

# CPH2-N Spec-sheet



## Industrial NB IoT – Cat-M1 Operated Low Power pH, ORP and 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
- Pre-configured with no need of programming or hardware setting



## TECHNICAL SPECIFICATION

### pH Sensor

• Measurement Range	0-14	pH
• Accuracy	±0.1	pH
• Resolution:	0.01	pH

### ORP Sensor

• Measurement principle	Combined electrode (ORP/reference) Platinum tip, Ag/AgCl AgAgCl. Gelled reference (KCl)	
• Measurement Range	-1000 to +1000	mV
• Resolution	0.1	mV
• Accuracy	±2	mV

### Temperature Sensor

• Measurement principle	NTC	
• Measurement Range	0 to +50	°C
• Resolution	0.01	°C
• Accuracy	±0.5	°C
• Storage Temperature	0 to +50	°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 5 years for most of applications)	

### Physical Specification

• Materials:	Sensor Head: PVC, DELRIN, special pH glass, platinum, polyamide, cable: Coaxial armoured, Polyurethane Enclosure: POM	
• Max. Pressure on Sensor Head:	5bar	
• Weight:	~900 (for 3m cable)	g
• Protection Rate:	IP68 for sensor head and IP66 or IP68 and UV protected enclosure	

## Communication

• 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"> <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, 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


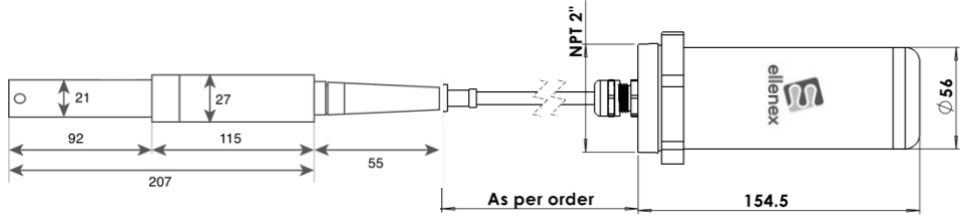

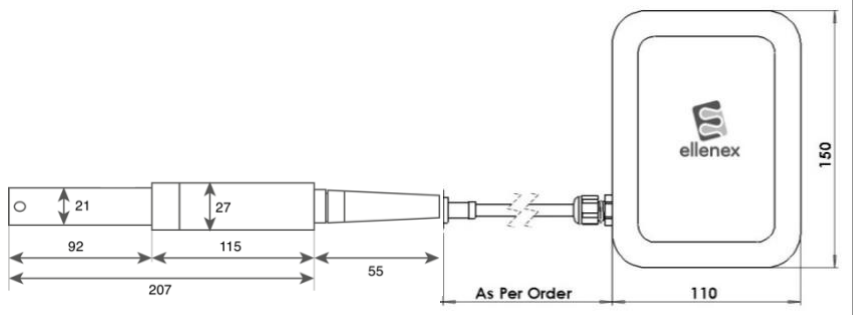


Composable & API first

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## MODEL GUIDE

Model	Drawing:
<b>C Model:</b> 	 <p>IP68 sensor head, connected to POM enclosure  IP68 enclosure: with cable gland, without on/off switch, and with internal antenna  IP66 enclosure: with sensor connector, on/off switch, and external antenna</p>
<b>E Model:</b> 	 <p>IP68 sensor head, connected to IP65 ASA enclosure with on/off switch</p>

## INDUSTRIES



Water &  
Wastewater



Agriculture &  
Farming



Oil &  
Gas



Marine &  
Oceanography



Mining &  
Construction



Environmental  
Monitoring

## APPLICATIONS

- Bore Hole Mineral Level
- Water Resources
- Surface Water, Rivers, and Catchments
- Sea water
- Wastewater Tanks
- Industrial Wastewater
- Regulatory Automated Reporting
- Drinking Water

## ORDERING CODE

CPH2-N									
Communication Type									
B: NB-IoT					C: Cat-M1				
Measurement range									
S: pH: ~ 2 - ~12, ORP: -1000 to +1000, Temp: 0 - +50°C								Others	
Enclosure									
C: Cylindrical					E: Rectangular				
Cable Length									
S: 3m					Others				
Device Activation									
S: On/Off switch							X: No switch (Always on)		
Antenna									
I: Internal							E: External		
Options									
(on request) <sup>1</sup>									
CPH2-N	B	S	C	S	S	I			

### Sample Product Code:

- CPH2-N-B-S-C-S-S-I

NB IoT pH sensor, measurement range of 2-12, In cylindrical enclosure, standard cable length, with on/off switch and internal antenna.

### <sup>1</sup>) 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)