RM1-L Spec-sheet

ellenex

LoRaWAN®

Multi-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

• Interface Options (RM1-L covers a wide range of industrial sensors interfaces. Unique design of the interface gives ultimate flexibility of choosing up to 5 sensor interfaces with difference choices for each channel)	Ch1: I2C Ch2: Pulse (Reed Switch) Ch3: mV / 4-20mA / 0-10V Ch4: Pt temperature (Pt100 2wire, Pt100 3 wire, Pt1000) Ch5: 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 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	350	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 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, Helium, 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, 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

RM1-L Spec-sheet

MODEL GUIDE

Model	Option / Schematic
C 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 wire cable connection and the 12pin connection.
E Model	E model comes with rectangular shape housing suitable for battery or external power operated applications with IP66 rate, up to 5 channel interfaces and wall mounting. This model has 2 option of wire cable connection and up to 5connections.

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

RM1-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

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

Other options available on request

Electric Connection

P: Pin Connector	**3m:** 3m wire cable

Other options available on request

Enclosure

C: Cylindrical (Material: POM) 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)[1]

RM1-L	AS	A	B1D2E6	P	E	S	E	

Sample Product Code:

- **RM1-L-AS-A-B1D2E6-P-E-S-E**
  Multi-channel LoRaWAN® sensor interface, frequency of AS923, Over The Air Activated, with 3 x 4pin connection (1 x pulse sensor, 1 x 2 wire Pt 100 temperature sensor and 1 x 4-20mA sensor) with rectangular housing, activated by on-off switch and equipped with external antenna.

[1]) 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
- **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)