# GZ03-CO2 transmitter user's Guide (Analog type)







SIBO.X INDUSTRIAL CO.,LTD.
Add: No. Building 1, No. 1, Jingshi Road, Cicheng Town Industrial Park, Jiangbei District, Ningbo City, Zhejiang, China
https://www.sbxsun.com
Email: info@sbxsun.com
Tel: +86-15958288207

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# 1. product description

## 1.1product description

The transmitter adopts a new infrared verification technology to measure CO2 concentration. The response is quick and sensitive, avoiding the life and long-term drift of traditional electrochemical sensors. It is widely used in agricultural greenhouses, flower cultivation, edible fungus cultivation, etc. that require CO2 and temperature and humidity Monitoring occasions. Analog signal output, 4-20mA, 0-10V, 0-5V optional. The equipment has 10-30V wide voltage power supply, and the enclosure has a high protection level, which can adapt to various harsh conditions on site.

## 1.2Features

1. New infrared calibration technology for CO2 concentration measurement, with high accuracy, low drift and long life

2. Wide measuring range, default 0-5000ppm, with temperature compensation, little influence by temperature

3.4-20mA, 0-10V, 0-5V multiple analog signal output optional

4. The product adopts wall-mounted waterproof shell, which is easy to install and has high protection level

## 1.3 Main Specifications

Power consumption: 0.3W (24VDC)

power supply: 10~30VDC

CO2 measurement range: 0~5000ppm

CO2 accuracy: ±(50ppm+3%F·S)(25℃)

CO2 measurement range: 0~10000ppm (optional)

CO2 accuracy: ±(50ppm+5%F·S)(25℃)

Stability: <2%F·S

Non-linearity: <1%F·S

Data update time: 2s

Response time: 90% step change is generally less than 90S

Working environment: -10~+50℃, 0-80%RH (non-condensing)

average current: <85mA

System warm-up time: 2min (available), 10min (maximum accuracy) Temperature influence: self-contained temperature compensation

Output signal: 4~20mA, 0~5V, 0~10V

## 1.4product model

| | | | | | |
|---|---|---|---|---|---|
| GZ03- | | | | | Product code |
| | CO2- | | | | CO2 concentration transmitter, sensor |
| | | I20- | | | 4~20mA current output |
| | | V05 | | | 0~5V voltage output |
| | | V10 | | | 0~10V voltage output |
| | | | 2 | | Wall-mounted king-shaped shell built-in probe |
| | | | 2LW | | King shell epitaxial probe |
| | | | | OLED | King word shell with OLED screen |

# 2. Equipment installation instructions

## 2.1 Inspection before equipment installation

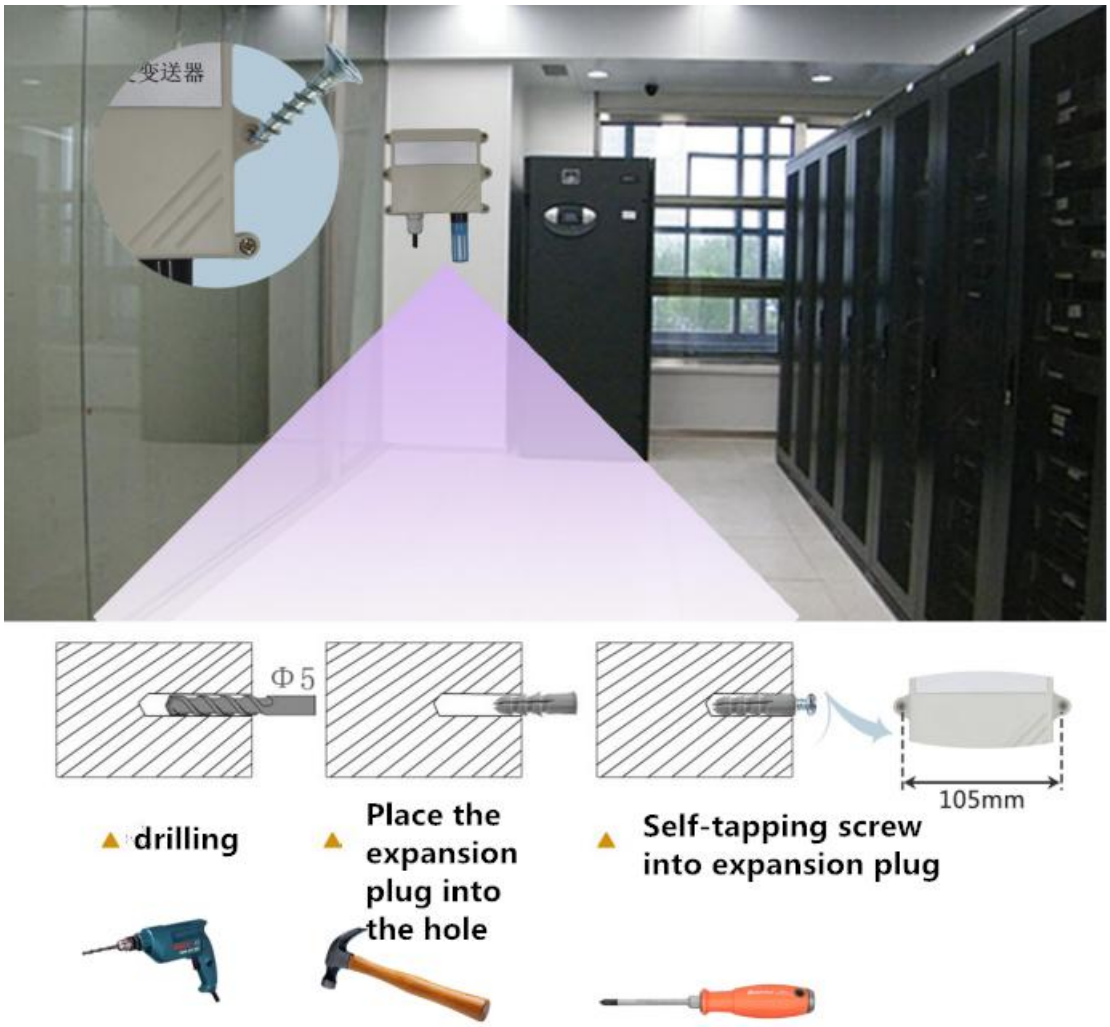
Equipment List:

1. One set of carbon dioxide transmitter equipment

2. Self-tapping screws (2 pcs), expansion plugs (2 pcs)

3. Certificate of conformity, warranty card, wiring instructions, etc.

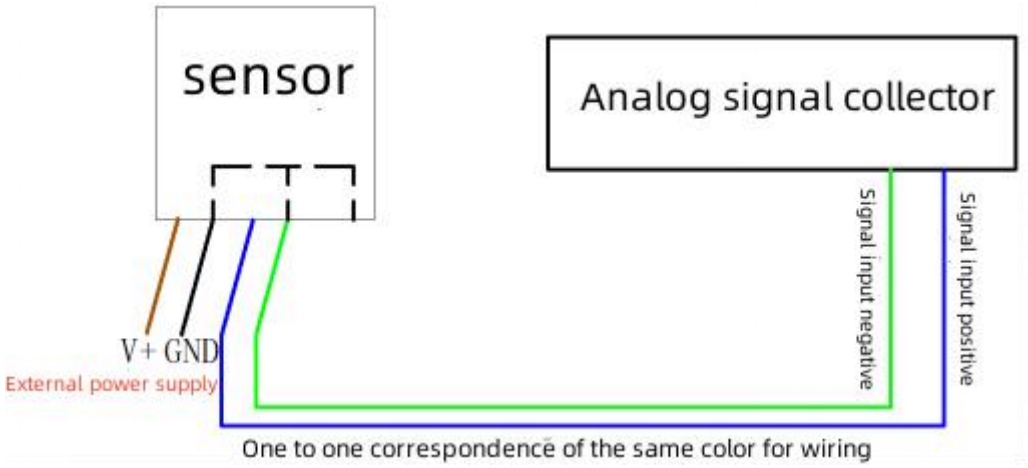
## 2.2Installation step instructions



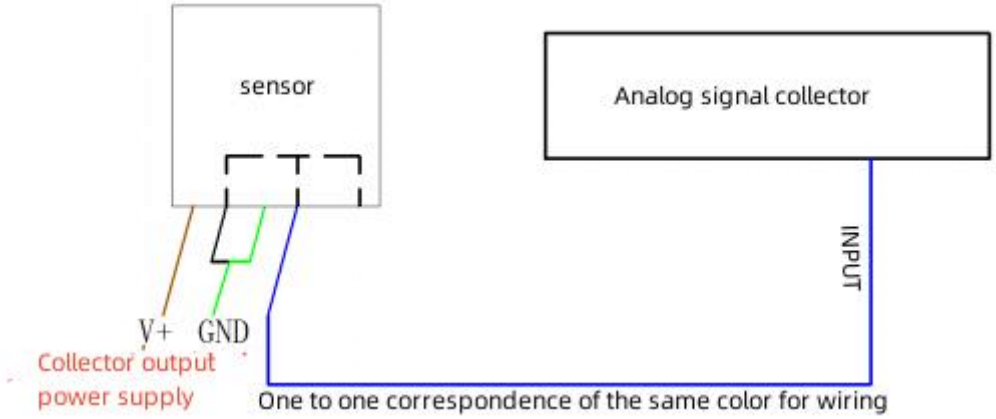

## 2.3 wiring

| | Thread color | Description |
|---|---|---|
| power supply | brown | Positive power supply (10~30V DC) |
| | black | Power negative |
| Output | blue | CO2 signal is positive |
| | green | CO2 signal negative |

### 2.4 Wiring example




Schematic diagram of four-wire connection




Schematic diagram of three-wire connection

# 3. Calculation method

## 3.1Current output signal conversion calculation

For example, the range is 0~5000ppm, 4~20mA output, when the output signal is 12mA, calculate the current CO2 concentration value. The span of this CO2 range is 5000ppm, expressed by a 16mA current signal, 5000ppm/16mA=312.5ppm/mA, that is, the current 1mA represents the CO2 concentration change 321.5ppm, the measured value is 12mA-4mA=8mA, 8mA*312.5ppm/mA=2500ppm , The current CO2 concentration is 2500ppm.

## 3.2Voltage output signal conversion calculation

For example, the range is 0~5000ppm, 0-10V output, when the output signal is 5V, calculate the current CO2 concentration value. The span of this CO2 range is 5000ppm, expressed by a 10V voltage signal, 5000ppm/10V=500ppm/V, that is, the voltage 1V represents the CO2 concentration change 500ppm, the measured value is

5V-0V=5V, 5V*3500ppm/V=2500ppm, the current CO2 The concentration is 2500ppm.

## 4. Common problems and solutions

## No output or output error

## possible reason:

1) PLC calculation error caused by range corresponding error.

2) The wiring method is wrong or the wiring sequence is wrong.

3) The power supply voltage is wrong (24V power supply for 0~10V type).

4) The distance between the transmitter and the collector is too long, causing signal disturbance.

5) The PLC acquisition port is damaged.

6) The equipment is damaged.

## 5. Appendix: Shell size

total measurement：110×85×44mm

