DRAMM

AME Horizontal Air Flow System Manual

DRAMM

Shipped to:

Packed By:

Date

Thank you for your purchase of this AME HAF System.

Your Dramm AME Horizontal Air Flow System is designed to provide even, gentle air flow to homogenize temperature, humidity, CO2, and the general environment throughout the greenhouse.

This system consists of both fans and speed regulation. Unlike other HAF systems that focus on speed, The AME System concentrates on even momentum. Lower, but consistent, air speeds provide more stable momentum, providing more even air flow with less turbulence and uneven crop drying.

Please direct any questions or service requests you might have to the contacts below.

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Manitowoc, WI 54221

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Limited Warranty

This is a limited warranty as defined in in the consumer product warranty and federal trade com- mission improvement act. This warranty gives you specific legal rights, which may vary from state to state.

Dramm Corporation warrants to the extent of the purchase price, that the AME Fans will be free from defects in materials and workmanship to the original purchaser for a period of three years. Parts subject to wear are not covered under this limited warranty. Defects or damages due to the misuse, non-observance of safety standards are not covered under this limited warranty. Please read and follow the instructions and heed warnings stated in the operating manual.

Dramm Corporation makes no other further warranty, expressed or implied, and all other or further warranties, including any warranties of merchantability or fitness for a particular purpose are expressly excluded.

In no event shall Dramm Corporation be liable for loss of product, profit or any other special, incidental or consequential damages including, but not limited to, plant damage, property or persons.

This warranty begins on the date of original purchase. If warranty service is required, the equipment must be sent prepaid to:

AME Fan Service
Dramm Corporation
2000 North 18th Street
Manitowoc, WI 54220

The Dramm AME System

The Dramm AME Horizontal Air Flow System is designed to run at lower speeds for best result. In most greenhouses, your fan speed should be approximately 50 - 60% of the maximum capacity of the fan. This will not only reduce turbulence and prevent uneven drying of your crop, but it will also reduce your electrical usage when compared to full speed operation. The chart below shows the two different AME fans at lower voltages and slower rpm. In each instance, the Watts are reduced as voltage to the fan is reduced. Lower operating costs result.

AME350

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	**1850**	1430	230.0	0.75	171	**10.8**
0.00	**1770**	1359	220.0	0.77	164	**10.8**
0.00	**1660**	1276	210.0	0.77	156	**10.6**
0.00	**1530**	1189	200.0	0.77	145	**10.6**
0.00	**1410**	1083	190.0	0.75	134	**10.5**
0.00	**1260**	976	180.0	0.73	121	**10.4**
0.00	**1140**	887	170.0	0.66	109	**10.5**
0.00	**990**	776	160.0	0.67	97	**10.2**
0.00	**870**	687	150.0	0.63	85	**10.2**
0.00	**750**	589	140.0	0.60	73	**10.3**
0.00	**630**	494	130.0	0.55	61	**10.3**

AME400

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	**2860**	1648	230.0	1.13	250	**11.4**
0.00	**2820**	1628	220.0	1.18	248	**11.4**
0.00	**2780**	1605	210.0	1.24	243	**11.4**
0.00	**2740**	1571	200.0	1.31	241	**11.4**
0.00	**2640**	1527	190.0	1.37	240	**11.0**
0.00	**2530**	1463	180.0	1.43	236	**10.7**
0.00	**2350**	1371	170.0	1.50	230	**10.2**
0.00	**2110**	1233	160.0	1.55	219	**9.7**
0.00	**1800**	1050	150.0	1.55	202	**8.9**
0.00	**1490**	868	140.0	1.50	176	**8.4**
0.00	**1220**	718	130.0	1.41	152	**8.0**
0.00	**1000**	599	120.0	1.30	127	**7.9**
0.00	**820**	495	110.0	1.18	102	**8.0**
0.00	**630**	382	100.0	1.05	80	**7.9**

Finally, low volume chemical applications can be improved with lower speed fans. High speed, basket fans can collect pesticide on the blades and can cause over-deposition beneath the fans. Slower moving, AME fans will not cause this potential damage.

While your fans should run at medium speed most of the time, there are some times where increased air speed is beneficial. Any time that the crop needs to be dried more quickly, higher air speeds can help. Your variable speed system allows you to have control on these occasions.

It is possible to have your climate control computer vary the speed through an analog connection *(4-20 mAmp, 2-10 vDC)* to our speed controller. Instructions on connecting this are detailed later in the manual.

Hanging:

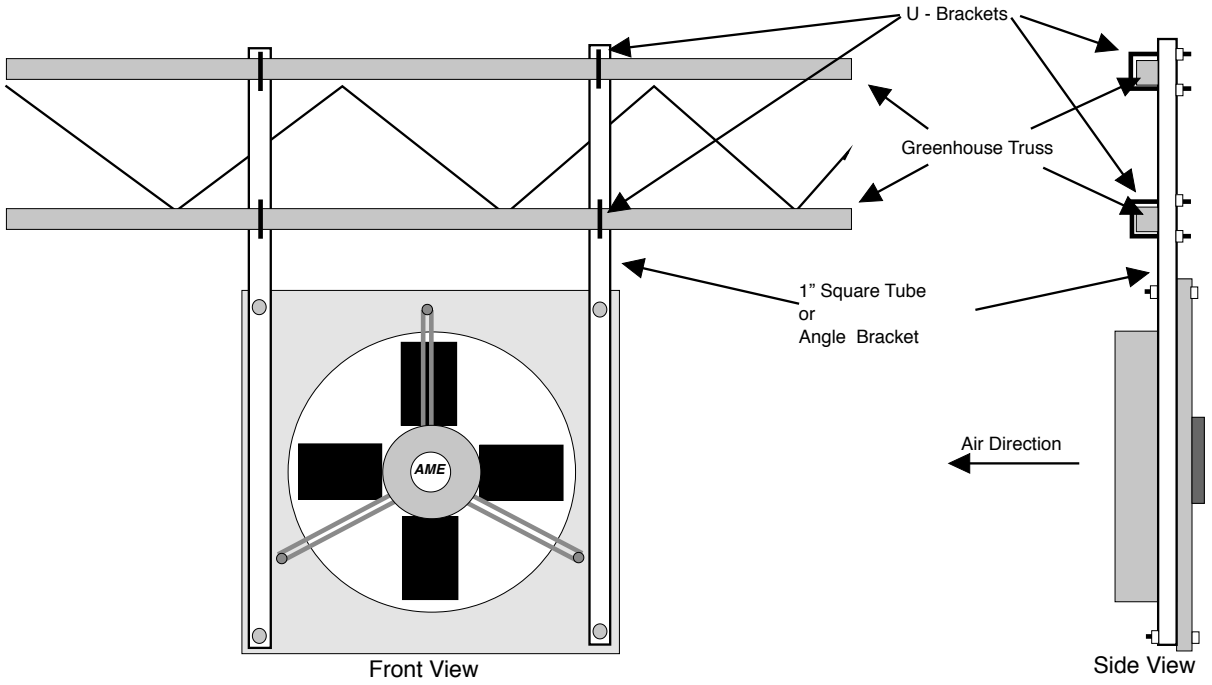
Due to differences in greenhouse construction, Dramm AME Fans do not come with specific mounting brackets. The fans have four mounting holes on the corners of the fan housing. These are suitable for bolting through to greenhouse trusses or other mounting hardware created on site.

AME fans should be mounted level with the ground and rigid. Chains should not be used to hang AME fans.

Make sure that any mounting hardware that might obstruct air flow is mounted to the outlet (rough) side of the housing. Keep the intake free of all obstructions. Any obstruction may reduce the amount of air flowing through the fan.

AME fans do not include guards. When hung above 8 feet above the ground, guards are not required. If hanging fans below 8 feet, guards must be purchased and installed separately. Installation of guards is covered later in this manual.

A common method for hanging the AME fans is with 1" square tubing or angle bracket. A drawing of this is included below. Ensure that either is mounted on the OUTLET side of the fan to prevent a reduction of airflow.



Wiring:

NOTE: Three Wire Installation is Better for Large Installations.
This will reduce motor wear and electrical consumption.

For best results the AME fans use a three wire regulation of motor speed. This increases electrical efficiency and reduces wear on the motor. In a three wire regulation installation of the AME fans full current 220v is connected to the start winding of the motor, the variable control current is connected to the run winding of the motor. This allows for a lower starting load, lower running load and less heat build up. The result is greater electrical efficiency and a longer motor life.

General Guidelines:

Two Wire Installation:

PS-06/10/15: Connect Line U1 from controller terminal 15 to fan terminal U1.
Connect Line U2 from controller terminal 13 to fan terminal Tk (last).

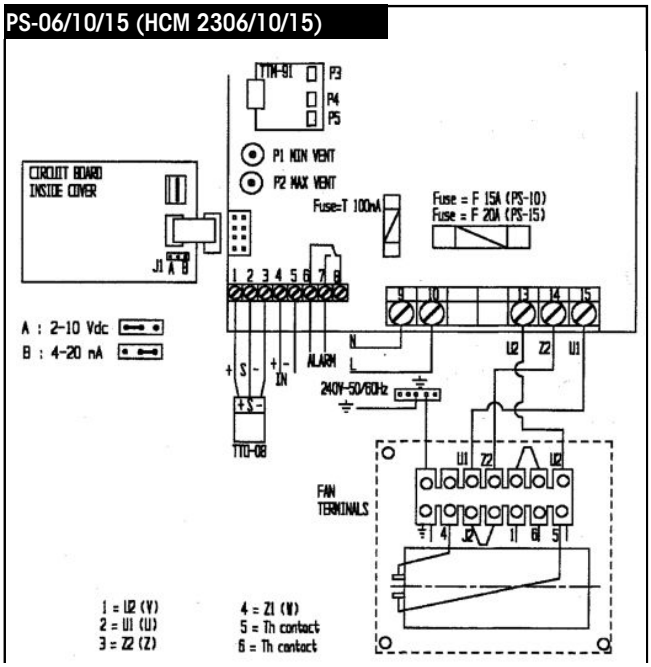
PS-20: Connect Line U1 from controller terminal 13 to fan terminal U1.
Connect Line U2 from controller terminal 11 to fan terminal Tk(last).

Three Wire Installation:

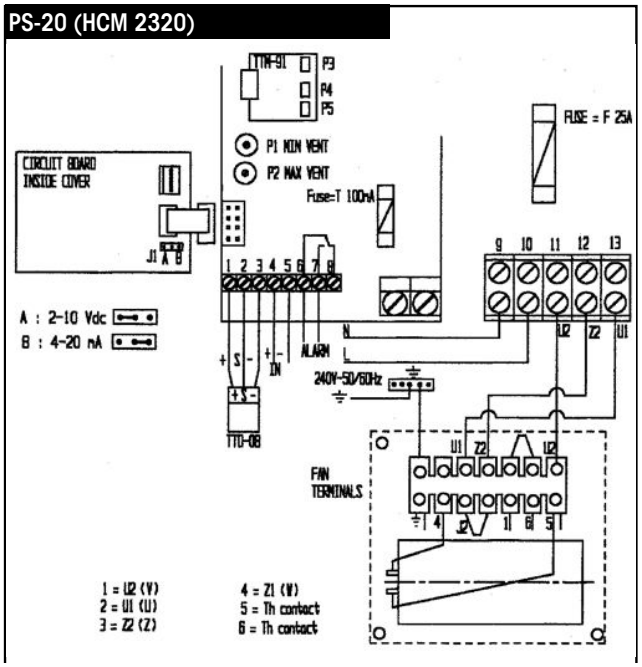
PS-06/10/15: Connect Line U1 from controller terminal 15 to fan terminal U1.
Connect Line Z2 from controller terminal 14 to fan terminal Z2.
Connect Line U2 from controller terminal 13 to fan terminal Tk(last).
Remove jumper between U1 and Z2 (J2) on the rear of the terminal strip
see diagram and photos

PS-20: Connect Line U1 from controller terminal 13 to fan terminal U1.
Connect Line Z2 from controller terminal 12 to fan terminal Z2.
Connect Line U2 from controller terminal 11 to fan terminal Tk(last).
Remove jumper between U1 and Z2 (J2) on the rear of the terminal strip
see diagram and photos

PS-06/10/15 (HCM 2306/10/15)



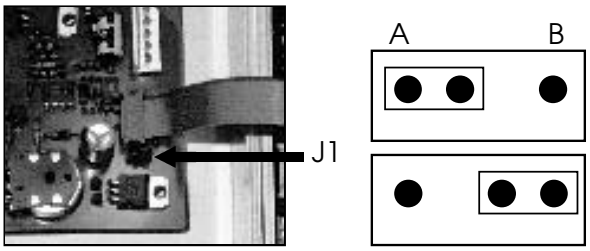
PS-20 (HCM 2320)



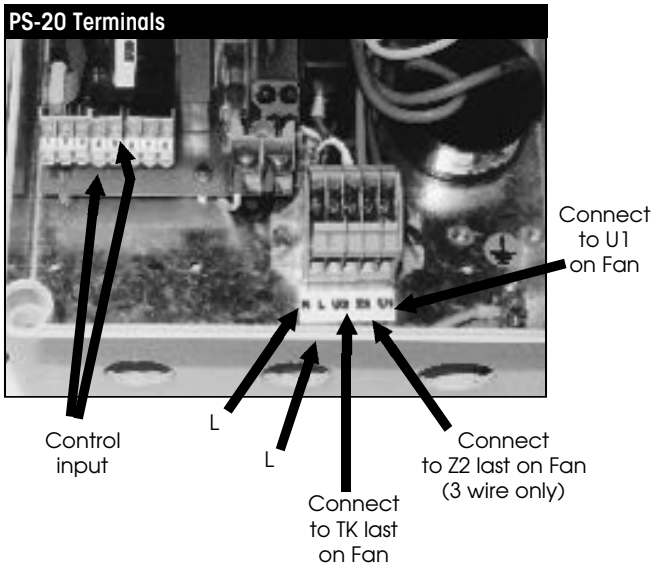
To control for an external source, connect control wires to terminals 4 and 5. Select correct control source with jumper J1. Bridge moves between A and B.

see diagram and photos

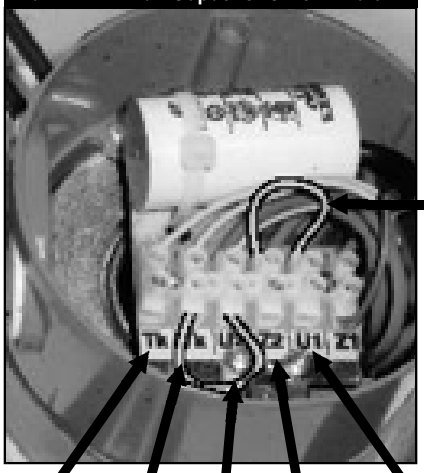
Jumper J1 for External Control



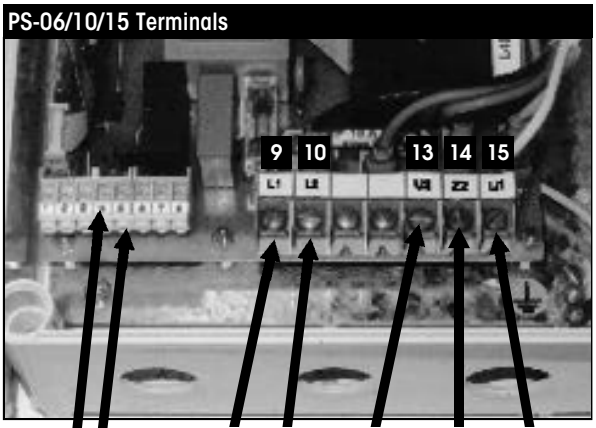
PS-20 Terminals



Dramm AME Fan Capacitor & Terminals



PS-06/10/15 Terminals



IMPORTANT: Wiring must remain consistent throughout the installation for speed control to work.

DO NOT CROSS WIRES!

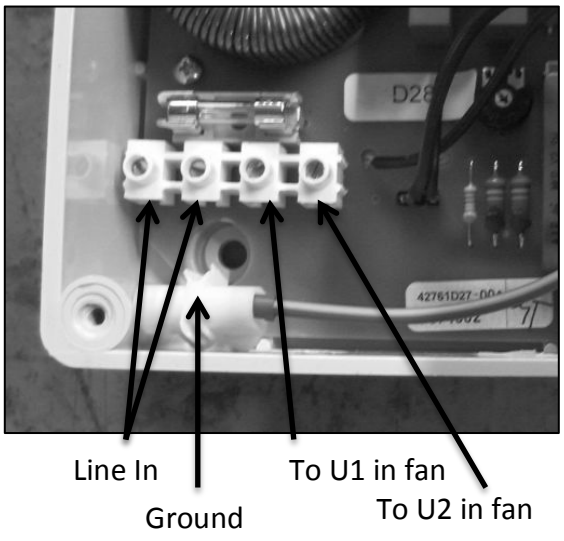
ERW 2303/ERW 2305

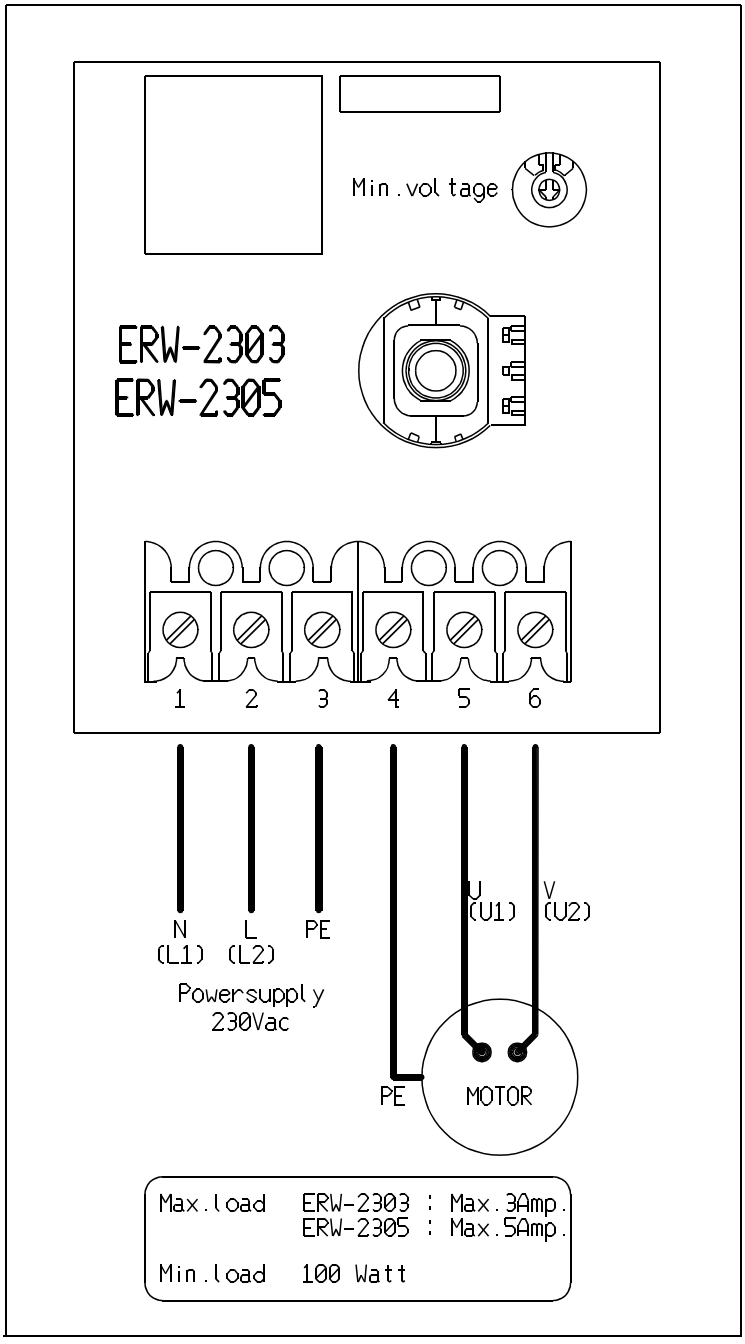
If using the **PS-05** (ERW 2305), the following instructions should be used.

Connect line voltage to positions 1 and 2 and ground to position 3 on the controller.

Connect position 4 to ground on the fan.

Connect position 5 to U1 on the fan and connect position 6 to U2 on the fan.



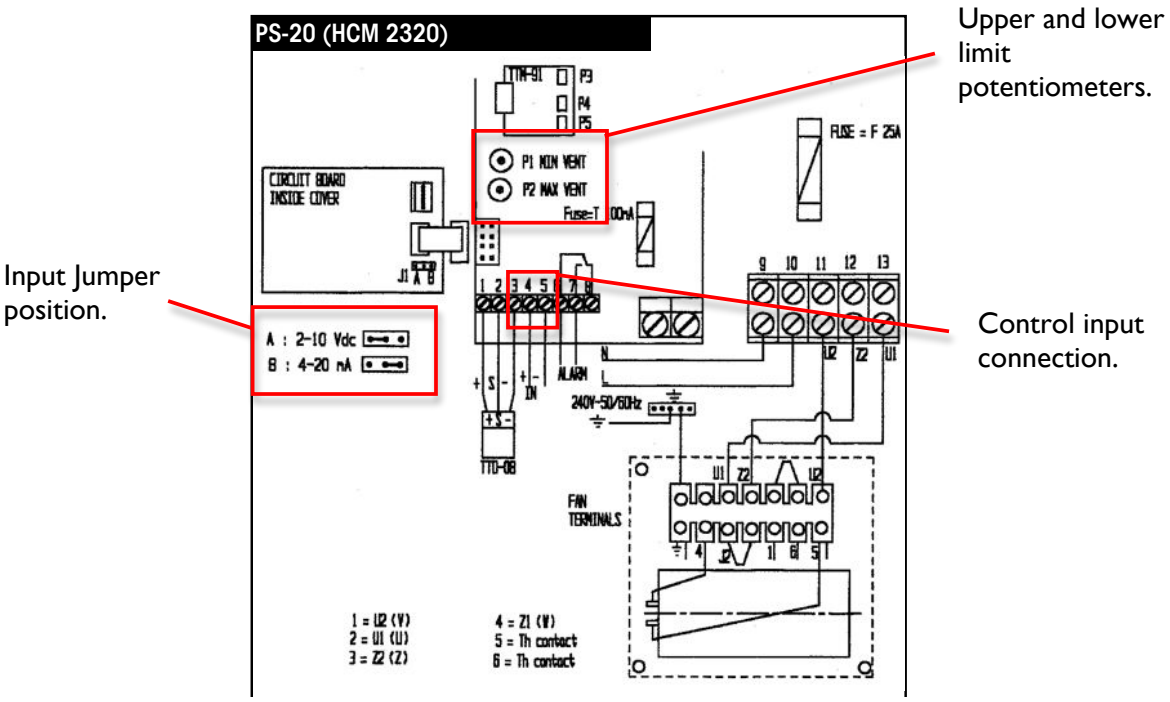


AME Fan Speed Regulation from an External Controller

The speed of the Dramm AME Fans can be controlled by an external computer by using a proportional output signal connected to a Dramm Speed Controller.

Each of the following Speed Controllers have an input that will accept either a 20-Vdc or 4-20 mAmp signal. The signal type is selected by the position of jumper J1 as seen in the diagram below.

Upper and lower limits on the speed of the fan are set using the minimum and maximum ventilation potentiometers inside the controller. These are also highlighted on the diagram below.

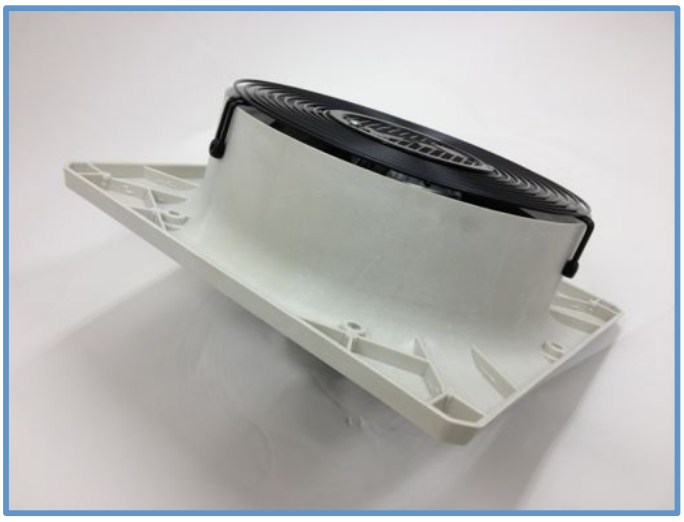


As these signals are proportional analog signals, the controller will accept the low signal as the minimum ventilation rate and the high signal as the maximum ventilation rate. As the signal increases from low to high, the controller will adjust proportionally.

NOTE: Any signal from an external source will override the knob on the front of the speed controller. If there is no signal, the knob on the front of the speed controller will adjust the speed of the fans.

This proportional control will also turn off the fans. To turn off the fans, the external signal must be below the low signal (4 mAmp or 2 Vdc). This eliminates the need for a separate relay to cut power to the fan circuit.

Optional Guard Installation



The front guard is pressure fit. The rubber grommets will hold the guard in place with friction alone. Just press into place over the front housing of the fan.

Grommets hold the guard securely.

The rear guard is held in place by the 3 motor mounting brackets.

Place the fan exhaust side down on a flat surface.

Remove the bolts holding the mounting brackets in place.

Slide the brackets through the space between the first and second wire guard rings and reconnect the brackets to the fan housing.

Notes:

Notes:

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