

# METTLER TOLEDO MonARC Driver/Interface

This document describes the driver/interface for the METTLER TOLEDO MonARC process analyzers.

## Product Description

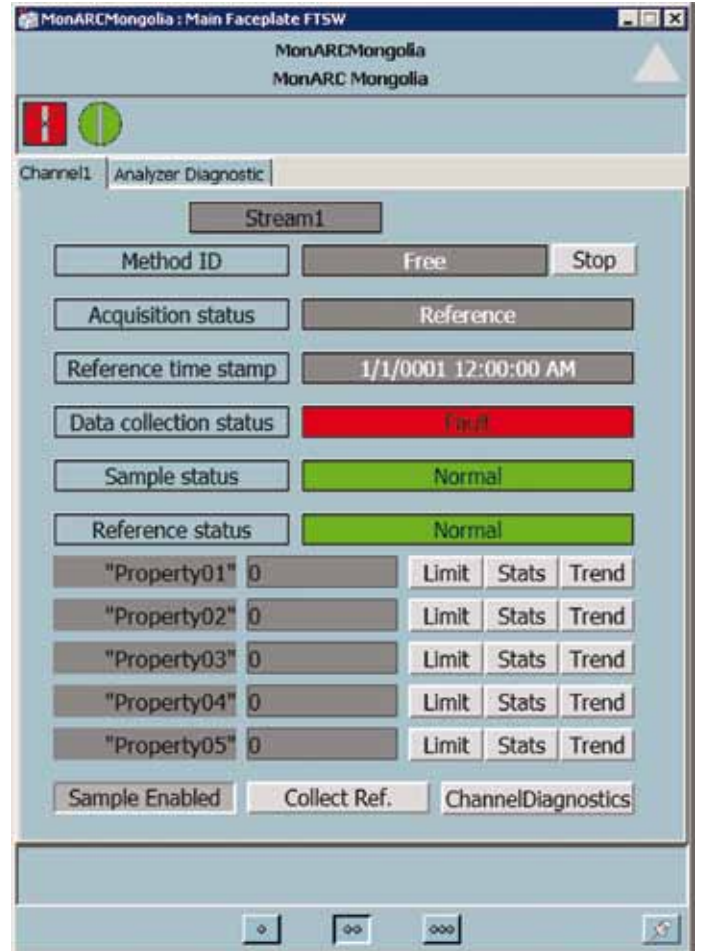
The interface provides data collection and control of all instrument parameters. This allows acquisition of reference (also called background) and sample spectra.

The interface is compatible with all MonARC spectrometers running METTLER TOLEDO PIA software version 2.03.0008.

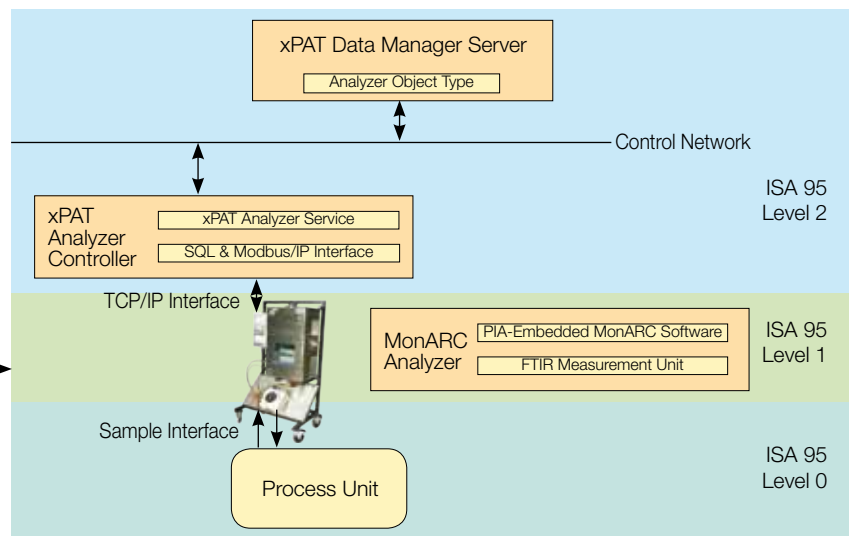
The software interface is made up of the MT PIA software that runs on the analyzer on-board computer and interfaces to the analyzer hardware, an interface driver that links to the METTLER TOLEDO PIA software over Ethernet using Modbus/IP and SQL server protocols, the xPAT analyzer service, the xPAT configuration template for MonARC and the xPAT object type for MonARC.

The METTLER TOLEDO PIA software is used directly from the analyzer touch screen display to commission and validate the analyzer as well as to trigger the collection of reference spectra. The xPAT system takes control of the analyzer through the METTLER TOLEDO PIA software for routine operation and interaction with the analyzer touch screen display is not required.

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 and directly on the analyzer by a touch screen display.



METTLER TOLEDO MonARC Analyzer



## Specifications

|   |  |
|---|--|
| Analyzer Class                                      | Mid IR spectrometer  |
| Subclass  | Fourier Transform spectrometer (FTIR)  |
| Interface   | SQL Server and Modbus/IP over Ethernet TCP/IP  |
| Compatibility                                       | MonARC PIA embedded software version 2.03.0008   |
| Throughput  | Resolution    Max Spectrum size    Max Samples   |
|   | 2 cm <sup>-1</sup> 3480                                    Every 9 secs  |
|   | 4 cm <sup>-1</sup> 1740                                    Every 5 secs  |
|   | 8 cm <sup>-1</sup> 870                                      Every 5 secs   |
|   | 16 cm <sup>-1</sup> 435                                      Every 5 secs  |
| Control Parameters                                  | Read/write access to all parameters  |
| Channels  | 1 channel  |
| Gains   | Selectable 1, 4, 16, 64 or automatic gain  |
| Spectral Resolution                                 | Selectable 2, 4, 8, 16 cm <sup>-1</sup>  |
| Number of Scans                                     | Number of scans to average per sample measurement / per reference measurement; Default 1   |
| Clean   | Ultrasonic in place cleaning of sample probe can be turned on/off and duration of cleaning in seconds can be set   |
| Signal Processing Parameters                        | Settings for signal processing of raw data   |
| Laser Frequency                                     | Set directly on analyzer control panel   |
| Apodization   | Selectable to either Boxcar, Triangular or Happ-Genzel   |
| Spectral Range                                      | Three selectable preset spectral ranges  |
|   | DiComp: 650 – 4000 cm <sup>-1</sup>  |
|   | SiComp: 650 – 4000 cm <sup>-1</sup>  |
|   | ZrComp: 1450 – 4000 cm <sup>-1</sup>   |
| <b>Faceplate Status Indicators</b>                  |  |
| Connection Status                                   | Status of Ethernet link to analyzer: good or bad   |
| Analyzer Status                                     | Status of analyzer: good or bad  |
| Acquisition Status                                  | Idle, Sample starting, Sample, Reference starting or Reference   |
| Reference Time Stamp                                | Data time for last reference   |
| Data Collection Status<br>(for sample or reference) | Normal, Maintenance, Fault   |
| Faceplate Commands                                  | Collect Sample, Collect Reference  |
| Control Type  | xPAT provides start/stop signal for sample collection; Reference collection triggered from analyzer  |
| Data Acquisition                                    | Collect reference spectrum for calibration and absorbance spectrum for samples   |
| Data Analysis                                       | Up to 5 properties per channel 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 performed directly at instrument using the onboard PIA 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, analyzer passes internal self test  |
| Asset Management                                    | Not implemented  |

3EUS094900

For more information about this analyzer please visit [www.mt.com/monarc](http://www.mt.com/monarc). For more information on ABB Life Sciences solutions visit [www.abb.com/lifesciences](http://www.abb.com/lifesciences).

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