CO2Meter CM-225: CO2, Temp, & RH Indoor Air Quality Monitor
Operational Manual

TECHNICAL SPECIFICATIONS

**CO2 Sensing Method**
Non-Dispersive Infra-red (NDIR)

**Sampling Method**
Diffusion

**CO2 Range**
0 - 10,000ppm

**CO2 Accuracy**
±40 ppm +3% @ NTP

**CO2 Display Resolution**
1ppm

**Temp Range**
32 - 122°F

**Temp Accuracy**
±0.5°F @ 77°F

**Temp Display Resolution**
0.1°C

**RH Range**
0 - 100%

**RH Accuracy**
±2% @ 20 - 80%

**RH Display Resolution**
0.1%

**Operating Conditions**
Temp 32 - 122°F
Humidity 0 - 95% (NC)

**Warm-up Time**
5 Seconds

**CO2 Typical Sensor Life**
10+ Year

**Approval**
CE, UKCA

**Power Supply**
100 – 240V AC 50/60Hz

**Power Consumption**
3W Max

**VFC Output**
SPST – 5A @ 240V Max (N/O)

**Dimensions**
86 mm x 125 mm x 36 mm

IMPORTANT – Please read carefully
1. Be sure to isolate the mains supply before removing the unit fascia.
2. The sensors must be continuously powered to allow the CO2 auto-calibration to take place (every 8 days).
3. The use of solvents, cleaning fluids or fine dusts near to the unit can damage the sensing elements.
4. If there is any question over the application, please contact CO2 Meter to discuss.

MOUNTING LOCATION
Application specific mounting positions should be considered; however the below guidance will be suitable for most installations.

To provide an accurate reading, clear airflow is required around the sensor. Obstructing the vents on any side of the unit may have an adverse effect on the unit operation.

Although CO2 is heavier than air, for most HVAC applications the sensors should be mounted at head height. For applications where there are stored concentrations of CO2 please refer to the Gas Detector/Sensor range.

Typical Mounting Heights:

<table>
<thead>
<tr>
<th>Application</th>
<th>Mounting Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Areas</td>
<td>1500mm Above Finished Floor Level</td>
</tr>
<tr>
<td>Science Classrooms</td>
<td>1500mm Above Finished Floor Level</td>
</tr>
<tr>
<td>Food Tech Rooms</td>
<td>2500mm Above Finished Floor Level (not within 100mm of ceiling)</td>
</tr>
<tr>
<td>Kitchens</td>
<td>2500mm Above Finished Floor Level (not within 100mm of ceiling)</td>
</tr>
</tbody>
</table>

Important Notes:
- Do not install directly above any appliance or burner.
- Do not install in high velocity air streams (near an air Inlet/Outlet).
- Do not install next to doors or opening windows.
- Do not install in direct sunlight.

INSTALLATION
All installation details shown on the wiring diagram should be followed carefully, failure to do so could result in irreparable damage to the unit.

ENCLOSURE
The wall mount enclosure is designed to fit on a standard single gang junction box or conduit box. Please take care when tightening fixing screws as overtightening can distort the plastic.

To open/close:
1. Remove securing screw from the bottom of the enclosure.
2. Insert a flat screwdriver into the slot behind the screw and apply pressure until the bottom of the enclosure releases.
3. Pull the front of the enclosure outward from the bottom then up to release hooks securing the top.
4. When closing, hook the clips into place, then push the bottom until the securing clip fully engages.

TEMPERATURE
The temperature is taken from a thermistor bead or humidity module (when fitted), both of which are located in the bottom left corner of the PCB. This is to ensure that they are mounted away from any heat producing components.

If the lower vents on the enclosure are obstructed, the restricted airflow may cause an increase in the displayed temperature.

When installing the unit on cavity walls, it may be necessary to seal the rear cable entry to ensure that the measured temperature is not that of air originating from within the wall cavity.

OPERATION
On power up, the LCD will cycle through Green, Amber, Red then White with all segments lit to prove the correct operation of the display. During this warm-up, the volt free contact will be in the default position for the selected programme.

Once the warm-up is complete, the LCD will display the levels for any connected sensors, provide a traffic light indication based on live CO2 level, the relay output will change to the correct position for the programme and the voltage outputs will reflect relevant levels.

If no CO2 sensor is present, the relay will be in an alarm state.

MAINTENANCE
Due to the Automatic Background Calibration (ABC) algorithm, the sensor is effectively maintenance free. Some applications may require this to be disabled – please contact CO2 Meter for further details. To allow calibration to take place, the sensor must be exposed to atmospheric levels (400ppm) at least once every 8 days.

If the sensor is installed as part of a Gas Safety system, the sensor should be ‘bump’ tested by applying a CO2 test gas, although the same result can be achieved by breathing on the sensor.
**CONNECTION AND CONFIGURATION**

**FRONT**

- **CO2 SENSOR**
  - Do not cover & keep free from dust

- **Programmable**
  - DIP Switch 1
  - ON / OFF
  - LCD Display
  - Traffic Light
  - No Backlight
  - See Diagram 1
  - See Diagram 2

**BACKPLATE (NTS)**

- **MAX CABLE SIZE 2.5mm²**

**CUSTOM SOFTWARE PROFILES**

Each of the four selectable programs can be factory configured to meet project specific requirements. The programmable fields are as follows:

- Traffic Light Control CO2/Temp/RH (any combination)
- Audible Control CO2/Temp/RH (any combination)
- Relay Control CO2/Temp/RH (any combination)
- Activation/Deactivation Delay on Relay and Audible
- Hysteresis on All Alarm Conditions
- CO2 Auto Calibration On/Off
  - (this will require the sensor to be manually calibrated regularly)
- Default Relay Position (Normally Closed / Normally Open)
- Reading Offsets
- Temp Display (°C / °F)
- Activation/Deactivation Delay

**TROUBLESHOOTING**

If the unit is not providing a CO2 reading, please ensure that the CO2 sensor has not become dislodged in transit. Power the unit down, remove and refit if required.

If the LCD is not displaying correctly, check that the ribbon cable is correctly inserted into the header. The header is released by sliding parallel to the PCB.

**SUPPORT & WARRANTY**

Looking for more information? Contact Us! We are here to help.

If the guide above does not help you solve your problems or for more information, please contact us using the information below:

- **Email**: mailto:Support@CO2Meter.com
- **Call Us**: (386) 256-4910 (M-F 9:00am–5:00pm EST)
- **Visit Us**: www.CO2Meter.com

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