1 Square = _____ Foot/Feet

TITAN® CONTROLS

SATURN™ 6
Digital Environmental Controller
Instruction Manual

Sunlight Supply® Inc.
National Garden Wholesale®

VANCOUVER, WASHINGTON U.S.A.

www.titancontrols.net

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Saturn™ 6 Digital Environmental Controller

Warnings

- Read all instructions before operating controller.

- Do not put your controller in an area where it can get wet or sprayed.

- Mount your controller securely to the wall using hardware provided.

- When using "bug bombs" in area, cover controller completely to avoid corrosion.

- There are no serviceable parts in controller. Do not attempt to repair the unit.

- Breaking "warranty" seal will void your warranty.

- Do not put paper clips, tools, etc. into unit. Possible electrocution may occur.

- Plug controller into surge protector to avoid potential damage to the unit.

- Make sure to verify your power source prior to plugging controller into outlet.

- Check that all equipment that will be activated by this controller is the proper voltage.

- Verify that your equipment does not exceed a total of 15 amps.

- This controller is designed for inside use only.

- Avoid placing the controller near heat generating sources.

- Use caution when operating controller in extremely humid environments.

- Do not use controller for purposes other than the unit was designed to function

- Use controller within defined environmental specifications.

- Ask your Dealer for tips and techniques regarding the use of this controller.

- Be conscientious when disposing of any products.

- Enjoy your Titan Controls® environmental controller for years to come!

Safety Tips

1. These safety and operating instructions must be kept in a safe place for future reference.
2. All warnings on this product and in these instructions must be observed closely.
3. 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.
6. The ⚡ symbol on the enclosure indicates that the receptacle beside it may have an output voltage.
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, etc. The product is not

FOR WARRANTY SERVICE: Please read warranty information first.

If after reviewing the troubleshooting tips the unit will still not work, you should return it to the Dealer where you purchased the controller. They will be able to further evaluate the unit and test its various components and quite possibly will be able to identify and/or fix any problems. If the Dealer is unable to fix the unit, they will return it to us for factory repair.

If there are no Dealers in your area, you may contact us directly for technical support. If we cannot help you resolve the problem over the phone, we will issue you a RMA # (return merchandise¬authorization) authorizing you to return the unit to us for factory reconditioning (if the unit is under warranty). Contact the number below for a RMA and shipping address. Complete the form below and include it with your unit. Also please write the RMA # on the outside of the box.

Please package the unit in its original packaging. If it is damaged in shipment we cannot be responsible.

Once we receive the unit back, we will repair the controller within 48 hours (business) and return it to you freight prepaid via UPS ground shipment.

Include the following if returning directly to Titan Controls®

- Proof of purchase • This completed form • RMA # on the outside of the box

Return Merchandise Authorization Number (Required

Company Name: _____

Contact Name: _____

Address: _____

_____

Phone #: _____

Email address: _____

What is the nature of the problem? _____

_____

_____

_____

_____

_____

Shipping address will be given when the RMA # is issued.

www.titancontrols.net
For technical assistance call us at 1-888-80-Titan or 1-888-808-4826.

Warranty Information

- Titan Controls® warrants the original purchase of this product against defects in material and workmanship under normal use for three (3) years from the date of purchase.

- During the warranty period, Titan Controls® will, at our option, and without charge, repair or replace this product if the controller or any of its components fail or malfunction.

- All returns or repairs must be accompanied by a Return Merchandise Authorization (RMA) number prior to any service of the product.

- This warranty is expressly in lieu of all other warranties, expressed or implied, including the warranties of merchantability and fitness for use and of all other obligations or liabilities on the part of the seller.

- This warranty shall not apply to this product or any part thereof which had been damaged by accident, abuse, misuse, modification, negligence, alteration or misapplication.

- Controllers with serial numbers or date tags that have been removed, altered or obliterated; broken seals or that show evidence of tampering; mismatched serial numbers or nonconforming parts, are excluded from coverage.

- Titan Controls® makes no warranty whatsoever in respect to accessories or parts not supplied by Titan Controls®.

- Monetary refunds of the warranty will not be given.

- The Buyer assumes all responsibility regarding the use & installation of this controller.

- All warranty service is provided through the factory or an authorized service representative.

- This warranty shall apply only to the United States, including Alaska, Hawaii and territories of the United States and Canada.

- Defective controllers need to be returned with the "proof of purchase/receipt".

- For additional warranty information, contact a Titan Controls® Technical Service Representative or your Dealer.

- **NOTE: Titan Controls® is a manufacturer of environmental controls. All sales offerings to the public are done through a nationwide group of Dealers. No sales offerings will be made directly to the general public.**

Service and Repair Program

- For all service and repairs please contact one of our Technical Service Representatives for a Return Merchandise Authorization (RMA) number.

- All factory service & repairs will be completed within 48 hours of receipt of controller and after authorization by customer for repairs.

- Titan Controls® will, at its discretion, repair or replace the controller.

- Factory calibration services are available for all Titan Controls®. Returning Units: Please contact your retail store for returns.

water-proof, or shock-proof.

8. Any factory serviceable parts of the product can only be checked or replaced by the manufacturer.
9. Do not install the enclosure near any heat source.
10. Do not block any ventilation openings.
11. This product is a Safety Class 1 Controller. The main plug should be inserted in a power socket outlet only if provided with a protective earth contact.

Saturn™ 6-Digital Environmental Controller Overview

The Saturn™ 6 is a fully digital environmental controller. With it you can control the CO_2, humidity, and temperature of your grow room accurately. It features a remote sensor with a photocell for night function and proper usage of CO_2. The controller has four outlets: one heat output, one cooling output, one CO_2 output and one dehumidify/humidify output. The heat output is intended to be hooked up to a heat source. The cooling output can have a fan plugged into it, to exhaust air if the temperature is above the set point or it can be used to activate a high amperage relay (Hercules™ 1 or 2) connected to an A/C unit. The CO_2 output can have a CO_2 source (CO_2 generator or tank and regulator) hooked directly into it, since it controls PPM (parts per million). The humidity output can be used to dehumidify or humidify the grow room. You can have a dehumidifier or fan plugged in to dehumidify your room. When in humidify mode, a humidifier may be used. The digital nature of the Saturn™ 6 allows you to control your grow room to whatever specifications you desire. The Saturn™ 6 is built with highest quality components to insure years of trouble free garden control.

Operation Instructions

There are fifteen buttons located on the front face plate of the unit that control all functions. Pressing each button will display a function and/or current setting(s) in the green LCD window. Some buttons are programmed to perform more than one function.

The small green LED lights or status indicators located on the front panel will light up to show the selected function when certain buttons are pressed.

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 range.

TEMPERATURE BUTTONS

TEMP DAY SETTING- Press button to set day cooling and heating set point.

TEMP NIGHT SETTING- Press button to set night cooling and heating set point.

TEMP DEAD-BAND- Press button to set the cooling and heating dead-band range. This button is used to determine the number of degrees above/below for when the heating or cooling outputs will activate. <u>Example</u>: If your cooling function is set at 85°F and the dead band is 3°F the output will activate when it's above 85°F and turn off when it's below 82°F.

HUMIDITY BUTTONS

HUMIDITY SETTING- Press this button to set Day and Night humidity Settings.

HUMIDITY MODE- Press this button to select the humidification (rH Incr) or de-humidification (rH decr) mode.

HUMIDITY DEAD-BAND- Press button to set the humidity dead-band setting. The humidity dead band determines when the humidity output will function based on how many % points above or below the set point, the humidity is. *Example:* If you have the controller set to humidify and your set point is 60% rH and your dead band is 3% rH, the output will function until the humidity is at 63% rH.

CO$_2$ BUTTONS

CO$_2$ PPM SETTING - Press button to display and/or change CO$_2$ Parts Per Million (PPM) setting.

CO$_2$ DEAD BAND - Press button to set the CO$_2$ dead-band set-point. The CO$_2$ dead band is the number of PPM (Parts Per Million) above the set point that the controller will deactivate the output. For example: If your PPM set point is at 1200 PPM, the controller will deactivate once the PPM level is above 1250 PPM.

CALIBRATE CO$_2$ PPM - Press button to re-calibrate the CO$_2$ sensor.

NOTE: Refer to "How to Calibrate CO$_2$"

SPLIT MODE BUTTONS

TEMP & HUMIDITY LOCK - Press button to lock or split the humidity and temperature functions. The user has the option to run both at the same time or independently.

TEMP & CO$_2$ LOCK - Press button to lock or split the temperature and CO$_2$ functions. The user has the option to disable CO$_2$ during exhaust fan operation, or to allow CO$_2$ and temperature controls to function independently.

MIN/MAX RECALL - Press this button repeatedly to recall the stored high and low recorded levels for Temperature, Humidity and CO$_2$. Press and hold the Enter/Reset button while the recorded value is displayed to reset the Min/Max values.

*TO CHANGE THE TEMPERATURE READING FROM F TO C, PRESS AND HOLD THE UP AND DOWN BUTTONS FOR 2-3 SECONDS.

ERROR LEDS

The Saturn™ 6 monitors each of the environmental conditions and is programmed to alert the user of a problem with any of the devices connected to the controller.

Here is how it works: As the unit functions normally, the environmental conditions (temp, humidity & CO$_2$) will be slowly but steadily changing. These small changes are detected by the controller.

If the controller does not detect a slight change in one (or more) environmental conditions within a 1-hour period, the unit will de-activate the affected output and the appropriate green Error LED will be flashing to indicate which device may have a problem.

This safety feature is extremely important and useful to eliminate "extreme" conditions which could be detrimental to your crop.

Installation Example

Saturn™ 6
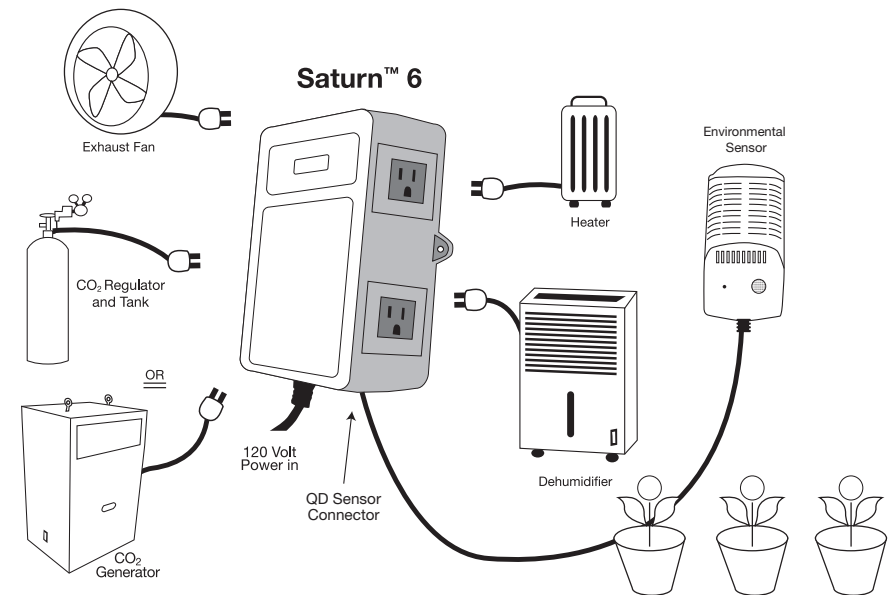
Controller Specifications

- Input voltage: 120 Volts AC
- Maximum amperage: 15 Amps @ 120 VAC
- Remote probe cable length: 15 ft
- Temperature control range: 41° to 113° F
- Temperature accuracy: +/- 2° F
- Temperature dead-band (hysteresis): adjustable
- Humidity control range: 5% to 95% rH

- Humidity accuracy: +/- 3% rH
- CO$_2$ control range 380-2500 PPM
- CO$_2$ accuracy +/- 75 PPM
- CO$_2$ dead-band (hysteresis): adjustable
- Weight: 5 lbs
- Waterproofing grade: IP20
- Dimensions: 9" x 7" x 4"

HOW TO CALIBRATE CO_2 (PPM)

1. Place the controller outdoors in a shaded area. Do not place in direct sunlight. Keep away from people, animals and other CO_2 emitting units.

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.

2. 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.

3. Press CO_2 PPM CALIBRATE to activate the automatic calibration. The new CO_2 level (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.

4. Press Enter / Reset to start the calibration sequence, (Co2_CAL) will be displayed. Leave controller alone for about 10 minutes.

5. 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.

*NOTE: Failure to protect the sensor during sulfur use results in damage to the infrared CO_2 sensor and will void warranty

Troubleshooting Tips

How can I tell if my CO_2 reading is accurate? You can check the calibration of the CO_2 sensor by placing the sensor outdoors for 30 minutes. It should read close to 380 PPM. *See Calibrate CO_2 PPM in the "How to set..." section.

What if my temperature is reading high? Make sure the remote probe is not in direct lighting from HID lights or sunlight. The probe also requires good air flow around it in order for the internal ventilation fan to quickly sample the air.

Do I need to calibrate my humidity sensor? No. Like the temperature sensor, the humidity sensor is digital and does not require calibration. Refer to the above if the humidity reading does not seem accurate.

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 Titan Controls® technical service representative for assistance 1-800-808-4826.

What if one of the of the small green Error LEDs are on? One or more environmental conditions are not acting correctly. Refer to the **(Error LEDs)** sections to diagnose the problem.

Why isn't the CO_2 outlet turning on? Verify the correct CO_2 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). If this continues reduce the number of devices connected or use a power multiplier / expander to control devices with larger amperage.

*NOTE: TO RESET AN ERROR, PRESS THE ENTER / RESET BUTTON.

FACTORY SETTINGS

The Saturn™ 6 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).

Temp day settings: Cool 80°F / Heat 55°F

Temp night setting: Cool 70°F / Heat 55°F

Temp dead-band: 3°F / Heat and Cool

Humidity settings: 50 % rH

Humidity mode: Rh decr

Humidity dead-band: 3 %

CO_2 PPM setting: 1250 PPM

CO_2 dead-band: 50 PPM

Calibrate CO_2 PPM: 380 PPM

Temp & humidity lock: Split

Temp & CO_2 lock: Split

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. When the factory reset is complete the unit will say DONE.

HOW TO ADJUST SETTINGS

UP - Press button to increase setting

DOWN - Press button to decrease setting

ENTER/RESET - Press button, hold for 3 seconds to restart timer or to adjust the setting. The timer will always start in the "ON" cycle.

TEMPERATURE DISPLAY - Press and hold both the Up and Down button for 3 seconds to change display. C for Celsius and F for Fahrenheit

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

1. To set the Day Cooling press DAY SETTING, COOL__F will be displayed. To change settings press the Up and Down buttons. Press Enter to accept new setting.

2. To set the Day Heating press DAY SETTING twice, HEAt__F will be displayed. To change settings press the Up and Down buttons. Press Enter to accept new setting.

TEMP NIGHT SETTING - There is a Night Cooling set point and a Night Heating set point.

1. To set the Night Cooling press NIGHT SETTING, COOL__F will be displayed. To change settings press the Up and Down buttons. Press Enter to accept new setting.

2. To set the Night Heating press NIGHT SETTING a second time HEAt__F will be displayed. To change settings press the Up and Down buttons. Press Enter to accept new setting.

NOTE: To avoid both the heating and cooling device turning on at the same time, the heating and cooling settings must be greater than the combined dead band settings.

TEMP DEAD-BAND - There are two (2) dead band settings, one setting for cooling and one for heating.

1. To set the cooling dead band, press Temp DEAD BAND. COOL__F will be displayed. To change the set points press the UP and DOWN buttons. Press Enter to accept new setting.

2. To set the heating dead band, press Temp DEAD BAND a second time. HEAt__F will be displayed. To change the set points press the Up and Down buttons. Press Enter to accept new setting.

HUMIDITY SETTING - There is a day humidity setting and a night humidity setting.

1. To set the Daytime humidity, press the HUMIDITY SETTING button. day_rH will be displayed. Press the Up or Down button to change the Daytime humidity setting. Press Enter to accept the new setting.

2. To set the Nighttime humidity, press the HUMIDITY SETTING button a second time nit_rH will be displayed. Press the Up or Down button to change the Nighttime humidity setting. Press enter to accept the new setting.

HUMIDITY MODE - Use this to select to humidify or to dehumidify. Press HUMIDITY MODE, the display will read the current setting, either Humidify (rH Incr) or dehumidify (rH dEcr). Press the Up/Down buttons to change the setting. Press Enter to accept new setting.

HUMIDITY DEAD BAND - Pressing the HUMID DEAD BAND button and the display will read 05.0_rH (or the current setting) Press the Up or Down buttons to change the setting. Press Enter to accept new setting.

CO_2 PPM SETTING - Press CO_2 PPM SETTING, The current PPM setting will be displayed. To change settings press the Up or Down buttons. Press Enter to accept new setting.

CO_2 DEAD BAND - Press CO_2 DEAD BAND button and the display will read current setting. Press the up or down button to change setting. Press Enter to accept new setting

TEMP & HUMIDITY LOCK - use this function to interlock (COnnEct) or split (SPLit) humidity and temperature. Press Temp/Humidity lock button to display the setting. Press the Up and Down buttons to change the setting. Press Enter to accept new setting.

1. Select connect (COnnEct) if using ventilating fans only for cooling and removing humidity. The fan will turn on when the sensor detects a rise above the setting in either the humidity or temperature.

2. Select split (SPLit) if using a ventilating fan or AC unit as a cooling device and a dehumidifier to remove humidity. Each device is controlled independently. The cooling device will turn on when the temperature rises above the setting and the dehumidifier will turn on when the humidity rises above the setting.

3. Select split (SPLit) if using a fan or AC unit as a cooling device and a humidifier to add humidity. Each device is controlled independently. The cooling device will turn on when the temperature rises above the setting and the humidifier will turn on when the humidity lowers below the setting.

TEMP & CO_2 LOCK - Use this function to interlock (COnnEct) or split (SPLit) the CO_2 and temperature functions. They can activate at the same time or independently. Press the

Temp/CO_2 lock to display the setting. Press the Up or Down buttons to change the setting. Press Enter to accept new setting.

1. Select connect mode (COnnEct) if using ventilating fans (inside-to-outside growing area air exchange) for cooling and a compressed CO_2 setup. This will turn off the CO_2 when the fans are activated. The fans will exchange the warm-humid inside air with the cooler-drier outside air while the CO_2 is off to prevent excess loss of CO_2.

2. Select split mode (SPLit) if using a recycling air-conditioner for cooling and compressed CO_2 in the growing area where there is no exchange of outside air. This will activate the air conditioner independently from the CO_2 allowing them to both run at the same time.

3. Select split mode (SPLit) if using ventilating fans (inside-to-outside growing area air exchange) for cooling and a CO_2 generator. If set-up this way, the ventilation fans AND the CO_2 generator will be allowed to operate simultaneously.

4. Select connect mode (COnnEct) if using a recycling air-conditioner for cooling and a CO_2 generator. This turn off the CO_2 generator when the air conditioner is operating to reduce the amount of heat that needs to be removed by the air conditioner.

MIN/MAXIMUM RECALL - Press to "recall" or display the minimum and maximum temperature, humidity, and CO_2 recorded values. Each time the button is pressed, the next setting will be displayed.

The order of the recorded values is as follows:

Max temp, Min temp, Max humid, Min humid, Max CO_2, Min CO_2

TO RESET THE MIN/MAX VALUES - Press the Enter / Reset button and hold for 3 seconds.

PHOTOCELL SENSITIVITY

The sensitivity of the photocell may be adjusted.

* Press both Enter/Reset and Up buttons 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)

HOW TO USE THE FUZZY LOGIC CO_2 MODE

Fuzzy Logic CO_2 mode- this function allows the user to more precisely control the CO_2 levels inside the growing area. Fuzzy Logic works by monitoring the rising or falling CO_2 level and reacting to it by quickly activating ON / OFF the CO_2 solenoid valve. This function can ONLY be used with compressed CO_2 (CO_2 tank).

Fuzzy Logic mode can be activated or deactivated by pressing Enter/Reset and holding for 5 seconds. Press Up or Down to select generator mode (gEnErAt) if using CO_2 generator or Fuzzy Logic mode (LogIcon) if using compressed CO_2. Press Enter to accept new setting.

NOTE: To prevent the CO_2 regulator from "freezing" or not closing when using the "Fuzzy Logic" mode, we recommend using the Titan Controls® CO_2 regulator (item number: 702710).

IMPORTANT NOTE: Do not use Fuzzy Logic mode if operating a CO_2 generator