



TL-CO₂-Transmitter



- 24V AC / DC supply voltage
- Six LED's indicating ventilation requirement based on CO₂ measurement
- Measures 0 - 2000ppm
- Non dispersive infrared sensing technology
- Analogue output (voltage or current) selectable by onboard jumper
- Wall mounted

Specification

Gas detected	Carbon dioxide (CO ₂)
Sensing element	Non-dispersive infrared detector (NDIR)
Accuracy @ 25°C	± 40ppm + 3% of reading
Stability	< 2% of FS over life of sensor (15 years typical)
Calibration interval	ABC logic self calibration algorithm
NDIR life	15 years
Response time	< 2 minutes for 90% step change
Warm up time	24 hours (first time), 5 minutes (operation)
CO ₂ measuring range	0 ~ 2,000ppm
Power supply	24VAC/24VDC
Consumption	1.5W max.: 0.8W average
Operating conditions	0 ~ 50°C (32 ~ 122°F); 0 ~ 95% RH, non-condensing
Storage conditions	-40 ~ 70°C (-40 ~ 158°F)
Analogue output	0 - 10VDC, 2 - 10VDC, 0 - 5V, 1 - 5V, 0 - 20mA or 4 - 20mA (selectable via jumper)

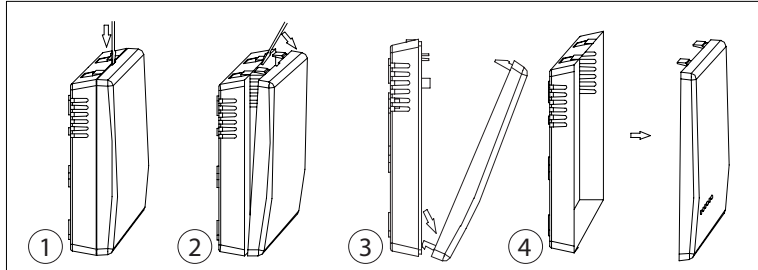
LED Parameters

1st green light	Between 0 ~ 600ppm
1st and 2nd green lights	Between 600 ~ 800ppm
1st yellow light	Between 800 ~ 1200ppm
1st and 2nd yellow lights	Between 1200 ~ 1400ppm
1st red light	Between 1400 ~ 1600ppm
1st and 2nd red light	Above 1600ppm

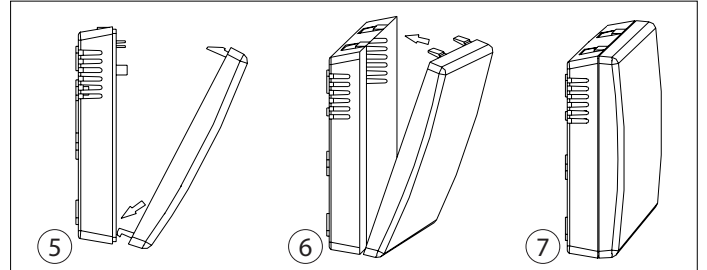


Carefully read the following instructions prior to installation of this device. Always keep this pamphlet for future reference.

Maintenance



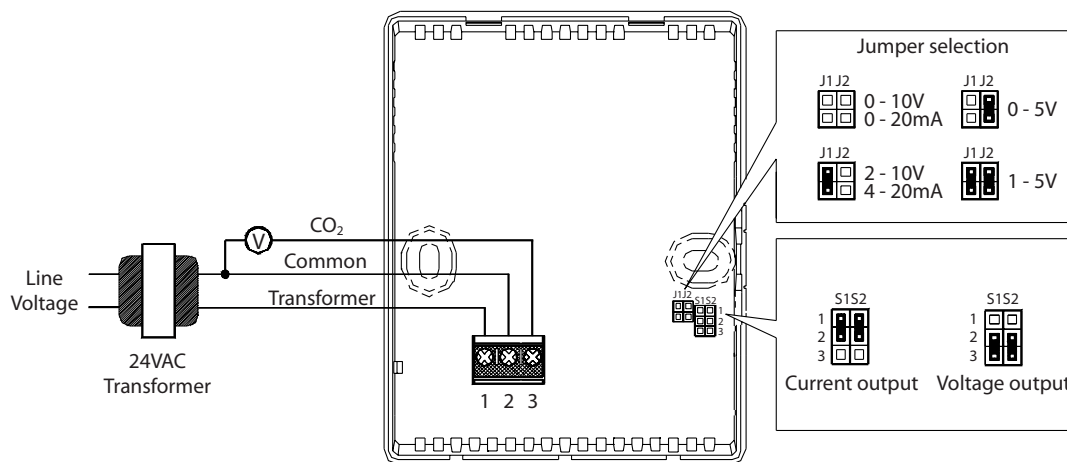
To open the cover



To close the cover

Wiring Diagram

Connection Terminal		Function	Electrical Data
1	G+	Power (+)	24VAC / 24VDC +
2	G0	Power ground (-)	24VAC/24VDC
3	OUT	Analogue output (+) selectable	0 - 10VDC = 0 ~ 2000ppm CO ₂ (default)



J1	J2	Output
Connected	Connected	1 - 5 VDC
Connected	Disconnected	2 - 10 VDC
Disconnected	Connected	0 - 5 VDC
Disconnected	Disconnected	0 - 10 VDC (Default)

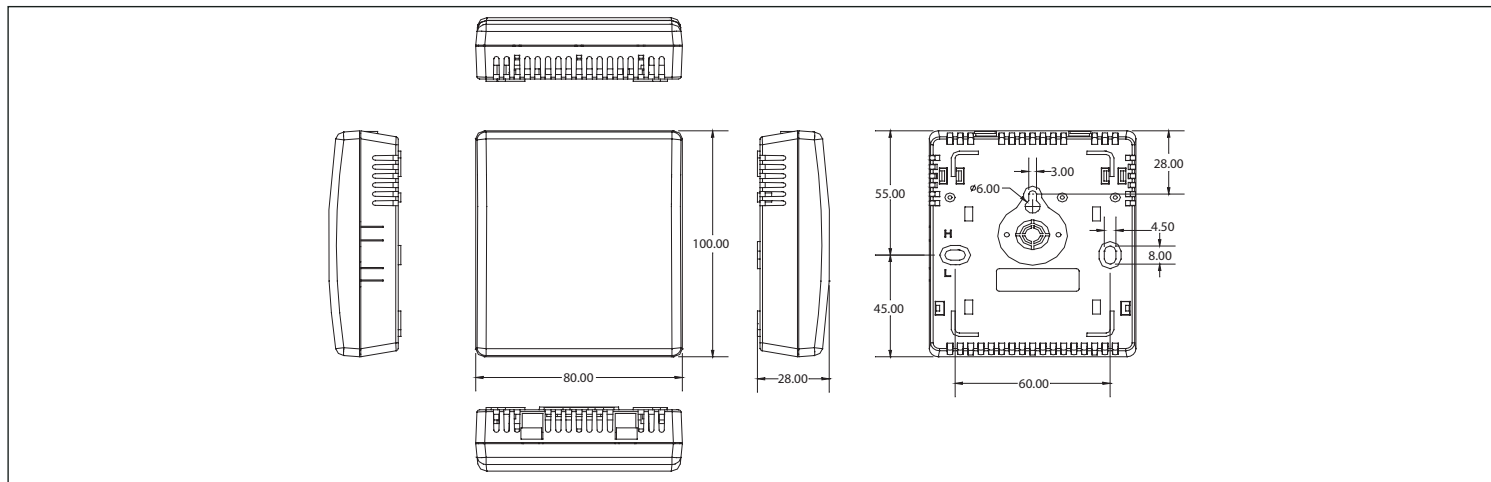
Output

Cut off all power to the unit and open the cover using the instructions on the next page. Inside there are two sets of jumpers: J1 & J2 and S1 & S2. J1 & J2 are used to select the output voltage/current. S1 & S2 are then used to choose between a voltage **or** current output.

The chart above details how to set J1 & J2 for the required voltage output.

To select a current output, place the jumper over the top 2 pins of S1 and S2. To select a voltage output, place the jumper over the bottom 2 pins of S1 and S2. **DO NOT** touch J3.

Layout & Dimensions



Installation

Do not install the detector on voltages higher than marked on the detector.

- Open the cover (see diagram on previous page).
- Do not mount the unit near a diffuser or any steam source, or in direct sunlight.
- Mount the wall plate first, there are two dimensions available (see diagram).
- Place the detector against the wall at desired location; make sure wires can be passed through the notch on the wall plate.
- Connect wires to terminal strips. Make sure wiring connection correct and secure.
- Close the cover (see diagram on previous page).

Important Instructions

1. Do not shake or hit the transmitter too much during shipment or mounting to protect the internal infrared CO₂ sensor from any damage.
2. Do not detach the upper PCB from the lower one without instruction from our engineers. Doing so may cause damage to the CO₂ sensor.
3. If the CO₂ measurement is proved to be incorrect (by comparing with the measurement of another Duomo CO₂ product, or placing the transmitter outdoors and its measurement not being in the range of 350 - 450ppm - normal ambient CO₂ level range), then recalibrate the sensor using the following method;

Keep the CO₂ transmitter energised continuously for at least 2 days to let the sensors ABC Logic self-calibration system to operate properly. After more than 2 days calibration, if the measurement (indicated by the analogue output) of the CO₂ transmitter is still not accurate, it will need to be self-calibrated for a longer time.

Here is the typical 14-day calibration solution. During a 14-day period, place the CO₂ transmitter twice outdoors or in an unoccupied place 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 analogue output. If the CO₂ measurement is accurate, it indicates the measurement right.

Notice:

- a. Use of cellular telephones or radio transceivers within two feet of the sensor during calibration could cause sensor interference, calibration errors and affect sensor accuracy. Please refrain from using these devices during sensor calibration.
- b. When checking the analogue output, avoid breathing directly on to the CO₂ transmitter.

