FTPA2000-HP460

Fully Integrated Process FT-NIR Analyzer Platform for Light Hydrocarbon Applications

FTPA2000-HP460 Series Process Analyzer Platform

Includes:

– Process FT-IR FTPA 2000-HP460 Series single cell analyzer, computer with FTSW100 software, touch screen, hazardous area approval, temperature controlled FT-IR analyzer sample system, connection to DCS via MODBUS or OPC

– Manual sample injection facility

– Turn-key Calibration and Modeling services on request at extra cost. See price list for selection

– Requires fast loop sample conditioning system and wash/reference fluid system. See price list for selection

– Requires startup plan sold separately

– Additional application and project support, training and performance audit services available on request

FTPA2000-HP460 Process FT-IR Analyzer for Hydrocarbon Streams

NIR optics covering the 3800 cm^{-1} to 12,000 cm^{-1} range, Single cell, Single Fluid Switching Kit.

Includes:

– Fully integrated NEMA 3 (IP54) ATEX Category II 2 G (Ex d [ib] ib px IIB+H2 T4) or Class 1 Division 2 CSA(C,US) , hazardous area classification.120/240 VAC 50-60Hz

  i) Electronic Enclosure compartment with CANBus I/O, Ethernet Communications,Temperature Controller for Sample Cell cabinet, System Alarms

  ii) Spectrometer Compartment with Temperature controlled Fourier Transform Spectrometer, Data processor includes FTSW100 Software pre-configured, local data storage, DCS communication through MODBUS, OPC

Internal Sample Cell Compartment:

– Temperature controlled at 25°C.

– Process/Wash and Reference fluid inputs, with integrated Fluid Switching panel, double-block-and-bleed switching valves. Additional Protofuel input available as option.

– Fluid switching panel has flow control, low-flow sense switches for detecting low sample flows, reverse Nitrogen flow for cell blow-down and counter-current sample heat exchanger for additional temperature stabilisation

Option for Dual Cell Configuration

Custom documentation and system drawings

– Installation and start-up sold separately

– Basic system alarms are:

  o Analyzer (Hardware)

  o Maintenance (Reference failure)

  o Alarm (Properties, Chemometric results)

  o Warning (Properties, Low flow, Chemometric diagnostic)

  o Off-Line

Analyzer Utility Requirements

– Instrumentation Air, oil-free, clean and dry, 80 psig (5.5 barg) 32 SCFM (906 sl/m), -32 degF (-34 degC) dew point at maximum instrument and ambient air temperature < 96.8 degF (36 degC)

– OR, Instrumentation Air, oil-free, clean and dry, 100 psig (6.9 barg) 40 SCFM (1132 sl/m), -32 degF (-34 degC) dew point at maximum instrument and ambient air temperature < 104 degF (40 degC)

– FT-NIR optical purge air or N2 input, clean dry and oil-free, -40degF (-40 degC) dew point, 20 psig (1.4 barg) 2 SCFM (56.6 sl/m)

– Pentane Wash Fluid supply at < 100 psig (6.9 barg)

– Toluene Wash and Reference Fluid supply at < 100 psig (6.9 barg)

Power and productivity
for a better world™

ABB

Fully Integrated Process FT-NIR Analyzer Platform

Industrial grade FT-NIR spectrometer with BK7 optics for near IR operation

– Spectral range from 14,000 to 3800 cm^{-1}
– Resolution variable from 1 to 64 cm^{-1}, in steps of 2×
– Best resolution 0.7 cm^{-1} (unapodized)
– Wavenumber reproducibility ± 0.04 cm^{-1} (based on water vapor line at 7299.86 cm^{-1})
– Wavenumber repeatability ± 0.001 cm^{-1}
– Peak signal-to-RMS-noise ratio typically 30,000:1 for open beam, 1-min scan time, 4 cm^{-1} resolution
– Noise less than 15 micro absorbance at 32 cm^{-1} resolution and 10 seconds scan time
– Scan times at 4 cm^{-1} resolution: 3 s with DTGS, 1.2 s with fast detectors
– 100% line repeatability ± 0.3% for open beam, 9000 to 4100 cm^{-1}, 2 consecutive measurements in constant-temperature environment after warm-up
– Temperature coefficient of change in 100% line is 1% per °C at 10,000 cm^{-1}
– Maximum beam divergence: 90 milliradians

The FTSW100 Software Suite allows full integration of any ABB FT-IR/FT-NIR analyzer into your environment. It enables real time process monitoring for closed-loop control and quality assurance applications.

– Support of CANOpen I/O: Local bus for distributed I/O. Used for controlling sampling system, getting inputs from other sensors and sending results to control system
– Includes remote access software

Features and benefits:
– Complete solution for 24/7 continuous unattended operation
– Validated software for pharmaceutical and other demanding industries
– Integrated support for FT-IR acquisition and control
– Compliant with 21 CFR Part 11 environments
– Built-in data management and archiving
– Connectivity to PLC- and DCS-based control systems
– Support for sample conditioning using local sensors and transducers eliminating the need for additional PLCs or DCS programming

Easy and flexible configuration:
– Visual configuration explorer allows complete setup without programming
– Schedule multiple sample preparation and analysis cycles on a time basis or on external events
– Table-based setup of I/Os for result transmission

– Easily setup links to external sensors and transducers
– Configuration information stored in SQL database with built-in version management and complete log of all changes

Operator console:
– Provides graphical trend chart and table of latest analysis values in real time
– Shows the status of all the analysis cycles.
– Shows the status of all I/O points and alarms in the system
– Historical data browser for event log, spectra, spectral diagnostics and results

I/O Format:
– CANOpen I/O's for sampling system control
– Standard communication is done through serial link
– MODBUS for property and analyzer status communication to plant DCS. If MODBUS not used, see Option section for 4-20 mA AO and DO I/O's
– Analyzer default digital status flags are: Outlier (per property and/or per stream), Maintenance (Reference failed), Fault (Hardware failure: loss of connection), Off-Line, Data invalid (per stream)
– Proprietary Ethernet card for communication between controller and spectrometer (optional remote computer supplied separately). Comes with FTSW100 Industrial Process software preconfigured at ABB with the following features:
– Standard Ethernet networking
– MODBUS
– CANOpen I/O: Local bus for distributed I/O. Used for controlling sampling system, getting inputs from other sensors and sending results to control system

Hardwired
– Digital input (typically volt free contact)
– Digital output (typically dry contact relay)
– Analog input and output (typically 4-20 mA))

Modbus
– RS485 serial link Modbus register address pattern: RTU protocol/ Slave
– Baud rate: default 19,200 baud (configurable from 110 to 115,200 baud)

OPC
– Ethernet link
– Based on Microsoft's COM technology
– Remote and Local OPC Server support

Remote Access for Maintenance, Diagnostics, Configuration and Calibration Update
– Connection by Ethernet LAN
– RS232 / RS485 Conversion Pack, requires external power supply. For use with serial MODBUS communication, when distance between the computer serial interface and the DCS is greater than 30 meters. Increase the Range of RS-232 Data Signals Up to 4000 feet. DIN rail mount

Sample System Requirements (examples only, not included in FTPA2000-HP460 standard package)

Wash and reference system
– Wash fluid system (Pentane and Toluene): 2-cylinders (10 L/cylinder) for wash/reference and fluids, flexible hose connectors, pressure relief valves, mounted into a stainless steel cabinet. Include optional cabinet insulation

Fast loop sample conditioning system cabinet
– One stainless steel (304), wall mounted cabinet 48 in. H x 36 in. W x 12 in. D (122 cm x 91 cm x 30 cm). Cabinet is Nema 4X rated
– One-sample process input
– One-swirl clean, fast loop and filters. 0.2 µm filter elements
– Back-pressure regulation, flow-meter
– Auto grab sample for collection of reference samples for calibration modeling and laboratory analysis

Note
– Sampling system automated valves are pneumatically actuated via 1/8 in. (3.1 mm) tubing, between Analyzer pneumatic solenoid valves and sampling system

Sample Stream Requirements
– Fast-loop flow rate: 3.8 to 7.6 L/min
– Sample temperature at fast loop 25 ± 15°C
– Minimum pressure differential between input and output of sample handling system: 40 psig

Contact us

ABB Analytical Measurement

585 Charest Blvd East, suite 300
Quebec, (Quebec) G1K 9H4
Canada
Phone: +1 418-877-2944
Email: ftir@ca.abb.com

www.abb.com/analytical

Sales

Service

Power and productivity
for a better world™

ABB