

CO₂-2

Wall mounted CO₂ sensor with 1 analog output & 1 on/off output

User's Manual

SPECIFICATIONS

| Parameters | Value |
|--|--|
| Power supply/Consumption | 24VAC (50/60Hz ± 10 %), 24VDC / max. 1.6 W |
| Gas sensing element | Non-dispersive infrared detector (NDIR) with self-calibration system |
| CO ₂ measuring range | 0–2,000 ppm (parts per million) |
| Accuracy at 25 °C, 2,000 ppm | ±30 ppm + 3 % of reading |
| Response time | <2 minutes |
| Warm up time for each turning-on | 2 hours (first time) 2 minutes (operation) |
| Analogue output | 0–10VDC (default), 4–20mA selectable by jumpers |
| On/Off output | 1X2A switch load Four set points selectable by jumpers |
| Operation conditions/ Storage regulations | 0–50 °C; 0–95 % RH non condensing/ 0–50 °C |
| Net weight/Dimensions | 120 g/100 mm × 80 mm × 30 mm |
| Mounting standard | 65 mm × 65 mm wire box, or hang on a nail |
| Standard Approval | CE |

MOUNTING AND WIRE CONNECTION

- Notice the supply power voltage of the sensor: 24VAC/VDC. Do not install the sensor on voltages higher than marked on the sensor.
- Follows the steps in fig. 2 to remove the cover.
- Mount the sensor on the place where you want to detect CO₂ level. Do not mount it near diffuser or any steam source, in direct sunlight.
- Mount the wall plate first, there are two dimensions available (see fig. 1). Place the sensor against the wall at selected location; make sure wires pass through the notch on the wall plate.
- Connect wires to terminal strips (see fig. 4). Make sure wiring connection is correct and secure.
- Follows the steps in fig. 3 to close the cover.

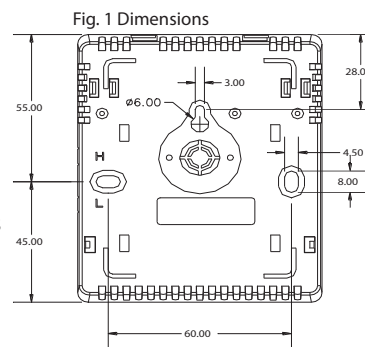


Fig. 2

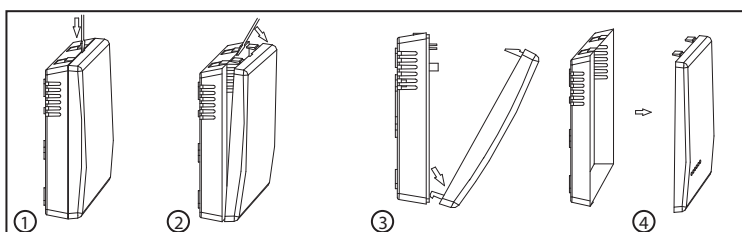


Fig. 3

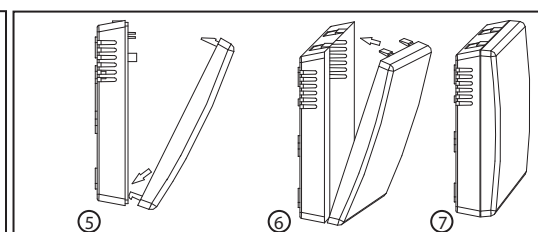
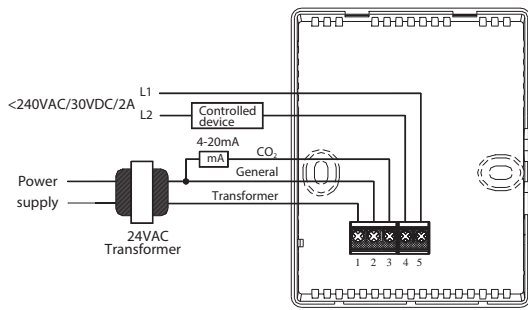


Fig. 4 Wiring



| Connection Terminal | Function | Electrical Data |
|---------------------|----------|-------------------|
| 1 | G+ | Power (+) |
| 2 | G0 | Power ground (-) |
| 3 | OUT | Analog output (+) |
| 4 | Fan | Relay output |
| 5 | Common | |

SELECT OUTPUT

- Power off first and remove the face cover, you'll see a set of short-circuit block jumpers in the middle of the right side of PCB board. From left to right, it's J1-J5 and S1-S2. Choose the type of analogue output or CO₂ level to control the relay following instructions shown in table shown in table below (J2 & J3 are just for manufacture test. Please don't change it!).

| Jumper S1-S2 | Jumper J1 | Analog outputs |
|------------------------|--------------|-------------------|
| Lower two pins blocked | disconnected | 0-10VDC (default) |
| Upper two pins blocked | disconnected | 0-20mA |
| Lower two pins blocked | connected | 2-10VDC |
| Upper two pins blocked | connected | 4-20mA |

| Jumper J4-J5 | CO ₂ level | The relay turns on /turns off |
|----------------------------------|-----------------------|---|
| J4-disconnected; J5-disconnected | 800 ppm | CO ₂ >800 ppm, the relay on; CO ₂ <700 ppm, the relay off |
| J4-connected; J5-disconnected | 1,000 ppm | CO ₂ >1,000 ppm, the relay on; CO ₂ <900 ppm, the relay off |
| J4-disconnected; J5-connected | 1,200 ppm (default) | CO ₂ >1,200 ppm, the relay on; CO ₂ <1,100 ppm, the relay off |
| J4-connected; J5-connected | 1,400 ppm | CO ₂ >1,400 ppm, the relay on; CO ₂ <1,300ppm, the relay off |

IMPORTANT INSTRUCTIONS

- Don't shake or hit the sensor too much during shipment or mounting to protect the internal infrared CO₂ sensor from any damage and excursion of infrared receiver.
- When:
 - First use CO₂ sensor, or
 - Reuse CO₂ sensor after a long time unused or
 - CO₂ measurement is proved to be incorrect (by comparing with the measurement of other CO₂ sensors, or put the sensor outdoors and its measurement is away from the range of 350ppm-450ppm, which is the normal ambient CO₂ concentration, then let the self-calibration system work as follows:
Keep the CO₂ sensor energized continuously for at least 2 days to let CO₂ sensor's self-calibration system operate properly. After more than 2 days' calibration, if the measurement (indicated by the analog output) of the CO₂ sensor still exceeds over the accuracy, you need to let it self-calibrated for a longer time. Here's a typical 14-day calibration solution: During a 14-day period, place the CO₂ sensor twice outdoors or in unoccupied places where CO₂ level is around 400 ppm. Each time let it be there for more than 4 hours and then check the CO₂ measurement via analogue output. If the CO₂ measurement is in its accuracy limit, it indicates the measurement is correct.

Notice:

- Using of cellular telephones or radio transceivers about 60 cm away from the sensor during calibration process could cause sensor interference, calibration errors and affect sensor accuracy. Please refrain from using these devices during calibration of the sensor.
- When checking the analog output, please avoid breathing out directly to the CO₂ sensor. It's recommended to connect the output terminals with the extending wires with length of more than 1 meter. When the CO₂ sensor indications become stable after more than 10 minutes turning-on, check the analog output through the extending wires to avoid influence of breathing process on CO₂ concentration.