# **FBxConnect<sup>™</sup> Configuration Software**

FBxConnect<sup>™</sup> is a Microsoft<sup>®</sup> Windows<sup>®</sup>-based program that enables you to easily configure, monitor, service and calibrate Emerson's FB1100, FB1200, FB2100, and FB2200 Flow Computers. Designed for ease of use, FBxConnect provides at-a-glance monitoring, quick access to commonly performed tasks, and configuration wizards to quickly get your equipment up and running.

## **Features**

- **Ease of Use:** incorporates an intuitive graphical user interface
- Faster Configuration, Commissioning, and Startup Times: configuration wizards walk you through the steps needed to configure your device
- Reduced Maintenance Expenditures: troubleshoot remotely by monitoring status and diagnostic information
- Increased User Safety: reduced work time in the hazardous area using Mobile SCADA<sup>™</sup>
- Multi-level and Role-based Security: only those who need to can change your metering or control, the audit trail ensures that you know what changes were made when and by whom

# User Interface

The graphical user interface (GUI) allows you to easily navigate device options using a ribbon-style menu. The GUI shows a visual representations of critical information, current device status, and communication statistics. You can easily view and modify the current configuration of I/O points, alarms, and history. A full-featured help system is included to assist you along the way.

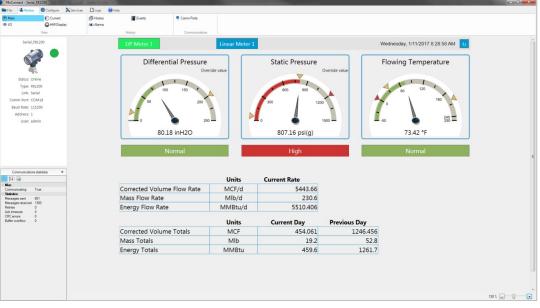
# Configuration

In today's world, we all face the same challenge to do more with fewer resources. The FBxConnect tool helps you achieve this. By reducing the time to configure each device, reducing dependence on expert resources as well as reducing time to perform tasks in the field.

The FBxConnect tool provides a guided configuration process that takes you through a step-by-step process to configure your flow computer. This wizard-driven approach simplifies configuration and ensures that you only need to enter required data once.

Configurations can either be edited online when connected to a device or they can be generated and edited "offline" from the comfort of the office for upload to devices at a later time.

Whether it's you or your newest technician, you can be confident that it is done the right way.



Monitor Screen



**Initial Setup Wizard** – The initial setup wizard walks you through the steps of setting up and configuring your device. You're presented with only the configuration options you need for your device and meter type. This greatly reduces the amount of time spent configuring your device.

up Wizard	
	Initial Setup Wizard
Device Name:	Network_FB1200
Device Description:	Explosion Proof Flow Computer
Device Type:	Time and Date:
FB1200 -	Wednesday, February 08, 2017 8:27:19 AM Synchronize Time
Language:	
English	
2	
	< Previous Apply Cancel
	Device Name: Device Description: Device Type: FB1200 • Language:

Initial Setup Wizard

**Online and Offline** – FBxConnect allows you to securely log on to a flow computer. Provided you have the required user role privileges you can view, back-up, or edit the device's configuration "on line." You can also work on configurations "off line" from the comfort of your office. This is particularly useful for generating new configurations either from scratch or by using an existing configuration from a similar application and making the required changes for the new site. This enables you to customize and test the configuration before leaving the office and minimize the time spent on site.

g: scription: rial Number:		FE-403 Trout Creek 203	2		Fluid Pro	Assignment: Iperties Refer rm Object:	ence: Flui	tion_1 d Pro rm_1(	p_1	<b>→</b>		
Meter Type				_ Sizing					No Flow (	Cut-off Limit	Flow Direction	
AGA3 Orifice (Fla	nge Ta	ps)	•	Meter Di	ameter:	7.041 i	n		0.5	inH2O	Forward	
AGA3 2012 Volu	me		•	Pipe Diar	neter:	11.626	n				Reverse	
Inputs												
	0 Defi	nition		Mode		Override Va	lue	Sele	cted Value		]	
Differential Press	ire:	DP_1-1		Override	• 20.	88 inH2	20.	38	inH2O	Alarms		
Static Pressure:		Press_1-1		Override	• 35	7.16 psi(g	357	.16	psi(g)	Alarms		
Flowing Temperal	ture:	RTD_1-1		Live	• 64	0 *F	72	86	*F	Alarms		
					_						]	
Corrected Volu												
		.imit			Status	•						
High High: High:	45000		MCF/d MCF/d	Norm								
High: Low:	2500.		MCF/d MCF/d	Nom								
Low Low:	1000.		MCF/d	Norm								
Rate of Change:	3000.		MCF/d	Norm	nal							
	_											
Last Plate Inspe	ection	Time	_									
Last Plate Inspe	ection	Time	-									

DP Meter

# Connectivity

Users can easily connect to a device through a secure wired or wireless connection using the flow computer's serial ports, Ethernet ports, or the optional Mobile SCADA<sup>™</sup> connectivity via Wi-Fi.

Mobile SCADA enables you to connect your laptop or tablet to the flow computer through a secure wireless connection. Once connected, you can use FBxConnect tool to view process values, edit configuration parameters, update set-points, and collect logs stored in the flow computer — all while never stepping foot in the hazardous area.

### **Security**

The integrity of your devices and fiscal data is paramount in the modern world.

The new Emerson flow computers and FBxConnect tool have been designed with security in mind to allow you to establish a secure infrastructure.

FBxConnect provides multi-level role based security allowing different users the required accessibility to perform their tasks. User authentication is more robust with stronger and longer encrypted passwords (up to 16 characters: upper, lower case, numbers, and special characters) and the ability to apply a minimum password length.

There is also a security lock-out option, preventing multiple unsuccessful login attempts for a pre-configured time.

An added security feature is that flow computer firmware is authenticated by Emerson and will not load without the required signature.

FBxConnect works with the flow computers to provide a robust audit trail to ensure that you know what changes were made when and by whom.

# Control

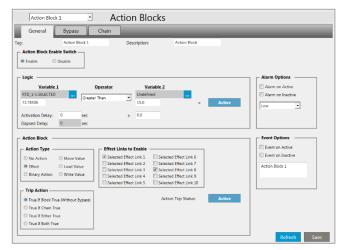
If your device supports control functionality, you can use FBxConnect to quickly configure those functions. FBxConnect makes it easy to customize control functionality with Proportional, Integral, and Derivative (PID) control loops, action blocks, effects, and math blocks.

**PID Control** – Typically, a proportional, integral, and derivative (PID) control loop maintains a process variable at setpoint. If you configure a PID override control, the primary loop is normally in control of the control device. The override loop can take over control at a process, if required.

General	Inputs/Outputs	Advanced Tu	uning
F	PID Loop 1		
scription:	PID Loop 1		
PID Enable	Cutput Mode	Output Type -	PID Loop Type Selected Loop
Oisable	Manual	Analog	Primary Only     Dual Control     Primary
Enable	Auto	<ul> <li>Discrete</li> </ul>	O Override Only
Values			
Values	Primary	Override	
Setpoint:	9000.0	Override 0.0 © Disable © Enable	
Setpoint:	9000.0 O Disable @ Enable	0.0	
Setpoint: Setpoint Tracking:	9000.0 O Disable @ Enable 8123.043	0.0 Disable  Enable	
Setpoint: Setpoint Tracking: Process Variable:	9000.0 O Disable ® Enable 8123.043 0.0029232	0.0 © Disable © Enable 0.0	
Setpoint: Setpoint Tracking: Process Variable: Change in Output:	9000.0 Disable Enable 8123.043 0.0029232 1.569742	0.0 © Disable © Enable 0.0 0.0	
Setpoint Setpoint Tracking: Process Variable: Change in Output: Output (Analog):	9000.0 Disable © Enable 8123.043 0.0029232 1.569742 n/a	0.0 © Disable © Enable 0.0 0.0	

PID Loops

Action Blocks – Action blocks are used in conjunction with effect blocks to monitor a configured condition and to perform an action (effect) when the logic is "true." An action block consists of a user defined Boolean logic statement with two variables. These variables can either be live parameter values or constants.



Action Blocks

**Effects** –Effects cause an action to occur when the result of one or more action blocks is active ("true"). Multiple action blocks can cause the same effect, such as shutting a valve or enabling an alert beacon.



Effects

Math Blocks –Math blocks perform mathematical equations using user-defined variables as inputs. Each math block consists of up to four user-defined variables, three mathematical calculations, and the results of each calculation can be assigned to "user-data" inputs and other read/write parameters. FBxConnect checks each calculation string for the correct syntax and uses double precision floating point math throughout the calculation.

	Math Block_1 (Insta	nce 1) 🔹	Math Blo	cks	
	General				
g:	Math	Block_1	Description:	Thermal Expansion	
	nable © Disable				
Inp	out Variables	Inj	out Definition	Value	
А	Flowing Temp	DP Mtr_1.TF_INUSE		74.0331726	
в	Base Temp	Station_1.TB_SEL		60.0	
с	DP Meter Diameter	DP Mtr_1.MTR_DIAM		1.75	
D	Alpha	DP Mtr_1.MTR_ALPHA_S	EL	0.0000089	
X = Y = Z =	A-B C*(1+D*(A-B))	Calculation String	Va Va	<mark>y Check</mark> Ilid Ilid Ilid	
		Description	Value	Optional Output D	Definition
X = Y =	Delta Temp Meter Diam at Temp		14.0331726	User Data_1.FLOAT_1 User Data_1.FLOAT_2	
Y = Z =	weter biam at remp			Undefined	
			0.0		

Math Blocks

## Logs and Reports

FBxConnect provides the ability to set-up, view, and collect logs for periodic history, event, and alarm data.

Collection of the data from the flow computer particularly at remote sites, is simplified and safer with the use of Mobile SCADA to securely collect the data wirelessly while remaining in the safe area.

History and logs can be collected as either a .csv file or secure .pdf file on your PC for later offline analysis.

FBxConnect provides the following log reports:

- EFM Reports Contains the audit trail (configuration / history / alarms / events)
- CFX Report For use with the FlowCal<sup>™</sup> Enterprise software
- Standard Periodic History includes hourly, daily, weekly and monthly data
- User Periodic History includes historical data based on user selected time periods typically between 1 minute and 12 hours
- Alarms Alarm log entries for the device
- Events Event log entries for the device
   Event log can be configured to either a standard single
   event log or to have separate logs for metrology/legal
   events and operational events

EFM Report	Configuration Comparison Report
Destination Location: C:\ProgramData\Emerson\OpenEnter\History Browse	Destination Location: C\ProgramData\Emerson\Ope\Configuration Browse
Options       Station: All Stations     Meter: All Meters       History type       I Daily   Hourly	Options Source 1 Connected device Configuration: Browse
Collection period: Since last collection Time range From: 02/01/2017 12:00:00 AM To: 02/08/2017 8:37:57 AM	Source 2 Configuration: C:\ProgramData\Emerson\\test.xml Browse
Format Format: CSV	Format Format CSV
Status:	Status:
Generate View Close	Generate View Close

EFM Report Collection

FBxConnect provides the following configuration reports:

- **Configuration** Contains a summary of the device's configuration
- **Config Comparison** Allows the comparison of two configurations to determine any differences
- Gas Composition Contains the record of the gas composition
- Parameter Status Contains reports which show which parameters are currently in a fault state, an override state, or left in their default state

Config Comparison Report Generator

FBxConnect also creates calibration and verification reports:

- **Calibration** Contains a summary of the calibration information for a device I/O point
- Verification Contains a verification of the calibration information for a device I/O point

# **Calibration Wizard**

The calibration wizard guides the user through the calibration and verification process for DP, pressure, and temperature as well as any analogue channels.

This can be a simple zero shift or zero and span, up to a full 5-point calibration, if required.

Calibration Wizard	X
Select Input Select items to calibrate	
Calibration Selection By meter By point Press Calibration report Calibration report Calibration report Calibration report Restore Factory Defaults Browse View	
	Next

Calibration Wizard

## Requirements

The software is designed to run on a personal computer (PC), laptop, or a windows tablet having the following minimum requirements:

- Intel<sup>®</sup> Core<sup>™</sup> 2 Duo T7100 or similar (1.8 GHz or greater)
- Windows 7 with Service Pack 1 (32- or 64-bit) or Windows
   8.1 (32- or 64-bit) or Windows 10 (32- or 64-bit)
- 2 GB of RAM (Random Access Memory)
- 8 GB of available hard disk space
- Monitor with 1366 x 768 or better resolution
- Connection through Wi-Fi (optional), Ethernet, or RS-232 serial port.

The FBxConnect requires download of the FieldTools 2.1 software. The software and user documentation is available as a free download from our <u>SupportNet</u> site.

**Note:** Activating a new SupportNet account may take up to 24 hours to process; plan your need for this software accordingly.

For customer service and technical support, visit <u>www.EmersonProcess.com/Remote/Support</u>.

#### Global Headquarters,

North America, and Latin America: Emerson Automation Solutions Remote Automation Solutions 6005 Rogerdale Road Houston, TX 77072 U.S.A. T +1 281 879 2699 | F +1 281 988 4445 www.EmersonProcess.com/Remote

#### Europe:

Emerson Automation Solutions Remote Automation Solutions Unit 8, Waterfront Business Park Dudley Road, Brierley Hill Dudley UK DY5 1LX T +44 1384 487200 | F +44 1384 487258

#### Middle East/Africa:

Emerson Automation Solutions Remote Automation Solutions Emerson FZE P.O. Box 17033 Jebel Ali Free Zone – South 2 Dubai U.A.E. T +971 4 8118100 | F +971 4 8865465

#### Asia-Pacific:

Emerson Automation Solutions Remote Automation Solutions 1 Pandan Crescent Singapore 128461 T +65 6777 8211 | F +65 6777 0947  $\ensuremath{\mathbb{C}}$  2018 Remote Automation Solutions, a business unit of Emerson Automation Solutions. All rights reserved.

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