

AEGIS TEC Environmental Controller

User Manual



INTRODUCTION

Thank you for purchasing the Aegis Tec environmental controller. The Aegis Tec is designed for ease of installation and operation, as well as addressing the unique challenges of greenhouse environmental control. The system can coordinate and control ventilation curtains, light deprivation curtains, heaters and fans.

Freestanding Greenhouse Application

The Aegis Tec touchscreen environmental controller is ideal for the greenhouse grower that desires many of the features and sophistication of more expensive environmental controllers. Designed for a single zone or freestanding greenhouse, the Aegis Tec can coordinate a variety of growing techniques and system overrides. This manual's purpose is to assist you in utilizing the controller to its fullest potential, for your specific application.

Main Features

- Two timed set-point overrides.
- DIF growing technique capable.
- Light Deprivation capable.
- Friendly touchscreen interface.
- Staged ventilation.
- Wind speed override option.
- Humidity override option.
- Rain override option.
- Battery backed clock.
- 6 relay outputs (three vent motor capability as standard).
- Dry contact control for heaters or fans.
- Manual overrides.

WARNING



Read instruction completely before beginning your installation. Familiarize yourself with this unit and compare what you received with these instruction.



Always wear eye and ear protection. Always use gloves and other necessary safety equipment. Metal can be sharp, handle carefully to avoid injury.



Qualified electricians should provide all electrical installations.

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Locating the Aegis Tec

Consider the following before installing the Aegis:

- Protect the enclosure from moisture—mount it in a secure and dry place.
- Important: Only drill holes in the bottom of the enclosures.
- Drilling holes into the top or sides of the enclosure voids the warranty.
- Secure using the included mounting brackets and properly sized screws or bolts.

Locating the Temperature Sensor

Place the temperature sensor in the middle of the structure and at a height that best represents the average temperature at crop level.

Keep the sensor wire away from high voltage wire by at least 1 foot.

Connecting the Temperature Sensor

Connect the temperature sensor to sensor #1 terminals. The temperature sensor has two wires. Either wire can be connected to either terminal as long as they are both secured to the proper location.



Connecting the Low Voltage Ventilation Motors

The Aegis Tec includes a 10 amp, 24vpc motor supply. It is prewired to run multiple DC ventilation motors. Each motor is protected by a 5 amp circuit breaker. *Replacing the 5 amp circuit breakers with those of a larger amp rating will void the motor warranty.*

Connect motors directly to the board as shown. Test motor's direction of operation. If the motor runs in the closing direction when it should be opening, reversing the wires at the terminals will reverse the direction of the motor.



Connecting the Humidity Sensor

Place the humidity sensor in the middle of the structure and at a height that best represents the average temperature at crop level.

Keep the sensor wire away from high voltage wire by at least 1 foot.

Connections:

- 1. The blue wire connects to Power 24v+
- 2. The black wire connects to Sensor #2



Connecting the Fans

Below is an image showing the connection of two fans to the controller.

The controller sends an operation signal to the fans. The fans are powered independently of the controller. Do not connect 110VAC to the controller terminals.



Connecting the Heaters

Below is an image showing the connection of two heaters to the controller.

The controller sends an operation signal to the heaters. The heaters are powered independently of the controller. Do not connect 110VAC to the controller terminals.



Connecting the Anemometer

The anemometer is used to close curtains in high wind conditions.

Connections:

The red wire connects to 24v+

The white wire connects to Input#2

The black wire connects to Negative/0V



Locating the Rain Sensor

Keep the sensor wire away from high voltage wire by at least 1 foot.

The rain sensor detects water droplets on the lens. Mount the sensor for rain detection relative to the structure for the desired sensitivity.

Connecting the Rain Sensor

Match the rain sensor wire, by color, to the corresponding terminal.



MAIN SCREEN

System Status View

The Main screen shows the status of the controlled zone. You can see the temperature and the status of the relays.

Touch the center of the screen to access your settings.

Touch the bottom row of buttons for manual overrides.

15: Normal	31	3.0 мрн			
73.7° 30 SRH					%RH
Vent#1 close	Vent#1 open	Vent#2 close	Vent#2 open	Heat#1	Heat#2
auto	auto	auto	auto	auto	auto

Setting the Clock

Touch the middle of the screen to enter the Setup Menu. Touch the Clock button, upper right. Set the current time using the input keyboard.



OVERRIDES

General Overrides

General override buttons allow you to override any timed settings.



Relay Overrides

By touching the relay buttons on the main screen you can access individual manual control. Select the relay status you want. In Auto mode, the controller will perform as configured. Selecting Off or Forced allows you to manually override the auto settings. To exit, touch the area on either side of the buttons.

Side V



OVERRIDES

DIF

DIF allows you to create alternate temperature setpoints during a 24 hour period. DIF technique typically drops the temperature in the morning hours. A second DIF period can be used to amass solar energy before sunset.

The control status is displayed as either Primary, DIF or LiDep. Touch the clock to change the DIF/ LiDep or clock settings.



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CONFIGURATION

Configurations

By touching the center of the Main screen you will access the Settings screen.

The Configuration menu is where outputs and inputs are entered. What is entered should reflect the specific environmental systems that are to be controlled within the zone. This screen also enables different input sensors and sets how each system reacts to the sensor reading.

When making changes in the menu, touch 'Save' before moving to the next parameter.

Below are the configuration parameters and their default values:



CONFIGURATION Configuration Setup

ID	Description	Default	Min	Max
PO	Number of vent motor circuits	2	0	3
P1	Number of fan circuits	0	0	6
Р3	Number of heaters	2	0	4
P6	Wind average minutes. The response time for wind to average out the gusts	3	1	5
Ρ7	Wind wheel calibration 25=MPH 17=KPH	25		
P10	Type of 2nd sensor 0 = none, 1 = humidty, 2 = amps, 3 = temperature	0		
P18	How many vent motors are in zone2	0		
P19	Max seconds vent motors will close for rain or high wind	250		
P25	Is anemometer connected to Input#2	No		
P26	Do you want ability for fans to turn off at high temperature? (If you have smaller fans that need to turn off when larger fans turn on)	No		
P28	Farenheit or Celsuis	F		
P30	Revert controller to defaults			
P34	Fan#1 input. If fan should turn off if an Input is on 1 = off if input #1 is on, 2 = off if input#2 is on	0		2
P35 - P39	Remaining fan's inputs , see P34	0		2
P40	Vent Motor #1 rain sensor uses input # You select which input curtain#1's rain sensor is connected	0		2
P41	Vent Motor #2 rain sensor uses input # You select which input curtain#2's rain sensor is connected	0		2
P42	Vent Motor#3 rain sensor uses input # You select which input curtain#3's rain sensor is connected	0		2
P43	Humidity Vent, which vent motor will open if humidity gets too high.			

SYSTEM SETTINGS

Zone Parameter Setup

By touching the center of the Main screen you will access the Settings screen.

The Systems Settings menu is where input values are assigned to the environmental systems to be controlled. What is visable in this menu is based on the information entered into the Configuration menu. In System Settings you will enter values of time, temperature, humidity, wind speed, etc.

When making changes in the menu, touch 'Save' before moving to the next parameter.

Below are the System Setting parameters and their default values:



SYSTEM SETTINGS Curtain Settings

ID	Description	Default	Min	Max
P49	Open temperature for Vent 1	60°	1°	99°
P50	Open temperature for Vent 2	60°	1°	99°
P51	Open temperature for Vent 3	60°	1°	99°
P52	Vent 1's DIF1 temperature	61°		
P53	Vent 2's DIF1 temperature	62°		
P55	Vent 1's DIF2 temperature	62°		
P56	Vent 2's DIF2 temperature	72°		
P58	Vent motor run time	15		
P59	Vent motor sensor interval minutes	2.0		
P60	Ventilation temperature gap – difference between open and close temperature	5°		
P69	Vent Motor's max humidtity. Humidity at which the curtain will open to dry things			
P70	Number of seconds curtain will open for the humidty event			
P71	Humidty limit temperature. Humidity will be disregarded if it's too cold			
P75	If vent motor 1 sequence. If vent should wait to close for rain or high wind until another has activated.			
P76	If vent motor 2 sequence. If vent should wait to close for rain or high wind until another has activated.			
P83	High wind Vents - which Vents should close from wind	0		
P84	High wind MPH	20		
P85	Wind override clear MPH	12		
P126	DIF1 start time. When DIF1 starts.		0:00	23:56
P127	DIF1 end time. When DIF1 ends.		0:00	23:56
P130	Dif2 on time. When Dif2 starts.		0:00	23:56
P131	Dif2 off time. When DIF2 ends.		0:00	23:56

SYSTEM SETTINGS Fan Settings

The temperature parameters control the starting temperature.

The fans are used for cooling. They will turn on above the temperature setpoint.

If humidity is connected , fan # 1 can be set to clear out the high humidity.

ID	Description	Default	Min	Max
P89	Start temperature for Fan#1	60°	1°	99°
P90	Start temperature for Fan#2	66°	1°	99°
P95	Fan #1 DIF1 start temperature	60°	1°	99°
P96	Fan#2 DIF1 start temperature	75°	1°	99°
P101	Fan #1's DIF2 start temperature	70°	1°	99°
P102	Fan #2's DIF2 start temperature	71°	1°	99°
P107	Fan temperature gap. Difference between on and off	0.5		
P111	Fan #1 Max humidty. If humidity sensor is installed, when fan #1 will start to dry out the building	99%RH		
P112	Fan humidty hysteresis – set to 101% to disable humidity function	5%		101%
P113	Fan humidity temperature limit	32°		

SYSTEM SETTINGS

Heater Settings

The parameters control the starting temperature.

The heaters can be controlled by the DIF function.

ID	Description	Default	Min	Max
P161	Heater 1 setpoint°	60°	1°	100°
P162	Heater 2 setpoint°	61°	1°	100°
P166	Heater 1's DIF1 setpoint°	60°	1°	100°
P167	Heater 2's DIF1 setpoint°	61°	1°	100°
P172	Heater 1's DIF2 setpoint°	70°	1°	100°
P173	Heater 2's DIF2 setpoint°	71°	1°	100°
P178	Heater Hystersis	2.0°		