

SG880 Carbon Dioxide Gas Sensor

CO2
Detection

4-20mA

IP66



FEATURES

- CO2 Detection sensor
- Colour changing Digital Display
- Non dispersive Infrared Technology
- 4-20mA signal sensor output
- Automatic Calibration
- Sintered Head
- IP66 Protective Rating
- CE Certified & approved to EN50270 / EN61010-1 EH40 workplace exposure limits
- 2 Year Guarantee - 3 Year by Registering at duomo.co.uk

APPLICATION

The SG880-CO² is a gas detection unit that in stand-alone mode, detects the presence of Carbon Dioxide. This sensor, through an infrared sensor, detects the presence of Carbon dioxide (CO₂)

With this sensor it is possible to:

- 1) select alarm thresholds: 5%, 10%, 15% or 20%
- 2) select the positive safety of the relay

The sensor is managed by a microprocessor, which manages the execution of a self-diagnosis, in order to always have the maximum detection accuracy.

This device is useful when both the maximum carbon dioxide admissible concentration threshold set to 5%, 10%, 15% or 20% is exceeded, and when low CO₂ concentrations persist in the environment for lengthy periods, and which according to the principle of accumulation, could also be toxic.

SPECIFICATION

Power

Power Supply	12-24V DC ± 10% from controller
Power Consumption	90mA (Warm up) 160mA (in Alarm) at 13.8VDC
Relay contact range	10A resistive 250VAC, 5A 30VDC Resistive

Technical Specification

Gas(es) Detected	Carbon Dioxide (CO ₂)
Sensor Technology	Non Dispersive Infrared technology
Dimensions	Width 100mm Height 100mm Depth 60mm
Display Indicator	Green: Regular operation Yellow: Fault Red : Alarm Cyan: TWA Alarm (8 hours average over 0.5%) Magenta: STEL Alarm (15 minutes average over 1.5%)
USB Test Socket	TS1008
Mounting	Wall Mounted
Output Signal	4-20mA
Detection mode (selector)	5%, 10%, 15% or 20%
Device Precision	1% FS
Clean Air Shift	< ± 2%
Reaction Time	<5 seconds
Autosetting	Yes
Working Temperature	-10°C to 50°C
Functioning Humidity	0-90% non condensed
Protective Rating	IP66

Peripheral Specification

Maximum Sensor Distance	100m
Cable Diameter for Sensors	1mm ² CSA (Screened and earthed at the controller end)

Compatibility

Controller Compatibility	No controller required
--------------------------	------------------------

Approvals, Certifications and Guarantee

Approvals	BS EN50270 / EN61010-1, EH40 workplace exposure limits
Guarantee	2 Year as Standard 3 Year by Registering at www.duomo.co.uk

Precautions and Maintenance

Check the integrity of the unit after having removed it from the box.
Check that the data written on the box correspond to the type of gas used.

When doing the electrical connections, follow the drawing closely.

Any use of the detector for purposes other than the intended one is considered improper and as a result of which Duomo (UK) therefore disclaims any responsibility for possible damages caused to people, animals or objects.

Do not allow the sensor to become wet.

The product is not waterproof either when immersed in water or exposed to high levels of humidity.

Every six months must perform a function check of the sensor and connected controller. Suitable test gas must be used to avoid damaging the sensor. Disabling the sensor or the controller must be carried out by a suitably trained technician.

Every year a more accurate check must be performed by qualified personnel. Please call Duomo (UK) on 01905 797989

Important Notes



IMPORTANT: Assembly / maintenance of the appliance must be carried out by qualified personnel and in accordance with applicable laws and regulations.

The manufacturer assumes no responsibility for the use of products that have to comply with particular environmental and / or installation standards.

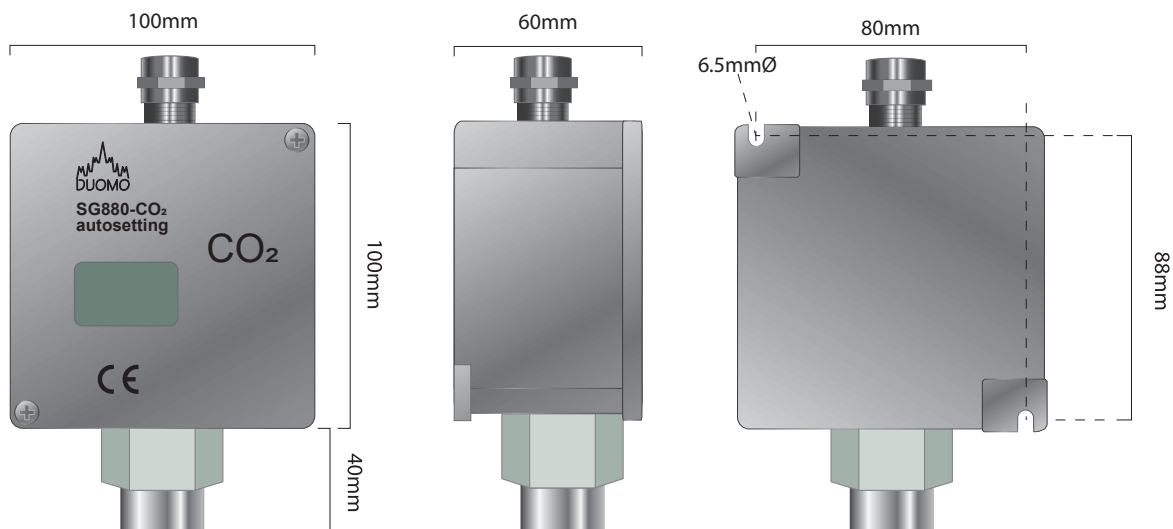
IMPORTANT: Before connecting the equipment, it is recommended that you read the instruction manual carefully and keep it for future reference.

Electrical Connections



IMPORTANT: Before connecting to the mains power, ensure the voltage is correct. Carefully follow the instructions and the connections according to Regulations in force, keeping in mind that the signal cables should be laid separate from the power cables.

Overall Dimensions (mm)



Connections and LED indicator

Important Notes



IMPORTANT: Assembly / maintenance of the appliance must be carried out by qualified personnel and in accordance with applicable laws and regulations.

The manufacturer assumes no responsibility for the use of products that have to comply with particular environmental and / or installation standards.

IMPORTANT: Before connecting the equipment, it is recommended that you read the instruction manual carefully and keep it for future reference.

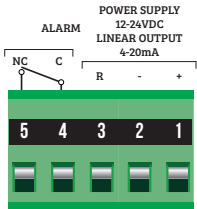
Electrical Connections



IMPORTANT: Before connecting to the mains power, ensure the voltage is correct. Carefully follow the instructions and the connections according to Regulations in force, keeping in mind that the signal cables should be laid separate from the power cables.

SWITCH 2-3 Detection Range
FS measuring range

	SW 2	SW 3
5%	OFF	OFF
10%	OFF	ON
15%	ON	OFF
20%	ON	ON



LED INDICATOR

GREEN

When the LED is Green in colour it indicates that the toxic gas threshold has not been exceeded and the sensor is in normal condition.

CYAN

When the LED is Cyan in colour it indicates the maximum average concentration to which an unprotected worker may be exposed in any eight-hour interval during the day has been detected (0.5% - 5000 ppm) and the main alarm relay has triggered. Concurrently the text '8hA' is shown on the display.

MAGENTA

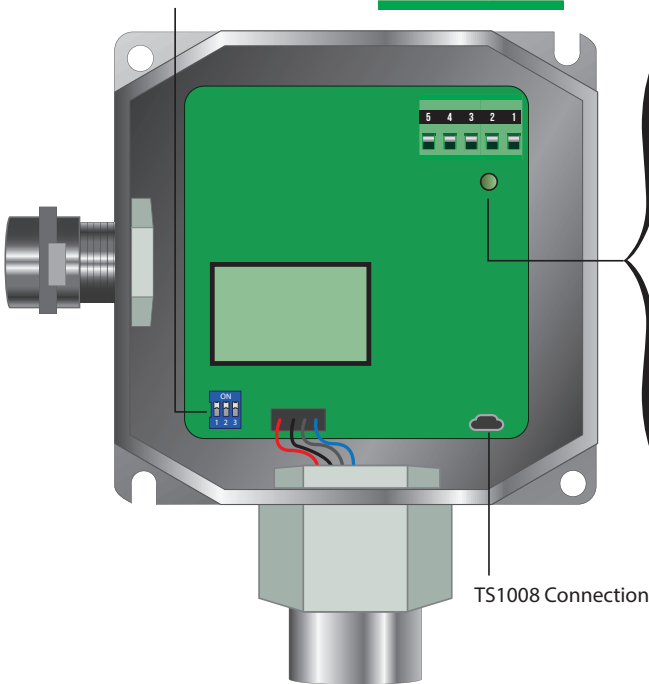
When the LED is Magenta in colour it indicates that the maximum average concentration to which an unprotected worker may be exposed in any fifteen-minute interval during the day has been detected (1.5% - 15000 ppm) and the main alarm relay has triggered. Concurrently the text 'StA' is shown on the display.

RED

When the LED is Red in colour it indicates the toxic gas threshold has been reached or passed. If the 5% - 50000 ppm (10% - 100000 ppm / 15% - 150000 ppm / 20% - 200000 ppm) has detected the main alarm relay is triggered immediately.

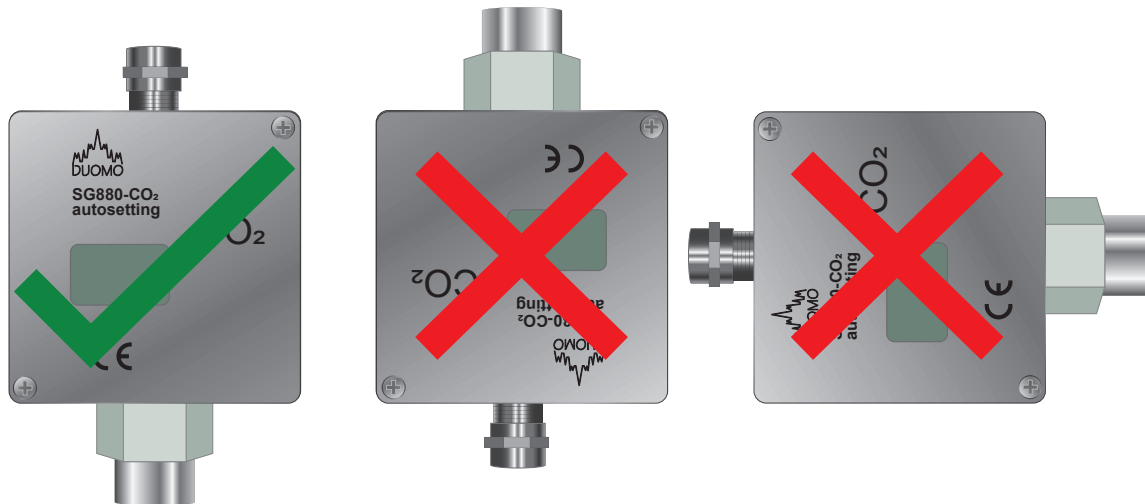
YELLOW

When the LED is Yellow in colour it indicates a sensor fault. This immediately triggers the fault relay. Concurrently the text 'FAU' is shown on the display.



Sensor Orientation

The sensors must be mounted as shown below with the sintered head pointing vertically down.

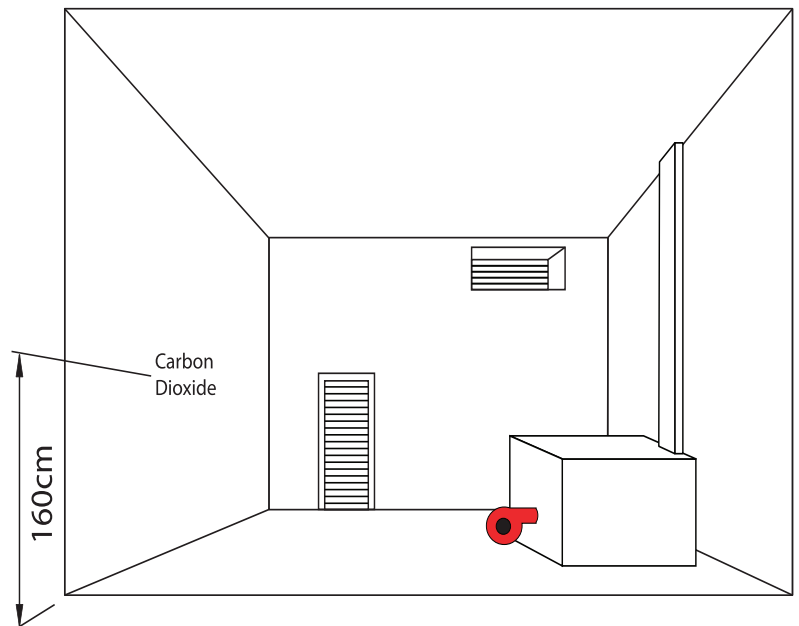


Sensor Positioning

The position of the sensor is a crucial factor for its correct functioning. The probe must be placed at a height of 160 cm from the lowest point on the floor.

The sensor must not be placed near the following: furnaces, fuel-burning kitchen appliances, fireplaces, ranges, suction fans, and should not be affected by smoke, vapour as these could distort its measurement.

The sensor must be placed away from sources of heat, suction fans, ventilation fans, windows, doors, etc. that can distort the detection and should be placed away from heat sources and away from aspirators or fans.



Important Notes

Always check the wiring before powering up the system.

When replacing sensors never separate a sensing head from its PCB. The sensor will have been calibrated using this particular board and therefore will not function correctly with any other.

Do not test this sensor with anything other than Duomo test gas. Concentrations above this will damage the sensor and shorten sensor life.

The installation of this gas sensor does not release the user from observing all the regulations concerning the characteristics of the installation and use of gas appliance, the ventilation of the protected environment and the removal of the products of combustion. Duomo (UK) will not be held responsible or liable for any damage caused to people, property or animals resulting from incorrect connection, installation or application of this gas sensor.

To ensure correct function after installation Duomo provide a commissioning service using calibrated test gases. For this service call +44 1905 797989.

In case of alarm

Extinguish any naked flames.

Do not switch lights or electrical devices on or off.

Open all windows and door to increase ventilation.

- If the ALARM LED is off the levels of gas have dropped. A responsible, qualified person is now safe to find the cause of the alarm.
- If the alarm sound remains constant and the cause is not evident or not possible to eliminate turn off the emergency isolation valves to the area and contact your gas provider emergency line. They will advise accordingly.

Troubleshooting

The Problem

The Solution

The sensor does not power up

Check that the 12/24 VDC power is present, and that positive and negative polarity has not been inverted.

Fault LED is illuminated

Check that the cables are connected according to the drawing, and that the wire isolation sheath has not been pinched.

This is a working document and will be updated as new troubleshooting and FAQs become apparent. If your issue is not listed here please call Duomo (UK) on 01905 797989 and inform us so we can list your issue and associated solution here.

Experiencing difficulties?

If you are experiencing difficulties then please call **Duomo (UK) Ltd** on **+441905 797989** for technical assistance and support.

Commissioning



SG880 22092021 rev2

This document is protected by copyright ©
No changes by others are permitted without prior authorisation by Duomo (UK) Ltd.
Duomo (UK) Ltd reserve the right to modify and revise this datasheet without notification.

01905 797989

www.duomo.co.uk
sales@duomo.co.uk

 [linkedin.com/company duomo-uk](https://www.linkedin.com/company/duomo-uk)

 @DuomoUK

5 The Furlong, Berry Hill Industrial Estate, Droitwich, Worcestershire, WR9 9AH