



NB IoT – Cat-M1 Operated Low Power Level Transmitter With Narrow Sensor Head for Liquid Media

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



TECHNICAL SPECIFICATION

Sensor

• Range:	1, 2, 3, 5, 10 (or other ranges up to 200)	m H ₂ O
• Accuracy: (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
• Resolution:	±0.01	%Span
• Pressure reference:	Vented Gauge	
• Temperature Coefficient of Zero:	≤±0.03	%FS/°C
• Temperature Coefficient of Span:	≤±0.03	%FS/°C
• Long term stability (1 year):	≤ 0.2	%Span
• Overload Protection:	150	%FS
• Load Cycles (Zero to Full Scale):	10+	Million
• Storage / Operation Temperature:	-20 ~ +85	°C
• Compensated temperature:	0 ~ 60	°C

Power

• Power Supply:	Built-in Replaceable Lithium Battery, External Power (option)	
• Rated Voltage	3.6	V
• Battery Lifetime:	50,000+ Readings and 10,000+ Transmission (with UDP protocol/ more than 10 years for most of applications)	

Physical Specification

• Materials:	O-ring: Viton, Body: SS304, Diaphragm: SS316, Oil: Silicon, Enclosure: ASA/POM	
• Process Connection:	No Process Connection (or on request)	
• Weight:	~1,300 (for 3m range)	g
• Protection Rate:	IP66 and UV protected enclosure and IP68 sensor head	

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


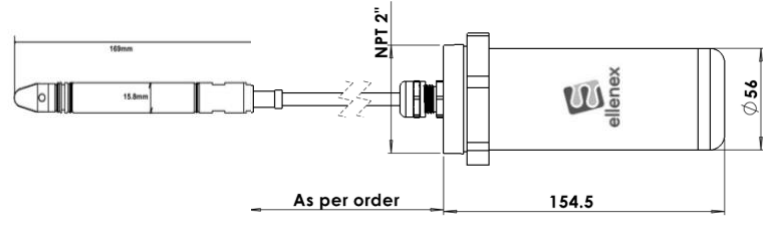

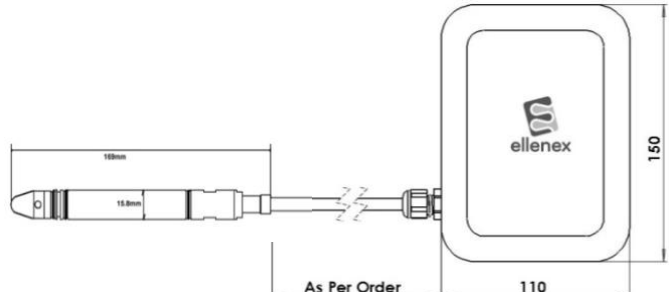


Scalable



Composable & API first

MODEL GUIDE

Model	Options:
<p>C Model:</p> 	 <p>IP68 sensor head, connected to IP66 POM enclosure with on/off switch</p>
<p>E Model:</p> 	 <p>IP68 sensor head, connected to IP65 ASA enclosure and on/off switch</p>

INDUSTRIES



Water & Wastewater



Agriculture & Farming



Oil & Gas



Marine & Oceanography



Mining & Construction



Food & Beverage

APPLICATION

- Ground Water Level Monitoring for Narrow Wells

ORDERING CODE

PLM2-N									
Communication Type									
B: NB-IoT					C: Cat-M1				
Measurement Range									
1, 3, 5, 10, 20, 50, 100, 200m H ₂ O (or any other non-standard range)									
Cable Material									
U: Polyurethane (suitable for oil and Diesel)					Others (on request)				
Cable Length									
S: approximately same as measurement range					Others				
Enclosure									
C: Cylindrical Enclosure					E: Rectangular Enclosure				
Device Activation									
S: on/off switch					X: No switch (always on)				
Antenna									
I: Internal					E: External				
Options									
(On request) ¹									
PLM2-N	B	3m	U	S	C	S	I		

Sample Product Code:

- **PLM2-N-B-3m-U-S-C-S-I**

NB IoT level sensor with Narrow Head, measurement range of 3m H₂O, with Polyurethane cable and rectangular enclosure, activated by 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)