

# Kaiser Raman – RXN Series Driver/Interface

This document describes the driver/interface for the Kaiser Raman – RXN series process analyzers

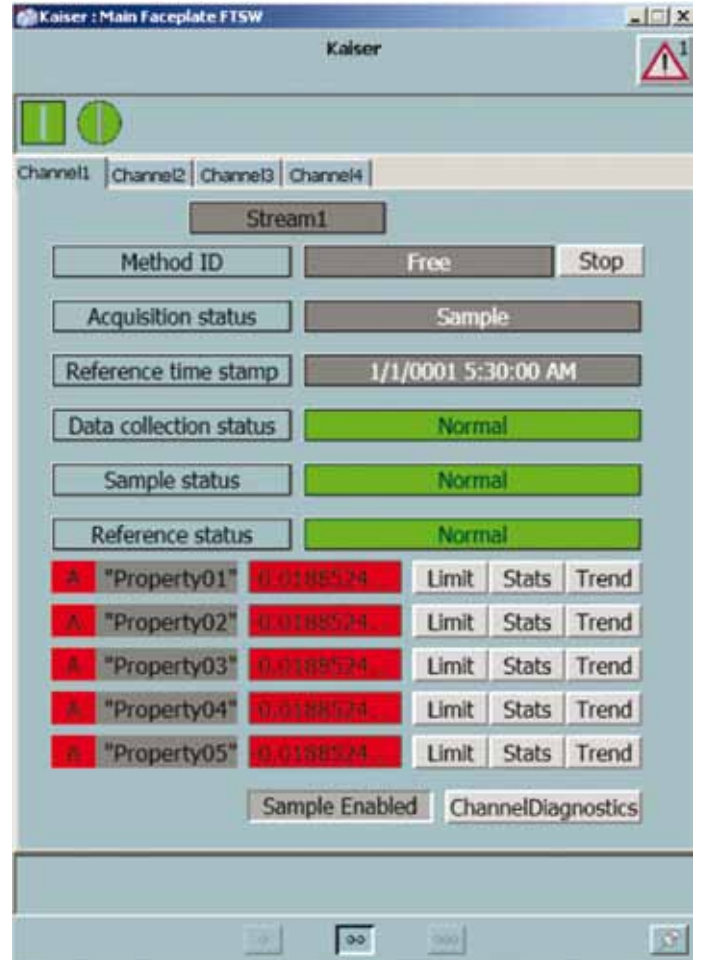
## Product Description

The interface provides data collection and control of all instrument parameters. This allows acquisition of sample spectra and calibration spectra (dark background). The interface is compatible with all RXN1 and PhAT single channel as well RXN3 and RXN4 multi channel Raman process spectrometers running Kaiser Optical Analyzer Control software version 4.2.1.6.

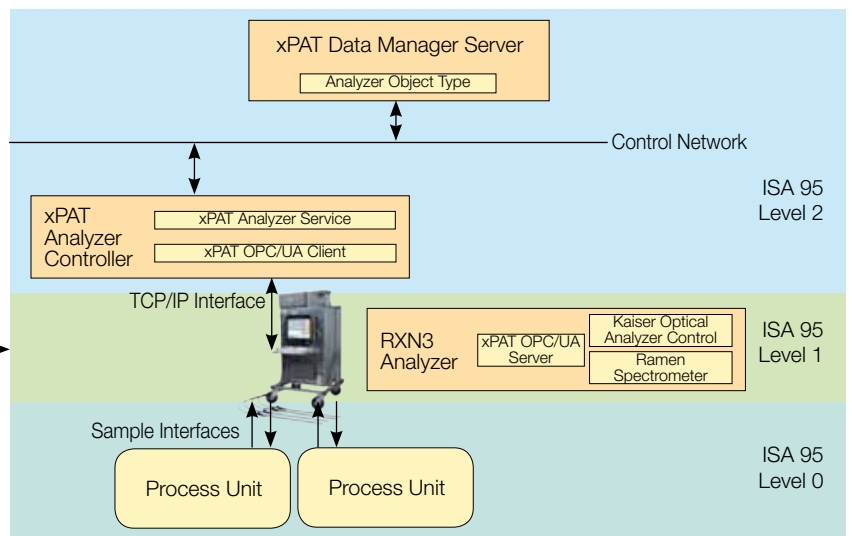
The software interface is made up of the Kaiser Analyzer Control software that interfaces to the analyzer hardware, the xPAT OPC/UA server for Kaiser, the xPAT OPC/UA client, the xPAT analyzer service, the xPAT configuration templates for Kaiser Raman RXN analyzers and the xPAT object types for Kaiser Raman RXN analyzers.

The Kaiser Analyzer Control software must be run stand alone to perform instrument calibration and validation tests; e.g. Operational Qualification (OQ). The xPAT system takes control of the analyzer through the Kaiser Analyzer Control software for routine analysis functions; e.g. collect dark background and sample spectra.

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.



Kaiser Raman – RXN series process analyzer



## Specifications

Analyzer Class	Raman spectrometer
Subclass	CCD visible Raman spectrometer
Interface	OPC/UA over Ethernet
Compatibility	All Kaiser RXN1, RXN3, RXN4 and PhAT Raman process analyzers running Kaiser Optical Analyzer Control Software v4.2.1.6
Throughput	Max 1 sample every 5 second for nominal 3326 point Raman spectrum
Spectrum Size	Raw Spectrum: Max 600000 points, nominal 7076 points Raman Spectrum: Max 60000 points, nominal 3326 points
<b>Control Parameters</b>	Read/Write access to all parameters
Channels	Kaiser RXN1, PhAT systems: 1 channel Kaiser RXN3, RXN4 systems: 4 channels
Gains	Preset at calibration from .1 to 100 Default 8.5
Averaging time	Signal averaging time per measurement in seconds
Internal Operating Parameters	Additional internal operating parameters available
<b>Signal Processing Parameters</b>	
Spectral Range	Minimum and Maximum of desired spectral range for Raw spectrum in nm; Default 791 to 1074nm Minimum and Maximum of desired spectral range for Raman spectrum in $\text{cm}^{-1}$ ; Default 100 to $3425\text{cm}^{-1}$
Point spacing	Point spacing in nm for Raw spectrum; Default 0.04nm Point spacing in $\text{cm}^{-1}$ for Raman spectrum; Default $1\text{cm}^{-1}$
Cosmic ray filter	On or off; Automatically filter out anomalous spikes
Dark subtraction	On or off; Use dark background to correct signal intensity
Intensity correction	On or off; correct absolute intensity based on calibration data
<b>Faceplate Status Indicators – analyzer</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 stamps	Date time for last dark background and white background spectra
Data collection status (for Sample or Background)	Normal, Maintenance, Fault
Faceplate commands per channel	Collect Sample, Collect Background
Control type	xPAT provides start/stop signal
Data Acquisition	Collect dark background, white background for calibration and Raman spectra for samples
Data Analysis	Up to 5 properties / channel with statistics from Peak height or PLS model (PLSplusIQ or SimcaP+)
Calibration	Wavelength and intensity calibration performed off-line, RXN3 and RXN4 can perform wavelength autocalibration on-line through xPAT.
Validation	Operational Qualification (OQ) of analyzer performed off-line with Kaiser Optical Analyzer Control software. Performance Qualification (PQ) implemented by method specific configuration
Spectral Diagnostics	Available on Raman spectra: Spectral Noise (RMS noise over a spectral region), Frequency Validation (check correct location of a known band), Spectral Band Intensity (Check a band for minimum intensity)
Health monitoring	Monitors analyzer hardware status; e.g. TCP/IP connection to analyzer, Analyzer status
Asset Management	Not implemented

For more information about this analyzer please visit [www.kosi.com/Raman\\_Spectroscopy/index.php](http://www.kosi.com/Raman_Spectroscopy/index.php).  
For more information on ABB Life Sciences solutions visit [www.abb.com/lifesciences](http://www.abb.com/lifesciences).

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