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VIAVI Solutions

Data Sheet

VIAVI

MicroNIR PAT-Lx

Immersion Spectrometer: A robust near infrared (NIR) process spectrometer for analyzing liquids in hazardous locations

Rugged and safe in hazardous locations, the MicroNIR™ PAT-Lx process spectrometer is designed for real-time process monitoring of liquids in vessels and pipelines.

The PAT-Lx is the hazardous location version of the VIAVI PAT-L immersion process spectrometer. Safe in the presence of flammable gases, vapors, or dust, the PAT-Lx enables rapid and repeatable analysis of a wide variety of liquids, aqueous or hydrocarbon-based. The PAT-Lx integrates readily with processing equipment of all types and sizes, and delivers the performance, stability, and total cost of ownership to meet the stringent requirements of scalable manufacturing.

Figure 1. The MicroNIR PAT-Lx showing the barrier box, hardwired USB cable, and instrument head with probe.

Benefits

- Non-destructive, real-time NIR liquid analysis for hazardous locations
- Safe in the presence of flammable gases, vapors, fibers, or dust
- ATEX, NEC, and IECEx certified
- Maintenance-free with no moving parts for low total cost of ownership
- Rapid data acquisition up to 3 spectra per second for fast-moving processes
- Robust, reliable, repeatable
- Washable, IP65 and IP67 rated

Applications

- Chemical Manufacturing
  - Polyols and hydroxyls
  - Water content
  - Density, viscosity
  - Blend homogeneity
  - Solvent recovery
- Food Production
  - Frying oil degradation
  - Sugar concentration
- Pharmaceutical Manufacturing
  - Solvent recovery
  - API crystallization

Product Description

The MicroNIR PAT-Lx for hazardous locations consists of two main parts: The instrument head with probe and the barrier box, connected by a hardwired USB cable (see Fig. 1). The instrument head is identical to the MicroNIR PAT-L and consists of a spectrometer section and a probe section with integrated light pipe. The probe operates in transmission mode with an optical path length (gap) specified when purchased. The barrier box (see Fig. 2) houses the interface electronics in a heavy, ruggedized cast aluminum enclosure. The barrier box has user-available ports for connections to Ethernet, 24 V DC power, and optional external trigger, using customer-supplied connections rated for hazardous locations. The barrier box comes with mounting brackets for attachment to process equipment.

Table 1. Key Features

Feature	Value
Probe material*	Stainless steel 316L
	Hastelloy C22
Optical path length (gap), mm*	2, 3, 4, 5, or 10 mm
Maximum insertion depth*	240, 440, 640, or 940 mm without flange
	100 to 900 mm with flange
Process connection*	Various EN, ASME, and other flanges available, see price list
Maximum temperature and pressure ratings	Up to 400°C and 40 bar
	Dependent on material and flange, see price list
Certifications	Class I Div. 2 Zone 1 and 2
	Class II Div. 2 Zone 21 and 22 Class I
	Groups C and D
	Class II Groups E, F, and G

*Specified when purchased

Software

Like all MicroNIR instruments, the PAT-Lx includes the VIAVI MicroNIR Pro software suite with features for data acquisition, calibration and method development, user management, and real-time prediction. MicroNIR Pro software supports instrument qualification (IQ/OQ) per EP 2.2.40 and USP 1119/1856 test criteria and software tools to meet rigorous Title 21 CFR Part 11 compliance. An enhanced OPC interface is optionally available for integration with process control systems.

Process Integration

The MicroNIR PAT-Lx can be mounted to standard sanitary flanges using a collet assembly and tri clover clamp, or via flange if so equipped. Installation in hazardous locations requires trained and/or certified personnel and must conform to local regulations.

Figure 2. MicroNIR PAT-Lx barrier box interior. Ethernet, power, and trigger connect at the main circuit board through three dedicated ports, using HazLoc-rated connections.