

NOTICE:

POWER MUST BE REMOVED FROM THE CONTROLLER WHENEVER CONNECTIONS OR DISCONNECTIONS ARE BEING MADE. FAILURE TO DO SO COULD RESULT IN IRREPARABLE DAMAGE.

NOTICE:

BEFORE PROCEEDING WITH ANY ADDITIONAL TROUBLESHOOTING, ENSURE THAT THE POLARITY OF THE 24 VAC SUPPLY TO THE CONTROLLER IS CORRECT (SEE FIGURE 1). IF THE POLARITY IS NOT CORRECT, REMOVE THE CONNECTORS AND RECONNECT OBSERVING PROPER POLARITY. RECHECK THE SYSTEM FOR PROPER OPERATION.

1. Inspect the unit to make sure that there are no foreign objects blocking fan operation. Turn the wheel by hand to verify that it moves freely.
2. Energize the unit at the unit disconnect switch. Adjust the controls to call for the fan motor to run.

SETTING THE AIRFLOW IN THE MANUAL MODE (CONTROLLED BY THE ON-BOARD POTENTIOMETER)

1. If not already in the MANUAL mode, set the Controller to the MANUAL mode by setting all dipswitches to 0. (0 is the switch position to the left; i.e., toward the edge of the printed circuit board (See figure 1).
2. Attach the leads of a DC voltmeter to the Quick-Connect Terminal labeled "Meter" (+) and to the terminal labeled "COM" (-) directly below. Set the meter scale, if necessary, to read 0 to 10VDC.
3. Refer to the Fan Calibration Table and using the multi-turn potentiometer (labeled "POT" in figure 1), adjust the potentiometer to set the voltage that corresponds to the desired airflow. The voltage will vary with the potentiometer from 0 to 10VDC representing 0 to 100% of the blower's output per the table.

TIP: The voltage may vary by a few tenths of a volt, depending on the meter, so try to average the reading visually for a few seconds.

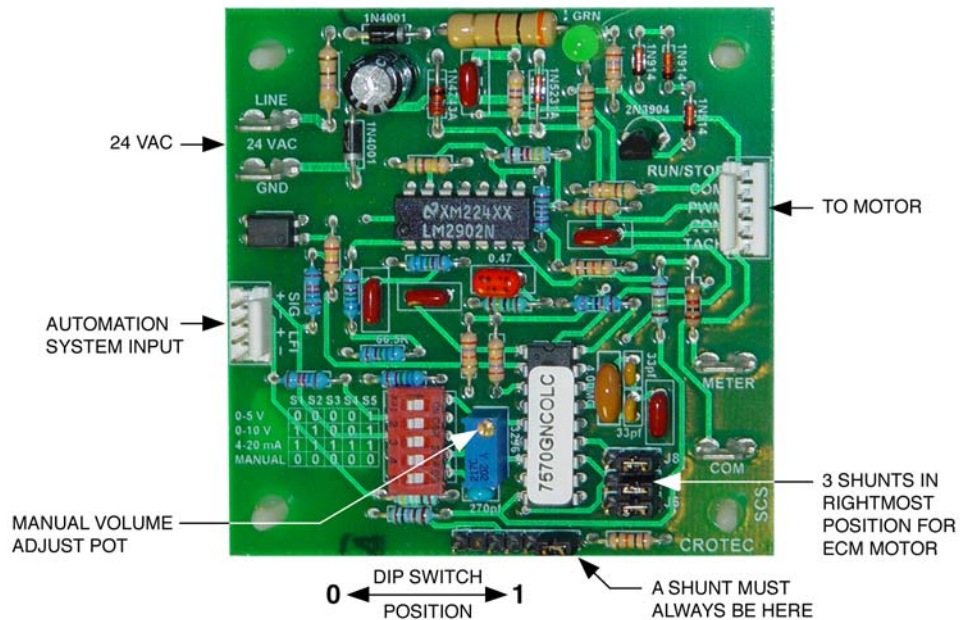


Figure 1. EPIC™ Volume Controller Card.

SETTING UP THE REMOTE MODES (CONTROLLED BY AUTOMATION SYSTEM)

1. Refer to figure 1 and set the dipswitches as follows:

	S1	S2	S3	S4	S5
MANUAL MODE	EITHER	EITHER	EITHER	EITHER	0
0-10V AUTO MODE	1	1	0	0	1
0-5V AUTO MODE	0	0	0	0	1
4-20mA AUTO MODE	1	1	1	1	1

2. Connect the Automation System input signal to the two pins labeled SIG (see figure 1). Verify the correct polarity per the + and - marks on the board.

TIP: The same connector may also contain two additional pins that, if used, provide loaded filter information to the automation system.

3. The Automation system input will produce a CFM command per the tables supplied for the application. When the dip switches are set properly for the type of input (4-20ma, 0-10V or 0-5V), the "METER" terminal on the controller will show 0 to 10VDC representing 0 to 100% of the available fan airflow.

TROUBLESHOOTING

1. POWER CONNECTION — Confirm 24VAC (18VAC minimum, 30VAC maximum) is present on the two quick-connect terminals on the upper left of the board (see figure 1).

2. JUMPERS ("SHUNTS") — Confirm that the small black jumpers are on the pins and in the correct positions on the control's jumper headers: There should always be a jumper on the rightmost two pins of the header at the bottom of the board as shown in figure 1. If it is removed or is missing the control will not function. For operation with the **GE-ECM™**, the shunts labeled J6, J7, and J8 must be positioned to the right as shown in figure 1.

3. VERIFYING MOTOR AND CONTROLLER OPERATION —

Manual Mode — If the motor does not run while the Manual mode is selected (all Dip-Switches set to "0"), verify the following:

- 1) 24VAC power is applied to the Control and verified between the two power terminals on the board
- 2) The presence of a DC level between the "METER" and "COM" terminals that varies from 0 to approximately 10Vdc as the pot is adjusted.
- 3) The pot is set to provide a minimum of 0.6Vdc on the METER terminal.
- 4) If 1) through 3), above, are OK, proceed to **TROUBLESHOOTING THE OUTPUTS**, below.

REMOTE MODE — If the motor does not run while in the remote mode under the control of an automation system, both the inputs to the controller and the outputs from the controller need to be checked.

1. Verify the Input Mode — Verify the mode selecting dipswitches are set the correct input mode for the automation system applied. See the section **SETTING UP THE REMOTE (CONTROLLED BY AUTOMATION SYSTEM) MODES**, above.

2. Test the Input Signal — It would be very helpful to set the input from the automation system to a fixed value to help checkout the controller for proper response to the automation input. A fixed value of 5VDC from a 0-10VDC system, 2.5V from a 0-5V system, or 12ma from a 4 to 20ma system would be easy to troubleshoot and will produce the same operating characteristics. This discussion assumes one of these inputs is being provided between the **SIG+** and **SIG-** inputs. With a voltmeter measure the voltage between SIG+ and SIG- at the automation system input connector on the controller. If it was set to 50% output, make sure the SIG pins reads 5V for a 0-10V interface, 2.5V for a 0-5V interface, or 2.4V for a 4-20ma interface.

TIP: If the voltage at the SIG input is not correct, the problem is in the Automation system, not the controller.

With a voltmeter on the DC volts scale, measure the voltage between the METER (+) and COM (-) terminals.

It should read 5VDC, indicating a 50% command to the motor for any of the inputs, above. If the voltage deviates more than 0.5VDC from 5V (assuming a true 50% command is present at the SIG+/SIG- pins), the controller should be replaced. If the METER voltage is correct, proceed to **TROUBLESHOOTING THE OUTPUTS**, below.

4. TROUBLESHOOTING THE OUTPUTS

When Troubleshooting with a Voltmeter

1. Connect the negative lead of a voltmeter to the COM quick-connect.
2. Touch the positive lead to the "PWM" signal, pin 3 (center pin), of the 5-pin connector on the connector that connects to the motor.
3. Vary the pot on the controller while reading the voltmeter. The voltmeter will vary between 0VDC and approximately 13VDC as it's adjusted from minimum to maximum. If there is no voltage, replace the controller.
4. If there is output, but the motor does not respond, set the potentiometer so that pin 3 reads 1VDC then,
5. Move the positive lead of the voltmeter to the "G" signal, pin 1 (topmost pin of the 5-pin connector).
6. If the meter reads <9VDC, replace the controller.
7. If the meter reads >9VDC, the ECM is probably defective.



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