

Duct Mount CO₂, RH & Temp Transmitter



Features

- Real-time detecting CO₂ level
- Self calibration algorithm
- User selectable outputs 4-20mA, 0-10Vdc or Modbus option
- Backlit LCD option

Specification

Range's:

CO ₂	0 to 2000ppm
RH	0 to 100%
Temp.	-20 to +60°C

Output signals (jumper selectable):

0-10Vdc or 4-20mA

Modbus RS485 19200bps, 15KV antistatic protection

Power supply:

Voltage output 24Vac/dc, ±10%

Current output 24Vdc only, ±10%

Consumption Max, 1.8W Avg, 1.0W

Accuracy:

CO₂ ±40ppm +3% of reading @ 22°C

RH <±3% @25°C, 40-60%RH

Temp. ±0.4°C @ 25°C

Stability

CO₂ <2% of FS over sensor life

RH ±0.1°C per year

Temp. ±1%RH per year

Sensor life 15 years, typical

Response time <5 minutes, for 90% step change

Stabilization time:

First time 24 Hours

Operational 10 Minutes

LCD display (optional) 3 colour, displays CO₂, RH & Temp.

Green Optimal (<1000ppm)

Yellow Moderate (1001 ~1400ppm)

Red Poor (>1400ppm)

Duct air velocity 0 to 450m/min.

Environmental:

Temp 0 to + 50°C

RH 0 to 95% non-condensing

Storage temp. -20 to +70°C

CE Conformity CE Marked

Housing dimensions:

Housing 100 x 80 x 50mm

Probe 125.5 x 40mm

Housing material ABS

Protection IP54

Country of origin China

Product Codes

GS-CO2-RHT-D

Carbon Dioxide, humidity and temperature transmitter with current or voltage selectable outputs

Suffix (add to part code)

-M

Modbus output

-LCD

Backlit LCD



Please Note:

Current versions are NOT loop powered and will require a common 0V connection.

Technical Overview

The GS-C02-RHT-D is a non-dispersive infrared sensor for measuring CO₂ concentrations, utilising microprocessor based electronics and a unique self-calibration algorithm to improve long-term stability and accuracy. The sensor also offers humidity and temperature outputs. An optional backlit LCD display's all measurements.

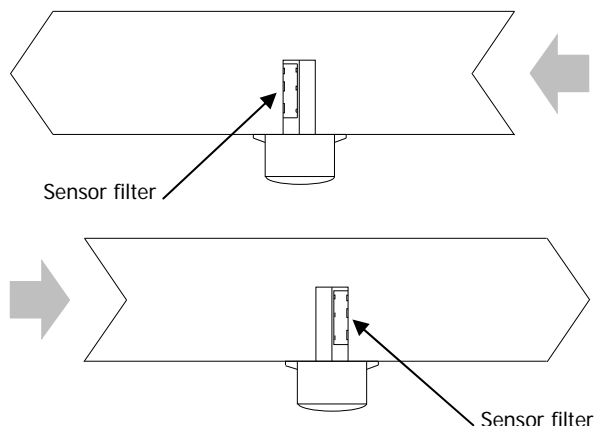
The sensor can be used to ensure adequate ventilation while maximizing energy savings by ventilating at the optimum level.

Installation

1. Select a location in the duct where dust & contaminants are at a minimum.
2. Unscrew and remove the front panel from the base.
3. Drill two pilot holes at 100mm centres, and a 42mm hole centre for the probe in the surface to which the sensor is to be mounted.
4. It is important that the probe is fitted so that the air flow is opposite from the filter (see fig. 1). The probe can be turned to the correct position, by carefully twisting and removing the probe and re-inserted.
5. Feed cable through the knockout in the base of the housing and terminate the cores at the terminal block. Install wiring into terminal blocks as required.
6. Select output type, 4-20mA or 0-10Vdc. Do **not** adjust any of the potentiometers W1/W6 as this will void warranty.
7. Ensure that the supply voltage is within the specified tolerances.
8. Replace the front cover to the base plate, and tighten the screws.
9. Power the unit, pre-commissioning checks can be made after 10 minutes. Full commissioning should not be carried out for at least 48 hours. This will enable the ABC Logic self calibration procedure to complete.
10. It is recommended that screened cable be used and that the screen should be earthed at the controller only. Care should be taken not to lay control signal wiring in close proximity to power or other cables which may produce significant electromagnetic noise.

Installation (continued)

Fig. 1

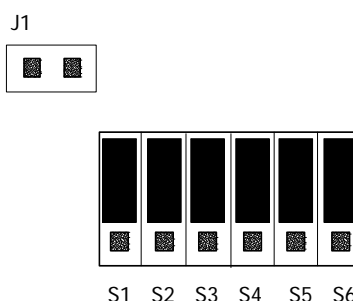


ABC Logic Self-calibration

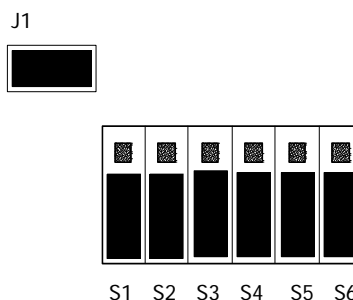
When first powering the transmitter, it needs to be powered continuously for at least 2 days. This will allow the CO₂ sensors ABC Logic self-calibration system operate correctly.

Jumper Settings

0-10Vdc:

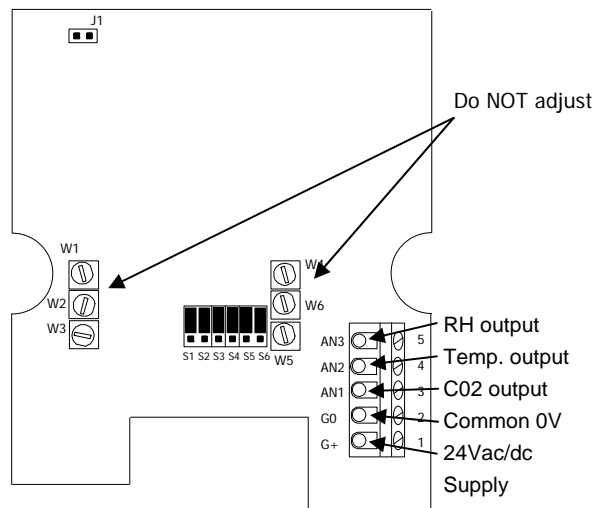


4-20mA:

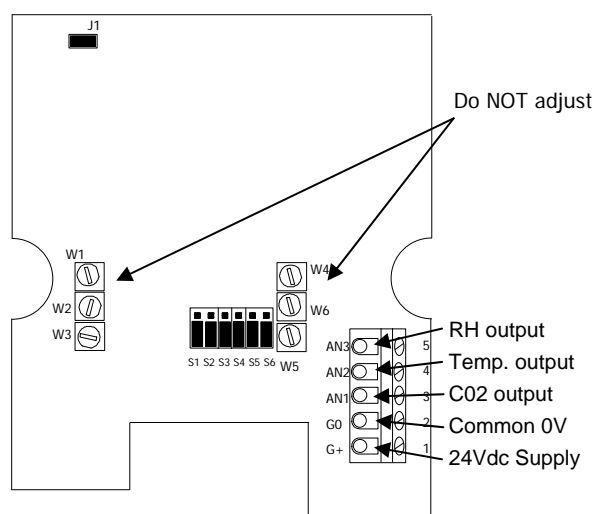


Connections

0-10Vdc:



4-20mA:



Please Note:

Current output

If using in current output mode, the sensor must only be used with a 24Vdc supply. The sensor may be damaged if supplied with AC.

When using current output mode they are **NOT** loop powered and will require a common 0V connection.

Trend Scaling

0-10Vdc (0 to 2000ppm)	4-20mA
Brange: -2000	Brange: -3000
Trange: 2000	Trange: 2000
Upper: 2000	Upper: 2000
Lower: 0	Lower: 0
Exponent: 4	Exponent: 4
0-10Vdc (0 to 100%RH)	4-20mA
Brange -100	Brange -150
Trange 100	Trange 100
Upper 100	Upper 100
Lower 0	Lower 0
Exp 3	Exp 3
0-10Vdc (-20 to +60°C)	4-20mA
Brange -100	Brange -140
Trange 60	Trange 60
Upper 60	Upper 60
Lower -20	Lower -20
Exp 3	Exp 3

Trend Scaling (continued)

Later IQ2x series and IQ3 (with type 5, characterise)

0-10Vdc		4-20mA	
(0 to 2000ppm)			
Upper:	2000	Upper:	2000
Lower:	0	Lower:	0
Exponent:	4	Exponent:	4
Points Used:	2	Points Used:	2
I1:	0	I1:	4
O1:	0	O1:	0
I2:	10	I2:	20
O2:	2000	O2:	2000

0-10Vdc		4-20mA	
(0 to 100%RH)			
Upper	100	Upper	100
Lower	0	Lower	0
Exp	3	Exp	3
Points used	2	Points used	2
I1	0	I1	4
O1	0	O1	0
I2	10	I2	20
O2	100	O2	100

0-10Vdc		4-20mA	
(-20 to 60°C)			
Upper:	60	Upper:	60
Lower:	-20	Lower:	-20
Exponent:	4	Exponent:	4
Points Used:	2	Points Used:	2
I1:	0	I1:	4
O1:	-20	O1:	-20
I2:	10	I2:	20
O2:	60	O2:	60