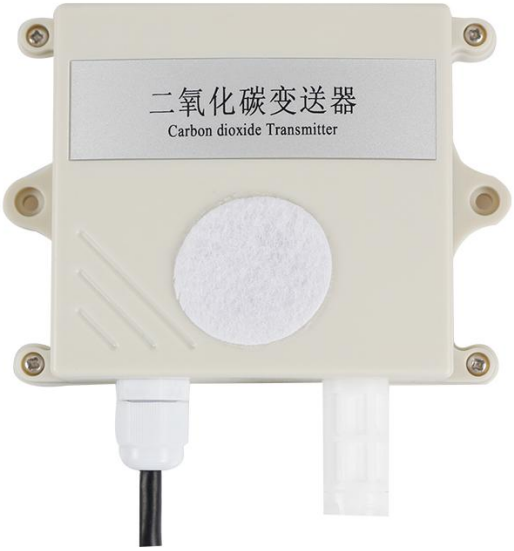
USER MANUAL

ONE-STOP SOLUTION

ONE-STOP SERVICE

HUNAN MACSENSOR COMPANY LIMITED

User Manual for CO2 Transmitter MCO2



1. Product introduction

1.1 Product overview

MCO2 transmitter adopts a new type of infrared verification technology for CO_2 concentration measurement. 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 and other applications that require CO_2 and temperature and humidity monitoring. 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 degree of protection, which can adapt to various harsh conditions on site.

1.2 Functional features

- New infrared calibration technology applied for CO_2 concentration measurement, with high accuracy, low drift and long life
- With a wide measuring range, default 0-5000ppm, with temperature compensation and little influence by temperature
- 4-20mA, 0-10V, 0-5V multiple analog signal output available
- With a wall-mounted waterproof shell, easy to install, with high protection level

1.3 Main technical indicators

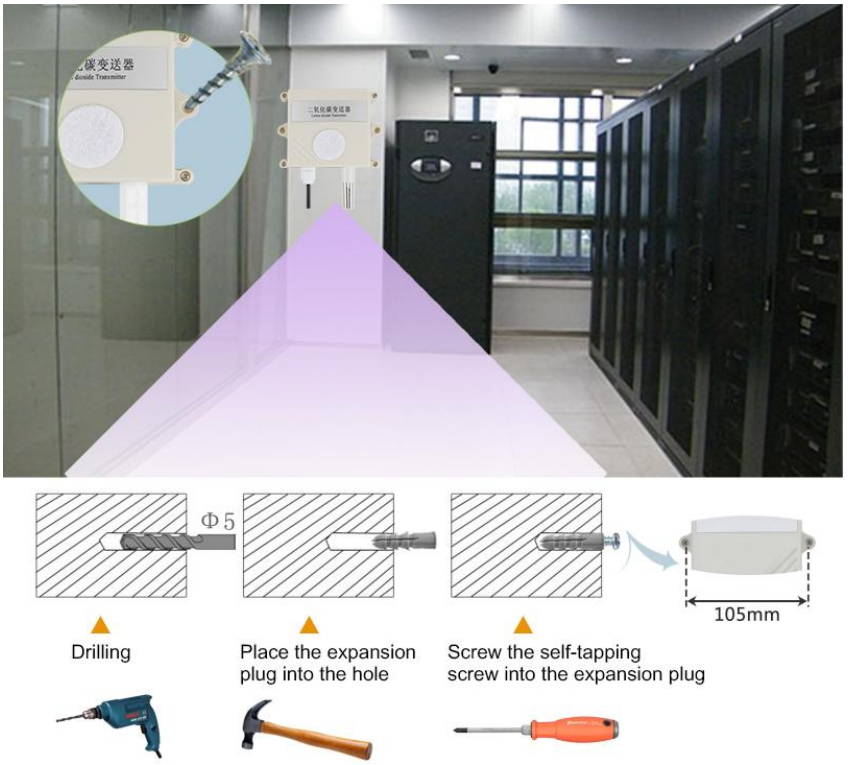
Power supply	10~30V DC (0~10V type can only apply 24V power supply)
CO_2 measurement rang	0~5000ppm
CO_2 accuracy	±(40ppm+ 3%F·S) (25℃)
Stability	<2%F·S
Nonlinear	<1% F · S
Data update time	2s
Response time	Generally less than 90S when 90% step change occurs
Working environment	-10~+50℃, 0-80%RH (without condensation)
System warm-up time	2 min (available), 10min (maximum accuracy)
Average current	<85mA
Temperature influence	Built-in temperature compensation
Output signal	4~20mA, 0~5V, 0~10V

1.4 Product selection

MCO2				CO_2 transmitter, sensor
	I20-			4~20mA current output
	V05			0~5V voltage output
	V10			0~10V voltage output
		2		A Chinese character WANG-shaped shell with a built-in probe
		2LW		A Chinese character WANG-shaped shell with a extension probe
			OLED	A Chinese character WANG-shaped shell with a OLED display

2. Equipment installation instructions

2.1 Installation procedure description



2.2 Wiring

	Wire Color	Description
Power supply	Brown	Positive(+)(10~30V DC)
	Black	Negative(-)
Output	Blue	CO_2 signal (+)
	Green	CO_2 signal (-)

2.3 Examples of Wiring Modes

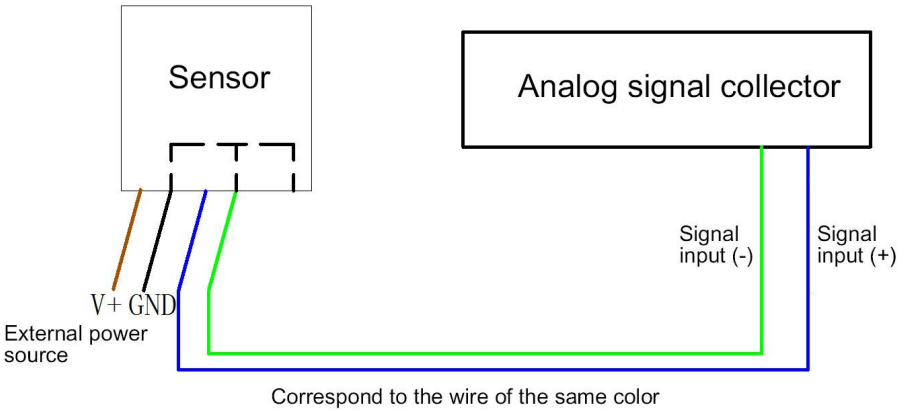


Diagram of Four-wire Connection

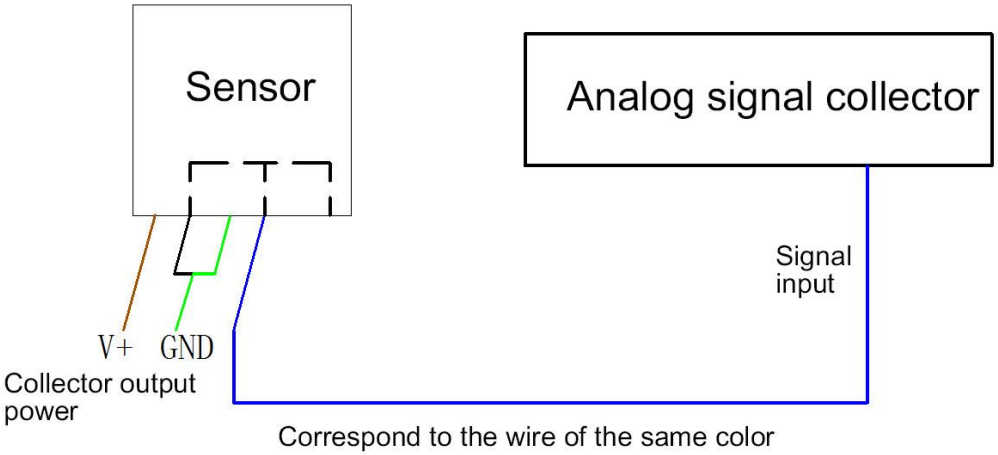


Diagram of Three-wire Connection

3. Calculation Method

3.1 Current Output Signal Conversion Calculation

For example, the range is 0~5000ppm, 4~20mA output, when the output signal is 12mA, calculate the current CO_2 concentration value. The span of the CO_2 range is 5000ppm, expressed by a 16mA current signal, 5000ppm/16mA=312.5ppm/mA, that is, the current of 1mA represents the CO_2 concentration change of 321.5ppm, the measured value is 12mA-4mA=8mA, 8mA*312.5ppm/mA=2500ppm. The current CO_2 concentration is 2500ppm.

3.2 Voltage Output Signal Conversion Calculation

For example, the range is 0~5000ppm, 0-10V output, when the output signal is 5V, calculate the current CO_2 concentration value. The span of this CO_2 range is 5000ppm, expressed by a 10V voltage signal, 5000ppm/10V=500ppm/V, that is, the voltage of 1V represents the CO_2 concentration change of 500ppm, the measured value is 5V-0V=5V, 5V*3500ppm/V=2500ppm, the current CO_2 The concentration is 2500ppm.

4. Common Problems and Solutions

No output or output error

Possible reasons:

1) The PLC calculation occurs error caused by the corresponding error of the range.

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

3) The power supply voltage is incorrect (All are 24V power supply for 0-10V).

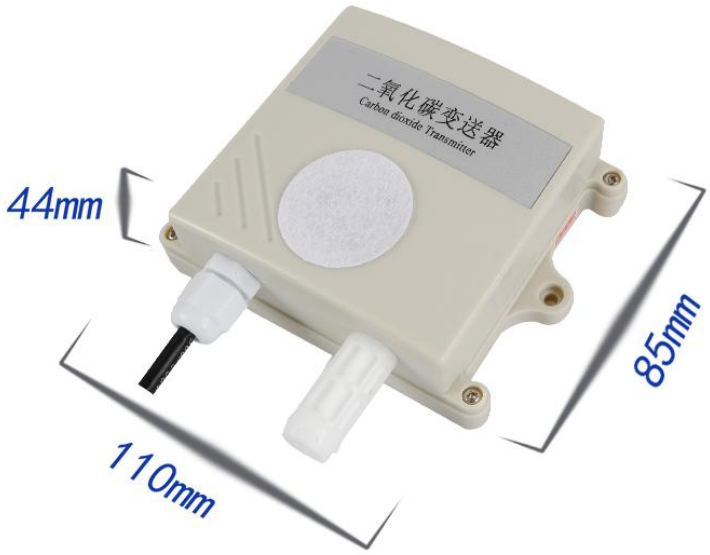
4) The distance between the transmitter and the collector is too far, causing signal disturbance.

5) The PLC acquisition port is damaged.

6) The equipment is damaged.

5. Appendix: Housing Dimensions

Overall dimensions: 110×85×44mm



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