



## Single-Channel LoRaWAN® Low Power Transmission 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

<ul style="list-style-type: none"> <li>• <b>Interface Options</b> (RS1-L covers a wide range of industrial sensors interfaces. Unique design of the interface gives ultimate flexibility of choosing the right sensor interfaces)</li> </ul>	<p><b>Analogue:</b> mV // mV/V // 4-20mA // 0-5V // 0-10V  <b>Digital:</b> I2C // RS232 // RS485 // Modbus // HART  SDI12 // TTL UART  Temperature: Pt100, 2 or 3 wire; Pt1000, 2 or 3 wire  <b>Pulse:</b> Pulse (Reed Switch)  (or other customised options on request)</p>
<ul style="list-style-type: none"> <li>• Electric Connection</li> </ul>	1m cable, pin connection (or others on request)
<ul style="list-style-type: none"> <li>• Operation Temperature</li> </ul>	-10 ~ +70 °C

### Power

<ul style="list-style-type: none"> <li>• Power Supply</li> </ul>	Built-in Replaceable Lithium Battery, External Power (option)
<ul style="list-style-type: none"> <li>• Rated Voltage</li> </ul>	3.6 V
<ul style="list-style-type: none"> <li>• Battery Lifetime</li> </ul>	100,000+ readings and 20,000+ transmission (More than 10 years for most applications)

### Physical

<ul style="list-style-type: none"> <li>• Materials</li> </ul>	ASA or POM
<ul style="list-style-type: none"> <li>• Weight</li> </ul>	350 g
<ul style="list-style-type: none"> <li>• Protection Rate</li> </ul>	IP66 or IP68 and UV Protected enclosure

### Communication

<ul style="list-style-type: none"> <li>• LoRaWAN® Version, Class</li> </ul>	1.0.2revB, Class A (Class C on request)
<ul style="list-style-type: none"> <li>• LoRaWAN® Frequency Zone</li> </ul>	AS923, EU868, US902-928, AU915-928 (other zones available on request)
<ul style="list-style-type: none"> <li>• LoRaWAN® Activation Type</li> </ul>	OTA (default), ABP
<ul style="list-style-type: none"> <li>• Sampling Type</li> </ul>	Periodic (default), Event triggered
<ul style="list-style-type: none"> <li>• Sampling Period</li> </ul>	Configurable via downlink (default 4 hours)
<ul style="list-style-type: none"> <li>• Transmission Type</li> </ul>	Per sample (default), Event triggered, Conditional
<ul style="list-style-type: none"> <li>• Parameter Configuration</li> </ul>	Over-the-air via LoRaWAN® downlinks Locally via wireless connectivity
<ul style="list-style-type: none"> <li>• Firmware Update</li> </ul>	Locally via Wireless Connectivity, 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, TagIO, 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>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 4 wire cable connection and the 4pin 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 IP65 rate, and wall mounting. This model has 2 option of 4 wire cable connection and the 4pin connection.</p>

## INDUSTRIES



Water & Environment



Agriculture & Farming



Oil & Gas



Marine & Oceanography



Mining & Construction



Smart Building & HVAC



Transport & Logistics



Food & Beverage



Hydraulics and Compressed Air Systems

## APPLICATIONS

- Pump Performance Monitoring
- Water Pipeline Pressure Monitoring
- Pressurised System Monitoring
- Chiller and Cooling System Monitoring
- Hydraulic and Pneumatic Systems Monitoring
- Liquid Storage Level Monitoring
- Spraying System Monitoring
- Air Compressor Monitoring

## ORDERING CODE

RS1-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									
A1: I2C				B1: Pulse (Reed Switch)					
C1: 4-20mA		C2: 0-10V		C3: 0-5V		C4: mV or MV/V			
D1: Pt1000 (2 wire)		D2: Pt1000 (3 wire)		D3: Pt100 (2 wire)		D4: Pt100 (3 wire)			
E1: RS232		E2: RS485		E3: SDI12		E4: TTL UART			
E5: Modbus				Other customised options on request					
Electric Connection									
P: pin connector				3m: 3m wire cable					
P68: pin IP68 rated connector				Others as specified					
Enclosure									
C: Cylindrical (Material: POM) Available only with cable connection				E: Rectangular (Material: ASA)			X: without housing (only board)		
Device Activation									
S: With On/Off Switch					X: No Switch (Always On)				
Antenna Option									
E: External					I: Internal				
Options (On request) <sup>1</sup>									
RS1-L	AS	A	C1	P	C	S	E		

### Sample Product Code:

- **RS1-L-AS-A-C1-P-C-S-E**

Single-channel LoRaWAN<sup>®</sup> sensor interface, frequency of AS923, Over The Air Activated, for 4-20mA output with cylindrical housing, pin connection, with on-off switch and equipped with external antenna.

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

- **G:** GPS tracker (only for E type enclosure)
- **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
- **WF:** Active WiFi module on device for communication/ firmware update through Mobile phone NFC module (only for E type enclosure)
- **HCB:** high-capacity battery (only for E type enclosure)

All details are subject to change without prior notice  
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