

VIAVI MicroNIR™ PAT-Ux

A robust near infrared (NIR) process spectrometer for use in hazardous locations

Rugged and safe in hazardous locations, the MicroNIR PAT-Ux process spectrometer is designed for real-time process monitoring in pharmaceutical, industrial and food process analytical technology (PAT) applications.

The PAT-Ux is the hazardous location version of the popular VIAVI PAT-U miniature process spectrometer. Safe in the presence of flammable gases, vapors, fibers, or dust, the PAT-Ux enables moving a process directly to production in a hazardous location using chemometric models and processes developed in the ordinary location of a laboratory. The PAT-Ux attaches readily to fixed processing equipment of all types and sizes, with the performance and stability to support truly efficient – and scalable – manufacturing.



Figure 1. The MicroNIR PAT-Ux, showing barrier box and hardwired instrument head.



Figure 2. MicroNIR PAT-W instrument head.

Benefits

- Non-invasive, real-time NIR analysis for hazardous manufacturing locations
- Safe in the presence of flammable gases, vapors, fibers, or dust
- ATEX, NEC, and IECEx certified
- Interoperable with all MicroNIR instruments
- Maintenance-free with no moving parts
- Robust, reliable, repeatable
- Washable, IP65 & IP67 rated instrument head
- Easy Ethernet and power connections

Applications

- Pharmaceutical Manufacturing
 - Fluid bed drying
 - High shear mixing
 - Granulation
- Food and Feed Manufacturing
 - Grain & flour processing
 - Moisture, protein, fat, and sugar analysis
- Industrial Processing
 - Explosives manufacturing
 - Polymers & petrochemicals

Product Description

The MicroNIR PAT-Ux for hazardous locations consists of two main parts: The spectrometer instrument head and the barrier box (see Fig. 1). The instrument head is identical to the well-established MicroNIR PAT-U with the addition of a wiring adapter for hazardous locations. The barrier box houses the interface electronics in a heavy, cast aluminum enclosure (see Fig. 3). The barrier box is hardwired to the instrument head and has user-available ports for connections to Ethernet, 24VDC power, and optional external trigger. The barrier box comes with mounting brackets for attachment to process equipment.

Table 1: Key Features

Feature	Value
Instrument Head	Ø 44.6mm x 112mm
Barrier box	313 x 313 x 206 mm (12.3 x 12.3 x 8.1") 17.5 kg (38.6 lbs.)
Connecting cable	1.25m (length)
User Connections	Ethernet 24VDC power External trigger (optional)
Certifications	Class I Div. 2 Zone 1 & 2 Class II Div. 2 Zone 21 & 22 Class I Groups C & D Class II Groups E, F, and G

Software

Like all MicroNIR instruments, The PAT-Ux 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 performance qualification (IQ/OQ) per EP 2.2.40 and USP 1119 test criteria and tools enabling Title 21 CFR Part 11 compliance.

An enhanced OPC interface is optionally available for integration with process control systems.

Process Integration

The MicroNIR PAT-U can be mounted to process equipment sanitary flanges using a collet assembly and triclover clamp. A weld-in flange kit with sapphire process window is also available. Installation in hazardous locations requires trained and/or certified personnel according to local regulations.



Figure 3. MicroNIR PAT-W barrier box interior. Ethernet, power, and trigger connect at the main circuit board through three dedicated ports.



Figure 4. MicroNIR PAT-W mounting accessories for integrating with process equipment.

For more information, please contact your local VIAVI account manager or VIAVI directly at 1-800-254-3684 worldwide or via e-mail at: micronir@viavisolutions.com.