

# CO2M

## CO<sub>2</sub>, VOC, TEMP & RH MONITOR (100-240VAC)



### | OVERVIEW |

The Flamefast Carbon Dioxide, VOC (Volatile Organic Compounds), Temperature and Relative Humidity Monitor provides a bold visual indication using a traffic light backlit LCD, as well as having a digital readout to displays the levels/concentrations. When both CO<sub>2</sub> and VOC levels are being measured, the unit will display the higher of the two concentrations as the VOCs are measured in CO<sub>2</sub> equivalent for easy interpretation.

Using the built in Volt Free Contact, the unit can be easily interfaced with Ventilation and Window Control Systems, as well as Gas Safety Systems. The unit can also simply be used as a traffic light indication to raise awareness of CO<sub>2</sub>, VOC, Temp or RH levels.

The unit offers four user selectable programmes for different applications; two aimed at Ventilation and a further two aimed at Gas Safety. Custom software profiles are also available to control the audible alarm, the relay set point and the traffic light changeover levels, based on any combination of CO<sub>2</sub>, VOCs, Temp & RH (CO<sub>2</sub>/VOC as default).

### | KEY FEATURES |

- 100-240VAC Power Supply
- The back plate can be pre-wired
- Clear digital readout
- Bold traffic light indication
- Volt free contact output
- Typical 10 Year life expectancy
- Self-Calibrating CO<sub>2</sub> & VOC Sensors
- Audible Alarm
- Mounts onto any standard single gang junction box or conduit box
- **UK MANUFACTURED**

### Dimensions

Height 125mm | Width 86mm | Depth 36mm

### Technical Specification

Power Supply	100-240VAC 50/60Hz
Power Consumption	3W Max
CO <sub>2</sub> Range	0 - 5,000ppm
CO <sub>2</sub> Accuracy	±50 ppm +3% @ NTP
CO <sub>2</sub> Display Resolution	1ppm
CO <sub>2</sub> Sensing Method	Solid State NDIR
CO <sub>2</sub> Response Time (T90)	30 Seconds
CO <sub>2</sub> Typical Sensor Life	10 Years
VOC Range (CO <sub>2</sub> Equivalent)	400-2,000ppm
VOC Accuracy	±5% @ NTP
VOC Display Resolution	1ppm
VOC Sensor Type	Semiconductor
Temp Range	0 - 50°C
Temp Accuracy	±0.3°C @ 20 - 40°C
Temp Display Resolution	0.1°C
RH Range	0 - 100%
RH Accuracy	2% @ 20 - 80%
RH Display Resolution	0.1%
VFC Output Rating	SPST - 5A @ 240V Max
Operating Conditions	Temp 0°C to 50°C Humidity 0 to 95% (NC)
Sampling Method	Diffusion
Warm-up Time	< 1 min
IP Rating	IP40
Housing Material	Flame Retardant ABS
Approval	CE

### Installer Selectable Options

#### Audible Alarm

- Backlight (Enable/Disable)
- Traffic light changeover levels and Volt Free Contact activation (see below)
- Display options:
  - On standard Model Replace PPM reading with 'CO<sub>2</sub>'
  - On -H model Remove RH readout

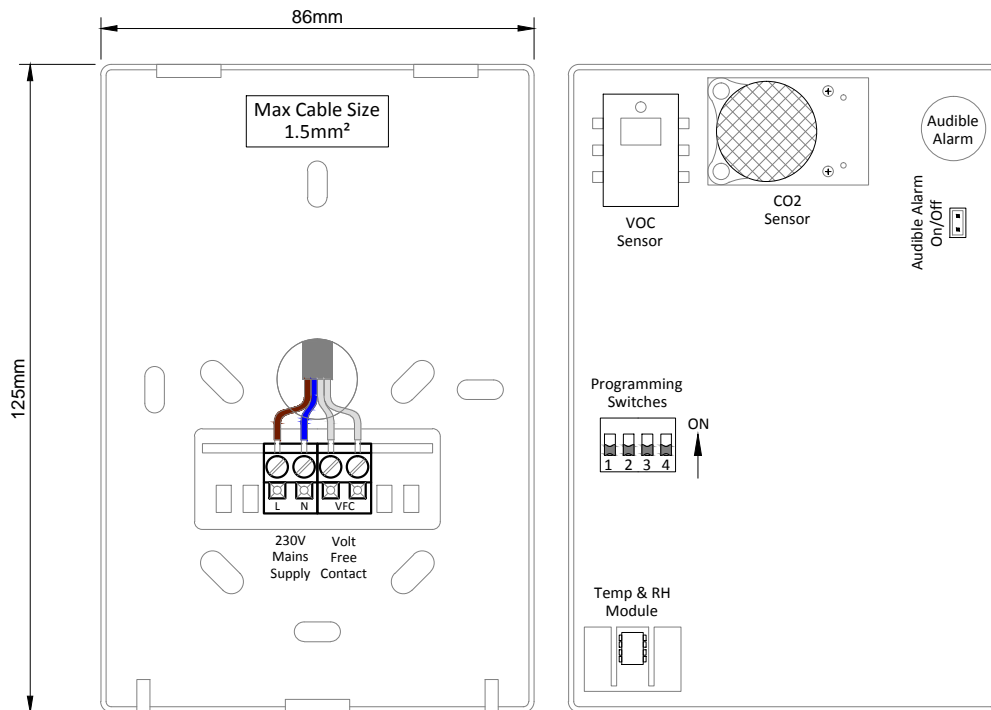
The CO<sub>2</sub>M has four factory set user selectable programmes to control the Volt Free Contact and LCD Traffic Light behaviour.

These are as follows:

Programme	1	2	3	4
Green - Yellow	1,000	1,000	1,500	1,500
Yellow - Red	1,500	1,500	2,800	2,800
Relay Position	N/O	N/O	N/C	N/C
Relay Set Point	1,000	1,500	2,800	4,500

### Part Numbers & Options/Accessories

Part No	Description
CO2M	CO <sub>2</sub> Monitor
CO2M-H	CO <sub>2</sub> , Temp & RH Monitor
CO2M-V	CO <sub>2</sub> & VOC Monitor
CO2M-VH	CO <sub>2</sub> , VOC, Temp & RH Monitor



**Diagram 1**  
When switch 2 is in the downward position then the CO2 level will be displayed.



**Diagram 2**  
When switch 2 is in the upward position the LCD will simply display 'CO2'.



**Diagram 3**  
When switch 2 is in the downward position with the Temp & RH Module attached then the Temp & RH will be displayed.



**Diagram 4**  
When switch 2 is in the upward position with the Temp & RH Module attached then the RH will not be displayed.

<b>LCD Display</b>	Traffic Light	No Backlight	See Diagram 1	See Diagram 2
			See Diagram 3	See Diagram 4

	<b>VENTILATION</b>		<b>GAS SAFETY</b>	
	<b>Program 1</b>	<b>Program 2</b>	<b>Program 3</b>	<b>Program 4</b>
<b>Relay Setpoint</b>	1000ppm	1500ppm	2800ppm	4500ppm
<b>Relay Position</b>	Normally Open	Normally Open	Normally Closed	Normally Closed
<b>Green to Yellow</b>	1000ppm	1000ppm	1500ppm	1500ppm
<b>Yellow to Red</b>	1500ppm	1500ppm	2800ppm	2800ppm
There is a 50ppm differential on all downward status changes.				

**Mounting Height (CO2)**  
In general areas the unit should be mounted 1500mm Above Finished Floor Level.  
For Kitchens it should be mounted 2500mm Above Finished Floor Level where possible but not within 100mm of the ceiling.

**Important**  
When the CO2 Sensor is connected to a GasGuard Control Panel ensure that a Gas Safety Program is selected.

**ON FIRST POWER UP THE UNIT SHOULD BE POWERED FOR 24 HOURS TO ALLOW AUTO-CALIBRATION TO TAKE PLACE.**  
**AFTER THE AUTO-CALIBRATION PERIOD THE UNIT SHOULD BE CONTINUOUSLY POWERED AND NOT BE TURNED OFF FOR ANY REASON**

**NOTES**

**Technical Specification**  
Power Supply 100-240VAC 50/60Hz  
Power Consumption 3W  
VFC Output Rating SPST - 5A @240V

**Range**  
CO2 0 - 2000 / 5000ppm  
VOC 0 - 2000ppm  
Temp 0 - 50 °C  
RH 0 - 100%

- Opening the Enclosure**
1. Remove securing screw from the bottom of the enclosure.
  2. Release the securing clip at the bottom of the enclosure using a small screw driver whilst ensuring not to break the clip.
  3. Pull outward from the bottom then down to release hooks securing the top.
  4. When closing, secure the top, then push the bottom in ensuring that the terminal pins are lined up correctly.

**Operation**  
Upon start-up the unit has a 30 second start-up procedure, during which the LCD will count down to zero and 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 CO2/VOC Levels (Temp & RH if Module is connected), provide a traffic light indication based on CO2/VOC levels (as per table) and the relay output will change to the correct position for the programme.

If the unit is monitoring CO2 and VOC, the voltage output, relay, LCD and traffic light indication will all be based on the highest reading of the two. The VOC sensor output is provided as a CO2 equivalent with a range of 400-2,000ppm.

# CO2, VOC, TEMP & RH MONITOR (CO2M) INSTALLATION GUIDE



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