

NB-IoT

NB IoT – Cat-M1 Operated Low Power Level Transmitter for Liquid Media with Built-in GPS Tracker

- 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:	2, 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
• 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	

Geo-location/ GNSS Performance (autonomous at open sky)

• Features	GPS, GLONASS, BeiDou/ Compass, Galileo, QZSS	
• Sensitivity:	<ul style="list-style-type: none"> • Cold start: -146 • Reacquisition: -157 • Tracking: -157 	dBm
• Time to First Fix (TTFF):	<ul style="list-style-type: none"> • Cold start at open sky: 31 • Warm start: 21 • Hot start: 2.7 	s
• GNSS Accuracy:	< 5 (typ.)	m

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
• 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 IIoT 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


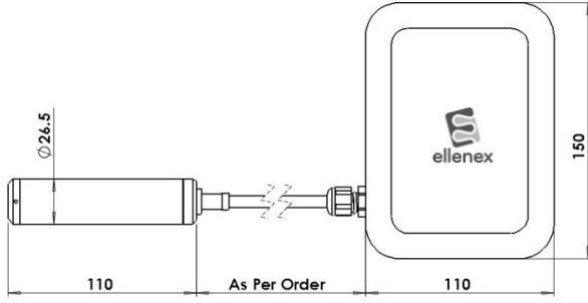

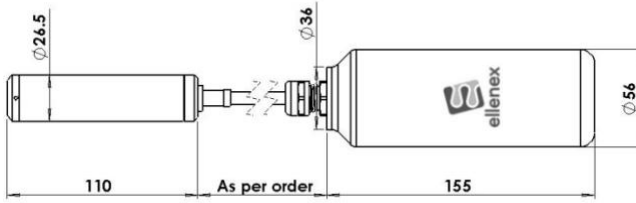


Scalable



Composable & API first

MODEL GUIDE

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

INDUSTRIES



Transport & Logistics



Mining & Construction



Agriculture & Farming



Water & Environment



Marine & Oceanography



Oil & Gas



Hydraulics and Compressed Air Systems



Food & Beverage



Smart Building & HVAC

APPLICATIONS

- High Value Remote Pressurised Asset
- Mobile Hydraulic Systems
- Truck Overload Monitoring
- Chiller and Cooling System Monitoring
- Water Delivery Systems
- Diesel Delivery Systems
- Gas and Liquid Delivery Systems
- Mobile Air Compressor Monitoring

ORDERING CODE

PLG3-N									
Communication Type									
D (Dual mode NB-IoT and Cat-M1)			B (NB-IoT only)			C (Cat-M1 only)			
Measurement Range									
1, 2, 5, 10, 20, 50, 100, 200m H ₂ O (or any other non-standard range)									
Cable Material									
U: Polyurethane (suitable for oil and Diesel)			E: Polyethylene (suitable for water)			Others			
Cable Length									
S: same as measurement range or 1m extra					Others				
Enclosure									
E: Rectangular Enclosure					C: Cylindrical Enclosure				
Device Activation									
S: on/off switch					N: NFC (by mobile phone)				
X: No switch (always on)					D: Dual switch (on/off + Trigger)				
Antenna									
I: Internal					E: External				
Options									
(On request)									
PLG3-N	D	2m	U	S	E	S	I		

Sample Product Code:

- **PLG3-N-D-2m-U-S-E-S-I**

Level sensor with built-in GPS operated on dual mode of NB-IoT and LTE Cat-M1, measurement range of 2m H₂O, with Polyurethane cable and rectangular enclosure, activated by on-off switch and internal antenna.