RM1-N

NB-IoT **LTE-M**

Multi- Channel NB IoT – Cat-M1
Low Power Transmission Interface
for Industrial Applications

- Compatible with most standard communication Protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- 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 / 0-10V • **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: (°C)	-10 ~ + 70

Power

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

Physical Specification

• Materials:	ASA or POM
• Weight: (g)	350
• Protection Rate: (-)	IP66 /IP68, UV Protected

Communication

• SIM Card Type	4FF Nano-SIM, from any Network Provider
• Firmware Update:	Over The Air, Locally via Wireless Connectivity
• Sampling Period:	Configurable via downlink (default 4 hours)
• Power Consumption:	Power Saving: < 5uA, Transmission: < 220mA
• Communication Standards	Cat-NB1 (NB-IoT) Cat-M1 (option of back support by GPRS)

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•	Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
•	Data Rates:	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
•	TX Power:	23dBm
•	Min Receiver Sensitivity:	Cat-M1: -107dBm NB-IoT: -113dBm
•	Antenna:	Internal (Default)/ External (customised options available)
•	Optional Features:	• Attach without PDN (Packet Data Network) • Support for IPV6 • SMS communication • Mobility support (Cat-M1 only)

NETWORK CONNECTION AND VISUALIZATION

Network Integration

Pre-configured or configurable to all main narrow band networks (3, A1, AT&T, China Mobile, DU, Etisalat, KPN, M1 Singapore, Optus, Orange, Proximus, Spark, Sprint, Swisscom, Telefonica, Telstra, T-Mobile, Verizon, Vodafone, 1NCE, Emnify 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 Maker, HPE IoT and any other major IoT platform).

10Sorex Platform Main Features

- Encrypted ultra-low power communication protocol
- Integration APIs for enterprise systems
- Data export and import
- Multi-channel, rule-based alerting
- Transmission condition configuration

- Advanced device inventory
- Multi-tenant role-based access control
- White-label platform for enterprises on private account
- Sampling and transmission interval configuration
- Other configurations and customization available on request
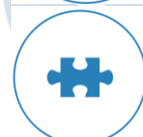
Encrypted & ultra-low power

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 wire cable connection and the 12pin connection.		**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 5connection.

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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

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ORDERING CODE

RM1-N								
	Communication Type							
	B: NB-IoT				**C:** Cat-M1			
		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 customised options on request						
			Electric Connection					
			P (pin connector)		**3m** (3m wire cable)			
			Others as specified					
				Enclosure				
				C: Cylindrical (Material: POM)	**E:** Rectangular (Material: ASA)	**X:** without housing (only board)		
				Others				
					Device Activation			
					S: on/off switch	**X:** No switch (always on)		
						Antenna		
						I: Internal	**E:** External	
							Options	
							(On request)[1]	
RM1-N	**B**	**B1D2E6**	**P**	**E**	**S**	**I**		

Sample Product Code:

- **RM1-N-B-B1D1E6-P-E-S-I**
  Multi-channel NB-IoT sensor interface with 3 x 4pin connection (1x pulse sensor, 1x 2-wire Pt100 temperature sensor and 1x 4-20mA sensor), with rectangular housing, activated by on-off switch and internal antenna.

[1] 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)

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