



## LoRaWAN® Low Power Cathodic Protection Monitoring Interface for Industrial Applications

- Compatible with all LoRaWAN® frequencies
- Wide range of industrial applications
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power

## TECHNICAL SPECIFICATION

### Sensor

|                           |   |    |
|---------------------------|---|----|
| • Interface Configuration | Input for Voltage and for Current   |    |
|                           | <ul style="list-style-type: none"> <li>• Voltage measurement range: -10 to 10V<sub>DC</sub> &amp; AC</li> <li>• Voltage resolution 0.1mV resolution</li> <li>• Current measurement: 0-20 Amps DC &amp; AC (or other customised options on request)</li> </ul> |    |
| • Voltage Resolution      | 0.1   | mV |
| • Current Resolution      | 1   | mA |
| • Electric Connection     | 1m cable, pin connection (or others on request)   |    |
| • Operation Temperature   | -10 ~ +70   | °C |

### Power

|                    |   |   |
|--------------------|---|---|
| • Power Supply     | Built-in Replaceable Lithium Battery, External Power (option)                         |   |
| • Rated Voltage    | 3.6   | V |
| • Battery Lifetime | 100,000+ readings and 20,000+ transmission (More than 10 years for most applications) |   |

### Physical

|                   |   |   |
|-------------------|---|---|
| • Materials       | ASA or POM                              |   |
| • Weight          | 450                                     | g |
| • Protection Rate | IP66 or IP68 and UV Protected enclosure |   |

### Communication

|                            |   |  |
|----------------------------|---|--|
| • LoRaWAN® Version, Class  | 1.0.2revB, Class A (Class C on request)                               |  |
| • LoRaWAN® Frequency Zone  | AS923, EU868, US902-928, AU915-928 (other zones available on request) |  |
| • LoRaWAN® Activation Type | OTA (default), ABP  |  |
| • Sampling Type            | Periodic (default), Event triggered                                   |  |
| • Sampling Period          | Configurable via downlink (default 4 hours)                           |  |
| • Transmission Type        | Per sample (default), Event triggered, Conditional                    |  |
| • Parameter Configuration  | Over-the-air via LoRaWAN® downlinks<br>Locally via serial terminal    |  |
| • Firmware Update          | Locally via serial terminal, Over The Air                             |  |

## NETWORK CONNECTION AND VISUALISATION

### Network Integration

- Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, Helium, Kerlink, kpn, Lorient, machine-Q, Objenious, Orange, Orbiwise, Proximus, Senet, Sens, Swisscom, TATA, The Things Network(TTN), TTI and any other network)

### Visualisation And Data Management

- Ellenex white label microservice platform, and Integratable to all main IIoT platforms directly or through the api (AWS, Azure, PTC ThingWorx, Bosch IoT, Cisco Jasper & Kinetic, Sierra Numerex, MathWorks, ThingSpeak, GE Digital Predix, LandisGyr, Siemens MindSphere, Cumulocity, myDevices, Ubidots, TagoIO, AllThingsTalk, HPE IoT and any other major IoT platform).

### Ellenex Platform Main Features

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customisation available on request



Encrypted & ultra-low power



Integratable



Dynamic alerting



Multi-tenant


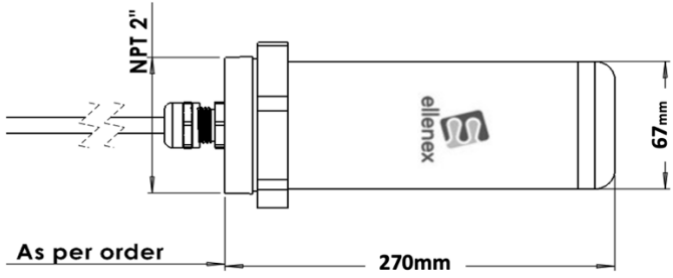

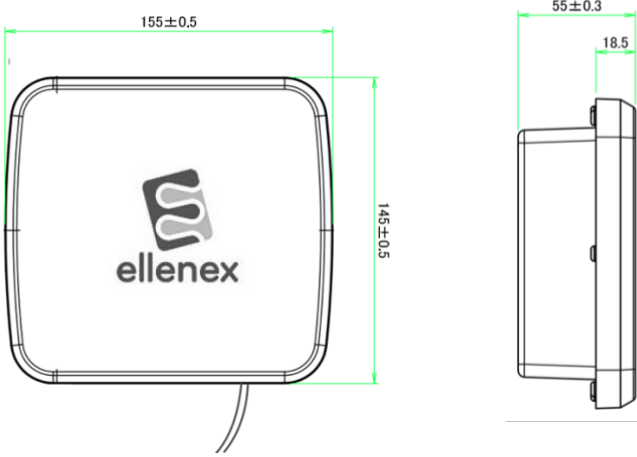


Scalable



Composable & API first

## MODEL GUIDE

| Model  | Option / Schematic   |
|--|--|
| <p><b>C Model</b></p>   |  <p>As per order</p> <p>C model comes with cylindrical shape housing suitable for battery operated applications with IP68 / IP66 rate and clamp mounting. This model has 2 option of cable output and the pin connection.</p> |
| <p><b>E Model</b></p>  |  <p>E model comes with rectangular shape housing suitable for battery or external power operated applications with IP68 / IP66 rate, and wall mounting. This model has 2 option of wire cable connection and the pin connection.</p>  |

## INDUSTRIES



Water



Oil & Gas



Marine

## APPLICATIONS

- Pipes and assets cathodic protection monitoring

## WIRING LAYOUT

- **RED:** Voltage In
- **WHITE:** Current In
- **GREEN:** Current Out

## ORDERING CODE

|                                      |    |                              |                                   |    |   |                                     |                              |  |  |
|--------------------------------------|----|------------------------------|-----------------------------------|----|---|-------------------------------------|------------------------------|--|--|
| ECP2-L                               |    |                              |                                   |    |   |                                     |                              |  |  |
| LoRaWAN Frequency Zone               |    |                              |                                   |    |   |                                     |                              |  |  |
| AS (AS923)                           |    | AUx (AU915-928) (Sub Band x) |                                   |    | EU (EU868)                              |                                     | USx (US902-928) (Sub Band x) |  |  |
| LoRaWAN Activation                   |    |                              |                                   |    |   |                                     |                              |  |  |
| A (Over the air activation - OTAA)   |    |                              |                                   |    | P (Activation By Personalization - ABP) |                                     |                              |  |  |
| Interface Options                    |    |                              |                                   |    |   |                                     |                              |  |  |
| S: Standard                          |    |                              |                                   |    |   | Other customised options on request |                              |  |  |
| Electric Connection                  |    |                              |                                   |    |   |                                     |                              |  |  |
| P: pin connector                     |    |                              |                                   |    | 1m: 1m wire cable                       |                                     |                              |  |  |
| Enclosure                            |    |                              |                                   |    |   |                                     |                              |  |  |
| C: Cylindrical<br>(Material: POM)    |    |                              | E: Rectangular<br>(Material: ASA) |    |   | X: without housing<br>(only board)  |                              |  |  |
| Device Activation                    |    |                              |                                   |    |   |                                     |                              |  |  |
| S: With On/Off Switch                |    |                              |                                   |    |   | X: No Switch<br>(Always On)         |                              |  |  |
| Antenna Option                       |    |                              |                                   |    |   |                                     |                              |  |  |
| E: External                          |    |                              |                                   |    | I: Internal                             |                                     |                              |  |  |
| Options<br>(On request) <sup>1</sup> |    |                              |                                   |    |   |                                     |                              |  |  |
| ECP2-L                               | AS | A                            | S                                 | 1m | C                                       | S                                   | E                            |  |  |

### Sample Product Code:

- **ECP-L-AS-A-S-1m-C-S-E**

LoRaWAN® Cathodic protection monitoring interface, frequency of AS923, Over The Air Activated, standard configuration with cylindrical housing, 1m cable, with on-off switch and equipped with external antenna.

### <sup>1)</sup> Product Options:

- **EP**: sensor with external power supply connector for 12V supply (only for E type enclosure, adaptor is not included)
- **EPB**: connector for 12V supply with internal battery backup (only for E type enclosure)
- **HG**: high-gain external antenna
- **HCB**: high-capacity battery (only for E type enclosure)