CPH2-L Spec-sheet

Industrial LoRaWAN® Operated Low Power pH, ORP and Temperature Sensor

- Compatible with all LoRaWAN® frequencies
- 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	~ 2 - ~12	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	5,000+ Readings and 5,000+ Transmission (More than 5 years for most of applications)	

Physical

•	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	

CPH2-L Spec-sheet

Communication

• LoRaWAN® Version, Class	1.0.2revB, Class A (Class C on request)
• LoRaWAN® Frequency Zone	AS923, EU868, US902-928, AU915-928 (other zones available on request)
• LoRaWAN® Activation Type	OTA (default), ABP
• Sampling Type	Periodic (default), Event triggered
• Sampling Period	Configurable via downlink (default 4 hours)
• Transmission Type	Per sample (default), Event triggered, Conditional
• Parameter Configuration	Over-the-air via LoRaWAN® downlinks Locally via wireless connectivity
• Firmware Update	Locally via Wireless Connectivity, Over The Air

NETWORK CONNECTION AND VISUALISATION

Network Integration

- Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, Helium, Kerlink, kpn, Loriot, machine-Q, Objenious, Orange, Orbiwise, Proximus, Senet, Sens, Swisscom, TATA, The Things Network (TTN), TTI 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, ALSO 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
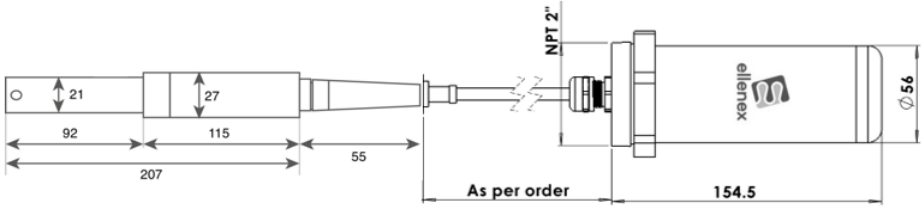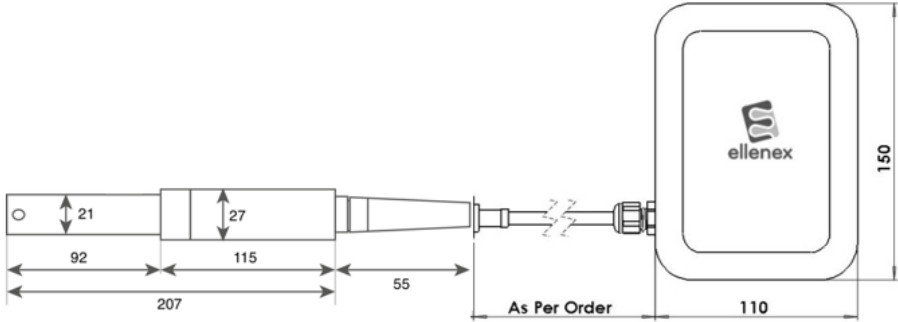
Dynamic alerting

Multi-tenant

Scalable

Composable &
API first

CPH2-L Spec-sheet

MODEL GUIDE

Model	Option / Schematic
C Model	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
E Model	IP68 sensor head, connected to IP65 ASA enclosure with on/off switch

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 Tank
- Industrial Wastewater
- Regulatory Automated Reporting
- Drinking Water

CPH2-L Spec-sheet

ORDERING CODE

CPH2-L								
	LoRaWAN Frequency Zone							
	AS (AS923)	**AUx** (AU915-928) (Sub Band x)	**EU** (EU868)	**USx** (US902-928) (Sub Band x)				
		LoRaWAN Activation						
		A (Over The Air Activation - OTAA)		**P** (Activation By Personalization - ABP)				
			Measurement Range					
			S: pH: ~ 2 - ~12, ORP: -1000 to +1000, Temp: 0 - +50°C					
				Enclosure				
				C5: Cylindrical		**E5:** Rectangular		
					Cable Length			
					S: 3m	**Other** options available on request		
						Device Activation		
						S: With On/Off Switch	**X:** No Switch (Always On)	
							Antenna Option	
							E: External	**I:** Internal
								Options
								(On request)[1]
CPH2-L	**AS**	**A**	**S**	**C5**	**S**	**S**	**E**	

Sample Product Code:

- **CPH2-L-AS-A-S-C5-S-S-E**
  LoRaWAN pH sensor, frequency of AS923, Over The Air Activated, measurement range of 2-12, In cylindrical enclosure, standard cable length, with on/off switch and external 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)

Integrated IoT Solutions

E: sales@ellenex.com
W: www.ellenex.com