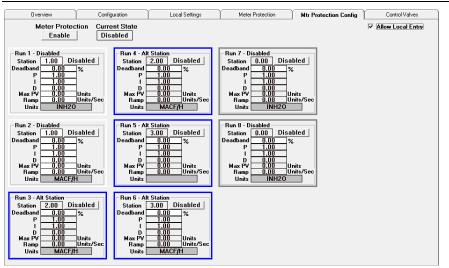


Figure 5-8. Meter Protection Config tab

5.4.4 Station *n* – Local Settings tab

Inlet and OutletUnder the Local Settings tab, Inlet and Outlet pressures can be
configured as to their source, and action to take upon detection of
reverse flow.

Overview	Configuration	Local Settings	Meter Protection	Mtr Protection Config	Control Valves
Control Process Variab	les (PVs)				
		Pressure Source	Current Value		🔽 Allow Local Entry
	Station Inlet Pressure	Analog Input	0.00		
	Station Outlet Pressure	Analog Input	100.03		
			Current State		
Use Al Alternate Ou	tlet Pressure on QBit Error	Enable	Disabled		
Swaj	p Inlet/Outlet on Direction	Enable	Disabled		
Isolation					
			Current State		
	Run Stage	Disable	Enabled		
Maintenance Bypass					
			Current State		
		Enable	Disabled		

Figure 5-9. Local Settings tab

Field	Description
Control Process Variables (PVs)	
Station Inlet Pressure, Station Outlet Pressure	Choices for Pressure Source are Analog Input, MVT static pressures, or shared values.
Use Al Alternate Outlet Pressure on Qbit Error	If enabled, when the station's primary outlet pressure analog input has a questionable data bit (Qbit) error, the station uses an alternate outlet pressure analog input if that AI does not have a Qbit error. The station operates normally using the alternate AI outlet pressure.
Swap Inlet/Outlet on Direction Enabled / Disabled	If enabled, this will monitor the station for a change in direction of flow. When one is detected, it will automatically redirect the live data from Inlet Pressure to now be Outlet Pressure, and vice versa. If disabled, the Inlet data and Outlet data are not swapped upon a direction change.
Allow Local Entry	Check this box to allow entry of values on this page. De-select the box to prevent accidental entries on this page.
Isolation	
Run Stage Noflow Shutin Enabled / Disabled	If enabled, upon a station NoFlow Shutin condition, all run stage valves for this station will be shut.
Remote Control Valve Noflow Shutin Enabled / Disabled	If enabled, upon a station NoFlow Shutin condition, the corresponding Remote Control valve will be shut.
Maintenance Bypass	

Maintenance Bypass	If you enable the Maintenance Bypass
Enabled/Disabled	feature here, you can then go to the
	Overview tab to enable/disable the actual
	bypass used in Maintenance Mode.
	To enable the Maintenance Bypass
	feature, click the Enable button; the current
	state changes to Enabled , and the button changes to Disable .
	To disable Maintenance Bypass feature,
	click the Disable button; the current state
	changes to Disabled , and the button
	changes to Enable .

5.4.5 Station *n* – Control Valves tab

Finally, control valves must be assigned to the station. This is achieved under the "Control Valves" tab.

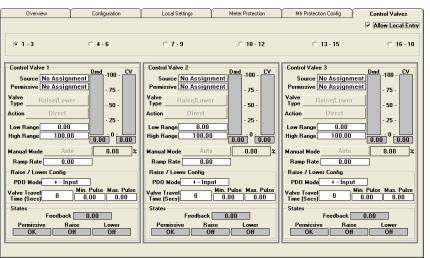


Figure 5-10. Station n Control Valves Sub-tab

There are a total of 18 control valves. Any valve can be assigned to any station, and multiple valves can be assigned to the same station.

– Contro	Valve	1					
		-		Dmd	-100 -	CV	
So	ource	Station	1		100		
Permi	ssive N	o Assign	ment		- 75 -		
Valve Type	Ra	ise/Low	er		- 50 -		
Action		Direct			25		
Low R	ange	0.00			- 25 -		
High R	ange	55.00)				
				100.0	υυ πα	15.00	
Manua	l Mode	Aut	0		0.00	%	
Ramp	p Rate [0.0	0				
Raise	/ Lower	Config -					
PDO	Mode	+ - Inp	out				
Valve 1			Min.	Pulse	Max.	Pulse	
		0	0.	.00	0.0)0	
States							
510163	-	Feedback	. ().00			
Per	rmissive	Ra	ise		Lower		
	0K	Ra	ise		Off		

Figure 5-11. Control Valve Configuration

All Valve Types	The following fields apply to all valve types.
-----------------	---

Field	Description			
Allow Local Entry	Check this box to allow entry of values on this page. De-select the box to prevent accidental entries on this page.			
Source	Choices are Station 1-6 and GPPID 1-3. For information on GPPID, see Section 5.8.			
Permissive	Choices are No Assignment and any Run. If No Assignment is selected, the valve is always active. If a Run is selected, then the valve will only operate if the block valve for that run is open. Normally this should be left to No Assignment.			
Action	Choices are Direct and Indirect. If direct, then a zero calls for 0% request to be sent to the valve. If Indirect, then a zero calls for 100% at the valve. Another common term for this is Normally Closed and Normally Open.			
Low Range, High Range	Low Range and High Range will be discussed in the "Valve Staging" section below.			
Ramp Rate	Refers to the allowable rate of change to demand from a valve in %/second.			
Manual Mode	Choices are Auto and Manual. When in Manual, the output from the station control is ignored and the valve will be in the position configured in the adjacent field. Transfer into manual mode is bumpless. Transfer out of			

manual mode will result in the valve immediately moving to the position called for by the station control.

Valve Type

Choices are Raise/Lower and Analog.

Raise/Lower Valves The following fields apply to raise/lower valves.

Field	Description			
PDO Mode	Not used if valve is analog. If valve is Raise/Lower, then this defines the type of feedback this valve provides. Choices are + - Input, No Feedback, Limit Switches, and Analog Feedback.			
Valve Travel Time (secs)	Not used if valve is analog. If valve is Raise/Lower, then this is a critical setting for the action of the valve and refers to the time it takes for the valve to travel from full shut to full open.			
Min Pulse	Not used if valve is analog. If valve is Raise/Lower, then this sets the minimum pulse that will be sent to the valve. All valves have a latency to respond to a signal, and pulses shorter than some duration will not result in an actual valve movement.			
Max Pulse	Not used if valve is analog. If valve is Raise/Lower, then this sets the maximum allowable pulse duration. Typically this is set to the travel time, but can be configured to be less if desired.			

Valve Staging Valves can be "staged" through configuration of the Low Range and High Range.

Station Control output always is from 0% to 100% open for the station. However, sometimes multiple valves are configured to act over a portion of the range.

In the figure below, valves 1-3 are assigned to Station 1. Valve 1 is configured to operate over the range 0%-33%, Valve 2 over the range 30% to 66%, and Valve 3 from 60% to 100%.

In this example, the Station Control is calling for 48% open.

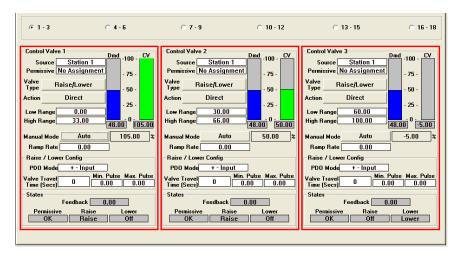


Figure 5-12. Selecting Control Valves

Observe that Valve 1 is full open, Valve 2 is 50% open, and Valve 3 is full shut. You can see that when valves are called to be shut, -5% is applied, and when valves are called to be full open, 105% is applied. This is to ensure full range of action for valves that lose their accuracy over time.

5.4.6 Enabling Station Control

Station Control is Enabled from the button on the Configuration Tab.

Setpoints are set from the Overview Tab.

Station Co	Current State
Flow/En	
PV (Tracking 0.00
	0.00
Loc SP	335.00
Rem SP	335.00
Units	MSCF/HOUR
L	

Figure 5-13. Enabling Station Control

Loc SP is for changing the setpoint locally (via TechView). If it is grayed out, then either: a) this loop is not enabled, or b) local control is not allowed.

Section 5.2 discusses Local / Remote lockouts.

Loop Tuning It is recommended to tune one loop at a time with the others disabled. The recommended method for tuning is the Ziegler-Nichols method for initial settings. The tuning can then be made less aggressive as desired from that baseline.

5.5 Meter Run Staging

The Station Manager application can control meter run staging (also referred to as run switching, or tube switching). The number of tubes varies depending upon the Station Manager version (6 run or 8 run).

To configure Meter Run Staging, click the

Meter Run Staging button from the Station Manager Control tab.

The following screen will appear:

Note: The screen we're showing below is expanded to show tube control settings.

Choose the station you want to configure by clicking on its tab.

Click here to show / hide additional tube control settings.							
Station 1	Station 2	Station 3	Station 4	Station 5	Station 6		
Common Settings	μ						
Current Rank	Max Bank 2	Requested Rank 0		d, the Flow Rate of the tube	Meter Run Staging		
Expand Tube Control Setti				ened or closed is monitored to requested operation.	Disabled		
	ow Shutin Initial F	ank 0 Push to Initiali		Failure Mode	RNING Setting this Incorrectly		
E	nabled				cause DAMAGE to Equipment		
Station Summary							
	lin Flow Rate Max Fl	low Rate Tube 1 PV T	ube 2 PV				
0.000	0.000 0.0	0.00	0.00				
) 001 F						
- Tube - 1, Run(1) ID - MF	larget		Next Call Next Call P		ve Assignment 1		
Manual/Auto Status	Rank		Point Dead Band Set P				
Auto Disable	ed Reset 2	0.0 MACF/H (0.0 0 Secs 0.	0 0 Secs Lalled	CLOSE OLS CLS		
Valve Position Limit Switch	Feedback 🔲 Invert Value (Control Outpute	Block Valve No Co	Pulse	5 Secs		
Shut this tube when curren				Duration L	Valve Travel Time		
greater than this tube's ran	k. Configuration Check	Enabled	Flow Validation Must Exceed	0.0 MACF/H Limit Delay	5 Secs 30 Secs		
Tube - 2, Run(3) ID - Run 3 Target Process Call Next Call Next Call Prev Call Prev Call Prev							
Manual/Auto Status	Rank		Point Dead Band Set P		ve Assignment 3		
Auto Disable	ed Reset 4	0.0 In/H20 0	0.0 0 Secs 0.1	0 0 Secs Called to	CLOSE OLS CLS		
☑ Valve Position Limit Switch		Control Outputs	Block Valve Control Type No Co	ntrol Pulse	5 Secs Valve Travel Time		
Shut this tube when current greater than this tube's ran	nt rank Call Next/Previous k. Configuration Check	Enabled	Flow Validation Must Exceed	and the second line in the second sec	5 Secs 30 Secs		

Figure 5-14. Meter Run Staging

Notes:

- To be able to configure meter run staging, more than one run must be assigned to a station and each run must have an assigned rank.
- if the station is a reverse flowing station (Station 2 or Station 4), no meter run staging is configured for that station, instead, the configuration for the forward flow station (Station 1 or Station 3) is used.

In our example, Station 1 has two runs assigned to it. Clicking on Station 3 or Station 4, that have fewer than two runs assigned to them, brings up the following message on the tab:

There are no runs ranked higher than 1 assigned to this station.

Field Description			
<u>Common</u> <u>Settings</u>	Within the Common Settings section, there are settings a indications common to the station.		
Current Rank	The current rank indicates the rank of the highest ranked run that is currently open.		
	The term Rank is used throughout the run switching screen. Rank refers to order in which a run is opened or closed, as flow varies through the station.		
	The run ranked 1 will open first, to meet any demand for flow. The runs ranked 2 and higher will open as the flow through the station increases and more runs are required.		
	If a single station had 8 runs assigned to it, the maximum rank would be 8. In this example, with two runs assigned to the station, the maximum rank would be 2.		
	Run switching ranks are set on the Run Config tab of Station/Run Configuration on the Measurement tab (see <i>Chapter 3, Section 3.3.8</i>).		
Max Rank	The maximum rank is the highest possible ranked run that may be open for this station.		
Requested Rank	The requested rank is the highest ranked run that should be open based on existing conditions. It is possible that the Requested Rank and Current Rank are different.		
Initial Rank, Push to Initialize	The Initial Rank is the rank that the station will be configured to when the Push to Initialize button is pressed.		
Settle Time	When opening or closing a run, the flow rate through the runs may momentarily increase or decrease above or below the se points for opening or closing additional runs. During the "Sett Time", no control actions will occur.		
Check Flow Rate Enabled / Disabled When the Check Flow Rate button is enabled, as each n run is commanded opened, the flow rate through that met will be compared to the Flow Validation Must Exceed se point (found in the Expanded Tube Control Settings). If flow rate does not exceed the limit, the run will be consider failed, and the next run will be opened.			
Meter Run Staging Enabled / Disabled	This button enables or disables Meter Run Staging.		

The various fields for meter run staging are:

NoflowIf enabled, upon a station NoFlow Shutin condition, all runShutinstage valves for this station will be shut.EnabledDisabled		
Failure Mode	The Failure Mode may be selected as Fail Open or Fail Closed . It is important to understand the advantages and disadvantages of each mode. This only applies when a Q-bit or measurement error is detected, and only on the highest ranking tube. Any lower ranked tube which fails will be shut.	
	Depending on the purpose of the station, a different fail mode may be appropriate. In cases where keeping gas flowing outweighs other concerns, Fail Open may be desired. A possible example of this is when the station feeds a power station or compressor station.	
	In other cases, in which the delivery is not as critical, safety concerns may result in a decision to let the tube shut.	
	Ultimately, the decision of whether to fail open or fail closed must be carefully considered and can only be determined on a site by site basis.	
Expand Tube Control	Checking this box displays additional settings for configuring the individual tubes.	
Settings	Leaving the box unchecked hides the additional settings for each tube.	
Allow Local Entry	Check this box to allow entry of values on this page. De-select the box to prevent accidental entries on this page.	
<u>Station</u> Summary	The Station Summary shows the flow rate and current process variables through the individual runs.	
	The tubes are displayed in rank order, where the lowest ranked run (rank 1) is on the left, and the highest ranked run (rank 2, ir this example) is on the right. The run ranks may be in a different order from the run number, that is, run 1 may have a rank of 3, while run 2 has a rank of 1, and run 3 has a rank of 2	
Flow Rate	This is the flow rate through the station. Units will be in the flow rate units configured on the Station Configuration screen.	
Min Flow Rate	Shows the minimum flow rate for this station.	
Max Flow Rate	Shows the maximum flow rate for this station.	
Tube <i>n</i> PV	This is the value of the process variable through the meter.	
	For an orifice meter, this process variable will be differential	
	pressure. For ultrasonic meters, turbine meters, and positive displacement meters, this process variable will be uncorrected flow rate.	

	field will be green.			
	If the tube is called to close, the background of the PV display field will be red.			
<u>Tube – n.</u> Run(x)ID – Run ID	The specific tube switching settings for each run are configured on this section of the page.			
Manual /	An individual tube may be put into the Auto or Manual mode.			
Auto	When in the auto mode, the "Called to" setting is determined by the tube switching logic.			
	When in the manual mode, the "Called to" setting may be changed from this page.			
Status	The following status indications may be displayed for each run:			
	Shutdown – This run has been closed due to a shutdown command.			
	Q-Bit Fail - The Flow Rate value being calculated for the station is questionable.			
	PV Fail – The PV value has failed (the questionable data bit is TRUE).			
	Config Fail – The configuration for tube switching is invalid. This is the case when a run's low switch point is higher than the previous run's high switch point.			
	Normal – All data is valid, the configuration of the tube switching is valid, and Meter Run Staging is Enabled.			
	Disabled – All data is valid, the configuration of the tube switching is valid, and Meter Run Staging is Disabled.			
	Maint Mode – The corresponding run is in maintenance mode and Meter Run Staging is disabled.			
Reset	If the Status is anything other than Normal or Disabled, the failure must be reset			
	To reset the failure, the failure condition must be cleared. Then, the Reset button may be pressed, and the status will be returned			

Target Rank	This is the rank configured for this run.		
	When the requested rank matches the target rank, the run of that target rank will be opened. When the run is opened, the current rank should match the target rank.		
Process Variable	This is the value of the process variable being evaluated to determine whether a run should be opened or closed.		
	The process variable for the run that matches the current rank is compared to the "Call Next Set Point" and the "Call Previous Set Point".		
	If the process variable for the "Current Rank" run exceeds the "Call Next Set Point" value for the number of seconds in the "Call Next Dead Band" setting, then the "Requested Rank" value will be incremented by one, unless the "Current Rank" matches the "Max Rank".		
	If the process variable for the "Current Rank" run drops below the "Call Prev Set Point" value for the number of seconds in the "Call Prev Dead Band" setting, then the "Requested Rank" value will be decremented by one, unless the "Current Rank" is 1 – in other words the only run open is the first or primary run.		
	The units of the process variable will match the units of the differential pressure measurement for an orifice run, and will be in the uncorrected flow rate units for all linear meter types.		
Call Next Set Point	The Next Set Point is in the same units as the process variable and used to determine whether or not to increment the "Requested Rank".		
Call NextThe process variable must exceed the value of "CallDead BandPoint" for the number of seconds in the "Call Next D field before the "Requested Rank" will be changed.			
Call Prev. Set Point	The Prev Set Point, is in the same units as the process variable and used to determine whether or not to decrement the "Requested Rank".		
Call Prev. Dead Band	The process variable must be less than the value of "Call Pre Set Point" for the number of seconds in the "Call Prev Dead Band" field before the "Requested Rank" will be changed.		
Block Valve	This is the block valve that is assigned to this run.		
Assignment	The assignments are based on the Run number, not the Targe Rank. Therefore, the assignments are as shown in the table below:		

Run	DI Assignments (from I/O	DO Assignments (from I/O	BV
#	configuration page)	configuration page)	Assignment

1	TUBE 1 Open/Close LIMIT	TUBE 1 Open/Close Command	1
2	TUBE 2 Open/Close LIMIT	TUBE 2 Open/Close Command	2
3	TUBE 3 Open/Close LIMIT	TUBE 3 Open/Close Command	3
4	TUBE 4 Open/Close LIMIT	TUBE 4 Open/Close Command	4
5	TUBE 5 Open/Close LIMIT	TUBE 5 Open/Close Command	5
6	TUBE 6 Open/Close LIMIT	TUBE 6 Open/Close Command	6
7	TUBE 7 Open/Close LIMIT	TUBE 7 Open/Close Command	7
8	TUBE 8 Open/Close LIMIT	TUBE 8 Open/Close Command	8

Called to	This is the command to the valve. When the Tube is in Auto Mode, this command is determined by the tube switching logic. When the Tube is in Manual Mode, this command may be set by the user.	
Open/Close LS	The "Open LS" and "Close LS" fields show the state of each of the limit switches.	
	Open LS	Close LS
	×.	
	Opened LS On, Closed	LS Off, Valve is Opened.
		×
	Opened LS Off, Closed	LS On, Valve is Closed.
	_	
	Opened LS Off, Closed	LS Off, Valve is travelling.
	×	×
	Opened LS On, Closed	I LS On, Valve position unknown.

Tube - n Expanded Tube Control Settings

Valve Position Limit Switch	When this box is checked, the valve position limit switch feedback will be processed.
Feedback	The limit switch indications will be compared to the "Called To" field, and if there is a mismatch after the valve travel time, a discrepancy will be reported.
	The limit switches are not used to determine if a run has failed.
	When this box is not checked, the valve position limit switch feedback is not processed or indicated.
Invert Valve Control	This setting will change the operation of the digital output.
Outputs	When this box is checked:
	An Open Command will set the digital output assigned to the 'Open Command' to OFF (or FALSE). If dual outputs are used the digital output assigned to the "Close Command" will be set ON (or TRUE).
	A Close Command will set the digital output assigned to the "Open Command" to ON (or TRUE). If dual outputs are used, the digital output assigned to the "Close Command" will be set OFF (or FALSE).
Block Valve Control Type	The user may select from a number of control types for the tube switching block valve.
	Single Maintained Output
	This option should be chosen when a single output is energized to change the position of the valve. Dual Maintained Output
	This option should be chosen when there are two analog outputs, one to open the valve, and the other to close the valve These outputs should be maintained, even after the appropriate limit switch indicates that the valve is in the demanded position Dual Pulsed Output
	This option should be chosen when there are two digital outputs, one to open the valve, and the other to close the valve These outputs should be pulsed until the appropriate limit switch indicates that the valve is in the demanded position. The "Limit Delay" setting can be used to maintain a pulse for some time after the limit switch is made.
Pulse Duration	The "Pulse Duration" is the amount of time to pulse the output. This setting only applies when the "Control Type" is "Dual Pulsed Outputs", and may only be changed when this control type is selected.

Valve Travel Time	I The "Travel Time" field is the amount of time, in seconds, it takes the valve to fully travel from the open-to-close or close- open position. This entry may be changed from this screen.		
Limit Delay The "Limit Delay" is the amount of time, in seconds, output pulse will be maintained after an opened or c is indicated. This only applies for the "Control Type" Pulsed Outputs".			
Flow Validation Must Exceed	If the "Check Flow Rate" feature is Enabled, the process variable must exceed this limit for flow to be validated. In practical terms, when a run is requested to open, the actual rank will not be updated until the flow validation number is exceeded. If it fails to be exceeded prior to the end of the travel time, the run is marked as failed and the next higher run is requested.		
	The units will match the units of the Process variable for the run.		
Low Flow Run Shut-in	This setting allows a run to be shut-in, after a higher ranked run is opened.		
	This is typically used where there is a low flow run on the system, and it is necessary to shut this run in when there are high flow conditions. The run will not be allowed to shut until the Actual Rank is increased. This will not occur until flow is established on a higher tube; this means that flow must be greater than the Flow Validation Must Exceed limit specified for the higher tube.		
	When the station is shutting in, the higher run will not be allowed to shut until Actual Rank is lower. This will not occur until flow is established on a lower tube; this means that flow must be greater than the Flow Validation Must Exceed limit specified for the lower tube.		

5.5.1 Clearing and Resetting Meter Staging Errors

If an error occurs in the meter run staging sequence that causes a meter run (or runs) to improperly open or shut, you must reset the staging sequence as follows:

- 1. Determine the root cause of the error then correct the condition. Typical causes might include invalid DP or counts measurements, or incorrect settings for "next" or "previous."
- **2.** Disable meter run staging.
- **3.** Re-initialize meter run staging.
- **4.** Re-enable meter run staging.
- **Note:** If you cannot determine the cause of the failure, you may not be able to re-enable the staging sequence.

5.6 Process Monitor Control

The Station Manager controller allows up to four (4) process values to be monitored and alarmed. In addition, a digital output may be controlled when a value goes into alarm. The process values to be monitored may be analog or digital (logical) values. Alarms may be generated when the process value exceeds High-High, High, Low, or Low-Low setpoints, or if the rate of change of the process value exceeds some limit.

To view the Process Monitor Control, select the Station Manager Control' tab, and click the Process Monitor Control button

Process Monitor Cont	rol		
Point Source Not Configured	Click To Configure		
Current PV Values Live Max Min 0.000000 0.000000 0.000000	Status HI HI OFF		
Current Rate Of Change (ROC) Values Max Min 0.000000 0.000000	HI OFF LO OFF LO LO OFF		
Output Latch Status	ROC Up OFF ROC Down OFF		
MC 2 Point Source			
Not Configured	Click To Configure		
Max Min 0.000000 0.000000 0.000000 Current Rate Of Change (ROC) Values Min 0.000000 0.000000 0.000000	Status HI HI OFF HI OFF LO OFF LO LO OFF		
Output Latch Status OFF OFF	ROC Up OFF ROC Down OFF		
MC 3			
Point Source Not Configured	Click To Configure		
Live Max Min 0.000000 0.000000 0.000000	Status HI HI OFF HI OFF		
Current Rate Of Change (ROC) Values Max Min 0.000000 0.000000	LO OFF		
Output Latch Status	ROC Up OFF ROC Down OFF		

Figure 5-15. Process Monitor Control (Point 4 Not shown)

Field	Description
<u>PMC <i>n</i></u>	
Point Source	Shows the source for this point, or Not Configured if no source has been assigned yet.
Click To Configure	Click this button to bring up a screen to configure the point source. See <i>Section 5.6.1</i> for more information.
Current PV Values	
Live	Displays the most recent update to this point
Max	Displays the maximum observed value of this point since the last min/max reset.
Min	Displays the minimum observed value of this point since the last min/max reset.
Current Rate of Change (ROC) Values	
Max	Displays the maximum observed (upward) rate of change value of this point since the last min/max reset.
Min	Displays the minimum observed (downward) rate of change value of this point since the last min/max reset.
Output	
Latch	If latching for this output is enabled, shows ON , otherwise shows OFF .
Status	Shows the current state of the output.
<u>Status</u>	
HI HI	Shows ON if the variable is currently in a HI HI alarm state, otherwise shows OFF .
HI	Shows ON if the variable is currently in a HI alarm state, otherwise shows OFF .
LO	Shows ON if the variable is currently in a LO alarm state, otherwise shows OFF .
LOLO	Shows ON if the variable is currently in a LO LO alarm state, otherwise shows OFF .
ROC Up	Shows ON if a variable is in a rate of change upward alarm state, otherwise shows OFF .
ROC Down	Shows ON if a variable is in a rate of change downward alarm state, otherwise shows OFF.

5.6.1 Process Monitor Control Configuration

Process Monitor Control Number	Process Monitor Control Configuration Summary Page		
General PMC Settings			
Point Source	Anal Digi		
 Digital List 29 Point 	List 29 Point Numb	Show List	
Limit Settings			
Current Values		Alarm Dead Band	
Live	Max		
0.000000	0.0000	000 0.000000 Disabled 1 Secs	
Alarm Inhibit		HiHi/LoLo	
	/ariable (Disable w	when Below Limit) 1 Secs	
List 29 Point Number	1	MVT.MVT_1_DP	
	Live	Limit Status	
	0.000000	0.000000 Alarm Disabled	
]	
1	_imit A	Alarm Control Enable Status	
ні ні).00 Dis	sabled N/A OFF	
н П).00 Dis	sabled N/A OFF	
).00 Dis	sabled N/A OFF	
).00 Dis	sabled N/A OFF	
Rate of Change	t Values	ROC Dead Band	
curren	Max	Min Min/Max Reset	
	0.000000	0.000000 Disabled 1 Secs	
	Limit	Alarm Control Enable Status Units	
Rate of Change (ROC)	Link	Disabled Secs	
ROC Up	0.00	N/A OFF	
ROC Down	0.00	N/A OFF	
- Output			
	Latch	Reset Status	
	Disabled	Push to Reset OFF	

Figure 5-16. Process Monitor Control

Field	Description
Process Monitor Control Number	Select the point to be configured (1 through 4) from the drop down menu. These points correspond to the PMC.PV_Monitor_ n .PV variables, where $n = 1$ through 4.
General PMC Settings	
Point Source	
Analog	If the value to be mapped to the process value monitor is an analog input, select the desired input from the drop down menu.
Digital	If the value to be mapped to the process value monitor is a digital input, select the desired input from the drop down menu
List 29 Point	If the sampler is to be mapped to some other process variable, rather than an analog/digital input,

	it may be mapped from List 29
	After the point number is chosen, the variable name assigned to that element on the list will be displayed
	List 29 is a modifiable list, and may be edited using the On-Line Edit tool to add or remove items from the list.
Show List 29	Click here to view the contents of List 29.
Back to Summary Page	Click here to return to the Process Monitor Control Summary page. See Section 5.6.
Alarm Inhibit	
List 29 Point Number / Variable	Select the variable to use for an alarm inhibit.
Live	Shows the live value of the selected variable.
Limit	Enter the limit to use.
Status	Shows whether alarms are enabled or disabled based on the live value and specified limit.
Limit Settings	Up to four alarm limits are available for each point:
Current Values	
Live	This displays the most recent update of this point.
Max	This displays the maximum observed value of this point since the last min/max reset.
Min	This displays the minimum observed value of this point since the last min/max reset.
Min/Max Reset Enabled / Disabled	This clears the above max / min values (resets to live) and begins updating from there.
Alarm Dead Band	Before an alarm is generated, the alarm condition must be true for the amount of time defined by the alarm dead band, in seconds.
Hi/Lo	This is the deadband to trigger a HI or LO alarm.
HiHi/LoLo	This is the deadband to trigger a HIHI or LOLO alarm.
Limit	For the "Hi" and "Hi Hi" limits, enter the number which the process value must be greater than in order to generate an alarm.
	For the "Lo" and "Lo Lo" limits, enter the number which the process value must be less than in order to generate an alarm.

Alarm Enable / Disable	Each type of alarm ("Hi Hi", "Hi", "Lo", and "Lo Lo") may be enabled and disabled independently.
Control Enable	Control for each type of alarm ("Hi Hi", "Hi", "Lo", and "Lo Lo") may be enabled and disabled independently. However, if the Alarm for that alarm type is not enabled, control cannot be enabled, and the field will show N/A . Control must be enabled for station control ESD, Modbus status registers, and RCVs for those functions to work.
Status	Displays whether the corresponding alarm is currently active.
-	be monitored is a digital input, you can enter 0 or I the system evaluates limits accordingly.
Rate of Change	It is possible to monitor the process value for a rate- of-change alarm.
	Both an increasing rate-of-change (ROC UP) or decreasing rate-of-change (ROC DOWN) alarm may be generated.
Current Values	Displays the most recent update to this point
Max	Displays the maximum observed (upward) rate of change value of this point since the last min/max reset.
Min	Displays the minimum observed (downward) rate of change value of this point since the last min/max reset.
Min/Max Reset	Clears the above max / min values (resets to current) and begins updating from there.
ROC Dead Band	This is the period of time in seconds that the rate of change setpoint must be exceeded to trigger an alarm.
Rate of Change (ROC) Enabled / Disabled	This button enables/disables monitoring of the process value for a rate-of-change alarm.
Units	This is the time units used as the divisor in the rate of change limit. The choices are seconds ("Secs") or minutes (Mins).
Limit	The limit is the value of the maximum rate-of-change allowed in the given direction, expressed in units of the process variable units divided by the rate-of- change time units.
	For example, if the process value chosen was Station 1 Discharge Pressure, in units of PSI, and the Units (Time) selected to evaluate the rate-of-

	change were chosen as minutes, the limit for the ROC UP or ROC DOWN would be entered in units of PSI/MINUTE. If the limit for ROC UP was entered as 5, then the maximum rate-of-change allowed for Station 1 Discharge Pressure would be 5 PSI/Minute. If ROC DOWN is entered, you must include a negative sign (for example, -5 PSI/Minute.)
ROC Up, ROC Down	Both an increasing rate-of-change (ROC UP) or decreasing rate-of-change (ROC DOWN) alarm may be generated.
Alarm Enabled, Disabled	If the alarm for the rate-of-change is enabled, both the ROC UP and ROC DOWN limits will be evaluated. If it is desired that no rate-of-change alarm is reported in one direction, set the ROC limit to some large number, that should never be experienced.
Output	
Latch Enabled / Disabled	When the control for a point is enabled, the output may be latched or unlatched.
	When "Latch Output" is Disabled, the output will be set to TRUE or ON when any alarm condition is met, and set to FALSE or OFF when no alarm conditions are met.
	When "Latch Output" is Enabled, the output will be set to TRUE or ON when any alarm condition is met, but will only be set FALSE or OFF when the "Push to Reset" button is pressed.
Push to Reset	This button is used to reset a latched output.
Status	The actual signal being applied to the output.

5.7 Process Value Monitor

The Station Manager controller allows up to four (4) process values to be monitored and alarmed. The process values to be monitored may be analog or digital (logical) values. Alarms may be generated when the process value exceeds High-High, High, Low, or Low-Low setpoints, or if the rate of change of the process value exceeds some limit.

Note: PVM control outputs are soft points and cannot be physical DOs.

To view the Process Value Monitor Summary, select the "Control" tab, and click on the <u>Process Value Monitor</u> button.

The following screen will appear:

Process Value M	onitor Q[+]M थ्रि त्व	. 🗡	^{Site Name} Unnamed Site	Bristol
4	No physical outputs are associated with these	control	S.	F
⊢ P	Process Value Monitor Summary			
	Point Source Not Configured	Click To Configure		
	Live Max Min HI HI 0.000000 0.000000 0.000000 HI HI Current Rate Of Change (ROC) Values LO HI LO 0.000000 0.000000 LO LO HI 0.000000 0.000000 Roc Up LO HI	OFF OFF OFF OFF		
e P	VM 2 Point Source	OFF		
	Not Configured Status Current PV Values Min 0.000000 0.000000 Current Rate Of Change (ROC) Values Hi Max Min Low Min	Click To Configure		
	0.000000 0.000000 LO LO Output Latch Status ROC Up OFF OFF ROC Down	OFF OFF OFF		
P	VM 3 Point Source Not Configured	Click To Configure		
	Current PV Values Max Min Status Live Max Min HI HI HI HI 0.000000 0.000000 0.000000 HI HI HI HI Current Rate Of Change (ROC) Values Min LO HI LO LO 0.000000 0.000000 0.000000 LO LO LO LO LO LO LO LO	OFF OFF OFF OFF		
	Output Latch Status ROC Up ROC Down	0FF 0FF		

Figure 5-17. Process Value Monitor

Field	Description
<u>PVM <i>n</i></u>	
Point Source	Shows the source for this point, or Not Configured if no source has been assigned yet.
Click To Configure	Click this button to bring up a screen to configure the point source. See <i>Section 5.7.1</i> for more information.
Current PV Values	
Live	Displays the most recent update to this point
Мах	Displays the maximum observed value of this point since the last min/max reset.
Min	Displays the minimum observed value of this point since the last min/max reset.
Current Rate of Change (ROC) Values	
Max	Displays the maximum observed (upward) rate of change value of this point since the last min/max reset.
Min	Displays the minimum observed (downward) rate of change value of this point since the last min/max reset.
Output	
Latch	If latching for this output is enabled, shows ON , otherwise shows OFF .
Status	Shows the current state of the output.
<u>Status</u>	
HI HI	Shows ON if the variable is currently in a HI HI alarm state, otherwise shows OFF .
HI	Shows ON if the variable is currently in a HI alarm state, otherwise shows OFF .
LO	Shows ON if the variable is currently in a LO alarm state, otherwise shows OFF .
LO LO	Shows ON if the variable is currently in a LO LO alarm state, otherwise shows OFF .
ROC Up	Shows ON if a variable is in a rate of change upward alarm state, otherwise shows OFF .
ROC Down	Shows ON if a variable is in a rate of change downward alarm state, otherwise shows OFF .

	Warning! Archive mode is not set!	Site Name Unnamed Site	Bristo
	Click to Hide		►
No physic	cal outputs are associated with these o	controls.	
Process Monitor Control Number	Process Value Monitor Configuration	Back to Summary Page	
General PMC Settings - Point Source © Analog © Digital © List 29 Point Li	Analog Digital st 29 Point Number 0	Show List 29	
Limit Settings Current Values Live 0.000000	Max Min Min/Max Reset 0.000000 0.000000 Disabled	Alam Dead Band Hi/Lo 1 Secs	
Alarm Inhibit V. List 29 Point Number	ariable (Disable when Below Limit) 0 Live Limit Status 1,000000 0,000000 Alarm Disabled	HiHi/LoLo 1 Secs	
HI HI 0. HI 0. LO 0.	mit Alarm Control Enable Status 00 Disabled N/A OFF 00 Disabled N/A OFF 00 Disabled N/A OFF 00 Disabled N/A OFF		
Rate of Change Current	Max Min Min/Max Reset .000000 0.000000 Disabled	ROC Dead Band	
Rate of Change (ROC) ROC Up [ROC Down [Units Secs	
- Output	Latch Reset Status Disabled Push to Reset OFF		

5.7.1 Process Value Monitor

Figure 5-18. Process Value Monitor Configuration

Field	Description	
Process Monitor Control Number	Select the point to be configured (1 through 4) from the drop down menu. These points correspond to the PVM.PV_Monitor_ n .PV variables, where $n = 1$ through 4.	
General PMC Settings		
Point Source		
Analog	If the value to be mapped to the process value monitor is an analog input, select the desired input from the drop down menu.	
Digital	If the value to be mapped to the process value monitor is a digital input, select the desired input from the drop down menu	
List 29 Point	If the sampler is to be mapped to some other process variable, rather than an analog/digital input, it may be mapped from List 29	
	After the point number is chosen, the variable name	

	assigned to that element on the list will be displayed
	List 29 is a modifiable list, and may be edited using the On-Line Edit tool to add or remove items from the list.
Show List 29	Click here to view the contents of List 29.
Back to Summary Page	Click here to return to the Process Value Monitor Summary page. See Section 5.7.
Limit Settings	Up to four alarm limits are available for each point:
Current Values	
Live	This displays the most recent update of this point.
Max	This displays the maximum observed value of this point since the last min/max reset.
Min	This displays the minimum observed value of this point since the last min/max reset.
Min/Max Reset Enabled / Disabled	This clears the above max / min values (resets to live) and begins updating from there.
Alarm Dead Band	Before an alarm is generated, the alarm condition must be true for the amount of time defined by the alarm dead band, in seconds.
Hi/Lo	This is the deadband to trigger a HI or LO alarm.
HiHi/LoLo	This is the deadband to trigger a HIHI or LOLO alarm.
Limit	For the "Hi" and "Hi Hi" limits, enter the number which the process value must be greater than in order to generate an alarm.
	For the "Lo" and "Lo Lo" limits, enter the number which the process value must be less than in order to generate an alarm.
Alarm Enable / Disable	Each type of alarm ("Hi Hi", "Hi", "Lo", and "Lo Lo") may be enabled and disabled independently.
Control Enable	Control for each type of alarm ("Hi Hi", "Hi", "Lo", and "Lo Lo") may be enabled and disabled independently. However, if the Alarm for that alarm type is not enabled, control cannot be enabled, and the field will show N/A .
	Control must be enabled for station control ESD, Modbus status registers, and RCVs for those functions to work.

Status	Displays whether the corresponding alarm is currently active.
-	be monitored is a digital input, you can enter 0 or 1 d the system evaluates limits accordingly.
Rate of Change	It is possible to monitor the process value for a rate- of-change alarm.
	Both an increasing rate-of-change (ROC UP) or decreasing rate-of-change (ROC DOWN) alarm may be generated.
Current Values	Displays the most recent update to this point
Max	Displays the maximum observed (upward) rate of change value of this point since the last min/max reset.
Min	Displays the minimum observed (downward) rate of change value of this point since the last min/max reset.
Min/Max Reset	Clears the above max / min values (resets to current) and begins updating from there.
ROC Dead Band	This is the period of time in seconds that the rate of change setpoint must be exceeded to trigger an alarm.
Rate of Change (ROC) Enabled / Disabled	This button enables/disables monitoring of the process value for a rate-of-change alarm.
Units	This is the time units used as the divisor in the rate of change limit. The choices are seconds ("Secs") or minutes (Mins).
Limit	The limit is the value of the maximum rate-of-change allowed in the given direction, expressed in units of the process variable units divided by the rate-of- change time units.
	For example, if the process value chosen was Station 1 Discharge Pressure, in units of PSI, and the Units (Time) selected to evaluate the rate-of- change were chosen as minutes, the limit for the ROC UP or ROC DOWN would be entered in units of PSI/MINUTE. If the limit for ROC UP was entered as 5, then the maximum rate-of-change allowed for Station 1 Discharge Pressure would be 5 PSI/Minute. If ROC DOWN is entered, you must include a negative sign (for example, -5 PSI/Minute.)

ROC Up, ROC Down	Both an increasing rate-of-change (ROC UP) or decreasing rate-of-change (ROC DOWN) alarm may be generated.
Alarm Enabled, Disabled	If the alarm for the rate-of-change is enabled, both the ROC UP and ROC DOWN limits will be evaluated. If it is desired that no rate-of-change alarm is reported in one direction, set the ROC limit to some large number, that should never be experienced.
Output	
Latch Enabled / Disabled	When the control for a point is enabled, the output may be latched or unlatched.
	When "Latch Output" is Disabled, the output will be set to TRUE or ON when any alarm condition is met, and set to FALSE or OFF when no alarm conditions are met.
	When "Latch Output" is Enabled, the output will be set to TRUE or ON when any alarm condition is met, but will only be set FALSE or OFF when the "Push to Reset" button is pressed.
Push to Reset	This button is used to reset a latched output.
Status	The actual signal being applied to the output.

5.8 GP PIDs

To configure the General Purpose (GP) PID loops, select the "Control" tab, and click on the GPPIDs button.

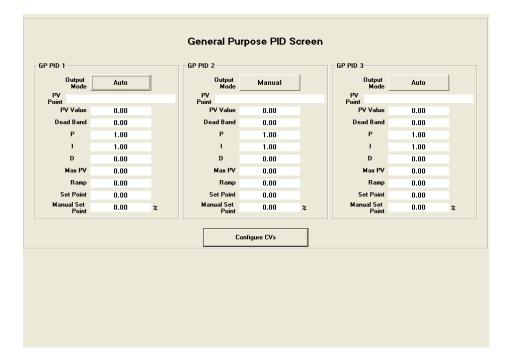


Figure 5-19. General Purpose PID

Field	Description
<u>GP PID n</u>	
Output Mode	Click this to choose between Auto and Manual Override
PV Point	Select the AI point used as the process value for the PID.
PV Value	This shows the live reading of the AI point used for control in this PID.
Dead Band	Deadband applies to the loop output. A calculated loop output which does not vary by more than the percent selected here will not change the output.
Ρ	Proportion, also known as Gain, determines the amount of output change that will be produced by a change of error.
I	Integral, establishes the "reset" rate in "repeats-per- minute."

D	Derivative establishes a scale factor to determine how much the rate-of-change of the MV (not error) affects the function block output. The numerical entry for this parameter represents the amount of rate correction in minutes. Any value other than zero MUST have a negative polarity assigned to it, regardless of the polarity of the Proportion value.
Max PV	The maximum value the PV can achieve.
Ramp	The rate at which a change in setpoint should be applied to the loop.
Set Point	The value of PV the loop should attempt to maintain.
Manual Set Point	The desired percent of full range for the PID loop output. Valid in manual mode only.

5.9 PID Tuning

To tune the General Purpose (GP) PID loops, select the "Control" tab, and click on the PID Tuning button



Figure 5-20. PID Tuning

Field	Description
Current Control Mode	
Primary <i>n</i> Analog Point	
PV	Process Variable – This displays the live value of the process being controlled.
SP	Setpoint – This displays the value the loop is trying to maintain on the PV.
PID Out	The output of the PID Loop. This varies from 0-100.
Local SP	This allows local entry of the setpoint.
Remote SP	Displays the value of the remote entry for the setpoint
PID Loop Tuning	

DeadBand	Deadband applies to the loop output. A calculated loop output which does not vary by more than the percent selected here will not change the output.
P	Proportion, also known as Gain, determines the amount of output change that will be produced by a change of error
I	Integral, establishes the "reset" rate in "repeats-per- minute"
D	Derivative establishes a scale factor to determine how much the rate-of-change of the MV (not error) affects the function block output. The numerical entry for this parameter represents the amount of rate correction in minutes. Any value other than zero MUST have a negative polarity assigned to it, regardless of the polarity of the Proportion value.
PV Span	The maximum value the PV can achieve.
Ramp Rate	The rate at which a change in setpoint should be applied to the loop.
Common Settings	
Disabled / Enabled	Enable / disable the individual loop control.
PID Loop	Selects which loop to tune.
Station	Selects the station for which loops will be tuned.
Low Limit	The lowest value to display on the y axis of the chart.
High Limit	The highest value to display on the y axis of the chart.
Graph Time Span	Selects x axis (time span) to view on the chart.
Add Pen	Click here to add items to the chart.
Flag Changes	When enabled, will place a vertical line on the graph where changes to the graph properties have been made.
Edit Graph	Allows modifications of color schemes for the chart.

Primary <i>n</i> PV	Shows the current value and color for PV on the chart.
Primary <i>n</i> SP	Shows the current value and color for SP on the chart.
PID Out	Shows the current value and color for PID on the chart.
	Click on a color block icon to open the color palette and select a color for the pen.
Ø	Click the pencil icon to edit the properties for the pen.
×	Click the white "X" to delete a pen.

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Chapter 6 – Math Functions, Sampler (Utilities Tab)

This chapter discusses some special utilities included in the Station Manager application.

In This Chapter

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6.1 Utilities Tab

Click the Utilities tab to access the math and sampling functions.

🔟 I/O 🛛 🔟 Measurement 🗍 🔟 Historical 🕅	Control (III Utilities)
Math Function	Sampler
List 29	Standard Recipe Control
User Defined Screen (Legacy)	
Figure 6-1. U	tilities Tab in Station Manager Click on the button to configure a particula

utility.

6.2 Math Function

Click the Math Function button on the Utilities tab to perform basic calculator functions on values from List 29, a Modbus register or a Modbus coil.

Workspace											*
								Chara	cters Ren	sinin a.	Ŧ 512
		Refresh and		Timer Va	ue Re	eal Resul			Load From		512
	Clear	Check				0.0			RTU		culator –
	BackSpace	Space	Invert Output	Inactiv	e Ba	olean Re OFI			Write to RTU		-
C	escription Di	splays the real re	sult of the M	ath Fxn that is st	ored in the	e RTU (M	lay diffe	r from E	Q Window		culator
		Dutput To: —— None List 29		Add Variable — C List 29 C Modbus Re	nietor	Use	e Highlig List Iter	n phied	7	8	9
		O Modbus Regi	ster	C Modbus Co	-				4	5	6
		O Modbus Coil ist Index or Register		List Index or Register Si	tart Index 1	_			1	2	3
				ОК					0	+/-	
	pi lo	g asin sir		sqrt x^y	~	<	>	&	mod	()
	e^x Ir	n acos co	5	rnd abs		le	ge	Т		-	+
		atan tar		max min		=	ne	vor		*	1
			ogin for RTU Iser Name		Passy	bloe					

Figure 6-2. Math Function

Field	Description
Characters remaining	Shows the number of characters left for use in the workspace. The maximum number of characters is 512.
Clear	Click this button to empty the contents of the workspace.
Refresh and Check	Evaluate the workspace expression(s) and update the screen.
Backspace	Erase the last character entered in the workspace.
Space	Insert a space at the cursor position in the workspace
Invert Output	Click this to invert the Boolean output.
Timer Value Inactive /	When active, the Boolean and the Real Result will not

Active	abanga until the averageign is true and the Timer
Active	change until the expression is true and the Timer Value has expired. The Real Result will be 1.0 if the expression evaluates to anything other than 0,
	otherwise it will be 0.0.
Real Result	The real result of the evaluated expression.
Boolean Result	The Boolean result of the evaluated expression. Note that the Invert Output and Timer settings affect the Boolean Result. Note: If the expression evaluates to anything other than 0 or false it will be true
Load From RTU	Retrieve the expression from RTU memory.
Write to RTU	Write the expression to RTU memory.
Calculator	Select the Math function to be viewed/edited (12 available). The number selected corresponds to the default Math function result variables (MFN.MFNx_BOOL and MFN.MFNx_REAL where x is the value selected in the Calculator dropdown box).
Description	Provides a description of a Math Function feature when the mouse is near the feature.
Output To	Selects whether the output of the Math Function will be written to List 29, a Modbus Register, or a Modbus Coil or only to the default Math Function result variables.
None	If None is selected, the result will only be written to the Math Function Real and Boolean result variables (MFN.MFNx_BOOL and MFN.MFNx_REAL where x is the value selected in the Calculator dropdown box).
List 29	If List 29 is selected, the result will be written to the list 29 variable specified by the value of List Index or Register. The result is also written to the default Math Function result variables (MFN.MFNx_BOOL and MFN.MFNx_REAL where x is the value selected in the Calculator dropdown box).
Modbus Register	If Modbus Register is selected, the result will be written to the Modbus Register variable specified by the value of List Index or Register. The result is also written to the default Math Function result variables (MFN.MFNx_BOOL and MFN.MFNx_REAL where x is the value selected in the Calculator dropdown box).
Modbus Coil	If Modbus Coil is selected, the result will be written to the Modbus Coil variable specified by the value of List Index or Register. The result is also written to the default Math Function result variables (MFN.MFNx_BOOL and MFN.MFNx_REAL where x is the value selected in the Calculator dropdown box).
List Index or Register	Provides the list index that the result is to be written to. For example, if List 29 is selected and the index is 3, then the result will be written to item 3 of list 29.
Add Variable	The settings in this frame provide a way to use a List 29, Modbus Register, or Modbus Coil variable in the expression. When a list is selected, an index specified, and the OK button is clicked, the specified item will be written to the expression window and to the Use Highlighted List Item List box.
List 29	In the Add Variable Frame, if List 29 is selected and a value is specified in the List Index or Register, then the specified item in List 29 will be written to the

	expression window.			
Modbus Register	In the Add Variable Frame, if Modbus Register is selected and a value is specified in the List Index or Register, then the specified item in the Modbus Register list will be written to the expression window.			
Modbus Coil	In the Add Variable Frame, if Modbus Coil is selected and a value is specified in the List Index or Register, then the specified item in the Modbus Coil list will be written to the expression window.			
List Index or Register	In the Add Variable Frame, provides the List Index or register to be used in the expression.			
Use Highlighted List Item	Each time a list item is added to the expression it is also added to the Use Highlighted List Item list box. If desired, the user can select a previously used list item from the list box and press the Use Highlighted List Item button to add it to the expression again.			
0 – 9, .	Digits and the decimal point for entering integer and real values. These may also be entered directly from the user's keyboard if desired.			
+/-	Swap the sign			
mod	modulo division			
()	Parentheses (may also be entered from the user's keyboard)			
- + * /	Arithmetic functions (subtract, add, multiply, divide)			
~ < > & le ge = ne xor	Logical comparison functions (NOT, less than, greater than, AND, less than or equal, greater than or equal, OR, equal, not equal, exclusive OR.			
sqrt, x^y, rnd, abs, max, min pi	Square root, exponent, round, absolute value, maximum, minimum Pi			
	E			
e	-			
asin, sin, acos, cos, atan, tan	Trigonometric functions			
log, In	Logarithmic functions			
Login for RTU	The user must log in to read/write the math function from/to RTU memory.			
User Name	RTU User Name			
Password	RTU User Password			

6.3 Sampler

Click the ______ button on the

Utilities tab to configure the Sampler.

The Station Manager allows up to 12 outputs (any combination of analog outputs and pulsed digital outputs) to be configured for 'sampling' functions.

When an analog output is configured as a Sampler output, then any analog input or process variable may be mapped to the Sampler output. The analog output will vary as the analog input or process variable varies, depending on the scale factor and the zeroes and spans selected for the inputs and outputs.

When a pulsed digital output is configured as a Sampler output, then a process variable representing some accumulated value (run flow or energy, station flow or energy) should be mapped to the output. Other analog inputs and process variables may be mapped to the pulsed digital output, but it may not make sense to do so.

The following screen will appear:

Sampler Number	Sampler
Live Values	N/A 0.00 Analog Out 0.00
General Sampler Set Point Source C Analog C List 29 Point Sampler Configuratio	Analog
When Sampler tota	1 Pulse Per 0.0 * One Shot Output Test 1 Pulse Per 0.0 * If using a daily rate you must multiply by 24. One Shot Output Test ottle Full Limit 0 Scale Factor 0.000 Push to Test al equals Sampler Bottle Full Limit, : DD will be set ON One Shot Output Test If using a daily rate you must

Figure 6-3. Sampler

Field	Description
Sampler Number	Select the point to be configured (1 through 12) from the drop down menu. These points correspond to the 'Sampler 1' through 'Sampler 12' selections in the Analog Output and Digital Output assignment screens.
Live Values	This area of the screen displays the live value for the selected point to sample (either analog or List 29 point) and also displays the value of the analog output if Analog is the selected Output Mode.

N/A	This is the label for the Sampler Point source live value
	text box. The value for this label will change based on the selected Point Source. If List 29 Point is selected then the label changes to Selected List 29 Val and the textbox displays the current live value of the selected List 29 Point. When Analog is selected as the Point Source and an analog source is selected from the Analog dropdown box, the label will change to Selected Analog Val. and the selected analog value will be displayed in the textbox.
Analog Out	This label and textbox will only be displayed when Analog is the selected Output Mode. When displayed, the textbox will show the live value of the sampler's analog output.
General Sampler Settings	These items are used to select the source to be sampled.
Point Source	The items in this frame allow you to select whether the sampler source will be an analog source or a list 29 item.
Analog	Select this radio button if the value to be mapped to the sampler output is an analog input; then select the desired input from the drop down menu next to the Analog label.
List 29 Point	If the sampler is to be mapped to some other process variable, rather than an analog input, it may be mapped from List 29
	List 29 is a modifiable list, and may be edited using the On-Line Edit tool to add or remove items from the list.
Sampler Configuration	After the source is configured, the Sampler Configuration itself must be completed. The items in this frame enable the sampler, select the output mode, configure the way the pulse output behaves (if Pulse is the selected Output Mode) and determine scaling.
Disabled / Enabled	The Sampler output is Enabled/Disabled by toggling the button
Output Mode	The output mode may be selected as an analog output (Analog) or pulsed digital output (Pulse).
Pulse Output	If the Output Mode is selected as Pulse, the items in this frame configure the Pulse Output.

Push to Reset	By clicking on the 'Push to Reset' button, the 'Counts' value will be set to 0.
1 Pulse Per	The user is required to enter the ratio of pulses per input quantity.
	For instance:
	Assume the pulse output is mapped to the station accumulated volume.
	The station accumulated volume is in units of MSCF (thousands of standard cubic feet).
	If the user wants a pulse for every 1.0 MSCF, then the entry should be 1.0 (1 pulse per 1.0 MSCF).
	If the user wants a pulse for every 100 SCF (100 standard cubic feet), then the entry should be 0.1 (1 pulse per 0.1 MSCF)
	If the user wants a pulse for every 2.0 MSCF, then the entry should be 2.0 (1 pulse per 2.0 MSCF)
	If the user wants a pulse for every 200 SCF (200 standard cubic feet), then the entry should be 0.2 (1 pulse per 0.2 MSCF).
Counts	The 'Counts' value represents the total number of pulses output since the last time the 'Push to Reset button was pressed.
Sample Bottle Full Limit	If the value of this setting is anything other than 0, the the digital output assigned to the sampler will come or and stay on after the Counts = Sample Bottle Full Limit. Note that the value entered in the 1 Pulse Per field must be .5 or greater for this feature to work properly. Note also that the DO and the counts will be reset when the Push to Reset button is clicked.
Analog Output	
Scale Factor	If the Output Mode is selected as analog, then the user must apply a scale factor to the output.
	If no scaling is required, the scale factor should be set to 1.0.
	Below are some examples of using the Scale Facto
	To convert a flow rate in units of MSCF/Hour to MMSCF/Hour, the scale factor should be 0.001

(1/1000).

To convert a flow rate in units of MMSCF/Hour to MSCF/Hour, the scale factor should be 1000.0.

To convert a flow rate in units of MSCF/Hour to MSCF/Day, the scale factor should be 24.0

To convert a flow rate in units of MSCF/Day to MSCF/Hour, the scale factor should be 0.04167 (1/24).

Any scale factor needed to perform the proper units conversion may be entered here.

One Shot Output Test	
Push to Test	Click this button to send one pulse to the sampler Digital output. Note : This only applies when Pulse is selected at the Output Mode and a DO is assigned to the sampler.

6.4 List 29

For information on List 29, please see Section 3.6.

6.5 Standard Recipe Control



File Operations		RTU Operations	Signal Operations
	<u>R</u> ead from File	Read from <u>R</u> TU	Modify Signal
Filename :	Write <u>t</u> o File	<u>W</u> rite to RTU	<u>D</u> elete Signal
C:\Station_Manager\SM_2_3R2b2\Config\D	efault8R_10_012111.		Insert Signal
Note: The "Change Filename" Button does n	Change Filename ot load the recipe file.	Load Signal List from RTU	Eloating Point Format
			Total Signals : 4092
Signal Name	Value	Status	
@GV.Arc_Mode	0.000000		
FC.SITENAME	Unnamed Site		
FC.STATION_1_NAME	Station 1		
FC.STATION_1_ATMOS	14.699999		
FC.STATION_1_ATMOS_UNITS	5.000000		
FC.STATION_1_BASEPRES	14.730000		
FC.STATION_1_BASEPRES_UNITS	5.000000		
FC.STATION_1_BASETEMP	60.000000		
FC.STATION_1_BASETEMP_UNITS	21.000000		
0 FC.STATION_1_CONTRACTHOUR	9.000000		
1 FC.STATION_1_GCSTREAM	1.000000		
2 FC.STATION_1_FPV_CALC	2.000000		
3 FC.STATION_1_GROSSMODE	OFF		

Figure 6-4. Recipe Feature

To create a recipe you must first specify the variables you want included in the recipe. One way to do this is to *either* right-click on the grid in the center of the Recipe page and choose "**Insert Signal**" from the pop-up menu, *or* click the **Insert Signal** button.

Insert Signal Property at Row 4819 🛛 🔀				
Name:	@GVT1_MAX_DE	OK		
Value:	50.0	Cancel		

Figure 6-5. Insert Signal Property dialog box

In either case, a dialog box opens and you can enter the variable's name. If desired, you can also enter a value for the variable. Click **OK** when you are finished. Repeat for each additional variable.

If you don't enter values for the variable when you insert it you can load the current values in the Station Manager for all variables in the recipe by clicking on **Read From RTU**.

Signal List to Load 🛛 🛛 🔀		
lumber:		
Cancel		

Figure 6-6. Signal List to Load

Another way to specify variables for the recipe is to load the variables from the list. To do this, click the **Load Signal List from RTU** button, then specify the number of the signal list and click **OK**.

Edit Signal Property of Row 4				
Name:	@GVCW_LOCATI	OK		
Value:		Cancel		

Figure 6-7. Edit Signal Property

If, as you are creating the recipe, you decide you want to change a variable or value for a particular entry, *either* right click on the entry and choose **"Edit Signal"** from the pop-up menu, *or* click the **Modify Signal** button. Make changes, as desired, and click **OK**.

If you want to delete a variable in the recipe, *either* right-click on the line for that variable and choose **"Delete Signal"** from the pop-up menu, *or* click the **Delete Signal** button. You will be prompted to confirm the deletion.

6.5.1 Changing the Floating Point Format in the Recipe

If desired, you can change the format in which values are displayed in the recipe window by clicking on the **Floating Point Format** button.

Float Forma	it	×
Width	12 💌	OK
Precision	6 💌	Cancel
Exponent	f 💌	
Example:	123.456787	

Figure 6-8. Float Format dialog box

Use the "**Width**" list box to specify the total number of characters in the field (including the decimal point) when displaying a floating point number. This can range from 0 to 15. The default is 12.

Use the **"Precision"** list box to choose the number of places to the right of the decimal point which should be displayed. This can range from 0 to 15. The default is 6.

Use the **"Exponent"** list box to choose the floating point format 'f', exponential notation 'e', or choose 'g' to have the Recipe control choose the best fit format.

Click on **OK** when finished.

6.5.2 Saving the Recipe

Type the path and filename for your recipe file in the **''Filename''** field or click **Change Filename** to select a recipe from the default recipe area. Standard recipe files are stored with a file extension of (.RCP). You also have the option of saving the file as a .CFG file (which is intended for use with Coastal Flow Measurement Inc. Flow-CalTM software.)

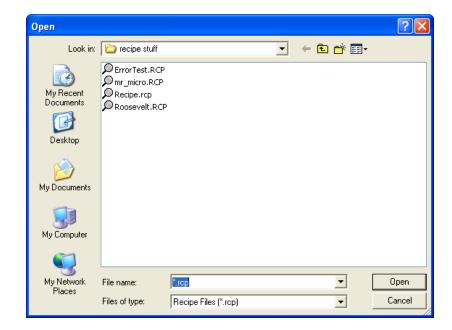


Figure 6-9. Saving the Recipe

Once you have specified the path and filename, click on the **Write to File** button; answer **Yes** to the confirmation prompt, and the control writes the recipe to the specified file.

6.5.3 Recalling a Saved Recipe, and Sending Its Values to the Controller

To recall a recipe which you have saved previously, use the **Change Filename** button to locate it, or type its path and filename in directly in the **''Filename''** field. Finally, click the **Read From File** button, and the recipe will be brought into the web page.

Once the recipe file has been loaded, you can send the recipe values to the controller by clicking on the **Write to RTU** button; answer **Yes** to the confirmation prompt, and the control writes the recipe to the controller.

6.6 User Defined Screen (legacy)

The User Defined Screen lets you display the values for up to thirty variables on the screen.

To do this, first create a text file that uses the following syntax:

! any text following an exclamation point in column 1 is ignored and treated as a comment Lines that start with text not preceded by an explanation point in column 1 are displayed "as is" *label1; variable; label2; variable2; label3; variable3*

label28; variable28; label29; variable29; label30; variable30

associated variable. The semicolon ";" marks the end of the label.
refer to ControlWave variable names. Include a semicolon ";" following the variable name unless this is the last variable on the line.

- Although the syntax box shows three variables per line, you can include more or less provided they fit within the user defined display.
- Each label and variable pair makes up a column on the screen.
- To display a semicolon on a text line, insert a backslash immediately before it, for example \;

To load the User Defined Screen:

- 1. Click the User Defined Screen (Legacy) button on the Utilities tab.
- 2. Use the **File Select** list box to select the text file you created; if it is not visible in the list, click **Add** and locate it.
- **3.** Once selected the user defined screen will open.

🕞 Configu	untion						
Connge		Select					
Defau	lt Example 1		-	Add	Remove	Move Up	
User AI 1	0.000000	User AI 2	0.000000	User AI 3	0.000000		
User AI 4	0.000000	User AI 5	0.000000	User Al 6	0.000000		
User Al 7	0.000000	User AI 8	0.000000	User Al 9	0.000000		
	L			L L			

Figure 6-10. User-Defined Screen Configuration

Notes:

- You can optionally delete a text file from the list by highlighting it and clicking **Remove**.
- You can rearrange the file's position in the list using the **Move Up** button.

If you have an example text file called "simple example.txt" that looks like this:

```
!anything following an exclamation point in column 1 is treated as a comment
text starting a line not preceded by an exclamation point is displayed "as is"
My First Label;IO_1.HWAIs_1.HWAI_86;My Second Label;IO_1.HWAIs_1.HWAI_87
My Third Label;IO_1.HWAIs_1.HWAI_88;My Fourth Label;IO_1.HWAIs_1.HWAI_89
here is some more text
My Fourth Label;IO_1.HWAIS_HWAI_90
Here is a semicolon printed as text \;
```

When you load it into the user-defined display, it looks like this.

Configuration					
connyuration	File Select				
simple example		▼	Add Remov	ve Move Up	
text starting a line not prece	eded by an exclamation	point is displaye	d "as is"		
My First Label 0.000000	My 0.0	000000			
My Third Label 0.000000	My Fourth Label 0.0	000000			
here is some more text					
My Fourth ????? Label					
Here is a semicolon printed	as text ;				

Figure 6-11. User-Defined Screen

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Appendix C – Measurement Canada Inspection

Verifying the Integrity of the Station Manager 6-Run Application

To verify the integrity of the RTU application requires the authentication code generation utility (**bootscan.exe**) and the batch program **AuditSMApplication.bat**. Both of these are provided when you purchase the RTU application.

The Station Manager 6-Run application exists in file form within the RTU as **bootfile.pro**. Within this file are three programs (POUs) that make up the controlled (certified) code. The NOA / MAL documents include the authentication codes for these three programs at the time Measurement Canada approved the application.

To verify the Station Manager 6-Run application:

- 1. Run the AuditSMApplication.bat program.
- **2.** The program uploads **bootfile.pro** from the RTU to your PC and runs the **bootscan** utility to generate the authentication codes, and then opens the file with codes for verification.
- **3.** The program allows you to step through the verification process.

Unlocking the Station Manager 6-Run Application

Once the RTU logs a specified number of events (alarms and or audited signal changes) the Station Manager 6-Run application locks and prevents any additional changes. To "unlock" the RTU, you must recertify it. To do this:

- **1.** Attach a ControlWave Micro serial line to the local com port.
- **2.** Retrieve the audit data:
 - **a.** Go to the **Historical** tab.
 - b. Select Collect Local Logs.
 - c. Specify the desired path to save the Audit file.
 - d. Select Audit from the list.
 - e. Click the Start Collect button and wait for it to finish.
 - **f.** Click **Convert to CSV** (this saves the collected Audit data to a CSV format in the folder specified by **Storage Folder**.)
 - **g.** This operation stores a list of corresponding signals in a file called "Modbus MRMS_4_20.xls" located in the documentation folder under the Station Manager folder in the program data section. (Use the link in the start menu short cuts to go there.)
- **3.** Once satisfied, to allow further changes, click the **Measurement** Tab.

4. Select Status/Configuration.

- 5. Select the site name from the tree on the left (root of the tree).
- 6. On the first page at the bottom click **Reset Audit and Allow** Additional Entries.
- **7.** Click **Continue** on the pop up dialogue box to confirm this is your intention.
- **8.** The Audit and the Alarm counts should now be reset and the dialogue should close.

Identifying Legally Relevant Parameters and Verification Triggering Events (VTEs)

Legally Relevant Parameters refer to parameters which the Station Manager 6-Run application monitors for changes. When you modify any legally relevant parameter, the application stores an event entry in the audit log.

There is a special **subset** of the legally relevant parameters which you cannot modify without generating a Verification Triggering Event (VTE). Under Measurement Canada regulations, if you modify one of these parameters, the application generates a VTE and Measurement Canada must verify the device before it can be used or returned to service.

Legally Relevant Parameters that You Can Modify Without Generating a VTE

When you modify values of any of the Legally Relevant Parameters listed in *Table C-1*, the application stores an event entry in the audit log but does **not** generate a Verification Triggering Event (VTE).

Table C-1. Legally Relevant Parameters that are not Verification Triggering Events

Signal	Description
FC.STATION_1_ATMOS	Station Configuration
FC.STATION_1_ATMOS_UNITS	Station Configuration
FC.STATION_1_BASEPRES	Station Configuration
FC.STATION_1_BASEPRES_UNITS	Station Configuration
FC.STATION_1_BASETEMP	Station Configuration
FC.STATION_1_BASETEMP_UNITS	Station Configuration
FC.STATION_1_GCSTREAM	Station Configuration
FC.STATION_1_ForceFixed	Station Configuration
FC.STATION_2_ATMOS	Station Configuration
FC.STATION_2_ATMOS_UNITS	Station Configuration
FC.STATION_2_BASEPRES	Station Configuration
FC.STATION_2_BASEPRES_UNITS	Station Configuration

Signal	Description
FC.STATION_2_BASETEMP	Station Configuration
FC.STATION_2_BASETEMP_UNITS	Station Configuration
FC.STATION_2_GCSTREAM	Station Configuration
FC.STATION_2_ForceFixed	Station Configuration
FC.STATION_3_ATMOS	Station Configuration
FC.STATION_3_ATMOS_UNITS	Station Configuration
FC.STATION_3_BASEPRES	Station Configuration
FC.STATION_3_BASEPRES_UNITS	Station Configuration
FC.STATION_3_BASETEMP	Station Configuration
FC.STATION_3_BASETEMP_UNITS	Station Configuration
FC.STATION_3_GCSTREAM	Station Configuration
FC.STATION_3_ForceFixed	Station Configuration
FC.STATION_4_ATMOS	Station Configuration
FC.STATION_4_ATMOS_UNITS	Station Configuration
FC.STATION_4_BASEPRES	Station Configuration
FC.STATION_4_BASEPRES_UNITS	Station Configuration
FC.STATION_4_BASETEMP	Station Configuration
FC.STATION_4_BASETEMP_UNITS	Station Configuration
FC.STATION_4_AVGUSEWEIGHT	Station Configuration
FC.STATION_4_ForceFixed	Station Configuration
FC.STATION_5_ATMOS	Station Configuration
FC.STATION_5_ATMOS_UNITS	Station Configuration
FC.STATION_5_BASEPRES	Station Configuration
FC.STATION_5_BASEPRES_UNITS	Station Configuration
FC.STATION_5_BASETEMP	Station Configuration
FC.STATION_5_BASETEMP_UNITS	Station Configuration
FC.STATION_5_GCSTREAM	Station Configuration
FC.STATION_5_ForceFixed	Station Configuration
FC.STATION_6_ATMOS	Station Configuration
FC.STATION_6_ATMOS_UNITS	Station Configuration
FC.STATION_6_BASEPRES	Station Configuration
FC.STATION_6_BASEPRES_UNITS	Station Configuration
FC.STATION_6_BASETEMP	Station Configuration
FC.STATION_6_BASETEMP_UNITS	Station Configuration
FC.STATION_6_GCSTREAM	Station Configuration
FC.STATION_6_ForceFixed	Station Configuration
FC.RUN_1_STATION	Run n Station Assignment
FC.FC1.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC1.RX_PIPE_UNITS	Run <i>n</i> pipe diameter units
FC.FC1.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC1.RX_PIPE_REFTMP	Run <i>n</i> pipe material reference temperature
FC.FC1.ORIF_DIAM_INUSE	Run <i>n</i> orifice diameter setting

Signal	Description
FC.FC1.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff
FC.FC1.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
FC.FC1.RX_ORIF_DIAM	Run n orifice diameter setting
FC.FC1.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC1.RX_ORIF_MTRL	Run <i>n</i> orifice material selection
FC.FC1.RX_ORIF_REFTMP	Run <i>n</i> orifice material reference temperature
FC.FC1.RX_LCUTOFF	Run <i>n</i> Linearization Function enable/disable
FC.FC1.RX_AGA7_CFACTOR	Run <i>n</i> AGA7 C factor
FC.FC1.RX_AGA7_KFACTOR	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse)
FC.FC1.RX_KFACTOR_TYPE	Run <i>n</i> AGA7 K factor select (pulses/volume or volume/pulse)
FC.FC1.RX_K	Run <i>n</i> K Factor
FC.FC1.RX_VISC	Run <i>n</i> Viscosity
FC.FC1.RX_VISC_UNITS	Run n Viscosity Units
FC.FC1.RX_FL	Run n FI Factor
FC.FC1.RX_FM	Run <i>n</i> Fm Factor
FC.FC1.RX_CPRIME	Run n C' Factor
FC.FC1.RX_FEXT	Run <i>n</i> F Extension Factor
FC.FC1.RX_OrifTCoef	Run <i>n</i> Orifice Temperature Coefficient
FC.FC1.RX_PipeTCoef	Run <i>n</i> Pipe Temperature Coefficient
FC.FC1.RX_Point	Tap Construction for Run n
FC.FC1.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_1.KM	Run <i>n</i> AutoAdjust K factor Main Rotor
FC.AA_1.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_1.KMO	Run <i>n</i> AutoAdjust K factor Main Rotor override
FC.RUN_1_AA_MAXACF	Run <i>n</i> AutoAdjust maximum actual volume
FC.AA_1.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_1.BTSF	Run <i>n</i> Autoadjust BTSF
FC.AA_1.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC1.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds for low frequency PD meters
FC.FC1.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from FC.STATION_x_ATMOS)
FC.FC1.RX_AP_UNITS	Run <i>n</i> atmospheric pressure units (from

Signal	Description
	FC.STATION_x_ATMOS_UNI TS)
FC.FC1.RX_PRESBASE	Run <i>n</i> base pressure (from FC.STATION_x_BASEPRES)
FC.FC1.RX_PB_UNITS	Run <i>n</i> base pressure units (from FC.STATION_x_BASEPRES_ UNITS)
FC.FC1.RX_TEMPBASE	Run <i>n</i> base temperature (from FC.STATION x BASETEMP)
FC.FC1.RX_TB_UNITS	Run <i>n</i> base temperature units (from FC.STATION_x_BASETEMP_ UNITS)
FC.FC1.RX_ForceFixed	Force Fixed GC Values for Run <i>n</i> (from FC.STATION_x_ForceFixed)
FC.FC1.RX_C	Run n C Factor
FC.FC1.RX_Fa	Run n Fa Factor
FC.FC1.RX_Y	Run n Y Factor
FC.FC1.RX_KFactor_Units	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse) units
FC.FC1.RX_Maint_Fixed	Run <i>n</i> Use Fixed Maintenance Values
FC.FC1.UFM_PFail_Enable	Run <i>n</i> Pulse Failure Flow Calc Enable
FC.FC1.RX_Cor_CalibPress	Run <i>n</i> Coriolis Calibration Pressure
FC.FC1.FCalc.Air_Density_Cnst	Run <i>n</i> Air Density Constant
FC.FC1.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure Correction Factor
FC.RUN_2_STATION	Run n Station Assignment
FC.FC2.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC2.RX_PIPE_UNITS	Run <i>n</i> pipe diameter units
FC.FC2.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC2.RX_PIPE_REFTMP	Run n pipe material reference temperature
FC.FC2.ORIF_DIAM_INUSE	Run <i>n</i> orifice diameter setting
FC.FC2.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff
FC.FC2.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
IO_1.R2_DP_ZERO	Run <i>n</i> Differential Pressure Zero
FC.FC2.RX_ORIF_DIAM	Run <i>n</i> orifice diameter setting
FC.FC2.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC2.RX_ORIF_MTRL	Run <i>n</i> orifice material selection
FC.FC2.RX_ORIF_REFTMP	Run <i>n</i> orifice material reference temperature
FC.FC2.RX_LCUTOFF	Run <i>n</i> Linearization Function

Signal	Description
	enable/disable
FC.FC2.RX_AGA7_CFACTOR	Run n AGA7 C factor
FC.FC2.RX_AGA7_KFACTOR	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse)
FC.FC2.RX_KFACTOR_TYPE	Run <i>n</i> AGA7 K factor select (pulses/volume or volume/pulse)
FC.FC2.RX_K	Run <i>n</i> K Factor
FC.FC2.RX_VISC	Run n Viscosity
FC.FC2.RX_VISC_UNITS	Run <i>n</i> Viscosity Units
FC.FC2.RX_FL	Run <i>n</i> Fl Factor
FC.FC2.RX_FM	Run <i>n</i> Fm Factor
FC.FC2.RX CPRIME	Run <i>n</i> C' Factor
FC.FC2.RX_FEXT	Run <i>n</i> F Extension Factor
FC.FC2.RX_OrifTCoef	Run <i>n</i> Orifice Temperature Coefficient
FC.FC2.RX_PipeTCoef	Run <i>n</i> Pipe Temperature Coefficient
FC.FC2.RX_Point	Tap Construction for Run <i>n</i>
FC.FC2.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_2.KM	Run <i>n</i> AutoAdjust K factor Main Rotor
FC.AA_2.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_2.KMO	Run <i>n</i> AutoAdjust K factor Main Rotor override
FC.RUN_2_AA_MAXACF	Run <i>n</i> AutoAdjust maximum actual volume
FC.AA_2.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_2.BTSF	Run <i>n</i> Autoadjust BTSF
FC.AA_2.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC2.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds for low frequency PD meters
FC.FC2.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from FC.STATION_x_ATMOS)
FC.FC2.RX_AP_UNITS	Run <i>n</i> atmospheric pressure units (from FC.STATION_x_ATMOS_UNI TS)
FC.FC2.RX_PRESBASE	Run <i>n</i> base pressure (from FC.STATION_x_BASEPRES)
FC.FC2.RX_PB_UNITS	Run <i>n</i> base pressure units (from FC.STATION_x_BASEPRES_ UNITS)
FC.FC2.RX_TEMPBASE	Run <i>n</i> base temperature (from FC.STATION_x_BASETEMP)
FC.FC2.RX_TB_UNITS	Run <i>n</i> base temperature units

Signal	Description
	(from FC.STATION_x_BASETEMP_ UNITS)
FC.FC2.RX_ForceFixed	Force Fixed GC Values for Run <i>n</i> (from FC.STATION_x_ForceFixed)
FC.FC2.RX_C	Run <i>n</i> C Factor
FC.FC2.RX_Fa	Run n Fa Factor
FC.FC2.RX_Y	Run n Y Factor
FC.FC2.RX_KFactor_Units	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse) units
FC.FC2.RX_Maint_Fixed	Run <i>n</i> Use Fixed Maintenance Values
FC.FC2.UFM_PFail_Enable	Run <i>n</i> Pulse Failure Flow Calc Enable
FC.FC2.RX_Cor_CalibPress	Run <i>n</i> Coriolis Calibration Pressure
FC.FC2.FCalc.Air_Density_Cnst	Run <i>n</i> Air Density Constant
FC.FC2.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure Correction Factor
FC.RUN_3_STATION	Run n Station Assignment
FC.FC3.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC3.RX_PIPE_UNITS	Run n pipe diameter units
FC.FC3.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC3.RX_PIPE_REFTMP	Run <i>n</i> pipe material reference temperature
FC.FC3.ORIF_DIAM_INUSE	Run n orifice diameter setting
FC.FC3.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff
FC.FC3.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
IO_1.R3_DP_ZERO	Run <i>n</i> Differential Pressure Zero
FC.FC3.RX_ORIF_DIAM	Run n orifice diameter setting
FC.FC3.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC3.RX_ORIF_MTRL	Run <i>n</i> orifice material selection
FC.FC3.RX_ORIF_REFTMP	Run <i>n</i> orifice material reference temperature
FC.FC3.RX_LCUTOFF	Run <i>n</i> Linearization Function enable/disable
FC.FC3.RX_AGA7_CFACTOR	Run n AGA7 C factor
FC.FC3.RX_AGA7_KFACTOR	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse)
FC.FC3.RX_KFACTOR_TYPE	Run <i>n</i> AGA7 K factor select (pulses/volume or volume/pulse)
FC.FC3.RX_K	Run n K Factor
FC.FC3.RX_VISC	Run n Viscosity

Signal	Description
FC.FC3.RX_VISC_UNITS	Run n Viscosity Units
FC.FC3.RX_FL	Run n FI Factor
FC.FC3.RX_FM	Run n Fm Factor
FC.FC3.RX CPRIME	Run n C' Factor
FC.FC3.RX FEXT	Run <i>n</i> F Extension Factor
FC.FC3.RX OrifTCoef	Run <i>n</i> Orifice Temperature
	Coefficient
FC.FC3.RX_PipeTCoef	Run <i>n</i> Pipe Temperature
	Coefficient
FC.FC3.RX_Point	Tap Construction for Run n
FC.FC3.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_3.KM	Run n AutoAdjust K factor
	Main Rotor
FC.AA_3.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_3.KMO	Run <i>n</i> AutoAdjust K factor
	Main Rotor override
FC.RUN_3_AA_MAXACF	Run n AutoAdjust maximum
	actual volume
FC.AA_3.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_2.BTSF	Run <i>n</i> Autoadjust BTSF
FC.AA_3.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC3.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds
	for low frequency PD meters
FC.FC3.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from
	FC.STATION_x_ATMOS)
FC.FC3.RX_AP_UNITS	Run <i>n</i> atmospheric pressure
	units (from
	FC.STATION_x_ATMOS_UNI
FC.FC3.RX PRESBASE	TS) Run <i>n</i> base pressure (from
TO: TO: NO. NA_T REOBACE	FC.STATION_x_BASEPRES)
FC.FC3.RX_PB_UNITS	Run <i>n</i> base pressure units
	(from
	FC.STATION_x_BASEPRES_ UNITS)
FC.FC3.RX TEMPBASE	Run <i>n</i> base temperature (from
	FC.STATION_x_BASETEMP)
FC.FC3.RX_TB_UNITS	Run <i>n</i> base temperature units
	FC.STATION_x_BASETEMP_ UNITS)
FC.FC3.RX_ForceFixed	Force Fixed GC Values for
	Run <i>n</i> (from
	FC.STATION_x_ForceFixed)
FC.FC3.RX_C	Run <i>n</i> C Factor
FC.FC3.RX_Fa	Run <i>n</i> Fa Factor
FC.FC3.RX_Y	Run <i>n</i> Y Factor
FC.FC3.RX_KFactor_Units	Run n AGA7 K factor

Signal	Description
	(pulses/volume or volume/pulse) units
FC.FC3.RX Maint Fixed	Run <i>n</i> Use Fixed Maintenance
	Values
FC.FC3.UFM_PFail_Enable	Run <i>n</i> Pulse Failure Flow Calc
	Enable
FC.FC3.RX_Cor_CalibPress	Run <i>n</i> Coriolis Calibration Pressure
FC.FC3.FCalc.Air_Density_Cnst	Run <i>n</i> Air Density Constant
FC.FC3.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure Correction Factor
FC.RUN_4_STATION	Run <i>n</i> Station Assignment
FC.FC4.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC4.RX_PIPE_UNITS	Run <i>n</i> pipe diameter units
FC.FC4.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC4.RX_PIPE_REFTMP	Run <i>n</i> pipe material reference temperature
FC.FC4.ORIF_DIAM_INUSE	Run <i>n</i> orifice diameter setting
FC.FC4.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff
FC.FC4.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
IO_1.R4_DP_ZERO	Run <i>n</i> Differential Pressure Zero
FC.FC4.RX_ORIF_DIAM	Run <i>n</i> orifice diameter setting
FC.FC4.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC4.RX_ORIF_MTRL	Run <i>n</i> orifice material selection
FC.FC4.RX_ORIF_REFTMP	Run <i>n</i> orifice material
FC.FC4.RX LCUTOFF	reference temperature Run <i>n</i> Linearization Function
	enable/disable
FC.FC4.RX_AGA7_CFACTOR	Run n AGA7 C factor
FC.FC4.RX_AGA7_KFACTOR	Run n AGA7 K factor
	(pulses/volume or
FC.FC4.RX KFACTOR TYPE	volume/pulse) Run n AGA7 K factor select
FC.FC4.RX_KFACTOR_TTPE	(pulses/volume or
	volume/pulse)
FC.FC4.RX_K	Run <i>n</i> K Factor
FC.FC4.RX_VISC	Run n Viscosity
FC.FC4.RX_VISC_UNITS	Run n Viscosity Units
FC.FC4.RX_FL	Run n FI Factor
FC.FC4.RX_FM	Run n Fm Factor
FC.FC4.RX_CPRIME	Run n C' Factor
FC.FC4.RX_FEXT	Run n F Extension Factor
FC.FC4.RX_OrifTCoef	Run <i>n</i> Orifice Temperature Coefficient
FC.FC4.RX_PipeTCoef	Run <i>n</i> Pipe Temperature Coefficient

Signal	Description
FC.FC4.RX_Point	Tap Construction for Run n
FC.FC4.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_4.KM	Run <i>n</i> AutoAdjust K factor Main Rotor
FC.AA_4.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_4.KMO	Run <i>n</i> AutoAdjust K factor Main Rotor override
FC.RUN_4_AA_MAXACF	Run <i>n</i> AutoAdjust maximum actual volume
FC.AA_4.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_4.BTSF	Run n Autoadjust BTSF
FC.AA_4.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC4.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds for low frequency PD meters
FC.FC4.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from FC.STATION_x_ATMOS)
FC.FC4.RX_AP_UNITS	Run <i>n</i> atmospheric pressure units (from FC.STATION_x_ATMOS_UNI TS)
FC.FC4.RX_PRESBASE	Run <i>n</i> base pressure (from FC.STATION_x_BASEPRES)
FC.FC4.RX_PB_UNITS	Run <i>n</i> base pressure units (from FC.STATION_x_BASEPRES_ UNITS)
FC.FC4.RX_TEMPBASE	Run <i>n</i> base temperature (from FC.STATION_x_BASETEMP)
FC.FC4.RX_TB_UNITS	Run <i>n</i> base temperature units (from FC.STATION_x_BASETEMP_ UNITS)
FC.FC4.RX_ForceFixed	Force Fixed GC Values for Run <i>n</i> (from FC.STATION_x_ForceFixed)
FC.FC4.RX_C	Run <i>n</i> C Factor
FC.FC4.RX_Fa	Run <i>n</i> Fa Factor
FC.FC4.RX_Y	Run n Y Factor
FC.FC4.RX_KFactor_Units	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse) units
FC.FC4.RX_Maint_Fixed	Run <i>n</i> Use Fixed Maintenance Values
FC.FC4.UFM_PFail_Enable	Run <i>n</i> Pulse Failure Flow Calc Enable
FC.FC4.RX_Cor_CalibPress	Run <i>n</i> Coriolis Calibration Pressure
FC.FC4.FCalc.Air_Density_Cnst	Run n Air Density Constant
FC.FC4.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure Correction Factor

Signal	Description
FC.RUN_5_STATION	Run n Station Assignment
FC.FC5.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC5.RX_PIPE_UNITS	Run <i>n</i> pipe diameter units
FC.FC5.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC5.RX_PIPE_REFTMP	Run <i>n</i> pipe material reference temperature
FC.FC5.ORIF_DIAM_INUSE	Run <i>n</i> orifice diameter setting
FC.FC5.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff
FC.FC5.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
IO_1.R5_DP_ZERO	Run <i>n</i> Differential Pressure Zero
FC.FC5.RX_ORIF_DIAM	Run <i>n</i> orifice diameter setting
FC.FC5.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC5.RX_ORIF_MTRL	Run <i>n</i> orifice material selection
FC.FC5.RX_ORIF_REFTMP	Run <i>n</i> orifice material reference temperature
FC.FC5.RX_LCUTOFF	Run <i>n</i> Linearization Function enable/disable
FC.FC5.RX_AGA7_CFACTOR	Run n AGA7 C factor
FC.FC5.RX_AGA7_KFACTOR	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse)
FC.FC5.RX_KFACTOR_TYPE	Run <i>n</i> AGA7 K factor select (pulses/volume or volume/pulse)
FC.FC5.RX_K	Run <i>n</i> K Factor
FC.FC5.RX_VISC	Run <i>n</i> Viscosity
FC.FC5.RX_VISC_UNITS	Run <i>n</i> Viscosity Units
FC.FC5.RX_FL	Run <i>n</i> FI Factor
FC.FC5.RX_FM	Run <i>n</i> Fm Factor
FC.FC5.RX_CPRIME	Run n C' Factor
FC.FC5.RX_FEXT	Run <i>n</i> F Extension Factor
FC.FC5.RX_OrifTCoef	Run <i>n</i> Orifice Temperature Coefficient
FC.FC5.RX_PipeTCoef	Run <i>n</i> Pipe Temperature Coefficient
FC.FC5.RX_Point	Tap Construction for Run n
FC.FC5.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_5.KM	Run <i>n</i> AutoAdjust K factor Main Rotor
FC.AA_5.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_5.KMO	Run <i>n</i> AutoAdjust K factor Main Rotor override
FC.RUN_5_AA_MAXACF	Run <i>n</i> AutoAdjust maximum actual volume

Signal	Description
FC.AA_5.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_5.BTSF	Run <i>n</i> Autoadjust BTSF
FC.AA_5.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC5.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds for low frequency PD meters
FC.FC5.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from FC.STATION_x_ATMOS)
FC.FC5.RX_AP_UNITS	Run <i>n</i> atmospheric pressure units (from FC.STATION_x_ATMOS_UNI TS)
FC.FC5.RX_PRESBASE	Run <i>n</i> base pressure (from FC.STATION_x_BASEPRES)
FC.FC5.RX_PB_UNITS	Run <i>n</i> base pressure units (from FC.STATION_x_BASEPRES_ UNITS)
FC.FC5.RX_TEMPBASE	Run <i>n</i> base temperature (from FC.STATION x BASETEMP)
FC.FC5.RX_TB_UNITS	Run <i>n</i> base temperature units (from FC.STATION_x_BASETEMP_ UNITS)
FC.FC5.RX_ForceFixed	Force Fixed GC Values for Run <i>n</i> (from FC.STATION_x_ForceFixed)
FC.FC5.RX_C	Run <i>n</i> C Factor
FC.FC5.RX_Fa	Run <i>n</i> Fa Factor
FC.FC5.RX_Y	Run n Y Factor
FC.FC5.RX_KFactor_Units	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse) units
FC.FC5.RX_Maint_Fixed	Run <i>n</i> Use Fixed Maintenance Values
FC.FC5.UFM_PFail_Enable	Run <i>n</i> Pulse Failure Flow Calc Enable
FC.FC5.RX_Cor_CalibPress	Run <i>n</i> Coriolis Calibration Pressure
FC.FC5.FCalc.Air_Density_Cnst	Run <i>n</i> Air Density Constant
FC.FC5.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure Correction Factor
FC.RUN_6_STATION	Run n Station Assignment
FC.FC6.RX_PIPE_DIAM	Run <i>n</i> pipe diameter
FC.FC6.RX_PIPE_UNITS	Run n pipe diameter units
FC.FC6.RX_PIPE_MTRL	Run <i>n</i> pipe material selection
FC.FC6.RX_PIPE_REFTMP	Run <i>n</i> pipe material reference temperature
FC.FC6.ORIF_DIAM_INUSE	Run <i>n</i> orifice diameter setting
FC.FC6.RX_DPCUT_VAL	Run <i>n</i> differential pressure cutoff

Signal	Description
FC.FC6.RX_DPCUT_UNITS	Run <i>n</i> differential pressure cutoff units
IO_1.R6_DP_ZERO	Run <i>n</i> Differential Pressure Zero
FC.FC6.RX_ORIF_DIAM	Run n orifice diameter setting
FC.FC6.RX_ORIF_UNITS	Run <i>n</i> orifice diameter setting units
FC.FC6.RX_ORIF_MTRL	Run n orifice material selection
FC.FC6.RX_ORIF_REFTMP	Run <i>n</i> orifice material reference temperature
FC.FC6.RX_LCUTOFF	Run <i>n</i> Linearization Function enable/disable
FC.FC6.RX_AGA7_CFACTOR	Run n AGA7 C factor
FC.FC6.RX_AGA7_KFACTOR	Run <i>n</i> AGA7 K factor (pulses/volume or volume/pulse)
FC.FC6.RX_KFACTOR_TYPE	Run <i>n</i> AGA7 K factor select (pulses/volume or volume/pulse)
FC.FC6.RX_K	Run <i>n</i> K Factor
FC.FC6.RX_VISC	Run <i>n</i> Viscosity
FC.FC6.RX_VISC_UNITS	Run n Viscosity Units
FC.FC6.RX_FL	Run n FI Factor
FC.FC6.RX_FM	Run n Fm Factor
FC.FC6.RX_CPRIME	Run n C' Factor
FC.FC6.RX_FEXT	Run <i>n</i> F Extension Factor
FC.FC6.RX_OrifTCoef	Run <i>n</i> Orifice Temperature Coefficient
FC.FC6.RX_PipeTCoef	Run <i>n</i> Pipe Temperature Coefficient
FC.FC6.RX_Point	Tap Construction for Run n
FC.FC6.RX_AA_CUTOFF	Run <i>n</i> AutoAdjust low frequency cutoff
FC.AA_6.KM	Run <i>n</i> AutoAdjust K factor Main Rotor
FC.AA_6.KS	Run <i>n</i> AutoAdjust K factor Sense Rotor
FC.AA_6.KMO	Run <i>n</i> AutoAdjust K factor Main Rotor override
FC.RUN_6_AA_MAXACF	Run <i>n</i> AutoAdjust maximum actual volume
FC.AA_6.ABAR	Run <i>n</i> AutoAdjust a bar
FC.AA_6.BTSF	Run <i>n</i> Autoadjust BTSF
FC.AA_6.INCR	Run <i>n</i> Autoadjust flow total scaling factor
FC.FC6.RX_SFREQ_DB	Run <i>n</i> cutoff value in seconds for low frequency PD meters
FC.FC6.RX_ATMOS	Run <i>n</i> atmospheric (barometric) pressure (from FC.STATION_x_ATMOS)
FC.FC6.RX_AP_UNITS	Run <i>n</i> atmospheric pressure units (from

Signal	Description
	FC.STATION_x_ATMOS_UNI
	TS)
FC.FC6.RX_PRESBASE	Run <i>n</i> base pressure (from FC.STATION_x_BASEPRES)
FC.FC6.RX PB UNITS	Run <i>n</i> base pressure units
	(from
	FC.STATION_x_BASEPRES_
	UNITS)
FC.FC6.RX_TEMPBASE	Run <i>n</i> base temperature (from
FC.FC6.RX TB UNITS	FC.STATION_x_BASETEMP) Run <i>n</i> base temperature units
	(from
	FC.STATION_x_BASETEMP_
	UNITS)
FC.FC6.RX_ForceFixed	Force Fixed GC Values for
	Run <i>n</i> (from FC.STATION_x_ForceFixed)
FC.FC6.RX C	Run n C Factor
FC.FC6.RX Fa	Run <i>n</i> Fa Factor
FC.FC6.RX Y	Run <i>n</i> Y Factor
FC.FC6.RX KFactor Units	Run <i>n</i> AGA7 K factor
	(pulses/volume or
	volume/pulse) units
FC.FC6.RX_Maint_Fixed	Run <i>n</i> Use Fixed Maintenance
FC.FC6.UFM_PFail_Enable	Values Run <i>n</i> Pulse Failure Flow Calc
FC.FC0.0FIN_FFail_Eliable	Enable
FC.FC6.RX_Cor_CalibPress	Run n Coriolis Calibration
	Pressure
FC.FC6.FCalc.Air_Density_Cnst	Run <i>n</i> Air Density Constant
FC.FC6.FCalc.Coriolis_Press_CorrFactor	Run <i>n</i> Coriolis Pressure
FC.FC1.RX_FLOW_RATE_UNITS	Correction Factor Run Configuration
FC.FC1.RX_ENERGY_RATE_UNITS	Run Configuration
FC.FC1.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC1.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC1.RX MASS RATE Units	Run Configuration
FC.FC1.RX_MASS_RATE_Time	Run Configuration
FC.FC2.RX_FLOW_RATE_UNITS	Run Configuration
FC.FC2.RX ENERGY RATE UNITS	Run Configuration
FC.FC2.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC2.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC2.RX_MASS_RATE_Units	Run Configuration
FC.FC2.RX_MASS_RATE_Time	Run Configuration
FC.FC3.RX_FLOW_RATE_UNITS	Run Configuration
FC.FC3.RX_ENERGY_RATE_UNITS	Run Configuration
FC.FC3.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC3.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC3.RX_MASS_RATE_Units	Run Configuration

Signal	Description
FC.FC3.RX_MASS_RATE_Time	Run Configuration
FC.FC4.RX_FLOW_RATE_UNITS	Run Configuration
FC.FC4.RX_ENERGY_RATE_UNITS	Run Configuration
FC.FC4.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC4.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC4.RX_MASS_RATE_Units	Run Configuration
FC.FC4.RX_MASS_RATE_Time	Run Configuration
FC.FC5.RX_FLOW_RATE_UNITS	Run Configuration
FC.FC5.RX_ENERGY_RATE_UNITS	Run Configuration
FC.FC5.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC5.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC5.RX_MASS_RATE_Units	Run Configuration
FC.FC5.RX_MASS_RATE_Time	Run Configuration
FC.FC6.RX_FLOW_RATE_UNITS	Run Configuration
FC.FC6.RX_ENERGY_RATE_UNITS	Run Configuration
FC.FC6.RX_ENERGY_RATE_TIME	Run Configuration
FC.FC6.RX_UCFLOW_RATE_UNITS	Run Configuration
FC.FC6.RX_MASS_RATE_Units	Run Configuration
FC.FC6.RX_MASS_RATE_Time	Run Configuration
FC.ST1_Flow_Rate_Units	Station Configuration
FC.ST1_Energy_Rate_Units	Station Configuration
FC.ST1_Energy_Rate_Time	Station Configuration
FC.ST1_UCFlow_Rate_Units	Station Configuration
FC.ST2_Flow_Rate_Units	Station Configuration
FC.ST2_Energy_Rate_Units	Station Configuration
FC.ST2_Energy_Rate_Time	Station Configuration
FC.ST2_UCFlow_Rate_Units	Station Configuration
FC.ST3_Flow_Rate_Units	Station Configuration
FC.ST3_Energy_Rate_Units	Station Configuration
FC.ST3_Energy_Rate_Time	Station Configuration
FC.ST3_UCFlow_Rate_Units	Station Configuration
FC.ST4_Flow_Rate_Units	Station Configuration
FC.ST4_Energy_Rate_Units	Station Configuration
FC.ST4_Energy_Rate_Time	Station Configuration
FC.ST4_UCFlow_Rate_Units	Station Configuration
FC.ST5_Flow_Rate_Units	Station Configuration
FC.ST5_Energy_Rate_Units	Station Configuration
FC.ST5_Energy_Rate_Time	Station Configuration
FC.ST5_UCFlow_Rate_Units	Station Configuration
FC.ST6_Flow_Rate_Units	Station Configuration
FC.ST6_Energy_Rate_Units	Station Configuration
FC.ST6_Energy_Rate_Time	Station Configuration

Signal	Description
FC.ST6_UCFlow_Rate_Units	Station Configuration
PG_GC.GC_1.GC_1.FIXED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.FIXED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_BTU	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_2.FIXED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_C3	Gas Chromatograph
10_00.00_1.00_2.i	Configuration
PG_GC.GC_1.GC_2.FIXED_IC4	Gas Chromatograph
10_00.00_1.00_2.1 IXED_104	Configuration
PG_GC.GC_1.GC_2.FIXED_NC4	Gas Chromatograph
FG_GC.GC_1.GC_2.FIXED_NC4	Configuration
PG_GC.GC_1.GC_2.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_02	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.FIXED_AR	Gas Chromatograph
· •_• • • • • • • • • • • • • • • • • •	Configuration
PG_GC.GC_1.GC_2.FIXED_C6PLUS	Gas Chromatograph
· 0_00.00_1.00_2.1 MED_001 200	Configuration
PG_GC.GC_1.GC_2.FIXED_C9PLUS	Gas Chromatograph
1 0_00.00_1.00_2.1 IAED_09FL00	Configuration
PG_GC.GC_1.GC_2.FIXED_BTUSAT	Gas Chromatograph
FG_GC.GC_T.GC_Z.FIAED_DTUGAT	U
	Configuration
PG_GC.GC_1.GC_3.FIXED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_N2	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_3.FIXED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_C3	Gas Chromatograph
16_00.00_1.00_0.1 MED_00	Configuration
PG_GC.GC_1.GC_3.FIXED_IC4	Gas Chromatograph
10_00.00_1.00_3.1 IXED_104	Configuration
PG_GC.GC_1.GC_3.FIXED_NC4	Gas Chromatograph
FG_GC.GC_1.GC_3.FIXED_NC4	
	Configuration
PG_GC.GC_1.GC_3.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_H2	Gas Chromatograph
10_00.00_1.00_0.1 MED_12	Configuration
PG_GC.GC_1.GC_3.FIXED_CO	Gas Chromatograph
FG_60.60_1.60_5.11AED_00	Configuration
PG_GC.GC_1.GC_3.FIXED_O2	Gas Chromatograph
FG_GC.GC_1.GC_3.FIXED_02	Configuration
PG_GC.GC_1.GC_3.FIXED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.FIXED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_CO2	Gas Chromatograph
· 0_00.0000	Configuration
PG_GC.GC_1.GC_4.FIXED_CH4	Gas Chromatograph

Signal	Description
PG_GC.GC_1.GC_4.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_IC4	Gas Chromatograph
10_00.00_1.00_4.1 IXED_104	Configuration
PG_GC.GC_1.GC_4.FIXED_NC4	Gas Chromatograph
FG_GC.GC_1.GC_4.FIXED_NC4	Configuration
PG_GC.GC_1.GC_4.FIXED_IC5	
PG_GC.GC_1.GC_4.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_H2S	Gas Chromatograph
10_00.00_1.00_4.1 MED_120	Configuration
PG_GC.GC_1.GC_4.FIXED_H2	Gas Chromatograph
FG_60.60_1.60_4.1 IXED_112	Configuration
PG_GC.GC_1.GC_4.FIXED_CO	Gas Chromatograph
FG_GC.GC_I.GC_4.FIXED_CO	
	Configuration
PG_GC.GC_1.GC_4.FIXED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.FIXED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_SG	Gas Chromatograph
·	Configuration
PG_GC.GC_1.GC_5.FIXED_N2	Gas Chromatograph
1 0_00.00_1.00_0.1 IAED_INZ	Configuration
PG_GC.GC_1.GC_5.FIXED_CO2	
	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_C3	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_5.FIXED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_NC5	Gas Chromatograph
10_00.00_1.00_0.1 MED_1000	Configuration
PG_GC.GC_1.GC_5.FIXED_NC6	Gas Chromatograph
10_00.00_1.00_0.1 IXED_N00	Configuration
PG_GC.GC_1.GC_5.FIXED_NC7	Gas Chromatograph
FG_GC.GC_I.GC_5.FIXED_NC/	
	Configuration
PG_GC.GC_1.GC_5.FIXED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_O2	Gas Chromatograph
10_00.000_1.00_0.1 # 20_02	Configuration
PG_GC.GC_1.GC_5.FIXED_HE	Gas Chromatograph
16_00.00_1.00_0.1 MED_112	Configuration
PG_GC.GC_1.GC_5.FIXED_AR	Gas Chromatograph
FG_60.60_1.60_3.11ALD_AR	Configuration
PG_GC.GC_1.GC_5.FIXED_C6PLUS	
PG_GC.GC_I.GC_5.FIXED_C0PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.FIXED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_CO2	Gas Chromatograph
—	Configuration
PG_GC.GC_1.GC_6.FIXED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_C3	Gas Chromatograph
PG_GC.GC_I.GC_6.FIXED_C3	Configuration
PG_GC.GC_1.GC_6.FIXED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_NC4	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_6.FIXED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_NC6	Gas Chromatograph
10_00.00_1.00_0.1 MED_N00	Configuration
PG_GC.GC_1.GC_6.FIXED_NC7	Gas Chromatograph
10_00.00_1.00_0.1 IXED_N01	Configuration
PG_GC.GC_1.GC_6.FIXED_NC8	Gas Chromatograph
10_00.00_1.00_0.11XED_1000	Configuration
PG_GC.GC_1.GC_6.FIXED_NC9	Gas Chromatograph
FG_GC.GC_1.GC_0.FIXED_NC9	
	Configuration
PG_GC.GC_1.GC_6.FIXED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_02	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.FIXED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_AR	Gas Chromatograph
10_00.00_1.00_1.1MLD_///	Configuration
PG_GC.GC_1.GC_1.TIMED_BTU	Gas Chromatograph
FG_GC.GC_1.GC_1.11MLD_BT0	Configuration
PG_GC.GC_1.GC_1.TIMED_BTUSAT	
FG_GC.GC_T.GC_T.TIMED_DTU3AT	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.TIMED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_H2	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_1.TIMED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_N2	Gas Chromatograph
10_00.00_1.00_1.111120_112	Configuration
PG_GC.GC_1.GC_1.TIMED_NC10	Gas Chromatograph
PG_GC.GC_1.GC_1.1101ED_NC10	
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_NEOC5	Gas Chromatograph
10_00.00_1.00_1.1MED_NE003	Configuration
PG_GC.GC_1.GC_1.TIMED_O2	Gas Chromatograph
PG_GC.GC_1.GC_1.1101ED_02	
	Configuration
PG_GC.GC_1.GC_1.TIMED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_C6PLUS	Gas Chromatograph
· 0_00.00_1.00_2.1111ED_001 200	Configuration
PG_GC.GC_1.GC_2.TIMED_C9PLUS	Gas Chromatograph
1 0_00.00_1.00_2.11WILD_09FL00	Configuration
PG_GC.GC_1.GC_2.TIMED_CH4	
FG_GC.GC_1.GC_2.11MED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_H2O	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_2.TIMED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_NC5	Gas Chromatograph
10_00.00_1.00_2.11MED_1000	Configuration
PG_GC.GC_1.GC_2.TIMED_NC6	Gas Chromatograph
1 0_00.00_1.00_2.11WIED_NO0	Configuration
PG_GC.GC_1.GC_2.TIMED_NC7	Gas Chromatograph
FG_GC.GC_1.GC_2.1101ED_NC7	
	Configuration
PG_GC.GC_1.GC_2.TIMED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_NEOC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_AR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_C9PLUS	Gas Chromatograph
·	Configuration
PG_GC.GC_1.GC_3.TIMED_CH4	Gas Chromatograph
· 0_00.00_1.00_0.1101ED_0114	Configuration
PG_GC.GC_1.GC_3.TIMED_CO	Gas Chromatograph
TO_00.00_T.00_0.11WIED_00	Configuration
PG_GC.GC_1.GC_3.TIMED_CO2	
Г G_GO.GO_1.GO_3.11WIED_GOZ	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_H2S	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_3.TIMED_HE	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_IC4	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_IC5	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_N2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC10	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC4	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC5	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC6	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC7	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC8	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NC9	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_NEOC5	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_O2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.TIMED_SG	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_AR	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_BTU	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_BTUSAT	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_C2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_C3	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_C6PLUS	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_C9PLUS	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_CH4	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_CO	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_CO2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_H2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_H2O	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_H2S	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.TIMED_HE	Gas Chromatograph Configuration

Signal	Description
PG_GC.GC_1.GC_4.TIMED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC5	Gas Chromatograph
10_00.00_1.00_1.111120_1000	Configuration
PG_GC.GC_1.GC_4.TIMED_NC6	Gas Chromatograph
FG_GC.GC_1.GC_4.1101ED_NC0	
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_NEOC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_SG	Gas Chromatograph
10_00.00_1.00_1.111120_00	Configuration
PG_GC.GC_1.GC_5.TIMED_AR	Gas Chromatograph
10_00.00_1.00_3.11MED_AR	Configuration
PG_GC.GC_1.GC_5.TIMED_BTU	
PG_GC.GC_1.GC_5.1IMED_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_BTUSAT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_CO	Gas Chromatograph
16_00.00_1.00_3.1MLD_00	Configuration
PG_GC.GC_1.GC_5.TIMED_CO2	Gas Chromatograph
FG_GC.GC_1.GC_5.11MED_CO2	
	Configuration
PG_GC.GC_1.GC_5.TIMED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_H2S	Gas Chromatograph
—	Configuration
PG_GC.GC_1.GC_5.TIMED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_IC4	Gas Chromatograph

Signal	Description
PG_GC.GC_1.GC_5.TIMED_IC5	Gas Chromatograph Configuration
PG_GC.GC_1.GC_5.TIMED_N2	Gas Chromatograph
FG_GC.GC_1.GC_3.111/1ED_112	Configuration
PG_GC.GC_1.GC_5.TIMED_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_NEOC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_AR	Gas Chromatograph
10_00.00_1.00_0.11MED_/11	Configuration
PG_GC.GC_1.GC_6.TIMED_BTU	Gas Chromatograph
10_00.00_1.00_0.11MLD_D10	Configuration
PG_GC.GC_1.GC_6.TIMED_BTUSAT	Gas Chromatograph
10_00.00_1.00_0.11MED_D100/01	Configuration
PG_GC.GC_1.GC_6.TIMED_C2	Gas Chromatograph
10_00.00_1.00_0.11MED_02	Configuration
PG_GC.GC_1.GC_6.TIMED_C3	Gas Chromatograph
FG_GC.GC_1.GC_0.11MLD_C3	Configuration
PG_GC.GC_1.GC_6.TIMED_C6PLUS	Gas Chromatograph
FG_GC.GC_1.GC_0.TIMED_COFL03	Configuration
PG_GC.GC_1.GC_6.TIMED_C9PLUS	
FG_GC.GC_1.GC_0.TIMED_C9FL03	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_HE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_IC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_IC5	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_6.TIMED_N2	Gas Chromatograph Configuration
PG_GC.GC_1.GC_6.TIMED_NC10	Gas Chromatograph
FG_GC.GC_1.GC_0.11MED_NC10	Configuration
PG_GC.GC_1.GC_6.TIMED_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_NEOC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_SG	Gas Chromatograph
10_00.00_1.00_0.1MiLD_00	Configuration
PG_GC.GC_1.USER1CODE_AR	Gas Chromatograph
FG_GC.GC_1.03EKTCODE_AK	Configuration
PG_GC.GC_1.USER1CODE_C2	
PG_GC.GC_1.0SER1CODE_C2	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_C6PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_C9PLUS	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_HE	Gas Chromatograph
10_00.00_1.00EI(100DE_11E	Configuration
PG_GC.GC_1.USER1CODE_IC4	Gas Chromatograph
1 0_00.00_1.00LIVI00DE_104	Configuration
PG_GC.GC_1.USER1CODE_IC5	
F9_90.90_1.03EK100DE_103	Gas Chromatograph
DO 00 00 4 1050400055 NO	Configuration
PG_GC.GC_1.USER1CODE_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC4	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.USER1CODE_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_NEOC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.USER1CODE_O2	Gas Chromatograph
10_00.00_1.00EK100DE_02	Configuration
PG_GC.GC_1.GC_1.TOTAL_MIN	Gas Chromatograph
FG_60.60_1.60_1.10TAL_MIN	Configuration
PG_GC.GC_1.GC_1.TOTAL_MAX	Gas Chromatograph
FG_GO.GC_T.GC_T.TOTAL_WAA	Configuration
PG_GC.GC_1.GC_1.S1_BTU_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_BTU_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_SG_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_SG_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_N2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_N2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_CO2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_CO2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_CH4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_C3_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_C3_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_IC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_IC4_MAX	Gas Chromatograph
10_00.00_1.00_1.01_104_10AA	Configuration
PG_GC.GC_1.GC_1.S1_NC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NEOC5_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_1.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_IC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_IC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC6_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC6_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC7_MIN	Gas Chromatograph
F0_00.00_1.00_1.01_N07_MIN	Configuration
PG_GC.GC_1.GC_1.S1_NC7_MAX	Gas Chromatograph Configuration
	~ ~
PG_GC.GC_1.GC_1.S1_NC8_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC8_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC9_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2O_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2O_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2S_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2S_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_H2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_CO_MIN	Gas Chromatograph
10_00.00_1.00_1.01_00_WIIN	Configuration
PG_GC.GC_1.GC_1.S1_CO_MAX	Gas Chromatograph
1 0_00.00_1.00_1.01_00_WAA	Configuration
PG_GC.GC_1.GC_1.S1_O2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_HE_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_AR_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_1.S1_AR_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_C6plus_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_C6plus_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_BTUSat_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_BTUSat_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_Wobbe_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_Wobbe_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_C9plus_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_C9plus_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_CHDP_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_CHDP_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_Compressability_ MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_Compressability_ MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_TotalUnNmMoleP _MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_TotalUnNmMoleP _MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_TotalGPM_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_1.S1_TotalGPM_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.TOTAL_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.TOTAL_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.S1_BTU_MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.S1_BTU_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.S1_SG_MIN PG_GC.GC_1.GC_2.S1_SG_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_2.S1_SG_MAX PG_GC.GC_1.GC_2.S1_N2_MIN	Gas Chromatograph Configuration Gas Chromatograph
PG_GC.GC_1.GC_2.S1_N2_MIN PG_GC.GC_1.GC_2.S1_N2_MAX	Configuration Gas Chromatograph
PG_GC.GC_1.GC_2.S1_N2_MAX PG_GC.GC_1.GC_2.S1_CO2_MIN	Configuration Gas Chromatograph
PG_GC.GC_1.GC_2.S1_CO2_MIN	Configuration Gas Chromatograph
PG_GC.GC_1.GC_2.S1_CO2_MAX	Configuration Gas Chromatograph
FG_GC.GC_1.GC_2.31_CF4_WIIN	Configuration

Signal	Description
PG_GC.GC_1.GC_2.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C3_MIN	Gas Chromatograph
1 0_00.00_1.00_2.01_00_mm	Configuration
PG_GC.GC_1.GC_2.S1_C3_MAX	Gas Chromatograph
10_00.00_1.00_2.01_00_M/AX	Configuration
PG_GC.GC_1.GC_2.S1_IC4_MIN	Gas Chromatograph
10_00.00_1.00_2.01_104_10110	Configuration
PG_GC.GC_1.GC_2.S1_IC4_MAX	Gas Chromatograph
PG_GC.GC_1.GC_2.51_IC4_IMAX	
	Configuration
PG_GC.GC_1.GC_2.S1_NC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NEOC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_IC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_IC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC6_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC6_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC7_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC7_MAX	Gas Chromatograph
FG_GC.GC_1.GC_2.S1_NC1_MAX	Configuration
PG_GC.GC_1.GC_2.S1_NC8_MIN	Gas Chromatograph
FG_GC.GC_1.GC_2.31_NCO_MIIN	0 1
	Configuration
PG_GC.GC_1.GC_2.S1_NC8_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC9_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_H2O_MIN	Gas Chromatograph
_	Configuration
PG_GC.GC_1.GC_2.S1_H2O_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_H2S_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_2.S1_H2S_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_H2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_H2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_CO_MIN	Gas Chromatograph
10_00.00_1.00_2.01_00_000	Configuration
PG_GC.GC_1.GC_2.S1_CO_MAX	Gas Chromatograph
FG_GC.GC_1.GC_2.S1_CO_MAX	Configuration
PG_GC.GC_1.GC_2.S1_O2_MIN	
FG_GC.GC_1.GC_2.S1_O2_WIIN	Gas Chromatograph
FO 00 00 1 00 001 00 MAY	Configuration
PG_GC.GC_1.GC_2.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_HE_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_AR_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_AR_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C6plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C6plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_BTUSat_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_BTUSat_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_Wobbe_MIN	Gas Chromatograph
10_00.00_1.00_2.01_W0bbc_Mill	Configuration
PG_GC.GC_1.GC_2.S1_Wobbe_MAX	Gas Chromatograph
FG_GC.GC_1.GC_2.S1_W0DDe_WAX	Configuration
PG_GC.GC_1.GC_2.S1_C9plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_C9plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_CHDP_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_CHDP_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_Compressability_	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_2.S1_Compressability_	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_2.S1_TotalUnNmMoleP	Gas Chromatograph
_MIN	Configuration
PG_GC.GC_1.GC_2.S1_TotalUnNmMoleP	Gas Chromatograph
_MAX	Configuration
PG_GC.GC_1.GC_2.S1_TotalGPM_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_TotalGPM_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TOTAL_MIN	Gas Chromatograph
·	Configuration

PG_GC.GC_1.GC_3.TOTAL_MAX	Gas Chromatograph
	Gas Uniomalogiabri
	Configuration
PG_GC.GC_1.GC_3.S1_BTU_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_BTU_MAX	Gas Chromatograph
10_00.00_1.00_3.01_010_M/AX	Configuration
PG_GC.GC_1.GC_3.S1_SG_MIN	Gas Chromatograph
10_00:00_1:00_3:01_00_MIN	Configuration
PG_GC.GC_1.GC_3.S1_SG_MAX	Gas Chromatograph
10_00.00_1.00_3.01_00_MAX	Configuration
PG_GC.GC_1.GC_3.S1_N2_MIN	Gas Chromatograph
FG_GC.GC_1.GC_3.51_N2_MIN	Configuration
PG_GC.GC_1.GC_3.S1_N2_MAX	
PG_GC.GC_1.GC_3.51_N2_MAX	Gas Chromatograph
R0 00 00 1 00 0 01 000 MIN	Configuration
PG_GC.GC_1.GC_3.S1_CO2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CO2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CH4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C3_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C3_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_IC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_IC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NEOC5_MIN	Gas Chromatograph
_	Configuration
PG_GC.GC_1.GC_3.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_IC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_IC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC6_MIN	Gas Chromatograph
· C_CC.CC_1.CC_0.C1_100_10111	Configuration
PG_GC.GC_1.GC_3.S1_NC6_MAX	Gas Chromatograph
1 0_00.00_1.00_0.01_NO0_NAX	Configuration
PG_GC.GC_1.GC_3.S1_NC7_MIN	Gas Chromatograph

Signal	Description
PG_GC.GC_1.GC_3.S1_NC7_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC8_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC8_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC9_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_H2O_MIN	Gas Chromatograph
10_00.00_1.00_0.01_120_000	Configuration
PG_GC.GC_1.GC_3.S1_H2O_MAX	Gas Chromatograph
FG_60.60_1.60_5.51_1120_WAX	Configuration
PG_GC.GC_1.GC_3.S1_H2S_MIN	
FG_GC.GC_1.GC_3.31_H23_WIIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_H2S_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_H2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_H2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CO_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CO_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_O2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_HE_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_AR_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_AR_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C6plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C6plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_BTUSat_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_BTUSat_MAX	Gas Chromatograph
00.0000_0.01_010000_00/00	Configuration
PG_GC.GC_1.GC_3.S1_Wobbe_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_Wobbe_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_C9plus_MIN	
	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_3.S1_C9plus_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.S1_CHDP_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_CHDP_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_Compressability_ MIN	Gas Chromatograph Configuration
PG_GC.GC_1.GC_3.S1_Compressability_	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_3.S1_TotalUnNmMoleP	Gas Chromatograph
_MIN	Configuration
PG_GC.GC_1.GC_3.S1_TotalUnNmMoleP	Gas Chromatograph
_MAX	Configuration
PG_GC.GC_1.GC_3.S1_TotalGPM_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_TotalGPM_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TOTAL_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TOTAL_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.S1_BTU_MIN	Gas Chromatograph
16_66.66_1.66_4.61_016_0000	Configuration
PG_GC.GC_1.GC_4.S1_BTU_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_SG_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_SG_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.S1_N2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_N2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_CO2_MIN	Gas Chromatograph
PG_GC.GC_1.GC_4.S1_CO2_MAX	Configuration
PG_GC.GC_1.GC_4.S1_CO2_MAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.S1_CH4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C3_MIN	Gas Chromatograph
PG_GC.GC_1.GC_4.S1_C3_MAX	Configuration
FG_GC.GC_1.GC_4.31_C3_WAX	Gas Chromatograph Configuration
PG_GC.GC_1.GC_4.S1_IC4_MIN	Gas Chromatograph
1 0_00.00_1.00_4.01_104_10111	Configuration
PG_GC.GC_1.GC_4.S1_IC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC4_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_4.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NEOC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_IC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_IC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC5_MAX	Gas Chromatograph
1 6_66.66_1.66_4.61_1066_m/tx	Configuration
PG_GC.GC_1.GC_4.S1_NC6_MIN	Gas Chromatograph
10_00.00_1.00_4.01_N00_MIN	Configuration
PG_GC.GC_1.GC_4.S1_NC6_MAX	Gas Chromatograph
FG_GC.GC_1.GC_4.51_NC0_WAX	
	Configuration
PG_GC.GC_1.GC_4.S1_NC7_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC7_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC8_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC8_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC9_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_H2O_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_H2O_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_H2S_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_H2S_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_H2_MIN	Gas Chromatograph
TO_GO.GO_T.GO_4.01_112_101110	Configuration
PG_GC.GC_1.GC_4.S1_H2_MAX	Gas Chromatograph
FG_GC.GC_1.GC_4.31_FIZ_WIAA	
	Configuration
PG_GC.GC_1.GC_4.S1_CO_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_CO_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_O2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_HE_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_4.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_AR_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_AR_MAX	
PG_GC.GC_1.GC_4.S1_AR_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C6plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C6plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_BTUSat_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_BTUSat_MAX	Gas Chromatograph
10_00.00_1.00_4.01_0100at_m///	Configuration
PG_GC.GC_1.GC_4.S1_Wobbe_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_Wobbe_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C9plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_C9plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_CHDP_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_CHDP_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_Compressability_	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_4.S1_Compressability_	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_4.S1_TotalUnNmMoleP	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_4.S1_TotalUnNmMoleP	Gas Chromatograph
_MAX	Configuration
PG_GC.GC_1.GC_4.S1_TotalGPM_MIN	Gas Chromatograph
FG_GC.GC_1.GC_4.51_10(a)GFIM_MIN	
DO 00 00 4 00 4 04 THEODM MAY	Configuration
PG_GC.GC_1.GC_4.S1_TotalGPM_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TOTAL_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TOTAL_MAX	Gas Chromatograph
—	Configuration
PG_GC.GC_1.GC_5.S1_BTU_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_BTU_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_SG_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_SG_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_N2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_N2_MAX	Gas Chromatograph
· · _ · · · · · · · · · · · · · · · · ·	Configuration
PG_GC.GC_1.GC_5.S1_CO2_MIN	Gas Chromatograph
- 0_00.00_1.00_0.01_002_WIIN	Configuration

Signal	Description
PG_GC.GC_1.GC_5.S1_CO2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_CH4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C3_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C3_MAX	Gas Chromatograph
16_00.00_1.00_0.01_00_100/00	Configuration
PG_GC.GC_1.GC_5.S1_IC4_MIN	Gas Chromatograph
FG_60.60_1.60_5.51_104_1011	Configuration
PG_GC.GC_1.GC_5.S1_IC4_MAX	
FG_GC.GC_1.GC_5.51_IC4_IMAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NEOC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_IC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_IC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC6_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC6_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC7_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC7_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC8_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC8_MAX	Gas Chromatograph
1 6_66.66_1.66_5.61_1066_M/AX	Configuration
PG_GC.GC_1.GC_5.S1_NC9_MIN	Gas Chromatograph
FG_GC.GC_1.GC_0.01_NC8_NIIN	0 1
	Configuration
PG_GC.GC_1.GC_5.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_H2O_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_5.S1_H2O_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_H2S_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_H2S_MAX	Gas Chromatograph
10_00.00_1.00_3.01_1120_MAX	Configuration
PG_GC.GC_1.GC_5.S1_H2_MIN	Gas Chromatograph
FG_GC.GC_1.GC_5.51_H2_WIIN	
	Configuration
PG_GC.GC_1.GC_5.S1_H2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_CO_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_CO_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_O2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_HE_MIN	Gas Chromatograph
FG_GC.GC_1.GC_3.51_HL_MIN	Configuration
PG_GC.GC_1.GC_5.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_AR_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_AR_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C6plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C6plus_MAX	Gas Chromatograph
· •_•••••	Configuration
PG_GC.GC_1.GC_5.S1_BTUSat_MIN	Gas Chromatograph
10_00.00_1.00_0.01_0100at_min	Configuration
PG_GC.GC_1.GC_5.S1_BTUSat_MAX	
FG_GC.GC_1.GC_5.51_D105at_IMAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_Wobbe_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_Wobbe_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C9plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_C9plus_MAX	Gas Chromatograph
_ · · · _ · · _ · · _ · · _ · · · · · ·	Configuration
PG_GC.GC_1.GC_5.S1_CHDP_MIN	Gas Chromatograph
·	Configuration
PG_GC.GC_1.GC_5.S1_CHDP_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_Compressability_	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_5.S1_Compressability_	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_5.S1_TotalUnNmMoleP	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_5.S1_TotalUnNmMoleP	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_5.S1_TotalGPM_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_5.S1_TotalGPM_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TOTAL_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TOTAL_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_BTU_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_BTU_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_SG_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_SG_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_N2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_N2_MAX	Gas Chromatograph
10_00.00_1.00_0.01_N2_M///	Configuration
PG_GC.GC_1.GC_6.S1_CO2_MIN	Gas Chromatograph
FG_GC.GC_1.GC_0.51_CO2_MIN	Configuration
PG_GC.GC_1.GC_6.S1_CO2_MAX	Gas Chromatograph
FG_GC.GC_1.GC_0.51_CO2_IMAX	
	Configuration
PG_GC.GC_1.GC_6.S1_CH4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_CH4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C3_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C3_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_IC4_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_IC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC4_MIN	Gas Chromatograph
—	Configuration
PG_GC.GC_1.GC_6.S1_NC4_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NEOC5_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NEOC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_IC5_MIN	Gas Chromatograph
· · · · · · · · · · · · · · · · · ·	Configuration
PG_GC.GC_1.GC_6.S1_IC5_MAX	Gas Chromatograph
· C_CC.CC_1.CC_0.C1_100_101AA	Configuration
PG GC GC 1 GC 6 S1 NC5 MIN	Gas Chromatograph
PG_GC.GC_1.GC_6.S1_NC5_MIN	Configuration
PG_GC.GC_1.GC_6.S1_NC5_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC6_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_6.S1_NC6_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC7_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC7_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC8_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC8_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC9_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC9_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC10_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC10_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_H2O_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_H2O_MAX	Gas Chromatograph
FG_GC.GC_1.GC_0.31_1120_WAX	Configuration
PG_GC.GC_1.GC_6.S1_H2S_MIN	
FG_GC.GC_1.GC_0.51_H25_MIIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_H2S_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_H2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_H2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_CO_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_CO_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_O2_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_O2_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_HE_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_HE_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_AR_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_AR_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C6plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C6plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_BTUSat_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_BTUSat_MAX	
r G_GC.GC_1.GC_0.51_D105al_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_Wobbe_MIN	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_6.S1_Wobbe_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C9plus_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_C9plus_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_CHDP_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_CHDP_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_Compressability_	Gas Chromatograph
MIN	Configuration
PG_GC.GC_1.GC_6.S1_Compressability_	Gas Chromatograph
MAX	Configuration
PG_GC.GC_1.GC_6.S1_TotalUnNmMoleP	Gas Chromatograph
_MIN	Configuration
PG_GC.GC_1.GC_6.S1_TotalUnNmMoleP	Gas Chromatograph
_MAX	Configuration
PG_GC.GC_1.GC_6.S1_TotalGPM_MIN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_TotalGPM_MAX	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.IICOMMPORT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.SLAVEADDRESS	Gas Chromatograph
10_00.00_1.00_1.0EAVEADDRE80	Configuration
PG_GC.GC_1.GC_1.IPADDR	Gas Chromatograph
FG_GC.GC_I.GC_I.IFADDR	
PG_GC.GC_1.GC_1.GC_TYPE	Configuration Gas Chromatograph
PG_GC.GC_I.GC_I.GC_ITPE	
	Configuration
PG_GC.GC_1.GC_1.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.USE_FIXED	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.MODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMER_EN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_DATE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.TIMED_TIME	Gas Chromatograph
10_00100_1100_1111120_111112	Configuration
PG_GC.GC_1.GC_1.HTVAL_DB	Gas Chromatograph
10_00.00_1.00_1.111VAL_DD	Configuration
PG_GC.GC_1.GC_1.SG_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.Skip_Delta_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.IICOMMPORT	Gas Chromatograph

Signal	Description
PG_GC.GC_1.GC_2.SLAVEADDRESS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.IPADDR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.GC_TYPE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.USE_FIXED	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.MODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMER_EN	Gas Chromatograph
10_00.00_1.00_2.11MER_EN	Configuration
PG_GC.GC_1.GC_2.TIMED_DATE	
FG_GC.GC_T.GC_2.TIMED_DATE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.TIMED_TIME	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.HTVAL_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.SG_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.Skip_Delta_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.IICOMMPORT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.SLAVEADDRESS	Gas Chromatograph
10_00.00_1.00_0.0EAVEADDRE60	Configuration
PG_GC.GC_1.GC_3.IPADDR	Gas Chromatograph
FG_GC.GC_1.GC_3.IFADDK	
PG_GC.GC_1.GC_3.GC_TYPE	Configuration
PG_GC.GC_I.GC_3.GC_ITPE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.USE_FIXED	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.MODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMER_EN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_DATE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.TIMED_TIME	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.HTVAL_DB	Gas Chromatograph
10_00.00_1.00_0.111 VAL_DD	Configuration
PG_GC.GC_1.GC_3.SG_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.Skip_Delta_Fail	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_4.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.IICOMMPORT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.SLAVEADDRESS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.IPADDR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.GC_TYPE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.USE_FIXED	Gas Chromatograph
10_00.00_1.00_4.00E_11XED	Configuration
PG_GC.GC_1.GC_4.MODE	Gas Chromatograph
FG_GC.GC_1.GC_4.MODE	Configuration
PG_GC.GC_1.GC_4.TIMER_EN	
PG_GC.GC_1.GC_4.TIMER_EN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_DATE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.TIMED_TIME	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.HTVAL_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.SG_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.Skip_Delta_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.IICOMMPORT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.SLAVEADDRESS	Gas Chromatograph
10_00.00_1.00_3.3EAVEADDRESS	Configuration
PG_GC.GC_1.GC_5.IPADDR	
FG_GC.GC_1.GC_5.IFADDK	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.GC_TYPE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.USE_FIXED	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.MODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMER_EN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.TIMED_DATE	Gas Chromatograph
_	Configuration
PG_GC.GC_1.GC_5.TIMED_TIME	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.HTVAL_DB	Gas Chromatograph
. 5_66.66_1.66_0.11 ML_DD	Configuration
PG_GC.GC_1.GC_5.SG_DB	Gas Chromatograph
I 0_00.00_1.00_0.00_DD	
	Configuration

Signal	Description
PG_GC.GC_1.GC_5.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.Skip_Delta_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.IPMODE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.IICOMMPORT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.SLAVEADDRESS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.IPADDR	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.GC_TYPE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_GC_STREAM	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.USE_FIXED	Gas Chromatograph
10_00.00_1.00_0.00L_1IALD	Configuration
PG_GC.GC_1.GC_6.MODE	Gas Chromatograph
PG_GC.GC_I.GC_0.MODE	
	Configuration
PG_GC.GC_1.GC_6.TIMER_EN	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_DATE	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.TIMED_TIME	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.HTVAL_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.SG_DB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.Skip_General_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.Skip_Delta_Fail	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.Stale_Time	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.Stale_Time	
10_00.00_1.00_2.0tate_1111t	Gas Chromatograph Configuration
DC CC CC 1 CC 2 Stole Time	
PG_GC.GC_1.GC_3.Stale_Time	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.Stale_Time	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.Stale_Time	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.Stale_Time	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC7_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC8_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.S1_NC9_FACT	Gas Chromatograph
10_00.00_1.00_1.01_100_1.01	Configuration
PG_GC.GC_1.GC_1.S1_NC10_FACT	Gas Chromatograph
10_00.00_1.00_1.01_NOT0_FACT	
	Configuration

Signal	Description
PG_GC.GC_1.GC_2.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC7_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC8_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC9_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.S1_NC10_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC7_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.S1_NC8_FACT	Gas Chromatograph
10_00.00_1.00_0.01_1000_1 A01	Configuration
PG_GC.GC_1.GC_3.S1_NC9_FACT	Gas Chromatograph
FG_GC.GC_1.GC_3.31_NC9_FACT	0 .
	Configuration
PG_GC.GC_1.GC_3.S1_NC10_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC7_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC8_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC9_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.S1_NC10_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC7_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC8_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC9_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.S1_NC10_FACT	Gas Chromatograph
. 0_00.00_1.00_0.01_1010_17.01	Configuration
PG_GC.GC_1.GC_6.S1_NC6_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC7_FACT	Gas Chromatograph
- 0_00.00_1.00_0.01_NO7_FACT	Configuration
PG_GC.GC_1.GC_6.S1_NC8_FACT	Gas Chromatograph
10_90.90_1.90_0.91_N00_FAU1	3 1
	Configuration
PG_GC.GC_1.GC_6.S1_NC9_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.S1_NC10_FACT	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.HTVAL_Units	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.HTVAL_PB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_1.HTVAL_TB	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.GC_2.HTVAL_Units	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.HTVAL_PB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_2.HTVAL_TB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.HTVAL_Units	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.HTVAL_PB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_3.HTVAL_TB	Gas Chromatograph
10_00.00_1.00_0.111VAL_1D	Configuration
PG_GC.GC_1.GC_4.HTVAL_Units	
PG_GC.GC_1.GC_4.HTVAL_UNIIS	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.HTVAL_PB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_4.HTVAL_TB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.HTVAL_Units	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.HTVAL_PB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_5.HTVAL_TB	Gas Chromatograph
	Configuration
PG_GC.GC_1.GC_6.HTVAL_Units	Gas Chromatograph
· •_•••••	Configuration
PG_GC.GC_1.GC_6.HTVAL_PB	Gas Chromatograph
10_00.00_1.00_0.111 V/(L_1 D	Configuration
PG_GC.GC_1.GC_6.HTVAL_TB	Gas Chromatograph
FG_60.60_1.60_0.111VAL_1D	Configuration
PG_GC.GC_1.Default_Ar	Gas Chromatograph
FG_GC.GC_1.Delault_AI	
DO 00 00 4 Defeute 00	Configuration
PG_GC.GC_1.Default_CO	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_H2	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_H2O	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_H2S	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_He	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_O2	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_BTU	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_C2	Gas Chromatograph
- C_CC.CC_1.Doldult_CZ	Configuration
PG_GC.GC_1.Default_C3	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_CH4	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_CO2	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_IC4	Gas Chromatograph
	Configuration

Signal	Description
PG_GC.GC_1.Default_IC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_N2	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC4	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC6	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC7	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC8	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC9	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NC10	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_SG	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_NeoC5	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_BTUSat	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_Wobbe	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_C6Plus	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_C9Plus	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_CHDP	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_Compressability	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_TotalUnNmMoleP	Gas Chromatograph
	Configuration
PG_GC.GC_1.Default_TotalGPM	Gas Chromatograph
	Configuration

Verification Triggering Events (VTEs)

Under Measurement Canada regulations, if you modify certain parameters in the Station Manager application running in the device you automatically generate a Verification Triggering Event (VTE). When a VTE occurs, Measurement Canada must verify the device before it can be used or returned to service.

Modification of any of the signals shown in *Table C-2* generates a Verification Triggering Event (VTE) which requires Measurement Canada to verify the device before you use it or return it to service. All VTEs generate an event that is stored in the audit log.

Signal	Description
FC.FC1.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC1.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.FC2.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC2.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.FC3.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC3.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.FC4.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC4.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.FC5.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC5.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.FC6.RX_CFG_TYPE	Run <i>n</i> configuration type 0=Not Configured 1=Orifice 2=Turbine 3=Auto Adjust 4=Ultrasonic 5=PD 6=Coriolis 7=Annubar 8=Venturi 9=V-Cone
FC.FC6.RX_GCSTREAM	GC Data Set Assignment for Run x (from FC.STATION_x_GCSTREAM)
FC.R1_AIID_DP	Run Configuration
FC.R1_AISP_DP	Run Configuration
FC.R1_AIDB_DP	Run Configuration
FC.R1_AIID_SP	Run Configuration

Table C-2. Modification of These Signals Constitutes a Verification Triggering Event

Signal	Description
FC.R1_AISP_SP	Run Configuration
FC.R1_AIDB_SP	Run Configuration
FC.R1_AIID_FT	Run Configuration
FC.R1_AISP_FT	Run Configuration
FC.R1_AIDB_FT	Run Configuration
FC.R2_AIID_DP	Run Configuration
FC.R2_AISP_DP	Run Configuration
FC.R2_AIDB_DP	Run Configuration
FC.R2_AIID_SP	Run Configuration
FC.R2_AISP_SP	Run Configuration
FC.R2_AIDB_SP	Run Configuration
FC.R2_AIID_FT	Run Configuration
FC.R2_AISP_FT	Run Configuration
FC.R2_AIDB_FT	Run Configuration
FC.R3_AIID_DP	Run Configuration
FC.R3_AISP_DP	Run Configuration
FC.R3_AIDB_DP	Run Configuration
FC.R3_AIID_SP	Run Configuration
FC.R3_AISP_SP	Run Configuration
FC.R3_AIDB_SP	Run Configuration
FC.R3_AIID_FT	Run Configuration
FC.R3_AISP_FT	Run Configuration
FC.R3_AIDB_FT	Run Configuration
FC.R4_AIID_DP	Run Configuration
FC.R4_AISP_DP	Run Configuration
FC.R4_AIDB_DP	Run Configuration
FC.R4_AIID_SP	Run Configuration
FC.R4_AISP_SP	Run Configuration
FC.R4_AIDB_SP	Run Configuration
FC.R4_AIID_FT	Run Configuration
FC.R4_AISP_FT	Run Configuration
FC.R4_AIDB_FT	Run Configuration
FC.R5_AIID_DP	Run Configuration
FC.R5_AISP_DP	Run Configuration
FC.R5_AIDB_DP	Run Configuration
FC.R5_AIID_SP	Run Configuration
FC.R5_AISP_SP	Run Configuration
FC.R5_AIDB_SP	Run Configuration
FC.R5_AIID_FT	Run Configuration
FC.R5_AISP_FT	Run Configuration
FC.R5_AIDB_FT	Run Configuration
FC.R6_AIID_DP	Run Configuration

Signal	Description
FC.R6_AISP_DP	Run Configuration
FC.R6_AIDB_DP	Run Configuration
FC.R6_AIID_SP	Run Configuration
FC.R6_AISP_SP	Run Configuration
FC.R6_AIDB_SP	Run Configuration
FC.R6_AIID_FT	Run Configuration
FC.R6_AISP_FT	Run Configuration
FC.R6_AIDB_FT	Run Configuration
FC.R1_MAINT_MODE	Run Configuration
FC.STATION_1_FPV_CALC	Station Configuration
FC.STATION_1_GROSSMODE	Station Configuration
FC.STATION_1_UseBTUSat	Station Configuration
FC.STATION_2_FPV_CALC	Station Configuration
FC.STATION_2_GROSSMODE	Station Configuration
FC.STATION_2_UseBTUSat	Station Configuration
FC.STATION 3 FPV CALC	Station Configuration
FC.STATION_3_GROSSMODE	Station Configuration
FC.STATION_3_UseBTUSat	Station Configuration
FC.STATION 4 GCSTREAM	Station Configuration
FC.STATION_4_FPV_CALC	Station Configuration
FC.STATION_4_UseBTUSat	Station Configuration
FC.STATION_5_FPV_CALC	Station Configuration
FC.STATION_5_GROSSMODE	Station Configuration
FC.STATION 5 UseBTUSat	Station Configuration
FC.STATION_6_FPV_CALC	Station Configuration
FC.STATION 6 GROSSMODE	Station Configuration
FC.STATION 6 UseBTUSat	Station Configuration
FC.FC1.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select
FC.RUN_1_SPSOURCE	(1985,1992,2012)
FC.R1 MVTID SP	Run <i>n</i> static pressure source Run <i>n</i> MVT ID for static pressure
IO_1.R1_SP_INP_Units	Run <i>n</i> Static Pressure Units
	Run <i>n</i> Static Pressure Zero
FC.R1_SP_ZERO	
FC.R1_SP_SPAN	Run <i>n</i> Static Pressure Span
FC.FC1.RX_SP_MO	Static Pressure Manual Override for Run <i>n</i>
FC.FC1.RX_SP_BUF	Static Pressure Manual Override
FC.RUN_1_FTSOURCE	Value for Run n Run <i>n</i> temperature source
FC.R1_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R1_FTEMP_INP_Units	Run <i>n</i> Flowing Temperature Units
FC.R1_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R1_FT_SPAN	Run <i>n</i> Flowing Temperature Span
FC.FC1.RX_FTEMP_MO	Flowing Temperature Manual

Signal	Description
	Override for Run <i>n</i>
FC.FC1.RX_FTEMP_BUF	Flowing Temperature Manual
	Override Value for Run <i>n</i>
FC.RUN_1_DPSOURCE	Run <i>n</i> static pressure source
FC.R1_MVTID_DP	Run <i>n</i> MVT ID for differential pressure
FC.FC1.RX_DP_MO	Differential Pressure Manual Override for Run <i>n</i>
FC.FC1.RX_DP_BUF	Differential Pressure Manual Override Value for Run <i>n</i>
IO_1.R1_DP_INP_Units	Run <i>n</i> Differential Pressure Units
IO_1.R1_DP_ZERO	Run n Differential Pressure Zero
IO_1.R1_DP_SPAN	Run <i>n</i> Differential Pressure Span
FC.FC1.RX_TAP_LOC	Tap Location Up/DownStream for Run n
FC.FC1.RX_TAP_TYPE	Tap Type for Run n
FC.AA_1.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_1.SensRotor_MO	Run <i>n</i> AutoAdjust Sense Rotor frequency override
FC.FC1.RX_LIN_FUNC	Run <i>n</i> Linearization Function enable/disable
FC.FC1.RX_CSelect	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC)
FC.FC1.RX_UseBTUSat	Use BTU Saturated GC Value for Run <i>n</i> (from FC.STATION_1_UseBTUSat)
FC.FC1.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC1.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.FC2.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select (1985,1992,2012)
FC.RUN_2_SPSOURCE	Run <i>n</i> static pressure source
FC.R2_MVTID_SP	Run <i>n</i> MVT ID for static pressure
IO_1.R2_SP_INP_Units	Run n Static Pressure Units
FC.R2_SP_ZERO	Run n Static Pressure Zero
FC.R2_SP_SPAN	Run <i>n</i> Static Pressure Span
FC.FC2.RX_SP_MO	Static Pressure Manual Override for Run <i>n</i>
FC.FC2.RX_SP_BUF	Static Pressure Manual Override Value for Run <i>n</i>
FC.RUN_2_FTSOURCE	Run <i>n</i> temperature source
FC.R2_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R2_FTEMP_INP_Units	Run n Flowing Temperature Units
FC.R2_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R2_FT_SPAN	Run <i>n</i> Flowing Temperature Span
FC.FC2.RX_FTEMP_MO	Flowing Temperature Manual Override for Run <i>n</i>
FC.FC2.RX_FTEMP_BUF	Flowing Temperature Manual

Signal	Description
	Override Value for Run n
FC.RUN_2_DPSOURCE	Run <i>n</i> static pressure source
FC.R2_MVTID_DP	Run <i>n</i> MVT ID for differential pressure
IO_1.R2_DP_INP_Units	Run <i>n</i> Differential Pressure Units
IO_1.R2_DP_SPAN	Run n Differential Pressure Span
FC.FC2.RX_DP_MO	Differential Pressure Manual Override for Run <i>n</i>
FC.FC2.RX_DP_BUF	Differential Pressure Manual Override Value for Run <i>n</i>
FC.FC2.RX_TAP_LOC	Tap Location Up/DownStream for Run <i>n</i>
FC.FC2.RX_TAP_TYPE	Tap Type for Run <i>n</i>
FC.AA_2.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_2.SensRotor_MO	Run <i>n</i> AutoAdjust Sense Rotor frequency override
FC.FC2.RX_LIN_FUNC	Run <i>n</i> Linearization Function enable/disable
FC.FC2.RX_CSelect	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC)
FC.FC2.RX_UseBTUSat	Use BTU Saturated GC Value for Run <i>n</i> (from FC.STATION_2_UseBTUSat)
FC.FC2.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC2.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.FC3.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select (1985,1992,2012)
FC.RUN_3_SPSOURCE	Run <i>n</i> static pressure source
FC.R3_MVTID_SP	Run <i>n</i> MVT ID for static pressure
IO_1.R3_SP_INP_Units	Run <i>n</i> Static Pressure Units
FC.R3_SP_ZERO	Run n Static Pressure Zero
FC.R3_SP_SPAN	Run <i>n</i> Static Pressure Span
FC.FC3.RX_SP_MO	Static Pressure Manual Override for Run <i>n</i>
FC.FC3.RX_SP_BUF	Static Pressure Manual Override Value for Run <i>n</i>
FC.RUN_3_FTSOURCE	Run <i>n</i> temperature source
FC.R3_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R3_FTEMP_INP_Units	Run <i>n</i> Flowing Temperature Units
FC.R3_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R3_FT_SPAN	Run <i>n</i> Flowing Temperature Span
FC.FC3.RX_FTEMP_MO	Flowing Temperature Manual Override for Run <i>n</i>
FC.FC3.RX_FTEMP_BUF	Flowing Temperature Manual Override Value for Run <i>n</i>
FC.RUN_3_DPSOURCE	Run <i>n</i> static pressure source
FC.R3_MVTID_DP	Run <i>n</i> MVT ID for differential

Signal	Description
	pressure
IO_1.R3_DP_INP_Units	Run n Differential Pressure Units
IO_1.R3_DP_SPAN	Run n Differential Pressure Span
FC.FC3.RX_DP_MO	Differential Pressure Manual Override for Run <i>n</i>
FC.FC3.RX_DP_BUF	Differential Pressure Manual Override Value for Run <i>n</i>
FC.FC3.RX_TAP_LOC	Tap Location Up/DownStream for Run <i>n</i>
FC.FC3.RX_TAP_TYPE	Tap Type for Run <i>n</i>
FC.AA_3.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_3.SensRotor_MO	Run <i>n</i> AutoAdjust Sense Rotor frequency override
FC.FC3.RX_LIN_FUNC	Run <i>n</i> Linearization Function enable/disable
FC.FC3.RX_CSelect	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC)
FC.FC3.RX_UseBTUSat	Use BTU Saturated GC Value for Run <i>n</i> (from FC.STATION_3_UseBTUSat)
FC.FC3.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC3.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.FC4.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select (1985,1992,2012)
FC.RUN_4_SPSOURCE	Run <i>n</i> static pressure source
FC.R4_MVTID_SP	Run <i>n</i> MVT ID for static pressure
IO_1.R4_SP_INP_Units	Run <i>n</i> Static Pressure Units
FC.R4_SP_ZERO	Run n Static Pressure Zero
FC.R4_SP_SPAN	Run <i>n</i> Static Pressure Span
FC.FC4.RX_SP_MO	Static Pressure Manual Override for Run <i>n</i>
FC.FC4.RX_SP_BUF	Static Pressure Manual Override Value for Run <i>n</i>
FC.RUN_4_FTSOURCE	Run <i>n</i> temperature source
FC.R4_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R4_FTEMP_INP_Units	Run <i>n</i> Flowing Temperature Units
FC.R4_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R4_FT_SPAN	Run n Flowing Temperature Span
FC.FC4.RX_FTEMP_MO	Flowing Temperature Manual Override for Run <i>n</i>
FC.FC4.RX_FTEMP_BUF	Flowing Temperature Manual Override Value for Run <i>n</i>
FC.RUN_4_DPSOURCE	Run <i>n</i> static pressure source
FC.R4_MVTID_DP	Run <i>n</i> MVT ID for differential pressure
IO_1.R4_DP_INP_Units	Run <i>n</i> Differential Pressure Units
IO_1.R4_DP_SPAN	Run n Differential Pressure Span

Signal	Description
FC.FC4.RX_DP_MO	Differential Pressure Manual Override for Run <i>n</i>
FC.FC4.RX_DP_BUF	Differential Pressure Manual Override Value for Run <i>n</i>
FC.FC4.RX_TAP_LOC	Tap Location Up/DownStream for Run <i>n</i>
FC.FC4.RX_TAP_TYPE	Tap Type for Run <i>n</i>
FC.AA_4.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_4.SensRotor_MO	Run <i>n</i> AutoAdjust Sense Rotor frequency override
FC.FC4.RX_LIN_FUNC	Run <i>n</i> Linearization Function enable/disable
FC.FC4.RX_CSelect	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC)
FC.FC4.RX_UseBTUSat	Use BTU Saturated GC Value for Run <i>n</i> (from FC.STATION_4_UseBTUSat)
FC.FC4.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC4.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.FC5.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select (1985,1992,2012)
FC.RUN_5_SPSOURCE	Run <i>n</i> static pressure source
FC.R5_MVTID_SP	Run <i>n</i> MVT ID for static pressure
IO_1.R5_SP_INP_Units	Run n Static Pressure Units
FC.R5_SP_ZERO	Run n Static Pressure Zero
FC.R5_SP_SPAN	Run <i>n</i> Static Pressure Span
FC.FC5.RX_SP_MO	Static Pressure Manual Override for Run <i>n</i>
FC.FC5.RX_SP_BUF	Static Pressure Manual Override Value for Run <i>n</i>
FC.RUN_5_FTSOURCE	Run <i>n</i> temperature source
FC.R5_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R5_FTEMP_INP_Units	Run <i>n</i> Flowing Temperature Units
FC.R5_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R5_FT_SPAN	Run n Flowing Temperature Span
FC.FC5.RX_FTEMP_MO	Flowing Temperature Manual Override for Run n
FC.FC5.RX_FTEMP_BUF	Flowing Temperature Manual Override Value for Run n
FC.RUN_5_DPSOURCE	Run <i>n</i> static pressure source
FC.R5_MVTID_DP	Run <i>n</i> MVT ID for differential pressure
IO_1.R5_DP_INP_Units	Run <i>n</i> Differential Pressure Units
IO_1.R5_DP_SPAN	Run n Differential Pressure Span
FC.FC5.RX_DP_MO	Differential Pressure Manual Override for Run n
FC.FC5.RX_DP_BUF	Differential Pressure Manual Override Value for Run n

Signal	Description
FC.FC5.RX_TAP_LOC	Tap Location Up/DownStream for Run n
FC.FC5.RX_TAP_TYPE	Tap Type for Run n
FC.AA_5.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_5.SensRotor_MO	Run <i>n</i> AutoAdjust Sense Rotor frequency override
FC.FC5.RX_LIN_FUNC	Run <i>n</i> Linearization Function enable/disable
FC.FC5.RX_CSelect	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC)
FC.FC5.RX_UseBTUSat	Use BTU Saturated GC Value for Run <i>n</i> (from FC.STATION_5_UseBTUSat)
FC.FC5.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC5.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.FC6.RX_FLOWEQN_SELECT	Run <i>n</i> AGA3 equation select (1985,1992,2012)
FC.RUN_6_SPSOURCE	Run <i>n</i> static pressure source
FC.R6_MVTID_SP	Run <i>n</i> MVT ID for static pressure
IO_1.R6_SP_INP_Units	Run n Static Pressure Units
FC.R6_SP_ZERO	Run n Static Pressure Zero
FC.R6_SP_SPAN	Run n Static Pressure Span
FC.FC6.RX_SP_MO	Static Pressure Manual Override for Run n
FC.FC6.RX_SP_BUF	Static Pressure Manual Override Value for Run n
FC.RUN_6_FTSOURCE	Run <i>n</i> temperature source
FC.R6_MVTID_FT	Run <i>n</i> MVT ID for temperature
IO_1.R6_FTEMP_INP_Units	Run n Flowing Temperature Units
FC.R6_FT_ZERO	Run <i>n</i> Flowing Temperature Zero
FC.R6_FT_SPAN	Run n Flowing Temperature Span
FC.FC6.RX_FTEMP_MO	Flowing Temperature Manual Override for Run n
FC.FC6.RX_FTEMP_BUF	Flowing Temperature Manual Override Value for Run n
FC.RUN_6_DPSOURCE	Run <i>n</i> static pressure source
FC.R6_MVTID_DP	Run <i>n</i> MVT ID for differential pressure
IO_1.R6_DP_INP_Units	Run <i>n</i> Differential Pressure Units
IO_1.R6_DP_SPAN	Run <i>n</i> Differential Pressure Span
FC.FC6.RX_DP_MO	Differential Pressure Manual Override for Run <i>n</i>
FC.FC6.RX_DP_BUF	Differential Pressure Manual Override Value for Run <i>n</i>
FC.FC6.RX_TAP_LOC	Tap Location Up/DownStream for Run <i>n</i>
FC.FC6.RX_TAP_TYPE	Tap Type for Run <i>n</i>

Signal	Description
FC.AA_6.MainRotor_MO	Run <i>n</i> AutoAdjust Main Rotor frequency override
FC.AA_6.SensRotor_MO	Run n AutoAdjust Sense Rotor
FC.FC6.RX_LIN_FUNC	frequency override Run <i>n</i> Linearization Function
	enable/disable
FC.FC6.RX_CSelect FC.FC6.RX_UseBTUSat	Run <i>n</i> FPV calculatoin method (from FC.STATION_x_FPV_CALC) Use BTU Saturated GC Value for
	Run <i>n</i> (from FC.STATION_6_UseBTUSat)
FC.FC6.RX_AGA8_GRMTHD	Run <i>n</i> AGA 8 Gross Method (from FC.STATION_x_GROSSMODE)
FC.FC6.RX_VCone_Type	Run <i>n</i> Vcone calculation (SG/MW)
FC.R2_MAINT_MODE	Run Configuration
FC.R3_MAINT_MODE	Run Configuration
FC.R4_MAINT_MODE	Run Configuration
FC.R5_MAINT_MODE	Run Configuration
FC.R6_MAINT_MODE	Run Configuration
FC.R1_HSCID	Run Configuration
FC.R2_HSCID	Run Configuration
FC.R3_HSCID	Run Configuration
FC.R4_HSCID	Run Configuration
FC.R5_HSCID	Run Configuration
FC.R6_HSCID	Run Configuration
MVT.MVT_PVINT	Poll interval for Process variables from the MVT, in millisecond
MVT.MVT_DIAGINT	Poll interval for Diagnostics data from the MVT, in millisecond
MVT.MVT_TIMEOUT	Communication Timeout for MVT's
MVT.MVT_1_PORT	CWM Master Port connected to MVT <i>n</i>
MVT.MVT_1_ADDRESS	Address of MVT n
MVT.MVT_1_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_1_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_2_PORT	CWM Master Port connected to MVT <i>n</i>
MVT.MVT_2_ADDRESS	Address of MVT <i>n</i>
MVT.MVT_2_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_2_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_3_PORT	CWM Master Port connected to MVT <i>n</i>
MVT.MVT_3_ADDRESS	Address of MVT n

Signal	Description
MVT.MVT_3_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_3_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_4_PORT	CWM Master Port connected to MVT n
MVT.MVT_4_ADDRESS	Address of MVT n
MVT.MVT_4_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_4_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_5_PORT	CWM Master Port connected to MVT n
MVT.MVT_5_ADDRESS	Address of MVT n
MVT.MVT_5_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_5_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_6_PORT	CWM Master Port connected to MVT <i>n</i>
MVT.MVT_6_ADDRESS	Address of MVT n
MVT.MVT_6_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_6_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_7_PORT	CWM Master Port connected to MVT n
MVT.MVT_7_ADDRESS	Address of MVT n
MVT.MVT_7_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_7_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_8_PORT	CWM Master Port connected to MVT n
MVT.MVT_8_ADDRESS	Address of MVT n
MVT.MVT_8_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_8_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT_9_PORT	CWM Master Port connected to MVT n
MVT.MVT_9_ADDRESS	Address of MVT <i>n</i>
MVT.MVT_9_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
MVT.MVT_9_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
MVT.MVT 10 PORT	CWM Master Port connected to

Signal	Description		
	MVT n		
MVT.MVT_10_ADDRESS	Address of MVT n		
MVT.MVT_10_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T		
MVT.MVT_10_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000		
MVT.MVT_11_PORT	CWM Master Port connected to MVT <i>n</i>		
MVT.MVT_11_ADDRESS	Address of MVT n		
MVT.MVT_11_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T		
MVT.MVT_11_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000		
MVT.MVT_12_PORT	CWM Master Port connected to MVT <i>n</i>		
MVT.MVT_12_ADDRESS	Address of MVT n		
MVT.MVT_12_MRTYPE	Transmitter Type of MVT <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T		
MVT.MVT_12_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000		
MVT.MVT_1_ENABLE	Enable Communication for MVT n		
MVT.MVT_2_ENABLE	Enable Communication for MVT n		
MVT.MVT_3_ENABLE	Enable Communication for MVT n		
MVT.MVT_4_ENABLE	Enable Communication for MVT n		
MVT.MVT_5_ENABLE Enable Communication for N MVT.MVT_6_ENABLE Enable Communication for N MVT.MVT_7_ENABLE Enable Communication for N			
		MVT.MVT_8_ENABLE	Enable Communication for MVT n
		MVT.MVT_9_ENABLE Enable Communication for M	
MVT.MVT_10_ENABLE	Enable Communication for MVT n		
MVT.MVT_11_ENABLE	Enable Communication for MVT n		
MVT.MVT_12_ENABLE	Enable Communication for MVT n		
HRT.HART_1_Enable	Enable Communication for HART		
HRT.HART_1_TagName	Tag Name of HART <i>n</i>		
HRT.HART_1_CommMode	Communications Mode of HART n 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.		
HRT.HART_1_Device	I/O Board Slot number or COM Port number of HART <i>n</i>		
HRT.HART_1_Channel	channel number within the I/O		

Signal	Description	
	board of HART n	
HRT.HART_1_Retries	Number of Retries of HART n	
HRT.HART_1_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_2_Enable	Enable Communication for HART	
HRT.HART_2_TagName	Tag Name of HART <i>n</i>	
HRT.HART_2_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_2_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_2_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_2_Retries	Number of Retries of HART n	
HRT.HART_2_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_3_Enable	Enable Communication for HART	
HRT.HART_3_TagName	Tag Name of HART <i>n</i>	
HRT.HART_3_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_3_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_3_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_3_Retries	Number of Retries of HART n	
HRT.HART_3_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_4_Enable	Enable Communication for HART	
HRT.HART_4_TagName	Tag Name of HART n	
HRT.HART_4_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	

Signal	Description
HRT.HART_4_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_4_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_4_Retries	Number of Retries of HART n
HRT.HART_4_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_5_Enable	Enable Communication for HART
HRT.HART_5_TagName	Tag Name of HART <i>n</i>
HRT.HART_5_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_5_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_5_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_5_Retries	Number of Retries of HART n
HRT.HART_5_Type	Transmitter Type of HART n 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_6_Enable	Enable Communication for HART
HRT.HART_6_TagName	Tag Name of HART <i>n</i>
HRT.HART_6_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_6_Device	I/O Board Slot number or COM Port number of HART <i>n</i> channel number within the I/O
	board of HART <i>n</i>
HRT.HART_6_Retries	Number of Retries of HART n
HRT.HART_6_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_7_Enable	Enable Communication for HART
HRT.HART_7_TagName	Tag Name of HART n
HRT.HART_7_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial

Signal	Description	
	COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_7_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_7_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_7_Retries	Number of Retries of HART n	
HRT.HART_7_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_8_Enable	Enable Communication for HART	
HRT.HART_8_TagName	Tag Name of HART n	
HRT.HART_8_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_8_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_8_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_8_Retries	Number of Retries of HART n	
HRT.HART_8_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_9_Enable	Enable Communication for HART	
HRT.HART_9_TagName	Tag Name of HART n	
HRT.HART_9_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_9_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_9_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_9_Retries	Number of Retries of HART n	
HRT.HART_9_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_10_Enable	Enable Communication for HART	
HRT.HART_10_TagName	Tag Name of HART n	
HRT.HART_10_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop	

Signal	Description	
	communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_10_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_10_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_10_Retries	Number of Retries of HART n	
HRT.HART_10_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_11_Enable	Enable Communication for HART	
HRT.HART_11_TagName	Tag Name of HART <i>n</i>	
HRT.HART_11_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_11_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_11_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_11_Retries	Number of Retries of HART n	
HRT.HART_11_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_12_Enable	Enable Communication for HART	
HRT.HART_12_TagName	Tag Name of HART <i>n</i>	
HRT.HART_12_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.	
HRT.HART_12_Device	I/O Board Slot number or COM Port number of HART <i>n</i>	
HRT.HART_12_Channel	channel number within the I/O board of HART <i>n</i>	
HRT.HART_12_Retries	Number of Retries of HART n	
HRT.HART_12_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	
HRT.HART_13_Enable	Enable Communication for HART	
HRT.HART_13_TagName	Tag Name of HART n	

Signal	Description
HRT.HART 13 CommMode	Communications Mode of HART <i>n</i>
HKT.HAKT_TS_COMMINUDE	1 = Point to Point communications through I/O board.2 = Multi-drop
	communications through I/O board.3 = Point to Point
	communications through serial
	COM Port.4 = Multi-drop communications through serial
	COM Port.
HRT.HART_13_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_13_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_13_Retries	Number of Retries of HART n
HRT.HART_13_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_14_Enable	Enable Communication for HART
HRT.HART_14_TagName	Tag Name of HART n
HRT.HART_14_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_14_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_14_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_14_Retries	Number of Retries of HART n
HRT.HART_14_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_15_Enable	Enable Communication for HART
HRT.HART_15_TagName	Tag Name of HART <i>n</i>
HRT.HART_15_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_15_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_15_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_15_Retries	Number of Retries of HART n
HRT.HART_15_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T

Signal	Description
HRT.HART_16_Enable	Enable Communication for HART
HRT.HART_16_TagName	Tag Name of HART <i>n</i>
HRT.HART_16_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_16_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_16_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_16_Retries	Number of Retries of HART n
HRT.HART_16_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_17_Enable	Enable Communication for HART <i>n</i>
HRT.HART_17_TagName	Tag Name of HART <i>n</i>
	1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_17_Device	I/O Board Slot number or COM Port number of HART <i>n</i>
HRT.HART_17_Channel	channel number within the I/O board of HART <i>n</i>
HRT.HART_17_Retries	Number of Retries of HART n
HRT.HART_17_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T
HRT.HART_18_Enable	Enable Communication for HART <i>n</i>
HRT.HART_18_TagName	Tag Name of HART <i>n</i>
HRT.HART_18_CommMode	Communications Mode of HART <i>n</i> 1 = Point to Point communications through I/O board.2 = Multi-drop communications through I/O board.3 = Point to Point communications through serial COM Port.4 = Multi-drop communications through serial COM Port.
HRT.HART_18_Device	I/O Board Slot number or COM Port number of HART <i>n</i> channel number within the I/O
	board of HART <i>n</i>

Signal	Description	
HRT.HART_18_Retries	Number of Retries of HART n	
HRT.HART_18_Type	Transmitter Type of HART <i>n</i> 0=None 1=DP/P/T 2=GP/T 3=T	

Audit Log Interpreter

The Audit logs in the ControlWave Micro store VTEs, legally relevant and non-relevant parameter changes, HMI events, and System events. Use the AuditLogInterpreter.exe utility to create a CSV file that shows only the changes to VTE signals, and their descriptions.

- **1.** Attach a ControlWave Micro serial line to the local communication port.
- **2.** Retrieve the audit data:
 - **a.** Go to the **Historical** tab.
 - **b.** Select **Collect Local Logs**.
 - c. Specify the desired path to save the Audit file.
 - d. Select Audit from the list.
 - e. Click Start Collect and wait for it to finish.
 - **f.** Click **Convert to CSV** (this saves the collected Audit data to a CSV format in the folder specified by **Storage Folder**.)
- **3.** Return to the main menu of TechView.
- **4.** Right click on the RTU.
- **5.** Select the **AuditLogInterpreter.exe** application from the dropdown menu.
- 6. Click the browse button to find the previously saved CSV file (it will be named in the following format "<Site Name>_Aud.csv").
- **7.** There will be two new files created in the same location of the original CSV file.

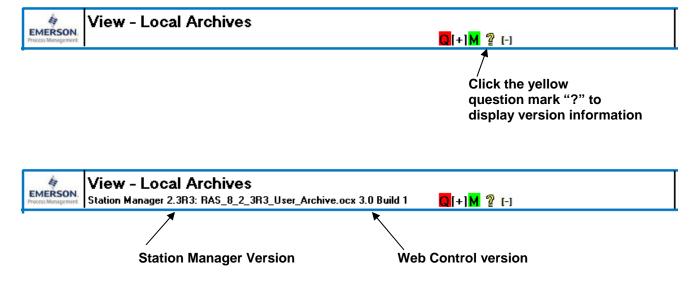
The two new files have the same name as the original CSV with the addition of the suffixes "_New" and "_VTEs" prior to the .CSV extension. The file with the "_New" will be exactly the same as the original Audit CSV file except its ordering puts the newest events first. The file with "VTEs" in the name lists any VTEs that have occurred and remain in the audit trail. The newest VTEs are at the top of the list. Any new VTE triggered after the last sealing of the site requires notification to Measurement Canada so they can verify and re-seal it.

Appendix E - Troubleshooting

Determining Versions of Station Manager and Web Page Controls

If you need to call for technical support one of the first things the technical support person needs to know is the version of Station Manager you are running. This is especially true if you have a beta (test and evaluation) version,

To determine the version of Station Manager, click on the yellow question mark at the top of any page containing web controls. You'll see the Station Manager version, along with the version and build number of the web page control for that page.



Error Codes

Error Code(s)	Possible Remedy
-8001 Mode not supported -8002 Invalid mode for serial port	These codes indicate that the serial port is not configured properly in the Flash Configuration Profile.
	 Verify that the MODE for the serial port connected to the gas chromatograph is configured as a MODBUS Master.
-8006 Invalid Slave address	This code indicates that the Addr setting is incorrect. typically, this means it is less than 1 or greater than 255
	 Set the "Addr" value to the proper local slave address of the gas chromatograph, which should be a number from 1 to 255.
-8017 Invalid response received from slave	This code indicates that the gas chromatograph is responding with data, however, the response message cannot be interpreted properly.

	 For a serial connection, verify that the data bits, stop bits, and parity are configured to match the settings on the chromatograph. For an RS-485 connection, verify that the "Ignore Echo" setting is set to TRUE. Verify that terminating and biasing resistors are set properly.
-8018 Timeout waiting for response	 Verify the gas chromatograph is turned on.
from slave.	 Verify that the communications cables between the-Station Manager controller and the gas chromatograph are wired correctly and connected at both ends.
	 If this is an IP (Ethernet connection), verify that both the gas chromatograph and the controller can be pinged at the IP addresses assigned to them.
	 Verify the gas chromatograph supports the MODBUS Slave protocol.
	 Verify that the baud rate, data bits, stop bits, and parity settings on the serial port of the controller match the settings on the gas chromatograph.
-8020 Communication Port failure.	The following message indicates that no data is being received from the gas chromatograph
	 Verify the communication port is physically installed on the Station Manager controller.
	 Replace the CPU or Communications Expansion Card with a known good card. If the same error is indicated, replace the ControlWave Micro chassis with a known good chassis.

Appendix M – Modbus Register Maps

These tables show the correspondence between Modbus registers and the variables in the Station Manager application.

Coil#	Variable	Description	Off State	On State
1001	MVT.MVT_1_ENABLE	MVT 1 - Comms Enabled	Disabled	Enabled
1002	MVT.MVT_2_ENABLE	MVT 2 - Comms Enabled	Disabled	Enabled
1003	MVT.MVT_3_ENABLE	MVT 3 - Comms Enabled	Disabled	Enabled
1004	MVT.MVT_4_ENABLE	MVT 4 - Comms Enabled	Disabled	Enabled
1005	MVT.MVT_5_ENABLE	MVT 5 - Comms Enabled	Disabled	Enabled
1006	MVT.MVT_8_ENABLE	MVT 6 - Comms Enabled	Disabled	Enabled
1007	MVT.MVT_7_ENABLE	MVT 7 - Comms Enabled	Disabled	Enabled
1008	MVT.MVT_8_ENABLE	MVT 8 - Comms Enabled	Disabled	Enabled
1009	MVT.MVT_9_ENABLE	MVT 9 - Comms Enabled	Disabled	Enabled
1010	MVT.MVT_10_ENABLE	MVT 10 - Comms Enabled	Disabled	Enabled
1011	MVT.MVT_11_ENABLE	MVT 11 - Comms Enabled	Disabled	Enabled
1012	MVT.MVT_12_ENABLE	MVT 12 - Comms Enabled	Disabled	Enabled
1013	FC.FC1.RX_SP_MO	Run 1 - Static Pressure Manual Override	Live	Override
1014	FC.FC1.RX_FTEMP_MO	Run 1 - Flowing Temperature Manual Override	Live	Override
1015	FC.FC1.RX_DP_MO	Run 1 - Differential Pressure Manual Override	Live	Override
1016	FC.R1_MAINT_MODE	Run 1 - Maintenance Mode	Normal	Maintenance
1017	FC.FC1.RX_TAP_LOC	Run 1 - Tap Location	Downstream	Upstream
1018	FC.FC1.RX_KFACTOR_TYPE	Run 1 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1019	FC.FC1.RX_RATE_ALARM_ENABLE	Run 1 - Flow Rate Alarm Enable	Disabled	Enabled
1020	FC.FC1.RX_DP_INP_ALARM_ENABLE	Run 1 - Differential Input Alarm Enable	Disabled	Enabled
1021	FC.FC1.RX_SP_INP_ALARM_ENABLE	Run 1 - Static Pressure Alarm Enable	Disabled	Enabled
1022	FC.FC1.RX_FTEMP_ALARM_ENABLE	Run 1 - Flowing Temperature Alarm Enable	Disabled	Enabled
1023	FC.FC1.RX_BETA_ALARM_ENABLE	Run 1 - Beta Ratio Alarm Enable	Disabled	Enabled
1024	FC.FC1.RX_SOS_ALRM_ENABLE	Run 1 - Speed of Sound Alarm Enable	Disabled	Enabled
1025	FC.FC2.RX_SP_MO	Run 2 - Static Pressure Manual Override	Live	Override
1026	FC.FC2.RX_FTEMP_MO	Run 2 - Flowing Temperature Manual Override	Live	Override
1027	FC.FC2.RX_DP_MO	Run 2 - Differential Pressure Manual Override	Live	Override
1028	FC.R2_MAINT_MODE	Run 2 - Maintenance Mode	Normal	Maintenance
1029	FC.FC2.RX_TAP_LOC	Run 2 - Tap Location	Downstream	Upstream
1030	FC.FC2.RX_KFACTOR_TYPE	Run 2 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1031	FC.FC2.RX_RATE_ALARM_ENABLE	Run 2 - Flow Rate Alarm Enable	Disabled	Enabled
1032	FC.FC2.RX_DP_INP_ALARM_ENABLE	Run 2 - Differential Input Alarm Enable	Disabled	Enabled
1033	FC.FC2.RX_SP_INP_ALARM_ENABLE	Run 2 - Static Pressure Alarm Enable	Disabled	Enabled
1034	FC.FC2.RX_FTEMP_ALARM_ENABLE	Run 2 - Flowing Temperature Alarm Enable	Disabled	Enabled
1035	FC.FC2.RX_BETA_ALARM_ENABLE	Run 2 - Beta Ratio Alarm Enable	Disabled	Enabled
1036	FC.FC2.RX_SOS_ALRM_ENABLE	Run 2 - Speed of Sound Alarm Enable	Disabled	Enabled
1037	FC.FC3.RX_SP_MO	Run 3 - Static Pressure Manual Override	Live	Override
1038	FC.FC3.RX_FTEMP_MO	Run 3 - Flowing Temperature Manual Override	Live	Override
1039	FC.FC3.RX_DP_MO	Run 3 - Differential Pressure Manual Override	Live	Override
1040	FC.R3_MAINT_MODE	Run 3 - Maintenance Mode	Normal	Maintenance
1041	FC.FC3.RX_TAP_LOC	Run 3 - Tap Location	Downstream	Upstream

Table M-1. Modbus Coil Map – BOOL Variables

Coil#	Variable	Description	Off State	On State
1042	FC.FC3.RX_KFACTOR_TYPE	Run 3 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1043	FC.FC3.RX_RATE_ALARM_ENABLE	Run 3 - Flow Rate Alarm Enable	Disabled	Enabled
1044	FC.FC3.RX_DP_INP_ALARM_ENABLE	Run 3 - Differential Input Alarm Enable	Disabled	Enabled
1045	FC.FC3.RX_SP_INP_ALARM_ENABLE	Run 3 - Static Pressure Alarm Enable	Disabled	Enabled
1046	FC.FC3.RX_FTEMP_ALARM_ENABLE	Run 3 - Flowing Temperature Alarm Enable	Disabled	Enabled
1047	FC.FC3.RX_BETA_ALARM_ENABLE	Run 3 - Beta Ratio Alarm Enable	Disabled	Enabled
1048	FC.FC3.RX_SOS_ALRM_ENABLE	Run 3 - Speed of Sound Alarm Enable	Disabled	Enabled
1049	FC.FC4.RX_SP_MO	Run 4 - Static Pressure Manual Override	Live	Override
1050	FC.FC4.RX_FTEMP_MO	Run 4 - Flowing Temperature Manual Override	Live	Override
1051	FC.FC4.RX_DP_MO	Run 4 - Differential Pressure Manual Override	Live	Override
1052	FC.R4_MAINT_MODE	Run 4 - Maintenance Mode	Normal	Maintenance
1053	FC.FC4.RX_TAP_LOC	Run 4 - Tap Location	Downstream	Upstream
1054	FC.FC4.RX_KFACTOR_TYPE	Run 4 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1055	FC.FC4.RX_RATE_ALARM_ENABLE	Run 4 - Flow Rate Alarm Enable	Disabled	Enabled
1056	FC.FC4.RX_DP_INP_ALARM_ENABLE	Run 4 - Differential Input Alarm Enable	Disabled	Enabled
1057	FC.FC4.RX_SP_INP_ALARM_ENABLE	Run 4 - Static Pressure Alarm Enable	Disabled	Enabled
1058	FC.FC4.RX_FTEMP_ALARM_ENABLE	Run 4 - Flowing Temperature Alarm Enable	Disabled	Enabled
1059	FC.FC4.RX_BETA_ALARM_ENABLE	Run 4 - Beta Ratio Alarm Enable	Disabled	Enabled
1060	FC.FC4.RX_SOS_ALRM_ENABLE	Run 4 - Speed of Sound Alarm Enable	Disabled	Enabled
1061	FC.FC5.RX_SP_MO	Run 5 - Static Pressure Manual Override	Live	Override
1062	FC.FC5.RX_FTEMP_MO	Run 5 - Flowing Temperature Manual Override	Live	Override
1063	FC.FC5.RX_DP_MO	Run 5 - Differential Pressure Manual Override	Live	Override
1064	FC.R5_MAINT_MODE	Run 5 - Maintenance Mode	Normal	Maintenance
1065	FC.FC5.RX_TAP_LOC	Run 5 - Tap Location	Downstream	Upstream
1066	FC.FC5.RX KFACTOR TYPE	Run 5 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1067	FC.FC5.RX_RATE_ALARM_ENABLE	Run 5 - Flow Rate Alarm Enable	Disabled	Enabled
1068	FC.FC5.RX_DP_INP_ALARM_ENABLE	Run 5 - Differential Input Alarm Enable	Disabled	Enabled
1069	FC.FC5.RX_SP_INP_ALARM_ENABLE	Run 5 - Static Pressure Alarm Enable	Disabled	Enabled
1070	FC.FC5.RX_FTEMP_ALARM_ENABLE	Run 5 - Flowing Temperature Alarm Enable	Disabled	Enabled
1071	FC.FC5.RX BETA ALARM ENABLE	Run 5 - Beta Ratio Alarm Enable	Disabled	Enabled
1072	FC.FC5.RX_SOS_ALRM_ENABLE	Run 5 - Speed of Sound Alarm Enable	Disabled	Enabled
1073	FC.FC6.RX_SP_MO	Run 6 - Static Pressure Manual Override	Live	Override
1074	FC.FC6.RX_FTEMP_MO	Run 6 - Flowing Temperature Manual Override	Live	Override
1075	FC.FC6.RX_DP_MO	Run 6 - Differential Pressure Manual Override	Live	Override
1076	FC.R6_MAINT_MODE	Run 6 - Maintenance Mode	Normal	Maintenance
1077	FC.FC6.RX_TAP_LOC	Run 6 - Tap Location	Downstream	Upstream
1078	FC.FC6.RX_KFACTOR_TYPE	Run 6 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1079	FC.FC6.RX_RATE_ALARM_ENABLE	Run 6 - Flow Rate Alarm Enable	Disabled	Enabled
1080	FC.FC6.RX_DP_INP_ALARM_ENABLE	Run 6 - Differential Input Alarm Enable	Disabled	Enabled
1081	FC.FC6.RX_SP_INP_ALARM_ENABLE	Run 6 - Static Pressure Alarm Enable	Disabled	Enabled
1082	FC.FC6.RX_FTEMP_ALARM_ENABLE	Run 6 - Flowing Temperature Alarm Enable	Disabled	Enabled
1083	FC.FC6.RX_BETA_ALARM_ENABLE	Run 6 - Beta Ratio Alarm Enable	Disabled	Enabled
1084	FC.FC6.RX_SOS_ALRM_ENABLE	Run 6 - Speed of Sound Alarm Enable	Disabled	Enabled
1085	FC.FC7.RX_SP_MO	Run 7 - Static Pressure Manual Override	Live	Override
1086	FC.FC7.RX_FTEMP_MO	Run 7 - Flowing Temperature Manual Override	Live	Override
1087	FC.FC7.RX_DP_MO	Run 7 - Differential Pressure Manual Override	Live	Override
1088	FC.R7_MAINT_MODE	Run 7 - Maintenance Mode	Normal	Maintenance
1089	FC.FC7.RX_TAP_LOC	Run 7 - Tap Location	Downstream	Upstream
1089	FC.FC7.RX_TAP_LOC FC.FC7.RX_KFACTOR_TYPE	Run 7 - K Factor Type	CuFT/Pulse	Pulse/CuFT

Coil#	Variable	Description	Off State	On State
1091	FC.FC7.RX_RATE_ALARM_ENABLE	Run 7 - Flow Rate Alarm Enable	Disabled	Enabled
1092	FC.FC7.RX_DP_INP_ALARM_ENABLE	Run 7 - Differential Input Alarm Enable	Disabled	Enabled
1093	FC.FC7.RX_SP_INP_ALARM_ENABLE	Run 7 - Static Pressure Alarm Enable	Disabled	Enabled
1094	FC.FC7.RX_FTEMP_ALARM_ENABLE	Run 7 - Flowing Temperature Alarm Enable	Disabled	Enabled
1095	FC.FC7.RX_BETA_ALARM_ENABLE	Run 7 - Beta Ratio Alarm Enable	Disabled	Enabled
1096	FC.FC7.RX_SOS_ALRM_ENABLE	Run 7 - Speed of Sound Alarm Enable	Disabled	Enabled
1097	FC.FC8.RX_SP_MO	Run 8 - Static Pressure Manual Override	Live	Override
1098	FC.FC8.RX_FTEMP_MO	Run 8 - Flowing Temperature Manual Override	Live	Override
1099	FC.FC8.RX_DP_MO	Run 8 - Differential Pressure Manual Override	Live	Override
1100	FC.R8_MAINT_MODE	Run 8 - Maintenance Mode	Normal	Maintenance
1101	FC.FC8.RX_TAP_LOC	Run 8 - Tap Location	Downstream	Upstream
1102	FC.FC8.RX_KFACTOR_TYPE	Run 8 - K Factor Type	CuFT/Pulse	Pulse/CuFT
1103	FC.FC8.RX_RATE_ALARM_ENABLE	Run 8 - Flow Rate Alarm Enable	Disabled	Enabled
1104	FC.FC8.RX_DP_INP_ALARM_ENABLE	Run 8 - Differential Input Alarm Enable	Disabled	Enabled
1105	FC.FC8.RX_SP_INP_ALARM_ENABLE	Run 8 - Static Pressure Alarm Enable	Disabled	Enabled
1106	FC.FC8.RX_FTEMP_ALARM_ENABLE	Run 8 - Flowing Temperature Alarm Enable	Disabled	Enabled
1107	FC.FC8.RX BETA ALARM ENABLE	Run 8 - Beta Ratio Alarm Enable	Disabled	Enabled
1108	FC.FC8.RX SOS ALRM ENABLE	Run 8 - Speed of Sound Alarm Enable	Disabled	Enabled
1109	UFM.UFM_1_ENABLE	Ultrasonic Flow Meter 1 - Communications Enabled	Disabled	Enabled
1110	UFM.UFM_1_COMMSTATUS	Ultrasonic Flow Meter 1 - Communications Status	Normal	Fail
1111	UFM.UFM_2_ENABLE	Ultrasonic Flow Meter 2 - Communications Enabled	Disabled	Enabled
1112	UFM.UFM_2_COMMSTATUS	Ultrasonic Flow Meter 2 - Communications Status	Normal	Fail
1113	UFM.UFM 3 ENABLE	Ultrasonic Flow Meter 3 - Communications Enabled	Disabled	Enabled
1114	UFM.UFM_3_COMMSTATUS	Ultrasonic Flow Meter 3 - Communications Status	Normal	Fail
		Ultrasonic Flow Meter 4 - Communications		
1115	UFM.UFM_4_ENABLE	Enabled	Disabled	Enabled
1116	UFM.UFM_4_COMMSTATUS	Ultrasonic Flow Meter 4 - Communications Status Ultrasonic Flow Meter 5 - Communications	Normal	Fail
1117	UFM.UFM_5_ENABLE	Enabled	Disabled	Enabled
1118	UFM.UFM_5_COMMSTATUS	Ultrasonic Flow Meter 5 - Communications Status	Normal	Fail
1119	UFM.UFM_6_ENABLE	Ultrasonic Flow Meter 6 - Communications Enabled	Disabled	Enabled
1120	UFM.UFM_6_COMMSTATUS	Ultrasonic Flow Meter 6 - Communications Status	Normal	Fail
1121	PG_GC.GC_1.GC_1.TIMER_EN	GC Data Set 1 - Scheduled Data Disabled/Enabled GC Data Set 2 - Scheduled Data	Disabled	Enabled
1122	PG_GC.GC_1.GC_2.TIMER_EN	Disabled/Enabled	Disabled	Enabled
1123	PG_GC.GC_1.GC_3.TIMER_EN	GC Data Set 3 - Scheduled Data Disabled/Enabled	Disabled	Enabled
1124	PG_GC.GC_1.GC_4.TIMER_EN	GC Data Set 4 - Scheduled Data Disabled/Enabled GC Data Set 5 - Scheduled Data	Disabled	Enabled
1125	PG_GC.GC_1.GC_5.TIMER_EN	Disabled/Enabled	Disabled	Enabled
1126	PG_GC.GC_1.GC_6.TIMER_EN	GC Data Set 6 - Scheduled Data Disabled/Enabled	Disabled	Enabled
1127	PG_GC.GC_1.GC_7.TIMER_EN	GC Data Set 7 - Scheduled Data Disabled/Enabled GC Data Set 8 - Scheduled Data	Disabled	Enabled
1128	PG_GC.GC_1.GC_8.TIMER_EN	Disabled/Enabled	Disabled	Enabled
1129	UFM.UFM_7_ENABLE			
1130	UFM.UFM_7_COMMSTATUS			
1131	UFM.UFM_8_ENABLE			
1132	UFM.UFM_8_COMMSTATUS			
1133	PG_GC.GC_1.GC_1.IPMODE	GC Data Set 1 - Comm Mode Serial / IP	Serial	IP

Coil#	Variable	Description	Off State	On State
1134	PG_GC.GC_1.GC_1.USE_FIXED	GC Data Set 1 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1135	PG_GC.GC_1.GC_1.MODE	GC Data Set 1 - Comm Enabled / Disabled	Disabled	Enabled
1136	PG_GC.GC_1.GC_2.IPMODE	GC Data Set 2 - Comm Mode Serial / IP	Serial	IP
1137	PG_GC.GC_1.GC_2.USE_FIXED	GC Data Set 2 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1138	PG_GC.GC_1.GC_2.MODE	GC Data Set 2 - Comm Enabled / Disabled	Disabled	Enabled
1139	PG_GC.GC_1.GC_3.IPMODE	GC Data Set 3 - Comm Mode Serial / IP	Serial	IP
1140	PG_GC.GC_1.GC_3.USE_FIXED	GC Data Set 3 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1141	PG_GC.GC_1.GC_3.MODE	GC Data Set 3 - Comm Enabled / Disabled	Disabled	Enabled
1142	PG_GC.GC_1.GC_4.IPMODE	GC Data Set 4 - Comm Mode Serial / IP	Serial	IP
1172			Last Good	
1143	PG_GC.GC_1.GC_4.USE_FIXED	GC Data Set 4 - Use Fixed or Last Good GC Data	GC	Use Fixed
1144	PG_GC.GC_1.GC_4.MODE	GC Data Set 4 - Comm Enabled / Disabled	Disabled	Enabled
1145	PG_GC.GC_1.GC_5.IPMODE	GC Data Set 5 - Comm Mode Serial / IP	Serial Last Good	IP
1146	PG_GC.GC_1.GC_5.USE_FIXED	GC Data Set 5 - Use Fixed or Last Good GC Data	GC	Use Fixed
1147	PG_GC.GC_1.GC_5.MODE	GC Data Set 5 - Comm Enabled / Disabled	Disabled	Enabled
1148	PG_GC.GC_1.GC_6.IPMODE	GC Data Set 6 - Comm Mode Serial / IP	Serial	IP
1149	PG_GC.GC_1.GC_6.USE_FIXED	GC Data Set 6 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1150	PG_GC.GC_1.GC_6.MODE	GC Data Set 6 - Comm Enabled / Disabled	Disabled	Enabled
1151	PG_GC.GC_1.GC_7.IPMODE	GC Data Set 7 - Comm Mode Serial / IP	Serial	IP
1152	PG_GC.GC_1.GC_7.USE_FIXED	GC Data Set 7 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1153	PG_GC.GC_1.GC_7.MODE	GC Data Set 7 - Comm Enabled / Disabled	Disabled	Enabled
1154	PG_GC.GC_1.GC_8.IPMODE	GC Data Set 8 - Comm Mode Serial / IP	Serial	IP
1155	PG_GC.GC_1.GC_8.USE_FIXED	GC Data Set 8 - Use Fixed or Last Good GC Data	Last Good GC	Use Fixed
1156	PG_GC.GC_1.GC_8.MODE	GC Data Set 8 - Comm Enabled / Disabled	Disabled	Enabled
1157	MB.Spare			
1158	MB.Spare			
1159	MB.Spare			
1160	MB.Spare			
1161	MB.Spare			
1162	MB.Spare			
1163	MB.Spare			
1164	MB.Spare			
1165	MB.Spare			
1166	MB.Spare			
1167	MB.Spare			
1168	MB.Spare			
1169	RC.RCV_1.BLIND	Remote Control Valve 1 - Limit Switch / Blind Remote Control Valve 1 - Execute Only / Arm and	Limit Switch Arm and	Blind
1170	RC.RCV_1.ONESTEPLOCAL	Execute - Local	Execute	Execute Only
1171	RC.RCV_1.ONESTEPREMOTE	Remote Control Valve 1 - Execute Only / Arm and Execute - Remote	Arm and Execute	Execute Only
1172	RC.RCV_1.ARM_OPEN_REMOTE	Remote Control Valve 1 - Open Control Arm State - Remote	Idle	Armed
1173	RC.RCV_1.EXECUTE_OPEN_REMOTE	Remote Control Valve 1 - Open Control Execute State - Remote	Idle	Execute
1174	RC.RCV_1.ARM_CLOSE_REMOTE	Remote Control Valve 1 - Close Control Arm State - Remote	Idle	Armed
1175	RC.RCV_1.EXECUTE_CLOSE_REMOTE	Remote Control Valve 1 - Close Control Execute State - Remote	Idle	Execute
1176	RC.RCV_1.OPENFAIL	Remote Control Valve 1 - Status - Open	Normal	Fail

Coil#	Variable	Description	Off State	On State
1177	RC.RCV_1.CLOSEFAIL	Remote Control Valve 1 - Status - Close	Normal	Fail
1178	RC.RCV_1.VALVEFAIL	Remote Control Valve 1 - Status - Valve	Normal	Fail
1179	RC.RCV_1.RESETFAIL	Remote Control Valve 1 - Status - Reset	Off	Reset
1180	RC.RCV_2.BLIND	Remote Control Valve 2 - Limit Switch / Blind	Limit Switch	Blind
1181	RC.RCV_2.ONESTEPLOCAL	Remote Control Valve 2 - Execute Only / Arm and Execute - Local Remote Control Valve 2 - Execute Only / Arm and	Arm and Execute Arm and	Execute Only
1182	RC.RCV_2.ONESTEPREMOTE	Execute - Remote	Execute	Execute Only
1183	RC.RCV_2.ARM_OPEN_REMOTE	Remote Control Valve 2 - Open Control Arm State - Remote Remote Control Valve 2 - Open Control Execute	Idle	Armed
1184	RC.RCV_2.EXECUTE_OPEN_REMOTE	State - Remote	Idle	Execute
1185	RC.RCV_2.ARM_CLOSE_REMOTE	Remote Control Valve 2 - Close Control Arm State - Remote	Idle	Armed
1186	RC.RCV_2.EXECUTE_CLOSE_REMOTE	Remote Control Valve 2 - Close Control Execute State - Remote	Idle	Execute
1187	RC.RCV_2.OPENFAIL	Remote Control Valve 2 - Status - Open	Normal	Fail
1188	RC.RCV_2.CLOSEFAIL	Remote Control Valve 2 - Status - Close	Normal	Fail
1189	RC.RCV_2.VALVEFAIL	Remote Control Valve 2 - Status - Valve	Normal	Fail
1190	RC.RCV_2.RESETFAIL	Remote Control Valve 2 - Status - Reset	Off	Reset
1191	RC.RCV_3.BLIND	Remote Control Valve 3 - Limit Switch / Blind	Limit Switch	Blind
1192	RC.RCV_3.ONESTEPLOCAL	Remote Control Valve 3 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1152		Remote Control Valve 3 - Execute Only / Arm and	Arm and	
1193	RC.RCV_3.ONESTEPREMOTE	Execute - Remote Remote Control Valve 3 - Open Control Arm State	Execute	Execute Only
1194	RC.RCV_3.ARM_OPEN_REMOTE	- Remote Control Valve 3 - Open Control Arm State - Remote Remote Control Valve 3 - Open Control Execute	Idle	Armed
1195	RC.RCV_3.EXECUTE_OPEN_REMOTE	State - Remote Remote Control Valve 3 - Close Control Arm State	Idle	Execute
1196	RC.RCV_3.ARM_CLOSE_REMOTE	- Remote Control Valve 3 - Close Control Arm State	Idle	Armed
1197	RC.RCV_3.EXECUTE_CLOSE_REMOTE	Remote Control Valve 3 - Close Control Execute State - Remote	Idle	Execute
1198	RC.RCV_3.OPENFAIL	Remote Control Valve 3 - Status - Open	Normal	Fail
1199	RC.RCV_3.CLOSEFAIL	Remote Control Valve 3 - Status - Close	Normal	Fail
1200	RC.RCV_3.VALVEFAIL	Remote Control Valve 3 - Status - Valve	Normal	Fail
1201	RC.RCV_3.RESETFAIL	Remote Control Valve 3 - Status - Reset	Off	Reset
1202	RC.RCV_4.BLIND	Remote Control Valve 4 - Limit Switch / Blind Remote Control Valve 4 - Execute Only / Arm and	Limit Switch Arm and	Blind
1203	RC.RCV_4.ONESTEPLOCAL	Execute - Local	Execute	Execute Only
1204	RC.RCV_4.ONESTEPREMOTE	Remote Control Valve 4 - Execute Only / Arm and Execute - Remote Remote Control Valve 4 - Open Control Arm State	Arm and Execute	Execute Only
1205	RC.RCV_4.ARM_OPEN_REMOTE	- Remote	Idle	Armed
1206	RC.RCV_4.EXECUTE_OPEN_REMOTE	Remote Control Valve 4 - Open Control Execute State - Remote Remote Control Valve 4 - Close Control Arm State	Idle	Execute
1207	RC.RCV_4.ARM_CLOSE_REMOTE	- Remote Remote Control Valve 4 - Close Control Arm State	Idle	Armed
1208	RC.RCV_4.EXECUTE_CLOSE_REMOTE	State - Remote	Idle	Execute
1209	RC.RCV_4.OPENFAIL	Remote Control Valve 4 - Status - Open	Normal	Fail
1210	RC.RCV_4.CLOSEFAIL	Remote Control Valve 4 - Status - Close	Normal	Fail
1211	RC.RCV_4.VALVEFAIL	Remote Control Valve 4 - Status - Valve	Normal	Fail
1212	RC.RCV_4.RESETFAIL	Remote Control Valve 4 - Status - Reset	Off	Reset
1213	RC.RCV_5.BLIND	Remote Control Valve 5 - Limit Switch / Blind	Limit Switch	Blind
1214	RC.RCV_5.ONESTEPLOCAL	Remote Control Valve 5 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1214	RC.RCV_5.ONESTEPREMOTE	Remote Control Valve 5 - Execute Only / Arm and Execute - Remote	Arm and Execute	Execute Only
1216	RC.RCV_5.ARM_OPEN_REMOTE	Remote Control Valve 5 - Open Control Arm State - Remote	Idle	Armed

Coil#	Variable	Description	Off State	On State
1217	RC.RCV_5.EXECUTE_OPEN_REMOTE	Remote Control Valve 5 - Open Control Execute State - Remote	Idle	Execute
1010	DO DOV 5 ADM CLOSE DEMOTE	Remote Control Valve 5 - Close Control Arm State	اطام	Armod
1218	RC.RCV_5.ARM_CLOSE_REMOTE	- Remote Remote Control Valve 5 - Close Control Execute	Idle	Armed
1219	RC.RCV_5.EXECUTE_CLOSE_REMOTE	State - Remote	Idle	Execute
1220	RC.RCV_5.OPENFAIL	Remote Control Valve 5 - Status - Open	Normal	Fail
1221	RC.RCV_5.CLOSEFAIL	Remote Control Valve 5 - Status - Close	Normal	Fail
1222	RC.RCV_5.VALVEFAIL	Remote Control Valve 5 - Status - Valve	Normal	Fail
1223	RC.RCV_5.RESETFAIL	Remote Control Valve 5 - Status - Reset	Off	Reset
1224	RC.RCV_6.BLIND	Remote Control Valve 6 - Limit Switch / Blind	Limit Switch	Blind
1225	RC.RCV_6.ONESTEPLOCAL	Remote Control Valve 6 - Execute Only / Arm and Execute - Local Remote Control Valve 6 - Execute Only / Arm and	Arm and Execute	Execute Only
1226	RC.RCV_6.ONESTEPREMOTE	Execute - Remote	Arm and Execute	Execute Only
1227	RC.RCV_6.ARM_OPEN_REMOTE	Remote Control Valve 6 - Open Control Arm State	Idle	Armed
1228	RC.RCV_6.EXECUTE_OPEN_REMOTE	Remote Control Valve 6 - Open Control Execute State - Remote	Idle	Execute
1229	RC.RCV_6.ARM_CLOSE_REMOTE	Remote Control Valve 6 - Close Control Arm State - Remote	Idle	Armed
1230	RC.RCV_6.EXECUTE_CLOSE_REMOTE	Remote Control Valve 6 - Close Control Execute State - Remote	Idle	Execute
1231	RC.RCV_6.OPENFAIL	Remote Control Valve 6 - Status - Open	Normal	Fail
1232	RC.RCV_6.CLOSEFAIL	Remote Control Valve 6 - Status - Close	Normal	Fail
1233	RC.RCV_6.VALVEFAIL	Remote Control Valve 6 - Status - Valve	Normal	Fail
1234	RC.RCV_6.RESETFAIL	Remote Control Valve 6 - Status - Reset	Off	Reset
1235	RC.RCV_7.BLIND	Remote Control Valve 7 - Limit Switch / Blind	Limit Switch	Blind
1236	RC.RCV_7.ONESTEPLOCAL	Remote Control Valve 7 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1237	RC.RCV_7.ONESTEPREMOTE	Remote Control Valve 7 - Execute Only / Arm and Execute - Remote	Arm and Execute	Execute Only
1238	RC.RCV_7.ARM_OPEN_REMOTE	Remote Control Valve 7 - Open Control Arm State - Remote	Idle	Armed
1239	RC.RCV_7.EXECUTE_OPEN_REMOTE	Remote Control Valve 7 - Open Control Execute State - Remote	Idle	Execute
1240	RC.RCV_7.ARM_CLOSE_REMOTE	Remote Control Valve 7 - Close Control Arm State - Remote	Idle	Armed
1241	RC.RCV_7.EXECUTE_CLOSE_REMOTE	Remote Control Valve 7 - Close Control Execute State - Remote	Idle	Execute
1242	RC.RCV_7.OPENFAIL	Remote Control Valve 7 - Status - Open	Normal	Fail
1243	RC.RCV_7.CLOSEFAIL	Remote Control Valve 7 - Status - Close	Normal	Fail
1244	RC.RCV_7.VALVEFAIL	Remote Control Valve 7 - Status - Valve	Normal	Fail
1245	RC.RCV_7.RESETFAIL	Remote Control Valve 7 - Status - Reset	Off	Reset
1246	RC.RCV_8.BLIND	Remote Control Valve 8 - Limit Switch / Blind	Limit Switch	Blind
1247	RC.RCV_8.ONESTEPLOCAL	Remote Control Valve 8 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1248	RC.RCV_8.ONESTEPREMOTE	Remote Control Valve 8 - Execute Only / Arm and Execute - Remote	Arm and Execute	Execute Only
1249	RC.RCV_8.ARM_OPEN_REMOTE	Remote Control Valve 8 - Open Control Arm State - Remote	Idle	Armed
1250	RC.RCV_8.EXECUTE_OPEN_REMOTE	Remote Control Valve 8 - Open Control Execute State - Remote	Idle	Execute
1251	RC.RCV_8.ARM_CLOSE_REMOTE	Remote Control Valve 8 - Close Control Arm State	Idle	Armed
1252	RC.RCV_8.EXECUTE_CLOSE_REMOTE	Remote Control Valve 8 - Close Control Execute State - Remote	ldle	Execute
1253	RC.RCV_8.OPENFAIL	Remote Control Valve 8 - Status - Open	Normal	Fail
1254	RC.RCV_8.CLOSEFAIL	Remote Control Valve 8 - Status - Close	Normal	Fail
1255	RC.RCV_8.VALVEFAIL	Remote Control Valve 8 - Status - Valve	Normal	Fail
1256	RC.RCV_8.RESETFAIL	Remote Control Valve 8 - Status - Reset	Off	Reset

Coil#	Variable	Description	Off State	On State
1257	RC.RCV_9.BLIND	Remote Control Valve 9 - Limit Switch / Blind	Limit Switch	Blind
1258	RC.RCV_9.ONESTEPLOCAL	Remote Control Valve 9 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1259	RC.RCV_9.ONESTEPREMOTE	Remote Control Valve 9 - Execute Only / Arm and Execute - Remote Remote Control Valve 9 - Open Control Arm State	Arm and Execute	Execute Only
1260	RC.RCV_9.ARM_OPEN_REMOTE	- Remote	Idle	Armed
1261	RC.RCV_9.EXECUTE_OPEN_REMOTE	Remote Control Valve 9 - Open Control Execute State - Remote	Idle	Execute
1262	RC.RCV_9.ARM_CLOSE_REMOTE	Remote Control Valve 9 - Close Control Arm State - Remote Remote Control Valve 9 - Close Control Execute	Idle	Armed
1263	RC.RCV_9.EXECUTE_CLOSE_REMOTE	State - Remote	Idle	Execute
1264	RC.RCV_9.OPENFAIL	Remote Control Valve 9 - Status - Open	Normal	Fail
1265	RC.RCV_9.CLOSEFAIL	Remote Control Valve 9 - Status - Close	Normal	Fail
1266	RC.RCV_9.VALVEFAIL	Remote Control Valve 9 - Status - Valve	Normal	Fail
1267	RC.RCV_9.RESETFAIL	Remote Control Valve 9 - Status - Reset	Off	Reset
1268	RC.RCV_10.BLIND	Remote Control Valve 10 - Limit Switch / Blind	Limit Switch	Blind
		Remote Control Valve 10 - Execute Only / Arm	Arm and	
1269	RC.RCV_10.ONESTEPLOCAL	and Execute - Local Remote Control Valve 10 - Execute Only / Arm	Execute Arm and	Execute Only
1270	RC.RCV_10.ONESTEPREMOTE	and Execute - Remote Remote Control Valve 10 - Open Control Arm	Execute	Execute Only
1271	RC.RCV_10.ARM_OPEN_REMOTE	State - Remote Remote Control Valve 10 - Open Control Execute	Idle	Armed
1272	RC.RCV_10.EXECUTE_OPEN_REMOTE	State - Remote	Idle	Execute
1273	RC.RCV_10.ARM_CLOSE_REMOTE	Remote Control Valve 10 - Close Control Arm State - Remote Remote Control Valve 10 - Close Control Execute	Idle	Armed
1274	RC.RCV_10.EXECUTE_CLOSE_REMOTE	State - Remote	Idle	Execute
1275	RC.RCV_10.OPENFAIL	Remote Control Valve 10 - Status - Open	Normal	Fail
1276	RC.RCV_10.CLOSEFAIL	Remote Control Valve 10 - Status - Close	Normal	Fail
1277	RC.RCV_10.VALVEFAIL	Remote Control Valve 10 - Status - Valve	Normal	Fail
1278	RC.RCV_10.RESETFAIL	Remote Control Valve 10 - Status - Reset	Off	Reset
1279	RC.RCV 11.BLIND	Remote Control Valve 11 - Limit Switch / Blind	Limit Switch	Blind
1280	RC.RCV_11.ONESTEPLOCAL	Remote Control Valve 11 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1281	RC.RCV_11.ONESTEPREMOTE	Remote Control Valve 11 - Execute Only / Arm and Execute - Remote	Arm and Execute	Execute Only
1282	RC.RCV_11.ARM_OPEN_REMOTE	Remote Control Valve 11 - Open Control Arm State - Remote	Idle	Armed
1283	RC.RCV_11.EXECUTE_OPEN_REMOTE	Remote Control Valve 11 - Open Control Execute State - Remote	Idle	Execute
1284	RC.RCV_11.ARM_CLOSE_REMOTE	Remote Control Valve 11 - Close Control Arm State - Remote	Idle	Armed
1285	RC.RCV_11.EXECUTE_CLOSE_REMOTE	Remote Control Valve 11 - Close Control Execute State - Remote	Idle	Execute
1286	RC.RCV_11.OPENFAIL	Remote Control Valve 11 - Status - Open	Normal	Fail
1287	RC.RCV_11.CLOSEFAIL	Remote Control Valve 11 - Status - Close	Normal	Fail
1288	RC.RCV_11.VALVEFAIL	Remote Control Valve 11 - Status - Valve	Normal	Fail
1289	RC.RCV_11.RESETFAIL	Remote Control Valve 11 - Status - Reset	Off	Reset
1290	RC.RCV_12.BLIND	Remote Control Valve 12 - Limit Switch / Blind	Limit Switch	Blind
1291	RC.RCV_12.ONESTEPLOCAL	Remote Control Valve 12 - Execute Only / Arm and Execute - Local	Arm and Execute	Execute Only
1292	RC.RCV_12.ONESTEPREMOTE	Remote Control Valve 12 - Execute Only / Arm and Execute - Remote Remote Control Valve 12 - Open Control Arm	Arm and Execute	Execute Only
1293	RC.RCV_12.ARM_OPEN_REMOTE	State - Remote	Idle	Armed
1294	RC.RCV_12.EXECUTE_OPEN_REMOTE	Remote Control Valve 12 - Open Control Execute State - Remote	Idle	Execute
1295	RC.RCV_12.ARM_CLOSE_REMOTE	Remote Control Valve 12 - Close Control Arm State - Remote	Idle	Armed

Coil#	Variable	Description	Off State	On State
1296	RC.RCV_12.EXECUTE_CLOSE_REMOTE	Remote Control Valve 12 - Close Control Execute State - Remote	Idle	Execute
1297	RC.RCV_12.OPENFAIL	Remote Control Valve 12 - Status - Open	Normal	Fail
1298	RC.RCV_12.CLOSEFAIL	Remote Control Valve 12 - Status - Close	Normal	Fail
1299	RC.RCV_12.VALVEFAIL	Remote Control Valve 12 - Status - Valve	Normal	Fail
1300	RC.RCV_12.RESETFAIL	Remote Control Valve 12 - Status - Reset	Off	Reset
1301	@GVP1_IGNORE_ECHO	Comm Port 1 - Ignore Echo	Off	Ignore Echo
1302	@GVP1_DIAL_PORT	Comm Port 1 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1303	@GVP1_AUTO_DTR	Comm Port 1 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1304	@GVP1_TS_DIS	Comm Port 1 - Time Synch Disabled through this port	Off	Time Synch Disabled
1305	@GVP1_TS_FORCE	Comm Port 1 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1306		Comm Port 1 - Node Routing Table Disabled through this port - BSAP Slave Only	Off	Node Routing Table Disabled
1300	@GVP1_NRT_DIS	Comm Port 1 - Disable alarms being reported	Alarms will	Alarms will
1307	@GVP1_ALM_DIS	through this port - BSAP Slave Only	be reported Immediate Response	be disabled Immediate Response
1308	@GVP1_IMM_DIS	Comm Port 1 - Disable Immediate Response Mode on this port - BSAP Slave Only	Mode Enabled	Mode Disabled
1309	@GVP1_IDLE_POLL	Comm Port 1 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1310	@GVP2_IGNORE_ECHO	Comm Port 2 - Ignore Echo	Off	Ignore Echo
1310	@GVP2_DIAL_PORT	Comm Port 2 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1312	@GVP2_AUTO_DTR	Comm Port 2 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1313	@GVP2_TS_DIS	Comm Port 2 - Time Synch Disabled through this port	Off	Time Synch Disabled
1314	@GVP2_TS_FORCE	Comm Port 2 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced Node
1315	@GVP2_NRT_DIS	Comm Port 2 - Node Routing Table Disabled through this port - BSAP Slave Only	Off	Routing Table Disabled
1316	@GV. P2 ALM DIS	Comm Port 2 - Disable alarms being reported through this port - BSAP Slave Only	Alarms will be reported	Alarms will be disabled
1310		Comm Port 2 - Disable Immediate Response	Immediate Response Mode	Immediate Response Mode
1317	@GVP2_IMM_DIS	Mode on this port - BSAP Slave Only	Enabled	Disabled
1318	@GVP2_IDLE_POLL	Comm Port 2 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1319	@GVP3_IGNORE_ECHO	Comm Port 3 - Ignore Echo	Off	Ignore Echo
1320	@GVP3_DIAL_PORT	Comm Port 3 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1321	@GVP3_AUTO_DTR	Comm Port 3 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1322	@GVP3_TS_DIS	Comm Port 3 - Time Synch Disabled through this port	Off	Time Synch Disabled
1323	@GVP3_TS_FORCE	Comm Port 3 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced Node
1324	@GVP3_NRT_DIS	Comm Port 3 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 3 - Disable alarms being reported	Off Alarms will	Routing Table Disabled Alarms will
1325	@GVP3_ALM_DIS	through this port - BSAP Slave Only	be reported	be disabled
1326	@GVP3_IMM_DIS	Comm Port 3 - Disable Immediate Response Mode on this port - BSAP Slave Only	Immediate Response Mode Enabled	Immediate Response Mode Disabled

Coil#	Variable	Description	Off State	On State
1327	@GVP3_IDLE_POLL	Comm Port 3 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1328	@GVP4_IGNORE_ECHO	Comm Port 4 - Ignore Echo	Off	Ignore Echo
1329	@GVP4_DIAL_PORT	Comm Port 4 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1330	@GVP4_AUTO_DTR	Comm Port 4 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1331	@GVP4_TS_DIS	Comm Port 4 - Time Synch Disabled through this port	Off	Time Synch Disabled
1332	@GVP4_TS_FORCE	Comm Port 4 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1333	@GVP4_NRT_DIS	Comm Port 4 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 4 - Disable alarms being reported	Off Alarms will	Node Routing Table Disabled Alarms will
1334	@GVP4_ALM_DIS	through this port - BSAP Slave Only	be reported Immediate	be disabled Immediate
1335	@GVP4_IMM_DIS	Comm Port 4 - Disable Immediate Response Mode on this port - BSAP Slave Only	Response Mode Enabled	Response Mode Disabled
1336	@GVP4_IDLE_POLL	Comm Port 4 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1337	@GVP5_IGNORE_ECHO	Comm Port 5 - Ignore Echo Comm Port 5 - Enable dialing from this port -	Off	Ignore Echo
1338	@GVP5_DIAL_PORT	BSAP Slave Only Comm Port 5 - Enable Auto DTR set on this port -	Off	Dial Enabled Auto DTR
1339	@GVP5_AUTO_DTR	BSAP Slave Only Comm Port 5 - Time Synch Disabled through this	Off	Enabled
1340	@GVP5_TS_DIS	port	Off	Time Synch Disabled
1341	@GVP5_TS_FORCE	Comm Port 5 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1342	@GVP5_NRT_DIS	Comm Port 5 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 5 - Disable alarms being reported	Off Alarms will	Node Routing Table Disabled Alarms will
1343	@GVP5_ALM_DIS	through this port - BSAP Slave Only	be reported	be disabled
1344	@GVP5_IMM_DIS	Comm Port 5 - Disable Immediate Response Mode on this port - BSAP Slave Only	Response Mode Enabled	Response Mode Disabled
1345	@GVP5_IDLE_POLL	Comm Port 5 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1346	@GVP6_IGNORE_ECHO	Comm Port 6 - Ignore Echo Comm Port 6 - Enable dialing from this port -	Off	Ignore Echo
1347	@GVP6_DIAL_PORT	BSAP Slave Only Comm Port 6 - Enable Auto DTR set on this port -	Off	Dial Enabled Auto DTR
1348	@GVP6_AUTO_DTR	BSAP Slave Only Comm Port 6 - Time Synch Disabled through this	Off	Enabled Time Synch
1349	@GVP6_TS_DIS	port Comm Port 6 - Force a Time Synch to be sent to	Off	Disabled Time Synch
1350	_@GVP6_TS_FORCE	this port - BSAP Slave Only	Off	Forced Node Routing
1351	@GVP6_NRT_DIS	Comm Port 6 - Node Routing Table Disabled through this port - BSAP Slave Only	Off	Table Disabled
1352	@GVP6_ALM_DIS	Comm Port 6 - Disable alarms being reported through this port - BSAP Slave Only	Alarms will be reported	Alarms will be disabled
1353	@GVP6_IMM_DIS	Comm Port 6 - Disable Immediate Response Mode on this port - BSAP Slave Only	Immediate Response Mode Enabled	Immediate Response Mode Disabled
1354	@GVP6_IDLE_POLL	Comm Port 6 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1355	@GVP7_IGNORE_ECHO	Comm Port 7 - Ignore Echo	Off	Ignore Echo
1356	@GVP7_DIAL_PORT	Comm Port 7 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled

Coil#	Variable	Description	Off State	On State
1357	@GVP7_AUTO_DTR	Comm Port 7 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1358	@GVP7_TS_DIS	Comm Port 7 - Time Synch Disabled through this port	Off	Time Synch Disabled
1359	@GVP7_TS_FORCE	Comm Port 7 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1360	@GVP7_NRT_DIS	Comm Port 7 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 7 - Disable alarms being reported	Off Alarms will	Node Routing Table Disabled Alarms will
1361	@GVP7_ALM_DIS	through this port - BSAP Slave Only	be reported	be disabled
1362	_@GVP7_IMM_DIS	Comm Port 7 - Disable Immediate Response Mode on this port - BSAP Slave Only Comm Port 7 - Enable Idle Polling on this port -	Immediate Response Mode Enabled Idle Polling	Immediate Response Mode Disabled Idle Polling
1363	@GVP7_IDLE_POLL	BSAP Master Only	Disabled	Enabled
1364	@GVP8_IGNORE_ECHO	Comm Port 8 - Ignore Echo Comm Port 8 - Enable dialing from this port -	Off	Ignore Echo
1365 1366	@GVP8_DIAL_PORT @GV. P8 AUTO DTR	BSAP Slave Only Comm Port 8 - Enable Auto DTR set on this port - BSAP Slave Only	Off Off	Dial Enabled Auto DTR Enabled
1067		Comm Port 8 - Time Synch Disabled through this	Off	Time Synch Disabled
1367	@GVP8_TS_DIS	Comm Port 8 - Force a Time Synch to be sent to	UII	Time Synch
1368	@GVP8_TS_FORCE	this port - BSAP Slave Only	Off	Forced Node
1369 1370	@GVP8_NRT_DIS @GVP8_ALM_DIS	Comm Port 8 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 8 - Disable alarms being reported through this port - BSAP Slave Only	Off Alarms will be reported Immediate	Routing Table Disabled Alarms will be disabled Immediate
1371	@GVP8_IMM_DIS	Comm Port 8 - Disable Immediate Response Mode on this port - BSAP Slave Only Comm Port 8 - Enable Idle Polling on this port -	Response Mode Enabled Idle Polling	Response Mode Disabled Idle Polling
1372	@GVP8_IDLE_POLL	BSAP Master Only	Disabled	Enabled
1373	@GVP9_IGNORE_ECHO	Comm Port 9 - Ignore Echo	Off	Ignore Echo
1374	@GVP9_DIAL_PORT	Comm Port 9 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1375	@GVP9_AUTO_DTR	Comm Port 9 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1376	@GVP9_TS_DIS	Comm Port 9 - Time Synch Disabled through this port	Off	Time Synch Disabled
1377	@GVP9_TS_FORCE	Comm Port 9 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1378	@GVP9_NRT_DIS	Comm Port 9 - Node Routing Table Disabled through this port - BSAP Slave Only Comm Port 9 - Disable alarms being reported	Off Alarms will	Node Routing Table Disabled Alarms will
1379	@GVP9_ALM_DIS	through this port - BSAP Slave Only	be reported Immediate	be disabled Immediate
1380	@GVP9_IMM_DIS	Comm Port 9 - Disable Immediate Response Mode on this port - BSAP Slave Only	Response Mode Enabled	Response Mode Disabled
1381	@GVP9_IDLE_POLL	Comm Port 9 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1382	@GVP10_IGNORE_ECHO	Comm Port 10 - Ignore Echo	Off	Ignore Echo
1383	@GVP10_DIAL_PORT	Comm Port 10 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1384	@GVP10_AUTO_DTR	Comm Port 10 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1385	@GVP10_TS_DIS	Comm Port 10 - Time Synch Disabled through this port	Off	Time Synch Disabled
1386	@GVP10_TS_FORCE	Comm Port 10 - Force a Time Synch to be sent to	Off	Time Synch

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Coil#	Variable	Description this port BSAP Slave Only	State	State Forced
				Node Routing
1387	@GVP10_NRT_DIS	Comm Port 10 - Node Routing Table Disabled through this port - BSAP Slave Only	Off	Table Disabled
1388	@GVP10_ALM_DIS	Comm Port 10 - Disable alarms being reported through this port - BSAP Slave Only	Alarms will be reported	Alarms will be disabled
1300		Comm Port 10 - Disable Immediate Response	Immediate Response Mode	Immediate Response Mode
1389	@GVP10_IMM_DIS	Mode on this port - BSAP Slave Only Comm Port 10 - Enable Idle Polling on this port -	Enabled Idle Polling	Disabled Idle Polling
1390	@GVP10_IDLE_POLL	BSAP Master Only	Disabled	Enabled
1391	@GVP11_IGNORE_ECHO	Comm Port 11 - Ignore Echo	Off	Ignore Echo
1392	@GVP11_DIAL_PORT	Comm Port 11 - Enable dialing from this port - BSAP Slave Only	Off	Dial Enabled
1393	@GVP11_AUTO_DTR	Comm Port 11 - Enable Auto DTR set on this port - BSAP Slave Only	Off	Auto DTR Enabled
1394	@GVP11_TS_DIS	Comm Port 11 - Time Synch Disabled through this port	Off	Time Synch Disabled
1395	@GVP11_TS_FORCE	Comm Port 11 - Force a Time Synch to be sent to this port - BSAP Slave Only	Off	Time Synch Forced
1393				Node
1206	@GV. P11 NRT DIS	Comm Port 11 - Node Routing Table Disabled	Off	Routing Table Disabled
1396		through this port - BSAP Slave Only Comm Port 11 - Disable alarms being reported	Alarms will	Alarms will
1397	@GVP11_ALM_DIS	through this port - BSAP Slave Only	be reported	be disabled
1398	@GVP11_IMM_DIS	Comm Port 11 - Disable Immediate Response Mode on this port - BSAP Slave Only	Immediate Response Mode Enabled	Immediate Response Mode Disabled
1399	@GVP11_IDLE_POLL	Comm Port 11 - Enable Idle Polling on this port - BSAP Master Only	Idle Polling Disabled	Idle Polling Enabled
1400	IO_1.HWDIs_1.HWDI_1	HWDI,RCV 1 Open Limit	Off	On
1401	IO_1.HWDIs_1.HWDI_2	HWDI,RCV 1 Close Limit	Off	On
1402	IO_1.HWDIs_1.HWDI_3	HWDI,RCV 2 Open Limit	Off	On
1403		HWDI,RCV 2 Close Limit	Off	On
1404	IO_1.HWDIs_1.HWDI_5	HWDI,RCV 3 Open Limit	Off	On
1405	IO_1.HWDIs_1.HWDI_6	HWDI,RCV 3 Close Limit	Off	On
1406	IO_1.HWDIs_1.HWDI_7	HWDI,RCV 4 Open Limit	Off	On
1407	IO_1.HWDIs_1.HWDI_8	HWDI,RCV 4 Close Limit	Off	On
1408	IO_1.HWDIs_1.HWDI_9	HWDI,RCV 5 Open Limit	Off	On
1409	IO_1.HWDIs_1.HWDI_10	HWDI,RCV 5 Close Limit	Off	On
1410	IO_1.HWDIs_1.HWDI_11	HWDI,RCV 6 Open Limit	Off	On
1411	IO_1.HWDIs_1.HWDI_12	HWDI,RCV 6 Close Limit	Off	On
1412	IO_1.HWDIs_1.HWDI_13	HWDI,RCV 7 Open Limit	Off	On
1413	IO_1.HWDIs_1.HWDI_14	HWDI,RCV 7 Close Limit	Off	On
1414	IO_1.HWDIs_1.HWDI_15	HWDI,RCV 8 Open Limit	Off	On
1415	IO_1.HWDIs_1.HWDI_16	HWDI,RCV 8 Close Limit	Off	On
1416	IO_1.HWDIs_1.HWDI_17	HWDI,RCV 9 Open Limit	Off	On
1417	IO_1.HWDIs_1.HWDI_18	HWDI,RCV 9 Close Limit	Off	On
1418	IO_1.HWDIs_1.HWDI_19	HWDI,RCV 10 Open Limit	Off	On
1419	IO_1.HWDIs_1.HWDI_20	HWDI,RCV 10 Close Limit	Off	On
1420	IO_1.HWDIs_1.HWDI_21	HWDI,RCV 11 Open Limit	Off	On
1421	IO_1.HWDIs_1.HWDI_22	HWDI,RCV 11 Close Limit	Off	On
1422	IO_1.HWDIs_1.HWDI_23	HWDI,RCV 12 Open Limit	Off	On
1423	IO_1.HWDIs_1.HWDI_24	HWDI,RCV 12 Close Limit	Off	On
1424	IO_1.HWDIs_1.HWDI_25	HWDI,TUBE 1 Open Limit	Off	On

Coil#	Variable	Description	Off State	On State
1425	IO_1.HWDIs_1.HWDI_26	HWDI,TUBE 1 Close Limit	Off	On
1426	IO_1.HWDIs_1.HWDI_27	HWDI,TUBE 2 Open Limit	Off	On
1427	IO_1.HWDIs_1.HWDI_28	HWDI, TUBE 2 Close Limit	Off	On
1428	IO_1.HWDIs_1.HWDI_29	HWDI,TUBE 3 Open Limit	Off	On
1429	IO_1.HWDIs_1.HWDI_30	HWDI, TUBE 3 Close Limit	Off	On
1430	IO_1.HWDIs_1.HWDI_31	HWDI,TUBE 4 Open Limit	Off	On
1431	IO_1.HWDIs_1.HWDI_32	HWDI, TUBE 4 Close Limit	Off	On
1432	IO_1.HWDIs_1.HWDI_33	HWDI, TUBE 5 Open Limit	Off	On
1433	IO_1.HWDIs_1.HWDI_34	HWDI, TUBE 5 Close Limit	Off	On
1434	IO_1.HWDIs_1.HWDI_35	HWDI, TUBE 6 Open Limit	Off	On
1435	IO_1.HWDIs_1.HWDI_36	HWDI, TUBE 6 Close Limit	Off	On
1436	IO_1.HWDIs_1.HWDI_37	HWDI, TUBE 7 Open Limit	Off	On
1437	IO_1.HWDIs_1.HWDI_38	HWDI, TUBE 7 Close Limit	Off	On
1438	IO 1.HWDIs 1.HWDI 39	HWDI,TUBE 8 Open Limit	Off	On
1439	IO_1.HWDIs_1.HWDI_40	HWDI,TUBE 8 Close Limit	Off	On
1440	IO_1.HWDIs_1.HWDI_41	HWDI,TUBE 9 Open Limit	Off	On
1441	IO_1.HWDIs_1.HWDI_42	HWDI,TUBE 9 Close Limit	Off	On
1442	IO_1.HWDIs_1.HWDI_43	HWDI,TUBE 10 Open Limit	Off	On
1443	IO 1.HWDIs 1.HWDI 44	HWDI,TUBE 10 Close Limit	Off	On
1444	IO 1.HWDIs 1.HWDI 45	HWDI,TUBE 11 Open Limit	Off	On
1445	IO_1.HWDIs_1.HWDI_46	HWDI, TUBE 11 Close Limit	Off	On
1446	IO_1.HWDIs_1.HWDI_47	HWDI,TUBE 12 Open Limit	Off	On
1447	IO_1.HWDIs_1.HWDI_48	HWDI, TUBE 12 Close Limit	Off	On
1448	IO_1.HWDIs_1.HWDI_49	HWDI,CV 1 Open Limit	Off	On
1449	IO_1.HWDIs_1.HWDI_50	HWDI,CV 1 Close Limit	Off	On
1449	IO_1.HWDIs_1.HWDI_50	HWDI,CV 2 Open Limit	Off	On
1450	IO_1.HWDIs_1.HWDI_52	HWDI,CV 2 Close Limit	Off	On
1451		HWDI,CV 3 Open Limit	Off	On
1452	IO_1.HWDIs_1.HWDI_53	HWDI,CV 3 Close Limit	Off	On
1455	IO_1.HWDIs_1.HWDI_54		Off	On
	IO_1.HWDIs_1.HWDI_55	HWDI,CV 4 Open Limit		
1455	IO_1.HWDIs_1.HWDI_56	HWDI,CV 4 Close Limit	Off Off	On
1456	IO_1.HWDIs_1.HWDI_57	HWDI,CV 5 Open Limit		On
1457	IO_1.HWDIs_1.HWDI_58	HWDI,CV 5 Close Limit	Off	On
1458	IO_1.HWDIs_1.HWDI_59	HWDI,CV 6 Open Limit	Off Off	On
1459	IO_1.HWDIs_1.HWDI_60	HWDI,CV 6 Close Limit	Off	On
1460	IO_1.HWDIs_1.HWDI_61	HWDI,CV 7 Open Limit	Off	On
1461	IO_1.HWDIs_1.HWDI_62	HWDI,CV 7 Close Limit	Off Off	On
1462	IO_1.HWDIs_1.HWDI_63	HWDI,CV 8 Open Limit	Off Off	On
1463	IO_1.HWDIs_1.HWDI_64	HWDI,CV 8 Close Limit	Off	On
1464	IO_1.HWDIs_1.HWDI_65	HWDI,CV 9 Open Limit	Off	On
1465	IO_1.HWDIs_1.HWDI_66	HWDI,CV 9 Close Limit	Off Off	On
1466	IO_1.HWDIs_1.HWDI_67	HWDI,CV 10 Open Limit	Off	On
1467	IO_1.HWDIs_1.HWDI_68	HWDI,CV 10 Close Limit	Off	On
1468	IO_1.HWDIs_1.HWDI_69	HWDI,CV 11 Open Limit	Off	On
1469	IO_1.HWDIs_1.HWDI_70	HWDI,CV 11 Close Limit	Off	On
1470	IO_1.HWDIs_1.HWDI_71	HWDI,CV 12 Open Limit	Off	On
1471	IO_1.HWDIs_1.HWDI_72	HWDI,CV 12 Close Limit	Off	On
1472	IO_1.HWDIs_1.HWDI_73	HWDI,GP PID 1 Open Limit	Off	On
1473	IO_1.HWDIs_1.HWDI_74	HWDI, GP PID 1 Close Limit	Off	On

Coil#	Variable	Description	Off State	On State
1474	IO_1.HWDIs_1.HWDI_75	HWDI,GP PID 2 Open Limit	Off	On
1475	IO_1.HWDIs_1.HWDI_76	HWDI,GP PID 2 Close Limit	Off	On
1476	IO_1.HWDIs_1.HWDI_77	HWDI,GP PID 3 Open Limit	Off	On
1477	IO_1.HWDIs_1.HWDI_78	HWDI,GP PID 3 Close Limit	Off	On
1478	IO_1.HWDIs_1.HWDI_79	HWDI,BV 1 Open Limit	Off	On
1479	IO_1.HWDIs_1.HWDI_80	HWDI,BV 1 Close Limit	Off	On
1480	IO_1.HWDIs_1.HWDI_81	HWDI,BV 2 Open Limit	Off	On
1481	IO_1.HWDIs_1.HWDI_82	HWDI,Bv 2 Close Limit	Off	On
1482	IO_1.HWDIs_1.HWDI_83	HWDI,BV 3 Open Limit	Off	On
1483	IO_1.HWDIs_1.HWDI_84	HWDI,BV 3 Close Limit	Off	On
1484	IO_1.HWDIs_1.HWDI_85	HWDI,BV 4 Open Limit	Off	On
1485	IO_1.HWDIs_1.HWDI_86	HWDI,BV 4 Close Limit	Off	On
1486	IO_1.HWDIs_1.HWDI_87	HWDI,BV 5 Open Limit	Off	On
1487	IO_1.HWDIs_1.HWDI_88	HWDI,BV 5 Close Limit	Off	On
1488	IO_1.HWDIs_1.HWDI_89	HWDI,BV 6 Open Limit	Off	On
1489	IO_1.HWDIs_1.HWDI_90	HWDI,BV 6 Close Limit	Off	On
1490	IO_1.HWDIs_1.HWDI_91	HWDI,BV 7 Open Limit	Off	On
1491	IO_1.HWDIs_1.HWDI_92	HWDI,BV 7 Close Limit	Off	On
1492	IO_1.HWDIs_1.HWDI_93	HWDI,BV 8 Open Limit	Off	On
1493	IO_1.HWDIs_1.HWDI_94	HWDI,BV 8 Close Limit	Off	On
1494	IO_1.HWDIs_1.HWDI_95	HWDI,ST2 DIR BV 1 Open Limit	Off	On
1495	IO_1.HWDIs_1.HWDI_96	HWDI,ST2 DIR BV 1 Close Limit	Off	On
1496	IO_1.HWDIs_1.HWDI_97	HWDI,ST2 DIR BV 2 Open Limit	Off	On
1497	IO_1.HWDIs_1.HWDI_98	HWDI,ST2 DIR BV 2 Close Limit	Off	On
1498	IO_1.HWDIs_1.HWDI_99	HWDI,ST2 DIR BV 3 Open Limit	Off	On
1499	IO_1.HWDIs_1.HWDI_100	HWDI,ST2 DIR BV 3 Close Limit	Off	On
1500	IO_1.HWDIs_1.HWDI_101	HWDI,ST2 DIR BV 4 Open Limit	Off	On
1501	IO_1.HWDIs_1.HWDI_102	HWDI,ST2 DIR BV 4 Close Limit	Off	On
1502	IO_1.HWDIs_1.HWDI_103	HWDI,ST2 DIR BV 5 Open Limit	Off	On
1503	IO 1.HWDIs 1.HWDI 104	HWDI,ST2 DIR BV 5 Close Limit	Off	On
1504	IO_1.HWDIs_1.HWDI_105	HWDI,ST2 DIR BV 6 Open Limit	Off	On
1505	IO_1.HWDIs_1.HWDI_106	HWDI,ST2 DIR BV 6 Close Limit	Off	On
1506	IO_1.HWDIs_1.HWDI_107	HWDI,ST2 DIR BV 7 Open Limit	Off	On
1507	IO_1.HWDIs_1.HWDI_108	HWDI,ST2 DIR BV 7 Close Limit	Off	On
1508	IO_1.HWDIs_1.HWDI_109	HWDI,ST2 DIR BV 8 Open Limit	Off	On
1509	IO 1.HWDIs 1.HWDI 110	HWDI,ST2 DIR BV 8 Close Limit	Off	On
1510	IO_1.HWDIs_1.HWDI_111	HWDI,OPP 1 Open Limit	Off	On
1511	IO_1.HWDIs_1.HWDI_112	HWDI,OPP 1 Close Limit	Off	On
1512	IO_1.HWDIs_1.HWDI_113	HWDI,OPP 2 Open Limit	Off	On
1513	IO_1.HWDIs_1.HWDI_114	HWDI,OPP 2 Close Limit	Off	On
1514	IO_1.HWDIs_1.HWDI_115	HWDI,OPP 3 Open Limit	Off	On
1515	IO_1.HWDIs_1.HWDI_116	HWDI,OPP 3 Close Limit	Off	On
1516	IO_1.HWDIs_1.HWDI_117	HWDI,OPP 4 Open Limit	Off	On
1517	IO_1.HWDIS_1.HWDI_118	HWDI,OPP 4 Close Limit	Off	On
1518	IO_1.HWDIs_1.HWDI_119	HWDI,OPP 5 Open Limit	Off	On
1519	IO_1.HWDIs_1.HWDI_120	HWDI,OPP 5 Close Limit	Off	On
1520	IO_1.HWDIs_1.HWDI_121	HWDI,OPP 6 Open Limit	Off	On
1520	IO_1.HWDIs_1.HWDI_122	HWDI,OPP 6 Close Limit	Off	On
1021	IO_1.HWDIs_1.HWDI_122	HWDI,OPP 7 Open Limit	Off	On

Coil#	Variable	Description	Off State	On State
1523	IO_1.HWDIs_1.HWDI_124	HWDI,OPP 7 Close Limit	Off	On
1524	IO_1.HWDIs_1.HWDI_125	HWDI,OPP 8 Open Limit	Off	On
1525	IO_1.HWDIs_1.HWDI_126	HWDI,OPP 8 Close Limit	Off	On
1526	IO_1.HWDIs_1.HWDI_127	HWDI,ST4 DIR BV 1 Open Limit	Off	On
1527	IO_1.HWDIs_1.HWDI_128	HWDI,ST4 DIR BV 1 Close Limit	Off	On
1528	IO_1.HWDIs_1.HWDI_129	HWDI,ST4 DIR BV 2 Open Limit	Off	On
1529	IO_1.HWDIs_1.HWDI_130	HWDI,ST4 DIR BV 2 Close Limit	Off	On
1530	IO_1.HWDIs_1.HWDI_131	HWDI,ST4 DIR BV 3 Open Limit	Off	On
1531	IO_1.HWDIs_1.HWDI_132	HWDI,ST4 DIR BV 3 Close Limit	Off	On
1532	IO_1.HWDIs_1.HWDI_133	HWDI,ST4 DIR BV 4 Open Limit	Off	On
1533	IO_1.HWDIs_1.HWDI_134	HWDI,ST4 DIR BV 4 Close Limit	Off	On
1534	IO_1.HWDIs_1.HWDI_135	HWDI,ST4 DIR BV 5 Open Limit	Off	On
1535	IO_1.HWDIs_1.HWDI_136	HWDI,ST4 DIR BV 5 Close Limit	Off	On
1536	IO_1.HWDIs_1.HWDI_137	HWDI,ST4 DIR BV 6 Open Limit	Off	On
1537		HWDI,ST4 DIR BV 6 Close Limit	Off	On
1538	IO_1.HWDIs_1.HWDI_139	HWDI,ST4 DIR BV 7 Open Limit	Off	On
1539	 IO_1.HWDIs_1.HWDI_140	HWDI,ST4 DIR BV 7 Close Limit	Off	On
1540	IO_1.HWDIs_1.HWDI_141	HWDI,ST4 DIR BV 8 Open Limit	Off	On
1541	IO_1.HWDIs_1.HWDI_142	HWDI,ST4 DIR BV 8 Close Limit	Off	On
1542	IO_1.HWDIs_1.HWDI_143	HWDI,BV 9 Open Limit	Off	On
1543	IO_1.HWDIs_1.HWDI_144	HWDI,BV 9 Close Limit	Off	On
1544	IO_1.HWDIs_1.HWDI_145	HWDI,BV 10 Open Limit	Off	On
1545	IO_1.HWDIs_1.HWDI_146	HWDI,BV 10 Close Limit	Off	On
1546	IO_1.HWDIs_1.HWDI_147	HWDI,BV 11 Open Limit	Off	On
1547	IO_1.HWDIs_1.HWDI_148	HWDI,BV 11 Close Limit	Off	On
1548	IO_1.HWDIs_1.HWDI_149	HWDI,BV 12 Open Limit	Off	On
1549	IO_1.HWDIs_1.HWDI_150	HWDI,BV 12 Close Limit	Off	On
1550	IO_1.HWDIs_1.HWDI_151	HWDI,OPP 9 Open Limit	Off	On
1551	IO_1.HWDIs_1.HWDI_152	HWDI,OPP 9 Close Limit	Off	On
1552	IO_1.HWDIs_1.HWDI_153	HWDI,OPP 10 Open Limit	Off	On
1553	IO_1.HWDIs_1.HWDI_154	HWDI,OPP 10 Close Limit	Off	On
1554	IO_1.HWDIs_1.HWDI_154	HWDI,OPP 11 Open Limit	Off	On
1555	IO_1.HWDIs_1.HWDI_156	HWDI,OPP 11 Close Limit	Off	On
			Off	
1556 1557	IO_1.HWDIs_1.HWDI_157 IO_1.HWDIs_1.HWDI_158	HWDI,OPP 12 Open Limit HWDI,OPP 12 Close Limit	Off	On On
1558	IO_1.HWDIs_1.HWDI_158	HWDI,ST6 DIR BV 1 Open Limit	Off	On
1558	IO_1.HWDIs_1.HWDI_159		Off	On
1560		HWDI,ST6 DIR BV 1 Close Limit	Off	On
		HWDI,ST6 DIR BV 2 Open Limit		
1561	IO_1.HWDIs_1.HWDI_162	HWDI,ST6 DIR BV 2 Close Limit	Off	On
1562 1563		HWDI,ST6 DIR BV 3 Open Limit	Off Off	On On
	IO_1.HWDIs_1.HWDI_164	HWDI,ST6 DIR BV 3 Close Limit		
1564	IO_1.HWDIs_1.HWDI_165	HWDI,ST6 DIR BV 4 Open Limit	Off	On
1565	IO_1.HWDIs_1.HWDI_166	HWDI,ST6 DIR BV 4 Close Limit		On
1566		HWDI,ST6 DIR BV 5 Open Limit	Off Off	On
1567	IO_1.HWDIs_1.HWDI_168	HWDI,ST6 DIR BV 5 Close Limit	Off Off	On
1568	IO_1.HWDIs_1.HWDI_169	HWDI,ST6 DIR BV 6 Open Limit	Off	On
1569	IO_1.HWDIs_1.HWDI_170	HWDI,ST6 DIR BV 6 Close Limit	Off	On
1570	IO_1.HWDIs_1.HWDI_171	HWDI,ST6 DIR BV 7 Open Limit	Off	On
1571	IO_1.HWDIs_1.HWDI_172	HWDI,ST6 DIR BV 7 Close Limit	Off	On

Coil#	Variable	Description	Off State	On State
1572	IO_1.HWDIs_1.HWDI_173	HWDI,ST6 DIR BV 8 Open Limit	Off	On
1573	IO_1.HWDIs_1.HWDI_174	HWDI,ST6 DIR BV 8 Close Limit	Off	On
1574	IO_1.HWDIs_1.HWDI_175	HWDI,ST1 Direction Indicator	Off	On
1575	IO_1.HWDIs_1.HWDI_176	HWDI,ST2 Direction Indicator	Off	On
1576	IO_1.HWDIs_1.HWDI_177	HWDI,ST3 Direction Indicator	Off	On
1577	IO_1.HWDIs_1.HWDI_178	HWDI,ST4 Direction Indicator	Off	On
1578	IO_1.HWDIs_1.HWDI_179	HWDI,ST5 Direction Indicator	Off	On
1579	IO 1.HWDIs 1.HWDI 180	HWDI,ST6 Direction Indicator	Off	On
1580	IO_1.HWDIs_1.HWDI_181	HWDI,Loss of AC Power	Off	On
1581	IO_1.HWDIs_1.HWDI_182	HWDI,Hazardous Gas Level 1 HIGH	Off	On
1582	IO_1.HWDIs_1.HWDI_183	HWDI,Hazardous Gas Level 1 HIGH HIGH	Off	On
1583	IO_1.HWDIs_1.HWDI_184	HWDI.Gas Detector Failure 1	Off	On
1584	IO_1.HWDIs_1.HWDI_185	HWDI, Fire Alarm 1	Off	On
1585	IO_1.HWDIs_1.HWDI_186	HWDI, Fire Detector Failure 1	Off	On
1586	IO_1.HWDIs_1.HWDI_187	HWDI,Smoke Alarm 1	Off	On
1587	IO 1.HWDIs 1.HWDI 188	HWDI,Smoke Detector Failure 1	Off	On
1588	IO 1.HWDIs 1.HWDI 189	HWDI,Hazardous Gas Level 2 HIGH	Off	On
1589	IO 1.HWDIs 1.HWDI 190	HWDI.Hazardous Gas Level 2 HIGH HIGH	Off	On
1590	IO_1.HWDIs_1.HWDI_191	HWDI,Gas Detector Failure 2	Off	On
1591	IO_1.HWDIs_1.HWDI_192	HWDI,Fire Alarm 2	Off	On
1592	IO_1.HWDIs_1.HWDI_193	HWDI,Fire Detector Failure 2	Off	On
1593	IO_1.HWDIs_1.HWDI_194	HWDI,Smoke Alarm 2	Off	On
1594	IO_1.HWDIs_1.HWDI_195	HWDI,Smoke Detector Failure 2	Off	On
1595	IO_1.HWDIs_1.HWDI_196	HWDI,Hazardous Gas Level 3 HIGH	Off	On
1596	IO_1.HWDIs_1.HWDI_197	HWDI,Hazardous Gas Level 3 HIGH HIGH	Off	On
1597	IO_1.HWDIs_1.HWDI_198	HWDI,Gas Detector Failure 3	Off	On
1598	IO_1.HWDIs_1.HWDI_199	HWDI,Fire Alarm 3	Off	On
1599	IO 1.HWDIs 1.HWDI 200	HWDI, Fire Detector Failure 3	Off	On
1600	IO_1.HWDIs_1.HWDI_201	HWDI,Smoke Alarm 3	Off	On
1601	IO_1.HWDIs_1.HWDI_202	HWDI,Smoke Detector Failure 3	Off	On
1602	IO 1.HWDIs 1.HWDI 203	HWDI,Hazardous Gas Level 4 HIGH	Off	On
1603	IO_1.HWDIs_1.HWDI_204	HWDI,Hazardous Gas Level 4 HIGH HIGH	Off	On
1604	IO 1.HWDIs 1.HWDI 205	HWDI,Gas Detector Failure 4	Off	On
1605	IO_1.HWDIs_1.HWDI_206	HWDI,Fire Alarm 4	Off	On
1606	IO_1.HWDIs_1.HWDI_207	HWDI,Fire Detector Failure 4	Off	On
1607	IO 1.HWDIs 1.HWDI 208	HWDI,Smoke Alarm 4	Off	On
1608	IO_1.HWDIs_1.HWDI_209	HWDI,Smoke Detector Failure 4	Off	On
1609	IO_1.HWDIs_1.HWDI_210	HWDI,Building Entry 1	Off	On
1610	IO_1.HWDIs_1.HWDI_211	HWDI,Building Entry 2	Off	On
1611	IO_1.HWDIs_1.HWDI_212	HWDI,Building Entry 3	Off	On
1612	IO_1.HWDIs_1.HWDI_213	HWDI,Building Entry 4	Off	On
1613	IO_1.HWDIs_1.HWDI_214	HWDI,Building Entry 5	Off	On
1614	IO_1.HWDIs_1.HWDI_215	HWDI,Building Entry 6	Off	On
1615	IO_1.HWDIs_1.HWDI_216	HWDI,Low DC Failure Battery Charger	Off	On
1616	IO_1.HWDIs_1.HWDI_217	HWDI,High DC Failure Battery Charger	Off	On
1617	IO_1.HWDIs_1.HWDI_218	HWDI,Battery Charger Alarm	Off	On
1618	IO_1.HWDIs_1.HWDI_219	HWDI,RCV Interposing Panel Fuse Blown	Off	On
1619	IO_1.HWDIs_1.HWDI_220	HWDI,Fall Back Pneumatic System Active	Off	On
1620	IO_1.HWDIs_1.HWDI_221	HWDI,High H2S Level	Off	On

Coil#	Variable	Description	Off State	On State
1621	IO_1.HWDIs_1.HWDI_222	HWDI,H2S Analyzer Failure	Off	On
1622	IO_1.HWDIs_1.HWDI_223	HWDI,H2S Shut-in Alarm	Off	On
1623	IO_1.HWDIs_1.HWDI_224	HWDI,High H2O Level	Off	On
1624	IO_1.HWDIs_1.HWDI_225	HWDI,H2O Analyzer Failure	Off	On
1625	IO_1.HWDIs_1.HWDI_226	HWDI,Gas Odorizer Alarm Low Level	Off	On
1626	IO_1.HWDIs_1.HWDI_227	HWDI,Gas Odorizer Pump Alarm	Off	On
1627	IO_1.HWDIs_1.HWDI_228	HWDI,Corrosion Inhibitor Low Level	Off	On
1628	IO_1.HWDIs_1.HWDI_229	HWDI,Corrosion Inhibitor Pump Alarm	Off	On
1629	IO_1.HWDIs_1.HWDI_230	HWDI, Filter/Separator 1 Hi Tank Level	Off	On
1630	IO_1.HWDIs_1.HWDI_231	HWDI, Filter/Separator 2 Hi Tank Level	Off	On
1631	IO_1.HWDIs_1.HWDI_232	HWDI, Filter/Separator 3 Hi Tank Level	Off	On
1632	IO_1.HWDIs_1.HWDI_233	HWDI, Filter/Separator 1 Hi Differential Press	Off	On
1633	IO_1.HWDIs_1.HWDI_234	HWDI, Filter/Separator 2 Hi Differential Press	Off	On
1634	IO_1.HWDIs_1.HWDI_235	HWDI, Filter/Separator 3 Hi Differential Press	Off	On
1635	IO_1.HWDIs_1.HWDI_236	HWDI, Filter/Separator 4 Hi Differential Press	Off	On
1636	IO_1.HWDIs_1.HWDI_237	HWDI, Filter/Separator 5 Hi Differential Press	Off	On
1637	IO_1.HWDIs_1.HWDI_238	HWDI, Filter/Separator 6 Hi Differential Press	Off	On
1638	IO_1.HWDIs_1.HWDI_239	HWDI,Filter/Separator 1 Hi Sump	Off	On
1639	IO_1.HWDIs_1.HWDI_240	HWDI, Filter/Separator 2 Hi Sump	Off	On
1640	IO_1.HWDIs_1.HWDI_241	HWDI,Filter/Separator 3 Hi Sump	Off	On
1641	IO_1.HWDIs_1.HWDI_242	HWDI,Filter/Separator 4 Hi Sump	Off	On
1642	IO_1.HWDIs_1.HWDI_243	HWDI,Filter/Separator 5 Hi Sump	Off	On
1643	IO_1.HWDIs_1.HWDI_244	HWDI,Filter/Separator 6 Hi Sump	Off	On
1644	IO_1.HWDIs_1.HWDI_245	HWDI,Filter/Separator 7 Hi Sump	Off	On
1645	IO_1.HWDIs_1.HWDI_246	HWDI,Filter/Separator 8 Hi Sump	Off	On
1646	IO_1.HWDIs_1.HWDI_247	HWDI,Filter/Separator 9 Hi Sump	Off	On
1647	IO_1.HWDIs_1.HWDI_248	HWDI,Filter/Separator 10 Hi Sump	Off	On
1648	IO_1.HWDIs_1.HWDI_249	HWDI,Filter/Separator 11 Hi Sump	Off	On
1649	IO_1.HWDIs_1.HWDI_249	HWDI,Filter/Separator 12 Hi Sump	Off	On
1650	IO_1.HWDIs_1.HWDI_250	HWDI,Filter/Separator 1 Hi Hi Sump	Off	On
1651	IO_1.HWDIs_1.HWDI_252	HWDI,Filter/Separator 2 Hi Hi Sump	Off	On
1652	IO_1.HWDIs_1.HWDI_253	· · · · ·	Off	On
		HWDI,Filter/Separator 3 Hi Hi Sump		
1653	IO_1.HWDIs_1.HWDI_254	HWDI,Filter/Separator 4 Hi Hi Sump	Off Off	On
1654 1655	IO_1.HWDIs_1.HWDI_255	HWDI,Filter/Separator 5 Hi Hi Sump	Off Off	On
	IO_1.HWDIs_1.HWDI_256	HWDI,Filter/Separator 6 Hi Hi Sump		On
1656		HWDI,Filter/Separator 7 Hi Hi Sump	Off Off	On
1657	IO_1.HWDIs_1.HWDI_258	HWDI,Filter/Separator 8 Hi Hi Sump		On
1658	IO_1.HWDIs_1.HWDI_259	HWDI,Filter/Separator 9 Hi Hi Sump	Off Off	On
1659	IO_1.HWDIs_1.HWDI_260	HWDI,ilter/Separator 10 Hi Hi Sump	Off Off	On
1660		HWDI,Filter/Separator 11 Hi Hi Sump	Off Off	On
1661		HWDI,Filter/Separator 12 Hi Hi Sump	Off Off	On
1662		HWDI, Turbine Meter HIGH Differential	Off Off	On
1663	IO_1.HWDIs_1.HWDI_264	HWDI,Rotary Meter HIGH Differential BYPASS	Off	On
1664	IO_1.HWDIs_1.HWDI_265	HWDI,Auto Adjust Turbine 1 Alarm	Off	On
1665	IO_1.HWDIs_1.HWDI_266	HWDI,Auto Adjust Turbine 2 Alarm	Off	On
1666	IO_1.HWDIs_1.HWDI_267	HWDI,Auto Adjust Turbine 3 Alarm	Off	On
1667	IO_1.HWDIs_1.HWDI_268	HWDI,Auto Adjust Turbine 4 Alarm	Off	On
1668	IO_1.HWDIs_1.HWDI_269	HWDI,Auto Adjust Turbine 5 Alarm	Off	On
1669	IO_1.HWDIs_1.HWDI_270	HWDI,Auto Adjust Turbine 6 Alarm	Off	On

Coil#	Variable	Description	Off State	On State
1670	IO_1.HWDIs_1.HWDI_271	HWDI,Auto Adjust Turbine 7 Alarm	Off	On
1671	IO_1.HWDIs_1.HWDI_272	HWDI,Auto Adjust Turbine 8 Alarm	Off	On
1672	IO_1.HWDIs_1.HWDI_273	HWDI,Auto Adjust Turbine 9 Alarm	Off	On
1673	IO_1.HWDIs_1.HWDI_274	HWDI,Auto Adjust Turbine 10 Alarm	Off	On
1674	IO_1.HWDIs_1.HWDI_275	HWDI,Auto Adjust Turbine 11 Alarm	Off	On
1675	IO_1.HWDIs_1.HWDI_276	HWDI,Auto Adjust Turbine 12 Alarm	Off	On
1676	IO_1.HWDIs_1.HWDI_277	HWDI,Ultrasonic 1 DATA not Valid	Off	On
1677	IO_1.HWDIs_1.HWDI_278	HWDI,Ultrasonic 2 DATA not Valid	Off	On
1678	IO_1.HWDIs_1.HWDI_279	HWDI,Ultrasonic 3 DATA not Valid	Off	On
1679	IO_1.HWDIs_1.HWDI_280	HWDI,Ultrasonic 4 DATA not Valid	Off	On
1680	IO_1.HWDIs_1.HWDI_281	HWDI,Ultrasonic 5 DATA not Valid	Off	On
1681	IO_1.HWDIs_1.HWDI_282	HWDI,Ultrasonic 6 DATA not Valid	Off	On
1682	IO_1.HWDIs_1.HWDI_283	HWDI,Ultrasonic 7 DATA not Valid	Off	On
1683	IO_1.HWDIs_1.HWDI_284	HWDI, Ultrasonic 8 DATA not Valid	Off	On
1684	IO_1.HWDIs_1.HWDI_285	HWDI,Ultrasonic 9 DATA not Valid	Off	On
1685	IO_1.HWDIs_1.HWDI_286	HWDI,Ultrasonic 10 DATA not Valid	Off	On
1686	IO_1.HWDIs_1.HWDI_287	HWDI,Ultrasonic 11 DATA not Valid	Off	On
1687	IO_1.HWDIs_1.HWDI_288	HWDI,Ultrasonic 12 DATA not Valid	Off	On
1688	IO 1.HWDIs 1.HWDI 289	HWDI, Ultrasonic Meter Partial Failure	Off	On
1689	IO 1.HWDIs 1.HWDI 290	HWDI,Chromatograph Alarm	Off	On
1690	IO_1.HWDIs_1.HWDI_291	HWDI,User DI 1	Off	On
1691	IO 1.HWDIs 1.HWDI 292	HWDI,User DI 2	Off	On
1692	IO_1.HWDIs_1.HWDI_293	HWDI,User DI 3	Off	On
1693	IO_1.HWDIs_1.HWDI_294	HWDI,User DI 4	Off	On
1694	IO_1.HWDIs_1.HWDI_295	HWDI,User DI 5	Off	On
1695	IO_1.HWDIs_1.HWDI_296	HWDI,User DI 6	Off	On
1696	IO_1.HWDIs_1.HWDI_297	HWDI,User DI 7	Off	On
1697	IO_1.HWDIs_1.HWDI_298	HWDI,User DI 8	Off	On
1698	IO_1.HWDIs_1.HWDI_299	HWDI,User DI 9	Off	On
1699	IO_1.HWDIs_1.HWDI_200	HWDI,User DI 10	Off	On
1700	IO_1.HWDIs_1.HWDI_301	HWDI,User DI 11	Off	On
1701	IO_1.HWDIs_1.HWDI_302	HWDI,User DI 12	Off	On
1702	IO_1.HWDIs_1.HWDI_303	HWDI,User DI 13	Off	On
1702	IO_1.HWDIs_1.HWDI_304	HWDI,User DI 14	Off	On
1703	IO_1.HWDIs_1.HWDI_304	HWDI,User DI 15	Off	On
1704	IO_1.HWDIs_1.HWDI_306	HWDI,User DI 16	Off	On
1705	IO_1.HWDIs_1.HWDI_306	HWDI,User DI 17	Off	On
1700	IO_1.HWDIs_1.HWDI_307	HWDI,User DI 18	Off	On
1708	IO_1.HWDIs_1.HWDI_308	HWDI,User DI 19	Off	On
1708	IO_1.HWDIs_1.HWDI_309	HWDI,User DI 20	Off	On
1709	STC.STC 1.PID SEL 1.ST EN	Station 1 Control - Station Control Enabled	Disabled	Enabled
1710	STC.STC_1.PID_SEL_1.ST_EN	Station 1 Control - Station Control Enabled	Disabled	Enabled
1711		Station 1 Control - Primary 3 Control Enabled	Disabled	Enabled
1712	STC.STC_1.PID_FLOW.ENABLE STC.STC_1.PID_POVRD.ENABLE	Station 1 Control - Pressure Override Control Enabled	Disabled	Enabled
		Station 1 Control - Maximum Allowable Operating		
1714	STC.STC_1.PID_MAOP.ENABLE	Pressure Protection Control Enabled Station 1 Control - Override Loop 1 Control Enabled	Disabled	Enabled
<u>1715</u> 1716	STC.STC_1.PID_Ovrd1.ENABLE STC.STC_1.PID_OUTLO.ENABLE	Station 1 Control - Minimum Outlet Pressure Override Control Enabled	Disabled Disabled	Enabled Enabled

Coil#	Variable	Description	Off State	On State
1717	STC.STC_1.PID_Ovrd2.ENABLE	Station 1 Control - Override Loop 2 Control Enabled	Disabled	Enabled
1718	STC.STC_1.MANMODE	Station 1 Control - Station Control Manual Control	Disabled	Enabled
1719	STC.STC_2.PID_SEL_1.ST_EN	Station 2 Control - Station Control Enabled	Disabled	Enabled
1720	STC.STC_2.PID_Pmry3.ENABLE	Station 2 Control - Flow Control Enabled	Disabled	Enabled
1721	STC.STC_2.PID_FLOW.ENABLE	Station 2 Control - Primary 3 Control Enabled	Disabled	Enabled
1722	STC.STC_2.PID_POVRD.ENABLE	Station 2 Control - Pressure Override Control Enabled	Disabled	Enabled
1723	STC.STC_2.PID_MAOP.ENABLE	Station 2 Control - Maximum Allowable Operating Pressure Protection Control Enabled Station 2 Control - Override Loop 1 Control	Disabled	Enabled
1724	STC.STC_2.PID_Ovrd1.ENABLE	Enabled Station 2 Control - Minimum Outlet Pressure	Disabled	Enabled
1725	STC.STC_2.PID_OUTLO.ENABLE	Override Control Enabled Station 2 Control - Override Loop 2 Control	Disabled	Enabled
1726	STC.STC_2.PID_Ovrd2.ENABLE	Enabled	Disabled	Enabled
1727	STC.STC_2.MANMODE	Station 2 Control - Station Control Manual Control	Disabled	Enabled
1728	STC.STC_3.PID_SEL_1.ST_EN	Station 3 Control - Station Control Enabled	Disabled	Enabled
1729	STC.STC_3.PID_Pmry3.ENABLE	Station 3 Control - Flow Control Enabled	Disabled	Enabled
1730	STC.STC_3.PID_FLOW.ENABLE	Station 3 Control - Primary 3 Control Enabled	Disabled	Enabled
		Station 3 Control - Pressure Override Control		
1731 1732	STC.STC_3.PID_POVRD.ENABLE STC.STC_3.PID_MAOP.ENABLE	Enabled Station 3 Control - Maximum Allowable Operating Pressure Protection Control Enabled	Disabled Disabled	Enabled
1733	STC.STC_3.PID_Ovrd1.ENABLE	Station 3 Control - Override Loop 1 Control Enabled	Disabled	Enabled
1100		Station 3 Control - Minimum Outlet Pressure	Diodolou	Enabled
1734	STC.STC_3.PID_OUTLO.ENABLE	Override Control Enabled Station 3 Control - Override Loop 2 Control	Disabled	Enabled
1735	STC.STC_3.PID_Ovrd2.ENABLE	Enabled	Disabled	Enabled
1736	STC.STC_3.MANMODE	Station 3 Control - Station Control Manual Control	Disabled	Enabled
1737	STC.STC_4.PID_SEL_1.ST_EN	Station 4 Control - Station Control Enabled	Disabled	Enabled
1738	STC.STC_4.PID_Pmry3.ENABLE	Station 4 Control - Flow Control Enabled	Disabled	Enabled
1739	STC.STC_4.PID_FLOW.ENABLE	Station 4 Control - Primary 3 Control Enabled Station 4 Control - Pressure Override Control	Disabled	Enabled
1740	STC.STC_4.PID_POVRD.ENABLE	Enabled Station 4 Control - Maximum Allowable Operating	Disabled	Enabled
1741	STC.STC_4.PID_MAOP.ENABLE	Pressure Protection Control Enabled	Disabled	Enabled
1742	STC.STC_4.PID_Ovrd1.ENABLE	Station 4 Control - Override Loop 1 Control Enabled Station 4 Control - Minimum Outlet Pressure	Disabled	Enabled
1743	STC.STC_4.PID_OUTLO.ENABLE	Override Control Enabled Station 4 Control Enabled Station 4 Control - Override Loop 2 Control	Disabled	Enabled
1744	STC.STC_4.PID_Ovrd2.ENABLE	Enabled	Disabled	Enabled
1745	STC.STC_4.MANMODE	Station 4 Control - Station Control Manual Control	Disabled	Enabled
1746	STC.STC_5.PID_SEL_1.ST_EN	Station 5 Control - Station Control Enabled	Disabled	Enabled
1747	STC.STC_5.PID_Pmry3.ENABLE	Station 5 Control - Flow Control Enabled	Disabled	Enabled
1748	STC.STC_5.PID_FLOW.ENABLE	Station 5 Control - Primary 3 Control Enabled	Disabled	Enabled
1749	STC.STC_5.PID_POVRD.ENABLE	Station 5 Control - Pressure Override Control Enabled	Disabled	Enabled
1750	STC.STC_5.PID_MAOP.ENABLE	Station 5 Control - Maximum Allowable Operating Pressure Protection Control Enabled Station 5 Control - Override Loop 1 Control	Disabled	Enabled
1751	STC.STC_5.PID_Ovrd1.ENABLE	Enabled	Disabled	Enabled
1752	STC.STC_5.PID_OUTLO.ENABLE	Station 5 Control - Minimum Outlet Pressure Override Control Enabled	Disabled	Enabled
1753	STC.STC_5.PID_Ovrd2.ENABLE	Station 5 Control - Override Loop 2 Control Enabled	Disabled	Enabled
1754	STC.STC_5.MANMODE	Station 5 Control - Station Control Manual Control	Disabled	Enabled
1755	STC.STC_6.PID_SEL_1.ST_EN	Station 6 Control - Station Control Enabled	Disabled	Enabled
1756	STC.STC_6.PID_Pmry3.ENABLE	Station 6 Control - Flow Control Enabled	Disabled	Enabled

Coil#	Variable	Description	Off State	On State
1757	STC.STC_6.PID_FLOW.ENABLE	Station 6 Control - Primary 3 Control Enabled	Disabled	Enabled
1758	STC.STC_6.PID_POVRD.ENABLE	Station 6 Control - Pressure Override Control Enabled	Disabled	Enabled
1759	STC.STC_6.PID_MAOP.ENABLE	Station 6 Control - Maximum Allowable Operating Pressure Protection Control Enabled Station 6 Control - Override Loop 1 Control	Disabled	Enabled
1760	STC.STC_6.PID_Ovrd1.ENABLE	Enabled	Disabled	Enabled
1761	STC.STC_6.PID_OUTLO.ENABLE	Station 6 Control - Minimum Outlet Pressure Override Control Enabled	Disabled	Enabled
1762	STC.STC_6.PID_Ovrd2.ENABLE	Station 6 Control - Override Loop 2 Control Enabled	Disabled	Enabled
1763	STC.STC_6.MANMODE	Station 6 Control - Station Control Manual Control	Disabled	Enabled
1764	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1765	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1766	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1767	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1768	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1769	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1770	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1771	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1772	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1773	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1774	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1775	MB.SPARE	RESERVED FOR FUTURE USE		
1776	MB.SPARE	RESERVED FOR FOTORE 03E		
		RESERVED FOR FUTURE USE		
1777	MB.SPARE	RESERVED FOR FUTURE USE		
1778	MB.SPARE	RESERVED FOR FUTURE USE		
1779	MB.SPARE	RESERVED FOR FUTURE USE		
1780	MB.SPARE	****** RESERVED FOR FUTURE USE ******		
1781	MB.SPARE	****** RESERVED FOR FUTURE USE ****** Run Switching - Run n - Block Valve 1 - Valve		
1782	TS.BV_1.MANPOS	Position Command Run Switching - Run n - Block Valve 1 - Valve	Close	Open
1783	TS.BV_1.BLIND	Position Limit Switch Feedback	Blind	Limit Switch
1784	TS.BV_1.IBOLS	Run Switching - Run n - Block Valve 1 - Open Limit Switch	Off	Opened
1785	TS.BV_1.IBCLS	Run Switching - Run n - Block Valve 1 - Close Limit Switch	Off	Closed
1786	TS.BV_1.INVRT	Run Switching - Run n - Block Valve 1 - Invert Valve Control Outputs	Off	Invert
1787	TS.BV_2.MANPOS	Run Switching - Run n - Block Valve 2 - Valve Position Command	Close	Open
		Run Switching - Run n - Block Valve 2 - Valve		
1788 1789	TS.BV_2.BLIND	Position Limit Switch Feedback Run Switching - Run n - Block Valve 2 - Open	Blind Off	Limit Switch
	TS.BV_2.IBOLS	Limit Switch Run Switching - Run n - Block Valve 2 - Close		•
1790	TS.BV_2.IBCLS	Limit Switch Run Switching - Run n - Block Valve 2 - Invert	Off	Closed
1791	TS.BV_2.INVRT	Valve Control Outputs Run Switching - Run n - Block Valve 3 - Valve	Off	Invert
1792	TS.BV_3.MANPOS	Position Command Run Switching - Run n - Block Valve 3 - Valve	Close	Open
1793	TS.BV_3.BLIND	Position Limit Switch Feedback	Blind	Limit Switch
1794	TS.BV_3.IBOLS	Run Switching - Run n - Block Valve 3 - Open Limit Switch	Off	Opened
1795	TS.BV_3.IBCLS	Run Switching - Run n - Block Valve 3 - Close Limit Switch	Off	Closed
1796	TS.BV_3.INVRT	Run Switching - Run n - Block Valve 3 - Invert Valve Control Outputs	Off	Invert
1797	TS.BV_4.MANPOS	Run Switching - Run n - Block Valve 4 - Valve	Close	Open

Coil#	Variable	Description	Off State	On State
		Position Command		
1798	TS.BV_4.BLIND	Run Switching - Run n - Block Valve 4 - Valve Position Limit Switch Feedback	Blind	Limit Switch
1799	TS.BV_4.IBOLS	Run Switching - Run n - Block Valve 4 - Open Limit Switch Run Switching - Run n - Block Valve 4 - Close	Off	Opened
1800	TS.BV_4.IBCLS	Limit Switch	Off	Closed
1801	TS.BV_4.INVRT	Run Switching - Run n - Block Valve 4 - Invert Valve Control Outputs	Off	Invert
1802	TS.BV_5.MANPOS	Run Switching - Run n - Block Valve 5 - Valve Position Command	Close	Open
1803	TS.BV_5.BLIND	Run Switching - Run n - Block Valve 5 - Valve Position Limit Switch Feedback	Blind	Limit Switch
1804	TS.BV_5.IBOLS	Run Switching - Run n - Block Valve 5 - Open Limit Switch	Off	Opened
1805	TS.BV_5.IBCLS	Run Switching - Run n - Block Valve 5 - Close Limit Switch	Off	Closed
1806	TS.BV_5.INVRT	Run Switching - Run n - Block Valve 5 - Invert Valve Control Outputs	Off	Invert
1807	TS.BV_6.MANPOS	Run Switching - Run n - Block Valve 6 - Valve Position Command	Close	Open
1808	TS.BV_6.BLIND	Run Switching - Run n - Block Valve 6 - Valve Position Limit Switch Feedback	Blind	Limit Switch
1809	TS.BV_6.IBOLS	Run Switching - Run n - Block Valve 6 - Open Limit Switch	Off	Opened
1810	TS.BV_6.IBCLS	Run Switching - Run n - Block Valve 6 - Close Limit Switch	Off	Closed
1811	TS.BV_6.INVRT	Run Switching - Run n - Block Valve 6 - Invert Valve Control Outputs	Off	Invert
1812	TS.BV_7.MANPOS	Run Switching - Run n - Block Valve 7 - Valve Position Command	Close	Open
1813	TS.BV_7.BLIND	Run Switching - Run n - Block Valve 7 - Valve Position Limit Switch Feedback	Blind	Limit Switch
1814	TS.BV_7.IBOLS	Run Switching - Run n - Block Valve 7 - Open Limit Switch	Off	Opened
1815	TS.BV_7.IBCLS	Run Switching - Run n - Block Valve 7 - Close Limit Switch	Off	Closed
1816	TS.BV_7.INVRT	Run Switching - Run n - Block Valve 7 - Invert Valve Control Outputs	Off	Invert
1817	TS.BV_8.MANPOS	Run Switching - Run n - Block Valve 8 - Valve Position Command	Close	Open
1818	TS.BV_8.BLIND	Run Switching - Run n - Block Valve 8 - Valve Position Limit Switch Feedback	Blind	Limit Switch
1819	TS.BV_8.IBOLS	Run Switching - Run n - Block Valve 8 - Open Limit Switch	Off	Opened
1820	TS.BV_8.IBCLS	Run Switching - Run n - Block Valve 8 - Close Limit Switch	Off	Closed
1821	TS.BV_8.INVRT	Run Switching - Run n - Block Valve 8 - Invert Valve Control Outputs	Off	Invert
1822	TS.TC_1.ST1_TS_CHKFLOW	Run Switching - Station 1 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1823	TS.TC_1.ST1_TS_EN	Run Switching - Station 1 - Meter Run Staging Enabled / Disabled	Disabled	Enabled
1824	TS.TC_1.ST2_TS_CHKFLOW	Run Switching - Station 2 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1825	TS.TC_1.ST2_TS_EN	Run Switching - Station 2 - Meter Run Staging Enabled / Disabled	Disabled	Enabled
1826	TS.TC_1.ST3_TS_CHKFLOW	Run Switching - Station 3 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1827	TS.TC_1.ST3_TS_EN	Run Switching - Station 3 - Meter Run Staging Enabled / Disabled	Disabled	Enabled
1828	TS.TC_1.ST4_TS_CHKFLOW	Run Switching - Station 4 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1829	TS.TC_1.ST4_TS_EN	Run Switching - Station 4 - Meter Run Staging Enabled / Disabled	Disabled	Enabled
1830	TS.TC_1.ST5_TS_CHKFLOW	Run Switching - Station 5 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1831	TS.TC_1.ST5_TS_EN	Run Switching - Station 5 - Meter Run Staging Enabled / Disabled	Disabled	Enabled

1832			State	State
	TS.TC_1.ST6_TS_CHKFLOW	Run Switching - Station 6 - Check Flow Rate Enabled / Disabled	Disabled	Enabled
1833	TS.TC_1.ST6_TS_EN	Run Switching - Station 6 - Meter Run Staging Enabled / Disabled	Disabled	Enabled
1834	TS.TC_1.TSO_1.CLEARFAIL	Run Switching - Run n - Block Valve 1 - Clear Failure	Off	Reset
1835	TS.TC_1.TSO_1.FAIL	Run Switching - Run n - Block Valve 1 - Valve Failed	Normal	Fail
1836	TS.TC 1.TSO 1.MANMODE	Run Switching - Run n - Block Valve 1 - Manual / Auto Mode	Auto	Manual
1837	TS.TC_1.TSO_1.TUBEOPEN	Run Switching - Run n - Block Valve 1 - Tube is open	Off	Open
1838	TS.TC_1.TSO_2.CLEARFAIL	Run Switching - Run n - Block Valve 2 - Clear Failure	Off	Reset
		Run Switching - Run n - Block Valve 2 - Valve	-	
1839	TS.TC_1.TSO_2.FAIL	Failed Run Switching - Run n - Block Valve 2 - Manual /	Normal	Fail
1840	TS.TC_1.TSO_2.MANMODE	Auto Mode Run Switching - Run n - Block Valve 2 - Tube is	Auto	Manual
1841	TS.TC_1.TSO_2.TUBEOPEN	open Run Switching - Run n - Block Valve 3 - Clear	Off	Open
1842	TS.TC_1.TSO_3.CLEARFAIL	Failure Run Switching - Run n - Block Valve 3 - Valve	Off	Reset
1843	TS.TC_1.TSO_3.FAIL	Failed Run Switching - Run n - Block Valve 3 - Manual /	Normal	Fail
1844	TS.TC_1.TSO_3.MANMODE	Auto Mode Run Switching - Run n - Block Valve 3 - Tube is	Auto	Manual
1845	TS.TC_1.TSO_3.TUBEOPEN	open Run Switching - Run n - Block Valve 4 - Clear	Off	Open
1846	TS.TC_1.TSO_4.CLEARFAIL	Failure Run Switching - Run n - Block Valve 4 - Valve	Off	Reset
1847	TS.TC_1.TSO_4.FAIL	Failed Run Switching - Run n - Block Valve 4 - Manual /	Normal	Fail
1848	TS.TC_1.TSO_4.MANMODE	Auto Mode	Auto	Manual
1849	TS.TC_1.TSO_4.TUBEOPEN	Run Switching - Run n - Block Valve 4 - Tube is open	Off	Open
1850	TS.TC_1.TSO_5.CLEARFAIL	Run Switching - Run n - Block Valve 5 - Clear Failure	Off	Reset
1851	TS.TC_1.TSO_5.FAIL	Run Switching - Run n - Block Valve 5 - Valve Failed	Normal	Fail
1852	TS.TC_1.TSO_5.MANMODE	Run Switching - Run n - Block Valve 5 - Manual / Auto Mode	Auto	Manual
1853	TS.TC_1.TSO_5.TUBEOPEN	Run Switching - Run n - Block Valve 5 - Tube is open	Off	Open
1854	TS.TC_1.TSO_6.CLEARFAIL	Run Switching - Run n - Block Valve 6 - Clear Failure	Off	Reset
1855	TS.TC_1.TSO_6.FAIL	Run Switching - Run n - Block Valve 6 - Valve Failed	Normal	Fail
1856	TS.TC_1.TSO_6.MANMODE	Run Switching - Run n - Block Valve 6 - Manual / Auto Mode	Auto	Manual
1857	TS.TC_1.TSO_6.TUBEOPEN	Run Switching - Run n - Block Valve 6 - Tube is open	Off	Open
1858	TS.TC_1.TSO_7.CLEARFAIL	Run Switching - Run n - Block Valve 7 - Clear Failure	Off	Reset
1859	TS.TC_1.TSO_7.FAIL	Run Switching - Run n - Block Valve 7 - Valve Failed	Normal	Fail
1860	TS.TC_1.TSO_7.MANMODE	Run Switching - Run n - Block Valve 7 - Manual / Auto Mode	Auto	Manual
1861	TS.TC_1.TSO_7.TUBEOPEN	Run Switching - Run n - Block Valve 7 - Tube is	Off	Open
		open Run Switching - Run n - Block Valve 8 - Clear	Off	
1862	TS.TC_1.TSO_8.CLEARFAIL	Failure Run Switching - Run n - Block Valve 8 - Valve		Reset
1863	TS.TC_1.TSO_8.FAIL	Failed Run Switching - Run n - Block Valve 8 - Manual /	Normal	Fail
1864	TS.TC_1.TSO_8.MANMODE	Auto Mode Run Switching - Run n - Block Valve 8 - Tube is	Auto	Manual
1865 1866	TS.TC_1.TSO_8.TUBEOPEN MB.Spare	open	Off	Open

0	Mariahla	Description	Off	On
Coil#	Variable	Description	State	State
1867	MB.Spare			
1868	MB.Spare			
1869	MB.Spare			
1870	MB.Spare			
1871	MB.Spare			
1872	MB.Spare			
1873	MB.Spare			
1874	MB.Spare			
1875	MB.Spare			
1876	MB.Spare			
1877	MB.Spare			
1878	MB.Spare			
1879	MB.Spare			
1880	MB.Spare			
1881	MB.Spare			
1882	BI.ST1_DIR	Station $n + 1$ - Indicated Direction - $n = 1, 3,$	Forward	Reverse
1883	BI.ST2_OLS3_STATE	Station 2 - Block Valve 1 - Required Closed State for forward direction	Off	On
1005	BI312_0133_3TATE	Station 2 - Block Valve 2 - Required Closed State		OII
1884	BI.ST2_OLS4_STATE	for forward direction	Off	On
1885	BI.ST2_OLS1_STATE	Station 2 - Block Valve 1 - Required Opened State for forward direction	Off	On
1000		Station 2 - Block Valve 2 - Required Opened State		
1886	BI.ST2_OLS2_STATE	for forward direction	Off	On
1887	BI.ST2_CLS1_STATUS	Station 2 - Block Valve 1 - Closed Status	Off	Closed
1888	BI.ST2_CLS2_STATUS	Station 2 - Block Valve 2 - Closed Status	Off	Closed
1889	BI.ST2_OLS1_STATUS	Station 2 - Block Valve 1 - Opened Status	Off	Opened
1890	BI.ST2_OLS2_STATUS	Station 2 - Block Valve 2 - Opened Status	Off	Opened
1891	BC.ST2_BIDIR_EN	Station 2 - Programmed Control Requested Direction	Forward	Reverse
1001		Bi-directional Control - Station 2 - Block Valve 1 -	Torward	Reverse
1892	BC.ST_BIDIR_CTL_2.BV1.MANPOS	Valve Position Command	Close	Open
1893	BC.ST_BIDIR_CTL_2.BV1.IBOLS	Bi-directional Control - Station 2 - Block Valve 1 - Valve Position Open Limit Switch	Off	Opened
1000		Bi-directional Control - Station 2 - Block Valve 1 -		opened
1894	BC.ST_BIDIR_CTL_2.BV1.IBCLS	Valve Position Close Limit Switch	Off	Closed
1895	BC.ST BIDIR CTL 2.BV2.MANPOS	Bi-directional Control - Station 2 - Block Valve 2 - Valve Position Command	Close	Open
		Bi-directional Control - Station 2 - Block Valve 2 -		•
1896	BC.ST_BIDIR_CTL_2.BV2.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 2 - Block Valve 2 -	Off	Opened
1897	BC.ST_BIDIR_CTL_2.BV2.IBCLS	Valve Position Close Limit Switch	Off	Closed
		Bi-directional Control - Station 2 - Block Valve 3 -		
1898	BC.ST_BIDIR_CTL_2.BV3.MANPOS	Valve Position Command Bi-directional Control - Station 2 - Block Valve 3 -	Close	Open
1899	BC.ST_BIDIR_CTL_2.BV3.IBOLS	Valve Position Open Limit Switch	Off	Opened
4000		Bi-directional Control - Station 2 - Block Valve 3 -	0#	Olaced
1900	BC.ST_BIDIR_CTL_2.BV3.IBCLS	Valve Position Close Limit Switch Bi-directional Control - Station 2 - Block Valve 4 -	Off	Closed
1901	BC.ST_BIDIR_CTL_2.BV4.MANPOS	Valve Position Command	Close	Open
1000		Bi-directional Control - Station 2 - Block Valve 4 -	0#	Oncred
1902	BC.ST_BIDIR_CTL_2.BV4.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 2 - Block Valve 4 -	Off	Opened
			0"	Closed
1903	BC.ST_BIDIR_CTL_2.BV4.IBCLS	Valve Position Close Limit Switch	Off	0.0000
		Bi-directional Control - Station 2 - Block Valve 5 -		
1903 1904	BC.ST_BIDIR_CTL_2.BV4.IBCLS BC.ST_BIDIR_CTL_2.BV5.MANPOS	Bi-directional Control - Station 2 - Block Valve 5 - Valve Position Command	Close	Open
		Bi-directional Control - Station 2 - Block Valve 5 - Valve Position Command Bi-directional Control - Station 2 - Block Valve 5 - Valve Position Open Limit Switch		
1904	BC.ST_BIDIR_CTL_2.BV5.MANPOS	Bi-directional Control - Station 2 - Block Valve 5 - Valve Position Command Bi-directional Control - Station 2 - Block Valve 5 -	Close	Open

Coil#	Variable	Description Valve Position Command	Off State	On State
1908	BC.ST_BIDIR_CTL_2.BV6.IBOLS	Bi-directional Control - Station 2 - Block Valve 6 - Valve Position Open Limit Switch	Off	Opened
1909	BC.ST_BIDIR_CTL_2.BV6.IBCLS	Bi-directional Control - Station 2 - Block Valve 6 - Valve Position Close Limit Switch	Off	Closed
1910	BC.ST_BIDIR_CTL_2.BV7.MANPOS	Bi-directional Control - Station 2 - Block Valve 7 - Valve Position Command	Close	Open
1911	BC.ST_BIDIR_CTL_2.BV7.IBOLS	Bi-directional Control - Station 2 - Block Valve 7 - Valve Position Open Limit Switch Bi-directional Control - Station 2 - Block Valve 7 -	Off	Opened
1912	BC.ST_BIDIR_CTL_2.BV7.IBCLS	Valve Position Close Limit Switch Bi-directional Control - Station 2 - Block Valve 8 -	Off	Closed
1913	BC.ST_BIDIR_CTL_2.BV8.MANPOS	Valve Position Command Bi-directional Control - Station 2 - Block Valve 8 -	Close	Open
1914	BC.ST_BIDIR_CTL_2.BV8.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 2 - Block Valve 8 -	Off	Opened
1915	BC.ST_BIDIR_CTL_2.BV8.IBCLS	Valve Position Close Limit Switch	Off Forward	Closed
1916 1917	BI.ST3_DIR BI.ST4_OLS3_STATE	Station n + 1 - Indicated Direction - n = 1, 3, 5 Station 4 - Block Valve 1 - Required Closed State for forward direction	Off	On
1918	BI.ST4_OLS4_STATE	Station 4 - Block Valve 2 - Required Closed State for forward direction	Off	On
1919	BI.ST4_OLS1_STATE	Station 4 - Block Valve 1 - Required Opened State for forward direction	Off	On
1920	BI.ST4_OLS2_STATE	Station 4 - Block Valve 2 - Required Opened State for forward direction	Off	On
1921	BI.ST4_CLS1_STATUS	Station 4 - Block Valve 1 - Closed Status	Off	Closed
1922	BI.ST4_CLS2_STATUS	Station 4 - Block Valve 2 - Closed Status	Off	Closed
1923	BI.ST4_OLS1_STATUS	Station 4 - Block Valve 1 - Opened Status	Off	Opened
1924	BI.ST4_OLS2_STATUS	Station 4 - Block Valve 2 - Opened Status	Off	Opened
1925	BC.ST4_BIDIR_EN	Station 4 - Programmed Control Requested Direction	Forward	Reverse
1926	BC.ST_BIDIR_CTL_4.BV1.MANPOS	Bi-directional Control - Station 4 - Block Valve 1 - Valve Position Command Bi-directional Control - Station 4 - Block Valve 1 -	Close	Open
1927	BC.ST_BIDIR_CTL_4.BV1.IBOLS	Valve Position Open Limit Switch	Off	Opened
1928	BC.ST_BIDIR_CTL_4.BV1.IBCLS	Bi-directional Control - Station 4 - Block Valve 1 - Valve Position Close Limit Switch	Off	Closed
1929	BC.ST_BIDIR_CTL_4.BV2.MANPOS	Bi-directional Control - Station 4 - Block Valve 2 - Valve Position Command	Close	Open
1930	BC.ST_BIDIR_CTL_4.BV2.IBOLS	Bi-directional Control - Station 4 - Block Valve 2 - Valve Position Open Limit Switch	Off	Opened
1931	BC.ST_BIDIR_CTL_4.BV2.IBCLS	Bi-directional Control - Station 4 - Block Valve 2 - Valve Position Close Limit Switch	Off	Closed
1932	BC.ST_BIDIR_CTL_4.BV3.MANPOS	Bi-directional Control - Station 4 - Block Valve 3 - Valve Position Command Bi-directional Control - Station 4 - Block Valve 3 -	Close	Open
1933	BC.ST_BIDIR_CTL_4.BV3.IBOLS	Valve Position Open Limit Switch	Off	Opened
1934	BC.ST_BIDIR_CTL_4.BV3.IBCLS	Bi-directional Control - Station 4 - Block Valve 3 - Valve Position Close Limit Switch	Off	Closed
1935	BC.ST_BIDIR_CTL_4.BV4.MANPOS	Bi-directional Control - Station 4 - Block Valve 4 - Valve Position Command Bi-directional Control - Station 4 - Block Valve 4 -	Close	Open
1936	BC.ST_BIDIR_CTL_4.BV4.IBOLS	Bi-directional Control - Station 4 - Block Valve 4 - Valve Position Open Limit Switch Bi-directional Control - Station 4 - Block Valve 4 -	Off	Opened
1937	BC.ST_BIDIR_CTL_4.BV4.IBCLS	Valve Position Close Limit Switch	Off	Closed
1938	BC.ST_BIDIR_CTL_4.BV5.MANPOS	Bi-directional Control - Station 4 - Block Valve 5 - Valve Position Command	Close	Open
1939	BC.ST_BIDIR_CTL_4.BV5.IBOLS	Bi-directional Control - Station 4 - Block Valve 5 - Valve Position Open Limit Switch Bi-directional Control - Station 4 - Block Valve 5 -	Off	Opened
1940	BC.ST_BIDIR_CTL_4.BV5.IBCLS	Valve Position Close Limit Switch Bi-directional Control - Station 4 - Block Valve 6 -	Off	Closed
1941	BC.ST_BIDIR_CTL_4.BV6.MANPOS	Valve Position Command Bi-directional Control - Station 4 - Block Valve 6 -	Close	Open
1942	BC.ST_BIDIR_CTL_4.BV6.IBOLS	Valve Position Open Limit Switch	Off	Opened
1943	BC.ST_BIDIR_CTL_4.BV6.IBCLS	Bi-directional Control - Station 4 - Block Valve 6 -	Off	Closed

Coil#	Variable	Description Valve Position Close Limit Switch	Off State	On State
		Bi-directional Control - Station 4 - Block Valve 7 -		
1944	BC.ST_BIDIR_CTL_4.BV7.MANPOS	Valve Position Command Bi-directional Control - Station 4 - Block Valve 7 -	Close	Open
1945	BC.ST_BIDIR_CTL_4.BV7.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 4 - Block Valve 7 -	Off	Opened
1946	BC.ST_BIDIR_CTL_4.BV7.IBCLS	Valve Position Close Limit Switch	Off	Closed
1947	BC.ST_BIDIR_CTL_4.BV8.MANPOS	Bi-directional Control - Station 4 - Block Valve 8 - Valve Position Command	Close	Open
1948	BC.ST_BIDIR_CTL_4.BV8.IBOLS	Bi-directional Control - Station 4 - Block Valve 8 - Valve Position Open Limit Switch	Off	Opened
1949	BC.ST_BIDIR_CTL_4.BV8.IBCLS	Bi-directional Control - Station 4 - Block Valve 8 - Valve Position Close Limit Switch	Off	Closed
1950	BI.ST5_DIR	Station n + 1 - Indicated Direction - n = 1, 3, 5	Forward	Reverse
		Station 6 - Block Valve 1 - Required Closed State		
1951	BI.ST6_OLS3_STATE	for forward direction Station 6 - Block Valve 2 - Required Closed State	Off	On
1952	BI.ST6_OLS4_STATE	for forward direction Station 6 - Block Valve 1 - Required Opened State		On
1953	BI.ST6_OLS1_STATE	for forward direction Station 6 - Block Valve 2 - Required Opened State	Off	On
1954	BI.ST6_OLS2_STATE	for forward direction	Off	On
1955	BI.ST6_CLS1_STATUS	Station 6 - Block Valve 1 - Closed Status	Off	Closed
1956	BI.ST6_CLS2_STATUS	Station 6 - Block Valve 2 - Closed Status	Off	Closed
1957	BI.ST6_OLS1_STATUS	Station 6 - Block Valve 1 - Opened Status	Off	Opened
1958	BI.ST6_OLS2_STATUS	Station 6 - Block Valve 2 - Opened Status	Off	Opened
1959	BC.ST6_BIDIR_EN	Station 6 - Programmed Control Requested Direction	Forward	Reverse
1960	BC.ST_BIDIR_CTL_6.BV1.MANPOS	Bi-directional Control - Station 6 - Block Valve 1 - Valve Position Command	Close	Open
1961	BC.ST_BIDIR_CTL_6.BV1.IBOLS	Bi-directional Control - Station 6 - Block Valve 1 - Valve Position Open Limit Switch	Off	Opened
1962	BC.ST_BIDIR_CTL_6.BV1.IBCLS	Bi-directional Control - Station 6 - Block Valve 1 - Valve Position Close Limit Switch	Off	Closed
1963	BC.ST_BIDIR_CTL_6.BV2.MANPOS	Bi-directional Control - Station 6 - Block Valve 2 - Valve Position Command	Close	Open
1964	BC.ST_BIDIR_CTL_6.BV2.IBOLS	Bi-directional Control - Station 6 - Block Valve 2 - Valve Position Open Limit Switch	Off	Opened
1965	BC.ST_BIDIR_CTL_6.BV2.IBCLS	Bi-directional Control - Station 6 - Block Valve 2 - Valve Position Close Limit Switch	Off	Closed
1966	BC.ST_BIDIR_CTL_6.BV3.MANPOS	Bi-directional Control - Station 6 - Block Valve 3 - Valve Position Command	Close	Open
1967	BC.ST_BIDIR_CTL_6.BV3.IBOLS	Bi-directional Control - Station 6 - Block Valve 3 - Valve Position Open Limit Switch	Off	Opened
1968	BC.ST_BIDIR_CTL_6.BV3.IBCLS	Bi-directional Control - Station 6 - Block Valve 3 - Valve Position Close Limit Switch	Off	Closed
1969	BC.ST BIDIR CTL 6.BV4.MANPOS	Bi-directional Control - Station 6 - Block Valve 4 - Valve Position Command	Close	Open
		Bi-directional Control - Station 6 - Block Valve 4 -		
1970	BC.ST_BIDIR_CTL_6.BV4.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 6 - Block Valve 4 -	Off	Opened
1971	BC.ST_BIDIR_CTL_6.BV4.IBCLS	Valve Position Close Limit Switch Bi-directional Control - Station 6 - Block Valve 5 -	Off	Closed
1972	BC.ST_BIDIR_CTL_6.BV5.MANPOS	Valve Position Command Bi-directional Control - Station 6 - Block Valve 5 -	Close	Open
1973	BC.ST_BIDIR_CTL_6.BV5.IBOLS	Valve Position Open Limit Switch Bi-directional Control - Station 6 - Block Valve 5 -	Off	Opened
1974	BC.ST_BIDIR_CTL_6.BV5.IBCLS	Valve Position Close Limit Switch	Off	Closed
1975	BC.ST_BIDIR_CTL_6.BV6.MANPOS	Bi-directional Control - Station 6 - Block Valve 6 - Valve Position Command Bi-directional Control - Station 6 - Block Valve 6 -	Close	Open
1976	BC.ST_BIDIR_CTL_6.BV6.IBOLS	Valve Position Open Limit Switch	Off	Opened
1977	BC.ST_BIDIR_CTL_6.BV6.IBCLS	Bi-directional Control - Station 6 - Block Valve 6 - Valve Position Close Limit Switch	Off	Closed
1978	BC.ST_BIDIR_CTL_6.BV7.MANPOS	Bi-directional Control - Station 6 - Block Valve 7 - Valve Position Command	Close	Open
1979	BC.ST_BIDIR_CTL_6.BV7.IBOLS	Bi-directional Control - Station 6 - Block Valve 7 -	Off	Opened

Co:1#	Veriable	Description	Off	On State
Coil#	Variable	Description Valve Position Open Limit Switch	State	State
		Bi-directional Control - Station 6 - Block Valve 7 -		
1980	BC.ST_BIDIR_CTL_6.BV7.IBCLS	Valve Position Close Limit Switch Bi-directional Control - Station 6 - Block Valve 8 -	Off	Closed
1981	BC.ST_BIDIR_CTL_6.BV8.MANPOS	Valve Position Command	Close	Open
1982	BC.ST_BIDIR_CTL_6.BV8.IBOLS	Bi-directional Control - Station 6 - Block Valve 8 - Valve Position Open Limit Switch	Off	Opened
1983	BC.ST_BIDIR_CTL_6.BV8.IBCLS	Bi-directional Control - Station 6 - Block Valve 8 - Valve Position Close Limit Switch	Off	Closed
1984	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1985	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1986	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1987	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1988	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1989	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1990	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1991	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1992	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1993	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1994	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1995	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1996	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1997	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1998	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
1999	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2000	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2001	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2002	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2003	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2004	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2005	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2006	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2007	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2008	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2009	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2010	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2011	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2012	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2013	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2014	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2015	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2016	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2017	MB.SPARE	***** RESERVED FOR FUTURE USE ****** Station Control - Station 1 - Execute Setpoint		
2018	STC.Ctl_Profile_1.Execute	Change	Off	On
2019	STC.Ctl_Profile_2.Execute	Station Control - Station 2 - Execute Setpoint Change	Off	On
2020	STC.Ctl_Profile_3.Execute	Station Control - Station 3 - Execute Setpoint Change	Off	On
2021	STC.Ctl_Profile_4.Execute	Station Control - Station 4 - Execute Setpoint Change	Off	On
		Station Control - Station 5 - Execute Setpoint	Off	
2022	STC.Ctl_Profile_5.Execute	Change Station Control - Station 6 - Execute Setpoint		On
2023	STC.Ctl_Profile_6.Execute	Change	Off	On

Coil#	Variable	Description	Off State	On State
2024	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2025	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2026	MVT.MVT_1_CFail	Multi-Variable Transmitter 1 Comm Fail	Off	Fail
2027	MVT.MVT_2_CFail	Multi-Variable Transmitter 2 Comm Fail	Off	Fail
2028	MVT.MVT_3_CFail	Multi-Variable Transmitter 3 Comm Fail	Off	Fail
2029	MVT.MVT_4_CFail	Multi-Variable Transmitter 4 Comm Fail	Off	Fail
2030	MVT.MVT_5_CFail	Multi-Variable Transmitter 5 Comm Fail	Off	Fail
2031	MVT.MVT_6_CFail	Multi-Variable Transmitter 6 Comm Fail	Off	Fail
2032	MVT.MVT_7_CFail	Multi-Variable Transmitter 7 Comm Fail	Off	Fail
2033	MVT.MVT_8_CFail	Multi-Variable Transmitter 8 Comm Fail	Off	Fail
2034	MVT.MVT_9_CFail	Multi-Variable Transmitter 9 Comm Fail	Off	Fail
2035	MVT.MVT_10_CFail	Multi-Variable Transmitter 10 Comm Fail	Off	Fail
2036	MVT.MVT_11_CFail	Multi-Variable Transmitter 11 Comm Fail	Off	Fail
2037	MVT.MVT_12_CFail	Multi-Variable Transmitter 12 Comm Fail	Off	Fail
2038	@GV.ST1_L_EN	Station 1 Local Enable	Off	Local
2039	@GV.ST2_L_EN	Station 2 Local Enable	Off	Local
2040	@GV.ST3_L_EN	Station 3 Local Enable	Off	Local
2041		Station 4 Local Enable	Off	Local
2042	@GV.ST5_L_EN	Station 5 Local Enable	Off	Local
2043	@GV.ST6_L_EN	Station 6 Local Enable	Off	Local
2044		Station 1 Remote Enable	Off	Remote
2045	@GV.ST2_R_EN	Station 2 Remote Enable	Off	Remote
2046	@GV.ST3_R_EN	Station 3 Remote Enable	Off	Remote
2047	@GV.ST4_R_EN	Station 4 Remote Enable	Off	Remote
2048	@GV.ST5_R_EN	Station 5 Remote Enable	Off	Remote
2049	@GV.ST6_R_EN	Station 6 Remote Enable	Off	Remote
2050	MB.SPARE	***** RESERVED FOR FUTURE USE ******	-	
2051	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2052	@GV.RCV1_L_EN	Remote Control Valve 1 Local Enable	Off	Local
2053	@GV.RCV2_L_EN	Remote Control Valve 2 Local Enable	Off	Local
2054	@GV.RCV3_L_EN	Remote Control Valve 3 Local Enable	Off	Local
2055	@GV.RCV4_L_EN	Remote Control Valve 4 Local Enable	Off	Local
2056	@GV.RCV5_L_EN	Remote Control Valve 5 Local Enable	Off	Local
2057	@GV.RCV6_L_EN	Remote Control Valve 6 Local Enable	Off	Local
2058	@GV.RCV7_L_EN	Remote Control Valve 7 Local Enable	Off	Local
2059	@GV.RCV8_L_EN	Remote Control Valve 8 Local Enable	Off	Local
2060	@GV.RCV9_L_EN	Remote Control Valve 9 Local Enable	Off	Local
2061	@GV.RCV10_L_EN	Remote Control Valve 10 Local Enable	Off	Local
2001	@GV.RCV11 L EN	Remote Control Valve 10 Local Enable	Off	Local
2062	@GV.RCV12_L_EN	Remote Control Valve 17 Local Enable	Off	Local
2003	@GV.RCV1_R_EN	Remote Control Valve 12 Local Enable	Off	Remote
2065	@GV.RCV2_R_EN	Remote Control Valve 2 Remote Enable	Off	Remote
2005	@GV.RCV2_R_EN	Remote Control Valve 3 Remote Enable	Off	Remote
2000	@GV.RCV3_R_EN	Remote Control Valve 4 Remote Enable	Off	Remote
2067	@GV.RCV4_R_EN @GV.RCV5_R_EN		Off	_
2068 2069		Remote Control Valve 5 Remote Enable	Off	Remote
		Remote Control Valve 6 Remote Enable		Remote
2070		Remote Control Valve 7 Remote Enable	Off	Remote
2071 2072	@GV.RCV8_R_EN @GV.RCV9_R_EN	Remote Control Valve 8 Remote Enable Remote Control Valve 9 Remote Enable	Off Off	Remote Remote

Coil#	Variable	Description	Off State	On State
2073	@GV.RCV10 R EN	Remote Control Valve 10 Remote Enable	Off	Remote
2074	@GV.RCV11_R_EN	Remote Control Valve 11 Remote Enable	Off	Remote
2075	@GV.RCV12_R_EN	Remote Control Valve 12 Remote Enable	Off	Remote
2076	@GV.GPPID1_L_EN	General Purpose PID 1 Local Enable	Off	Local
2077	@GV.GPPID2_L_EN	General Purpose PID 2 Local Enable	Off	Local
2078	@GV.GPPID3_L_EN	General Purpose PID 3 Local Enable	Off	Local
2079	@GV.GPPID1_R_EN	General Purpose PID 1 Remote Enable	Off	Remote
2079	@GV.GPPID2_R_EN	General Purpose PID 2 Remote Enable	Off	Remote
2080	@GV.GPPID2_K_EN		Off	Remote
2081		General Purpose PID 3 Remote Enable	Sitewide	
2062	LR.Local_Sw_Mode		Local/Remot	Configurable
2083	LR.Local_Sw1	Local Remote Switch 1 - Local/Remote or Local	e Local/Remot	Local
2084	LR.Local_Sw2	Local Remote Switch 2 - Local/Remote or Local	e	Local
2085	LR.Local Sw3	Local Remote Switch 3 - Local/Remote or Local	Local/Remot e	Local
			Local/Remot	Local
2086	LR.Local_Sw4	Local Remote Switch 4 - Local/Remote or Local	e Local/Remot	Local
2087	LR.Local_Sw5	Local Remote Switch 5 - Local/Remote or Local	e	Local
			Local/Remot	
2088	LR.Local_Sw6	Local Remote Switch 6 - Local/Remote or Local MODBUS DI 1 - These are variables that can be	e	Local
		written to by SCADA, and used in the program		
2090	MP DL 1	(PMC, PVM, and Math Function) - n = 1 through 16.	OFF	ON
2089	MB.DI_1	MODBUS DI 2 - These are variables that can be	UFF	ON
		written to by SCADA, and used in the program		
2090	MB.DI_2	(PMC, PVM, and Math Function) - n = 1 through 16.	OFF	ON
2030		MODBUS DI 3 - These are variables that can be		
		written to by SCADA, and used in the program		
2091	MB.DI 3	(PMC, PVM, and Math Function) - n = 1 through 16.	OFF	ON
		MODBUS DI 4 - These are variables that can be		
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2092	MB.DI_4	16.	OFF	ON
		MODBUS DI 5 - These are variables that can be		
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2093	MB.DI_5	16.	OFF	ON
		MODBUS DI 6 - These are variables that can be		
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2094	MB.DI_6	16.	OFF	ON
		MODBUS DI 7 - These are variables that can be written to by SCADA, and used in the program		
		(PMC, PVM, and Math Function) - $n = 1$ through		
2095	MB.DI_7	16.	OFF	ON
		MODBUS DI 8 - These are variables that can be written to by SCADA, and used in the program		
		(PMC, PVM, and Math Function) - n = 1 through	0.55	
2096	MB.DI_8	16. MODBUS DI 9 - These are variables that can be	OFF	ON
		written to by SCADA, and used in the program		
2007		(PMC, PVM, and Math Function) - n = 1 through	OFF	
2097	MB.DI_9	16. MODBUS DI 10 - These are variables that can be	OFF	ON
		written to by SCADA, and used in the program		
2098	MB.DI_10	(PMC, PVM, and Math Function) - n = 1 through 16.	OFF	ON
2090	טו_וע.טוו	MODBUS DI 11 - These are variables that can be		
		written to by SCADA, and used in the program		
2099	MB DL 11	· · · · · · · · · · · · · · · · · · ·	OFF	ON
2099	MB.DI_11		OFF	ON

Coil#	Variable	Description	Off State	On State
		MODBUS DI 12 - These are variables that can be		Olulo
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2100	MB.DI_12	(FMC, FVM, and Main Function) - T = T through 16.	OFF	ON
		MODBUS DI 13 - These are variables that can be		
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2101	MB.DI_13	16.	OFF	ON
		MODBUS DI 14 - These are variables that can be		
		written to by SCADA, and used in the program (PMC, PVM, and Math Function) - $n = 1$ through		
2102	MB.DI_14	16.	OFF	ON
		MODBUS DI 15 - These are variables that can be written to by SCADA, and used in the program		
		(PMC, PVM, and Math Function) - $n = 1$ through		
2103	MB.DI_15		OFF	ON
		MODBUS DI 16 - These are variables that can be written to by SCADA, and used in the program		
		(PMC, PVM, and Math Function) - $n = 1$ through		
2104	MB.DI_16	16.	OFF	ON
2105	BC.ST1_RDIR_REQ	Station 1 - Reverse Direction Requested	Forward	Reverse
2106	BC.ST2_RDIR_REQ	Station 2 - Reverse Direction Requested	Forward	Reverse
2107	BC.ST3_RDIR_REQ	Station 3 - Reverse Direction Requested	Forward	Reverse
2108	BC.ST4_RDIR_REQ	Station 4 - Reverse Direction Requested	Forward	Reverse
2109	BC.ST5_RDIR_REQ	Station 5 - Reverse Direction Requested	Forward	Reverse
2110	BC.ST6_RDIR_REQ	Station 6 - Reverse Direction Requested	Forward	Reverse
2111	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2112	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
		Station Control 1 Enable Fast Close with 0 Set		
2113	STC.STC_1.PID_SEL_1.ESD_EN	Point Station Control 2 Enable Fast Close with 0 Set	Disabled	Enabled
2114	STC.STC_2.PID_SEL_1.ESD_EN	Point	Disabled	Enabled
2115		Station Control 3 Enable Fast Close with 0 Set Point	Disabled	Enabled
2115	STC.STC_3.PID_SEL_1.ESD_EN	Station Control 4 Enable Fast Close with 0 Set	Disabled	Ellabled
2116	STC.STC_4.PID_SEL_1.ESD_EN	Point	Disabled	Enabled
2117	STC.STC_5.PID_SEL_1.ESD_EN	Station Control 5 Enable Fast Close with 0 Set Point	Disabled	Enabled
2117	310.310_3.11D_3EE_1.E3D_EN	Station Control 6 Enable Fast Close with 0 Set	Disabled	Lilabled
2118	STC.STC_6.PID_SEL_1.ESD_EN	Point	Disabled	Enabled
2119	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2120	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2121	TS.sd1	Run Switching - Station 1 - No Flow Shut In Enabled / Disabled	Disabled	Enabled
2121	10.501	Run Switching - Station 2 - No Flow Shut In	Disabica	Enabled
2122	TS.sd2	Enabled / Disabled	Disabled	Enabled
2123	TS.sd3	Run Switching - Station 3 - No Flow Shut In Enabled / Disabled	Disabled	Enabled
2120		Run Switching - Station 4 - No Flow Shut In	Bioabiou	Enabled
2124	TS.sd4	Enabled / Disabled	Disabled	Enabled
2125	TS.sd5	Run Switching - Station 5 - No Flow Shut In Enabled / Disabled	Disabled	Enabled
		Run Switching - Station 6 - No Flow Shut In		
2126	TS.sd6	Enabled / Disabled	Disabled	Enabled
2127	MB.SPARE	***** RESERVED FOR FUTURE USE ******	<u> </u>	
2128	MB.SPARE	***** RESERVED FOR FUTURE USE ******	<u> </u>	
2129	MB.SPARE		<u> </u>	
2130	MB.SPARE		<u> </u>	
2131	MB.SPARE		<u> </u>	
2132	MB.SPARE		<u> </u>	
2133	MB.SPARE			
2134	MB.SPARE			

Coil#	Variable	Description	Off State	On State
2135	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2136	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2137	FC.FC1.RX_SOS_ALRM	Run 1 - Speed of Sound Alarm Enable	Disabled	Enabled
2138	FC.FC2.RX_SOS_ALRM	Run 2 - Speed of Sound Alarm Enable	Disabled	Enabled
2139	FC.FC3.RX_SOS_ALRM	Run 3 - Speed of Sound Alarm Enable	Disabled	Enabled
2140	FC.FC4.RX_SOS_ALRM	Run 4 - Speed of Sound Alarm Enable	Disabled	Enabled
2141	FC.FC5.RX_SOS_ALRM	Run 5 - Speed of Sound Alarm Enable	Disabled	Enabled
2142	FC.FC6.RX_SOS_ALRM	Run 6 - Speed of Sound Alarm Enable	Disabled	Enabled
2143	FC.FC7.RX_SOS_ALRM	Run 7 - Speed of Sound Alarm Enable	Disabled	Enabled
2144	FC.FC8.RX_SOS_ALRM	Run 8 - Speed of Sound Alarm Enable	Disabled	Enabled
2145	FC.STATION_1_ForceFixed	Station 1 use values from the GC column, or always used fixed GC variables from the data stream	GC	Fixed - Scheduled
2146	FC STATION 4 UppDTUSet	Station 1 use saturated BTU from the GC data		Sat./Wet BTU
2146	FC.STATION_1_UseBTUSat	stream Station 2 use values from the GC column, or	Dry BTU	БІО
2147	FC.STATION_2_ForceFixed	always used fixed GC variables from the data stream	GC	Fixed - Scheduled
2148	FC.STATION_2_UseBTUSat	Station 2 use saturated BTU from the GC data stream	Dry BTU	Sat./Wet BTU
2110		Station 3 use values from the GC column, or	2.92.0	
2149	FC.STATION_3_ForceFixed	always used fixed GC variables from the data stream	GC	Fixed - Scheduled
2145		Station 3 use saturated BTU from the GC data	00	Sat./Wet
2150	FC.STATION_3_UseBTUSat	stream Station 4 use values from the GC column, or	Dry BTU	BTU
2151	FC.STATION_4_ForceFixed	always used fixed GC variables from the data stream	GC	Fixed - Scheduled
2152	FC.STATION_4_UseBTUSat	Station 4 use saturated BTU from the GC data stream	Dry BTU	Sat./Wet BTU
2152	FC.STATION_5_ForceFixed	Station 5 use values from the GC column, or always used fixed GC variables from the data stream	GC	Fixed - Scheduled
2154	FC.STATION_5_UseBTUSat	Station 5 use saturated BTU from the GC data stream	Dry BTU	Sat./Wet BTU
2155	FC.STATION_6_ForceFixed	Station 6 use values from the GC column, or always used fixed GC variables from the data stream	GC	Fixed - Scheduled
		Station 6 use saturated BTU from the GC data		Sat./Wet
2156	FC.STATION_6_UseBTUSat		Dry BTU	BTU
2157	MB.SPARE	RESERVED FOR FUTURE USE		
2158	MB.SPARE	RESERVED FOR FUTURE USE		
2159 2160	MB.SPARE MB.SPARE	***** RESERVED FOR FUTURE USE ****** ***** RESERVED FOR FUTURE USE ******		
2160	PG_GC.GC_1.GC_1.obAlrm	GC Data Stream 1 general alarm	ОК	Alarm
2161	PG_GC.GC_1.GC_2.obAirm	GC Data Stream 2 general alarm	OK	Alarm
2162	PG_GC.GC_1.GC_2.obAim PG_GC.GC_1.GC_3.obAim	GC Data Stream 2 general alarm	OK	Alarm
2163	PG_GC.GC_1.GC_3.0DAIm PG_GC.GC_1.GC_4.obAlrm	GC Data Stream 4 general alarm	OK	Alarm
2165	PG_GC.GC_1.GC_5.obAlrm	GC Data Stream 5 general alarm	OK	Alarm
2166	PG_GC.GC_1.GC_6.obAlrm	GC Data Stream 6 general alarm	ОК	Alarm
2167	PG_GC.GC_1.GC_7.obAlrm	GC Data Stream 7 general alarm	ОК	Alarm
2168	PG_GC.GC_1.GC_8.obAlrm	GC Data Stream 8 general alarm	ОК	Alarm
2169	MB.Spare			
2170	MB.Spare			
2171	MB.Spare			
2172	MB.Spare			
2173	MB.SPARE			
2174	MB.SPARE			

Coil#	Variable	Description	Off State	On State
2175	MB.SPARE			
2176	MB.SPARE			
2177	PMC.PV_Monitor_1.HiHiEnable	Process Monitor Control 1 High High Alarm enabled	Disabled	Enabled
2178	PMC.PV_Monitor_1.ROC_EN	Process Monitor Control 1 Rate of Change alarm enabled Process Monitor Control 1 Rate of Change time	Disabled	Enabled
2179	PMC.PV_Monitor_1.ROC_Units	Process Monitor Control 1 Rate of Change time units Process Monitor Control 1 Low Low Alarm	Seconds	Minutes
2180	PMC.PV_Monitor_1.LoLoEnable	enabled	Disabled	Enabled
2181	PMC.PV_Monitor_1.LoEnable	Process Monitor Control 1 Low Alarm enabled	Disabled	Enabled
2182	PMC.PV_Monitor_1.HiEnable	Process Monitor Control 1 High Alarm enabled Process Monitor Control 1 Control Output on High	Disabled	Enabled
2183	PMC.PV_Monitor_1.HH_Ctl_En	High Alarm enabled Process Monitor Control 1 Control Output on High	Disabled	Enabled
2184	PMC.PV_Monitor_1.H_Ctl_En	Alarm enabled Process Monitor Control 1 Control Output on Low	Disabled	Enabled
2185	PMC.PV_Monitor_1.L_Ctl_En	Alarm enabled Process Monitor Control 1 Control Output on Low	Disabled	Enabled
2186	PMC.PV_Monitor_1.LL_Ctl_En	Low Alarm enabled Process Monitor Control 1 Control Output on Rate	Disabled	Enabled
2187	PMC.PV_Monitor_1.ROCup_Ctl_En	of Change up enabled Process Monitor Control 1 Control Output on Rate	Disabled	Enabled
2188	PMC.PV_Monitor_1.ROCdn_Ctl_En	of Change Down enabled Process Monitor Control 1 Alarm Control Output	Disabled	Enabled
2189	PMC.PV_Monitor_1.Ctl_Latch	Latched	Unlatched	Latched
2190	PMC.PV_Monitor_1.Ctl_Reset	Process Monitor Control 1 Rate of Change Control Output Latched Process Monitor Control 2 High High Alarm	Unlatched	Latched
2191	PMC.PV_Monitor_2.HiHiEnable	enabled	Disabled	Enabled
2192	PMC.PV_Monitor_2.ROC_EN	Process Monitor Control 2 Rate of Change alarm enabled	Disabled	Enabled
2193	PMC.PV_Monitor_2.ROC_Units	Process Monitor Control 2 Rate of Change time units Process Monitor Control 2 Low Low Alarm	Seconds	Minutes
2194	PMC.PV_Monitor_2.LoLoEnable	enabled	Disabled	Enabled
2195	PMC.PV_Monitor_2.LoEnable	Process Monitor Control 2 Low Alarm enabled	Disabled	Enabled
2196	PMC.PV_Monitor_2.HiEnable	Process Monitor Control 2 High Alarm enabled	Disabled	Enabled
2197	PMC.PV_Monitor_2.HH_Ctl_En	Process Monitor Control 2 Control Output on High High Alarm enabled	Disabled	Enabled
2198	PMC.PV_Monitor_2.H_Ctl_En	Process Monitor Control 2 Control Output on High Alarm enabled	Disabled	Enabled
2199	PMC.PV_Monitor_2.L_Ctl_En	Process Monitor Control 2 Control Output on Low Alarm enabled	Disabled	Enabled
2200	PMC.PV_Monitor_2.LL_Ctl_En	Process Monitor Control 2 Control Output on Low Low Alarm enabled	Disabled	Enabled
2201	PMC.PV_Monitor_2.ROCup_Ctl_En	Process Monitor Control 2 Control Output on Rate of Change up enabled	Disabled	Enabled
2202	PMC.PV_Monitor_2.ROCdn_Ctl_En	Process Monitor Control 2 Control Output on Rate of Change Down enabled	Disabled	Enabled
2203	PMC.PV_Monitor_2.Ctl_Latch	Process Monitor Control 2 Alarm Control Output Latched	Unlatched	Latched
2204	PMC.PV_Monitor_2.Ctl_Reset	Process Monitor Control 2 Rate of Change Control Output Latched	Unlatched	Latched
2205	PMC.PV_Monitor_3.HiHiEnable	Process Monitor Control 3 High High Alarm enabled	Disabled	Enabled
2206	PMC.PV_Monitor_3.ROC_EN	Process Monitor Control 3 Rate of Change alarm enabled	Disabled	Enabled
2207	PMC.PV_Monitor_3.ROC_Units	Process Monitor Control 3 Rate of Change time units	Seconds	Minutes
2208	PMC.PV_Monitor_3.LoLoEnable	Process Monitor Control 3 Low Low Alarm enabled	Disabled	Enabled
2209	PMC.PV_Monitor_3.LoEnable	Process Monitor Control 3 Low Alarm enabled	Disabled	Enabled
2210	PMC.PV_Monitor_3.HiEnable	Process Monitor Control 3 High Alarm enabled	Disabled	Enabled
2211	PMC.PV_Monitor_3.HH_Ctl_En	Process Monitor Control 3 Control Output on High High Alarm enabled	Disabled	Enabled

Coil#	# Variable Description		Off State	On State
2212	PMC.PV_Monitor_3.H_Ctl_En	Process Monitor Control 3 Control Output on High Alarm enabled	Disabled	Enabled
2213	PMC.PV_Monitor_3.L_Ctl_En	Process Monitor Control 3 Control Output on Low Alarm enabled	Disabled	Enabled
2214	PMC.PV_Monitor_3.LL_Ctl_En	Process Monitor Control 3 Control Output on Low Low Alarm enabled	Disabled	Enabled
2215	PMC.PV_Monitor_3.ROCup_Ctl_En	Process Monitor Control 3 Control Output on Rate of Change up enabled	Disabled	Enabled
2216	PMC.PV_Monitor_3.ROCdn_Ctl_En	Process Monitor Control 3 Control Output on Rate of Change Down enabled	Disabled	Enabled
2217	PMC.PV_Monitor_3.Ctl_Latch	Process Monitor Control 3 Alarm Control Output Latched	Unlatched	Latched
2218	PMC.PV_Monitor_3.Ctl_Reset	Process Monitor Control 3 Rate of Change Control Output Latched	Unlatched	Latched
2219		Process Monitor Control 4 High High Alarm enabled	Disabled	Enabled
	PMC.PV_Monitor_4.HiHiEnable	Process Monitor Control 4 Rate of Change alarm		
2220	PMC.PV_Monitor_4.ROC_EN	enabled Process Monitor Control 4 Rate of Change time	Disabled	Enabled
2221	PMC.PV_Monitor_4.ROC_Units	units Process Monitor Control 4 Low Low Alarm	Seconds	Minutes
2222	PMC.PV_Monitor_4.LoLoEnable	enabled	Disabled	Enabled Enabled
2223	PMC.PV_Monitor_4.LoEnable	Process Monitor Control 4 Low Alarm enabled	Disabled Disabled	
2224 2225	PMC.PV_Monitor_4.HiEnable PMC.PV_Monitor_4.HH_Ctl_En	Process Monitor Control 4 High Alarm enabled Process Monitor Control 4 Control Output on High High Alarm enabled	Disabled	Enabled
		Process Monitor Control 4 Control Output on High		
2226	PMC.PV_Monitor_4.H_Ctl_En	Alarm enabled Process Monitor Control 4 Control Output on Low	Disabled	Enabled
2227	PMC.PV_Monitor_4.L_Ctl_En	Alarm enabled Process Monitor Control 4 Control Output on Low	Disabled	Enabled
2228	PMC.PV_Monitor_4.LL_Ctl_En	Low Alarm enabled Process Monitor Control 4 Control Output on Rate	Disabled	Enabled
2229	PMC.PV_Monitor_4.ROCup_Ctl_En	of Change up enabled Process Monitor Control 4 Control Output on Rate	Disabled	Enabled
2230	PMC.PV_Monitor_4.ROCdn_Ctl_En	of Change Down enabled	Disabled	Enabled
2231	PMC.PV_Monitor_4.Ctl_Latch	Process Monitor Control 4 Alarm Control Output Latched	Unlatched	Latched
2232	PMC.PV_Monitor_4.Ctl_Reset	Process Monitor Control 4 Rate of Change Control Output Latched	Unlatched	Latched
2233	MB.SPARE			
2234	MB.SPARE			
2235	MB.SPARE			
2236	MB.SPARE			
2237	PVM.PV_Monitor_1.HiHiEnable	Process Value Monitor 1 High High Alarm enabled Process Value Monitor 1 Rate of Change alarm	Disabled	Enabled
2238	PVM.PV_Monitor_1.ROC_EN	enabled	Disabled	Enabled
2239	PVM.PV_Monitor_1.ROC_Units	Process Value Monitor 1 Rate of Change time units	Seconds	Minutes
2240	PVM.PV_Monitor_1.LoLoEnable	Process Value Monitor 1 Low Low Alarm enabled	Disabled	Enabled
2241	PVM.PV_Monitor_1.LoEnable	Process Value Monitor 1 Low Alarm enabled	Disabled	Enabled
2242	PVM.PV_Monitor_1.HiEnable	Process Value Monitor 1 High Alarm enabled	Disabled	Enabled
2243	PVM.PV_Monitor_2.HiHiEnable	Process Value Monitor 2 High High Alarm enabled	Disabled	Enabled
2244	PVM.PV_Monitor_2.ROC_EN	Process Value Monitor 2 Rate of Change alarm enabled	Disabled	Enabled
2245	PVM.PV_Monitor_2.ROC_Units	Process Value Monitor 2 Rate of Change time units	Seconds	Minutes
2246	PVM.PV_Monitor_2.LoLoEnable	Process Value Monitor 2 Low Low Alarm enabled	Disabled	Enabled
2247	PVM.PV_Monitor_2.LoEnable	Process Value Monitor 2 Low Alarm enabled	Disabled	Enabled
2248	PVM.PV_Monitor_2.HiEnable	Process Value Monitor 2 High Alarm enabled	Disabled	Enabled
2249	PVM.PV_Monitor_3.HiHiEnable	Process Value Monitor 3 High High Alarm enabled Process Value Monitor 3 Rate of Change alarm	Disabled	Enabled
2250	PVM.PV_Monitor_3.ROC_EN	enabled	Disabled	Enabled

Coil#			Off State	On State
2251	PVM.PV_Monitor_3.ROC_Units	Process Value Monitor 3 Rate of Change time units	Seconds	Minutes
2252	PVM.PV_Monitor_3.LoLoEnable	Process Value Monitor 3 Low Low Alarm enabled	Disabled	Enabled
2253	PVM.PV_Monitor_3.LoEnable	Process Value Monitor 3 Low Alarm enabled	Disabled	Enabled
2254	PVM.PV_Monitor_3.HiEnable	Process Value Monitor 3 High Alarm enabled	Disabled	Enabled
2255	PVM.PV_Monitor_4.HiHiEnable	Process Value Monitor 4 High High Alarm enabled	Disabled	Enabled
2256	PVM.PV_Monitor_4.ROC_EN	Process Value Monitor 4 Rate of Change alarm enabled	Disabled	Enabled
2257	PVM.PV_Monitor_4.ROC_Units	Process Value Monitor 4 Rate of Change time units	Seconds	Minutes
2258	PVM.PV_Monitor_4.LoLoEnable	Process Value Monitor 4 Low Low Alarm enabled	Disabled	Enabled
2259	PVM.PV_Monitor_4.LoEnable	Process Value Monitor 4 Low Alarm enabled	Disabled	Enabled
2260	PVM.PV Monitor 4.HiEnable	Process Value Monitor 4 High Alarm enabled	Disabled	Enabled
2261	SMP.Sampler_1_Enable		Disabled	Enabled
2262	SMP.Sampler_1_Reset			
2262				
	SMP.Sampler_2_Enable			
2264	SMP.Sampler_2_Reset			
2265	SMP.Sampler_3_Enable			
2266	SMP.Sampler_3_Reset			
2267	SMP.Sampler_4_Enable			
2268	SMP.Sampler_4_Reset			
2269	SMP.Sampler_5_Enable			
2270	SMP.Sampler_5_Reset			
2271	SMP.Sampler_6_Enable			
2272	SMP.Sampler_6_Reset			
2273	SMP.Sampler_7_Enable			
2274	SMP.Sampler_7_Reset			
2275	SMP.Sampler_8_Enable			
2276	SMP.Sampler_8_Reset			
2277	SMP.Sampler_9_Enable			
2278	SMP.Sampler_9_Reset			
2279	SMP.Sampler_10_Enable			
2280	SMP.Sampler_10_Reset			
2281	SMP.Sampler_11_Enable			
2282	SMP.Sampler_11_Reset			
2283	SMP.Sampler_12_Enable			
2284	SMP.Sampler_12_Reset			
2285	GPPID.PID1_ManMode	General Purpose PID 1 Manual Mode enabled	Auto	Manual
2286	GPPID.PID2_ManMode	General Purpose PID 2 Manual Mode enabled	Auto	Manual
2287	GPPID.PID3_ManMode	General Purpose PID 3 Manual Mode enabled	Auto	Manual
		Station 1 execute remote Flow setpoint change,		
2288	STC.Ctl_Profile_1.Flow_Exct	written from SCADA, set to Off automatically Off Station 1 execute remote Energy setpoint change,		Execute
2289	STC.Ctl_Profile_1.Energy_Exct	written from SCADA, set to Off automatically Station 1 execute remote Outlet Pressure setpoint	Off	Execute
2200	STC Ctl Drofile 1 Dropours Fust	change, written from SCADA, set to Off	0#	Evocuto
2290	STC.Ctl_Profile_1.Pressure_Exct	automatically Station 1 execute remote Primary 3 setpoint change, written from SCADA, set to Off	Off	Execute
2291	STC.Ctl_Profile_1.Pmry3_Exct	automatically	Off	Execute
2292	STC.STC_1.Energy_Ctl	Station 1 Energy PID loop is selected, versus flow	Flow	Energy
2293	STC.Ctl_Profile_2.Flow_Exct	Station 2 execute remote Flow setpoint change, written from SCADA, set to Off automatically	Off	Execute
2294	STC.Ctl_Profile_2.Energy_Exct	Station 2 execute remote Energy setpoint change, written from SCADA, set to Off automatically	Off	Execute

Coil#	Variable	Description	Off State	On State
		Station 2 execute remote Outlet Pressure setpoint		
2295	STC.Ctl_Profile_2.Pressure_Exct	change, written from SCADA, set to Off automatically	Off	Execute
		Station 2 execute remote Primary 3 setpoint	0	
2296	STC.Ctl_Profile_2.Pmry3_Exct	change, written from SCADA, set to Off automatically	Off	Execute
2290	STC.STC_2.Energy_Ctl	Station 2 Energy PID loop is selected, versus flow	Flow	Energy
2291	STC.STC_Z.Ellergy_Cli	Station 2 Energy FID loop is selected, versus now	FIOW	Lileigy
2298	STC.Ctl_Profile_3.Flow_Exct	written from SCADA, set to Off automatically	Off	Execute
2299	STC.Ctl_Profile_3.Energy_Exct	Station 3 execute remote Energy setpoint change, written from SCADA, set to Off automatically	Off	Execute
		Station 3 execute remote Outlet Pressure setpoint		
2300	STC.Ctl_Profile_3.Pressure_Exct	change, written from SCADA, set to Off automatically	Off	Execute
2300	Station 3 execute remote Primary 3 setpoint			LXecule
0004		change, written from SCADA, set to Off	0"	
2301	STC.Ctl_Profile_3.Pmry3_Exct	automatically	Off	Execute
2302	STC.STC_3.Energy_Ctl	Station 3 Energy PID loop is selected, versus flow Station 4 execute remote Flow setpoint change,	Flow	Energy
2303	STC.Ctl_Profile_4.Flow_Exct	written from SCADA, set to Off automatically	Off	Execute
0004	CTC Ctl Drofile 4 Frances Fuct	Station 4 execute remote Energy setpoint change,	0"	Evenue
2304	STC.Ctl_Profile_4.Energy_Exct	written from SCADA, set to Off automatically Station 4 execute remote Outlet Pressure setpoint	Off	Execute
		change, written from SCADA, set to Off		
2305	STC.Ctl_Profile_4.Pressure_Exct	automatically Station 4 execute remote Primary 3 setpoint	Off	Execute
		change, written from SCADA, set to Off		
2306	STC.Ctl_Profile_4.Pmry3_Exct	automatically	Off	Execute
2307	STC.STC_4.Energy_Ctl	Station 4 Energy PID loop is selected, versus flow	Flow	Energy
2308	STC.Ctl_Profile_5.Flow_Exct	Station 5 execute remote Flow setpoint change, written from SCADA, set to Off automatically	Off	Execute
2300		Station 5 execute remote Energy setpoint change,		Lxecule
2309	STC.Ctl_Profile_5.Energy_Exct	written from SCADA, set to Off automatically	Off	Execute
		Station 5 execute remote Outlet Pressure setpoint change, written from SCADA, set to Off		
2310	STC.Ctl_Profile_5.Pressure_Exct	automatically	Off	Execute
		Station 5 execute remote Primary 3 setpoint change, written from SCADA, set to Off		
2311	STC.Ctl_Profile_5.Pmry3_Exct	automatically	Off	Execute
2312	STC.STC_5.Energy_Ctl	Station 5 Energy PID loop is selected, versus flow	Flow	Energy
		Station 6 execute remote Flow setpoint change,		
2313	STC.Ctl_Profile_6.Flow_Exct	written from SCADA, set to Off automatically Station 6 execute remote Energy setpoint change,	Off	Execute
2314	STC.Ctl_Profile_6.Energy_Exct	written from SCADA, set to Off automatically	Off	Execute
		Station 6 execute remote Outlet Pressure setpoint		
2315	STC.Ctl_Profile_6.Pressure_Exct	change, written from SCADA, set to Off automatically	Off	Execute
		Station 6 execute remote Primary 3 setpoint		
2316	STC.Ctl_Profile_6.Pmry3_Exct	change, written from SCADA, set to Off automatically	Off	Execute
2317	STC.STC_6.Energy_Ctl	Station 6 Energy PID loop is selected, versus flow	Flow	Energy
2317	MB.SPARE	***** RESERVED FOR FUTURE USE ******	11000	Linergy
2318	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2319	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2320	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2321	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2322	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2323	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2324	MB.SPARE MB.SPARE	RESERVED FOR FUTURE USE		
		RESERVED FOR FOTORE 03E		
2326	MB.SPARE	RESERVED FOR FOTORE 03E		
2327	MB.SPARE	RESERVED FOR FUTURE USE	0#	lesist-1
2328	STC.ST1_Isolated	Station 1 is isolated	Off	Isolated
2329	STC.ST2_Isolated	Station 2 is isolated	Off	Isolated

Coil#	Variable	Description	Off State	On State
2330	STC.ST3_Isolated	Station 3 is isolated	Off	Isolated
2331	STC.ST4_Isolated	Station 4 is isolated	Off	Isolated
2332	STC.ST5_Isolated	Station 5 is isolated	Off	Isolated
2333	STC.ST6_Isolated	Station 6 is isolated	Off	Isolated
2334	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2335	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
		Station 1 Shut Valve with 0 setpoint and minimum		
2336	STC.STC_1.SHUTIN	flow rate Station 2 Shut Valve with 0 setpoint and minimum	Disabled	Enabled
2337	STC.STC_2.SHUTIN	flow rate	Disabled	Enabled
2338	STC.STC_3.SHUTIN	Station 3 Shut Valve with 0 setpoint and minimum flow rate	Disabled	Enabled
		Station 4 Shut Valve with 0 setpoint and minimum		
2339	STC.STC_4.SHUTIN	flow rate Station 5 Shut Valve with 0 setpoint and minimum	Disabled	Enabled
2340	STC.STC_5.SHUTIN	flow rate	Disabled	Enabled
2341	STC.STC_6.SHUTIN	Station 6 Shut Valve with 0 setpoint and minimum flow rate	Disabled	Enabled
2342	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2343	MB.SPARE	***** RESERVED FOR FUTURE USE ******		
2344	IO_1.HWDIs_1.HWDI_327			
2345	IO_1.HWDIs_1.HWDI_328			
2346	IO_1.HWDIs_1.HWDI_329			
2347	IO_1.HWDIs_1.HWDI_330			
2348	IO_1.HWDIs_1.HWDI_331			
2349	IO_1.HWDIs_1.HWDI_332			
2350	IO_1.HWDIs_1.HWDI_333			
2351	IO_1.HWDIs_1.HWDI_334			
2352	IO_1.HWDIs_1.HWDI_335			
2353	IO_1.HWDIs_1.HWDI_336			
2354	IO_1.HWDIs_1.HWDI_337			
2355	IO_1.HWDIs_1.HWDI_338			
2356	IO_1.HWDIs_1.HWDI_339			
2357	IO_1.HWDIs_1.HWDI_340			
2358	IO_1.HWDIs_1.HWDI_341			
2359	IO_1.HWDIs_1.HWDI_342			
2360	IO_1.HWDIs_1.HWDI_343			
2361	IO_1.HWDIs_1.HWDI_344			
2362	MB.SPARE			
2363	MB.SPARE			
2364	@GVQUEST_DATE	Real Time Clock battery failure	ОК	Fail
2365	@GVBAT_OK	RAM Battery on ControlWave Micro is OK	OK	Fail
2366	MB.Enron_S_Enable			
2367	MB.Enron_IP_enable			
2368	Modbus DO 1			
2369	Modbus DO 2			
2370	Modbus DO 3			
2371	Modbus DO 4			
2372	Modbus DO 5			
2373	Modbus DO 6			
2374	Modbus DO 7			
2375	Modbus DO 8			
2376	Modbus DO 9			

Coil#	Variable	Description	Off State	On State
2377	Modbus DO 10			
2378	Modbus DO 11			
2379	Modbus DO 12			
2370	Modbus DO 13			
2381	Modbus DO 14			
2382	Modbus DO 15			
2383	Modbus DO 16			
2384	pg_GC.GC_1.RF1_Enable			
2385	pg GC.GC 1.GC RF Data 1.IPMode			
2386	pg_GC.GC_1.GC_RF_Data_1.Alarm_Dsbl			
2387	pg_GC.GC_1.GC_RF_Data_1.SetBaseline			
2388	pg_GC.GC_1.GC_RF_Data_1.Anlys_Alrm			
2389	pg_GC.GC_1.GC_RF_Data_1.Delta_Alrm			
2390	pg_GC.GC_1.RF2_Enable			
2391	pg_GC.GC_1.GC_RF_Data_2.IPMode			
2392	pg_GC.GC_1.GC_RF_Data_2.Alarm_Dsbl		1	
2393	pg_GC.GC_1.GC_RF_Data_2.SetBaseline			
2394	pg_GC.GC_1.GC_RF_Data_2.Anlys_Alrm			
2395	pg_GC.GC_1.GC_RF_Data_2.Delta_Alrm			
2396	pg_GC.GC_1.RF3_Enable			
2397	pg_GC.GC_1.GC_RF_Data_3.IPMode			
2398	pg_GC.GC_1.GC_RF_Data_3.Alarm_Dsbl			
2399	pg_GC.GC_1.GC_RF_Data_3.SetBaseline			
2400	pg_GC.GC_1.GC_RF_Data_3.Anlys_Alrm			
2401	pg_GC.GC_1.GC_RF_Data_3.Delta_Alrm			
2402	pg_GC.GC_1.RF4_Enable			
2403	pg_GC.GC_1.GC_RF_Data_4.IPMode			
2404	pg_GC.GC_1.GC_RF_Data_4.Alarm_Dsbl			
2405	pg_GC.GC_1.GC_RF_Data_4.SetBaseline			
2406	pg_GC.GC_1.GC_RF_Data_4.Anlys_Alrm			
2407	pg_GC.GC_1.GC_RF_Data_4.Delta_Alrm			
2408	pg_GC.GC_1.RF5_Enable			
2409	pg_GC.GC_1.GC_RF_Data_5.IPMode			
2410	pg_GC.GC_1.GC_RF_Data_5.Alarm_Dsbl			
2411	pg_GC.GC_1.GC_RF_Data_5.SetBaseline			
2412	pg_GC.GC_1.GC_RF_Data_5.Anlys_Alrm			
2413	pg_GC.GC_1.GC_RF_Data_5.Delta_Alrm			
2414	pg_GC.GC_1.RF6_Enable			
2415	pg_GC.GC_1.GC_RF_Data_6.IPMode			
2416	pg_GC.GC_1.GC_RF_Data_6.Alarm_Dsbl			
2417	pg_GC.GC_1.GC_RF_Data_6.SetBaseline			
2418	pg_GC.GC_1.GC_RF_Data_6.Anlys_Alrm			
2419	pg_GC.GC_1.GC_RF_Data_6.Delta_Alrm		ļ	
2420	pg_GC.GC_1.RF7_Enable			
2421	pg_GC.GC_1.GC_RF_Data_7.IPMode		ļ	
2422	pg_GC.GC_1.GC_RF_Data_7.Alarm_Dsbl			
2423	pg_GC.GC_1.GC_RF_Data_7.SetBaseline			
2424	pg_GC.GC_1.GC_RF_Data_7.Anlys_Alrm			
2425	pg_GC.GC_1.GC_RF_Data_7.Delta_Alrm			

Coil#	Variable	Description	Off State	On State
2426	pg_GC.GC_1.RF8_Enable	· ·		
2427	pg_GC.GC_1.GC_RF_Data_8.IPMode			
2428	pg_GC.GC_1.GC_RF_Data_8.Alarm_Dsbl			
2429	pg_GC.GC_1.GC_RF_Data_8.SetBaseline			
2430	pg_GC.GC_1.GC_RF_Data_8.Anlys_Alrm			
2431	pg_GC.GC_1.GC_RF_Data_8.Delta_Alrm			
2432	UFM.UFM_1.AlrmDsbl			
2433	UFM.UFM_1.OOR			
2434	UFM_UFM_1.Reset_Stats			
2435	UFM_UFM_1.DataChk.CHKSUM_FAIL			
2436	UFM_UFM_1.DataChk.STATUS_C			
2437	UFM_UFM_1.DataChk.STATUS_V			
2438	UFM_UFM_1.DataChk.STATUS_SYS			
2439	UFM_UFM_1.DataChk.ZF_Check			
2440	UFM_UFM_1.DataChk.ZF_Bias			
2441	UFM_UFM_1.DataChk.AvgFlowVel_Dvtn			
2442	UFM_UFM_1.DataChk.Auto_Alarm			
2443	UFM_UFM_1.SI_Units			
2444	UFM.UFM_2.AlrmDsbl			
2445	UFM.UFM_2.OOR			
2446	UFM_UFM_2.Reset_Stats			
2447	UFM_UFM_2.DataChk.CHKSUM_FAIL			
2448	UFM_UFM_2.DataChk.STATUS_C			
2449	UFM_UFM_2.DataChk.STATUS_V			
2450	UFM_UFM_2.DataChk.STATUS_SYS			
2451	UFM_UFM_2.DataChk.ZF_Check			
2452	UFM_UFM_2.DataChk.ZF_Bias			
2453	UFM_UFM_2.DataChk.AvgFlowVel_Dvtn			
2454	UFM_UFM_2.DataChk.Auto_Alarm			
2455	UFM_UFM_2.SI Units			
2456	UFM.UFM 3.AlrmDsbl			
2457	UFM.UFM_3.OOR			
2458	UFM_UFM_3.Reset_Stats			
2459	UFM_UFM_3.DataChk.CHKSUM_FAIL			
2460	UFM_UFM_3.DataChk.STATUS_C			
2461	UFM_UFM_3.DataChk.STATUS_V			
2462	UFM_UFM_3.DataChk.STATUS_V			
2463	UFM_UFM_3.DataChk.ZF_Check			
2464	UFM_UFM_3.DataChk.ZF_Bias			
2465	UFM_UFM_3.DataChk.AvgFlowVel_Dvtn			
2466	UFM_UFM_3.DataChk.Auto_Alarm			
2467	UFM_UFM_3.SI_Units			
2468	UFM.UFM_4.AlrmDsbl			
2469	UFM.UFM_4.OOR			
2470	UFM_UFM_4.Reset_Stats			
2471	UFM_UFM_4.DataChk.CHKSUM_FAIL			
2472	UFM_UFM_4.DataChk.STATUS_C			
2473	UFM_UFM_4.DataChk.STATUS_V			
2474	UFM_UFM_4.DataChk.STATUS_SYS			

Co:1#	Verieble	Description	Off	On State
Coil# 2475	Variable	Description	State	State
	UFM_UFM_4.DataChk.ZF_Check			
2476	UFM_UFM_4.DataChk.ZF_Bias			
2477	UFM_UFM_4.DataChk.AvgFlowVel_Dvtn			
2478	UFM_UFM_4.DataChk.Auto_Alarm			
2479	UFM_UFM_4.SI_Units			
2480	UFM.UFM_5.AlrmDsbl			
2481	UFM.UFM_5.OOR			
2482	UFM_UFM_5.Reset_Stats			
2483	UFM_UFM_5.DataChk.CHKSUM_FAIL			
2484	UFM_UFM_5.DataChk.STATUS_C			
2485	UFM_UFM_5.DataChk.STATUS_V			
2486	UFM_UFM_5.DataChk.STATUS_SYS			
2487	UFM_UFM_5.DataChk.ZF_Check			
2488	UFM_UFM_5.DataChk.ZF_Bias			
2489	UFM_UFM_5.DataChk.AvgFlowVel_Dvtn			
2490	UFM_UFM_5.DataChk.Auto_Alarm			
2491	UFM_UFM_5.SI_Units			
2492	UFM.UFM_6.AlrmDsbl			
2493	UFM.UFM_6.OOR			
2494	UFM_UFM_6.Reset_Stats			
2495	UFM_UFM_6.DataChk.CHKSUM_FAIL			
2496	UFM_UFM_6.DataChk.STATUS_C			
2497	UFM_UFM_6.DataChk.STATUS_V			
2498	UFM_UFM_6.DataChk.STATUS_SYS			
2499	UFM_UFM_6.DataChk.ZF_Check			
2500	UFM_UFM_6.DataChk.ZF_Bias			
2501	UFM_UFM_6.DataChk.AvgFlowVel_Dvtn			
2502	UFM_UFM_6.DataChk.Auto_Alarm			
2503	UFM_UFM_6.SI_Units			
2504	UFM.UFM_7.AlrmDsbl			
2505	UFM.UFM_7.OOR			
2506	UFM_UFM_7.Reset_Stats			
2507	UFM_UFM_7.DataChk.CHKSUM_FAIL			
2508	UFM_UFM_7.DataChk.STATUS_C			
2509	UFM_UFM_7.DataChk.STATUS_V			
2510	UFM_UFM_7.DataChk.STATUS_SYS			
2511	UFM_UFM_7.DataChk.ZF_Check			
2512	UFM_UFM_7.DataChk.ZF_Bias			
2513	UFM_UFM_7.DataChk.AvgFlowVel_Dvtn			
2514	UFM_UFM_7.DataChk.Auto_Alarm			
2515	UFM_UFM_7.SI_Units			
2516	UFM.UFM_8.AlrmDsbl			
2517	UFM.UFM_8.OOR			
2518	UFM_UFM_8.Reset_Stats			
2519	UFM_UFM_8.DataChk.CHKSUM_FAIL			
2520	UFM_UFM_8.DataChk.STATUS_C			
2521	UFM_UFM_8.DataChk.STATUS_V			
2522	UFM_UFM_8.DataChk.STATUS_SYS			
2523	UFM_UFM_8.DataChk.ZF_Check			

2525		State	State
	UFM_UFM_8.DataChk.ZF_Bias		
2526	UFM_UFM_8.DataChk.AvgFlowVel_Dvtn		
2020	UFM_UFM_8.DataChk.Auto_Alarm		
2527	UFM_UFM_8.SI_Units		
2528 I	FC.AA_1_TabNorm		
2529 I	FC.AA_2_TabNorm		
2530 I	FC.AA_3_TabNorm		
	FC.AA_4_TabNorm		
	FC.AA_5_TabNorm		
2533 I	FC.AA_6_TabNorm		
	FC.AA_7_TabNorm		
	FC.AA_8_TabNorm		
	MB.Spare		
	pg GC.GC 1.GC 1.GC Alrm		
	pg_GC.GC_1.GC_1.Stream_Alrm		
	pg_GC.GC_1.GC_1.Fixed_Alrm		
	pg_GC.GC_1.GC_1.TimedFixed_Alrm		
	pg_GC.GC_1.GC_2.GC_Alrm		
	pg_GC.GC_1.GC_2.Stream_Alrm		
	pg_GC.GC_1.GC_2.Fixed_Alrm		
	pg_GC.GC_1.GC_2.TimedFixed_Alrm		
	pg_GC.GC_1.GC_3.GC_Alrm		
	pg_GC.GC_1.GC_3.Stream_Alrm		
	pg_GC.GC_1.GC_3.Fixed_Alrm		
	pg_GC.GC_1.GC_3.TimedFixed_Alrm		
	pg_GC.GC_1.GC_4.GC_Alrm		
	pg_GC.GC_1.GC_4.Stream_Alrm		
	pg_GC.GC_1.GC_4.Fixed_Alrm		
	pg GC.GC 1.GC 4.TimedFixed Alrm		
	pg_GC.GC_1.GC_5.GC_Alrm		
	pg_GC.GC_1.GC_5.Stream_Alrm		
	pg_GC.GC_1.GC_5.Fixed_Alrm		
	pg_GC.GC_1.GC_5.TimedFixed_Alrm		
	pg_GC.GC_1.GC_6.GC_Alrm		
	pg_GC.GC_1.GC_6.Stream_Alrm		
	pg_GC.GC_1.GC_6.Fixed_Alrm		
	pg_GC.GC_1.GC_6.TimedFixed_Alrm		
	pg_GC.GC_1.GC_7.GC_Alrm		
	pg_GC.GC_1.GC_7.Stream_Alrm		
	pg_GC.GC_1.GC_7.Fixed_Alrm		
	pg_GC.GC_1.GC_7.TimedFixed_Alrm		
	pg_GC.GC_1.GC_8.GC_Alrm		
	pg_GC.GC_1.GC_8.Stream_Alrm		
	pg_GC.GC_1.GC_8.Fixed_Alrm		
	pg_GC.GC_1.GC_8.TimedFixed_Alrm		1
	http://www.andernamed_aimi		•

Coil#	Variable	Description	Off State	On State
2573	HRT.HART_2_Enable	•		
2574	HRT.HART_3_Enable			
2575	HRT.HART_4_Enable			
2576	HRT.HART_5_Enable			
2577	HRT.HART_6_Enable			
2578	HRT.HART_7_Enable			
2579	HRT.HART_8_Enable			
2580	HRT.HART_9_Enable			
2581	HRT.HART_10_Enable			
2582	HRT.HART_11_Enable			
2583	HRT.HART_12_Enable			
2584	HRT.HART_13_Enable			
2585	HRT.HART_14_Enable			
2586	HRT.HART_15_Enable			
2587	HRT.HART_16_Enable			
2588	HRT.HART_17_Enable			
2589	HRT.HART_18_Enable			
2590	WHRT.WHART_Enable			

Table M-2 Modbus Register Map – REAL Variables

Reg#	Variable	Description
7001	MVT.MVT_PVINT	Poll interval for Process variables from the MVT, in millisecond
		Poll interval for Diagnostics data from the MVT, in
7002		millisecond
7003	MVT.MVT_TIMEOUT	
7004	MVT.MVT_1_PORT	CWM Master Port connected to MVT 1
7005	MVT.MVT_1_ADDRESS	Address of MVT 1
7006	MVT.MVT_1_MRTYPE	
7007	MVT.MVT_1_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7008	MVT.MVT_2_PORT	CWM Master Port connected to MVT 2
7009	MVT.MVT_2_ADDRESS	Address of MVT 2
7010	MVT.MVT_2_MRTYPE	
7011	MVT.MVT_2_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7012	MVT.MVT_3_PORT	CWM Master Port connected to MVT 3
7013	MVT.MVT_3_ADDRESS	Address of MVT 3
7014	MVT.MVT_3_MRTYPE	
7015	MVT.MVT_3_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7016	MVT.MVT_4_PORT	CWM Master Port connected to MVT 4
7017	MVT.MVT_4_ADDRESS	Address of MVT 4
7018	MVT.MVT_4_MRTYPE	
7019	 MVT.MVT_4_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7020	MVT.MVT_5_PORT	CWM Master Port connected to MVT 5
7021	MVT.MVT_5_ADDRESS	Address of MVT 5
7022	MVT.MVT_5_MRTYPE	

Reg#	Variable	Description
7023	MVT.MVT_5_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7023	MVT.MVT_5_rD.MD_rV3.REGSET	CWM Master Port connected to MVT 6
7024	MVT.MVT_6_ADDRESS	Address of MVT 6
		Address of NIV 1 0
7026	MVT.MVT_6_MRTYPE	Register Set to be polled from MVT - FALSE or 0
7027	MVT.MVT_6_FB.MB_PVS.REGSET	= 40000, TRUE or 1 = 7000
7028	MVT.MVT_7_PORT	CWM Master Port connected to MVT 7
7029	MVT.MVT_7_ADDRESS	Address of MVT 7
7030	MVT.MVT_7_MRTYPE	
7031	MVT.MVT_7_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7032	MVT.MVT_8_PORT	CWM Master Port connected to MVT 8
7033	MVT.MVT_8_ADDRESS	Address of MVT 8
7034	MVT.MVT_8_MRTYPE	
		Register Set to be polled from MVT - FALSE or 0
7035	MVT.MVT_8_FB.MB_PVS.REGSET	= 40000, TRUE or 1 = 7000
7036	MVT.MVT_9_PORT	CWM Master Port connected to MVT 9
7037	MVT.MVT_9_ADDRESS	Address of MVT 9
7038	MVT.MVT_9_MRTYPE	Desister Oct to be called from MV/T. EALCE or O
7039	MVT.MVT_9_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7040	MVT.MVT_10_PORT	CWM Master Port connected to MVT 10
7040	MVT.MVT_10_ADDRESS	Address of MVT 10
7042	MVT.MVT_10_MRTYPE	
1042		Register Set to be polled from MVT - FALSE or 0
7043	MVT.MVT_10_FB.MB_PVS.REGSET	= 40000, TRUE or 1 = 7000
7044	MVT.MVT_11_PORT	CWM Master Port connected to MVT 11
7045	MVT.MVT_11_ADDRESS	Address of MVT 11
7046	MVT.MVT_11_MRTYPE	
7047	MVT.MVT_11_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7048	MVT.MVT_12_PORT	CWM Master Port connected to MVT 12
7049	MVT.MVT_12_ADDRESS	Address of MVT 12
7050	MVT.MVT_12_MRTYPE	
7051	MVT.MVT_12_FB.MB_PVS.REGSET	Register Set to be polled from MVT - FALSE or 0 = 40000, TRUE or 1 = 7000
7052	FC.STATION_1_ATMOS	Station 1 atmospheric (barometric) pressure
7053	FC.STATION_1_ATMOS_UNITS	Station 1 atmospheric pressure units
7054	FC.STATION_1_BASEPRES	Station 1 base pressure
7055	FC.STATION_1_BASEPRES_UNITS	Station 1 base pressure units
7056	FC.STATION_1_BASETEMP	Station 1 base temperature
7057	FC.STATION_1_BASETEMP_UNITS	Station 1 base temperature units
7058	FC.STATION_1_CONTRACTHOUR	Station 1 contract hour
7059	FC.STATION_1_GCSTREAM	Station 1 GC Data set to be used
7060	FC.STATION_1_FPV_CALC	Station 1 FPV calculation method
7061	FC.STATION_1_GROSSMODE	Station 1 AGA 8 Gross Method
7062	FC.STATION_1_VOLUMEUNITS	Station 1 volume units
7063	FC.STATION_1_ENERGYVOLUNITS	Station 1 energy units
7064	FC.STATION_1_FFLOWRATE	Station 1 forward flow rate
7065	FC.STATION_1_RFLOWRATE	Station 1 reverse flow rate
7066	FC.STATION_1_FENERGYRATE	Station 1 forward energy rate

Reg#	Variable	Description
7067	FC.STATION_1_RENERGYRATE	Station 1 reverse energy rate
7068	FC.STATION_1_CH_FVOLUME	Station 1 forward volume current hour
7069	FC.STATION_1_CH_RVOLUME	Station 1 reverse volume current hour
7070	FC.STATION_1_LH_FVOLUME	Station 1 forward volume previous hour
7071	FC.STATION_1_LH_RVOLUME	Station 1 reverse volume previous hour
7072	FC.STATION_1_CD_FVOLUME	Station 1 forward volume current day
7073	FC.STATION_1_CD_RVOLUME	Station 1 reverse volume current day
7074	FC.STATION_1_LD_FVOLUME	Station 1 forward volume previous day
7075	FC.STATION_1_LD_RVOLUME	Station 1 reverse volume previous day
7076	FC.STATION_1_CM_FVOLUME	Station 1 forward volume current month
7077	FC.STATION_1_CM_RVOLUME	Station 1 reverse volume current month
7078	FC.STATION_1_LM_FVOLUME	Station 1 forward volume previous month
7079	FC.STATION_1_LM_RVOLUME	Station 1 reverse volume previous month
7080	FC.STATION_1_CH_FENERGY	Station 1 forward energy current hour
7081	FC.STATION_1_CH_RENERGY	Station 1 reverse energy current hour
7082	FC.STATION_1_LH_FENERGY	Station 1 forward energy previous hour
7083	FC.STATION_1_LH_RENERGY	Station 1 reverse energy previous hour
7084	FC.STATION_1_CD_FENERGY	Station 1 forward energy current day
7085	FC.STATION_1_CD_RENERGY	Station 1 reverse energy current day
7086	FC.STATION_1_LD_FENERGY	Station 1 forward energy previous day
7087	FC.STATION_1_LD_RENERGY	Station 1 reverse energy previous day
7088	FC.STATION_1_CM_FENERGY	Station 1 forward energy current month
7089	FC.STATION_1_CM_RENERGY	Station 1 reverse energy current month
7090	FC.STATION_1_LM_FENERGY	Station 1 forward energy previous month
7091	FC.STATION_1_LM_RENERGY	Station 1 reverse energy previous month
7092	FC.STATION_2_ATMOS	Station 2 atmospheric (barometric) pressure
7093	FC.STATION_2_ATMOS_UNITS	Station 2 atmospheric pressure units
7094	FC.STATION_2_BASEPRES	Station 2 base pressure
7095	FC.STATION_2_BASEPRES_UNITS	Station 2 base pressure units
7096	FC.STATION_2_BASETEMP	Station 2 base temperature
7097	FC.STATION_2_BASETEMP_UNITS	Station 2 base temperature units
7098	FC.STATION_2_CONTRACTHOUR	Station 2 contract hour
7099	FC.STATION_2_GCSTREAM	Station 2 GC Data set to be used
7100	FC.STATION_2_FPV_CALC	Station 2 FPV calculation method
7101	FC.STATION_2_GROSSMODE	Station 2 AGA 8 Gross Method
7102	FC.STATION_2_VOLUMEUNITS	Station 2 volume units
7103	FC.STATION_2_ENERGYVOLUNITS	Station 2 energy units
7104	FC.STATION_2_FFLOWRATE	Station 2 forward flow rate
7105	FC.STATION_2_RFLOWRATE	Station 2 reverse flow rate
7106	FC.STATION_2_FENERGYRATE	Station 2 forward energy rate
7107	FC.STATION_2_RENERGYRATE	Station 2 reverse energy rate
7108	FC.STATION_2_CH_FVOLUME	Station 2 forward volume current hour
7109	FC.STATION_2_CH_RVOLUME	Station 2 reverse volume current hour
7110	FC.STATION_2_LH_FVOLUME	Station 2 forward volume previous hour
7111	FC.STATION_2_LH_RVOLUME	Station 2 reverse volume previous hour
7112	FC.STATION_2_CD_FVOLUME	Station 2 forward volume current day
7113	FC.STATION_2_CD_RVOLUME	Station 2 reverse volume current day
7114	FC.STATION_2_LD_FVOLUME	Station 2 forward volume previous day
7115	FC.STATION_2_LD_RVOLUME	Station 2 reverse volume previous day
7116	FC.STATION_2_CM_FVOLUME	Station 2 forward volume current month

Reg#	Variable	Description
	FC.STATION_2_CM_RVOLUME	Station 2 reverse volume current month
	FC.STATION_2_LM_FVOLUME	Station 2 forward volume previous month
	FC.STATION_2_LM_RVOLUME	Station 2 reverse volume previous month
	FC.STATION_2_CH_FENERGY	Station 2 forward energy current hour
	FC.STATION_2_CH_RENERGY	Station 2 reverse energy current hour
7122	FC.STATION_2_LH_FENERGY	Station 2 forward energy previous hour
7123	FC.STATION_2_LH_RENERGY	Station 2 reverse energy previous hour
	FC.STATION_2_CD_FENERGY	Station 2 forward energy current day
	FC.STATION_2_CD_RENERGY	Station 2 reverse energy current day
	FC.STATION_2_LD_FENERGY	Station 2 forward energy previous day
	FC.STATION_2_LD_RENERGY	Station 2 reverse energy previous day
	FC.STATION_2_CM_FENERGY	Station 2 forward energy current month
7129	FC.STATION_2_CM_RENERGY	Station 2 reverse energy current month
	FC.STATION_2_LM_FENERGY	Station 2 forward energy previous month
	FC.STATION_2_LM_RENERGY	Station 2 reverse energy previous month
7132	FC.STATION_3_ATMOS	Station 3 atmospheric (barometric) pressure
	FC.STATION_3_ATMOS_UNITS	Station 3 atmospheric pressure units
	FC.STATION_3_BASEPRES	Station 3 base pressure
	FC.STATION_3_BASEPRES_UNITS	Station 3 base pressure units
	FC.STATION_3_BASETEMP	Station 3 base temperature
7137	FC.STATION_3_BASETEMP_UNITS	Station 3 base temperature units
	FC.STATION_3_CONTRACTHOUR	Station 3 contract hour
	FC.STATION_3_GCSTREAM	Station 3 GC Data set to be used
	FC.STATION_3_FPV_CALC	Station 3 FPV calculation method
7141	FC.STATION_3_GROSSMODE	Station 3 AGA 8 Gross Method
7142	FC.STATION_3_VOLUMEUNITS	Station 3 volume units
7143	FC.STATION_3_ENERGYVOLUNITS	Station 3 energy units
7144	FC.STATION_3_FFLOWRATE	Station 3 forward flow rate
	FC.STATION_3_RFLOWRATE	Station 3 reverse flow rate
	FC.STATION_3_FENERGYRATE	Station 3 forward energy rate
	FC.STATION_3_RENERGYRATE	Station 3 reverse energy rate
	FC.STATION_3_CH_FVOLUME	Station 3 forward volume current hour
7149	FC.STATION_3_CH_RVOLUME	Station 3 reverse volume current hour
7150	FC.STATION_3_LH_FVOLUME	Station 3 forward volume previous hour
7151	FC.STATION_3_LH_RVOLUME	Station 3 reverse volume previous hour
7152	FC.STATION_3_CD_FVOLUME	Station 3 forward volume current day
7153	FC.STATION_3_CD_RVOLUME	Station 3 reverse volume current day
7154	FC.STATION_3_LD_FVOLUME	Station 3 forward volume previous day
7155	FC.STATION_3_LD_RVOLUME	Station 3 reverse volume previous day
7156	FC.STATION_3_CM_FVOLUME	Station 3 forward volume current month
7157	FC.STATION_3_CM_RVOLUME	Station 3 reverse volume current month
7158	FC.STATION_3_LM_FVOLUME	Station 3 forward volume previous month
7159	FC.STATION_3_LM_RVOLUME	Station 3 reverse volume previous month
7160	FC.STATION_3_CH_FENERGY	Station 3 forward energy current hour
7161	FC.STATION_3_CH_RENERGY	Station 3 reverse energy current hour
7162	FC.STATION_3_LH_FENERGY	Station 3 forward energy previous hour
7163	FC.STATION_3_LH_RENERGY	Station 3 reverse energy previous hour
7164	FC.STATION_3_CD_FENERGY	Station 3 forward energy current day
7165	FC.STATION_3_CD_RENERGY	Station 3 reverse energy current day
7166	FC.STATION_3_LD_FENERGY	Station 3 forward energy previous day

Reg#	Variable	Description
7167	FC.STATION_3_LD_RENERGY	Station 3 reverse energy previous day
7168	FC.STATION_3_CM_FENERGY	Station 3 forward energy current month
7169	FC.STATION_3_CM_RENERGY	Station 3 reverse energy current month
7170	FC.STATION_3_LM_FENERGY	Station 3 forward energy previous month
7171	FC.STATION_3_LM_RENERGY	Station 3 reverse energy previous month
7172	FC.STATION_4_ATMOS	Station 4 atmospheric (barometric) pressure
7173	FC.STATION_4_ATMOS_UNITS	Station 4 atmospheric pressure units
7174	FC.STATION_4_BASEPRES	Station 4 base pressure
7175	FC.STATION_4_BASEPRES_UNITS	Station 4 base pressure units
7176	FC.STATION_4_BASETEMP	Station 4 base temperature
7177	FC.STATION_4_BASETEMP_UNITS	Station 4 base temperature units
7178	FC.STATION_4_CONTRACTHOUR	Station 4 contract hour
7179	FC.STATION_4_GCSTREAM	Station 4 GC Data set to be used
7180	FC.STATION_4_FPV_CALC	Station 4 FPV calculation method
7181	FC.STATION_4_GROSSMODE	Station 4 AGA 8 Gross Method
7182	FC.STATION_4_VOLUMEUNITS	Station 4 volume units
7183	FC.STATION_4_ENERGYVOLUNITS	Station 4 energy units
7184	FC.STATION_4_FFLOWRATE	Station 4 forward flow rate
7185	FC.STATION 4 RFLOWRATE	Station 4 reverse flow rate
7186	FC.STATION_4_FENERGYRATE	Station 4 forward energy rate
7187	FC.STATION_4_RENERGYRATE	Station 4 reverse energy rate
7188	FC.STATION_4_CH_FVOLUME	Station 4 forward volume current hour
7189	FC.STATION_4_CH_RVOLUME	Station 4 reverse volume current hour
7190	FC.STATION_4_LH_FVOLUME	Station 4 forward volume previous hour
7191	FC.STATION_4_LH_RVOLUME	Station 4 reverse volume previous hour
7192	FC.STATION_4_CD_FVOLUME	Station 4 forward volume current day
7193	FC.STATION_4_CD_RVOLUME	Station 4 reverse volume current day
7194	FC.STATION_4_LD_FVOLUME	Station 4 forward volume previous day
7195	FC.STATION_4_LD_RVOLUME	Station 4 reverse volume previous day
7196	FC.STATION_4_CM_FVOLUME	Station 4 forward volume current month
7197	FC.STATION_4_CM_RVOLUME	Station 4 reverse volume current month
7198	FC.STATION_4_LM_FVOLUME	Station 4 forward volume previous month
7199	FC.STATION_4_LM_RVOLUME	Station 4 reverse volume previous month
7200	FC.STATION_4_CH_FENERGY	Station 4 forward energy current hour
7201	FC.STATION_4_CH_RENERGY	Station 4 reverse energy current hour
7202	FC.STATION_4_LH_FENERGY	Station 4 forward energy previous hour
7203	FC.STATION_4_LH_RENERGY	Station 4 reverse energy previous hour
7204	FC.STATION_4_CD_FENERGY	Station 4 forward energy current day
7205	FC.STATION_4_CD_RENERGY	Station 4 reverse energy current day
7206	FC.STATION_4_LD_FENERGY	Station 4 forward energy previous day
7207	FC.STATION_4_LD_RENERGY	Station 4 reverse energy previous day
7208	FC.STATION_4_CM_FENERGY	Station 4 forward energy current month
7209	FC.STATION_4_CM_RENERGY	Station 4 reverse energy current month
7210	FC.STATION_4_LM_FENERGY	Station 4 forward energy previous month
7211	FC.STATION_4_LM_RENERGY	Station 4 reverse energy previous month
7212	FC.STATION_5_ATMOS	Station 5 atmospheric (barometric) pressure
7213	FC.STATION_5_ATMOS_UNITS	Station 5 atmospheric pressure units
7214	FC.STATION_5_BASEPRES	Station 5 base pressure
7215	FC.STATION_5_BASEPRES_UNITS	Station 5 base pressure units
7216	FC.STATION_5_BASETEMP	Station 5 base temperature

Reg#	Variable	Description
7217	FC.STATION_5_BASETEMP_UNITS	Station 5 base temperature units
7218	FC.STATION_5_CONTRACTHOUR	Station 5 contract hour
7219	FC.STATION_5_GCSTREAM	Station 5 GC Data set to be used
7220	FC.STATION_5_FPV_CALC	Station 5 FPV calculation method
7221	FC.STATION_5_GROSSMODE	Station 5 AGA 8 Gross Method
7222	FC.STATION_5_VOLUMEUNITS	Station 5 volume units
7223	FC.STATION_5_ENERGYVOLUNITS	Station 5 energy units
7224	FC.STATION_5_FFLOWRATE	Station 5 forward flow rate
7225	FC.STATION_5_RFLOWRATE	Station 5 reverse flow rate
7226	FC.STATION_5_FENERGYRATE	Station 5 forward energy rate
7227	FC.STATION_5_RENERGYRATE	Station 5 reverse energy rate
7228	FC.STATION_5_CH_FVOLUME	Station 5 forward volume current hour
7229	FC.STATION_5_CH_RVOLUME	Station 5 reverse volume current hour
7230	FC.STATION_5_LH_FVOLUME	Station 5 forward volume previous hour
7231	FC.STATION_5_LH_RVOLUME	Station 5 reverse volume previous hour
7232	FC.STATION_5_CD_FVOLUME	Station 5 forward volume current day
7233	FC.STATION_5_CD_RVOLUME	Station 5 reverse volume current day
7234	FC.STATION_5_LD_FVOLUME	Station 5 forward volume previous day
7235	FC.STATION_5_LD_RVOLUME	Station 5 reverse volume previous day
7236	FC.STATION_5_CM_FVOLUME	Station 5 forward volume current month
7237	FC.STATION_5_CM_RVOLUME	Station 5 reverse volume current month
7238	FC.STATION_5_LM_FVOLUME	Station 5 forward volume previous month
7239	FC.STATION_5_LM_RVOLUME	Station 5 reverse volume previous month
7240	FC.STATION_5_CH_FENERGY	Station 5 forward energy current hour
7241	FC.STATION_5_CH_RENERGY	Station 5 reverse energy current hour
7242	FC.STATION_5_LH_FENERGY	Station 5 forward energy previous hour
7243	FC.STATION_5_LH_RENERGY	Station 5 reverse energy previous hour
7244	FC.STATION_5_CD_FENERGY	Station 5 forward energy current day
7245	FC.STATION_5_CD_RENERGY	Station 5 reverse energy current day
7246	FC.STATION_5_LD_FENERGY	Station 5 forward energy previous day
7247	FC.STATION_5_LD_RENERGY	Station 5 reverse energy previous day
7248	FC.STATION_5_CM_FENERGY	Station 5 forward energy current month
7249	FC.STATION_5_CM_RENERGY	Station 5 reverse energy current month
7250	FC.STATION_5_LM_FENERGY	Station 5 forward energy previous month
7251	FC.STATION_5_LM_RENERGY	Station 5 reverse energy previous month
7252	FC.STATION_6_ATMOS	Station 6 atmospheric (barometric) pressure
7253	FC.STATION_6_ATMOS_UNITS	Station 6 atmospheric pressure units
7254	FC.STATION_6_BASEPRES	Station 6 base pressure
7255	FC.STATION_6_BASEPRES_UNITS	Station 6 base pressure units
7256	FC.STATION_6_BASETEMP	Station 6 base temperature
7257	FC.STATION_6_BASETEMP_UNITS	Station 6 base temperature units
7258	FC.STATION_6_CONTRACTHOUR	Station 6 contract hour
7259	FC.STATION_6_GCSTREAM	Station 6 GC Data set to be used
7260	FC.STATION_6_FPV_CALC	Station 6 FPV calculation method
7261	FC.STATION_6_GROSSMODE	Station 6 AGA 8 Gross Method
7262	FC.STATION_6_VOLUMEUNITS	Station 6 volume units
7263	FC.STATION_6_ENERGYVOLUNITS	Station 6 energy units
7264	FC.STATION_6_FFLOWRATE	Station 6 forward flow rate
7265	FC.STATION_6_RFLOWRATE	Station 6 reverse flow rate
7266	FC.STATION_6_FENERGYRATE	Station 6 forward energy rate

Reg#	Variable	Description
7267	FC.STATION_6_RENERGYRATE	Station 6 reverse energy rate
7268	FC.STATION_6_CH_FVOLUME	Station 6 forward volume current hour
7269	FC.STATION_6_CH_RVOLUME	Station 6 reverse volume current hour
7270	FC.STATION_6_LH_FVOLUME	Station 6 forward volume previous hour
7271	FC.STATION_6_LH_RVOLUME	Station 6 reverse volume previous hour
7272	FC.STATION_6_CD_FVOLUME	Station 6 forward volume current day
7273	FC.STATION_6_CD_RVOLUME	Station 6 reverse volume current day
7274	FC.STATION_6_LD_FVOLUME	Station 6 forward volume previous day
7275	FC.STATION_6_LD_RVOLUME	Station 6 reverse volume previous day
7276	FC.STATION_6_CM_FVOLUME	Station 6 forward volume current month
7277	FC.STATION_6_CM_RVOLUME	Station 6 reverse volume current month
7278	FC.STATION_6_LM_FVOLUME	Station 6 forward volume previous month
7279	FC.STATION_6_LM_RVOLUME	Station 6 reverse volume previous month
7280	FC.STATION 6 CH FENERGY	Station 6 forward energy current hour
7281	FC.STATION_6_CH_RENERGY	Station 6 reverse energy current hour
7282	FC.STATION_6_LH_FENERGY	Station 6 forward energy previous hour
7283	FC.STATION_6_LH_RENERGY	Station 6 reverse energy previous hour
7284	FC.STATION_6_CD_FENERGY	Station 6 forward energy current day
7285	FC.STATION 6 CD RENERGY	Station 6 reverse energy current day
7286	FC.STATION 6 LD FENERGY	Station 6 forward energy previous day
7287	FC.STATION 6 LD RENERGY	Station 6 reverse energy previous day
7288	FC.STATION_6_CM_FENERGY	Station 6 forward energy current month
7289	FC.STATION_6_CM_RENERGY	Station 6 reverse energy current month
7290	FC.STATION_6_LM_FENERGY	Station 6 forward energy previous month
7291	FC.STATION_6_LM_RENERGY	Station 6 reverse energy previous month
7292	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7293	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7294	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7295	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7296	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7297	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7298	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7299	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7300	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7301	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7302	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7303	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7304	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7305	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7306	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7307	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7308	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7309	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7310	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7311	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7312	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7313	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7314	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7315	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7316	MB.SPARE	*** RESERVED FOR FUTURE USE ***

Reg#	Variable	Description
7317	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7318	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7319	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7320	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7321	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7322	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7323	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7324	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7325	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7326	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7327	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7328	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7329	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7330	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7331	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7332	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7333	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7334	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7335	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7336	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7337	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7338	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7339	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7340	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7340	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7341	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7343	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7343	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7344	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7346	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7340	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7348	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7349	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7349	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7351	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7352	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7353	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7354	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7355	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7356	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7357	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7358	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7359	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7360	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7361	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7361	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7362	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7363	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7365	MB.SPARE	*** RESERVED FOR FUTURE USE ***
		1
7366	MB.SPARE	*** RESERVED FOR FUTURE USE ***

Reg#	Variable	Description
7367	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7368	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7369	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7370	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7371	MB.SPARE	*** RESERVED FOR FUTURE USE ***
7372	FC.FC1.RX_CFG_TYPE	Run 1 configuration type
7373	FC.RUN_1_STATION	Run 1 station assignment
7374	FC.RUN_1_DIRECTION	Run 1 direction
7375	FC.RUN_1_SPSOURCE	Run 1 static pressure source
7376	FC.R1_MVTID_SP	Run 1 MVT ID for static pressure
7377	FC.FC1.RX_SP_BUF	Run 1 static pressure value
7378	FC.RUN_1_FTSOURCE	Run 1 temperature source
7379	FC.R1_MVTID_FT	Run 1 MVT ID for temperature
7380	FC.FC1.RX_FTEMP_BUF	Run 1 temperature value
7381	FC.FC1.RX_PIPE_DIAM	Run 1 pipe diameter
7382	FC.FC1.ORIF_DIAM_INUSE	Run 1 orifice diameter in use
7383	FC.FC1.RX_DPCUT_VAL	Run 1 differential pressure cutoff
7384	FC.RUN_1_DPSOURCE	Run 1 differential pressure source
7385	FC.R1_MVTID_DP	Run 1 MVT ID for differential pressure
7386	FC.FC1.RX_DP_BUF	Run 1 differential pressure value
7387	FC.FC1.OR_FLOW_RATE	Run 1 flow rate
7388	FC.FC1.RX_FRATE_ARCHUNITS	Run 1 flow rate units
7389	FC.FC1.OR_ENERGY_RATE	Run 1 energy rate
7390	FC.FC1.RX_ERATE_ARCHUNITS	Run 1 energy rate units
7391	FC.FC1.RX_ORIF_DIAM	Run 1 orifice diameter setting
7392	FC.FC1.RX_ORIF_UNITS	Run 1 orifice diameter units
7393	FC.FC1.RX_BETA	Run 1 beta ratio
7394	FC.FC1.OR_MINFLOWRATE	Run 1 minimum flow rate
7395	FC.FC1.OR_MAXFLOWRATE	Run 1 maximum flow rate
7396	FC.RUN_1_MAXFREQ	Run 1 maximum frequency
7397	FC.FC1.RX_LCUTOFF	Run 1 low frequency cutoff
		Run 1 AGA7 K factor (pulses/volume or
7398	FC.FC1.RX_AGA7_KFACTOR	volume/pulse)
7399	FC.FC1.IUDI_COUNT	Run 1 Counts from HSC
7400	FC.FC1.RX_PPS	Run 1 pulses per second (filtered frequency)
7401	FC.FC1.RX_AGA7_FACTOR	Run 1 AGA7 correction factor
7402	FC.FC1.RX_KFACTOR_USED	Run 1 AGA7 K factor used
7403	FC.FC1.OR_UCFLOWRATE	Run 1 uncorrected flow rate
7404	FC.FC1.RX_AA_CUTOFF	Run 1 AutoAdjust low frequency cutoff
7405	FC.AA_1.KM	Run 1 AutoAdjust K factor Main Rotor
7406	FC.AA_1.KS	Run 1 AutoAdjust K factor Sense Rotor
7407	FC.RUN_1_AA_MAXACF	Run 1 AutoAdjust maximum actual volume
7408	FC.AA_1.ABAR	Run 1 AutoAdjust a bar
7409	FC.FC1.RX_AA_DEVLIMIT	Run 1 AutoAdjust deviation limit
7410	FC.AA_1.IUDI_MAIN_ROTOR	Run 1 AutoAdjust delta counts from HSC to Main Rotor
7411	FC.AA_1.IUDI_SENS_ROTOR	Run 1 AutoAdjust delta counts from HSC to Sense Rotor
7412	FC.FC1.IR_AAVOLUME	Run 1 AutoAdjust adjusted volume into the Flow Computer FB
7413	FC.AA_1_DELTAABAR	Run 1 AutoAdjust delta a bar

Reg#	Variable	Description
7414	FC.FC1.RX_AGA10_SOS	Run 1 Speed of Sound calculated by AGA 10
		Run 1 Speed of Sound percentage difference
7415	FC.FC1.RX_SOS_PCT_DIFF	between calculated and Ultrasonic
7446		Run 1 Speed of Sound percentage difference
7416	FC.FC1.RX_SOS_LIMIT	limit Run 1 cutoff value in seconds for low frequency
7417	FC.FC1.RX_SFREQ_DB	PD meters
7418	FC.FC1.RX_DP_LLAL	Run 1 differential pressure low-low alarm limits
7419	FC.FC1.RX_DP_LAL	Run 1 differential pressure low alarm limits
7420	FC.FC1.RX_DP_HAL	Run 1 differential pressure high alarm limits
7421	FC.FC1.RX_DP_HHAL	Run 1 differential pressure high-high alarm limits
7422	FC.FC1.RX_SP_LLAL	Run 1 static pressure low-low alarm limits
7423	FC.FC1.RX_SP_LAL	Run 1 static pressure low alarm limits
7424	FC.FC1.RX_SP_HAL	Run 1 static pressure high alarm limits
7425	FC.FC1.RX_SP_HHAL	Run 1 static pressure high-high alarm limits
7426	FC.FC1.RX FTEMP LLAL	Run 1 temperature low-low alarm limits
7427	FC.FC1.RX_FTEMP_LAL	Run 1 temperature low alarm limits
7428	FC.FC1.RX_FTEMP_HAL	Run 1 temperature high alarm limits
7429	FC.FC1.RX_FTEMP_HHAL	Run 1 temperature high-high alarm limits
7430	FC.FC1.RX_BETA_HILIMIT	Run 1 beta ratio high alarm limits
7431	FC.FC1.RX_BETA_LOLIMIT	Run 1 beta ratio low alarm limits
		Run 1 differential pressure input to the Flow
7432	FC.FC1.RX_DP_INP	Computer function block
7433	FC.FC1.DP_CH_AVG	Run 1 differential pressure current hour average
7434	FC.FC1.DP_PH_AVG	Run 1 differential pressure previous hour average
7435	FC.FC1.RX_SP_INP	Run 1 static pressure input to the Flow Computer function block
7435	FC.FC1.SP_CH_AVG	Run 1 static pressure current hour average
7430	FC.FC1.SP_PH_AVG	Run 1 static pressure previous hour average
7437		Run 1 temperature input to the Flow Computer
7438	FC.FC1.RX_FTEMP_INP	function block
7439	FC.FC1.FTEMP_CH_AVG	Run 1 temperature current hour average
7440	FC.FC1.FTEMP_PH_AVG	Run 1 temperature previous hour average
		Run 1 heating value input to the Flow Computer
7441	FC.FC1.RX_HTVAL_GC	function block
7442	FC.FC1.HTVAL_CH_AVG	Run 1 heating value current hour average
7443	FC.FC1.HTVAL_PH_AVG	Run 1 heating value previous hour average Run 1 specific gravity input to the Flow
7444	FC.FC1.RX_GRAVITY_LIVE	Computer function block
7445	FC.FC1.SG_CH_AVG	Run 1 specific gravity current hour average
7446	FC.FC1.SG_PH_AVG	Run 1 specific gravity previous hour average
		Run 1 Nitrogen input to the Flow Computer
7447	FC.FC1.RX_N2_LIVE	function block
7448	FC.FC1.N2_CH_AVG	Run 1 Nitrogen current hour average
7449	FC.FC1.N2_PH_AVG	Run 1 Nitrogen previous hour average
7450		Run 1 Carbon Dioxide (CO2) input to the Flow Computer function block
7450	FC.FC1.RX_CO2_LIVE	Run 1 Carbon Dioxide (CO2) current hour
7451	FC.FC1.CO2_CH_AVG	average
		Run 1 Carbon Dioxide (CO2) previous hour
7452	FC.FC1.CO2_PH_AVG	average
7453	FC.FC1.RX_CH4_LIVE	Run 1 Methane (CH4) input to the Flow Computer function block
7453	FC.FC1.CH4_CH_AVG	Run 1 Methane (CH4) current hour average
7454	FC.FC1.CH4_PH_AVG	Run 1 Methane (CH4) previous hour average
7400		I Null I Methane (CI 14) previous nour average

Reg#	Variable	Description
		Run 1 Ethane (C2) input to the Flow Computer
7456	FC.FC1.RX_C2_LIVE	function block
7457 7458	FC.FC1.C2_CH_AVG FC.FC1.C2_PH_AVG	Run 1 Ethane (C2) current hour average Run 1 Ethane (C2) previous hour average
7430	F0.F01.02_FH_AVG	Run 1 Propane (C3) input to the Flow Computer
7459	FC.FC1.RX_C3_LIVE	function block
7460	FC.FC1.C3_CH_AVG	Run 1 Propane (C3) current hour average
7461	FC.FC1.C3_PH_AVG	Run 1 Propane (C3) previous hour average
7462	FC.FC1.RX_IC4_LIVE	Run 1 I-Butane (I-C4) input to the Flow Computer function block
7463	FC.FC1.IC4_CH_AVG	Run 1 I-Butane (I-C4) current hour average
7464	FC.FC1.IC4_PH_AVG	Run 1 I-Butane (I-C4) previous hour average
7465	FC.FC1.RX_NC4_LIVE	Run 1 N-Butane (N-C4) input to the Flow Computer function block
7465 7466	FC.FC1.NC4_CH_AVG	Run 1 N-Butane (N-C4) current hour average
7400	FC.FC1.NC4_PH_AVG	Run 1 N-Butane (N-C4) previous hour average
7407	F0.F01.N04_F11_AV0	Run 1 heating value input to the Flow Computer
7468	FC.FC1.RX_IC5_LIVE	function block
7469	FC.FC1.IC5_CH_AVG	Run 1 heating value current hour average
7470	FC.FC1.IC5_PH_AVG	Run 1 heating value previous hour average
7471	FC.FC1.RX_NC5_LIVE	Run 1 Pentane (CH5) input to the Flow Computer function block
7471	FC.FC1.NC5_CH_AVG	Run 1 Pentane (CH5) current hour average
7472	FC.FC1.NC5_PH_AVG	Run 1 Pentane (CH5) previous hour average
1413		Run 1 Hexane (C6) input to the Flow Computer
7474	FC.FC1.RX_C6_LIVE	function block
7475	FC.FC1.C6_CH_AVG	Run 1 Hexane (C6) current hour average
7476	FC.FC1.C6_PH_AVG	Run 1 Hexane (C6) previous hour average
7477	FC.FC1.RX_C7_LIVE	Run 1 Heptane (C7) input to the Flow Computer function block
7478	FC.FC1.C7_CH_AVG	Run 1 Heptane (C7) current hour average
7479	FC.FC1.C7_PH_AVG	Run 1 Heptane (C7) previous hour average
7480	FC.FC1.RX_C8_LIVE	Run 1 Octane (C8) input to the Flow Computer function block
7481	FC.FC1.C8_CH_AVG	Run 1 Octane (C8) current hour average
7482	FC.FC1.C8_PH_AVG	Run 1 Octane (C8) previous hour average
7.00		Run 1 Nonane (C9) input to the Flow Computer
7483	FC.FC1.RX_C9_LIVE	function block
7484	FC.FC1.C9_CH_AVG	Run 1 Nonane (C9) current hour average
7485	FC.FC1.C9_PH_AVG	Run 1 Nonane (C9) previous hour average Run 1 Decane (C10) input to the Flow Computer
7486	FC.FC1.RX_C10_LIVE	function block
7487	FC.FC1.C10_CH_AVG	Run 1 Decane (C10) current hour average
7488	FC.FC1.C10_PH_AVG	Run 1 Decane (C10) previous hour average
7489	FC.FC1.RX_H2O_PCT	Run 1 Water content (H2O) input to the Flow Computer function block
7490	FC.FC1.H2O_CH_AVG	Run 1 Water content (H2O) current hour average
7491	FC.FC1.H2O_PH_AVG	Run 1 Water content (H2O) previous hour average
7492	FC.FC1.RX_H2S_PCT	Run 1 Hydrogen sulfide (H2S) input to the Flow Computer function block
		Run 1 Hydrogen sulfide (H2S) current hour
7493	FC.FC1.H2S_CH_AVG	average Run 1 Hydrogen sulfide (H2S) previous hour
7494	FC.FC1.H2S_PH_AVG	average
7495	FC.FC1.RX_H2_PCT	Run 1 Hydrogen (H2) input to the Flow Computer

Reg#	Variable	Description
		function block
7496	FC.FC1.H2_CH_AVG	Run 1 Hydrogen (H2) current hour average
7497	FC.FC1.H2_PH_AVG	Run 1 Hydrogen (H2) previous hour average
		Run 1 Carbon Monoxide (CO) input to the Flow
7498	FC.FC1.RX_CO_PCT	Computer function block
7400		Run 1 Carbon Monoxide (CO) current hour
7499	FC.FC1.CO_CH_AVG	average Run 1 Carbon Monoxide (CO) previous hour
7500	FC.FC1.CO_PH_AVG	average
		Run 1 Oxygen (O2) input to the Flow Computer
7501	FC.FC1.RX_02_PCT	function block
7502	FC.FC1.02_CH_AVG	Run 1 Oxygen (O2) current hour average
7503	FC.FC1.O2_PH_AVG	Run 1 Oxygen (O2) previous hour average
7504	FC.FC1.RX_HE_PCT	Run 1 Helium (H2) input to the Flow Computer function block
7505	FC.FC1.HE_CH_AVG	Run 1 Helium (H2) current hour average
7506	FC.FC1.HE_PH_AVG	Run 1 Helium (H2) previous hour average
7500		Run 1 Argon (AR) input to the Flow Computer
7507	FC.FC1.RX_AR_PCT	function block
7508	FC.FC1.AR_CH_AVG	Run 1 Argon (AR) current hour average
7509	FC.FC1.AR_PH_AVG	Run 1 Argon (AR) previous hour average
7510	FC.FC2.RX_CFG_TYPE	Run 2 configuration type
7511	FC.RUN_2_STATION	Run 2 station assignment
7512	FC.RUN_2_DIRECTION	Run 2 direction
7513	FC.RUN_2_SPSOURCE	Run 2 static pressure source
7514	FC.R2_MVTID_SP	Run 2 MVT ID for static pressure
7515	FC.FC2.RX_SP_BUF	Run 2 static pressure value
7516	FC.RUN_2_FTSOURCE	Run 2 temperature source
7517	FC.R2_MVTID_FT	Run 2 MVT ID for temperature
7518	FC.FC2.RX_FTEMP_BUF	Run 2 temperature value
7519	FC.FC2.RX_PIPE_DIAM	Run 2 pipe diameter
7520	FC.FC2.ORIF_DIAM_INUSE	Run 2 orifice diameter in use
7521	FC.FC2.RX_DPCUT_VAL	Run 2 differential pressure cutoff
7522	FC.RUN_2_DPSOURCE	Run 2 differential pressure source
	FC.R2_MVTID_DP	Run 2 MVT ID for differential pressure
7524	FC.FC2.RX_DP_BUF	Run 2 differential pressure value
7525	FC.FC2.OR_FLOW_RATE	Run 2 flow rate
7526	FC.FC2.RX_FRATE_ARCHUNITS	Run 2 flow rate units
7527	FC.FC2.OR_ENERGY_RATE	Run 2 energy rate
7528	FC.FC2.RX_ERATE_ARCHUNITS	Run 2 energy rate units
7529	FC.FC2.RX_ORIF_DIAM	Run 2 orifice diameter setting
7530	FC.FC2.RX_ORIF_UNITS	Run 2 orifice diameter units
7531	FC.FC2.RX_BETA	Run 2 beta ratio
7532	FC.FC2.OR_MINFLOWRATE	Run 2 minimum flow rate
7533	FC.FC2.OR_MAXFLOWRATE	Run 2 maximum flow rate
7534	FC.RUN_2_MAXFREQ	Run 2 maximum frequency
7535	FC.FC2.RX_LCUTOFF	Run 2 low frequency cutoff
, 000		Run 2 AGA7 K factor (pulses/volume or
7536	FC.FC2.RX_AGA7_KFACTOR	volume/pulse)
7537	FC.FC2.IUDI_COUNT	Run 2 Counts from HSC
7538	FC.FC2.RX_PPS	Run 2 pulses per second (filtered frequency)
7539	FC.FC2.RX_AGA7_FACTOR	Run 2 AGA7 correction factor

Reg#	Variable	Description
7540	FC.FC2.RX_KFACTOR_USED	Run 2 AGA7 K factor used
7541	FC.FC2.OR_UCFLOWRATE	Run 2 uncorrected flow rate
7542	FC.FC2.RX_AA_CUTOFF	Run 2 AutoAdjust low frequency cutoff
7543	FC.AA_2.KM	Run 2 AutoAdjust K factor Main Rotor
7544	FC.AA_2.KS	Run 2 AutoAdjust K factor Sense Rotor
7545	FC.RUN_2_AA_MAXACF	Run 2 AutoAdjust maximum actual volume
7546	FC.AA_2.ABAR	Run 2 AutoAdjust a bar
7547	FC.FC2.RX_AA_DEVLIMIT	Run 2 AutoAdjust deviation limit
7548	FC.AA_2.IUDI_MAIN_ROTOR	Run 2 AutoAdjust delta counts from HSC to Main Rotor
7549	FC.AA_2.IUDI_SENS_ROTOR	Run 2 AutoAdjust delta counts from HSC to Sense Rotor
7550	FC.FC2.IR_AAVOLUME	Run 2 AutoAdjust adjusted volume into the Flow Computer FB
7551	FC.AA_2_DELTAABAR	Run 2 AutoAdjust delta a bar
7552	FC.FC2.RX_AGA10_SOS	Run 2 Speed of Sound calculated by AGA 10
7553	FC.FC2.RX_SOS_PCT_DIFF	Run 2 Speed of Sound percentage difference between calculated and Ultrasonic
7554	FC.FC2.RX_SOS_LIMIT	Run 2 Speed of Sound percentage difference limit
7555	FC.FC2.RX_SFREQ_DB	Run 2 cutoff value in seconds for low frequency PD meters
7556	FC.FC2.RX_DP_LLAL	Run 2 differential pressure low-low alarm limits
7557	FC.FC2.RX_DP_LAL	Run 2 differential pressure low alarm limits
7558	FC.FC2.RX_DP_HAL	Run 2 differential pressure high alarm limits
7559	FC.FC2.RX_DP_HHAL	Run 2 differential pressure high-high alarm limits
7560	FC.FC2.RX_SP_LLAL	Run 2 static pressure low-low alarm limits
7561	FC.FC2.RX_SP_LAL	Run 2 static pressure low alarm limits
7562	FC.FC2.RX_SP_HAL	Run 2 static pressure high alarm limits
7563	FC.FC2.RX_SP_HHAL	Run 2 static pressure high-high alarm limits
7564	FC.FC2.RX_FTEMP_LLAL	Run 2 temperature low-low alarm limits
7565	FC.FC2.RX_FTEMP_LAL	Run 2 temperature low alarm limits
7566	FC.FC2.RX_FTEMP_HAL	Run 2 temperature high alarm limits
7567	FC.FC2.RX_FTEMP_HHAL	Run 2 temperature high-high alarm limits
7568	FC.FC2.RX_BETA_HILIMIT	Run 2 beta ratio high alarm limits
7569	FC.FC2.RX_BETA_LOLIMIT	Run 2 beta ratio low alarm limits
7570	FC.FC2.RX_DP_INP	Run 2 differential pressure input to the Flow Computer function block
7571	FC.FC2.DP_CH_AVG	Run 2 differential pressure current hour average
7572	FC.FC2.DP_PH_AVG	Run 2 differential pressure previous hour average
7573	FC.FC2.RX_SP_INP	Run 2 static pressure input to the Flow Computer function block
7574	FC.FC2.SP_CH_AVG	Run 2 static pressure current hour average
7575	FC.FC2.SP_PH_AVG	Run 2 static pressure previous hour average
7576	FC.FC2.RX_FTEMP_INP	Run 2 temperature input to the Flow Computer function block
7577	FC.FC2.FTEMP_CH_AVG	Run 2 temperature current hour average
7578	FC.FC2.FTEMP_PH_AVG	Run 2 temperature previous hour average
7579	FC.FC2.RX_HTVAL_GC	Run 2 heating value input to the Flow Computer function block
7580	FC.FC2.HTVAL_CH_AVG	Run 2 heating value current hour average
7581	FC.FC2.HTVAL_PH_AVG	Run 2 heating value previous hour average
7582	FC.FC2.RX_GRAVITY_LIVE	Run 2 specific gravity input to the Flow Computer function block

Reg#	Variable	Description
7583	FC.FC2.SG_CH_AVG	Run 2 specific gravity current hour average
7584	FC.FC2.SG_PH_AVG	Run 2 specific gravity previous hour average
		Run 2 Nitrogen input to the Flow Computer
7585	FC.FC2.RX_N2_LIVE	function block
7586	FC.FC2.N2_CH_AVG	Run 2 Nitrogen current hour average
7587	FC.FC2.N2_PH_AVG	Run 2 Nitrogen previous hour average
7588	FC.FC2.RX_CO2_LIVE	Run 2 Carbon Dioxide (CO2) input to the Flow Computer function block
7589	FC.FC2.CO2_CH_AVG	Run 2 Carbon Dioxide (CO2) current hour average
7590	FC.FC2.CO2_PH_AVG	Run 2 Carbon Dioxide (CO2) previous hour average
7591	FC.FC2.RX_CH4_LIVE	Run 2 Methane (CH4) input to the Flow Computer function block
7592	FC.FC2.CH4_CH_AVG	Run 2 Methane (CH4) current hour average
7593	FC.FC2.CH4_PH_AVG	Run 2 Methane (CH4) previous hour average
7594	FC.FC2.RX_C2_LIVE	Run 2 Ethane (C2) input to the Flow Computer function block
7595	FC.FC2.C2_CH_AVG	Run 2 Ethane (C2) current hour average
7596	FC.FC2.C2_PH_AVG	Run 2 Ethane (C2) previous hour average
7597	FC.FC2.RX_C3_LIVE	Run 2 Propane (C3) input to the Flow Computer function block
7598	FC.FC2.C3 CH_AVG	Run 2 Propane (C3) current hour average
7599	FC.FC2.C3_PH_AVG	Run 2 Propane (C3) previous hour average
7600	FC.FC2.RX_IC4_LIVE	Run 2 I-Butane (I-C4) input to the Flow Computer function block
7601	FC.FC2.IC4_CH_AVG	Run 2 I-Butane (I-C4) current hour average
7602	FC.FC2.IC4_PH_AVG	Run 2 I-Butane (I-C4) previous hour average
7603	FC.FC2.RX_NC4_LIVE	Run 2 N-Butane (N-C4) input to the Flow Computer function block
7604	FC.FC2.NC4_CH_AVG	Run 2 N-Butane (N-C4) current hour average
7605	FC.FC2.NC4_PH_AVG	Run 2 N-Butane (N-C4) previous hour average
7606	FC.FC2.RX_IC5_LIVE	Run 2 heating value input to the Flow Computer function block
7607	FC.FC2.IC5_CH_AVG	Run 2 heating value current hour average
7608	FC.FC2.IC5_PH_AVG	Run 2 heating value previous hour average
7609	FC.FC2.RX_NC5_LIVE	Run 2 Pentane (CH5) input to the Flow Computer function block
7610	FC.FC2.NC5_CH_AVG	Run 2 Pentane (CH5) current hour average
7611	FC.FC2.NC5_PH_AVG	Run 2 Pentane (CH5) previous hour average Run 2 Hexane (C6) input to the Flow Computer
7612	FC.FC2.RX_C6_LIVE	function block
7613	FC.FC2.C6_CH_AVG	Run 2 Hexane (C6) current hour average
7614	FC.FC2.C6_PH_AVG	Run 2 Hexane (C6) previous hour average
7615	FC.FC2.RX_C7_LIVE	Run 2 Heptane (C7) input to the Flow Computer function block
7616	FC.FC2.C7_CH_AVG	Run 2 Heptane (C7) current hour average
7617	FC.FC2.C7_PH_AVG	Run 2 Heptane (C7) previous hour average
7618	FC.FC2.RX_C8_LIVE	Run 2 Octane (C8) input to the Flow Computer function block
7619	FC.FC2.C8_CH_AVG	Run 2 Octane (C8) current hour average
7620	FC.FC2.C8_PH_AVG	Run 2 Octane (C8) previous hour average
7621	FC.FC2.RX_C9_LIVE	Run 2 Nonane (C9) input to the Flow Computer function block
7622	FC.FC2.C9_CH_AVG	Run 2 Nonane (C9) current hour average
7623	FC.FC2.C9_PH_AVG	Run 2 Nonane (C9) previous hour average

Reg#	Variable	Description
	Tanasio	Run 2 Decane (C10) input to the Flow Computer
7624	FC.FC2.RX_C10_LIVE	function block
7625	FC.FC2.C10_CH_AVG	Run 2 Decane (C10) current hour average
7626	FC.FC2.C10_PH_AVG	Run 2 Decane (C10) previous hour average
7627	FC.FC2.RX_H2O_PCT	Run 2 Water content (H2O) input to the Flow Computer function block
7628	FC.FC2.H2O_CH_AVG	Run 2 Water content (H2O) current hour average
7629	FC.FC2.H2O_PH_AVG	Run 2 Water content (H2O) previous hour average
7630	FC.FC2.RX_H2S_PCT	Run 2 Hydrogen sulfide (H2S) input to the Flow Computer function block
7631	FC.FC2.H2S_CH_AVG	Run 2 Hydrogen sulfide (H2S) current hour average
7632	FC.FC2.H2S_PH_AVG	Run 2 Hydrogen sulfide (H2S) previous hour average
7633	FC.FC2.RX_H2_PCT	Run 2 Hydrogen (H2) input to the Flow Computer function block
7634	FC.FC2.H2_CH_AVG	Run 2 Hydrogen (H2) current hour average
7635	FC.FC2.H2_PH_AVG	Run 2 Hydrogen (H2) previous hour average
7636	FC.FC2.RX_CO_PCT	Run 2 Carbon Monoxide (CO) input to the Flow Computer function block
7637	FC.FC2.CO_CH_AVG	Run 2 Carbon Monoxide (CO) current hour average
7000		Run 2 Carbon Monoxide (CO) previous hour
7638	FC.FC2.CO_PH_AVG	average Run 2 Oxygen (O2) input to the Flow Computer
7639	FC.FC2.RX_02_PCT	function block
7640	FC.FC2.O2_CH_AVG	Run 2 Oxygen (O2) current hour average
7641	FC.FC2.O2_PH_AVG	Run 2 Oxygen (O2) previous hour average Run 2 Helium (H2) input to the Flow Computer
7642	FC.FC2.RX_HE_PCT	function block
7643	FC.FC2.HE_CH_AVG	Run 2 Helium (H2) current hour average
7644	FC.FC2.HE_PH_AVG	Run 2 Helium (H2) previous hour average Run 2 Argon (AR) input to the Flow Computer
7645	FC.FC2.RX_AR_PCT	function block
7646	FC.FC2.AR_CH_AVG	Run 2 Argon (AR) current hour average
7647	FC.FC2.AR_PH_AVG	Run 2 Argon (AR) previous hour average
7648	FC.FC3.RX_CFG_TYPE	Run 3 configuration type
7649	FC.RUN_3_STATION	Run 3 station assignment
7650	FC.RUN_3_DIRECTION	Run 3 direction
7651	FC.RUN_3_SPSOURCE	Run 3 static pressure source
7652	FC.R3_MVTID_SP	Run 3 MVT ID for static pressure
7653	FC.FC3.RX_SP_BUF	Run 3 static pressure value
7654	FC.RUN_3_FTSOURCE	Run 3 temperature source
7655	FC.R3_MVTID_FT	Run 3 MVT ID for temperature
7656	FC.FC3.RX_FTEMP_BUF	Run 3 temperature value
7657	FC.FC3.RX_PIPE_DIAM	Run 3 pipe diameter
7658	FC.FC3.ORIF_DIAM_INUSE	Run 3 orifice diameter in use
7659	FC.FC3.RX_DPCUT_VAL	Run 3 differential pressure cutoff
7660	FC.RUN_3_DPSOURCE	Run 3 differential pressure source
7661	FC.R3_MVTID_DP	Run 3 MVT ID for differential pressure
7662	FC.FC3.RX_DP_BUF	Run 3 differential pressure value
7663	FC.FC3.OR_FLOW_RATE	Run 3 flow rate
7664	FC.FC3.RX_FRATE_ARCHUNITS	Run 3 flow rate units
7665	FC.FC3.OR_ENERGY_RATE	Run 3 energy rate

Reg#	Variable	Description
7666	FC.FC3.RX_ERATE_ARCHUNITS	Run 3 energy rate units
7667	FC.FC3.RX_ORIF_DIAM	Run 3 orifice diameter setting
7668	FC.FC3.RX_ORIF_UNITS	Run 3 orifice diameter units
7669	FC.FC3.RX_BETA	Run 3 beta ratio
7670	FC.FC3.OR_MINFLOWRATE	Run 3 minimum flow rate
7671	FC.FC3.OR_MAXFLOWRATE	Run 3 maximum flow rate
7672	FC.RUN_3_MAXFREQ	Run 3 maximum frequency
7673	FC.FC3.RX_LCUTOFF	Run 3 low frequency cutoff
7674	FC.FC3.RX_AGA7_KFACTOR	Run 3 AGA7 K factor (pulses/volume or volume/pulse)
7675	FC.FC3.IUDI_COUNT	Run 3 Counts from HSC
7676	FC.FC3.RX_PPS	Run 3 pulses per second (filtered frequency)
7677	FC.FC3.RX_AGA7_FACTOR	Run 3 AGA7 correction factor
7678	FC.FC3.RX_KFACTOR_USED	Run 3 AGA7 K factor used
7679	FC.FC3.OR_UCFLOWRATE	Run 3 uncorrected flow rate
7680	FC.FC3.RX_AA_CUTOFF	Run 3 AutoAdjust low frequency cutoff
7681	FC.AA_3.KM	Run 3 AutoAdjust K factor Main Rotor
7682	FC.AA_3.KS	Run 3 AutoAdjust K factor Sense Rotor
7683	FC.RUN_3_AA_MAXACF	Run 3 AutoAdjust maximum actual volume
7684	FC.AA_3.ABAR	Run 3 AutoAdjust a bar
7685	FC.FC3.RX_AA_DEVLIMIT	Run 3 AutoAdjust deviation limit
7686	FC.AA_3.IUDI_MAIN_ROTOR	Run 3 AutoAdjust delta counts from HSC to Main Rotor
7687	FC.AA_3.IUDI_SENS_ROTOR	Run 3 AutoAdjust delta counts from HSC to Sense Rotor
7688	FC.FC3.IR_AAVOLUME	Run 3 AutoAdjust adjusted volume into the Flow Computer FB
7689	FC.AA_3_DELTAABAR	Run 3 AutoAdjust delta a bar
7690	FC.FC3.RX_AGA10_SOS	Run 3 Speed of Sound calculated by AGA 10
7691	FC.FC3.RX_SOS_PCT_DIFF	Run 3 Speed of Sound percentage difference between calculated and Ultrasonic
7692	FC.FC3.RX_SOS_LIMIT	Run 3 Speed of Sound percentage difference limit
7693	FC.FC3.RX_SFREQ_DB	Run 3 cutoff value in seconds for low frequency PD meters
7694	FC.FC3.RX_DP_LLAL	Run 3 differential pressure low-low alarm limits
7695	FC.FC3.RX_DP_LAL	Run 3 differential pressure low alarm limits
7696	FC.FC3.RX_DP_HAL	Run 3 differential pressure high alarm limits
7697	FC.FC3.RX_DP_HHAL	Run 3 differential pressure high-high alarm limits
7698	FC.FC3.RX_SP_LLAL	Run 3 static pressure low-low alarm limits
7699	FC.FC3.RX_SP_LAL	Run 3 static pressure low alarm limits
7700	FC.FC3.RX_SP_HAL	Run 3 static pressure high alarm limits
7701	FC.FC3.RX_SP_HHAL	Run 3 static pressure high-high alarm limits
7702	FC.FC3.RX_FTEMP_LLAL	Run 3 temperature low-low alarm limits
7703	FC.FC3.RX_FTEMP_LAL	Run 3 temperature low alarm limits
7704	FC.FC3.RX_FTEMP_HAL	Run 3 temperature high alarm limits
7705	FC.FC3.RX_FTEMP_HHAL	Run 3 temperature high-high alarm limits
7706	FC.FC3.RX_BETA_HILIMIT	Run 3 beta ratio high alarm limits
7707	FC.FC3.RX_BETA_LOLIMIT	Run 3 beta ratio low alarm limits
7708	FC.FC3.RX_DP_INP	Run 3 differential pressure input to the Flow Computer function block
7709	FC.FC3.DP_CH_AVG	Run 3 differential pressure current hour average
7710	FC.FC3.DP_PH_AVG	Run 3 differential pressure previous hour average

Reg#	Variable	Description
7744		Run 3 static pressure input to the Flow Computer
7711	FC.FC3.RX_SP_INP	function block
7712	FC.FC3.SP_CH_AVG	Run 3 static pressure current hour average
7713	FC.FC3.SP_PH_AVG	Run 3 static pressure previous hour average Run 3 temperature input to the Flow Computer
7714	FC.FC3.RX_FTEMP_INP	function block
7715	FC.FC3.FTEMP_CH_AVG	Run 3 temperature current hour average
7716	FC.FC3.FTEMP_PH_AVG	Run 3 temperature previous hour average
7717	FC.FC3.RX_HTVAL_GC	Run 3 heating value input to the Flow Computer function block
7718	FC.FC3.HTVAL_CH_AVG	Run 3 heating value current hour average
7719	FC.FC3.HTVAL_PH_AVG	Run 3 heating value previous hour average
7700		Run 3 specific gravity input to the Flow
7720	FC.FC3.RX_GRAVITY_LIVE	Computer function block
7721	FC.FC3.SG_CH_AVG	Run 3 specific gravity current hour average
7722	FC.FC3.SG_PH_AVG	Run 3 specific gravity previous hour average Run 3 Nitrogen input to the Flow Computer
7723	FC.FC3.RX_N2_LIVE	function block
7724	FC.FC3.N2_CH_AVG	Run 3 Nitrogen current hour average
7725	FC.FC3.N2_PH_AVG	Run 3 Nitrogen previous hour average
7726	FC.FC3.RX_CO2_LIVE	Run 3 Carbon Dioxide (CO2) input to the Flow Computer function block
7707		Run 3 Carbon Dioxide (CO2) current hour
7727	FC.FC3.CO2_CH_AVG	average Run 3 Carbon Dioxide (CO2) previous hour
7728	FC.FC3.CO2_PH_AVG	average
		Run 3 Methane (CH4) input to the Flow
7729	FC.FC3.RX_CH4_LIVE	Computer function block
7730	FC.FC3.CH4_CH_AVG	Run 3 Methane (CH4) current hour average
7731	FC.FC3.CH4_PH_AVG	Run 3 Methane (CH4) previous hour average
7732	FC.FC3.RX_C2_LIVE	Run 3 Ethane (C2) input to the Flow Computer function block
7733	FC.FC3.C2_CH_AVG	Run 3 Ethane (C2) current hour average
7734	FC.FC3.C2_PH_AVG	Run 3 Ethane (C2) previous hour average
7735	FC.FC3.RX_C3_LIVE	Run 3 Propane (C3) input to the Flow Computer function block
7736	FC.FC3.C3_CH_AVG	Run 3 Propane (C3) current hour average
7737	FC.FC3.C3_PH_AVG	Run 3 Propane (C3) previous hour average
		Run 3 I-Butane (I-C4) input to the Flow Computer
7738	FC.FC3.RX_IC4_LIVE	function block
7739	FC.FC3.IC4_CH_AVG	Run 3 I-Butane (I-C4) current hour average
7740	FC.FC3.IC4_PH_AVG	Run 3 I-Butane (I-C4) previous hour average
7741	FC.FC3.RX_NC4_LIVE	Run 3 N-Butane (N-C4) input to the Flow Computer function block
7742	FC.FC3.NC4_CH_AVG	Run 3 N-Butane (N-C4) current hour average
7743	FC.FC3.NC4_PH_AVG	Run 3 N-Butane (N-C4) previous hour average
		Run 3 heating value input to the Flow Computer
7744	FC.FC3.RX_IC5_LIVE	function block
7745	FC.FC3.IC5_CH_AVG	Run 3 heating value current hour average
7746	FC.FC3.IC5_PH_AVG	Run 3 heating value previous hour average Run 3 Pentane (CH5) input to the Flow Computer
7747	FC.FC3.RX_NC5_LIVE	function block
7748	FC.FC3.NC5_CH_AVG	Run 3 Pentane (CH5) current hour average
7749	FC.FC3.NC5_PH_AVG	Run 3 Pentane (CH5) previous hour average
7750	FC.FC3.RX_C6_LIVE	Run 3 Hexane (C6) input to the Flow Computer function block

Reg#	Variable	Description
7751	FC.FC3.C6_CH_AVG	Run 3 Hexane (C6) current hour average
7752	FC.FC3.C6_PH_AVG	Run 3 Hexane (C6) previous hour average
		Run 3 Heptane (C7) input to the Flow Computer
7753	FC.FC3.RX_C7_LIVE	function block
7754	FC.FC3.C7_CH_AVG	Run 3 Heptane (C7) current hour average
7755	FC.FC3.C7_PH_AVG	Run 3 Heptane (C7) previous hour average
7756	FC.FC3.RX_C8_LIVE	Run 3 Octane (C8) input to the Flow Computer function block
7757	FC.FC3.C8_CH_AVG	Run 3 Octane (C8) current hour average
7758	FC.FC3.C8_PH_AVG	Run 3 Octane (C8) previous hour average
7759	FC.FC3.RX_C9_LIVE	Run 3 Nonane (C9) input to the Flow Computer function block
7760	FC.FC3.C9_CH_AVG	Run 3 Nonane (C9) current hour average
7761	FC.FC3.C9_PH_AVG	Run 3 Nonane (C9) previous hour average
7762	FC.FC3.RX_C10_LIVE	Run 3 Decane (C10) input to the Flow Computer function block
7763	FC.FC3.C10_CH_AVG	Run 3 Decane (C10) current hour average
7764	FC.FC3.C10_PH_AVG	Run 3 Decane (C10) previous hour average
1104	10.103.010_111_AVG	Run 3 Water content (H2O) input to the Flow
7765	FC.FC3.RX_H2O_PCT	Computer function block
7766	FC.FC3.H2O_CH_AVG	Run 3 Water content (H2O) current hour average
		Run 3 Water content (H2O) previous hour
7767	FC.FC3.H2O_PH_AVG	average Run 3 Hydrogen sulfide (H2S) input to the Flow
7768	FC.FC3.RX_H2S_PCT	Computer function block
		Run 3 Hydrogen sulfide (H2S) current hour
7769	FC.FC3.H2S_CH_AVG	average Run 3 Hydrogen sulfide (H2S) previous hour
7770	FC.FC3.H2S_PH_AVG	average
7771	FC.FC3.RX_H2_PCT	Run 3 Hydrogen (H2) input to the Flow Computer function block
7772	FC.FC3.H2_CH_AVG	Run 3 Hydrogen (H2) current hour average
7773	FC.FC3.H2_PH_AVG	Run 3 Hydrogen (H2) previous hour average
1110		Run 3 Carbon Monoxide (CO) input to the Flow
7774	FC.FC3.RX_CO_PCT	Computer function block
7775	FC.FC3.CO_CH_AVG	Run 3 Carbon Monoxide (CO) current hour average
		Run 3 Carbon Monoxide (CO) previous hour
7776	FC.FC3.CO_PH_AVG	average
7777	FC.FC3.RX_O2_PCT	Run 3 Oxygen (O2) input to the Flow Computer function block
7778	FC.FC3.O2_CH_AVG	Run 3 Oxygen (O2) current hour average
7779	FC.FC3.O2_PH_AVG	Run 3 Oxygen (O2) previous hour average
7780	FC.FC3.RX_HE_PCT	Run 3 Helium (H2) input to the Flow Computer function block
7781	FC.FC3.HE_CH_AVG	Run 3 Helium (H2) current hour average
7782	FC.FC3.HE_PH_AVG	Run 3 Helium (H2) previous hour average
7783	FC.FC3.RX_AR_PCT	Run 3 Argon (AR) input to the Flow Computer function block
7784	FC.FC3.AR_CH_AVG	Run 3 Argon (AR) current hour average
7785	FC.FC3.AR_CH_AVG FC.FC3.AR_PH_AVG	Run 3 Argon (AR) previous hour average
7786	FC.FC4.RX_CFG_TYPE	Run 4 configuration type
7787	FC.RUN_4_STATION	Run 4 station assignment
7788	FC.RUN_4_DIRECTION	Run 4 direction
	FC.RUN_4_DIRECTION FC.RUN_4_SPSOURCE	
7789 7790	FC.R4_MVTID_SP	Run 4 static pressure source
1190		Run 4 MVT ID for static pressure

Reg#	Variable	Description
7791	FC.FC4.RX_SP_BUF	Run 4 static pressure value
7792	FC.RUN_4_FTSOURCE	Run 4 temperature source
7793	FC.R4_MVTID_FT	Run 4 MVT ID for temperature
7794	FC.FC4.RX_FTEMP_BUF	Run 4 temperature value
7795	FC.FC4.RX_PIPE_DIAM	Run 4 pipe diameter
7796	FC.FC4.ORIF_DIAM_INUSE	Run 4 orifice diameter in use
7797	FC.FC4.RX_DPCUT_VAL	Run 4 differential pressure cutoff
7798	FC.RUN_4_DPSOURCE	Run 4 differential pressure source
7799	FC.R4_MVTID_DP	Run 4 MVT ID for differential pressure
7800	FC.FC4.RX_DP_BUF	Run 4 differential pressure value
7801	FC.FC4.OR_FLOW_RATE	Run 4 flow rate
7802	FC.FC4.RX_FRATE_ARCHUNITS	Run 4 flow rate units
7802	FC.FC4.OR_ENERGY_RATE	
7803	FC.FC4.RX_ERATE_ARCHUNITS	Run 4 energy rate Run 4 energy rate units
7804	FC.FC4.RX_ORIF_DIAM	Run 4 orifice diameter setting
		Run 4 orifice diameter units
7806 7807	FC.FC4.RX_ORIF_UNITS	Run 4 beta ratio
	FC.FC4.RX_BETA	
7808	FC.FC4.OR_MINFLOWRATE	Run 4 minimum flow rate
7809	FC.FC4.OR_MAXFLOWRATE	Run 4 maximum flow rate
7810	FC.RUN_4_MAXFREQ	Run 4 maximum frequency
7811	FC.FC4.RX_LCUTOFF	Run 4 low frequency cutoff Run 4 AGA7 K factor (pulses/volume or
7812	FC.FC4.RX_AGA7_KFACTOR	volume/pulse)
7813	FC.FC4.IUDI_COUNT	Run 4 Counts from HSC
7814	FC.FC4.RX_PPS	Run 4 pulses per second (filtered frequency)
7815	FC.FC4.RX_AGA7_FACTOR	Run 4 AGA7 correction factor
7816	FC.FC4.RX_KFACTOR_USED	Run 4 AGA7 K factor used
7817	FC.FC4.OR_UCFLOWRATE	Run 4 uncorrected flow rate
7818	FC.FC4.RX_AA_CUTOFF	Run 4 AutoAdjust low frequency cutoff
7819	FC.AA_4.KM	Run 4 AutoAdjust K factor Main Rotor
7820	FC.AA_4.KS	Run 4 AutoAdjust K factor Sense Rotor
7821	FC.RUN 4 AA MAXACF	Run 4 AutoAdjust maximum actual volume
	FC.AA_4.ABAR	Run 4 AutoAdjust a bar
7823	FC.FC4.RX_AA_DEVLIMIT	Run 4 AutoAdjust deviation limit
7824	FC.AA_4.IUDI_MAIN_ROTOR	Run 4 AutoAdjust delta counts from HSC to Main Rotor
7825	FC.AA_4.IUDI_SENS_ROTOR	Run 4 AutoAdjust delta counts from HSC to Sense Rotor
7826	FC.FC4.IR_AAVOLUME	Run 4 AutoAdjust adjusted volume into the Flow Computer FB
7827	FC.AA_4_DELTAABAR	Run 4 AutoAdjust delta a bar
7828	FC.FC4.RX_AGA10_SOS	Run 4 Speed of Sound calculated by AGA 10
7000		Run 4 Speed of Sound percentage difference
7829	FC.FC4.RX_SOS_PCT_DIFF	between calculated and Ultrasonic Run 4 Speed of Sound percentage difference
7830	FC.FC4.RX_SOS_LIMIT	Imit Run 4 cutoff value in seconds for low frequency
7831	FC.FC4.RX_SFREQ_DB	PD meters
7832	FC.FC4.RX_DP_LLAL	Run 4 differential pressure low-low alarm limits
7833	FC.FC4.RX_DP_LAL	Run 4 differential pressure low alarm limits
7834	FC.FC4.RX DP HAL	Run 4 differential pressure high alarm limits

Reg#	Variable	Description
7836	FC.FC4.RX_SP_LLAL	Run 4 static pressure low-low alarm limits
7837	FC.FC4.RX_SP_LAL	Run 4 static pressure low alarm limits
7838	FC.FC4.RX_SP_HAL	Run 4 static pressure high alarm limits
7839	FC.FC4.RX_SP_HHAL	Run 4 static pressure high-high alarm limits
7840	FC.FC4.RX_FTEMP_LLAL	Run 4 temperature low-low alarm limits
7841	FC.FC4.RX_FTEMP_LAL	Run 4 temperature low alarm limits
7842	FC.FC4.RX_FTEMP_HAL	Run 4 temperature high alarm limits
7843	FC.FC4.RX_FTEMP_HHAL	Run 4 temperature high-high alarm limits
7844	FC.FC4.RX_BETA_HILIMIT	Run 4 beta ratio high alarm limits
7845	FC.FC4.RX_BETA_LOLIMIT	Run 4 beta ratio low alarm limits
7846	FC.FC4.RX_DP_INP	Run 4 differential pressure input to the Flow Computer function block
7847	FC.FC4.DP_CH_AVG	Run 4 differential pressure current hour average
7848	FC.FC4.DP_PH_AVG	Run 4 differential pressure previous hour average
7849	FC.FC4.RX_SP_INP	Run 4 static pressure input to the Flow Computer function block
7850	FC.FC4.SP_CH_AVG	Run 4 static pressure current hour average
7851	FC.FC4.SP_PH_AVG	Run 4 static pressure previous hour average
7050		Run 4 temperature input to the Flow Computer
7852	FC.FC4.RX_FTEMP_INP	function block
7853	FC.FC4.FTEMP_CH_AVG	Run 4 temperature current hour average
7854	FC.FC4.FTEMP_PH_AVG	Run 4 temperature previous hour average Run 4 heating value input to the Flow Computer
7855	FC.FC4.RX_HTVAL_GC	function block
7856	FC.FC4.HTVAL_CH_AVG	Run 4 heating value current hour average
7857	FC.FC4.HTVAL_PH_AVG	Run 4 heating value previous hour average
7858	FC.FC4.RX_GRAVITY_LIVE	Run 4 specific gravity input to the Flow Computer function block
7859	FC.FC4.SG_CH_AVG	Run 4 specific gravity current hour average
7860	FC.FC4.SG_PH_AVG	Run 4 specific gravity previous hour average
		Run 4 Nitrogen input to the Flow Computer
7861	FC.FC4.RX_N2_LIVE	function block
7862	FC.FC4.N2_CH_AVG	Run 4 Nitrogen current hour average
7863	FC.FC4.N2_PH_AVG	Run 4 Nitrogen previous hour average
7864	FC.FC4.RX_CO2_LIVE	Run 4 Carbon Dioxide (CO2) input to the Flow Computer function block Run 4 Carbon Dioxide (CO2) current hour
7865	FC.FC4.CO2_CH_AVG	average Run 4 Carbon Dioxide (CO2) current nour average
7866	FC.FC4.CO2_PH_AVG	average Run 4 Methane (CH4) input to the Flow
7867	FC.FC4.RX_CH4_LIVE	Computer function block
7868	FC.FC4.CH4_CH_AVG	Run 4 Methane (CH4) current hour average
7869	FC.FC4.CH4_PH_AVG	Run 4 Methane (CH4) previous hour average
		Run 4 Ethane (C2) input to the Flow Computer
7870	FC.FC4.RX_C2_LIVE	function block
7871	FC.FC4.C2_CH_AVG	Run 4 Ethane (C2) current hour average
7872	FC.FC4.C2_PH_AVG	Run 4 Ethane (C2) previous hour average
7873	FC.FC4.RX_C3_LIVE	Run 4 Propane (C3) input to the Flow Computer function block
7874	FC.FC4.C3_CH_AVG	Run 4 Propane (C3) current hour average
7875	FC.FC4.C3_PH_AVG	Run 4 Propane (C3) previous hour average Run 4 I-Butane (I-C4) input to the Flow Computer
7876	FC.FC4.RX_IC4_LIVE	function block
7877	FC.FC4.IC4_CH_AVG	Run 4 I-Butane (I-C4) current hour average

Reg#	Variable	Description
7878	FC.FC4.IC4_PH_AVG	Run 4 I-Butane (I-C4) previous hour average
		Run 4 N-Butane (N-C4) input to the Flow
7879	FC.FC4.RX_NC4_LIVE	Computer function block
7880	FC.FC4.NC4_CH_AVG	Run 4 N-Butane (N-C4) current hour average
7881	FC.FC4.NC4_PH_AVG	Run 4 N-Butane (N-C4) previous hour average
7882	FC.FC4.RX_IC5_LIVE	Run 4 heating value input to the Flow Computer function block
7883	FC.FC4.IC5_CH_AVG	Run 4 heating value current hour average
7884	FC.FC4.IC5_PH_AVG	Run 4 heating value previous hour average Run 4 Pentane (CH5) input to the Flow Computer
7885	FC.FC4.RX_NC5_LIVE	function block
7886	FC.FC4.NC5_CH_AVG	Run 4 Pentane (CH5) current hour average
7887	FC.FC4.NC5_PH_AVG	Run 4 Pentane (CH5) previous hour average
7888	FC.FC4.RX_C6_LIVE	Run 4 Hexane (C6) input to the Flow Computer function block
		Run 4 Hexane (C6) current hour average
7889	FC.FC4.C6_CH_AVG	· · · · · · · · · · · · · · · · · · ·
7890	FC.FC4.C6_PH_AVG	Run 4 Hexane (C6) previous hour average Run 4 Heptane (C7) input to the Flow Computer
7891	FC.FC4.RX_C7_LIVE	function block
7892	FC.FC4.C7_CH_AVG	Run 4 Heptane (C7) current hour average
7893	FC.FC4.C7_PH_AVG	Run 4 Heptane (C7) previous hour average
7894	FC.FC4.RX_C8_LIVE	Run 4 Octane (C8) input to the Flow Computer function block
7895	FC.FC4.C8_CH_AVG	Run 4 Octane (C8) current hour average
7896	FC.FC4.C8_PH_AVG	Run 4 Octane (C8) previous hour average
7007		Run 4 Nonane (C9) input to the Flow Computer
7897	FC.FC4.RX_C9_LIVE	function block
7898	FC.FC4.C9_CH_AVG	Run 4 Nonane (C9) current hour average
7899	FC.FC4.C9_PH_AVG	Run 4 Nonane (C9) previous hour average
7900	FC.FC4.RX_C10_LIVE	Run 4 Decane (C10) input to the Flow Computer function block
7901	FC.FC4.C10_CH_AVG	Run 4 Decane (C10) current hour average
7902	FC.FC4.C10_PH_AVG	Run 4 Decane (C10) previous hour average
7903	FC.FC4.RX_H2O_PCT	Run 4 Water content (H2O) input to the Flow Computer function block
7904	FC.FC4.H2O_CH_AVG	Run 4 Water content (H2O) current hour average
		Run 4 Water content (H2O) previous hour
7905	FC.FC4.H2O_PH_AVG	average
7906	FC.FC4.RX_H2S_PCT	Run 4 Hydrogen sulfide (H2S) input to the Flow Computer function block
7907	FC.FC4.H2S_CH_AVG	Run 4 Hydrogen sulfide (H2S) current hour average
7908	FC.FC4.H2S_PH_AVG	Run 4 Hydrogen sulfide (H2S) previous hour average
7909	FC.FC4.RX_H2_PCT	Run 4 Hydrogen (H2) input to the Flow Computer function block
7910	FC.FC4.H2_CH_AVG	Run 4 Hydrogen (H2) current hour average
7911	FC.FC4.H2_PH_AVG	Run 4 Hydrogen (H2) previous hour average
7912	FC.FC4.RX_CO_PCT	Run 4 Carbon Monoxide (CO) input to the Flow Computer function block
7913	FC.FC4.CO_CH_AVG	Run 4 Carbon Monoxide (CO) current hour average
		Run 4 Carbon Monoxide (CO) previous hour
7914	FC.FC4.CO_PH_AVG	average Run 4 Oxygen (O2) input to the Flow Computer
7915	FC.FC4.RX_O2_PCT	function block
7916	FC.FC4.02_CH_AVG	Run 4 Oxygen (O2) current hour average

Reg#	Variable	Description
7917	FC.FC4.02_PH_AVG	Run 4 Oxygen (O2) previous hour average
		Run 4 Helium (H2) input to the Flow Computer
7918	FC.FC4.RX_HE_PCT	function block
7919	FC.FC4.HE_CH_AVG	Run 4 Helium (H2) current hour average
7920	FC.FC4.HE_PH_AVG	Run 4 Helium (H2) previous hour average
7921	FC.FC4.RX_AR_PCT	Run 4 Argon (AR) input to the Flow Computer function block
7922	FC.FC4.AR_CH_AVG	Run 4 Argon (AR) current hour average
7923	FC.FC4.AR_PH_AVG	Run 4 Argon (AR) previous hour average
7924	FC.FC5.RX_CFG_TYPE	Run 5 configuration type
7925	FC.RUN_5_STATION	Run 5 station assignment
7926	FC.RUN_5_DIRECTION	Run 5 direction
7927	FC.RUN_5_SPSOURCE	Run 5 static pressure source
7928	FC.R5_MVTID_SP	Run 5 MVT ID for static pressure
7929	FC.FC5.RX_SP_BUF	Run 5 static pressure value
7930	FC.RUN_5_FTSOURCE	Run 5 temperature source
7931	FC.R5_MVTID_FT	Run 5 MVT ID for temperature
7932	FC.FC5.RX_FTEMP_BUF	Run 5 temperature value
7933	FC.FC5.RX_PIPE_DIAM	Run 5 pipe diameter
7934	FC.FC5.ORIF_DIAM_INUSE	Run 5 orifice diameter in use
7935	FC.FC5.RX_DPCUT_VAL	Run 5 differential pressure cutoff
7936	FC.RUN_5_DPSOURCE	Run 5 differential pressure source
7937	FC.R5_MVTID_DP	Run 5 MVT ID for differential pressure
7938	FC.FC5.RX_DP_BUF	Run 5 differential pressure value
7939	FC.FC5.OR_FLOW_RATE	Run 5 flow rate
7940	FC.FC5.RX_FRATE_ARCHUNITS	Run 5 flow rate units
7941	FC.FC5.OR_ENERGY_RATE	Run 5 energy rate
7942	FC.FC5.RX_ERATE_ARCHUNITS	Run 5 energy rate units
7943	FC.FC5.RX_ORIF_DIAM	Run 5 orifice diameter setting
7944	FC.FC5.RX_ORIF_UNITS	Run 5 orifice diameter units
7945	FC.FC5.RX_BETA	Run 5 beta ratio
7946	FC.FC5.OR_MINFLOWRATE	Run 5 minimum flow rate
7947	FC.FC5.OR MAXFLOWRATE	Run 5 maximum flow rate
7948	FC.RUN_5_MAXFREQ	Run 5 maximum frequency
7940	FC.FC5.RX_LCUTOFF	Run 5 low frequency cutoff
7343		Run 5 AGA7 K factor (pulses/volume or
7950	FC.FC5.RX_AGA7_KFACTOR	volume/pulse)
7951	FC.FC5.IUDI_COUNT	Run 5 Counts from HSC
7952	FC.FC5.RX_PPS	Run 5 pulses per second (filtered frequency)
7953	FC.FC5.RX_AGA7_FACTOR	Run 5 AGA7 correction factor
7954	FC.FC5.RX_KFACTOR_USED	Run 5 AGA7 K factor used
7955	FC.FC5.OR_UCFLOWRATE	Run 5 uncorrected flow rate
7956	FC.FC5.RX_AA_CUTOFF	Run 5 AutoAdjust low frequency cutoff
7957	FC.AA_5.KM	Run 5 AutoAdjust K factor Main Rotor
7958	FC.AA_5.KS	Run 5 AutoAdjust K factor Sense Rotor
7959	FC.RUN_5_AA_MAXACF	Run 5 AutoAdjust maximum actual volume
7960	FC.AA_5.ABAR	Run 5 AutoAdjust a bar
7961	FC.FC5.RX_AA_DEVLIMIT	Run 5 AutoAdjust deviation limit
7962	FC.AA_5.IUDI_MAIN_ROTOR	Run 5 AutoAdjust delta counts from HSC to Main Rotor
7963	FC.AA_5.IUDI_SENS_ROTOR	Run 5 AutoAdjust delta counts from HSC to Sense Rotor

Reg#	Variable	Description
-		Run 5 AutoAdjust adjusted volume into the Flow
7964	FC.FC5.IR_AAVOLUME	Computer FB
7965	FC.AA_5_DELTAABAR	Run 5 AutoAdjust delta a bar
7966	FC.FC5.RX_AGA10_SOS	Run 5 Speed of Sound calculated by AGA 10
7967	FC.FC5.RX_SOS_PCT_DIFF	Run 5 Speed of Sound percentage difference between calculated and Ultrasonic
7968	FC.FC5.RX_SOS_LIMIT	Run 5 Speed of Sound percentage difference limit
7969	FC.FC5.RX_SFREQ_DB	Run 5 cutoff value in seconds for low frequency PD meters
7970	FC.FC5.RX_DP_LLAL	Run 5 differential pressure low-low alarm limits
7971	FC.FC5.RX_DP_LAL	Run 5 differential pressure low alarm limits
7972	FC.FC5.RX_DP_HAL	Run 5 differential pressure high alarm limits
7973	FC.FC5.RX_DP_HHAL	Run 5 differential pressure high-high alarm limits
7974	FC.FC5.RX_SP_LLAL	Run 5 static pressure low-low alarm limits
7975	FC.FC5.RX_SP_LAL	Run 5 static pressure low alarm limits
7976	FC.FC5.RX_SP_HAL	Run 5 static pressure high alarm limits
7977	FC.FC5.RX_SP_HHAL	Run 5 static pressure high-high alarm limits
7978	FC.FC5.RX_FTEMP_LLAL	Run 5 temperature low-low alarm limits
	FC.FC5.RX_FTEMP_LAL	
7979		Run 5 temperature low alarm limits
7980	FC.FC5.RX_FTEMP_HAL	Run 5 temperature high alarm limits
7981	FC.FC5.RX_FTEMP_HHAL	Run 5 temperature high-high alarm limits
7982	FC.FC5.RX_BETA_HILIMIT	Run 5 beta ratio high alarm limits
7983	FC.FC5.RX_BETA_LOLIMIT	Run 5 beta ratio low alarm limits
7984	FC.FC5.RX_DP_INP	Run 5 differential pressure input to the Flow Computer function block
7985	FC.FC5.DP_CH_AVG	Run 5 differential pressure current hour average
7986	FC.FC5.DP_PH_AVG	Run 5 differential pressure previous hour average
7987	FC.FC5.RX_SP_INP	Run 5 static pressure input to the Flow Computer function block
7988	FC.FC5.SP_CH_AVG	Run 5 static pressure current hour average
7989	FC.FC5.SP_PH_AVG	Run 5 static pressure previous hour average
7990	FC.FC5.RX_FTEMP_INP	Run 5 temperature input to the Flow Computer function block
7991	FC.FC5.FTEMP_CH_AVG	Run 5 temperature current hour average
7992	FC.FC5.FTEMP_PH_AVG	Run 5 temperature previous hour average
7993	FC.FC5.RX_HTVAL_GC	Run 5 heating value input to the Flow Computer function block
7994	FC.FC5.HTVAL_CH_AVG	Run 5 heating value current hour average
7995	FC.FC5.HTVAL_PH_AVG	Run 5 heating value previous hour average
7996	FC.FC5.RX_GRAVITY_LIVE	Run 5 specific gravity input to the Flow Computer function block
7997	FC.FC5.SG_CH_AVG	Run 5 specific gravity current hour average
7998	FC.FC5.SG_PH_AVG	Run 5 specific gravity previous hour average
7990	FC.FC5.RX_N2_LIVE	Run 5 Nitrogen input to the Flow Computer function block
8000	FC.FC5.N2_CH_AVG	Run 5 Nitrogen current hour average
	FC.FC5.N2_PH_AVG	Run 5 Nitrogen previous hour average
8001 8002	FC.FC5.RX_CO2_LIVE	Run 5 Carbon Dioxide (CO2) input to the Flow Computer function block
3002		Run 5 Carbon Dioxide (CO2) current hour
8003	FC.FC5.CO2_CH_AVG	average
8004	FC.FC5.CO2_PH_AVG	Run 5 Carbon Dioxide (CO2) previous hour average
8005	FC.FC5.RX_CH4_LIVE	Run 5 Methane (CH4) input to the Flow

Reg#	Variable	Description
		Computer function block
8006	FC.FC5.CH4_CH_AVG	Run 5 Methane (CH4) current hour average
8007	FC.FC5.CH4_PH_AVG	Run 5 Methane (CH4) previous hour average
		Run 5 Ethane (C2) input to the Flow Computer
8008	FC.FC5.RX_C2_LIVE	function block
8009	FC.FC5.C2_CH_AVG	Run 5 Ethane (C2) current hour average
8010	FC.FC5.C2_PH_AVG	Run 5 Ethane (C2) previous hour average
8011	FC.FC5.RX_C3_LIVE	Run 5 Propane (C3) input to the Flow Computer function block
8012	FC.FC5.C3_CH_AVG	Run 5 Propane (C3) current hour average
8012	FC.FC5.C3_PH_AVG	Run 5 Propane (C3) previous hour average
0015	10.103.03_111_XVG	Run 5 I-Butane (I-C4) input to the Flow Computer
8014	FC.FC5.RX_IC4_LIVE	function block
8015	FC.FC5.IC4_CH_AVG	Run 5 I-Butane (I-C4) current hour average
8016	FC.FC5.IC4_PH_AVG	Run 5 I-Butane (I-C4) previous hour average
		Run 5 N-Butane (N-C4) input to the Flow
8017	FC.FC5.RX_NC4_LIVE	Computer function block
8018	FC.FC5.NC4_CH_AVG	Run 5 N-Butane (N-C4) current hour average
8019	FC.FC5.NC4_PH_AVG	Run 5 N-Butane (N-C4) previous hour average
8020	FC.FC5.RX_IC5_LIVE	Run 5 heating value input to the Flow Computer function block
	FC.FC5.IC5_CH_AVG	
8021		Run 5 heating value current hour average
8022	FC.FC5.IC5_PH_AVG	Run 5 heating value previous hour average Run 5 Pentane (CH5) input to the Flow Computer
8023	FC.FC5.RX_NC5_LIVE	function block
8024	FC.FC5.NC5_CH_AVG	Run 5 Pentane (CH5) current hour average
8025	FC.FC5.NC5_PH_AVG	Run 5 Pentane (CH5) previous hour average
		Run 5 Hexane (C6) input to the Flow Computer
8026	FC.FC5.RX_C6_LIVE	function block
8027	FC.FC5.C6_CH_AVG	Run 5 Hexane (C6) current hour average
8028	FC.FC5.C6_PH_AVG	Run 5 Hexane (C6) previous hour average
8029	FC.FC5.RX_C7_LIVE	Run 5 Heptane (C7) input to the Flow Computer function block
8030	FC.FC5.C7_CH_AVG	Run 5 Heptane (C7) current hour average
8030	FC.FC5.C7_PH_AVG	Run 5 Heptane (C7) previous hour average
0001	<u>10.103.07_111_AVG</u>	Run 5 Octane (C8) input to the Flow Computer
8032	FC.FC5.RX_C8_LIVE	function block
8033	FC.FC5.C8_CH_AVG	Run 5 Octane (C8) current hour average
8034	FC.FC5.C8_PH_AVG	Run 5 Octane (C8) previous hour average
		Run 5 Nonane (C9) input to the Flow Computer
8035	FC.FC5.RX_C9_LIVE	function block
8036	FC.FC5.C9_CH_AVG	Run 5 Nonane (C9) current hour average
8037	FC.FC5.C9_PH_AVG	Run 5 Nonane (C9) previous hour average
8038	FC.FC5.RX_C10_LIVE	Run 5 Decane (C10) input to the Flow Computer function block
8039	FC.FC5.C10_CH_AVG	Run 5 Decane (C10) current hour average
8040	FC.FC5.C10_PH_AVG	Run 5 Decane (C10) previous hour average
0040		Run 5 Water content (H2O) input to the Flow
8041	FC.FC5.RX_H2O_PCT	Computer function block
8042	FC.FC5.H2O_CH_AVG	Run 5 Water content (H2O) current hour average
		Run 5 Water content (H2O) previous hour
8043	FC.FC5.H2O_PH_AVG	average
8044	FC.FC5.RX_H2S_PCT	Run 5 Hydrogen sulfide (H2S) input to the Flow Computer function block
5077		Run 5 Hydrogen sulfide (H2S) current hour
8045	FC.FC5.H2S_CH_AVG	average

Reg#	Variable	Description
		Run 5 Hydrogen sulfide (H2S) previous hour
8046	FC.FC5.H2S_PH_AVG	average
8047	FC.FC5.RX_H2_PCT	Run 5 Hydrogen (H2) input to the Flow Computer function block
8048	FC.FC5.H2_CH_AVG	Run 5 Hydrogen (H2) current hour average
8049	FC.FC5.H2_PH_AVG	Run 5 Hydrogen (H2) previous hour average
		Run 5 Carbon Monoxide (CO) input to the Flow
8050	FC.FC5.RX_CO_PCT	Computer function block
8051	FC.FC5.CO_CH_AVG	Run 5 Carbon Monoxide (CO) current hour average
		Run 5 Carbon Monoxide (CO) previous hour
8052	FC.FC5.CO_PH_AVG	average
8053	FC.FC5.RX_02_PCT	Run 5 Oxygen (O2) input to the Flow Computer function block
8054	FC.FC5.O2_CH_AVG	Run 5 Oxygen (O2) current hour average
8055	FC.FC5.O2_PH_AVG	Run 5 Oxygen (O2) previous hour average
0050		Run 5 Helium (H2) input to the Flow Computer
8056	FC.FC5.RX_HE_PCT	function block
8057	FC.FC5.HE_CH_AVG	Run 5 Helium (H2) current hour average
8058	FC.FC5.HE_PH_AVG	Run 5 Helium (H2) previous hour average Run 5 Argon (AR) input to the Flow Computer
8059	FC.FC5.RX_AR_PCT	function block
8060	FC.FC5.AR_CH_AVG	Run 5 Argon (AR) current hour average
8061	FC.FC5.AR_PH_AVG	Run 5 Argon (AR) previous hour average
8062	FC.FC6.RX_CFG_TYPE	Run 6 configuration type
8063	FC.RUN_6_STATION	Run 6 station assignment
8064	FC.RUN_6_DIRECTION	Run 6 direction
8065	FC.RUN_6_SPSOURCE	Run 6 static pressure source
8066	FC.R6_MVTID_SP	Run 6 MVT ID for static pressure
8067	FC.FC6.RX_SP_BUF	Run 6 static pressure value
8068	FC.RUN_6_FTSOURCE	Run 6 temperature source
8069	FC.R6_MVTID_FT	Run 6 MVT ID for temperature
8070	FC.FC6.RX_FTEMP_BUF	Run 6 temperature value
8071	FC.FC6.RX_PIPE_DIAM	Run 6 pipe diameter
8072	FC.FC6.ORIF_DIAM_INUSE	Run 6 orifice diameter in use
8073	FC.FC6.RX_DPCUT_VAL	Run 6 differential pressure cutoff
8074	FC.RUN_6_DPSOURCE	Run 6 differential pressure source
8075	FC.R6_MVTID_DP	Run 6 MVT ID for differential pressure
8076	FC.FC6.RX_DP_BUF	Run 6 differential pressure value
8077	FC.FC6.OR_FLOW_RATE	Run 6 flow rate
8078	FC.FC6.RX_FRATE_ARCHUNITS	Run 6 flow rate units
8079	FC.FC6.OR_ENERGY_RATE	Run 6 energy rate
8080	FC.FC6.RX_ERATE_ARCHUNITS	Run 6 energy rate units
8081	FC.FC6.RX_ORIF_DIAM	Run 6 orifice diameter setting
8082	FC.FC6.RX_ORIF_UNITS	Run 6 orifice diameter units
8083	FC.FC6.RX_BETA	Run 6 beta ratio
8084	FC.FC6.OR_MINFLOWRATE	Run 6 minimum flow rate
8085	FC.FC6.OR MAXFLOWRATE	Run 6 maximum flow rate
8085	FC.RUN_6_MAXFEQ	Run 6 maximum frequency
8080	FC.FC6.RX_LCUTOFF	Run 6 low frequency cutoff
		Run 6 AGA7 K factor (pulses/volume or
8088	FC.FC6.RX_AGA7_KFACTOR	volume/pulse)
8089	FC.FC6.IUDI_COUNT	Run 6 Counts from HSC

Reg#	Variable	Description
8090	FC.FC6.RX_PPS	Run 6 pulses per second (filtered frequency)
8091	FC.FC6.RX_AGA7_FACTOR	Run 6 AGA7 correction factor
8092	FC.FC6.RX_KFACTOR_USED	Run 6 AGA7 K factor used
8093	FC.FC6.OR_UCFLOWRATE	Run 6 uncorrected flow rate
8094	FC.FC6.RX_AA_CUTOFF	Run 6 AutoAdjust low frequency cutoff
8095	FC.AA_6.KM	Run 6 AutoAdjust K factor Main Rotor
8096	FC.AA_6.KS	Run 6 AutoAdjust K factor Sense Rotor
8097	FC.RUN_6_AA_MAXACF	Run 6 AutoAdjust maximum actual volume
8098	FC.AA_6.ABAR	Run 6 AutoAdjust a bar
8099	FC.FC6.RX_AA_DEVLIMIT	Run 6 AutoAdjust deviation limit
8100	FC.AA_6.IUDI_MAIN_ROTOR	Run 6 AutoAdjust delta counts from HSC to Main Rotor
8101	FC.AA_6.IUDI_SENS_ROTOR	Run 6 AutoAdjust delta counts from HSC to Sense Rotor
8102	FC.FC6.IR_AAVOLUME	Run 6 AutoAdjust adjusted volume into the Flow Computer FB
8103	FC.AA_6_DELTAABAR	Run 6 AutoAdjust delta a bar
8104	FC.FC6.RX_AGA10_SOS	Run 6 Speed of Sound calculated by AGA 10
8105	FC.FC6.RX_SOS_PCT_DIFF	Run 6 Speed of Sound percentage difference between calculated and Ultrasonic
8106	FC.FC6.RX_SOS_LIMIT	Run 6 Speed of Sound percentage difference limit
8107	FC.FC6.RX_SFREQ_DB	Run 6 cutoff value in seconds for low frequency PD meters
8108	FC.FC6.RX_DP_LLAL	Run 6 differential pressure low-low alarm limits
8109	FC.FC6.RX_DP_LAL	Run 6 differential pressure low alarm limits
8110	FC.FC6.RX_DP_HAL	Run 6 differential pressure high alarm limits
8111	FC.FC6.RX_DP_HHAL	Run 6 differential pressure high-high alarm limits
8112	FC.FC6.RX_SP_LLAL	Run 6 static pressure low-low alarm limits
8113	FC.FC6.RX_SP_LAL	Run 6 static pressure low alarm limits
8114	FC.FC6.RX_SP_HAL	Run 6 static pressure high alarm limits
8115	FC.FC6.RX_SP_HHAL	Run 6 static pressure high-high alarm limits
8116	FC.FC6.RX_FTEMP_LLAL	Run 6 temperature low-low alarm limits
8117	FC.FC6.RX_FTEMP_LAL	Run 6 temperature low alarm limits
8118	FC.FC6.RX_FTEMP_HAL	Run 6 temperature high alarm limits
8119	FC.FC6.RX_FTEMP_HHAL	Run 6 temperature high-high alarm limits
8120	FC.FC6.RX_BETA_HILIMIT	Run 6 beta ratio high alarm limits
8121	FC.FC6.RX_BETA_LOLIMIT	Run 6 beta ratio low alarm limits Run 6 differential pressure input to the Flow
8122	FC.FC6.RX_DP_INP	Computer function block
8123	FC.FC6.DP_CH_AVG	Run 6 differential pressure current hour average
8124	FC.FC6.DP_PH_AVG	Run 6 differential pressure previous hour average Run 6 static pressure input to the Flow Computer
8125	FC.FC6.RX_SP_INP	function block
8126	FC.FC6.SP_CH_AVG	Run 6 static pressure current hour average
8127	FC.FC6.SP_PH_AVG	Run 6 static pressure previous hour average Run 6 temperature input to the Flow Computer
8128	FC.FC6.RX_FTEMP_INP	function block
8129	FC.FC6.FTEMP_CH_AVG	Run 6 temperature current hour average
8130	FC.FC6.FTEMP_PH_AVG	Run 6 temperature previous hour average Run 6 heating value input to the Flow Computer
8131	FC.FC6.RX_HTVAL_GC	function block
8132	FC.FC6.HTVAL_CH_AVG	Run 6 heating value current hour average
8133	FC.FC6.HTVAL_PH_AVG	Run 6 heating value previous hour average

Reg#	Variable	Description
ntog#	Variable	Run 6 specific gravity input to the Flow
8134	FC.FC6.RX_GRAVITY_LIVE	Computer function block
8135	FC.FC6.SG_CH_AVG	Run 6 specific gravity current hour average
8136	FC.FC6.SG_PH_AVG	Run 6 specific gravity previous hour average
8137	FC.FC6.RX_N2_LIVE	Run 6 Nitrogen input to the Flow Computer function block
8138	FC.FC6.N2_CH_AVG	Run 6 Nitrogen current hour average
8139	FC.FC6.N2_PH_AVG	Run 6 Nitrogen previous hour average
8140	FC.FC6.RX_CO2_LIVE	Run 6 Carbon Dioxide (CO2) input to the Flow Computer function block
8141	FC.FC6.CO2_CH_AVG	Run 6 Carbon Dioxide (CO2) current hour average
8142	FC.FC6.CO2_PH_AVG	Run 6 Carbon Dioxide (CO2) previous hour average Run 6 Methane (CH4) input to the Flow
8143	FC.FC6.RX_CH4_LIVE	Computer function block
8144	FC.FC6.CH4_CH_AVG	Run 6 Methane (CH4) current hour average
8145	FC.FC6.CH4_PH_AVG	Run 6 Methane (CH4) previous hour average
8146	FC.FC6.RX_C2_LIVE	Run 6 Ethane (C2) input to the Flow Computer function block
8147	FC.FC6.C2_CH_AVG	Run 6 Ethane (C2) current hour average
8148	FC.FC6.C2_PH_AVG	Run 6 Ethane (C2) previous hour average
8149	FC.FC6.RX_C3_LIVE	Run 6 Propane (C3) input to the Flow Computer function block
8150	FC.FC6.C3_CH_AVG	Run 6 Propane (C3) current hour average
8150	FC.FC6.C3_PH_AVG	Run 6 Propane (C3) previous hour average
0101	FC.FC0.C3_FTI_AVG	Run 6 I-Butane (I-C4) input to the Flow Computer
8152	FC.FC6.RX_IC4_LIVE	function block
8153	FC.FC6.IC4_CH_AVG	Run 6 I-Butane (I-C4) current hour average
8154	FC.FC6.IC4_PH_AVG	Run 6 I-Butane (I-C4) previous hour average
8155	FC.FC6.RX_NC4_LIVE	Run 6 N-Butane (N-C4) input to the Flow Computer function block
8156	FC.FC6.NC4_CH_AVG	Run 6 N-Butane (N-C4) current hour average
8157	FC.FC6.NC4_PH_AVG	Run 6 N-Butane (N-C4) previous hour average
8158	FC.FC6.RX_IC5_LIVE	Run 6 heating value input to the Flow Computer function block
8159	FC.FC6.IC5_CH_AVG	Run 6 heating value current hour average
8160	FC.FC6.IC5_PH_AVG	Run 6 heating valueprevious hour averageRun 6 Pentane (CH5) input to the Flow Computer
8161	FC.FC6.RX_NC5_LIVE	function block
8162	FC.FC6.NC5_CH_AVG	Run 6 Pentane (CH5) current hour average
8163	FC.FC6.NC5_PH_AVG	Run 6 Pentane (CH5) previous hour averageRun 6 Hexane (C6) input to the Flow Computer
8164	FC.FC6.RX_C6_LIVE	function block
8165	FC.FC6.C6_CH_AVG	Run 6 Hexane (C6) current hour average
8166	FC.FC6.C6_PH_AVG	Run 6 Hexane (C6) previous hour average
8167	FC.FC6.RX_C7_LIVE	Run 6 Heptane (C7) input to the Flow Computer function block
8168	FC.FC6.C7_CH_AVG	Run 6 Heptane (C7) current hour average
8169	FC.FC6.C7_PH_AVG	Run 6 Heptane (C7) previous hour average
8170	FC.FC6.RX_C8_LIVE	Run 6 Octane (C8) input to the Flow Computer function block
8171	FC.FC6.C8_CH_AVG	Run 6 Octane (C8) current hour average
8172	FC.FC6.C8_PH_AVG	Run 6 Octane (C8) previous hour average
8173	FC.FC6.RX_C9_LIVE	Run 6 Nonane (C9) input to the Flow Computer function block

Reg#	Variable	Description
8174	FC.FC6.C9_CH_AVG	Run 6 Nonane (C9) current hour average
8175	FC.FC6.C9_PH_AVG	Run 6 Nonane (C9) previous hour average
		Run 6 Decane (C10) input to the Flow Computer
8176	FC.FC6.RX_C10_LIVE	function block
8177	FC.FC6.C10_CH_AVG	Run 6 Decane (C10) current hour average
8178	FC.FC6.C10_PH_AVG	Run 6 Decane (C10) previous hour average
8179	FC.FC6.RX_H2O_PCT	Run 6 Water content (H2O) input to the Flow Computer function block
8180	FC.FC6.H2O_CH_AVG	Run 6 Water content (H2O) current hour average
0100		Run 6 Water content (H2O) previous hour
8181	FC.FC6.H2O_PH_AVG	average
0400		Run 6 Hydrogen sulfide (H2S) input to the Flow
8182	FC.FC6.RX_H2S_PCT	Computer function block Run 6 Hydrogen sulfide (H2S) current hour
8183	FC.FC6.H2S_CH_AVG	average
		Run 6 Hydrogen sulfide (H2S) previous hour
8184	FC.FC6.H2S_PH_AVG	average
8185	FC.FC6.RX_H2_PCT	Run 6 Hydrogen (H2) input to the Flow Computer function block
8186	FC.FC6.H2_CH_AVG	Run 6 Hydrogen (H2) current hour average
8187	FC.FC6.H2_PH_AVG	Run 6 Hydrogen (H2) previous hour average
0107	T 0.1 00.112_1 T1_AV0	Run 6 Carbon Monoxide (CO) input to the Flow
8188	FC.FC6.RX_CO_PCT	Computer function block
		Run 6 Carbon Monoxide (CO) current hour
8189	FC.FC6.CO_CH_AVG	average Run 6 Carbon Monoxide (CO) previous hour
8190	FC.FC6.CO_PH_AVG	average
0.00		Run 6 Oxygen (O2) input to the Flow Computer
8191	FC.FC6.RX_O2_PCT	function block
8192	FC.FC6.O2_CH_AVG	Run 6 Oxygen (O2) current hour average
8193	FC.FC6.O2_PH_AVG	Run 6 Oxygen (O2) previous hour average
8194	FC.FC6.RX_HE_PCT	Run 6 Helium (H2) input to the Flow Computer function block
8195	FC.FC6.HE_CH_AVG	Run 6 Helium (H2) current hour average
8195	FC.FC6.HE_PH_AVG	Run 6 Helium (H2) previous hour average
0190		Run 6 Argon (AR) input to the Flow Computer
8197	FC.FC6.RX_AR_PCT	function block
8198	FC.FC6.AR_CH_AVG	Run 6 Argon (AR) current hour average
8199	FC.FC6.AR_PH_AVG	Run 6 Argon (AR) previous hour average
8200	FC.FC7.RX_CFG_TYPE	Run 7 configuration type
8201	FC.RUN_7_STATION	Run 7 station assignment
8202	FC.RUN_7_DIRECTION	Run 7 direction
8203	FC.RUN_7_SPSOURCE	Run 7 static pressure source
8204	FC.R7_MVTID_SP	Run 7 MVT ID for static pressure
8205	FC.FC7.RX_SP_BUF	Run 7 static pressure value
8206	FC.RUN_7_FTSOURCE	Run 7 temperature source
8207	FC.R7_MVTID_FT	Run 7 MVT ID for temperature
8208	FC.FC7.RX_FTEMP_BUF	Run 7 temperature value
8209	FC.FC7.RX_PIPE_DIAM	Run 7 pipe diameter
8210	FC.FC7.ORIF_DIAM_INUSE	Run 7 orifice diameter in use
8211	FC.FC7.RX_DPCUT_VAL	Run 7 differential pressure cutoff
8212	FC.RUN_7_DPSOURCE	Run 7 differential pressure source
8213	FC.R7_MVTID_DP	Run 7 MVT ID for differential pressure
8214	FC.FC7.RX_DP_BUF	Run 7 differential pressure value
8215	FC.FC7.OR_FLOW_RATE	Run 7 flow rate

Reg#	Variable	Description
8216	FC.FC7.RX_FRATE_ARCHUNITS	Run 7 flow rate units
8217	FC.FC7.OR_ENERGY_RATE	Run 7 energy rate
8218	FC.FC7.RX_ERATE_ARCHUNITS	Run 7 energy rate units
8219	FC.FC7.RX_ORIF_DIAM	Run 7 orifice diameter setting
8220	FC.FC7.RX_ORIF_UNITS	Run 7 orifice diameter units
8221	FC.FC7.RX_BETA	Run 7 beta ratio
8222	FC.FC7.OR_MINFLOWRATE	Run 7 minimum flow rate
8223	FC.FC7.OR_MAXFLOWRATE	Run 7 maximum flow rate
8224	FC.RUN_7_MAXFREQ	Run 7 maximum frequency
8225	FC.FC7.RX_LCUTOFF	Run 7 low frequency cutoff
8226	FC.FC7.RX_AGA7_KFACTOR	Run 7 AGA7 K factor (pulses/volume or volume/pulse)
8227	FC.FC7.IUDI_COUNT	Run 7 Counts from HSC
8228	FC.FC7.RX_PPS	Run 7 pulses per second (filtered frequency)
8229	FC.FC7.RX_AGA7_FACTOR	Run 7 AGA7 correction factor
8230	FC.FC7.RX_KFACTOR_USED	Run 7 AGA7 K factor used
8231	FC.FC7.OR_UCFLOWRATE	Run 7 uncorrected flow rate
8232	FC.FC7.RX_AA_CUTOFF	Run 7 AutoAdjust low frequency cutoff
8233	FC.AA_7.KM	Run 7 AutoAdjust K factor Main Rotor
8234	FC.AA_7.KS	Run 7 AutoAdjust K factor Sense Rotor
8235	FC.RUN_7_AA_MAXACF	Run 7 AutoAdjust maximum actual volume
8236	FC.AA_7.ABAR	Run 7 AutoAdjust a bar
8237	FC.FC7.RX_AA_DEVLIMIT	Run 7 AutoAdjust deviation limit
8238	FC.AA_7.IUDI_MAIN_ROTOR	Run 7 AutoAdjust delta counts from HSC to Main Rotor
8239	FC.AA_7.IUDI_SENS_ROTOR	Run 7 AutoAdjust delta counts from HSC to Sense Rotor
8240	FC.FC7.IR_AAVOLUME	Run 7 AutoAdjust adjusted volume into the Flow Computer FB
8241	FC.AA_7_DELTAABAR	Run 7 AutoAdjust delta a bar
8242	FC.FC7.RX_AGA10_SOS	Run 7 Speed of Sound calculated by AGA 10
8243	FC.FC7.RX_SOS_PCT_DIFF	Run 7 Speed of Sound percentage difference between calculated and Ultrasonic
8244	FC.FC7.RX_SOS_LIMIT	Run 7 Speed of Sound percentage difference limit
0045		Run 7 cutoff value in seconds for low frequency
8245	FC.FC7.RX_SFREQ_DB	PD meters
8246	FC.FC7.RX_DP_LLAL	Run 7 differential pressure low-low alarm limits
8247		Run 7 differential pressure low alarm limits
8248	FC.FC7.RX_DP_HAL	Run 7 differential pressure high alarm limits
8249	FC.FC7.RX_DP_HHAL	Run 7 differential pressure high-high alarm limits
8250	FC.FC7.RX_SP_LLAL	Run 7 static pressure low-low alarm limits
8251	FC.FC7.RX_SP_LAL	Run 7 static pressure low alarm limits
8252	FC.FC7.RX_SP_HAL	Run 7 static pressure high alarm limits
8253	FC.FC7.RX_SP_HHAL	Run 7 static pressure high-high alarm limits
8254	FC.FC7.RX_FTEMP_LLAL	Run 7 temperature low-low alarm limits
8255	FC.FC7.RX_FTEMP_LAL	Run 7 temperature low alarm limits
8256	FC.FC7.RX_FTEMP_HAL	Run 7 temperature high alarm limits
8257	FC.FC7.RX_FTEMP_HHAL	Run 7 temperature high-high alarm limits
8258	FC.FC7.RX_BETA_HILIMIT	Run 7 beta ratio high alarm limits
8259 8260	FC.FC7.RX_BETA_LOLIMIT FC.FC7.RX_DP_INP	Run 7 beta ratio low alarm limits Run 7 differential pressure input to the Flow Computer function block

Reg#	Variable	Description
8261	FC.FC7.DP_CH_AVG	Run 7 differential pressure current hour average
8262	FC.FC7.DP_PH_AVG	Run 7 differential pressure previous hour average
		Run 7 static pressure input to the Flow Computer
8263	FC.FC7.RX_SP_INP	function block
8264	FC.FC7.SP_CH_AVG	Run 7 static pressure current hour average
8265	FC.FC7.SP_PH_AVG	Run 7 static pressure previous hour average
8266	FC.FC7.RX_FTEMP_INP	Run 7 temperature input to the Flow Computer function block
8267	FC.FC7.FTEMP_CH_AVG	Run 7 temperature current hour average
8268	FC.FC7.FTEMP_PH_AVG	Run 7 temperature previous hour average
8269	FC.FC7.RX_HTVAL_GC	Run 7 heating value input to the Flow Computer function block
8270	FC.FC7.HTVAL_CH_AVG	Run 7 heating value current hour average
8271	FC.FC7.HTVAL_PH_AVG	Run 7 heating value previous hour average
0271		Run 7 specific gravity input to the Flow
8272	FC.FC7.RX_GRAVITY_LIVE	Computer function block
8273	FC.FC7.SG_CH_AVG	Run 7 specific gravity current hour average
8274	FC.FC7.SG_PH_AVG	Run 7 specific gravity previous hour average
		Run 7 Nitrogen input to the Flow Computer
8275	FC.FC7.RX_N2_LIVE	function block
8276	FC.FC7.N2_CH_AVG	Run 7 Nitrogen current hour average
8277	FC.FC7.N2_PH_AVG	Run 7 Nitrogen previous hour average Run 7 Carbon Dioxide (CO2) input to the Flow
8278	FC.FC7.RX_CO2_LIVE	Computer function block
8279	FC.FC7.CO2_CH_AVG	Run 7 Carbon Dioxide (CO2) current hour average
8280	FC.FC7.CO2_PH_AVG	Run 7 Carbon Dioxide (CO2) previous hour average
		Run 7 Methane (CH4) input to the Flow
8281	FC.FC7.RX_CH4_LIVE FC.FC7.CH4_CH_AVG	Computer function block
8282		Run 7 Methane (CH4) current hour average
8283	FC.FC7.CH4_PH_AVG	Run 7 Methane (CH4) previous hour average Run 7 Ethane (C2) input to the Flow Computer
8284	FC.FC7.RX_C2_LIVE	function block
8285	FC.FC7.C2_CH_AVG	Run 7 Ethane (C2) current hour average
8286	FC.FC7.C2_PH_AVG	Run 7 Ethane (C2) previous hour average
8287	FC.FC7.RX_C3_LIVE	Run 7 Propane (C3) input to the Flow Computer function block
8288	FC.FC7.C3_CH_AVG	Run 7 Propane (C3) current hour average
8289	FC.FC7.C3_PH_AVG	Run 7 Propane (C3) previous hour average
8290	FC.FC7.RX_IC4_LIVE	Run 7 I-Butane (I-C4) input to the Flow Computer function block
8291	FC.FC7.IC4_CH_AVG	Run 7 I-Butane (I-C4) current hour average
8292	FC.FC7.IC4_PH_AVG	Run 7 I-Butane (I-C4) previous hour average
0292		Run 7 N-Butane (N-C4) input to the Flow
8293	FC.FC7.RX_NC4_LIVE	Computer function block
8294	FC.FC7.NC4_CH_AVG	Run 7 N-Butane (N-C4) current hour average
8295	FC.FC7.NC4_PH_AVG	Run 7 N-Butane (N-C4) previous hour average
8296	FC.FC7.RX_IC5_LIVE	Run 7 heating value input to the Flow Computer function block
8297	FC.FC7.IC5_CH_AVG	Run 7 heating value current hour average
8298	FC.FC7.IC5_PH_AVG	Run 7 heating value previous hour average
8299	FC.FC7.RX_NC5_LIVE	Run 7 Pentane (CH5) input to the Flow Computer function block
8300	FC.FC7.NC5_CH_AVG	Run 7 Pentane (CH5) current hour average

Reg#	Variable	Description
		Run 7 Hexane (C6) input to the Flow Computer
8302	FC.FC7.RX_C6_LIVE	function block
8303	FC.FC7.C6_CH_AVG	Run 7 Hexane (C6) current hour average
8304	FC.FC7.C6_PH_AVG	Run 7 Hexane (C6) previous hour average Run 7 Heptane (C7) input to the Flow Computer
8305	FC.FC7.RX_C7_LIVE	function block
8306	FC.FC7.C7_CH_AVG	Run 7 Heptane (C7) current hour average
8307	FC.FC7.C7_PH_AVG	Run 7 Heptane (C7) previous hour average
8308	FC.FC7.RX_C8_LIVE	Run 7 Octane (C8) input to the Flow Computer function block
8309	FC.FC7.C8_CH_AVG	Run 7 Octane (C8) current hour average
8310	FC.FC7.C8_PH_AVG	Run 7 Octane (C8) previous hour average
0014		Run 7 Nonane (C9) input to the Flow Computer
8311	FC.FC7.RX_C9_LIVE	function block
8312	FC.FC7.C9_CH_AVG	Run 7 Nonane (C9) current hour average
8313	FC.FC7.C9_PH_AVG	Run 7 Nonane (C9) previous hour average Run 7 Decane (C10) input to the Flow Computer
8314	FC.FC7.RX_C10_LIVE	function block
8315	FC.FC7.C10_CH_AVG	Run 7 Decane (C10) current hour average
8316	FC.FC7.C10_PH_AVG	Run 7 Decane (C10) previous hour average
		Run 7 Water content (H2O) input to the Flow
8317	FC.FC7.RX_H2O_PCT	Computer function block
8318	FC.FC7.H2O_CH_AVG	Run 7 Water content (H2O) current hour average
8319	FC.FC7.H2O_PH_AVG	Run 7 Water content (H2O) previous hour average
8320	FC.FC7.RX_H2S_PCT	Run 7 Hydrogen sulfide (H2S) input to the Flow Computer function block
8321	FC.FC7.H2S_CH_AVG	Run 7 Hydrogen sulfide (H2S) current hour average
8322	FC.FC7.H2S_PH_AVG	Run 7 Hydrogen sulfide (H2S) previous hour average
8323	FC.FC7.RX_H2_PCT	Run 7 Hydrogen (H2) input to the Flow Computer function block
8324	FC.FC7.H2_CH_AVG	Run 7 Hydrogen (H2) current hour average
8325	FC.FC7.H2_PH_AVG	Run 7 Hydrogen (H2) previous hour average
8326	FC.FC7.RX_CO_PCT	Run 7 Carbon Monoxide (CO) input to the Flow Computer function block
0007		Run 7 Carbon Monoxide (CO) current hour
8327	FC.FC7.CO_CH_AVG	average Run 7 Carbon Monoxide (CO) previous hour
8328	FC.FC7.CO_PH_AVG	average
		Run 7 Oxygen (O2) input to the Flow Computer
8329	FC.FC7.RX_O2_PCT	function block
8330	FC.FC7.02_CH_AVG	Run 7 Oxygen (O2) current hour average
8331	FC.FC7.02_PH_AVG	Run 7 Oxygen (O2) previous hour average Run 7 Helium (H2) input to the Flow Computer
8332	FC.FC7.RX_HE_PCT	function block
8333	FC.FC7.HE_CH_AVG	Run 7 Helium (H2) current hour average
8334	FC.FC7.HE_PH_AVG	Run 7 Helium (H2) previous hour average
8335	FC.FC7.RX_AR_PCT	Run 7 Argon (AR) input to the Flow Computer function block
8336	FC.FC7.AR_CH_AVG	Run 7 Argon (AR) current hour average
8337	FC.FC7.AR_PH_AVG	Run 7 Argon (AR) previous hour average
8338	FC.FC8.RX_CFG_TYPE	Run 8 configuration type
8339	FC.RUN_8_STATION	Run 8 station assignment
8340	FC.RUN_8_DIRECTION	Run 8 direction
0040		

Reg#	Variable	Description
8341	FC.RUN_8_SPSOURCE	Run 8 static pressure source
8342	FC.R8_MVTID_SP	Run 8 MVT ID for static pressure
8343	FC.FC8.RX_SP_BUF	Run 8 static pressure value
8344	FC.RUN_8_FTSOURCE	Run 8 temperature source
8345	FC.R8_MVTID_FT	Run 8 MVT ID for temperature
8346	FC.FC8.RX_FTEMP_BUF	Run 8 temperature value
8347	FC.FC8.RX PIPE DIAM	Run 8 pipe diameter
8348	FC.FC8.ORIF_DIAM_INUSE	Run 8 orifice diameter in use
8349	FC.FC8.RX_DPCUT_VAL	Run 8 differential pressure cutoff
8350	FC.RUN_8_DPSOURCE	Run 8 differential pressure source
8351	FC.R8_MVTID_DP	Run 8 MVT ID for differential pressure
8352	FC.FC8.RX_DP_BUF	Run 8 differential pressure value
8353	FC.FC8.OR_FLOW_RATE	Run 8 flow rate
8354	FC.FC8.RX_FRATE_ARCHUNITS	Run 8 flow rate units
8355	FC.FC8.OR_ENERGY_RATE	Run 8 energy rate
8356	FC.FC8.RX_ERATE_ARCHUNITS	Run 8 energy rate units
8357	FC.FC8.RX_ORIF_DIAM	Run 8 orifice diameter setting
8358	FC.FC8.RX_ORIF_UNITS	Run 8 orifice diameter units
8359	FC.FC8.RX_BETA	Run 8 beta ratio
8360	FC.FC8.OR_MINFLOWRATE	Run 8 minimum flow rate
8361	FC.FC8.OR_MAXFLOWRATE	Run 8 maximum flow rate
8362	FC.RUN_8_MAXFREQ	Run 8 maximum frequency
8363	FC.FC8.RX_LCUTOFF	Run 8 low frequency cutoff
0303		Run 8 AGA7 K factor (pulses/volume or
8364	FC.FC8.RX_AGA7_KFACTOR	volume/pulse)
8365	FC.FC8.IUDI_COUNT	Run 8 Counts from HSC
8366	FC.FC8.RX_PPS	Run 8 pulses per second (filtered frequency)
8367	FC.FC8.RX_AGA7_FACTOR	Run 8 AGA7 correction factor
8368	FC.FC8.RX_KFACTOR_USED	Run 8 AGA7 K factor used
8369	FC.FC8.OR_UCFLOWRATE	Run 8 uncorrected flow rate
8370	FC.FC8.RX_AA_CUTOFF	Run 8 AutoAdjust low frequency cutoff
8371	FC.AA_8.KM	Run 8 AutoAdjust K factor Main Rotor
8372	FC.AA_8.KS	Run 8 AutoAdjust K factor Sense Rotor
8373	FC.RUN_8_AA_MAXACF	Run 8 AutoAdjust maximum actual volume
8374	FC.AA_8.ABAR	Run 8 AutoAdjust a bar
8375	FC.FC8.RX_AA_DEVLIMIT	Run 8 AutoAdjust deviation limit
00.0		Run 8 AutoAdjust delta counts from HSC to Main
8376	FC.AA_8.IUDI_MAIN_ROTOR	Rotor
0077		Run 8 AutoAdjust delta counts from HSC to
8377	FC.AA_8.IUDI_SENS_ROTOR	Sense Rotor Run 8 AutoAdjust adjusted volume into the Flow
8378	FC.FC8.IR_AAVOLUME	Computer FB
8379	FC.AA_8_DELTAABAR	Run 8 AutoAdjust delta a bar
8380	FC.FC8.RX_AGA10_SOS	Run 8 Speed of Sound calculated by AGA 10
0000		Run 8 Speed of Sound percentage difference
8381	FC.FC8.RX_SOS_PCT_DIFF	between calculated and Ultrasonic
0000		Run 8 Speed of Sound percentage difference
8382	FC.FC8.RX_SOS_LIMIT	limit Run 8 cutoff value in seconds for low frequency
8383	FC.FC8.RX_SFREQ_DB	PD meters
8384	FC.FC8.RX_DP_LLAL	Run 8 differential pressure low-low alarm limits
8385	FC.FC8.RX_DP_LAL	Run 8 differential pressure low alarm limits

Reg#	Variable	Description
8386	FC.FC8.RX_DP_HAL	Run 8 differential pressure high alarm limits
8387	FC.FC8.RX_DP_HHAL	Run 8 differential pressure high-high alarm limits
8388	FC.FC8.RX_SP_LLAL	Run 8 static pressure low-low alarm limits
8389	FC.FC8.RX_SP_LAL	Run 8 static pressure low alarm limits
8390	FC.FC8.RX_SP_HAL	Run 8 static pressure high alarm limits
8391	FC.FC8.RX_SP_HHAL	Run 8 static pressure high-high alarm limits
8392	FC.FC8.RX_FTEMP_LLAL	Run 8 temperature low-low alarm limits
8393	FC.FC8.RX_FTEMP_LAL	Run 8 temperature low alarm limits
8394	FC.FC8.RX_FTEMP_HAL	Run 8 temperature high alarm limits
8395	FC.FC8.RX_FTEMP_HHAL	Run 8 temperature high-high alarm limits
8396	FC.FC8.RX_BETA_HILIMIT	Run 8 beta ratio high alarm limits
8397	FC.FC8.RX_BETA_LOLIMIT	Run 8 beta ratio low alarm limits
8398	FC.FC8.RX_DP_INP	Run 8 differential pressure input to the Flow Computer function block
8399	FC.FC8.DP_CH_AVG	Run 8 differential pressure current hour average
8400	FC.FC8.DP_PH_AVG	Run 8 differential pressure previous hour average
8401	FC.FC8.RX_SP_INP	Run 8 static pressure input to the Flow Computer function block
8402	FC.FC8.SP_CH_AVG	Run 8 static pressure current hour average
8403	FC.FC8.SP_PH_AVG	Run 8 static pressure previous hour average
0.00		Run 8 temperature input to the Flow Computer
8404	FC.FC8.RX_FTEMP_INP	function block
8405	FC.FC8.FTEMP_CH_AVG	Run 8 temperature current hour average
8406	FC.FC8.FTEMP_PH_AVG	Run 8 temperature previous hour average
8407	FC.FC8.RX_HTVAL_GC	Run 8 heating value input to the Flow Computer function block
8408	FC.FC8.HTVAL_CH_AVG	Run 8 heating value current hour average
8409	FC.FC8.HTVAL_PH_AVG	Run 8 heating value previous hour average
8410	FC.FC8.RX_GRAVITY_LIVE	Run 8 specific gravity input to the Flow Computer function block
8411	FC.FC8.SG_CH_AVG	Run 8 specific gravity current hour average
8412	FC.FC8.SG_PH_AVG	Run 8 specific gravity previous hour average
8413	FC.FC8.RX_N2_LIVE	Run 8 Nitrogen input to the Flow Computer function block
	FC.FC8.N2_CH_AVG	Run 8 Nitrogen current hour average
8415	FC.FC8.N2_PH_AVG	Run 8 Nitrogen previous hour average
8416	FC.FC8.RX_CO2_LIVE	Run 8 Carbon Dioxide (CO2) input to the Flow Computer function block
		Run 8 Carbon Dioxide (CO2) current hour
8417	FC.FC8.CO2_CH_AVG	average
8418	FC.FC8.CO2_PH_AVG	Run 8 Carbon Dioxide (CO2) previous hour average
8419	FC.FC8.RX_CH4_LIVE	Run 8 Methane (CH4) input to the Flow Computer function block
8420	FC.FC8.CH4_CH_AVG	Run 8 Methane (CH4) current hour average
8421	FC.FC8.CH4_PH_AVG	Run 8 Methane (CH4) previous hour average
8422	FC.FC8.RX_C2_LIVE	Run 8 Ethane (C2) input to the Flow Computer function block
8423	FC.FC8.C2_CH_AVG	Run 8 Ethane (C2) current hour average
8424	FC.FC8.C2_PH_AVG	Run 8 Ethane (C2) previous hour average
8425	FC.FC8.RX_C3_LIVE	Run 8 Propane (C3) input to the Flow Computer function block
8426	FC.FC8.C3_CH_AVG	Run 8 Propane (C3) current hour average
8427	FC.FC8.C3_PH_AVG	Run 8 Propane (C3) previous hour average

Reg#	Variable	Description
		Run 8 I-Butane (I-C4) input to the Flow Computer
8428	FC.FC8.RX_IC4_LIVE	function block
8429	FC.FC8.IC4_CH_AVG	Run 8 I-Butane (I-C4) current hour average
8430	FC.FC8.IC4_PH_AVG	Run 8 I-Butane (I-C4) previous hour average
8431	FC.FC8.RX_NC4_LIVE	Run 8 N-Butane (N-C4) input to the Flow Computer function block
8432	FC.FC8.NC4_CH_AVG	Run 8 N-Butane (N-C4) current hour average
8433	FC.FC8.NC4_PH_AVG	Run 8 N-Butane (N-C4) current hour average
0400		Run 8 heating value input to the Flow Computer
8434	FC.FC8.RX_IC5_LIVE	function block
8435	FC.FC8.IC5_CH_AVG	Run 8 heating value current hour average
8436	FC.FC8.IC5_PH_AVG	Run 8 heating value previous hour average
		Run 8 Pentane (CH5) input to the Flow Computer
8437	FC.FC8.RX_NC5_LIVE	function block
8438	FC.FC8.NC5_CH_AVG	Run 8 Pentane (CH5) current hour average
8439	FC.FC8.NC5_PH_AVG	Run 8 Pentane (CH5) previous hour average Run 8 Hexane (C6) input to the Flow Computer
8440	FC.FC8.RX_C6_LIVE	function block
8441	FC.FC8.C6_CH_AVG	Run 8 Hexane (C6) current hour average
8442	FC.FC8.C6_PH_AVG	Run 8 Hexane (C6) previous hour average
		Run 8 Heptane (C7) input to the Flow Computer
8443	FC.FC8.RX_C7_LIVE	function block
8444	FC.FC8.C7_CH_AVG	Run 8 Heptane (C7) current hour average
8445	FC.FC8.C7_PH_AVG	Run 8 Heptane (C7) previous hour average
8446	FC.FC8.RX_C8_LIVE	Run 8 Octane (C8) input to the Flow Computer function block
8447	FC.FC8.C8_CH_AVG	Run 8 Octane (C8) current hour average
8448	FC.FC8.C8_PH_AVG	Run 8 Octane (C8) previous hour average
0440	FC.FC0.C0_FT1_AVG	Run 8 Nonane (C9) input to the Flow Computer
8449	FC.FC8.RX_C9_LIVE	function block
8450	FC.FC8.C9_CH_AVG	Run 8 Nonane (C9) current hour average
8451	FC.FC8.C9_PH_AVG	Run 8 Nonane (C9) previous hour average
0.450		Run 8 Decane (C10) input to the Flow Computer
8452	FC.FC8.RX_C10_LIVE	function block
8453	FC.FC8.C10_CH_AVG	Run 8 Decane (C10) current hour average
8454	FC.FC8.C10_PH_AVG	Run 8 Decane (C10) previous hour average Run 8 Water content (H2O) input to the Flow
8455	FC.FC8.RX_H2O_PCT	Computer function block
8456	FC.FC8.H2O_CH_AVG	Run 8 Water content (H2O) current hour average
		Run 8 Water content (H2O) previous hour
8457	FC.FC8.H2O_PH_AVG	average
8458	FC.FC8.RX_H2S_PCT	Run 8 Hydrogen sulfide (H2S) input to the Flow Computer function block
0-100		Run 8 Hydrogen sulfide (H2S) current hour
8459	FC.FC8.H2S_CH_AVG	average
0.400		Run 8 Hydrogen sulfide (H2S) previous hour
8460	FC.FC8.H2S_PH_AVG	average Run 8 Hydrogen (H2) input to the Flow Computer
8461	FC.FC8.RX_H2_PCT	function block
8462	FC.FC8.H2_CH_AVG	Run 8 Hydrogen (H2) current hour average
8463	FC.FC8.H2_PH_AVG	Run 8 Hydrogen (H2) previous hour average
		Run 8 Carbon Monoxide (CO) input to the Flow
8464	FC.FC8.RX_CO_PCT	Computer function block
8465	FC.FC8.CO_CH_AVG	Run 8 Carbon Monoxide (CO) current hour average
0-00		Run 8 Carbon Monoxide (CO) previous hour
8466	FC.FC8.CO_PH_AVG	average

Reg#	Variable	Description
		Run 8 Oxygen (O2) input to the Flow Computer
8467	FC.FC8.RX_02_PCT	function block
8468	FC.FC8.O2_CH_AVG	Run 8 Oxygen (O2) current hour average
8469	FC.FC8.O2_PH_AVG	Run 8 Oxygen (O2) previous hour average
8470	FC.FC8.RX_HE_PCT	Run 8 Helium (H2) input to the Flow Computer function block
8471	FC.FC8.HE_CH_AVG	Run 8 Helium (H2) current hour average
8472	FC.FC8.HE_PH_AVG	Run 8 Helium (H2) previous hour average
8473	FC.FC8.RX_AR_PCT	Run 8 Argon (AR) input to the Flow Computer function block
8474	FC.FC8.AR_CH_AVG	Run 8 Argon (AR) current hour average
8475	FC.FC8.AR_PH_AVG	Run 8 Argon (AR) previous hour average
		CWM Master Port connected to Ultrasonic Meter
8476	UFM.UFM_1_PORT	1
8477	UFM.UFM_1_ADDRESS	Address of Ultrasonic Meter 1
8478	UFM.UFM_1_TYPE	Ultrasonic Meter 1 Type
8479	UFM.UFM_1_AVGSOS	Ultrasonic Meter 1 average Speed of Sound (SOS) - all paths
8480	UFM.UFM_1_SOS1	Ultrasonic Meter 1 Speed of Sound (SOS) path 1
8481	UFM.UFM_1_SOS2	Ultrasonic Meter 1 Speed of Sound (SOS) path 2
8482	UFM.UFM_1_SOS3	Ultrasonic Meter 1 Speed of Sound (SOS) path 3
8483	UFM.UFM_1_SOS4	Ultrasonic Meter 1 Speed of Sound (SOS) path 4
8484	UFM.UFM_1_SOS5	Ultrasonic Meter 1 Speed of Sound (SOS) path 5
8485	MB.SPARE	Ultrasonic Meter n Profile
8486	UFM.UFM_1_SYSSTATUS	Ultrasonic Meter status
8487	UFM.UFM_1_GAIN1A	Ultrasonic Meter gain A path 1
8488	UFM.UFM_1_GAIN2A	Ultrasonic Meter gain A path 2
8489	UFM.UFM_1_GAIN3A	Ultrasonic Meter gain A path 3
8490	UFM.UFM_1_GAIN4A	Ultrasonic Meter gain A path 4
8491	UFM.UFM_1_GAIN5A	Ultrasonic Meter gain A path 5
8492	UFM.UFM_1_GAIN1B	Ultrasonic Meter gain B path 1
8493	UFM.UFM_1_GAIN2B	Ultrasonic Meter gain B path 2
8494	UFM.UFM_1_GAIN3B	Ultrasonic Meter gain B path 3
8495	UFM.UFM_1_GAIN4B	Ultrasonic Meter gain B path 4
8496	UFM.UFM_1_GAIN5B	Ultrasonic Meter gain B path 5
0.407		CWM Master Port connected to Ultrasonic Meter
8497	UFM.UFM_2_PORT	2 Address of Ultrassnip Motor 2
8498	UFM.UFM_2_ADDRESS	Address of Ultrasonic Meter 2
8499		Ultrasonic Meter 2 Type Ultrasonic Meter 2 average Speed of Sound
8500	UFM.UFM_2_AVGSOS	(SOS) - all paths
8501	UFM.UFM_2_SOS1	Ultrasonic Meter 2 Speed of Sound (SOS) path 1
8502	UFM.UFM_2_SOS2	Ultrasonic Meter 2 Speed of Sound (SOS) path 2
8503	UFM.UFM_2_SOS3 UFM.UFM_2_SOS4	Ultrasonic Meter 2 Speed of Sound (SOS) path 3
8504		Ultrasonic Meter 2 Speed of Sound (SOS) path 4
8505 8506	UFM.UFM_2_SOS5	Ultrasonic Meter 2 Speed of Sound (SOS) path 5
8506	MB.SPARE	Ultrasonic Meter n Profile
8507	UFM.UFM_2_SYSSTATUS	Ultrasonic Meter status
8508	UFM.UFM_2_GAIN1A	Ultrasonic Meter gain A path 1
8509	UFM.UFM_2_GAIN2A	Ultrasonic Meter gain A path 2
8510	UFM.UFM_2_GAIN3A	Ultrasonic Meter gain A path 3
8511	UFM.UFM_2_GAIN4A	Ultrasonic Meter gain A path 4

Reg#	Variable	Description
8512	UFM.UFM_2_GAIN5A	Ultrasonic Meter gain A path 5
8513	UFM.UFM_2_GAIN1B	Ultrasonic Meter gain B path 1
8514	UFM.UFM 2 GAIN2B	Ultrasonic Meter gain B path 2
8515	UFM.UFM_2_GAIN3B	Ultrasonic Meter gain B path 3
8516	UFM.UFM_2_GAIN4B	Ultrasonic Meter gain B path 4
8517	UFM.UFM_2_GAIN5B	Ultrasonic Meter gain B path 5
0011		CWM Master Port connected to Ultrasonic Meter
8518	UFM.UFM_3_PORT	3
8519	UFM.UFM_3_ADDRESS	Address of Ultrasonic Meter 3
8520	UFM.UFM_3_TYPE	Ultrasonic Meter 3 Type
8521	UFM.UFM_3_AVGSOS	Ultrasonic Meter 3 average Speed of Sound (SOS) - all paths
8522	UFM.UFM_3_SOS1	Ultrasonic Meter 3 Speed of Sound (SOS) path 1
8523	UFM.UFM_3_SOS2	Ultrasonic Meter 3 Speed of Sound (SOS) path 2
8524	UFM.UFM_3_SOS3	Ultrasonic Meter 3 Speed of Sound (SOS) path 3
8525	UFM.UFM_3_SOS4	Ultrasonic Meter 3 Speed of Sound (SOS) path 4
8526	UFM.UFM_3_SOS5	Ultrasonic Meter 3 Speed of Sound (SOS) path 5
8527	MB.SPARE	Ultrasonic Meter n Profile
8528	UFM.UFM_3_SYSSTATUS	Ultrasonic Meter status
8529	UFM.UFM_3_GAIN1A	Ultrasonic Meter gain A path 1
8530	UFM.UFM_3_GAIN2A	Ultrasonic Meter gain A path 2
8531	UFM.UFM_3_GAIN3A	Ultrasonic Meter gain A path 3
8532	UFM.UFM_3_GAIN4A	Ultrasonic Meter gain A path 4
8533	UFM.UFM_3_GAIN5A	Ultrasonic Meter gain A path 5
8534	UFM.UFM_3_GAIN1B	Ultrasonic Meter gain B path 1
8535	UFM.UFM_3_GAIN2B	Ultrasonic Meter gain B path 2
8536	UFM.UFM_3_GAIN3B	Ultrasonic Meter gain B path 3
8537	UFM.UFM_3_GAIN4B	Ultrasonic Meter gain B path 4
8538	UFM.UFM_3_GAIN5B	Ultrasonic Meter gain B path 5
0.500		CWM Master Port connected to Ultrasonic Meter
8539	UFM.UFM_4_PORT	4
8540	UFM.UFM_4_ADDRESS	Address of Ultrasonic Meter 4
8541	UFM.UFM_4_TYPE	Ultrasonic Meter 4 Type Ultrasonic Meter 4 average Speed of Sound
8542	UFM.UFM_4_AVGSOS	(SOS) - all paths
8543	UFM.UFM_4_SOS1	Ultrasonic Meter 4 Speed of Sound (SOS) path 1
8544	UFM.UFM_4_SOS2	Ultrasonic Meter 4 Speed of Sound (SOS) path 2
8545	UFM.UFM_4_SOS3	Ultrasonic Meter 4 Speed of Sound (SOS) path 3
8546	UFM.UFM_4_SOS4	Ultrasonic Meter 4 Speed of Sound (SOS) path 4
8547	 UFM.UFM_4_SOS5	Ultrasonic Meter 4 Speed of Sound (SOS) path 5
8548	MB.SPARE	Ultrasonic Meter n Profile
8549	UFM.UFM_4_SYSSTATUS	Ultrasonic Meter status
8550	UFM.UFM_4_GAIN1A	Ultrasonic Meter gain A path 1
8551	UFM.UFM_4_GAIN2A	Ultrasonic Meter gain A path 2
8552	UFM.UFM_4_GAIN3A	Ultrasonic Meter gain A path 3
8553	UFM.UFM_4_GAIN4A	Ultrasonic Meter gain A path 4
8554	UFM.UFM_4_GAIN5A	Ultrasonic Meter gain A path 5
8555	UFM.UFM_4_GAIN1B	Ultrasonic Meter gain B path 1
8556	UFM.UFM_4_GAIN2B	Ultrasonic Meter gain B path 2
8557	UFM.UFM_4_GAIN3B	Ultrasonic Meter gain B path 3
-	UFM.UFM_4_GAIN4B	Ultrasonic Meter gain B path 4

Reg#	Variable	Description
8559	UFM.UFM_4_GAIN5B	Ultrasonic Meter gain B path 5
0500		CWM Master Port connected to Ultrasonic Meter
8560	UFM.UFM_5_PORT	5 Address of Litrosenia Motor E
8561	UFM.UFM_5_ADDRESS	Address of Ultrasonic Meter 5
8562	UFM.UFM_5_TYPE	Ultrasonic Meter 5 Type Ultrasonic Meter 5 average Speed of Sound
8563	UFM.UFM_5_AVGSOS	(SOS) - all paths
8564	UFM.UFM_5_SOS1	Ultrasonic Meter 5 Speed of Sound (SOS) path 1
8565	UFM.UFM_5_SOS2	Ultrasonic Meter 5 Speed of Sound (SOS) path 2
8566	UFM.UFM_5_SOS3	Ultrasonic Meter 5 Speed of Sound (SOS) path 3
8567	UFM.UFM_5_SOS4	Ultrasonic Meter 5 Speed of Sound (SOS) path 4
8568	UFM.UFM_5_SOS5	Ultrasonic Meter 5 Speed of Sound (SOS) path 5
8569	MB.SPARE	Ultrasonic Meter n Profile
8570	UFM.UFM_5_SYSSTATUS	Ultrasonic Meter status
8571	UFM.UFM_5_GAIN1A	Ultrasonic Meter gain A path 1
8572	UFM.UFM_5_GAIN2A	Ultrasonic Meter gain A path 2
8573	UFM.UFM_5_GAIN3A	Ultrasonic Meter gain A path 3
8574	UFM.UFM_5_GAIN4A	Ultrasonic Meter gain A path 4
8575	UFM.UFM_5_GAIN5A	Ultrasonic Meter gain A path 5
8576	UFM.UFM_5_GAIN1B	Ultrasonic Meter gain B path 1
8577	UFM.UFM_5_GAIN2B	Ultrasonic Meter gain B path 2
8578	UFM.UFM_5_GAIN3B	Ultrasonic Meter gain B path 3
8579	UFM.UFM_5_GAIN4B	Ultrasonic Meter gain B path 4
8580	UFM.UFM_5_GAIN5B	Ultrasonic Meter gain B path 5
8581	UFM.UFM_6_PORT	CWM Master Port connected to Ultrasonic Meter 6
8582	UFM.UFM_6_ADDRESS	Address of Ultrasonic Meter 6
8583	UFM.UFM_6_TYPE	Ultrasonic Meter 6 Type
	<u></u>	Ultrasonic Meter 6 average Speed of Sound
8584	UFM.UFM_6_AVGSOS	(SOS) - all paths
8585	UFM.UFM_6_SOS1	Ultrasonic Meter 6 Speed of Sound (SOS) path 1
8586	UFM.UFM_6_SOS2	Ultrasonic Meter 6 Speed of Sound (SOS) path 2
8587	UFM.UFM_6_SOS3	Ultrasonic Meter 6 Speed of Sound (SOS) path 3
8588	UFM.UFM_6_SOS4	Ultrasonic Meter 6 Speed of Sound (SOS) path 4
8589	UFM.UFM_6_SOS5	Ultrasonic Meter 6 Speed of Sound (SOS) path 5
8590	MB.SPARE	Ultrasonic Meter n Profile
8591	UFM.UFM_6_SYSSTATUS	Ultrasonic Meter status
8592	UFM.UFM_6_GAIN1A	Ultrasonic Meter gain A path 1
8593	UFM.UFM_6_GAIN2A	Ultrasonic Meter gain A path 2
8594	UFM.UFM_6_GAIN3A	Ultrasonic Meter gain A path 3
8595	UFM.UFM_6_GAIN4A	Ultrasonic Meter gain A path 4
8596	UFM.UFM_6_GAIN5A	Ultrasonic Meter gain A path 5
8597	UFM.UFM_6_GAIN1B	Ultrasonic Meter gain B path 1
8598	UFM.UFM_6_GAIN2B	Ultrasonic Meter gain B path 2
8599	UFM.UFM_6_GAIN3B	Ultrasonic Meter gain B path 3
8600	UFM.UFM_6_GAIN4B	Ultrasonic Meter gain B path 4
8601	UFM.UFM_6_GAIN5B	Ultrasonic Meter gain B path 5
8602	PG_GC.GC_1.GC_1.FIXED_BTU	GC Dataset 1 Fixed BTU
8603	PG_GC.GC_1.GC_1.FIXED_SG	GC Dataset 1 Fixed Specific Gravity
8604	PG_GC.GC_1.GC_1.FIXED_N2	GC Dataset 1 Fixed N2
8605	PG_GC.GC_1.GC_1.FIXED_CO2	GC Dataset 1 Fixed CO2

Reg#	Variable	Description
8606	PG_GC.GC_1.GC_1.FIXED_CH4	GC Dataset 1 Fixed CH4
8607	PG_GC.GC_1.GC_1.FIXED_C2	GC Dataset 1 Fixed C2
8608	PG_GC.GC_1.GC_1.FIXED_C3	GC Dataset 1 Fixed C3
8609	PG_GC.GC_1.GC_1.FIXED_IC4	GC Dataset 1 Fixed IC4
8610	PG_GC.GC_1.GC_1.FIXED_NC4	GC Dataset 1 Fixed NC4
8611	PG_GC.GC_1.GC_1.FIXED_IC5	GC Dataset 1 Fixed IC5
8612	PG_GC.GC_1.GC_1.FIXED_NC5	GC Dataset 1 Fixed NC5
8613	PG_GC.GC_1.GC_1.FIXED_NC6	GC Dataset 1 Fixed NC6
8614	PG_GC.GC_1.GC_1.FIXED_NC7	GC Dataset 1 Fixed NC7
8615	PG_GC.GC_1.GC_1.FIXED_NC8	GC Dataset 1 Fixed NC8
8616	PG_GC.GC_1.GC_1.FIXED_NC9	GC Dataset 1 Fixed NC9
8617	PG_GC.GC_1.GC_1.FIXED_NC10	GC Dataset 1 Fixed NC10
8618	PG_GC.GC_1.GC_1.FIXED_H20	GC Dataset 1 Fixed H2O
8619	PG_GC.GC_1.GC_1.FIXED_H2S	GC Dataset 1 Fixed H2S
8620	PG_GC.GC_1.GC_1.FIXED_H2	GC Dataset 1 Fixed H2
8621	PG_GC.GC_1.GC_1.FIXED_CO	GC Dataset 1 Fixed CO
8622	PG_GC.GC_1.GC_1.FIXED_02	GC Dataset 1 Fixed O2
8623	PG_GC.GC_1.GC_1.FIXED_HE	GC Dataset 1 Fixed He
8624	PG_GC.GC_1.GC_1.FIXED_AR	GC Dataset 1 Fixed Ar
8625	PG_GC.GC_1.GC_1.FIXED_C6PLUS	GC Dataset 1 Fixed C6 Plus
8626	PG_GC.GC_1.GC_1.FIXED_C9PLUS	GC Dataset 1 Fixed C9 Plus
8627	PG_GC.GC_1.GC_1.FIXED_BTUSAT	GC Dataset 1 Fixed Saturated BTU
8628	PG_GC.GC_1.GC_2.FIXED_BTU	GC Dataset 2 Fixed BTU
8629	PG_GC.GC_1.GC_2.FIXED_SG	GC Dataset 2 Fixed Specific Gravity
8630	PG_GC.GC_1.GC_2.FIXED_N2	GC Dataset 2 Fixed N2
8631	PG_GC.GC_1.GC_2.FIXED_CO2	GC Dataset 2 Fixed CO2
8632	PG_GC.GC_1.GC_2.FIXED_CH4	GC Dataset 2 Fixed CH4
8633	PG_GC.GC_1.GC_2.FIXED_C2	GC Dataset 2 Fixed C2
8634	 PG_GC.GC_1.GC_2.FIXED_C3	GC Dataset 2 Fixed C3
8635	PG_GC.GC_1.GC_2.FIXED_IC4	GC Dataset 2 Fixed IC4
8636	PG_GC.GC_1.GC_2.FIXED_NC4	GC Dataset 2 Fixed NC4
8637	PG_GC.GC_1.GC_2.FIXED_IC5	GC Dataset 2 Fixed IC5
8638	PG_GC.GC_1.GC_2.FIXED_NC5	GC Dataset 2 Fixed NC5
8639	PG_GC.GC_1.GC_2.FIXED_NC6	GC Dataset 2 Fixed NC6
8640	PG_GC.GC_1.GC_2.FIXED_NC7	GC Dataset 2 Fixed NC7
8641	PG_GC.GC_1.GC_2.FIXED_NC8	GC Dataset 2 Fixed NC8
8642	PG_GC.GC_1.GC_2.FIXED_NC9	GC Dataset 2 Fixed NC9
8643	PG_GC.GC_1.GC_2.FIXED_NC10	GC Dataset 2 Fixed NC10
8644	PG_GC.GC_1.GC_2.FIXED_H2O	GC Dataset 2 Fixed H2O
8645	PG_GC.GC_1.GC_2.FIXED_H2S	GC Dataset 2 Fixed H2S
8646	PG_GC.GC_1.GC_2.FIXED_H2	GC Dataset 2 Fixed H2
8647	PG_GC.GC_1.GC_2.FIXED_CO	GC Dataset 2 Fixed CO
8648	PG_GC.GC_1.GC_2.FIXED_O2	GC Dataset 2 Fixed O2
8649	PG_GC.GC_1.GC_2.FIXED_HE	GC Dataset 2 Fixed He
8650	PG_GC.GC_1.GC_2.FIXED_AR	GC Dataset 2 Fixed Ar
8651	PG_GC.GC_1.GC_2.FIXED_C6PLUS	GC Dataset 2 Fixed C6 Plus
8652	PG_GC.GC_1.GC_2.FIXED_C9PLUS	GC Dataset 2 Fixed C9 Plus
8653	PG_GC.GC_1.GC_2.FIXED_BTUSAT	GC Dataset 2 Fixed Saturated BTU
8654	PG_GC.GC_1.GC_3.FIXED_BTU	GC Dataset 3 Fixed BTU
8655	PG_GC.GC_1.GC_3.FIXED_SG	GC Dataset 3 Fixed Specific Gravity

Reg#VariableDescription8656PG_GC.GC_1.GC_3.FIXED_N2GC Dataset 3 Fixed N28657PG_GC.GC_1.GC_3.FIXED_CO2GC Dataset 3 Fixed CO28658PG_GC.GC_1.GC_3.FIXED_CH4GC Dataset 3 Fixed CH48659PG_GC.GC_1.GC_3.FIXED_C2GC Dataset 3 Fixed C28660PG_GC.GC_1.GC_3.FIXED_C3GC Dataset 3 Fixed C38661PG_GC.GC_1.GC_3.FIXED_IC4GC Dataset 3 Fixed C38662PG_GC.GC_1.GC_3.FIXED_IC4GC Dataset 3 Fixed NC48663PG_GC.GC_1.GC_3.FIXED_IC5GC Dataset 3 Fixed NC48664PG_GC.GC_1.GC_3.FIXED_NC5GC Dataset 3 Fixed NC58665PG_GC.GC_1.GC_3.FIXED_NC6GC Dataset 3 Fixed NC68666PG_GC.GC_1.GC_3.FIXED_NC7GC Dataset 3 Fixed NC68667PG_GC.GC_1.GC_3.FIXED_NC8GC Dataset 3 Fixed NC88668PG_GC.GC_1.GC_3.FIXED_NC9GC Dataset 3 Fixed NC98669PG_GC.GC_1.GC_3.FIXED_NC10GC Dataset 3 Fixed NC10	
8657PG_GC.GC_1.GC_3.FIXED_CO2GC Dataset 3 Fixed CO28658PG_GC.GC_1.GC_3.FIXED_CH4GC Dataset 3 Fixed CH48659PG_GC.GC_1.GC_3.FIXED_C2GC Dataset 3 Fixed C28660PG_GC.GC_1.GC_3.FIXED_C3GC Dataset 3 Fixed C38661PG_GC.GC_1.GC_3.FIXED_IC4GC Dataset 3 Fixed IC48662PG_GC.GC_1.GC_3.FIXED_NC4GC Dataset 3 Fixed IC48663PG_GC.GC_1.GC_3.FIXED_NC4GC Dataset 3 Fixed IC58664PG_GC.GC_1.GC_3.FIXED_NC5GC Dataset 3 Fixed NC58665PG_GC.GC_1.GC_3.FIXED_NC6GC Dataset 3 Fixed NC68666PG_GC.GC_1.GC_3.FIXED_NC7GC Dataset 3 Fixed NC78667PG_GC.GC_1.GC_3.FIXED_NC9GC Dataset 3 Fixed NC9	
8658PG_GC.GC_1.GC_3.FIXED_CH4GC Dataset 3 Fixed CH48659PG_GC.GC_1.GC_3.FIXED_C2GC Dataset 3 Fixed C28660PG_GC.GC_1.GC_3.FIXED_C3GC Dataset 3 Fixed C38661PG_GC.GC_1.GC_3.FIXED_IC4GC Dataset 3 Fixed IC48662PG_GC.GC_1.GC_3.FIXED_NC4GC Dataset 3 Fixed NC48663PG_GC.GC_1.GC_3.FIXED_IC5GC Dataset 3 Fixed NC58664PG_GC.GC_1.GC_3.FIXED_NC5GC Dataset 3 Fixed NC58665PG_GC.GC_1.GC_3.FIXED_NC6GC Dataset 3 Fixed NC68666PG_GC.GC_1.GC_3.FIXED_NC7GC Dataset 3 Fixed NC78667PG_GC.GC_1.GC_3.FIXED_NC9GC Dataset 3 Fixed NC88668PG_GC.GC_1.GC_3.FIXED_NC9GC Dataset 3 Fixed NC9	
8659PG_GC.GC_1.GC_3.FIXED_C2GC Dataset 3 Fixed C28660PG_GC.GC_1.GC_3.FIXED_C3GC Dataset 3 Fixed C38661PG_GC.GC_1.GC_3.FIXED_IC4GC Dataset 3 Fixed IC48662PG_GC.GC_1.GC_3.FIXED_NC4GC Dataset 3 Fixed NC48663PG_GC.GC_1.GC_3.FIXED_IC5GC Dataset 3 Fixed IC58664PG_GC.GC_1.GC_3.FIXED_NC5GC Dataset 3 Fixed NC58665PG_GC.GC_1.GC_3.FIXED_NC6GC Dataset 3 Fixed NC68666PG_GC.GC_1.GC_3.FIXED_NC7GC Dataset 3 Fixed NC78667PG_GC.GC_1.GC_3.FIXED_NC8GC Dataset 3 Fixed NC88668PG_GC.GC_1.GC_3.FIXED_NC9GC Dataset 3 Fixed NC9	
8660 PG_GC.GC_1.GC_3.FIXED_C3 GC Dataset 3 Fixed C3 8661 PG_GC.GC_1.GC_3.FIXED_IC4 GC Dataset 3 Fixed IC4 8662 PG_GC.GC_1.GC_3.FIXED_NC4 GC Dataset 3 Fixed NC4 8663 PG_GC.GC_1.GC_3.FIXED_IC5 GC Dataset 3 Fixed IC5 8664 PG_GC.GC_1.GC_3.FIXED_NC5 GC Dataset 3 Fixed NC5 8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC5 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8661 PG_GC.GC_1.GC_3.FIXED_IC4 GC Dataset 3 Fixed IC4 8662 PG_GC.GC_1.GC_3.FIXED_NC4 GC Dataset 3 Fixed NC4 8663 PG_GC.GC_1.GC_3.FIXED_IC5 GC Dataset 3 Fixed IC5 8664 PG_GC.GC_1.GC_3.FIXED_NC5 GC Dataset 3 Fixed NC5 8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC6 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8662 PG_GC.GC_1.GC_3.FIXED_NC4 GC Dataset 3 Fixed NC4 8663 PG_GC.GC_1.GC_3.FIXED_IC5 GC Dataset 3 Fixed IC5 8664 PG_GC.GC_1.GC_3.FIXED_NC5 GC Dataset 3 Fixed NC5 8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC6 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8663 PG_GC.GC_1.GC_3.FIXED_IC5 GC Dataset 3 Fixed IC5 8664 PG_GC.GC_1.GC_3.FIXED_NC5 GC Dataset 3 Fixed NC5 8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC6 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8664 PG_GC.GC_1.GC_3.FIXED_NC5 GC Dataset 3 Fixed NC5 8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC6 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8665 PG_GC.GC_1.GC_3.FIXED_NC6 GC Dataset 3 Fixed NC6 8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8666 PG_GC.GC_1.GC_3.FIXED_NC7 GC Dataset 3 Fixed NC7 8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8667 PG_GC.GC_1.GC_3.FIXED_NC8 GC Dataset 3 Fixed NC8 8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8668 PG_GC.GC_1.GC_3.FIXED_NC9 GC Dataset 3 Fixed NC9	
8670 PG_GC.GC_1.GC_3.FIXED_H2O GC Dataset 3 Fixed H2O	
8671 PG_GC.GC_1.GC_3.FIXED_H2S GC Dataset 3 Fixed H2S	
8672 PG_GC.GC_1.GC_3.FIXED_H2 GC Dataset 3 Fixed H2	
8673 PG_GC.GC_1.GC_3.FIXED_CO GC Dataset 3 Fixed CO	
8674 PG_GC.GC_1.GC_3.FIXED_02 GC Dataset 3 Fixed 02	
8675 PG_GC.GC_1.GC_3.FIXED_HE GC Dataset 3 Fixed He	
8676 PG_GC.GC_1.GC_3.FIXED_AR GC Dataset 3 Fixed Ar	
8677 PG_GC.GC_1.GC_3.FIXED_C6PLUS GC Dataset 3 Fixed C6 Plus	
8678 PG_GC.GC_1.GC_3.FIXED_C9PLUS GC Dataset 3 Fixed C9 Plus	
8679 PG_GC.GC_1.GC_3.FIXED_BTUSAT GC Dataset 3 Fixed Saturated B	зти
8680 PG_GC.GC_1.GC_4.FIXED_BTU GC Dataset 4 Fixed BTU	
8681 PG_GC.GC_1.GC_4.FIXED_SG GC Dataset 4 Fixed Specific Gra	avitv
8682 PG_GC.GC_1.GC_4.FIXED_N2 GC Dataset 4 Fixed N2	
8683 PG_GC.GC_1.GC_4.FIXED_CO2 GC Dataset 4 Fixed CO2	
8684 PG_GC.GC_1.GC_4.FIXED_CH4 GC Dataset 4 Fixed CH4	
8685 PG_GC.GC_1.GC_4.FIXED_C2 GC Dataset 4 Fixed C2	
8686 PG_GC.GC_1.GC_4.FIXED_C3 GC Dataset 4 Fixed C3	
8687 PG_GC.GC_1.GC_4.FIXED_IC4 GC Dataset 4 Fixed IC4	
8688 PG_GC.GC_1.GC_4.FIXED_NC4 GC Dataset 4 Fixed NC4	
8689 PG_GC.GC_1.GC_4.FIXED_IC5 GC Dataset 4 Fixed IC5	
8690 PG_GC.GC_1.GC_4.FIXED_NC5 GC Dataset 4 Fixed NC5	
8691 PG_GC.GC_1.GC_4.FIXED_NC6 GC Dataset 4 Fixed NC6	
8692 PG_GC.GC_1.GC_4.FIXED_NC7 GC Dataset 4 Fixed NC7	
8693 PG_GC.GC_1.GC_4.FIXED_NC8 GC Dataset 4 Fixed NC8	
8694 PG_GC.GC_1.GC_4.FIXED_NC9 GC Dataset 4 Fixed NC9	
8695 PG_GC.GC_1.GC_4.FIXED_NC10 GC Dataset 4 Fixed NC10	
8696 PG_GC.GC_1.GC_4.FIXED_H2O GC Dataset 4 Fixed H2O	
8697 PG_GC.GC_1.GC_4.FIXED_H2S GC Dataset 4 Fixed H2S	
8698 PG_GC.GC_1.GC_4.FIXED_H2 GC Dataset 4 Fixed H2	
8699 PG_GC.GC_1.GC_4.FIXED_CO GC Dataset 4 Fixed CO	
8700 PG_GC.GC_1.GC_4.FIXED_O2 GC Dataset 4 Fixed O2	
8701 PG_GC.GC_1.GC_4.FIXED_HE GC Dataset 4 Fixed He	
8702 PG_GC.GC_1.GC_4.FIXED_AR GC Dataset 4 Fixed Ar	
8703 PG_GC.GC_1.GC_4.FIXED_C6PLUS GC Dataset 4 Fixed C6 Plus	
8704 PG_GC.GC_1.GC_4.FIXED_C9PLUS GC Dataset 4 Fixed C9 Plus	
8705 PG_GC.GC_1.GC_4.FIXED_BTUSAT GC Dataset 4 Fixed Saturated B	BTU

Reg#	Variable	Description
8706	PG_GC.GC_1.GC_5.FIXED_BTU	GC Dataset 5 Fixed BTU
8707	PG_GC.GC_1.GC_5.FIXED_SG	GC Dataset 5 Fixed Specific Gravity
8708	PG_GC.GC_1.GC_5.FIXED_N2	GC Dataset 5 Fixed N2
8709	PG_GC.GC_1.GC_5.FIXED_CO2	GC Dataset 5 Fixed CO2
8710	PG_GC.GC_1.GC_5.FIXED_CH4	GC Dataset 5 Fixed CH4
8711	PG_GC.GC_1.GC_5.FIXED_C2	GC Dataset 5 Fixed C2
8712	PG_GC.GC_1.GC_5.FIXED_C3	GC Dataset 5 Fixed C3
8713	PG_GC.GC_1.GC_5.FIXED_IC4	GC Dataset 5 Fixed IC4
8714	PG_GC.GC_1.GC_5.FIXED_NC4	GC Dataset 5 Fixed NC4
8715	PG_GC.GC_1.GC_5.FIXED_IC5	GC Dataset 5 Fixed IC5
8716	PG_GC.GC_1.GC_5.FIXED_NC5	GC Dataset 5 Fixed NC5
8717	PG_GC.GC_1.GC_5.FIXED_NC6	GC Dataset 5 Fixed NC6
8718	PG_GC.GC_1.GC_5.FIXED_NC7	GC Dataset 5 Fixed NC7
8719	PG_GC.GC_1.GC_5.FIXED_NC8	GC Dataset 5 Fixed NC8
8720	PG_GC.GC_1.GC_5.FIXED_NC9	GC Dataset 5 Fixed NC9
8721	PG_GC.GC_1.GC_5.FIXED_NC10	GC Dataset 5 Fixed NC10
8722	PG_GC.GC_1.GC_5.FIXED_H2O	GC Dataset 5 Fixed H2O
8723	PG_GC.GC_1.GC_5.FIXED_H2S	GC Dataset 5 Fixed H2S
8724	PG_GC.GC_1.GC_5.FIXED_H2	GC Dataset 5 Fixed H2
8725	PG_GC.GC_1.GC_5.FIXED_CO	GC Dataset 5 Fixed CO
8726	PG_GC.GC_1.GC_5.FIXED_02	GC Dataset 5 Fixed O2
8727	PG_GC.GC_1.GC_5.FIXED_HE	GC Dataset 5 Fixed He
8728	PG_GC.GC_1.GC_5.FIXED_AR	GC Dataset 5 Fixed Ar
8729	PG_GC.GC_1.GC_5.FIXED_C6PLUS	GC Dataset 5 Fixed C6 Plus
8730	PG_GC.GC_1.GC_5.FIXED_C9PLUS	GC Dataset 5 Fixed C9 Plus
8731	PG_GC.GC_1.GC_5.FIXED_BTUSAT	GC Dataset 5 Fixed Saturated BTU
8732	 PG_GC.GC_1.GC_6.FIXED_BTU	GC Dataset 6 Fixed BTU
8733	PG_GC.GC_1.GC_6.FIXED_SG	GC Dataset 6 Fixed Specific Gravity
8734	PG_GC.GC_1.GC_6.FIXED_N2	GC Dataset 6 Fixed N2
8735	PG_GC.GC_1.GC_6.FIXED_CO2	GC Dataset 6 Fixed CO2
8736	PG_GC.GC_1.GC_6.FIXED_CH4	GC Dataset 6 Fixed CH4
8737	PG_GC.GC_1.GC_6.FIXED_C2	GC Dataset 6 Fixed C2
8738	PG_GC.GC_1.GC_6.FIXED_C3	GC Dataset 6 Fixed C3
8739	PG_GC.GC_1.GC_6.FIXED_IC4	GC Dataset 6 Fixed IC4
8740	PG_GC.GC_1.GC_6.FIXED_NC4	GC Dataset 6 Fixed NC4
8741	PG_GC.GC_1.GC_6.FIXED_IC5	GC Dataset 6 Fixed IC5
8742	PG_GC.GC_1.GC_6.FIXED_NC5	GC Dataset 6 Fixed NC5
8743	PG_GC.GC_1.GC_6.FIXED_NC6	GC Dataset 6 Fixed NC6
8744	PG_GC.GC_1.GC_6.FIXED_NC7	GC Dataset 6 Fixed NC7
8745	PG_GC.GC_1.GC_6.FIXED_NC8	GC Dataset 6 Fixed NC8
8746	PG_GC.GC_1.GC_6.FIXED_NC9	GC Dataset 6 Fixed NC9
8747	PG_GC.GC_1.GC_6.FIXED_NC10	GC Dataset 6 Fixed NC10
8748	PG_GC.GC_1.GC_6.FIXED_H2O	GC Dataset 6 Fixed H2O
8749	PG_GC.GC_1.GC_6.FIXED_H2S	GC Dataset 6 Fixed H2S
8750	PG_GC.GC_1.GC_6.FIXED_H2	GC Dataset 6 Fixed H2
8751	PG_GC.GC_1.GC_6.FIXED_CO	GC Dataset 6 Fixed CO
8752	PG_GC.GC_1.GC_6.FIXED_O2	GC Dataset 6 Fixed O2
8753	PG_GC.GC_1.GC_6.FIXED_HE	GC Dataset 6 Fixed He
8754	PG_GC.GC_1.GC_6.FIXED_AR	GC Dataset 6 Fixed Ar
8755	PG_GC.GC_1.GC_6.FIXED_C6PLUS	GC Dataset 6 Fixed C6 Plus

Reg#	Variable	Description
8756	PG_GC.GC_1.GC_6.FIXED_C9PLUS	GC Dataset 6 Fixed C9 Plus
8757	PG_GC.GC_1.GC_6.FIXED_BTUSAT	GC Dataset 6 Fixed Saturated BTU
8758	PG_GC.GC_1.GC_7.FIXED_BTU	GC Dataset 7 Fixed BTU
8759	PG_GC.GC_1.GC_7.FIXED_SG	GC Dataset 7 Fixed Specific Gravity
8760	PG_GC.GC_1.GC_7.FIXED_N2	GC Dataset 7 Fixed N2
8761	PG_GC.GC_1.GC_7.FIXED_CO2	GC Dataset 7 Fixed CO2
8762	PG_GC.GC_1.GC_7.FIXED_CH4	GC Dataset 7 Fixed CH4
8763	PG_GC.GC_1.GC_7.FIXED_C2	GC Dataset 7 Fixed C2
8764	PG_GC.GC_1.GC_7.FIXED_C3	GC Dataset 7 Fixed C3
8765	PG_GC.GC_1.GC_7.FIXED_IC4	GC Dataset 7 Fixed IC4
8766	PG_GC.GC_1.GC_7.FIXED_NC4	GC Dataset 7 Fixed NC4
8767	PG_GC.GC_1.GC_7.FIXED_IC5	GC Dataset 7 Fixed IC5
8768	 PG_GC.GC_1.GC_7.FIXED_NC5	GC Dataset 7 Fixed NC5
8769	PG_GC.GC_1.GC_7.FIXED_NC6	GC Dataset 7 Fixed NC6
8770	 PG_GC.GC_1.GC_7.FIXED_NC7	GC Dataset 7 Fixed NC7
8771	PG_GC.GC_1.GC_7.FIXED_NC8	GC Dataset 7 Fixed NC8
8772	PG_GC.GC_1.GC_7.FIXED_NC9	GC Dataset 7 Fixed NC9
8773	PG_GC.GC_1.GC_7.FIXED_NC10	GC Dataset 7 Fixed NC10
8774	 PG_GC.GC_1.GC_7.FIXED_H2O	GC Dataset 7 Fixed H2O
8775	PG_GC.GC_1.GC_7.FIXED_H2S	GC Dataset 7 Fixed H2S
8776	PG_GC.GC_1.GC_7.FIXED_H2	GC Dataset 7 Fixed H2
8777	PG_GC.GC_1.GC_7.FIXED_CO	GC Dataset 7 Fixed CO
8778	PG_GC.GC_1.GC_7.FIXED_02	GC Dataset 7 Fixed O2
8779	PG_GC.GC_1.GC_7.FIXED_HE	GC Dataset 7 Fixed He
8780	PG_GC.GC_1.GC_7.FIXED_AR	GC Dataset 7 Fixed Ar
8781	PG_GC.GC_1.GC_7.FIXED_C6PLUS	GC Dataset 7 Fixed C6 Plus
8782	PG_GC.GC_1.GC_7.FIXED_C9PLUS	GC Dataset 7 Fixed C9 Plus
8783	PG_GC.GC_1.GC_7.FIXED_BTUSAT	GC Dataset 7 Fixed Saturated BTU
8784	PG_GC.GC_1.GC_8.FIXED_BTU	GC Dataset 8 Fixed BTU
8785	PG_GC.GC_1.GC_8.FIXED_SG	GC Dataset 8 Fixed Specific Gravity
8786	PG_GC.GC_1.GC_8.FIXED_N2	GC Dataset 8 Fixed N2
8787	PG_GC.GC_1.GC_8.FIXED_CO2	GC Dataset 8 Fixed CO2
8788	PG_GC.GC_1.GC_8.FIXED_CH4	GC Dataset 8 Fixed CH4
8789	PG_GC.GC_1.GC_8.FIXED_C2	GC Dataset 8 Fixed C2
8790	PG_GC.GC_1.GC_8.FIXED_C3	GC Dataset 8 Fixed C3
8791	PG_GC.GC_1.GC_8.FIXED_IC4	GC Dataset 8 Fixed IC4
8792	PG_GC.GC_1.GC_8.FIXED_NC4	GC Dataset 8 Fixed NC4
8793	PG_GC.GC_1.GC_8.FIXED_IC5	GC Dataset 8 Fixed IC5
8794	PG_GC.GC_1.GC_8.FIXED_NC5	GC Dataset 8 Fixed NC5
8795	PG_GC.GC_1.GC_8.FIXED_NC6	GC Dataset 8 Fixed NC6
8796	PG_GC.GC_1.GC_8.FIXED_NC7	GC Dataset 8 Fixed NC7
8797	PG_GC.GC_1.GC_8.FIXED_NC8	GC Dataset 8 Fixed NC8
8798	PG_GC.GC_1.GC_8.FIXED_NC9	GC Dataset 8 Fixed NC9
8799	PG_GC.GC_1.GC_8.FIXED_NC10	GC Dataset 8 Fixed NC10
8800	PG_GC.GC_1.GC_8.FIXED_H2O	GC Dataset 8 Fixed H2O
8801	PG_GC.GC_1.GC_8.FIXED_H2S	GC Dataset 8 Fixed H2S
8802	PG_GC.GC_1.GC_8.FIXED_H2	GC Dataset 8 Fixed H2
8803	PG_GC.GC_1.GC_8.FIXED_CO	GC Dataset 8 Fixed CO
8804	PG_GC.GC_1.GC_8.FIXED_O2	GC Dataset 8 Fixed O2
8805	PG_GC.GC_1.GC_8.FIXED_HE	GC Dataset 8 Fixed He

Reg#	Variable	Description
8806	PG_GC.GC_1.GC_8.FIXED_AR	GC Dataset 8 Fixed Ar
8807	PG_GC.GC_1.GC_8.FIXED_C6PLUS	GC Dataset 8 Fixed C6 Plus
8808	PG_GC.GC_1.GC_8.FIXED_C9PLUS	GC Dataset 8 Fixed C9 Plus
8809	PG_GC.GC_1.GC_8.FIXED_BTUSAT	GC Dataset 8 Fixed Saturated BTU
8810	MB.SPARE	
8811	MB.SPARE	
8812	MB.SPARE	
8813	MB.SPARE	
8814	MB.SPARE	
8815	MB.SPARE	
8816	MB.SPARE	
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8819	MB.SPARE	
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8844	MB.SPARE	
8845	MB.SPARE	
8846	MB.SPARE	
8847	MB.SPARE	
8848	MB.SPARE	
8849	MB.SPARE	
8850	MB.SPARE	
8851	MB.SPARE	
8852	MB.SPARE	
8853	MB.SPARE	
8854	MB.SPARE	
8855	MB.SPARE	

Reg#	Variable	Description
8856	MB.SPARE	
8857	MB.SPARE	
8858	MB.SPARE	
8859	MB.SPARE	
8860	MB.SPARE	
8861	MB.SPARE	
8862	MB.SPARE	
8863	MB.SPARE	
8864	MB.SPARE	
8865	MB.SPARE	
8866	MB.SPARE	
8867	MB.SPARE	
8868	MB.SPARE	
8869	MB.SPARE	
8870	MB.SPARE	
8871	MB.SPARE	
8872	MB.SPARE	
8873	MB.SPARE	
8874	MB.SPARE	
8875	MB.SPARE	
8876	MB.SPARE	
8877	MB.SPARE	
8878	MB.SPARE	
8879	MB.SPARE	
8880	MB.SPARE	
8881	MB.SPARE	
8882	MB.SPARE	
8883	MB.SPARE	
8884	MB.SPARE	
8885	MB.SPARE	
8886	MB.SPARE	
8887	MB.SPARE	
8888	MB.SPARE	
8889	MB.SPARE	
8890	MB.SPARE	
8891	MB.SPARE	
8892	MB.SPARE	
8893	MB.SPARE	
8894	MB.SPARE	
8895	MB.SPARE	
8896	MB.SPARE	
8897	MB.SPARE	
8898	MB.SPARE	
8899	MB.SPARE	
8900	MB.SPARE	
8901	MB.SPARE	
8902	MB.SPARE	
8903	MB.SPARE	
8904	MB.SPARE	
8905	MB.SPARE	

Reg#	Variable	Description
8906	MB.SPARE	
8907	MB.SPARE	
8908	MB.SPARE	
8909	MB.SPARE	
8910	MB.SPARE	
8911	MB.SPARE	
8912	MB.SPARE	
8913	MB.SPARE	
8914	PG_GC.GC_1.GC_1.TIMED_AR	GC Dataset 1 Timed Ar
8915	PG_GC.GC_1.GC_1.TIMED_BTU	GC Dataset 1 Timed BTU
8916	PG_GC.GC_1.GC_1.TIMED_BTUSAT	GC Dataset 1 Timed Saturated BTU
8917	PG_GC.GC_1.GC_1.TIMED_C2	GC Dataset 1 Timed C2
8918	 PG_GC.GC_1.GC_1.TIMED_C3	GC Dataset 1 Timed C3
8919	PG_GC.GC_1.GC_1.TIMED_C6PLUS	GC Dataset 1 Timed C6 Plus
8920	PG_GC.GC_1.GC_1.TIMED_C9PLUS	GC Dataset 1 Timed C9 Plus
8921	PG_GC.GC_1.GC_1.TIMED_CH4	GC Dataset 1 Timed CH4
8922	 PG_GC.GC_1.GC_1.TIMED_CO	GC Dataset 1 Timed CO
8923	PG_GC.GC_1.GC_1.TIMED_CO2	GC Dataset 1 Timed CO2
8924	PG_GC.GC_1.GC_1.TIMED_H2	GC Dataset 1 Timed H2
8925	PG_GC.GC_1.GC_1.TIMED_H2O	GC Dataset 1 Timed H2O
8926	PG_GC.GC_1.GC_1.TIMED_H2S	GC Dataset 1 Timed H2S
8927	PG_GC.GC_1.GC_1.TIMED_HE	GC Dataset 1 Timed He
8928	PG_GC.GC_1.GC_1.TIMED_IC4	GC Dataset 1 Timed IC4
8929	PG_GC.GC_1.GC_1.TIMED_IC5	GC Dataset 1 Timed IC5
8930	PG_GC.GC_1.GC_1.TIMED_N2	GC Dataset 1 Timed N2
8931	PG_GC.GC_1.GC_1.TIMED_NC10	GC Dataset 1 Timed NC10
8932	PG_GC.GC_1.GC_1.TIMED_NC4	GC Dataset 1 Timed NC4
8933	PG_GC.GC_1.GC_1.TIMED_NC5	GC Dataset 1 Timed NC5
8934	PG_GC.GC_1.GC_1.TIMED_NC6	GC Dataset 1 Timed NC6
8935	PG_GC.GC_1.GC_1.TIMED_NC7	GC Dataset 1 Timed NC7
8936	PG_GC.GC_1.GC_1.TIMED_NC8	GC Dataset 1 Timed NC8
8937	PG_GC.GC_1.GC_1.TIMED_NC9	GC Dataset 1 Timed NC9
8938	PG_GC.GC_1.GC_1.TIMED_NEOC5	GC Dataset 1 Timed Neo C5
8939	PG_GC.GC_1.GC_1.TIMED_O2	GC Dataset 1 Timed O2
8940	PG_GC.GC_1.GC_1.TIMED_SG	GC Dataset 1 Timed Specific Gravity
8941	MB.SPARE	Spare Register
0042	PC CC CC 1 CC 1 TIMED DATE	GC Dataset 1 Date for Timed Registers to be
8942	PG_GC.GC_1.GC_1.TIMED_DATE	copied to in use data GC Dataset 1 Time for Timed Registers to be
8943	PG_GC.GC_1.GC_1.TIMED_TIME	copied to in use data
8944	PG_GC.GC_1.GC_2.TIMED_AR	GC Dataset 2 Timed Ar
8945	PG_GC.GC_1.GC_2.TIMED_BTU	GC Dataset 2 Timed BTU
8946	PG_GC.GC_1.GC_2.TIMED_BTUSAT	GC Dataset 2 Timed Saturated BTU
8947	PG_GC.GC_1.GC_2.TIMED_C2	GC Dataset 2 Timed C2
8948	PG_GC.GC_1.GC_2.TIMED_C3	GC Dataset 2 Timed C3
8949	PG_GC.GC_1.GC_2.TIMED_C6PLUS	GC Dataset 2 Timed C6 Plus
8950	PG_GC.GC_1.GC_2.TIMED_C9PLUS	GC Dataset 2 Timed C9 Plus
8951	PG_GC.GC_1.GC_2.TIMED_CH4	GC Dataset 2 Timed CH4
8952	PG_GC.GC_1.GC_2.TIMED_CO	GC Dataset 2 Timed CO
8953	PG_GC.GC_1.GC_2.TIMED_CO2	GC Dataset 2 Timed CO2

Reg#	Variable	Description
8954	PG_GC.GC_1.GC_2.TIMED_H2	GC Dataset 2 Timed H2
8955	 PG_GC.GC_1.GC_2.TIMED_H2O	GC Dataset 2 Timed H2O
8956	 PG_GC.GC_1.GC_2.TIMED_H2S	GC Dataset 2 Timed H2S
8957	PG_GC.GC_1.GC_2.TIMED_HE	GC Dataset 2 Timed He
8958	PG_GC.GC_1.GC_2.TIMED_IC4	GC Dataset 2 Timed IC4
8959	PG_GC.GC_1.GC_2.TIMED_IC5	GC Dataset 2 Timed IC5
8960	PG_GC.GC_1.GC_2.TIMED_N2	GC Dataset 2 Timed N2
8961	PG_GC.GC_1.GC_2.TIMED_NC10	GC Dataset 2 Timed NC10
8962	PG_GC.GC_1.GC_2.TIMED_NC4	GC Dataset 2 Timed NC4
8963	PG_GC.GC_1.GC_2.TIMED_NC5	GC Dataset 2 Timed NC5
8964	PG_GC.GC_1.GC_2.TIMED_NC6	GC Dataset 2 Timed NC6
8965	PG_GC.GC_1.GC_2.TIMED_NC7	GC Dataset 2 Timed NC7
8966	PG_GC.GC_1.GC_2.TIMED_NC8	GC Dataset 2 Timed NC8
8967	PG_GC.GC_1.GC_2.TIMED_NC9	GC Dataset 2 Timed NC9
8968	PG_GC.GC_1.GC_2.TIMED_NEOC5	GC Dataset 2 Timed Neo C5
8969	PG_GC.GC_1.GC_2.TIMED_02	GC Dataset 2 Timed O2
8970	PG_GC.GC_1.GC_2.TIMED_SG	GC Dataset 2 Timed Specific Gravity
8971	MB.SPARE	Spare Register
0071		GC Dataset 2 Date for Timed Registers to be
8972	PG_GC.GC_1.GC_2.TIMED_DATE	copied to in use data
0070		GC Dataset 2 Time for Timed Registers to be
8973	PG_GC.GC_1.GC_2.TIMED_TIME	copied to in use data
8974	PG_GC.GC_1.GC_3.TIMED_AR	GC Dataset 3 Timed Ar
8975	PG_GC.GC_1.GC_3.TIMED_BTU	GC Dataset 3 Timed BTU
8976	PG_GC.GC_1.GC_3.TIMED_BTUSAT	GC Dataset 3 Timed Saturated BTU
8977	PG_GC.GC_1.GC_3.TIMED_C2	GC Dataset 3 Timed C2
8978	PG_GC.GC_1.GC_3.TIMED_C3	GC Dataset 3 Timed C3
8979	PG_GC.GC_1.GC_3.TIMED_C6PLUS	GC Dataset 3 Timed C6 Plus
8980	PG_GC.GC_1.GC_3.TIMED_C9PLUS	GC Dataset 3 Timed C9 Plus
8981	PG_GC.GC_1.GC_3.TIMED_CH4	GC Dataset 3 Timed CH4
8982	PG_GC.GC_1.GC_3.TIMED_CO	GC Dataset 3 Timed CO
8983	PG_GC.GC_1.GC_3.TIMED_CO2	GC Dataset 3 Timed CO2
8984	PG_GC.GC_1.GC_3.TIMED_H2	GC Dataset 3 Timed H2
8985	PG_GC.GC_1.GC_3.TIMED_H20	GC Dataset 3 Timed H2O
8986	PG_GC.GC_1.GC_3.TIMED_H2S	GC Dataset 3 Timed H2S
8987	PG_GC.GC_1.GC_3.TIMED_HE	GC Dataset 3 Timed He
8988	PG_GC.GC_1.GC_3.TIMED_IC4	GC Dataset 3 Timed IC4
8989	PG_GC.GC_1.GC_3.TIMED_IC5	GC Dataset 3 Timed IC5
8990	PG_GC.GC_1.GC_3.TIMED_N2	GC Dataset 3 Timed N2
8991	PG_GC.GC_1.GC_3.TIMED_NC10	GC Dataset 3 Timed NC10
8992	PG_GC.GC_1.GC_3.TIMED_NC4	GC Dataset 3 Timed NC4
8993 8004	PG_GC.GC_1.GC_3.TIMED_NC5	GC Dataset 3 Timed NC5
8994	PG_GC.GC_1.GC_3.TIMED_NC6	GC Dataset 3 Timed NC6
8995 8006	PG_GC.GC_1.GC_3.TIMED_NC7	GC Dataset 3 Timed NC7
8996	PG_GC.GC_1.GC_3.TIMED_NC8	GC Dataset 3 Timed NC8
8997	PG_GC.GC_1.GC_3.TIMED_NC9	GC Dataset 3 Timed Nos C5
8998	PG_GC.GC_1.GC_3.TIMED_NEOC5	GC Dataset 3 Timed Neo C5
8999	PG_GC.GC_1.GC_3.TIMED_02	GC Dataset 3 Timed O2
9000	PG_GC.GC_1.GC_3.TIMED_SG	GC Dataset 3 Timed Specific Gravity
9001	MB.SPARE	Spare Register

Reg#	Variable	Description
		GC Dataset 3 Date for Timed Registers to be
9002	PG_GC.GC_1.GC_3.TIMED_DATE	copied to in use data
0002	DO CO CO 1 CO 3 TIMED TIME	GC Dataset 3 Time for Timed Registers to be copied to in use data
9003	PG_GC.GC_1.GC_3.TIMED_TIME	
9004	PG_GC.GC_1.GC_4.TIMED_AR	GC Dataset 4 Timed Ar
9005	PG_GC.GC_1.GC_4.TIMED_BTU	GC Dataset 4 Timed BTU
9006	PG_GC.GC_1.GC_4.TIMED_BTUSAT	GC Dataset 4 Timed Saturated BTU
9007	PG_GC.GC_1.GC_4.TIMED_C2	GC Dataset 4 Timed C2
9008	PG_GC.GC_1.GC_4.TIMED_C3	GC Dataset 4 Timed C3
9009	PG_GC.GC_1.GC_4.TIMED_C6PLUS	GC Dataset 4 Timed C6 Plus
9010	PG_GC.GC_1.GC_4.TIMED_C9PLUS	GC Dataset 4 Timed C9 Plus
9011	PG_GC.GC_1.GC_4.TIMED_CH4	GC Dataset 4 Timed CH4
9012	PG_GC.GC_1.GC_4.TIMED_CO	GC Dataset 4 Timed CO
9013	PG_GC.GC_1.GC_4.TIMED_CO2	GC Dataset 4 Timed CO2
9014	PG_GC.GC_1.GC_4.TIMED_H2	GC Dataset 4 Timed H2
9015	PG_GC.GC_1.GC_4.TIMED_H2O	GC Dataset 4 Timed H2O
9016	PG_GC.GC_1.GC_4.TIMED_H2S	GC Dataset 4 Timed H2S
9017	PG_GC.GC_1.GC_4.TIMED_HE	GC Dataset 4 Timed He
9018	PG_GC.GC_1.GC_4.TIMED_IC4	GC Dataset 4 Timed IC4
9019	PG_GC.GC_1.GC_4.TIMED_IC5	GC Dataset 4 Timed IC5
9020	PG_GC.GC_1.GC_4.TIMED_N2	GC Dataset 4 Timed N2
9021	PG_GC.GC_1.GC_4.TIMED_NC10	GC Dataset 4 Timed NC10
9022	PG_GC.GC_1.GC_4.TIMED_NC4	GC Dataset 4 Timed NC4
9023	PG_GC.GC_1.GC_4.TIMED_NC5	GC Dataset 4 Timed NC5
9024	PG_GC.GC_1.GC_4.TIMED_NC6	GC Dataset 4 Timed NC6
9025	PG_GC.GC_1.GC_4.TIMED_NC7	GC Dataset 4 Timed NC7
9026	PG_GC.GC_1.GC_4.TIMED_NC8	GC Dataset 4 Timed NC8
9027	PG_GC.GC_1.GC_4.TIMED_NC9	GC Dataset 4 Timed NC9
9028	PG_GC.GC_1.GC_4.TIMED_NEOC5	GC Dataset 4 Timed Neo C5
9029	 PG_GC.GC_1.GC_4.TIMED_02	GC Dataset 4 Timed O2
9030	PG_GC.GC_1.GC_4.TIMED_SG	GC Dataset 4 Timed Specific Gravity
9031	MB.SPARE	Spare Register
		GC Dataset 4 Date for Timed Registers to be
9032	PG_GC.GC_1.GC_4.TIMED_DATE	copied to in use data
0022		GC Dataset 4 Time for Timed Registers to be
9033	PG_GC.GC_1.GC_4.TIMED_TIME	copied to in use data
9034	PG_GC.GC_1.GC_5.TIMED_AR	GC Dataset 5 Timed Ar
9035	PG_GC.GC_1.GC_5.TIMED_BTU	GC Dataset 5 Timed BTU
9036	PG_GC.GC_1.GC_5.TIMED_BTUSAT	GC Dataset 5 Timed Saturated BTU
9037	PG_GC.GC_1.GC_5.TIMED_C2	GC Dataset 5 Timed C2
9038	PG_GC.GC_1.GC_5.TIMED_C3	GC Dataset 5 Timed C3
9039	PG_GC.GC_1.GC_5.TIMED_C6PLUS	GC Dataset 5 Timed C6 Plus
9040	PG_GC.GC_1.GC_5.TIMED_C9PLUS	GC Dataset 5 Timed C9 Plus
9041	PG_GC.GC_1.GC_5.TIMED_CH4	GC Dataset 5 Timed CH4
9042	PG_GC.GC_1.GC_5.TIMED_CO	GC Dataset 5 Timed CO
9043	PG_GC.GC_1.GC_5.TIMED_CO2	GC Dataset 5 Timed CO2
9044	PG_GC.GC_1.GC_5.TIMED_H2	GC Dataset 5 Timed H2
9045	PG_GC.GC_1.GC_5.TIMED_H2O	GC Dataset 5 Timed H2O
9046	PG_GC.GC_1.GC_5.TIMED_H2S	GC Dataset 5 Timed H2S
9047	PG_GC.GC_1.GC_5.TIMED_HE	GC Dataset 5 Timed He
9048	PG_GC.GC_1.GC_5.TIMED_IC4	GC Dataset 5 Timed IC4

Reg#	Variable	Description
9049	PG_GC.GC_1.GC_5.TIMED_IC5	GC Dataset 5 Timed IC5
9050	PG_GC.GC_1.GC_5.TIMED_N2	GC Dataset 5 Timed N2
9051	PG_GC.GC_1.GC_5.TIMED_NC10	GC Dataset 5 Timed NC10
9052	PG_GC.GC_1.GC_5.TIMED_NC4	GC Dataset 5 Timed NC4
9053	PG_GC.GC_1.GC_5.TIMED_NC5	GC Dataset 5 Timed NC5
9054	PG_GC.GC_1.GC_5.TIMED_NC6	GC Dataset 5 Timed NC6
9055	PG_GC.GC_1.GC_5.TIMED_NC7	GC Dataset 5 Timed NC7
9056	PG_GC.GC_1.GC_5.TIMED_NC8	GC Dataset 5 Timed NC8
9057	PG_GC.GC_1.GC_5.TIMED_NC9	GC Dataset 5 Timed NC9
9058	PG_GC.GC_1.GC_5.TIMED_NEOC5	GC Dataset 5 Timed Neo C5
9059	PG_GC.GC_1.GC_5.TIMED_02	GC Dataset 5 Timed O2
9060	PG_GC.GC_1.GC_5.TIMED_SG	GC Dataset 5 Timed Specific Gravity
9061	MB.SPARE	Spare Register
		GC Dataset 5 Date for Timed Registers to be
9062	PG_GC.GC_1.GC_5.TIMED_DATE	copied to in use data
0062		GC Dataset 5 Time for Timed Registers to be
9063 9064	PG_GC.GC_1.GC_5.TIMED_TIME PG_GC.GC_1.GC_6.TIMED_AR	copied to in use data GC Dataset 6 Timed Ar
9065	PG_GC.GC_1.GC_6.TIMED_BTU	GC Dataset 6 Timed BTU
9066 9067	PG_GC.GC_1.GC_6.TIMED_BTUSAT	GC Dataset 6 Timed Saturated BTU GC Dataset 6 Timed C2
	PG_GC.GC_1.GC_6.TIMED_C2	
9068	PG_GC.GC_1.GC_6.TIMED_C3	GC Dataset 6 Timed C3
9069	PG_GC.GC_1.GC_6.TIMED_C6PLUS	GC Dataset 6 Timed C6 Plus
9070	PG_GC.GC_1.GC_6.TIMED_C9PLUS	GC Dataset 6 Timed C9 Plus
9071	PG_GC.GC_1.GC_6.TIMED_CH4 PG_GC.GC_1.GC_6.TIMED_CO	GC Dataset 6 Timed CH4
9072		GC Dataset 6 Timed CO
9073	PG_GC.GC_1.GC_6.TIMED_CO2	GC Dataset 6 Timed CO2
9074 9075	PG_GC.GC_1.GC_6.TIMED_H2 PG_GC.GC_1.GC_6.TIMED_H20	GC Dataset 6 Timed H2 GC Dataset 6 Timed H2O
9075	PG_GC.GC_1.GC_6.TIMED_H2S	GC Dataset 6 Timed H2S
9077	PG_GC.GC_1.GC_6.TIMED_HE	GC Dataset 6 Timed He
9077	PG_GC.GC_1.GC_6.TIMED_IC4	GC Dataset 6 Timed IC4
9079	PG_GC.GC_1.GC_6.TIMED_IC5	GC Dataset 6 Timed IC4 GC Dataset 6 Timed IC5
9079	PG_GC.GC_1.GC_6.TIMED_IC3	GC Dataset 6 Timed N2
9080	PG_GC.GC_1.GC_6.TIMED_N2	GC Dataset 6 Timed N2 GC Dataset 6 Timed NC10
9082	PG_GC.GC_1.GC_6.TIMED_NC4	GC Dataset 6 Timed NC4
9082	PG_GC.GC_1.GC_6.TIMED_NC5	GC Dataset 6 Timed NC5
9083	PG_GC.GC_1.GC_6.TIMED_NC6	GC Dataset 6 Timed NC6
9084	PG_GC.GC_1.GC_6.TIMED_NC7	GC Dataset 6 Timed NC6
9085	PG_GC.GC_1.GC_6.TIMED_NC8	GC Dataset 6 Timed NC8
9080	PG_GC.GC_1.GC_6.TIMED_NC9	GC Dataset 6 Timed NC9
9087	PG_GC.GC_1.GC_6.TIMED_NEOC5	GC Dataset 6 Timed Neo C5
9089	PG_GC.GC_1.GC_6.TIMED_02	GC Dataset 6 Timed O2
9090	PG_GC.GC_1.GC_6.TIMED_SG	GC Dataset 6 Timed O2 GC Dataset 6 Timed Specific Gravity
9090	MB.SPARE	Spare Register
3031		GC Dataset 6 Date for Timed Registers to be
9092	PG_GC.GC_1.GC_6.TIMED_DATE	copied to in use data
0000		GC Dataset 6 Time for Timed Registers to be
9093	PG_GC.GC_1.GC_6.TIMED_TIME	copied to in use data
9094	PG_GC.GC_1.GC_7.TIMED_AR	GC Dataset 7 Timed Ar
9095	PG_GC.GC_1.GC_7.TIMED_BTU	GC Dataset 7 Timed BTU

Reg#	Variable	Description
9096	PG_GC.GC_1.GC_7.TIMED_BTUSAT	GC Dataset 7 Timed Saturated BTU
9097	PG_GC.GC_1.GC_7.TIMED_C2	GC Dataset 7 Timed C2
9098	PG_GC.GC_1.GC_7.TIMED_C3	GC Dataset 7 Timed C3
9099	PG_GC.GC_1.GC_7.TIMED_C6PLUS	GC Dataset 7 Timed C6 Plus
9100	PG_GC.GC_1.GC_7.TIMED_C9PLUS	GC Dataset 7 Timed C9 Plus
9101	PG_GC.GC_1.GC_7.TIMED_CH4	GC Dataset 7 Timed CH4
9102	PG_GC.GC_1.GC_7.TIMED_CO	GC Dataset 7 Timed CO
9103	PG_GC.GC_1.GC_7.TIMED_CO2	GC Dataset 7 Timed CO2
9104	PG_GC.GC_1.GC_7.TIMED_H2	GC Dataset 7 Timed H2
9105	PG_GC.GC_1.GC_7.TIMED_H2O	GC Dataset 7 Timed H2O
9106	PG_GC.GC_1.GC_7.TIMED_H2S	GC Dataset 7 Timed H2S
9107	PG_GC.GC_1.GC_7.TIMED_HE	GC Dataset 7 Timed He
9108	PG_GC.GC_1.GC_7.TIMED_IC4	GC Dataset 7 Timed IC4
9109	PG_GC.GC_1.GC_7.TIMED_IC5	GC Dataset 7 Timed IC5
9110	PG_GC.GC_1.GC_7.TIMED_N2	GC Dataset 7 Timed N2
9111	PG_GC.GC_1.GC_7.TIMED_NC10	GC Dataset 7 Timed NC10
9112	PG_GC.GC_1.GC_7.TIMED_NC4	GC Dataset 7 Timed NC4
9113	PG_GC.GC_1.GC_7.TIMED_NC5	GC Dataset 7 Timed NC5
9114	PG_GC.GC_1.GC_7.TIMED_NC6	GC Dataset 7 Timed NC6
9115	PG_GC.GC_1.GC_7.TIMED_NC7	GC Dataset 7 Timed NC7
9116	PG_GC.GC_1.GC_7.TIMED_NC8	GC Dataset 7 Timed NC8
9117	PG_GC.GC_1.GC_7.TIMED_NC9	GC Dataset 7 Timed NC9
9118	PG_GC.GC_1.GC_7.TIMED_NEOC5	GC Dataset 7 Timed Neo C5
9119	PG_GC.GC_1.GC_7.TIMED_O2	GC Dataset 7 Timed O2
9120	PG_GC.GC_1.GC_7.TIMED_SG	GC Dataset 7 Timed Specific Gravity
9121	MB.SPARE	Spare Register
0400		GC Dataset 7 Date for Timed Registers to be
9122	PG_GC.GC_1.GC_7.TIMED_DATE	copied to in use data GC Dataset 7 Time for Timed Registers to be
9123	PG_GC.GC_1.GC_7.TIMED_TIME	copied to in use data
9124	PG_GC.GC_1.GC_8.TIMED_AR	GC Dataset 8 Timed Ar
9125	PG_GC.GC_1.GC_8.TIMED_BTU	GC Dataset 8 Timed BTU
9126	PG_GC.GC_1.GC_8.TIMED_BTUSAT	GC Dataset 8 Timed Saturated BTU
9127	PG_GC.GC_1.GC_8.TIMED_C2	GC Dataset 8 Timed C2
9128	PG_GC.GC_1.GC_8.TIMED_C3	GC Dataset 8 Timed C3
9129	PG_GC.GC_1.GC_8.TIMED_C6PLUS	GC Dataset 8 Timed C6 Plus
9130	PG_GC.GC_1.GC_8.TIMED_C9PLUS	GC Dataset 8 Timed C9 Plus
9131	PG_GC.GC_1.GC_8.TIMED_CH4	GC Dataset 8 Timed CH4
9132	PG_GC.GC_1.GC_8.TIMED_CO	GC Dataset 8 Timed CO
9133	PG_GC.GC_1.GC_8.TIMED_CO2	GC Dataset 8 Timed CO2
9134	PG_GC.GC_1.GC_8.TIMED_H2	GC Dataset 8 Timed H2
9135	PG_GC.GC_1.GC_8.TIMED_H2O	GC Dataset 8 Timed H2O
9136	PG_GC.GC_1.GC_8.TIMED_H2S	GC Dataset 8 Timed H2S
9137	PG_GC.GC_1.GC_8.TIMED_HE	GC Dataset 8 Timed He
9138	PG_GC.GC_1.GC_8.TIMED_IC4	GC Dataset 8 Timed IC4
9139	PG_GC.GC_1.GC_8.TIMED_IC5	GC Dataset 8 Timed IC5
9140	PG_GC.GC_1.GC_8.TIMED_N2	GC Dataset 8 Timed N2
9141	PG_GC.GC_1.GC_8.TIMED_NC10	GC Dataset 8 Timed NC10
9142	PG_GC.GC_1.GC_8.TIMED_NC4	GC Dataset 8 Timed NC4
9143	PG_GC.GC_1.GC_8.TIMED_NC5	GC Dataset 8 Timed NC5

Reg#	Variable	Description
9144	PG_GC.GC_1.GC_8.TIMED_NC6	GC Dataset 8 Timed NC6
9144	PG_GC.GC_1.GC_8.TIMED_NC7	GC Dataset 8 Timed NC7
9145	PG_GC.GC_1.GC_8.TIMED_NC8	GC Dataset 8 Timed NC8
9140	PG_GC.GC_1.GC_8.TIMED_NC9	GC Dataset 8 Timed NC8
	PG_GC.GC_1.GC_8.TIMED_NEOC5	GC Dataset 8 Timed Neo C5
9148		
9149	PG_GC.GC_1.GC_8.TIMED_02	GC Dataset 8 Timed O2
9150	PG_GC.GC_1.GC_8.TIMED_SG	GC Dataset 8 Timed Specific Gravity
9151	MB.SPARE	Spare Register GC Dataset 8 Date for Timed Registers to be
9152	PG_GC.GC_1.GC_8.TIMED_DATE	copied to in use data
		GC Dataset 8 Time for Timed Registers to be
9153	PG_GC.GC_1.GC_8.TIMED_TIME	copied to in use data
9154	MB.SPARE	
9155	MB.SPARE	
9156	MB.SPARE	
9157	MB.SPARE	
9158	MB.SPARE	
9159	MB.SPARE	
9160	MB.SPARE	
9161	MB.SPARE	
9162	MB.SPARE	
9163	MB.SPARE	
9164	MB.SPARE	
9165	MB.SPARE	
9166	MB.SPARE	
9167	MB.SPARE	
9168	MB.SPARE	
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9170	MB.SPARE	
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9187	MB.SPARE	
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9191	MB.SPARE	

Reg#	Variable	Description
9192	MB.SPARE	
9193	MB.SPARE	
9193	MB.SPARE	
9194	MB.SPARE	
9196	MB.SPARE	
9197	MB.SPARE	
9198	MB.SPARE	
9199	MB.SPARE MB.SPARE	
9200		
9201	MB.SPARE	
9202	MB.SPARE	
9203	MB.SPARE	
9204	MB.SPARE	
9205	MB.SPARE	
9206	MB.SPARE	
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9208	MB.SPARE	
9209	MB.SPARE	
9210	MB.SPARE	
9211	MB.SPARE	
9212	MB.SPARE	
9213	MB.SPARE	
9214	MB.SPARE	
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9217	MB.SPARE	
9218	MB.SPARE	
9219	MB.SPARE MB.SPARE	
9220	MB.SPARE	
9221	MB.SPARE	
9222 9223	MB.SPARE	
9223	MB.SPARE	
9224	MB.SPARE	
9225	MB.SPARE	
9220	MB.SPARE	
9227	MB.SPARE	
9228	MB.SPARE	
9229	MB.SPARE MB.SPARE	
9230	MB.SPARE	
9231	MB.SPARE	
9232	MB.SPARE	
9233	MB.SPARE	
9234	MB.SPARE MB.SPARE	
9235	MB.SPARE	
9236	MB.SPARE	
	MB.SPARE MB.SPARE	
9238		
9239	MB.SPARE	
9240	MB.SPARE	
9241	MB.SPARE	

Reg#	Variable	Description
9242	MB.SPARE	•
9243	MB.SPARE	
9244	MB.SPARE	
9245	MB.SPARE	
9246	MB.SPARE	
9247	MB.SPARE	
9248	MB.SPARE	
9249	MB.SPARE	
9250	MB.SPARE	
9251	MB.SPARE	
9252	MB.SPARE	
9253	MB.SPARE	
9254	MB.SPARE	
9255	MB.SPARE	
9256	MB.SPARE	
9257	MB.SPARE	
9258	MB.SPARE	
9259	MB.SPARE	
9260	MB.SPARE	
9261	MB.SPARE	
9262	MB.SPARE	
9263	MB.SPARE	
9264	MB.SPARE	
9265	MB.SPARE	
9266	MB.SPARE	
9267	MB.SPARE	
9268	MB.SPARE	
9269	MB.SPARE	
9270	MB.SPARE	
9271	MB.SPARE	
9272	MB.SPARE	
9273	MB.SPARE	
	PG_GC.GC_1.USER1CODE_AR	
9275	MB.SPARE	
9276 9277	MB.SPARE PG_GC.GC_1.USER1CODE_C2	
9277	PG_GC.GC_1.USER1CODE_C2 PG_GC.GC_1.USER1CODE_C3	
	PG_GC.GC_1.USER1CODE_C6PLUS	
9280	PG_GC.GC_1.USER1CODE_C9PLUS	
9281	PG_GC.GC_1.USER1CODE_CH4	
9282	PG_GC.GC_1.USER1CODE_CO	
9283	PG_GC.GC_1.USER1CODE_CO2	
9284	PG_GC.GC_1.USER1CODE_H2	
9285	PG_GC.GC_1.USER1CODE_H2O	
9286	PG_GC.GC_1.USER1CODE_H2S	
9287	PG_GC.GC_1.USER1CODE_HE	
9288	PG_GC.GC_1.USER1CODE_IC4	
9289	PG_GC.GC_1.USER1CODE_IC5	
9290	PG_GC.GC_1.USER1CODE_N2	
9291	PG_GC.GC_1.USER1CODE_NC10	
0201		L

Reg#		Description
9292	Variable PG_GC.GC_1.USER1CODE_NC4	Description
9292	PG_GC.GC_1.USER1CODE_NC5	
9293	PG_GC.GC_1.USER1CODE_NC6	
9294	PG_GC.GC_1.USER1CODE_NC7	
9295		
9290		
9298	PG_GC.GC_1.USER1CODE_NEOC5	
9299	PG_GC.GC_1.USER1CODE_02	
9300	MB.SPARE	
9301 9302	MB.SPARE PG_GC.GC_1.GC_1.TOTAL_MIN	GC Dataset 1 Minimum Limit for total sum of all components
9303	PG_GC.GC_1.GC_1.TOTAL_MAX	GC Dataset 1 Maximum Limit for total sum of all components
9303	PG_GC.GC_1.GC_1.S1_BTU_MIN	GC Dataset 1 Minimum Limit for BTU
9305	PG_GC.GC_1.GC_1.S1_BTU_MAX	GC Dataset 1 Maximum Limit for BTU
9306	PG_GC.GC_1.GC_1.S1_S1_SG_MIN	GC Dataset 1 Minimum Limit for Specifc Gravity
9307	PG_GC.GC_1.GC_1.S1_SG_MAX	GC Dataset 1 Maximum Limit for Specific Gravity
9308	PG_GC.GC_1.GC_1.S1_N2_MIN	GC Dataset 1 Minimum Limit for Nitrogen
9309	PG_GC.GC_1.GC_1.S1_N2_MAX	GC Dataset 1 Maximum Limit for Nitrogen
9310	PG_GC.GC_1.GC_1.S1_CO2_MIN	GC Dataset 1 Minimum Limit for CO2
9311	PG_GC.GC_1.GC_1.S1_CO2_MAX	GC Dataset 1 Maximum Limit for CO2
9312	PG_GC.GC_1.GC_1.S1_CH4_MIN	GC Dataset 1 Minimum Limit for Methane
9313	PG_GC.GC_1.GC_1.S1_CH4_MAX	GC Dataset 1 Maximum Limit for Methane
9314	PG_GC.GC_1.GC_1.S1_C2_MIN	GC Dataset 1 Minimum Limit for C2
9315	PG_GC.GC_1.GC_1.S1_C2_MAX	GC Dataset 1 Maximum Limit for C2
9316	PG_GC.GC_1.GC_1.S1_C3_MIN	GC Dataset 1 Minimum Limit for C3
9317	PG_GC.GC_1.GC_1.S1_C3_MAX	GC Dataset 1 Maximum Limit for C3
9318	PG_GC.GC_1.GC_1.S1_IC4_MIN	GC Dataset 1 Minimum Limit for IC4
9319	PG_GC.GC_1.GC_1.S1_IC4_MAX	GC Dataset 1 Maximum Limit for IC4
9320	PG_GC.GC_1.GC_1.S1_NC4_MIN	GC Dataset 1 Minimum Limit for NC4
9321	PG_GC.GC_1.GC_1.S1_NC4_MAX	GC Dataset 1 Maximum Limit for NC4
9322	PG_GC.GC_1.GC_1.S1_NEOC5_MIN	GC Dataset 1 Minimum Limit for Neo C5
9323	PG_GC.GC_1.GC_1.S1_NEOC5_MAX	GC Dataset 1 Maximum Limit for Neo C5
9324	PG_GC.GC_1.GC_1.S1_IC5_MIN	GC Dataset 1 Minimum Limit for IC5
9325	PG_GC.GC_1.GC_1.S1_IC5_MAX	GC Dataset 1 Maximum Limit for IC5
9326	PG_GC.GC_1.GC_1.S1_NC5_MIN	GC Dataset 1 Minimum Limit for NC5
9327	PG GC.GC 1.GC 1.S1 NC5 MAX	GC Dataset 1 Maximum Limit for NC5
9328	PG_GC.GC_1.GC_1.S1_NC6_MIN	GC Dataset 1 Minimum Limit for NC6
9329	PG_GC.GC_1.GC_1.S1_NC6_MAX	GC Dataset 1 Maximum Limit for NC6
9330	PG_GC.GC_1.GC_1.S1_NC7_MIN	GC Dataset 1 Minimum Limit for NC7
9331	PG_GC.GC_1.GC_1.S1_NC7_MAX	GC Dataset 1 Maximum Limit for NC7
9332	PG_GC.GC_1.GC_1.S1_NC8_MIN	GC Dataset 1 Minimum Limit for NC8
9333	PG_GC.GC_1.GC_1.S1_NC8_MAX	GC Dataset 1 Maximum Limit for NC8
9334	PG_GC.GC_1.GC_1.S1_NC9_MIN	GC Dataset 1 Minimum Limit for NC9
9335	PG_GC.GC_1.GC_1.S1_NC9_MAX	GC Dataset 1 Maximum Limit for NC9
9336	PG_GC.GC_1.GC_1.S1_NC10_MIN	GC Dataset 1 Minimum Limit for NC10
9337	PG_GC.GC_1.GC_1.S1_NC10_MAX	GC Dataset 1 Maximum Limit for NC10
9338	PG_GC.GC_1.GC_1.S1_H2O_MIN	GC Dataset 1 Minimum Limit for H2O
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Reg#	Variable	Description
9340	PG_GC.GC_1.GC_1.S1_H2S_MIN	GC Dataset 1 Minimum Limit for H2S
9341	PG_GC.GC_1.GC_1.S1_H2S_MAX	GC Dataset 1 Maximum Limit for H2S
9342	PG_GC.GC_1.GC_1.S1_H2_MIN	GC Dataset 1 Minimum Limit for H2
9343	PG_GC.GC_1.GC_1.S1_H2_MAX	GC Dataset 1 Maximum Limit for H2
9344	PG_GC.GC_1.GC_1.S1_CO_MIN	GC Dataset 1 Minimum Limit for CO
9345	 PG_GC.GC_1.GC_1.S1_CO_MAX	GC Dataset 1 Maximum Limit for CO
9346		GC Dataset 1 Minimum Limit for O2
9347	PG GC.GC 1.GC 1.S1 O2 MAX	GC Dataset 1 Maximum Limit for O2
9348	PG_GC.GC_1.GC_1.S1_HE_MIN	GC Dataset 1 Minimum Limit for He
9349	PG_GC.GC_1.GC_1.S1_HE_MAX	GC Dataset 1 Maximum Limit for He
9350	PG_GC.GC_1.GC_1.S1_AR_MIN	GC Dataset 1 Minimum Limit for Ar
9351	PG_GC.GC_1.GC_1.S1_AR_MAX	GC Dataset 1 Maximum Limit for Ar
9352	PG_GC.GC_1.GC_2.TOTAL_MIN	GC Dataset 2 Minimum Limit for total sum of all components
		GC Dataset 2 Maximum Limit for total sum of all
9353	PG_GC.GC_1.GC_2.TOTAL_MAX	components
9354	PG_GC.GC_1.GC_2.S1_BTU_MIN	GC Dataset 2 Minimum Limit for BTU
9355	PG_GC.GC_1.GC_2.S1_BTU_MAX	GC Dataset 2 Maximum Limit for BTU
9356	PG_GC.GC_1.GC_2.S1_SG_MIN	GC Dataset 2 Minimum Limit for Specifc Gravity
9357	PG_GC.GC_1.GC_2.S1_SG_MAX	GC Dataset 2 Maximum Limit for Specifc Gravity
9358	PG_GC.GC_1.GC_2.S1_N2_MIN	GC Dataset 2 Minimum Limit for Nitrogen
9359	PG_GC.GC_1.GC_2.S1_N2_MAX	GC Dataset 2 Maximum Limit for Nitrogen
9360	PG_GC.GC_1.GC_2.S1_CO2_MIN	GC Dataset 2 Minimum Limit for CO2
9361	PG_GC.GC_1.GC_2.S1_CO2_MAX	GC Dataset 2 Maximum Limit for CO2
9362	PG_GC.GC_1.GC_2.S1_CH4_MIN	GC Dataset 2 Minimum Limit for Methane
9363	PG_GC.GC_1.GC_2.S1_CH4_MAX	GC Dataset 2 Maximum Limit for Methane
9364	PG_GC.GC_1.GC_2.S1_C2_MIN	GC Dataset 2 Minimum Limit for C2
9365	PG_GC.GC_1.GC_2.S1_C2_MAX	GC Dataset 2 Maximum Limit for C2
9366	PG_GC.GC_1.GC_2.S1_C3_MIN	GC Dataset 2 Minimum Limit for C3
9367	PG_GC.GC_1.GC_2.S1_C3_MAX	GC Dataset 2 Maximum Limit for C3
9368	PG_GC.GC_1.GC_2.S1_IC4_MIN	GC Dataset 2 Minimum Limit for IC4
9369	PG_GC.GC_1.GC_2.S1_IC4_MAX	GC Dataset 2 Maximum Limit for IC4
9370	PG_GC.GC_1.GC_2.S1_NC4_MIN	GC Dataset 2 Minimum Limit for NC4
9371	PG_GC.GC_1.GC_2.S1_NC4_MAX	GC Dataset 2 Maximum Limit for NC4
9372	PG_GC.GC_1.GC_2.S1_NEOC5_MIN	GC Dataset 2 Minimum Limit for Neo C5
9373	PG_GC.GC_1.GC_2.S1_NEOC5_MAX	GC Dataset 2 Maximum Limit for Neo C5
9374	PG_GC.GC_1.GC_2.S1_IC5_MIN	GC Dataset 2 Minimum Limit for IC5
9375	PG_GC.GC_1.GC_2.S1_IC5_MAX	GC Dataset 2 Maximum Limit for IC5
9376	PG_GC.GC_1.GC_2.S1_NC5_MIN	GC Dataset 2 Minimum Limit for NC5
9377	PG_GC.GC_1.GC_2.S1_NC5_MAX	GC Dataset 2 Maximum Limit for NC5
9378	PG_GC.GC_1.GC_2.S1_NC6_MIN	GC Dataset 2 Minimum Limit for NC6
9379	PG_GC.GC_1.GC_2.S1_NC6_MAX	GC Dataset 2 Maximum Limit for NC6
9380	PG_GC.GC_1.GC_2.S1_NC7_MIN	GC Dataset 2 Minimum Limit for NC7
9381	PG_GC.GC_1.GC_2.S1_NC7_MAX	GC Dataset 2 Maximum Limit for NC7
9382	PG_GC.GC_1.GC_2.S1_NC8_MIN	GC Dataset 2 Minimum Limit for NC8
9383	PG_GC.GC_1.GC_2.S1_NC8_MAX	GC Dataset 2 Maximum Limit for NC8
9384	PG_GC.GC_1.GC_2.S1_NC9_MIN	GC Dataset 2 Minimum Limit for NC9
9385	PG_GC.GC_1.GC_2.S1_NC9_MAX	GC Dataset 2 Maximum Limit for NC9
9386	PG_GC.GC_1.GC_2.S1_NC10_MIN	GC Dataset 2 Minimum Limit for NC10
9387	PG_GC.GC_1.GC_2.S1_NC10_MAX	GC Dataset 2 Maximum Limit for NC10

Reg#	Variable	Description
9388	PG_GC.GC_1.GC_2.S1_H2O_MIN	GC Dataset 2 Minimum Limit for H2O
9389	PG_GC.GC_1.GC_2.S1_H2O_MAX	GC Dataset 2 Maximum Limit for H2O
9390	PG_GC.GC_1.GC_2.S1_H2S_MIN	GC Dataset 2 Minimum Limit for H2S
9391	PG_GC.GC_1.GC_2.S1_H2S_MAX	GC Dataset 2 Maximum Limit for H2S
9392	PG_GC.GC_1.GC_2.S1_H2_MIN	GC Dataset 2 Minimum Limit for H2
9393		GC Dataset 2 Maximum Limit for H2
9394	PG_GC.GC_1.GC_2.S1_CO_MIN	GC Dataset 2 Minimum Limit for CO
9395	PG_GC.GC_1.GC_2.S1_CO_MAX	GC Dataset 2 Maximum Limit for CO
9396	PG_GC.GC_1.GC_2.S1_O2_MIN	GC Dataset 2 Minimum Limit for O2
9397	PG_GC.GC_1.GC_2.S1_O2_MAX	GC Dataset 2 Maximum Limit for O2
9398	PG_GC.GC_1.GC_2.S1_HE_MIN	GC Dataset 2 Minimum Limit for He
9399	PG_GC.GC_1.GC_2.S1_HE_MAX	GC Dataset 2 Maximum Limit for He
9400	PG_GC.GC_1.GC_2.S1_AR_MIN	GC Dataset 2 Minimum Limit for Ar
9401	PG_GC.GC_1.GC_2.S1_AR_MAX	GC Dataset 2 Maximum Limit for Ar
0101		GC Dataset 3 Minimum Limit for total sum of all
9402	PG_GC.GC_1.GC_3.TOTAL_MIN	components
0.400		GC Dataset 3 Maximum Limit for total sum of all
9403	PG_GC.GC_1.GC_3.TOTAL_MAX	
9404	PG_GC.GC_1.GC_3.S1_BTU_MIN	GC Dataset 3 Minimum Limit for BTU
9405	PG_GC.GC_1.GC_3.S1_BTU_MAX	GC Dataset 3 Maximum Limit for BTU
9406	PG_GC.GC_1.GC_3.S1_SG_MIN	GC Dataset 3 Minimum Limit for Specifc Gravity
9407	PG_GC.GC_1.GC_3.S1_SG_MAX	GC Dataset 3 Maximum Limit for Specifc Gravity
9408	PG_GC.GC_1.GC_3.S1_N2_MIN	GC Dataset 3 Minimum Limit for Nitrogen
9409	PG_GC.GC_1.GC_3.S1_N2_MAX	GC Dataset 3 Maximum Limit for Nitrogen
9410	PG_GC.GC_1.GC_3.S1_CO2_MIN	GC Dataset 3 Minimum Limit for CO2
9411	PG_GC.GC_1.GC_3.S1_CO2_MAX	GC Dataset 3 Maximum Limit for CO2
9412	PG_GC.GC_1.GC_3.S1_CH4_MIN	GC Dataset 3 Minimum Limit for Methane
9413	PG_GC.GC_1.GC_3.S1_CH4_MAX	GC Dataset 3 Maximum Limit for Methane
9414	PG_GC.GC_1.GC_3.S1_C2_MIN	GC Dataset 3 Minimum Limit for C2
9415	PG_GC.GC_1.GC_3.S1_C2_MAX	GC Dataset 3 Maximum Limit for C2
9416	PG_GC.GC_1.GC_3.S1_C3_MIN	GC Dataset 3 Minimum Limit for C3
9417	PG_GC.GC_1.GC_3.S1_C3_MAX	GC Dataset 3 Maximum Limit for C3
9418	PG_GC.GC_1.GC_3.S1_IC4_MIN	GC Dataset 3 Minimum Limit for IC4
9419	PG_GC.GC_1.GC_3.S1_IC4_MAX	GC Dataset 3 Maximum Limit for IC4
9420	PG_GC.GC_1.GC_3.S1_NC4_MIN	GC Dataset 3 Minimum Limit for NC4
9421	PG_GC.GC_1.GC_3.S1_NC4_MAX	GC Dataset 3 Maximum Limit for NC4
9422	PG_GC.GC_1.GC_3.S1_NEOC5_MIN	GC Dataset 3 Minimum Limit for Neo C5
9423	PG_GC.GC_1.GC_3.S1_NEOC5_MAX	GC Dataset 3 Maximum Limit for Neo C5
9424	PG_GC.GC_1.GC_3.S1_IC5_MIN	GC Dataset 3 Minimum Limit for IC5
9425	PG_GC.GC_1.GC_3.S1_IC5_MAX	GC Dataset 3 Maximum Limit for IC5
9426	PG_GC.GC_1.GC_3.S1_NC5_MIN	GC Dataset 3 Minimum Limit for NC5
9427	PG_GC.GC_1.GC_3.S1_NC5_MAX	GC Dataset 3 Maximum Limit for NC5
9428	PG_GC.GC_1.GC_3.S1_NC6_MIN	GC Dataset 3 Minimum Limit for NC6
9429	PG_GC.GC_1.GC_3.S1_NC6_MAX	GC Dataset 3 Maximum Limit for NC6
9430	PG_GC.GC_1.GC_3.S1_NC7_MIN	GC Dataset 3 Minimum Limit for NC7
9431	PG_GC.GC_1.GC_3.S1_NC7_MAX	GC Dataset 3 Maximum Limit for NC7
9432	PG_GC.GC_1.GC_3.S1_NC8_MIN	GC Dataset 3 Minimum Limit for NC8
9433	PG_GC.GC_1.GC_3.S1_NC8_MAX	GC Dataset 3 Maximum Limit for NC8
9434	PG_GC.GC_1.GC_3.S1_NC9_MIN	GC Dataset 3 Minimum Limit for NC9

Reg#	Variable	Description
9436	PG_GC.GC_1.GC_3.S1_NC10_MIN	GC Dataset 3 Minimum Limit for NC10
9437	PG_GC.GC_1.GC_3.S1_NC10_MAX	GC Dataset 3 Maximum Limit for NC10
9438	 PG_GC.GC_1.GC_3.S1_H2O_MIN	GC Dataset 3 Minimum Limit for H2O
9439	PG_GC.GC_1.GC_3.S1_H2O_MAX	GC Dataset 3 Maximum Limit for H2O
9440	PG_GC.GC_1.GC_3.S1_H2S_MIN	GC Dataset 3 Minimum Limit for H2S
9441	PG_GC.GC_1.GC_3.S1_H2S_MAX	GC Dataset 3 Maximum Limit for H2S
9442	PG_GC.GC_1.GC_3.S1_H2_MIN	GC Dataset 3 Minimum Limit for H2
9443	PG_GC.GC_1.GC_3.S1_H2_MAX	GC Dataset 3 Maximum Limit for H2
9444	PG_GC.GC_1.GC_3.S1_CO_MIN	GC Dataset 3 Minimum Limit for CO
9445	PG_GC.GC_1.GC_3.S1_CO_MAX	GC Dataset 3 Maximum Limit for CO
9446	PG_GC.GC_1.GC_3.S1_O2_MIN	GC Dataset 3 Minimum Limit for O2
9447	PG_GC.GC_1.GC_3.S1_O2_MAX	GC Dataset 3 Maximum Limit for O2
9448	PG_GC.GC_1.GC_3.S1_HE_MIN	GC Dataset 3 Minimum Limit for He
9449	PG_GC.GC_1.GC_3.S1_HE_MAX	GC Dataset 3 Maximum Limit for He
9450	PG_GC.GC_1.GC_3.S1_AR_MIN	GC Dataset 3 Minimum Limit for Ar
9451	PG_GC.GC_1.GC_3.S1_AR_MAX	GC Dataset 3 Maximum Limit for Ar
0.01		GC Dataset 4 Minimum Limit for total sum of all
9452	PG_GC.GC_1.GC_4.TOTAL_MIN	components
0450		GC Dataset 4 Maximum Limit for total sum of all
9453	PG_GC.GC_1.GC_4.TOTAL_MAX	components
9454	PG_GC.GC_1.GC_4.S1_BTU_MIN	GC Dataset 4 Minimum Limit for BTU
9455	PG_GC.GC_1.GC_4.S1_BTU_MAX	GC Dataset 4 Maximum Limit for BTU
9456	PG_GC.GC_1.GC_4.S1_SG_MIN	GC Dataset 4 Minimum Limit for Specifc Gravity
9457	PG_GC.GC_1.GC_4.S1_SG_MAX	GC Dataset 4 Maximum Limit for Specifc Gravity
9458	PG_GC.GC_1.GC_4.S1_N2_MIN	GC Dataset 4 Minimum Limit for Nitrogen
9459	PG_GC.GC_1.GC_4.S1_N2_MAX	GC Dataset 4 Maximum Limit for Nitrogen
9460	PG_GC.GC_1.GC_4.S1_CO2_MIN	GC Dataset 4 Minimum Limit for CO2
9461 9462	PG_GC.GC_1.GC_4.S1_CO2_MAX PG_GC.GC_1.GC_4.S1_CH4_MIN	GC Dataset 4 Maximum Limit for CO2 GC Dataset 4 Minimum Limit for Methane
9463 9464	PG_GC.GC_1.GC_4.S1_CH4_MAX	GC Dataset 4 Maximum Limit for Methane GC Dataset 4 Minimum Limit for C2
9465	PG_GC.GC_1.GC_4.S1_C2_MIN PG_GC.GC_1.GC_4.S1_C2_MAX	GC Dataset 4 Maximum Limit for C2
9466	PG_GC.GC_1.GC_4.S1_C2_MIA	GC Dataset 4 Minimum Limit for C2
9466	PG_GC.GC_1.GC_4.S1_C3_MAX	GC Dataset 4 Maximum Limit for C3
9468	PG_GC.GC_1.GC_4.S1_C3_MAX	GC Dataset 4 Minimum Limit for IC4
9469	PG_GC.GC_1.GC_4.S1_IC4_MAX	GC Dataset 4 Maximum Limit for IC4
9409	PG_GC.GC_1.GC_4.S1_IC4_MIN	GC Dataset 4 Minimum Limit for NC4
9470	PG_GC.GC_1.GC_4.S1_NC4_MAX	GC Dataset 4 Maximum Limit for NC4
9471	PG_GC.GC_1.GC_4.S1_NC4_MAX PG_GC.GC_1.GC_4.S1_NEOC5_MIN	GC Dataset 4 Minimum Limit for Neo C5
9472	PG_GC.GC_1.GC_4.S1_NEOC5_MAX	GC Dataset 4 Maximum Limit for Neo C5
9473	PG_GC.GC_1.GC_4.S1_IC5_MIN	GC Dataset 4 Minimum Limit for Neo CS
9474	PG_GC.GC_1.GC_4.S1_IC5_MAX	GC Dataset 4 Maximum Limit for IC5
9475	PG_GC.GC_1.GC_4.S1_IC5_MIN	GC Dataset 4 Minimum Limit for NC5
9477	PG_GC.GC_1.GC_4.S1_NC5_MAX	GC Dataset 4 Maximum Limit for NC5
9477	PG_GC.GC_1.GC_4.S1_NC6_MIN	GC Dataset 4 Minimum Limit for NC6
9479	PG_GC.GC_1.GC_4.S1_NC6_MAX	GC Dataset 4 Maximum Limit for NC6
9480	PG_GC.GC_1.GC_4.S1_NC7_MIN	GC Dataset 4 Minimum Limit for NC7
9480	PG_GC.GC_1.GC_4.S1_NC7_MAX	GC Dataset 4 Maximum Limit for NC7
9481	PG_GC.GC_1.GC_4.S1_NC8_MIN	GC Dataset 4 Minimum Limit for NC8
9482	PG_GC.GC_1.GC_4.S1_NC8_MAX	
9403		GC Dataset 4 Maximum Limit for NC8

Reg#	Variable	Description
9484	PG_GC.GC_1.GC_4.S1_NC9_MIN	GC Dataset 4 Minimum Limit for NC9
9485	PG_GC.GC_1.GC_4.S1_NC9_MAX	GC Dataset 4 Maximum Limit for NC9
9486	PG_GC.GC_1.GC_4.S1_NC10_MIN	GC Dataset 4 Minimum Limit for NC10
9487	PG_GC.GC_1.GC_4.S1_NC10_MAX	GC Dataset 4 Maximum Limit for NC10
9488	PG_GC.GC_1.GC_4.S1_H2O_MIN	GC Dataset 4 Minimum Limit for H2O
9489	PG_GC.GC_1.GC_4.S1_H2O_MAX	GC Dataset 4 Maximum Limit for H2O
9490	PG_GC.GC_1.GC_4.S1_H2S_MIN	GC Dataset 4 Minimum Limit for H2S
9491	PG_GC.GC_1.GC_4.S1_H2S_MAX	GC Dataset 4 Maximum Limit for H2S
9492	PG_GC.GC_1.GC_4.S1_H2_MIN	GC Dataset 4 Minimum Limit for H2
9493	PG_GC.GC_1.GC_4.S1_H2_MAX	GC Dataset 4 Maximum Limit for H2
9494	 PG_GC.GC_1.GC_4.S1_CO_MIN	GC Dataset 4 Minimum Limit for CO
9495	PG_GC.GC_1.GC_4.S1_CO_MAX	GC Dataset 4 Maximum Limit for CO
9496	PG_GC.GC_1.GC_4.S1_O2_MIN	GC Dataset 4 Minimum Limit for O2
9497	PG_GC.GC_1.GC_4.S1_O2_MAX	GC Dataset 4 Maximum Limit for O2
9498	PG_GC.GC_1.GC_4.S1_HE_MIN	GC Dataset 4 Minimum Limit for He
9499	PG_GC.GC_1.GC_4.S1_HE_MAX	GC Dataset 4 Maximum Limit for He
9500	PG_GC.GC_1.GC_4.S1_AR_MIN	GC Dataset 4 Minimum Limit for Ar
9501	PG_GC.GC_1.GC_4.S1_AR_MAX	GC Dataset 4 Maximum Limit for Ar
		GC Dataset 5 Minimum Limit for total sum of all
9502	PG_GC.GC_1.GC_5.TOTAL_MIN	components
0502		GC Dataset 5 Maximum Limit for total sum of all
9503 9504	PG_GC.GC_1.GC_5.TOTAL_MAX PG_GC.GC_1.GC_5.S1_BTU_MIN	Components GC Dataset 5 Minimum Limit for BTU
		GC Dataset 5 Maximum Limit for BTU
9505 9506	PG_GC.GC_1.GC_5.S1_BTU_MAX PG_GC.GC_1.GC_5.S1_SG_MIN	GC Dataset 5 Maximum Limit for BTO
9500	PG_GC.GC_1.GC_5.S1_SG_MAX	GC Dataset 5 Maximum Limit for Specific Gravity
9508	PG_GC.GC_1.GC_5.S1_3G_MIX	GC Dataset 5 Minimum Limit for Specific Gravity
9509	PG_GC.GC_1.GC_5.S1_N2_MAX	GC Dataset 5 Maximum Limit for Nitrogen
9510	PG_GC.GC_1.GC_5.S1_NZ_MAX	GC Dataset 5 Minimum Limit for Nitrogen
9510	PG_GC.GC_1.GC_5.S1_CO2_MAX	GC Dataset 5 Maximum Limit for CO2
9512	PG_GC.GC_1.GC_5.S1_CO2_MAX PG_GC.GC_1.GC_5.S1_CH4_MIN	GC Dataset 5 Minimum Limit for CO2
9512	PG_GC.GC_1.GC_5.S1_CH4_MAX	GC Dataset 5 Maximum Limit for Methane
9514	PG_GC.GC_1.GC_5.S1_C2_MIN	GC Dataset 5 Minimum Limit for C2
9514	PG_GC.GC_1.GC_5.S1_C2_MAX	GC Dataset 5 Maximum Limit for C2
9516	PG_GC.GC_1.GC_5.S1_C3_MIN	GC Dataset 5 Minimum Limit for C3
9517	PG_GC.GC_1.GC_5.S1_C3_MAX	GC Dataset 5 Maximum Limit for C3
9518	PG_GC.GC_1.GC_5.S1_IC4_MIN	GC Dataset 5 Minimum Limit for IC4
9519	PG_GC.GC_1.GC_5.S1_IC4_MAX	GC Dataset 5 Maximum Limit for IC4
9520	PG_GC.GC_1.GC_5.S1_IC4_MAX	GC Dataset 5 Minimum Limit for NC4
9520	PG_GC.GC_1.GC_5.S1_NC4_MAX	GC Dataset 5 Maximum Limit for NC4
9522	PG_GC.GC_1.GC_5.S1_NEOC5_MIN	GC Dataset 5 Minimum Limit for No.4
9522	PG_GC.GC_1.GC_5.S1_NEOC5_MAX	GC Dataset 5 Maximum Limit for Neo C5
9524	PG_GC.GC_1.GC_5.S1_IC5_MIN	GC Dataset 5 Minimum Limit for IC5
9525	PG_GC.GC_1.GC_5.S1_IC5_MAX	GC Dataset 5 Maximum Limit for IC5
9526	PG_GC.GC_1.GC_5.S1_NC5_MIN	GC Dataset 5 Minimum Limit for NC5
9520	PG_GC.GC_1.GC_5.S1_NC5_MAX	GC Dataset 5 Maximum Limit for NC5
9528	PG_GC.GC_1.GC_5.S1_NC6_MIN	GC Dataset 5 Minimum Limit for NC6
9529	PG_GC.GC_1.GC_5.S1_NC6_MAX	GC Dataset 5 Maximum Limit for NC6
9530	PG_GC.GC_1.GC_5.S1_NC7_MIN	GC Dataset 5 Minimum Limit for NC7
9531	PG_GC.GC_1.GC_5.S1_NC7_MAX	GC Dataset 5 Maximum Limit for NC7
3031	10_00.00_1.00_0.01_N07_WAX	

Reg#	Variable	Description
9532	PG_GC.GC_1.GC_5.S1_NC8_MIN	GC Dataset 5 Minimum Limit for NC8
9533	PG_GC.GC_1.GC_5.S1_NC8_MAX	GC Dataset 5 Maximum Limit for NC8
9534	PG_GC.GC_1.GC_5.S1_NC9_MIN	GC Dataset 5 Minimum Limit for NC9
9535	PG_GC.GC_1.GC_5.S1_NC9_MAX	GC Dataset 5 Maximum Limit for NC9
9536	PG_GC.GC_1.GC_5.S1_NC10_MIN	GC Dataset 5 Minimum Limit for NC10
9537	PG_GC.GC_1.GC_5.S1_NC10_MAX	GC Dataset 5 Maximum Limit for NC10
9538	PG_GC.GC_1.GC_5.S1_H2O_MIN	GC Dataset 5 Minimum Limit for H2O
9539	PG_GC.GC_1.GC_5.S1_H2O_MAX	GC Dataset 5 Maximum Limit for H2O
9540	PG_GC.GC_1.GC_5.S1_H2S_MIN	GC Dataset 5 Minimum Limit for H2S
9541	PG_GC.GC_1.GC_5.S1_H2S_MAX	GC Dataset 5 Maximum Limit for H2S
9542	PG_GC.GC_1.GC_5.S1_H2_MIN	GC Dataset 5 Minimum Limit for H2
9543	PG_GC.GC_1.GC_5.S1_H2_MAX	GC Dataset 5 Maximum Limit for H2
9544	PG_GC.GC_1.GC_5.S1_CO_MIN	GC Dataset 5 Minimum Limit for CO
9545	PG_GC.GC_1.GC_5.S1_CO_MAX	GC Dataset 5 Maximum Limit for CO
9546	 PG_GC.GC_1.GC_5.S1_02_MIN	GC Dataset 5 Minimum Limit for O2
9547	 PG_GC.GC_1.GC_5.S1_O2_MAX	GC Dataset 5 Maximum Limit for O2
9548	PG_GC.GC_1.GC_5.S1_HE_MIN	GC Dataset 5 Minimum Limit for He
9549	PG_GC.GC_1.GC_5.S1_HE_MAX	GC Dataset 5 Maximum Limit for He
9550	PG_GC.GC_1.GC_5.S1_AR_MIN	GC Dataset 5 Minimum Limit for Ar
9551	PG_GC.GC_1.GC_5.S1_AR_MAX	GC Dataset 5 Maximum Limit for Ar
9552	PG_GC.GC_1.GC_6.TOTAL_MIN	GC Dataset 6 Minimum Limit for total sum of all components
9553	PG_GC.GC_1.GC_6.TOTAL_MAX	GC Dataset 6 Maximum Limit for total sum of all components
9554	PG_GC.GC_1.GC_6.S1_BTU_MIN	GC Dataset 6 Minimum Limit for BTU
9555	PG_GC.GC_1.GC_6.S1_BT0_MIN	GC Dataset 6 Maximum Limit for BTU
9556	PG_GC.GC_1.GC_6.S1_SG_MIN	GC Dataset 6 Minimum Limit for Specifc Gravity
9557	PG_GC.GC_1.GC_6.S1_SG_MAX	GC Dataset 6 Maximum Limit for Specific Gravity
9558	PG_GC.GC_1.GC_6.S1_N2_MIN	GC Dataset 6 Minimum Limit for Nitrogen
9559	PG_GC.GC_1.GC_6.S1_N2_MAX	GC Dataset 6 Maximum Limit for Nitrogen
9560	PG_GC.GC_1.GC_6.S1_CO2_MIN	GC Dataset 6 Minimum Limit for CO2
9561	PG_GC.GC_1.GC_6.S1_CO2_MAX	GC Dataset 6 Maximum Limit for CO2
9562	PG_GC.GC_1.GC_6.S1_CH4_MIN	GC Dataset 6 Minimum Limit for Methane
9563	PG_GC.GC_1.GC_6.S1_CH4_MAX	GC Dataset 6 Maximum Limit for Methane
9564	PG_GC.GC_1.GC_6.S1_C2_MIN	GC Dataset 6 Minimum Limit for C2
9565	PG_GC.GC_1.GC_6.S1_C2_MAX	GC Dataset 6 Maximum Limit for C2
9566	PG_GC.GC_1.GC_6.S1_C3_MIN	GC Dataset 6 Minimum Limit for C3
9567	PG_GC.GC_1.GC_6.S1_C3_MAX	GC Dataset 6 Maximum Limit for C3
9568	PG_GC.GC_1.GC_6.S1_IC4_MIN	GC Dataset 6 Minimum Limit for IC4
9569	PG_GC.GC_1.GC_6.S1_IC4_MAX	GC Dataset 6 Maximum Limit for IC4
9570	PG_GC.GC_1.GC_6.S1_NC4_MIN	GC Dataset 6 Minimum Limit for NC4
9571	PG_GC.GC_1.GC_6.S1_NC4_MAX	GC Dataset 6 Maximum Limit for NC4
9572	PG_GC.GC_1.GC_6.S1_NEOC5_MIN	GC Dataset 6 Minimum Limit for Neo C5
9573	PG_GC.GC_1.GC_6.S1_NEOC5_MAX	GC Dataset 6 Maximum Limit for Neo C5
9574	PG_GC.GC_1.GC_6.S1_IC5_MIN	GC Dataset 6 Minimum Limit for IC5
9575	PG_GC.GC_1.GC_6.S1_IC5_MAX	GC Dataset 6 Maximum Limit for IC5
9576	PG_GC.GC_1.GC_6.S1_NC5_MIN	GC Dataset 6 Minimum Limit for NC5
9577	PG_GC.GC_1.GC_6.S1_NC5_MAX	GC Dataset 6 Maximum Limit for NC5
9578	PG_GC.GC_1.GC_6.S1_NC6_MIN	GC Dataset 6 Minimum Limit for NC6
3010		

Reg#	Variable	Description
9580	PG_GC.GC_1.GC_6.S1_NC7_MIN	GC Dataset 6 Minimum Limit for NC7
9581	PG_GC.GC_1.GC_6.S1_NC7_MAX	GC Dataset 6 Maximum Limit for NC7
9582	PG_GC.GC_1.GC_6.S1_NC8_MIN	GC Dataset 6 Minimum Limit for NC8
9583	 PG_GC.GC_1.GC_6.S1_NC8_MAX	GC Dataset 6 Maximum Limit for NC8
9584		GC Dataset 6 Minimum Limit for NC9
9585	PG_GC.GC_1.GC_6.S1_NC9_MAX	GC Dataset 6 Maximum Limit for NC9
9586	PG_GC.GC_1.GC_6.S1_NC10_MIN	GC Dataset 6 Minimum Limit for NC10
9587	PG_GC.GC_1.GC_6.S1_NC10_MAX	GC Dataset 6 Maximum Limit for NC10
9588	PG_GC.GC_1.GC_6.S1_H2O_MIN	GC Dataset 6 Minimum Limit for H2O
9589	PG_GC.GC_1.GC_6.S1_H2O_MAX	GC Dataset 6 Maximum Limit for H2O
9590	 PG_GC.GC_1.GC_6.S1_H2S_MIN	GC Dataset 6 Minimum Limit for H2S
9591		GC Dataset 6 Maximum Limit for H2S
9592	 PG_GC.GC_1.GC_6.S1_H2_MIN	GC Dataset 6 Minimum Limit for H2
9593	PG_GC.GC_1.GC_6.S1_H2_MAX	GC Dataset 6 Maximum Limit for H2
9594	PG_GC.GC_1.GC_6.S1_CO_MIN	GC Dataset 6 Minimum Limit for CO
9595	PG_GC.GC_1.GC_6.S1_CO_MAX	GC Dataset 6 Maximum Limit for CO
9596	PG_GC.GC_1.GC_6.S1_O2_MIN	GC Dataset 6 Minimum Limit for O2
9597	PG_GC.GC_1.GC_6.S1_O2_MAX	GC Dataset 6 Maximum Limit for O2
9598	PG_GC.GC_1.GC_6.S1_HE_MIN	GC Dataset 6 Minimum Limit for He
9599	PG_GC.GC_1.GC_6.S1_HE_MAX	GC Dataset 6 Maximum Limit for He
9600	PG_GC.GC_1.GC_6.S1_AR_MIN	GC Dataset 6 Minimum Limit for Ar
9601	PG_GC.GC_1.GC_6.S1_AR_MAX	GC Dataset 6 Maximum Limit for Ar
		GC Dataset 7 Minimum Limit for total sum of all
9602	PG_GC.GC_1.GC_7.TOTAL_MIN	components
9603	PG_GC.GC_1.GC_7.TOTAL_MAX	GC Dataset 7 Maximum Limit for total sum of all components
9604	PG_GC.GC_1.GC_7.S1_BTU_MIN	GC Dataset 7 Minimum Limit for BTU
9605	PG_GC.GC_1.GC_7.S1_BTU_MAX	GC Dataset 7 Maximum Limit for BTU
9606	PG_GC.GC_1.GC_7.S1_SG_MIN	GC Dataset 7 Minimum Limit for Specifc Gravity
9607	PG_GC.GC_1.GC_7.S1_SG_MAX	GC Dataset 7 Maximum Limit for Specifc Gravity
9608	PG_GC.GC_1.GC_7.S1_N2_MIN	GC Dataset 7 Minimum Limit for Nitrogen
9609	PG_GC.GC_1.GC_7.S1_N2_MAX	GC Dataset 7 Maximum Limit for Nitrogen
9610	PG_GC.GC_1.GC_7.S1_CO2_MIN	GC Dataset 7 Minimum Limit for CO2
9611	PG_GC.GC_1.GC_7.S1_CO2_MAX	GC Dataset 7 Maximum Limit for CO2
9612	PG GC.GC 1.GC 7.S1 CH4 MIN	GC Dataset 7 Minimum Limit for Methane
9613	PG_GC.GC_1.GC_7.S1_CH4_MAX	GC Dataset 7 Maximum Limit for Methane
9614	PG_GC.GC_1.GC_7.S1_C2_MIN	GC Dataset 7 Minimum Limit for C2
9615	PG_GC.GC_1.GC_7.S1_C2_MAX	GC Dataset 7 Maximum Limit for C2
9616	PG GC.GC 1.GC 7.S1 C3 MIN	GC Dataset 7 Minimum Limit for C3
9617	PG_GC.GC_1.GC_7.S1_C3_MAX	GC Dataset 7 Maximum Limit for C3
9618	PG_GC.GC_1.GC_7.S1_IC4_MIN	GC Dataset 7 Minimum Limit for IC4
9619	PG_GC.GC_1.GC_7.S1_IC4_MAX	GC Dataset 7 Maximum Limit for IC4
9620	PG_GC.GC_1.GC_7.S1_NC4_MIN	GC Dataset 7 Minimum Limit for NC4
9621	PG_GC.GC_1.GC_7.S1_NC4_MAX	GC Dataset 7 Maximum Limit for NC4
9622	PG_GC.GC_1.GC_7.S1_NEOC5_MIN	GC Dataset 7 Minimum Limit for Neo C5
9623	PG_GC.GC_1.GC_7.S1_NEOC5_MAX	GC Dataset 7 Maximum Limit for Neo C5
	PG_GC.GC_1.GC_7.S1_IC5_MIN	GC Dataset 7 Minimum Limit for IC5
9624		
9624 9625	PG GC.GC 1.GC 7.S1 IC5 MAX	GC Dataset 7 Maximum Limit for IC5
9624 9625 9626	PG_GC.GC_1.GC_7.S1_IC5_MAX PG_GC.GC_1.GC_7.S1_NC5_MIN	GC Dataset 7 Maximum Limit for IC5 GC Dataset 7 Minimum Limit for NC5

Reg#	Variable	Description
9628	PG_GC.GC_1.GC_7.S1_NC6_MIN	GC Dataset 7 Minimum Limit for NC6
9629	PG_GC.GC_1.GC_7.S1_NC6_MAX	GC Dataset 7 Maximum Limit for NC6
9630	PG_GC.GC_1.GC_7.S1_NC7_MIN	GC Dataset 7 Minimum Limit for NC7
9631	PG_GC.GC_1.GC_7.S1_NC7_MAX	GC Dataset 7 Maximum Limit for NC7
9632		GC Dataset 7 Minimum Limit for NC8
9633	PG_GC.GC_1.GC_7.S1_NC8_MAX	GC Dataset 7 Maximum Limit for NC8
9634	PG_GC.GC_1.GC_7.S1_NC9_MIN	GC Dataset 7 Minimum Limit for NC9
9635	PG_GC.GC_1.GC_7.S1_NC9_MAX	GC Dataset 7 Maximum Limit for NC9
9636	 PG_GC.GC_1.GC_7.S1_NC10_MIN	GC Dataset 7 Minimum Limit for NC10
9637		GC Dataset 7 Maximum Limit for NC10
9638		GC Dataset 7 Minimum Limit for H2O
9639	 PG_GC.GC_1.GC_7.S1_H2O_MAX	GC Dataset 7 Maximum Limit for H2O
9640		GC Dataset 7 Minimum Limit for H2S
9641	PG_GC.GC_1.GC_7.S1_H2S_MAX	GC Dataset 7 Maximum Limit for H2S
9642	PG_GC.GC_1.GC_7.S1_H2_MIN	GC Dataset 7 Minimum Limit for H2
9643		GC Dataset 7 Maximum Limit for H2
9644	 PG_GC.GC_1.GC_7.S1_CO_MIN	GC Dataset 7 Minimum Limit for CO
9645		GC Dataset 7 Maximum Limit for CO
9646	 PG_GC.GC_1.GC_7.S1_02_MIN	GC Dataset 7 Minimum Limit for O2
9647	 PG_GC.GC_1.GC_7.S1_O2_MAX	GC Dataset 7 Maximum Limit for O2
9648	PG_GC.GC_1.GC_7.S1_HE_MIN	GC Dataset 7 Minimum Limit for He
9649	PG_GC.GC_1.GC_7.S1_HE_MAX	GC Dataset 7 Maximum Limit for He
9650	PG_GC.GC_1.GC_7.S1_AR_MIN	GC Dataset 7 Minimum Limit for Ar
9651	PG_GC.GC_1.GC_7.S1_AR_MAX	GC Dataset 7 Maximum Limit for Ar
		GC Dataset 8 Minimum Limit for total sum of all
9652	PG_GC.GC_1.GC_8.TOTAL_MIN	Components GC Dataset 8 Maximum Limit for total sum of all
9653	PG_GC.GC_1.GC_8.TOTAL_MAX	components
9654	PG_GC.GC_1.GC_8.S1_BTU_MIN	GC Dataset 8 Minimum Limit for BTU
9655	PG_GC.GC_1.GC_8.S1_BTU_MAX	GC Dataset 8 Maximum Limit for BTU
9656	PG_GC.GC_1.GC_8.S1_SG_MIN	GC Dataset 8 Minimum Limit for Specifc Gravity
9657	PG_GC.GC_1.GC_8.S1_SG_MAX	GC Dataset 8 Maximum Limit for Specifc Gravity
9658	PG_GC.GC_1.GC_8.S1_N2_MIN	GC Dataset 8 Minimum Limit for Nitrogen
9659	PG_GC.GC_1.GC_8.S1_N2_MAX	GC Dataset 8 Maximum Limit for Nitrogen
9660	PG_GC.GC_1.GC_8.S1_CO2_MIN	GC Dataset 8 Minimum Limit for CO2
9661	PG_GC.GC_1.GC_8.S1_CO2_MAX	GC Dataset 8 Maximum Limit for CO2
9662	PG_GC.GC_1.GC_8.S1_CH4_MIN	GC Dataset 8 Minimum Limit for Methane
9663		GC Dataset 8 Maximum Limit for Methane
9664		GC Dataset 8 Minimum Limit for C2
9665	PG_GC.GC_1.GC_8.S1_C2_MAX	GC Dataset 8 Maximum Limit for C2
9666	PG_GC.GC_1.GC_8.S1_C3_MIN	GC Dataset 8 Minimum Limit for C3
9667	PG_GC.GC_1.GC_8.S1_C3_MAX	GC Dataset 8 Maximum Limit for C3
9668	PG_GC.GC_1.GC_8.S1_IC4_MIN	GC Dataset 8 Minimum Limit for IC4
9669	PG_GC.GC_1.GC_8.S1_IC4_MAX	GC Dataset 8 Maximum Limit for IC4
9670	PG_GC.GC_1.GC_8.S1_NC4_MIN	GC Dataset 8 Minimum Limit for NC4
9671	PG_GC.GC_1.GC_8.S1_NC4_MAX	GC Dataset 8 Maximum Limit for NC4
9672	PG_GC.GC_1.GC_8.S1_NEOC5_MIN	GC Dataset 8 Minimum Limit for Neo C5
9673	PG_GC.GC_1.GC_8.S1_NEOC5_MAX	GC Dataset 8 Maximum Limit for Neo C5
9674	PG_GC.GC_1.GC_8.S1_IC5_MIN	GC Dataset 8 Minimum Limit for IC5
9675	PG_GC.GC_1.GC_8.S1_IC5_MAX	GC Dataset 8 Maximum Limit for IC5

Reg#	Variable	Description
9676	PG_GC.GC_1.GC_8.S1_NC5_MIN	GC Dataset 8 Minimum Limit for NC5
9677	PG_GC.GC_1.GC_8.S1_NC5_MAX	GC Dataset 8 Maximum Limit for NC5
9678	PG_GC.GC_1.GC_8.S1_NC6_MIN	GC Dataset 8 Minimum Limit for NC6
9679	PG_GC.GC_1.GC_8.S1_NC6_MAX	GC Dataset 8 Maximum Limit for NC6
9680	PG_GC.GC_1.GC_8.S1_NC7_MIN	GC Dataset 8 Minimum Limit for NC7
9681	PG_GC.GC_1.GC_8.S1_NC7_MAX	GC Dataset 8 Maximum Limit for NC7
9682	PG_GC.GC_1.GC_8.S1_NC8_MIN	GC Dataset 8 Minimum Limit for NC8
9683	PG_GC.GC_1.GC_8.S1_NC8_MAX	GC Dataset 8 Maximum Limit for NC8
9684	PG_GC.GC_1.GC_8.S1_NC9_MIN	GC Dataset 8 Minimum Limit for NC9
9685	PG_GC.GC_1.GC_8.S1_NC9_MAX	GC Dataset 8 Maximum Limit for NC9
9686	PG_GC.GC_1.GC_8.S1_NC10_MIN	GC Dataset 8 Minimum Limit for NC10
9687	PG_GC.GC_1.GC_8.S1_NC10_MAX	GC Dataset 8 Maximum Limit for NC10
9688	PG_GC.GC_1.GC_8.S1_H2O_MIN	GC Dataset 8 Minimum Limit for H2O
9689	PG_GC.GC_1.GC_8.S1_H2O_MAX	GC Dataset 8 Maximum Limit for H2O
9690	PG_GC.GC_1.GC_8.S1_H2S_MIN	GC Dataset 8 Minimum Limit for H2S
9691	PG_GC.GC_1.GC_8.S1_H2S_MAX	GC Dataset 8 Maximum Limit for H2S
9692	PG_GC.GC_1.GC_8.S1_H2_MIN	GC Dataset 8 Minimum Limit for H2
9693	PG_GC.GC_1.GC_8.S1_H2_MAX	GC Dataset 8 Maximum Limit for H2
9694	PG_GC.GC_1.GC_8.S1_CO_MIN	GC Dataset 8 Minimum Limit for CO
9695	PG_GC.GC_1.GC_8.S1_CO_MAX	GC Dataset 8 Maximum Limit for CO
9696	 PG_GC.GC_1.GC_8.S1_02_MIN	GC Dataset 8 Minimum Limit for O2
9697	PG_GC.GC_1.GC_8.S1_O2_MAX	GC Dataset 8 Maximum Limit for O2
9698		GC Dataset 8 Minimum Limit for He
9699	PG_GC.GC_1.GC_8.S1_HE_MAX	GC Dataset 8 Maximum Limit for He
9700	PG_GC.GC_1.GC_8.S1_AR_MIN	GC Dataset 8 Minimum Limit for Ar
9701	PG_GC.GC_1.GC_8.S1_AR_MAX	GC Dataset 8 Maximum Limit for Ar
9702	MB.SPARE	
9703	MB.SPARE	
9704	MB.SPARE	
9705	MB.SPARE	
9706	MB.SPARE	
9707	MB.SPARE	
9708	MB.SPARE	
9709	MB.SPARE	
9710	MB.SPARE	
9711	MB.SPARE	
9712	MB.SPARE	
9713	MB.SPARE	
9714	MB.SPARE	
9715	MB.SPARE	
9716	MB.SPARE	
9717	MB.SPARE	
9718	MB.SPARE	
9719	MB.SPARE	
9720	MB.SPARE	
9721	MB.SPARE	
9722	MB.SPARE	
9723	MB.SPARE	
9724	MB.SPARE	
9725	MB.SPARE	

Reg#	Variable	Description
9726	MB.SPARE	
9727	MB.SPARE	
9728	MB.SPARE	
9729	MB.SPARE	
9730	MB.SPARE	
9731	MB.SPARE	
9732	MB.SPARE	
9733	MB.SPARE	
9734	MB.SPARE	
9735	MB.SPARE	
9736	MB.SPARE	
9737	MB.SPARE	
9738	MB.SPARE	
9739	MB.SPARE	
9740	MB.SPARE	
9741	MB.SPARE	
9742	MB.SPARE	
9743	MB.SPARE	
9744	MB.SPARE	
9745	MB.SPARE	
9746	MB.SPARE	
9747	MB.SPARE	
9748	MB.SPARE	
9749	MB.SPARE	
9750	MB.SPARE	
9751	MB.SPARE	
9752	MB.SPARE	
9753	MB.SPARE	
9754	MB.SPARE	
9755	MB.SPARE	
9756	MB.SPARE	
9757	MB.SPARE	
9758	MB.SPARE	
9759	MB.SPARE	
9760	MB.SPARE	
9761	MB.SPARE	
9762	MB.SPARE	
9763	MB.SPARE	
9764	MB.SPARE	
9765	MB.SPARE	
9766	MB.SPARE	
9767	MB.SPARE	
9768	MB.SPARE	
9769	MB.SPARE	
9770	MB.SPARE	
9771	MB.SPARE	
9772	MB.SPARE	
9773	MB.SPARE	
9774	MB.SPARE	
9775	MB.SPARE	
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Bog#	Variable	Description
Reg#	MB.SPARE	Description
9776		
9777	MB.SPARE	
9778	MB.SPARE	
9779	MB.SPARE	
9780	MB.SPARE	
9781	MB.SPARE	
9782	MB.SPARE	
9783	MB.SPARE	
9784	MB.SPARE	
9785	MB.SPARE	
9786	MB.SPARE	
9787	MB.SPARE	
9788	MB.SPARE	
9789	MB.SPARE	
9790	MB.SPARE	
9791	MB.SPARE	
9792	MB.SPARE	
9793	MB.SPARE	
9794	MB.SPARE	
9795	MB.SPARE	
9796	MB.SPARE	
9797	MB.SPARE	
9798	MB.SPARE	
9799	MB.SPARE	
9800	MB.SPARE	
9801	MB.SPARE	
9802	MB.SPARE	
9803	MB.SPARE	
9804	MB.SPARE	
9805	MB.SPARE	
9806	MB.SPARE	
9807	MB.SPARE	
9808	MB.SPARE	
9809	MB.SPARE	
9810	MB.SPARE	
9811	MB.SPARE	
9812	MB.SPARE	
9813	MB.SPARE	
9814	MB.SPARE	
9815	MB.SPARE	
9816	MB.SPARE	
9817	MB.SPARE	
9818	MB.SPARE	
9819	MB.SPARE	
9820	MB.SPARE	
9821	MB.SPARE	
9822	MB.SPARE	
9823	MB.SPARE	
9824	MB.SPARE	
9825	MB.SPARE	

Reg#	Variable	Description
9826	MB.SPARE	
9827	MB.SPARE	
9828	MB.SPARE	
9829	MB.SPARE	
9830	MB.SPARE	
9831	MB.SPARE	
9832	MB.SPARE	
9833	MB.SPARE	
9834	MB.SPARE	
9835	MB.SPARE	
9836	MB.SPARE	
9837	MB.SPARE	
9838	MB.SPARE	
9839	MB.SPARE	
9840	MB.SPARE	
9841	MB.SPARE	
9842	MB.SPARE	
9843	MB.SPARE	
9844	MB.SPARE	
9845	MB.SPARE	
9846	MB.SPARE	
9847	MB.SPARE	
9848	MB.SPARE	
9849	MB.SPARE	
9850	MB.SPARE	
9851	MB.SPARE	
9852	MB.SPARE	
9853	MB.SPARE	
9854	MB.SPARE	
9855	MB.SPARE	
9856	MB.SPARE	
9857	MB.SPARE	
9858	MB.SPARE	
9859	MB.SPARE	
9860	MB.SPARE	
9861	MB.SPARE	
9862	MB.SPARE	
9863	MB.SPARE	
9864	MB.SPARE	
9865	MB.SPARE	
9866	MB.SPARE	
9867	MB.SPARE	
9868	MB.SPARE	
9869	MB.SPARE	
9870	MB.SPARE	
9871	MB.SPARE	
9872	MB.SPARE	
9873	MB.SPARE	
9874	MB.SPARE	
9875	MB.SPARE	
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Reg#	Variable	Description
9876	MB.SPARE	
9877	MB.SPARE	
9878	MB.SPARE	
9879	MB.SPARE	
9880	MB.SPARE	
9881	MB.SPARE	
9882	MB.SPARE	
9883	MB.SPARE	
9884	MB.SPARE	
9885	MB.SPARE	
9886	MB.SPARE	
9887	MB.SPARE	
9888	MB.SPARE	
9889	MB.SPARE	
9890	MB.SPARE	
9891	MB.SPARE	
9892	MB.SPARE	
9893	MB.SPARE	
9894	MB.SPARE	
9895	MB.SPARE	
9896	MB.SPARE	
9897	MB.SPARE	
9898	MB.SPARE	
9899	MB.SPARE	
9900	MB.SPARE	
9901	MB.SPARE	
9902	PG_GC.GC_1.GC_1.IICOMMPORT	GC Dataset 1 - ControlWave Master Port to GC
9903	PG_GC.GC_1.GC_1.SLAVEADDRESS	GC Dataset 1 - GC MODBUS Slave Address
9904	PG_GC.GC_1.GC_1.GC_TYPE	GC Dataset 1 - GC Type
		GC Dataset 1 - Stream to be polled form this GC
9905	PG_GC.GC_1.GC_1.S1_GC_STREAM	for this Dataset
9906	PG_GC.GC_1.GC_2.IICOMMPORT	GC Dataset 2 - ControlWave Master Port to GC
9907	PG_GC.GC_1.GC_2.SLAVEADDRESS	GC Dataset 2 - GC MODBUS Slave Address
9908	PG_GC.GC_1.GC_2.GC_TYPE	GC Dataset 2 - GC Type GC Dataset 2 - Stream to be polled form this GC
9909	PG_GC.GC_1.GC_2.S1_GC_STREAM	for this Dataset
9910	PG_GC.GC_1.GC_3.IICOMMPORT	GC Dataset 3 - ControlWave Master Port to GC
9911	PG_GC.GC_1.GC_3.SLAVEADDRESS	GC Dataset 3 - GC MODBUS Slave Address
9912	PG_GC.GC_1.GC_3.GC_TYPE	GC Dataset 3 - GC Type
		GC Dataset 3 - Stream to be polled form this GC
9913	PG_GC.GC_1.GC_3.S1_GC_STREAM	for this Dataset
9914	PG_GC.GC_1.GC_4.IICOMMPORT	GC Dataset 4 - ControlWave Master Port to GC
9915	PG_GC.GC_1.GC_4.SLAVEADDRESS	GC Dataset 4 - GC MODBUS Slave Address
9916	PG_GC.GC_1.GC_4.GC_TYPE	GC Dataset 4 - GC Type
9917	PG_GC.GC_1.GC_4.S1_GC_STREAM	GC Dataset 4 - Stream to be polled form this GC for this Dataset
9918	PG_GC.GC_1.GC_5.IICOMMPORT	GC Dataset 5 - ControlWave Master Port to GC
9919	PG_GC.GC_1.GC_5.SLAVEADDRESS	GC Dataset 5 - GC MODBUS Slave Address
9920	PG_GC.GC_1.GC_5.GC_TYPE	GC Dataset 5 - GC Type
9921	PG_GC.GC_1.GC_5.S1_GC_STREAM	GC Dataset 5 - Stream to be polled form this GC for this Dataset
9921	PG_GC.GC_1.GC_6.IICOMMPORT	GC Dataset 6 - ControlWave Master Port to GC
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Reg#	Variable	Description
9923	PG_GC.GC_1.GC_6.SLAVEADDRESS	GC Dataset 6 - GC MODBUS Slave Address
9924	PG_GC.GC_1.GC_6.GC_TYPE	GC Dataset 6 - GC Type
0021		GC Dataset 6 - Stream to be polled form this GC
9925	PG_GC.GC_1.GC_6.S1_GC_STREAM	for this Dataset
9926	PG_GC.GC_1.GC_7.IICOMMPORT	GC Dataset 7 - ControlWave Master Port to GC
9927	PG_GC.GC_1.GC_7.SLAVEADDRESS	GC Dataset 7 - GC MODBUS Slave Address
9928	PG_GC.GC_1.GC_7.GC_TYPE	GC Dataset 7 - GC Type
0000		GC Dataset 7 - Stream to be polled form this GC
9929	PG_GC.GC_1.GC_7.S1_GC_STREAM	for this Dataset
9930	PG_GC.GC_1.GC_8.IICOMMPORT	GC Dataset 8 - ControlWave Master Port to GC
9931	PG_GC.GC_1.GC_8.SLAVEADDRESS	GC Dataset 8 - GC MODBUS Slave Address
9932	PG_GC.GC_1.GC_8.GC_TYPE	GC Dataset 8 - GC Type GC Dataset 8 - Stream to be polled form this GC
9933	PG_GC.GC_1.GC_8.S1_GC_STREAM	for this Dataset
9934	MB.SPARE	
9935	MB.SPARE	
9936	MB.SPARE	
9937	MB.SPARE	
9938	MB.SPARE	
9939	MB.SPARE	
9940	MB.SPARE	
9941	MB.SPARE	
9942	MB.SPARE	
9943	MB.SPARE	
9944	MB.SPARE	
9945	MB.SPARE	
9946	MB.SPARE	
9947	MB.SPARE	
9948	MB.SPARE	
9949	MB.SPARE	
9950	GM.GMBM_1.MB1_PORT	Generic MODBUS 1 Master 1 CWM Port
9951	GM.GMBM 1.MB1 MODE	Generic MODBUS 1 Master MODE
9952	GM.GMBM_1.MB1_IP_ADDR	Generic MODBUS 1 IP Address to poll
	GM.GMBM_1.MB1_SLAVE_ADDR	Generic MODBUS 1 Slave Address to poll
9954	GM.GMBM_1.MB1_WORD_ORDER	Generic MODBUS 1 Master Word Order
9955	GM.GMBM_1.MB1_BYTE_ORDER	Generic MODBUS 1 Master Byte Order
9956	GM.GMBM_1.MB1_BIT_ORDER	Generic MODBUS 1 Master Byte Order
9957	GM.GMBM_1.MB1_DATA_SIZE	Generic MODBUS 1 Master Data Size
9958	GM.GMBM_1.MB1_DELAY_MODE	Generic MODBUS 1 Master Data Size
9959	GM.GMBM_1.MB1_DELEAT_MODE	Generic MODBUS 1 Master Delay Mode
9960	GM.GMBM_1.MB1_TIMEOUT	Generic MODBUS 1 Master Timeout
9961	GM.GMBM_1.MB1_REPEAT	Generic MODBUS 1 Master Repeat
9962	GM.GMBM_1.MB1_KETEAT	Generic MODBUS 1 Master Repeat
9963	GM.GMBM_1.MB1_REG_COUNT	Generic MODBUS 1 Master Register Count
9964	GM.GMBM_1.MB1_REG_CCONT	Generic MODBUS 1 Master Register Count
9965	GM.GMBM_1.MB1_ENABLED	Generic MODBUS 2 Master 1 CWM Port
9966	GM.GMBM_2.MB1_FORT	Generic MODBUS 2 Master MODE
9967	GM.GMBM_2.MB1_WODE GM.GMBM_2.MB1_IP_ADDR	Generic MODBUS 2 Master MODE
9967	GM.GMBM_2.MB1_IF_ADDK GM.GMBM_2.MB1_SLAVE_ADDR	Generic MODBUS 2 IP Address to poll
9969	GM.GMBM_2.MB1_SLAVE_ADDK GM.GMBM_2.MB1_WORD_ORDER	Generic MODBUS 2 Slave Address to poil Generic MODBUS 2 Master Word Order

Reg#	Variable	Description
9971	GM.GMBM_2.MB1_BIT_ORDER	Generic MODBUS 2 Master Bit Order
9972	GM.GMBM_2.MB1_DATA_SIZE	Generic MODBUS 2 Master Data Size
9973	GM.GMBM_2.MB1_DELAY_MODE	Generic MODBUS 2 Master Delay Mode
9974	GM.GMBM_2.MB1_RTS_CTS_DELAY	Generic MODBUS 2 Master RTS/CTS Delay
9975	GM.GMBM_2.MB1_TIMEOUT	Generic MODBUS 2 Master Timeout
9976	GM.GMBM_2.MB1_REPEAT	Generic MODBUS 2 Master Repeat
9977	GM.GMBM_2.MB1_START_REG	Generic MODBUS 2 Master Start Register
9978	GM.GMBM_2.MB1_REG_COUNT	Generic MODBUS 2 Master Register Count
9979	GM.GMBM_2.MB1_ENABLED	Generic MODBUS 2 Master Enabled
9980	GM.GMBM_3.MB1_PORT	Generic MODBUS 3 Master 1 CWM Port
9981	GM.GMBM_3.MB1_MODE	Generic MODBUS 3 Master MODE
9982	GM.GMBM_3.MB1_IP_ADDR	Generic MODBUS 3 IP Address to poll
9983	GM.GMBM_3.MB1_SLAVE_ADDR	Generic MODBUS 3 Slave Address to poll
9984	GM.GMBM_3.MB1_WORD_ORDER	Generic MODBUS 3 Master Word Order
9985	GM.GMBM_3.MB1_BYTE_ORDER	Generic MODBUS 3 Master Byte Order
9986	GM.GMBM_3.MB1_BIT_ORDER	Generic MODBUS 3 Master Bit Order
9987	GM.GMBM_3.MB1_DATA_SIZE	Generic MODBUS 3 Master Data Size
9988	GM.GMBM_3.MB1_DELAY_MODE	Generic MODBUS 3 Master Delay Mode
9989	GM.GMBM_3.MB1_RTS_CTS_DELAY	Generic MODBUS 3 Master RTS/CTS Delay
9990	GM.GMBM_3.MB1_TIMEOUT	Generic MODBUS 3 Master Timeout
9991	GM.GMBM_3.MB1_REPEAT	Generic MODBUS 3 Master Repeat
9992	GM.GMBM_3.MB1_START_REG	Generic MODBUS 3 Master Start Register
9993	GM.GMBM_3.MB1_REG_COUNT	Generic MODBUS 3 Master Register Count
9994	GM.GMBM_3.MB1_ENABLED	Generic MODBUS 3 Master Enabled
9995	 GM.GMBM_4.MB1_PORT	Generic MODBUS 4 Master 1 CWM Port
9996	GM.GMBM_4.MB1_MODE	Generic MODBUS 4 Master MODE
9997	GM.GMBM_4.MB1_IP_ADDR	Generic MODBUS 4 IP Address to poll
9998	GM.GMBM_4.MB1_SLAVE_ADDR	Generic MODBUS 4 Slave Address to poll
9999	GM.GMBM_4.MB1_WORD_ORDER	Generic MODBUS 4 Master Word Order
10000	GM.GMBM_4.MB1_BYTE_ORDER	Generic MODBUS 4 Master Byte Order
10001	GM.GMBM_4.MB1_BIT_ORDER	Generic MODBUS 4 Master Bit Order
10002	GM.GMBM_4.MB1_DATA_SIZE	Generic MODBUS 4 Master Data Size
10003	GM.GMBM_4.MB1_DELAY_MODE	Generic MODBUS 4 Master Delay Mode
10004	GM.GMBM_4.MB1_RTS_CTS_DELAY	Generic MODBUS 4 Master RTS/CTS Delay
10005	GM.GMBM_4.MB1_TIMEOUT	Generic MODBUS 4 Master Timeout
10006	GM.GMBM_4.MB1_REPEAT	Generic MODBUS 4 Master Repeat
10007	GM.GMBM_4.MB1_START_REG	Generic MODBUS 4 Master Start Register
10008	GM.GMBM_4.MB1_REG_COUNT	Generic MODBUS 4 Master Register Count
10009	GM.GMBM_4.MB1_ENABLED	Generic MODBUS 4 Master Enabled
10010	GM.GMBM_5.MB1_PORT	Generic MODBUS 5 Master 1 CWM Port
10011	GM.GMBM_5.MB1_MODE	Generic MODBUS 5 Master MODE
10012	GM.GMBM_5.MB1_IP_ADDR	Generic MODBUS 5 IP Address to poll
10013	GM.GMBM_5.MB1_SLAVE_ADDR	Generic MODBUS 5 Slave Address to poll
10014	GM.GMBM_5.MB1_WORD_ORDER	Generic MODBUS 5 Master Word Order
10015	GM.GMBM_5.MB1_BYTE_ORDER	Generic MODBUS 5 Master Byte Order
10016	GM.GMBM_5.MB1_BIT_ORDER	Generic MODBUS 5 Master Bit Order
10017	GM.GMBM_5.MB1_DATA_SIZE	Generic MODBUS 5 Master Data Size
10018	GM.GMBM_5.MB1_DELAY_MODE	Generic MODBUS 5 Master Delay Mode
10019		Generic MODBUS 5 Master RTS/CTS Delay
10020	GM.GMBM_5.MB1_TIMEOUT	Generic MODBUS 5 Master Timeout

Reg#	Variable	Description
10021	GM.GMBM 5.MB1 REPEAT	Generic MODBUS 5 Master Repeat
10022	GM.GMBM 5.MB1 START REG	Generic MODBUS 5 Master Start Register
10023	GM.GMBM_5.MB1_REG_COUNT	Generic MODBUS 5 Master Register Count
10024	GM.GMBM_5.MB1_ENABLED	Generic MODBUS 5 Master Enabled
10025	CMB1.CMB_S_PORT	Customer MODBUS n Slave 1 CWM Port
10026	CMB1.CMB_S_MBADDR	Customer MODBUS n Slave MODE
10027	CMB2.CMB S PORT	Customer MODBUS n Slave 2 CWM Port
10028	CMB2.CMB_S_MBADDR	Customer MODBUS n Slave MODE
10029	CMB3.CMB_S_PORT	Customer MODBUS n Slave 3 CWM Port
10030	CMB3.CMB_S_MBADDR	Customer MODBUS n Slave MODE
10031	CMB4.CMB_S_PORT	Customer MODBUS n Slave 4 CWM Port
10032	CMB4.CMB_S_MBADDR	Customer MODBUS n Slave MODE
10033	CMB5.CMB_S_PORT	Customer MODBUS n Slave 5 CWM Port
10034	CMB5.CMB_S_MBADDR	Customer MODBUS n Slave MODE
10035	RC.RCV_1.MODE	Remote Control Valve 1 mode
10036	RC.RCV_1.PULSETIME	Remote Control Valve 1 pulse time
10037	RC.RCV_1.TRAVEL	Remote Control Valve 1 travel time
10038	RC.RCV_2.MODE	Remote Control Valve 2 mode
10039	RC.RCV_2.PULSETIME	Remote Control Valve 2 pulse time
10040	RC.RCV_2.TRAVEL	Remote Control Valve 2 travel time
10041	RC.RCV_3.MODE	Remote Control Valve 3 mode
10042	RC.RCV_3.PULSETIME	Remote Control Valve 3 pulse time
10043	RC.RCV_3.TRAVEL	Remote Control Valve 3 travel time
10044	RC.RCV_4.MODE	Remote Control Valve 4 mode
10045	RC.RCV_4.PULSETIME	Remote Control Valve 4 pulse time
10046	RC.RCV_4.TRAVEL	Remote Control Valve 4 travel time
10047	RC.RCV_5.MODE	Remote Control Valve 5 mode
10048	RC.RCV_5.PULSETIME	Remote Control Valve 5 pulse time
10049	RC.RCV_5.TRAVEL	Remote Control Valve 5 travel time
10050	RC.RCV_6.MODE	Remote Control Valve 6 mode
10051	RC.RCV_6.PULSETIME	Remote Control Valve 6 pulse time
10052	RC.RCV_6.TRAVEL	Remote Control Valve 6 travel time
10053	RC.RCV_7.MODE	Remote Control Valve 7 mode
10054	RC.RCV_7.PULSETIME	Remote Control Valve 7 pulse time
10055	RC.RCV_7.TRAVEL	Remote Control Valve 7 travel time
10056	RC.RCV_8.MODE	Remote Control Valve 8 mode
10057	RC.RCV_8.PULSETIME	Remote Control Valve 8 pulse time
10058	RC.RCV_8.TRAVEL	Remote Control Valve 8 travel time
10059	RC.RCV_9.MODE	Remote Control Valve 9 mode
10060	RC.RCV_9.PULSETIME	Remote Control Valve 9 pulse time
10061	RC.RCV_9.TRAVEL	Remote Control Valve 9 travel time
10062	RC.RCV_10.MODE	Remote Control Valve 10 mode
10063	RC.RCV_10.PULSETIME	Remote Control Valve 10 pulse time
10064	RC.RCV_10.TRAVEL	Remote Control Valve 10 travel time
10065	RC.RCV_11.MODE	Remote Control Valve 11 mode
10066	RC.RCV_11.PULSETIME	Remote Control Valve 11 pulse time
10067	RC.RCV_11.TRAVEL	Remote Control Valve 11 travel time
10068	RC.RCV_12.MODE	Remote Control Valve 12 mode
10069	RC.RCV_12.PULSETIME	Remote Control Valve 12 pulse time
10070	RC.RCV_12.TRAVEL	Remote Control Valve 12 travel time

Reg#	Variable	Description
10071	@GVP1_POLL_PER	ControlWave Micro Com Port 1 Poll Period
10072	@GVP1_WRITE_DEL	ControlWave Micro Com Port 1 Write Delay
10073	@GVP1_WRITE_TMO	ControlWave Micro Com Port 1 Write Timeout
10073		ControlWave Micro Com Port 1 number of null
10074	@GVP1_PAD_FRONT	spaces to pad the front of the message
		ControlWave Micro Com Port 1 number of null
10075	@GVP1_PAD_BACK	spaces to pad the back of the message
		ControlWave Micro Com Port 1 Fast Poll Cycle
10076	@GVP1_CYCLE_INT	
10077		ControlWave Micro Com Port 1 Fast Poll Cycle Timeout Period
10077	@GVP1_CYCLE_TIMEO	ControlWave Micro Com Port 1 - this port is the
10078	@GVP1_LOCAL_PORT	slave port
		ControlWave Micro Com Port 1 VSAT minimum
10079	@GVP1_VSAT_MIN_RESP	response time
		ControlWave Micro Com Port 1 VSAT maximum
10080	@GVP1_VSAT_MAX_RESP	response time
10001		ControlWave Micro Com Port 1 number of comm
10081	@GVP1_RETRIES	retries (BSAP Master Only) ControlWave Micro Com Port 1 reply message
10082	@GVP1_TIMEOUT	timeout from slave
10002		ControlWave Micro Com Port 1 VSAT up
10083	@GVP1_VSAT_UP_ACK_WAIT	acknowledgement wait period
10084	@GVP2_POLL_PER	ControlWave Micro Com Port 2 Poll Period
10085	@GVP2_WRITE_DEL	ControlWave Micro Com Port 2 Write Delay
10086	@GVP2_WRITE_TMO	ControlWave Micro Com Port 2 Write Timeout
10000		ControlWave Micro Com Port 2 number of null
10087	@GVP2_PAD_FRONT	spaces to pad the front of the message
		ControlWave Micro Com Port 2 number of null
10088	@GVP2_PAD_BACK	spaces to pad the back of the message
		ControlWave Micro Com Port 2 Fast Poll Cycle
10089	@GVP2_CYCLE_INT	Interval ControlWave Micro Com Port 2 Fast Poll Cycle
10090	@GVP2_CYCLE_TIMEO	Timeout Period
10000		ControlWave Micro Com Port 2 - this port is the
10091	@GVP2_LOCAL_PORT	slave port
		ControlWave Micro Com Port 2 VSAT minimum
10092	@GVP2_VSAT_MIN_RESP	response time
40000	ON DO WOAT MAY DEOD	ControlWave Micro Com Port 2 VSAT maximum
10093	@GVP2_VSAT_MAX_RESP	response time ControlWave Micro Com Port 2 number of comm
10094	@GVP2_RETRIES	retries (BSAP Master Only)
10001		ControlWave Micro Com Port 2 reply message
10095	@GVP2_TIMEOUT	timeout from slave
		ControlWave Micro Com Port 2 VSAT up
10096	@GVP2_VSAT_UP_ACK_WAIT	acknowledgement wait period
10097	@GVP3_POLL_PER	ControlWave Micro Com Port 3 Poll Period
10098	@GVP3_WRITE_DEL	ControlWave Micro Com Port 3 Write Delay
10099	@GVP3_WRITE_TMO	ControlWave Micro Com Port 3 Write Timeout
		ControlWave Micro Com Port 3 number of null
10100	@GVP3_PAD_FRONT	spaces to pad the front of the message
10404		ControlWave Micro Com Port 3 number of null
10101	@GVP3_PAD_BACK	spaces to pad the back of the message ControlWave Micro Com Port 3 Fast Poll Cycle
10102	@GVP3_CYCLE_INT	Interval
10102		ControlWave Micro Com Port 3 Fast Poll Cycle
40400	@GVP3_CYCLE_TIMEO	Timeout Period
10103		
10103		ControlWave Micro Com Port 3 - this port is the
10103 10104	@GVP3_LOCAL_PORT	ControlWave Micro Com Port 3 - this port is the slave port

Reg#	Variable	Description
		response time
10106	@GVP3_VSAT_MAX_RESP	ControlWave Micro Com Port 3 VSAT maximum response time
10107	@GVP3_RETRIES	ControlWave Micro Com Port 3 number of comm retries (BSAP Master Only)
10100		ControlWave Micro Com Port 3 reply message
10108	@GVP3_TIMEOUT	timeout from slave ControlWave Micro Com Port 3 VSAT up
10109	@GVP3_VSAT_UP_ACK_WAIT	acknowledgement wait period
10110	@GVP4_POLL_PER	ControlWave Micro Com Port 4 Poll Period
10111	@GVP4_WRITE_DEL	ControlWave Micro Com Port 4 Write Delay
10112	@GVP4_WRITE_TMO	ControlWave Micro Com Port 4 Write Timeout
10113	@GVP4_PAD_FRONT	ControlWave Micro Com Port 4 number of null spaces to pad the front of the message
10114	@GVP4_PAD_BACK	ControlWave Micro Com Port 4 number of null spaces to pad the back of the message
10115	@GVP4_CYCLE_INT	ControlWave Micro Com Port 4 Fast Poll Cycle Interval
10116	@GVP4_CYCLE_TIMEO	ControlWave Micro Com Port 4 Fast Poll Cycle Timeout Period
10117	@GVP4_LOCAL_PORT	ControlWave Micro Com Port 4 - this port is the slave port
		ControlWave Micro Com Port 4 VSAT minimum
10118	@GVP4_VSAT_MIN_RESP	response time
10119	@GVP4_VSAT_MAX_RESP	ControlWave Micro Com Port 4 VSAT maximum response time
10120	@GVP4_RETRIES	ControlWave Micro Com Port 4 number of comm retries (BSAP Master Only)
10120	@GVP4_TIMEOUT	ControlWave Micro Com Port 4 reply message timeout from slave
		ControlWave Micro Com Port 4 VSAT up
10122	@GVP4_VSAT_UP_ACK_WAIT	acknowledgement wait period
10123	@GVP5_POLL_PER	ControlWave Micro Com Port 5 Poll Period
10124	@GVP5_WRITE_DEL	ControlWave Micro Com Port 5 Write Delay
10125	@GVP5_WRITE_TMO	ControlWave Micro Com Port 5 Write Timeout ControlWave Micro Com Port 5 number of null
10126	@GVP5_PAD_FRONT @GVP5_PAD_BACK	spaces to pad the front of the messageControlWave Micro Com Port 5 number of nullspaces to pad the back of the message
10121		ControlWave Micro Com Port 5 Fast Poll Cycle
10128	@GVP5_CYCLE_INT	Interval
10129	@GVP5_CYCLE_TIMEO	ControlWave Micro Com Port 5 Fast Poll Cycle Timeout Period
10130	@GVP5_LOCAL_PORT	ControlWave Micro Com Port 5 - this port is the slave port
10131	@GVP5_VSAT_MIN_RESP	ControlWave Micro Com Port 5 VSAT minimum response time
10132	@GVP5_VSAT_MAX_RESP	ControlWave Micro Com Port 5 VSAT maximum response time
10133	@GVP5_RETRIES	ControlWave Micro Com Port 5 number of comm retries (BSAP Master Only)
10134	@GVP5_TIMEOUT	ControlWave Micro Com Port 5 reply message timeout from slave
10135	@GVP5_VSAT_UP_ACK_WAIT	ControlWave Micro Com Port 5 VSAT up acknowledgement wait period
10136	@GVP6_POLL_PER	ControlWave Micro Com Port 6 Poll Period
10137	@GVP6_WRITE_DEL	ControlWave Micro Com Port 6 Write Delay
10138	@GVP6_WRITE_TMO	ControlWave Micro Com Port 6 Write Timeout
10139	@GVP6_PAD_FRONT	ControlWave Micro Com Port 6 number of null spaces to pad the front of the message

Reg#	Variable	Description
		ControlWave Micro Com Port 6 number of null
10140	@GVP6_PAD_BACK	spaces to pad the back of the message
10141	@GVP6_CYCLE_INT	ControlWave Micro Com Port 6 Fast Poll Cycle Interval
10142	@GVP6_CYCLE_TIMEO	ControlWave Micro Com Port 6 Fast Poll Cycle Timeout Period
10143	@GVP6_LOCAL_PORT	ControlWave Micro Com Port 6 - this port is the slave port
10144	@GVP6_VSAT_MIN_RESP	ControlWave Micro Com Port 6 VSAT minimum response time
		ControlWave Micro Com Port 6 VSAT maximum
10145	@GVP6_VSAT_MAX_RESP	response time ControlWave Micro Com Port 6 number of comm
10146	@GVP6_RETRIES	retries (BSAP Master Only) ControlWave Micro Com Port 6 reply message
10147	@GVP6_TIMEOUT	timeout from slave ControlWave Micro Com Port 6 VSAT up
10148	@GVP6_VSAT_UP_ACK_WAIT	acknowledgement wait period
10149	@GVP7_POLL_PER	ControlWave Micro Com Port 7 Poll Period
10150	@GVP7_WRITE_DEL	ControlWave Micro Com Port 7 Write Delay
10151	@GVP7_WRITE_TMO	ControlWave Micro Com Port 7 Write Timeout
		ControlWave Micro Com Port 7 number of null
10152	@GVP7_PAD_FRONT	spaces to pad the front of the message
		ControlWave Micro Com Port 7 number of null
10153	@GVP7_PAD_BACK	spaces to pad the back of the message
10154	@GVP7_CYCLE_INT	ControlWave Micro Com Port 7 Fast Poll Cycle Interval
10155	@GVP7_CYCLE_TIMEO	ControlWave Micro Com Port 7 Fast Poll Cycle Timeout Period
10156	@GVP7_LOCAL_PORT	ControlWave Micro Com Port 7 - this port is the slave port
10157	@GVP7_VSAT_MIN_RESP	ControlWave Micro Com Port 7 VSAT minimum response time
10158	@GVP7_VSAT_MAX_RESP	ControlWave Micro Com Port 7 VSAT maximum response time
10159	@GVP7_RETRIES	ControlWave Micro Com Port 7 number of comm retries (BSAP Master Only)
10160	@GVP7_TIMEOUT	ControlWave Micro Com Port 7 reply message timeout from slave
10161	@GVP7_VSAT_UP_ACK_WAIT	ControlWave Micro Com Port 7 VSAT up acknowledgement wait period
		· · · ·
10162	@GVP8_POLL_PER	ControlWave Micro Com Port 8 Poll Period
10163	@GVP8_WRITE_DEL	ControlWave Micro Com Port 8 Write Delay
10164	@GVP8_WRITE_TMO	ControlWave Micro Com Port 8 Write Timeout
10165	@GVP8_PAD_FRONT	ControlWave Micro Com Port 8 number of null spaces to pad the front of the message
10166	@GVP8_PAD_BACK	ControlWave Micro Com Port 8 number of null spaces to pad the back of the message
10167	@GVP8_CYCLE_INT	ControlWave Micro Com Port 8 Fast Poll Cycle Interval
10168	@GVP8_CYCLE_TIMEO	ControlWave Micro Com Port 8 Fast Poll Cycle Timeout Period
10169	@GVP8_LOCAL_PORT	ControlWave Micro Com Port 8 - this port is the slave port
10170	@GVP8_VSAT_MIN_RESP	ControlWave Micro Com Port 8 VSAT minimum response time
		ControlWave Micro Com Port 8 VSAT maximum
10171	@GVP8_VSAT_MAX_RESP	response time ControlWave Micro Com Port 8 number of comm
10172	@GVP8_RETRIES	retries (BSAP Master Only)

Reg#	Variable	Description
		ControlWave Micro Com Port 8 reply message
10173	@GVP8_TIMEOUT	timeout from slave
		ControlWave Micro Com Port 8 VSAT up
10174	@GVP8_VSAT_UP_ACK_WAIT	acknowledgement wait period
10175	@GVP9_POLL_PER	ControlWave Micro Com Port 9 Poll Period
10176	@GVP9_WRITE_DEL	ControlWave Micro Com Port 9 Write Delay
10177	@GVP9_WRITE_TMO	ControlWave Micro Com Port 9 Write Timeout
10111		ControlWave Micro Com Port 9 number of null
10178	@GVP9_PAD_FRONT	spaces to pad the front of the message
		ControlWave Micro Com Port 9 number of null
10179	@GVP9_PAD_BACK	spaces to pad the back of the message
		ControlWave Micro Com Port 9 Fast Poll Cycle
10180	@GVP9_CYCLE_INT	Interval
		ControlWave Micro Com Port 9 Fast Poll Cycle
10181	@GVP9_CYCLE_TIMEO	Timeout Period
		ControlWave Micro Com Port 9 - this port is the
10182	@GVP9_LOCAL_PORT	slave port
	OOV DO VOLT MIN DEOD	ControlWave Micro Com Port 9 VSAT minimum
10183	@GVP9_VSAT_MIN_RESP	response time
40404	BOY DO YOAT MAY DEOD	ControlWave Micro Com Port 9 VSAT maximum
10184	@GVP9_VSAT_MAX_RESP	response time ControlWave Micro Com Port 9 number of comm
10185	@GVP9_RETRIES	retries (BSAP Master Only)
10105	WGVF9_KETRIES	ControlWave Micro Com Port 9 reply message
10186	@GVP9_TIMEOUT	timeout from slave
10100		ControlWave Micro Com Port 9 VSAT up
10187	@GVP9_VSAT_UP_ACK_WAIT	acknowledgement wait period
10188	@GVP10_POLL_PER	ControlWave Micro Com Port 10 Poll Period
10189	@GVP10_WRITE_DEL	ControlWave Micro Com Port 10 Write Delay
10190	@GVP10_WRITE_TMO	ControlWave Micro Com Port 10 Write Timeout
		ControlWave Micro Com Port 10 number of null
10191	@GVP10_PAD_FRONT	spaces to pad the front of the message
10100	OCV BIO DAD BACK	ControlWave Micro Com Port 10 number of null
10192	@GVP10_PAD_BACK	spaces to pad the back of the message ControlWave Micro Com Port 10 Fast Poll Cycle
10193	@GVP10_CYCLE_INT	Interval
10130		ControlWave Micro Com Port 10 Fast Poll Cycle
10194	@GVP10_CYCLE_TIMEO	Timeout Period
		ControlWave Micro Com Port 10 - this port is the
10195	@GVP10_LOCAL_PORT	slave port
		ControlWave Micro Com Port 10 VSAT minimum
10196	@GVP10_VSAT_MIN_RESP	response time
		ControlWave Micro Com Port 10 VSAT maximum
10197	@GVP10_VSAT_MAX_RESP	response time
		ControlWave Micro Com Port 10 number of
10198	@GVP10_RETRIES	comm retries (BSAP Master Only)
10100		ControlWave Micro Com Port 10 reply message
10199	@GVP10_TIMEOUT	timeout from slave
10000	OCV DID VEAT UD ACK WAIT	ControlWave Micro Com Port 10 VSAT up
10200	@GVP10_VSAT_UP_ACK_WAIT	acknowledgement wait period
10201	@GVP11_POLL_PER	ControlWave Micro Com Port 11 Poll Period
10202	@GVP11_WRITE_DEL	ControlWave Micro Com Port 11 Write Delay
10203	@GVP11_WRITE_TMO	ControlWave Micro Com Port 11 Write Timeout
		ControlWave Micro Com Port 11 number of null
10204	@GVP11_PAD_FRONT	spaces to pad the front of the message
		ControlWave Micro Com Port 11 number of null
10205	@GVP11_PAD_BACK	spaces to pad the back of the message
		ControlWave Micro Com Port 11 Fast Poll Cycle
10206	@GVP11_CYCLE_INT	Interval

Reg#	Variable	Description
		ControlWave Micro Com Port 11 Fast Poll Cycle
10207	@GVP11_CYCLE_TIMEO	Timeout Period
10208	@GVP11_LOCAL_PORT	ControlWave Micro Com Port 11 - this port is the slave port
		ControlWave Micro Com Port 11 VSAT minimum
10209	@GVP11_VSAT_MIN_RESP	response time
10210	@GVP11_VSAT_MAX_RESP	ControlWave Micro Com Port 11 VSAT maximum response time
10211	@GVP11_RETRIES	ControlWave Micro Com Port 11 number of comm retries (BSAP Master Only)
10212	@GVP11_TIMEOUT	ControlWave Micro Com Port 11 reply message timeout from slave
10212		ControlWave Micro Com Port 11 VSAT up
10213	@GVP11_VSAT_UP_ACK_WAIT	acknowledgement wait period
10214	IO_1.HWAIs_1.HWAI_1	Hardware AI 1, the 1st AI point installed on the ControlWave Micro
		Hardware AI 2, the 2nd AI point installed on the
10215	IO_1.HWAIs_1.HWAI_2	ControlWave Micro
10216	IO_1.HWAIs_1.HWAI_3	Hardware AI 3, the 3rd AI point installed on the ControlWave Micro
40047		Hardware AI 4, the 4th AI point installed on the
10217	IO_1.HWAIs_1.HWAI_4	ControlWave Micro Hardware AI 5, the 5th AI point installed on the
10218	IO_1.HWAIs_1.HWAI_5	ControlWave Micro
10010		Hardware AI 6, the 6th AI point installed on the
10219	IO_1.HWAIs_1.HWAI_6	ControlWave Micro Hardware AI 7, the 7th AI point installed on the
10220	IO_1.HWAIs_1.HWAI_7	ControlWave Micro
10221	IO_1.HWAIs_1.HWAI_8	Hardware AI 8, the 8th AI point installed on the ControlWave Micro
10222	IO_1.HWAIs_1.HWAI_9	Hardware AI 9, the 9th AI point installed on the ControlWave Micro
		Hardware AI 10, the 10th AI point installed on the
10223	IO_1.HWAIs_1.HWAI_10	ControlWave Micro
10224	IO_1.HWAIs_1.HWAI_11	Hardware AI 11, the 11th AI point installed on the ControlWave Micro
10225	IO_1.HWAIs_1.HWAI_12	Hardware AI 12, the 12th AI point installed on the ControlWave Micro
10220		Hardware AI 13, the 13th AI point installed on the
10226	IO_1.HWAIs_1.HWAI_13	ControlWave Micro
		Hardware AI 14, the 14th AI point installed on the
10227	IO_1.HWAIs_1.HWAI_14	ControlWave Micro
10228	IO_1.HWAIs_1.HWAI_15	Hardware AI 15, the 15th AI point installed on the ControlWave Micro
10220		Hardware AI 16, the 16th AI point installed on the
10229	IO_1.HWAIs_1.HWAI_16	ControlWave Micro
10230	IO_1.HWAIs_1.HWAI_17	Hardware AI 17, the 17th AI point installed on the ControlWave Micro
		Hardware AI 18, the 18th AI point installed on the
10231	IO_1.HWAIs_1.HWAI_18	ControlWave Micro
10232	IO_1.HWAIs_1.HWAI_19	Hardware AI 19, the 19th AI point installed on the ControlWave Micro
10233	IO_1.HWAIs_1.HWAI_20	Hardware AI 20, the 20th AI point installed on the ControlWave Micro
		Hardware AI 21, the 21st AI point installed on the
10234	IO_1.HWAIs_1.HWAI_21	ControlWave Micro Hardware AI 22, the 22nd AI point installed on
10235	IO_1.HWAIs_1.HWAI_22	the ControlWave Micro
10236	IO_1.HWAIs_1.HWAI_23	Hardware AI 23, the 23rd AI point installed on the ControlWave Micro
		Hardware AI 24, the 24th AI point installed on the
10237	IO_1.HWAIs_1.HWAI_24	ControlWave Micro

Reg#	Variable	Description
		Hardware AI 25, the 25th AI point installed on the
10238	IO_1.HWAIs_1.HWAI_25	ControlWave Micro
10000		Hardware AI 26, the 26th AI point installed on the
10239	IO_1.HWAIs_1.HWAI_26	ControlWave Micro Hardware AI 27, the 27th AI point installed on the
10240	IO_1.HWAIs_1.HWAI_27	ControlWave Micro
		Hardware AI 28, the 28th AI point installed on the
10241	IO_1.HWAIs_1.HWAI_28	ControlWave Micro
10040		Hardware AI 29, the 29th AI point installed on the
10242	IO_1.HWAIs_1.HWAI_29	ControlWave Micro Hardware AI 30, the 30th AI point installed on the
10243	IO_1.HWAIs_1.HWAI_30	ControlWave Micro
		Hardware AI 31, the 31st AI point installed on the
10244	IO_1.HWAIs_1.HWAI_31	ControlWave Micro
10045		Hardware AI 32, the 32nd AI point installed on
10245	IO_1.HWAIs_1.HWAI_32	the ControlWave Micro Hardware AI 33, the 33rd AI point installed on the
10246	IO_1.HWAIs_1.HWAI_33	ControlWave Micro
10210		Hardware AI 34, the 34th AI point installed on the
10247	IO_1.HWAIs_1.HWAI_34	ControlWave Micro
100.10		Hardware AI 35, the 35th AI point installed on the
10248	IO_1.HWAIs_1.HWAI_35	ControlWave Micro Hardware AI 36, the 36th AI point installed on the
10249	IO_1.HWAIs_1.HWAI_36	ControlWave Micro
10210		Hardware AI 37, the 37th AI point installed on the
10250	IO_1.HWAIs_1.HWAI_37	ControlWave Micro
		Hardware AI 38, the 38th AI point installed on the
10251	IO_1.HWAIs_1.HWAI_38	ControlWave Micro
10252	IO_1.HWAIs_1.HWAI_39	Hardware AI 39, the 39th AI point installed on the ControlWave Micro
10202		Hardware AI 40, the 40th AI point installed on the
10253	IO_1.HWAIs_1.HWAI_40	ControlWave Micro
10051		Hardware AI 41, the 41st AI point installed on the
10254	IO_1.HWAIs_1.HWAI_41	ControlWave Micro Hardware AI 42, the 42nd AI point installed on
10255	IO_1.HWAIs_1.HWAI_42	the ControlWave Micro
		Hardware AI 43, the 43rd AI point installed on the
10256	IO_1.HWAIs_1.HWAI_43	ControlWave Micro
40057		Hardware AI 44, the 44th AI point installed on the
10257	IO_1.HWAIs_1.HWAI_44	ControlWave Micro Hardware AI 45, the 45th AI point installed on the
10258	IO_1.HWAIs_1.HWAI_45	ControlWave Micro
		Hardware AI 46, the 46th AI point installed on the
10259	IO_1.HWAIs_1.HWAI_46	ControlWave Micro
10000		Hardware AI 47, the 47th AI point installed on the
10260	IO_1.HWAIs_1.HWAI_47	ControlWave Micro Hardware AI 48, the 48th AI point installed on the
10261	IO_1.HWAIs_1.HWAI_48	ControlWave Micro
		Hardware AI 49, the 49th AI point installed on the
10262	IO_1.HWAIs_1.HWAI_49	ControlWave Micro
10000		Hardware AI 50, the 50th AI point installed on the
10263	IO_1.HWAIs_1.HWAI_50	ControlWave Micro Hardware AI 51, the 51st AI point installed on the
10264	IO_1.HWAIs_1.HWAI_51	ControlWave Micro
		Hardware AI 52, the 52nd AI point installed on
10265	IO_1.HWAIs_1.HWAI_52	the ControlWave Micro
10000		Hardware AI 53, the 53rd AI point installed on the
10266	IO_1.HWAIs_1.HWAI_53	ControlWave Micro Hardware AI 54, the 54th AI point installed on the
10267	IO_1.HWAIs_1.HWAI_54	ControlWave Micro
		Hardware AI 55, the 55th AI point installed on the
10268	IO_1.HWAIs_1.HWAI_55	ControlWave Micro

Reg#	Variable	Description
		Hardware AI 56, the 56th AI point installed on the
10269	IO_1.HWAIs_1.HWAI_56	ControlWave Micro
10270	IO_1.HWAIs_1.HWAI_57	Hardware AI 57, the 57th AI point installed on the ControlWave Micro
10271	IO_1.HWAIs_1.HWAI_58	Hardware AI 58, the 58th AI point installed on the ControlWave Micro
10272	IO_1.HWAIs_1.HWAI_59	Hardware AI 59, the 59th AI point installed on the ControlWave Micro
10273	IO_1.HWAIs_1.HWAI_60	Hardware AI 60, the 60th AI point installed on the ControlWave Micro
10274	IO_1.HWAIs_1.HWAI_61	Hardware AI 61, the 61st AI point installed on the ControlWave Micro
10275	IO_1.HWAIs_1.HWAI_62	Hardware AI 62, the 62nd AI point installed on the ControlWave Micro
10276	IO_1.HWAIs_1.HWAI_63	Hardware AI 63, the 63rd AI point installed on the ControlWave Micro
10210		Hardware AI 64, the 64th AI point installed on the
10277	IO_1.HWAIs_1.HWAI_64	ControlWave Micro
10278	IO_1.HWAIs_1.HWAI_65	Hardware AI 65, the 65th AI point installed on the ControlWave Micro
10279	IO_1.HWAIs_1.HWAI_66	Hardware AI 66, the 66th AI point installed on the ControlWave Micro
10280	IO_1.HWAIs_1.HWAI_67	Hardware AI 67, the 67th AI point installed on the ControlWave Micro
10281	IO_1.HWAIs_1.HWAI_68	Hardware AI 68, the 68th AI point installed on the ControlWave Micro
10282	IO_1.HWAIs_1.HWAI_69	Hardware AI 69, the 69th AI point installed on the ControlWave Micro
10283	IO_1.HWAIs_1.HWAI_70	Hardware AI 70, the 70th AI point installed on the ControlWave Micro
10284	IO_1.HWAIs_1.HWAI_71	Hardware AI 71, the 71st AI point installed on the ControlWave Micro
10285	IO_1.HWAIs_1.HWAI_72	Hardware AI 72, the 72nd AI point installed on the ControlWave Micro
10286	IO_1.HWAIs_1.HWAI_73	Hardware AI 73, the 73rd AI point installed on the ControlWave Micro
10287		Hardware AI 74, the 74th AI point installed on the ControlWave Micro
10207	IO_1.HWAIs_1.HWAI_74	Hardware AI 75, the 75th AI point installed on the
10288	IO_1.HWAIs_1.HWAI_75	ControlWave Micro
10289	IO_1.HWAIs_1.HWAI_76	Hardware AI 76, the 76th AI point installed on the ControlWave Micro
10290	IO_1.HWAIs_1.HWAI_77	Hardware AI 77, the 77th AI point installed on the ControlWave Micro
10291	IO_1.HWAIs_1.HWAI_78	Hardware AI 78, the 78th AI point installed on the ControlWave Micro
10292	IO_1.HWAIs_1.HWAI_79	Hardware AI 79, the 79th AI point installed on the ControlWave Micro
		Hardware AI 80, the 80th AI point installed on the
10293	IO_1.HWAIs_1.HWAI_80	ControlWave Micro Hardware AI 81, the 81st AI point installed on the
10294	IO_1.HWAIs_1.HWAI_81	ControlWave Micro Hardware AI 82, the 82nd AI point installed on
10295	IO_1.HWAIs_1.HWAI_82	the ControlWave Micro Hardware AI 83, the 83rd AI point installed on the
10296	IO_1.HWAIs_1.HWAI_83	ControlWave Micro
10297	IO_1.HWAIs_1.HWAI_84	Hardware AI 84, the 84th AI point installed on the ControlWave Micro
10298	IO_1.HWAIs_1.HWAI_85	Hardware AI 85, the 85th AI point installed on the ControlWave Micro
10299	IO_1.HWAIs_1.HWAI_86	Hardware AI 86, the 86th AI point installed on the ControlWave Micro

Reg#	Variable	Description
		Hardware AI 87, the 87th AI point installed on the
10300	IO_1.HWAIs_1.HWAI_87	ControlWave Micro
10301	IO_1.HWAIs_1.HWAI_88	Hardware AI 88, the 88th AI point installed on the ControlWave Micro
10302	IO_1.HWAIs_1.HWAI_89	Hardware AI 89, the 89th AI point installed on the ControlWave Micro
10303	IO_1.HWAIs_1.HWAI_90	Hardware AI 90, the 90th AI point installed on the ControlWave Micro
10304	IO_1.HWAIs_1.HWAI_91	Hardware AI 91, the 91st AI point installed on the ControlWave Micro
10305	IO_1.HWAIs_1.HWAI_92	Hardware AI 92, the 92nd AI point installed on the ControlWave Micro
		Hardware AI 93, the 93rd AI point installed on the
10306	IO_1.HWAIs_1.HWAI_93	ControlWave Micro Hardware AI 94, the 94th AI point installed on the
10307	IO_1.HWAIs_1.HWAI_94	ControlWave Micro
10308	IO_1.HWAIs_1.HWAI_95	Hardware AI 95, the 95th AI point installed on the ControlWave Micro
10300	10_1.1WAIS_1.1WAI_95	Hardware Al 96, the 96th Al point installed on the
10309	IO_1.HWAIs_1.HWAI_96	ControlWave Micro
10310	IO_1.HWAIs_1.HWAI_97	Hardware AI 97, the 97th AI point installed on the ControlWave Micro
10311	IO_1.HWAIs_1.HWAI_98	Hardware AI 98, the 98th AI point installed on the ControlWave Micro
		Hardware AI 99, the 99th AI point installed on the
10312	IO_1.HWAIs_1.HWAI_99	ControlWave Micro
40040		Station DP PID process variable span for station
10313	STC.DP_PID_1.PV_SPAN	n, where PID_n = run number Station DP PID gain for station n, where PID_n =
10314	STC.DP_PID_1.GAIN	run number
10315	STC.DP_PID_1.INTGRL	Station DP PID integral for station n, where PID_n = run number
10316	STC.DP_PID_1.DERIV	Station DP PID septoint ramp rate for station n, where PID_n = run number
		Station DP PID derivative for station n, where
10317	STC.DP_PID_1.SP_RAMPRATE	PID_n = run number Station DP PID process variable span for station
10318	STC.DP_PID_2.PV_SPAN	n, where PID_n = run number
10319	STC.DP_PID_2.GAIN	Station DP PID gain for station n, where PID_n = run number
		Station DP PID integral for station n, where
10320	STC.DP_PID_2.INTGRL	PID_n = run number
10321	STC.DP_PID_2.DERIV	Station DP PID septoint ramp rate for station n, where PID_n = run number
10321		Station DP PID derivative for station n, where
10322	STC.DP_PID_2.SP_RAMPRATE	PID_n = run number
10323	STC.DP_PID_3.PV_SPAN	Station DP PID process variable span for station n, where PID_n = run number
10324	STC.DP_PID_3.GAIN	Station DP PID gain for station n, where PID_n = run number
10324	STC.DF_FID_S.GAIN	Station DP PID integral for station n, where
10325	STC.DP_PID_3.INTGRL	PID_n = run number
10326	STC.DP_PID_3.DERIV	Station DP PID septoint ramp rate for station n, where PID_n = run number
10327	STC.DP_PID_3.SP_RAMPRATE	Station DP PID derivative for station n, where PID_n = run number
		Station DP PID process variable span for station
10328	STC.DP_PID_4.PV_SPAN	n, where PID_n = run number Station DP PID gain for station n, where PID_n =
10329	STC.DP_PID_4.GAIN	run number Station DP PID integral for station n, where
10330	STC.DP_PID_4.INTGRL	PID_n = run number

Reg#	Variable	Description
		Station DP PID septoint ramp rate for station n,
10331	STC.DP_PID_4.DERIV	where PID_n = run number
40000		Station DP PID derivative for station n, where
10332	STC.DP_PID_4.SP_RAMPRATE	PID_n = run number Station DP PID process variable span for station
10333	STC.DP_PID_5.PV_SPAN	n, where $PID_n = run number$
		Station DP PID gain for station n, where PID_n =
10334	STC.DP_PID_5.GAIN	run number
40005		Station DP PID integral for station n, where
10335	STC.DP_PID_5.INTGRL	PID_n = run number Station DP PID septoint ramp rate for station n,
10336	STC.DP_PID_5.DERIV	where $PID_n = run number$
		Station DP PID derivative for station n, where
10337	STC.DP_PID_5.SP_RAMPRATE	PID_n = run number
40000		Station DP PID process variable span for station
10338	STC.DP_PID_6.PV_SPAN	n, where PID_n = run number Station DP PID gain for station n, where PID_n =
10339	STC.DP_PID_6.GAIN	run number
		Station DP PID integral for station n, where
10340	STC.DP_PID_6.INTGRL	PID_n = run number
100.11		Station DP PID septoint ramp rate for station n,
10341	STC.DP_PID_6.DERIV	where PID_n = run number Station DP PID derivative for station n, where
10342	STC.DP_PID_6.SP_RAMPRATE	$PID_n = run number$
		Station DP PID process variable span for station
10343	STC.DP_PID_7.PV_SPAN	n, where PID_n = run number
10011		Station DP PID gain for station n, where PID_n =
10344	STC.DP_PID_7.GAIN	run number Station DP PID integral for station n, where
10345	STC.DP_PID_7.INTGRL	$PID_n = run number$
		Station DP PID septoint ramp rate for station n,
10346	STC.DP_PID_7.DERIV	where PID_n = run number
10347	STC.DP_PID_7.SP_RAMPRATE	Station DP PID derivative for station n, where PID_n = run number
10047		Station DP PID process variable span for station
10348	STC.DP_PID_8.PV_SPAN	n, where PID $n = run number$
400.40		Station DP PID gain for station n, where PID_n =
10349	STC.DP_PID_8.GAIN	run number Station DP PID integral for station n, where
10350	STC.DP_PID_8.INTGRL	$PID_n = run number$
		Station DP PID septoint ramp rate for station n,
10351	STC.DP_PID_8.DERIV	where PID_n = run number
10352	STC.DP_PID_8.SP_RAMPRATE	Station DP PID derivative for station n, where PID_n = run number
10352	STO.DF_FID_0.SF_KAWFKATE	Station DP PID process variable input for station
10353	STC.DP_PID_1.IRPV	n, where PID_n = run number
		Station DP PID setpoint for station n, where
10354	STC.DP_PID_1.SETPT	PID_n = run number
10355	STC.DP_PID_2.IRPV	Station DP PID process variable input for station n, where PID_n = run number
10000		Station DP PID setpoint for station n, where
10356	STC.DP_PID_2.SETPT	PID_n = run number
10057		Station DP PID process variable input for station
10357	STC.DP_PID_3.IRPV	n, where PID_n = run number Station DP PID setpoint for station n, where
10358	STC.DP_PID_3.SETPT	$PID_n = run number$
		Station DP PID process variable input for station
10359	STC.DP_PID_4.IRPV	n, where PID_n = run number
10360	STC.DP_PID_4.SETPT	Station DP PID setpoint for station n, where PID_n = run number
10300		Station DP PID process variable input for station
10361	STC.DP_PID_5.IRPV	n, where $PID_n = run number$

Reg#	Variable	Description
		Station DP PID setpoint for station n, where
10362	STC.DP_PID_5.SETPT	PID_n = run number
10363	STC.DP_PID_6.IRPV	Station DP PID process variable input for station n, where PID_n = run number
10303		Station DP PID setpoint for station n, where
10364	STC.DP_PID_6.SETPT	PID_n = run number
		Station DP PID process variable input for station
10365	STC.DP_PID_7.IRPV	n, where PID_n = run number Station DP PID setpoint for station n, where
10366	STC.DP_PID_7.SETPT	$PID_n = run number$
		Station DP PID process variable input for station
10367	STC.DP_PID_8.IRPV	n, where PID_n = run number
10269		Station DP PID setpoint for station n, where PID_n = run number
10368	STC.DP_PID_8.SETPT	Station Control - Station 1 Inlet Pressure value
10369	STC.CTL_SIGNALMAP_1.INSRC	source - Process Variable Span
		Station Control - Station 1 Inlet Pressure value
10370	STC.ST1_INLET	used for control - Process Variable Span
10371	STC.CTL_SIGNALMAP_1.OUTSRC	Station Control - Station 1 Outlet Pressure value source - Process Variable Span
10011		Station Control - Station 1 Outlet Pressure value
10372	STC.ST1_OUTLET	used for control - Process Variable Span
10373	STC.STC_1.PID_Pmry3.PV_SPAN	Station 1 Primary3 PID process variable span
10374	STC.STC_1.PID_Pmry3.GAIN	Station 1 Primary3 PID gain
10375	STC.STC_1.PID_Pmry3.INTGRL	Station 1 Primary3 PID integral
10376	STC.STC_1.PID_Pmry3.DERIV	Station 1 Primary3 PID derivative
10377	STC.STC_1.PID_Pmry3.SP_RAMPRATE	Station 1 Primary3 PID septoint ramp rate
10378	STC.STC_1.PID_FLOW.PV_SPAN	Station 1 Flow/Energy PID process variable span
10379	STC.STC_1.PID_FLOW.GAIN	Station 1 Flow/Energy PID gain
10380	STC.STC_1.PID_FLOW.INTGRL	Station 1 Flow/Energy PID integral
10381	STC.STC_1.PID_FLOW.DERIV	Station 1 Flow/Energy PID derivative
10382	STC.STC_1.PID_FLOW.SP_RAMPRATE	Station 1 Flow/Energy PID septoint ramp rate
10383	STC.STC_1.PID_POVRD.PV_SPAN	Station 1 Pressure Override PID process variable span
10384	STC.STC_1.PID_POVRD.GAIN	Station 1 Pressure Override PID gain
10385	STC.STC 1.PID POVRD.INTGRL	Station 1 Pressure Override PID integral
10386	STC.STC_1.PID_POVRD.DERIV	Station 1 Pressure Override PID derivative
10387	STC.STC_1.PID_POVRD.SP_RAMPRATE	Station 1 Pressure Override PID septoint ramp rate
10388	STC.STC_1.PID_MAOP.PV_SPAN	Station 1 MAOP PID process variable span
10389	STC.STC_1.PID_MAOP.GAIN	Station 1 MAOP PID gain
10389	STC.STC_1.PID_MAOP.INTGRL	Station 1 MAOP PID integral
10390	STC.STC_1.PID_MAOP.DERIV	Station 1 MAOP PID Integral Station 1 MAOP PID derivative
10391	STC.STC_1.PID_MAOP.SP_RAMPRATE	
10392	STC.STC_1.PID_MAOP.SP_KAMPRATE STC.STC_1.PID_Ovrd1.PV_SPAN	Station 1 MAOP PID septoint ramp rate Station 1 Override1 PID process variable span
10393	STC.STC_1.PID_OVId1.FV_SPAN	Station 1 Override1 PID process variable span
10394	STC.STC_1.PID_OVId1.INTGRL	Station 1 Override1 PID gain Station 1 Override1 PID integral
10395	STC.STC_1.PID_OVId1.IRTGRE	Station 1 Override1 PID Integral Station 1 Override1 PID derivative
10390	STC.STC_1.PID_OVId1.SP_RAMPRATE	Station 1 Override1 PID derivative
		Station 1 Outlet Pressure Minimum PID process
10398	STC.STC_1.PID_OUTLO.PV_SPAN	variable span
10399	STC.STC_1.PID_OUTLO.GAIN	Station 1 Outlet Pressure Minimum PID gain
10400	STC.STC_1.PID_OUTLO.INTGRL	Station 1 Outlet Pressure Minimum PID integral
10401	STC.STC_1.PID_OUTLO.DERIV	Station 1 Outlet Pressure Minimum PID derivative
10402	STC.STC_1.PID_OUTLO.SP_RAMPRATE	Station 1 Outlet Pressure Minimum PID septoint

Reg#	Variable	Description
		ramp rate
10403	STC.STC_1.PID_Ovrd2.PV_SPAN	Station 1 Override2 PID process variable span
10404	STC.STC_1.PID_Ovrd2.GAIN	Station 1 Override2 PID gain
10405	STC.STC_1.PID_Ovrd2.INTGRL	Station 1 Override2 PID integral
10406	STC.STC_1.PID_Ovrd2.DERIV	Station 1 Override2 PID derivative
10407	STC.STC_1.PID_Ovrd2.SP_RAMPRATE	Station 1 Override2 PID septoint ramp rate
		Station 1 Primary 3 Control - Process Variable
10408	STC.STC_1.PID_Pmry3.IRPV	Input, un-normalized
10409	STC.CTL_PROFILE_1.L_ENERGY_SETPT	Station Control - Station 1 Energy Control Local Setpoint - Process Variable Span
10400		Station Control - Station 1 Flow Control - Process
10410	STC.STC_1.PID_FLOW.IRPV	Variable Input, un-normalized
40444		Station Control - Station 1 Flow Control Local
10411	STC.CTL_PROFILE_1.L_FLOW_SETPT	Setpoint - Process Variable Span Station Control - Station 1 Pressure Override
10412	STC.STC_1.PID_POVRD.IRPV	Control - Process Variable Input, un-normalized
		Station Control - Station 1 Outlet Pressure
10413	STC.CTL_PROFILE_1.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 1 Maximum Allowable Operating Pressure Override Control - Process
10414	STC.STC_1.PID_MAOP.IRPV	Variable Input, un-normalized
		Station Control - Station 1 Outlet Pressure
10415	STC.STC_1.PID_MAOP.SETPT	Control Setpoint - Process Variable Span Station Control - Station 1 Override 1 Control -
10416	STC.STC_1.PID_Ovrd1.IRPV	Process Variable Input, un-normalized
10110		Station Control - Station 1 Override 1 Control
10417	STC.STC_1.Ovrd_STPT1	Setpoint - Process Variable Span
		Station Control - Station 1 Minumum Outlet
10418	STC.STC_1.PID_OUTLO.IRPV	Pressure Control - Process Variable Input, un- normalized
		Station Control - Station 1 Primary 3 Control
10419	STC.CTL_PROFILE_1.L_OUTMIN_SETPT	Local Setpoint - Process Variable Span
10420	STC.STC_1.PID_Ovrd2.IRPV	Station Control - Station 1 Override 2 Control - Process Variable Input, un-normalized
10420		Station Control - Station 1 Override 2 Control
10421	STC.STC_1.Ovrd_STPT2	Setpoint - Process Variable Span
40400		Station Control - Station 1 Manual Position -
10422	STC.STC_1.MAN_POS	Process Variable Span Station Control - Station 1 Manual Ramp Rate -
10423	STC.STC_1.MAN_RAMP	Process Variable Span
		Station Control - Station 1 PID Output- Process
10424	STC.ST1_PID_OUT	Variable Span Station Control - Active PID Loop 1 - Process
10425	STC.STC_1.ACTIVE_PID	Variable Span
		Station Control - Station 2 Inlet Pressure value
10426	STC.CTL_SIGNALMAP_2.INSRC	source - Process Variable Span
10427	STC.ST2_INLET	Station Control - Station 2 Inlet Pressure value used for control - Process Variable Span
10427		Station Control - Station 2 Outlet Pressure value
10428	STC.CTL_SIGNALMAP_2.OUTSRC	source - Process Variable Span
		Station Control - Station 2 Outlet Pressure value
10429	STC.ST2_OUTLET	used for control - Process Variable Span
10430	STC.STC_2.PID_Pmry3.PV_SPAN	Station 2 Primary3 PID process variable span
10431	STC.STC_2.PID_Pmry3.GAIN	Station 2 Primary3 PID gain
10432	STC.STC_2.PID_Pmry3.INTGRL	Station 2 Primary3 PID integral
10433	STC.STC_2.PID_Pmry3.DERIV	Station 2 Primary3 PID derivative
10434	STC.STC_2.PID_Pmry3.SP_RAMPRATE	Station 2 Primary3 PID septoint ramp rate
10435	STC.STC_2.PID_FLOW.PV_SPAN	Station 2 Flow/Energy PID process variable span
10436	STC.STC_2.PID_FLOW.GAIN	Station 2 Flow/Energy PID gain

Reg#	Variable	Description
10437	STC.STC_2.PID_FLOW.INTGRL	Station 2 Flow/Energy PID integral
10438	STC.STC_2.PID_FLOW.DERIV	Station 2 Flow/Energy PID derivative
10439	STC.STC_2.PID_FLOW.SP_RAMPRATE	Station 2 Flow/Energy PID septoint ramp rate
		Station 2 Pressure Override PID process variable
10440	STC.STC_2.PID_POVRD.PV_SPAN	span
10441	STC.STC_2.PID_POVRD.GAIN	Station 2 Pressure Override PID gain
10442	STC.STC_2.PID_POVRD.INTGRL	Station 2 Pressure Override PID integral
10443	STC.STC_2.PID_POVRD.DERIV	Station 2 Pressure Override PID derivative
10111		Station 2 Pressure Override PID septoint ramp
10444	STC.STC_2.PID_POVRD.SP_RAMPRATE	
10445	STC.STC_2.PID_MAOP.PV_SPAN	Station 2 MAOP PID process variable span
10446	STC.STC_2.PID_MAOP.GAIN	Station 2 MAOP PID gain
10447	STC.STC_2.PID_MAOP.INTGRL	Station 2 MAOP PID integral
10448	STC.STC_2.PID_MAOP.DERIV	Station 2 MAOP PID derivative
10449	STC.STC_2.PID_MAOP.SP_RAMPRATE	Station 2 MAOP PID septoint ramp rate
10450	STC.STC_2.PID_Ovrd1.PV_SPAN	Station 2 Override1 PID process variable span
10451	STC.STC_2.PID_Ovrd1.GAIN	Station 2 Override1 PID gain
10452	STC.STC_2.PID_Ovrd1.INTGRL	Station 2 Override1 PID integral
10453	STC.STC_2.PID_Ovrd1.DERIV	Station 2 Override1 PID derivative
10454	STC.STC_2.PID_Ovrd1.SP_RAMPRATE	Station 2 Override1 PID septoint ramp rate
10155		Station 2 Outlet Pressure Minimum PID process
10455	STC.STC_2.PID_OUTLO.PV_SPAN	variable span
10456	STC.STC_2.PID_OUTLO.GAIN	Station 2 Outlet Pressure Minimum PID gain
10457	STC.STC_2.PID_OUTLO.INTGRL	Station 2 Outlet Pressure Minimum PID integral Station 2 Outlet Pressure Minimum PID
10458	STC.STC_2.PID_OUTLO.DERIV	derivative
10100		Station 2 Outlet Pressure Minimum PID septoint
10459	STC.STC_2.PID_OUTLO.SP_RAMPRATE	ramp rate
10460	STC.STC_2.PID_Ovrd2.PV_SPAN	Station 2 Override2 PID process variable span
10461	STC.STC_2.PID_Ovrd2.GAIN	Station 2 Override2 PID gain
10462	STC.STC_2.PID_Ovrd2.INTGRL	Station 2 Override2 PID integral
10463	STC.STC_2.PID_Ovrd2.DERIV	Station 2 Override2 PID derivative
10464	STC.STC_2.PID_Ovrd2.SP_RAMPRATE	Station 2 Override2 PID septoint ramp rate
		Station Control - Station 2 Primary 3 Control -
10465	STC.STC_2.PID_Pmry3.IRPV	Process Variable Input, un-normalized
10466	STC.CTL_PROFILE_2.L_ENERGY_SETPT	Station Control - Station 2 Energy Control Local Setpoint - Process Variable Span
10400		Station Control - Station 2 Flow Control - Process
10467	STC.STC_2.PID_FLOW.IRPV	Variable Input, un-normalized
		Station Control - Station 2 Flow Control Local
10468	STC.CTL_PROFILE_2.L_FLOW_SETPT	Setpoint - Process Variable Span
10469	STC.STC_2.PID_POVRD.IRPV	Station Control - Station 2 Pressure Override Control - Process Variable Input, un-normalized
10403		Station Control - Station 2 Outlet Pressure
10470	STC.CTL_PROFILE_2.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 2 Maximum Allowable
40474		Operating Pressure Override Control - Process
10471	STC.STC_2.PID_MAOP.IRPV	Variable Input, un-normalized Station Control - Station 2 Outlet Pressure
10472	STC.STC_2.PID_MAOP.SETPT	Control Setpoint - Process Variable Span
		Station Control - Station 2 Override 1 Control -
10473	STC.STC_2.PID_Ovrd1.IRPV	Process Variable Input, un-normalized
40474		Station Control - Station 2 Override 1 Control
10474	STC.STC_2.Ovrd_STPT1	Setpoint - Process Variable Span Station Control - Station 2 Minumum Outlet
10475	STC.STC_2.PID_OUTLO.IRPV	Pressure Control - Station 2 Minumum Outlet Pressure Control - Process Variable Input, un-
10710		r resourc control i rocess valiable liiput, ull-

Reg#	Variable	Description
-		normalized
		Station Control - Station 2 Primary 3 Control
10476	STC.CTL_PROFILE_2.L_OUTMIN_SETPT	Local Setpoint - Process Variable Span
10477	STC.STC_2.PID_Ovrd2.IRPV	Station Control - Station 2 Override 2 Control - Process Variable Input, un-normalized
		Station Control - Station 2 Override 2 Control
10478	STC.STC_2.Ovrd_STPT2	Setpoint - Process Variable Span Station Control - Station 2 Manual Position -
10479	STC.STC_2.MAN_POS	Process Variable Span
10480	STC.STC_2.MAN_RAMP	Station Control - Station 2 Manual Ramp Rate - Process Variable Span
10481	STC.ST2_PID_OUT	Station Control - Station 2 PID Output- Process Variable Span
10482	STC.STC_2.ACTIVE_PID	Station Control - Active PID Loop 2 - Process Variable Span
10483	STC.CTL_SIGNALMAP_3.INSRC	Station Control - Station 3 Inlet Pressure value source - Process Variable Span
10484	STC.ST3_INLET	Station Control - Station 3 Inlet Pressure value used for control - Process Variable Span
10485	STC.CTL_SIGNALMAP_3.OUTSRC	Station Control - Station 3 Outlet Pressure value source - Process Variable Span
10486	STC.ST3_OUTLET	Station Control - Station 3 Outlet Pressure value used for control - Process Variable Span
10487	STC.STC_3.PID_Pmry3.PV_SPAN	Station 3 Primary3 PID process variable span
10488	STC.STC_3.PID_Pmry3.GAIN	Station 3 Primary3 PID gain
10489	STC.STC_3.PID_Pmry3.INTGRL	Station 3 Primary3 PID integral
10490	STC.STC_3.PID_Pmry3.DERIV	Station 3 Primary3 PID derivative
10491	STC.STC_3.PID_Pmry3.SP_RAMPRATE	Station 3 Primary3 PID septoint ramp rate
10492	STC.STC_3.PID_FLOW.PV_SPAN	Station 3 Flow/Energy PID process variable span
10493	STC.STC_3.PID_FLOW.GAIN	Station 3 Flow/Energy PID gain
10494	STC.STC_3.PID_FLOW.INTGRL	Station 3 Flow/Energy PID integral
10495	STC.STC_3.PID_FLOW.DERIV	Station 3 Flow/Energy PID derivative
10496	STC.STC_3.PID_FLOW.SP_RAMPRATE	Station 3 Flow/Energy PID septoint ramp rate
10-130		Station 3 Pressure Override PID process variable
10497	STC.STC_3.PID_POVRD.PV_SPAN	span
10498	STC.STC_3.PID_POVRD.GAIN	Station 3 Pressure Override PID gain
10499	STC.STC_3.PID_POVRD.INTGRL	Station 3 Pressure Override PID integral
10500	STC.STC_3.PID_POVRD.DERIV	Station 3 Pressure Override PID derivative
10501	STC.STC_3.PID_POVRD.SP_RAMPRATE	Station 3 Pressure Override PID septoint ramp rate
10502	STC.STC_3.PID_MAOP.PV_SPAN	Station 3 MAOP PID process variable span
10503	STC.STC_3.PID_MAOP.GAIN	Station 3 MAOP PID gain
10504	STC.STC_3.PID_MAOP.INTGRL	Station 3 MAOP PID integral
10505	STC.STC_3.PID_MAOP.DERIV	Station 3 MAOP PID derivative
10506	STC.STC_3.PID_MAOP.SP_RAMPRATE	Station 3 MAOP PID septoint ramp rate
10507	STC.STC_3.PID_Ovrd1.PV_SPAN	Station 3 Override1 PID process variable span
10508	STC.STC_3.PID_Ovrd1.GAIN	Station 3 Override1 PID gain
10509	STC.STC_3.PID_Ovrd1.INTGRL	Station 3 Override1 PID integral
10510	STC.STC_3.PID_Ovrd1.DERIV	Station 3 Override1 PID derivative
10510	STC.STC_3.PID_Ovrd1.SP_RAMPRATE	Station 3 Override1 PID septoint ramp rate
10512	STC.STC_3.PID_OUTLO.PV_SPAN	Station 3 Outlet Pressure Minimum PID process variable span
10512	STC.STC_3.PID_OUTLO.GAIN	Station 3 Outlet Pressure Minimum PID gain
	STC.STC_3.PID_OUTLO.INTGRL	Station 3 Outlet Pressure Minimum PID integral
10514		Station 3 Outlet Pressure Minimum PID Integral
10515	STC.STC_3.PID_OUTLO.DERIV	derivative

Reg#	Variable	Description
		Station 3 Outlet Pressure Minimum PID septoint
10516	STC.STC_3.PID_OUTLO.SP_RAMPRATE	ramp rate
10517	STC.STC_3.PID_Ovrd2.PV_SPAN	Station 3 Override2 PID process variable span
10518	STC.STC_3.PID_Ovrd2.GAIN	Station 3 Override2 PID gain
10519	STC.STC_3.PID_Ovrd2.INTGRL	Station 3 Override2 PID integral
10520	STC.STC_3.PID_Ovrd2.DERIV	Station 3 Override2 PID derivative
10521	STC.STC_3.PID_Ovrd2.SP_RAMPRATE	Station 3 Override2 PID septoint ramp rate
		Station Control - Station 3 Primary 3 Control -
10522	STC.STC_3.PID_Pmry3.IRPV	Process Variable Input, un-normalized Station Control - Station 3 Energy Control Local
10523	STC.CTL_PROFILE_3.L_ENERGY_SETPT	Setpoint - Process Variable Span
10020		Station Control - Station 3 Flow Control -
10524	STC.STC_3.PID_FLOW.IRPV	Process Variable Input, un-normalized
		Station Control - Station 3 Flow Control Local
10525	STC.CTL_PROFILE_3.L_FLOW_SETPT	Setpoint - Process Variable Span
10526	STC.STC_3.PID_POVRD.IRPV	Station Control - Station 3 Pressure Override Control - Process Variable Input, un-normalized
10520	31C.31C_3.FID_FOVRD.IRFV	Station Control - Station 3 Outlet Pressure
10527	STC.CTL_PROFILE_3.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 3 Maximum Allowable
40		Operating Pressure Override Control - Process
10528	STC.STC_3.PID_MAOP.IRPV	Variable Input, un-normalized Station Control - Station 3 Outlet Pressure
10529	STC.STC_3.PID_MAOP.SETPT	Control Setpoint - Process Variable Span
10020		Station Control - Station 3 Override 1 Control -
10530	STC.STC_3.PID_Ovrd1.IRPV	Process Variable Input, un-normalized
		Station Control - Station 3 Override 1 Control
10531	STC.STC_3.Ovrd_STPT1	Setpoint - Process Variable Span
		Station Control - Station 3 Minumum Outlet Pressure Control - Process Variable Input, un-
10532	STC.STC_3.PID_OUTLO.IRPV	normalized
		Station Control - Station 3 Primary 3 Control
10533	STC.CTL_PROFILE_3.L_OUTMIN_SETPT	Local Setpoint - Process Variable Span
40504		Station Control - Station 3 Override 2 Control -
10534	STC.STC_3.PID_Ovrd2.IRPV	Process Variable Input, un-normalized Station Control - Station 3 Override 2 Control
10535	STC.STC_3.Ovrd_STPT2	Setpoint - Process Variable Span
10000		Station Control - Station 3 Manual Position -
10536	STC.STC_3.MAN_POS	Process Variable Span
		Station Control - Station 3 Manual Ramp Rate -
10537	STC.STC_3.MAN_RAMP	Process Variable Span Station Control - Station 3 PID Output- Process
10538	STC.ST3_PID_OUT	Variable Span
		Station Control - Active PID Loop 3 - Process
10539	STC.STC_3.ACTIVE_PID	Variable Span
		Station Control - Station 4 Inlet Pressure value
10540	STC.CTL_SIGNALMAP_4.INSRC	source - Process Variable Span Station Control - Station 4 Inlet Pressure value
10541	STC.ST4_INLET	used for control - Process Variable Span
100-11		Station Control - Station 4 Outlet Pressure value
10542	STC.CTL_SIGNALMAP_4.OUTSRC	source - Process Variable Span
		Station Control - Station 4 Outlet Pressure value
10543	STC.ST4_OUTLET	used for control - Process Variable Span
10544	STC.STC_4.PID_Pmry3.PV_SPAN	Station 4 Primary3 PID process variable span
10545	STC.STC_4.PID_Pmry3.GAIN	Station 4 Primary3 PID gain
10546	STC.STC_4.PID_Pmry3.INTGRL	Station 4 Primary3 PID integral
10547	STC.STC_4.PID_Pmry3.DERIV	Station 4 Primary3 PID derivative
10548	STC.STC_4.PID_Pmry3.SP_RAMPRATE	Station 4 Primary3 PID septoint ramp rate
10549	STC.STC_4.PID_FLOW.PV_SPAN	Station 4 Flow/Energy PID process variable span

Reg#	Variable	Description
10550	STC.STC_4.PID_FLOW.GAIN	Station 4 Flow/Energy PID gain
10551	STC.STC_4.PID_FLOW.INTGRL	Station 4 Flow/Energy PID integral
10552	STC.STC_4.PID_FLOW.DERIV	Station 4 Flow/Energy PID derivative
10553	STC.STC_4.PID_FLOW.SP_RAMPRATE	Station 4 Flow/Energy PID septoint ramp rate
		Station 4 Pressure Override PID process variable
10554	STC.STC_4.PID_POVRD.PV_SPAN	span
10555	STC.STC_4.PID_POVRD.GAIN	Station 4 Pressure Override PID gain
10556	STC.STC_4.PID_POVRD.INTGRL	Station 4 Pressure Override PID integral
10557	STC.STC_4.PID_POVRD.DERIV	Station 4 Pressure Override PID derivative
10558		Station 4 Pressure Override PID septoint ramp
10558	STC.STC_4.PID_POVRD.SP_RAMPRATE STC.STC_4.PID_MAOP.PV_SPAN	rate Station 4 MAOP PID process variable span
10560	STC.STC_4.PID_MAOP.GAIN	Station 4 MAOP PID gain
10561	STC.STC_4.PID_MAOD.DEDIV	Station 4 MAOP PID integral
10562	STC.STC_4.PID_MAOD.OD_DAMDDATE	Station 4 MAOP PID derivative
10563	STC.STC_4.PID_MAOP.SP_RAMPRATE	Station 4 MAOP PID septoint ramp rate
10564	STC.STC_4.PID_Ovrd1.PV_SPAN	Station 4 Override1 PID process variable span
10565	STC.STC_4.PID_Ovrd1.GAIN	Station 4 Override1 PID gain
10566	STC.STC_4.PID_Ovrd1.INTGRL	Station 4 Override1 PID integral
10567	STC.STC_4.PID_Ovrd1.DERIV	Station 4 Override1 PID derivative
10568	STC.STC_4.PID_Ovrd1.SP_RAMPRATE	Station 4 Override1 PID septoint ramp rate Station 4 Outlet Pressure Minimum PID process
10569	STC.STC_4.PID_OUTLO.PV_SPAN	variable span
10570	STC.STC_4.PID_OUTLO.GAIN	Station 4 Outlet Pressure Minimum PID gain
10571	STC.STC_4.PID_OUTLO.INTGRL	Station 4 Outlet Pressure Minimum PID integral
		Station 4 Outlet Pressure Minimum PID
10572	STC.STC_4.PID_OUTLO.DERIV	derivative
10573	STC.STC_4.PID_OUTLO.SP_RAMPRATE	Station 4 Outlet Pressure Minimum PID septoint ramp rate
10574	STC.STC_4.PID_OVrd2.PV_SPAN	Station 4 Override2 PID process variable span
10575	STC.STC_4.PID_OVrd2.GAIN	Station 4 Override2 PID gain
10576	STC.STC_4.PID_OVId2.INTGRL	Station 4 Override2 PID gam
10570	STC.STC_4.PID_OVrd2.DERIV	Station 4 Override2 PID derivative
10578	STC.STC_4.PID_OVId2.SP_RAMPRATE	Station 4 Override2 PID derivative
10370		Station Control - Station 4 Primary 3 Control -
10579	STC.STC_4.PID_Pmry3.IRPV	Process Variable Input, un-normalized
10500		Station Control - Station 4 Energy Control Local
10580	STC.CTL_PROFILE_4.L_ENERGY_SETPT	Setpoint - Process Variable Span Station Control - Station 4 Flow Control -
10581	STC.STC_4.PID_FLOW.IRPV	Process Variable Input, un-normalized
		Station Control - Station 4 Flow Control Local
10582	STC.CTL_PROFILE_4.L_FLOW_SETPT	Setpoint - Process Variable Span
10583	STC.STC_4.PID_POVRD.IRPV	Station Control - Station 4 Pressure Override Control - Process Variable Input, un-normalized
10303		Station Control - Station 4 Outlet Pressure
10584	STC.CTL_PROFILE_4.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 4 Maximum Allowable
10585	STC.STC_4.PID_MAOP.IRPV	Operating Pressure Override Control - Process Variable Input, un-normalized
10303		Station Control - Station 4 Outlet Pressure
10586	STC.STC_4.PID_MAOP.SETPT	Control Setpoint - Process Variable Span
		Station Control - Station 4 Override 1 Control -
10587	STC.STC_4.PID_Ovrd1.IRPV	Process Variable Input, un-normalized Station Control - Station 4 Override 1 Control
10500	STC.STC_4.Ovrd_STPT1	Station Control - Station 4 Override 1 Control Setpoint - Process Variable Span
10588		

Reg#	Variable	Description
iteg.		Pressure Control - Process Variable Input, un-
		normalized
10590	STC.CTL_PROFILE_4.L_OUTMIN_SETPT	Station Control - Station 4 Primary 3 Control Local Setpoint - Process Variable Span
10390		Station Control - Station 4 Override 2 Control -
10591	STC.STC_4.PID_Ovrd2.IRPV	Process Variable Input, un-normalized
		Station Control - Station 4 Override 2 Control
10592	STC.STC_4.Ovrd_STPT2	Setpoint - Process Variable Span Station Control - Station 4 Manual Position -
10593	STC.STC_4.MAN_POS	Process Variable Span
		Station Control - Station 4 Manual Ramp Rate -
10594	STC.STC_4.MAN_RAMP	Process Variable Span
10505		Station Control - Station 4 PID Output- Process
10595	STC.ST4_PID_OUT	Variable Span Station Control - Active PID Loop 4 - Process
10596	STC.STC_4.ACTIVE_PID	Variable Span
		Station Control - Station 4 Inlet Pressure value
10597	STC.CTL_SIGNALMAP_5.INSRC	source - Process Variable Span
10598	STC.ST5_INLET	Station Control - Station 4 Inlet Pressure value used for control - Process Variable Span
10000		Station Control - Station 4 Outlet Pressure value
10599	STC.CTL_SIGNALMAP_5.OUTSRC	source - Process Variable Span
40000		Station Control - Station 4 Outlet Pressure value
10600	STC.ST5_OUTLET	used for control - Process Variable Span
10601	STC.STC_5.PID_Pmry3.PV_SPAN	Station 5 Primary3 PID process variable span
10602	STC.STC_5.PID_Pmry3.GAIN	Station 5 Primary3 PID gain
10603	STC.STC_5.PID_Pmry3.INTGRL	Station 5 Primary3 PID integral
10604	STC.STC_5.PID_Pmry3.DERIV	Station 5 Primary3 PID derivative
10605	STC.STC_5.PID_Pmry3.SP_RAMPRATE	Station 5 Primary3 PID septoint ramp rate
10606	STC.STC_5.PID_FLOW.PV_SPAN	Station 5 Flow/Energy PID process variable span
10607	STC.STC_5.PID_FLOW.GAIN	Station 5 Flow/Energy PID gain
10608	STC.STC_5.PID_FLOW.INTGRL	Station 5 Flow/Energy PID integral
10609	STC.STC_5.PID_FLOW.DERIV	Station 5 Flow/Energy PID derivative
10610	STC.STC_5.PID_FLOW.SP_RAMPRATE	Station 5 Flow/Energy PID septoint ramp rate Station 5 Pressure Override PID process variable
10611	STC.STC_5.PID_POVRD.PV_SPAN	span
10612	STC.STC_5.PID_POVRD.GAIN	Station 5 Pressure Override PID gain
	STC.STC_5.PID_POVRD.INTGRL	Station 5 Pressure Override PID integral
10614	STC.STC_5.PID_POVRD.DERIV	Station 5 Pressure Override PID derivative
		Station 5 Pressure Override PID septoint ramp
10615	STC.STC_5.PID_POVRD.SP_RAMPRATE	rate
10616	STC.STC_5.PID_MAOP.PV_SPAN	Station 5 MAOP PID process variable span
10617	STC.STC_5.PID_MAOP.GAIN	Station 5 MAOP PID gain
10618	STC.STC_5.PID_MAOP.INTGRL	Station 5 MAOP PID integral
10619	STC.STC_5.PID_MAOP.DERIV	Station 5 MAOP PID derivative
10620	STC.STC_5.PID_MAOP.SP_RAMPRATE	Station 5 MAOP PID septoint ramp rate
10621	STC.STC_5.PID_Ovrd1.PV_SPAN	Station 5 Override1 PID process variable span
10622	STC.STC_5.PID_Ovrd1.GAIN	Station 5 Override1 PID gain
10623	STC.STC_5.PID_Ovrd1.INTGRL	Station 5 Override1 PID integral
10624	STC.STC_5.PID_Ovrd1.DERIV	Station 5 Override1 PID derivative
10625	STC.STC_5.PID_Ovrd1.SP_RAMPRATE	Station 5 Override1 PID septoint ramp rate
10626	STC.STC_5.PID_OUTLO.PV_SPAN	Station 5 Outlet Pressure Minimum PID process variable span
10626	STC.STC_5.PID_OUTLO.GAIN	Station 5 Outlet Pressure Minimum PID gain
	STC.STC_5.PID_OUTLO.GAIN STC.STC_5.PID_OUTLO.INTGRL	Station 5 Outlet Pressure Minimum PID gain Station 5 Outlet Pressure Minimum PID integral
10628 10629	STC.STC_5.PID_OUTLO.INTGRE STC.STC_5.PID_OUTLO.DERIV	Station 5 Outlet Pressure Minimum PID Integral Station 5 Outlet Pressure Minimum PID
10029		

Reg#	Variable	Description
		derivative
		Station 5 Outlet Pressure Minimum PID septoint
10630	STC.STC_5.PID_OUTLO.SP_RAMPRATE	ramp rate
10631	STC.STC_5.PID_Ovrd2.PV_SPAN	Station 5 Override2 PID process variable span
10632	STC.STC_5.PID_Ovrd2.GAIN	Station 5 Override2 PID gain
10633	STC.STC_5.PID_Ovrd2.INTGRL	Station 5 Override2 PID integral
10634	STC.STC_5.PID_Ovrd2.DERIV	Station 5 Override2 PID derivative
10635	STC.STC_5.PID_Ovrd2.SP_RAMPRATE	Station 5 Override2 PID septoint ramp rate
10035		Station Control - Station 5 Primary 3 Control -
10636	STC.STC_5.PID_Pmry3.IRPV	Process Variable Input, un-normalized
		Station Control - Station 5 Energy Control Local
10637	STC.CTL_PROFILE_5.L_ENERGY_SETPT	Setpoint - Process Variable Span
		Station Control - Station 5 Flow Control - Process
10638	STC.STC_5.PID_FLOW.IRPV	Variable Input, un-normalized
10639	STC.CTL_PROFILE_5.L_FLOW_SETPT	Station Control - Station 5 Flow Control Local Setpoint - Process Variable Span
10000		Station Control - Station 5 Pressure Override
10640	STC.STC_5.PID_POVRD.IRPV	Control - Process Variable Input, un-normalized
		Station Control - Station 5 Outlet Pressure
10641	STC.CTL_PROFILE_5.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 5 Maximum Allowable
10642	STC.STC_5.PID_MAOP.IRPV	Operating Pressure Override Control - Process Variable Input, un-normalized
10042	STC.STC_5.FID_WAOF.IKFV	Station Control - Station 5 Outlet Pressure
10643	STC.STC_5.PID_MAOP.SETPT	Control Setpoint - Process Variable Span
		Station Control - Station 5 Override 1 Control -
10644	STC.STC_5.PID_Ovrd1.IRPV	Process Variable Input, un-normalized
		Station Control - Station 5 Override 1 Control
10645	STC.STC_5.Ovrd_STPT1	Setpoint - Process Variable Span
		Station Control - Station 5 Minumum Outlet Pressure Control - Process Variable Input, un-
10646	STC.STC_5.PID_OUTLO.IRPV	normalized
		Station Control - Station 5 Primary 3 Control
10647	STC.CTL_PROFILE_5.L_OUTMIN_SETPT	Local Setpoint - Process Variable Span
		Station Control - Station 5 Override 2 Control -
10648	STC.STC_5.PID_Ovrd2.IRPV	Process Variable Input, un-normalized
10649	STC STC 5 Oved STDT1	Station Control - Station 5 Override 2 Control Setpoint - Process Variable Span
10049	STC.STC_5.Ovrd_STPT1	Station Control - Station 5 Manual Position -
10650	STC.STC_5.MAN_POS	Process Variable Span
		Station Control - Station 5 Manual Ramp Rate -
10651	STC.STC_5.MAN_RAMP	Process Variable Span
		Station Control - Station 5 PID Output- Process
10652	STC.ST5_PID_OUT	Variable Span Station Control - Active PID Loop 5 - Process
10653	STC.STC_5.ACTIVE_PID	Variable Span
10033		Station Control - Station 6 Inlet Pressure value
10654	STC.CTL_SIGNALMAP_6.INSRC	source - Process Variable Span
_		Station Control - Station 6 Inlet Pressure value
10655	STC.ST6_INLET	used for control - Process Variable Span
		Station Control - Station 6 Outlet Pressure value
10656	STC.CTL_SIGNALMAP_6.OUTSRC	source - Process Variable Span
10657	STC.ST6_OUTLET	Station Control - Station 6 Outlet Pressure value used for control - Process Variable Span
10658	STC.STC_6.PID_Pmry3.PV_SPAN	Station 6 Primary3 PID process variable span
10659	STC.STC_6.PID_Pmry3.GAIN	Station 6 Primary3 PID gain
10660	STC.STC_6.PID_Pmry3.INTGRL	Station 6 Primary3 PID integral
10661	STC.STC_6.PID_Pmry3.DERIV	Station 6 Primary3 PID derivative
10662	STC.STC_6.PID_Pmry3.SP_RAMPRATE	Station 6 Primary3 PID septoint ramp rate

Reg#	Variable	Description
10663	STC.STC_6.PID_FLOW.PV_SPAN	Station 6 Flow/Energy PID process variable span
10664	STC.STC_6.PID_FLOW.GAIN	Station 6 Flow/Energy PID gain
10665	STC.STC_6.PID_FLOW.INTGRL	Station 6 Flow/Energy PID integral
10666	STC.STC_6.PID_FLOW.DERIV	Station 6 Flow/Energy PID derivative
10667	STC.STC_6.PID_FLOW.SP_RAMPRATE	Station 6 Flow/Energy PID septoint ramp rate
		Station 6 Pressure Override PID process variable
10668	STC.STC_6.PID_POVRD.PV_SPAN	span
10669	STC.STC_6.PID_POVRD.GAIN	Station 6 Pressure Override PID gain
10670	STC.STC_6.PID_POVRD.INTGRL	Station 6 Pressure Override PID integral
10671	STC.STC_6.PID_POVRD.DERIV	Station 6 Pressure Override PID derivative
40070		Station 6 Pressure Override PID septoint ramp
10672	STC.STC_6.PID_POVRD.SP_RAMPRATE	
10673	STC.STC_6.PID_MAOP.PV_SPAN	Station 6 MAOP PID process variable span
10674	STC.STC_6.PID_MAOP.GAIN	Station 6 MAOP PID gain
10675	STC.STC_6.PID_MAOP.INTGRL	Station 6 MAOP PID integral
10676	STC.STC_6.PID_MAOP.DERIV	Station 6 MAOP PID derivative
10677	STC.STC_6.PID_MAOP.SP_RAMPRATE	Station 6 MAOP PID septoint ramp rate
10678	STC.STC_6.PID_Ovrd1.PV_SPAN	Station 6 Override1 PID process variable span
10679	STC.STC_6.PID_Ovrd1.GAIN	Station 6 Override1 PID gain
10680	STC.STC_6.PID_Ovrd1.INTGRL	Station 6 Override1 PID integral
10681	STC.STC_6.PID_Ovrd1.DERIV	Station 6 Override1 PID derivative
10682	STC.STC_6.PID_Ovrd1.SP_RAMPRATE	Station 6 Override1 PID septoint ramp rate
10683	STC.STC_6.PID_OUTLO.PV_SPAN	Station 6 Outlet Pressure Minimum PID process variable span
10684	STC.STC_6.PID_OUTLO.GAIN	Station 6 Outlet Pressure Minimum PID gain
10685	STC.STC_6.PID_OUTLO.INTGRL	Station 6 Outlet Pressure Minimum PID integral
10000		Station 6 Outlet Pressure Minimum PID
10686	STC.STC_6.PID_OUTLO.DERIV	derivative
40007		Station 6 Outlet Pressure Minimum PID septoint
10687	STC.STC_6.PID_OUTLO.SP_RAMPRATE	ramp rate
10688	STC.STC_6.PID_Ovrd2.PV_SPAN	Station 6 Override2 PID process variable span
10689	STC.STC_6.PID_Ovrd2.GAIN	Station 6 Override2 PID gain
10690	STC.STC_6.PID_Ovrd2.INTGRL	Station 6 Override2 PID integral
10691	STC.STC_6.PID_Ovrd2.DERIV	Station 6 Override2 PID derivative
10692	STC.STC_6.PID_Ovrd2.SP_RAMPRATE	Station 6 Override2 PID septoint ramp rate Station Control - Station 6 Primary 3 Control -
10693	STC.STC_6.PID_Pmry3.IRPV	Process Variable Input, un-normalized
		Station Control - Station 6 Energy Control Local
10694	STC.CTL_PROFILE_6.L_ENERGY_SETPT	Setpoint - Process Variable Span
10695	STC.STC_6.PID_FLOW.IRPV	Station Control - Station 6 Flow Control - Process Variable Input, un-normalized
10035		Station Control - Station 6 Flow Control Local
10696	STC.CTL_PROFILE_6.L_FLOW_SETPT	Setpoint - Process Variable Span
		Station Control - Station 6 Pressure Override
10697	STC.STC_6.PID_POVRD.IRPV	Control - Process Variable Input, un-normalized Station Control - Station 6 Outlet Pressure
10698	STC.CTL_PROFILE_6.L_PRESSURE_SETPT	Control Local Setpoint - Process Variable Span
		Station Control - Station 6 Maximum Allowable
		Operating Pressure Override Control - Process
10699	STC.STC_6.PID_MAOP.IRPV	Variable Input, un-normalized
10700	STC.STC_6.PID_MAOP.SETPT	Station Control - Station 6 Outlet Pressure Control Setpoint - Process Variable Span
10700		Station Control - Station 6 Override 1 Control -
10701	STC.STC_6.PID_Ovrd1.IRPV	Process Variable Input, un-normalized
40700		Station Control - Station 6 Override 1 Control
10702	STC.STC_6.Ovrd_STPT1	Setpoint - Process Variable Span

Reg#	Variable	Description
		Station Control - Station 6 Minumum Outlet
		Pressure Control - Process Variable Input, un-
10703	STC.STC_6.PID_OUTLO.IRPV	normalized
10704	STC.CTL_PROFILE_6.L_OUTMIN_SETPT	Station Control - Station 6 Primary 3 Control Local Setpoint - Process Variable Span
10704		Station Control - Station 6 Override 2 Control -
10705	STC.STC_6.PID_Ovrd2.IRPV	Process Variable Input, un-normalized
		Station Control - Station 6 Override 2 Control
10706	STC.STC_6.Ovrd_STPT1	Setpoint - Process Variable Span
10707	STC.STC_6.MAN_POS	Station Control - Station 6 Manual Position - Process Variable Span
10707		Station Control - Station 6 Manual Ramp Rate -
10708	STC.STC_6.MAN_RAMP	Process Variable Span
		Station Control - Station 6 PID Output- Process
10709	STC.ST6_PID_OUT	Variable Span
10710	STC.STC_6.ACTIVE_PID	Station Control - Active PID Loop 6 - Process Variable Span
10710	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10712	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10712	MB.SPARE	RESERVED FOR FUTURE USE
		RESERVED FOR FUTURE USE
10714	MB.SPARE	RESERVED FOR FUTURE USE
10715	MB.SPARE	RESERVED FOR FUTURE USE
10716	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10717	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10718	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10719	MB.SPARE	***** RESERVED FOR FUTURE USE *****
10720	MB.SPARE	***** RESERVED FOR FUTURE USE ******
10721	MB.SPARE	***** RESERVED FOR FUTURE USE ******
10722	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10723	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10724	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10725	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10726	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10727	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10728	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10729	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10730	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10731	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10732	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10733	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10733	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10735	MB.SPARE	*** RESERVED FOR FUTURE USE ***
		*** RESERVED FOR FUTURE USE ***
10736	MB.SPARE	
10737	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10738	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10739	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10740	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10741	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10742	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10743	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10744	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10745	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10746	MB.SPARE	*** RESERVED FOR FUTURE USE ***

Reg#	Variable	Description
10747	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10748	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10749	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10750	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10751	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10752	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10753	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10754	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10755	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10756	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10757	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10758	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10759	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10759	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10760	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10761	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10762	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10763	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10765	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10766	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10767	MB.SPARE	*** RESERVED FOR FUTURE USE ***
		*** RESERVED FOR FUTURE USE ***
10768	MB.SPARE	
10769	MB.SPARE	*** RESERVED FOR FUTURE USE *** *** RESERVED FOR FUTURE USE ***
10770	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10771 10772	MB.SPARE MB.SPARE	*** RESERVED FOR FUTURE USE ***
10772	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10773	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10774	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10776	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10777	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10778	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10779	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10779	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10781	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10781	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10783	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10783	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10785	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10786	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10787	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10788	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10789	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10789	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10790	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10791	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10792	MB.SPARE MB.SPARE	*** RESERVED FOR FUTURE USE ***
10793	MB.SPARE	*** RESERVED FOR FUTURE USE ***
		*** RESERVED FOR FUTURE USE ***
10795	MB.SPARE	
10796	MB.SPARE	*** RESERVED FOR FUTURE USE ***

Reg#	Variable	Description
10797	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10798	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10799	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10800	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10801	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10802	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10803	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10804	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10805	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10806	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10807	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10808	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10809	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10809	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10810	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10811	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10812	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10813	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10814	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10815	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10817	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10817	MB.SPARE	*** RESERVED FOR FUTURE USE ***
-	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10819 10820	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10820		*** RESERVED FOR FUTURE USE ***
10821	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10822	MB.SPARE MB.SPARE	*** RESERVED FOR FUTURE USE ***
10823	MB.SPARE	*** RESERVED FOR FUTURE USE ***
10824	TS.BV_1.MODE	Tube Switching - Block Valve 1 Operating Mode
10825		
10820	TS.BV_1.TRAVELTIME TS.BV_1.PULSETIME	Tube Switching - Block Valve 1 Travel Time
		Tube Switching - Block Valve 1 Pulse Time
10828		Tube Switching - Block Valve 2 Operating Mode
10829	TS.BV_2.TRAVELTIME	Tube Switching - Block Valve 2 Travel Time Tube Switching - Block Valve 2 Pulse Time
10830	TS.BV_2.PULSETIME	V
10831		Tube Switching - Block Valve 3 Operating Mode
10832	TS.BV_3.TRAVELTIME	Tube Switching - Block Valve 3 Travel Time
10833		Tube Switching - Block Valve 3 Pulse Time
10834		Tube Switching - Block Valve 4 Operating Mode
10835	TS.BV_4.TRAVELTIME	Tube Switching - Block Valve 4 Travel Time
10836	TS.BV_4.PULSETIME	Tube Switching - Block Valve 4 Pulse Time
10837		Tube Switching - Block Valve 5 Operating Mode
10838	TS.BV_5.TRAVELTIME	Tube Switching - Block Valve 5 Travel Time
10839		Tube Switching - Block Valve 5 Pulse Time
10840		Tube Switching - Block Valve 6 Operating Mode
10841		Tube Switching - Block Valve 6 Travel Time
10842	TS.BV_6.PULSETIME	Tube Switching - Block Valve 6 Pulse Time
10843		Tube Switching - Block Valve 7 Operating Mode
10844	TS.BV_7.TRAVELTIME	Tube Switching - Block Valve 7 Travel Time
10845	TS.BV_7.PULSETIME	Tube Switching - Block Valve 7 Pulse Time
10846	TS.BV_8.MODE	Tube Switching - Block Valve 8 Operating Mode

Reg#	Variable	Description
10847	TS.BV_8.TRAVELTIME	Tube Switching - Block Valve 8 Travel Time
10848	TS.BV_8.PULSETIME	Tube Switching - Block Valve 8 Pulse Time
10849	TS.TC_1.ST1_ACTUAL_RANK	Tube Switching - Station 1 - Actual Rank of station
10850	TS.TC_1.ST1_MAXRANK	Tube Switching - Station 1 - Maximum Rank available at station
10851	TS.TC_1.ST1_REQ_RANK	Tube Switching - Station 1 - Requested Rank of station
10852	TS.ST1_T1_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 1
10853	TS.ST1_T2_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 2
10854	TS.ST1_T3_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 3
10855	TS.ST1_T4_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 4
10856	TS.ST1_T5_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 5
10857	TS.ST1_T6_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 6
10858	TS.ST1_T7_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 7
10859	TS.ST1_T8_TSO	Tube Switching - Station 1 - Run assigned to Tube Ranked 8
10860	TS.TC_1.ST2_ACTUAL_RANK	Tube Switching - Station 2 - Actual Rank of station
10861	TS.TC_1.ST2_MAXRANK	Tube Switching - Station 2 - Maximum Rank available at station
10862	TS.TC_1.ST2_REQ_RANK	Tube Switching - Station 2 - Requested Rank of station
10863	TS.ST2_T1_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 1
10864	TS.ST2_T2_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 2
10865	TS.ST2_T3_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 3
10866	TS.ST2_T4_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 4
10867	TS.ST2_T5_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 5
10868	TS.ST2_T6_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 6
10869	TS.ST2_T7_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 7
10870	TS.ST2_T8_TSO	Tube Switching - Station 2 - Run assigned to Tube Ranked 8
10871	TS.TC_1.ST3_ACTUAL_RANK	Tube Switching - Station 3 - Actual Rank of station
10872	TS.TC_1.ST3_MAXRANK	Tube Switching - Station 3 - Maximum Rank available at station
10873	TS.TC_1.ST3_REQ_RANK	Tube Switching - Station 3 - Requested Rank of station
10874	TS.ST3_T1_TSO	Tube Switching - Station 3 - Run assigned to Tube Ranked 1
10875	TS.ST3_T2_TSO	Tube Switching - Station 3 - Run assigned to Tube Ranked 2
10876	TS.ST3_T3_TSO	Tube Switching - Station 3 - Run assigned to Tube Ranked 3
10877	TS.ST3_T4_TSO	Tube Switching - Station 3 - Run assigned to Tube Ranked 4
10878	TS.ST3_T5_TSO	Tube Switching - Station 3 - Run assigned to Tube Ranked 5

Reg# Variable Description 10879 TS.ST3_T6_TSO Tube Ranked 6 10880 TS.ST3_T7_TSO Tube Ranked 7 10881 TS.ST3_T8_TSO Tube Ranked 7 10882 TS.TC_1.ST4_ACTUAL_RANK Tube Switching - Station 3 - Run ass Tube Ranked 8 10882 TS.TC_1.ST4_ACTUAL_RANK Tube Switching - Station 4 - Actual R station 10883 TS.TC_1.ST4_MAXRANK Tube Switching - Station 4 - Maximul available at station 10884 TS.TC_1.ST4_REQ_RANK Tube Switching - Station 4 - Run ass Tube Switching - Station 4 - Run ass Tube Switching - Station 4 - Run ass Tube Ranked 1 10885 TS.ST4_T1_TSO Tube Switching - Station 4 - Run ass Tube Ranked 2 10886 TS.ST4_T2_TSO Tube Switching - Station 4 - Run ass Tube Ranked 3 10887 TS.ST4_T3_TSO Tube Switching - Station 4 - Run ass Tube Ranked 3 10888 TS.ST4_T4_TSO Tube Switching - Station 4 - Run ass Tube Ranked 3 10889 TS.ST4_T5_TSO Tube Switching - Station 4 - Run ass Tube Ranked 4 10889 TS.ST4_T6_TSO Tube Switching - Station 4 - Run ass Tube Ranked 5 10889 TS.ST4_T6_TSO Tube Switching - Station 4 - Run ass Tube	igned to igned to ank of m Rank red Rank of igned to igned to igned to igned to
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10894 TS.TC_1.ST5_MAXRANK available at station	
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10895 TS.TC_1.ST5_REQ_RANK station Tube Switching - Station 5 - Run ass	igned to
10896 TS.ST5_T1_TSO Tube Ranked 1	igned to
Tube Switching - Station 5 - Run ass	igned to
10897 TS.ST5_T2_TSO Tube Ranked 2	
10898 TS.ST5_T3_TSO Tube Switching - Station 5 - Run ass Tube Ranked 3 Tube Ranked 3	igned to
Tube Switching - Station 5 - Run ass	ianed to
10899 TS.ST5_T4_TSO Tube Ranked 4	
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10900 TS.ST5_T5_TSO Tube Ranked 5 Tube Switching - Station 5 - Run ass	ianed to
10901 TS.ST5_T6_TSO Tube Ranked 6	
Tube Switching - Station 5 - Run ass	igned to
10902 TS.ST5_T7_TSO Tube Ranked 7	iovo o d to
10903 TS.ST5_T8_TSO Tube Switching - Station 5 - Run ass Tube Ranked 8	ignea to
Tube Switching - Station 6 - Actual R	ank of
10904 TS.TC_1.ST6_ACTUAL_RANK station	
Tube Switching - Station 6 - Maximum	n Rank
10905 TS.TC_1.ST6_MAXRANK available at station Tube Switching - Station 6 - Request	ed Rank of
10906 TS.TC_1.ST6_REQ_RANK station	
Tube Switching - Station 6 - Run ass	igned to
10907 TS.ST6_T1_TSO Tube Ranked 1	
10908 TS.ST6_T2_TSO Tube Switching - Station 6 - Run ass Tube Ranked 2 Tube Ranked 2	ianed to
Tube Rained 2 Tube Switching - Station 6 - Run ass	
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Reg#	Variable	Description
		Tube Switching - Station 6 - Run assigned to
10910	TS.ST6_T4_TSO	Tube Ranked 4 Tube Switching - Station 6 - Run assigned to
10911	TS.ST6_T5_TSO	Tube Ranked 5
10010		Tube Switching - Station 6 - Run assigned to
10912	TS.ST6_T6_TSO	Tube Ranked 6 Tube Switching - Station 6 - Run assigned to
10913	TS.ST6_T7_TSO	Tube Ranked 7
10914	TS.ST6_T8_TSO	Tube Switching - Station 6 - Run assigned to Tube Ranked 8
10314	10.010_10_100	Tube Switching - Station n - Rank x Call next
10915	TS.TC_1.TSO_1.HISWITCH	setpoint - n = 1 through 12, $x = 1$ through 12
10916	TS.TC_1.TSO_1.HIDB	Tube Switching - Station n - Rank x Call next deadband - n = 1 through 12, x = 1 through 12
		Tube Switching - Station n - Rank x Call previous
10917	TS.TC_1.TSO_1.LOSWITCH	setpoint - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call previous
10918	TS.TC_1.TSO_1.LODB	deadband - n = 1 through 12, x = 1 through 12
40040		Tube Switching - Station n - Rank x Process
10919	TS.TC_1.TSO_1.PV	Variable - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call next
10920	TS.TC_1.TSO_2.HISWITCH	setpoint - n = 1 through 12, x = 1 through 12
10921	TS.TC_1.TSO_2.HIDB	Tube Switching - Station n - Rank x Call next
10921	ТЗ.ТС_1.ТЗО_2.ПІДВ	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call previous
10922	TS.TC_1.TSO_2.LOSWITCH	setpoint - n = 1 through 12, $x = 1$ through 12
10923	TS.TC_1.TSO_2.LODB	Tube Switching - Station n - Rank x Call previous deadband - n = 1 through 12, x = 1 through 12
10020	10.10_1.100_2.2000	Tube Switching - Station n - Rank x Process
10924	TS.TC_1.TSO_2.PV	Variable - $n = 1$ through 12, $x = 1$ through 12
10925	TS.TC_1.TSO_3.HISWITCH	Tube Switching - Station n - Rank x Call next setpoint - n = 1 through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call next
10926	TS.TC_1.TSO_3.HIDB	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call previous
10927	TS.TC_1.TSO_3.LOSWITCH	setpoint - n = 1 through 12, $x = 1$ through 12
10928		Tube Switching - Station n - Rank x Call previous deadband - n = 1 through 12, x = 1 through 12
10920	TS.TC_1.TSO_3.LODB	Tube Switching - Station n - Rank x Process
10929	TS.TC_1.TSO_3.PV	Variable - $n = 1$ through 12, $x = 1$ through 12
10930	TS.TC_1.TSO_4.HISWITCH	Tube Switching - Station n - Rank x Call next setpoint - n = 1 through 12, x = 1 through 12
		Tube Switching - Station n - Rank x Call next
10931	TS.TC_1.TSO_4.HIDB	deadband - n = 1 through 12, x = 1 through 12
10932	TS.TC_1.TSO_4.LOSWITCH	Tube Switching - Station n - Rank x Call previous setpoint - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call previous
10933	TS.TC_1.TSO_4.LODB	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Process
10934	TS.TC_1.TSO_4.PV	Variable - n = 1 through 12, x = 1 through 12
10935	TS.TC_1.TSO_5.HISWITCH	Tube Switching - Station n - Rank x Call next setpoint - n = 1 through 12, $x = 1$ through 12
10930		Tube Switching - Station n - Rank x Call next
10936	TS.TC_1.TSO_5.HIDB	deadband - n = 1 through 12, $x = 1$ through 12
10937	TS.TC_1.TSO_5.LOSWITCH	Tube Switching - Station n - Rank x Call previous setpoint - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call previous
10938	TS.TC_1.TSO_5.LODB	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Process
10939	TS.TC_1.TSO_5.PV	Variable - $n = 1$ through 12, $x = 1$ through 12
10040		Tube Switching - Station n - Rank x Call next
10940	TS.TC_1.TSO_6.HISWITCH	setpoint - n = 1 through 12, x = 1 through 12

Reg#	Variable	Description
		Tube Switching - Station n - Rank x Call next
10941	TS.TC_1.TSO_6.HIDB	deadband - n = 1 through 12, $x = 1$ through 12
100.10		Tube Switching - Station n - Rank x Call previous
10942	TS.TC_1.TSO_6.LOSWITCH	setpoint - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call previous
10943	TS.TC_1.TSO_6.LODB	deadband - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Process
10944	TS.TC_1.TSO_6.PV	Variable - n = 1 through 12, $x = 1$ through 12
10045		Tube Switching - Station n - Rank x Call next
10945	TS.TC_1.TSO_7.HISWITCH	setpoint - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call next
10946	TS.TC_1.TSO_7.HIDB	deadband - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call previous
10947	TS.TC_1.TSO_7.LOSWITCH	setpoint - n = 1 through 12, $x = 1$ through 12
10049	TO TO 1 TOO 7 LODB	Tube Switching - Station n - Rank x Call previous
10948	TS.TC_1.TSO_7.LODB	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Process
10949	TS.TC_1.TSO_7.PV	Variable - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call next
10950	TS.TC_1.TSO_8.HISWITCH	setpoint - n = 1 through 12, $x = 1$ through 12
10951		Tube Switching - Station n - Rank x Call next
10951	TS.TC_1.TSO_8.HIDB	deadband - n = 1 through 12, x = 1 through 12 Tube Switching - Station n - Rank x Call previous
10952	TS.TC_1.TSO_8.LOSWITCH	setpoint - $n = 1$ through 12, $x = 1$ through 12
		Tube Switching - Station n - Rank x Call previous
10953	TS.TC_1.TSO_8.LODB	deadband - n = 1 through 12, $x = 1$ through 12
10054		Tube Switching - Station n - Rank x Process
10954 10955	TS.TC_1.TSO_8.PV MB.SPARE	Variable - n = 1 through 12, x = 1 through 12
10956	MB.SPARE	
10957	MB.SPARE	
10958	MB.SPARE	
10959	MB.SPARE	
10960	MB.SPARE	
10961	MB.SPARE	
10962	MB.SPARE	
10963	MB.SPARE	
10964	MB.SPARE	
10965	MB.SPARE	
10966	MB.SPARE	
10967	MB.SPARE	
10968	MB.SPARE	
10969	MB.SPARE	
10970	MB.SPARE	
10971	MB.SPARE	
10972	MB.SPARE	
10973	MB.SPARE	
10974	MB.SPARE	
		Bidirectional Control - Station 2 Direction
10975	BI.ST2_DIR_IND	Indicator selected
		Bidirectional Control - Station 2 Limit Switch Indication Limit Switch 1 Close Limit Switch
10976	BI.ST2_CLS1	source selected
		Bidirectional Control - Station 2 Limit Switch
		Indication Limit Switch 2 Close Limit Switch
10977	BI.ST2_CLS2	source selected
10978	BI.ST2_OLS1	Bidirectional Control - Station 2 Limit Switch

Reg#	Variable	Description
ncg#	Variable	Indication Limit Switch 1 Open Limit Switch
		source selected
		Bidirectional Control - Station 2 Limit Switch
40070		Indication Limit Switch 2 Open Limit Switch
10979	BI.ST2_OLS2	source selected Bidirectional Control - Station 2 Programmed
10980	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_OPEN1	Control, BV to open 1st in Forward Direction
10000		Bidirectional Control - Station 2 Programmed
10981	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_OPEN2	Control, BV to open 2nd in Forward Direction
		Bidirectional Control - Station 2 Programmed
10982	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_OPEN3	Control, BV to open 3rd in Forward Direction
10983	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_OPEN4	Bidirectional Control - Station 2 Programmed Control, BV to open 4th in Forward Direction
10903	BC.ST_BIDIR_CTE_Z:BIDIRVEVCTE_T.FWD_OFEN4	Bidirectional Control - Station 2 Programmed
10984	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_CLOSE1	Control, BV to close 1st in Forward Direction
		Bidirectional Control - Station 2 Programmed
10985	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_CLOSE2	Control, BV to close 2nd in Forward Direction
40000		Bidirectional Control - Station 2 Programmed
10986	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_CLOSE3	Control, BV to close 3rd in Forward Direction Bidirectional Control - Station 2 Programmed
10987	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.FWD_CLOSE4	Control, BV to close 4th in Forward Direction
10001		Bidirectional Control - Station 2 Programmed
10988	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_OPEN1	Control, BV to open 1st in Reverse Direction
		Bidirectional Control - Station 2 Programmed
10989	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_OPEN2	Control, BV to open 2nd in Reverse Direction
10000		Bidirectional Control - Station 2 Programmed
10990	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_OPEN3	Control, BV to open 3rd in Reverse Direction Bidirectional Control - Station 2 Programmed
10991	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_OPEN4	Control, BV to open 4th in Reverse Direction
		Bidirectional Control - Station 2 Programmed
10992	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_CLOSE1	Control, BV to close 1st in Reverse Direction
40000		Bidirectional Control - Station 2 Programmed
10993	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_CLOSE2	Control, BV to close 2nd in Reverse Direction Bidirectional Control - Station 2 Programmed
10994	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_CLOSE3	Control, BV to close 3rd in Reverse Direction
10004		Bidirectional Control - Station 2 Programmed
10995	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.REV_CLOSE4	Control, BV to close 4th in Reverse Direction
		Bidirectional Control - Station 2 Programmed
10996	BC.ST_BIDIR_CTL_2.BIDIRVLVCTL_1.TIMEDLY	Control, Time delay between valve actions
10007	BC.ST_BIDIR_CTL_2.BV1.MODE	Bidirectional Control - Block Valve 1 Operating
10997	BC.ST_BIDIR_CTL_2.BV1.WODE	Mode, Station 2 Bidirectional Control - Block Valve 1 Pulse Time,
10998	BC.ST_BIDIR_CTL_2.BV1.PULSETIME	Station 2
		Bidirectional Control - Block Valve 1 Travel Time,
10999	BC.ST_BIDIR_CTL_2.BV1.TRAVELTIME	Station 2
11000		Bidirectional Control - Block Valve 2 Operating
11000	BC.ST_BIDIR_CTL_2.BV2.MODE	Mode, Station 2 Bidirectional Control - Block Valve 2 Pulse Time,
11001	BC.ST_BIDIR_CTL_2.BV2.PULSETIME	Station 2
		Bidirectional Control - Block Valve 2 Travel Time,
11002	BC.ST_BIDIR_CTL_2.BV2.TRAVELTIME	Station 2
		Bidirectional Control - Block Valve 3 Operating
11003	BC.ST_BIDIR_CTL_2.BV3.MODE	Mode, Station 2
11004	BC.ST_BIDIR_CTL_2.BV3.PULSETIME	Bidirectional Control - Block Valve 3 Pulse Time, Station 2
11004		Bidirectional Control - Block Valve 3 Travel Time,
11005	BC.ST_BIDIR_CTL_2.BV3.TRAVELTIME	Station 2
		Bidirectional Control - Block Valve 4 Operating
11006	BC.ST_BIDIR_CTL_2.BV4.MODE	Mode, Station 2
44007		Bidirectional Control - Block Valve 4 Pulse Time,
11007	BC.ST_BIDIR_CTL_2.BV4.PULSETIME	Station 2
11008	BC.ST_BIDIR_CTL_2.BV4.TRAVELTIME	Bidirectional Control - Block Valve 4 Travel Time,

Reg#	Variable	Description
		Station 2
		Bidirectional Control - Block Valve 5 Operating
11009	BC.ST_BIDIR_CTL_2.BV5.MODE	Mode, Station 2
11010	BC.ST_BIDIR_CTL_2.BV5.PULSETIME	Bidirectional Control - Block Valve 5 Pulse Time, Station 2
11010	BC.ST_BIDIK_CTL_Z.BVS.F0ESETIME	Bidirectional Control - Block Valve 5 Travel Time,
11011	BC.ST_BIDIR_CTL_2.BV5.TRAVELTIME	Station 2
		Bidirectional Control - Block Valve 6 Operating
11012	BC.ST_BIDIR_CTL_2.BV6.MODE	Mode, Station 2 Bidirectional Control - Block Valve 6 Pulse Time,
11013	BC.ST_BIDIR_CTL_2.BV6.PULSETIME	Station 2
		Bidirectional Control - Block Valve 6 Travel Time,
11014	BC.ST_BIDIR_CTL_2.BV6.TRAVELTIME	Station 2
11015		Bidirectional Control - Block Valve 7 Operating
11015	BC.ST_BIDIR_CTL_2.BV7.MODE	Mode, Station 2 Bidirectional Control - Block Valve 7 Pulse Time,
11016	BC.ST_BIDIR_CTL_2.BV7.PULSETIME	Station 2
		Bidirectional Control - Block Valve 7 Travel Time,
11017	BC.ST_BIDIR_CTL_2.BV7.TRAVELTIME	Station 2
11018	BC.ST_BIDIR_CTL_2.BV8.MODE	Bidirectional Control - Block Valve 8 Operating Mode, Station 2
		Bidirectional Control - Block Valve 8 Pulse Time,
11019	BC.ST_BIDIR_CTL_2.BV8.PULSETIME	Station 2
11000		Bidirectional Control - Block Valve 8 Travel Time,
11020	BC.ST_BIDIR_CTL_2.BV8.TRAVELTIME	Station 2 Bidirectional Control - Station 4 Direction
11021	BI.ST4_DIR_IND	Indicator selected
		Bidirectional Control - Station 4 Limit Switch
11000		Indication Limit Switch 1 Close Limit Switch
11022	BI.ST4_CLS1	source selected Bidirectional Control - Station 4 Limit Switch
		Indication Limit Switch 2 Close Limit Switch
11023	BI.ST4_CLS2	source selected
		Bidirectional Control - Station 4 Limit Switch
11024	BI.ST4_OLS1	Indication Limit Switch 1 Open Limit Switch source selected
11021		Bidirectional Control - Station 4 Limit Switch
		Indication Limit Switch 2 Open Limit Switch
11025	BI.ST4_OLS2	Source selected
11026	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_OPEN1	Bidirectional Control - Station 4 Programmed Control, BV to open 1st in Forward Direction
		Bidirectional Control - Station 4 Programmed
11027	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_OPEN2	Control, BV to open 2nd in Forward Direction
11028	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_OPEN3	Bidirectional Control - Station 4 Programmed Control, BV to open 3rd in Forward Direction
11020		Bidirectional Control - Station 4 Programmed
11029	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_OPEN4	Control, BV to open 4th in Forward Direction
44000		Bidirectional Control - Station 4 Programmed
11030	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_CLOSE1	Control, BV to close 1st in Forward Direction Bidirectional Control - Station 4 Programmed
11031	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_CLOSE2	Control, BV to close 2nd in Forward Direction
		Bidirectional Control - Station 4 Programmed
11032	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_CLOSE3	Control, BV to close 3rd in Forward Direction
11022		Bidirectional Control - Station 4 Programmed
11033	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.FWD_CLOSE4	Control, BV to close 4th in Forward Direction Bidirectional Control - Station 4 Programmed
11034	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_OPEN1	Control, BV to open 1st in Reverse Direction
		Bidirectional Control - Station 4 Programmed
11035	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_OPEN2	Control, BV to open 2nd in Reverse Direction
11036	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_OPEN3	Bidirectional Control - Station 4 Programmed Control, BV to open 3rd in Reverse Direction
11037	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_OPEN4	Bidirectional Control - Station 4 Programmed
11007		

Reg#	Variable	Description
		Control, BV to open 4th in Reverse Direction
		Bidirectional Control - Station 4 Programmed
11038	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_CLOSE1	Control, BV to close 1st in Reverse Direction
		Bidirectional Control - Station 4 Programmed
11039	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_CLOSE2	Control, BV to close 2nd in Reverse Direction Bidirectional Control - Station 4 Programmed
11040	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_CLOSE3	Control, BV to close 3rd in Reverse Direction
11010		Bidirectional Control - Station 4 Programmed
11041	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.REV_CLOSE4	Control, BV to close 4th in Reverse Direction
		Bidirectional Control - Station 4 Programmed
11042	BC.ST_BIDIR_CTL_4.BIDIRVLVCTL_1.TIMEDLY	Control, Time delay between valve actions Bidirectional Control - Block Valve 1 Operating
11043	BC.ST_BIDIR_CTL_4.BV1.MODE	Mode, Station 4
		Bidirectional Control - Block Valve 1 Pulse Time,
11044	BC.ST_BIDIR_CTL_4.BV1.PULSETIME	Station 4
11045	BC.ST_BIDIR_CTL_4.BV1.TRAVELTIME	Bidirectional Control - Block Valve 1 Travel Time, Station 4
11045	BC.31_BIDIR_CTL_4.BV1.TRAVELTIME	Bidirectional Control - Block Valve 2 Operating
11046	BC.ST_BIDIR_CTL_4.BV2.MODE	Mode, Station 4
		Bidirectional Control - Block Valve 2 Pulse Time,
11047	BC.ST_BIDIR_CTL_4.BV2.PULSETIME	Station 4
11048	BC.ST_BIDIR_CTL_4.BV2.TRAVELTIME	Bidirectional Control - Block Valve 2 Travel Time, Station 4
11040		Bidirectional Control - Block Valve 3 Operating
11049	BC.ST_BIDIR_CTL_4.BV3.MODE	Mode, Station 4
		Bidirectional Control - Block Valve 3 Pulse Time,
11050	BC.ST_BIDIR_CTL_4.BV3.PULSETIME	Station 4
11051	BC.ST_BIDIR_CTL_4.BV3.TRAVELTIME	Bidirectional Control - Block Valve 3 Travel Time, Station 4
11001		Bidirectional Control - Block Valve 4 Operating
11052	BC.ST_BIDIR_CTL_4.BV4.MODE	Mode, Station 4
		Bidirectional Control - Block Valve 4 Pulse Time,
11053	BC.ST_BIDIR_CTL_4.BV4.PULSETIME	Station 4 Bidirectional Control - Block Valve 4 Travel Time,
11054	BC.ST_BIDIR_CTL_4.BV4.TRAVELTIME	Station 4
		Bidirectional Control - Block Valve 5 Operating
11055	BC.ST_BIDIR_CTL_4.BV5.MODE	Mode, Station 4
11056	BC.ST_BIDIR_CTL_4.BV5.PULSETIME	Bidirectional Control - Block Valve 5 Pulse Time, Station 4
11030		Bidirectional Control - Block Valve 5 Travel Time.
11057	BC.ST_BIDIR_CTL_4.BV5.TRAVELTIME	Station 4
		Bidirectional Control - Block Valve 6 Operating
11058	BC.ST_BIDIR_CTL_4.BV6.MODE	Mode, Station 4 Bidirectional Control - Block Valve 6 Pulse Time,
11059	BC.ST_BIDIR_CTL_4.BV6.PULSETIME	Station 4
11000		Bidirectional Control - Block Valve 6 Travel Time,
11060	BC.ST_BIDIR_CTL_4.BV6.TRAVELTIME	Station 4
44004		Bidirectional Control - Block Valve 7 Operating
11061	BC.ST_BIDIR_CTL_4.BV7.MODE	Mode, Station 4 Bidirectional Control - Block Valve 7 Pulse Time,
11062	BC.ST_BIDIR_CTL_4.BV7.PULSETIME	Station 4
		Bidirectional Control - Block Valve 7 Travel Time,
11063	BC.ST_BIDIR_CTL_4.BV7.TRAVELTIME	Station 4
11064		Bidirectional Control - Block Valve 8 Operating
11064	BC.ST_BIDIR_CTL_4.BV8.MODE	Mode, Station 4 Bidirectional Control - Block Valve 8 Pulse Time,
11065	BC.ST_BIDIR_CTL_4.BV8.PULSETIME	Station 4
		Bidirectional Control - Block Valve 8 Travel Time,
11066	BC.ST_BIDIR_CTL_4.BV8.TRAVELTIME	Station 4
11067	BI.ST6_DIR_IND	Bidirectional Control - Station 6 Direction Indicator selected
11067	BI.ST6_CLS1	Bidirectional Control - Station 6 Limit Switch
11000		

Reg#	Variable	Description
J		Indication Limit Switch 1 Close Limit Switch
		source selected
		Bidirectional Control - Station 6 Limit Switch
		Indication Limit Switch 2 Close Limit Switch
11069	BI.ST6_CLS2	source selected
		Bidirectional Control - Station 6 Limit Switch
44070		Indication Limit Switch 1 Open Limit Switch
11070	BI.ST6_OLS1	source selected Bidirectional Control - Station 6 Limit Switch
		Indication Limit Switch 2 Open Limit Switch
11071	BI.ST6_OLS2	source selected
11071	BI:010_0L02	Bidirectional Control - Station 6 Programmed
11072	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_OPEN1	Control, BV to open 1st in Forward Direction
		Bidirectional Control - Station 6 Programmed
11073	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_OPEN2	Control, BV to open 2nd in Forward Direction
		Bidirectional Control - Station 6 Programmed
11074	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_OPEN3	Control, BV to open 3rd in Forward Direction
		Bidirectional Control - Station 6 Programmed
11075	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_OPEN4	Control, BV to open 4th in Forward Direction
		Bidirectional Control - Station 6 Programmed
11076	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_CLOSE1	Control, BV to close 1st in Forward Direction
44077		Bidirectional Control - Station 6 Programmed
11077	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_CLOSE2	Control, BV to close 2nd in Forward Direction
44070		Bidirectional Control - Station 6 Programmed
11078	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_CLOSE3	Control, BV to close 3rd in Forward Direction Bidirectional Control - Station 6 Programmed
11079	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.FWD_CLOSE4	Control, BV to close 4th in Forward Direction
11079	BC.ST_BIDIK_CTL_0.BIDIKVEVCTL_1.FWD_CE03E4	Bidirectional Control - Station 6 Programmed
11080	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_OPEN1	Control, BV to open 1st in Reverse Direction
11000		Bidirectional Control - Station 6 Programmed
11081	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_OPEN2	Control, BV to open 2nd in Reverse Direction
		Bidirectional Control - Station 6 Programmed
11082	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_OPEN3	Control, BV to open 3rd in Reverse Direction
		Bidirectional Control - Station 6 Programmed
11083	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_OPEN4	Control, BV to open 4th in Reverse Direction
		Bidirectional Control - Station 6 Programmed
11084	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_CLOSE1	Control, BV to close 1st in Reverse Direction
		Bidirectional Control - Station 6 Programmed
11085	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_CLOSE2	Control, BV to close 2nd in Reverse Direction
11000	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_CLOSE3	Bidirectional Control - Station 6 Programmed
11000	BC.ST_BIDIK_CTL_0.BIDIKVLVCTL_T.REV_CLOSES	Control, BV to close 3rd in Reverse Direction Bidirectional Control - Station 6 Programmed
11087	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.REV_CLOSE4	Control, BV to close 4th in Reverse Direction
11007		Bidirectional Control - Station 6 Programmed
11088	BC.ST_BIDIR_CTL_6.BIDIRVLVCTL_1.TIMEDLY	Control, Time delay between valve actions
		Bidirectional Control - Block Valve 1 Operating
11089	BC.ST_BIDIR_CTL_6.BV1.MODE	Mode, Station 6
		Bidirectional Control - Block Valve 1 Pulse Time,
11090	BC.ST_BIDIR_CTL_6.BV1.PULSETIME	Station 6
		Bidirectional Control - Block Valve 1 Travel Time,
11091	BC.ST_BIDIR_CTL_6.BV1.TRAVELTIME	Station 6
		Bidirectional Control - Block Valve 2 Operating
11092	BC.ST_BIDIR_CTL_6.BV2.MODE	Mode, Station 6
		Bidirectional Control - Block Valve 2 Pulse Time,
11093	BC.ST_BIDIR_CTL_6.BV2.PULSETIME	Station 6
11004		Bidirectional Control - Block Valve 2 Travel Time,
11094	BC.ST_BIDIR_CTL_6.BV2.TRAVELTIME	Station 6
11005		Bidirectional Control - Block Valve 3 Operating
11095	BC.ST_BIDIR_CTL_6.BV3.MODE	Mode, Station 6 Bidirectional Control - Block Valve 3 Pulse Time,
11096	BC.ST_BIDIR_CTL_6.BV3.PULSETIME	Station 6
11097	BC.ST_BIDIR_CTL_6.BV3.TRAVELTIME	Bidirectional Control - Block Valve 3 Travel Time,

Reg#	Variable	Description
		Station 6
11098	BC.ST_BIDIR_CTL_6.BV4.MODE	Bidirectional Control - Block Valve 4 Operating Mode, Station 6
11099	BC.ST_BIDIR_CTL_6.BV4.PULSETIME	Bidirectional Control - Block Valve 4 Pulse Time, Station 6
11100	BC.ST_BIDIR_CTL_6.BV4.TRAVELTIME	Bidirectional Control - Block Valve 4 Travel Time, Station 6
11101	BC.ST_BIDIR_CTL_6.BV5.MODE	Bidirectional Control - Block Valve 5 Operating Mode, Station 6
11102	BC.ST_BIDIR_CTL_6.BV5.PULSETIME	Bidirectional Control - Block Valve 5 Pulse Time, Station 6
11103	BC.ST_BIDIR_CTL_6.BV5.TRAVELTIME	Bidirectional Control - Block Valve 5 Travel Time, Station 6
11104	BC.ST_BIDIR_CTL_6.BV6.MODE	Bidirectional Control - Block Valve 6 Operating Mode, Station 6
11105	BC.ST_BIDIR_CTL_6.BV6.PULSETIME	Bidirectional Control - Block Valve 6 Pulse Time, Station 6
11106	BC.ST_BIDIR_CTL_6.BV6.TRAVELTIME	Bidirectional Control - Block Valve 6 Travel Time, Station 6
11107	BC.ST_BIDIR_CTL_6.BV7.MODE	Bidirectional Control - Block Valve 7 Operating Mode, Station 6
11108	BC.ST_BIDIR_CTL_6.BV7.PULSETIME	Bidirectional Control - Block Valve 7 Pulse Time, Station 6
11109	BC.ST_BIDIR_CTL_6.BV7.TRAVELTIME	Bidirectional Control - Block Valve 7 Travel Time, Station 6
11110	BC.ST_BIDIR_CTL_6.BV8.MODE	Bidirectional Control - Block Valve 8 Operating Mode, Station 6
11111	BC.ST_BIDIR_CTL_6.BV8.PULSETIME	Bidirectional Control - Block Valve 8 Pulse Time, Station 6
11112	BC.ST_BIDIR_CTL_6.BV8.TRAVELTIME	Bidirectional Control - Block Valve 8 Travel Time, Station 6
11113	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11114	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11115	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11116	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11117	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11118	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11119	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11120	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11121	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11122	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11123	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11124	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11125	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11126	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11127	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11128	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11120	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11120	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11130	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11132	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11132	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11133	MB.SPARE	*** RESERVED FOR FUTURE USE ***
		*** RESERVED FOR FUTURE USE ***
11135	MB.SPARE	
11136	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11137	MB.SPARE	*** RESERVED FOR FUTURE USE ***

Reg#	Variable	Description
11138	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11139	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11140	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11141	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11142	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11143	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11144	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11145	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11146	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11147	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11148	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11149	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11150	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11150	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11152	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11152	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11153	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11155	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11156	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11157	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11158	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11159	pg_GC.GC_1.GC_1.S1_BTU_Raw	GC Dataset 1 Raw BTU
11160	pg_GC.GC_1.GC_1.S1_BTUSat_Raw	GC Dataset 1 Raw Saturated BTU
11161	pg_GC.GC_1.GC_1.S1_C2_Raw	GC Dataset 1 Raw C2
11162	pg_GC.GC_1.GC_1.S1_C2_Raw	GC Dataset 1 Raw C3
11163	pg_GC.GC_1.GC_1.S1_C6plus_Raw	GC Dataset 1 Raw C6 Plus
11164	pg_GC.GC_1.GC_1.S1_C9Plus_Raw	GC Dataset 1 Raw C9 Plus
11165	pg_GC.GC_1.GC_1.S1_CH4_Raw	GC Dataset 1 Raw CH4
11166	pg_GC.GC_1.GC_1.S1_CHDP_Raw	GC Dataset 1 Raw CHDP
11167	pg_GC.GC_1.GC_1.S1_CO_Raw	GC Dataset 1 Raw CO
11168	pg_GC.GC_1.GC_1.S1_CO2_Raw	GC Dataset 1 Raw CO2
11169	pg_GC.GC_1.GC_1.S1_IC4_Raw	GC Dataset 1 Raw IC4
11170	pg_GC.GC_1.GC_1.S1_IC5_Raw	GC Dataset 1 Raw IC5
11171	pg_GC.GC_1.GC_1.S1_N2_Raw	GC Dataset 1 Raw N2
11172	pg_GC.GC_1.GC_1.S1_NC10_Raw	GC Dataset 1 Raw NC10
11173	pg_GC.GC_1.GC_1.S1_NC4_Raw	GC Dataset 1 Raw NC4
11174	pg_GC.GC_1.GC_1.S1_NC5_Raw	GC Dataset 1 Raw NC5
11175	pg_GC.GC_1.GC_1.S1_NC6_Raw	GC Dataset 1 Raw NC6
11176	pg_GC.GC_1.GC_1.S1_NC7_Raw	GC Dataset 1 Raw NC7
11177	pg_GC.GC_1.GC_1.S1_NC8_Raw	GC Dataset 1 Raw NC8
11178	pg_GC.GC_1.GC_1.S1_NC9_Raw	GC Dataset 1 Raw NC9
11179	pg_GC.GC_1.GC_1.S1_NeoC5_Raw	GC Dataset 1 Raw NeoC5
11180	pg_GC.GC_1.GC_1.S1_SG_Raw	GC Dataset 1 Raw Specific Gravity
11181	pg_GC.GC_1.GC_1.S1_Wobbe_Raw	GC Dataset 1 Raw Wobbe Index
11182	pg_GC.GC_1.GC_2.S1_BTU_Raw	GC Dataset 2 Raw BTU
11183	pg_GC.GC_1.GC_2.S1_BTUSat_Raw	GC Dataset 2 Raw Saturated BTU
11184	pg_GC.GC_1.GC_2.S1_C2_Raw	GC Dataset 2 Raw C2
11185	pg_GC.GC_1.GC_2.S1_C3_Raw	GC Dataset 2 Raw C3
11186	pg_GC.GC_1.GC_2.S1_C6plus_Raw	GC Dataset 2 Raw C6 Plus
11187	pg_GC.GC_1.GC_2.S1_C9Plus_Raw	GC Dataset 2 Raw C9 Plus
	<u></u>	

Reg#	Variable	Description
11188	pg_GC.GC_1.GC_2.S1_CH4_Raw	GC Dataset 2 Raw CH4
11189	pg_GC.GC_1.GC_2.S1_CHDP_Raw	GC Dataset 2 Raw CHDP
11190	pg_GC.GC_1.GC_2.S1_CO_Raw	GC Dataset 2 Raw CO
11191	pg_GC.GC_1.GC_2.S1_CO2_Raw	GC Dataset 2 Raw CO2
11192	pg_GC.GC_1.GC_2.S1_IC4_Raw	GC Dataset 2 Raw IC4
11193	pg_GC.GC_1.GC_2.S1_IC5_Raw	GC Dataset 2 Raw IC5
11194	pg_GC.GC_1.GC_2.S1_N2_Raw	GC Dataset 2 Raw N2
11195	pg_GC.GC_1.GC_2.S1_NC10_Raw	GC Dataset 2 Raw NC10
11196	pg_GC.GC_1.GC_2.S1_NC4_Raw	GC Dataset 2 Raw NC4
11197	pg_GC.GC_1.GC_2.S1_NC5_Raw	GC Dataset 2 Raw NC5
11198	pg_GC.GC_1.GC_2.S1_NC6_Raw	GC Dataset 2 Raw NC6
11199	pg_GC.GC_1.GC_2.S1_NC7_Raw	GC Dataset 2 Raw NC7
11200	pg_GC.GC_1.GC_2.S1_NC8_Raw	GC Dataset 2 Raw NC8
11201	pg_GC.GC_1.GC_2.S1_NC9_Raw	GC Dataset 2 Raw NC9
11202	pg_GC.GC_1.GC_2.S1_NeoC5_Raw	GC Dataset 2 Raw NeoC5
11203	pg_GC.GC_1.GC_2.S1_SG_Raw	GC Dataset 2 Raw Specific Gravity
11204	pg_GC.GC_1.GC_2.S1_Wobbe_Raw	GC Dataset 2 Raw Wobbe Index
11205	pg_GC.GC_1.GC_3.S1_BTU_Raw	GC Dataset 3 Raw BTU
11206	pg_GC.GC_1.GC_3.S1_BTUSat_Raw	GC Dataset 3 Raw Saturated BTU
11207	pg_GC.GC_1.GC_3.S1_C2_Raw	GC Dataset 3 Raw C2
11208	pg_GC.GC_1.GC_3.S1_C3_Raw	GC Dataset 3 Raw C3
11209	pg_GC.GC_1.GC_3.S1_C6plus_Raw	GC Dataset 3 Raw C6 Plus
11210	pg_GC.GC_1.GC_3.S1_C9Plus_Raw	GC Dataset 3 Raw C9 Plus
11211	pg_GC.GC_1.GC_3.S1_CH4_Raw	GC Dataset 3 Raw CH4
11212	pg_GC.GC_1.GC_3.S1_CHDP_Raw	GC Dataset 3 Raw CHDP
11213	pg_GC.GC_1.GC_3.S1_CO_Raw	GC Dataset 3 Raw CO
11214	pg_GC.GC_1.GC_3.S1_CO2_Raw	GC Dataset 3 Raw CO2
11215	pg_GC.GC_1.GC_3.S1_IC4_Raw	GC Dataset 3 Raw IC4
11216	pg_GC.GC_1.GC_3.S1_IC5_Raw	GC Dataset 3 Raw IC5
11217	pg_GC.GC_1.GC_3.S1_N2_Raw	GC Dataset 3 Raw N2
11218	pg_GC.GC_1.GC_3.S1_NC10_Raw	GC Dataset 3 Raw NC10
11219	pg_GC.GC_1.GC_3.S1_NC4_Raw	GC Dataset 3 Raw NC4
11220	pg_GC.GC_1.GC_3.S1_NC5_Raw	GC Dataset 3 Raw NC5
11221	pg_GC.GC_1.GC_3.S1_NC6_Raw	GC Dataset 3 Raw NC6
11222	pg_GC.GC_1.GC_3.S1_NC7_Raw	GC Dataset 3 Raw NC7
11223	pg_GC.GC_1.GC_3.S1_NC8_Raw	GC Dataset 3 Raw NC8
11224	pg_GC.GC_1.GC_3.S1_NC9_Raw	GC Dataset 3 Raw NC9
11225	pg_GC.GC_1.GC_3.S1_NeoC5_Raw	GC Dataset 3 Raw NeoC5
11226	pg_GC.GC_1.GC_3.S1_SG_Raw	GC Dataset 3 Raw Specific Gravity
11227	pg_GC.GC_1.GC_3.S1_Wobbe_Raw	GC Dataset 3 Raw Wobbe Index
11228	pg_GC.GC_1.GC_4.S1_BTU_Raw	GC Dataset 4 Raw BTU
11229	pg_GC.GC_1.GC_4.S1_BTUSat_Raw	GC Dataset 4 Raw Saturated BTU
11230 11231	pg_GC.GC_1.GC_4.S1_C2_Raw	GC Dataset 4 Raw C2 GC Dataset 4 Raw C3
11231	pg_GC.GC_1.GC_4.S1_C3_Raw	GC Dataset 4 Raw C3 GC Dataset 4 Raw C6 Plus
11232	pg_GC.GC_1.GC_4.S1_C6plus_Raw pg_GC.GC_1.GC_4.S1_C9Plus_Raw	GC Dataset 4 Raw Co Plus
11233	pg_GC.GC_1.GC_4.S1_C9Plus_Raw pg_GC.GC_1.GC_4.S1_CH4_Raw	GC Dataset 4 Raw C9 Pius
11234	pg_GC.GC_1.GC_4.S1_CH4_Raw pg_GC.GC_1.GC_4.S1_CHDP_Raw	GC Dataset 4 Raw CH4
11235	pg_GC.GC_1.GC_4.S1_CO_Raw	GC Dataset 4 Raw CO
11230	pg_GC.GC_1.GC_4.S1_CO2_Raw	GC Dataset 4 Raw CO2
11201	pg_00.00_1.00_7.01_002_1\aw	

Reg#	Variable	Description
11238	pg_GC.GC_1.GC_4.S1_IC4_Raw	GC Dataset 4 Raw IC4
11239	pg_GC.GC_1.GC_4.S1_IC5_Raw	GC Dataset 4 Raw IC5
11240	pg_GC.GC_1.GC_4.S1_N2_Raw	GC Dataset 4 Raw N2
11241	pg_GC.GC_1.GC_4.S1_NC10_Raw	GC Dataset 4 Raw NC10
11242	pg_GC.GC_1.GC_4.S1_NC4_Raw	GC Dataset 4 Raw NC4
11243	pg_GC.GC_1.GC_4.S1_NC5_Raw	GC Dataset 4 Raw NC5
11244	pg_GC.GC_1.GC_4.S1_NC6_Raw	GC Dataset 4 Raw NC6
11245	pg_GC.GC_1.GC_4.S1_NC7_Raw	GC Dataset 4 Raw NC7
11246	pg_GC.GC_1.GC_4.S1_NC8_Raw	GC Dataset 4 Raw NC8
11247	pg_GC.GC_1.GC_4.S1_NC9_Raw	GC Dataset 4 Raw NC9
11248	pg_GC.GC_1.GC_4.S1_NeoC5_Raw	GC Dataset 4 Raw NeoC5
11249	pg_GC.GC_1.GC_4.S1_SG_Raw	GC Dataset 4 Raw Specific Gravity
11250	pg_GC.GC_1.GC_4.S1_Wobbe_Raw	GC Dataset 4 Raw Wobbe Index
11251	pg_GC.GC_1.GC_5.S1_BTU_Raw	GC Dataset 5 Raw BTU
11252	pg_GC.GC_1.GC_5.S1_BTUSat_Raw	GC Dataset 5 Raw Saturated BTU
11253	pg_GC.GC_1.GC_5.S1_C2_Raw	GC Dataset 5 Raw C2
11254	pg_GC.GC_1.GC_5.S1_C3_Raw	GC Dataset 5 Raw C3
11255	pg_GC.GC_1.GC_5.S1_C6plus_Raw	GC Dataset 5 Raw C6 Plus
11256	pg_GC.GC_1.GC_5.S1_C9Plus_Raw	GC Dataset 5 Raw C9 Plus
11257	pg_GC.GC_1.GC_5.S1_CH4_Raw	GC Dataset 5 Raw CH4
11258	pg_GC.GC_1.GC_5.S1_CHDP_Raw	GC Dataset 5 Raw CHDP
11259	pg_GC.GC_1.GC_5.S1_CO_Raw	GC Dataset 5 Raw CO
11260	pg_GC.GC_1.GC_5.S1_CO2_Raw	GC Dataset 5 Raw CO2
11261	pg_GC.GC_1.GC_5.S1_IC4_Raw	GC Dataset 5 Raw IC4
11262	pg_GC.GC_1.GC_5.S1_IC5_Raw	GC Dataset 5 Raw IC5
11263	pg_GC.GC_1.GC_5.S1_N2_Raw	GC Dataset 5 Raw N2
11264	pg_GC.GC_1.GC_5.S1_NC10_Raw	GC Dataset 5 Raw NC10
11265	pg_GC.GC_1.GC_5.S1_NC4_Raw	GC Dataset 5 Raw NC4
11266	pg_GC.GC_1.GC_5.S1_NC5_Raw	GC Dataset 5 Raw NC5
11267	pg_GC.GC_1.GC_5.S1_NC6_Raw	GC Dataset 5 Raw NC6
11268	pg_GC.GC_1.GC_5.S1_NC7_Raw	GC Dataset 5 Raw NC7
11269	pg_GC.GC_1.GC_5.S1_NC8_Raw	GC Dataset 5 Raw NC8
11270	pg_GC.GC_1.GC_5.S1_NC9_Raw	GC Dataset 5 Raw NC9
11271	pg_GC.GC_1.GC_5.S1_NeoC5_Raw	GC Dataset 5 Raw NeoC5
11272	pg_GC.GC_1.GC_5.S1_SG_Raw	GC Dataset 5 Raw Specific Gravity
11273	pg_GC.GC_1.GC_5.S1_Wobbe_Raw	GC Dataset 5 Raw Wobbe Index
11274	pg_GC.GC_1.GC_6.S1_BTU_Raw	GC Dataset 6 Raw BTU
11275	pg_GC.GC_1.GC_6.S1_BTUSat_Raw	GC Dataset 6 Raw Saturated BTU
11276	pg_GC.GC_1.GC_6.S1_C2_Raw	GC Dataset 6 Raw C2
11277	pg_GC.GC_1.GC_6.S1_C3_Raw	GC Dataset 6 Raw C3
11278	pg_GC.GC_1.GC_6.S1_C6plus_Raw	GC Dataset 6 Raw C6 Plus
11279	pg_GC.GC_1.GC_6.S1_C9Plus_Raw	GC Dataset 6 Raw C9 Plus
11280 11281	pg_GC.GC_1.GC_6.S1_CH4_Raw pg_GC.GC_1.GC_6.S1_CHDP_Raw	GC Dataset 6 Raw CH4 GC Dataset 6 Raw CHDP
11281	pg_GC.GC_1.GC_6.S1_CO_Raw	GC Dataset 6 Raw CO
11282	pg_GC.GC_1.GC_6.S1_CO2_Raw	GC Dataset 6 Raw CO
11283	pg_GC.GC_1.GC_6.S1_CO2_Raw pg_GC.GC_1.GC_6.S1_IC4_Raw	GC Dataset 6 Raw CO2
11285	pg_GC.GC_1.GC_6.S1_IC5_Raw	GC Dataset 6 Raw IC5
11286	pg_GC.GC_1.GC_6.S1_N2_Raw	GC Dataset 6 Raw N2
11287	pg_GC.GC_1.GC_6.S1_NC10_Raw	GC Dataset 6 Raw NC10
11201	pg_00.00_1.00_0.01_1010_1.dw	

Reg#	Variable	Description
11288	pg_GC.GC_1.GC_6.S1_NC4_Raw	GC Dataset 6 Raw NC4
11289	pg_GC.GC_1.GC_6.S1_NC5_Raw	GC Dataset 6 Raw NC5
11290	pg_GC.GC_1.GC_6.S1_NC6_Raw	GC Dataset 6 Raw NC6
11291	pg_GC.GC_1.GC_6.S1_NC7_Raw	GC Dataset 6 Raw NC7
11292	pg_GC.GC_1.GC_6.S1_NC8_Raw	GC Dataset 6 Raw NC8
11293	pg_GC.GC_1.GC_6.S1_NC9_Raw	GC Dataset 6 Raw NC9
11294	pg_GC.GC_1.GC_6.S1_NeoC5_Raw	GC Dataset 6 Raw NeoC5
11295	pg_GC.GC_1.GC_6.S1_SG_Raw	GC Dataset 6 Raw Specific Gravity
11296	pg_GC.GC_1.GC_6.S1_Wobbe_Raw	GC Dataset 6 Raw Wobbe Index
11297	pg_GC.GC_1.GC_7.S1_BTU_Raw	GC Dataset 7 Raw BTU
11298	pg_GC.GC_1.GC_7.S1_BTUSat_Raw	GC Dataset 7 Raw Saturated BTU
11299	pg_GC.GC_1.GC_7.S1_C2_Raw	GC Dataset 7 Raw C2
11300	pg_GC.GC_1.GC_7.S1_C3_Raw	GC Dataset 7 Raw C3
11301	pg_GC.GC_1.GC_7.S1_C6plus_Raw	GC Dataset 7 Raw C6 Plus
11302	pg_GC.GC_1.GC_7.S1_C9Plus_Raw	GC Dataset 7 Raw C9 Plus
11303	pg_GC.GC_1.GC_7.S1_CH4_Raw	GC Dataset 7 Raw CH4
11304	pg_GC.GC_1.GC_7.S1_CHDP_Raw	GC Dataset 7 Raw CHDP
11305	pg_GC.GC_1.GC_7.S1_CO_Raw	GC Dataset 7 Raw CO
11306	pg_GC.GC_1.GC_7.S1_CO2_Raw	GC Dataset 7 Raw CO2
11307	pg_GC.GC_1.GC_7.S1_IC4_Raw	GC Dataset 7 Raw IC4
11308	pg_GC.GC_1.GC_7.S1_IC5_Raw	GC Dataset 7 Raw IC5
11309	pg_GC.GC_1.GC_7.S1_N2_Raw	GC Dataset 7 Raw N2
11310	pg_GC.GC_1.GC_7.S1_NC10_Raw	GC Dataset 7 Raw NC10
11311	pg_GC.GC_1.GC_7.S1_NC4_Raw	GC Dataset 7 Raw NC4
11312	pg_GC.GC_1.GC_7.S1_NC5_Raw	GC Dataset 7 Raw NC5
11313	pg_GC.GC_1.GC_7.S1_NC6_Raw	GC Dataset 7 Raw NC6
11314	pg_GC.GC_1.GC_7.S1_NC7_Raw	GC Dataset 7 Raw NC7
11315	pg_GC.GC_1.GC_7.S1_NC8_Raw	GC Dataset 7 Raw NC8
11316	pg_GC.GC_1.GC_7.S1_NC9_Raw	GC Dataset 7 Raw NC9
11317	pg_GC.GC_1.GC_7.S1_NeoC5_Raw	GC Dataset 7 Raw NeoC5
11318	pg_GC.GC_1.GC_7.S1_SG_Raw	GC Dataset 7 Raw Specific Gravity
11319	pg_GC.GC_1.GC_7.S1_Wobbe_Raw	GC Dataset 7 Raw Wobbe Index
11320	pg_GC.GC_1.GC_8.S1_BTU_Raw	GC Dataset 8 Raw BTU
11321	pg_GC.GC_1.GC_8.S1_BTUSat_Raw	GC Dataset 8 Raw Saturated BTU
11322	pg_GC.GC_1.GC_8.S1_C2_Raw	GC Dataset 8 Raw C2
11323	pg_GC.GC_1.GC_8.S1_C3_Raw	GC Dataset 8 Raw C3
11324	pg_GC.GC_1.GC_8.S1_C6plus_Raw	GC Dataset 8 Raw C6 Plus
11325	pg_GC.GC_1.GC_8.S1_C9Plus_Raw	GC Dataset 8 Raw C9 Plus
11326	pg_GC.GC_1.GC_8.S1_CH4_Raw	GC Dataset 8 Raw CH4
11327	pg_GC.GC_1.GC_8.S1_CHDP_Raw	GC Dataset 8 Raw CHDP
11328	pg_GC.GC_1.GC_8.S1_CO_Raw	GC Dataset 8 Raw CO
11329	pg_GC.GC_1.GC_8.S1_CO2_Raw	GC Dataset 8 Raw CO2
11330	pg_GC.GC_1.GC_8.S1_IC4_Raw	GC Dataset 8 Raw IC4
11331	pg_GC.GC_1.GC_8.S1_IC5_Raw	GC Dataset 8 Raw IC5
11332 11333	pg_GC.GC_1.GC_8.S1_N2_Raw	GC Dataset 8 Raw N2
	pg_GC.GC_1.GC_8.S1_NC10_Raw pg_GC.GC_1.GC_8.S1_NC4_Raw	GC Dataset 8 Raw NC10 GC Dataset 8 Raw NC4
11334 11335		
	pg_GC.GC_1.GC_8.S1_NC5_Raw	GC Dataset 8 Raw NC5
11336	pg_GC.GC_1.GC_8.S1_NC6_Raw	GC Dataset 8 Raw NC6
11337	pg_GC.GC_1.GC_8.S1_NC7_Raw	GC Dataset 8 Raw NC7

11338 pg GC.GC. 1.GC. 8.51 NC9 Raw GC Dataset 8 Raw NC8 11339 pg GC.GC. 1.GC. 8.51 Nec05 Raw GC Dataset 8 Raw Nec05 11341 pg.GC.GC. 1.GC. 8.51 Nec05 Raw GC Dataset 8 Raw Nec05 11342 pg.GC.GC. 1.GC. 8.51 Nec05 Raw GC Dataset 8 Raw Nec05 11341 pg.GC.GC. 1.GC. 8.51 Nec05 Raw GC Dataset 8 Raw Nec05 11342 pg.GC.GC. 1.GC. 8.51 Nec05 Raw GC Dataset 8 Raw Nec05 11344 MB.SPARE C 11345 MB.SPARE C 11344 MB.SPARE C 11345 MB.SPARE C 11346 MB.SPARE C 11346 MB.SPARE C 11345 MB.SPARE C 11346 MB.SPARE C 11350 MB.SPARE C 11351 MB.SPARE C 11352 MB.SPARE C 11354 MB.SPARE C 11355 MB.SPARE C 11356 MB.SPARE C 11357 MB.SPARE C 11358 MB.SPARE C <th>Reg#</th> <th>Variable</th> <th>Description</th>	Reg#	Variable	Description
11330 pg_GC.GC_1.GC_8.51_No2.6S_Raw GC Dataset 8 Raw No25 11341 pg_GC.GC_1.GC_8.S1_No2.6S_Raw GC Dataset 8 Raw Specific Gravity 11342 pg_GC.GC_1.GC_8.S1_Wobbe_Raw GC Dataset 8 Raw Wobbe Index 11343 MB_SPARE Intervention 11344 MB_SPARE Intervention 11344 MB_SPARE Intervention 11345 MB_SPARE Intervention 11344 MB_SPARE Intervention 11344 MB_SPARE Intervention 11345 MB_SPARE Intervention 11346 MS_SPARE Intervention 11351 MS_SPARE Intervention 11352 MS_SPARE Intervention 11353 MS_SPARE Intervention 11354 MS_SPARE Intervention 11355 MS_SPARE Inte			
11340 pg_GC.GC_1.GC_8.S1_NeoC5_Raw GC Dataset 8 Raw NeoC5 11341 pg_GC.GC_1.GC_8.S1_SC_Raw GC Dataset 8 Raw Spacific Gravity 11342 pg_GC.GC_1.GC_8.S1_Wobe Raw GC Dataset 8 Raw Wobe Index 11344 MB.SPARE CD ataset 8 Raw Nobe Index 11345 MB.SPARE CD ataset 8 Raw Nobe Index 11344 MB.SPARE CD ataset 8 Raw Nobe Index 11345 MB.SPARE CD ataset 8 Raw Nobe Index 11354 MB.SPARE CD ataset 8 Raw Nobe Index 11355 MB.SPARE CD ataset 8 Raw Nobe Index 11356 MB.SPARE CD ataset 8 Raw Nobe Index 11356 MB.SPARE CD ataset			
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11387 MB.SPARE	11387	MB.SPARE	

Reg#	Variable	Description
11388	MB.SPARE	
11389	MB.SPARE	
11390	MB.SPARE	
11391	MB.SPARE	
11392	MB.SPARE	
11393	MB.SPARE	
11394	MB.SPARE	
11395	MB.SPARE	
11396	MB.SPARE	
11397	MB.SPARE	
11398	MB.SPARE	
11399	MB.SPARE	
11400	MB.SPARE	
11401	MB.SPARE	
11402	MB.SPARE	
11403	MB.SPARE	
11404	MB.SPARE	
11405	MB.SPARE	
11406	MB.SPARE	
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11408	MB.SPARE	
11409	MB.SPARE	
11410	MB.SPARE	
11411	MB.SPARE	
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11429	MB.SPARE	
11430	MB.SPARE	
11431	MB.SPARE	
11432	MB.SPARE	
11433	MB.SPARE	
11434	MB.SPARE	
11435	STC.CTL_PROFILE_1.R_ENERGY_SETPT	Station Control - Station 1 Energy Control Remote Setpoint - Process Variable Span
11436	STC.CTL_PROFILE_1.R_FLOW_SETPT	Station Control - Station 1 Flow Control Remote

Reg#	Variable	Description
		Setpoint - Process Variable Span
		Station Control - Station 1 Outlet Pressure
		Control Remote Setpoint - Process Variable
11437	STC.CTL_PROFILE_1.R_PRESSURE_SETPT	Span
44400		Station Control - Station 2 Energy Control
11438	STC.CTL_PROFILE_2.R_ENERGY_SETPT	Remote Setpoint - Process Variable Span Station Control - Station 2 Flow Control Remote
11439	STC.CTL_PROFILE_2.R_FLOW_SETPT	Setpoint - Process Variable Span
11100		Station Control - Station 2 Outlet Pressure
		Control Remote Setpoint - Process Variable
11440	STC.CTL_PROFILE_2.R_PRESSURE_SETPT	Span
		Station Control - Station 3 Energy Control
11441	STC.CTL_PROFILE_3.R_ENERGY_SETPT	Remote Setpoint - Process Variable Span Station Control - Station 3 Flow Control Remote
11442	STC.CTL_PROFILE_3.R_FLOW_SETPT	Station Control - Station 3 Flow Control Remote Setpoint - Process Variable Span
11772		Station Control - Station 3 Outlet Pressure
		Control Remote Setpoint - Process Variable
11443	STC.CTL_PROFILE_3.R_PRESSURE_SETPT	Span
		Station Control - Station 4 Energy Control
11444	STC.CTL_PROFILE_4.R_ENERGY_SETPT	Remote Setpoint - Process Variable Span
11445	STC.CTL_PROFILE_4.R_FLOW_SETPT	Station Control - Station 4 Flow Control Remote Setpoint - Process Variable Span
11445		Station Control - Station 4 Outlet Pressure
		Control Remote Setpoint - Process Variable
11446	STC.CTL_PROFILE_4.R_PRESSURE_SETPT	Span
		Station Control - Station 5 Energy Control
11447	STC.CTL_PROFILE_5.R_ENERGY_SETPT	Remote Setpoint - Process Variable Span
11110		Station Control - Station 5 Flow Control Remote
11448	STC.CTL_PROFILE_5.R_FLOW_SETPT	Setpoint - Process Variable Span Station Control - Station 5 Outlet Pressure
		Control Remote Setpoint - Process Variable
11449	STC.CTL_PROFILE_5.R_PRESSURE_SETPT	Span
		Station Control - Station 6 Energy Control
11450	STC.CTL_PROFILE_6.R_ENERGY_SETPT	Remote Setpoint - Process Variable Span
11451		Station Control - Station 6 Flow Control Remote
11401	STC.CTL_PROFILE_6.R_FLOW_SETPT	Setpoint - Process Variable Span Station Control - Station 6 Outlet Pressure
		Control Remote Setpoint - Process Variable
11452	STC.CTL_PROFILE_6.R_PRESSURE_SETPT	Span
11453	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11454	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11455	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11456	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11457	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11458	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11459	MVT.MVT_1_SerialNum	MVT 1 Serial number
11460	MVT.MVT_1_XCode	MVT 1 Diagnostic Code for the transmitter
11461	MVT.MVT_1_DPCode	MVT 1 Diagnostic Code for Differential Pressure
11462	MVT.MVT_1_SPCode	MVT 1 Diagnostic Code for Static Pressure
11463	MVT.MVT_1_FTCode	MVT 1 Diagnostic Code for Flowing Temperature
11464	MVT.MVT_2_SerialNum	MVT 2 Serial number
11465	MVT.MVT_2_XCode	MVT 2 Diagnostic Code for the transmitter
11466	MVT.MVT_2_DPCode	MVT 2 Diagnostic Code for Differential Pressure
11467	MVT.MVT_2_SPCode	MVT 2 Diagnostic Code for Static Pressure
11468	MVT.MVT_2_FTCode	MVT 2 Diagnostic Code for Flowing Temperature
11469	MVT.MVT_3_SerialNum	MVT 3 Serial number
11470	MVT.MVT_3_XCode	MVT 3 Diagnostic Code for the transmitter

Reg#	Variable	Description
11471	MVT.MVT_3_DPCode	MVT 3 Diagnostic Code for Differential Pressure
11472	MVT.MVT_3_SPCode	MVT 3 Diagnostic Code for Static Pressure
11473	MVT.MVT 3 FTCode	MVT 3 Diagnostic Code for Flowing Temperature
11474	MVT.MVT_4_SerialNum	MVT 4 Serial number
11475	MVT.MVT_4_XCode	MVT 4 Diagnostic Code for the transmitter
11476	MVT.MVT_4_DPCode	MVT 4 Diagnostic Code for Differential Pressure
11477	MVT.MVT_4_SPCode	MVT 4 Diagnostic Code for Static Pressure
11478	MVT.MVT_4_FTCode	MVT 4 Diagnostic Code for Flowing Temperature
11479	MVT.MVT_5_SerialNum	MVT 5 Serial number
11480	MVT.MVT_5_XCode	MVT 5 Diagnostic Code for the transmitter
11481	MVT.MVT_5_DPCode	MVT 5 Diagnostic Code for Differential Pressure
11482	MVT.MVT_5_SPCode	MVT 5 Diagnostic Code for Static Pressure
11483	MVT.MVT_5_FTCode	MVT 5 Diagnostic Code for Flowing Temperature
11484	MVT.MVT_6_SerialNum	MVT 6 Serial number
11485	MVT.MVT_6_XCode	MVT 6 Diagnostic Code for the transmitter
11486	MVT.MVT_6_DPCode	MVT 6 Diagnostic Code for Differential Pressure
11487	MVT.MVT_6_SPCode	MVT 6 Diagnostic Code for Static Pressure
11488	MVT.MVT_6_FTCode	MVT 6 Diagnostic Code for Flowing Temperature
11489	MVT.MVT_7_SerialNum	MVT 7 Serial number
11490	MVT.MVT_7_XCode	MVT 7 Diagnostic Code for the transmitter
11491	MVT.MVT_7_DPCode	MVT 7 Diagnostic Code for Differential Pressure
11492	MVT.MVT_7_SPCode	MVT 7 Diagnostic Code for Static Pressure
11493	MVT.MVT_7_FTCode	MVT 7 Diagnostic Code for Flowing Temperature
11494	MVT.MVT_8_SerialNum	MVT 8 Serial number
11495	MVT.MVT_8_XCode	MVT 8 Diagnostic Code for the transmitter
11496	MVT.MVT_8_DPCode	MVT 8 Diagnostic Code for Differential Pressure
11497	MVT.MVT_8_SPCode	MVT 8 Diagnostic Code for Static Pressure
11498	MVT.MVT_8_FTCode	MVT 8 Diagnostic Code for Flowing Temperature
11499	MVT.MVT_9_SerialNum	MVT 9 Serial number
11500	MVT.MVT_9_XCode	MVT 9 Diagnostic Code for the transmitter
11501	MVT.MVT_9_DPCode	MVT 9 Diagnostic Code for Differential Pressure
11502	MVT.MVT_9_SPCode	MVT 9 Diagnostic Code for Static Pressure
11503	MVT.MVT_9_FTCode	MVT 9 Diagnostic Code for Flowing Temperature
11504		MVT 10 Serial number
11505	MVT.MVT_10_XCode	MVT 10 Diagnostic Code for the transmitter
11506	MVT.MVT_10_DPCode	MVT 10 Diagnostic Code for Differential Pressure
11507	MVT.MVT_10_SPCode	MVT 10 Diagnostic Code for Static Pressure
		MVT 10 Diagnostic Code for Flowing
11508	MVT.MVT_10_FTCode	Temperature
11509	MVT.MVT_11_SerialNum	MVT 11 Serial number
11510	MVT.MVT_11_XCode	MVT 11 Diagnostic Code for the transmitter
11511	MVT.MVT_11_DPCode	MVT 11 Diagnostic Code for Differential Pressure
11512	MVT.MVT_11_SPCode	MVT 11 Diagnostic Code for Static Pressure
11513	MVT.MVT_11_FTCode	MVT 11 Diagnostic Code for Flowing Temperature
11514	MVT.MVT_12_SerialNum	MVT 12 Serial number
11515	MVT.MVT_12_XCode	MVT 12 Diagnostic Code for the transmitter
11516	MVT.MVT_12_DPCode	MVT 12 Diagnostic Code for Differential Pressure
11517	MVT.MVT_12_SPCode	MVT 12 Diagnostic Code for Static Pressure
		MVT 12 Diagnostic Code for Flowing
11518	MVT.MVT_12_FTCode	Temperature

Reg#	Variable	Description
11519	MB.RTUDate	RTU Date - MMDDYY.0
11520	MB.RTUTime	RTU Time - HHMMSS.0
11521	CV.CTL_VLV_1.VLV_DMND	Station Control - Control Valve 1 Valve Demand
11522	CV.CTL_VLV_2.VLV_DMND	Station Control - Control Valve 2 Valve Demand
11523	CV.CTL_VLV_3.VLV_DMND	Station Control - Control Valve 3 Valve Demand
11524	CV.CTL_VLV_4.VLV_DMND	Station Control - Control Valve 4 Valve Demand
11525	CV.CTL_VLV_5.VLV_DMND	Station Control - Control Valve 5 Valve Demand
11526	CV.CTL_VLV_6.VLV_DMND	Station Control - Control Valve 6 Valve Demand
11527	CV.CTL_VLV_7.VLV_DMND	Station Control - Control Valve 7 Valve Demand
11528	CV.CTL_VLV_8.VLV_DMND	Station Control - Control Valve 8 Valve Demand
11529	CV.CTL_VLV_9.VLV_DMND	Station Control - Control Valve 9 Valve Demand
11530	CV.CTL_VLV_10.VLV_DMND	Station Control - Control Valve 10 Valve Demand
11531	CV.CTL_VLV_11.VLV_DMND	Station Control - Control Valve 11 Valve Demand
11532	CV.CTL_VLV_12.VLV_DMND	Station Control - Control Valve 12 Valve Demand
11533	CV.CTL_VLV_13.VLV_DMND	Station Control - Control Valve 13 Valve Demand
11534	CV.CTL_VLV_14.VLV_DMND	Station Control - Control Valve 13 Valve Demand
11535	CV.CTL_VLV_15.VLV_DMND	Station Control - Control Valve 14 Valve Demand
11536	CV.CTL_VLV_16.VLV_DMND	Station Control - Control Valve 16 Valve Demand
11537	CV.CTL_VLV_17.VLV_DMND	Station Control - Control Valve 17 Valve Demand
11538	CV.CTL_VLV_18.VLV_DMND	Station Control - Control Valve 18 Valve Demand
11539	LR.ST1_SwNum	Local Remote Settings - Station Controls - Switch number Station 1 assigned to
11559		Local Remote Settings - Station Controls - Switch
11540	LR.ST2_SwNum	number Station 2 assigned to Local Remote Settings - Station Controls - Switch
11541	LR.ST3_SwNum	number Station 3 assigned to
11542	LR.ST4_SwNum	Local Remote Settings - Station Controls - Switch number Station 4 assigned to
11543	LR.ST5_SwNum	Local Remote Settings - Station Controls - Switch number Station 5 assigned to
44544		Local Remote Settings - Station Controls - Switch
11544	LR.ST6_SwNum	number Station 6 assigned to Local Remote Settings - Remote Control Valves -
		Switch number Remote Control Valve 1 assigned
11545	LR.RCV1_SwNum	to
		Local Remote Settings - Remote Control Valves - Switch number Remote Control Valve 2 assigned
11546	LR.RCV2_SwNum	to
		Local Remote Settings - Remote Control Valves -
		Switch number Remote Control Valve 3 assigned
11547	LR.RCV3_SwNum	to Local Remote Settings - Remote Control Valves -
		Switch number Remote Control Valve 4 assigned
11548	LR.RCV4_SwNum	to
		Local Remote Settings - Remote Control Valves -
11549	LR.RCV5_SwNum	Switch number Remote Control Valve 5 assigned to
11049		Local Remote Settings - Remote Control Valves -
		Switch number Remote Control Valve 6 assigned
11550	LR.RCV6_SwNum	to
		Local Remote Settings - Remote Control Valves - Switch number Remote Control Valve 7 assigned
11551	LR.RCV7_SwNum	to
	_	Local Remote Settings - Remote Control Valves -
44==0		Switch number Remote Control Valve 8 assigned
11552	LR.RCV8_SwNum	to
11553	LR.RCV9_SwNum	Local Remote Settings - Remote Control Valves -

Reg#	Variable	Description
Ŭ		Switch number Remote Control Valve 9 assigned
		to
		Local Remote Settings - Remote Control Valves - Switch number Remote Control Valve 10
11554	LR.RCV10_SwNum	assigned to
11001		Local Remote Settings - Remote Control Valves -
		Switch number Remote Control Valve 11
11555	LR.RCV11_SwNum	assigned to
		Local Remote Settings - Remote Control Valves -
11556	LR.RCV12_SwNum	Switch number Remote Control Valve 12 assigned to
11550		Local Remote Settings - General Purpose PID -
11557	LR.GPPID1_SwNum	Switch number PID Loop 1
		Local Remote Settings - General Purpose PID -
11558	LR.GPPID2_SwNum	Switch number PID Loop 2
		Local Remote Settings - General Purpose PID -
11559	LR.GPPID3_SwNum	Switch number PID Loop 3
11560	MB.AI_1	MODBUS AI - Analog value 1 that is brought into the program via MODBUS, not via physical I/O
11300	וא.טא	MODBUS AI - Analog value 2 that is brought into
11561	MB.AI_2	the program via MODBUS, not via physical I/O
		MODBUS AI - Analog value 3 that is brought into
11562	MB.AI_3	the program via MODBUS, not via physical I/O
44500		MODBUS AI - Analog value 4 that is brought into
11563	MB.AI_4	the program via MODBUS, not via physical I/O MODBUS AI - Analog value 5 that is brought into
11564	MB.AI_5	the program via MODBUS, not via physical I/O
11001		MODBUS AI - Analog value 6 that is brought into
11565	MB.AI_6	the program via MODBUS, not via physical I/O
		MODBUS AI - Analog value 7 that is brought into
11566	MB.AI_7	the program via MODBUS, not via physical I/O
11567	MP AL 9	MODBUS AI - Analog value 8 that is brought into
11567	MB.AI_8	the program via MODBUS, not via physical I/O MODBUS AI - Analog value 9 that is brought into
11568	MB.AI_9	the program via MODBUS, not via physical I/O
		MODBUS AI - Analog value 10 that is brought
		into the program via MODBUS, not via physical
11569	MB.AI_10	1/0
		MODBUS AI - Analog value 11 that is brought into the program via MODBUS, not via physical
11570	MB.AI_11	I/O
11010		MODBUS AI - Analog value 12 that is brought
		into the program via MODBUS, not via physical
11571	MB.AI_12	
		MODBUS AI - Analog value 13 that is brought
11572	MB.AI_13	into the program via MODBUS, not via physical I/O
11012		MODBUS AI - Analog value 14 that is brought
		into the program via MODBUS, not via physical
11573	MB.AI_14	I/O
		MODBUS AI - Analog value 15 that is brought
11574	MB.AI_15	into the program via MODBUS, not via physical I/O
11374	עו_וח.טווו	MODBUS AI - Analog value 16 that is brought
		into the program via MODBUS, not via physical
11575	MB.AI_16	I/O
		RTU - Battery Status - converted to
11576	@GV.BA_155_STATUS	@GVBAT_OK
11577	@GV.BA_155_READING	RTU - DC Input
11570	TO TO 1 OT1 CottleTime	Tube Switching - settle time between actions
11578		before next evaluation occurs
11579	TS.TC_1.TSO_1.FLOW_FAIL_ACTION	Tube Switching - Action to occur if flow failure

Reg#	Variable	Description
j.		detected on Tube Ranked 1
		Tube Switching - Action to occur if flow failure
11580	TS.TC_1.TSO_2.FLOW_FAIL_ACTION	detected on Tube Ranked 2
		Tube Switching - Action to occur if flow failure
11581	TS.TC_1.TSO_3.FLOW_FAIL_ACTION	detected on Tube Ranked 3
11500		Tube Switching - Action to occur if flow failure detected on Tube Ranked 4
11582	TS.TC_1.TSO_4.FLOW_FAIL_ACTION	Tube Switching - Action to occur if flow failure
11583	TS.TC_1.TSO_5.FLOW_FAIL_ACTION	detected on Tube Ranked 5
		Tube Switching - Action to occur if flow failure
11584	TS.TC_1.TSO_6.FLOW_FAIL_ACTION	detected on Tube Ranked 6
		Tube Switching - Action to occur if flow failure
11585	TS.TC_1.TSO_7.FLOW_FAIL_ACTION	detected on Tube Ranked 7 Tube Switching - Action to occur if flow failure
11586	TS.TC_1.TSO_8.FLOW_FAIL_ACTION	detected on Tube Ranked 8
11587	MB.SPARE	
11588	MB.SPARE	
11589	MB.SPARE	
11590	MB.SPARE	Station Control Station 1 Drimony 2 Control
11591	STC.CTL_PROFILE_1.L_PMRY3_SETPT	Station Control - Station 1 Primary 3 Control Local Setpoint - Process Variable Span
11001		Station Control - Station 1 Primary 3 Control
11592	STC.CTL_PROFILE_1.R_PMRY3_SETPT	Remote Setpoint - Process Variable Span
		Station Control - Station 2 Primary 3 Control
11593	STC.CTL_PROFILE_2.L_PMRY3_SETPT	Local Setpoint - Process Variable Span
44504		Station Control - Station 2 Primary 3 Control
11594	STC.CTL_PROFILE_2.R_PMRY3_SETPT	Remote Setpoint - Process Variable Span Station Control - Station 3 Primary 3 Control
11595	STC.CTL_PROFILE_3.L_PMRY3_SETPT	Local Setpoint - Process Variable Span
11000		Station Control - Station 3 Primary 3 Control
11596	STC.CTL_PROFILE_3.R_PMRY3_SETPT	Remote Setpoint - Process Variable Span
		Station Control - Station 4 Primary 3 Control
11597	STC.CTL_PROFILE_4.L_PMRY3_SETPT	Local Setpoint - Process Variable Span
11598	STC.CTL_PROFILE_4.R_PMRY3_SETPT	Station Control - Station 4 Primary 3 Control Remote Setpoint - Process Variable Span
11550		Station Control - Station 5 Primary 3 Control
11599	STC.CTL_PROFILE_5.L_PMRY3_SETPT	Local Setpoint - Process Variable Span
		Station Control - Station 5 Primary 3 Control
11600	STC.CTL_PROFILE_5.R_PMRY3_SETPT	Remote Setpoint - Process Variable Span
44004		Station Control - Station 6 Primary 3 Control
11601	STC.CTL_PROFILE_6.L_PMRY3_SETPT	Local Setpoint - Process Variable Span Station Control - Station 6 Primary 3 Control
11602	STC.CTL_PROFILE_6.R_PMRY3_SETPT	Remote Setpoint - Process Variable Span
11603	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11604	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11604	MB.SPARE	*** RESERVED FOR FUTURE USE ***
	MB.SPARE	*** RESERVED FOR FUTURE USE ***
11606		
11607	FC.FC1.RX_GCSTREAM	Run 1 - GC Dataset assigned to this run
11608	FC.FC2.RX_GCSTREAM	Run 2 - GC Dataset assigned to this run
11609	FC.FC3.RX_GCSTREAM	Run 3 - GC Dataset assigned to this run
11610	FC.FC4.RX_GCSTREAM	Run 4 - GC Dataset assigned to this run
11611	FC.FC5.RX_GCSTREAM	Run 5 - GC Dataset assigned to this run
11612	FC.FC6.RX_GCSTREAM	Run 6 - GC Dataset assigned to this run
11613	FC.FC7.RX_GCSTREAM	Run 7 - GC Dataset assigned to this run
11614	FC.FC8.RX_GCSTREAM	Run 8 - GC Dataset assigned to this run
11615	PG_GC.GC_1.GC_1.odiGCStatus	GC Dataset 1 general status
11616		GC Dataset 2 general status
11616	PG_GC.GC_1.GC_2.odiGCStatus	GC Dataset 2 general status

Reg#	Variable	Description
11617	PG_GC.GC_1.GC_3.odiGCStatus	GC Dataset 3 general status
11618	PG_GC.GC_1.GC_4.odiGCStatus	GC Dataset 4 general status
11619	PG_GC.GC_1.GC_5.odiGCStatus	GC Dataset 5 general status
11620	PG_GC.GC_1.GC_6.odiGCStatus	GC Dataset 6 general status
11621	PG_GC.GC_1.GC_7.odiGCStatus	GC Dataset 7 general status
11622	PG_GC.GC_1.GC_8.odiGCStatus	GC Dataset 8 general status
11623	MB.SPARE	
11624	MB.SPARE	
11625	MB.SPARE	
11626	MB.SPARE	
11627	PG_GC.GC_1.GC_1.odiStatus	GC Dataset 1 Comm status
11628	PG_GC.GC_1.GC_2.odiStatus	GC Dataset 2 Comm status
11629	PG_GC.GC_1.GC_3.odiStatus	GC Dataset n Comm status
11630	PG_GC.GC_1.GC_4.odiStatus	GC Dataset 4 Comm status
11631	PG_GC.GC_1.GC_5.odiStatus	GC Dataset 5 Comm status
11632	PG_GC.GC_1.GC_6.odiStatus	GC Dataset 6 Comm status
11633	PG_GC.GC_1.GC_7.odiStatus	GC Dataset 7 Comm status
11634	PG_GC.GC_1.GC_8.odiStatus	GC Dataset 8 Comm status
11635	MB.SPARE	
11636	MB.SPARE	
11637	MB.SPARE	
11638	MB.SPARE	
		Station Control - Station 1 Process Monitor
11639	STC.Ctl_SignalMap_1.ESD_Point	Control point assiged to ESD Station Control - Station 2 Process Monitor
11640	STC.Ctl_SignalMap_2.ESD_Point	Control point assiged to ESD
		Station Control - Station 3 Process Monitor
11641	STC.Ctl_SignalMap_3.ESD_Point	Control point assiged to ESD
11642	STC.Ctl_SignalMap_4.ESD_Point	Station Control - Station 4 Process Monitor Control point assiged to ESD
11042		Station Control - Station 5 Process Monitor
11643	STC.Ctl_SignalMap_5.ESD_Point	Control point assiged to ESD
11644	STC Ctl. SignalMan & ESD. Daint	Station Control - Station 6 Process Monitor
11044	STC.Ctl_SignalMap_6.ESD_Point	Control point assiged to ESD Process Monitor and Control - Al Point to be
11645	PMC.Monitor_AI_Point1	monitored from PMC 1
		Process Monitor and Control - Al Point to be
11646	PMC.Monitor_AI_Point2	monitored from PMC 2 Process Monitor and Control - AI Point to be
11647	PMC.Monitor_AI_Point3	monitored from PMC 3
		Process Monitor and Control - AI Point to be
11648	PMC.Monitor_AI_Point4	monitored from PMC 4
11649	PMC.Monitor DI Point1	Process Monitor and Control - DI Point to be monitored from PMC 1
110-13		Process Monitor and Control - DI Point to be
11650	PMC.Monitor_DI_Point2	monitored from PMC 2
11654	PMC Monitor DL Doint?	Process Monitor and Control - DI Point to be
11651	PMC.Monitor_DI_Point3	monitored from PMC 3 Process Monitor and Control - DI Point to be
11652	PMC.Monitor_DI_Point4	monitored from PMC 4
		Process Monitor and Control - List 29 Point to be
11653	PMC.Monitor_List_Point1	monitored from PMC 1 Process Monitor and Control - List 29 Point to be
11654	PMC.Monitor_List_Point2	monitored from PMC 2
		Process Monitor and Control - List 29 Point to be
11655	PMC.Monitor_List_Point3	monitored from PMC 3

Reg#	Variable	Description
		Process Monitor and Control - List 29 Point to be
11656	PMC.Monitor_List_Point4	monitored from PMC 4
11657	PMC.PV_Monitor_1.DB_Secs	Process Monitor and Control - Deadband in Seconds for Alarm processing on PMC 1
		Process Monitor and Control - High High Alarm
11658	PMC.PV_Monitor_1.HiHI_Lim	limit on PMC 1
11659	PMC.PV_Monitor_1.ROC_Up	Process Monitor and Control - Rate of Change Increasing Alarm limit on PMC 1
11660	PMC.PV_Monitor_1.ROC_Dn	Process Monitor and Control - Rate of Change Decreasing Alarm limit on PMC 1
11000		Process Monitor and Control - Low Low Alarm
11661	PMC.PV_Monitor_1.LoLo_Lim	limit on PMC 1
11662	PMC.PV_Monitor_1.Lo_Lim	Process Monitor and Control - Low Alarm limit on PMC 1
11663	PMC.PV_Monitor_1.HI_Lim	Process Monitor and Control - High Alarm limit on PMC 1
		Process Monitor and Control - Deadband in
11664	PMC.PV_Monitor_2.DB_Secs	Seconds for Alarm processing on PMC 2
11665	PMC.PV_Monitor_2.HiHI_Lim	Process Monitor and Control - High High Alarm limit on PMC 2
11666	PMC.PV_Monitor_2.ROC_Up	Process Monitor and Control - Rate of Change Increasing Alarm limit on PMC 2
		Process Monitor and Control - Rate of Change
11667	PMC.PV_Monitor_2.ROC_Dn	Decreasing Alarm limit on PMC 2 Process Monitor and Control - Low Low Alarm
11668	PMC.PV_Monitor_2.LoLo_Lim	limit on PMC 2
11669	PMC.PV_Monitor_2.Lo_Lim	Process Monitor and Control - Low Alarm limit on PMC 2
11670	PMC.PV_Monitor_2.HI_Lim	Process Monitor and Control - High Alarm limit on PMC 2
11671	PMC.PV_Monitor_3.DB_Secs	Process Monitor and Control - Deadband in Seconds for Alarm processing on PMC 3
11672	PMC.PV_Monitor_3.HiHI_Lim	Process Monitor and Control - High High Alarm limit on PMC 3
11673	PMC.PV_Monitor_3.ROC_Up	Process Monitor and Control - Rate of Change Increasing Alarm limit on PMC 3
11674	PMC.PV_Monitor_3.ROC_Dn	Process Monitor and Control - Rate of Change Decreasing Alarm limit on PMC 3
11675	PMC.PV_Monitor_3.LoLo_Lim	Process Monitor and Control - Low Low Alarm limit on PMC 3
11676	PMC.PV_Monitor_3.Lo_Lim	Process Monitor and Control - Low Alarm limit on PMC 3
11677	PMC.PV_Monitor_3.HI_Lim	Process Monitor and Control - High Alarm limit on PMC 3
11678	PMC.PV_Monitor_4.DB_Secs	Process Monitor and Control - Deadband in Seconds for Alarm processing on PMC 4
		Process Monitor and Control - High High Alarm
11679	PMC.PV_Monitor_4.HiHI_Lim	limit on PMC 4 Process Monitor and Control - Rate of Change
11680	PMC.PV_Monitor_4.ROC_Up	Increasing Alarm limit on PMC 4 Process Monitor and Control - Rate of Change
11681	PMC.PV_Monitor_4.ROC_Dn	Decreasing Alarm limit on PMC 4 Process Monitor and Control - Low Low Alarm
11682	PMC.PV_Monitor_4.LoLo_Lim	limit on PMC 4 Process Monitor and Control - Low Alarm limit on
11683	PMC.PV_Monitor_4.Lo_Lim	PMC 4
11684	PMC.PV_Monitor_4.HI_Lim	Process Monitor and Control - High Alarm limit on PMC 4
11685	PVM.Monitor_AI_Point1	Process Value Monitor - AI Point to be monitored from PVM 1
11686	PVM.Monitor_AI_Point2	Process Value Monitor - AI Point to be monitored from PVM 2

Process Value Monitor - AL Point to be monitored from PVM 3 1188 PVM Monitor, AL Point 10 be monitored from PVM 4 1188 PVM Monitor, AL Point 10 be monitored from PVM 4 1189 PVM Monitor, DL Point 1 1189 PVM Monitor, DL Point 1 1189 PVM Monitor, DL Point 2 1189 PVM Monitor, DL Point 3 1189 PVM Monitor, DL Point 4 1189 PVM Monitor, List Point 4 11895 PVM Monitor, List Point 4 11896 PVM Monitor, List Point 4 11897 PVM PV Monitor, List Point 4 11898 PVM PV Monitor, List Point 4 11899 PVM	Reg#	Variable	Description
Process Value Montor - AI Point to be monitored from PVM 4 11688 PVM.Monitor_DI_Point1 Process Value Montor - DI Point to be monitored from PVM 1 11690 PVM.Monitor_DI_Point2 Process Value Monitor - DI Point to be monitored from PVM 2 11691 PVM.Monitor_DI_Point3 Process Value Monitor - DI Point to be monitored from PVM 3 11692 PVM.Monitor_DI_Point3 Process Value Monitor - DI Point to be monitored from PVM 4 11693 PVM.Monitor_List Point4 Process Value Monitor - Ust 20 Point to be monitored from PVM 1 11694 PVM.Monitor_List Point2 Process Value Monitor - Ust 20 Point to be monitored from PVM 4 11695 PVM.Monitor_List Point3 Process Value Monitor - Ust 20 Point to be monitored from PVM 4 11696 PVM.Monitor_List Point3 Process Value Monitor - Ust 20 Point to be monitored from PVM 4 11697 PVM.PV_Monitor_1.DB_Secs for Alarm processing on PVM 1 11698 PVM.PV_Monitor_1.Hill Lim Process Value Monitor - List 20 Point to be monitor - NAM 2 11699 PVM.PV_Monitor_1.Hell Lim Process Value Monitor - High High Alarm limit on PVM 1 11700 PVM.PV_Monitor_1.Hell Lim Process Value Monitor - Low Comage frame processing an PVM 1 11708 PVM.P			
11688 PVM.Monitor. AI. Point4 from PVM 4 Process Value Monitor - DI Point to be monitored from PVM 1 Process Value Monitor - DI Point to be monitored from PVM 2 11690 PVM.Monitor_DI_Point2 Process Value Monitor - DI Point to be monitored from PVM 2 11691 PVM.Monitor_DI_Point3 Process Value Monitor - DI Point to be monitored from PVM 3 11692 PVM.Monitor_DI_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11693 PVM.Monitor_List_Point1 Process Value Monitor - List 29 Point to be monitored from PVM 4 11694 PVM.Monitor_List_Point1 Process Value Monitor - List 29 Point to be monitored from PVM 4 11695 PVM.Monitor_List_Point3 Process Value Monitor - List 29 Point to be monitored from PVM 3 11696 PVM.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11696 PVM.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11697 PVM.PV.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11698 PVM.PV.Monitor_List_Doint4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11699 PVM.PV.Monitor_List_Doint4 Process Value Monitor - List 29 Point to be monitored from PVM 4 <td< td=""><td>11687</td><td>PVM.Monitor_AI_Point3</td><td></td></td<>	11687	PVM.Monitor_AI_Point3	
Process Value Monitor - DI Point to be monitored from PVM 1 11689 PVM.Monitor_DI_Point2 11890 PVM.Monitor_DI_Point2 11891 PVM.Monitor_DI_Point3 11891 PVM.Monitor_DI_Point3 11892 PVM.Monitor_DI_Point4 11893 PVM.Monitor_DI_Point4 11893 PVM.Monitor_List Point1 11894 PVM.Monitor_List Point2 11895 PVM.Monitor_List Point2 11894 PVM.Monitor_List Point2 11895 PVM.Monitor_List Point2 11896 PVM.Monitor_List Point3 11897 PVM.Monitor_List Point4 11898 PVM.Monitor_List Point3 11899 PVM.Monitor_List Point4 11899 PVM.Monitor_List Point4 11899 PVM.Monitor_List Point4 11899 PVM.Monitor_List Point4 11899 PVM.PV_Monitor_List Point4 11899 PVM.PV_Monitor_List Point4 11899 PVM.PV_Monitor_List Point4 11899 PVM.PV_Monitor_List Point4 11899 PVM.PV_Monitor_LOC Dn 11899 <	11688	PVM Monitor AL Point4	
Process Value Monitor - DI Point to be monitored from PVM 2 11690 PVM.Monitor_DL Point2 11691 PVM.Monitor_DL Point3 11692 PVM.Monitor_DL Point3 11693 PVM.Monitor_DL Point4 11694 PVM.Monitor - List 29 Point to be monitored from PVM 4 11692 PVM.Monitor List Point1 11694 PVM.Monitor - List 29 Point to be monitored from PVM 4 11694 PVM.Monitor List Point2 11695 PVM.Monitor List Point3 11694 PVM.Monitor List Point4 11696 PVM.Monitor List Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11696 PVM.Monitor_List_Point4 PVM.PV_Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 1 11697 PVM.PV_Monitor_List_Point4 PVM.PV_Monitor_List_Point4 Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 1 11699 PVM.PV_Monitor_LRCC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 1 11700 PVM.PV_Monitor_LLC_Un Process Value Monitor - Low Alarm limit on PVM 1 11701 PVM.PV_Monitor_LLC_UN Process Value M	11000		
11680 PVM.Monitor_DL.Point2 from PVM 2 11691 PVM.Monitor_DI_Point3 Process Value Monitor - DI Point to be monitored from PVM 3 11692 PVM.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 4 11693 PVM.Monitor_List_Point1 Process Value Monitor - List 29 Point to be monitored from PVM 3 11694 PVM.Monitor_List_Point2 Process Value Monitor - List 29 Point to be monitored from PVM 3 11695 PVM.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 3 11695 PVM.Monitor_List_Point4 Process Value Monitor - List 29 Point to be monitored from PVM 3 11696 PVM.Monitor_List_Point4 Process Value Monitor - Deadband in Seconds for Alarm processing on PVM 1 11697 PVM.PV_Monitor_1.DB_Secs for Alarm process Value Monitor - Rate of Change 11698 PVM.PV_Monitor_1.ROC_Up Process Value Monitor - Rate of Change 11700 PVM.PV_Monitor_1.ROC_Up Process Value Monitor - Low Low Alarm limit on PVM 1 11701 PVM.PV_Monitor_1.LoL_Lim Process Value Monitor - Low Low Alarm limit on PVM 1 11702 PVM.PV_Monitor_1.LoL_Lim 1 11703 PVM.PV_Monitor_2.BS Secs	11689	PVM.Monitor_DI_Point1	-
Process Value Valu			
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11704 PVM.PV_Monitor_2.DB_Secs for Alarm processing on PVM 2 11705 PVM.PV_Monitor_2.HiHI_Lim Process Value Monitor - High High Alarm limit on PVM 2 11706 PVM.PV_Monitor_2.ROC_Up Increasing Alarm limit on PVM 2 11707 PVM.PV_Monitor_2.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 2 11708 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11700 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11710 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11710 PVM.PV_Monitor_3.DE_Secs Forcess Value Monitor - High Alarm limit on PVM 3 11711 PVM.PV_Monitor_3.DB_Secs Forcess Value Monitor - Rate of Change Process Value Monitor - High High Alarm limit on PVM 3 11711 PVM.PV_Monitor_3.ROC_Up Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Low Low Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11703	PVM.PV_Monitor_1.HI_Lim	1
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11705 PVM.PV_Monitor_2.HiHl_Lim PVM 2 11706 PVM.PV_Monitor_2.ROC_Up Process Value Monitor - Rate of Change 11707 PVM.PV_Monitor_2.ROC_Dn Process Value Monitor - Rate of Change 11708 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_3.DE_Secs Process Value Monitor - Deadband in Seconds for Alarm processing on PVM 3 11711 PVM.PV_Monitor_3.BB_Secs Frocess Value Monitor - Rate of Change 11712 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change 11714 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Low Low Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11715 PVM.PV_Monitor	11704	PVM.PV_Monitor_2.DB_Secs	for Alarm processing on PVM 2
11706 PVM.PV_Monitor_2.ROC_Up Process Value Monitor - Rate of Change 11706 PVM.PV_Monitor_2.ROC_Up Process Value Monitor - Rate of Change 11707 PVM.PV_Monitor_2.ROC_Dn Decreasing Alarm limit on PVM 2 11708 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.HL_Lim 2 11710 PVM.PV_Monitor_3.DB_Secs Frocess Value Monitor - Deadband in Seconds for Alarm processing on PVM 3 11711 PVM.PV_Monitor_3.HiHI_Lim PVM.8 11712 PVM.PV_Monitor_3.ROC_Up Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.LoLim Process Value Monitor - High Alarm limit on PVM 3 <	11705	PVM PV Monitor 2 HiHI Lim	
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11707 PVM.PV_Monitor_2.ROC_Dn Decreasing Alarm limit on PVM 2 11708 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11710 PVM.PV_Monitor_2.HI_Lim 2 11711 PVM.PV_Monitor_3.DB_Secs for Alarm processing on PVM 3 11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - Rate of Change 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change 11714 PVM.PV_Monitor_3.ROC_Dn Perocess Value Monitor - Low Low Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11706	PVM.PV_Monitor_2.ROC_Up	
11708 PVM.PV_Monitor_2.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11710 PVM.PV_Monitor_2.HI_Lim Process Value Monitor - High Alarm limit on PVM 2 11711 PVM.PV_Monitor_3.DB_Secs for Alarm processing on PVM 3 11712 PVM.PV_Monitor_3.HiH_Lim Process Value Monitor - High High Alarm limit on PVM 3 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Perocess Value Monitor - Low Low Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3			
11708 PVM.PV_Monitor_2.LoLo_Lim PVM 2 11709 PVM.PV_Monitor_2.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 2 11709 PVM.PV_Monitor_2.HI_Lim 2 11710 PVM.PV_Monitor_3.DB_Secs Process Value Monitor - Deadband in Seconds for Alarm processing on PVM 3 11711 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Low Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11707	PVM.PV_Monitor_2.ROC_Dn	
Process Value Monitor - Low Alarm limit on PVM11709PVM.PV_Monitor_2.Lo_Lim11710PVM.PV_Monitor_2.HI_Lim11710PVM.PV_Monitor_3.DB_Secs11711PVM.PV_Monitor_3.DB_Secs11712PVM.PV_Monitor_3.HiHI_Lim11713PVM.PV_Monitor_3.ROC_Up11714PVM.PV_Monitor_3.ROC_Dn11715PVM.PV_Monitor_3.LoLo_Lim11716PVM.PV_Monitor_3.Lo_LimProcess Value Monitor - Low Alarm limit on PVM 3Process Value Monitor - Rate of ChangeProcess Value Monitor - Rate of ChangeProcess Value Monitor - Rate of ChangeProcess Value Monitor - Low Low Alarm limit on PVM 3	11708	PVM.PV Monitor 2.LoLo Lim	
11710 PVM.PV_Monitor_2.HI_Lim Process Value Monitor - High Alarm limit on PVM 2 11711 PVM.PV_Monitor_3.DB_Secs Process Value Monitor - Deadband in Seconds for Alarm processing on PVM 3 11711 PVM.PV_Monitor_3.DB_Secs Process Value Monitor - High High Alarm limit on PVM 3 11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - High High Alarm limit on PVM 3 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3			
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11711 PVM.PV_Monitor_3.DB_Secs Process Value Monitor - Deadband in Seconds for Alarm processing on PVM 3 11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - High High Alarm limit on PVM 3 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11710	DVM DV/ Monitor 2 HI Lim	•
11711 PVM.PV_Monitor_3.DB_Secs for Alarm processing on PVM 3 11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - High High Alarm limit on PVM 3 11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11710	r vivi.r'V_IVIUIIIUI_2.rii_LIIII	—
11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - High High Alarm limit on 11712 PVM.PV_Monitor_3.HiHI_Lim Process Value Monitor - Rate of Change 11713 PVM.PV_Monitor_3.ROC_Up Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3	11711	PVM.PV_Monitor_3.DB_Secs	
11713 PVM.PV_Monitor_3.ROC_Up Process Value Monitor - Rate of Change Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - High Alarm limit on PVM			Process Value Monitor - High High Alarm limit on
11713 PVM.PV_Monitor_3.ROC_Up Increasing Alarm limit on PVM 3 11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - High Alarm limit on PVM	11712	PVM.PV_Monitor_3.HiHI_Lim	
11714 PVM.PV_Monitor_3.ROC_Dn Process Value Monitor - Rate of Change Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - High Alarm limit on PVM	11712	PVM PV/ Monitor 3 ROC Up	
11714 PVM.PV_Monitor_3.ROC_Dn Decreasing Alarm limit on PVM 3 11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - High Alarm limit on PVM	11/13		
11715 PVM.PV_Monitor_3.LoLo_Lim Process Value Monitor - Low Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - High Alarm limit on PVM 3	11714	PVM.PV_Monitor_3.ROC_Dn	Decreasing Alarm limit on PVM 3
11716 PVM.PV_Monitor_3.Lo_Lim Process Value Monitor - Low Alarm limit on PVM 3 Process Value Monitor - High Alarm limit on PVM			Process Value Monitor - Low Low Alarm limit on
11716 PVM.PV_Monitor_3.Lo_Lim 3 Process Value Monitor - High Alarm limit on PVM	11715	PVM.PV_Monitor_3.LoLo_Lim	-
Process Value Monitor - High Alarm limit on PVM	11716	PVM PV Monitor 31.0 Lim	
•			-
11/1/ PVIVI.PV_WONITOF_3.HI_LIM 3	11717	PVM.PV_Monitor_3.HI_Lim	3

Reg#	Variable	Description
		Process Value Monitor - Deadband in Seconds
11718	PVM.PV_Monitor_4.DB_Secs	for Alarm processing on PVM 4
11719	PVM.PV_Monitor_4.HiHI_Lim	Process Value Monitor - High High Alarm limit on PVM 4
44700	DV(M DV/ Marriton 4 DOC 11	Process Value Monitor - Rate of Change
11720	PVM.PV_Monitor_4.ROC_Up	Increasing Alarm limit on PVM 4 Process Value Monitor - Rate of Change
11721	PVM.PV_Monitor_4.ROC_Dn	Decreasing Alarm limit on PVM 4 Process Value Monitor - Low Low Alarm limit on
11722	PVM.PV_Monitor_4.LoLo_Lim	PVM 4 Process Value Monitor - Low Alarm limit on PVM
11723	PVM.PV_Monitor_4.Lo_Lim	4
11724	PVM.PV_Monitor_4.HI_Lim	Process Value Monitor - High Alarm limit on PVM
11725	SMP.Sampler_AI_Point1	Sampler - AI Point to be used for Sampler 1
11726	SMP.Sampler_List_Point1	Sampler - List 29 Point to be used for Sampler 1
11727	SMP.Sampler_1_Mode	Sampler - Output Mode be used for Sampler 1
11728	SMP.Sampler_1_ScaleF	Sampler - Scale Factor to be used for Sampler 1 analog output
11729	SMP.Sampler_1_PulseR	Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 1 digital output
11730	SMP.Sampler_AI_Point2	Sampler - AI Point to be used for Sampler 2
11731	SMP.Sampler_List_Point2	Sampler - List 29 Point to be used for Sampler 2
11732	SMP.Sampler_2_Mode	Sampler - Output Mode be used for Sampler 2
		Sampler - Scale Factor to be used for Sampler 2
11733	SMP.Sampler_2_ScaleF	analog output
44704		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 2 digital
11734	SMP.Sampler_2_PulseR	output
11735	SMP.Sampler_AI_Point3	Sampler - Al Point to be used for Sampler 3
11736	SMP.Sampler_List_Point3	Sampler - List 29 Point to be used for Sampler 3
11737	SMP.Sampler_3_Mode	Sampler - Output Mode be used for Sampler 3 Sampler - Scale Factor to be used for Sampler 3
11738	SMP.Sampler_3_ScaleF	analog output Sampler - Pulse Factor (1 pulse per Engineering
		Unit of Input) to be used for Sampler 3 digital
11739	SMP.Sampler_3_PulseR	output
11740	SMP.Sampler_AI_Point4	Sampler - AI Point to be used for Sampler 4
11741	SMP.Sampler_List_Point4	Sampler - List 29 Point to be used for Sampler 4
11742	SMP.Sampler_4_Mode	Sampler - Output Mode be used for Sampler 4
		Sampler - Scale Factor to be used for Sampler 4
11743	SMP.Sampler_4_ScaleF	analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 4 digital
11744	SMP.Sampler_4_PulseR	output
11745	SMP.Sampler_AI_Point5	Sampler - AI Point to be used for Sampler 5
11746	SMP.Sampler_List_Point5	Sampler - List 29 Point to be used for Sampler 5
11747	SMP.Sampler_5_Mode	Sampler - Output Mode be used for Sampler 5
11748	SMP.Sampler_5_ScaleF	Sampler - Scale Factor to be used for Sampler 5 analog output
		Sampler - Pulse Factor (1 pulse per Engineering
44740		Unit of Input) to be used for Sampler 5 digital
11749	SMP.Sampler_5_PulseR	output
11750	SMP.Sampler_Al_Point6	Sampler - Al Point to be used for Sampler 6
11751	SMP.Sampler_List_Point6	Sampler - List 29 Point to be used for Sampler 6
11752	SMP.Sampler_6_Mode	Sampler - Output Mode be used for Sampler 6

Reg#	Variable	Description
		Sampler - Scale Factor to be used for Sampler 6
11753	SMP.Sampler_6_ScaleF	analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 6 digital
11754	SMP.Sampler_6_PulseR	output
11755	SMP.Sampler_AI_Point7	Sampler - AI Point to be used for Sampler 7
11756	SMP.Sampler_List_Point7	Sampler - List 29 Point to be used for Sampler 7
11757	SMP.Sampler_7_Mode	Sampler - Output Mode be used for Sampler 7
		Sampler - Scale Factor to be used for Sampler 7
11758	SMP.Sampler_7_ScaleF	analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 7 digital
11759	SMP.Sampler_7_PulseR	output
11760	SMP.Sampler_AI_Point8	Sampler - AI Point to be used for Sampler 8
11761	SMP.Sampler_List_Point8	Sampler - List 29 Point to be used for Sampler 8
11762	SMP.Sampler_8_Mode	Sampler - Output Mode be used for Sampler 8
		Sampler - Scale Factor to be used for Sampler 8
11763	SMP.Sampler_8_ScaleF	analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 8 digital
11764	SMP.Sampler_8_PulseR	output
11765	SMP.Sampler_AI_Point9	Sampler - AI Point to be used for Sampler 9
11766	SMP.Sampler_List_Point9	Sampler - List 29 Point to be used for Sampler 9
11767	SMP.Sampler_9_Mode	Sampler - Output Mode be used for Sampler 9
		Sampler - Scale Factor to be used for Sampler 9
11768	SMP.Sampler_9_ScaleF	analog output
		Sampler - Pulse Factor (1 pulse per Engineering
11769	SMP.Sampler_9_PulseR	Unit of Input) to be used for Sampler 9 digital output
11770	SMP.Sampler_AI_Point10	Sampler - AI Point to be used for Sampler 10
11771	SMP.Sampler_List_Point10	Sampler - List 29 Point to be used for Sampler 10
11772	SMP.Sampler_10_Mode	Sampler - Output Mode be used for Sampler 10
		Sampler - Scale Factor to be used for Sampler
11773	SMP.Sampler_10_ScaleF	10 analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 10 digital
11774	SMP.Sampler_10_PulseR	output
11775	SMP.Sampler_AI_Point11	Sampler - AI Point to be used for Sampler 11
11776	SMP.Sampler_List_Point11	Sampler - List 29 Point to be used for Sampler 11
11777	SMP.Sampler_11_Mode	Sampler - Output Mode be used for Sampler 11
		Sampler - Scale Factor to be used for Sampler
11778	SMP.Sampler_11_ScaleF	11 analog output
		Sampler - Pulse Factor (1 pulse per Engineering Unit of Input) to be used for Sampler 11 digital
11779	SMP.Sampler_11_PulseR	output
11780	SMP.Sampler_AI_Point12	Sampler - AI Point to be used for Sampler 12
11781	SMP.Sampler_List_Point12	Sampler - List 29 Point to be used for Sampler 12
11782	SMP.Sampler_12_Mode	Sampler - Output Mode be used for Sampler 12
		Sampler - Scale Factor to be used for Sampler
11783	SMP.Sampler_12_ScaleF	12 analog output
		Sampler - Pulse Factor (1 pulse per Engineering
11784	SMP.Sampler_12_PulseR	Unit of Input) to be used for Sampler 12 digital output
		General Purpose PID - Manual Setpoint for GP
11785	GPPID.PID1_ManSetpt	PID Loop 1
44700		General Purpose PID - Process Variable selected
11786	GPPID.PID1_PV_SEL	for GP PID Loop 1
11787	GPPID.PID_Loop_1.PV_SPAN	General Purpose PID - Process Variable Span

Reg#	Variable	Description
U		for GP PID Loop 1
11788	GPPID.PID_Loop_1.SP_RAMPRATE	General Purpose PID - Setpoint ramprate for GP PID Loop 1
11789	GPPID.PID_Loop_1.SETPT	General Purpose PID - Setpoint for GP PID Loop 1
11790	GPPID.PID_Loop_1.DB	General Purpose PID - Deadband for GP PID Loop 1
11791	GPPID.PID_Loop_1.INTGRL	General Purpose PID - Integral for GP PID Loop 1
11792	GPPID.PID_Loop_1.DERIV	General Purpose PID - Derivative for GP PID Loop 1
11793	GPPID.PID_Loop_1.GAIN	General Purpose PID - Proportional Gain for GP PID Loop 1
11794	GPPID.PID2_ManSetpt	General Purpose PID - Manual Setpoint for GP PID Loop 2
11795	GPPID.PID2_PV_SEL	General Purpose PID - Process Variable selected for GP PID Loop 2
11796	GPPID.PID_Loop_2.PV_SPAN	General Purpose PID - Process Variable Span for GP PID Loop 2
11797	GPPID.PID_Loop_2.SP_RAMPRATE	General Purpose PID - Setpoint ramprate for GP PID Loop 2
11798	GPPID.PID_Loop_2.SETPT	General Purpose PID - Setpoint for GP PID Loop 2
11799	GPPID.PID_Loop_2.DB	General Purpose PID - Deadband for GP PID Loop 2
11800	GPPID.PID_Loop_2.INTGRL	General Purpose PID - Integral for GP PID Loop 2
11801	GPPID.PID_Loop_2.DERIV	General Purpose PID - Derivative for GP PID Loop 2
11802	GPPID.PID_Loop_2.GAIN	General Purpose PID - Proportional Gain for GP PID Loop 2
11803	GPPID.PID3_ManSetpt	General Purpose PID - Manual Setpoint for GP PID Loop 3
11804	GPPID.PID3_PV_SEL	General Purpose PID - Process Variable selected for GP PID Loop 3
11805	GPPID.PID_Loop_3.PV_SPAN	General Purpose PID - Process Variable Span for GP PID Loop 3
11806	GPPID.PID_Loop_3.SP_RAMPRATE	General Purpose PID - Setpoint ramprate for GP PID Loop 3
11807	GPPID.PID_Loop_3.SETPT	General Purpose PID - Setpoint for GP PID Loop 3
11808	GPPID.PID_Loop_3.DB	General Purpose PID - Deadband for GP PID Loop 3
11809	GPPID.PID_Loop_3.INTGRL	General Purpose PID - Integral for GP PID Loop 3
11810	GPPID.PID_Loop_3.DERIV	General Purpose PID - Derivative for GP PID Loop 3
11811	GPPID.PID_Loop_3.GAIN	General Purpose PID - Proportional Gain for GP PID Loop 3
11812	UFM.UFM_1_AvgFlowVel	Ultrasonic Meter 1 - Average Flow Velocity
11813	UFM.UFM_1_FlowVel1	Ultrasonic Meter 1 - Flow Velocity path 1
11814	UFM.UFM_1_FlowVel2	Ultrasonic Meter 1 - Flow Velocity path 2
11815	UFM.UFM_1_FlowVel3	Ultrasonic Meter 1 - Flow Velocity path 3
11816	UFM.UFM_1_FlowVel4	Ultrasonic Meter 1 - Flow Velocity path 4
11817	UFM.UFM_1_FlowVel5	Ultrasonic Meter 1 - Flow Velocity path 5
11818	UFM.UFM_2_AvgFlowVel	Ultrasonic Meter 2 - Average Flow Velocity
11819	UFM.UFM_2_FlowVel1	Ultrasonic Meter 2 - Flow Velocity path 1
11820	UFM.UFM_2_FlowVel2	Ultrasonic Meter 2 - Flow Velocity path 2
11821	UFM.UFM_2_FlowVel3	Ultrasonic Meter 2 - Flow Velocity path 3

Reg#	Variable	Description
11822	UFM.UFM_2_FlowVel4	Ultrasonic Meter 2 - Flow Velocity path 4
11823	UFM.UFM_2_FlowVel5	Ultrasonic Meter 2 - Flow Velocity path 5
11824	UFM.UFM_3_AvgFlowVel	Ultrasonic Meter 3 - Average Flow Velocity
11825	UFM.UFM_3_FlowVel1	Ultrasonic Meter 3 - Flow Velocity path 1
11826	UFM.UFM_3_FlowVel2	Ultrasonic Meter 3 - Flow Velocity path 2
11827	UFM.UFM_3_FlowVel3	Ultrasonic Meter 3 - Flow Velocity path 3
11828	UFM.UFM_3_FlowVel4	Ultrasonic Meter 3 - Flow Velocity path 4
11829	UFM.UFM_3_FlowVel5	Ultrasonic Meter 3 - Flow Velocity path 5
11830	UFM.UFM_4_AvgFlowVel	Ultrasonic Meter 4 - Average Flow Velocity
11831	UFM.UFM_4_FlowVel1	Ultrasonic Meter 4 - Flow Velocity path 1
11832	UFM.UFM_4_FlowVel2	Ultrasonic Meter 4 - Flow Velocity path 2
11833	UFM.UFM_4_FlowVel3	Ultrasonic Meter 4 - Flow Velocity path 3
11834	UFM.UFM_4_FlowVel4	Ultrasonic Meter 4 - Flow Velocity path 4
11835	UFM.UFM_4_FlowVel5	Ultrasonic Meter 4 - Flow Velocity path 5
11836	UFM.UFM_5_AvgFlowVel	Ultrasonic Meter 5 - Average Flow Velocity
11837	UFM.UFM_5_FlowVel1	Ultrasonic Meter 5 - Flow Velocity path 1
11838	UFM.UFM_5_FlowVel2	Ultrasonic Meter 5 - Flow Velocity path 2
11839	UFM.UFM_5_FlowVel3	Ultrasonic Meter 5 - Flow Velocity path 3
11840	UFM.UFM_5_FlowVel4	Ultrasonic Meter 5 - Flow Velocity path 4
11841	UFM.UFM_5_FlowVel5	Ultrasonic Meter 5 - Flow Velocity path 5
11842	UFM.UFM_6_AvgFlowVel	Ultrasonic Meter 6 - Average Flow Velocity
11843	UFM.UFM_6_FlowVel1	Ultrasonic Meter 6 - Flow Velocity path 1
11844	UFM.UFM_6_FlowVel2	Ultrasonic Meter 6 - Flow Velocity path 2
11845	UFM.UFM_6_FlowVel3	Ultrasonic Meter 6 - Flow Velocity path 3
11846	UFM.UFM_6_FlowVel4	Ultrasonic Meter 6 - Flow Velocity path 4
11847	UFM.UFM_6_FlowVel5	Ultrasonic Meter 6 - Flow Velocity path 5
11848	UFM.UFM_7_AvgFlowVel	Ultrasonic Meter 7 - Average Flow Velocity
11849	UFM.UFM_7_FlowVel1	Ultrasonic Meter 7 - Flow Velocity path 1
11850	UFM.UFM_7_FlowVel2	Ultrasonic Meter 7 - Flow Velocity path 2
11851	UFM.UFM_7_FlowVel3	Ultrasonic Meter 7 - Flow Velocity path 3
11852	UFM.UFM_7_FlowVel4	Ultrasonic Meter 7 - Flow Velocity path 4
11853	UFM.UFM_7_FlowVel5	Ultrasonic Meter 7 - Flow Velocity path 5
11854	UFM.UFM_8_AvgFlowVel	Ultrasonic Meter 8 - Average Flow Velocity
11855	UFM.UFM_8_FlowVel1	Ultrasonic Meter 8 - Flow Velocity path 1
11856	UFM.UFM_8_FlowVel2	Ultrasonic Meter 8 - Flow Velocity path 2
11857	UFM.UFM_8_FlowVel3	Ultrasonic Meter 8 - Flow Velocity path 3
11858	UFM.UFM_8_FlowVel4	Ultrasonic Meter 8 - Flow Velocity path 4
11859	UFM.UFM_8_FlowVel5	Ultrasonic Meter 8 - Flow Velocity path 5
11860	IO_1.HWAIs_1.HWAI_100	HWAI, Reserved
11861	IO_1.HWAIs_1.HWAI_101	HWAI, Shared DP 1
11862	IO_1.HWAIs_1.HWAI_102	HWAI, Shared DP 2
11863	IO_1.HWAIs_1.HWAI_103	HWAI, Shared DP 3
11864	IO_1.HWAIs_1.HWAI_104	HWAI, Shared DP 4
11865	IO_1.HWAIs_1.HWAI_105	HWAI, Shared DP 5
11866	IO_1.HWAIs_1.HWAI_106	HWAI, Shared DP 6
11867	IO_1.HWAIs_1.HWAI_107	HWAI, Shared SP 1
11868	IO_1.HWAIs_1.HWAI_108	HWAI, Shared SP 2
11869	IO_1.HWAIs_1.HWAI_109	HWAI, Shared SP 3
11870	IO_1.HWAIs_1.HWAI_110	HWAI, Shared SP 4
11871	IO_1.HWAIs_1.HWAI_111	HWAI, Shared SP 5

Dow#	Veriekle	Description
Reg#		
11872	IO_1.HWAIs_1.HWAI_112	HWAI, Shared SP 6
11873	IO_1.HWAIs_1.HWAI_113	HWAI, Shared FTemp 1
11874	IO_1.HWAIs_1.HWAI_114	HWAI, Shared FTemp 2
11875	IO_1.HWAIs_1.HWAI_115	HWAI, Shared FTemp 3
11876	IO_1.HWAIs_1.HWAI_116	HWAI, Shared FTemp 4
11877	IO_1.HWAIs_1.HWAI_117	HWAI, Shared FTemp 5
11878	IO_1.HWAIs_1.HWAI_118	HWAI, Shared FTemp 6
11879	IO_1.HWAIs_1.HWAI_119	HWAI, Reserved
11880	IO_1.HWAIs_1.HWAI_120	HWAI, Reserved
11881	IO_1.HWAIs_1.HWAI_121	HWAI, Stacked DP 1 Lo
11882	IO_1.HWAIs_1.HWAI_122	HWAI, Stacked DP 1 Hi
11883	IO_1.HWAIs_1.HWAI_123	HWAI, Stacked DP 2 Lo
11884	IO_1.HWAIs_1.HWAI_124	HWAI, Stacked DP 2 Hi
11885	IO_1.HWAIs_1.HWAI_125	HWAI, Stacked DP 3 Lo
11886	IO_1.HWAIs_1.HWAI_126	HWAI, Stacked DP 3 Hi
11887	IO_1.HWAIs_1.HWAI_127	HWAI, Stacked DP 4 Lo
11888	IO_1.HWAIs_1.HWAI_128	HWAI, Stacked DP 4 Hi
11889	IO_1.HWAIs_1.HWAI_129	HWAI, Stacked DP 5 Lo
11890	IO_1.HWAIs_1.HWAI_130	HWAI, Stacked DP 5 Hi
11891	IO_1.HWAIs_1.HWAI_131	HWAI, Stacked DP 6 Lo
11892	IO_1.HWAIs_1.HWAI_132	HWAI, Stacked DP 6 Hi
11893	IO_1.HWAIs_1.HWAI_133	HWAI, Stacked DP 7 Lo
11894	IO_1.HWAIs_1.HWAI_134	HWAI, Stacked DP 7 Hi
11895	IO_1.HWAIs_1.HWAI_135	HWAI, Stacked DP 8 Lo
11896	IO_1.HWAIs_1.HWAI_136	HWAI, Stacked DP 8 Hi
11897	IO_1.HWAIs_1.HWAI_137	HWAI, Stacked DP 9 Lo
11898	IO_1.HWAIs_1.HWAI_138	HWAI, Stacked DP 9 Hi
11899	IO_1.HWAIs_1.HWAI_139	HWAI, Stacked DP 10 Lo
11900	IO_1.HWAIs_1.HWAI_140	HWAI, Stacked DP 10 Hi
11901	IO_1.HWAIs_1.HWAI_141	HWAI, Stacked DP 11 Lo
11902	IO_1.HWAIs_1.HWAI_142	HWAI, Stacked DP 11 Hi
11903	IO_1.HWAIs_1.HWAI_143	HWAI, Stacked DP 12 Lo
11904	IO_1.HWAIs_1.HWAI_144	HWAI, Stacked DP 12 Hi
11905	IO_1.HWAIs_1.HWAI_145	HWAI, Stacked SP 1 Lo
11906	IO_1.HWAIs_1.HWAI_146	HWAI, Stacked SP 1 Hi
11907	IO_1.HWAIs_1.HWAI_147	HWAI, Stacked SP 2 Lo
11908	IO_1.HWAIs_1.HWAI_148	HWAI, Stacked SP 2 Hi
11909	IO_1.HWAIs_1.HWAI_149	HWAI, Stacked SP 3 Lo
11910	IO_1.HWAIs_1.HWAI_150	HWAI, Stacked SP 3 Hi
11911	IO_1.HWAIs_1.HWAI_151	HWAI, Stacked SP 4 Lo
11912	IO_1.HWAIs_1.HWAI_152	HWAI, Stacked SP 4 Hi
11913	IO_1.HWAIs_1.HWAI_153	HWAI, Stacked SP 5 Lo
11914	IO_1.HWAIs_1.HWAI_154	HWAI, Stacked SP 5 Hi
11915	IO_1.HWAIs_1.HWAI_155	HWAI, Stacked SP 6 Lo
11916	IO_1.HWAIs_1.HWAI_156	HWAI, Stacked SP 6 Hi
11917	IO_1.HWAIs_1.HWAI_157	HWAI, Stacked SP 7 Lo
11918	IO_1.HWAIs_1.HWAI_158	HWAI, Stacked SP 7 Hi
11919	IO_1.HWAIs_1.HWAI_159	HWAI, Stacked SP 8 Lo
11920	IO_1.HWAIs_1.HWAI_160	HWAI, Stacked SP 8 Hi
11921	IO_1.HWAIs_1.HWAI_161	HWAI, Stacked SP 9 Lo

Reg# Variable Description 11922 IO_1.HWAIs_1.HWAI_162 HWAI, Stacked SP 9 Hi 11923 IO_1.HWAIs_1.HWAI_163 HWAI, Stacked SP 10 Lo 11924 IO_1.HWAIs_1.HWAI_164 HWAI, Stacked SP 10 Hi 11925 IO_1.HWAIs_1.HWAI_165 HWAI, Stacked SP 11 Lo 11926 IO_1.HWAIs_1.HWAI_166 HWAI, Stacked SP 11 Hi 11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi 11929 IO_1.HWAIs_1.HWAI_169 HWAI, Stacked FTemp 1 Lo	
11923 IO_1.HWAIs_1.HWAI_163 HWAI, Stacked SP 10 Lo 11924 IO_1.HWAIs_1.HWAI_164 HWAI, Stacked SP 10 Hi 11925 IO_1.HWAIs_1.HWAI_165 HWAI, Stacked SP 11 Lo 11926 IO_1.HWAIs_1.HWAI_166 HWAI, Stacked SP 11 Hi 11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11924 IO_1.HWAIs_1.HWAI_164 HWAI, Stacked SP 10 Hi 11925 IO_1.HWAIs_1.HWAI_165 HWAI, Stacked SP 11 Lo 11926 IO_1.HWAIs_1.HWAI_166 HWAI, Stacked SP 11 Hi 11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11925 IO_1.HWAIs_1.HWAI_165 HWAI, Stacked SP 11 Lo 11926 IO_1.HWAIs_1.HWAI_166 HWAI, Stacked SP 11 Hi 11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11926 IO_1.HWAIs_1.HWAI_166 HWAI, Stacked SP 11 Hi 11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11927 IO_1.HWAIs_1.HWAI_167 HWAI, Stacked SP 12 Lo 11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11928 IO_1.HWAIs_1.HWAI_168 HWAI, Stacked SP 12 Hi	
11930IO_1.HWAIs_1.HWAI_170HWAI, Stacked FTemp 1 Hi	
11931 IO_1.HWAIs_1.HWAI_171 HWAI, Stacked FTemp 2 Lo	
11932 IO_1.HWAIs_1.HWAI_172 HWAI, Stacked FTemp 2 Hi	
11933 IO_1.HWAIs_1.HWAI_173	
11934 IO_1.HWAIs_1.HWAI_174 HWAI, Stacked FTemp 3 Hi	
11935IO_1.HWAIs_1.HWAI_175HWAI, Stacked FTemp 4 Lo	
11936IO_1.HWAIs_1.HWAI_176HWAI, Stacked FTemp 4 Hi	
11937 IO_1.HWAIs_1.HWAI_177	
11938IO_1.HWAIs_1.HWAI_178HWAI, Stacked FTemp 5 Hi	
11939IO_1.HWAIs_1.HWAI_179HWAI, Stacked FTemp 6 Lo	
11940IO_1.HWAIs_1.HWAI_180HWAI, Stacked FTemp 6 Hi	
11941 IO_1.HWAIs_1.HWAI_181 HWAI, Stacked FTemp 7 Lo	
11942 IO_1.HWAIs_1.HWAI_182 HWAI, Stacked FTemp 7 Hi	
11943 IO_1.HWAIs_1.HWAI_183 HWAI, Stacked FTemp 8 Lo	
11944 IO_1.HWAIs_1.HWAI_184 HWAI, Stacked FTemp 8 Hi	
11945IO_1.HWAIs_1.HWAI_185HWAI, Stacked FTemp 9 Lo	
11946IO_1.HWAIs_1.HWAI_186HWAI, Stacked FTemp 9 Hi	
11947 IO_1.HWAIs_1.HWAI_187 HWAI, Stacked FTemp 10 Lo	
11948 IO_1.HWAIs_1.HWAI_188 HWAI, Stacked FTemp 10 Hi	
11949 IO_1.HWAIs_1.HWAI_189 HWAI, Stacked FTemp 11 Lo	
11950 IO_1.HWAIs_1.HWAI_190 HWAI, Stacked FTemp 11 Hi	
11951 IO_1.HWAIs_1.HWAI_191 HWAI, Stacked FTemp 12 Lo	
11952 IO_1.HWAIs_1.HWAI_192 HWAI, Stacked FTemp 12 Hi	
11953 IO_1.HWAIs_1.HWAI_193 HWAI, Shared Inlet 1	
11954 IO_1.HWAIs_1.HWAI_194 HWAI, Shared Inlet 2	
11955 IO_1.HWAIs_1.HWAI_195 HWAI, Shared Inlet 3	
11956 IO_1.HWAIs_1.HWAI_196 HWAI, Shared Outlet 1	
11957 IO_1.HWAIs_1.HWAI_197 HWAI, Shared Outlet 2	
11958 IO_1.HWAIs_1.HWAI_198 HWAI, Shared Outlet 3	
11959 IO_1.HWAIs_1.HWAI_215 HWAI, S1 Spec Grav	
11960 IO_1.HWAIs_1.HWAI_216 HWAI, S1 BTU	
11961 IO_1.HWAIs_1.HWAI_217 HWAI, S1 N2	
11962 IO_1.HWAIs_1.HWAI_218 HWAI, S1 CO2	
11963 IO_1.HWAIs_1.HWAI_219 HWAI, S2 Spec Grav	
11964 IO_1.HWAIs_1.HWAI_220 HWAI, S2 BTU	
11965 IO_1.HWAIs_1.HWAI_221 HWAI, S2 N2	
11966 IO_1.HWAIs_1.HWAI_222 HWAI, S2 CO2	
11967 IO_1.HWAIs_1.HWAI_223 HWAI, S3 Spec Grav	
11968 IO_1.HWAIs_1.HWAI_224 HWAI, S3 BTU	
11969 IO_1.HWAIs_1.HWAI_225 HWAI, S3 N2	
11970 IO_1.HWAIs_1.HWAI_226 HWAI, S3 CO2	
11971 IO_1.HWAIs_1.HWAI_227 HWAI, S4 Spec Grav	

Reg#	Variable	Description
11972	IO_1.HWAIs_1.HWAI_228	HWAI, S4 BTU
11972	IO_1.HWAIs_1.HWAI_229	HWAI, S4 N2
11974	IO_1.HWAIs_1.HWAI_220	HWAI, S4 CO2
11975	IO_1.HWAIs_1.HWAI_231	HWAI, S5 Spec Grav
11976		
11970	IO_1.HWAIs_1.HWAI_232 IO_1.HWAIs_1.HWAI_233	HWAI, S5 BTU HWAI, S5 N2
11978	IO_1.HWAIs_1.HWAI_234	HWAI, S5 CO2
11979	IO_1.HWAIs_1.HWAI_235	HWAI, S5 CO2 HWAI, S6 Spec Grav
11980	IO_1.HWAIs_1.HWAI_236	HWAI, S6 BTU
11981	IO_1.HWAIs_1.HWAI_237	HWAI, S6 N2
11982	IO_1.HWAIs_1.HWAI_238	HWAI, S6 CO2
11983	IO_1.HWAIs_1.HWAI_239	HWAI, S7 Spec Grav
11984	IO_1.HWAIs_1.HWAI_240	HWAI, S7 BTU
11985	IO_1.HWAIs_1.HWAI_241	HWAI, S7 N2
11986	IO_1.HWAIs_1.HWAI_242	HWAI, S7 CO2
11987	IO_1.HWAIs_1.HWAI_243	HWAI, S7 CO2 HWAI, S8 Spec Grav
11988	IO_1.HWAIs_1.HWAI_244	HWAI, S8 BTU
11989	IO_1.HWAIs_1.HWAI_245	HWAI, S8 N2
11990	IO_1.HWAIs_1.HWAI_246	HWAI, S8 CO2
11991	IO_1.HWAIs_1.HWAI_247	HWAI, S9 Spec Grav
11992	IO_1.HWAIs_1.HWAI_248	HWAI, S9 BTU
11993	IO_1.HWAIs_1.HWAI_249	HWAI, S9 N2
11994	IO_1.HWAIs_1.HWAI_250	HWAI, S9 CO2
11995	IO_1.HWAIs_1.HWAI_251	HWAI, S10 Spec Grav
11996	IO_1.HWAIs_1.HWAI_252	HWAI, S10 BTU
11997	IO_1.HWAIs_1.HWAI_253	HWAI, S10 N2
11998	IO_1.HWAIs_1.HWAI_254	HWAI, S10 CO2
11999	IO_1.HWAIs_1.HWAI_255	HWAI, S11 Spec Grav
12000	IO_1.HWAIs_1.HWAI_256	HWAI, S11 BTU
12001	IO_1.HWAIs_1.HWAI_257	HWAI, S11 N2
12002	IO_1.HWAIs_1.HWAI_258	HWAI, S11 CO2
12003	IO_1.HWAIs_1.HWAI_259	HWAI, S12 Spec Grav
12004	IO_1.HWAIs_1.HWAI_260	HWAI, S12 BTU
12005	IO_1.HWAIs_1.HWAI_261	HWAI, S12 N2
12006	IO_1.HWAIs_1.HWAI_262	HWAI, S12 CO2
12007	IO_1.HWAIs_1.HWAI_263	HWAI, Stream 1 H2O VC Sensor 1
12008	IO_1.HWAIs_1.HWAI_264	HWAI, Stream 1 H2O VC Sensor 2
12009	IO_1.HWAIs_1.HWAI_265	HWAI, Stream 1 H2O VC Sensor 3
12010	IO_1.HWAIs_1.HWAI_266	HWAI, Stream 1 H2O VC Sensor 4
12011	IO_1.HWAIs_1.HWAI_267	HWAI, Stream 1 H2O VC Sensor 5
12012	IO_1.HWAIs_1.HWAI_268	HWAI, Stream 1 H2O VC Sensor 6
12013	IO_1.HWAIs_1.HWAI_269	HWAI, Stream 2 H2O VC Sensor 1
12014	IO_1.HWAIs_1.HWAI_270	HWAI, Stream 2 H2O VC Sensor 2
12015	IO_1.HWAIs_1.HWAI_271	HWAI, Stream 2 H2O VC Sensor 3
12016	IO_1.HWAIs_1.HWAI_272	HWAI, Stream 2 H2O VC Sensor 4
12017	IO_1.HWAIs_1.HWAI_273	HWAI, Stream 2 H2O VC Sensor 5
12018	IO_1.HWAIs_1.HWAI_274	HWAI, Stream 2 H2O VC Sensor 6
12019	IO_1.HWAIs_1.HWAI_275	HWAI, Stream 3 H2O VC Sensor 1
12020	IO_1.HWAIs_1.HWAI_276	HWAI, Stream 3 H2O VC Sensor 2
12021	IO_1.HWAIs_1.HWAI_277	HWAI, Stream 3 H2O VC Sensor 3

Reg#	Variable	Description
12022	IO_1.HWAIs_1.HWAI_278	HWAI, Stream 3 H2O VC Sensor 4
12023	IO_1.HWAIs_1.HWAI_279	HWAI, Stream 3 H2O VC Sensor 5
12024	IO_1.HWAIs_1.HWAI_280	HWAI, Stream 3 H2O VC Sensor 6
12024	IO_1.HWAIs_1.HWAI_281	HWAI, Stream 4 H2O VC Sensor 1
12026	IO_1.HWAIs_1.HWAI_282	HWAI, Stream 4 H2O VC Sensor 2
12020	IO_1.HWAIs_1.HWAI_283	HWAI, Stream 4 H2O VC Sensor 3
12027		
12020	IO_1.HWAIs_1.HWAI_284 IO_1.HWAIs_1.HWAI_285	HWAI, Stream 4 H2O VC Sensor 4 HWAI, Stream 4 H2O VC Sensor 5
12029		
	IO_1.HWAIs_1.HWAI_286	HWAI, Stream 4 H2O VC Sensor 6
12031	IO_1.HWAIs_1.HWAI_287	HWAI, Stream 5 H2O VC Sensor 1
12032	IO_1.HWAIs_1.HWAI_288	HWAI, Stream 5 H2O VC Sensor 2
12033	IO_1.HWAIs_1.HWAI_289	HWAI, Stream 5 H2O VC Sensor 3
12034	IO_1.HWAIs_1.HWAI_290	HWAI, Stream 5 H2O VC Sensor 4
12035	IO_1.HWAIs_1.HWAI_291	HWAI, Stream 5 H2O VC Sensor 5
12036	IO_1.HWAIs_1.HWAI_292	HWAI, Stream 5 H2O VC Sensor 6
12037	IO_1.HWAIs_1.HWAI_293	HWAI, Stream 6 H2O VC Sensor 1
12038	IO_1.HWAIs_1.HWAI_294	HWAI, Stream 6 H2O VC Sensor 2
12039	IO_1.HWAIs_1.HWAI_295	HWAI, Stream 6 H2O VC Sensor 3
12040	IO_1.HWAIs_1.HWAI_296	HWAI, Stream 6 H2O VC Sensor 4
12041	IO_1.HWAIs_1.HWAI_297	HWAI, Stream 6 H2O VC Sensor 5
12042	IO_1.HWAIs_1.HWAI_298	HWAI, Stream 6 H2O VC Sensor 6
12043	IO_1.HWAIs_1.HWAI_299	HWAI, Stream 7 H2O VC Sensor 1
12044	IO_1.HWAIs_1.HWAI_300	HWAI, Stream 7 H2O VC Sensor 2
12045	IO_1.HWAIs_1.HWAI_301	HWAI, Stream 7 H2O VC Sensor 3
12046	IO_1.HWAIs_1.HWAI_302	HWAI, Stream 7 H2O VC Sensor 4
12047	IO_1.HWAIs_1.HWAI_303	HWAI, Stream 7 H2O VC Sensor 5
12048	IO_1.HWAIs_1.HWAI_304	HWAI, Stream 7 H2O VC Sensor 6
12049	IO_1.HWAIs_1.HWAI_305	HWAI, Stream 8 H2O VC Sensor 1
12050	IO_1.HWAIs_1.HWAI_306	HWAI, Stream 8 H2O VC Sensor 2
12051	IO_1.HWAIs_1.HWAI_307	HWAI, Stream 8 H2O VC Sensor 3
12052	IO_1.HWAIs_1.HWAI_308	HWAI, Stream 8 H2O VC Sensor 4
12053	IO_1.HWAIs_1.HWAI_309	HWAI, Stream 8 H2O VC Sensor 5
12054	IO_1.HWAIs_1.HWAI_310	HWAI, Stream 8 H2O VC Sensor 6
12055	IO_1.HWAIs_1.HWAI_311	HWAI, Stream 9 H2O VC Sensor 1
12056	IO_1.HWAIs_1.HWAI_312	HWAI, Stream 9 H2O VC Sensor 2
12057	IO_1.HWAIs_1.HWAI_313	HWAI, Stream 9 H2O VC Sensor 3
12058	IO_1.HWAIs_1.HWAI_314	HWAI, Stream 9 H2O VC Sensor 4
12059	IO_1.HWAIs_1.HWAI_315	HWAI, Stream 9 H2O VC Sensor 5
12060	IO_1.HWAIs_1.HWAI_316	HWAI, Stream 9 H2O VC Sensor 6
12061	IO_1.HWAIs_1.HWAI_317	HWAI, Stream 10 H2O VC Sensor 1
12062	IO 1.HWAIS 1.HWAI 318	HWAI, Stream 10 H2O VC Sensor 2
12063	IO_1.HWAIs_1.HWAI_319	HWAI, Stream 10 H2O VC Sensor 3
12064	IO_1.HWAIs_1.HWAI_320	HWAI, Stream 10 H2O VC Sensor 4
12065	IO_1.HWAIs_1.HWAI_321	HWAI, Stream 10 H2O VC Sensor 5
12066	IO_1.HWAIs_1.HWAI_322	HWAI, Stream 10 H2O VC Sensor 6
12000	IO_1.HWAIs_1.HWAI_323	HWAI, Stream 11 H2O VC Sensor 1
12067	IO_1.HWAIs_1.HWAI_324	HWAI, Stream 11 H2O VC Sensor 2
12069	IO_1.HWAIs_1.HWAI_325	HWAI, Stream 11 H2O VC Sensor 3
12070	IO_1.HWAIs_1.HWAI_326	HWAI, Stream 11 H2O VC Sensor 4
12071	IO_1.HWAIs_1.HWAI_327	HWAI, Stream 11 H2O VC Sensor 5

Reg#	Variable	Description
12072	IO_1.HWAIs_1.HWAI_328	HWAI, Stream 11 H2O VC Sensor 6
12073	IO_1.HWAIs_1.HWAI_329	HWAI, Stream 12 H2O VC Sensor 1
12074	IO 1.HWAIS 1.HWAI 330	HWAI, Stream 12 H2O VC Sensor 2
12075	IO_1.HWAIs_1.HWAI_331	HWAI, Stream 12 H2O VC Sensor 3
12076	IO_1.HWAIs_1.HWAI_332	HWAI, Stream 12 H2O VC Sensor 4
12077	IO_1.HWAIs_1.HWAI_333	HWAI, Stream 12 H2O VC Sensor 5
12078	IO_1.HWAIs_1.HWAI_334	HWAI, Stream 12 H2O VC Sensor 6
12079	IO_1.HWAIs_1.HWAI_335	HWAI, CV 13 Position
12070	IO_1.HWAIs_1.HWAI_336	HWAI, CV 14 Position
12000	IO_1.HWAIs_1.HWAI_337	HWAI, CV 15 Position
12001	IO_1.HWAIs_1.HWAI_338	HWAI, CV 16 Position
12082	IO_1.HWAIs_1.HWAI_339	HWAI, CV 17 Position
12003	IO_1.HWAIs_1.HWAI_340	HWAI, CV 18 Position
12084	PG_GC.GC_1.GC_1.S1_BTUSAT_MIN	GC Dataset 1 Minimum Limit for Saturated BTU
12085	PG_GC.GC_1.GC_1.S1_BTUSAT_MAX	GC Dataset 1 Maximum Limit for Saturated BTU
12080	PG_GC.GC_1.GC_2.S1_BTUSAT_MIX	GC Dataset 2 Minimum Limit for Saturated BTU
12087	PG_GC.GC_1.GC_2.S1_BTUSAT_MAX	GC Dataset 2 Maximum Limit for Saturated BTU
12080	PG_GC.GC_1.GC_3.S1_BTUSAT_MIN	GC Dataset 3 Minimum Limit for Saturated BTU
12089	PG_GC.GC_1.GC_3.S1_BTUSAT_MAX	GC Dataset 3 Maximum Limit for Saturated BTU
12090	PG_GC.GC_1.GC_4.S1_BTUSAT_MIN	GC Dataset 4 Minimum Limit for Saturated BTU
12091	PG_GC.GC_1.GC_4.S1_BTUSAT_MAX	GC Dataset 4 Maximum Limit for Saturated BTU
12092	PG_GC.GC_1.GC_5.S1_BTUSAT_MIN	GC Dataset 5 Minimum Limit for Saturated BTU
12093	PG_GC.GC_1.GC_5.S1_BTUSAT_MAX	GC Dataset 5 Maximum Limit for Saturated BTU
12094	PG_GC.GC_1.GC_6.S1_BTUSAT_MIN	GC Dataset 6 Minimum Limit for Saturated BTU
12095	PG_GC.GC_1.GC_6.S1_BTUSAT_MAX	GC Dataset 6 Maximum Limit for Saturated BTU
12090	PG_GC.GC_1.GC_7.S1_BTUSAT_MIN	GC Dataset 7 Minimum Limit for Saturated BTU
12098	PG_GC.GC_1.GC_7.S1_BTUSAT_MAX	GC Dataset 7 Maximum Limit for Saturated BTU
12090	PG_GC.GC_1.GC_8.S1_BTUSAT_MIN	GC Dataset 8 Minimum Limit for Saturated BTU
12000	PG_GC.GC_1.GC_8.S1_BTUSAT_MAX	GC Dataset 8 Maximum Limit for Saturated BTU
12100	MB.Spare	
12102	MB.Spare	
12102	MB.Spare	
12104	MB.Spare	
12105	MB.Spare	
12106	MB.Spare	
12107	MB.Spare	
12108	MB.Spare	
12109	pg_GC.GC_1.GC_1.S1_Compressability_Raw	GC Dataset 1 results of internal compressibility calculation
12110	pg_GC.GC_1.GC_1.S1_TotalUnNmMoleP_Raw	GC Dataset 1 total unnormalized Mole Percent of all components
12110	pg_GC.GC_1.GC_1.S1_TotalGPM_Raw	GC Dataset 1 grams per mole of gas
12111	Pg_00.00_1.00_1.01_10tal01 m_1taw	GC Dataset 2 results of internal compressibility
12112	pg_GC.GC_1.GC_2.S1_Compressability_Raw	calculation GC Dataset 2 total unnormalized Mole Percent of
12113	pg_GC.GC_1.GC_2.S1_TotalUnNmMoleP_Raw	all components
12114	pg_GC.GC_1.GC_2.S1_TotalGPM_Raw	GC Dataset 2 grams per mole of gas
12115	ng GC GC 1 GC 3 S1 Comproscipility Bow	GC Dataset 3 results of internal compressiblity calculation
	pg_GC.GC_1.GC_3.S1_Compressability_Raw	GC Dataset 3 total unnormalized Mole Percent of
12116	pg_GC.GC_1.GC_3.S1_TotalUnNmMoleP_Raw	all components
12117	pg_GC.GC_1.GC_3.S1_TotalGPM_Raw	GC Dataset 3 grams per mole of gas

Reg#	Variable	Description
j.		GC Dataset 4 results of internal compressiblity
12118	pg_GC.GC_1.GC_4.S1_Compressability_Raw	calculation
12119	pg_GC.GC_1.GC_4.S1_TotalUnNmMoleP_Raw	GC Dataset 4 total unnormalized Mole Percent of all components
12120	pg_GC.GC_1.GC_4.S1_TotalGPM_Raw	GC Dataset 4 grams per mole of gas
12120		GC Dataset 5 results of internal compressiblity
12121	pg_GC.GC_1.GC_5.S1_Compressability_Raw	calculation
12122	pg_GC.GC_1.GC_5.S1_TotalUnNmMoleP_Raw	GC Dataset 5 total unnormalized Mole Percent of all components
12123	pg_GC.GC_1.GC_5.S1_TotalGPM_Raw	GC Dataset 5 grams per mole of gas
		GC Dataset 6 results of internal compressiblity
12124	pg_GC.GC_1.GC_6.S1_Compressability_Raw	calculation
12125	pg_GC.GC_1.GC_6.S1_TotalUnNmMoleP_Raw	GC Dataset 6 total unnormalized Mole Percent of all components
12126	pg_GC.GC_1.GC_6.S1_TotalGPM_Raw	GC Dataset 6 grams per mole of gas
		GC Dataset 7 results of internal compressiblity
12127	pg_GC.GC_1.GC_7.S1_Compressability_Raw	calculation
12128	pg_GC.GC_1.GC_7.S1_TotalUnNmMoleP_Raw	GC Dataset 7 total unnormalized Mole Percent of
		all components
12129	pg_GC.GC_1.GC_7.S1_TotalGPM_Raw	GC Dataset 7 grams per mole of gas GC Dataset 8 results of internal compressiblity
12130	pg_GC.GC_1.GC_8.S1_Compressability_Raw	calculation
	<u></u>	GC Dataset 8 total unnormalized Mole Percent of
12131	pg_GC.GC_1.GC_8.S1_TotalUnNmMoleP_Raw	all components
12132	pg_GC.GC_1.GC_8.S1_TotalGPM_Raw	GC Dataset 8 grams per mole of gas
12133	MB.Spare	
12134	MB.Spare	
12135	MB.Spare	
12136	MB.Spare	
12137	MB.Spare	
12138	MB.Spare	
12139	MB.Spare	
12100	MB.Spare	
12140	MB.Spare	
12141	•	
	MB.Spare	
12143	MB.Spare	
12144	MB.Spare	GC Dataset 1 normalization factor for NC6, when
12145	pg_GC.GC_1.GC_1.S1_NC6_Fact	using a C6+ GC
10146	ng CC CC 1 CC 1 S1 NC7 East	GC Dataset 1 normalization factor for NC7, when
12146	pg_GC.GC_1.GC_1.S1_NC7_Fact	using a C6+ GC GC Dataset 1 normalization factor for NC8, when
12147	pg_GC.GC_1.GC_1.S1_NC8_Fact	using a C6+ GC
12148	pg_GC.GC_1.GC_1.S1_NC9_Fact	GC Dataset 1 normalization factor for NC9, when using a C6+ or C9+ GC
12149	pg_GC.GC_1.GC_1.S1_NC10_Fact	GC Dataset 1 normalization factor for NC10, when using a C6+ or C9+ GC
12150	pg_GC.GC_1.GC_2.S1_NC6_Fact	GC Dataset 2 normalization factor for NC6, when using a C6+ GC
12100		GC Dataset 2 normalization factor for NC7, when
12151	pg_GC.GC_1.GC_2.S1_NC7_Fact	using a C6+ GC
12152	pg_GC.GC_1.GC_2.S1_NC8_Fact	GC Dataset 2 normalization factor for NC8, when using a C6+ GC
12153	pg_GC.GC_1.GC_2.S1_NC9_Fact	GC Dataset 2 normalization factor for NC9, when using a C6+ or C9+ GC
12154	pg_GC.GC_1.GC_2.S1_NC10_Fact	GC Dataset 2 normalization factor for NC10, when using a C6+ or C9+ GC
		GC Dataset 3 normalization factor for NC6, when
12155	pg_GC.GC_1.GC_3.S1_NC6_Fact	Go Dataset 3 normalization ractor for NCO, when

Reg#	Variable	Description
		using a C6+ GC
		GC Dataset 3 normalization factor for NC7, when
12156	pg_GC.GC_1.GC_3.S1_NC7_Fact	using a C6+ GC
		GC Dataset 3 normalization factor for NC8, when
12157	pg_GC.GC_1.GC_3.S1_NC8_Fact	using a C6+ GC
		GC Dataset 3 normalization factor for NC9, when
12158	pg_GC.GC_1.GC_3.S1_NC9_Fact	using a C6+ or C9+ GC
40450		GC Dataset 3 normalization factor for NC10,
12159	pg_GC.GC_1.GC_3.S1_NC10_Fact	when using a C6+ or C9+ GC GC Dataset 4 normalization factor for NC6, when
12160	pg_GC.GC_1.GC_4.S1_NC6_Fact	using a C6+ GC
12100	pg_66.66_1.66_4.61_N66_1 act	GC Dataset 4 normalization factor for NC7, when
12161	pg_GC.GC_1.GC_4.S1_NC7_Fact	using a C6+ GC
		GC Dataset 4 normalization factor for NC8, when
12162	pg_GC.GC_1.GC_4.S1_NC8_Fact	using a C6+ GC
-		GC Dataset 4 normalization factor for NC9, when
12163	pg_GC.GC_1.GC_4.S1_NC9_Fact	using a C6+ or C9+ GC
		GC Dataset 4 normalization factor for NC10,
12164	pg_GC.GC_1.GC_4.S1_NC10_Fact	when using a C6+ or C9+ GC
		GC Dataset 5 normalization factor for NC6, when
12165	pg_GC.GC_1.GC_5.S1_NC6_Fact	using a C6+ GC
		GC Dataset 5 normalization factor for NC7, when
12166	pg_GC.GC_1.GC_5.S1_NC7_Fact	using a C6+ GC
		GC Dataset 5 normalization factor for NC8, when
12167	pg_GC.GC_1.GC_5.S1_NC8_Fact	using a C6+ GC
40400		GC Dataset 5 normalization factor for NC9, when
12168	pg_GC.GC_1.GC_5.S1_NC9_Fact	using a C6+ or C9+ GC
12169	pa CC CC 1 CC E S1 NC10 East	GC Dataset 5 normalization factor for NC10,
12109	pg_GC.GC_1.GC_5.S1_NC10_Fact	when using a C6+ or C9+ GC GC Dataset 6 normalization factor for NC6, when
12170	pg_GC.GC_1.GC_6.S1_NC6_Fact	using a C6+ GC
12170	_pg_00.00_1.00_0.01_N00_1 act	GC Dataset 6 normalization factor for NC7, when
12171	pg_GC.GC_1.GC_6.S1_NC7_Fact	using a C6+ GC
		GC Dataset 6 normalization factor for NC8, when
12172	pg_GC.GC_1.GC_6.S1_NC8_Fact	using a C6+ GC
		GC Dataset 6 normalization factor for NC9, when
12173	pg_GC.GC_1.GC_6.S1_NC9_Fact	using a C6+ or C9+ GC
		GC Dataset 6 normalization factor for NC10,
12174	pg_GC.GC_1.GC_6.S1_NC10_Fact	when using a C6+ or C9+ GC
		GC Dataset 7 normalization factor for NC6, when
12175	pg_GC.GC_1.GC_7.S1_NC6_Fact	using a C6+ GC
40470		GC Dataset 7 normalization factor for NC7, when
12176	pg_GC.GC_1.GC_7.S1_NC7_Fact	using a C6+ GC
10177		GC Dataset 7 normalization factor for NC8, when
12177	pg_GC.GC_1.GC_7.S1_NC8_Fact	using a C6+ GC GC Dataset 7 normalization factor for NC9, when
12178	pg_GC.GC_1.GC_7.S1_NC9_Fact	using a C6+ or C9+ GC
12170		GC Dataset 7 normalization factor for NC10,
12179	pg_GC.GC_1.GC_7.S1_NC10_Fact	when using a C6+ or C9+ GC
		GC Dataset 8 normalization factor for NC6, when
12180	pg_GC.GC_1.GC_8.S1_NC6_Fact	using a C6+ GC
		GC Dataset 8 normalization factor for NC7, when
12181	pg_GC.GC_1.GC_8.S1_NC7_Fact	using a C6+ GC
		GC Dataset 8 normalization factor for NC8, when
12182	pg_GC.GC_1.GC_8.S1_NC8_Fact	using a C6+ GC
		GC Dataset 8 normalization factor for NC9, when
12183	pg_GC.GC_1.GC_8.S1_NC9_Fact	using a C6+ or C9+ GC
		GC Dataset 8 normalization factor for NC10,
10101	pg_GC.GC_1.GC_8.S1_NC10_Fact	when using a C6+ or C9+ GC
12184		
12184 12185	MB.Spare	

Reg#	Variable	Description
12187	MB.Spare	
12188	MB.Spare	
12189	MB.Spare	
12190	MB.Spare	
12191	MB.Spare	
12192	MB.Spare	
12193	MB.Spare	
12194	MB.Spare	
12195	MB.Spare	
12196	MB.Spare	
12197	MB.Spare	
12198	MB.Spare	
12199	MB.Spare	
12200	MB.Spare	
12201	MB.Spare	
12202	MB.Spare	
12203	MB.Spare	
12204	MB.Spare	
12205	MB.FW_Version	Firmware version
		CWM12R Desginer Project Version Number - Format V.vvbb - where V = major version, vv =
12206	@GV.App_Version	minor version, and $bb = beta version$
12207	IO_1.HWAIs_1.HWRTD_1	
12208	IO_1.HWAIs_1.HWRTD_2	
12209	IO_1.HWAIs_1.HWRTD_3	
12210	IO_1.HWAIs_1.HWRTD_4	
12211	IO_1.HWAIs_1.HWRTD_5	
12212	IO_1.HWAIs_1.HWRTD_6	
12213	IO_1.HWAIs_1.HWRTD_7	
12214	IO_1.HWAIs_1.HWRTD_8	
12215	IO_1.HWAIs_1.HWRTD_9	
12216	IO_1.HWAIs_1.HWRTD_10	
12217	IO_1.HWAIs_1.HWRTD_11	
12218	IO_1.HWAIs_1.HWRTD_12	
12219	IO_1.HWAIs_1.HWRTD_13	
12220	IO_1.HWAIs_1.HWRTD_14	
12221	IO_1.HWAIs_1.HWRTD_15	
12222	IO_1.HWAIs_1.HWRTD_16	
12223	IO_1.HWAIs_1.HWRTD_17	
12224	IO_1.HWAIs_1.HWRTD_18	
12225	IO_1.HWAIs_1.HWRTD_19	
12226	IO_1.HWAIs_1.HWRTD_20	
12227	IO_1.HWAIs_1.HWRTD_21	
12228	IO_1.HWAIs_1.HWRTD_22	
12229	IO_1.HWAIs_1.HWRTD_23	
12230	IO_1.HWAIs_1.HWRTD_24	
12231	IO_1.HWAIs_1.HWRTD_25	
12232	IO_1.HWAIs_1.HWRTD_26	
12233	IO_1.HWAIs_1.HWRTD_27	
12234	IO_1.HWAIs_1.HWRTD_28	

Reg#	Variable	Description
12235	IO_1.HWAIs_1.HWRTD_29	
	IO_1.HWAIs_1.HWRTD_30	
	IO_1.HWAIs_1.HWTC_1	HWTC, Run 1 Temperature
	IO_1.HWAIs_1.HWTC_2	HWTC, Run 2 Temperature
12239	IO_1.HWAIs_1.HWTC_3	HWTC, Run 3 Temperature
12233	IO_1.HWAIs_1.HWTC_4	HWTC, Run 4 Temperature
	IO_1.HWAIs_1.HWTC_5	HWTC, Run 5 Temperature
	IO_1.HWAIs_1.HWTC_6	HWTC, Run 6 Temperature
	IO_1.HWAIs_1.HWTC_7	HWTC, Run 7 Temperature
12244	IO_1.HWAIs_1.HWTC_8	HWTC, Run 8 Temperature
	IO_1.HWAIs_1.HWTC_9	HWTC, Run 9 Temperature
	IO_1.HWAIs_1.HWTC_10	HWTC, Run 10 Temperature
	IO_1.HWAIs_1.HWTC_11	HWTC, Run 11 Temperature
	IO_1.HWAIs_1.HWTC_12	HWTC, Run 12 Temperature
12240	IO_1.HWAIs_1.HWTC_13	HWTC, Station 1 Inlet Temperature
	IO_1.HWAIS_1.HWTC_14	HWTC, Station 2 Inlet Temperature
	IO_1.HWAIs_1.HWTC_14	HWTC, Station 3 Inlet Temperature
	IO_1.HWAIS_1.HWTC_16	HWTC, Station 4 Inlet Temperature
	IO_1.HWAIS_1.HWTC_17	HWTC, Station 5 Inlet Temperature
12253	IO_1.HWAIS_1.HWTC_18	HWTC, Station 6 Inlet Temperature
	IO_1.HWAIs_1.HWTC_19	HWTC, Station 1 Outlet Temperature
	IO_1.HWAIs_1.HWTC_20	HWTC, Station 2 Outlet Temperature
	IO_1.HWAIS_1.HWTC_21	HWTC, Station 3 Outlet Temperature
12258	IO_1.HWAIs_1.HWTC_22	HWTC, Station 4 Outlet Temperature
	IO_1.HWAIS_1.HWTC_22	HWTC, Station 5 Outlet Temperature
	IO_1.HWAIS_1.HWTC_24	HWTC, Station 6 Outlet Temperature
12260	IO_1.HWAIs_1.HWTC_25	HWTC, Shared FTemp 1
	IO_1.HWAIs_1.HWTC_26	HWTC, Shared FTemp 2
12262	IO_1.HWAIs_1.HWTC_27	HWTC, Shared FTemp 3
	IO_1.HWAIs_1.HWTC_28	HWTC, Shared FTemp 4
	IO_1.HWAIs_1.HWTC_29	HWTC, Shared FTemp 5
12266	IO_1.HWAIs_1.HWTC_30	HWTC, Shared FTemp 6
12200		Bidirectional Control - Station 2 Programmed
12267	BC.ST_BiDir_Ctl_2.BiDirVlvCtl_1.Status	Control, Status
10060		Bidirectional Control - Station 4 Programmed
12268	BC.ST_BiDir_Ctl_4.BiDirVlvCtl_1.Status	Control, Status Bidirectional Control - Station 6 Programmed
12269	BC.ST_BiDir_Ctl_6.BiDirVlvCtl_1.Status	Control, Status
12270	IO_1.HWAIs_1.HWAI_341	
12271	IO_1.HWAIs_1.HWAI_342	
	IO_1.HWAIs_1.HWAI_343	
12273	IO_1.HWAIs_1.HWAI_344	
12274	IO_1.HWAIs_1.HWAI_345	
12275	IO_1.HWAIs_1.HWAI_346	
12276	IO_1.HWAIs_1.HWAI_347	
12277	IO_1.HWAIs_1.HWAI_348	
12278	IO_1.HWAIs_1.HWAI_349	
12279	Modbus AO 1	
12280	Modbus AO 2	
12281	Modbus AO 3	
1	Modbus AO 4	

Reg#	Variable	Description
12283	Modbus AO 5	
12284	Modbus AO 6	
12285	Modbus AO 7	
12285	Modbus AO 8	
12280	Modbus AO 9	
12288	Modbus AO 10	
12289	Modbus AO 11 Modbus AO 12	
12290 12291	Modbus AO 12 Modbus AO 13	
12291	Modbus AO 13 Modbus AO 14	
12292	Modbus AO 14 Modbus AO 15	
12293	Modbus AO 16	
12294	MVT.MVT_1_DP	
12295	MVT.MVT_1_SP	
12290	MVT.MVT_1_FT	
12297	MVT.MVT_2_DP	
12290	MVT.MVT_2_DP	
12299	MVT.MVT_2_FT	
12300	MVT.MVT_3_DP	
12301	MVT.MVT_3_SP	
12302	MVT.MVT_3_FT	
12303	MVT.MVT_4_DP	
12304	MVT.MVT_4_SP	
12306	MVT.MVT_4_FT	
12307	MVT.MVT_5_DP	
12308	MVT.MVT_5_SP	
12309	MVT.MVT_5_FT	
12310	MVT.MVT_6_DP	
12311	MVT.MVT_6_SP	
12312	MVT.MVT_6_FT	
12313	MVT.MVT_7_DP	
12314	MVT.MVT_7_SP	
12315	MVT.MVT_7_FT	
12316	MVT.MVT_8_DP	
12317	MVT.MVT_8_SP	
12318	MVT.MVT_8_FT	
12319	MVT.MVT_9_DP	
12320	MVT.MVT_9_SP	
12321	MVT.MVT_9_FT	
12322	MVT.MVT_10_DP	
12323	MVT.MVT_10_SP	
12324		
12325	MVT.MVT_11_DP	
12326	MVT.MVT_11_SP	
12327	MVT.MVT_11_FT	
12328	MVT.MVT_12_DP	
12329	MVT.MVT_12_SP	
12330	MVT.MVT_12_FT	
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12331	pg_GC.GC_1.GC_RF_Data_1.SlaveAddress	
12332	pg_GC.GC_1.GC_RF_Data_1.IPAddr	
12333	pg_GC.GC_1.GC_RF_Data_1.CommPort	
12334	pg_GC.GC_1.GC_RF_Data_1.GC_Type	
12335	pg_GC.GC_1.GC_RF_Data_1.Method	
12336	pg_GC.GC_1.GC_RF_Data_1.Delta_Lim	
12337	pg_GC.GC_1.GC_RF_Data_2.SlaveAddress	
12338	pg_GC.GC_1.GC_RF_Data_2.IPAddr	
12339	pg_GC.GC_1.GC_RF_Data_2.CommPort	
12340	pg_GC.GC_1.GC_RF_Data_2.GC_Type	
12341	pg_GC.GC_1.GC_RF_Data_2.Method	
12342	pg_GC.GC_1.GC_RF_Data_2.Delta_Lim	
12343	pg_GC.GC_1.GC_RF_Data_3.SlaveAddress	
12344	pg_GC.GC_1.GC_RF_Data_3.IPAddr	
12345	pg_GC.GC_1.GC_RF_Data_3.CommPort	
12346	pg_GC.GC_1.GC_RF_Data_3.GC_Type	
12347	pg_GC.GC_1.GC_RF_Data_3.Method	
12348	pg_GC.GC_1.GC_RF_Data_3.Delta_Lim	
12349	pg_GC.GC_1.GC_RF_Data_4.SlaveAddress	
12350	pg_GC.GC_1.GC_RF_Data_4.IPAddr	
12351	pg_GC.GC_1.GC_RF_Data_4.CommPort	
12352	pg_GC.GC_1.GC_RF_Data_4.GC_Type	
12353	pg_GC.GC_1.GC_RF_Data_4.Method	
12354	pg_GC.GC_1.GC_RF_Data_4.Delta_Lim	
12355	pg_GC.GC_1.GC_RF_Data_5.SlaveAddress	
12356	pg_GC.GC_1.GC_RF_Data_5.IPAddr	
12357	pg_GC.GC_1.GC_RF_Data_5.CommPort	
12358	pg_GC.GC_1.GC_RF_Data_5.GC_Type	
12359	pg_GC.GC_1.GC_RF_Data_5.Method	
12360	pg_GC.GC_1.GC_RF_Data_5.Delta_Lim	
12361	pg_GC.GC_1.GC_RF_Data_6.SlaveAddress	
12362	pg_GC.GC_1.GC_RF_Data_6.IPAddr	
12363	pg_GC.GC_1.GC_RF_Data_6.CommPort	
12364	pg_GC.GC_1.GC_RF_Data_6.GC_Type	
12365	pg_GC.GC_1.GC_RF_Data_6.Method	
12366	pg_GC.GC_1.GC_RF_Data_6.Delta_Lim	
12367	pg_GC.GC_1.GC_RF_Data_7.SlaveAddress	

12368	pg_GC.GC_1.GC_RF_Data_7.IPAddr	
12369	pg_GC.GC_1.GC_RF_Data_7.CommPort	
12370	pg_GC.GC_1.GC_RF_Data_7.GC_Type	
12371	pg_GC.GC_1.GC_RF_Data_7.Method	
12372	pg_GC.GC_1.GC_RF_Data_7.Delta_Lim	
12373	pg_GC.GC_1.GC_RF_Data_8.SlaveAddress	
12374	pg_GC.GC_1.GC_RF_Data_8.IPAddr	
12375	pg_GC.GC_1.GC_RF_Data_8.CommPort	
12376	pg_GC.GC_1.GC_RF_Data_8.GC_Type	
12377	pg_GC.GC_1.GC_RF_Data_8.Method	
12378	pg_GC.GC_1.GC_RF_Data_8.Delta_Lim	
12379	UFM.UFM_1.Kfact	
12380	UFM.UFM_1.SwirlAngle	
12381	UFM.UFM_1.SNR1A	
12382	UFM.UFM_1.SNR1B	
12383	UFM.UFM_1.SNR2A	
12384	UFM.UFM_1.SNR2B	
12385	UFM.UFM_1.SNR3A	
12386	UFM.UFM_1.SNR3B	
12387	UFM.UFM_1.SNR4A	
12388	UFM.UFM_1.SNR4B	
12389	UFM.UFM_1.SNR5A	
12390	UFM.UFM_1.SNR5B	
12391	UFM.UFM_1.UCFlow_MCFD	
12392	UFM.UFM_1.InstType	
12393	UFM.UFM_1.Paths	
12394	UFM.UFM_1.SampleRate	
12395	UFM.UFM_1.VSamplesL1	
12396	UFM.UFM_1.VSamplesL2	
12397	UFM.UFM_1.VSamplesL3	
12398	UFM.UFM_1.VSamplesL4	
12399	UFM.UFM_1.VSamplesL5	
12400	UFM.UFM_1.GainLim1A	
12401	UFM.UFM_1.GainLim1B	
12402	UFM.UFM_1.GainLim2A	
12403	UFM.UFM_1.GainLim2B	
12404	UFM.UFM_1.GainLim3A	

12405	UFM.UFM_1.GainLim3B	
12406	UFM.UFM_1.GainLim4A	
12400	UFM.UFM_1.GainLim4R	
12407	UFM.UFM_1.GainLim5A	
12408	UFM.UFM_1.GainLim5R	
12410	UFM.UFM_1.SysStatusV	
12411	UFM.UFM_1.SysStatusC	
12412	UFM.UFM_1.CheckSum	
12413	UFM.UFM_1.Mode	
12414	UFM.UFM_1.CFlow_MCFD	
12415	UFM.UFM_1.FailureRate1	
12416	UFM.UFM_1.FailureRate2	
12417	UFM.UFM_1.FailureRate3	
12418	UFM.UFM_1.FailureRate4	
12419	UFM.UFM_1.PctGoodA1	
12420	UFM.UFM_1.PctGoodB1	
12421	UFM.UFM_1.PctGoodC1	
12422	UFM.UFM_1.PctGoodD1	
12423	UFM.UFM_1.PctGoodA2	
12424	UFM.UFM_1.PctGoodB2	
12425	UFM.UFM_1.PctGoodC2	
12426	UFM.UFM_1.PctGoodD2	
12427	UFM.UFM_1.Delay	
12428	UFM.UFM_1.Turbulence1	
12429	UFM.UFM_1.Turbulence2	
12430	UFM.UFM_1.Turbulence3	
12431	UFM.UFM_1.Turbulence4	
12432	UFM.UFM_1.Monitor_Count	
12433	UFM.UFM_1.PCT_Good	
12434	UFM.UFM_1.Good_Polls	
12435	UFM.UFM_1.Bad_Polls	
12436	UFM.UFM_1.DataChk.VALID1_PCT	
12437	UFM.UFM_1.DataChk.VALID2_PCT	
12438	UFM.UFM_1.DataChk.VALID3_PCT	
12439	UFM.UFM_1.DataChk.VALID4_PCT	
12440	UFM.UFM_1.DataChk.VALID5_PCT	
12441	UFM.UFM_1.DataChk.FLWVEL_L1	
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12442	UFM.UFM_1.DataChk.FLWVEL_L2	
12443	UFM.UFM_1.DataChk.FLWVEL_L3	
12444	UFM.UFM_1.DataChk.FLWVEL_L4	
12445	UFM.UFM_1.DataChk.FLWVEL_L5	
12446	UFM.UFM_1.DataChk.SNR1AB	
12447		
12448	UFM.UFM_1.DataChk.SNR3AB	
12449	UFM.UFM_1.DataChk.SNR4AB	
12450	UFM.UFM_1.DataChk.SNR5AB	
12451	UFM.UFM_1.DataChk.SNDSPD_L1	
12452	UFM.UFM_1.DataChk.SNDSPD_L2	
12453	UFM.UFM_1.DataChk.SNDSPD_L3	
12454	UFM.UFM_1.DataChk.SNDSPD_L4	
12455	UFM.UFM_1.DataChk.SNDSPD_L5	
12456	UFM.UFM_1.DataChk.ANGLE_ALRM	
12457	UFM.UFM_1.DataChk.NUM_AQRD	
12458	UFM.UFM_1.DataChk.PF_ALRM	
12459	UFM.UFM_1.DataChk.SYMMTRY_ALRM	
12460	UFM.UFM_1.DataChk.S1_Diff	
12461	UFM.UFM_1.DataChk.S2_Diff	
12462	UFM.UFM_1.DataChk.S3_Diff	
12463	UFM.UFM_1.DataChk.S4_Diff	
12464	UFM.UFM_1.DataChk.S5_Diff	
12465	UFM.UFM_1.DataChk.FLWVEL_R1	
12466	UFM.UFM_1.DataChk.FLWVEL_R2	
12467	UFM.UFM_1.DataChk.FLWVEL_R3	
12468	UFM.UFM_1.DataChk.FLWVEL_R4	
12469	UFM.UFM_1.DataChk.FLWVEL_R5	
12470	UFM.UFM_1.DataChk.ZF_Test	
12471	UFM.UFM_1.DataChk.Path1_Status	
12472	UFM.UFM_1.DataChk.Path2_Status	
12473	UFM.UFM_1.DataChk.Path3_Status	
12474	UFM.UFM_1.DataChk.Path4_Status	
12475	UFM.UFM_1.DataChk.Path5_Status	
12476	UFM.UFM_1.DataChk.Meter_Status	
12477	UFM.UFM_1.DataChk.Meter_Prfrmnc	
12478	UFM.UFM_1.DataChk.Meter_Stable	

12480 12481	UFM.UFM_1.DataChk.AGC13_DLTA UFM.UFM_1.DataChk.AGC15_DLTA	
12481		
	UFM.UFM_1.DataChk.AGC24_DLTA	
12482	UFM.UFM_1.DataChk.AGC35_DLTA	
12483	UFM.UFM_1.DataChk.AGCDLT_1A1B	
12484	UFM.UFM_1.DataChk.AGCDLT_2A2B	
12485	UFM.UFM_1.DataChk.AGCDLT_3A3B	
12486	UFM.UFM_1.DataChk.AGCDLT_4A4B	
12487	UFM.UFM_1.DataChk.AGCDLT_5A5B	
12488	UFM.UFM_1.DataChk.AVGAGC_1A1B	
12489	UFM.UFM_1.DataChk.AVGAGC_2A2B	
12490	UFM.UFM_1.DataChk.AVGAGC_3A3B	
12491	UFM.UFM_1.DataChk.AVGAGC_4A4B	
12492	UFM.UFM_1.DataChk.AVGAGC_5A5B	
12493	UFM.UFM_1.DataChk.PF_Hi	
12494	UFM.UFM_1.DataChk.PF_Lo	
12495	UFM.UFM_1.DataChk.SYMMTRY_Hi	
12496	UFM.UFM_1.DataChk.SYMMTRY_Lo	
12497	UFM.UFM_1.DataChk.ANGLE_Hi	
12498	UFM.UFM_1.DataChk.ANGLE_Lo	
12499	UFM.UFM_1.DataChk.VALPCT_L	
12500	UFM.UFM_1.DataChk.SNR_Lo	
12501	UFM.UFM_1.DataChk.AGCIA_Hi	
12502	UFM.UFM_1.DataChk.AGCOS_Hi	
12503	UFM.UFM_1.DataChk.SOS_Hi	
12504	UFM.UFM_1.DataChk.SOS_Lo	
12505	UFM.UFM_1.DataChk.VoG_Hi	
12506	UFM.UFM_1.DataChk.VoG_Lo	
12507	UFM.UFM_1.DataChk.SOSDiff_Hi	
12508	UFM.UFM_1.DataChk.ZF_Test_Hi	
12509	UFM.UFM_1.DataChk.TrbIncI_Hi	
12510	UFM.UFM_1.DataChk.TrbIncO_Hi	
12511	UFM.UFM_1.DataChk.Comm_Lo	
12512	UFM.UFM_1.DataChk.AvgFlowVel_MaxChng	
12513	UFM.UFM_1.DataValid_Cutoff	
12514	UFM.UFM_2.Kfact	
12515	UFM.UFM_2.SwirlAngle	

12516	UFM.UFM_2.SNR1A	
12517	UFM.UFM_2.SNR1B	
12518	UFM.UFM_2.SNR2A	
12519	UFM.UFM_2.SNR2B	
12520	UFM.UFM_2.SNR3A	
12521	UFM.UFM_2.SNR3B	
12522	UFM.UFM_2.SNR4A	
12523	UFM.UFM_2.SNR4B	
12524	UFM.UFM_2.SNR5A	
12525	UFM.UFM_2.SNR5B	
12526	UFM.UFM_2.UCFlow_MCFD	
12527	UFM.UFM_2.InstType	
12528	UFM.UFM_2.Paths	
12529	UFM.UFM_2.SampleRate	
12530	UFM.UFM_2.VSamplesL1	
12531	UFM.UFM_2.VSamplesL2	
12532	UFM.UFM_2.VSamplesL3	
12533	UFM.UFM_2.VSamplesL4	
12534	UFM.UFM_2.VSamplesL5	
12535	UFM.UFM_2.GainLim1A	
12536	UFM.UFM_2.GainLim1B	
12537	UFM.UFM_2.GainLim2A	
12538	UFM.UFM_2.GainLim2B	
12539	UFM.UFM_2.GainLim3A	
12540	UFM.UFM_2.GainLim3B	
12541	UFM.UFM_2.GainLim4A	
12542	UFM.UFM_2.GainLim4B	
12543	UFM.UFM_2.GainLim5A	
12544	UFM.UFM_2.GainLim5B	
12545	UFM.UFM_2.SysStatusV	
12546	UFM.UFM_2.SysStatusC	
12547	UFM.UFM_2.CheckSum	
12548	UFM.UFM_2.Mode	
12549	UFM.UFM_2.CFlow_MCFD	
12550	UFM.UFM_2.FailureRate1	
12551	UFM.UFM_2.FailureRate2	
12552	UFM.UFM_2.FailureRate3	
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12553	UFM.UFM_2.FailureRate4	
12554	UFM.UFM 2.PctGoodA1	
12555	UFM.UFM_2.PctGoodB1	
12556	UFM.UFM_2.PctGoodC1	
12557	UFM.UFM_2.PctGoodD1	
12558	UFM.UFM_2.PctGoodA2	
12559	UFM.UFM_2.PctGoodB2	
12559	UFM.UFM_2.PctGoodC2	
12561	UFM.UFM_2.PctGoodD2	
12561	UFM.UFM_2.Delay	
12562	UFM.UFM_2.Turbulence1	
12564	UFM.UFM_2.Turbulence2	
12565	UFM.UFM_2.Turbulence3	
12566	UFM.UFM_2.Turbulence4	
12567	UFM.UFM_2.Monitor_Count	
12568	UFM.UFM_2.PCT_Good	
12569	UFM.UFM_2.Good_Polls	
12570	UFM.UFM_2.Bad_Polls	
12571	UFM.UFM_2.DataChk.VALID1_PCT	
12572	UFM.UFM_2.DataChk.VALID2_PCT	
12573	UFM.UFM_2.DataChk.VALID3_PCT	
12574	UFM.UFM_2.DataChk.VALID4_PCT	
12575	UFM.UFM_2.DataChk.VALID5_PCT	
12576	UFM.UFM_2.DataChk.FLWVEL_L1	
12577	UFM.UFM_2.DataChk.FLWVEL_L2	
12578	UFM.UFM_2.DataChk.FLWVEL_L3	
12579	UFM.UFM_2.DataChk.FLWVEL_L4	
12580	UFM.UFM_2.DataChk.FLWVEL_L5	
12581	UFM.UFM_2.DataChk.SNR1AB	
12582	UFM.UFM_2.DataChk.SNR2AB	
12583	UFM.UFM_2.DataChk.SNR3AB	
12584	UFM.UFM_2.DataChk.SNR4AB	
12585	UFM.UFM_2.DataChk.SNR5AB	
12586	UFM.UFM_2.DataChk.SNDSPD_L1	
12587	UFM.UFM_2.DataChk.SNDSPD_L2	
12588	UFM.UFM_2.DataChk.SNDSPD_L3	
12589	UFM.UFM_2.DataChk.SNDSPD_L4	
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12590	UFM.UFM_2.DataChk.SNDSPD_L5	
12591	UFM.UFM 2.DataChk.ANGLE ALRM	
12592	UFM.UFM_2.DataChk.NUM_AQRD	
12593	UFM.UFM_2.DataChk.PF_ALRM	
12594	UFM.UFM_2.DataChk.SYMMTRY_ALRM	
12595	UFM.UFM_2.DataChk.S1_Diff	
12596	UFM.UFM_2.DataChk.S2_Diff	
12597	UFM.UFM_2.DataChk.S3_Diff	
12598	UFM.UFM_2.DataChk.S4_Diff	
12599	UFM.UFM_2.DataChk.S5_Diff	
12600	UFM.UFM_2.DataChk.FLWVEL_R1	
12601	UFM.UFM_2.DataChk.FLWVEL_R2	
12602	UFM.UFM_2.DataChk.FLWVEL_R3	
12603	UFM.UFM_2.DataChk.FLWVEL_R4	
12604	UFM.UFM_2.DataChk.FLWVEL_R5	
12605	UFM.UFM_2.DataChk.ZF_Test	
12606	UFM.UFM_2.DataChk.Path1_Status	
12607	UFM.UFM_2.DataChk.Path2_Status	
12608	UFM.UFM_2.DataChk.Path3_Status	
12609	UFM.UFM_2.DataChk.Path4_Status	
12610	UFM.UFM_2.DataChk.Path5_Status	
12611	UFM.UFM_2.DataChk.Meter_Status	
12612	UFM.UFM_2.DataChk.Meter_Prfrmnc	
12613	UFM.UFM_2.DataChk.Meter_Stable	
12614		
12615	UFM.UFM_2.DataChk.AGC15_DLTA	
12616	UFM.UFM_2.DataChk.AGC24_DLTA	
12617	UFM.UFM_2.DataChk.AGC35_DLTA	
12618	UFM.UFM_2.DataChk.AGCDLT_1A1B	
12619	UFM.UFM_2.DataChk.AGCDLT_2A2B	
12620	UFM.UFM_2.DataChk.AGCDLT_3A3B	
12621	UFM.UFM_2.DataChk.AGCDLT_4A4B	
12622	UFM.UFM_2.DataChk.AGCDLT_5A5B	
12623	UFM.UFM_2.DataChk.AVGAGC_1A1B	
12624	UFM.UFM_2.DataChk.AVGAGC_2A2B	
12625	UFM.UFM_2.DataChk.AVGAGC_3A3B	
12626	UFM.UFM_2.DataChk.AVGAGC_4A4B	

12627	UFM.UFM_2.DataChk.AVGAGC_5A5B	
12628	UFM.UFM_2.DataChk.PF_Hi	
12629	UFM.UFM_2.DataChk.PF_Lo	
12630	UFM.UFM_2.DataChk.SYMMTRY_Hi	
12631	UFM.UFM_2.DataChk.SYMMTRY_Lo	
12632	UFM.UFM_2.DataChk.ANGLE_Hi	
12633	UFM.UFM_2.DataChk.ANGLE_Lo	
12634	UFM.UFM_2.DataChk.VALPCT_L	
12635	UFM.UFM_2.DataChk.SNR_Lo	
12636	UFM.UFM_2.DataChk.AGCIA_Hi	
12637	UFM.UFM_2.DataChk.AGCOS_Hi	
12638	UFM.UFM_2.DataChk.SOS_Hi	
12639	UFM.UFM_2.DataChk.SOS_Lo	
12640	UFM.UFM_2.DataChk.VoG_Hi	
12641	UFM.UFM_2.DataChk.VoG_Lo	
12642	UFM.UFM_2.DataChk.SOSDiff_Hi	
12643	UFM.UFM_2.DataChk.ZF_Test_Hi	
12644	UFM.UFM_2.DataChk.TrbIncl_Hi	
12645	UFM.UFM_2.DataChk.TrbIncO_Hi	
12646	UFM.UFM_2.DataChk.Comm_Lo	
12647	UFM.UFM_2.DataChk.AvgFlowVel_MaxChng	
12648	UFM.UFM_2.DataValid_Cutoff	
12649	UFM.UFM_3.Kfact	
12650	UFM.UFM_3.SwirlAngle	
12651	UFM.UFM_3.SNR1A	
12652	UFM.UFM_3.SNR1B	
12653	UFM.UFM_3.SNR2A	
12654	UFM.UFM_3.SNR2B	
12655	UFM.UFM_3.SNR3A	
12656	UFM.UFM_3.SNR3B	
12657	UFM.UFM_3.SNR4A	
12658	UFM.UFM_3.SNR4B	
12659	UFM.UFM_3.SNR5A	
12660	UFM.UFM_3.SNR5B	
12661	UFM.UFM_3.UCFlow_MCFD	
12662	UFM.UFM_3.InstType	
12663	UFM.UFM_3.Paths	

12664	UFM.UFM_3.SampleRate	
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12665	UFM.UFM_3.VSamplesL1	
12666	UFM.UFM_3.VSamplesL2	
12667	UFM.UFM_3.VSamplesL3	
12668	UFM.UFM_3.VSamplesL4	
12669	UFM.UFM_3.VSamplesL5	
12670	UFM.UFM_3.GainLim1A	
12671	UFM.UFM_3.GainLim1B	
12672	UFM.UFM_3.GainLim2A	
12673	UFM.UFM_3.GainLim2B	
12674	UFM.UFM_3.GainLim3A	
12675	UFM.UFM_3.GainLim3B	
12676	UFM.UFM_3.GainLim4A	
12677	UFM.UFM_3.GainLim4B	
12678	UFM.UFM_3.GainLim5A	
12679	UFM.UFM_3.GainLim5B	
12680	UFM.UFM_3.SysStatusV	
12681	UFM.UFM_3.SysStatusC	
12682	UFM.UFM_3.CheckSum	
12683	UFM.UFM_3.Mode	
12684	UFM.UFM_3.CFlow_MCFD	
12685	UFM.UFM_3.FailureRate1	
12686	UFM.UFM_3.FailureRate2	
12687	UFM.UFM_3.FailureRate3	
12688	UFM.UFM_3.FailureRate4	
12689	UFM.UFM_3.PctGoodA1	
12690	UFM.UFM_3.PctGoodB1	
12691	UFM.UFM_3.PctGoodC1	
12692	UFM.UFM_3.PctGoodD1	
12693	UFM.UFM_3.PctGoodA2	
12694	UFM.UFM_3.PctGoodB2	
12695	UFM.UFM_3.PctGoodC2	
12696	UFM.UFM_3.PctGoodD2	
12697	UFM.UFM_3.Delay	
12698	UFM.UFM_3.Turbulence1	
12699	UFM.UFM_3.Turbulence2	
12700	UFM.UFM_3.Turbulence3	
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12701	UFM.UFM_3.Turbulence4	1
12702	UFM.UFM_3.Monitor_Count	
12702	UFM.UFM_3.PCT_Good	
12703	UFM.UFM 3.Good Polls	
12704	UFM.UFM_3.Bad_Polls	
12705	UFM.UFM_3.DataChk.VALID1_PCT	
12700	UFM.UFM_3.DataChk.VALID1_PCT	
12707	UFM.UFM_3.DataChk.VALID2_PCT	
	UFM.UFM_3.DataChk.VALID3_PCT	
12709		
12710	UFM.UFM_3.DataChk.VALID5_PCT	
12711	UFM.UFM_3.DataChk.FLWVEL_L1	
12712	UFM.UFM_3.DataChk.FLWVEL_L2	
12713	UFM.UFM_3.DataChk.FLWVEL_L3	
12714	UFM.UFM_3.DataChk.FLWVEL_L4	
12715	UFM.UFM_3.DataChk.FLWVEL_L5	
12716	UFM.UFM_3.DataChk.SNR1AB	
12717	UFM.UFM_3.DataChk.SNR2AB	
12718	UFM.UFM_3.DataChk.SNR3AB	
12719	UFM.UFM_3.DataChk.SNR4AB	
12720	UFM.UFM_3.DataChk.SNR5AB	
12721	UFM.UFM_3.DataChk.SNDSPD_L1	
12722	UFM.UFM_3.DataChk.SNDSPD_L2	
12723	UFM.UFM_3.DataChk.SNDSPD_L3	
12724	UFM.UFM_3.DataChk.SNDSPD_L4	
	UFM.UFM_3.DataChk.SNDSPD_L5	
12726	UFM.UFM_3.DataChk.ANGLE_ALRM	
12727	UFM.UFM_3.DataChk.NUM_AQRD	
12728	UFM.UFM_3.DataChk.PF_ALRM	
12729	UFM.UFM_3.DataChk.SYMMTRY_ALRM	
12730	UFM.UFM_3.DataChk.S1_Diff	
12731	UFM.UFM_3.DataChk.S2_Diff	
12732	UFM.UFM_3.DataChk.S3_Diff	
12733	UFM.UFM_3.DataChk.S4_Diff	
12734	UFM.UFM_3.DataChk.S5_Diff	
12735	UFM.UFM_3.DataChk.FLWVEL_R1	
12736	UFM.UFM_3.DataChk.FLWVEL_R2	
12737	UFM.UFM_3.DataChk.FLWVEL_R3	

12738	UFM.UFM_3.DataChk.FLWVEL_R4	
12739	UFM.UFM_3.DataChk.FLWVEL_R5	
12740	UFM.UFM_3.DataChk.ZF_Test	
12741	UFM.UFM_3.DataChk.Path1_Status	
12742	UFM.UFM_3.DataChk.Path2_Status	
12743	UFM.UFM_3.DataChk.Path3_Status	
12744	UFM.UFM_3.DataChk.Path4_Status	
12745	UFM.UFM_3.DataChk.Path5_Status	
12746	UFM.UFM_3.DataChk.Meter_Status	
12747	UFM.UFM_3.DataChk.Meter_Prfrmnc	
12748	UFM.UFM_3.DataChk.Meter_Stable	
12749	UFM.UFM_3.DataChk.AGC13_DLTA	
12750	UFM.UFM_3.DataChk.AGC15_DLTA	
12751	UFM.UFM_3.DataChk.AGC24_DLTA	
12752	UFM.UFM_3.DataChk.AGC35_DLTA	
12753	UFM.UFM_3.DataChk.AGCDLT_1A1B	
12754	UFM.UFM_3.DataChk.AGCDLT_2A2B	
12755	UFM.UFM_3.DataChk.AGCDLT_3A3B	
12756	UFM.UFM_3.DataChk.AGCDLT_4A4B	
12757	UFM.UFM_3.DataChk.AGCDLT_5A5B	
12758	UFM.UFM_3.DataChk.AVGAGC_1A1B	
12759	UFM.UFM_3.DataChk.AVGAGC_2A2B	
12760	UFM.UFM_3.DataChk.AVGAGC_3A3B	
12761	UFM.UFM_3.DataChk.AVGAGC_4A4B	
12762	UFM.UFM_3.DataChk.AVGAGC_5A5B	
12763	UFM.UFM_3.DataChk.PF_Hi	
12764	UFM.UFM_3.DataChk.PF_Lo	
12765	UFM.UFM_3.DataChk.SYMMTRY_Hi	
12766	UFM.UFM_3.DataChk.SYMMTRY_Lo	
12767	UFM.UFM_3.DataChk.ANGLE_Hi	
12768	UFM.UFM_3.DataChk.ANGLE_Lo	
12769	UFM.UFM_3.DataChk.VALPCT_L	
12770	UFM.UFM_3.DataChk.SNR_Lo	
12771	UFM.UFM_3.DataChk.AGCIA_Hi	
12772	UFM.UFM_3.DataChk.AGCOS_Hi	
12773	UFM.UFM_3.DataChk.SOS_Hi	
12774	UFM.UFM_3.DataChk.SOS_Lo	

12775	UFM.UFM_3.DataChk.VoG_Hi	
12776	UFM.UFM_3.DataChk.VoG_Lo	
12777	UFM.UFM_3.DataChk.SOSDiff_Hi	
12778	UFM.UFM_3.DataChk.ZF_Test_Hi	
12779	UFM.UFM_3.DataChk.TrbIncl_Hi	
12780	UFM.UFM_3.DataChk.TrbIncO_Hi	
12781	UFM.UFM_3.DataChk.Comm_Lo	
12782	UFM.UFM_3.DataChk.AvgFlowVel_MaxChng	
12783	UFM.UFM_3.DataValid_Cutoff	
12784	UFM.UFM_4.Kfact	
12785	UFM.UFM_4.SwirlAngle	
12786	UFM.UFM_4.SNR1A	
12787	UFM.UFM_4.SNR1B	
12788	UFM.UFM_4.SNR2A	
12789	UFM.UFM_4.SNR2B	
12790	UFM.UFM_4.SNR3A	
12791	UFM.UFM_4.SNR3B	
12792	UFM.UFM_4.SNR4A	
12793	UFM.UFM_4.SNR4B	
12794	UFM.UFM_4.SNR5A	
12795	UFM.UFM_4.SNR5B	
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12801	UFM.UFM_4.VSamplesL2	
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12803	UFM.UFM_4.VSamplesL4	
12804	UFM.UFM_4.VSamplesL5	
12805	UFM.UFM_4.GainLim1A	
12806	UFM.UFM_4.GainLim1B	
12807	UFM.UFM_4.GainLim2A	
12808	UFM.UFM_4.GainLim2B	
12809	UFM.UFM_4.GainLim3A	
12810	UFM.UFM_4.GainLim3B	
12811	UFM.UFM_4.GainLim4A	

12812	UFM.UFM_4.GainLim4B	
12813	UFM.UFM_4.GainLim5A	
12814	UFM.UFM_4.GainLim5B	
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12816	UFM.UFM_4.SysStatusC	
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12819	UFM.UFM_4.CFlow_MCFD	
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12821	UFM.UFM_4.FailureRate2	
12822	UFM.UFM_4.FailureRate3	
12823	UFM.UFM_4.FailureRate4	
12824	UFM.UFM_4.PctGoodA1	
12825	UFM.UFM_4.PctGoodB1	
12826	UFM.UFM_4.PctGoodC1	
12827	UFM.UFM_4.PctGoodD1	
12828	UFM.UFM_4.PctGoodA2	
12829	UFM.UFM_4.PctGoodB2	
12830	UFM.UFM_4.PctGoodC2	
12831	UFM.UFM_4.PctGoodD2	
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12835	UFM.UFM_4.Turbulence3	
12836	UFM.UFM_4.Turbulence4	
12837	UFM.UFM_4.Monitor_Count	
12838	UFM.UFM_4.PCT_Good	
12839	UFM.UFM_4.Good_Polls	
12840	UFM.UFM_4.Bad_Polls	
12841	UFM.UFM_4.DataChk.VALID1_PCT	
12842	UFM.UFM_4.DataChk.VALID2_PCT	
12843	UFM.UFM_4.DataChk.VALID3_PCT	
12844	UFM.UFM_4.DataChk.VALID4_PCT	
12845	UFM.UFM_4.DataChk.VALID5_PCT	
12846	UFM.UFM_4.DataChk.FLWVEL_L1	
12847	UFM.UFM_4.DataChk.FLWVEL_L2	
12848	UFM.UFM_4.DataChk.FLWVEL_L3	
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12850	UFM.UFM_4.DataChk.FLWVEL_L5	
12851	UFM.UFM_4.DataChk.SNR1AB	
12852	UFM.UFM_4.DataChk.SNR2AB	
12853	UFM.UFM_4.DataChk.SNR3AB	
12854	UFM.UFM_4.DataChk.SNR4AB	
12855	UFM.UFM_4.DataChk.SNR5AB	
12856	UFM.UFM_4.DataChk.SNDSPD_L1	
12857	UFM.UFM_4.DataChk.SNDSPD_L2	
12858	UFM.UFM_4.DataChk.SNDSPD_L3	
12859	UFM.UFM_4.DataChk.SNDSPD_L4	
12860	UFM.UFM_4.DataChk.SNDSPD_L5	
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12862	UFM.UFM_4.DataChk.NUM_AQRD	
12863	UFM.UFM_4.DataChk.PF_ALRM	
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12865	UFM.UFM_4.DataChk.S1_Diff	
12866	UFM.UFM_4.DataChk.S2_Diff	
12867	UFM.UFM_4.DataChk.S3_Diff	
12868	UFM.UFM_4.DataChk.S4_Diff	
12869	UFM.UFM_4.DataChk.S5_Diff	
12870	UFM.UFM_4.DataChk.FLWVEL_R1	
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12872	UFM.UFM_4.DataChk.FLWVEL_R3	
12873	UFM.UFM_4.DataChk.FLWVEL_R4	
12874	UFM.UFM_4.DataChk.FLWVEL_R5	
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12877	UFM.UFM_4.DataChk.Path2_Status	
12878	UFM.UFM_4.DataChk.Path3_Status	
12879	UFM.UFM_4.DataChk.Path4_Status	
12880	UFM.UFM_4.DataChk.Path5_Status	
12881	UFM.UFM_4.DataChk.Meter_Status	
12882	UFM.UFM_4.DataChk.Meter_Prfrmnc	
12883	UFM.UFM_4.DataChk.Meter_Stable	
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12894	UFM.UFM_4.DataChk.AVGAGC_2A2B	
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12896	UFM.UFM_4.DataChk.AVGAGC_4A4B	
12897	UFM.UFM_4.DataChk.AVGAGC_5A5B	
12898	UFM.UFM_4.DataChk.PF_Hi	
12899	UFM.UFM_4.DataChk.PF_Lo	
12900	UFM.UFM_4.DataChk.SYMMTRY_Hi	
12901	UFM.UFM_4.DataChk.SYMMTRY_Lo	
12902	UFM.UFM_4.DataChk.ANGLE_Hi	
12903	UFM.UFM_4.DataChk.ANGLE_Lo	
12904	UFM.UFM_4.DataChk.VALPCT_L	
12905	UFM.UFM_4.DataChk.SNR_Lo	
12906	UFM.UFM_4.DataChk.AGCIA_Hi	
12907	UFM.UFM_4.DataChk.AGCOS_Hi	
12908	UFM.UFM_4.DataChk.SOS_Hi	
12909	UFM.UFM_4.DataChk.SOS_Lo	
12910	UFM.UFM_4.DataChk.VoG_Hi	
12911	UFM.UFM_4.DataChk.VoG_Lo	
12912	UFM.UFM_4.DataChk.SOSDiff_Hi	
12913	UFM.UFM_4.DataChk.ZF_Test_Hi	
12914	UFM.UFM_4.DataChk.TrbIncl_Hi	
12915	UFM.UFM_4.DataChk.TrbIncO_Hi	
12916	UFM.UFM_4.DataChk.Comm_Lo	
12917	UFM.UFM_4.DataChk.AvgFlowVel_MaxChng	
12918	UFM.UFM_4.DataValid_Cutoff	
12919	UFM.UFM_5.Kfact	
12920	UFM.UFM_5.SwirlAngle	
12921	UFM.UFM_5.SNR1A	
12922	UFM.UFM_5.SNR1B	

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12924	_	
12925		
12926	_	
12927	_	
12928	_	
12929	_	
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12931		
12932	UFM.UFM_5.InstType	
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12937	UFM.UFM_5.VSamplesL3	
12938	UFM.UFM_5.VSamplesL4	
12939	UFM.UFM_5.VSamplesL5	
12940	UFM.UFM_5.GainLim1A	
12941	UFM.UFM_5.GainLim1B	
12942	UFM.UFM_5.GainLim2A	
12943	UFM.UFM_5.GainLim2B	
12944	UFM.UFM_5.GainLim3A	
12945	UFM.UFM_5.GainLim3B	
12946	UFM.UFM_5.GainLim4A	
12947	UFM.UFM_5.GainLim4B	
12948	UFM.UFM_5.GainLim5A	
12949	UFM.UFM_5.GainLim5B	
12950	UFM.UFM_5.SysStatusV	
12951	UFM.UFM_5.SysStatusC	
12952	UFM.UFM_5.CheckSum	
12953	UFM.UFM_5.Mode	
12954	UFM.UFM_5.CFlow_MCFD	
12955	UFM.UFM_5.FailureRate1	
12956	UFM.UFM_5.FailureRate2	
12957	UFM.UFM_5.FailureRate3	
12958	UFM.UFM_5.FailureRate4	
12959	UFM.UFM_5.PctGoodA1	
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12861 UFM.UFM_5.PelGoodC1 12962 UFM.UFM_5.PelGoodA2 12963 UFM.UFM_5.PelGoodA2 12964 UFM.UFM_5.PelGoodA2 12965 UFM.UFM_5.PelGoodD2 12966 UFM.UFM_5.PelGoodD2 12967 UFM.UFM_5.PelGoodD2 12968 UFM.UFM_5.PelGoodD2 12969 UFM.UFM_5.PelGoodD2 12969 UFM.UFM_5.Turbulence1 12920 UFM.UFM_5.Turbulence2 12971 UFM.UFM_5.Turbulence3 12972 UFM.UFM_5.Nonitor_Count 12973 UFM.UFM_5.Good_Polis 12974 UFM.UFM_5.DataChk.VALID1_PCT 12975 UFM.UFM_5.DataChk.VALID2_PCT 12976 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID3_PCT 12980 UFM.UFM_5.DataChk.FLWVEL_L1 12981 UFM.UFM_5.DataChk.FLWVEL_L2 12982 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR3AB 12984 UFM.UFM_5.DataChk.SNR3AB 12984 UFM.UFM_5.DataChk.SNR3AB 12984 UFM.UFM_5.DataChk.SNR3AB<	12960	UFM.UFM_5.PctGoodB1	
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12963 UFM.UFM_5.PctGoodA2 12964 UFM.UFM_5.PctGoodB2 12965 UFM.UFM_5.PctGoodD2 12966 UFM.UFM_5.PctGoodD2 12967 UFM.UFM_5.PctGoodD2 12968 UFM.UFM_5.PctGoodD2 12969 UFM.UFM_5.PctGoodD2 12969 UFM.UFM_5.Turbulence1 12970 UFM.UFM_5.Turbulence3 12971 UFM.UFM_5.Turbulence4 12972 UFM.UFM_5.PcT_Good 12973 UFM.UFM_5.Good_Polls 12974 UFM.UFM_5.Bad_Polls 12975 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID3_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID3_PCT 12980 UFM.UFM_5.DataChk.FLWVEL_L1 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR4AB 12986 UFM.UFM_5.DataChk.SNR4AB 12989 UFM.UFM_5.DataChk.SNR5AB 12980 UFM.UFM_5.DataChk.SNR5AB 12981 UFM.UFM_5.DataChk.SNR5AB<			
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12965 UFM.UFM_5.PctGoodC2 12966 UFM.UFM_5.PctGoodD2 12977 UFM.UFM_5.Turbulence1 12989 UFM.UFM_5.Turbulence2 12970 UFM.UFM_5.Turbulence3 12971 UFM.UFM_5.Turbulence4 12972 UFM.UFM_5.Count 12973 UFM.UFM_5.PCT_Good 12974 UFM.UFM_5.Count 12975 UFM.UFM_5.Codd 12976 UFM.UFM_5.DetT_Good 12977 UFM.UFM_5.DataChk.VALID1_PCT 12976 UFM.UFM_5.DataChk.VALID2_PCT 12977 UFM.UFM_5.DataChk.VALID4_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR3AB 12986 UFM.UFM_5.DataChk.SNR2AB 12987 UFM.UFM_5.DataChk.SNR3AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataCh			
12966 UFM.UFM_5.PctGoodD2 12967 UFM.UFM_5.Turbulence1 12968 UFM.UFM_5.Turbulence2 12970 UFM.UFM_5.Turbulence3 12971 UFM.UFM_5.Turbulence3 12972 UFM.UFM_5.Turbulence4 12973 UFM.UFM_5.Outplence4 12974 UFM.UFM_5.Oct_Good 12975 UFM.UFM_5.Oct_Good 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12984 UFM.UFM_5.DataChk.FLWVEL_L2 12985 UFM.UFM_5.DataChk.FLWVEL_L4 12986 UFM.UFM_5.DataChk.SNR3AB 12987 UFM.UFM_5.DataChk.SNR3AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNDSPD_L1 12990 UFM.UFM_5.DataChk.SNDSPD_L2 12991			
12967 UFM.UFM_5.Delay 12968 UFM.UFM_5.Turbulence1 12970 UFM.UFM_5.Turbulence2 12971 UFM.UFM_5.Turbulence3 12972 UFM.UFM_5.Furbulence4 12973 UFM.UFM_5.PCT_Good 12974 UFM.UFM_5.PCT_Good 12975 UFM.UFM_5.PCT_Good 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12979 UFM.UFM_5.DataChk.VALID5_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.FLWVEL_L1 12981 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L2 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR1AB 12986 UFM.UFM_5.DataChk.SNR2AB 12987 UFM.UFM_5.DataChk.SNR3AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12980 UFM.UFM_5.DataChk.SNR3AB 12981 UFM.UFM_5.DataChk.SNR5AB 12982 <			
12968 UFM.UFM_5.Turbulence1 12969 UFM.UFM_5.Turbulence2 12970 UFM.UFM_5.Turbulence3 12971 UFM.UFM_5.Turbulence4 12972 UFM.UFM_5.Nonitor_Count 12973 UFM.UFM_5.FO.T_Good 12974 UFM.UFM_5.Bad_Polls 12975 UFM.UFM_5.Bad_Polls 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR3AB 12986 UFM.UFM_5.DataChk.SNR3AB 12987 UFM.UFM_5.DataChk.SNR3AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12990 UFM.UFM_5.DataChk.SNSDSPD_L2 12991 </td <td></td> <td></td> <td></td>			
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12970 UFM.UFM_5.Turbulence3 12971 UFM.UFM_5.Turbulence4 12972 UFM.UFM_5.Monitor_Count 12973 UFM.UFM_5.PCT_Good 12974 UFM.UFM_5.Good_Polls 12975 UFM.UFM_5.Bad_Polls 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID5_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_6.DataChk.SNR1AB 12986 UFM.UFM_6.DataChk.SNR2AB 12987 UFM.UFM_6.DataChk.SNR3AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR5AB 12990 UFM.UFM_5.DataChk.SNDSPD_L1 12991 UFM.UFM_5.DataChk.SNDSPD_L2 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5 <td></td> <td></td> <td></td>			
12971 UFM.UFM_5.Turbulence4 12972 UFM.UFM_5.Monitor_Count 12973 UFM.UFM_5.PCT_Good 12974 UFM.UFM_5.Good_Polls 12975 UFM.UFM_5.Bad_Polls 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR1AB 12986 UFM.UFM_5.DataChk.SNR2AB 12988 UFM.UFM_5.DataChk.SNR2AB 12989 UFM.UFM_5.DataChk.SNR3AB 12990 UFM.UFM_5.DataChk.SNR5AB 12991 UFM.UFM_5.DataChk.SNDSPD_L1 12992 UFM.UFM_5.DataChk.SNDSPD_L3 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5			
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12974 UFM.UFM_5.Good_Polls 12975 UFM.UFM_5.Bad_Polls 12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.SNR1AB 12986 UFM.UFM_5.DataChk.SNR2AB 12987 UFM.UFM_5.DataChk.SNR2AB 12988 UFM.UFM_5.DataChk.SNR2AB 12989 UFM.UFM_5.DataChk.SNR2AB 12980 UFM.UFM_5.DataChk.SNR2AB 12981 UFM.UFM_5.DataChk.SNR3AB 12982 UFM.UFM_5.DataChk.SNR5AB 12994 UFM.UFM_5.DataChk.SNR5AB 12991 UFM.UFM_5.DataChk.SNDSPD_L1 12992 UFM.UFM_5.DataChk.SNDSPD_L2 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5 </td <td>12972</td> <td></td> <td></td>	12972		
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12976 UFM.UFM_5.DataChk.VALID1_PCT 12977 UFM.UFM_5.DataChk.VALID2_PCT 12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.FLWVEL_L5 12986 UFM.UFM_5.DataChk.SNR1AB 12987 UFM.UFM_5.DataChk.SNR2AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR4AB 12990 UFM.UFM_5.DataChk.SNR5AB 12991 UFM.UFM_5.DataChk.SNDSPD_L1 12992 UFM.UFM_5.DataChk.SNDSPD_L2 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5	12974	UFM.UFM_5.Good_Polls	
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12978 UFM.UFM_5.DataChk.VALID3_PCT 12979 UFM.UFM_5.DataChk.VALID4_PCT 12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.FLWVEL_L4 12986 UFM.UFM_5.DataChk.SNR1AB 12987 UFM.UFM_5.DataChk.SNR2AB 12988 UFM.UFM_5.DataChk.SNR2AB 12989 UFM.UFM_5.DataChk.SNR3AB 12990 UFM.UFM_5.DataChk.SNR4AB 12991 UFM.UFM_5.DataChk.SNDSPD_L1 12992 UFM.UFM_5.DataChk.SNDSPD_L2 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5	12976	UFM.UFM_5.DataChk.VALID1_PCT	
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12980 UFM.UFM_5.DataChk.VALID5_PCT 12981 UFM.UFM_5.DataChk.FLWVEL_L1 12982 UFM.UFM_5.DataChk.FLWVEL_L2 12983 UFM.UFM_5.DataChk.FLWVEL_L3 12984 UFM.UFM_5.DataChk.FLWVEL_L4 12985 UFM.UFM_5.DataChk.FLWVEL_L5 12986 UFM.UFM_5.DataChk.SNR1AB 12987 UFM.UFM_5.DataChk.SNR2AB 12988 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR3AB 12989 UFM.UFM_5.DataChk.SNR4AB 12990 UFM.UFM_5.DataChk.SNR5AB 12991 UFM.UFM_5.DataChk.SNDSPD_L1 12992 UFM.UFM_5.DataChk.SNDSPD_L2 12993 UFM.UFM_5.DataChk.SNDSPD_L3 12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5	12978	UFM.UFM_5.DataChk.VALID3_PCT	
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12982UFM.UFM_5.DataChk.FLWVEL_L212983UFM.UFM_5.DataChk.FLWVEL_L312984UFM.UFM_5.DataChk.FLWVEL_L412985UFM.UFM_5.DataChk.FLWVEL_L512986UFM.UFM_5.DataChk.SNR1AB12987UFM.UFM_5.DataChk.SNR2AB12988UFM.UFM_5.DataChk.SNR3AB12989UFM.UFM_5.DataChk.SNR4AB12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L5	12980	UFM.UFM_5.DataChk.VALID5_PCT	
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12984UFM.UFM_5.DataChk.FLWVEL_L412985UFM.UFM_5.DataChk.FLWVEL_L512986UFM.UFM_5.DataChk.SNR1AB12987UFM.UFM_5.DataChk.SNR2AB12988UFM.UFM_5.DataChk.SNR3AB12989UFM.UFM_5.DataChk.SNR3AB12990UFM.UFM_5.DataChk.SNR4AB12991UFM.UFM_5.DataChk.SNR5AB12992UFM.UFM_5.DataChk.SNDSPD_L112993UFM.UFM_5.DataChk.SNDSPD_L212994UFM.UFM_5.DataChk.SNDSPD_L312995UFM.UFM_5.DataChk.SNDSPD_L5	12982	UFM.UFM_5.DataChk.FLWVEL_L2	
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12986UFM.UFM_5.DataChk.SNR1AB12987UFM.UFM_5.DataChk.SNR2AB12988UFM.UFM_5.DataChk.SNR3AB12989UFM.UFM_5.DataChk.SNR4AB12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12984	UFM.UFM_5.DataChk.FLWVEL_L4	
12987UFM.UFM_5.DataChk.SNR2AB12988UFM.UFM_5.DataChk.SNR3AB12989UFM.UFM_5.DataChk.SNR3AB12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12985	UFM.UFM_5.DataChk.FLWVEL_L5	
12988UFM.UFM_5.DataChk.SNR3AB12989UFM.UFM_5.DataChk.SNR4AB12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12986	UFM.UFM_5.DataChk.SNR1AB	
12989UFM.UFM_5.DataChk.SNR4AB12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12987	UFM.UFM_5.DataChk.SNR2AB	
12990UFM.UFM_5.DataChk.SNR5AB12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12988	UFM.UFM_5.DataChk.SNR3AB	
12991UFM.UFM_5.DataChk.SNDSPD_L112992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12989	UFM.UFM_5.DataChk.SNR4AB	
12992UFM.UFM_5.DataChk.SNDSPD_L212993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12990	UFM.UFM_5.DataChk.SNR5AB	
12993UFM.UFM_5.DataChk.SNDSPD_L312994UFM.UFM_5.DataChk.SNDSPD_L412995UFM.UFM_5.DataChk.SNDSPD_L5	12991	UFM.UFM_5.DataChk.SNDSPD_L1	
12994 UFM.UFM_5.DataChk.SNDSPD_L4 12995 UFM.UFM_5.DataChk.SNDSPD_L5	12992	UFM.UFM_5.DataChk.SNDSPD_L2	
12995 UFM.UFM_5.DataChk.SNDSPD_L5	12993	UFM.UFM_5.DataChk.SNDSPD_L3	
	12994	UFM.UFM_5.DataChk.SNDSPD_L4	
12996 UFM.UFM_5.DataChk.ANGLE_ALRM	12995	UFM.UFM_5.DataChk.SNDSPD_L5	
	12996	UFM.UFM_5.DataChk.ANGLE_ALRM	

12997	UFM.UFM_5.DataChk.NUM_AQRD	
12998	UFM.UFM_5.DataChk.PF_ALRM	
12999	UFM.UFM_5.DataChk.SYMMTRY_ALRM	
13000	UFM.UFM_5.DataChk.S1_Diff	
13001	UFM.UFM_5.DataChk.S2_Diff	
13002	UFM.UFM_5.DataChk.S3_Diff	
13003	UFM.UFM_5.DataChk.S4_Diff	
13004	UFM.UFM_5.DataChk.S5_Diff	
13005	UFM.UFM_5.DataChk.FLWVEL_R1	
13006	UFM.UFM_5.DataChk.FLWVEL_R2	
13007	UFM.UFM_5.DataChk.FLWVEL_R3	
13008	UFM.UFM_5.DataChk.FLWVEL_R4	
13009	UFM.UFM_5.DataChk.FLWVEL_R5	
13010	UFM.UFM_5.DataChk.ZF_Test	
13011	UFM.UFM_5.DataChk.Path1_Status	
13012	UFM.UFM_5.DataChk.Path2_Status	
13013	UFM.UFM_5.DataChk.Path3_Status	
13014	UFM.UFM_5.DataChk.Path4_Status	
13015	UFM.UFM_5.DataChk.Path5_Status	
13016	UFM.UFM_5.DataChk.Meter_Status	
13017	UFM.UFM_5.DataChk.Meter_Prfrmnc	
13018	UFM.UFM_5.DataChk.Meter_Stable	
13019	UFM.UFM_5.DataChk.AGC13_DLTA	
13020	UFM.UFM_5.DataChk.AGC15_DLTA	
13021		
13022	UFM.UFM_5.DataChk.AGC35_DLTA	
13023	UFM.UFM_5.DataChk.AGCDLT_1A1B	
13024	UFM.UFM_5.DataChk.AGCDLT_2A2B	
13025	UFM.UFM_5.DataChk.AGCDLT_3A3B	
13026	UFM.UFM_5.DataChk.AGCDLT_4A4B	
13027	UFM.UFM_5.DataChk.AGCDLT_5A5B	
13028	UFM.UFM_5.DataChk.AVGAGC_1A1B	
13029	UFM.UFM_5.DataChk.AVGAGC_2A2B	
13030	UFM.UFM_5.DataChk.AVGAGC_3A3B	
13031	UFM.UFM_5.DataChk.AVGAGC_4A4B	
13032	UFM.UFM_5.DataChk.AVGAGC_5A5B	
13033	UFM.UFM_5.DataChk.PF_Hi	

13034	UFM.UFM_5.DataChk.PF_Lo	
13035	UFM.UFM_5.DataChk.SYMMTRY_Hi	
13036	UFM.UFM 5.DataChk.SYMMTRY Lo	
13037	UFM.UFM 5.DataChk.ANGLE Hi	
13038	UFM.UFM_5.DataChk.ANGLE_Lo	
13039	UFM.UFM_5.DataChk.VALPCT_L	
13040	UFM.UFM 5.DataChk.SNR Lo	
13041	UFM.UFM 5.DataChk.AGCIA Hi	
13042	UFM.UFM_5.DataChk.AGCOS_Hi	
13043	UFM.UFM_5.DataChk.SOS_Hi	
13044	UFM.UFM_5.DataChk.SOS_Lo	
13045	UFM.UFM_5.DataChk.VoG_Hi	
13046	UFM.UFM_5.DataChk.VoG_Lo	
13047	UFM.UFM 5.DataChk.SOSDiff Hi	
13048	UFM.UFM_5.DataChk.ZF_Test_Hi	
13049	UFM.UFM_5.DataChk.TrbIncl_Hi	
13050	UFM.UFM_5.DataChk.TrbIncO_Hi	
13051	UFM.UFM_5.DataChk.Comm_Lo	
13052	UFM.UFM_5.DataChk.AvgFlowVel_MaxChng	
13053	UFM.UFM_6.DataValid_Cutoff	
13054	UFM.UFM_6.Kfact	-
13055	UFM.UFM_6.SwirlAngle	-
13056	UFM.UFM_6.SNR1A	
13057	UFM.UFM_6.SNR1B	
13058	UFM.UFM_6.SNR2A	
13059	UFM.UFM_6.SNR2B	
13060	UFM.UFM_6.SNR3A	
13061	UFM.UFM_6.SNR3B	
13062	UFM.UFM_6.SNR4A	
13063	UFM.UFM_6.SNR4B	
13064	UFM.UFM_6.SNR5A	
13065	UFM.UFM_6.SNR5B	
13066	UFM.UFM_6.UCFlow_MCFD	
13067	UFM.UFM_6.InstType	
13068	UFM.UFM_6.Paths	
13069	UFM.UFM_6.SampleRate	
13070	UFM.UFM_6.VSamplesL1	
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13071	UFM.UFM_6.VSamplesL2	
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13072	UFM.UFM_6.VSamplesL3	
13073	UFM.UFM_6.VSamplesL4	
13074	UFM.UFM_6.VSamplesL5	
13075	UFM.UFM_6.GainLim1A	
13076	UFM.UFM_6.GainLim1B	
13077	UFM.UFM_6.GainLim2A	
13078	UFM.UFM_6.GainLim2B	
13079	UFM.UFM_6.GainLim3A	
13080	UFM.UFM_6.GainLim3B	
13081	UFM.UFM_6.GainLim4A	
13082	UFM.UFM_6.GainLim4B	
13083	UFM.UFM_6.GainLim5A	
13084	UFM.UFM_6.GainLim5B	
13085	UFM.UFM_6.SysStatusV	
13086	UFM.UFM_6.SysStatusC	
13087	UFM.UFM_6.CheckSum	
13088	UFM.UFM_6.Mode	
13089	UFM.UFM_6.CFlow_MCFD	
13090	UFM.UFM_6.FailureRate1	
13091	UFM.UFM_6.FailureRate2	
13092	UFM.UFM_6.FailureRate3	
13093	UFM.UFM_6.FailureRate4	
13094	UFM.UFM_6.PctGoodA1	
13095	UFM.UFM_6.PctGoodB1	
13096	UFM.UFM_6.PctGoodC1	
13097	UFM.UFM_6.PctGoodD1	
13098	UFM.UFM_6.PctGoodA2	
13099	UFM.UFM_6.PctGoodB2	
13100	UFM.UFM_6.PctGoodC2	
13101	UFM.UFM_6.PctGoodD2	
13102	UFM.UFM_6.Delay	
13103	UFM.UFM_6.Turbulence1	
13104	UFM.UFM_6.Turbulence2	
13105	UFM.UFM_6.Turbulence3	
13106	UFM.UFM_6.Turbulence4	
13107	UFM.UFM_6.Monitor_Count	
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13108	UFM.UFM_6.PCT_Good	
13109	UFM.UFM_6.Good_Polls	<u> </u>
13110	UFM.UFM_6.Bad_Polls	
13111	UFM.UFM_6.DataChk.VALID1_PCT	
13112	UFM.UFM_6.DataChk.VALID2_PCT	
13113	UFM.UFM_6.DataChk.VALID3_PCT	
13114	UFM.UFM_6.DataChk.VALID4_PCT	
13115	UFM.UFM_6.DataChk.VALID5_PCT	
13116	UFM.UFM_6.DataChk.FLWVEL_L1	
13117	UFM.UFM_6.DataChk.FLWVEL_L2	
13118	UFM.UFM_6.DataChk.FLWVEL_L3	
13119	UFM.UFM_6.DataChk.FLWVEL_L4	
13120	UFM.UFM_6.DataChk.FLWVEL_L5	
13121	UFM.UFM_6.DataChk.SNR1AB	
13122	UFM.UFM_6.DataChk.SNR2AB	
13123	UFM.UFM_6.DataChk.SNR3AB	
13124	UFM.UFM_6.DataChk.SNR4AB	
13125	UFM.UFM_6.DataChk.SNR5AB	
13126	UFM.UFM_6.DataChk.SNDSPD_L1	
13127	UFM.UFM_6.DataChk.SNDSPD_L2	
13128	UFM.UFM_6.DataChk.SNDSPD_L3	
13129	UFM.UFM_6.DataChk.SNDSPD_L4	
13130	UFM.UFM_6.DataChk.SNDSPD_L5	
13131	UFM.UFM_6.DataChk.ANGLE_ALRM	
13132	UFM.UFM_6.DataChk.NUM_AQRD	
13133	UFM.UFM_6.DataChk.PF_ALRM	
13134	UFM.UFM_6.DataChk.SYMMTRY_ALRM	
13135	UFM.UFM_6.DataChk.S1_Diff	
13136	UFM.UFM_6.DataChk.S2_Diff	
13137	UFM.UFM_6.DataChk.S3_Diff	
13138	UFM.UFM_6.DataChk.S4_Diff	
13139	UFM.UFM_6.DataChk.S5_Diff	
13140	UFM.UFM_6.DataChk.FLWVEL_R1	
13141	UFM.UFM_6.DataChk.FLWVEL_R2	
13142	UFM.UFM_6.DataChk.FLWVEL_R3	
13143	UFM.UFM_6.DataChk.FLWVEL_R4	
13144	UFM.UFM_6.DataChk.FLWVEL_R5	
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13145	UFM.UFM_6.DataChk.ZF_Test	
13146	UFM.UFM 6.DataChk.Path1 Status	
13147	UFM.UFM_6.DataChk.Path2_Status	
13148	UFM.UFM_6.DataChk.Path3_Status	
13149	UFM.UFM_6.DataChk.Path4_Status	
13150	UFM.UFM_6.DataChk.Path5_Status	
13150	UFM.UFM_6.DataChk.Meter_Status	
13151	UFM.UFM_6.DataChk.Meter_Prfrmnc	
13152	UFM.UFM_6.DataChk.Meter_Stable	
13153	UFM.UFM_6.DataChk.AGC13_DLTA	
13155	UFM.UFM_6.DataChk.AGC15_DLTA	
13156	UFM.UFM_6.DataChk.AGC24_DLTA	
13157	UFM.UFM_6.DataChk.AGC35_DLTA	
13158	UFM.UFM_6.DataChk.AGCDLT_1A1B	
13159	UFM.UFM_6.DataChk.AGCDLT_2A2B	
13160	UFM.UFM_6.DataChk.AGCDLT_3A3B	
13161	UFM.UFM_6.DataChk.AGCDLT_4A4B	
13162	UFM.UFM_6.DataChk.AGCDLT_5A5B	
13163	UFM.UFM_6.DataChk.AVGAGC_1A1B	
13164	UFM.UFM_6.DataChk.AVGAGC_2A2B	
13165	UFM.UFM_6.DataChk.AVGAGC_3A3B	
13166	UFM.UFM_6.DataChk.AVGAGC_4A4B	
13167	UFM.UFM_6.DataChk.AVGAGC_5A5B	
13168	UFM.UFM_6.DataChk.PF_Hi	
13169	UFM.UFM_6.DataChk.PF_Lo	
13170	UFM.UFM_6.DataChk.SYMMTRY_Hi	
13171	UFM.UFM_6.DataChk.SYMMTRY_Lo	
13172	UFM.UFM_6.DataChk.ANGLE_Hi	
13173	UFM.UFM_6.DataChk.ANGLE_Lo	
13174	UFM.UFM_6.DataChk.VALPCT_L	
13175	UFM.UFM_6.DataChk.SNR_Lo	
13176	UFM.UFM_6.DataChk.AGCIA_Hi	
13177	UFM.UFM_6.DataChk.AGCOS_Hi	
13178	UFM.UFM_6.DataChk.SOS_Hi	
13179	UFM.UFM_6.DataChk.SOS_Lo	
13180	UFM.UFM_6.DataChk.VoG_Hi	
13181	UFM.UFM_6.DataChk.VoG_Lo	
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13182	UFM.UFM_6.DataChk.SOSDiff_Hi	
13183	UFM.UFM_6.DataChk.ZF_Test_Hi	
13184	UFM.UFM_6.DataChk.TrbIncl_Hi	
13185	UFM.UFM_6.DataChk.TrbIncO_Hi	
13186	UFM.UFM_6.DataChk.Comm_Lo	
13187	UFM.UFM_6.DataChk.AvgFlowVel_MaxChng	
13188	UFM.UFM_6.DataValid_Cutoff	
13189	UFM.UFM_7_PORT	CWM Master Port connected to Ultrasonic Meter n
13190	UFM.UFM_7_ADDRESS	Address of Ultrasonic Meter n
13191	UFM.UFM_7_TYPE	Ultrasonic Meter n Type
13192	UFM.UFM_7.AVGSOS	Ultrasonic Meter n average Speed of Sound (SOS) - all paths
13193	UFM.UFM_7.SOS1	Ultrasonic Meter n Speed of Sound (SOS) path 1
13194	UFM.UFM_7.SOS2	Ultrasonic Meter n Speed of Sound (SOS) path 2
13195	UFM.UFM_7.SOS3	Ultrasonic Meter n Speed of Sound (SOS) path 3
13196	UFM.UFM_7.SOS4	Ultrasonic Meter n Speed of Sound (SOS) path 4
13197	UFM.UFM_7.SOS5	Ultrasonic Meter n Speed of Sound (SOS) path 5
13198	MB.SPARE	Ultrasonic Meter n Profile
13199	UFM.UFM_7.SYSTEMSTATUS	Ultrasonic Meter status
13200	UFM.UFM_7.GAIN1A	Ultrasonic Meter gain A path 1
13201	UFM.UFM_7.GAIN2A	Ultrasonic Meter gain A path 2
13202	UFM.UFM_7.GAIN3A	Ultrasonic Meter gain A path 3
13203	UFM.UFM_7.GAIN4A	Ultrasonic Meter gain A path 4
13204	UFM.UFM_7.GAIN5A	Ultrasonic Meter gain A path 5
13205	UFM.UFM_7.GAIN1B	Ultrasonic Meter gain B path 1
13206	UFM.UFM_7.GAIN2B	Ultrasonic Meter gain B path 2
13207	UFM.UFM_7.GAIN3B	Ultrasonic Meter gain B path 3
13208	UFM.UFM_7.GAIN4B	Ultrasonic Meter gain B path 4
13209	UFM.UFM_7.GAIN5B	Ultrasonic Meter gain B path 5
13210	UFM.UFM_8_PORT	CWM Master Port connected to Ultrasonic Meter n
13211	UFM.UFM_8_ADDRESS	Address of Ultrasonic Meter n
13212	UFM.UFM_8_TYPE	Ultrasonic Meter n Type
13213	UFM.UFM_8.AVGSOS	Ultrasonic Meter n average Speed of Sound

		(SOS) - all paths
13214	UFM.UFM_8.SOS1	Ultrasonic Meter n Speed of Sound (SOS) path 1
13215	UFM.UFM_8.SOS2	Ultrasonic Meter n Speed of Sound (SOS) path 2
13216	UFM.UFM_8.SOS3	Ultrasonic Meter n Speed of Sound (SOS) path 3
13217	UFM.UFM_8.SOS4	Ultrasonic Meter n Speed of Sound (SOS) path 4
13218	UFM.UFM_8.SOS5	Ultrasonic Meter n Speed of Sound (SOS) path 5
13219	MB.SPARE	Ultrasonic Meter n Profile
13220	UFM.UFM_8.SYSTEMSTATUS	Ultrasonic Meter status
13221	UFM.UFM_8.GAIN1A	Ultrasonic Meter gain A path 1
13222	UFM.UFM_8.GAIN2A	Ultrasonic Meter gain A path 2
13223	UFM.UFM_8.GAIN3A	Ultrasonic Meter gain A path 3
13224	UFM.UFM_8.GAIN4A	Ultrasonic Meter gain A path 4
13225	UFM.UFM_8.GAIN5A	Ultrasonic Meter gain A path 5
13226	UFM.UFM_8.GAIN1B	Ultrasonic Meter gain B path 1
13227	UFM.UFM_8.GAIN2B	Ultrasonic Meter gain B path 2
13228	UFM.UFM_8.GAIN3B	Ultrasonic Meter gain B path 3
13229	UFM.UFM_8.GAIN4B	Ultrasonic Meter gain B path 4
13230	UFM.UFM_8.GAIN5B	Ultrasonic Meter gain B path 5
13231	UFM.UFM_7.Kfact	
13232	UFM.UFM_7.SwirlAngle	
13233	UFM.UFM_7.SNR1A	
13234	UFM.UFM_7.SNR1B	
13235	UFM.UFM_7.SNR2A	
13236	UFM.UFM_7.SNR2B	
13237	UFM.UFM_7.SNR3A	
13238	UFM.UFM_7.SNR3B	
13239	UFM.UFM_7.SNR4A	
13240	UFM.UFM_7.SNR4B	
13241	UFM.UFM_7.SNR5A	
13242	UFM.UFM_7.SNR5B	
13243	UFM.UFM_7.UCFlow_MCFD	
13244	UFM.UFM_7.InstType	
13245	UFM.UFM_7.Paths	
13246	UFM.UFM_7.SampleRate	

13247	UFM.UFM_7.VSamplesL1	
13248	UFM.UFM_7.VSamplesL2	
13249	UFM.UFM_7.VSamplesL3	
13250	UFM.UFM_7.VSamplesL4	
13251	UFM.UFM_7.VSamplesL5	
13252	UFM.UFM_7.GainLim1A	
13253	UFM.UFM_7.GainLim1B	
13254	UFM.UFM_7.GainLim2A	
13255	UFM.UFM_7.GainLim2B	
13256	UFM.UFM_7.GainLim3A	
13257	UFM.UFM_7.GainLim3B	
13258	UFM.UFM_7.GainLim4A	
13259	UFM.UFM_7.GainLim4B	
13260	UFM.UFM_7.GainLim5A	
13261	UFM.UFM_7.GainLim5B	
13262	UFM.UFM_7.SysStatusV	
13263	UFM.UFM_7.SysStatusC	
13264	UFM.UFM_7.CheckSum	
13265	UFM.UFM_7.Mode	
13266	UFM.UFM_7.CFlow_MCFD	
13267	UFM.UFM_7.FailureRate1	
13268	UFM.UFM_7.FailureRate2	
13269	UFM.UFM_7.FailureRate3	
13270	UFM.UFM_7.FailureRate4	
13271	UFM.UFM_7.PctGoodA1	
13272	UFM.UFM_7.PctGoodB1	
13273	UFM.UFM_7.PctGoodC1	
13274	UFM.UFM_7.PctGoodD1	
13275	UFM.UFM_7.PctGoodA2	
13276	UFM.UFM_7.PctGoodB2	
13277	UFM.UFM_7.PctGoodC2	
13278	UFM.UFM_7.PctGoodD2	
13279	UFM.UFM_7.Delay	
13280	UFM.UFM_7.Turbulence1	
13281	UFM.UFM_7.Turbulence2	
13282	UFM.UFM_7.Turbulence3	
13283	UFM.UFM_7.Turbulence4	
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13284	UFM.UFM_7.Monitor_Count	
13285	UFM.UFM 7.PCT Good	
13286	UFM.UFM_7.Good_Polls	
13287	UFM.UFM_7.Bad_Polls	
13288	UFM.UFM_7.DataChk.VALID1_PCT	
13289	UFM.UFM_7.DataChk.VALID2_PCT	
13290	UFM.UFM_7.DataChk.VALID3_PCT	
13291	UFM.UFM_7.DataChk.VALID4_PCT	
13292	UFM.UFM_7.DataChk.VALID5_PCT	
13293	UFM.UFM_7.DataChk.FLWVEL_L1	
13294	UFM.UFM_7.DataChk.FLWVEL_L2	
13295	UFM.UFM_7.DataChk.FLWVEL_L3	
13296	UFM.UFM_7.DataChk.FLWVEL_L4	
13297	UFM.UFM_7.DataChk.FLWVEL_L5	
13298	UFM.UFM_7.DataChk.SNR1AB	
13299	UFM.UFM_7.DataChk.SNR2AB	
13300	UFM.UFM_7.DataChk.SNR3AB	
13301	UFM.UFM_7.DataChk.SNR4AB	
13302	UFM.UFM_7.DataChk.SNR5AB	
13303	UFM.UFM_7.DataChk.SNDSPD_L1	
13304	UFM.UFM_7.DataChk.SNDSPD_L2	
13305	UFM.UFM_7.DataChk.SNDSPD_L3	
13306	UFM.UFM_7.DataChk.SNDSPD_L4	
13307	UFM.UFM_7.DataChk.SNDSPD_L5	
13308	UFM.UFM_7.DataChk.ANGLE_ALRM	
13309	UFM.UFM_7.DataChk.NUM_AQRD	
13310	UFM.UFM_7.DataChk.PF_ALRM	
13311	UFM.UFM_7.DataChk.SYMMTRY_ALRM	
13312	UFM.UFM_7.DataChk.S1_Diff	
13313	UFM.UFM_7.DataChk.S2_Diff	
13314	UFM.UFM_7.DataChk.S3_Diff	
13315	UFM.UFM_7.DataChk.S4_Diff	
13316	UFM.UFM_7.DataChk.S5_Diff	
13317	UFM.UFM_7.DataChk.FLWVEL_R1	
13318	UFM.UFM_7.DataChk.FLWVEL_R2	
13319	UFM.UFM_7.DataChk.FLWVEL_R3	
13320	UFM.UFM_7.DataChk.FLWVEL_R4	

	UFM.UFM_7.DataChk.FLWVEL_R5	
13322	UFM.UFM_7.DataChk.ZF_Test	
	UFM.UFM_7.DataChk.Path1_Status	
	UFM.UFM_7.DataChk.Path2_Status	
13325	UFM.UFM_7.DataChk.Path3_Status	
	UFM.UFM_7.DataChk.Path4_Status	
	UFM.UFM 7.DataChk.Path5 Status	
	UFM.UFM_7.DataChk.Meter_Status	
13329	UFM.UFM_7.DataChk.Meter_Prfrmnc	
13330	UFM.UFM_7.DataChk.Meter_Stable	
13331	UFM.UFM_7.DataChk.AGC13_DLTA	
13332	UFM.UFM_7.DataChk.AGC15_DLTA	
13333	UFM.UFM_7.DataChk.AGC24_DLTA	
13334	UFM.UFM_7.DataChk.AGC35_DLTA	
13335	UFM.UFM_7.DataChk.AGCDLT_1A1B	
13336	UFM.UFM_7.DataChk.AGCDLT_2A2B	
13337	UFM.UFM_7.DataChk.AGCDLT_3A3B	
13338	UFM.UFM_7.DataChk.AGCDLT_4A4B	
13339	UFM.UFM_7.DataChk.AGCDLT_5A5B	
13340	UFM.UFM_7.DataChk.AVGAGC_1A1B	
13341	UFM.UFM_7.DataChk.AVGAGC_2A2B	
13342	UFM.UFM_7.DataChk.AVGAGC_3A3B	
13343	UFM.UFM_7.DataChk.AVGAGC_4A4B	
13344	UFM.UFM_7.DataChk.AVGAGC_5A5B	
13345	UFM.UFM_7.DataChk.PF_Hi	
13346	UFM.UFM_7.DataChk.PF_Lo	
13347	UFM.UFM_7.DataChk.SYMMTRY_Hi	
13348	UFM.UFM_7.DataChk.SYMMTRY_Lo	
13349	UFM.UFM_7.DataChk.ANGLE_Hi	
13350	UFM.UFM_7.DataChk.ANGLE_Lo	
13351	UFM.UFM_7.DataChk.VALPCT_L	
13352	UFM.UFM_7.DataChk.SNR_Lo	
13353	UFM.UFM_7.DataChk.AGCIA_Hi	
13354	UFM.UFM_7.DataChk.AGCOS_Hi	
13355	UFM.UFM_7.DataChk.SOS_Hi	
13356	UFM.UFM_7.DataChk.SOS_Lo	
13357	UFM.UFM_7.DataChk.VoG_Hi	

13358	UFM.UFM_7.DataChk.VoG_Lo	
13359	UFM.UFM_7.DataChk.SOSDiff_Hi	
13360	UFM.UFM_7.DataChk.ZF_Test_Hi	
13361	UFM.UFM 7.DataChk.Trblncl Hi	
13362	UFM.UFM_7.DataChk.TrbIncO_Hi	
13363	UFM.UFM_7.DataChk.Comm_Lo	
13364	UFM.UFM_7.DataChk.AvgFlowVel_MaxChng	
13365	UFM.UFM_7.DataValid_Cutoff	
13366	UFM.UFM_8.Kfact	
13367	UFM.UFM_8.SwirlAngle	
13368	UFM.UFM_8.SNR1A	
13369	UFM.UFM_8.SNR1B	
13370	UFM.UFM_8.SNR2A	
13371	UFM.UFM_8.SNR2B	
13372	UFM.UFM 8.SNR3A	
13372	UFM.UFM_8.SNR3B	
13374	UFM.UFM_8.SNR4A	
13374	UFM.UFM_8.SNR4B	
13375	UFM.UFM_8.SNR5A	
13370	UFM.UFM_8.SNR5B	
13378	UFM.UFM_8.UCFlow_MCFD	
13379	UFM.UFM_8.InstType	
13380	UFM.UFM_8.Paths	
13381	UFM.UFM_8.SampleRate	
13382	UFM.UFM_8.VSamplesL1	
13383	UFM.UFM_8.VSamplesL2	
13384	UFM.UFM_8.VSamplesL3	
13385	UFM.UFM_8.VSamplesL4	
13386	UFM.UFM_8.VSamplesL5	
13387	UFM.UFM_8.GainLim1A	
13388	UFM.UFM_8.GainLim1B	
13389	UFM.UFM_8.GainLim2A	
13390	UFM.UFM_8.GainLim2B	
13391	UFM.UFM_8.GainLim3A	
13392	UFM.UFM_8.GainLim3B	
13393	UFM.UFM_8.GainLim4A	
13394	UFM.UFM_8.GainLim4B	

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13395	UFM.UFM_8.GainLim5A	
13396	UFM.UFM_8.GainLim5B	
13397	UFM.UFM_8.SysStatusV	
13398	UFM.UFM_8.SysStatusC	
13399	UFM.UFM_8.CheckSum	
13400	UFM.UFM_8.Mode	
13401	UFM.UFM_8.CFlow_MCFD	
13402	UFM.UFM_8.FailureRate1	
13403	UFM.UFM_8.FailureRate2	
13404	UFM.UFM_8.FailureRate3	
13405	UFM.UFM_8.FailureRate4	
13406	UFM.UFM_8.PctGoodA1	
13407	UFM.UFM_8.PctGoodB1	
13408	UFM.UFM_8.PctGoodC1	
13409	UFM.UFM_8.PctGoodD1	
13410	UFM.UFM_8.PctGoodA2	
13411	UFM.UFM_8.PctGoodB2	
13412	UFM.UFM_8.PctGoodC2	
13413	UFM.UFM_8.PctGoodD2	
13414	UFM.UFM_8.Delay	
13415	UFM.UFM_8.Turbulence1	
13416	UFM.UFM_8.Turbulence2	
13417	UFM.UFM_8.Turbulence3	
13418	UFM.UFM_8.Turbulence4	
13419	UFM.UFM_8.Monitor_Count	
13420	UFM.UFM_8.PCT_Good	
13421	UFM.UFM_8.Good_Polls	
13422	UFM.UFM_8.Bad_Polls	
13423	UFM.UFM_8.DataChk.VALID1_PCT	
13424	UFM.UFM_8.DataChk.VALID2_PCT	
13425	UFM.UFM_8.DataChk.VALID3_PCT	
13426	UFM.UFM_8.DataChk.VALID4_PCT	
13427	UFM.UFM_8.DataChk.VALID5_PCT	
13428	UFM.UFM_8.DataChk.FLWVEL_L1	
13429	UFM.UFM_8.DataChk.FLWVEL_L2	
13430	UFM.UFM_8.DataChk.FLWVEL_L3	
13431	UFM.UFM_8.DataChk.FLWVEL_L4	
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13432	UFM.UFM_8.DataChk.FLWVEL_L5	
13433	UFM.UFM_8.DataChk.SNR1AB	
13434	UFM.UFM_8.DataChk.SNR2AB	
13435	UFM.UFM_8.DataChk.SNR3AB	
13436	UFM.UFM_8.DataChk.SNR4AB	
13437	UFM.UFM_8.DataChk.SNR5AB	
13438	UFM.UFM_8.DataChk.SNDSPD_L1	
13439	UFM.UFM 8.DataChk.SNDSPD L2	
13440	UFM.UFM_8.DataChk.SNDSPD_L3	
13441	UFM.UFM_8.DataChk.SNDSPD_L4	
13442	UFM.UFM_8.DataChk.SNDSPD_L5	
13443	UFM.UFM 8.DataChk.ANGLE ALRM	
13444	UFM.UFM_8.DataChk.NUM_AQRD	
13445	UFM.UFM 8.DataChk.PF ALRM	
13446	UFM.UFM_8.DataChk.SYMMTRY_ALRM	
13447	UFM.UFM_8.DataChk.S1_Diff	
13448	UFM.UFM_8.DataChk.S2_Diff	
13449	UFM.UFM_8.DataChk.S3_Diff	
13450	UFM.UFM_8.DataChk.S4_Diff	
13451	UFM.UFM_8.DataChk.S5_Diff	
13452	UFM.UFM_8.DataChk.FLWVEL_R1	
13453	UFM.UFM_8.DataChk.FLWVEL_R2	
13454	UFM.UFM_8.DataChk.FLWVEL_R3	
13455	UFM.UFM_8.DataChk.FLWVEL_R4	
13456	UFM.UFM_8.DataChk.FLWVEL_R5	
13457	UFM.UFM_8.DataChk.ZF_Test	
13458	UFM.UFM_8.DataChk.Path1_Status	
13459	UFM.UFM_8.DataChk.Path2_Status	
13460	UFM.UFM_8.DataChk.Path3_Status	
13461	UFM.UFM_8.DataChk.Path4_Status	
13462	UFM.UFM_8.DataChk.Path5_Status	
13463	UFM.UFM_8.DataChk.Meter_Status	
13464	UFM.UFM_8.DataChk.Meter_Prfrmnc	
13465	UFM.UFM_8.DataChk.Meter_Stable	
13466	UFM.UFM_8.DataChk.AGC13_DLTA	
13467	UFM.UFM_8.DataChk.AGC15_DLTA	
13468	UFM.UFM_8.DataChk.AGC24_DLTA	

13469	UFM.UFM_8.DataChk.AGC35_DLTA	
13470	UFM.UFM_8.DataChk.AGCDLT_1A1B	
13471	UFM.UFM_8.DataChk.AGCDLT_2A2B	
13472	UFM.UFM_8.DataChk.AGCDLT_3A3B	
13473	UFM.UFM_8.DataChk.AGCDLT_4A4B	
13474	UFM.UFM 8.DataChk.AGCDLT 5A5B	
13475	UFM.UFM_8.DataChk.AVGAGC_1A1B	
13476	UFM.UFM_8.DataChk.AVGAGC_2A2B	
13477	UFM.UFM_8.DataChk.AVGAGC_3A3B	
13478	UFM.UFM_8.DataChk.AVGAGC_4A4B	
13479	UFM.UFM_8.DataChk.AVGAGC_5A5B	
13480	UFM.UFM 8.DataChk.PF Hi	
13481	UFM.UFM_8.DataChk.PF_Lo	
13482	UFM.UFM_8.DataChk.SYMMTRY_Hi	
13483	UFM.UFM_8.DataChk.SYMMTRY_Lo	
13484	UFM.UFM_8.DataChk.ANGLE_Hi	
13485	UFM.UFM_8.DataChk.ANGLE_Lo	
13486	UFM.UFM_8.DataChk.VALPCT_L	
13487	UFM.UFM_8.DataChk.SNR_Lo	
13488	UFM.UFM_8.DataChk.AGCIA_Hi	
13489	UFM.UFM_8.DataChk.AGCOS_Hi	
13490	UFM.UFM_8.DataChk.SOS_Hi	
13491	UFM.UFM_8.DataChk.SOS_Lo	
13492	UFM.UFM_8.DataChk.VoG_Hi	
13493	UFM.UFM_8.DataChk.VoG_Lo	
13494	UFM.UFM_8.DataChk.SOSDiff_Hi	
13495	UFM.UFM_8.DataChk.ZF_Test_Hi	
13496	UFM.UFM_8.DataChk.TrbIncl_Hi	
13497	UFM.UFM_8.DataChk.TrbIncO_Hi	
13498	UFM.UFM_8.DataChk.Comm_Lo	
13499	UFM.UFM_8.DataChk.AvgFlowVel_MaxChng	
13500	UFM.UFM_8.DataValid_Cutoff	
13501	CRR.MB_Corr1.StatusA	
13502	CRR.MB_Corr1.StatusB	
13503	CRR.MB_Corr1.StatusC	
13504	CRR.MB_Corr1.StatusD	
13505	CRR.MB_Corr1.StatusE	
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13506	CRR.MB_Corr1.StatusF	
13507	CRR.MB_Corr1.HighSvrtyAlrm	
13508	CRR.MB_Corr1.MassFlowRate	
13509	CRR.MB_Corr1.Density	
13510	CRR.MB_Corr1.Temp	
13511	CRR.MB_Corr1.VolFlowRate	
13512	CRR.MB_Corr1.Press	
13513	CRR.MB_Corr1.MassTotal	
13514	CRR.MB_Corr1.VolTotal	
13515	CRR.MB_Corr1.MassInvtry	
13516	CRR.MB_Corr1.VolInvtry	
13517	CRR.MB_Corr1.PressCorrFlow	
13518	CRR.MB_Corr1.PressCorrDens	
13519	CRR.MB_Corr1.FlowCalibPress	
13520	CRR.MB_Corr1.PressInpZero	
13521	CRR.MB_Corr1.PressInpSpan	
13522	CRR.MB_Corr1.DensityCalib	
13523	CRR.MB_Corr1.MassFRMF	
13524	CRR.MB_Corr1.VolFRMF	
13525	CRR.MB_Corr1.DensityMF	
13526	CRR.MB_Corr1.RawTubeFreq	
13527	CRR.MB_Corr1.LeftPickVolt	
13528	CRR.MB_Corr1.RghtPickVolt	
13529	CRR.MB_Corr1.DriveGain	
13530	CRR.MB_Corr1.MassFlowZero	
13531	CRR.MB_Corr2.StatusA	
13532	CRR.MB_Corr2.StatusB	
13533	CRR.MB_Corr2.StatusC	
13534	CRR.MB_Corr2.StatusD	
13535	CRR.MB_Corr2.StatusE	
13536	CRR.MB_Corr2.StatusF	
13537	CRR.MB_Corr2.HighSvrtyAlrm	
13538	CRR.MB_Corr2.MassFlowRate	
13539	CRR.MB_Corr2.Density	
13540	CRR.MB_Corr2.Temp	
13541	CRR.MB_Corr2.VolFlowRate	
13542	CRR.MB_Corr2.Press	
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13543	CRR.MB_Corr2.MassTotal	
	CRR.MB Corr2.VolTotal	
13544		
13545	CRR.MB_Corr2.MassInvtry	
13546	CRR.MB_Corr2.VolInvtry	
13547	CRR.MB_Corr2.PressCorrFlow	
13548	CRR.MB_Corr2.PressCorrDens	
13549	CRR.MB_Corr2.FlowCalibPress	
13550	CRR.MB_Corr2.PressInpZero	
13551	CRR.MB_Corr2.PressInpSpan	
13552	CRR.MB_Corr2.DensityCalib	
13553	CRR.MB_Corr2.MassFRMF	
13554	CRR.MB_Corr2.VolFRMF	
13555	CRR.MB_Corr2.DensityMF	
13556	CRR.MB_Corr2.RawTubeFreq	
13557	CRR.MB_Corr2.LeftPickVolt	
13558	CRR.MB_Corr2.RghtPickVolt	
13559	CRR.MB_Corr2.DriveGain	
13560	CRR.MB_Corr2.MassFlowZero	
13561	CRR.MB_Corr3.StatusA	
13562	CRR.MB_Corr3.StatusB	
13563	CRR.MB_Corr3.StatusC	
13564	CRR.MB_Corr3.StatusD	
13565	CRR.MB_Corr3.StatusE	
13566	CRR.MB_Corr3.StatusF	
13567	CRR.MB_Corr3.HighSvrtyAlrm	
13568	CRR.MB_Corr3.MassFlowRate	
13569	CRR.MB_Corr3.Density	
13570	CRR.MB_Corr3.Temp	
13571	CRR.MB_Corr3.VolFlowRate	
13572	CRR.MB_Corr3.Press	
13573	CRR.MB_Corr3.MassTotal	
13574	CRR.MB_Corr3.VolTotal	
13575	CRR.MB_Corr3.MassInvtry	
13576	CRR.MB_Corr3.VolInvtry	
13577	CRR.MB_Corr3.PressCorrFlow	
13578	CRR.MB_Corr3.PressCorrDens	
13579	CRR.MB_Corr3.FlowCalibPress	
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13580	CRR.MB_Corr3.PressInpZero	
13581	CRR.MB_Corr3.PressInpSpan	
13582	CRR.MB_Corr3.DensityCalib	
13583	CRR.MB_Corr3.MassFRMF	
13584	CRR.MB_Corr3.VolFRMF	
13585	CRR.MB_Corr3.DensityMF	
13586	CRR.MB_Corr3.RawTubeFreq	
13587	CRR.MB_Corr3.LeftPickVolt	
13588	CRR.MB_Corr3.RghtPickVolt	
13589	CRR.MB_Corr3.DriveGain	-
13590	CRR.MB_Corr3.MassFlowZero	
13591	CRR.MB_Corr4.StatusA	
13592	CRR.MB_Corr4.StatusB	
13593	CRR.MB_Corr4.StatusC	
13594	CRR.MB_Corr4.StatusD	
13595	CRR.MB_Corr4.StatusE	
13596	CRR.MB_Corr4.StatusF	
13597	CRR.MB_Corr4.HighSvrtyAlrm	
13598	CRR.MB_Corr4.MassFlowRate	
13599	CRR.MB_Corr4.Density	
13600	CRR.MB_Corr4.Temp	
13601	CRR.MB_Corr4.VolFlowRate	
13602	CRR.MB_Corr4.Press	
13603	CRR.MB_Corr4.MassTotal	
13604	CRR.MB_Corr4.VolTotal	
13605	CRR.MB_Corr4.MassInvtry	
13606	CRR.MB_Corr4.VolInvtry	
13607	CRR.MB_Corr4.PressCorrFlow	
13608	CRR.MB_Corr4.PressCorrDens	
13609	CRR.MB_Corr4.FlowCalibPress	
13610	CRR.MB_Corr4.PressInpZero	
13611	CRR.MB_Corr4.PressInpSpan	
13612	CRR.MB_Corr4.DensityCalib	
13613	CRR.MB_Corr4.MassFRMF	
13614	CRR.MB_Corr4.VolFRMF	
13615	CRR.MB_Corr4.DensityMF	
13616	CRR.MB_Corr4.RawTubeFreq	

13617	CRR.MB_Corr4.LeftPickVolt	
13618	CRR.MB_Corr4.RghtPickVolt	
13619	CRR.MB_Corr4.DriveGain	
13620	CRR.MB_Corr4.MassFlowZero	
13621	CRR.MB_Corr5.StatusA	
13622	CRR.MB_Corr5.StatusB	
13623	CRR.MB_Corr5.StatusC	
13624	CRR.MB_Corr5.StatusD	
13625	CRR.MB_Corr5.StatusE	
13626	CRR.MB_Corr5.StatusF	
13627	CRR.MB_Corr5.HighSvrtyAlrm	
13628	CRR.MB_Corr5.MassFlowRate	
13629	CRR.MB_Corr5.Density	
13630	CRR.MB_Corr5.Temp	
13631	CRR.MB_Corr5.VolFlowRate	
13632	CRR.MB_Corr5.Press	
13633	CRR.MB_Corr5.MassTotal	
13634	CRR.MB_Corr5.VolTotal	
13635	CRR.MB_Corr5.MassInvtry	
13636	CRR.MB_Corr5.VolInvtry	
13637	CRR.MB_Corr5.PressCorrFlow	
13638	CRR.MB_Corr5.PressCorrDens	
13639	CRR.MB_Corr5.FlowCalibPress	
13640	CRR.MB_Corr5.PressInpZero	
13641	CRR.MB_Corr5.PressInpSpan	
13642	CRR.MB_Corr5.DensityCalib	
13643	CRR.MB_Corr5.MassFRMF	
13644	CRR.MB_Corr5.VolFRMF	
13645	CRR.MB_Corr5.DensityMF	
13646	CRR.MB_Corr5.RawTubeFreq	
13647	CRR.MB_Corr5.LeftPickVolt	
13648	CRR.MB_Corr5.RghtPickVolt	
13649	CRR.MB_Corr5.DriveGain	
13650	CRR.MB_Corr5.MassFlowZero	
13651	CRR.MB_Corr6.StatusA	
13652	CRR.MB_Corr6.StatusB	
13653	CRR.MB_Corr6.StatusC	
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13665 CRR.MB_Corr6.StatusE 13666 CRR.MB_Corr6.IdipSvtrAlm 13657 CRR.MB_Corr6.MassFlowRate 13658 CRR.MB_Corr6.Density 13660 CRR.MB_Corr6.Temp 13661 CRR.MB_Corr6.Temp 13662 CRR.MB_Corr6.VolFlowRate 13663 CRR.MB_Corr6.Temp 13664 CRR.MB_Corr6.VolFlowRate 13665 CRR.MB_Corr6.MassTotal 13666 CRR.MB_Corr6.VolFlowRate 13666 CRR.MB_Corr6.VolTotal 13666 CRR.MB_Corr6.VolInvtry 13667 CRR.MB_Corr6.PressCorrFlow 13668 CRR.MB_Corr6.PressCorrFlow 13669 CRR.MB_Corr6.PressInpZero 13670 CRR.MB_Corr6.DensityCallb 13671 CRR.MB_Corr6.DensityCallb 13672 CRR.MB_Corr6.DensityCallb 13673 CRR.MB_Corr6.BenstWIFF 13674 CRR.MB_Corr6.RassFRMF 13675 CRR.MB_Corr6.RassFlowZero 13676 CR.MB_Corr6.RassFlowZero 13679 CRR.MB_Corr6.RassFlowZero 13680 CRR.MB_Corr6.RassFlowZero 13681 MB.Spare	13654	CRR.MB_Corr6.StatusD			
13656 CRR.MB_Corr6.StatusF 13657 CRR.MB_Corr6.HighSvrtyAlrm 13658 CRR.MB_Corr6.MassFlowRate 13659 CRR.MB_Corr6.Density 13660 CRR.MB_Corr6.VolFlowRate 13661 CRR.MB_Corr6.VolFlowRate 13662 CRR.MB_Corr6.VolFlowRate 13663 CRR.MB_Corr6.VolFowRate 13664 CRR.MB_Corr6.VolTotal 13665 CRR.MB_Corr6.NassTotal 13666 CRR.MB_Corr6.VolTotal 13666 CRR.MB_Corr6.PressCorrFlow 13667 CRR.MB_Corr6.PressCorrFlow 13668 CRR.MB_Corr6.PressInpZero 13670 CRR.MB_Corr6.PressInpSpan 13671 CRR.MB_Corr6.PressInpSpan 13672 CRR.MB_Corr6.NersInpSpan 13675 CRR.MB_Corr6.VolFRMF 13676 CRR.MB_Corr6.NersInpSpan 13677 CRR.MB_Corr6.NersInpK 13678 CRR.MB_Corr6.NersInpK 13676 CRR.MB_Corr6.NersInpK 13677 CRR.MB_Corr6.NersInpK 13678 CRR.MB_Corr6.NersInpK 13679 CRR.MB_Cor	13655				
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13723 MB.Spare ****** RESERVED FOR	13722	MB.Spare	*****	RESERVED FOR	*****
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13724 MB.Spare ****** RESERVED FOR ******	13724	MB.Spare	*****	RESERVED FOR	*****
13725 MB.Spare ****** RESERVED FOR	13725	MB.Spare	*****	RESERVED FOR	*****
13726 MB.Spare ****** RESERVED FOR ******	13726	MB.Spare	*****	RESERVED FOR	*****
13727 MB.Spare ****** RESERVED FOR ******	13727	MB.Spare	*****	RESERVED FOR	*****

13728	MB.Spare	*****	RESERVED FOR	*****
13729	MB.Spare	*****	RESERVED FOR	*****
13730	MB.Spare	*****	RESERVED FOR	*****
13731	MB.Spare	*****	RESERVED FOR	****
13732	MB.Spare	*****	RESERVED FOR	*****
13733	MB.Spare	*****	RESERVED FOR	*****
13734	MB.Spare	*****	RESERVED FOR	*****
13735	MB.Spare	*****	RESERVED FOR	*****
13736	MB.Spare	*****	RESERVED FOR	*****
13737	MB.Spare	*****	RESERVED FOR	*****
13738	MB.Spare	*****	RESERVED FOR	*****
13739	MB.Spare	*****	RESERVED FOR	*****
13739	MB.Spare	*****	RESERVED FOR	****
13740	HRT.IHARTFB_1.orPV		RESERVEDFOR	
13741	HRT.IHARTFB_2.orPV			
13742	HRT.IHARTFB_3.orPV			
13743	HRT.IHARTFB_4.orPV			
13744	HRT.IHARTFB_5.orPV			
13745	HRT.IHARTFB_6.orPV			
13740	HRT.IHARTFB_7.orPV			
13747	HRT.IHARTFB_8.orPV			
13740	HRT.IHARTFB_9.orPV			
13750	HRT.IHARTFB_10.orPV			
13751	HRT.IHARTFB_11.orPV			
13752	HRT.IHARTFB_12.orPV			
13753	HRT.IHARTFB 13.orPV			
13754	HRT.IHARTFB_14.orPV			
13755	HRT.IHARTFB_15.orPV			
13756	HRT.IHARTFB_16.orPV			
13757	HRT.IHARTFB 17.orPV			
13758	HRT.IHARTFB_18.orPV			
13759	WHRT.WHARTFB_1.orPV1			
13760	WHRT.WHARTFB_1.orPV2			
13761	WHRT.WHARTFB_1.orPV3			
13762	WHRT.WHARTFB_1.orPV4			
13763	WHRT.WHARTFB_1.orPV5			
13763	WHRT.WHARTFB_1.orPV6			
13704				

13765	WHRT.WHARTFB_1.orPV7	
13766	WHRT.WHARTFB_1.orPV8	
13767	WHRT.WHARTFB_1.orPV9	
13768	WHRT.WHARTFB_1.orPV10	
13769	WHRT.WHARTFB_1.orPV11	
13770	WHRT.WHARTFB_1.orPV12	
13771	WHRT.WHARTFB_1.orPV13	
13772	WHRT.WHARTFB_1.orPV14	
13773	WHRT.WHARTFB_1.orPV15	
13774	WHRT.WHARTFB_1.orPV16	
13775	WHRT.WHARTFB_1.orPV17	
13776	WHRT.WHARTFB_1.orPV18	

Reg#	Variable	Description
3001	MB.Spare	(Reserved for Modbus Special Functions!)
3002	MB.Spare	(Reserved for Modbus Special Functions!)
3003	MB.Spare	(Reserved for Modbus Special Functions!)
3004	MB.Spare	(Reserved for Modbus Special Functions!)
3005	FC.FC1.RX_HourlyNewestRec	Run 1 - newest record number in hourly archive
3006	FC.FC2.RX_HourlyNewestRec	Run 2 - newest record number in hourly archive
3007	FC.FC3.RX_HourlyNewestRec	Run 3 - newest record number in hourly archive
3008	FC.FC4.RX_HourlyNewestRec	Run 4 - newest record number in hourly archive
3009	FC.FC5.RX_HourlyNewestRec	Run 5 - newest record number in hourly archive
3010	FC.FC6.RX_HourlyNewestRec	Run 6 - newest record number in hourly archive
3011	FC.FC7.RX_HourlyNewestRec	Run 7 - newest record number in hourly archive
3012	FC.FC8.RX_HourlyNewestRec	Run 8 - newest record number in hourly archive
3013	MB.Spare	Run n - newest record number in hourly archive, $n = 1$ through 12
3014	MB.Spare	Run n - newest record number in hourly archive, $n = 1$ through 12
3015	MB.Spare	Run n - newest record number in hourly archive, $n = 1$ through 12
3016	MB.Spare	Run n - newest record number in hourly archive, $n = 1$ through 12
3017	FC.FC1.RX_DailyNewestRec	Run 1 - newest record number in daily archive
3018	FC.FC2.RX_DailyNewestRec	Run 2 - newest record number in daily archive
3019	FC.FC3.RX_DailyNewestRec	Run 3 - newest record number in daily archive
3020	FC.FC4.RX_DailyNewestRec	Run 4 - newest record number in daily archive
3021	FC.FC5.RX_DailyNewestRec	Run 5 - newest record number in daily archive
3022	FC.FC6.RX_DailyNewestRec	Run 6 - newest record number in daily archive
3023	FC.FC7.RX_DailyNewestRec	Run 7 - newest record number in daily archive

Table M-3 Modbus Register Map – SINT Variables

Reg#	Variable	Description
3024	FC.FC8.RX_DailyNewestRec	Run 8 - newest record number in daily archive
3025	MB.Spare	Run n - newest record number in daily archive, n = 1 through 12
3026	MB.Spare	Run n - newest record number in daily archive, n = 1 through 12
3027	MB.Spare	Run n - newest record number in daily archive, n = 1 through 12
3028	MB.Spare	Run n - newest record number in daily archive, n = 1 through 12
3029	MB.Enron_AuditCount	Number of audit records available via Enron MODBUS
3030	MB.Enron_Date	Register where Date is available via Enron, if not default
3031	MB.Enron_Time	Register where Time is available via Enron, if not default
3032	MB.Enron_FirmWareID	Firmware ID available via Enron MODBUS
3033	MB.Enron_EAudit	The Modbus register address number that will cause the special function for Enhanced Audit access to be executed.
3034	IO_1.Timeset.Encode_Load	Load the current RTU Time and Date values to Enron MODBUS Registers
3035	IO_1.Timeset.Encode_Write	Write the current RTU Time and Date values to Enron MODBUS Registers
3036	IO_1.cfg_Year	Year value for setting time/date via Enron MODBUS
3037	IO_1.cfg_Month	Month value for setting time/date via Enron MODBUS
3038	IO_1.cfg_Day	Day value for setting time/date via Enron MODBUS
3039	IO_1.cfg_Hour	Hour value for setting time/date via Enron MODBUS
3040	IO_1.cfg_Min	Minutes value for setting time/date via Enron MODBUS
3041	IO_1.cfg_Sec	Seconds value for setting time/date via Enron MODBUS
3042	IO_1.DLST.BM	Daylight Savings time - beginning month
3043	IO_1.DLST.Begin_Sunday	Daylight Savings time - beginning Sunday
3044	IO_1.DLST.EM	Daylight Savings time - ending month
3045	IO_1.DLST.End_Sunday	Daylight Savings time - ending Sunday
3046	IO_1.DLST_Enable	Daylight Savings time - enable automatic adjustment of Daylight Savings time
3047	MB.HourRecord	Enron MODBUS, latests hourly record
3048	MB.DayRecord	Enron MODBUS, latests Daily record
3049	@GV.FW_Major	Firmware version - major version number
3050	@GV.FW_Minor	Firmware version - minor version number
3051	@GV.MB_Cryout1	
3052	MB.HourRecord1	
3053	MB.HourRecord2	
3054	MB.HourRecord3	
3055	MB.HourRecord4	
3056	MB.HourRecord5	
3057	MB.HourRecord6	
3058	MB.HourRecord7	
3059	MB.HourRecord8	
3060	MB.Spare	
3061	MB.Spare	
3062	MB.Spare	
3063	MB.Spare	
3064	MB.DayRecord1	
3065	MB.DayRecord2	
3066	MB.DayRecord3	

Reg#	Variable	Description
3067	MB.DayRecord4	
3068	MB.DayRecord5	
3069	MB.DayRecord6	
3070	MB.DayRecord7	
3071	MB.DayRecord8	
3072	MB.Spare	
3073	MB.Spare	
3074	MB.Spare	
3075	MB.Spare	
3076	MB.GCRecord1	
3077	MB.GCRecord2	
3078	MB.GCRecord3	
3079	MB.GCRecord4	
3080	MB.GCRecord5	
3081	MB.GCRecord6	
3082	MB.GCRecord7	
3083	MB.GCRecord8	
3084	MB.Spare	
3085	MB.Spare	
3086	MB.Spare	
3087	MB.Spare	
3088	MB.RFRecord1	
3089	MB.RFRecord2	
3090	MB.RFRecord3	
3091	MB.RFRecord4	
3092	MB.RFRecord5	
3093	MB.RFRecord6	
3094	MB.RFRecord7	
3095	MB.RFRecord8	
3096	MB.Spare	
3097	MB.Spare	
3098	MB.Spare	
3099	MB.Spare	
3100	MB.UFM_HourRecord1	
3101	MB.UFM_HourRecord2	
3102	MB.UFM_HourRecord3	
3103	MB.UFM HourRecord4	
3104	MB.UFM_HourRecord5	
3105	MB.UFM HourRecord6	
3106	MB.UFM_HourRecord7	
3107	MB.UFM_HourRecord8	
3108	MB.UFM_DayRecord1	
3109	MB.UFM_DayRecord2	
3110	MB.UFM_DayRecord3	
3111	MB.UFM_DayRecord4	
3112	MB.UFM_DayRecord5	
3113	MB.UFM_DayRecord6	
3114	MB.UFM_DayRecord7	
3115	MB.UFM_DayRecord8	
3116	MB.Spare	
5.10		

Reg#	Variable	Description
3117	MB.Spare	
3118	MB.Spare	
3119	MB.Spare	
3120	MB.Spare	
3120	MB.Spare	
3122	MB.Spare	
3123	MB.Spare	
3123	MB.Spare	
3125	MB.Spare	
3125	MB.Spare	
3120	MB.Spare	
3127	MB.Spare	
3129	MB.Spare	
3129	MB.Spare	
3130	MB.Spare	
3131	MB.Spare	
3132		
3133	MB.Spare	
	MB.Spare	
3135	MB.Spare	
3136	MB.Spare	
3137	MB.Spare	
3138	MB.Spare	
3139	MB.Spare	
3140	MB.Spare	
3141	MB.Spare	
3142	MB.Spare	
3143	MB.Spare	
3144	MB.Spare	
3145	MB.Spare	
3146	MB.Spare	
3147	MB.Spare	
3148	MB.Spare	
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3150	MB.Spare	
3151	MB.Spare	
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3154	MB.Spare	
3155	MB.Spare	
3156	MB.Spare	
3157	MB.Spare	
3158	MB.Spare	
3159	MB.Spare	
3160	MB.Spare	
3161	MB.Spare	
3162	MB.Spare	
3163	MB.Spare	
3164	MB.Spare	
3165	MB.Spare	
3166	MB.Spare	

Reg#	Variable	Description
3167	MB.Spare	· · ·
3168	MB.Spare	
3169	MB.Spare	
3170	MB.Spare	
3171	MB.Spare	
3172	MB.Spare	
3173	MB.Spare	
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3175	MB.Spare	
3176	MB.Spare	
3177	MB.Spare	
3178	MB.Spare	
3179	MB.Spare	
3180	MB.Spare	
3181	MB.Spare	
3182	MB.Spare	
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3184	MB.Spare	
3185	MB.Spare	
3186	MB.Spare	
3187	MB.Spare	
3188	MB.Spare	
3189	MB.Spare	
3190	MB.Spare	
3191	MB.Spare	
3192	MB.Spare	
3193	MB.Spare	
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3203	MB.Spare	
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3204	MB.Spare	
3205	MB.Spare	
3200	MB.Spare	
3207	MB.Spare	
3209	MB.Spare	
3209	MB.Spare	
3210	MB.Spare	
3212	MB.Spare	
3212	MB.Spare	
3213	MB.Spare	
3214	MB.Spare	
3215	MB.Spare	
5210	wib.opare	

Reg#	Variable	Description
3217	MB.Spare	
3218	MB.Spare	
3219	MB.Spare	
3220	MB.Spare	
3220	MB.Spare	
3222	MB.Spare	
3223	MB.Spare	
3223	MB.Spare	
3225	MB.Spare	
3225	MB.Spare	
3220	MB.Spare	
3228	MB.Spare	
3229	MB.Spare	
3230	MB.Spare	
3230	MB.Spare	
3231	MB.Spare	
3232	MB.Spare	
3233		
3234	MB.Spare	
	MB.Spare	
3236	MB.Spare	
3237	MB.Spare	
3238	MB.Spare	
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3261	MB.Spare	
3262	MB.Spare	
3263	MB.Spare	
3264	MB.Spare	
3265	MB.Spare	
3266	MB.Spare	

Reg#	Variable	Description
3267	MB.Spare	· · ·
3268	MB.Spare	
3269	MB.Spare	
3270	MB.Spare	
3271	MB.Spare	
3272	MB.Spare	
3273	MB.Spare	
3274	MB.Spare	
3275	MB.Spare	
3276	MB.Spare	
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3278	MB.Spare	
3279	MB.Spare	
3280	MB.Spare	
3281	MB.Spare	
3282	MB.Spare	
3283	MB.Spare	
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3289	MB.Spare	
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3292	MB.Spare	
3293	MB.Spare	
3294	MB.Spare	
3295	MB.Spare	
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3301	MB.Spare	
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3303	MB.Spare	
3304	MB.Spare	
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3306	MB.Spare	
3307	MB.Spare	
3308	MB.Spare	
3309	MB.Spare	
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3311	MB.Spare	
3312	MB.Spare	
3313	MB.Spare	
3314	MB.Spare	
3315	MB.Spare	
3316	MB.Spare	
	-1	

Reg#	Variable	Description
3317	MB.Spare	
3318	MB.Spare	
3319	MB.Spare	
3320	MB.Spare	
3321	MB.Spare	
3322	MB.Spare	
3323	MB.Spare	
3324	MB.Spare	
3325	MB.Spare	
3326	MB.Spare	
3327	MB.Spare	
3328	MB.Spare	
3329	MB.Spare	
3330	MB.Spare	
3331	MB.Spare	
	MB.Spare	
3332 3333	MB.Spare MB.Spare	
3333		
	MB.Spare	
3335	MB.Spare	
3336	MB.Spare	
3337	MB.Spare	
3338	MB.Spare	
3339	MB.Spare	
3340	MB.Spare	
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3362	MB.Spare	
3363	MB.Spare	
3364	MB.Spare	
3365	MB.Spare	
3366	MB.Spare	

Reg#	Variable	Description
3367	MB.Spare	
3368	MB.Spare	
3369	MB.Spare	
3370	MB.Spare	
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3404	MB.Spare	
3405	MB.Spare	
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3407	MB.Spare	
3408	MB.Spare	
3409	MB.Spare	
3410	MB.Spare	
3411	MB.Spare	
3412	MB.Spare	
3413	MB.Spare	
3414	MB.Spare	
3415	MB.Spare MB.Spare	
3410	wb.opare	

Reg#	Variable	Description
3417	MB.Spare	
3418	MB.Spare	
3419	MB.Spare	
3420	MB.Spare	
3421	MB.Spare	
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3426	MB.Spare	
3420	MB.Spare	
3427	MB.Spare	
3429	MB.Spare	
3429	MB.Spare	
3430		
	MB.Spare MB.Spare	
3432 3433		
	MB.Spare	
3434	MB.Spare	
3435	MB.Spare	
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3437	MB.Spare	
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3461	MB.Spare	
3462	MB.Spare	
3463	MB.Spare	
3464	MB.Spare	
3465	MB.Spare	
3466	MB.Spare	

Reg#	Variable	Description
3467	MB.Spare	· ·
3468	MB.Spare	
3469	MB.Spare	
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3471	MB.Spare	
3472	MB.Spare	
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3509	MB.Spare	
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3512	MB.Spare	
3513	MB.Spare	
3514	MB.Spare	
3515	MB.Spare	
3516	MB.Spare	
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Reg#	Variable	Description
3517	MB.Spare	
3518	MB.Spare	
3519	MB.Spare	
3520	MB.Spare	
3520	MB.Spare	
3522	MB.Spare	
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3525	MB.Spare	
3526	MB.Spare	
3527	MB.Spare	
3528	MB.Spare	
3529	MB.Spare	
3530	MB.Spare	
3530	MB.Spare	
	MB.Spare	
3532 3533	MB.Spare MB.Spare	
3534 3535	MB.Spare	
	MB.Spare	
3536	MB.Spare	
3537	MB.Spare	
3538	MB.Spare	
3539	MB.Spare	
3540	MB.Spare	
3541	MB.Spare	
3542	MB.Spare	
3543	MB.Spare	
3544	MB.Spare	
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3546	MB.Spare	
3547	MB.Spare	
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3562	MB.Spare	
3563	MB.Spare	
3564	MB.Spare	
3565	MB.Spare	
3566	MB.Spare	

Reg#	Variable	Description
3567	MB.Spare	· · ·
3568	MB.Spare	
3569	MB.Spare	
3570	MB.Spare	
3571	MB.Spare	
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3573	MB.Spare	
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3610	MB.Spare	
3611	MB.Spare	
3612	MB.Spare	
3613	MB.Spare	
3614	MB.Spare	
3615	MB.Spare	
3616	MB.Spare	
3010	MD.Spare	

Reg#	Variable	Description
3617	MB.Spare	
3618	MB.Spare	
3619	MB.Spare	
3620	MB.Spare	
3621	MB.Spare	
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3629	MB.Spare	
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3632	MB.Spare	
3634	MB.Spare	
3635 3636	MB.Spare	
	MB.Spare	
3637	MB.Spare	
3638	MB.Spare	
3639	MB.Spare	
3640	MB.Spare	
3641	MB.Spare	
3642	MB.Spare	
3643	MB.Spare	
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3648	MB.Spare	
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3664	MB.Spare	
3665	MB.Spare	
3666	MB.Spare	

Reg#	Variable	Description
3667	MB.Spare	
3668	MB.Spare	
3669	MB.Spare	
3670	MB.Spare	
3671	MB.Spare	
3672	MB.Spare	
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3713	MB.Spare	
3714	MB.Spare	
3715	MB.Spare	
3716	MB.Spare	
51.10		

Reg#	Variable	Description
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3718	MB.Spare	
3719	MB.Spare	
3720	MB.Spare	
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3765	MB.Spare	
3766	MB.Spare	

Reg#	Variable	Description
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3814	MB.Spare	
3815	MB.Spare	
3816	MB.Spare	
3010	wib.opaie	

Reg#	Variable	Description
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3818	MB.Spare	
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3830	MB.Spare	
3830	MB.Spare	
3832	MB.Spare	
3832	MB.Spare MB.Spare	
3833		
3834	MB.Spare	
3835	MB.Spare	
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3838	MB.Spare	
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3840	MB.Spare	
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3862	MB.Spare	
3863	MB.Spare	
3864	MB.Spare	
3865	MB.Spare	
3866	MB.Spare	

Reg#	Variable	Description
3867	MB.Spare	
3868	MB.Spare	
3869	MB.Spare	
3870	MB.Spare	
3871	MB.Spare	
3872	MB.Spare	
3873	MB.Spare	
3874	MB.Spare	
3875	MB.Spare	
3876	MB.Spare	
3877	MB.Spare	
3878	MB.Spare	
3879	MB.Spare	
3880	MB.Spare	
3881	MB.Spare	
3882	MB.Spare	
3883	MB.Spare	
3884	MB.Spare	
3885	MB.Spare	
3886	MB.Spare	
3887	MB.Spare	
3888	MB.Spare	
3889	MB.Spare	
3890	MB.Spare	
3890	MB.Spare	
3892	MB.Spare	
3893	MB.Spare	
3893	MB.Spare	
3895	MB.Spare	
3896	MB.Spare	
3890	MB.Spare	
3898	MB.Spare	
3899	MB.Spare	
3900	MB.Spare	
3901 3902	MB.Spare MB.Spare	
3902 3903	MB.Spare	
3903	MB.Spare	
3904 3905	MB.Spare	
3905 3906	MB.Spare	
3906 3907	MB.Spare	
3907	MB.Spare	
3908	MB.Spare	
3909 3910	MB.Spare	
3910 3911	MB.Spare	
3911		
3912	MB.Spare	
3913 3914	MB.Spare MB.Spare	
3915 2016	MB.Spare	
3916	MB.Spare	

Bog#	Variable	Description
Reg# 3917	MB.Spare	
3918	MB.Spare	
3918	MB.Spare	
3919	MB.Spare	
3921	MB.Spare	
3922	MB.Spare	
3923	MB.Spare	
3924	MB.Spare	
3925	MB.Spare	
3926	MB.Spare	
3927	MB.Spare	
3928	MB.Spare	
3929	MB.Spare	
3930	MB.Spare	
3931	MB.Spare	
3932	MB.Spare	
3933	MB.Spare	
3934	MB.Spare	
3935	MB.Spare	
3936	MB.Spare	
3937	MB.Spare	
3938	MB.Spare	
3939	MB.Spare	
3940	MB.Spare	
3941	MB.Spare	
3942	MB.Spare	
3943	MB.Spare	
3944	MB.Spare	
3945	MB.Spare	
3946	MB.Spare	
3947	MB.Spare	
3948	MB.Spare	
3949	MB.Spare	
3950	MB.Spare	
3951	MB.Spare	
3952	MB.Spare	
3953	MB.Spare	
3954	MB.Spare	
3955	MB.Spare	
3956	MB.Spare	
3957	MB.Spare	
3958	MB.Spare	
3959	MB.Spare	
3960	MB.Spare	
3961	MB.Spare	
3961		
	MB.Spare	
3963	MB.Spare	
3964	MB.Spare	
3965	MB.Spare	
3966	MB.Spare	

Reg#	Variable	Description
3967	MB.Spare	
3968	MB.Spare	
3969	MB.Spare	
3970	MB.Spare	
3971	MB.Spare	
3972	MB.Spare	
3973	MB.Spare	
3974	MB.Spare	
3975	MB.Spare	
3976	MB.Spare	
3977	MB.Spare	
3978	MB.Spare	
3979	MB.Spare	
3980	MB.Spare	
3981	MB.Spare	
3982	MB.Spare	
3983	MB.Spare	
3984	MB.Spare	
3985	MB.Spare	
3986	MB.Spare	
3980	MB.Spare	
3988	MB.Spare	
3989	MB.Spare	
3989	MB.Spare	
3990		
3991	MB.Spare MB.Spare	
3992	MB.Spare	
3993 3994	MB.Spare	
3994 3995	MB.Spare	
3995		
3990	MB.Spare MB.Spare	
3998	MB.Spare	
3999	MB.Spare	
4000	MB.UNP0	
4001	MB.UNP_Version	
4002	MB.Spare	
4003 4004	MB.Spare	
4004 4005	MB.Spare	
	MB.Spare	
4006	MB.Spare	
4007	MB.Spare	
4008	MB.Spare	
4009	MB.Spare	
4010	MB.Spare	
4011	MB.UNP1	
4012	MB.UNP2	
4013	MB.UNP3	
4014	MB.UNP4	
4015	MB.UNP5	
4016	MB.UNP6	

Reg#	Variable	Description
4017	MB.UNP7	· ·
4018	MB.UNP8	
4019	MB.UNP9	
4020	MB.UNP10	
4021	MB.UNP11	
4022	MB.UNP12	
4023	MB.UNP13	
4024	MB.UNP14	
4025	MB.UNP15	
4026	MB.UNP16	
4027	MB.UNP17	
4028	MB.UNP18	
4029	MB.UNP19	
4030	MB.UNP20	
4031	MB.UNP21	
4032	MB.UNP22	
4033	MB.UNP23	
4034	MB.UNP24	
4035	MB.UNP25	
4036	MB.UNP26	
4037	MB.UNP27	
4038	MB.UNP28	
4039	MB.UNP29	
4040	MB.UNP30	
4041	MB.UNP31	
4042	MB.UNP32	
4043	MB.UNP33	
4044	MB.UNP34	
4045	MB.UNP35	
4046	MB.UNP36	
4047	MB.UNP37	
4048	MB.UNP38	
4049	MB.UNP39	
4050	MB.UNP40	
4051	MB.UNP41	
4052	MB.UNP42	
4053	MB.UNP43	
4054	MB.UNP44	
4055	MB.UNP45	
4056	MB.UNP46	
4057	MB.UNP47	
4058	MB.UNP48	
4059	MB.UNP49	
4060	MB.UNP50	
4061	MB.UNP51	
4062	MB.UNP52	
4063	MB.UNP53	
4064	MB.UNP54	
4065	MB.UNP55	
4065	MB.UNP56	
4000		

Reg# Variable 4067 MB.UNP57 4068 MB.UNP58 4069 MB.UNP59 4070 MB.UNP60 4071 MB.UNP61 4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP65	Description
4068 MB.UNP58 4069 MB.UNP59 4070 MB.UNP60 4071 MB.UNP61 4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4069 MB.UNP59 4070 MB.UNP60 4071 MB.UNP61 4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4070 MB.UNP60 4071 MB.UNP61 4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4071 MB.UNP61 4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4072 MB.UNP62 4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4073 MB.UNP63 4074 MB.UNP64 4075 MB.UNP65	
4074 MB.UNP64 4075 MB.UNP65	
4075 MB.UNP65	
4076 MB.UNP66	
4077 MB.UNP67	
4078 MB.UNP68	
4079 MB.UNP69	
4080 MB.UNP70	
4081 MB.UNP71	
4082 MB.UNP72	
4083 MB.UNP73	
4084 MB.UNP74	
4085 MB.UNP75	
4086 MB.UNP76	
4087 MB.UNP77	
4088 MB.UNP78	
4089 MB.UNP79	
4090 MB.UNP80	
4091 MB.UNP81	
4092 MB.UNP82	
4093 MB.UNP83	
4094 MB.UNP84	
4095 MB.UNP85	
4096 MB.UNP86	
4097 MB.UNP87	
4098 MB.UNP88	
4099 MB.UNP89	
4100 MB.UNP90	
4101 MB.UNP91	
4102 MB.UNP92	
4103 MB.UNP93	
4104 MB.UNP94	
4105 MB.UNP95	
4106 MB.UNP96	
4107 MB.UNP97	
4108 MB.UNP98	
4109 MB.UNP99	
4110 MB.UNP100	
4111 MB.UNP101	
4112 MB.UNP102	
4113 MB.UNP103	
4114 MB.UNP104	
4115 MB.UNP105	
4116 MB.UNP106	

Reg#	Variable	Description
4117	MB.UNP107	
4118	MB.UNP108	
4119	MB.UNP109	
4120	MB.UNP110	
4121	MB.UNP111	
4122	MB.UNP112	
4123	MB.UNP113	
4124	MB.UNP114	
4125	MB.UNP115	
4126	MB.UNP116	
4127	MB.UNP117	
4128	MB.UNP118	
4129	MB.UNP119	
4130	MB.UNP120	
4131	MB.UNP121	
4132	MB.UNP122	
4133	MB.UNP123	
4134	MB.UNP124	
4135	MB.UNP125	
4136	HRT.HART_1_TYPE	
4137	HRT.HART 2 TYPE	
4138	HRT.HART_3_TYPE	
4139	HRT.HART_4_TYPE	
4140	HRT.HART_5_TYPE	
4141	HRT.HART_6_TYPE	
4142	HRT.HART 7 TYPE	
4143	HRT.HART_8_TYPE	
4144	HRT.HART 9 TYPE	
4145	HRT.HART_10_TYPE	
4146	 HRT.HART_11_TYPE	
4147	HRT.HART 12 TYPE	
4148	HRT.HART 13 TYPE	
4149	HRT.HART_14_TYPE	
4150	HRT.HART 15 TYPE	
4151	HRT.HART_16_TYPE	
4152	HRT.HART_17_TYPE	
4153	HRT.HART_18_TYPE	
4154	WHRT.WHART_1_TYPE	
4155	WHRT.WHART_2_TYPE	
4156	WHRT.WHART_3_TYPE	
4157	WHRT.WHART_4_TYPE	
4158	WHRT.WHART_5_TYPE	
4159	WHRT.WHART_6_TYPE	
4160	WHRT.WHART_7_TYPE	
4161	WHRT.WHART_8_TYPE	
4162	WHRT.WHART_9_TYPE	
4163	WHRT.WHART_10_TYPE	
4164	WHRT.WHART_11_TYPE	
4165	WHRT.WHART_12_TYPE	
4166	WHRT.WHART_13_TYPE	
4166	WHRT.WHART_13_TYPE	

Reg#	Variable	Description
4167	WHRT.WHART_14_TYPE	
4168	WHRT.WHART_15_TYPE	
4169	WHRT.WHART_16_TYPE	
4170	WHRT.WHART_17_TYPE	
4171	WHRT.WHART_18_TYPE	

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Appendix X – Using the External Measurement (XT) Version of the Station Manager Application

The main difference between the Station Manager application described throughout this manual, and the "External Measurement" **XT** version of the Station Manager application is that measurement data in the XT version comes from ControlWave XFC or ControlWave GFC flow computers instead of from I/O modules in the ControlWave Micro.

You must be a SupportNetTM user to download the self-extracting zip file that includes the ControlWave project (application) which supports the Station Manager XT version for your device. The installers place the ControlWave project in the proper sub-folder of C:\OpenBSI on the OpenBSI workstation; you must then download the project into the ControlWave GFC or XFC. The ControlWave project versions required are:

- ControlWave GFC Version 2.29 (or newer)
- ControlWave XFC Version 1.59 (or newer)

These are versions that include the Station Manager interface LIST, the SERVER function block for RTU to RTU communications, and allow selection for direction change indication.

This appendix outlines the differences in station configuration for the XT version.

In This Appendix

- X.1 Turning on Polling to ControlWave XFC/GFC Flow Computers X-1

- X.4 Assigning a Gas Chromatograph (GC) Dataset to a RunX-6
- X.5 Configuring Compressor Control......X-9

X.1 Turning on Polling to ControlWave XFC/GFC Flow Computers

The external measurement (XT) version of the Station Manager application includes up to six stations and up to eight meter runs.

You must configure the XFCs/GFCs for meter run measurement and connect them to the ControlWave Micro running the XT Station Manager application via BSAP serial communication ports.

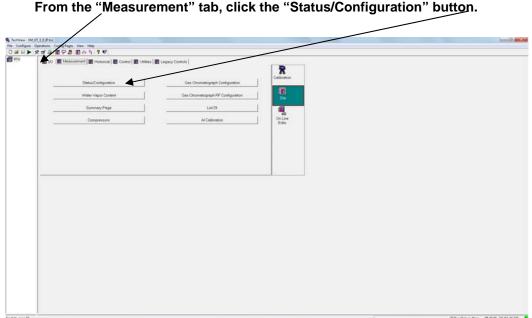
When you configure the BSAP master serial port at the ControlWave Micro, we recommend you use DataView to set the port configuration variables (where x=port number) using the following characteristics:

- $Px_POLL_PER = 5$
- $Px_WRITE_DEL = 0$

- . $Px_WRITE_TMO = 2500$
- $Px_IGNORE_ECHO = TRUE$
- Px_RETRIES = 3
- $Px_TIMEOUT = 500$
- $Px_AUTO_DTR = ON$
- $Px_TYPE = 2$

In addition, the BSAP local address of the ControlWave XFC/GFC must reside in the range defined by _Px_LOW_SL and _Px_HIGH_SL variables in the ControlWave Micro.

To start polling a connected XFC/GFC for data, click the 1. Measurement tab from the main TechView session and then click the Status/Configuration button as shown in the screen shot below.



From the "Measurement" tab, click the "Status/Configuration" button.

Figure X-1. Measurement Tab

2. The Status Configuration screen opens. Click on the first run you want to set up, normally this would be Run 1.

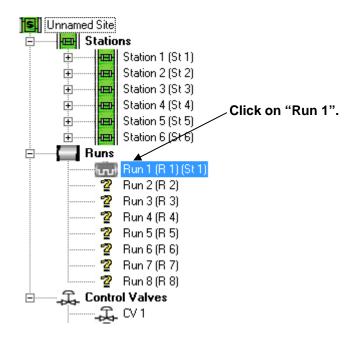


Figure X-2. Choosing the Run

3. The Run Config tab opens. From the "Flow Computer Settings" section of the screen, specify the BSAP local address of the ControlWave XFC/GFC used for this run in the **Address** field, then click the **Poll Enabled/Disabled** button to enable polling.

Annubar	Venturi	V-Cone	Alarm Config	PV/GQ Avera	ges Linrz	tion Config	
Run Config	Orifice	Turbine	Auto-Adjust	Ultrasonic	Ύι	PD Y	Coriolis
Run ID [-] MR_001_		asurement Type — Orifice		orward	Statio	n Assignmen Station 1	t
	1 Set T	ph Data Set on GC Data Set Must o 0 To Enable This S ompressibility Calo	etting	ed	Buns	Staging Rank O	
		······································		Feedback		?????	
Flow Computer S Poll Enal ?????	ble	Address ?????	Sta			e Stamp ????	
Run Summary Differential Press (INH20)		•	Pressure (PSI)	Temp (C	EG_F)	Corrected F (MSCF/	'Hour)
0.0000		(MMBT)		Flow Comp CuFt/Pulses	or From: UFM CuF		100
	?????	0.0		1.0000	0.00)00	
	Ratu Energy	C Flow MACF/ł e Units HOL gy Rate HOL					
Click her	e to enable po	olling for the		Enter the BS	SAP local	address o	of the

external flow computer (XFC, GFC)

external flow computer (XFC, GFC)

Figure X-3. External Flow Computer Settings (XT)

- 4. Once you click the Poll Enable button, Station Manager updates several fields on the Run Configuration tab:
 - The Time Stamp field shows a timestamp from the XFC/GFC.
 - The meter ID defined in the XFC/GFC shows in the Run ID text box.
 - The **Status** field should show **0**. If the **Status** field shows something other than zero, it indicates a configuration error.

X.2 Assigning a Run to a Station

Once you can successfully communicate with your external flow computers (XFCs/GFCs), you can assign them to a station. You do this from the same page where you turn on polling to the external flow computer. Click the **Station Assignment** field to assign the run to a station as shown in the screen shot below.

Ş	Station Assignment –	
	Station 1	•
_	No Assignment	
	Station 1	
	Station 2	
_	Station 3	
	Station 4	
_	Station 5	
lu	Station 6	

Figure X-4. Selecting the Station

X.3 Setting Direction Feedback for the Meter Run

For a bi-directional run, you need to tell the XFC/GFC how to determine which direction the gas flows.

Direction Feedback	None

Figure X-5. Direction Feedback field

To do this, set the **Direction Feedback** field on the Run Config tab. Choices are:

None This is the default. It allows the XFC/GFC to determine its own direction based on either DP, pulse inputs, or a digital input. You need to configure these for this to work. Note: Leave set to None if this run is not bi-directional. I/O Choose this if the XFC/GFC gets its flow direction from one of its digital inputs. If you select this you must ensure that you assign a digital input in the XFC/GFC and connect a direction switch to that point. This option means that the Station Manager program sends Comms the XFC/GFC the flow direction via BSAP communications. If you use Station Manager to control valves for bidirectional control then this is most likely the setting you need to use.

X.4 Assigning a Gas Chromatograph (GC) Dataset to a Run

More than likely, if your station has a GC, all the runs for the station receive GC data from the same GC stream. In Station Manager, each stream is called a data set. If you want to set different runs assigned to a station to different data sets you must set the station's data set to 0. To access this setting from the main TechView session, click the Measurement tab and then click the Status/Configuration button as seen in the screen shot below.

Operations Con	fig Pages V a Help		
* = =	P		
I 10 I	P N A N Y P	es Departy Controls	
			R
	Status/Configure	Gas Chromatograph Configuration	ration
_	Water Vapor Content	Ges Chromatograph RF Configuration	
_	Summery Page	0r29	
	Compressors	Al Celibration Co	Line data
-			
		,	
		· · · ·	

From the "Measurement" tab, click the "Status/Configuration" button.

Figure X-6. Measurement tab

From the Status Configuration screen, click the station that includes the GC. In this example, we use Station 1.

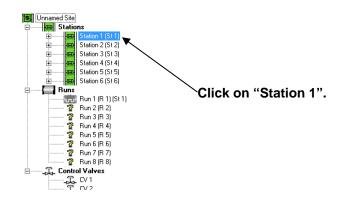


Figure X-7. Selecting the Station

To be able to assign individual GC data sets to individual runs you must first assign the station's Chromatograph Data Set setting to 0 as shown below.

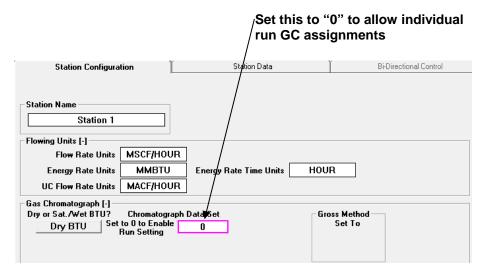


Figure X-8. Chromatograph Data Set on Station Configuration tab

Once this is done, click on the desired run to go to the run config page as shown below.

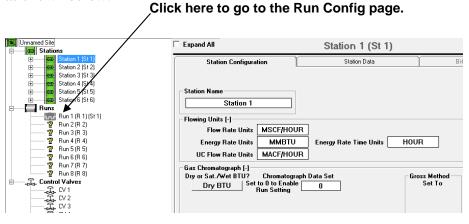


Figure X-9. Choosing the Run

From the run config page you can assign the desired GC data set to the run.

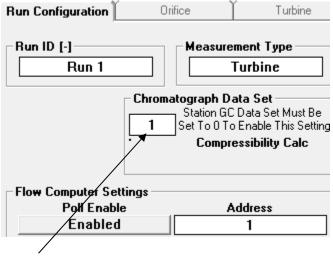




Figure X-10. Chromatograph Data Set

You would repeat this process for each run assigned to the station until all runs are assigned to the desired data set.

X.5 Configuring Compressor Control

The XT version of the Station Manager application can control and report on up to four compressor units.

You access the Compressor Control page by clicking on the

button on the Measurement tab.

		Compres Site Ambi	SSOC ient Tempera 0.00				
Compressor 1				npressor 2			
Status Available	Running / Stop	Alarm	Sta	atus Available	Running /	Stop	Alarm
Unavailable	Stop	ОК		Unavailable	Stop)	0К
Readings			Re	adings			
Suction Pres	sure Di	scharge Pressure		Suction Press	sure	Di	scharge Pressure
0.00		0.00		0.00			0.00
Settings			Co	ttings			
ootanga	Compressor Start	Preset time in seconds for the Start timer	36	ungs	Compresso	r Start	Preset time in seconds for the Start timer
Compressor Setpoint	Idle	30		Compressor Setpoint	Idle		30
0.00	Compressor Stop	Preset time in seconds for the Stop timer		0.00	Compresso	r Stop	Preset time in seconds for the Stop timer
	ldle	30			ldle		30
Compressor 3				npressor 4			
Status Available	Running / Stop	Alarm	Sta	Available	Running /	Stop	Alarm
Unavailable	Stop	ОК		Unavailable	Stop	•	ОК
Readings			Re	adings			
Suction Pres	sure Di	scharge Pressure		Suction Press	sure	Di	scharge Pressure
0.00		0.00		0.00			0.00
Settings			Se	ttings			
	Compressor Start	Preset time in seconds for the Start timer		2	Compresso	r Start	Preset time in seconds for the Start timer
Compressor Setpoint	ldle	30		Compressor Setpoint	ldle		30
0.00	Compressor Stop	Preset time in seconds for the Stop timer		0.00	Compresso	r Stop	Preset time in seconds for the Stop timer
	ldle	30			Idle		30

Figure X-11. Compressor Control page

Field	Description
Site Ambient Temperature	This indicates the outside air temperature at the site as reported from a hard wired AI point.
Status	
Available	This indicates if the compressor is available for use. A hard-wired DI point provides this status.
Running/Stop	This indicates if the compressor is running or stopped. A hard-wired DI point provides this status.

Alarm	This indicates if the compressor is in an alarm state. A hard-wired DI point provides this status.			
Readings				
Suction Pressure	This indicates the pressure at the inlet of the compressor as reported from a hard wired AI point.			
Discharge Pressure	This indicates the pressure at the outlet of the compressor as reported from a hard wired AI point.			
Settings				
Compressor Setpoint	You can enter an analog value to control the compressor to this value. A hard wired AO point sends out this value.			
Compressor Start	This indicates the status of the compressor start command.			
Preset time in seconds for the Start timer	This setting determines the length of the pulse for the Start Command on the hard wired DO point.			
Compressor Stop	This indicates the status of the compressor stop command.			
Preset time in seconds for the Stop timer	This setting determines the length of the pulse for the Stop Command on the hard wired DO point.			

Index

%

%	Good field		
	for Transducers on the I	/O tab	2-9

1

1 Pulse Per field	
on Sampler screen	. 6-7

Α

AC field on RTU configuration tab of Status/Configuration option from Measurement tab 3-10 ACF/s (DeltaVa) field on Auto-Adjust tab of Status/Configuration option from Measurement tab 3-100 Action field on Control Valve screen from Measurement tab on Station n Control Valves page from Control tab 5-17 Active field on Virtual Ports page 2-57 Actual column on AI Calibration page 3-129 Add Pen button on PID Tuning page from Control tab 5-44 on UFM Status tab of Ultrasonic Tests Measured Values page 2-31 Addr field on Gas Chromatograph Configuration screen from Measurement tab 3-141 on Gas Chromatograph Response Factor page Address field for Transducers on the I/O tab 2-9 on Coriolis Measured Values page ... 2-65 on Ultrasonic Tests Measured Values page 2-26 Adjust Live Value button on AI Configuration page...... 3-176 Adjust Live Value field on AI Maintenance page 3-173 AGA3 Equation in Use field on Orifice tab of Status/Configuration option from Measurement tab 3-91 AI Calibration 3-125 AI Maintenance Viewing in Maintenance Mode from Measurement Tab 3-131 AI Maintenance page...... 3-171 Al Point to be Calibrated field on AI Calibration page...... 3-128

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3-155 on Process Monitor Control Configuration page from Control tab
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