RM1-L Spec-sheet

LoRaWAN®

Multi-Chanel LoRaWAN® Operated
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 Interface

• Interface options: (RM1-N has option of up to 5 channels for industrial sensor interface. Unique design of the interface gives ultimate flexibility of choosing up to 5 sensor interfaces with different choices for each channel)	• **Ch 1:** I2C • **Ch 2:** Pulse (Reed Switch) • **Ch 3:** mV / 4-20mA/ / 0-5V / 0-10V • **Ch 4:** Pt temperature (Pt100 2wire, Pt100 3 wire, Pt1000 • **Ch 5:** RS232/ RS485/ Modbus/ HART/ SDI12/ TTL UART/ 0-5V / 0-10V/ 4-20mA (or other customised options on request)	
• Electric Connection:	1m cable, pin connection (or other options on request)	
• Operating temperature range:	-10 ~ + 70	°C

Power

• Power Supply:	Built-in Replaceable Lithium Battery, External Power (option)	
• Rated Voltage	3.6	V
• Battery Lifetime:	Typ. 50,000+ readings and 10,000+ transmission (More than 10 years for most applications)	

Physical Specification

• Materials:	ASA or POM	
• Weight:	350	g
• Protection Rate:	IP65 /IP67, UV Protected	-

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 Locally via wireless connectivity
• Firmware update:	Locally via wireless connectivity, Over The Air

NETWORK CONNECTION AND VISUALISATION

Network Integration

Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, GeoWAN, Kerlink, kpn, Loriot, 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 Maker, 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

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MODEL GUIDE

C Model:		E Model:	
	C model comes with cylindrical shape housing suitable for battery operated applications with IP68 rate, 2 or 3 channel interfaces and clamp mounting. This model has 2 option of 12 wire cable connection and the 12pin connection.		**E model** comes with rectangular shape housing suitable for battery or external power operated applications with IP65 rate, up to 5 channel interfaces and wall mounting. This model has 2 option of 20 wire cable connection and the 5x 4pin connection.

INDUSTRIES

- Water & Environment
- Agriculture & Farming
- Oil & Gas
- Marine & Oceanography
- Mining & Construction
- Smart Building & HVAC
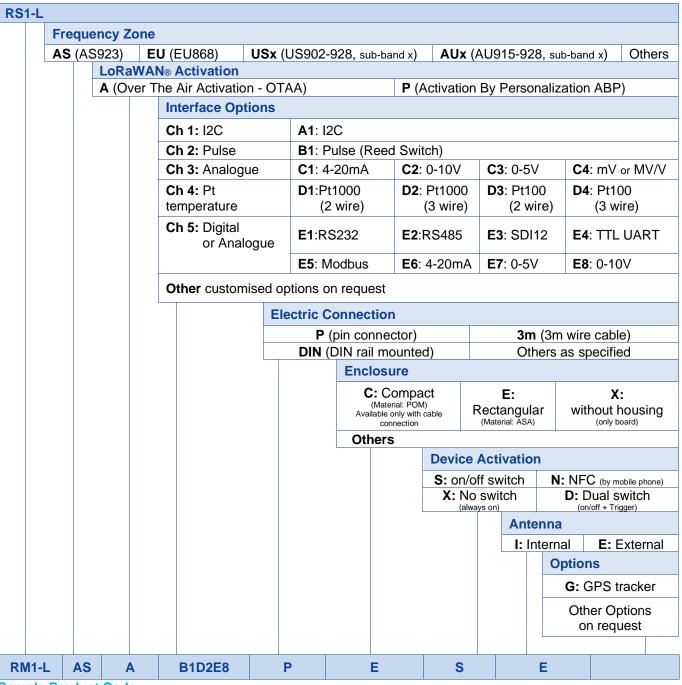- Transport & Logistics
- Food & Beverage
- Hydraulics and Compressed Air Systems

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

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ORDERING CODE

RS1-L									
Frequency Zone									
AS (AS923)	**EU** (EU868)	**USx** (US902-928, sub-band x)	**AUx** (AU915-928, sub-band x)	Others					

LoRaWAN® Activation

A (Over The Air Activation - OTAA)	**P** (Activation By Personalization ABP)

Interface Options

Ch 1: I2C	**A1**: I2C			
Ch 2: Pulse	**B1**: Pulse (Reed Switch)			
Ch 3: Analogue	**C1**: 4-20mA	**C2**: 0-10V	**C3**: 0-5V	**C4**: mV or MV/V
Ch 4: Pt temperature	**D1**:Pt1000 (2 wire)	**D2**: Pt1000 (3 wire)	**D3**: Pt100 (2 wire)	**D4**: Pt100 (3 wire)
Ch 5: Digital or Analogue	**E1**:RS232	**E2**:RS485	**E3**: SDI12	**E4**: TTL UART
	E5: Modbus	**E6**: 4-20mA	**E7**: 0-5V	**E8**: 0-10V

Other customised options on request

Electric Connection

P (pin connector)	**3m** (3m wire cable)
DIN (DIN rail mounted)	Others as specified

Enclosure

C: Compact (Material: POM) Available only with cable connection	**E:** Rectangular (Material: ASA)	**X:** without housing (only board)

Others

Device Activation

S: on/off switch	**N:** NFC (by mobile phone)
X: No switch (always on)	**D:** Dual switch (on/off + Trigger)

Antenna

I: Internal	**E:** External

Options

G: GPS tracker
Other Options on request

RM1-L	AS	A	B1D2E8	P	E	S	E	

Sample Product Code:

- **RM1-L-AS-A-B1D2E8-P-E-S-E**

  Multi-channel LoRaWAN sensor interface operated on frequency AS923, over the air activated (OTAA) for 3 x 4pin connection (1x pulse sensor, 1x 3wire Pt1000 temperature sensor and 1x 0-10V sensor), with rectangular housing, activated by on-off switch and external antenna.

Integrated IoT Solutions

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