



## NB IoT – Cat-M1 Low Power Pulse Counter and Meter Interface

- Compatible with most standard communication Protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- Wide range of applications
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power



## TECHNICAL SPECIFICATION

### Sensor Interface

• Interface:	Pulse (Reed Switch) (or other customised options on request)	
• Electric Connection:	1m cable (or other options on request)	
• Operating temperature range:	-10 ~ + 70	°C

### Power

• Power Supply:	Built-in Replaceable Lithium Battery, External Power (option)	
• Rated Voltage	3.6	V
• Battery Lifetime:	Typ. 500,000+ readings / 10,000+ transmission (connected to ellenex platform and standard network quality)	

### Physical Specification

• Materials:	ASA or POM	
• Weight:	350	g
• 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)
• 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

# FMS2-N Spec-sheet

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

## 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








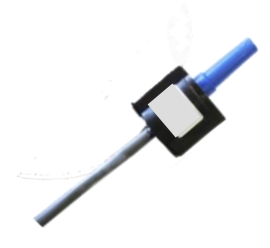
Scalable



Composable & API first

# FMS2-N Spec-sheet

## MODEL GUIDE

Housing			
C Model:		E Model:	
	<b>C model</b> comes with cylindrical shape housing suitable for battery operated applications with IP66 or IP68 rate and clamp mounting.		<b>E model</b> comes with rectangular shape housing suitable for battery or external power operated applications with IP66 rate, and wall mounting.
Meter Interface			
			
<p><b>Type A</b>  <b>Size:</b> 20mm  <b>Pulse rate:</b> 1pulse/10lit</p> <p>The Cold Water Multijet Meter Reed Switch is inserted into the face of the meter. The Reed Switch has no polarity.</p>	<p><b>Type B</b>  <b>Size:</b> 50mm  <b>Pulse rate:</b> 1pulse/ 5lit</p> <p>The Cold Water PD Meter Reed Switch is inserted into the body of the meter. The Reed Switch has no polarity.</p>	<p><b>Type C</b>  <b>Size:</b> 15mm  <b>Pulse rate:</b> 1pulse/10 lit</p> <p>The Hot Water Multijet Meter Reed Switch is inserted into the face of the meter. The Reed Switch has no polarity.</p>	<p><b>Type D</b>  <b>Size:</b> 50mm  <b>Pulse rate:</b> 1pulse/10lit</p> <p>Suitable for Cold Water Woltman Meter. The Reed Switch has no polarity.</p>

## INDUSTRIES



Water & Environment



Agriculture & Farming



Smart Building & HVAC

## MAIN APPLICATIONS

- Water Supply Monitoring
- Water Pipeline Leakage Monitoring

# FMS2-N Spec-sheet

## ORDERING CODE

<b>FMS2-N</b>									
<b>Communication Type</b>									
<b>B: NB-IoT</b>				<b>C: Cat-M1</b>					
<b>Meter Interface Options</b> (refer to model guide in previous page)									
<b>Type A</b>		<b>Type B</b>		<b>Type C</b>		<b>Type D</b>		<b>X: without interface</b>	
<b>Other</b> customised options on request									
<b>Cable Length</b>									
<b>S: standard cable length 0.5m</b>				<b>P: pin connection</b>		<b>Others</b>			
<b>Enclosure</b>									
<b>C: Compact</b> <small>(Material: POM)</small>				<b>E: Rectangular</b> <small>(Material: ASA)</small>		<b>X: without housing</b> <small>(only board)</small>			
<b>Device Activation</b>									
<b>S: on/off switch</b>				<b>X: No switch</b> <small>(always on)</small>					
<b>Antenna</b>									
<b>I: Internal</b>				<b>E: External</b>					
<b>Options</b>									
<b>(On request)<sup>1</sup></b>									
<b>FMS2-N</b>	<b>B</b>	<b>X</b>	<b>P</b>	<b>C</b>	<b>S</b>	<b>I</b>			

### Sample Product Code:

- **FMS2-N-B-X-P-C-S-I**

NB-IoT water meter interface (pulse reader), with compact housing, with pin connection, on/off switch and internal antenna.

### <sup>1)</sup> Product Options:

- **EPB:** sensor with external power supply connector for 12V supply with 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)
- **Any** other meter output rather than pulse (Modbus, 4-20mA, etc.)