

PPM-4™ CO₂ Controller



C.A.P. offers a full range of equipment for the growing enthusiasts. The PPM-4 is the simplest, safest and most affordable CO₂ controller available today... from any manufacturer. Perfect for controlling LP or natural gas generators with PPM accuracy.

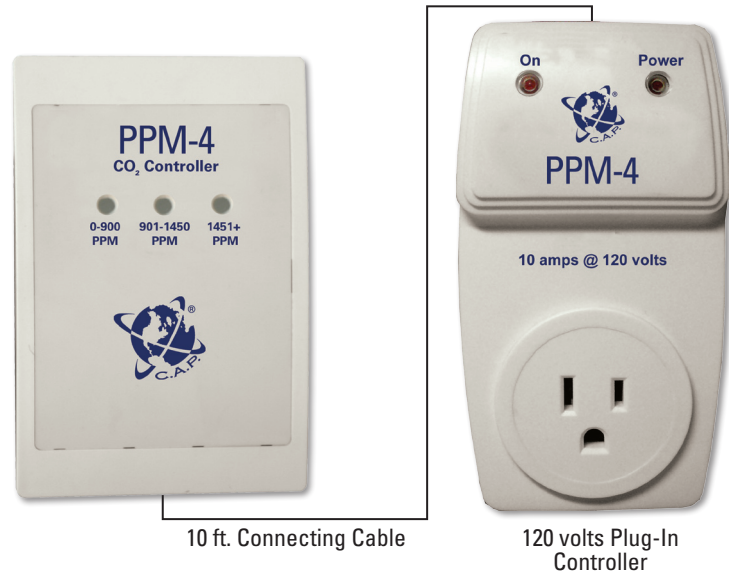
Overview

- The PPM-4 is a two-piece controller that includes a wall mounted infrared sensor with a 10 ft. cord and a plug-in pass-through controller/power supply.
- The plug in control is designed to be electrically safe.
- Designed specifically to control the carbon dioxide level in your grow environment with PPM accuracy and is easy to use out of the box due to its easy to read 3 LED interface.
- Switching set point factory set to 1450 PPM with 50 PPM hysteresis/dead-band.
- Calibration couldn't be easier. Simply step outside and press a button.
- The PPM-4 is easily mated to any 120 volt valve or CO₂ Generator with a simple plug in device.

Installation

1. Plug the controller into an active wall plug that will provide a constant source of power. Once plugged in the unit should illuminate the red "POWER" LED on the upper right face of the plug in unit indicating proper functioning.
2. Unwind the CO₂ controller cable and plug it into the port at the top of plug in controller. The green LED on the front of the wall mount sensor should illuminate when power is provided to the plug in controller. This cable provides power and data transmission functionality to the unit and must be connected for the unit to work properly.
3. Hang the controller by sliding the keyhole mounting hole on the back of the wall mount sensor over a nail or screw (provided) at the desired CO₂ measurement location (typically at mid level between the ceiling and floor). You can either use a single screw or two screws spaced 3 5/16" apart vertically.
4. Plug the CO₂ valve or generator into the wall-mounted plug-in controller. The "On" indicator light on the plug in unit will indicate when the power is switched on to your CO₂ generator.

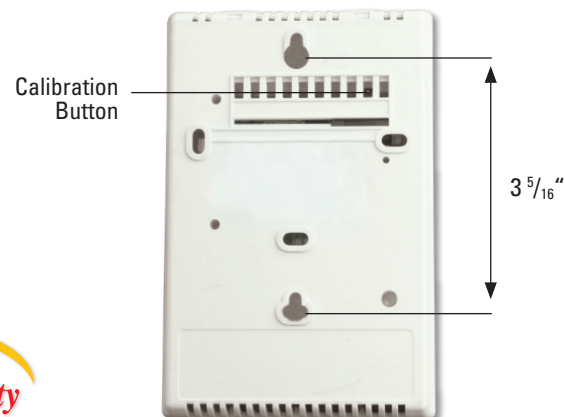
Note: The controller can handle a maximum load of 10 amps. If this rating is exceeded the warranty will be void.



Operation

The PPM-4 controller has been factory programmed to provide an optimum CO₂ maximum control set point of 1450 PPM. When levels are below 1400 PPM (a 50 PPM hysteresis/dead-band), the plug-in controller will power the CO₂ generation source. When levels exceed 1450 PPM the controller will deactivate power at the plug-in controller.

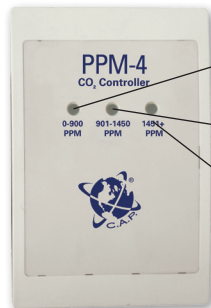
In most greenhouse operations CO₂ is only generated when the plants are exposed to light. As a result you may wish to also include a timer with your setup. If using natural light, or a timer used to activate lighting, the plug in controller should be installed after the timer so that constant power is provided to the timer.



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Indicators

The wall mount CO₂ sensor provides three LED lights that indicate the CO₂ levels. The LED indicates the following settings:



- Left LED (green):
0-900 PPM
and power on
- Middle LED
(yellow):
901 to 1450 PPM
- Right LED (red):
1451+ PPM



The plug in controller also has two LED indicators:

- Left LED (red):
Power is activated to
the CO₂ control device
/on control signal.
- Right LED (red):
The plug-in controller
is plugged into an
active power source.

Precautions

1. Do not expose the PPM-4 to water. It utilizes a ventilated enclosure to properly "sample" the CO₂.
2. Do not connect loads greater than 10 amps @ 120 volts to this unit.

Calibration

The PPM-4 is factory calibrated and the sensor in the wall mount unit is capable of remaining in calibration for a minimum of three years. However extreme shock during shipping and other factors may affect the calibration. The unit can easily be calibrated using ambient air before use and periodically if desired.

To calibrate, or re-calibrate the unit:

1. Bring the unit outside so that it will be exposed to an ambient air source. Do not place the unit in direct sunlight.
2. Connect the plug-in controller to a 120 volt power supply and then connect the wall mount sensor to the plug in controller. Allow the sensor to warm up for 1 minute.
3. Locate the small calibration button that is on the back of the wall mount controller. The calibration button is located in the one of the slots going across the upper part of the back of the case. The button is located in the second slot from the right. Use a straightened paperclip or pin to press and hold the button.
4. To initiate calibration the button must be depressed for 8 seconds. When the calibration feature is activated, all LED lights will begin flashing and will continue to flash until the calibration is complete. The PPM-4 has a integrated calibration routine that requires CO₂ levels to fully stabilize before finalizing the calibration.
5. Move away from the controller to allow the CO₂ concentration to stabilize for approximately 1-5 minutes. If the LED lights have stopped flashing, the calibration is complete.

**Important: Do not breathe in the vicinity of the sensor while the calibration routine is activated, this will just prolong the time necessary for the unit to complete its calibration.*

Warranty

The PPM-4 is warranted against defects in workmanship for three years. Do not open or modify this unit. If the enclosure on the wall mount sensor or plug-in controller is opened the warranty is void. There are no user serviceable parts inside. Always read and understand the operation manual in its entirety before using this product and only use this item for its intended purpose as described in the manual. Never exceed the amperage specification. For technical questions, a copy of your operation manual, safety concerns or warranty questions please visit us at www.capcontrollers.com.



S P E C I F I C A T I O N S

Operating principle

Single-beam Non-Dispersive Infrared (NDIR) with a 5" optical path length

Measurement range

0 – 5000 PPM CO₂

Warm-up time

1 Minute

Maximum drift per year

+/- 15 PPM

Accuracy @ 77°F

+/- 50 PPM

Recommended calibration interval

1 to 3 years

Operating voltages

120 volts to plug in controller

Maximum amperage

10 amps @ 120 volts

Operating temperature range

0-50° C, 32 to 120°F

Operating humidity range

0-99% RH (non-condensing)

Operating life expectancy

15 years typical

Warranty

Three years, parts and labor through repair or exchange.

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