

Neuron Vibration RMS Wake-on-Shake

Neuron Vibration RMS Wake-on-Shake continuously monitors vibration levels and wakes up when a fixed threshold is exceeded. Once triggered, it measures both vibration RMS level and surface temperature. The sensor includes an embedded magnet for easy installation, and the temperature is measured through this magnetic contact point.



Features

- Long life battery - up to 8 years lifetime
- Continuous measurement and instant alarm
- Adjustment of parameters such as measurement frequency on request
- Define your own alarm levels in the Neuron app
- Receive alerts as push notifications, emails or SMS
- Easily connect the sensor to the system with the QR-code on the sensor. Ensures immediate and accurate registration in the app on your phone/PC/tablet
- The sensor transmits data to your nearby Neuron Gateway which then again communicates with the Neuron Cloud

Typical Applications

- Anomaly detection and predictive maintenance
- Machine status and optimization
- Uptime hours and usage-based maintenance
- Structural health monitoring

Neuron System Benefits

Sensor - Gateway - Cloud - App



- **Robust sensors**
Suitable for rough environments
- **Wireless**
Wireless sensor with integrated battery
- **Long lifetime**
Typical 10 years battery life
- **Quick installation**
Wireless, installed and operational in minutes
- **Collect and deliver data**
Data delivery through API and app
- **Broad offering**
More than 50 different sensor types available

Essentials

Measuring Range	0 - 12 g RMS acceleration (sum of X,Y and Z axis)
Measuring Frequency	80ms upon wakeup
Report Frequency	Upon wakeup, or every 5 min
Expected Operating Time*	Up to 8 years

*Depends on measurement frequency, amount of critical data transmissions and ambient temperature

General Description

The Neuron Vibration RMS Wake-on-Shake is a battery-powered, wireless sensor that continuously monitors vibration levels. When vibration exceeds a predefined threshold, the sensor wakes from its low-power state, measures RMS acceleration using its triaxial accelerometer, and transmits the data to the Neuron Cloud.

The device supports a measurement range of 0–12 g RMS with a resolution of 1 mg. It also has a temperature sensor mounted on its magnet, measuring the objects surface temperature over the range -40 to 85C.

The IP67 rated device is encapsulated in polyurethane that provides protection against dust and water ingress, making it suitable for use in harsh industrial environments. Its small size and light weight, paired with its magnetic mount, makes it a very powerful device – ideal for use in predictive maintenance and monitoring of vibration levels on a variety of industrial equipment and machinery.

Principle of Operation


The sensor's Wake-on-Shake function continuously monitors vibration levels while operating in a low-power sleep state. It samples vibration at 12.5 Hz, and if the measured level exceeds 0.1 g for at least 0.1 seconds, the sensor wakes, waits 0.5 seconds, and then measures both the vibration RMS level and the surface temperature.

RMS acceleration is captured on all three axes with an 80 ms measurement window at a sampling rate of 3200 Hz, providing a usable bandwidth of 1600 Hz.

After a Wake-on-Shake event, the feature is temporarily disabled for 2 minutes to optimize battery life. If no vibration triggers occur, the sensor will still perform a periodic measurement every 5 minutes.

Vibration RMS and temperature data are transmitted to a nearby Neuron Gateway, which forwards the data to the Neuron Cloud for visualization and analysis across assets.

Most configurations are adjustable upon request.

The symbol  on the product label refers to this data sheet for important information regarding intended use, requirements for the operating environment etc. If the equipment is used in a manner not specified by El-Watch, the protection provided by the equipment may be impaired.

Technical Specification

Operational Specification

Measuring Range*	0 - 12 g RMS acceleration (sum of X,Y and Z axis)
Measuring Frequency*	80ms upon wakeup
Bandwidth*	1600 Hz
Wakeup Threshold*	0.1g for 0.1 sec
Measuring Range Temperature	-40 – 85°C
Resolution	0.001 g / 0.1 °C
Report Frequency*	Upon wakeup, or every 5 min
Operating Environment	Ambient temperature: -40 - 85 °C Relative humidity: 0-100% Altitude < 2000m above sea level Pollution degree: 4
IP Grade	IP 67, wet conditions, indoor use.
Cleaning	Wipe clean with a damp cloth
Radio Frequency	863-870 MHz / 902-928 MHz
Battery Type	Lithium Manganese Dioxide, 3.0V
Expected Operating Time**	Up to 8 years

* Adjustable on request

** Depends on measurement frequency, amount of critical data transmissions and ambient temperature

Physical Specification

Materials	Polyurethane / Neodymium magnet
Dimensions DxH	36x26mm



Ordering Information

	Europe/The Middle East/Africa Part number	North America/Australia/New Zealand Part number
Neuron Vibration RMS Wake-on-Shake	422786	422819

Accessories

	Part number
Neuron Magnetic Mounting Assembly	422691

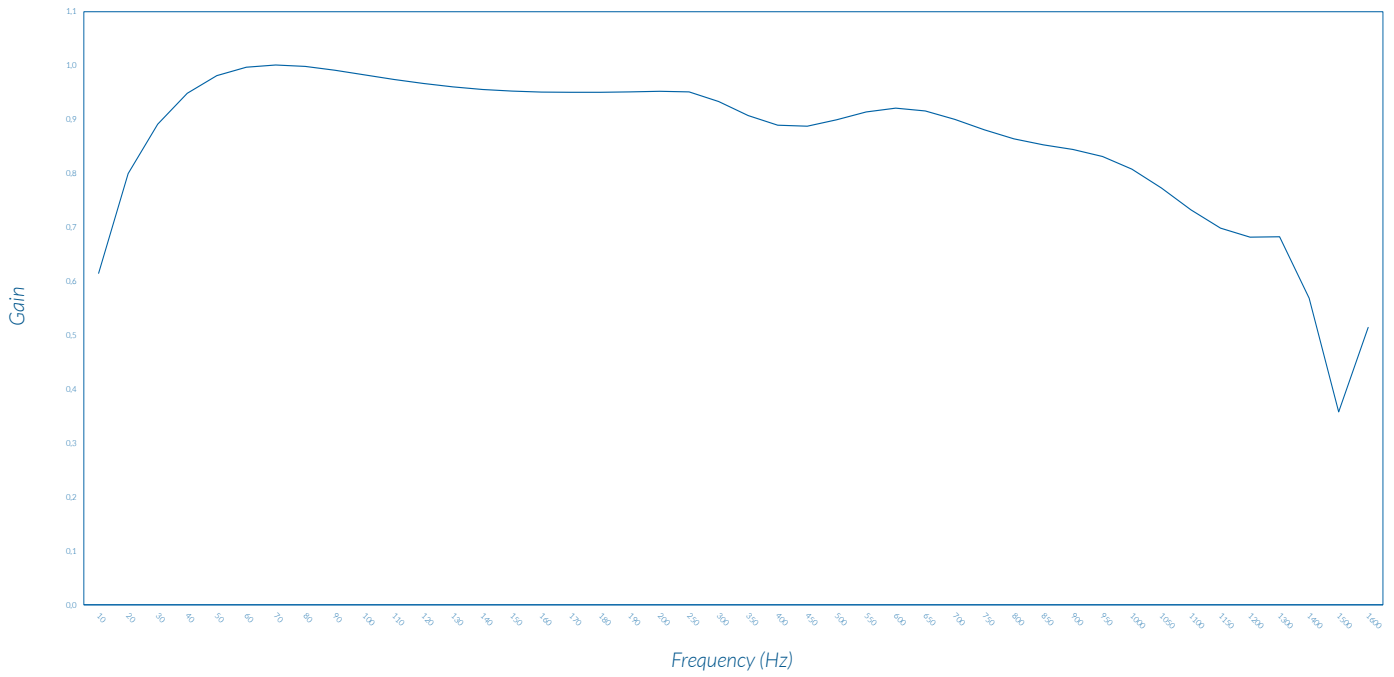
Regulatory

Certifications	Directives/Standard
	RED 2014/53/EU Radio Equipment Regulations 2017
	FCC Part 15C
Safety	IEC 61010-1:2010

Typical Frequency Response Graph

The accelerometer response graph provides a visualization of the expected gain performance characteristics over the measurable bandwidth in reference to a 1G force.

Typical Frequency Response Graph



Installation

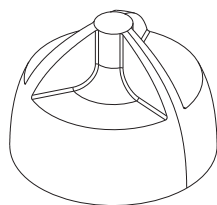
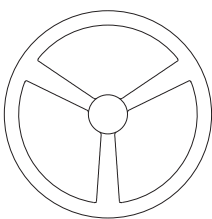
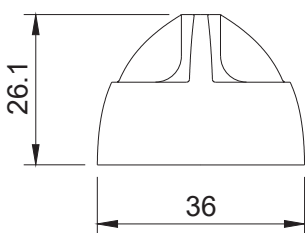
Neuron sensors are ready for use out of the box and will start logging data after registering the sensor in the app. Even though Neuron sensors deliver great range and long battery life, following some simple guidelines for mounting of the sensor and gateway can greatly improve signal coverage and lifetime of the sensor.

To ensure optimal antenna performance and signal strength, the sensor should be placed elevated with some distance to fixed objects. Keep in mind that RF-signals are greatly affected by close metallic surfaces.

For sensors with an external antenna, the antenna should be clear off the metallic surface.

You can find all you need to get started with Neuron Sensors at our support site: support.el-watch.com »

Dimensions



Neuron Magnetic Mounting Assembly

