Neuron Pulse Counter

Neuron Pulse Counter enables you to accumulate and monitor signal pulses from your assets. The sensor stores accumulated pulses internally and will work even if out of range of a gateway. When within reach of a gateway the accumulated value will be sent to Neuron Cloud.

All measurements are easily accessible from web, app or integrations. Due to IP67 encapsulation the sensor can be used in humid areas.

Features

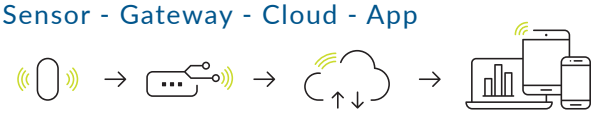
- Integrated long life battery - up to 10 years lifetime
- The digitizer powers the circuit, no need for external power source
- Continuous measurement
- Define your own alarm levels in the Neuron app
- Receive alerts as push notifications, emails or SMS
- Easily connect the sensor to the system with 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

- Flow Measurement (water, gas or liquid flow meters)
- Energy Metering (S0-pulse interface)
- Event counting

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	0-5V Binary
Measuring Frequency	Pulse dependent
Report Frequency	Every 2 min
Expected Operating Time*	Up to 10 years

**Sensor battery lifetime is heavily dependent on measured pulse frequency*

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General Description

The Neuron Pulse Counter provides an active 5-volt potential in the measurement loop. This makes it suitable for counting pulses on passive assets such as water flow meters with Reed switches or other dry-contact interfaces, and also on S0-pulse energy meters. S0-pulse interface is a well defined standard(*) in the energy monitoring industry that comes as an option on most kWh energy meters. *NEK IEC 62052-11:2020.

The sensor comes with a 1 meter cable for easy connection.

Duplex communication enables adjustment of parameters such as reporting frequency. Alarm levels are easy to set in the app and alerts can be received as push notification, emails or SMS. QR-code on the sensor ensures easy and accurate registration in the app.

WARNING. Do not short the wires together or keep the measured signal closed for long periods of time. This will greatly decrease the sensor battery lifetime.

The sensor operating lifetime is heavily dependent on the measured signal frequency.

Pulse Frequency (Hz)	1	10	16*	50
Expected operating life (Years)	10.1	9.2	8.7	6.7

* *Maximum pulse frequency for S0*

Principle of Operation

The Neuron Pulse Counter measures pulses continuously and stores the accumulated value internally and do not need to be in range of a gateway at all times. When within reach of a gateway the accumulated value is transmitted to Neuron Cloud. The sensor transmits its accumulated value every second minute.

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*	0-5V Binary
Pulse Frequency**	Max 50Hz
Measuring Frequency	Continuously
Report Frequency	Reports every 2 min.
Minimum pulse duration	50 µs
Electronics Operating Environment	Ambient Temperature: -40 - 85 °C Relative Humidity: 0-80% Altitude < 2000m above sea level Pollution degree: 3
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 10 years

* *Applying a voltage over 5.5V will result in permanent damage to the device*
** *Sensor battery lifetime is heavily dependent on measured pulse frequency*

Physical Specification

Materials	Polyurethane / Ni-Cu-Ni Coated Neodymium Magnet
Connection Type	M12 Connector, 4 pin female A-coded
Dimensions	Radio transmitter: 50mm x 15mm Cable length: 1m - can be extended

Ordering Information

	Europe/The Middle East/Africa Part number	**North America/Australia/ New Zealand** Part number
Neuron Pulse Counter	422709	422710

Regulatory

Certifications	**Directives/Standard**
CE UKCA	RED 2014/53/EU Radio Equipment Regulations 2017
FC Industry Canada	FCC Part 15C
Safety	IEC 61010-1:2010

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 »

Place elevated with distance to fixed objects

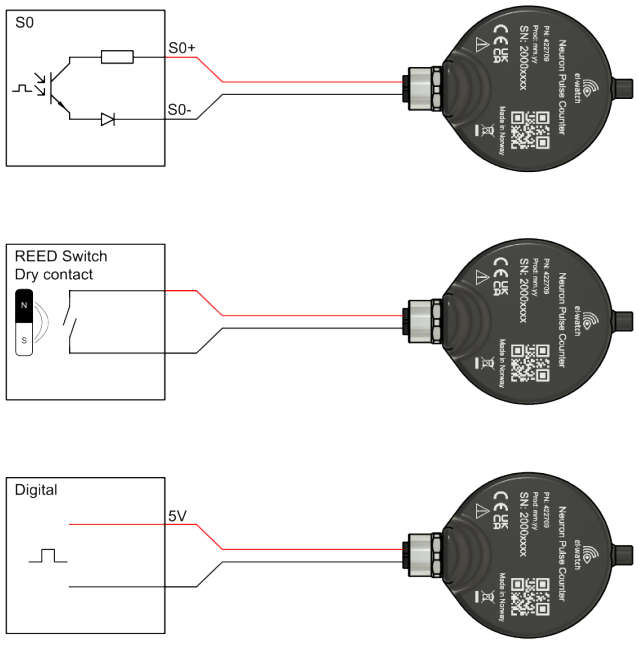
Keep antenna clear off the metallic surface

For sensors operating in environments with greatly varying temperatures, care should be taken to avoid putting the sensor in unnecessary stress. Very high or low temperatures will affect the battery life and the signal strength of the sensor. While some sensors must be close to the source of heat or cold, other sensors have external probes which allow the sensor to be placed at a distance.

Fastening

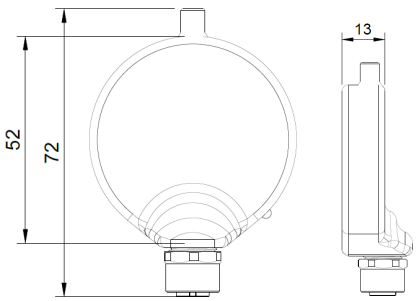
The small, compact blue Neuron sensors are fitted with fastening holes for use with cable ties. The sensors are also delivered with double-sided tape that may be used for fastening of the sensors.

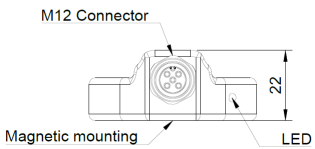
All the black/grey Neuron sensors, like the Neuron IR380 and Neuron Vibration, are fitted with a strong magnet at the back for easy fastening. If there is no magnetic surface, then double-sided tape is a good solution.

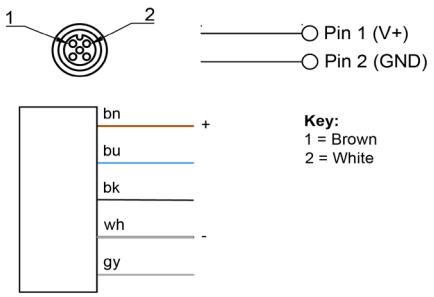


Setup example with Pulse Counter sensor

Dimensions







Electrical Connections

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Additional information about Neuron sensors, installation, userguides, and more at our support website: support.el-watch.com