

# Process Automation

## NEON Vibration Sensor

Condition-based monitoring for industry 4.0 assets





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In many industrial sites, a variety of assets are used regularly without clear and timely information about their health status. The future of asset performance management is changing. It is becoming increasingly digitised, with data collected from Industrial IoT sensors providing insight and knowledge.

The NEON Vibration Sensor sends alerts to maintenance engineers, as soon as assets, such as engines, conveyor belts and pumps start to fail. This sets off a trigger when a change of frequency in the vibration is detected, instantly alerting an engineer to potential issues and preventing failures or long-term damage — saving costs and ensuring operational uptime. Now, assets which are not under constant supervision from operators can be monitored around the clock.

The machine fault indicator automatically identifies and categorises potential issues, simplifying diagnostics and maintenance. Combined with precise time synchronisation and full-spectrum FFT analysis, the NEON Vibration Sensor provides comprehensive, real-time insight into machine health.

The sensor uses locally run, over the air configurable algorithms to perform condition-based checks at regular intervals, ensuring assets are monitored efficiently. These algorithms are trained to find changes in the vibration fingerprint of the rotating equipment they will be mounted on. All in the reliable NEON form factor that comes as a battery-powered I-IoT device, communicating wirelessly via LoRaWAN<sup>1</sup>, with the option for an IECEx / ATEX Zone 0 certification, if required or wanted.

## Key benefits

Maximise efficiency, safety, and insight with intelligent vibration monitoring.

- Reduce manual rounds by enabling remote data access.
- Increase safety with instant notifications and trigger alarms.
- Minimise downtime through early fault detection.
- Lower implementation and scaling costs with easy deployment options.
- Improve insights with time synchronisation and trend analysis.
- Reduce maintenance time with smart data insights.

## Technical overview

The NEON Vibration Sensor

<b>Sensor</b>	Measures RMS velocity, acceleration and FFT (Depending on application configuration)
<b>Water &amp; dust resistance</b>	IP-65 rated
<b>Mounting</b>	Transmitter: Bandclamp or bolts Sensor: Direct mount (M6 bolt) <sup>1</sup>
<b>Lifetime</b>	Battery life up to 10 years
<b>Certifications</b>	IECEX Class 1 / ATEX Zone 0 <sup>2</sup>
<b>Wireless protocols</b>	LoRaWAN 868, 915, 923 MHz (Region specific frequencies and certifications upon request)
<b>Operating temperature</b>	-40°C to 80°C (-40°F to 176°F)
<b>Dimensions</b>	100 x 70 x 45mm (L x W x H)

## LoRa devices designed for heavy industry

The NEON product line supports all industrial customers moving towards LoRaWAN as the Industrial IoT network of the future.

The LoRaWAN network gives industrial operations a secure solution, which has no vendor lock-in, scales up to tens of thousands of sensors, covers complete sites with only a small amount of gateways and best of all — the low-power approach means that the lifetime of NEON products can be extended dramatically. This international networking technology is quickly becoming the industry standard.

NEON stands for a standardised approach to collecting data points from within the operation and a general approach to creating integrated solutions with existing IT ecosystems.

- Fully LoRaWAN compatible<sup>3</sup>
- Based on the highest security standards
- 100% ownership of data
- IECEx class 1 / ATEX zone 0 certified<sup>2</sup>
- Battery powered for easy deployment
- Installation within live environments ensuring continuous operation
- Integration with existing data backends or DCS
- Visualisation via IMI TWITG's SolidRed Suite or any other IoT platform
- Detailed and extensive documentation
- Easy LoRa configuration using the NEON configurator
- No legacy; compatible with different types of assets
- Provision of lifecycle support
- Availability of spare parts and refurbishment packages

<sup>1</sup> Magnetic or chemically bonded adapters are available

<sup>2</sup> ATEX/IECEX certification is optional if wanted

<sup>3</sup> Compatible with international LoRaWAN standards (long-range, low power wide-area network)

<sup>1</sup> Compatible with international LoRaWAN standards (long-range, low power wide-area network)

# IECEX Class 0 ATEX Zone 0 Certified

Designed for industry from the very beginning, the NEON product line is built to operate not only in industrial sites where explosive gases are handled, but also in all other elements that a sensor may be exposed to throughout its lifetime.

It has been tested and certified to work in conditions from  $-40^{\circ}$  to  $80^{\circ}$  celsius without hampering performance. The devices are designed and engineered in such a way that they can be safely and securely deployed in a wireless LoRaWAN network and are fully remotely configurable, ensuring not only longevity but also reliability within an operation.

Additionally, IMI delivers spare parts and product life cycle support. Hence, even at the end of the battery lifetime, the sensor can continue to be used with the correct refurbishment kit. This way, periodical maintenance can be kept at a minimum.

The NEON Vibration Sensor can be installed / mounted using bolts or a band clamp.

**Alerts are based on outliers detected on continuously collated data.**

# NEON Vibration Sensor Non-Ex variant

The NEON Vibration Sensor is also available in a non-ATEX / IECEx certified version, designed for industrial environments where such certification is not required. Built to the same high standards as the ATEX / IECEx certified model, this sensor delivers equally precise vibration measurements.

The non-Ex variant of the NEON Vibration Sensor is ideal for facilities outside of explosive zones — such as manufacturing, pulp and paper, water management, and automation. It offers all the well-known NEON capabilities and features without the need for intrinsic safety compliance.

With its trusted NEON form factor, full LoRaWAN compatibility, and industry-grade durability, this sensor offers a powerful and cost-effective solution for large-scale asset monitoring — engineered to perform reliably for up to a decade in the field.

## Key Benefits

- Cost-effective for non-hazardous environments
- Seamless integration via full LoRaWAN compatibility
- Rugged, industry-grade design with trusted NEON form factor
- Battery life up to 10 years



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