USER MANUAL

autopilot®

Environmental Controllers

DIGITAL CO_2 CONTROLLER

HF 77®

APC8200

HYDROFARM®

APC8200 - USER MANUAL

OVERVIEW

Thank you for purchasing the Autopilot APC8200 Digital CO_2 Controller! Our products are packaged and shipped with the utmost care. In the unlikely event that your item is incorrect, incomplete, or unsatisfactory, please contact us and we will resolve the issue.

PACKAGE CONTENTS

CO_2 Controller Unit

CO_2 Sensor with photocell

15' Data cable

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.

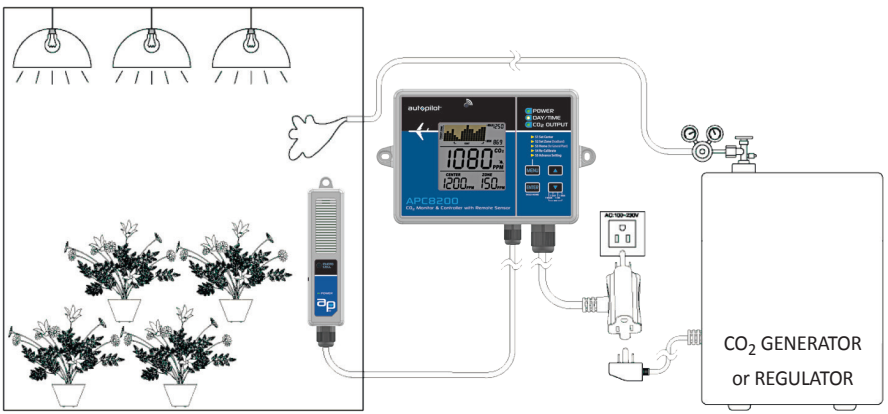
FEATURES AT A GLANCE

- CO_2 controller; Tracer (Data logger)
- Built-in Day/Night sensor
- Chart with variable time Zoom Levels
- 2-Channel Low Drift NDIR Sensor
- "Hold Home" function

OPERATING INSTRUCTIONS

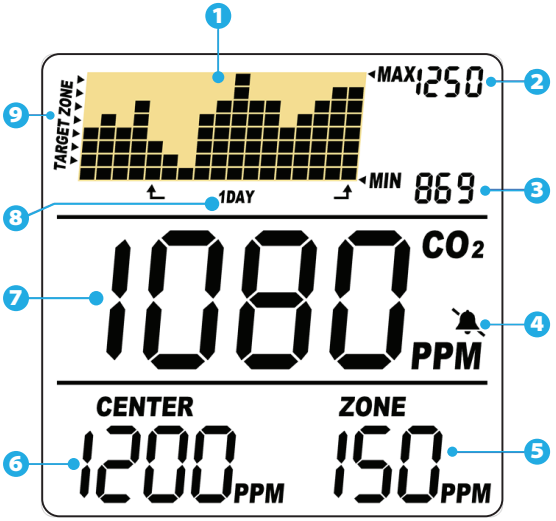
Initial Setup: When first unboxing, plug the piggyback into the power socket. If successfully connected, 3 things will happen while booting up:

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.



LCD DISPLAY

1. CO_2 Chart
2. Max Reading of Chart
3. Min Reading of Chart
4. Audible Alarm On/Off
5. CO_2 Zone value (deadband setting)
6. CO_2 Center value (Ideal CO2 level)
7. CO_2 Reading
8. Zoom Level of Time – indicates the chart's timespan
9. Target Zone Indicator



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

CO_2, Set Center, Set Zone Readings

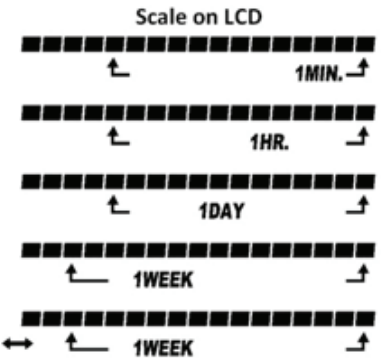
The device has three built-in main parameters: ambient carbon dioxide (7), Set Center value (6), and Set Zone value (5). They are constantly displayed on screen.

TREND CHART ZOOM

Below is a table showing the available Zoom Levels for all CO_2 parameters, as well as the duration of each division for corresponding Zoom Levels:

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 bottom left of the chart.

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



MAX/MIN

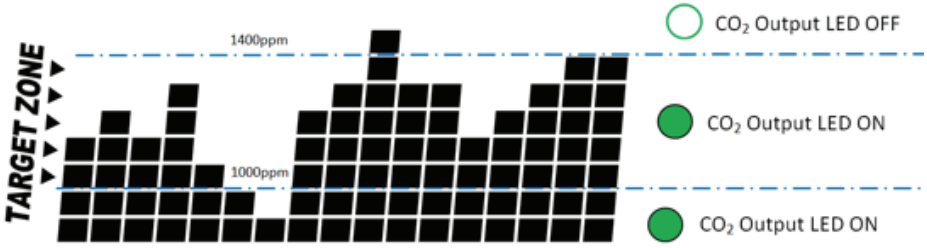
At the top right corner of the display, there are two numerical indicators: Max (2) and Min (3). As the Zoom Level is changed, the Max and Min values will reflect the maximum and minimum values on the chart of the selected parameter. At startup, the unit will automatically display values for 1d (day) value.

AUTO DETECT DAY/NIGHT

The built-in photocell sensor can automatically detect whether it is Day or Night. It can override the CO_2 control and shut off the CO_2 generator or regulator by turning off the output power 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 output power.

CO_2 OUTPUT CONTROL

Output power is on when the CO_2 concentration is below Set Center+(1/2) Set zone, and off when CO_2 concentration is over Set Center-(1/2) Set zone. For example, if the Set Center is 1200 ppm, and the Set zone is 400ppm, the output power will shut off when CO_2 over 1200+(1/2)*(400)=1400 ppm, and power on when CO_2 below 1200-(1/2)*(400)=1000 ppm. In other words, if you want a ±100 ppm deadband you should enter 200ppm here. That means the unit will allow a 100 ppm swing above or below your Set Center CO_2 Setting.



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.

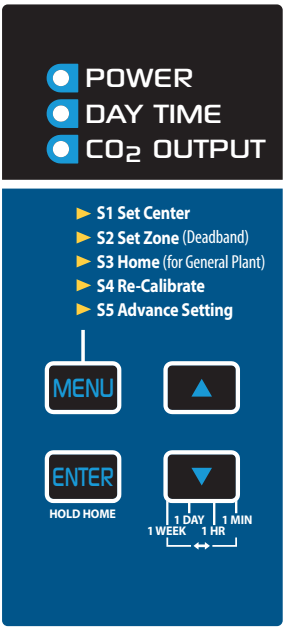
MAIN MENU FUNCTIONS

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 Center** (Custom CO2 ppm setting)
- ▶ **S2 Set Zone** (Deadband)
- ▶ **S3 Home** (for General Plant)
- ▶ **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
S1 Set Center	By default , the Set Center value is 1200 ppm for general plant, Once Set Center is selected (by pressing **ENTER**), use either **UP** or **DOWN** to toggle the center value. Press **ENTER** one more time to confirm.
S2 Set Zone (Deadband)	This function allows the user to set the Zone (Deadband). Once selected, Use **UP** and **DOWN** to toggle to the set zone value. Press **ENTER** to confirm. Note that the default value of set zone is 400 ppm. See ***CO_2 OUTPUT CONTROL*** for setting a custom deadband.
S3 Home (For General Plant)	This function for Home plant (General plant), Once selected, the Set Center value is fixed 1200 ppm, and Set Zone value is fixed 400 ppm.
S4 Re-Calibrate	Use this function to calibrate your device with outside atmospheric CO_2 level ~ 400 ppm. Select this mode, hold **ENTER** for 3 seconds until a beep and the chart will read "Calibrating", then place the device outside for 20 minutes. To escape, press **MENU**. Make sure the device is far from a source of CO_2, not in direct sunlight, and not exposed to water. Step away from the unit during calibration.
S5 Advance Setting	This function toggles between 3 things when selected: This function toggles between 3 things when selected: • Audible Alarm On/Off • Altitude 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.

SPECIFICATIONS

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

MEASUREMENT	SPECIFICATION
Operating Temperature	32°F to 122°F (0°C to 50°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Operating & Storage RH	0-95%, non-condensing
CO_2 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	±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 sec
Power input	AC 100 ~ 240 VAC
Dimension	Sensor Unit: 153x33x27mm (6.0"x1.3"x1.1") Control Unit: 195x145x44mm (7.7"x5.7"x1.7")
Weight	700 g (24.7 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.

NOTES

WARRANTY

3 Year Warranty!

LIMITED WARRANTY

Hydrofarm warrants the ***APC8200*** 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 ***APC8200*** covered under this warranty if it is returned to the original place of purchase. To request warranty service, please return the ***APC8200***, 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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PRECISE CLIMATE CONTROL

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