

Neuron Ampere

The Ampere Sensor measures AC current and comes in several ranges from 10A to 500A RMS. The sensor comes with split core and is therefore easy to install onto existing power cables.

Integrated battery ensures up to 10 years of battery life. All measurements are easily accessible from web, app or API.



Features

- Integrated long life battery - up to 10 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

- HVAC & pumps
- Refrigeration
- Industrial motors
- Fans
- Lighting
- Energy audits

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**

Essentials

| | | | | | | | |
|--------------------------|--|-----|-----|------|------|------|------|
| Measuring Range | 10A | 20A | 50A | 100A | 150A | 250A | 500A |
| Measuring Frequency | Every 10 sec | | | | | | |
| Report Frequency | Every 2 min, or immediately after measurement if trigger for critical data transmission is reached | | | | | | |
| Expected Operating Time* | Up to 10 years | | | | | | |

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

General Description

The Neuron Ampere is a split-core current transducer allowing for easy installation around existing wire without the need to disconnect the electrical system. This makes it an ideal choice for retrofitting or upgrading existing systems.

The sensor is typically used for industrial and commercial applications, including building automation, HVAC systems, industrial automation, renewable energy systems and power monitoring systems.


Neuron Ampere provides accurate and reliable measurement of current and can be used for various tasks like monitoring energy consumption, detecting load changes and identifying potential problems in the electrical system. The sensor is available in a broad range of current ranges.

Principle of Operation

The current transducer has a magnetic core that surrounds the conductor carrying the current to be measured. When the current flows through the conductor, it generates a magnetic field around it. This magnetic field induces a current in a coil that is wrapped around the core. The induced current is proportional to the current flowing through the conductor, and it can be used to determine the current value.

The output signal of the transducer is the induced current, which is used to drive the input of the Neuron wireless transmitter. The custom Neuron hardware digitizes this 0-10V output signal and transmits it through a nearby Neuron Gateway to the Neuron Cloud.

Every 10 second the sensor measures the current and if the current has changed more than 20% of the full-scale range since the last transmission, the sensor reports immediately. Otherwise, it reports every 2 minutes.

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*** | 10A | 20A | 50A | 100A | 150A | 250A | 500A |
| Resolution | 0,01 A | 0,02 A | 0,05 A | 0,1 A | 0,15 A | 0,25 A | 0,5 A |
| Accuracy | 2% of Full Scale | | | | | | |
| Measuring Frequency* | Every 10 sec | | | | | | |
| Report Frequency* | Reports every 2 min. Or immediately if trigger for critical data transmission is reached, see below | | | | | | |
| Trigger for Critical Data Transmission* | 20% of range change in measurement | | | | | | |
| Operating Environment | Ambient temperature: -20 - 50 °C Relative humidity: 0-85% (non condensing) Altitude < 2000m above sea level Pollution degree: 2 | | | | | | |
| IP Grade | IP 40, indoor use | | | | | | |
| Cleaning | Wipe clean with a damp cloth | | | | | | |
| Radio Frequency | 863-870 MHz / 902-928 MHz | | | | | | |
| Battery Type | Li-SOCl ₂ , 3.6V | | | | | | |
| Expected Operating Time** | Up to 10 years | | | | | | |

* Adjustable on request

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

*** Current outside the measuring range may permanently damage the device






Physical Specification

| | | | | | | | |
|---------------|------------------------------|-----|-----|------|------|------|------|
| Materials | POLYblend 65 FS / TPU, Nylon | | | | | | |
| Dimensions | 10A | 20A | 50A | 100A | 150A | 250A | 500A |
| Width (mm) | 34 | 34 | 34 | 34 | 34 | 49 | 61 |
| Depth (mm) | 49 | 49 | 49 | 49 | 58 | 52 | 58 |
| Length (mm) | 58 | 58 | 58 | 58 | 64 | 77 | 94 |
| Diameter (mm) | 16 | 16 | 16 | 16 | 17 | 24 | 36 |

Ordering Information

| | Europe/The Middle East/Africa Part number | North America/Australia/New Zealand Part number |
|----------|--|--|
| 0 - 10A | 422291 | 422429 |
| 0 - 20A | 422292 | 422430 |
| 0 - 50A | 422293 | 422431 |
| 0 - 100A | 422303 | 422432 |
| 0 - 150A | 422304 | 422433 |
| 0 - 250A | 422578 | 422591 |
| 0 - 500A | 422353 | 422434 |

Regulatory

| Certifications | Directives/Standard |
|---|---|
|   | RED 2014/53/EU Radio Equipment Regulations 2017 |
|   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.

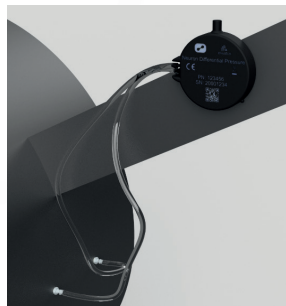
To ensure optimal antenna performance and signal strength, the sensor should be placed elevated with some distance to fixed objects. Keep in mind that RF-signals are greatly affected by close metallic surfaces.

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



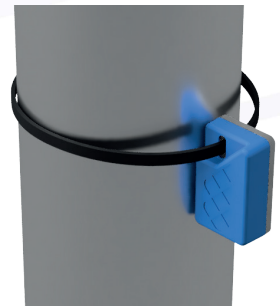
Place elevated with distance to fixed objects



Keep antenna clear off the metallic surface



Sensors with IP21 Enclosure



Sensors with IP67 Enclosure

Dimensions

