

Please note that all voltages measured are taken from the terminals of the analog card and not from the thermostat. **No magnitudes should be measured at the thermostat as only the controller decodes the information.**

## Setting the Chilled Water output

1. Attach the leads of a DC voltmeter to the "CW" and "COM ( $\perp$ )" terminals
2. At the jumper section, move the jumper to "CWV".
3. Measure the voltage output of terminal "CW" and regulate accordingly by adjusting the dial marked "CW MAX".

## Setting the Cooling CFM output

1. Attach the DC voltmeter leads to the "FAN OUT" and COM " $\perp$ " terminals
2. Move the jumper to MAX.
3. Measure the voltage output of terminal "FAN OUT" and adjust it by turning the dial marked "MAX".
4. Compare with ECM calibration chart voltage values to get the CFM desired.

## Setting Minimum CFM or Dead Band output

1. Attach the DC voltmeter leads to the "FAN OUT" and COM " $\perp$ " terminals
2. Move the jumper to MIN.
3. Measure the voltage output of terminal "FAN OUT" and adjust it by turning the dial marked "MIN".
4. Compare with ECM calibration chart voltage values to get the CFM desired.

## Setting the Heating CFM output

Note: Please make sure that the CFM voltage values for STG1 are always lower than the values for STG2 to avoid conflicts.

### Heating CFM, Stage 1

1. Attach the DC voltmeter leads to the "FAN OUT" and "HT COM" terminals.
2. Move the jumper to STG1
3. Measure the voltage output of terminal "FAN OUT" and adjust it by turning the dial marked "STG1".
4. Compare with ECM calibration chart voltage values to get the CFM desired.

### Heating CFM, Stage 2

1. Attach the DC voltmeter leads to the "FAN OUT" and "HT COM" terminals.
2. Move the jumper to STG2.
3. Measure the voltage output of terminal "FAN OUT" and adjust it by turning the dial marked "STG2".
4. Compare with ECM calibration chart voltage values to get the CFM desired.

The heat stage terminals HT1 and HT2 are on/off outputs, which

cannot be adjusted from the card. The heat stages are controlled by temperature demand and not by CFM or timing. Changes can be made by readjusting the proportional and the integral band on the thermostat pad.

**At the end of calibration, make sure the jumper is moved back to NOR, which will set the controller to normal operation mode.**

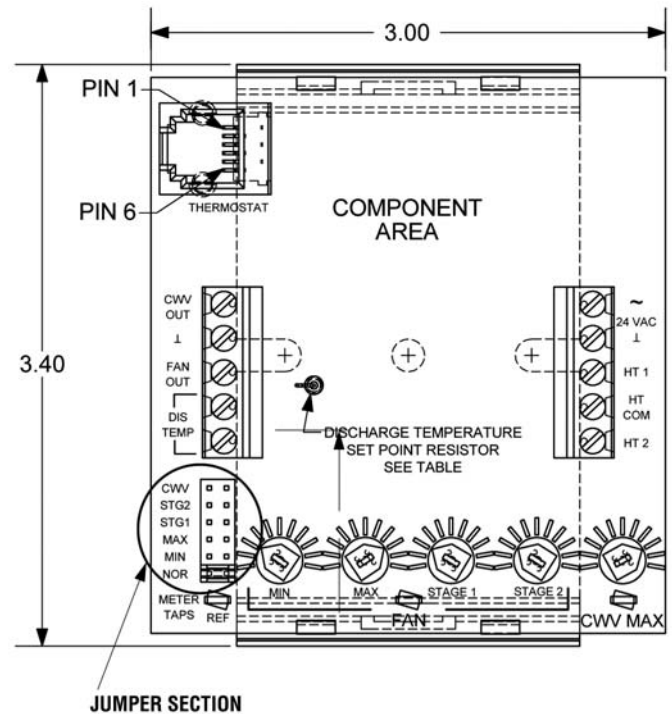


Figure 1. ACN Card.

## Troubleshooting

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 the following:

1. Make sure that the thermostat is connected to the controller. If the thermostat is not connected, the unit won't work at all.
2. The polarity of the 24 VAC supply to the controller to be correct. Check for loose wires and verify for properly connected terminals.
3. Verify that the other wires and terminals are well connected and that the cables are insulated

### Fan will not start

**Note:** The fan will take approximately 25 seconds to turn on after it gets a signal from the card. The fan will stop if the signal is dropped below 1.8 Volts.

1. Verify that there is a jumper, and that it is placed on the NOR position

2. Check the voltage output of terminal "FAN OUT". If the voltage is below 1.8 volts, adjust accordingly, otherwise the fan won't turn.
3. If there is signal voltage, inspect the signal line to the motor and verify that it does not go through another device, such as a relay, which in this case, the device would need to be inspected.
4. If there is no signal voltage, inspect the power supply. If still no signal is read, replace the card.
5. Verify the fuse on the power supply lines to the motor.

**Heat does not come ON**

Make sure that the thermostat is calling for heating, and that the set point has at least three degrees off of room temperature

1. Measure the output voltage of HT1 and verify that it has at least 18 VAC. Wait about 1 minute and measure HT2, which should also have at least 18 VAC. These outputs can not be adjusted. If no voltage is measured, replace cards.
2. If there is voltage present, and no heat comes on, verify contactors and airflow switch.

**In case of Hot Water Valves (HWV)**

1. Repeat previous steps 1 and 2
2. Unplug the cable connectors at the valve and measure the voltage coming from the controller (STG1); verify a coming signal not less than 18 VAC. If no voltage is present, inspect the signal line and verify that it does not go through another device, such as a relay, which in this case, the device should be inspected.

Note: If NC valves are replaced by NO valves, step 2 won't apply. In this case, no voltage should be read when calling for heating, and voltage will be present when in cooling or dead band.

**Chilled water valve does not modulate**

Make sure that the thermostat is calling for cooling, and that the

set point has at least three degrees off of room temperature

1. Check the voltage output of terminal "CWV". If the voltage is below 1.9 volts, adjust accordingly, otherwise the valve won't turn.
2. If there is signal voltage, inspect the 24 Vac power supply to the valve. Also, inspect the signal line to the valve and verify that it does not go through another device, such as a relay, which in this case, the device needs to be inspected.
3. If there is no signal voltage, inspect the power supply of the card. If still no signal is read, replace the card

**Unit will not power up**

Some Nailor units are equipped with safety devices such as Pan Float switches, or freeze stats, which may need special attention.

1. Verify that the unit is receiving the proper voltage (120, 277 Vac, etc.), and that the 24 volts transformer is well connected to the terminals.
2. If equipped with a Pan Float switch, make sure that the unit is standing in an upright position to allow the switch to close the power circuit. Also, make sure that there is no water in the pan, which will cause the switch to open.
3. If equipped with a freeze stat, make sure that the temperature selected is properly adjusted. Usually, power problems appear when the temperature is set too high. Measure the voltage from terminal "R" at the freeze stat, to the high signal (~) of the transformer, and verify that power flows from the freeze stat.
4. Verify the cable from the thermostat to the controller for damaged plugs, or bad connections. The thermostat should be on at all times when proper power is supplied. If power is present at the controller, and no power is sent to the thermostat, try by replacing the cable. If the problem persist, replace the thermostat.



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