

REFER TO FIGURES 1, 2 & 3 AND USE THESE INSTRUCTIONS IF YOUR FAN CARD RESEMBLES ONE OF THESE. IF YOUR FAN VOLUME CONTROLLER CARD LOOKS DIFFERENT, REFER TO another IOM-ECM. This IOM refers to Nailor Part #'s H1-2272, H1-2272A1 and H1-2273A1.

LED INDICATORS

Power Indicator – A red LED located on the controller circuit board indicates that the control card has 24 VAC present (light will illuminate with higher than 18 VAC).

Airflow Indicator – A green LED located on the controller circuit board flashes to indicate airflow volume. Each pulse is 100 cfm (47.2 l/s). The last pulse is scaled. (ex. ½ pulse = 50 cfm)

RPM Limit Indicator – The green LED (same as airflow indicator LED) will stop pulsing bright green and reduce itself to a solid, dim glow as an indication that the motor is operating at or above the RPM limit for that particular unit. This is not an issue for some Nailor models and/or applications and can be where the unit is designed to run in normal operation, for instance a fan coil with multiple rows and high MERV rating filter at maximum cfm of the model. For some models and application such as Fan Powered Terminal Boxes where the box is not at maximum cfm or multiple rows, this could be an indication that filters should be checked for blockage or abnormally high static pressure. This would be an indication that the RPM limit has been reached. In either case review as needed per application.

SETTING AIRFLOW

(SEE TROUBLESHOOTING SECTION IF ISSUES ARISE)

Setting the Fan Airflow in the Manual Mode

1. Mode Selector Jumper must be in the "Manual" position.
2. Ensure there is a 24 VAC signal at the 24 VAC/GND terminals.
3. Attach the leads of a DC voltmeter to the "TP1+" and "TP2-" pads on the Fan Card. Read the DC volts.
4. Refer to the Fan Calibration Table inside the line voltage enclosure. Select the voltage that corresponds to the desired airflow (cfm or l/s) set point.
5. Adjust the potentiometer on the Fan Card to the desired voltage.
6. Breaking the power on the 24 VAC will cycle the fan.

Setting the Fan Airflow in the Dynamic Automation (0 – 10 VDC) Mode

1. Mode Selector Jumper must be in the "0-10V" position.
2. Ensure there is a 24VAC signal at the 24VAC/GND terminals.
3. A "0-10V" VDC input signal will determine the fan airflow at the unit. Varying this signal will in turn vary the fan airflow. At less than 0.50 VDC, the unit will turn off.
4. Note: When mode selector jumper is in the "0-10V" position and the sequence of operation warrants turning the motor off through the 24 VAC, the "hot" leg of the incoming power **must** be broken. Breaking the GND/common leg will not turn the motor off when the "0-10V" is connected to any controller.

OPTIONAL FSC - FAN STATUS (ON/OFF) CONTACT CLOSURE (MOTOR BLOWER PROVING SIGNAL) ON H1-2272A1 / H1-2273A1

1. A dry contact closure signal is provided at RLY terminals.
2. This signal can be used by the BAS for proving the motor blower is running (200 RPM threshold).

ELECTRIC HEAT FAN INTERLOCK RELAY (FIR) (if equipped)

1. Air proving signal is provided to a relay in the heater control circuit on models equipped with electric heat. This safety interlock prevents the heater from energizing unless the fan is energized and rotating at a minimum of 200 RPM.
2. This signal is used in the control scheme in lieu of a mechanical air pressure switch.

NOTICE:

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

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. With power off, inspect the unit to make sure that there are no foreign objects blocking fan operation. Turn the blower wheel by hand to verify that it moves freely.
2. Energize the unit at the disconnect switch. Adjust the controls to call for the fan motor to run.
3. Then, turn the unit power back on and wait up to 20 seconds for the motor to start.

TROUBLESHOOTING IN MANUAL ADJUST MODE

1. Confirm the jumper on the Fan Card is in the "MAN" position for adjustment of fan speed at the unit.
2. If the motor does not run, turn off the power to the unit and verify that the power plug and the control plug are firmly and correctly attached to the motor.
3. If the motor still does not start, turn off power and unplug both wiring harnesses from the motor.
4. Energize the unit. Check the AC voltage at the motor power plug. **IMPORTANT: Do not jam the voltmeter leads into the connectors. This will damage the connectors. Insert the probes into the plugs until they touch the pins. Do not penetrate the pins.** You should have full line voltage between the neutral and power lines, or between the two power lines in case of 208/240 VAC. If this is the case, go to step 5. If there is not a full line voltage signal at this point, check the voltage at the incoming power terminal block. If there is not a full line voltage signal at this point, turn off the power to the unit and have the electrician verify the power issue.

5. If there is a full voltage signal, and if the ground wire is properly connected, check the voltage at the Fan Card. Be sure that you have 18-28.5 VAC at the 24 VAC terminals. If you do not have voltage at this point, check the transformer and/or 24 VAC control voltage.

7. Check between "COM" and "PWM" (0-100% duty cycle). Depending on the input signal, it should be a modulating voltage between 0 and 24 VDC. (A 0 PWM signal will turn the motor off). Turn the potentiometer to check this. If you do not have the proper voltage at this point, change the Fan Card.

8. If all the voltages check out, it is possible that the pins may not be connecting properly and it may be a good idea to recheck them at the plug near the motor. If there is a voltage discrepancy anywhere else, each source should be verified for proper voltage readings. Plug both cables back into the motor, turn on the power and wait for the motor to start.

TROUBLESHOOTING IN AUTO/DYNAMIC "0-10VDC" MODE

1. Confirm the jumper on the Fan Card is in the "0-10VDC" position for dynamic fan speed control via the unit controller signal from the BAS.

2. Check to verify that the unit controller leads are properly connected to the Auto Input Signal terminal "+" & "-" at the 2 or 4 pin terminal dependent on model. Ensure that an analog signal from "0-10 VDC" is present at the "+" & "-" terminals at the Fan Card. Correct connections or verify operation of controller, correct where needed. If "0-10VDC" signal is present at Fan Card move to step 3.

3. Check steps 2 - 8 in TROUBLESHOOTING IN MANUAL ADJUST MODE.

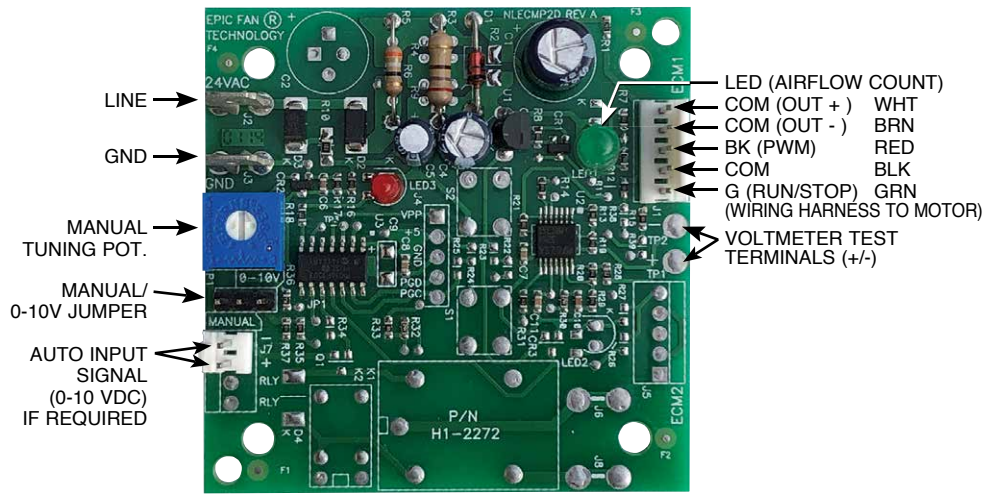


Figure 1. EPIC™ Single Motor Card. (H1-2272)

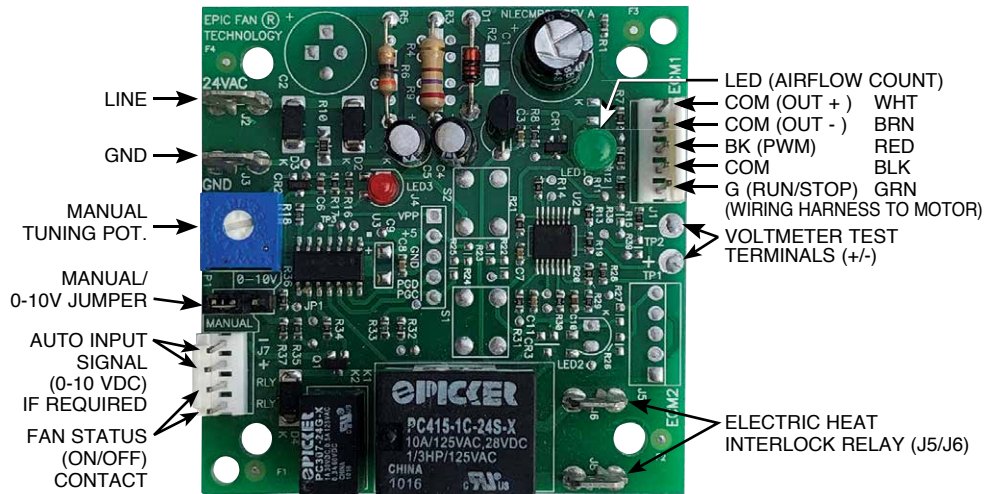


Figure 2. EPIC™ Single Motor Card with Fan Status and Electric Heat Relays. (H1-2272A1)

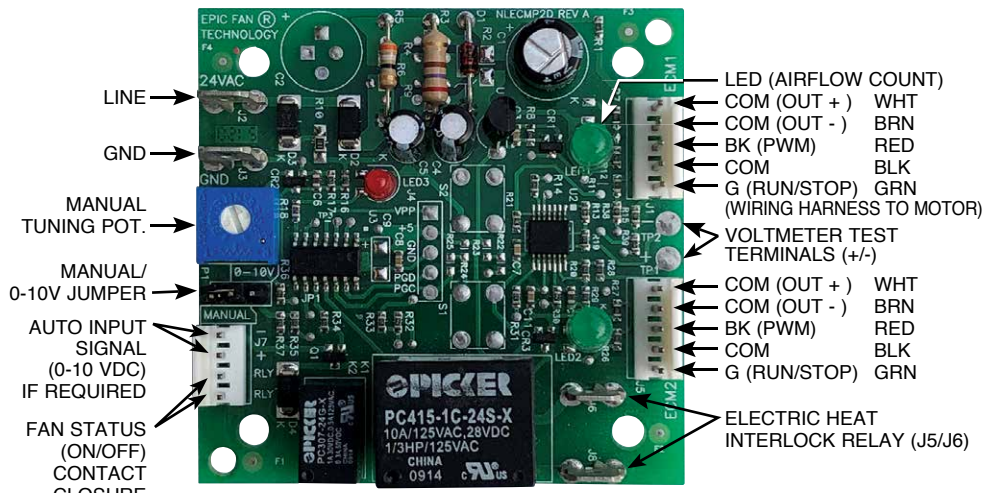


Figure 3. EPIC™ Dual Motor Card with Fan Status and Electric Heat Relay. (H1-2273A1)



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