Neuron Ethernet Gateway

The Neuron Ethernet Gateway is a device designed to provide a bridge between Neuron Sensors and the Neuron Cloud. The gateway sends sensor data using an ethernet connection to the cloud to be viewed in the Neuron app. This is beneficial in locations that do not have cellular coverage such as tunnels, underground facilities or on ships. The gateway is DIN-rail mounted, powered from 10-32 VDC and has two sub-GHz antennas to maximize sensor coverage.

Features

- Collects continuous measurements from all Neuron sensors within range.

- The main advantage over our cellular gateway is that data is sent immediately, without buffering.

- Measurements are uploaded to the cloud via an Ethernet connection

- Easily connect the gateway to the system with the QR-code on the gateway.

Typical Applications

- Locations with no/limited cellular coverage
- Underground facilities, tunnels, on board ships/vessel etc.

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

General Description

The Neuron Ethernet Gateway is a powerful and versatile device designed to provide coverage for the Neuron suite of sensors. With its ethernet and serial connectivity, it provides a bridge between connected sensors and the internet, enabling users to view data in the Neuron app.

The gateway has several connectivity options: Dual sub-GHz antennas, RS485, dual-USB type A, ethernet, GNSS and a potential free normally-open 30VDC/5A relay. This enables it to expand the range of connectivity and flexibility making it an ideal solution for a wide range of applications in industrial automation, building automation, smart agriculture, energy management and remote monitoring and control.

The gateway has the ability to be managed and configured remotely which makes it easy to maintain and upgrade. All in all, this gateway offers a powerful and flexible solution for connecting your devices and systems to the internet, providing you with real-time data and control.

Principle of Operation

The broad range of Neuron Sensors connect to the cloud using the Neuron Ethernet Gateway over the Neuron proprietary sub-GHz radio protocol.

The advantage of these low frequency bands is that they travel farther and penetrate obstacles better than higher frequency bands, which results in a more reliable, low-power communication between devices.

The gateway translates the data and commands it receives from the sensors into a format that can be understood by the internet, i.e. TCP/IP and MQTT. The data is sent to the Neuron Cloud, where data is processed to be viewed by the user in the Neuron app.

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

Operating Voltage	10-32 VDC, Max. 10W
Operating Environment	Temperature: -40 - 75 °C Relative humidity: 0-80% (non-condensing) Altitude < 2000m above sea level Pollution degree 3 Indoor use, not for wet locations
Relay Rated Current	Resistive load: 5A@25°C, 2.5A@75°C
Antenna ports	2xSMA (RTXA, RTXB) for Sub-GHz antennas (included) 1xSMA (Cellular) for LTE/3G antenna (included) 1xSMA for GNSS for positioning (optional)
External Connections	Ethernet, RJ45 RS-485 (optional) 2 x USB Relay output, NO, SPST
Radio Frequency	Sensor communication: 863-870 MHz (902-928 MHz) Cellular connection: LTE/3G GNSS: GPS, Galileo, Beidou, GLONASS
IP Grade	IP 20

Physical Specification

Materials	Polyamid
Dimensions LxWxH	139 x 25 x 115mm
Mounting	DIN-rail
Cleaning	Wipe clean with a damp cloth

Ordering Information

	Europe/The Middle East/Africa Part number	North America Part number	Australia/New Zealand Part number
Neuron Ethernet Gateway	422316	422493	422585

Accessories

Neuron Gateway Battery Backup	422306
DIN Rail Power Supply 85-264V AC Input, 24V DC Output, 1A 20W	311055
DIN Rail 100mm x 35mm x 7.5mm	422605
LTE Antenna, Industrial adhesive-mount, IP67, 2 meters cable	422606
ISM Antenna, Industrial adhesive-mount, IP67, 2 meters cable	422607
Antenna cable, coaxial, SMA male-female, 10 meters	422608
Antenna cable, coaxial, SMA male-female, 20 meters	422609

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 IEC 61010-2-201:2017

Installation

This device is ready for use and requires only 12- or 24-volt DC and an Ethernet connection with DHCP to operate. Sensor data is sent immediately to the Neuron cloud, which provides low latency. The gateway has a local web interface for configuration of network parameters but has DHCP enabled as default.

Firewall

The gateway uses secure MQTT to communicate with the Neuron Cloud, so port 8883 TCP has to be open for sensordata to reach the Neuron Cloud at mqtt.googleapis.com

Mounting

The gateway is best mounted on a DIN rail in a cabinet where you have access to a ethernet connection and a 10-32V DC power supply.

Note: Remember to position the equipment so that it is not difficult to disconnect the power supply if necessary.

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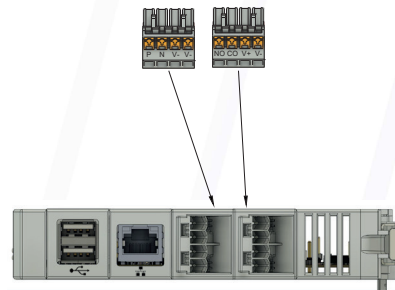
Antennas

Connect the cellular antenna and both Neuron antennas. If the cabinet is made of metal, we recommend mounting the antennas outside of the cabinet. Extended antennas are optional accessories. Please consult our sales representatives. An optional GNSS / GPS antenna can also be mounted, but this feature has not yet been implemented in the Neuron app.

The best place to mount a GPS antenna is outside, with an unobstructed view-of-the-sky. Connect the two Neuron antennas and the cellular antenna.

Antennas

Connectors

Connect the ethernet cable and power to the other side of the gateway. The gateway also has a potential free relay output, an RS485 connector and 2 USB A host connectors. These are reserved for custom use cases. The RS485 connector is not mounted on all gateways.

Connectors

Dimensions

// PRODUCT SHEET // TECHNICAL SPECIFICATION