

QuasIR™ 2000E

On-line, Real-time Chemical Analysis
for Industrial and Factory Automation



QuasIR™ 2000E FT-NIR ANALYZER

On-line, Real-time analysis for Quality Control in Manufacturing Processes

FT-NIR ON-LINE

Near-infrared spectroscopy has become the ideal technology for online process monitoring and optimization. With the development of QuasIR 2000E, FT-NIR allows for continuous analysis at key points throughout the process. It has the best spectral resolution and widest optical range of any near-infrared product, meaning results will be accurate and cover multiple parameters with one measurement.



FT-NIR KEY ADVANTAGES

- Fast, accurate and reliable
- Non-destructive, non-contact continuous measurements
- Low cost of ownership and maintenance
- Direct calibration transfer
- Multiple parameters measured simultaneously

Process Monitoring and Control

- Improve process efficiency & Consistency
- Reduce labor and material costs
- Improve safety
- Regulatory compliance
- Improved product quality
- Reduce Waste



QuasIR™ 2000E FT-NIR ANALYZER

QuasIR 2000E BENEFITS

- ♦ Large area standoff diffuse reflection measurement
- ♦ 18" to 30" Working distance from material (depending on sampling area)
- ♦ Ideal for inhomogeneous processes on conveyor belts or in chutes
- ♦ Several software packages to interface to existing factory control / DCS systems
- ♦ Robust analyzer and emission head enclosures made to withstand Harsh Environment
- ♦ Analysis spot size can be set to 3" to 6" in diameter and can be custom tailored to your applications' needs



MAIN INDUSTRIES

Chemical
Food
Feed & Agricultural
Pharmaceutical
Fuels and Refining
Mining & Aggregate
Tobacco
And much more...

Low Cost of Ownership

Every aspect of the QuasIR™ is designed to bring value to our customers by reducing downtime and lowering the long-term cost of ownership.

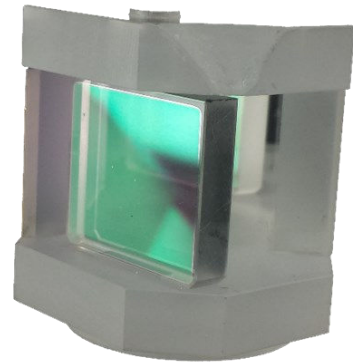
- 20,000-hour user replaceable NIR source
- 10-year diode laser
- 10-year interferometer drive
- User replaceable desiccant
- Standard Windows PC or select table computers

QuasIR 2000E INNOVATIVE DESIGN

PermAlign™ Optics Technology

The heart of the QuasIR™ 4000 is our PermAlign™ optics technology, an innovative patented permanently aligned interferometer block that maintains alignment and performance under routine and exceptional conditions. Designed for portability, the QuasIR™ achieves high performance, even in harsh environments such as temperature extremes (common in field use), or in the presence of vibrations (often experienced in plant conditions).

With PermAlign™, you never need to make instrument adjustments and you can always have confidence in the results.



Vibrations



Automatic Instrument Performance

Every QuasIR™ is equipped with an automated performance testing unit. The system uses integrated standards to check and document all aspects of performance. This provides an easy, automated validation process for routine use and reduced documentation burden.

A New Standard in Consistency

The development of a robust NIR calibration often requires a significant investment of time and energy. The ability to deploy your calibrations quickly, successfully, and painlessly across a network of NIR systems can be critically important to getting the most out of your investment.

The QuasIR™ series is designed to ensure direct calibration transfer without the frustration of standardizing instruments or adjusting models to accommodate excessive instrument variability. Our technology and design ensure unmatched consistency and direct methods transfer with no loss in performance, so you can expand your QuasIR™ fleet with confidence.



SOFTWARE & ACCESSORIES



Environmental Enclosures

A variety of environmental enclosures are available to meet the needs of your production process. Options include:

Optional indoor/outdoor (IP66) enclosures

- ♦ Industrial computer
- ♦ Power supplies
- ♦ Thermoelectric cooling system

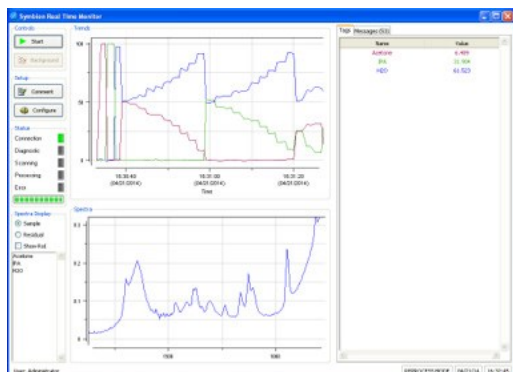


Software Compatibility

Galaxy Scientific's process spectrometers offer full compatibility with popular software packages including Symbion and Camo's Process Pulse.

Features:

- ♦ Real time data collection and extraction of process variables
- ♦ Trend charts of any number of streams
- ♦ Alarm conditions & Data archiving
- ♦ Regulatory compliance
- ♦ Remote communications via OPC, Modbus, TCP/IP, COM, DDE, 4—20mA etc.
- ♦ Flexible historical analysis
- ♦ System diagnostics and alarming
- ♦ Choice of file based or database storage



Factory Communications

A variety of factory communications options are available to allow the spectrometer to interface with other parts of the production process such as valves, solenoids, and control systems.

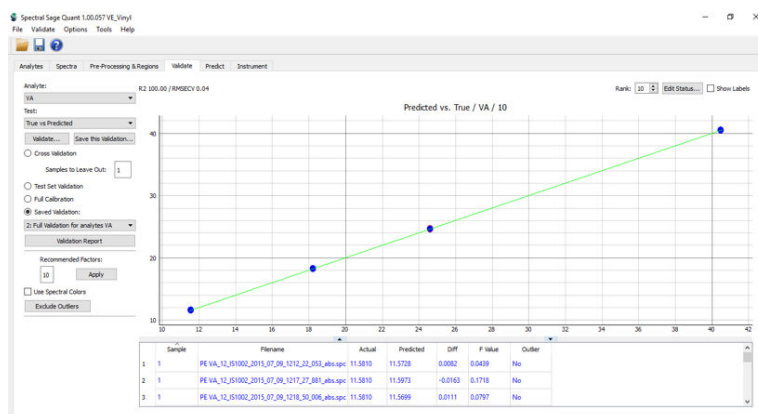
Spectral Sage™ Software Suite

The Spectral Sage™ Software Suite is an easy-to-use toolbox, featuring innovative functions for advanced method development. This package maximizes productivity at all levels and is designed with one goal: your successful development and deployment of NIR solutions.

Spectral Sage™ PLS Quantitative Analysis

The Spectral Sage™ PLS Quantitative method development software is designed to assist experts and first-time developers build, optimize, and deploy robust PLS quantitative models. The package offers:

- Automatic method optimization
- Advanced outlier management
- Fast operation, even with large data sets
- Support for a wide range of data formats



Spectral Sage™ Advanced-Identification

Using conventional methods, near-infrared spectroscopy is normally limited to the analysis of concentrations in the fraction of a percent level. But sometimes manufacturers are interested in ingredients, adulterants, or contaminants present at lower concentrations.

Advanced-Identification is a targeted screening software tool that allows quick screening and semi-quantitative results for concentrations substantially less than 0.1%. Advanced-Identification extends the use of NIR to further reduce ingredient supply chain risk and protect brand integrity.



Spectral Sage™ Routine Operation Software

Spectral Sage™ for Routine Operation provides everyday users an easy-to-use interface with a convenient and easy-to-learn workflow. You don't need to be an expert to take measurements.

Benefits:

- Easy-to-use
- Convenient workflow
- Works with standard MS Windows computers

QuasIR™ 2000E Specifications

General Specification	Value	Alt. Value/Benefit
Dimensions	35.5 x 24.1 x 14.5cm (W x D x H)	13.98 x 9.49 x 5.71 in
Weight	< 8.2 kg	< 18 lbs.
Power Supply	12V / 3A Supply, 60W max	
Communication	USB	
Operating Temperature	0° F - 40°C, < 95% humidity, non-condensing	32° to 104°F
Enclosure Protection	IP55 (dust and water); Temperature controlled enclosure available	NEMA 4; Weatherproof enclosure available
Sampling Mode	High powered tungsten lamps illuminate the sample from as far as 24", collecting scattered reflection off the sample through a fiber optic cable	
Sampling Device	External Projection Optics, Fiber Optic Cable	Maximum signal and collection efficiency
Automated Verification & Instrument Diagnostics	Automatic, internal, 4-position validation wheel	Continuous performance monitoring
Performance Specifications		
Wavelength Range*	12,800 - 4,000 cm ⁻¹	785 - 2,500 nm
Spectral Resolution	Better than 4 cm ⁻¹	< 0.3 nm @ 870 nm
Wavelength Accuracy	< 0.05 cm ⁻¹ @ 7181.68 cm ⁻¹	< 0.01 nm@1392 nm
Wavelength Repeatability	< 0.05 cm ⁻¹ @ 7181.68 cm ⁻¹	<0.007 nm@1392 nm
Photometric Accuracy	Better than 0.1% T	
Signal-to-Noise Ratio	> 20,000:1*	Excellent sensitivity
Noise	Better than 20 micro au*	Low detection limit
Detector	TE cooled InGaAs	
Data Acquisition A/D converter	24-bit high speed Delta-Sigma	
Reliability Specifications		
Laser Life	> 10 years	Low downtime & ownership costs
NIR Source Life	> 20,000 hours, user replaceable	Low downtime & ownership costs
Desiccant	User replaceable	Low ownership costs
Regulatory Compliance		
EMC directive 2004/108/EC	Complies	
RoHS directive 2002/95/EC	Exempt	
WEEE directive 2002/96/EC	Complies	

* Depends upon probe/optical configuration

The Galaxy Difference

We are committed to the success of your project.

Galaxy Scientific is specialized in the development and manufacturing of innovative high performance portable analytical instrumentation. Our passion is innovation, and our mission is to provide a new high-performance platform to tackle critical analytical problems around the world.

Our Technology

We have developed a new generation of high-performance platforms which combine next-generation optics with advanced software algorithms, providing breakthrough solutions to the most challenging point-of-need applications.

The many advantages of Galaxy's FT-NIR solutions include:

- Rapid, non-destructive analysis
- Instrument-to-instrument consistency
- Easy-to-use
- Direct calibration transfer
- Flexible, easy-to-use software
- Rugged design that's insensitive to vibration
- Low cost of ownership and maintenance
- High Performance

The Benefits of FT-NIR vs. Dispersive NIR:

Compared to dated dispersive NIR instruments, modern FT-NIR technology combines a precision laser reference with a high throughput optical interferometer to provide:

- Better wavelength stability
- Higher resolution spectra
- Superior sensitivity and signal-to-noise
- Direct calibration transfer

These benefits result in more accurate calibrations that are easier to build and transfer across instruments.

