PLM2-N Spec-sheet

NB-IoT **LTE-M**

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

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•	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:	• 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
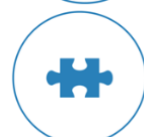- Other configurations and customisation available on request

Encrypted & ultra-low power

Integratable
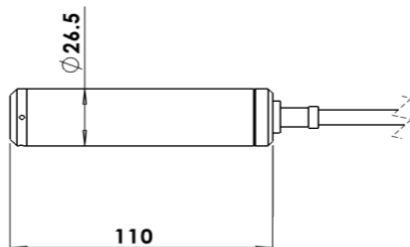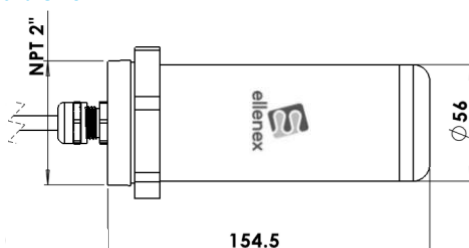
Dynamic alerting

Multi-tenant
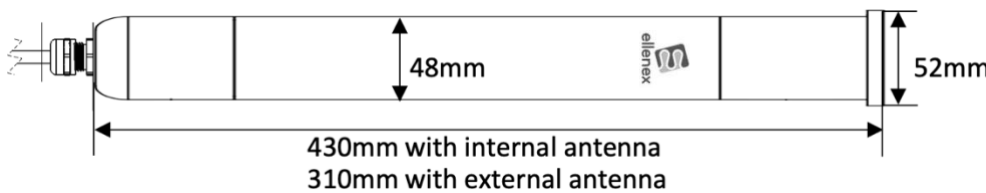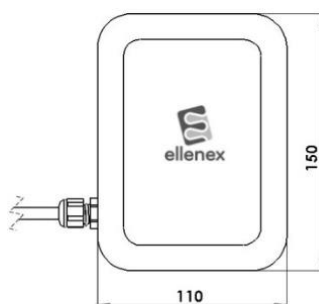
Scalable

Composable & API first

MODEL GUIDE

Model	Options:
Sensor head options	**S:** standard size $\varnothing$ 26.5 110 **M:** miniature size with 15.8mm sensor head diameter 169mm 15.8mm
Enclosure options 	**C:** cylindrical with standard size NPT 2" ellenex $\varnothing$ 56 154.5 **N:** narrow cylindrical with less than 2inch diameter 48mm ellenex 52mm 430mm with internal antenna 310mm with external antenna **E:** rectangular shape enclosure ellenex 150 110

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INDUSTRIES

Water & Wastewater

Agriculture & Farming

Oil & Gas

Marine& Oceanography

Mining & Construction

Food & Beverage

APPLICATION

- Ground Water Level Monitoring for Narrow Wells

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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 Length						
			S: approximately same as measurement range		**Others**				
				Sensor Head					
				S: standard size (27mm diameter)		**M:** miniature size (15.8mm diameter)			
					Enclosure				
					C: Cylindrical Standard	**N:** Cylindrical Narrow		**E:** Rectangular	
						Device Activation			
						S: on/off switch (only for C and E type enclosure)		**X:** No switch (always on)	
							Antenna		
							I: Internal	**E:** External	
								Options	
								(On request)[1]	
PLM2-N	**B**	**10m**	**S**	**M**	**N**	**X**	**I**		

Sample Product Code:

- **PLM2-N-B-10m-S-S-N-S-I**
  NB IoT level sensor with Narrow Head, measurement range of 10m H$_2$O, with 10m Polyurethane cable and narrow cylindrical enclosure, without on-off switch and operated with 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
- **HCB**: high-capacity battery (only for E and N type enclosure)

Integrated IoT Solutions

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