

# APCECOD

## Deluxe Digital CO<sub>2</sub> controller

Specs	1
Basic Description	1
Installation	2
Button Functions	3
Error LEDs	4
Factory Settings	5
Overview	5
How to customize settings	6
Photocell sensitivity	7
Fuzzy logic CO <sub>2</sub>	7
How to calibrate CO <sub>2</sub>	8
Sulfur vaporizer warning	9
Q & A	10
Warning	11-13
Warranty	14-15



## Specs

Input voltage	120 Volts AC
Maximum amperage	14.5 amps @ 120 VAC
Remote COMBO probe cable length	15 ft
CO2 range	380-2500 PPM
CO2 accuracy	+/- 75 PPM
Weight	5 lbs
Waterproofing grade	IP20
Dimensions	9" x 7" x 4"

## Basic description

The APCECOD will control Carbon Dioxide / CO<sub>2</sub> with part-per-million accuracy. The controller features a remote combination probe that has light sensor and a highly accurate NDIR CO<sub>2</sub> sensor. The remote combination sensor is designed to quickly react to changes in the growing area and to resist EMI / EFI from electronic ballasts. The remote sensor can be placed up to 15 feet from the controller.

The APCECOD has a standard power receptacle to connect to your CO<sub>2</sub> device. The APCECOD can be set to increase CO<sub>2</sub>, or to decrease CO<sub>2</sub> levels.

**Note: An optional 15 ft extension cable can be purchased to allow the user to place the remote sensor up to 30ft from the controller.**

## Installation

Secure the unit to a wall.

Determine the best location for the remote probe. Place the probe in an area with good air movement preferably at plant height. Avoid placing the probe in direct sunlight or under direct HID Lighting.

**Note: Do not place the sensor probe where it will come in to contact with water. The probe is NOT WATER PROOF!**

The remote probe has a quick disconnect to easily remove or connect the probe. Secure the quick disconnect to the unit by securing the QD screw to the unit.

Plug the power cable into a standard NEMA 5-15 wall outlet. A 120 volt power supply is required.

Turn the power on and allow it to warm up. This takes about 5 minutes. During the warm up period, the display will read **CO2 heat**.

**Note: Now is the time to customize your settings prior to connecting any equipment.**

Ensure that the device being connected to the controller has the proper voltage and will not exceed the maximum amperage rating of this unit.

## Button Functions

There are Ten (10) buttons located on the front face that control the functions. Pressing each button will display a function and/or current setting(s) in the green LED window.

Several small green LED lights or status indicators located on the front panel will light up to identify the selected setting.

**Up** - Press button to increase setting

**Down** - Press button to decrease setting

**Enter/Reset** - Press button, hold for 3 seconds to enter new setting and to reset the Min/Max values.

## CO2 buttons

**CO2 PPM SETTING** - Press button to display and/or change CO2 Parts Per Million (PPM) setting.

**CO2 DEAD BAND** - Press button to set the CO2 dead-band set-point. (The amount of PPM change to affect the CO2 On / Off)

**FUZZY LOGIC** - Press button to select Fuzzy Logic mode or CO2 generator mode..

**CO2 FUNCTION** - Press button to select the photocell function.

**CO2 MODE**- Press button to select the CO2 mode, to increase or decrease CO2 levels..

**CALIBRATE CO2 PPM** - Press button to re-calibrate the CO2 sensor.

## Special buttons

**CO2 Min / Max** - Press this button repeatedly to recall the stored high and low recorded levels for CO2. Press and hold the Enter/Reset button while the recorded value is displayed to reset the Min/Max values.

## Error LEDs

The APCECOD is smart enough to monitor the CO2 conditions and to alert the user to a problem with the device connected to the APCECOD. Here is how it works.



As the unit functions normally, the CO2 level will be slowly but steadily changing. These small changes are detected by the controller.

If the controller does not detect a slight change in the CO2 level within a 1-hour period, the unit will de-activate the CO2 output and the green Error LED will be flashing to indicate the CO2 device may have a problem.

This safety feature is extremely important and useful to eliminate “runaway” conditions which could result in crop damage or other more serious problems.

If the Error LEDs are blinking, the user should check the CO2 device and remote sensor for proper function.

**Note: To reset an error, press the Enter / reset button.**

## Factory Settings

The APCECOD comes pre-programmed with factory settings. These settings may be adjusted by the user. For best results verify any changes after adjusting settings. The controller can be easily reset to factory settings. (see below)

CO2 PPM setting	1250 PPM
CO2 dead-band	50 PPM
Calibrate CO2 PPM	380 PPM
CO2 Function	Daytime
CO2 Mode	Increase
Fuzzy Logic	(Off) Generator mode

**Reset Factory Settings** - Press and hold the Enter / Reset and down buttons for 3 seconds. The display will read **f.Set**. Press the Enter/reset button again to restore the factory default settings. The unit will go through a self-test and when the factory reset is complete, the unit will say **donE**.

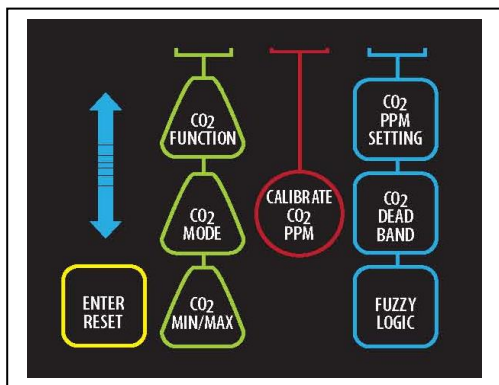
## Overview

The individual push-buttons on the APCECOD makes changing settings EASY.

\* Press a button, the display shows the current setting.

\* To change the settings, use the UP and DOWN buttons.

\* Then press ENTER to accept the new setting.



## How to customize settings...

**Up** - Press button to increase setting

**Down** - Press button to decrease setting

**Enter/reset** – The Enter / reset button is used to accept new settings and to reset some errors.

**CO2 PPM setting** - Press CO2 PPM, The current PPM setting will be displayed. To change settings press the Up or Down buttons. Press Enter to accept new setting.

**CO2 Dead-band setting** - Press CO2 Dead-band. The current CO2 dead-band setting is displayed. To change settings press the Up or Down buttons. Press Enter to accept new setting.

**CO2 Function setting** - Press CO2 Function, The photocell setting will be displayed (Day-Night or 24 hours). To change settings press the Up or Down buttons. Press Enter to accept new setting.

**CO2 Mode setting** - Press CO2 Mode, The current CO2 mode will be displayed (Increase or Decrease). To change settings press the Up or Down buttons. Press Enter to accept new setting.

**Min/Max Recall** - Press to “recall” or display the minimum and maximum CO2 recorded values. Each time the button is pressed, the next setting will be displayed.

**Note: To reset the Min / Max values – When the recorded value is displayed, press the Enter / Reset button. Pressing repeatedly will reset each value sequentially.**

## Photocell Sensitivity

The sensitivity of the photocell may be adjusted.

\* Press the **Down** button and hold for 3 seconds. The current photocell setting will be displayed.

\* Press **Up** to increase the number displayed and the sensitivity. (requires less light to activate photocell)

\* Press **Down** to decrease the number and the sensitivity. (requires more light to activate photocell)

## Fuzzy Logic CO2 mode

**“Fuzzy Logic” CO2 mode** allows the user to more precisely control the CO2 levels inside the growing area. Fuzzy Logic works by monitoring the rising or falling CO2 level and reacting to it by quickly activating ON / OFF the CO2 solenoid valve. This function can ONLY be used with compressed CO2.

Fuzzy Logic mode can be activated or deactivated by pressing the Fuzzy Logic button. Press Up or Down to select generator mode (**gEnErAt**) if using CO2 generator or Fuzzy logic mode (**Loglcon**) if using compressed CO2. Press Enter to accept new setting.

Note\* To prevent the CO2 regulator from “freezing” or not closing when using the “fuzzy logic” mode, we recommend using the CO2 regulator designed to work with the controllers.

**Note: Do not use Fuzzy logic mode if operating a CO2 generator!!!**



***“HOW TO calibrate” CO2 PPM***

1) Place the controller outdoors in a shaded area. Do not place in direct sunlight. Keep away from people, animals and other CO2 emitting areas.

**Note: If calibration will be in a high traffic (vehicles) area or a highly populated area a slightly increased calibration to around 400-475 PPM is recommended.**

3) Plug in the controller and allow to “warm up” for a minimum of 30 minutes. For best results, allow to “warm up” for an hour or longer.

4) Press Calibrate CO2 PPM to activate the automatic calibration. The new CO2 level (**C 380\_PP**) will be displayed. Press the up or down button to change the calibration setting. DO NOT exhale or breathe on the unit while activating the calibration function.

5) Press Enter / Reset to start the calibration sequence, (**Co2\_CAL**) will be displayed and CO2 calibration LED will be blinking. Leave controller alone for about 10 minutes.

6) When calibration is complete the display window will return to normal display and functions. Place the sensor back into the grow area. All other functions remain as they were prior to calibration.

## **Sulfur vaporizer warning!**

If a sulfur vaporizer is used, first remove the remote sensor from the affected area or turn the controller OFF and cover the remote sensor probe with a protective plastic bag. Remove the bag before turning the power back ON.

### **APCECOD remote probe assembly**



**Note: Failure to protect the sensor during Sulfur use will result in damage to the infrared CO2 sensor and void warranty.**

## Q & A

***How can I tell if my CO2 reading is accurate?*** You can check the calibration of the CO2 sensor by placing the sensor outdoors for 30 minutes. It should read close to 380 PPM. \*See the HOW TO calibrate section.

***When I turn on power, the unit says CO2 heat?*** This is normal, it takes 5 minutes for the sensor to warm up.

***Why is the display reading Err SEn?*** The remote probe is not connected and/or communicating with the controller. Check the quick-connect cable and that the remote probe is getting power. \*Contact the factory for more info.

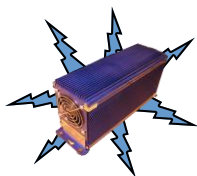
***What if the of the small green Error LEDs are on?*** The CO2 sensor or CO2 device is not acting correctly. Refer to the Error LEDs sections to diagnose the problem.

***Why isn't the CO2 outlet turning on?*** Verify the correct CO2 mode has been selected and/or verify the photocell daytime green led is turned ON.

***What if there is no power?*** Reset the power switch (circuit breaker).


## IMPORTANT MESSAGE

1. **Save these instructions.** These safety and operating instructions must be kept in a safe place for future reference.
2. **Heed all warnings.** All warnings on this product and in the instructions must be observed closely.
3. **Follow all instructions.** All operating instructions must be followed.
4. If the instructions as provided by the manufacturer are not followed damage to the product may result.
5. Install your controller at least 8 ft away from any devices that produce large amounts of electronic noise, such as electronic ballasts or ozone generators.



← 8 ft  
minimum →



6. The  symbol on the enclosure represents that the receptacle beside it may have an output voltage, which can be dangerous. The output voltages are the same as the input voltage. This receptacle can only be inserted with standard Nema 1-15P and Nema 5-15P plugs. **Don't insert any other plug in it.**
7. **Do not use this Controller near water.** For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like. The controller shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on this product. The product is not water-proof, or shock-proof.
8. Any factory serviceable parts of the product only can be checked or replaced by the manufacturer or authorized agencies. An unauthorized person is NEVER allowed to open the enclosure.

9. If the power cable insulation is broken, please stop using the product! Immediately unplug the unit and contact the retailer you purchased it from.

10. The product is equipped with a circuit breaker for short circuit or over current situations. The circuit breaker will automatically shut down the product at once. All outlets of the product all have the safety ground.

11. Do not install the enclosure near any heat source.

12. Do not block any ventilation openings.

13. **This product is a Safety Class I Controller.** The main plug should be inserted in a power socket outlet only if provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous and is prohibited.

### MESSAGE IMPORTANT

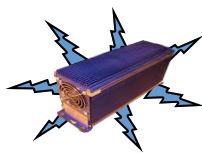
1. Conservez ces instructions. Ces consignes de sécurité et d'exploitation doivent être conservées dans un endroit sûr pour référence future.

2. Respectez tous les avertissements. Tous les avertissements sur ce produit et dans les instructions doivent être observés de près.

3. Suivez toutes les instructions. Toutes les instructions doivent être suivies.

4. Si les instructions fournies par le fabricant ne sont pas suivies d'endommager le produit peut entraîner.

5. Installez votre contrôleur au moins 8 pieds loin de tous les appareils qui produisent de grandes quantités de bruits électroniques, tels que les ballasts électroniques ou des générateurs d'ozone.



8 ft  
minimum





6. Le symbole sur le boîtier représente que le récipient à côté il peut avoir une tension de sortie, qui peut être dangereux. Les tensions de sortie sont les mêmes que la tension de tension d'entrée. Cette prise ne peut être inséré à la norme NEMA 1-15P et NEMA 5-15P bouchons. Ne pas insérer d'autres plug en elle.
7. Ne pas utiliser ce contrôleur près de l'eau. Par exemple, près d'une baignoire, baignoire lavabo, évier de cuisine ou la lessive, dans une cave humide, ou près d'une piscine, etc. Le contrôleur ne doit pas être exposé à des éclaboussures et aucun objet rempli de liquides, tels que des vases, doit être place sur ce produit. Le produit n'est pas étanche à l'eau, ou antichoc.
8. Toutes les pièces d'usine Paré réparable du produit ne peut être vérifiée ou remplacée par le fabricant ou autoriser les agences. Une personne non autorisée n'est jamais permis d'ouvrir le boîtier.
9. Si l'isolation du câble d'alimentation est cassée, s'il vous plaît arrêtez d'utiliser le produit! Débranchez immédiatement l'appareil et contactez le revendeur vous l'avez acheté.
10. Le produit est équipé d'un disjoncteur pour un court-circuit ou sur des situations actuelles. Le disjoncteur se fermera automatiquement le produit à la fois. Toutes les sorties du produit ont tous la terre de sécurité.
11. Ne pas installer l'enceinte à proximité de toute source de chaleur.
12. Ne pas bloquer les ouvertures de ventilation.
13. Ce produit est une classe de sécurité I contrôleur. La fiche principale doit être insérée dans une prise électrique que s'ils sont fournis avec un contact de terre de protection. Toute interruption du conducteur de protection à l'intérieur ou à l'extérieur du produit est susceptible de rendre le produit dangereux et est interdit.

## **Warranty and Liability**

### **1.Limited Warranty**

Hydrofarm, Inc doing business as Hydrofarm, Inc (collectively HYDROFARM) warrants that for a period of three years from the date of purchase, this product will be free from defects in material and workmanship. HYDROFARM, at its option, will repair or replace this product or any component of the product found to be defective during the warranty period. Replacement will be made with a new or remanufactured product or component. If the product is no longer available, replacement may be made with a similar product of equal or greater value. This is your exclusive warranty. DO NOT attempt to repair or adjust any electrical or mechanical malfunctions on this product. Doing so will void this warranty and may cause serious injury/death/damage.

This warranty is valid for the original retail purchaser from the date of the initial retail purchase and it not transferable. Keep the original sales receipt. Proof of purchase is required to obtain warranty performance. HYDROFARM dealers, distributors, service centers and retail outlets selling HYDROFARM products do not have any right to alter, modify or in any way change the terms and conditions of this warranty.

This warranty does not cover normal wear of parts or damage resulting from the following: negligent use or misuse of the product, use on improper voltage or current, use contrary to the operating instructions, use contrary to any and all applicable local, state, provincial or federal laws, disassembly, repair or alteration by anyone other than HYDROFARM or an HYDROFARM authorized service center. Future, the warranty does not cover: Acts of God, such as fire, flood, hurricanes, tornadoes, nor Acts of War or Acts of Terrorism.

## **What are the limits on HYDROFARM's liability?**

HYDROFARM shall not be liable for any incidental or consequential damages cause by the breach of any express, implied or statutory warranty or condition.

Except to the extent prohibited by applicable law, any implied warranty or condition of merchantability or fitness for a particular purpose is limited in duration to the duration of the above warranty.

HYDROFARM disclaims all other warranties, conditions or representations, express, implied, statutory or otherwise.

HYDROFARM shall not be liable for any damages of any kind resulting from the purchase, use or misuse of, or inability to use the product including incidental, special, consequential or similar damages or losses of profits, or for any breach of contract, fundamental or otherwise, or for any claim brought against the purchaser by any other party.

Some provinces, states or jurisdictions do not allow exclusion or limitations on how long an implied warranty lasts, so the above limitations or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights that vary from province to province, state to state or jurisdiction on jurisdiction.

This warranty is offered by HYDROFARM,INC., If you have any other problem or claim in connection with this product, please write our Consumer Service Headquarters, HYDROFARM,INC.

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# autopilot

Environmental Controllers

This product conforms to USA and Canada standards as listed below.



Made in China