

# CO<sub>2</sub> Monitor & Controller (230V)



- 230V AC supply voltage
- 3 colour LCD backlight indicating ventilation requirement based on CO<sub>2</sub> measurement
- Non dispersive infrared sensing technology
- Volt-free relay output to control a ventilator
- Digital display of carbon dioxide levels (ppm)
- Temperature and humidity monitoring
- Dual alarm indication; audible alarm and backlight colour switch
- Programmable setpoints
- Bespoke or preset configurations

## Application

The Duomo CO<sub>2</sub> Monitor & Controller is used to monitor room CO<sub>2</sub> level, as well as room temperature and humidity. It provides one on/off volt-free relay output to control a ventilator with four CO<sub>2</sub> levels preset and features both an audible alarm and a three colour backlit switching alarm display. It is available as a bespoke or pre-configured unit;

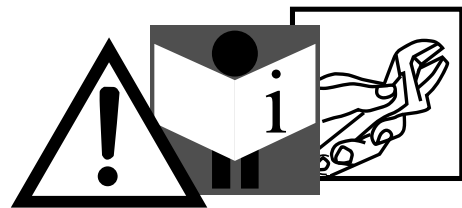
- CO<sub>2</sub>MC -R (Classrooms)  
**Green - Yellow setpoint:** 1000ppm  
**Yellow - Red setpoint:** 1500ppm  
**Relay activation:** Make in alarm  
**Relay setpoint:** 1400ppm
- CO<sub>2</sub>MC -K (Kitchens)  
**Green - Yellow setpoint:** 1500ppm  
**Yellow - Red setpoint:** 2800ppm  
**Relay activation:** Break in alarm  
**Relay setpoint:** 5000ppm
- CO<sub>2</sub>MC -L (Laboratories)  
**Green - Yellow setpoint:** 1000ppm  
**Yellow - Red setpoint:** 2800ppm  
**Relay activation:** Break in alarm  
**Relay setpoint:** 5000ppm

## Operation

Upon powering up the unit, it will countdown to 0 seconds before it begins reading. This is the initial warm-up stage.

The measured temperature and the relative humidity is then displayed on the upper line of the LCD and the measured level of CO<sub>2</sub> in parts per million will be displayed below that.

**Please note:** when the unit is first turned on (or first used after a long period without use - a month or more) the warm up time should be 24 hours.

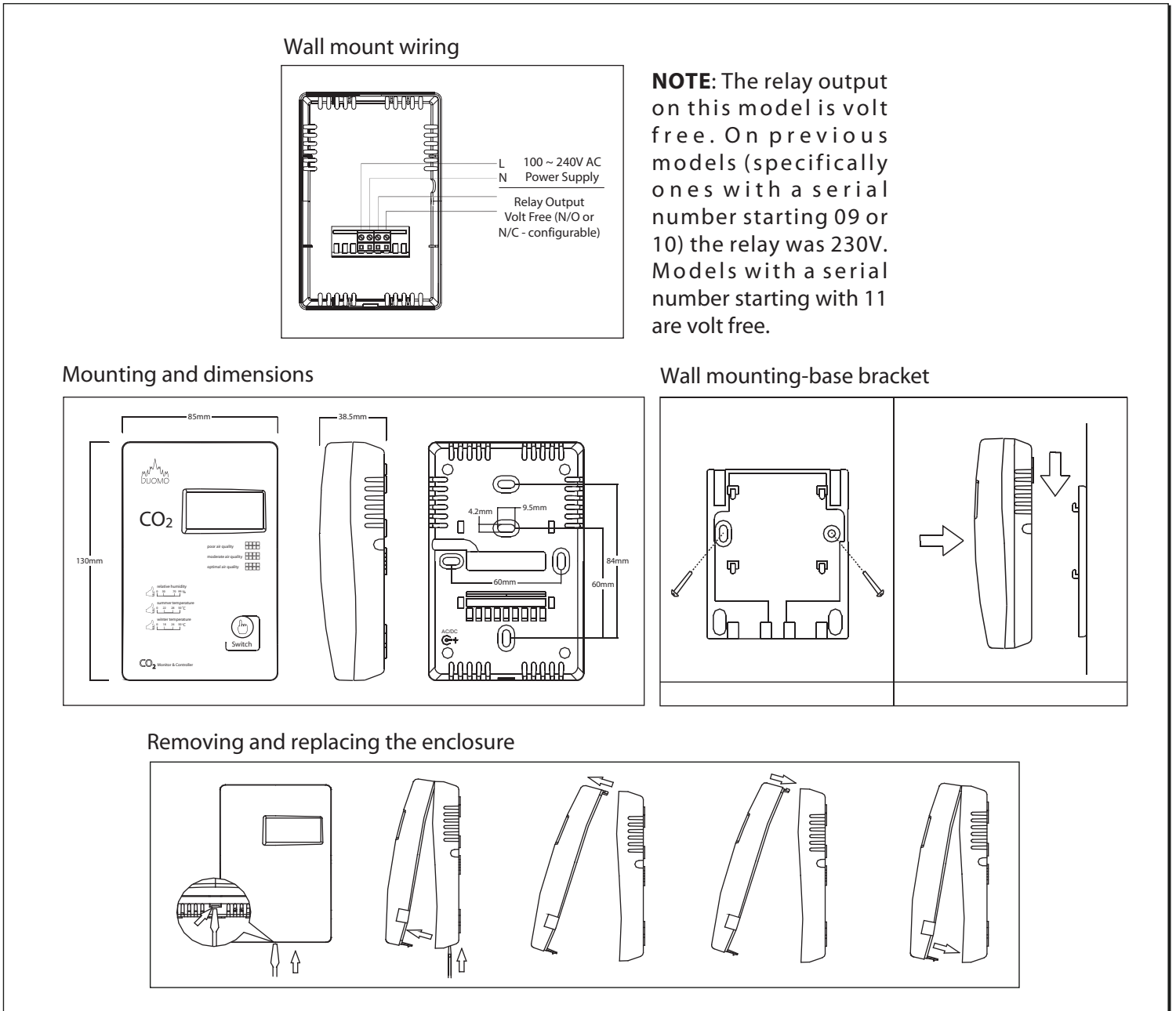


Carefully read the following instructions prior to installation of this device. Always keep this pamphlet for future reference.

# CO<sub>2</sub> Monitor Fascia



## CO<sub>2</sub> Monitor & Controller Layout & Dimensions



# Installation

Do not mount this unit;

- behind a door,
- in a corner,
- near a heat source, diffuser or any steam source,
- in direct sunlight,
- near garbage bins,
- near gas ovens.

For wall mounting, please follow the steps on the previous page. Cut off the power supply and place a flat head screwdriver deep inside of the hole on the bottom of the monitor casing, then depress the clip **lightly** to remove the face plate from the wall plate. Mount the back plate on the wall, 1.2 - 1.3m from the ground (please see dimensions on previous page).

Connect wires to the terminal block making sure that all connections are correct and secure. After finishing the mounting of the unit, follow the steps to close the cover.

# Settings

|                  | ON             | OFF         |
|------------------|----------------|-------------|
| Dip 1 (Switch 1) | Programme Mode | Normal Mode |
| Dip 1 (Switch 2) | ° Fahrenheit   | ° Celcius   |

The value of CO<sub>2</sub> at which the unit will go into alarm can be altered by changing over the DIP switches on the back of the unit (accessible through a slot on the rear of the unit). This and many other features can be altered before shipping. Please contact us to discuss your exact requirement.

| Dip 2 (Switch 1) | Dip 2 (Switch 2) | CO <sub>2</sub> Level |
|------------------|------------------|-----------------------|
| OFF              | OFF              | 800ppm                |
| OFF              | ON               | 1000ppm               |
| ON               | OFF              | 1200ppm               |
| ON               | ON               | 1400ppm               |

# Specification

|                                    |   |                             |  |
|------------------------------------|---|-----------------------------|--|
| Gas detected                       | Carbon dioxide (CO <sub>2</sub> )                 | Temperature sensor          | NTC  |
| Sensing element                    | Non-dispersive infrared detector (NDIR)           | Humidity sensor             | HS series capacitive sensor  |
| Accuracy @ 25°C                    | ± 60ppm + 3% of reading                           | Temperature measuring range | 0 ~ 50°C (32 ~ 122°F)  |
| Stability                          | < 2% of FS over life of sensor (15 years typical) | Humidity measuring range    | 0 ~ 99% RH   |
| Calibration interval               | ABC logic self calibration algorithm              | Relay output (optional)     | One volt-free relay output<br>Make or break at set threshold (see configuration table)<br>Max. 3A @ 250VAC |
| NDIR life                          | 15 years  | Operating conditions        | 0 ~ 50°C (32 ~ 122°F)<br>0 ~ 95% RH, non-condensing  |
| Response time                      | < 2 minutes for 90% step change                   | Storage conditions          | -40 ~ 70°C (-40 ~ 158°F)   |
| Signal update                      | Every 2 seconds                                   | Weight                      | 200g   |
| Warm up time                       | 24 hours (first time), 5 minutes (operation)      | Dimensions (mm)             | 130 (H) x 85 (W) x 36.5 (D)  |
| CO <sub>2</sub> measuring range    | 0 ~ 5,000ppm                                      | Installation (mm)           | Desktop and wall mounting<br>(65 x 65 or 2" x 4" wire box)   |
| CO <sub>2</sub> display resolution | 1ppm  | Housing and IP class        | PC/ABS fireproof plastic material, protection class: IP30  |
| Power supply                       | 100 ~ 240V AC                                     | Standard                    | CE Approval  |
| Consumption                        | 3.5W max. : 2.5W average                          |                             |  |



# CO<sub>2</sub> Monitor & Controller Model Selection

Company Name : \_\_\_\_\_

Contact Number : \_\_\_\_\_

Email : \_\_\_\_\_

## Settings

|  |       |
|--|-------|
| <b>Model Version</b><br>230V or 24V  | _____ |
| <b>Relay Contact Setpoint 1</b><br>Value at which the relay switches over<br>Default: 800ppm Range: 1 - 5000ppm          | _____ |
| <b>Relay Contact Setpoint 2</b><br>Value at which the relay switches over<br>Default: 1000ppm Range: 1 - 5000ppm         | _____ |
| <b>Relay Contact Setpoint 3</b><br>Value at which the relay switches over<br>Default: 1200ppm Range: 1 - 5000ppm         | _____ |
| <b>Relay Contact Setpoint 4</b><br>Value at which the relay switches over<br>Default: 1400ppm Range: 1 - 5000ppm         | _____ |
| <b>Green - Yellow LED Switching Point</b><br>Value at which the backlight changes<br>Default: 1000ppm Range: 1 - 5000ppm | _____ |
| <b>Yellow - Red LED Switching Point</b><br>Value at which the backlight changes<br>Default: 1400ppm Range: 1 - 5000ppm   | _____ |
| <b>Alarm Point</b><br>Value at which the audible alarm sounds<br>Default: 1800ppm Range: 1 - 5000ppm                     | _____ |

|  |       |
|--|-------|
| <b>Audible Alarm</b><br>0 = No sound 4 = Intermittent beep<br>Default: 4 Range: 0 - 4                                      | _____ |
| <b>Relay Contact Control Direction</b><br>0 = Break in alarm 1 = Make in alarm<br>Default: 1 Range: 0 - 1                  | _____ |
| <b>Measurement Upper Limit</b><br>The maximum value the unit will reach<br>Default: 5000ppm Range: 1 - 5000ppm             | _____ |
| <b>Warm-up Time</b><br>Recommended at default or higher<br>Default: 60 secs. Range: 1 - 600 secs.                          | _____ |
| <b>Green LED Brightness</b><br>Default: 100 Range: 0 - 100   | _____ |
| <b>Red LED Brightness</b><br>Default: 100 Range: 0 - 100   | _____ |
| <b>Altitude Calibration</b><br>Height in feet the sensor will be used at<br>Default: 0 feet Range: 0 - 32,479 feet         | _____ |
| <b>Backlight Control</b><br>1 - Off 2 - Green 3 - Yellow 4 - Red<br>5 - Traffic light operation<br>Default: 5 Range: 1 - 5 | _____ |

## Preset Models

- CO<sub>2</sub>MC -R (Classrooms)  
Green - Yellow Setpoint: 1000ppm  
Yellow - Red Setpoint: 1500ppm  
Relay Activation: Make in alarm  
Relay Setpoint: 1400ppm
- CO<sub>2</sub>MC -K (Kitchens)  
Green - Yellow Setpoint: 1500ppm  
Yellow - Red Setpoint: 2800ppm  
Relay Activation: Break in alarm  
Relay Setpoint: 5000ppm
- CO<sub>2</sub>MC -L (Laboratories)  
Green - Yellow Setpoint: 1000ppm  
Yellow - Red Setpoint: 2800ppm  
Relay Activation: Break in alarm  
Relay Setpoint: 5000ppm

Please complete this order form and fax it back to us on 01905 774296.