



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 and 10,000+ transmission (With UDP protocol/ More than 10 years for most applications)	

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

• 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)

Visualisation 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, AllThingsTalk Maker, 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 customisation available on request



Encrypted & ultra-low power



Integratable



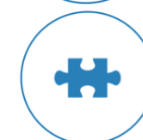
Dynamic alerting



Multi-tenant






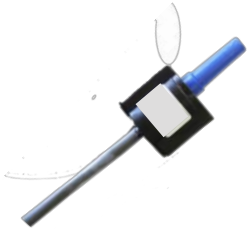


Scalable



Composable & API first

MODEL GUIDE

Housing			
C Model:		E Model:	
	C model comes with cylindrical shape housing suitable for battery operated applications with IP66 or IP68 rate and clamp mounting.		E model comes with rectangular shape housing suitable for battery or external power operated applications with IP66 rate, and wall mounting.
Meter Interface			
			
<p>Type A Size: 20mm Pulse rate: 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>Type B Size: 50mm Pulse rate: 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>Type C Size: 15mm Pulse rate: 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>Type D Size: 50mm Pulse rate: 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

ORDERING CODE

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

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.

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)
- **Any** other meter output rather than pulse (Modbus, 4-20mA, etc.)