

INDUSTRIAL PRODUCT DATASHEET

RS485 pH, ORP and Temperature Sensor: Modbus RTU, Water Quality Monitoring, pH, ORP and Temperature

RS485 pH, ORP and Temperature Sensor with Modbus RTU for water quality monitoring in water treatment, wastewater monitoring, aquaculture, and industrial process monitoring.

SKU

100050803

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PRICE

\$169.00(Excl. VAT)



Overview



The RS485 pH, ORP and Temperature Sensor is a high-precision water quality sensor that measures pH, oxidation-reduction potential (ORP), and temperature with temperature compensation and configurable signal filtering. It supports RS485 Modbus RTU communication and low-power 4.5–28 V DC operation, features an IP68 enclosure with 3/4-inch NPT threads, and is compatible with the SenseCAP S2100 LoRaWAN® Data Logger for long-range data transmission.

Key Features

The RS485 pH, ORP and Temperature Sensor is a high-precision water quality sensor widely used in water treatment, irrigation, smart agriculture, pipelines, tanks, and environmental monitoring. It simultaneously measures pH, oxidation-reduction potential (ORP), and water temperature. Temperature compensation and configurable signal filtering help maintain stable readings under changing conditions. For easy integration, it supports RS485 Modbus RTU communication and low-power 4.5–28 V DC operation. Moreover, its IP68 design, 3/4-inch NPT threads, and built-in surge, reverse-polarity, TVS, and ESD protection ensure reliable long-term use.

This sensor is available with an RS485 Modbus RTU interface. It is compatible with the **SenseCAP S2100 LoRaWAN® Data Logger**, enabling low-power, long-range data transmission over LoRaWAN® networks.

- **Integrated pH and ORP Monitoring:** Measures pH, oxidation-reduction potential (ORP), and temperature in a single device. These parameters provide a more complete understanding of water acidity, chemical balance, and oxidation-reduction conditions for water-quality assessment and process monitoring.
- **Temperature Compensation and Flexible Calibration:** Supports temperature-compensated pH and ORP measurements to reduce the influence of changing water temperature. Multi-point pH calibration and ORP standard-solution calibration help ensure measurement accuracy. Meanwhile, temperature offset adjustment and configurable signal filtering maintain stable readings across different environments.
- **Industrial RS485 Modbus RTU Communication:** Uses the RS485 Modbus RTU interface for reliable long-distance data transmission and connection of multiple sensors on the same communication bus. Configurable device address, baud rate, parity, and data format make integration with industrial controllers, data loggers, and monitoring systems more flexible.
- **Rugged IP68 Installation Design:** Features an IP68 enclosure and 3/4-inch NPT threads for submerged, pipeline, and tank installation. A wide 4.5–28 V DC power range allows for flexible system integration. In addition, built-in surge, reverse-polarity, TVS, and ESD protection improve reliability in water treatment, wastewater monitoring, and smart-agriculture applications.

Note: This sensor can also be used in seawater, but its service life may be reduced depending on the salinity of the water.

Recommendation for S2100 Data Logger

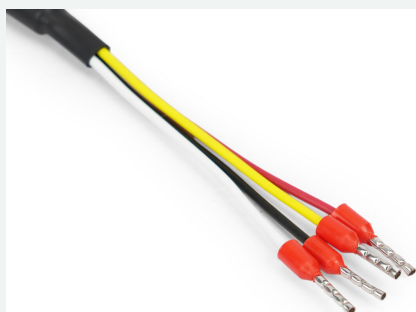
SenseCAP S2100 Data Logger can connect to Modbus RS485/Analog/GPIO industrial sensors including the **Grow Your Idea** and transmit data from sensors to the LoRaWAN network. Benefiting from its high robustness and waterproof and dustproof enclosure, the S2100 data logger can work under harsh environments such as high UV exposure, heavy rain, dusty conditions, etc. which is ideal for outdoor use. Based on LoRaWAN, it can cover a long transmission range of 2km in urban scenes and 10km in line-of-sight while keeping lower power consumption. Equipped with built-in Bluetooth and app service for OTA configuration and remote management, it enables quick setup and update. It can be battery-powered or connected to a 12V external power supply. When the 12V power supply is connected, the replaceable built-in battery is set to be used as the backup power supply.

Attention:

If you need to connect sensors or an external power supply for the S2100, please refer to the wiring diagram below. Please note that the sensor supply voltage range is 4.5-28 V, while the external power supply for the S2100 must be a stable 12 V supply.

Seeed also provides the **SenseCAP Portal** and **SenseCraft** to help users better manage and check data remotely.

Product Gallery



Specification

General Parameters	
Product model	S-pH&ORP-01A
Output interface	RS485
Protocol	Modbus RTU
Default serial communication	Slave address: 1; baud rate: 9600 bps; data bits: 8; stop bits: 1 stop bit;
Power supply	4.5–28 V DC
Power consumption	Quiescent <8 mA at 12 V DC; measuring <10 mA at 12 V DC;
IP rating	IP68
Operating conditions	0–80 °C; 0–100% RH; pressure ≤0.2 MPa
Storage conditions	–5 to 65 °C; 0–90% RH
Cable length	2 m;
Dimensions	207 × 30 mm (length × diameter)
Mechanical connection	3/4-inch NPT threads

pH Measurement	
Range	0.00–14.00 pH
Resolution	0.01 pH
Accuracy	±0.1 pH
Response time	<10 s
ORP Measurement	
Range	–2000.0 to 2000.0 mV
Resolution	0.1 mV
Accuracy	±20 mV
Response time	<30 s
Temperature Measurement	
Range	–40 to 80 °C
Resolution	0.1 °C
Accuracy	±0.5 °C

Applications

- **Water Treatment**
- **Wastewater Monitoring**
- **Aquaculture**
- **Industrial Process Monitoring**

Part List

RS485 pH, ORP and Temperature Sensor	x1
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Compliance & Logistics

HSCODE	9027899090
USHSCODE	9027894590
UPC	
EUHSCODE	9027109000
COO	CHINA

Resource Links

- <https://www.seeedstudio.com/RS485-pH-ORP-and-Temperature-Sensor-p-6945.html>
- [Datasheet for RS485 pH, ORP and Temperature Sensor](#)

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