



ADVANCING
ALTERNATIVES



AEGIS_{TEC+}

Touchscreen Environmental Controller



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.

For Technical Support:

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Section 1 – Electrician's Guide for

The Aegis TEC Plus System

Thank you for purchasing the Aegis TEC Plus System. It is designed for easy installation and operation. The system is designed to control curtains, heaters and fans

Main Features

The Aegis TEC Plus System is designed for the unique challenges of greenhouse facilities.

- Temperature DIFs with manual overrides
- Wind speed sensor option
- Humidity option
- Battery backed Clock
- 10 relay outputs
- Adjustable temperature settings
- Touch screen display
- Manual overrides

- Installing the Aegis TEC Plus

Consider the following before installing the Aegis TEC Plus:

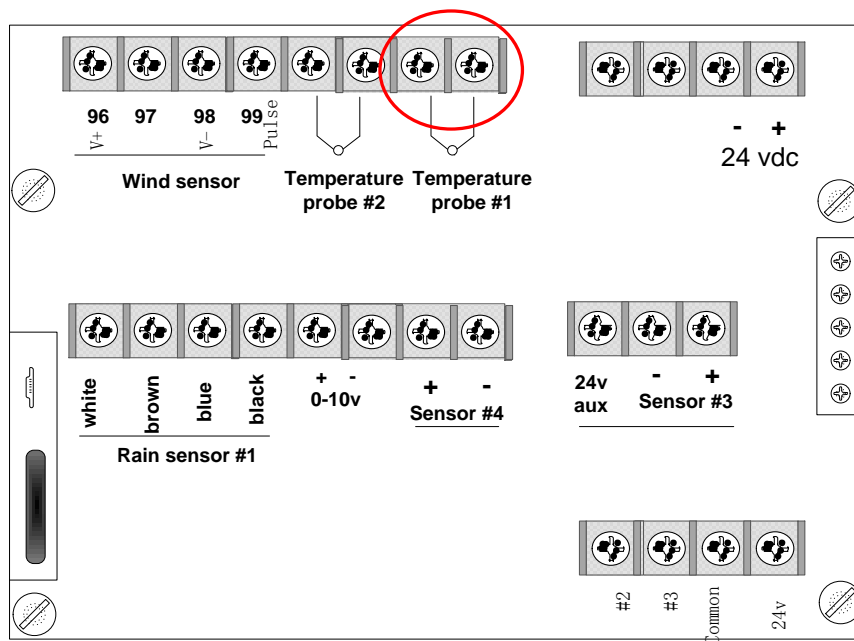
- Protect the enclosure from moisture—mount it in a secure and dry place.
- Important: Only drill holes in the bottom of the enclosures.
- Condensation runs downhill. Drilling holes into the top or upper sides of the enclosure voids the warranty.

- Wiring the Temperature Sensor

Place the temperature sensor in the middle of the building or in a location which represents the building's average temperature.

- It is important to not allow sensors to come into contact with direct sunlight

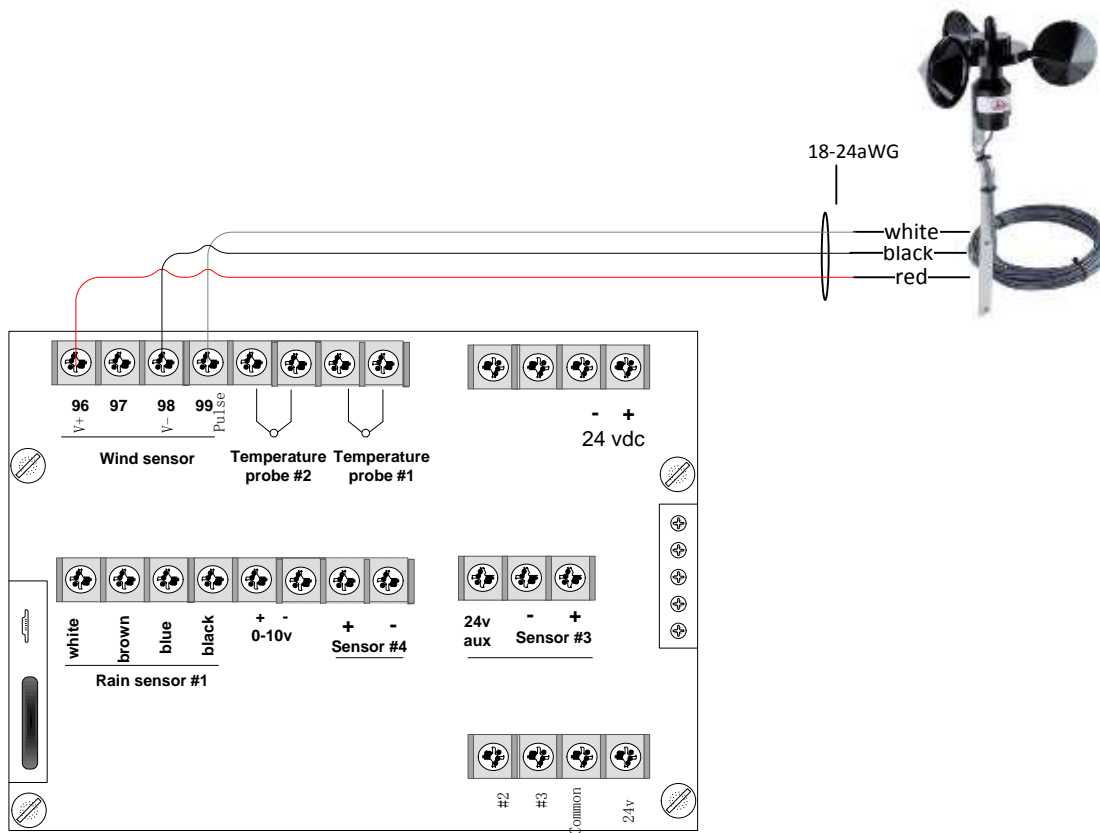
Connect the temperature sensor to sensor #1 terminals. Polarity is not important.



Extending the temperature sensor:

1. Run 18-22 AWG wire (twisted or shielded wire if possible) from the sensor to the Aegis TEC Plus. Keep the sensor wire away from high voltage wire by at least 1 foot. Specifically keep it away from the VFD output wires.
2. Solder or use gel filled crimps to connect your wires to the temperature sensor.

Connecting wind meter



The windmeter 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

Connecting a rain sensor

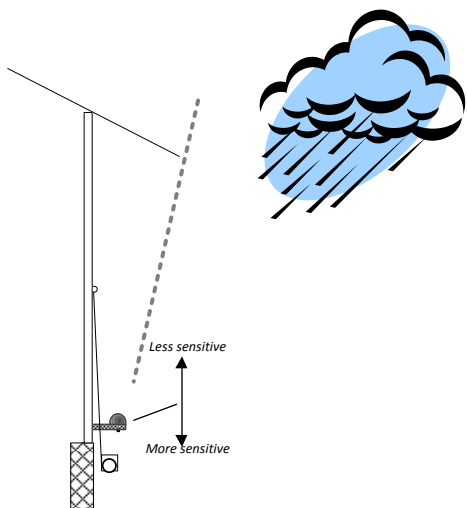
You can connect a rain sensor to the system. The rain sensor closes select vent motors when its raining. The system supports 1 rain sensor.

If you connected a rain sensor the controller needs to know it. Setup parameter P40 & P41 assign the sensor to the vent motors.

Installing the rain sensor

When you are installing the wires, keep the rain sensor cord 6 inches away from high voltage wires.

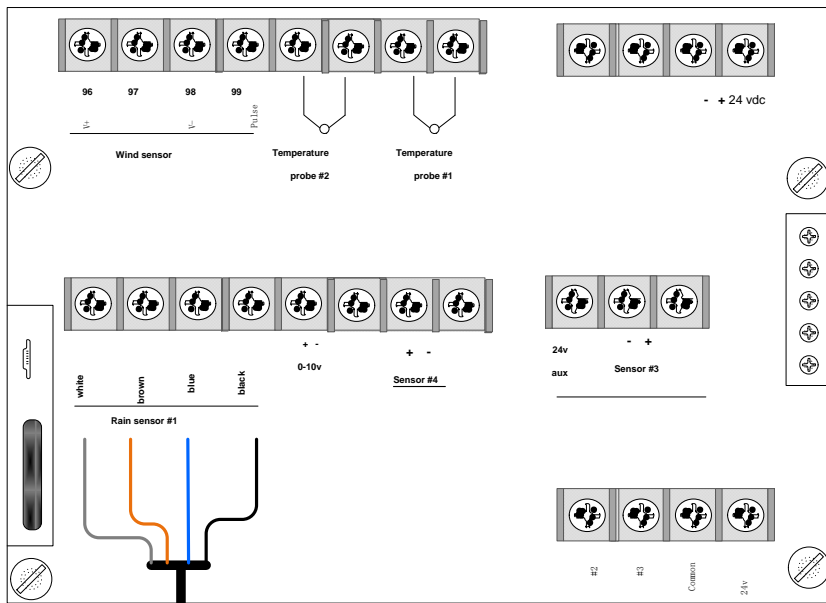
The vent motor's close signal is activated when sensor is wetted. Position of sensor versus sky dictates the response.



Rain sensor #1

The wire colors are marked on the board and match the sensor's cord.

Wire by connecting the colors.



Connecting a humidity sensor

The humidity sensor allows you to monitor and control the humidity. If humidity is too high a vent can open or a fan can start.

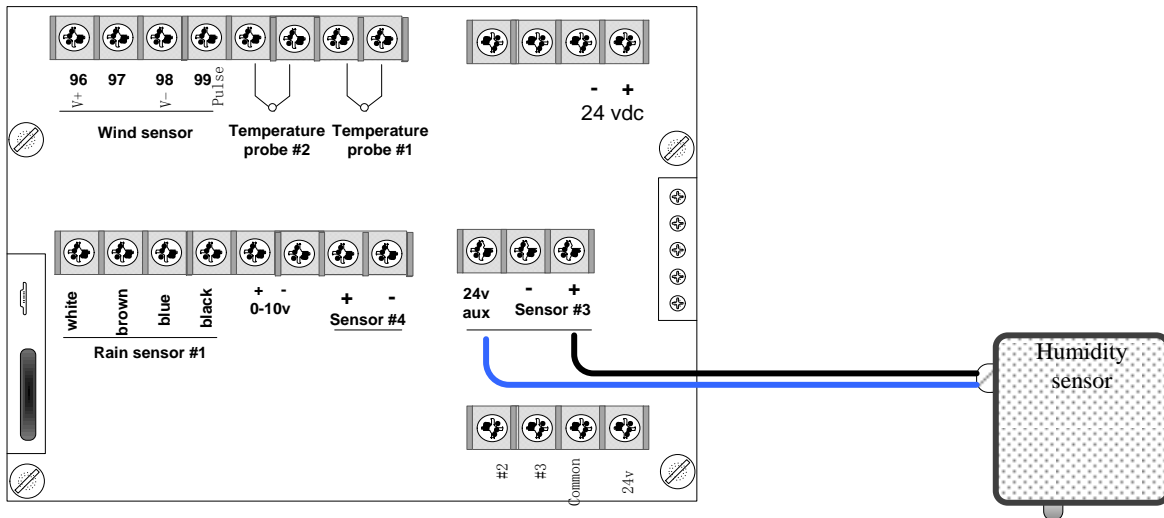
If you connect a humidity sensor, it needs to be activated. Activate it by selecting humidity for Setup parameter P10

Location of humidity sensor

Mount in a central location. Keep the sensor away from heaters or you will get a low reading when heater is running.

Installing the humidity sensor

Route humidity sensor wires 6 inches away from high voltage wires.



To use a Humidity sensor:

Connections:

The blue wire connects to Power 24v+

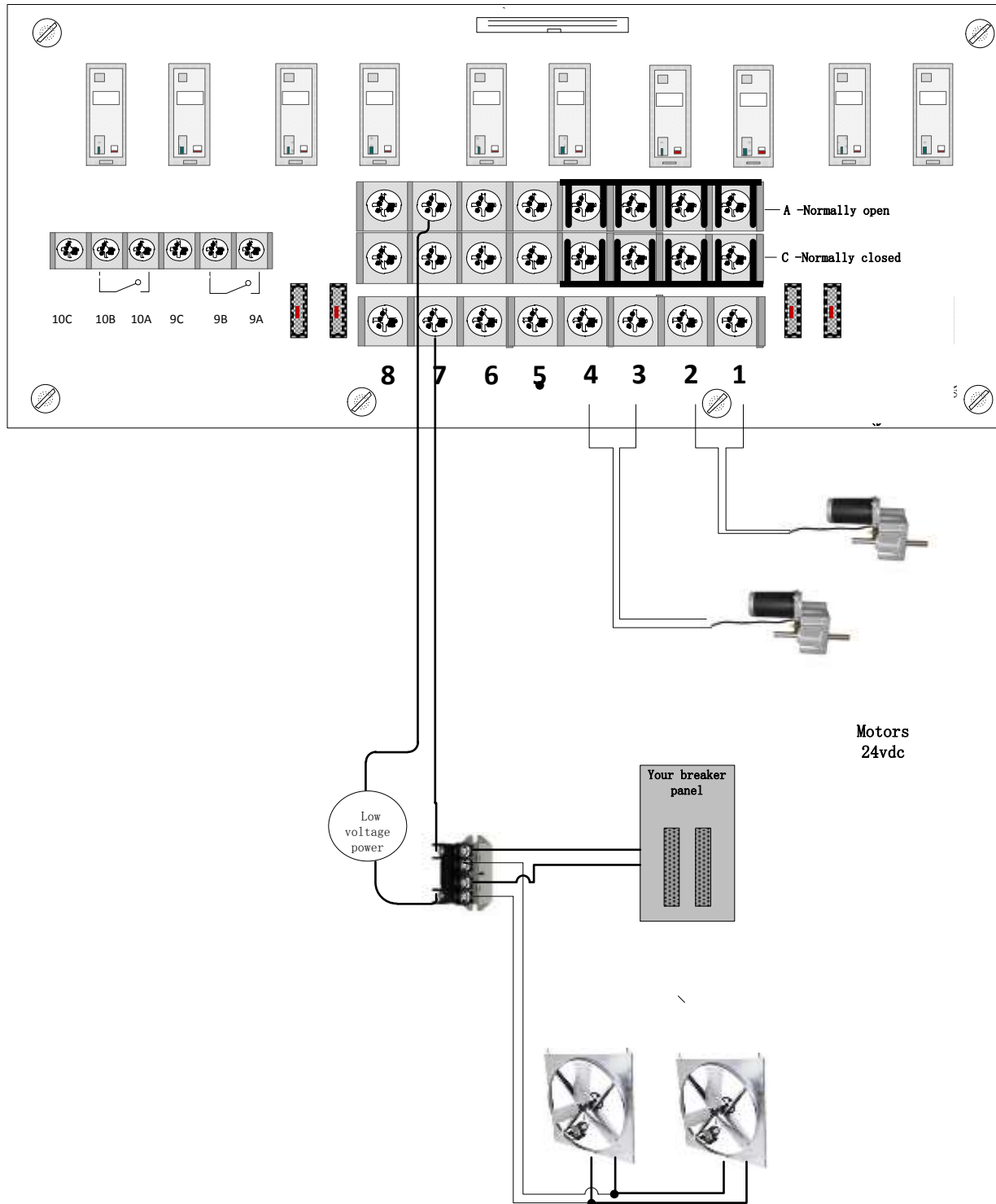
Powering the Aegis TEC Plus

AC versions come with a power cord. Plug it into a 120v outlet. Requires 120V 5amp

DC solar versions require 12VDC. Momentary maximum of 20 amps.

Connecting to fans or heaters

The relay board has 2 sections. The first section has a double row to allow optional motor connection bars. The 2nd section is for heaters or fans type connections.



Motor connector bars

The motor connector bars make it easy for low voltage motors.

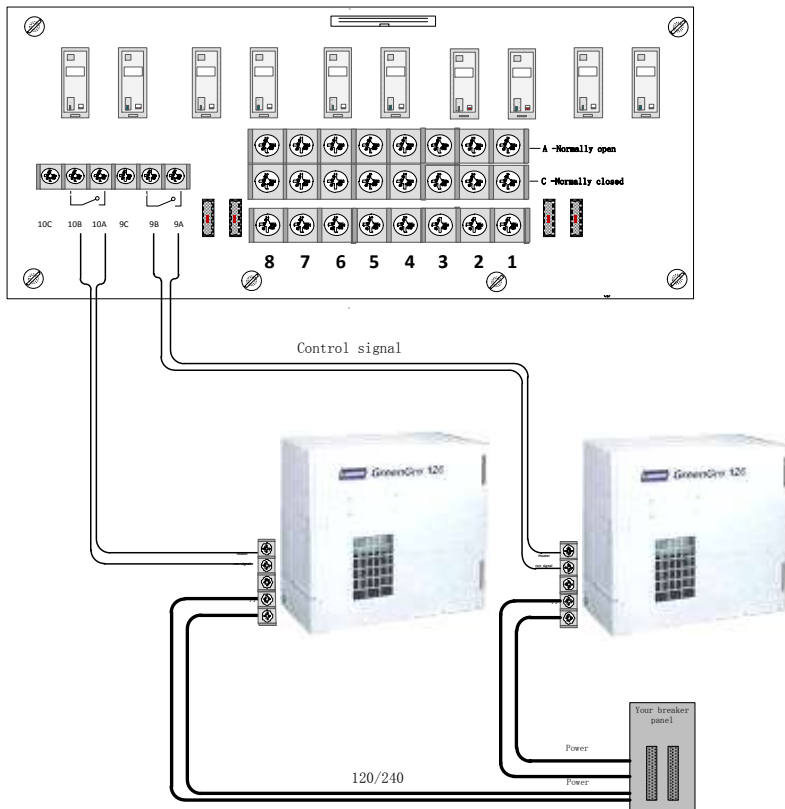


They can be reduced or removed to allow fans, heaters or lights to be connected instead of vent motors. To shorten them, remove the connector completely and use a pliers to bend it repeatedly to break it apart.



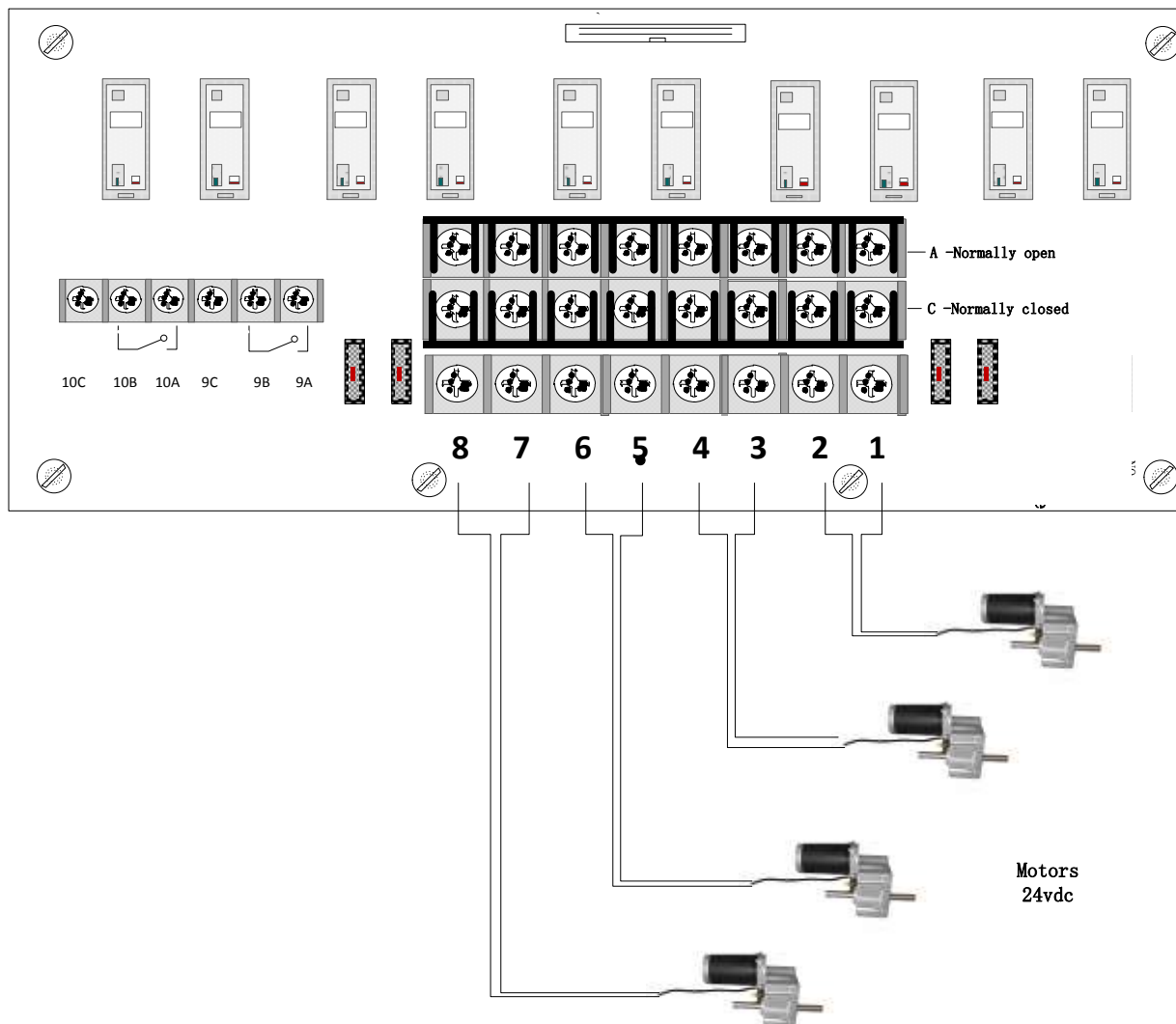
Connect to heaters

Connect the heaters signal wires can be wired to controller as shown below.



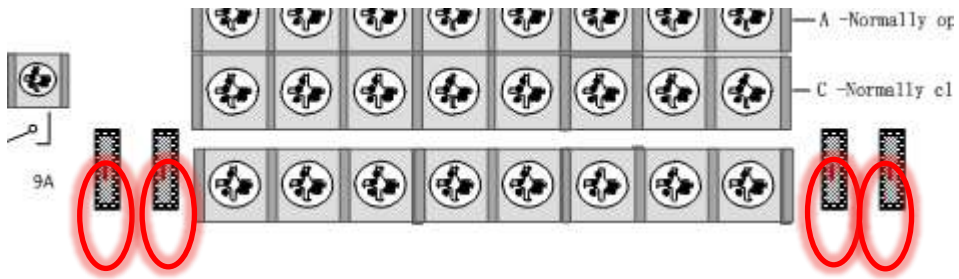
Connecting DC motors

The Aegis TEC Plus includes a 20 amp 24v motor supply. It is prewired to run several DC vent motors. Each has a circuit breaker to protect the motors. Connect motors directly to the board as shown. (Connector bars installed)



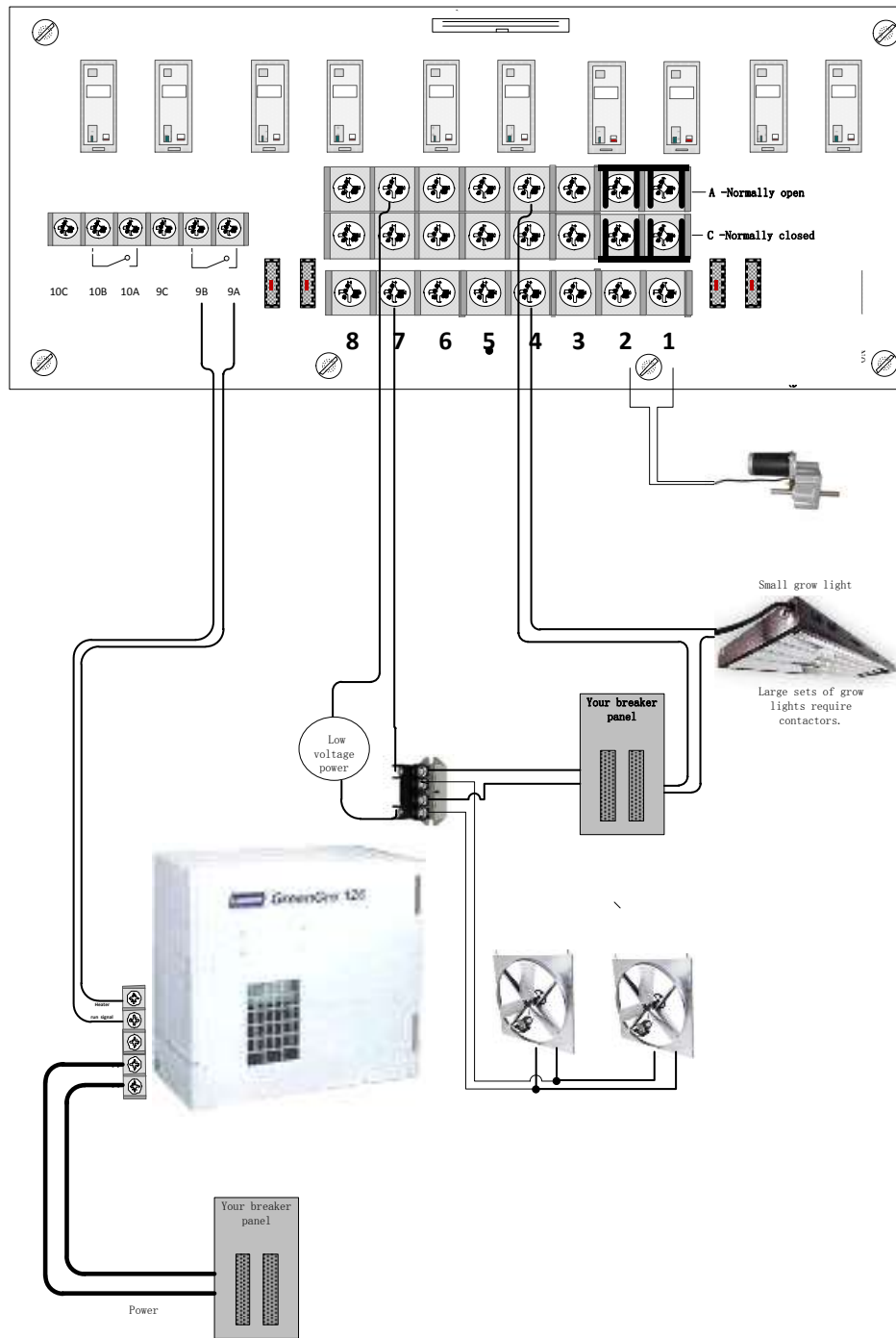
Curtain motor circuit breakers

There are several curtain motor breakers. Each of them protect a motor. If a motor's amps goes too high, the center tab trips out. Press tab in to reset.



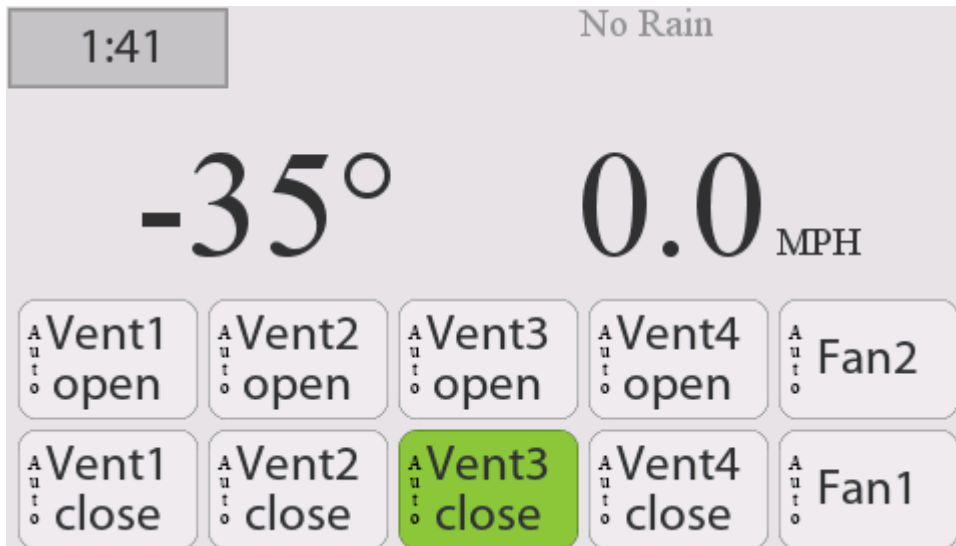
Reconfigurable.

Fans, heaters , lights and vent motors can be mapped to any relay. You simply need to connect your wires as . Map the relays with setup paramers P1 thru P10



Overview of the Controller screen

The screen shows you what is happening. You can see the temperature and the status of the relays.



Press on the temperature to go to your settings

Press the bottom row of buttons to manually overrides

Overrides

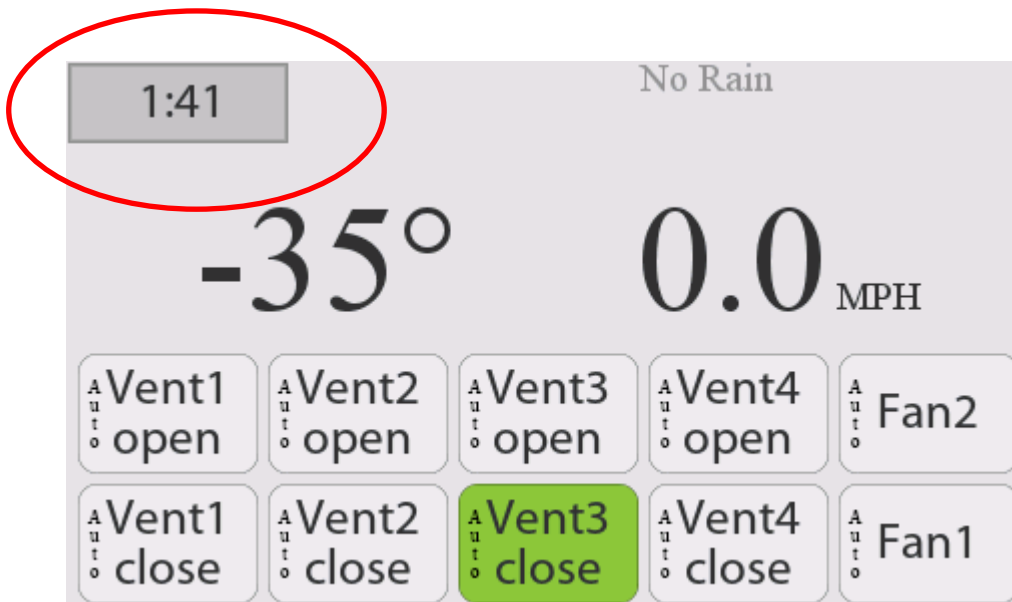


Select the relay status you want. In Auto it will operate automatically. Selecting Off or Forced allow you to avoid the control system. To exit press the blank space on the sides.

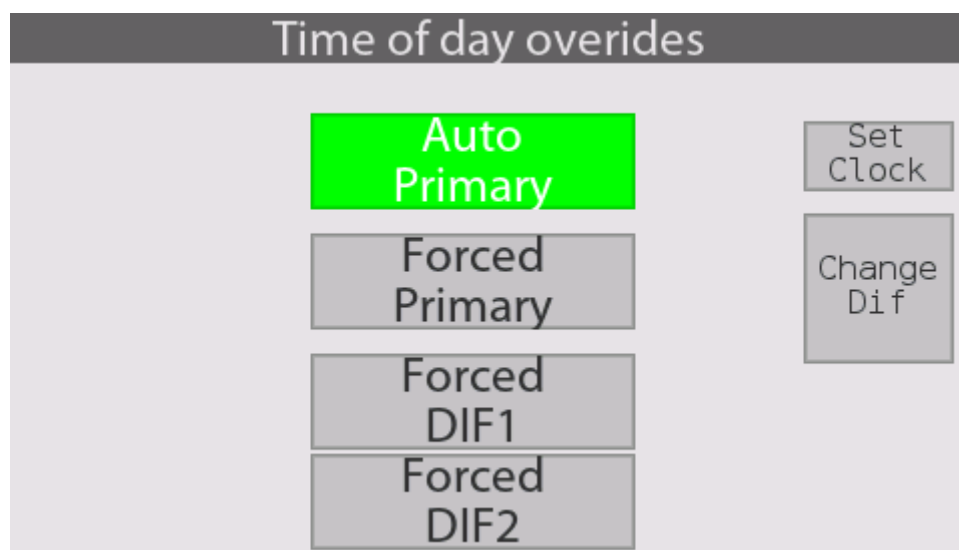
Temperature Difs

Temperature DIFS allow you to change setpoint of the heating/cooling equipment thought the day. DIFS are used to drop the humidity in mornings or trap heat late in the day.

The Dif status is displayed below. The screen will show you the status and if you left it forced on. Press on the clock to change the Dif settings.

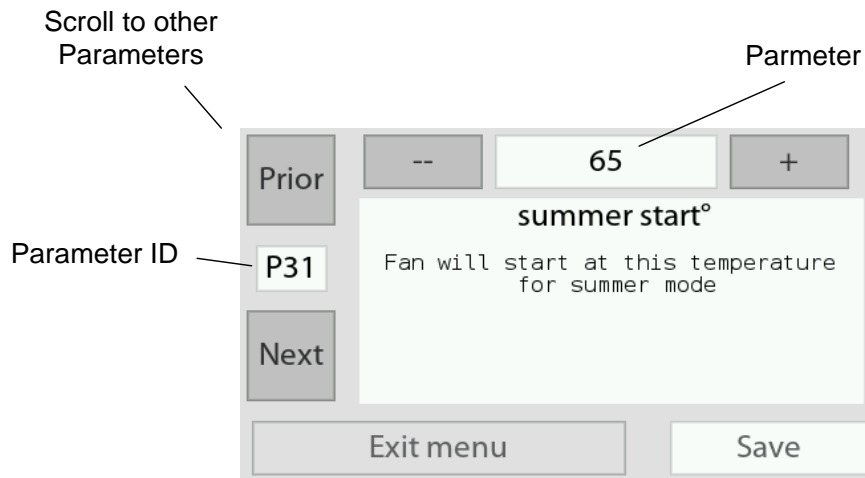


Dif override buttons allow you to manually override any clock settings.



Parameters

There are parameters that you can change. The parameters are labeled P1, P2 These parameters are the temperature setpoints and values you can adjust. .



Curtain Parameters

ID	Description	Default	Min	Max
P49	Open temperature for curtain#1	60°	1°	99°
P50	Open temperature for curtain#2	66°	1°	99°
P51	Open temperature for curtain#3	60°	1	99°
P52	Open temperature for curtain#4	61°		
P53	Open temperature for curtain#5	62°		
P54	Curtain#1 's DIF1 temperature	62°		
P55	Curtain#2 's DIF1 temperature	72°		
P56	Curtain#3 's DIF1 temperature	15		
P57	Curtain#4 's DIF1 temperature	2.0		
P58	Curtain#5 's DIF1 temperature			
P59	Curtain#1 's DIF2 temperature			
P60	Curtain#2 's DIF2 temperature			
P61	Curtain#3 's DIF2 temperature			

P62	Curtain#4 's DIF2 temperature			
P63	Curtain#5 's DIF2 temperature			
P64	Curtain runtime			
P65	Time curtain will pause between intervals			
P66	Ventilation temperature gap – difference between open and shut temperature	5°		
P80	Curtain Motor's max humidity, Humidity at which the curtain will open to dry things			
P81	Seconds the curtain will open for the humidity event			
P82	Humidity limits temperature. Humidity will be disregarded if its too cold			
P83	If Curtain motor#1 sequence. If vent should wait to close for rain or high wind until another has activated.			
P84	If Curtain motor#2 sequence. If vent should wait to close for rain or high wind until another has activated.			
P85	If Curtain motor#3 sequence. If vent should wait to close for rain or high wind until another has activated.			
P86	If Curtain motor#4 sequence. If vent should wait to close for rain or high wind until another has activated.			
P91	High wind Vents- which Vent s should shut from wind	0		
P92	High wind MPH	20		
P93	Wind override clear MPH	12		
P150	DIF1 start time. When DIF1 starts.		0:00	23:56
P151	DIF1 end time. When DIF1 ends			
P152	DIF1 "2 nd " start time. When DIF1 "2 nd " starts.			
P153	DIF1 "2 nd " end time. When DIF1 "2 nd " ends.		0:00	23:56
P154	Dif2 on time. When Dif2 starts.		0:00	23:56
P155	Dif2 off time. When DIF2 ends.		0:00	23:56
P156	DIF2 "2 nd " start time. When DIF2 "2 nd " starts.			
P157	DIF2 "2 nd " end time. When DIF2 "2 nd " ends.			

Fan temperature Parameters

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
P101	Start temperature for Fan#1	60°	1°	99°
P102	Start temperature for Fan#2			
P103	Start temperature for Fan#3	66°	1°	99°
P104	Start temperature for Fan#4	60	1	99°
P105	Start temperature for Fan#5			
P106	Start temperature for Fan#6			
P107	Fan#1 DIF1 start temperature			
P108	Fan#2 DIF1 start temperature	75	1	99°
P109	Fan#3 DIF1 start temperature			
P110	Fan#4 DIF1 start temperature			
P111	Fan#5 DIF1 start temperature			
P112	Fan#6 DIF1 start temperature			
P114	Fan #1's DIF2 start temperature	70	1	99°
P115	Fan #2's DIF2 start temperature	71	1	99°
P116	Fan #3's DIF2 start temperature			
P117	Fan #4's DIF2 start temperature			
P118	Fan #5's DIF2 start temperature			
P119	Fan #6's DIF2 start temperature			
P120	Fan temperature Gap. Difference between on and off	0.5		
P121	Fan Max MPH- If windsensor is connected, MPH at which fans will stop			
P122	Mph deadspan			
P124	Fan #1 Max humidity. If humidity sensor is installed, when fan #1 will start to dry out the building set to 101% to disable humidity function)	99%RH		
P125	Fan humidity hysteresis –	5%		101
P126	Fan humidity low temperature limit	32°		

Heater Parameters

The parameters control the starting temperature. The heaters can be controlled by the DIF function.

ID	Description	Default	Min	Max
P169	Heater 1 setpoint°	60°	1°	100°
P170	Heater 2 setpoint°	61°	1°	100°
P179	Heater 1's DIF1 setpoint°	60°	1	100°
P180	Heater 2's DIF1 setpoint	61°		
P189	Heater 1's DIF2 setpoint°	70°	1	100°
190	Heater 2's DIF2 setpoint°	71°	1	100°
P199	Heater Hysteresis	2.0°		

Light Dep Parameters

The parameters control the light Deprivation settings

The light DEP logic allows you to close shades and vents, when DEP is activated. Afterwards the vents will wait 2 minutes in the reopen sequence.

ID	Description	Default	Min	Max
P158	Light Dep on Time	0:00	0:00	23:59
P159	Light Dep off time	0:00	0:00	
P160	Light Dep 2 nd on time	0:00	0:00	100°
P161	Light Dep 2 nd off time	0:00	0:00	

Configuration parameters related to Light DEP.

Light DEP /shades only move when the shade time has elapsed. If the vents are set to respond with the light DEP, they will close as well.

ID	Description	Default	Min	Max
P1	Light DEP enabled?	No	NO	Yes
P44	Light DEP motor activation minutes,	20	1	20
P45	Is vent #1 affected by Light DEP ,(Does it need to close so light DEP can close)	No	No	

P46	Is vent #2 affected by light DEP	No	No	Yes
P47	Is vent #3 affected by light DEP			
P48	Is vent #4 affected by light DEP			

Dehumidification Parameters

The dehumidification parameter gives 1 channel of dehumidification.
It will turn on when humidity gets too high

ID	Description	Default	Min	Max
P147	Dehumidification start %RH	65%	10%	101%
P148	Dehumidification hysteresis – ie how much humidity must drop for it to turn off.	4%		
P10	Which output relay the dehumidifier will use. 0=disabled	0		

Setup configurations

ID	Description	Default	Min	Max
P0	Number of curtains	2	0	5
P1	Number of light DEP circuits	0	0	1
P2	Number of fans in the systems		0	6
P3	Number of heaters		0	10
P4	Curtain Starting Relay			9
P5	DEP Starting Relay			9
P6	Fan Starting Relay	3	1	10
P7	Heater Starting Relay	25		10
P8	Number of Growlights			1
P11	Is 2 nd Temperature sensor enabled	0		
P12	Is Humidity sensor enabled	0		
P14				

P15				
P16				
P17				
P18				
P19				
P20	Fahrenheit or Celsius	F		
P21	How many curtains use 2 nd Temp sensor			
P22	How many heaters use 2 nd temperature sensor			
P23	How many fans use 2 nd temperature sensor			
P25	Is DIF enabled 0=no 1= 1 DIF 2= 2 DIFs	0		2
P26	Is HVLS enabled 0-10v enabled			
P27	Wind response time	3	1	5
P28	Anemometer calibration			
P29	Windmeter in use	0=no		1=yes
P30	Revert controller to defaults			
P31	Fan high temperature shutoff enabled?	0=no		1=yes
P32	Turn fan 1 input off			
P33	Turn fan 2 input off			
P34	Turn fan 3 input off	0		
P35	Turn fan 4 input off	0		
P36	Turn fan 5 input off			
P37	Turn fan 6 input off			
P38	How long curtains run shut for rain			
P39	Curtain #1 rain sensor uses input # You select which input curtain#2's rain sensor is connected			
P40	Curtain#2 rain sensor uses input # You select which input curtain#2's rain sensor is connected	0		2
P41`	Curtain #3 rain sensor uses input # You select which input curtain#2's rain sensor is connected	0		2
P42	Curtain#4 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.			

Specifications

Size of enclosure	7" x10"x6"
Input voltage	120VAC
Output	10 Normally open relays,
Temperature sensor	3 foot cord, can be extended to 100 ft.
Warranty	1 year