# Environmental Sensors



- Real-time detection of CO2/PH3/Humidity levels in indoor environments
- NDIR infrared CO2 sensor with Self-Calibration for maintaining accuracy over longer periods
- Humidity and temperature detection (optional features)
- High sensitivity and resolution with low power consumption PH3 Sensor
- Fast response time- Temperature compensation, excellent linear output
- Housing with wall mounting option for quick and hassle-free installation planning

| | | |
|---|---|---|
| DC power supply (default) | 10 ~ 30V DC | |
| Maximum power consumption | Current output | 1.2W |
| | Voltage output | 1.2W |
| Resolution | 1 PPM | |
| Transmitter circuit operating temperature | -20℃ ~ +60℃, 0% RH ~ 80% RH | |
| Measuring range | CO2 | 400 ~ 5,000 ppm |
| Response speed | ≤ 90S | |
| Warm up time | ≤ 2min | |
| output signal | Output | RS485mA |
| | Optional | Ethernet |

# $CO_2$ Sensor

## Main Technology Indexes

The $CO_2$ sensor is capable of quick response when warmed up. The warm-up time is also low (around 2mins) and multiple ways of data output (options) are available

### Communication interface

485 communication (Modbus) protocol - Baud rate: 9600

- **Data bit length: 8 bits**
- Parity check mode: None
- Stop bit length: 1 bit
- **Default Mod Bus communication address: 1**

**Modbus mode**

**RTU Scan Rate - 2000ms Start Address – 1 Number of register – 1 Slave address - 4**

# Installation instructions

***Equipment installation check***

- Transmitter equipment 1
- 12V / 2A power supply units 1 (optional)

## Wiring

### Power Connection

Wide voltage 10 ~ 30V DC power input. For 0-10V output type devices can only use 24V power supply.

### Output Interface Terminal

Device is an independent standard analog output with optional Ethernet output. At the same time the system is capable of adapting to the three-line system and four-wire system too.

## Electrical Wiring

| | Line color | Description |
|---|---|---|
| Power Supply | Brown | Power is positive |
| | Black | Negative power supply |
| Output | Blue | A |
| | Green | B |
| | or Yellow | A |
| | or White | B |

# Phosphine ($PH_3$) Sensor

## General Specification

Target Gas: Phosphine ($PH_3$)

Measurement Range: 0 – 1000 ppm

Resolution: 0.1 ppm

Detection Principle: Electrochemical

Output Signal: RS485 Modbus RTU or Ethernet

Accuracy: ±2% of reading or ±0.5 ppm (whichever is greater)

Response Time (T90): 30 seconds

Repeatability: ±1%

Zero Drift: ±2 ppm per month Warm-up Time: ~30 seconds

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## Electrical Specifications

Power Supply: 10 - 30V DC

Power Consumption: ~1W

Communication Protocol: RS485 Modbus RTU

Modbus Baud Rate: 9600 / 19200 (Configurable)

Data Format: 8 Data bits, 1 Stop bit, No parity

## Modbus Communication Parameters (when chosen)

Register Address: 0x0001 | PH3 Concentration | 16-bit unsigned | ppm x 10 (e.g., 253 -> 25.3 ppm)
Register Address: 0x0002 | Sensor Status | 16-bit unsigned |

## Environmental Specifications

Operating Temperature: -20 degrees C to +50 degrees C
Operating Humidity: 0 - 95% RH (non-condensing)
Storage Temperature: -40 degrees C to +60 degrees C

## Physical Parameters

Dimensions: Approx. 110 mm x 80 mm x 45 mm

Housing: ABS Standard

Protection Grade: IP65

## Calibration & Maintenance

Factory default calibration with standard gas
Auto zero correction supported

| | |
|---|---|
| CO2 Sensor (RS485 output) | TimeCO2485 |
| CO2 Sensor (Ethernet output) | TimeCO2 |
| PH3 Sensor (RS485 output) | TimePH3485 |
| PH3 Sensor (Ethernet output) | TimePH3 |
| Note: *Power Adapters to be ordered separately. 12vdc/24vdc requirement to be specified* | |

# Ordering Information

## Contact Information:

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