



Single- 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

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

Power

- | | |
|--|--|
| <ul style="list-style-type: none"> • Power Supply: | Built-in Replaceable Lithium Battery, External Power (option) |
| <ul style="list-style-type: none"> • Rated Voltage | 3.6 V |
| <ul style="list-style-type: none"> • Battery Lifetime: | Typ. 50,000+ readings / 10,000+ transmission
(connected to ellenex platform and standard network quality) |

Physical Specification

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

Communication

- | | |
|--|--|
| <ul style="list-style-type: none"> • SIM Card Type | 4FF Nano-SIM, from any Network Provider |
| <ul style="list-style-type: none"> • Firmware Update: | Over The Air, Locally via Wireless Connectivity |
| <ul style="list-style-type: none"> • Sampling Period: | Configurable via downlink (default 4 hours) |
| <ul style="list-style-type: none"> • Power Consumption: | Power Saving: < 5uA, Transmission: < 220mA |
| <ul style="list-style-type: none"> • Communication Standards | Cat-NB1 (NB-IoT)
Cat-M1
(option of back support by GPRS) |
| <ul style="list-style-type: none"> • Communication Bands | B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39 |
| <ul style="list-style-type: none"> • Data Rates: | Cat-M1: 375Kbps (DL)/375Kbps (UL)
NB-IoT: 32Kbps (DL)/70Kbps (UL) |
| <ul style="list-style-type: none"> • TX Power: | 23dBm |

RS1-N Spec-sheet

• Min Receiver Sensitivity:	Cat-M1: -107dBm NB-IoT: -113dBm
• Antenna:	Internal (Default)/ External (customised options available)
• Optional Features:	<ul style="list-style-type: none"> • Attach without PDN (Packet Data Network) • Support for IPV6 • SMS communication • Mobility support (Cat-M1 only)

NETWORK CONNECTION AND VISUALISATION

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

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, 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 customization available on request



Encrypted & ultra-low power



Integratable



Dynamic alerting



Multi-tenant





Scalable



Composable & API first

RS1-N Spec-sheet

MODEL GUIDE

C Model:		E Model:	
	<p>C model comes with cylindrical shape housing suitable for battery operated applications with IP68 rate and clamp mounting. This model has 2 option of 4 wire cable connection and the 4pin connection.</p>		<p>E model comes with rectangular shape housing suitable for battery or external power operated applications with IP66 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

RS1-N Spec-sheet



ORDERING CODE

RS1-N							
Communication Type							
B: NB-IoT				C: Cat-M1			
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							
C5: Cylindrical <small>(Material: POM) Available only with cable connection</small>		E5: Rectangular <small>(Material: ASA)</small>		X: without housing <small>(only board)</small>			
Others							
Device Activation							
S: on/off switch				X: No switch <small>(always on)</small>			
Antenna							
I: Internal				E: External			
Options							
(On request)¹							
RS1-N	B	C1	P	E5	S	I	

Sample Product Code:

- **RS1-N-B-C1-P-E5-S-I**

Single channel NB-IoT sensor interface for 4-20mA output, with rectangular housing, activated by on-off switch and internal antenna.

¹⁾ Product Options:

- **EPB:** sensor with external power supply connector for 12V supply internal battery backup (only for E type enclosure, adaptor is not included)
- **HG:** high-gain external antenna
- **HCB:** high-capacity battery (only for E type enclosure)

