

DESCRIPTION

The Matador CO2 controller monitors and controls CO2 levels in the range of 0 – 5,000 ppm.

MOUNTING INSTRUCTIONS

The CO2 controller should be suspended five feet above the ground in the growing area using the provided mounting tab.

DO NOT MOUNT THE CONTROLLER NEAR AIR DISTURBANCES SUCH AS DOORS, FANS, OR AIR DIFFUSERS.

ELECTRICAL HOOKUP

A surge protected source of power is highly recommended

- Plug the CO2 controller's male power cord into a source of 115 VAC.
- Plug a CO2 device (CO2 burner) into the CO2 controller's female power cord (6 amps maximum)
- The female power cord will provide 115VAC power when the CO2 levels are low. See below to set the CO2 Set point value.

START UP

- Apply power to the CO2 controller. The LCD will display the Serial Number and revision information for ten seconds.

The controller goes through a warm up phase, which can last 10 to 60 seconds. During this time "Warm Up" is flashed on the display together with the CO2 ppm and temperature, which soon stabilize.

USER MENU SETUP

Press the **MENU** key to access the Setup menu. There are five setup steps and each is visited in turn when the **MENU** key is pressed.

If a change is made, then press the SAVE key to save that change. Pressing the MENU key after making a change will not save that change.

1. SETPOINT VALUE

Press the **MENU** key to enter the Setup menu. The first step is setting the CO2 Set point. The factory default is 1000 ppm. Use the **UP** and **DOWN** keys to adjust the value. The range is 500 – 5000 ppm in 50 ppm increments. If a change is made then press the **SAVE** key.

2. DIFFERENTIAL VALUE

This value sets how low the CO2 level must drop below the Set point before the relay is energized to supply power on the controller's female power cord. If the Set point is 1000 ppm and the Differential is 50 then the relay is energized when the CO2 value falls to or below 950. The factory default is 50 ppm. Use the **UP** and **DOWN** keys to adjust the value. The range is 25 - 200 ppm in 25 ppm increments. If a change is made then press the **SAVE** key.

3. ALTITUDE

Altitude affects the CO2 readings. The factory default is 0 feet. Use the **UP** and **DOWN** keys to adjust the value to the nearest 500 feet. The range is 0 – 10,000 feet in 500 foot increments. If a change is made then press the **SAVE** key.

4. PHOTOCCELL

The CO2 controller has an integral photocell measuring ambient light.

The photocell may be switched to Yes or No. Use the **UP** and **DOWN** keys to select between Yes or No.

YES - When light is present, then the controller operates as designed in conjunction with the set values.

When dark, the cell senses no light, and then the relay is forced off. (i.e. No CO2 control even if the CO2 level is low).

NO - The photocell does not control the operation of the relay. An automated timer is required to interrupt the operation during the dark period.

5. HIGH TEMPERATURE

The CO2 controller has a built-in temperature sensor that measures the room temperature at the controllers location.

The High Temperature value is the point at which the relay will de-energize to remove power from the controller's female power cord.

There is a built in differential of 10 degrees Fahrenheit so that after cutting off the relay at the high temperature value, the temperature will have to drop 10 degrees before the relay will again energize to supply power on the controller's female power cord.

The factory default is 90 degrees Fahrenheit. Use the **UP** and **DOWN** keys to adjust the value. The range is 32 - 125 degrees Fahrenheit in 1 degree increments.

If a change was made then press the **SAVE** key.

FACTORY MENU SETUP

WARNING!

This menu allows the user to access the field sensor re-calibration procedure which, if performed incorrectly, can affect the accuracy of the controller's CO2 level readings.

Access the second menu system, press the **DOWN** arrow button and while simultaneously pressing the **MENU** button and continue to depress both buttons and hold them down for more than 5 seconds.

In this menu, there are five steps and each is visited in turn when the **MENU** key is pressed. Only two of the five steps can be changed. The purpose of this menu is to inform the user of internal values such as:

- Version number and serial number
- Factory CO2 sensor initial value in ppm
- Current CO2 calibration value in ppm.
- Number of days running.

Only the current CO2 value can be changed as a prerequisite for performing an ambient on site re-calibration of the sensor.

By using the factory menu, the user can do a field re-calibration to make sure the sensor is reading accurate levels.

CO2 levels in outside air are well mixed and remain fairly constant. The yearly average of 395 ppm along the North American North-Western Pacific coast is accurate.

The CO2 levels vary by 14 ppm around this value depending upon the season as well.

FIELD RE-CALIBRATION PROCEDURE

The user is required to move the Matador™ CO2 Monitor outside, then plug it in and let it settle for 20 minutes to be sure that the chamber has filled with the local concentration of outside air. Calibration is normally done at 70 degrees Fahrenheit, thus it is best to perform it as close to this temperature as possible to assure the greatest accuracy possible. In Northern climates, calibration should be scheduled on warm spring or autumn days, or in the summer season. Ambient calibrations are best done between 70 degrees and 85 degrees Fahrenheit.

After 20 minutes, the monitor should have acclimatized to the outside ambient CO2 levels.

Enter the Factory Menu by pressing the **DOWN** arrow key while simultaneously pressing the **MENU** key for 5 seconds.

Once in the factory menu, release holding these two keys. Use the **MENU** key to scroll through the menu options until “**CO2 Curr**” appears. By pressing the **UP** or **DOWN** keys, adjust the desired calibration value to 395. This value, or whichever value that is entered will be programmed into the microprocessor on the PCB. Press the **MENU** key and the next option will display “**Use Save to Cal.**” If this is the correct value at which you would prefer to have the monitor calibrated to, then press the **SAVE** key. “**CAL in process!**” will appear on the display until the procedure is complete, which takes approximately 2 minutes. Try not to breathe immediately near the unit while in the calibration mode.

Once the unit has completed its calibration, it will display “**Exiting Menu**” and will return to normal operating mode. Confirm that the unit displays CO2 levels at or near the value that it was calibrated to.

Once the field re-calibration procedure has completed, the unit can be returned to the monitors original location.

If the unit will not field calibrate to the desired readings within the specifications of the controller, then the sensor may require servicing. Contact the factory for more information.

For greater accuracy, you may wish to add or subtract the temperature effect during the ambient field re-calibration.

Cold or hot temperature compensation for temperature changes above or below 70 degrees Fahrenheit.

For every degree above 70 degrees F, add 2 ppm to the ambient calibration value. For every degree below 70 degrees F, subtract 2 ppm from the ambient value.

This concludes the re-calibration procedure.

SPECIFICATIONS

SENSOR	<i>Non dispersive infrared</i>
RANGE	<i>0 – 5,000 ppm</i>
ACCURACY	<i>50-ppm ±3% of reading when compared against a certified reference.</i>
RELAY	<i>Normally open, live contacts. 6 Amps maximum capacity.</i>
PHOTOCELL	<i>Standard, Set at 500Mv.</i>
POWER	<i>115 VAC ±10%, Internally fused. 6 Amps maximum current.</i>

AN ANNUAL CALIBRATION IS RECOMMENDED TO ASSURE ACCURACY
(Applicable service charges may apply)
An alternative end user field calibration is built in.

OPENING AND TAMPERING WITHIN THE ENCLOSURE WILL VOID THE WARRANTY!

NON – WARRANTY ISSUES

- Burnt out transformers, fuses, and relays due to plugging into **240 VAC**.
- Water damage to sensor or other electronic parts.
- Shorted out circuit panels and LCD's due to being immersed in liquids.
- Damage from power surges due to plugging into an inadequate surge protector.

For Tech Support and warranty issues call Toll free:
1-800-828-8386

or go to our Website at:
www.matadorco2.com



MATADOR CO2 CONTROLLER

INSTALLATION & OPERATING INSTRUCTIONS

