



Features & Benefits

- Selectable 0-10Vdc, 0-5Vdc or 4-20mA output
- Direct thermistor options available
- LCD display
- "Traffic Light" LED CO₂ indication option
- Long sensor life
- Energy saving by ventilating at the optimum CO₂ levels

Technical Overview

The GS-CO₂-622 range combines CO₂ and Temperature or CO₂, temperature & RH sensing in one housing.

Using a non-dispersive infrared sensor for measuring CO₂ concentrations and utilizing microprocessor based electronics, ensures long-term stability and accuracy. They are also fitted with a temperature output or RH & temperature output. A directly connected passive resistive temperature output is also available, as an alternative to the standard active temperature output.

The sensor can be used to ensure adequate ventilation while maximizing energy savings by ventilating at the optimum level, making these ideal for all types of ventilation in commercial buildings, industrial plants, laboratories and public spaces, such as schools.

Product Codes

GS-CO2-622 Duct CO₂ & T transmitter 0-2000ppm

GS-CO2-RHT-622 Duct CO₂, RH & T transmitter 0-2000ppm

Suffixes (add to part code)

-T Direct resistive temperature output*

Thermistor types:

A (10K3A1)	B (10K4A1)	C (20K6A1)
H (SAT1)	K (STA1)	L (TAC1)
M (2.2K3A1)	N (3K3A1)	P (30K6A1)
Q (50K6A1)	S (SAT2)	T (SAT3)
W (SIE1)	Y (STA2)	Z (10K NTC)

Platinum types:

D (PT100a)	E (PT1000a)
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Nickel types:

F (NI1000a)	G (NI1000a/TCR (LAN1))
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Suffix (add to part code)

-HR 0-5000ppm CO₂ range

-LCD Integral LCD

-TR Custom temperature output range scaling

-LED 3-colour LED indication for CO₂

Specification

Outputs	0-10Vdc, 0-5Vdc or 4-20mA
Power supply	24Vac/dc
Supply current	140mA max.
Output ranges:	
CO ₂	0 to 2000ppm
Temperature	-20 to 50°C
Optional	
-HR	0 to 5000ppm
-RHT	0 to 100%
-T	PTC/NTC Element Any Sontay resistive type
-TR	In range of 0 to 50°C
Accuracy:	
CO ₂	±30ppm ±5% of scale
Temperature	±0.5°C
RH	±3%RH (20 to 80%)
Stability:	
CO ₂	<2% of FS over sensor life
Temperature	±0.1°C
RH	±1%RH per year
Ambient:	
Temperature	-30°C to +70°C
RH	0 to 95% RH, non-condensing
Housing:	
Material	Flame retardant ABS
Dimensions	116 x 106 x 52mm
Probe:	
Material	Delrin
Dimensions	215 x 19mm dia.
Protection:	
Snap-shut lid	IP54
	IP65 (see installation notes)
Country of origin	UK



Note*:

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

WEEE Directive:



At the end of the products useful life please dispose as per the local regulations. Do not dispose of with normal household waste. Do not burn.



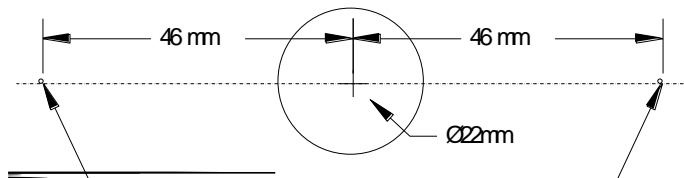
The products referred to in this data sheet meet the requirements of EU Directive 2014/30/EU

Installation



Antistatic precautions must be observed when handling these sensors. The PCB contains circuitry that can be damaged by static discharge.

1. Select a location in the duct where dust & contaminants are at a minimum (i.e. after filters etc.) and which will give a representative sample of the prevailing air condition.
2. Fix the housing to the duct with appropriate screws, or by using the optional duct mounting flange.



3. Release the snap-fit lid by gently squeezing the locking tab.
 4. Feed the cable through the waterproof gland and terminate the cores at the terminal block. Leaving some slack inside the unit, tighten the cable gland onto the cable to ensure water tightness.
 5. If the sensor is to be mounted outside, it is recommended that the unit be mounted with the cable entry at the bottom. If the cable is fed from above then into the cable gland at the bottom, it is recommended that a rain loop be placed in the cable before entry into the sensor.
 6. Set the yellow dip-switches according to output type required and snap shut the lid after the connections have been made if IP65 protection is required, secure the lid with two screws provided.
 7. Before powering the sensor, ensure that the supply voltage is within the specified tolerances.
Note: When using the sensor with a 4-20mA output, it is important to make all electrical connections before applying the supply voltage. If the sensor is not connected in this sequence, then you may see a higher reading than expected (can be as much as 55mA).
 8. Allow 10 minutes before carrying out pre-commissioning checks. This will allow the electronics time to stabilise and full commissioning should not be carried out for at least 48 hours.
- The GS-CO2-622 should be installed not less than 2 metres downstream from any heating or cooling devices, source of moisture such as humidifier, fan or bend in the ductwork.
 - The GS-CO2-622 should be mounted with the holes in the probe directly into the air flow, to allow full air flow over the sensing element.

Note: When using current output mode the GS-CO2-622 is NOT loop powered and will require a common 0V connection.

Connections & Jumper Settings

Left Hand terminal Block:

24V	Supply + 24Vac or Vdc (see note below)
GND	Supply 0V
OP1	Temperature output (see J11 settings)
OP2	RH output
P5	Not used
OP3	CO ₂ output
GND	Common 0V
OVRD	Not used

Right Hand Terminal Block (if -T option is selected);

T2	Direct thermistor output only (other half of OP1 if J11 is set to T)
MS1	Not used
MS2	Not used
GND	Common 0v
P6	Not used
P7	Not used
FS2	Not used
FS1	Not used

J1, J2, J3

These set the outputs to either voltage of current, V for voltage, I for current

J10

If the outputs are set to voltage (jumpers J1, J2 & J3 in the "V" position), the output can be set to either 0-10Vdc or 0-5Vdc.

J11

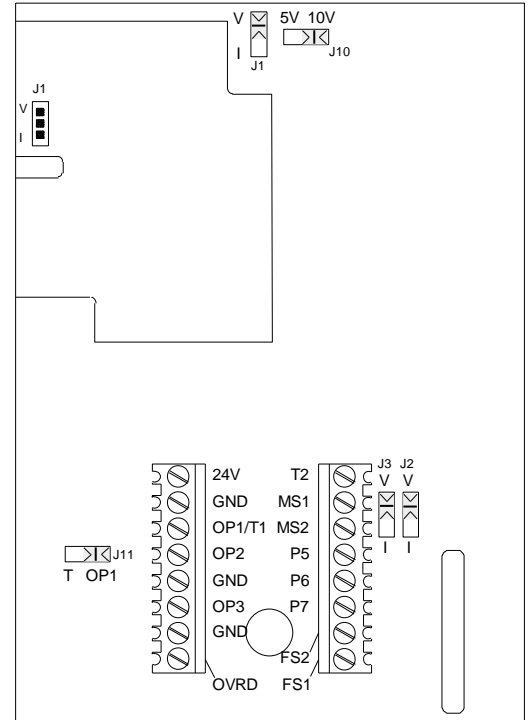
Selects either active temperature output (current or voltage) or direct thermistor.

OP1	= active temperature output
T	= direct thermistor

CO₂ board (J1)

This sets the output to either voltage of current:

V for voltage, I for current



Notes

Voltage output Nominal voltage 24Vac/dc.

Current output Nominal voltage 24Vac/dc.
Current versions are NOT loop powered and will require a common 0V connection.
Please see note in section 7 on previous page regarding connections.

If using the -LCD option the transmitter will require a 0V connection for the back light to work.

-T Direct thermistor output (if fitted) is between terminals OP1 and T2, polarity is independent.

LED CO₂ Level Indication

The LED is configured to turn from green to amber when the CO₂ level rises above 1000ppm. The colour changes to red when the CO₂ level exceeds 1500ppm. These levels are customizable, but alternative values MUST be stated when ordering, as they cannot be changed on site.