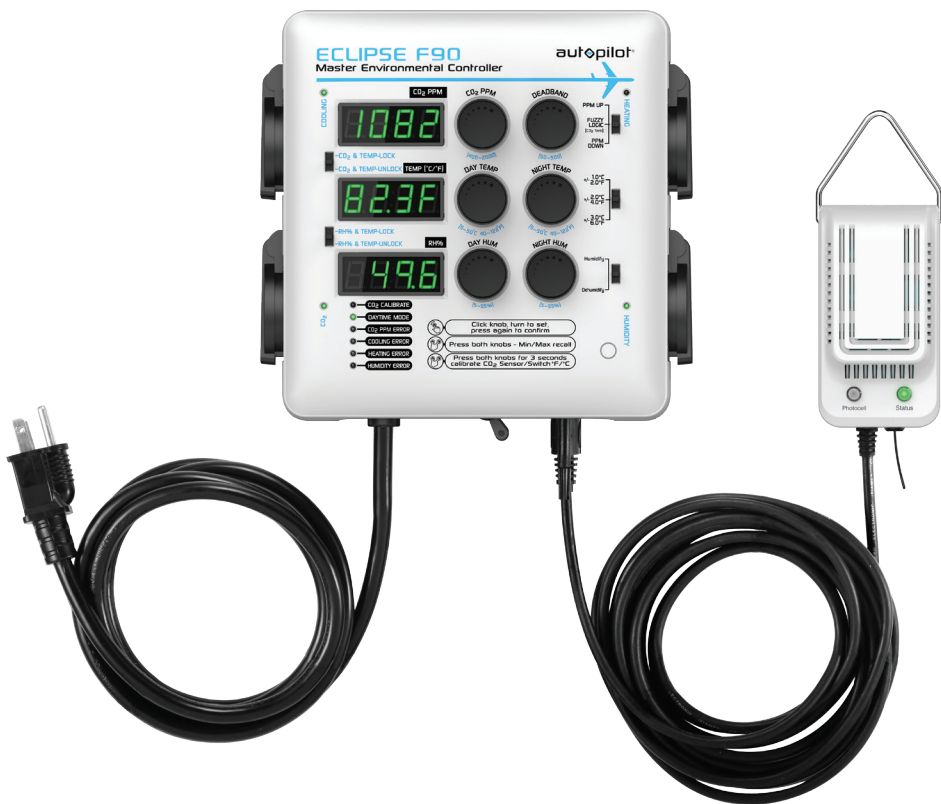


autopilot®

Environmental Controllers

ECLIPSE F90 (Master Environmental Controller)



APE4200



AutopilotControllers.com

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OVERVIEW

Thank you for purchasing the Autopilot **ECLIPSE F90** (APE4200) Master Environmental Controller. The ECLIPSE F90 offers integrated digital command of critical grow room conditions. Autopilot takes full atmospheric control and lets you get back to growing. The F90 precisely controls temperature, humidity, and CO₂ PPM levels in the growing area. Its three large LED displays make monitoring and adjusting these environmental conditions a breeze. Three screens continuously display current temperature, humidity and CO₂ PPM levels, and its LED lights indicate active modes and inform the user of any errors. The ECLIPSE F90 Master Environmental Controller is easy to program and operate while showcasing total transparency of environmental conditions 24 hours a day.

The ECLIPSE F90's enclosure features four separate power outlets for external control of cooling (AC or exhaust fan), heating, CO₂ (regulator or generator), and humidity (humidifier or dehumidifier). These outlets feature heavy duty protective covers that prevent atmospheric moisture from entering the device through any unused outlets. Rubber feet have also been added to the back of the unit for added protection when mounted.

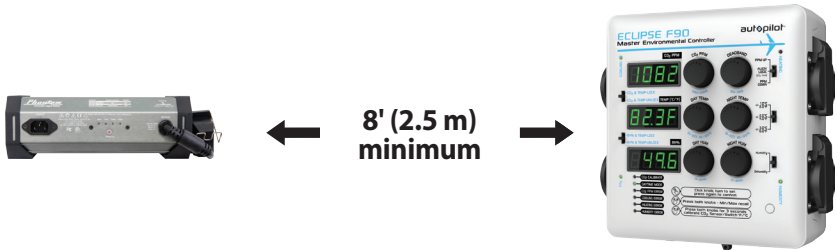
This controller's sensitive and intelligent remote combination probe features a highly accurate dual beam NDIR CO₂ sensor. The probe can be placed up to 15 feet from the controller, and has been designed to resist EMI/EFI from electronic ballasts. The controller itself comes equipped with wall anchors and optional U-brackets for tent mounting.

Each ECLIPSE F90 has been pre-programmed with factory recommended settings for quick plug and play operation. Humidity deadband, for example, is preset to 5% +/- . An adjustable Fuzzy Logic setting is also available for use with CO₂ tank and regulator systems.

For information on additional Autopilot products please visit AutopilotControllers.com.

NOTE: After turning on the power to the unit, it will take five minutes for the sensor to warm up.

NOTE: This controller has a 14.5A maximum load. For higher amperage devices such as A/C units, it is recommended to use a power expander.



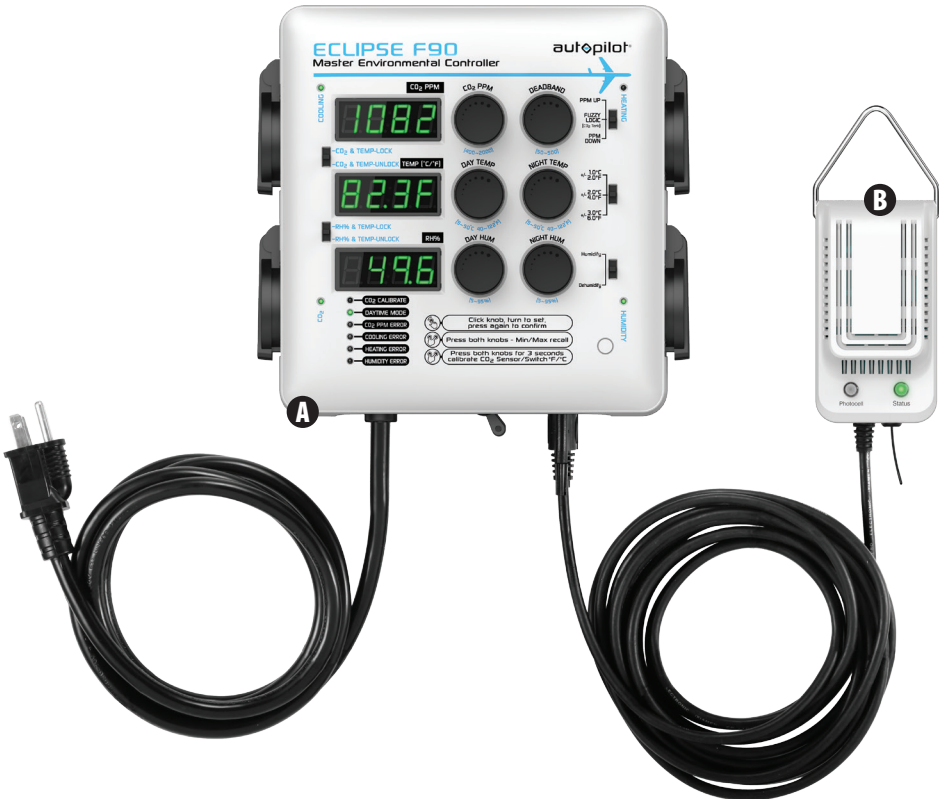
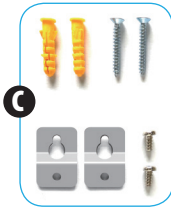
TOOLS NEEDED - (FOR OPTIONAL MOUNTING)



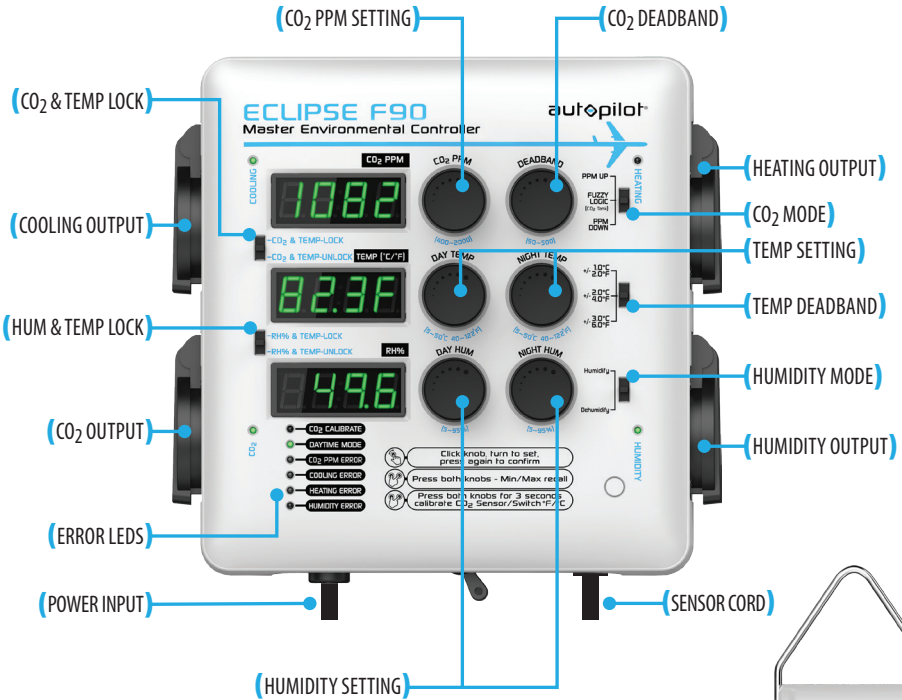
Phillips
Screwdriver

PARTS LIST (WHAT'S IN THE BOX)

- A** - Controller Unit
- B** - Sensor Unit
- C** - Mounting Hardware (for walls)
- D** - Mounting Hardware (for grow tents)



LED DISPLAY & CONTROL SURFACE



FUNCTION KNOBS



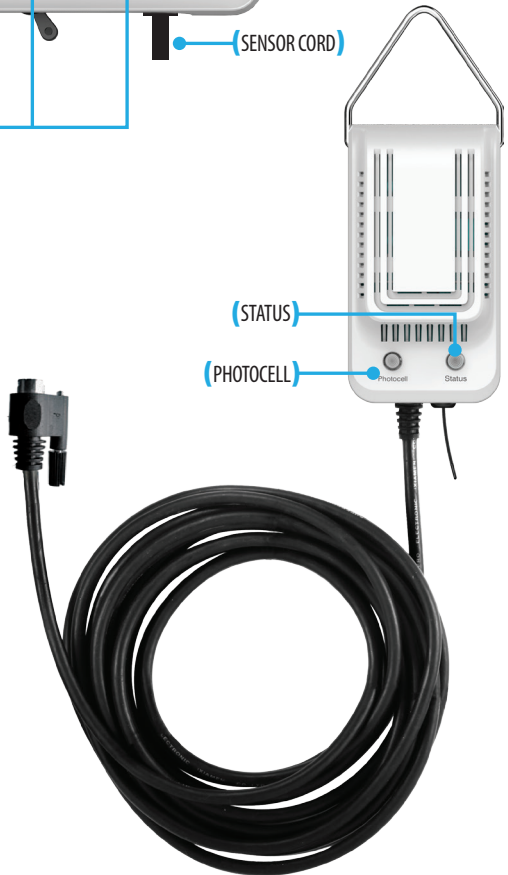
Click (press) knob, turn to set, click again to confirm



Press both function knobs for Min/Max recall



Press both knobs for 3 seconds to calibrate CO₂ Sensor/Switch F°/C°



CO₂ PPM SETTINGS

CO₂ LEVELS: Click the CO₂ PPM knob and turn to set the PPM target. Click again to confirm the setting.

CO₂ DEADBAND: Click the DEADBAND knob and turn to set the desired deadband setting. Click again to confirm the setting.

***Example:** For CO₂ increase mode, if setpoint=1000 PPM and deadband=50 PPM, the CO₂ output will start to work at or below 1000 and turn off at 1050 PPM. For CO₂ decrease mode, the fan will start at or above 1000 PPM and turn off at 950 PPM.*

MIN/MAX RECALL: Click and hold the CO₂ PPM and DEADBAND knobs simultaneously to display the CO₂ min/max PPM record. The display will show L XXX, H XXX. The screen will return to normal display after 5 seconds (or immediately if you click both knobs simultaneously again), and the record will be reset.

CALIBRATION: Place the CO₂ sensor outdoors, press both knobs for 3 seconds, display screen reads CAL/400, if you need to change the calibration level, turn the left knob. Keep the sensor from direct sunlight and any breathing. Allow it 10 minutes to stabilize the PPM reading. The Screen will return to normal display once the calibration is complete.

CO₂ & TEMP LOCK/UNLOCK SWITCH

LOCK: This setting will not allow the CO₂ and Temp outlets to run simultaneously. The CO₂ outlet will always be deactivated when the Cooling outlet is activated On. Lock setting is recommended for rooms applying CO₂ that are also operating an exhaust fan for temperature control. This setting minimizes CO₂ loss when the exhaust fan is operating.

UNLOCK: The CO₂ enrichment device and any cooling device that is plugged in are independently controlled.

TEMPERATURE SETTINGS

The unit offers both day and night temperature control. Select either the heating or cooling mode option.

DAY TEMP SETTING: There is a Day Cooling set point and a Day Heating set point.

1. To set the Day Cooling, Click the DAY TEMP knob. "COOL" will be displayed. To change the setting, turn the DAY TEMP knob to select your desired temperature. Click again to accept the new setting.
2. "HEAT" will then be displayed. Turn the DAY TEMP knob to select your desired setting, then click the knob again to save the new setting.

NIGHT TEMP SETTING: Night temps are set exactly the same way as described above for day temps, but using the NIGHT TEMP knob this time.

TEMP MIN/MAX RECALL: Press the DAY TEMP and NIGHT TEMP knobs simultaneously to recall the min/max temperature record.

TEMP UNIT: Press and hold the DAY TEMP and NIGHT TEMP knobs simultaneously knobs for 3 seconds, then turn the DAY TEMP knob to select the desired temperature unit (°F or °C). Press both simultaneously again to confirm the setting.

HUMIDITY & TEMPERATURE (RH% & TEMP) LOCK/UNLOCK SWITCH

LOCK: This setting locks both the temperature and humidity outlets together making them operate simultaneously. Example: if the sensor detects a reading outside of the programmed Temperature setting the unit will activate both Temperature and Humidity outlets at the same time. Use this

setting if using an exhaust fan for both temperature and humidity control.

UNLOCK: Each device is controlled independently. Use this setting if using different devices to control Cooling and Humidity.

HUMIDITY SETTINGS

Click each knob (DAY HUM and NIGHT HUM) and turn to set your desired day humidity and night humidity settings. Click again to confirm the settings.

HUMIDITY DEADBAND (HYSTERESIS)

This unit has a 5% relative humidity non-adjustable deadband.

HUMIDITY MIN/MAX RECALL

Click the DAY HUM and NIGHT HUM knobs simultaneously to recall humidity min/max temp record.

HUMIDITY MODE SWITCH

This switch selects either dehumidifier or humidifier control.

TEMP DEADBAND OPTIONS

2/4/6°F (1/2/3°C)

TEMP DEADBAND SETTING

Click each knob and turn to set the PPM target and deadband (hysteresis). Click again to confirm the setting.

CO₂ MODE

PPM UP: Increases the CO₂ PPM when using a (gas) CO₂ generator.

Fuzzy Logic: Increases the CO₂ PPM when using a compressed CO₂ system.

PPM DOWN: Decreases the CO₂ PPM using a fan.

HIGH TEMPERATURE PROTECTION

If when using a CO₂ generator with this controller the environmental temperature exceeds the set limit, the ECLIPSE F90 will deactivate the CO₂ outlet, regardless of whether the CO₂ PPM level has reached the setpoint yet. The CO₂ generator will become active again when the temperature returns to 10°F/5°C less than the high limit.



HOW TO SET HIGH TEMP LIMIT

For daytime high limit temperature setting, click and hold the DAY TEMP knob for 3 seconds. The display will flash “H (XX)” (Fig. 3) repeatedly. Turn the knob to change the setting. Click it again to save the setting.

NOTE: To set night temps, the procedure is the same as described above for day temps, but the NIGHT TEMP knob is used.

DAYTIME MODE LED/ERROR LEDs/ERROR DISPLAY MESSAGES

The LED labeled DAYTIME MODE will illuminate when the controller is operating in daytime mode (i.e., the photocell is receiving light).

S_SR: If this error message is being displayed, check the sensor's connection to the controller.

OUTP: If the controller does not detect even a slight change in humidity or temperature levels within a 2-hour period, the screen will flash this error code accompanied by illumination of either the COOLING ERROR, HEATING ERROR, or HUMIDITY ERROR LED. Press either of the corresponding knobs (either of the TEMP or RH% knobs) to reset the error.

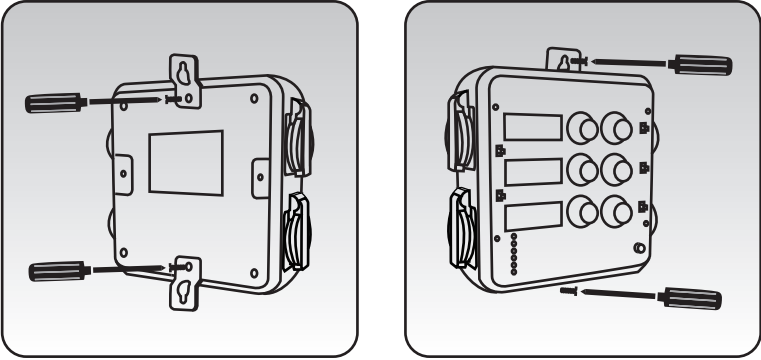
There are also four error LEDs on the bottom left of the controller. These lights will identify which environmental factor the controller is reporting an error on.

SPECIFICATIONS	
Max amperage	14.5 amps @ 120VAC 60 Hz
Power cord length	6.5'/2 m
Sensor cord length	15'/4.5 m
CO₂ Range	400-2000 PPM
CO₂ Accuracy	+/- 100 PPM
Temp setting	Adjustable 40-122°F (5-50°C)
Temp deadband (hysteresis)	2/4/6°F (1/2/3°C)
Temp accuracy	± 2°F/ ± 1°C
High temp limit adjustable	85-115°F (30-45°C)
Humidity setting range	5%-95% rH
Humidity accuracy	± 3% rH
Humidity deadband (hysteresis)	5% rH
Weight	3.5 lbs/1.6 kg
Dimensions	8.0" x 3.3" x 7.5"/202 x 85 x 191 mm
Indoor Use Only	

MOUNTING INSTRUCTIONS

MOUNTING THE UNIT TO A WALL

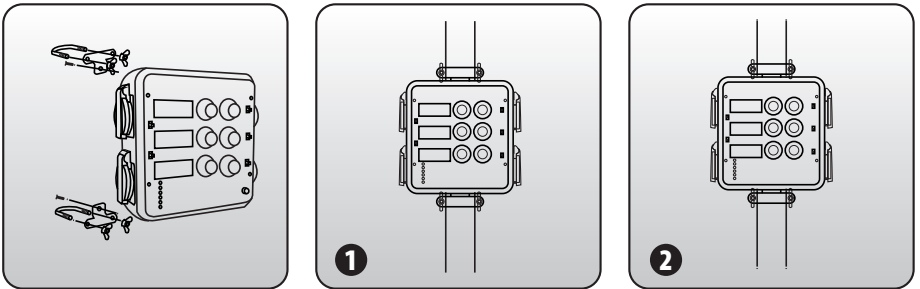
Secure the controller to the wall using the included mounting clips and screws.



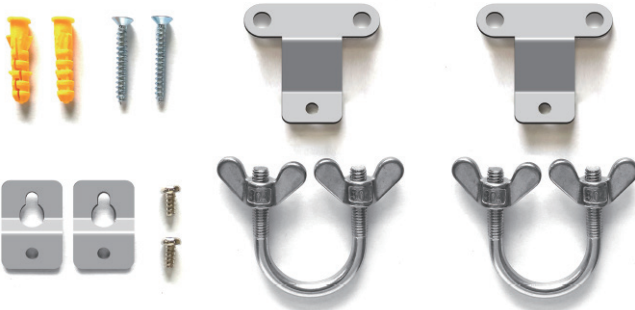
MOUNTING THE UNIT TO A GROW TENT

Secure the controller to one of the grow tent's vertical support rods with the included U-bolt brackets.

1. Install on the inside of the grow tent.
2. Install on the outside of the grow tent (note that this method requires puncturing four holes

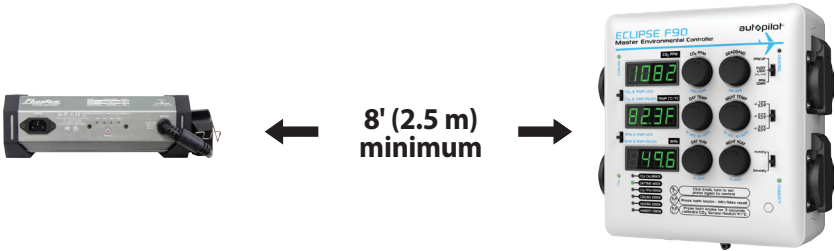


through the grow tent wall to allow the threaded ends of the U-bolts to emerge through the grow tent's fabric wall).



GENERAL WARNINGS

1. Save the instructions. These safety and operating instructions must be kept in a safe place for future reference.
2. All warnings on this product and in the instructions must be observed closely.
3. All operating instructions must be followed.
4. If the these instructions are not followed, damage to the product itself may result.
5. Install your controller at least 8' away from any devices that produce electronic interference, such as electronic ballasts or ozone generators.



6. This controller can only accept standard 120V Nema 1-15P and Nema 5-15P plugs. Do not insert any other plug type into it.
7. Do not use this controller near water or any water source. It should not be exposed to any dripping or splashing water, as it is not waterproof nor shockproof.
8. Any serviceable parts inside or outside the unit should only be replaced by Hydrofarm.
9. If the power cord is damaged, please stop using the product immediately. Unplug the unit and contact the retailer you purchased it from.
10. The unit is equipped with a circuit breaker that will automatically shut it down at once. All outlets of the product all have the safety ground.
11. Do not install the unit near any heat source.
12. Do not block any ventilation openings in the controller housing.
13. This product is a Safety Class I Controller and is equipped with a Nema 5-15P plug. The main plug should only be inserted into a properly grounded power outlet. Any alteration of the power cord is likely to make the product dangerous and will void the warranty.

SULFUR VAPORIZER WARNING

If a sulfur vaporizer is used, first remove the remote sensor unit 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. Failure to protect the sensor while using a sulfur vaporizer will result in damage to its infrared component and will void the warranty.

WARRANTY



LIMITED WARRANTY

Hydrofarm warrants the **APE4200** to be free from defects in materials and workmanship. The warranty term is for 2 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 **APE4200** covered under this warranty if it is returned to the original place of purchase. To request warranty service, please return the **APE4200**, with original sales receipt and original packaging, to your place of purchase. The purchase date is based on your original sales receipt.



Thank you for choosing Autopilot by Hydrofarm. For further information about Autopilot products, videos, and technical information, please visit AutopilotControllers.com

ADDITIONAL LANGUAGES OF THESE INSTRUCTIONS CAN BE FOUND AT Hydrofarm.com



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APE4200 Instructions revised - January 8, 2018 11:21 AM



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