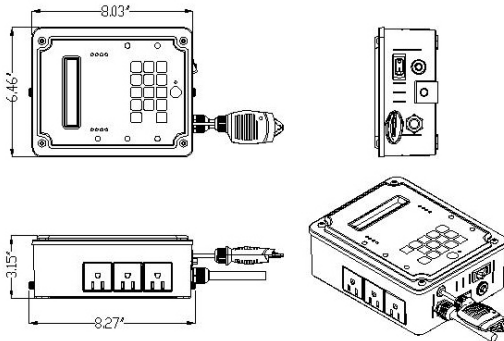


## Troubleshooting & Specs

## EVC-2

Amps / Volts requirements	15 amps @ 120 volts
Min / Max operating temperature	32 to 120° F
Temperature Accuracy	+/- 1° F
Temperature Mode	Heat or Cool
Min / Max Humidity	0-99% RH
Humidity Accuracy	+/- 3% RH
Humidity Mode	Humidify or Dehumidify
CO2 Mode	Day or Night
Weight / Dimensions	7 lbs / 8" x 6.5" x 3.1"
Remote sensor length	16 feet
Life Expectancy	> 10 years



All Sentinel Timers and controllers offer a **3-year** warranty.

Ask your retailer for details.

Sentinel products are distributed by:

GPS / Global Product Solutions LLC.



[www.growgps.com](http://www.growgps.com)



# Instruction Manual

## EVC-2

### Environmental Controller



Welcome to the future. The EVC-2 Environmental Controller represents a new level of intelligent design and function in a simple to use and reliable controller. It is 100% digital and programmable. Separate Day and Night temperature & humidity setpoints are critical for proper plant development.

#### CONTENTS

A quick look at the EVC-2  
Installation of the EVC-2  
Operating the EVC-2  
Connection Examples  
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Specifications

The EVC-2 has been designed to maintain a specific temperature and humidity within an area. It controls temperatures by operating a device such as an air-conditioner, exhaust fan or heater.

The humidity is separately controlled and can be set to either increase or decrease the humidity to a specific level.

Like the temperature, there are separate Day and Night humidity settings that provide remarkable control of critical humidity levels especially at night.

- The EVC-2 coordinates the use of supplemental CO<sub>2</sub> with the temperature control function. It is the best and most cost effective device on the market.
- It also has the ability to record and recall the Minimum and Maximum temperatures and humidity. The built-in photocell allows the user to set separate Daytime and Nighttime temperatures & humidity levels and also aids in controlling the CO<sub>2</sub> operation.
- The remote temperature probe can be placed up to 16 feet from the controller to more accurately control the temperature.
- It can control either a Cooling or a Heating device and either a dehumidifier or a humidification device.

#### **Problem: The display reads Err SEN**

The remote Temp & Humidity probe has been disconnected or is not communicating with the unit. Check the cable and the remote sensor. If resetting (OFF / ON) the power does not help, contact the factory. (See below also)

#### **Problem: The temperature and / or Humidity reading is erratic or changing rapidly.**

Certain devices such as Electronic (Digital) Ballasts and Ozone generators produce a huge amount of electronic “noise”. If you are operating these other devices, locate them as far away from the controller as possible. Position the cables that connect the ballast to the lamps away from the remote temperature probe on the controller. To verify which equipment is affecting the temperature reading, disconnect the other devices suspected of interfering with the controller.

## Troubleshooting

### **Problem: The unit does not power up at all.**

Check and reset the circuit breaker. A small red button will pop out at the bottom of the unit, press it in to reset. If the problem continues, reduce the number of devices connected to the unit.

### **Problem: The Temperature control function does not seem to be working correctly, or it seems to be operating reverse.**

The user must select EITHER cooling or heating mode.

- 1) If Cooling mode is selected, the unit will operate a cooling device to keep the area below the setpoint.
- 2) If Heating mode is selected, the unit will operate a heating device to keep the area above the setpoint.

### **Problem: The Humidity control function does not seem to be working correctly, or it seems to be operating reverse.**

The user must select EITHER dehumidify or humidify mode.

- 1) If Dehumidify mode is selected, the unit will operate a dehumidifier to keep the area below the setpoint.
- 2) If Humidify mode is selected, the unit will operate a humidifier to keep the area above the setpoint.

### **Problem: The Temperature receptacle turns ON and OFF too frequently.**

To maintain the temperature most accurately, the unit is factory set with a “dead-band” setting of 2°F. The dead-band setting can be changed to stop frequent cycling of the Temperature Device BUT, the accuracy of the unit will be affected with a higher Dead-band. (See Changing the Hysteresis (Dead-band) on Page #5)

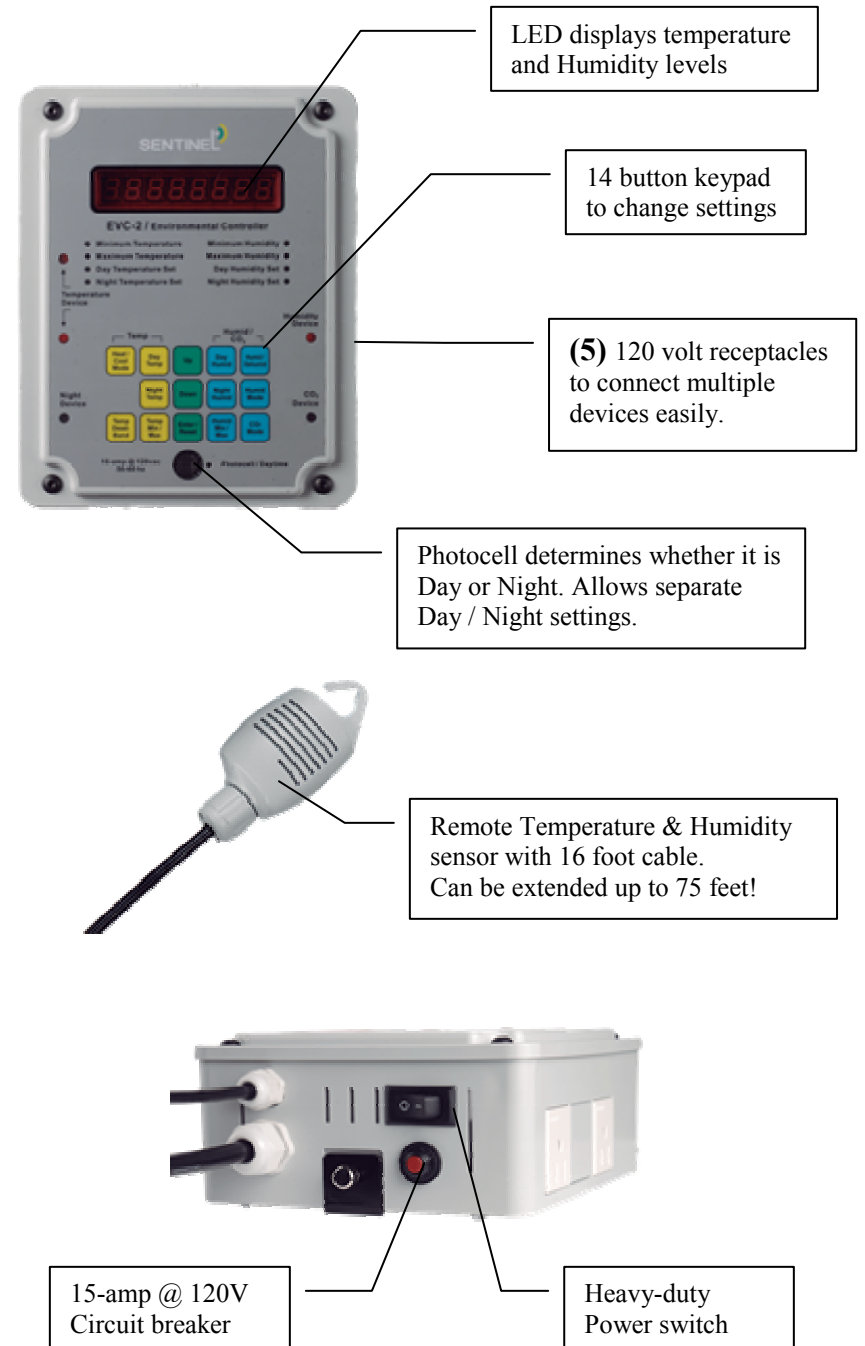
### **Problem: The temperature varies between day and night.**

There are 2 separate setpoints for Day time and Night time, a photo-cell mounted on the front of the unit senses light and changes to the appropriate settings. (See Setting Temperatures on Page #5)

### **Problem: The CO2 control function only works during the day.**

If you are growing CAM type plants (orchids) you can select the CO2 to operate at night. The factory setpoint for CO2 mode is Daytime. (See CO2 mode on page #7)

## A quick look at the EVC-2...



## Installing the EVC-2

1) Locate a suitable location. First secure the provided bracket to the wall. Next snap the controller into place and tighten the (2) thumb-screws on the top & bottom.

**NOTE:** \*Note: Make sure the thumb-screws are in place before attempting to use the controller. The sensor is VERY fragile... falling to the ground would be very bad.

- 2) The unit requires a 120 volt, 15-amp power supply. Plug the power cable into a standard Nema 5-15 wall outlet.
- 3) The remote temperature / humidity sensor can be located up to 16 ft from the unit. Position it at plant level near the plants themselves.
- 4) The device that will be controlled must be 15-amps or less.
- 5) If you are using a cooling or heating device such as a air conditioner or exhaust fan, connect the device's power cable into one of the two receptacles marked "Temperature".
- 7) If you will also be using supplemental CO2, connect the CO2 device to the receptacle marked CO2 Device.
- 8) If you will be using either a dehumidifier / fan or humidifier, connect it to the receptacle marked Humidity.
- 9) If you will need to have a heater, fan or other device that operates only at night, connect it to the receptacle marked Night Device.
- 10) Turn the power switch to the ON position and you are ready to go.

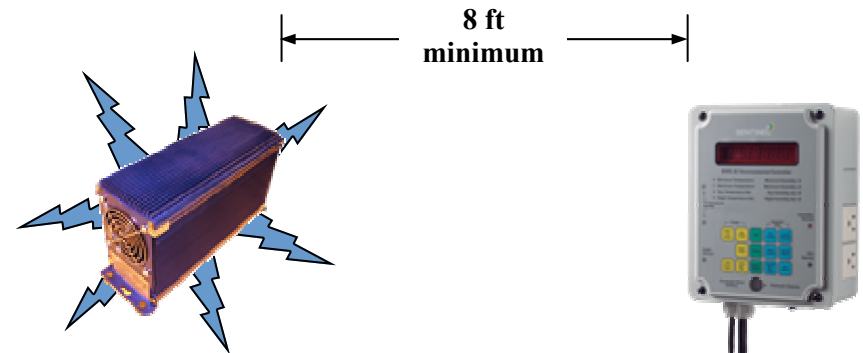
### There are 14 buttons on the unit that control all the functions.

- **Day Temp:** Press this button for 1 second to display and change the current "Daytime" temperature setting.
- **Night Temp:** Press this button for 1 second to display and change the current "Nighttime" temperature setting.
- **Day Humid:** Press this button for 1 second to display and change the current "Daytime" humidity setting.

## Warning!!!

Some electronic devices such as Electronic (Digital) HID ballasts and Ozone generators produce large amounts of electronic noise, which can affect other equipment. The Sentinel line of controllers and timers have been "hardened" by using shielded cable and shielded enclosures however... some EBs do not have proper shielding. For best results it is highly recommended to position your controller at least 8 ft away from any EBs (Electronic Ballasts).

It is also a good idea to route the cables going from the EB to the HID lamp away from the controller and the remote temperature probe cable attached to the controller.



Keep Electronic ballast at least **8 ft** away from Controllers and other electronic equipment. Also, keep cables from the EB from passing near the controller.

## Connection Examples

For indoor growing, Cooling devices such as ventilation fans or air-conditioners connect to the Temperature Device receptacle

Dehumidifier or a humidifier can be connected to the Humidity Device receptacle



OR



OR



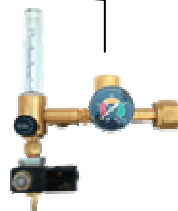
OR



Heaters for cooler climate greenhouses can be connected to the Night Device receptacle.



Connect your 120 volt compressed CO2 solenoid / regulator assembly OR a CO2 generator to the CO2 device receptacle.



OR



- **Night Humid:** Press this button for 1 second to display and change the current “Nighttime” humidity setting.
- **Temp Min/Max:** Press this button for 1 second to display the minimum and maximum recorded temperature.
- **Humid Min/Max:** Press this button for 1 second to display the minimum and maximum recorded humidity.
- **Enter/Reset:** Press this button enter the new setpoint or to reset the recorded Min / Max temperatures or Min / Max humidity levels.
- **UP:** Press this button to display to increase the setting.
- **Down:** Press this button to display to increase the setting
- **Heat/Cool:** Press this button for 1 second to select Heat or Cool mode.
- **Temp Dead-band:** Press this button for 1 second to display and change the current “Dead-band” setting.
- **CO2 Mode:** Press this button for 1 second to display and change the CO2 Mode (Day or Night).
- **Humid/ Dehumid:** Press this button for 1 second to display and select either Dehumidify or Humidify mode.
- **Humid Mode:** Press this button for 1 second to display and select either independent or combined humidity & temperature mode.

**NOTE:** To change the display to read in Centigrade, press and hold the Up and the Down buttons together for 3 seconds. To return to Fahrenheit, press and hold the Up and Down buttons for 3 seconds.

## Operating the EVC-2

“Programming” doesn’t have to be complicated. The EVC-2 has been designed to be simple to set-up and “program”. Separate buttons for each function make changes easy.

**Setting Temperatures:** Lets set the daytime & nighttime temperatures. Press and hold the **Day Temp** button for 1-second. The display changes to show you the current setpoint. Use the **Up** or **Down** button to change the setting. Press **Enter** to accept the new setpoint. Do the same for the Night temperature setting. \* A **Green** LED illuminates to indicate you have accessed the setpoint.

**Setting Humidity levels:** To set the daytime & nighttime humidity, press and hold the **Day Humid** button for 1-second. The display changes to show you the current setpoint. Use the **Up** or **Down** button to change the setting. Press **Enter** to accept the new setpoint. Do the same for the Night humidity setting. \* A **Green** LED illuminates to indicate you have accessed the setpoint.

**Heat & Cooling modes:** You can change the EVC-2 to control either a cooling or heating device. Press and hold the **Heat/Cool** button for one second. Use the **Up** or **Down** buttons to change the display to the desired mode, **Cool** or **HEAt**. Press **Enter** to accept the change.

**Accessing & resetting Min/Max temperatures:** The EVC-2 records the high and low temperatures. This is helpful to verify the temperatures are being controlled correctly. Press and hold the **Min/Max Temp** button for 1 second. The highest recorded temperature (Max) is displayed. Pressing the **Min/Max Temp** button again displays the lowest recorded temperature (Min). To reset the Max temperature, bring up the Maximum temp on the display, press and hold the **Enter/Reset** button for 3-seconds. The Min temp is reset the same way. \* A **Green** LED illuminates to indicate you have accessed the recorded Min or Max value.

**Accessing & resetting Min/Max humidity:** The EVC-2 also records the high and low humidity levels. This is helpful to verify the humidity is being controlled correctly. Press and hold the **Min/Max Humid** button for 1 second. The highest recorded humidity (Max) is displayed. Pressing the **Min/Max Humid** button again displays the lowest recorded humidity (Min). To reset the Max humidity, bring up the Maximum humidity on the display press and hold the **Enter/Reset** button for 3-seconds. The Minimum humidity is reset the same way. \* A **Green** LED illuminates to indicate you have accessed the recorded Min or Max value.

**Changing the Temperature hysteresis (Dead-band):** Hysteresis or “dead-band” of the temperature can also be changed by the user. The factory default is 2 degrees F. This means that if the unit is set to Cool mode, and the temperature is set at 80’, when the temp rises to 80’, the cooling device will be activated. With a 2 degree F “dead-band”, the cooling device will continue to run until the temperature is reduced by 2 degrees, down to 78 degrees. Setting the hysteresis lower than 2 degrees will control the temperature more accurately, but it may also cause the cooling device to start and stop too often. Increasing the hysteresis will stop the rapid cycling On/Off of the control output. To change the setting, press and hold the **Dead-band** button for 1 second. The current Dead-band is displayed, **t.db \_.\_F**. Use the **Up** or **Down** buttons to change the setting and the **Enter/Reset** button to accept the change.

**Dehumidify (reduce) or Humidify (add) humidity:** The humidity control can function either as a dehumidification controller OR as a humidification controller. An exhaust fan or dehumidifier can be connected if high humidity is a problem, a misting system or humidifier can be used if it is too dry. Press and hold the **Humid/Dehumid** button for 1 second. The default setting is to De-humidify. It is called **rH dEcr**. To change it to Humidify, **rH Incr** press the **Up** or **Down** button and then press **Enter/Reset**.

**Humidity Mode:** It is popular to activate the “Cooling” exhaust fan to remove humidity. When either the Temperature OR the Humidity gets above the setpoint, BOTH the Humidity AND the Temperature receptacles are activated. To select this mode, press **Humid Mode** for 1 second. Use the **Up** or **Down** buttons to select **connEct** mode and then press **Enter/Reset**. In other cases, the user will want to have separate control of the temperature and humidity. The default setting is this independent Temp & Humid mode called **SPLiT** To reselect this mode, press **Humid Mode** for 1 second. Use the **Up** or **Down** buttons to select **SPLiT** mode and then press **Enter/Reset**.

**CO2 Mode:** There are three modes of CO2 control. You can select **daYLock** to “interlock” the CO2 and Temperature device, using exhaust fans, (The CO2 function will be disabled when the Temperature receptacle is ON to eliminate CO2 from being wasted.). Or you can operate the mode **daYFrEE** to control the CO2 & Temperature device separately. To change the CO2 Mode, press and hold the **CO2 Mode** button for 1 second. The factory mode, **daYLock** is displayed. Use the **Up** or **Down** buttons to change the setting to **daYFrEE** or **NitE** and then press the **Enter/Reset** button to accept the change.

**Fahrenheit or Centigrade:** To change the display to read F or C press and hold BOTH the **Up** and **Down** buttons for 3 seconds.