

INDUSTRIAL PRODUCT DATASHEET

RS485 Oxygen Concentration O₂ Sensor: Modbus RTU, Indoor Oxygen Concentration Detection, Oxygen Partial Pressure, Temperature and Barometric Pressure Monitoring

The RS485 Oxygen Concentration O₂ Sensor provides reliable indoor oxygen partial pressure, oxygen concentration, temperature, and barometric pressure monitoring with RS485 Modbus RTU for science research, HVAC and ventilation...

SKU

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PRICE

\$289.00(Excl. VAT)



Overview



The RS485 Oxygen Concentration O₂ Sensor: Modbus RTU, Indoor Oxygen Concentration Detection, Oxygen Partial Pressure, Temperature and Barometric Pressure Monitoring uses luminescence-quenching optical technology to measure ambient oxygen partial pressure, oxygen concentration, temperature, and barometric pressure. It supports RS485 Modbus RTU communication, features a compact IP50 wall-mounted enclosure and low-power 9–28 V DC operation with reverse-polarity, surge, TVS, and ESD protection, and is suited for science research, HVAC and ventilation systems, home and industrial environmental monitoring, and indoor plant growth room monitoring.

Key Features

The RS485 Oxygen Concentration Sensor uses luminescence-quenching optical technology to measure ambient oxygen partial pressure, oxygen concentration, temperature, and barometric pressure. For easy system integration, it supports RS485 Modbus RTU communication. Its compact IP50 wall-mounted enclosure incorporates an SST® O₂ sensing element with a service life of more than two years, ensuring high accuracy and excellent stability. Meanwhile, the low-power 9–28 V DC operation, together with reverse-polarity, surge, TVS, and ESD protection, enhances reliability during long-term use. With these features, the sensor is well suited for scientific research, HVAC and ventilation control, routine weather monitoring, and environmental monitoring.

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.

Note:

This sensor is rated IP50 and is designed for indoor environments. It is not suitable for direct outdoor exposure or locations with water ingress risks.

- **Comprehensive Oxygen Monitoring:** Measures ambient oxygen partial pressure, oxygen concentration, temperature, and barometric pressure in one device. This provides the essential parameters required for evaluating oxygen conditions and understanding how environmental changes affect oxygen concentration.
- **Reliable Honeywell Gas Sensing:** Equipped with a Honeywell gas sensing module, this sensor delivers stable and accurate gas detection for continuous monitoring. It provides dependable performance in industrial facilities, agricultural greenhouses, poultry farms, mushroom cultivation, and other demanding environments.
- **Configurable Measurement and Data Output:** Provides both original and calibrated values for oxygen partial pressure, oxygen concentration, temperature, and barometric pressure. Configurable measurement offsets, temperature units, and floating-point byte order simplify data adjustment and ensure compatibility with different controllers and data-acquisition systems.
- **Flexible RS485 System Integration:** Uses RS485 Modbus-RTU for reliable long-distance communication and supports multiple sensors on one bus. Configurable device address, baud rate, parity, stop bits, and data format simplify integration with PLCs, data loggers, controllers, and monitoring systems.
- **Reliable Low-Power Indoor Operation:** Operates from a 9–28 V DC supply with an average current below 10 mA at 12 V DC. Its compact IP50 wall-mounted design allows for easy installation. In addition, reverse-polarity, surge, and built-in TVS/ESD protection improve reliability against wiring errors and electrical interference.

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.

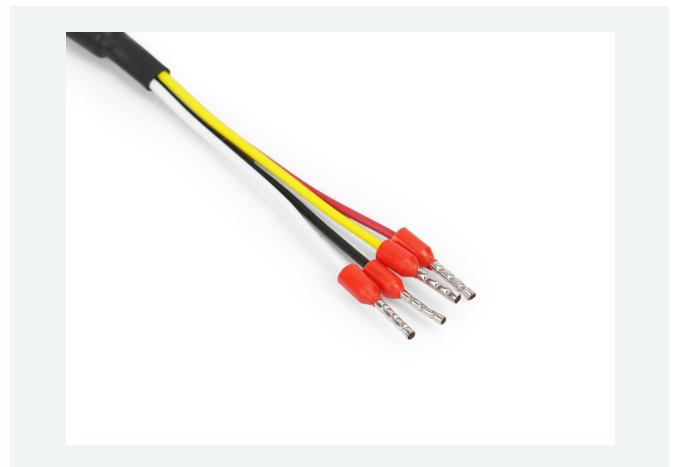
Note:

This sensor requires a 9–28 V power supply. If you use the S2100 for data acquisition, please note that its maximum sensor supply output is only 5 V. Therefore, the sensor must be powered by a separate external power supply. The S2100

can be externally powered with a stable 12 V DC input. Please ensure that an appropriate supply voltage is selected for each device.

Seeed also provides the [SenseCAP Portal](#) and [SenseCraft](#) to help users better manage and check data remotely.

Product Gallery



Specification

General Parameters	
Sensor Description	RS485 Oxygen Concentration O ₂ Sensor
Output Interface	RS485, Modbus-RTU
Default Serial Communication	Slave address: 1; baud rate: 9600 bps; data bits: 8; stop bits: 1;
Power Supply	9-28 V DC
Power Consumption	Average Current: <10mA @12V DC Measuring Current : <20mA @12V DC, measurement interval 1000ms
Operating Temperature	10-45°C
Operating Humidity	0-95%RH ₁ , non-condensing

IP Rating	IP50
Cable Length	2 meters
Installation	Wall mounting
Dimensions	Sensor body: 111 * 25.5 mm (Length * Diameter)

Oxygen Partial Pressure	
Range	0-300 mbar
Accuracy	<2% FS
Resolution	0.1 mbar
Oxygen Concentration	
Range	0-25%
Accuracy	Determined by the accuracy of oxygen partial pressure and barometric pressure
Resolution	0.01%
Temperature Measurement	
Range	-10-60°C
Accuracy	±2°C
Resolution	0.1°C
Barometric Pressure Measurement	
Range	500-1200 mbar
Accuracy	±5 mbar
Resolution	1 mbar

Applications

- Science research
- HVAC and Ventilation Systems
- Home and Industrial Environmental Monitoring
- Indoor Plant Growth Room Monitoring

Part List

Oxygen Concentration Sensor	x1
Mounting Bracket	x1
Plastic Screw	x2
Metal Screw	x2

Compliance & Logistics

HSCODE	9027100090
USHSCODE	9027106000
UPC	
EUHSCODE	9027109000
COO	CHINA

Resource Links

- <https://www.seeedstudio.com/RS485-Oxygen-Concentration-O2-Sensor-p-6941.html>
- [Datasheet for Oxygen Concentration Sensor](#)

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