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DC-VENT

PCB - 4.0v 4.1v 4.2v

Installation:

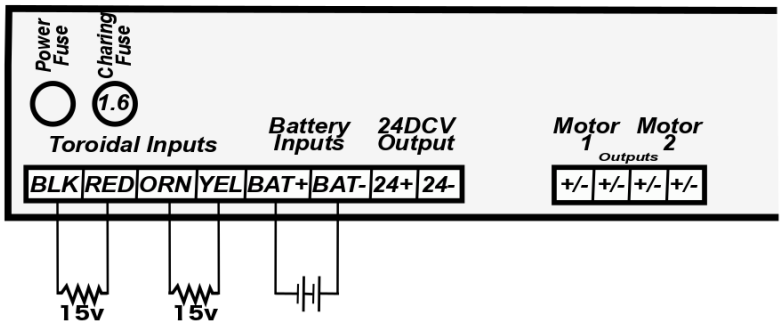
230v Supply to the toroidal: should be protected with an adequate fuse, The toroidal used should have two 15v outputs (using other voltage toroidal may cause terminal damage to the PCB), A suitable VA rating toroidal should be suited for the load required.

160 AV is approximately 10A

225 AV is approximately 15A

Batt Input is to be used with lead acid batteries, one 24v or two 12v in series, (Traditionally used is two 2.3Ah or two 7Ah).

24v output is a permanent 24v output and is also is backup from the battery.

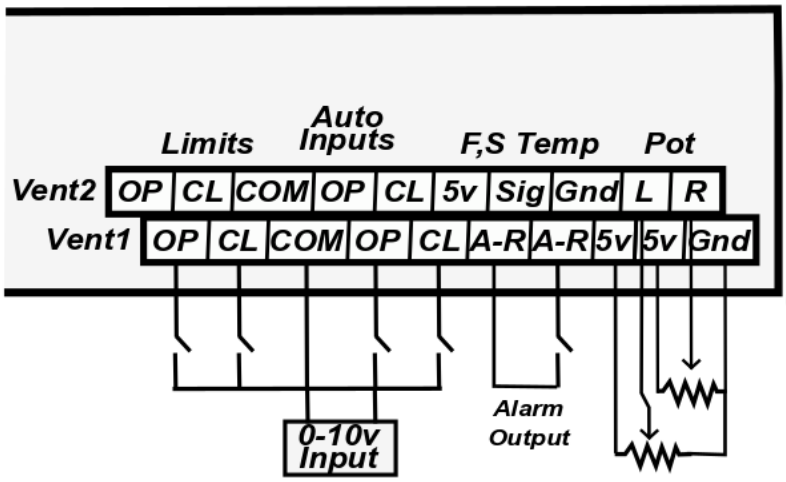


Power Fuse: should suit the load (max 20A).

Charging Fuse: 1.6A should be fitted.

Setting the motor current: use the “motor current set point adjuster” to set the desired set current (0 to 10A).

Controls:



Limits: need to be N,C, COM should be connected to both limits and returning back to OP & CL.

Auto Inputs: need to be N,O, COM should be connected to both auto inputs returning back to OP & CL, (volt free).

Potentiometer: should be wired in a screened cable (CY) no bigger than .75mm, 10k Potentiometer should be used and the maximum amount of range to maximise accuracy & reliability.

Alarm output: (A-R) dry contact N,O.

Temp sensor or fail safe inputs: If using temp sensor use 5V, IN & GND, Should be wired in a screened cable (CY) & no bigger than .75mm, If not using temp, link IN & GND (break to activate fail safe N,C).

Front panel display The ribbon cable should exit out of the top of the pcb with the red line to the left, entering the front panel display from the left (as you look at the back of the pcb) with the red line to the bottom.

Dip Switch Operations:

Dip switches should be set before power up & should not be adjusted while power is on.

Switch-1: Off manual mode, allows the auto inputs to be used. On 0 to 10v mode, sets the auto open inputs as a 0 to 10v input, a pot (10k) inputs will need to be connected.

Switch2: This switch is all about fail safe control. Off manual mode, When power has been lost or sig / GND have been broken motors will be driven to the open limits and then the flap output will be active & alarm will be active. On temp mode, If the actual temp is above the set temp the motors will be driven to their open limits and then the flap output will be active & alarm will be active. If IN & GND are linked on power up it will do the same as if this switch was off but the input pins are moved to the back of the display.

Switch-3: Off Sets the unit to use one vent motor (Both motor output will be activated). On sets the module to use two vent motors that are controlled separately.

Calibration:

If dip switch one is set to on (0-10v mode) rotary switch must be set to auto to calibrate the pot, pushing and holding the reset button for 4sec will calibrate the min/ max of the motors travel. Rotary switch must be set to off to calibrate the 0-10V control, pushing and holding the reset for 10sec will calibrate the 0-10v input, set the 0-10v input to the desired 0% voltage and push reset, when entering into the next display set the 0-10v input to the desired 100% and push reset, When completed will return back to normal operation.

Dead band when calibrating, the bits (0 to 1023) of the vent pots will be displayed, If the range is less than 255 (Bad calibration) there will be a dead band of +/- 2%, If the range is between 251 & 510 the dead band will be +/- 1% and if over 511 0.5%.

Operation:

Set temp / reset a 1sec push will reset any alarm, If dip switch two is set to one (Temp mode) you can rotate to set the desired set temp.

Test to access the test menu both rotary switch must be in test, When in test the motors will be driven to the close and open limits. In the test menu it will display overload set point, vent one & two motor current.

The display:

Display the current mode auto or manual (if dip switch one is set to OFF; manual mode).

Display the current motor operation open or close.

Display the current motor position 0 to 100% (if dip switch one is set to ON; 0-10v mode).

Display the current temp and the set temp (if dip switch two is set to ON; temp mode).

Displays any alarms.

Potential Alarms:

Over temp	When actual temp is greater than set temp
Error	Temp sensor failure
Mails Failure	Power failure or charging fuse failure
Fail safe	External fail safe (Break of IN & GND)
Over voltage	Charging voltage is too high
Vent Overload	Vent over current trip
Vent 1 Overload	Vent 1 over current trip
Vent 2 Overload	Vent 2 over current trip
Bad calibration	Bad connections or not sufficient travel of the pot
Vent over run	Vent taking to long too move
Vent 1 over run	Vent 1 taking to long too move
Vent 2 over run	Vent 2 taking to long too move
Limit Fault	When open & close limits are open circuit
Power Fuse Fault	Power input fuse has failed

Fault Finding:

Bad Calibration is caused by too small of a voltage change, this can be caused by using the incorrect pot or there is not enough turns used of the pot or incorrect connection.

Charging Fuse if the charging fuse (1.6A) has blown, if battery condition is poor this could cause this fault or limit or auto input is breaking down cable fault or suchlike.

Vent Overload is caused when the motor is pulling more current than the set current is set for, check “motor current set point adjuster" in conjunction to the motor ratings.

Vents Not Moving check when operating the motors that it displays open or closed, if not you have a limit fault. check to see if the led’s next to the motor connections are lighting up when operating motors (green opening, orange closing), if they do not light up check the power fuse. If the led’s do light up in both directions the fault must be external to the controls.

Limits when the display is showing open or close the limits have been seen in that direction. (also there are four yellow LED on the pcb to show the limits inputs.

When in Main failure motors not moving or complete loss of power disconnect batteries and test batteries condition, if you don't have such tester available measure the batteries voltage and make sure that the voltage is no less that 23v, also you can check the charging voltage is between 26 to 27v (with the batteries disconnect).