ABB FTIR – FTLA2000 Analyzer Driver/Interface

This document describes the driver/interface for the ABB FTIR - FTLA2000 series laboratory analyzers.

Product Description

The interface provides data collection and control of all instrument parameters. This allows acquisition of reference (also called background) and sample spectra.

The interface is compatible with all ABB FTLA2000 and MB100 series spectrometers that use an Ethernet Interface. This includes Mid IR models FTLA2000-100, FTLA2000-104, Near IR models FTLA2000-154 and FTLA2000-160. It is not compatible with earlier MB series spectrometers that require an ISA or PCI bus interface card to be placed in the PC.

The software interface is made up of an instrument control DLL that interfaces to the analyzer hardware, the xPAT analyzer service, the xPAT configuration template for FTLA2000 and the xPAT object type for FTLA2000.

ABB's AIRS software is used to initially qualify the analyzer and to validate its correct operation. AIRS is not required for routine operation of the analyzer.

Manual control and status display of the analyzer is provided by a standard faceplate associated with each instance of the analyzer on the xPAT workplace.
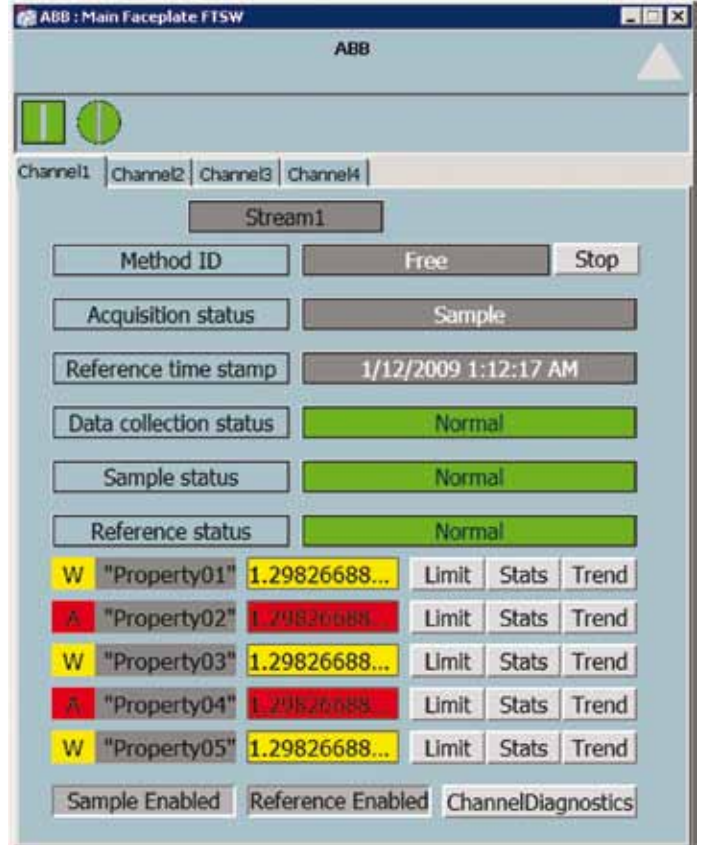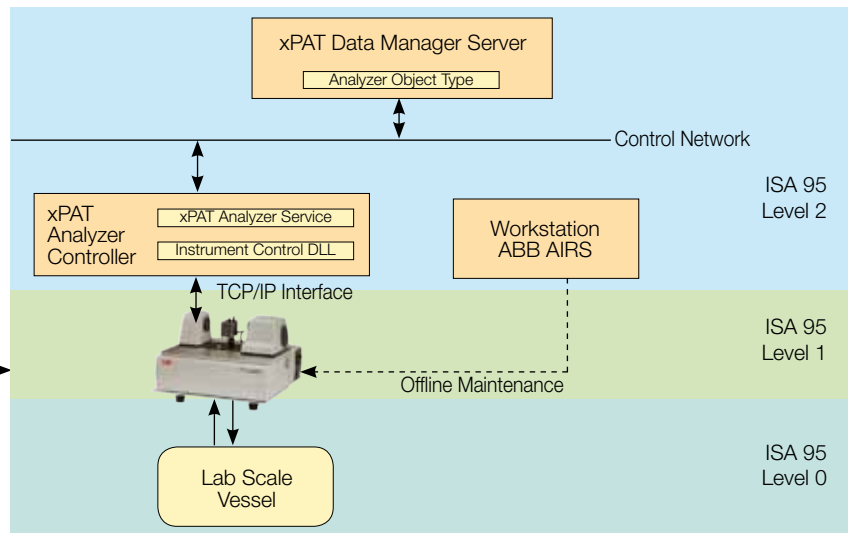

ABB FTIR – FTLA2000 Analyzer

Specifications

Analyzer Class	IR spectrometer: FTLA2000-100 and FTLA2000-104
	NIR spectrometer: FTLA2000-154 and FTLA2000-160
Subclass	Fourier Transform Spectrometer (FTIR/FTNIR)
Interface	Ethernet TCP/IP
Compatibility	All Ethernet based FTLA2000/MB Series Analyzers

Throughput

	Mid IR models			Near IR models	
Resolution	Spectrum size	Max samples		Spectrum size	Max samples
1 cm^{-1}	16384	every 32 secs		32768	every 64 secs
2 cm^{-1}	8192	every 16 secs		16384	every 32 secs
4 cm^{-1}	4096	every 8 secs		8192	every 16 secs
8 cm^{-1}	2048	every 5 secs		4096	every 8 secs
16 cm^{-1}	1024	every 5 secs		2048	every 5 secs
32 cm^{-1}	512	every 5 secs		1024	every 5 secs
64 cm^{-1}	256	every 5 secs		512	every 5 secs
128 cm^{-1}	128	every 5 secs		256	every 5 secs

Control Parameters	Read access to all parameters
Channels	1 Channel
Gains	1 Stage gain set by switch, no software control
Spectral Resolution	Selectable 1,2,4,8,16,32,64,128 cm^{-1} only manual selection by switch available on early models
Signal Processing Parameters	Settings for signal processing of raw data
Laser Frequency	Determines the x axis of the spectrum; Default 15799.70 cm^{-1}
Interferogram Apodization Function (sample and phase correction)	Selectable: Boxcar, Bartlet, Cosine, Hamming, Blackman-Harris, Gaussian, Norton Beer Weak, Norton Beer Medium, Norton Beer Strong
Phase Correction Resolution	Selectable 64, 128, 256, 512 cm^{-1}; Default 128 cm^{-1}
Spectral Range	Not selectable, always uses maximum range
Faceplate Status Indicators – analyzer	
Connection Status	Status of Ethernet link to analyzer: good or bad
Analyzer Status	Status of analyzer: good or bad
Faceplate Status Indicators per channel	
Acquisition Status	Idle, Sample Starting, Sample, Reference Starting or Reference
Reference Time Stamp	Data time for last Reference
Data Collection Status (for sample or reference)	Normal, Maintenance, Fault
Faceplate Commands per channel	Collect Sample, Collect Reference
Control Type	xPAT provides start/stop signal
Data Acquisition	Collect Reference Spectrum for Calibration and Absorbance Spectrum for samples
Data Analysis	Up to 5 properties with Prediction Statistics computed from Peak height or PLS model (PLSplusIQ or SimcaP+)
Calibration	Collect Reference
Validation	Operational Qualification (OQ) of analyzer partly supported in spectral diagnostics; full OQ requires AIRS software. Performance Qualification (PQ) implemented by method specific configuration
Spectral Diagnostics	Available on Reference and Sample spectra: Spectral Noise (RMS noise over a spectral region), Frequency Validation (check correct location of a known band), Non-linearity (detect saturation with out of band signal), Spectral Band Intensity (Check a band for minimum intensity)
Health Monitoring	Monitors Analyzer Hardware Status; e.g. TCP/IP connection to Analyzer, Bad Scan Detection
Asset Management	Not implemented

For more information on the FTLA2000 analyzer itself please visit www.abb.com/analytical. For more information on ABB Life Sciences solutions visit www.abb.com/lifesciences.

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