

H-GUARD-D

CO² Duct Probe Transmitter

OPERATOR'S MANUAL



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H-Guard-DTM

CO₂ Duct Probe transmitter

Part Number: 65-9081

User's Manual

Specifications

Carbon Dioxide Sensor	Non-Dispersive Infrared Detector (NDIR) ABC Logic Self Calibration Algorithm
CO ₂ measuring range	0~2,000ppm
Accuracy@22°C(72°F)	±40ppm +3% of reading
Stability	<2% of full scale over the life of the sensor
Non linearity@22°C(72°F)	<1% of full scale
Response time	<5 minutes for 90% step change at low duct speed
Duct Air Velocity	0~450m/min
Pressure Dependence	0.135% of reading per mm Hg
Temperature Dependence	0.2% of full scale per °C
Warm up time	24 hours (first time) 10 minutes (operation)
Temperature & Humidity Sensor	Temperature
Sensing element:	Band-gap-senor
Measuring range	0°C~50°C
Accuracy	±0.4°C (25°C)
Display resolution	0.1°C
Stability	±0.1°C per year
Power supply	24VAC (50/60HZ±10%), 24VDC
Consumption	1.8 W max. ; 0.8 W avg.
LCD display	3-color backlit Display CO ₂ measurement or CO ₂ + temperature& humidity measurements
LCD Backlight	Green—optimal air quality (<1000) ▶ Enjoy the indoor air Yellow—moderate air quality (1001~1400) ▶ Ventilation can be used Red—poor air quality (>1400) ▶ Immediate ventilation
Analog output	0~10VDC or 4~20mA(default) output for CO ₂ (The voltage output or current output can be selectable by jumpers)
Storage conditions	-20~70°C(-40~158°F)
Net weight	240g
Standard Approval	CE
IP class	IP54
Version	TG9116 CO ₂ -10

Mounting and Wire Connection

- ◆ Notice the supply power voltage of the transmitter: 24VAC. Do not install the transmitter on voltages higher than marked on the transmitter.
- ◆ Firstly, prepare a flower head screwdriver and open the screw of the transmitter housing. (see [fig.1](#))
- ◆ Open the underside bigger notch for pass through connecting wires (see [fig.2](#))
- ◆ Connect wires to terminal strips (see [fig.3](#)). Make sure wiring connection correct and secure.

- ◆ vEnter the probe of the transmitter into the air duct. Please attention the direction of the filter and the air flow are opposite. (see fig.4).
- ◆ The cover of the filter can be moved. It can be replaced when it is too dirty. (see fig.5).
- ◆ Place the transmitter against at desired location and fixed;
- ◆ Finally tighten the screw of the transmitter housing to close the cover.

Fig.1

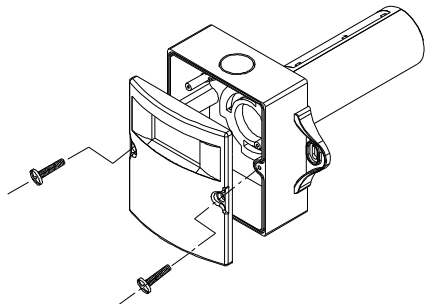


Fig.2

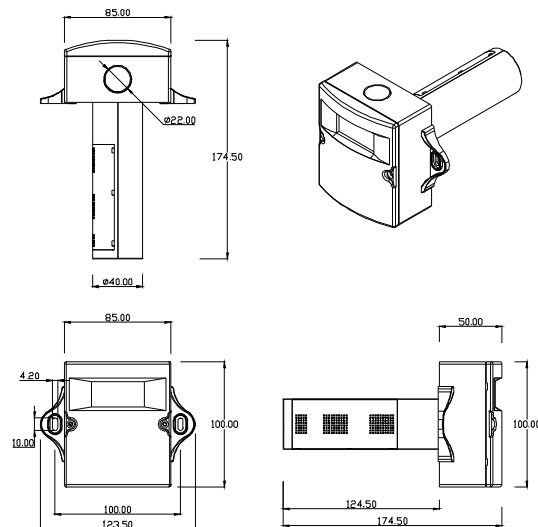


Fig.3

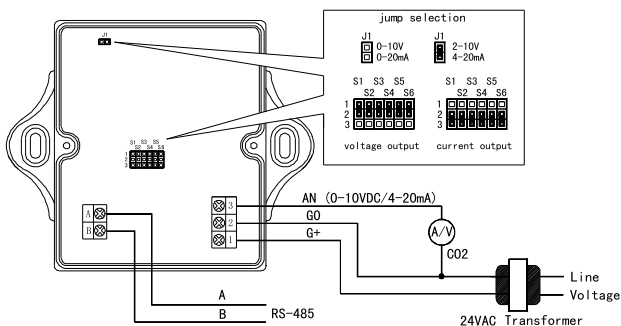
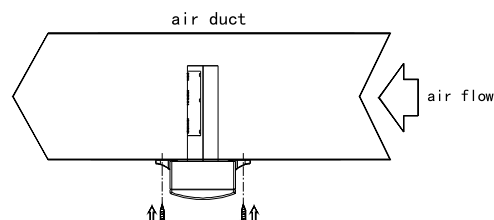
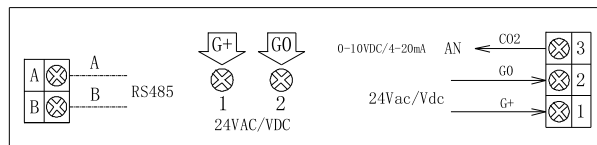
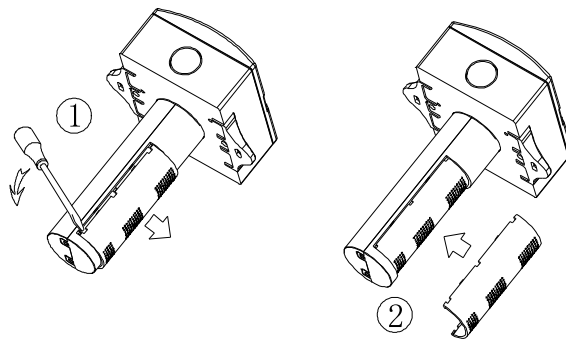


Fig.4



Connection Terminal	Function	Electrical Data
1	G+	Power (+)
2	G0	Power ground (-)
3	OUT	Analog output (+)
4	B	RX(-)
5	A	TX(+)
		RS485 interface



Analog output selection

The default outputs are 0~10VDC, change to the 4~20mA outputs as below steps. The three analog outputs must be kept in same situation, three all voltage analog outputs or three all current analog outputs at the same time. Please see the fig.5

- ◆ Power off and remove the back cover, there is a group of jumper S1~S6 in the middle right of the circuit board. And another group of jumper J1-J3 in the upper left of the circuit board. Connect the up two pins of the S1-S6, and disconnect J1, the analog outputs are 0~10VDC; Connect the down two pins of S1-S6, and connect J1, the analog outputs are 4~20mA.
- ◆ The J2, J3 is just for testing before leaving factory, the default is disconnection. Don not change them!

Important Instructions

1. Don't shake or hit the transmitter too much in shipment or in mounting to protect the internal infrared CO₂ sensor from any damage and excursion of infrared receiver.
2. When
 - a. First use the transmitter, or
 - b. Reuse the transmitter after a long time unused or
 - c. CO₂ measurement is proved to be incorrect (by comparing with the measurement of other accurate CO₂ products, or put the transmitter outdoors and its measurement is away from the range of 350ppm~450ppm, which is the normal ambient CO₂ level range.)

Then let ABC Logic™ Self Calibration System work as follows:

Keep the transmitter energized for at least 2 days to let CO₂ sensor's ABC Logic™ self-calibration system operate properly. After more than 2 days' calibration, if the measurement (indicated by the analog output) of the CO₂ transmitter still exceeds over the accuracy, you need to let it self-calibrated for a longer time. Here's the typical 14-day calibration solution: During a 14-day period, place the CO₂ transmitter twice in outdoors or unoccupied places where CO₂ level is around 400ppm. Each time let it be there for more than 4 hours and then check the CO₂ measurement via the analog output. If the CO₂ measurement is in its accuracy limit, it indicates the measurement is right.

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