



Process
Automation

Our product brands:
IMI

NEON Vibration Sensor Non-Ex Variant

Fully LoRaWAN compatible



Breakthrough
engineering for
a better world



NEON Vibration Sensor Non-Ex Variant

Description

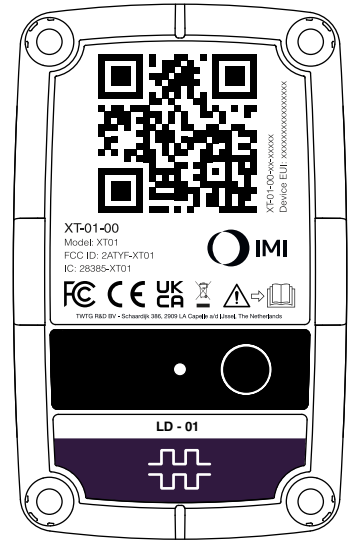
IMI's Neon technology represents a standardised approach to collecting data points from operational environments. This creates a general approach to integrated data collection within existing IT ecosystems.

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

The LoRaWAN network provides industrial operations with a secure solution that can scale up tens of thousands of sensors. It can cover entire sites with only a few gateways while the low-power approach extends the lifetime of our NEON product range.

The future of asset performance management is changing. It is becoming ever more digitised with data collected from Industrial IoT sensors providing insight and knowledge.

The NEON Vibration Sensor Non-Ex Variant 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 amplitude is detected in the vibration spectrum or when outliers in the data occur. An engineer is alerted to check on this asset to prevent it from failure or longterm damage, which saves costs and ensures operational uptime. Now, assets which are not under constant supervision from operators, can be monitored around the clock.



Key Benefits

NEON Product Family

- Fully LoRaWAN compatible
- End-to-end encryption & cryptographic algorithms from field to software
- 100% ownership of data
- Battery powered for easy deployment
- Installation within live environments
 - continuous operation
- Integration with existing data backends or DCS
- Visualisation via IMI's SolidRed Suite or any other IoT platform
- Detailed and extensive documentation
- Provision of life cycle support

IMI Firmware Features

- Transmitter supports Firmware Update Over the Air
- Event-based message triggers
- Advanced scheduling features
- Time stamp for process values
- Time synchronisation with other NEON sensors
- Machine fault indicator
- Supports Class A & B communication
- Detailed spectrum transmitted over LoRaWAN

NEON Vibration Sensor Non-Ex Variant

- Measures RMS velocity, acceleration, and envelope spectrum
- **Measuring range:**
0.5 Hz .. 6.66 kHz
- **Velocity:** 0mms⁻¹ .. 200mms⁻¹
Acceleration: 0mms⁻² .. 150mms⁻²
- **Wireless protocols:**
EU868 / US915 / AU915 / AS923-1 / AS923-2 / AS923-3 / AS923-4 / IN865
- **Dimensions:** 110mm x 72mm x 54mm



3. Specifications

Product name	
Product name	NEON Vibration Sensor Non-Ex Variant
Type identification transmitter	XT-01-00

3.1 Product Specifications Transmitter

Environmental conditions	
Operating temperature range	-40°C .. 80°C (-40°F .. 158°F)
Operating humidity range	0% RH .. 100% RH
Storage temperature range	10°C .. 30°C (50°F .. 86°F)
Water and dust resistance	IP66
Altitude	Up to 2000m (6561 ft)
Usage	Indoor and outdoor
Mechanical	
Weight (including mounting bracket)	250 g
Dimensions	110 mm x 72 mm x 54 mm
Installation	
Transmitter	Band clamp or bolts (not included, customer supplied) Optional mounting brackets (not included, see accessories)
Battery	
Battery type (replaceable)	1 x Type D
Battery rated voltage	3.6 V
Battery rated capacity	19 Ah
Battery life	10 years, at 25°C (77°F) (Depending on average ambient temperature, type of sensor and network quality)
Conditions, at 25°C (77°F)	Message interval: 1 message / hour Measurement interval: 1 measurement / 5 min
Connectivity	
Protocol	LoRaWAN (private LoRaWAN)
Frequency band	EU868 / US915 / AU915 / AS923-1 / AS923-2 / AS923-3 / AS923-4 / IN865
Maximum RF output power	EU868, AU915, AS923 IN865: +14 dBm / US915: +22 dBm
Provisioning	
QR Code	Serial number, Device EUI, Join EUI

3.2 Supported Sensors

Supported sensor	
Product name	NEON Vibration Sensor Non-Ex Variant
Type identification	DS-VB-02-XX
Firmware features	
Independent event-based message triggers	<ol style="list-style-type: none"> 1. Timer 2. Button press 3. 8 off Above (acceleration & velocity) 4. Temperature
Independent FFT triggers	<ol style="list-style-type: none"> 1. On timer 2. On button press 3. On event 4. Temperature 5. 5 off Amplitude (with configurable frequency band)
Adjustable measurement interval	Flexible, 1 minute resolution, (either relative or absolute)
Adjustable measurement message send condition	Always, or on condition.
RPM Detection	Automatic detection of RPM with no additional sensors
Time synchronisation	Time synchronisation for multiple sensors Accuracy 12mSec
Machine fault indicator	Edge Intelligence spectral analysis <ol style="list-style-type: none"> 1. Harmonics & statistics 2. Fault category <ol style="list-style-type: none"> a. Bearing faults b. Unbalance c. Misalignment d. Looseness
Firmware update over air	In Accordance with LoRa Alliance specifications TS006-1.0.0 TS005-2.0.0 TS004-2.0.0
Measurements and RPM	
Measuring range	0.5 Hz ... 6.66 kHz (3 dB points) RMS envelope
RMS velocity	Resolution: 0.01mms ⁻¹ Accuracy: ±1 dB
Acceleration	Measuring range (0G .. 16 G) Resolution: 0.01mms ⁻¹ Accuracy: ±1 dB
Acceleration, spectrum	0.5 Hz .. 6.66 kHz 8192 lines of resolution
Velocity spectrum	0.5 Hz .. 6.66 kHz 8192 lines of resolution
Envelope spectrum	0.5 Hz .. 6.66 kHz 8192 lines of resolution
Temperature	Sensor: -40°C .. 80°C (-40°F .. 175°F)
Installation	
Sensor	Direct mount (M6 bolt) Magnetic and chemically bonded adapters are available
Cable length sensor	3m (9.8 ft)

3.3 Certifications

Certifications	
CE	EN 303 446-1 V1.2.1
	EN 301 489-3 V2.3.2
	EN 301 489-1 V2.2.3
	EN 61326-1:2021
	EN 62311:2020
	EN 300 220-1 V3.1.1
	EN 300 220-2 V3.2.1
	EN 60529:1991 + A1:2000 + A2:2013
EN IEC 62368-1:2023	
UKCA	Radio Equipment Regulation 2017
WEEE	Directive 2033/108/EC
RoHS	2011/65/EU
FCC (United States)	FCC Part 15
ISED (Canada)	RSS-247
	RSS-Gen



4. Order Matrix Vibration Sensor & Transmitter

Solution includes:

XT-01-00 Transmitter
 DS-VB-02-xx Vibration Sensor with Surface Temperature Sensor - 3m of cable
 For special requirements please contact IMI sales.

Order Matrix Vibration Sensor & Transmitter	Options	VB	1	X	X	X
User Case	Vibration	VB				
Ex Approval	non-Ex		1			
LoRa Region	EU868			1		
	US915			2		
	AS923-1			3		
	AS923-2			4		
	AS923-3			5		
	AS923-4			6		
	AU915			7		
	IN865			8		
Hardware Variant	Reserved for future use					0
Software Variant	Reserved for future use					0

Accessories

Description	Order number
Magnet kit temp. installation (for Transmitter) - including 2 magnets, 4 washers, 4 screws	MKT-DS-XX
Bracket set installation (for Transmitter) - including 1 bracket, 2 washers, 2 screws	BRK-XT-01
Magnet installation (for Sensor) - curved surfaces (38mm)	MAG-VB-01-38
Magnet installation (for Sensor) - flat surfaces (38mm)	MAG-VB-02-38
Magnet installation (for Sensor) - curved surfaces (38mm) metric thread	MAG-VB-03-38
Magnet installation (for Sensor) - flat surfaces (38mm) metric thread	MAG-VB-04-38
Adapter installation (for Sensor) - chemical bonding	ADA-VB-01
3m Scotch-Weld for chemical bonding	DP8405NS-Green
Handpistol glue gun	A043249
Application nozzle for glue gun	2452231

Spare parts

Description	Order number
Battery replacement kit- including 1 battery assembly	BATT-XT-01
Gasket	GSK-XT-01

Process Automation

The information in this brochure is provided for general informational purposes only. Specifications for products and services are subject to change without prior notice. IMI plc and its subsidiaries own all product brands mentioned herein.

IMI makes no warranties or representations about the accuracy or completeness of the content in this brochure and assumes no liability for any errors or omissions it may contain. We reserve the right to modify, enhance, or discontinue any product or service described herein without prior notification..

IMI plc
Lakeside, Solihull Parkway
Birmingham Business Park
Birmingham
B37 7XZ
United Kingdom

twtg.io/products/neon-vibration-sensor

16001.01/25en

