

## NB-IoT

### NB IoT – Cat-M1 Operated Low Power Level Transmitter for Liquid with Built-in Temperature Sensor

- 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

• Level Range:	2, 5, 10 (or other ranges up to 200)	m H <sub>2</sub> O
• Level Accuracy: (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
• Temperature Accuracy:	±2 (typ.) (temperature sensor is mounted on the back of pressure sensor and doesn't reflect the media temperature)	°C
• 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 (More than 10 years for most 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:	~1,200 (for 5m range)	g
• Protection Rate:	IP65 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	Dual mode (Cat-M1 and Cat-NB1) 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	
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• 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"> <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)

### 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


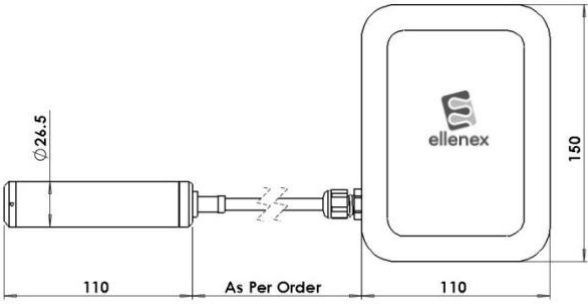

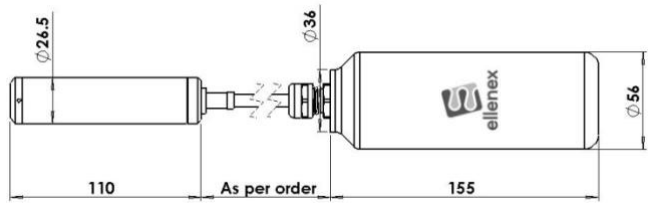


Scalable



Composable & API first

## MODEL GUIDE

Model	Options:
<p><b>E Model:</b></p> 	 <p><b>IP68 sensor head, connected to IP65 ASA enclosure and on/off switch</b></p>
<p><b>C Model:</b></p> 	 <p><b>IP68 sensor head, connected to IP65POM enclosure and NFC activation</b></p>

## INDUSTRIES



Water & Wastewater



Agriculture & Farming



Oil & Gas



Marine & Oceanography



Mining & Construction



Smart Building



Transport & Logistics



Food & Beverage



Hydraulic Oil Storage

## APPLICATIONS

- Water Tank
- Chemical Tanks
- Liquid Delivery Systems
- Water Resources Level
- Flood Monitoring
- Diesel Tank
- Liquid Storage
- Hydraulic Containers
- Wastewater Tank
- Water Trough

## ORDERING CODE

PLD2-N									
<b>Communication Type</b>									
D (Dual mode NB-IoT and Cat-M1)			B (NB-IoT only)			C (Cat-M1 only)			
<b>Measurement Range</b>									
1, 2, 5, 10, 20, 50, 100, 200m H <sub>2</sub> O (or any other non-standard range)									
<b>Cable Material</b>									
U: Polyurethane (suitable for oil and Diesel)			E: Polyethylene (suitable for water)			Others			
<b>Cable Length</b>									
S: same as measurement range or 1m extra						Others			
<b>Enclosure</b>									
E: Rectangular Enclosure					C: Cylindrical Enclosure				
<b>Device Activation</b>									
S: on/off switch					N: NFC (by mobile phone)				
X: No switch (always on)					D: Dual switch (on/off + Trigger)				
<b>Antenna</b>									
I: Internal					E: External				
<b>Options</b>									
(On request)									
PLD2-N	D	2m	U	S	E	S	I		

### Sample Product Code:

- **PLD2-N-D-2m-U-S-E-S-I**

Level- temperature sensor operated on dual mode of NB-IoT and LTE Cat-M1, measurement range of 2m H<sub>2</sub>O, with Polyurethane cable and rectangular enclosure, activated by on-off switch and internal antenna.