

CPH2-L



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 (pH) | ~ 2 - ~12 |
| • Accuracy (pH) | ± 0.1 |
| • Resolution (pH) | 0.01 |

ORP Sensor

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

Temperature Sensor

- | | |
|----------------------------|----------|
| • Measurement Principle | NTC |
| • Measurement Range (°C) | 0 to +50 |
| • Resolution (°C) | 0.01 |
| • Accuracy (°C) | ± 0.5 |
| • Storage Temperature (°C) | 0 to +50 |

Power

- | | |
|---------------------|---|
| • Power Supply | Built-in Replaceable Lithium Battery, External Power (option) |
| • Rated Voltage (V) | 3.6 |
| • 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 armored polyurethane, Enclosure: POM |
| • Max Pressure on Sensor Head | 5bar |
| • Weight (g) | ~900 (for 3m cable) |
| • Protection Rate | IP68 for sensor head and
IP66 or IP68 and UV Protected enclosure |



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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 VISUALIZATION

Network Integration

- Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, Helium, Kerlink, kpn, Lorient, machine-Q, Objenious, Orange, Orbiwise, Proximus, Senet, Sens, Swisscom, TATA, The Things Network (TTN), TTI and any other network)

Visualization And Data Management

- 10Sorex 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).

10Sorex 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 customization available on request



Encrypted &
ultra-low power



Integratable



Dynamic alerting



Multi-tenant



Scalable


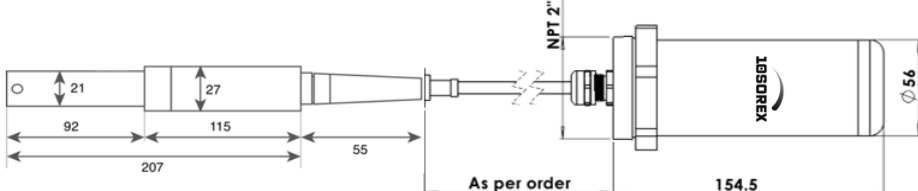

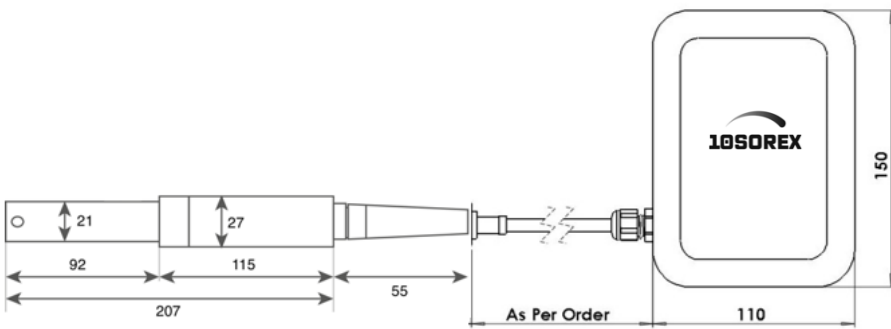


Composable &
API first



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MODEL GUIDE

Model	Option / Schematic
C Model 	 <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>
E Model 	 <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 Tank
- Industrial Wastewater
- Regulatory Automated Reporting
- Drinking Water



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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)



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