

Overview

- For air conditioner to heat pump conversions. Extends the wiring between the indoor unit and heat pump.
- Provides Y1, Y2, O/B, and W over the 2-wire condenser cable.

Electrical Safety

- This product should only be installed by a qualified technician.
- Requires a Class 2 transformer providing 23-28VAC.
- The total connected load cannot exceed 2 amps.
- The connected load cannot operate at more than 30VAC (not designed for direct connection to 120VAC equipment).
- To avoid risk of electrical shock or equipment damage, disconnect power before beginning installation.

Module Installation

The Indoor Unit Module is installed inside the cabinet of the air handler or furnace. If there is not enough space inside the cabinet, it may be located in any dry location without exposure to high temperatures or water.

The Heat Pump Module is installed inside the cabinet of the heat pump. It is not rated for direct exposure to outdoor conditions, and should not be installed outside of the heat pump cabinet.

Installation Methods

There are installation methods, 'Grounded Commons' and 'Two Transformers'.

Grounded Commons requires a black wire from both the Indoor Unit Module and Heat Pump Module to be grounded (page 3).

Two Transformers requires an external 240:24V transformer to be installed at the location of the heat pump. It does not require the use of earth ground (page 4).

Fossil Fuel or Supplemental Heat

The Model 9000 supports the use of two modes, 'Fossil Fuel' and 'Supplemental Heat'. The Heat Pump Module has two gray wires which can be connected to a thermostat to operate the optional modes.

In Fossil Fuel mode, an outdoor temperature drop past the set point of the heat pump thermostat will stop the heat pump compressor and activate the indoor unit's heating system. When the outdoor temperature rises past the set point, the indoor unit's heating system will stop, and the heat pump compressor will activate.

In Supplemental Heat mode, an outdoor temperature drop past the set point of the heat pump thermostat will activate the indoor unit's heating system, while the heat pump compressor continues to run. When the outdoor temperature rises past the set point, the indoor unit's heating system will stop.

If Fossil Fuel mode is used, the Heat Pump Module's green wire loop must be cut. If not, the heat pump will operate in Supplemental Heating Mode. Tape back the wires after cutting.

If the Heat Pump has a cool-active reversing valve, the Heat Pump Module's purple wire loop must be cut. This is only required if operating in Fossil Fuel or Supplemental Heating mode. Tape back the wires after cutting.

Fossil Fuel or Supplemental Heat Test

After configuring the Model 9000 for Fossil Fuel or Supplemental Heat mode, follow the steps below to ensure it is working properly.

1. Set the heat pump thermostat to a temperature setting at least 10°F below the current outdoor temperature.
2. Set the indoor thermostat to call for heat, activating the heat pump.
3. Slowly increase the heat pump thermostat setting to above the current outdoor temperature.

If in Fossil Fuel mode, the heat pump should stop and the indoor unit's heating system should start.

If in Supplemental Heat mode, the heat pump should continue to run and the indoor unit's heating system should start.

Two Transformer Test

The Two Transformer test ensures that the transformers in the system are connected in parallel. It is only required if using the 'Two Transformer' wiring method. The transformer wiring affects the system when the heat pump is in defrost mode, which should activate the indoor unit's heating system.

If the transformers are not in parallel (and are in series instead), the defrost mode will trip a resettable fuse inside the Heat Pump Module, and the indoor unit's heating system will not start. Reversing the leads on the secondary side of the heat pump's 24V transformer will fix the issue.

No damage will occur when the resettable fuse is tripped. The resettable fuse takes approximately 30 seconds to reset after being tripped, and must be reset for the defrost mode to work.

At the Thermostat

1. Set the thermostat so that the heat pump is running in heating mode. For 2-stage heat pumps the compressor must be running in high speed.

At the Heat Pump

2. Manually set the heat pump to 'Defrost Mode' (see heat pump manual for instructions)
3. Check if the indoor unit's heating system is on. If it is, the test is complete and no further steps are required. If it is not, proceed to step 4.
4. Switch the secondary leads of the 24V transformer powering the heat pump and Heat Pump Module. The transformer lead previously connecting to 'R' will instead connect to 'C'. The transformer lead previously connecting to 'C' will instead connect to 'R'.

Start Up Testing

After the Model 9000 has been configured, follow the steps below to ensure it is working properly.

1. Set the thermostat for 'Fan Manual On'. The fan should start. Then set it back to 'Fan Auto Mode'. The fan should stop.
2. Set the thermostat to call for cooling. The fan and compressor should start. Depending on the type of heat pump, the reversing valve may activate. Set the thermostat to stop calling for cooling. The fan and compressor should stop.
3. Set the thermostat to call for heating. The fan and compressor should start. Depending on the type of heat pump, the reversing valve may activate. Set the thermostat to stop calling for heating. The fan and compressor should stop.
4. Set the thermostat to call for 'Backup' or 'Emergency' heating. The indoor unit's heating system should start. Set the thermostat to stop calling for Backup or Emergency heating. The indoor unit's heating system should stop.

Troubleshooting

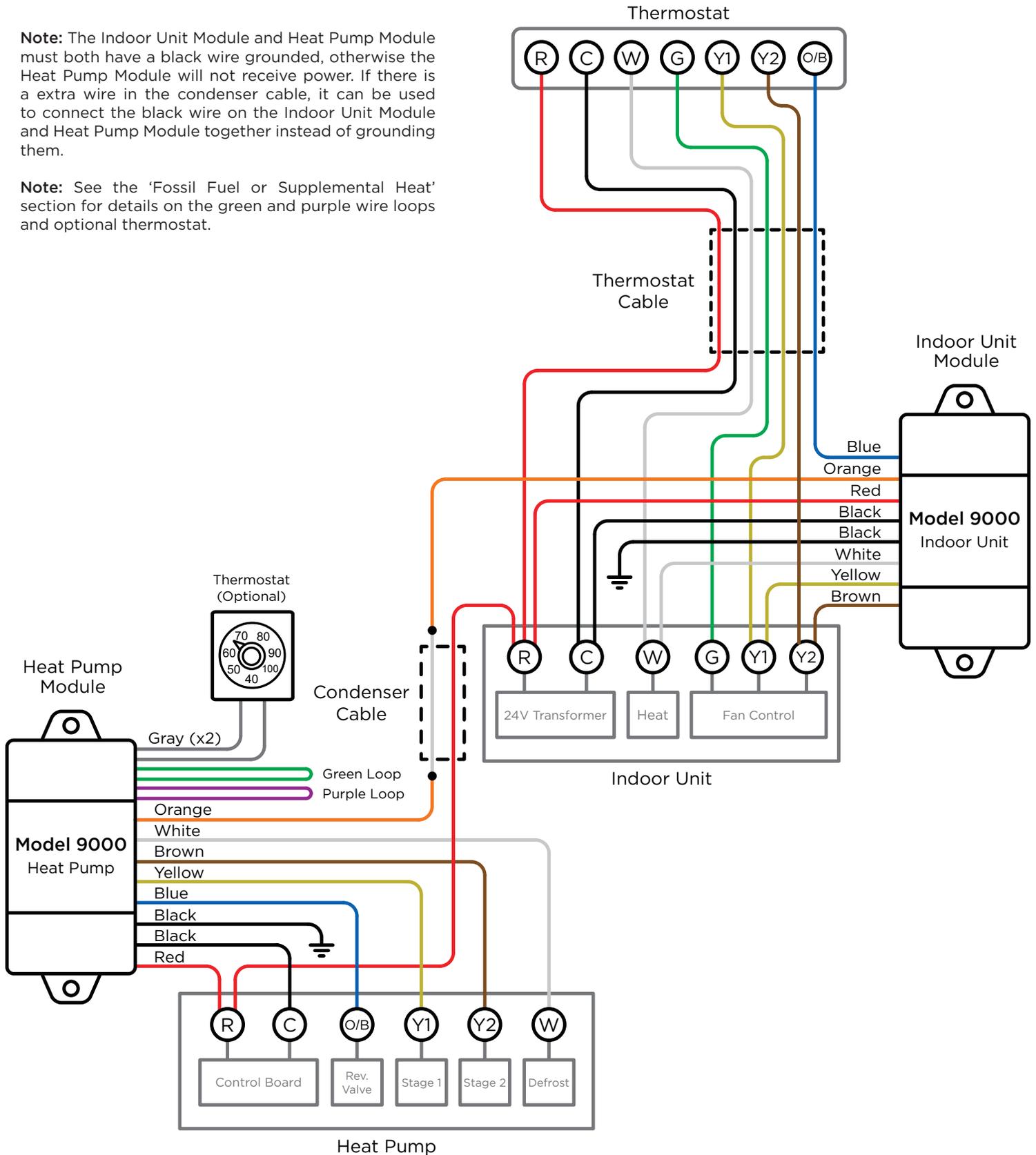
1. Remove the thermostat from its sub-base. With a jumper, make a connection between 'R' and 'G' on the thermostat terminal strip. The fan should activate. Repeat this process for 'Y1', 'Y2', 'W', and 'O/B'. If all functions activate, the Model 9000 is working as intended. Check that the thermostat is configured properly.
2. Using a voltmeter, measure across the 'R' and 'C' terminals at both the indoor unit and heat pump. Both should read 24VAC. If the heat pump has no voltage and the Grounded Commons wiring method is being used, check that the Indoor Unit Module and Heat Pump Module are grounded properly.
3. At the Heat Pump Module, disconnect the orange wire from the condenser cable and connect it to the heat pump 'R' terminal. The reversing valve should energize and the compressor should start (the heat pump may have a built-in time delay). If the heat pump fails to start, the wiring is incorrect or the Heat Pump Module is defective.
4. At the Indoor Unit Module, disconnect the orange wire from the condenser cable. Connect the previously disconnected condenser cable wire to the indoor unit 'R' terminal. The reversing valve should energize and the compressor should start. If the heat pump fails to start but started in the previous test, there is an issue with the condenser cable or Indoor Unit Module.
5. At the Indoor Unit Module, disconnect the blue wire and connect to the indoor unit 'R' terminal. The reversing valve should energize. Remove this connection afterwards. Repeat this process with the Indoor Unit Module's brown wire. The compressor should activate. If the previous test was successful but the compressor or reversing valve will not activate from this test, either the wiring is incorrect or the Indoor Unit Module is defective.

Contact Us

For installation assistance, our technical support line can be reached at 1-800-775-4750, Mon-Thurs, 9am-5pm PST, or emailed at info@nordictech.ca

Note: The Indoor Unit Module and Heat Pump Module must both have a black wire grounded, otherwise the Heat Pump Module will not receive power. If there is an extra wire in the condenser cable, it can be used to connect the black wire on the Indoor Unit Module and Heat Pump Module together instead of grounding them.

Note: See the 'Fossil Fuel or Supplemental Heat' section for details on the green and purple wire loops and optional thermostat.



B Two Transformer Wiring

Note: After installing the external transformer, follow the 'Transformer Test' section to ensure it is in parallel with the indoor unit's transformer.

Note: See the 'Fossil Fuel or Supplemental Heat' section for details on the green and purple wire loops and optional thermostat.

