RM1-L

![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 customized options on request)
• Electric Connection	1m cable, pin connection (or others on request)
• Operation Temperature (°C)	-10 ~ +70

Power

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

Physical

• Materials	ASA or POM
• Weight (g)	350
• Protection Rate	IP66 or IP68 and UV Protected enclosure

RM1-L

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 VISUALIZATION

Network Integration

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

Visualization And Data Management

- 10Sorex 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).

10Sorex 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 customization available on request

Encrypted & ultra-low power

Integratable

Dynamic alerting

Multi-tenant

Scalable

Composable & API first

www.10sorex.com

Sales@10sorex.com

+1 (424) 400-4964

RM1-L

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
- Pressurized System Monitoring
- Chiller and Cooling System Monitoring
- Hydraulic and Pneumatic Systems Monitoring
- Liquid Storage Level Monitoring
- Spraying System Monitoring
- Air Compressor Monitoring

www.10sorex.com
Sales@10sorex.com
+1 (424) 400-4964

RM1-L

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)