

# CARBON-B1

## Basic CO2 Controller



(Remote CO2 sensor)

### Specs

Input voltage	230 Volts AC
Maximum amperage	10 amps @ 230 VAC
CO2 sensor type	NDIR (non-dispersive infrared)
CO2 accuracy	+/- 60 PPM
CO2 control range	Adjustable 400 – 2500 PPM
CO2 dead-band (hysteresis)	Adjustable 50-250PPM
Weight	< .5 KG
Dimensions	76x152x90mm

### Basic Description

The CARBON-B1 is a CO2 PPM controller. Once the unit is connected to a power source, and a CO2 device is connected to the front power outlet, the CO2 device will be automatically controlled by the settings on the CARBON-B1.

The user can select the CO2 PPM level setting, and the dead-band setting. The CO2 will be automatically switched OFF at night by the built-in photocell. The adjustment knobs make it easy to adjust the CO2 settings and provide a quick visual verification of the current set-points. The yellow, green and red LEDs on the front of the unit will turn ON and OFF to show the user the current conditions of the BCC-1 as well as to give the user the current PPM reading +/-50 PPM.

**NOTE: This unit is water-resistant however...**

**Keep it away from water!!! It is NOT WATER PROOF.**

### Installation

Plug the unit into a standard NEMA 5-15 wall outlet. A 120 volt power supply is required. The sensor probe has a remote cable to allow it to be placed at plant height, secure it to a wall.

Ensure that the CO2 device being connected to the BCC-1 has the proper voltage and will not exceed the maximum amperage rating of this unit. Connect the CO2 device to be controller into the power outlet on the front of the unit.

### Reading CO2 levels

Once the unit is warmed up (after about 5-minutes), the Red x1k LED and the yellow x100 LED will begin to flash. The number of times the Red LED flashes indicates the thousands of PPM, the Yellow LED flashes indicate the hundreds. So if the Red LED flashes one time, and the yellow LED flashes 3 times, the CO2 PPM reading is between 1300 and 1400 PPM.

There is also a larger Green LED in the upper right corner that will illuminate when the photocell is in Daytime mode, and a smaller green LED in the center of the unit that will be turned on whenever the CO2 device is turned on.

## Changing Settings

**Setpoint:** To select the desired CO2 level to maintain, use the CO2 Setpoint adjustment knob. This setting is the minimum CO2 level. When the level drops below this setting, the unit will turn on the CO2 device. (Normally set about 1100-1600 PPM for agricultural applications)

**Deadband:** The second adjustment knob is the Dead-band setting. The dead-band setting is the amount over the CO2 Setting the CO2 will rise before the unit will turn off the CO2 device. (Normally this is set between 50-150PPM)

## Calibrating the CO2 sensor

To recalibrate the sensor, first bring the unit outside and let the sensor operate normally for about 10 minutes. After warming up, turn the setpoint potentiometer fully counter-clockwise, and the deadband potentiometer fully clockwise. When these settings are made on the unit for more than 3 seconds, the controller will go into a calibration mode and the red LED will turn ON. **WALK AWAY FROM THE UNIT!!!**

When the calibration is complete, (3-6 minutes) the yellow LED will turn ON indicating the calibration is complete. (If the yellow LED is blinking on/off, restart the calibration process from the beginning.)

Lastly, disconnect the unit from power, and adjust the settings back to the normal settings before reapplying power. Once power is restored, the unit will start working normally again.

## Q & A

***How can I tell if the photocell is working?*** There is a built-in 30 second time delay for the photocell to change status. A green LED on the top RIGHT edge of the unit that says "Daytime" will light up when the photocell is in Daytime mode.

***The CO2 level of the area does not seem to be correct?*** Ensure the unit has good air movement around the CO2 sensor. Do not breathe near or directly on the CO2 sensor, that will increase the reading from the CO2 you exhale. To quickly verify the CO2 sensor is measuring CO2 correctly, bring the unit and sensor outdoors away from people and animals and connect power to the unit for about 10 minutes. After 10 minutes the unit should read between 300-400 PPM. (3-4 yellow LED flashes) If not, calibrate the CO2 sensor.

***The yellow LED flashes on/of after calibrating?*** The calibration procedure did not work. Attempt to calibrate again, if the problem persists, contact the distributor.

***The red and yellow LEDs remain ON?*** There is a problem with the CO2 sensor. Contact the distributor for repair info.

***The red and yellow LEDs continue to blink ON & OFF?*** The unit has experienced a power overload condition and shut itself down. Reduce the electrical load (amp draw). Unplug unit for 5 seconds to reset the error.

***What if there is no power?*** Ensure the unit is getting power. Check the device that is connected to the unit by plugging it directly into a known power supply. If the unit will not turn on and no LEDs will illuminate, contact your distributor for repair and warranty issues.