autopilot APC8400 Digital CO2 Controller with Integrated Sensor User Manual

**APC8400 Digital CO2 Controller with Integrated Sensor
Environmental Controller
User Manual**

DIGITAL CO, CONTROLLER WITH INTEGRATED SENSOR
APC 8400 – USER MANUAL

Contents

APC8400 Digital CO2 Controller with Integrated Sensor

OVERVIEW
Thank you for purchasing the Autopilot Digital CO2 Controller with Integrated Sensor! Our products are packaged and shipped with the utmost care. In the unlikely event that your item is incorrect, incomplete, or unsatisfactory, please contact Hydrofarm and we will resolve the issue.

PACKAGE CONTENTS

CO2 Controller Unit
Socket Unit
User Manual
Screws

WARNINGS

- To ensure safe operation, please read this manual carefully before installation and follow the instructions.
- Store this manual in a secure place for future reference.
- **WARNING: CHOKING HAZARD** – Accessories contain small parts.

FEATURES AT A GLANCE

- CO2 enrichment or CO2 exhaust
- Controls and monitors CO2 from 0 to 5000 parts per million (PPM)
- Easy to setup and operate.
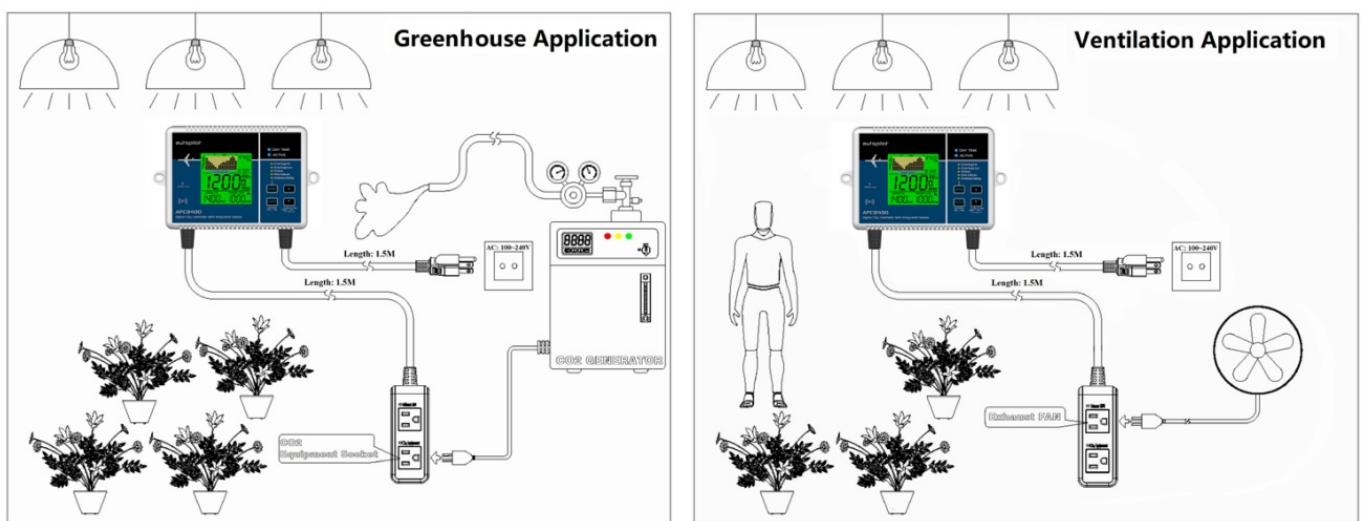- Integrated sensors with day/night detection

- Data-logging chart with adjustable time display
- 2-Channel Low Drift NDIR Sensor
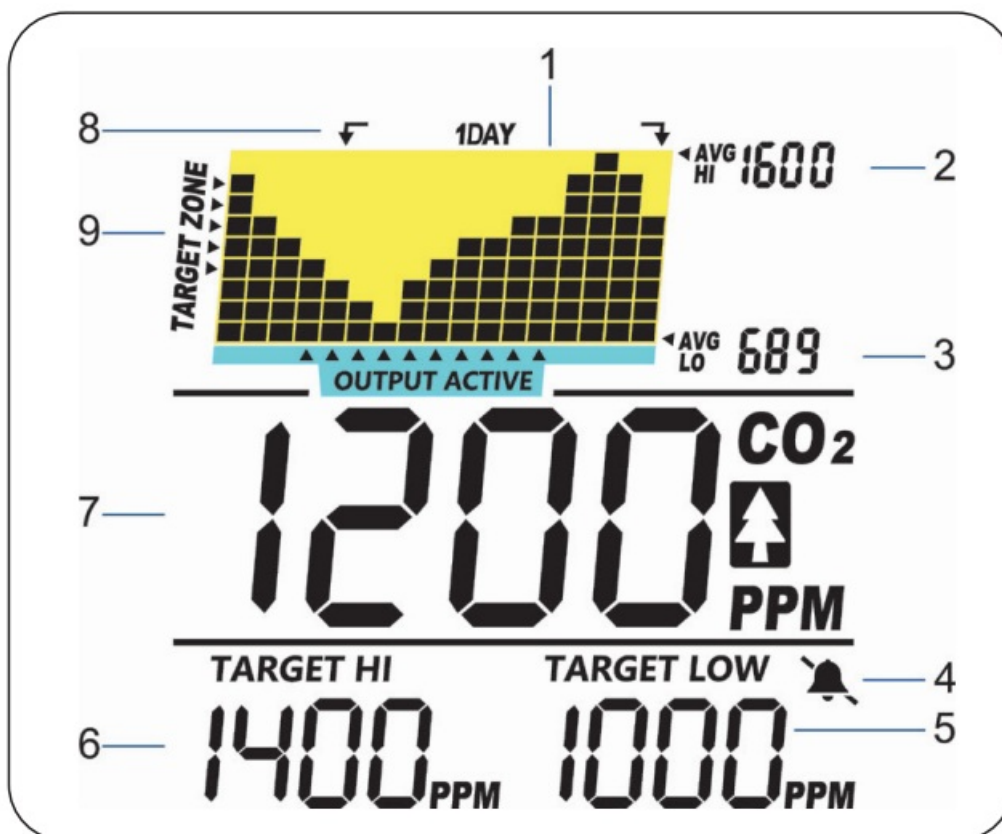- ETL listed

OPERATING INSTRUCTIONS

Initial Setup: When first unboxing, plug the piggyback into the power socket. If successfully connected, three things will happen while booting up:

1. Alarm will beep once.
2. Chart display will show the current software version & "Warm Up."
3. Main display will show a countdown from 10.

    Once the countdown is complete, your product is ready to use. No additional setup or calibration is needed.

1. CO2 Trend Chart
2. AVG HI Reading of Chart
3. AVG LO Reading of Chart
4. Audible Alarm On/Off
5. Target Low Value
6. Target Hi Value
7. CO2 Reading
8. Zoom Level of Time – indicates the chart's timespan
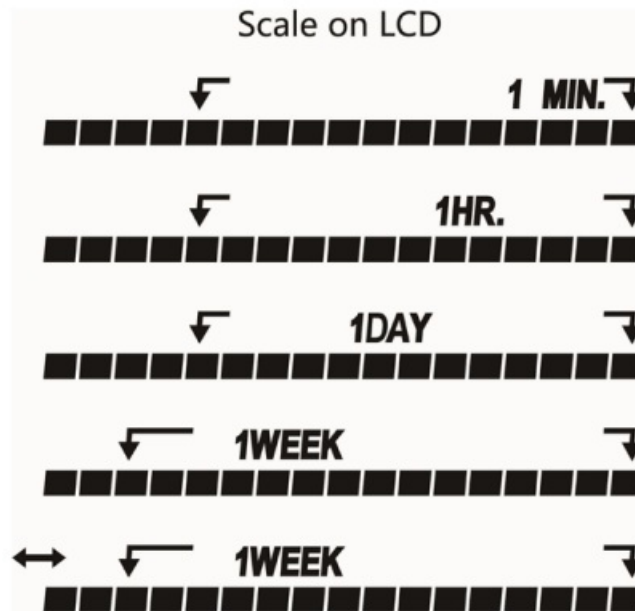9. Target Zone Indicator

CO2 / SET TARGET HI / SET TARGET LOW

The device has three built-in main parameters: ambient carbon dioxide (7), Set Target Hi value (6), and Set Target Low value (5). They are constantly displayed on screen.

TREND CHART ZOOM

Below is a table showing the available Zoom Levels for all CO2 parameters, as well as the duration of each interval for corresponding Zoom Levels:

Zoom Level (Time Span) (8)	Time Per Interval
1m (minute)	5sec /div
1h (hour)	5m/div
1d (day)	2h/div
1w (week)	0.5d/div
Auto Cycle Zoom	Cycle

Scale on LCD

The DOWN button will toggle the available Zoom Levels for each parameter. Note that in addition to the Zoom Levels for each parameter, there is an option that will automatically cycle between the Zoom Levels. This can be achieved by pressing DOWN until icon (8) appears at the top of the chart.

AVG HI / AVG LO

At the top right corner of the display, there are two numerical indicators: AVG HI (2) and AVG LO (3). As the Zoom Level is changed, the AVG HI and AVG LO will reflect the average high and average low values on the chart of the selected parameter. At startup, the unit will automatically display values for 1d (day) value.
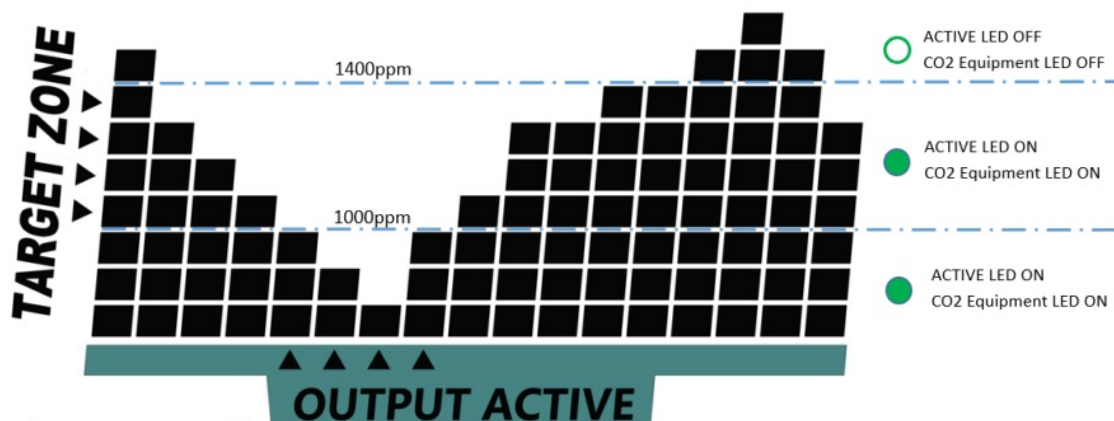
AUTO DETECT DAY/NIGHT

The built-in photocell sensor can automatically detect whether it is Day or Night. The green back lit display automatically turns off during the night period. If a button is pressed during this time the green back light will display for 30 seconds. In Greenhouse (Increase) mode it can override the CO_2 control and shut off the CO_2 generator or regulator by turning off the output power (CO_2 Equipment socket) during the night. Conversely, if the Photo-Cell detects light and the CO_2 level is low, the device will start the CO_2 generator by turning on the output power (CO_2 EquIpment Socket). In Vent (Decrease) mode, Photo-Cell status does not affect the output power (Exhaust Fan socket) ON or OFF.

 GREENHOUSE (INCREASE) CONTROL

This CO_2 controller can be set for Greenhouse mode application by S5 ADVANCE Mode setting. CO_2 Equipment socket is on when CO_2 concentration is below Set Target Low. For example, if Set Target Low is 1000ppm, and the Set Target Hi is 1400ppm, the output power will shut off when CO is over 1400ppm and power on when CO is below 1000ppm.

VENT (DECREASE) MODE CONTROL

 This CO_2 controller can be set for Vent mode application by S5 ADVANCE Mode setting. Exhaust Fan

socket is on when CO2 concentration is over Set Target Hi, and off when CO2 concentration is below Set Target Low.

HOLD HOME

To revert to start-up settings at any point, hold **ENTER** for 3 seconds until you hear audible beep. The device will then revert to Home Setting, as if the power was reset, displaying "Back Home done." Note that this is not the same as Restore to factory settings.

To clear all stored data in the chart you must Restore to factory settings. To use Restore mode select the Advanced Setting function and hold **ENTER** for 3 seconds until an audible beep sounds.

Below is a table showing what main menu selection is made by pressing MENU multiple times as well as their functions. Note that the device will display "Done," followed by the confirmed selection if selected correctly.
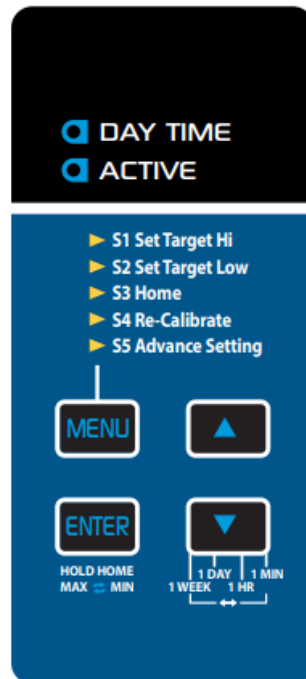
MAX / MIN

From the home screen, press ENTER. The trend chart will be replaced by "MAX," and the maximum value will be shown in the main display area. Press ENTER again to view the minimum value. Press ENTER once again to return to the home screen.

Note that after 10 seconds if ENTER is not pressed, the device will return to the home screen.

MAIN MENU FUNCTIONS

The Main Menu functions can be toggled through by selecting the MENU button. If the main menu is not selected, the menu LED will remain off, leaving the UP buttons to toggle Zoom Levels, respectively.

- S1 Set Target Hi

- S2 Set Target Low

- S3 Home

- S4 Re-Calibrate

- S5 Advance Setting

Pressing MENU once will bring up the menu LED, with flashing before the current choice. To select the function, press ENTER when menu selection LED is flashing. Note that after 1 minute if nothing is pressed, the Main Menu LED will

shut off and the device will revert to the normal state.

FUNCTION	DIRECTIONS
Si Set Target Hi	Set Target Hi value is preset to 1400ppm for general plant. Once Set Target Hi is selected (by pressing ENTER), use either UP or DOWN to increase or decrease the Set Target Hi value. Press ENTER one more time to confirm. *Note that the default value of Set Target Hi is 1400ppm.
52 Set Target Low	Set Target Low value is preset to 1000ppm for general plant. Once Set Target Low is selected, Use UP and DOWN to increase or decrease the Set Target Low value. Press ENTER to confirm. *Note that the default value of Set Target Low is 1000ppm.
53 Home	This is for basic indoor gardening, and cannot be adjusted. Once selected, the Set Target Hi value is fixed 1400ppm, and Set Target Low value is fixed 1000ppm.
S4 Re-Calibrate	Use this function to calibrate your device with outside atmospheric CO2 level — 400 ppm. Select this mode, hold ENTER for 3 seconds until a beep and the chart will read "Calibrating." To ensure the accuracy of calibration result, place the device outside for 20 minutes before calibrating. To escape, press MENU. Make sure the device is far from a source of CO2, not in direct sunlight, and not exposed to water. Step away from the unit during calibration.
55 Advance Setting	This function rotates through four options when selected: • Audible Alarm On/Off • Altitude Setting • Work Mode Setting • Restore Factory Setting Restore Factory Setting will reset the device to factory settings and erase all stored data in the chart. To use Restore mode, hold ENTER for 3 seconds until an audible beep.

APPLICATION MODE SETTING

Press MENU, then select S5 ADVANCE SETTING function. LCD will show "Mode Setting." Press UP, and then press ENTER to enter mode setting function. Press UP or DOWN to switch to Greenhouse mode or Vent mode. Press ENTER to confirm.

SPECIFICATIONS

Typical test conditions, unless otherwise specified: Ambient Temp =73+/-3°F (22 +/-3°C), RH=50%– 70%, Altitude=0~100 meter

MEASUREMENT	SPECIFICATION
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Designed For	Indoor Use
Operating & Storage RH	0-95%, non-condensing
CO2 Measurement	
Accuracy at 0-3000 ppm	±50 ppm or ±5% of reading, whichever is greater
Accuracy over 3000 ppm	±7%
Repeatability	20 ppm at 400 ppm (standard dev. of 10 readings in 1 minute)
Measurement Range	0-5000 ppm
Display Resolution	1 ppm (0-1000); 5 ppm (1000-2000); 10 ppm (>2000)
Temp Dependence	1-0.2% of reading per °C or ±2ppm per °C, whichever is greater, referenced to 25°C
Pressure Dependence	0.13% of reading per mmHg (corrected by user's altitude input)
Response Time	<2 min for 63% of step change or <4.6 min for 90% step change
Warm-up Time	<30 seconds
Back-Lit Display	The green back-lit display automatically turns off during the dark period. Pressing any button during the dark period will illuminate the screen for 30 seconds.
Power Input/Output	AC 120VAC, 60Hz, Current: 10A Max
Main Supply Voltage	Fluctuations up to ±10% of the nominal voltage
Applicable Pollution	Degree of the intended environment (POLLUTION DEGREE 2)
Dimensions	Socket Unit: 115 x 45 x 38 mm (4.5″ x 1.8″ x 1.5″) Control Unit: 195 x 145 x 44 mm (7.7″ x 5.7″ x 1.7″)
Weight	760 g (26.8 oz)

DISCLAIMERS

This device is not intended for workplace hazard CO_2 monitoring, nor intended as a definitive monitor for human or animal health institutions, life sustenance, or any medical-related situation.

Hydrofarm and the manufacturer assume no responsibility for any damage or loss suffered by the user or any third party arising through the use of this product or its malfunction.

Hydrofarm reserves the right to change the specifications without notice.

Manufactured for: HYDROFARM LLC
Address: 1304 Southpoint Blvd Suite 200
Petaluma, CA 94954

⚠ PAY ATTENTION TO ELECTRICITY SAFETY.

WARRANTY

LIMITED WARRANTY

Hydrofarm warrants the APC8400 to be free from defects in materials and workmanship. The warranty term is for 3 years beginning on the date of purchase. Misuse, abuse, or failure to follow instructions is not covered under this warranty. Hydrofarm's warranty liability extends only to the replacement cost of the product. Hydrofarm will not be liable for any consequential, indirect, or incidental damages of any kind, including lost revenues, lost profits, or other losses in connection with the product. Some states do not allow limitation on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Hydrofarm will, at our discretion, repair or replace the APC8400 covered under this warranty if it is returned to the original place of purchase. To request warranty service, please return the APC8400, with original sales receipt and original packaging, to your place of purchase. The purchase date is based on your original sales receipt.

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APC8400_Instructions_July2022
Rev. 07/12/2022

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Documents / Resources

autopilot APC8400 Digital CO2 Controller with Integrated Sensor [pdf] User Manual
APC8400, APC8400 Digital CO2 Controller with Integrated Sensor, Digital CO2 Controller with Integrated Sensor, APC8400 Digital CO2 Controller, Digital CO2 Controller, CO2 Controller, Controller

References

- 🌿 **Hydrofarm**

References

- 🌿 **Hydrofarm**