

# 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](mailto:micronir@viavisolutions.com).