ECP2-N

NB-IoT **LTE-M**

NB IoT – Cat-M1 Low Power Cathodic Protection Monitoring 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 Configuration	Input for Voltage and for Current • Voltage measurement range: -10 to $10V_{DC}$ & AC • Voltage resolution 0.1mV resolution • Current measurement: 0-20 Amps DC & AC (or other customized options on request)
• Voltage Resolution (mV)	0.1
• Current Resolution (mA)	1
• 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)	450
• Protection Rate	IP66 or IP68 and UV Protected enclosure

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)
• 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

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- Min Receiver Sensitivity:
  Cat-M1: -107dBm
  NB-IoT: -113dBm
- Antenna:
  Internal (Default)/ External
  (customized 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
- 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

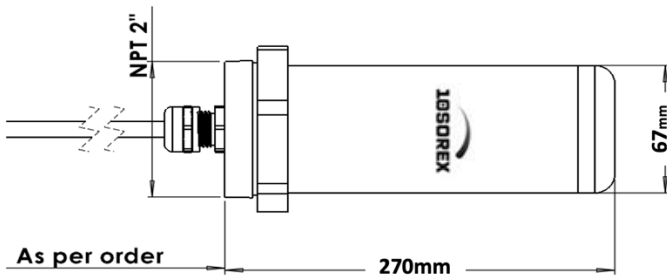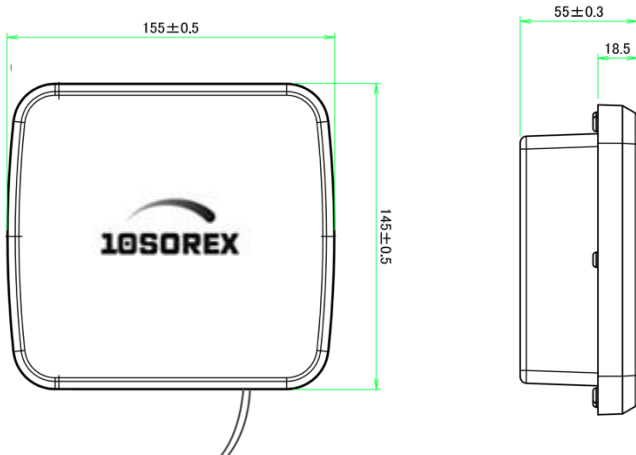Integratable

Dynamic alerting

Multi-tenant

Scalable

Composable & API first

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MODEL GUIDE

Model	Option / Schematic
C Model 	 C model comes with cylindrical shape housing suitable for battery operated applications with IP68 / IP66 rate and clamp mounting. This model has 2 options of cable output and the pin connection.
E Model 	 E model comes with rectangular shape housing suitable for battery or external power operated applications with IP68 / IP66 rate, and wall mounting. This model has 2 option of wire cable connection and the pin connection.

INDUSTRIES

Water   Oil & Gas   Marine

APPLICATIONS

- Pipes and assets cathodic protection monitoring

WIRING LAYOUT

- **RED:** Voltage In
- **WHITE:** Current In

GREEN: Current Out

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ORDERING CODE

ECP2-N								
	Communication Type							
	B: NB-IoT		**C:** Cat-M1					
		Interface Options						
		S: Standard		Other customized options on request				
			Electric Connection					
			P: pin connector		**3m:** 3m wire cable			
				Enclosure				
				C: Cylindrical (Material: POM)	**E:** Rectangular (Material: ASA)	**X:** without housing (only board)		
					Device Activation			
					S: On/Off Switch	**X:** No Switch (Always On)		
						Antenna Option		
						I: Internal	**E:** External	
							Options	
							(On request)1	
ECP2-N	B	S	3m	C	S	E		

Sample Product Code:

- **ECP-L-AS-A-S-1m-C-S-E**
  NB IoT Cathodic protection monitoring interface, standard configuration with cylindrical housing, 3m cable, with on-off switch and equipped with internal 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
- **HCB**: high-capacity battery (only for E type enclosure)

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