

# FAST-STAT Model 9000 Installation Instructions

## Application

The FAST-STAT Model 9000 is designed to reduce installation time when converting from an air conditioner to a single or 2-stage heat pump.

## Before Installing This Product

1. Read Instructions. If you have any questions please contact our tech support line
2. This product is designed for use only on 24-volt AC circuits supplied by a Class 2 transformer.
3. This product is only to be installed by qualified technicians.
4. To avoid risk of electrical shock or equipment damage, disconnect power before beginning installation.

## Module Installation

The indoor module is normally mounted inside the cabinet of the furnace near the other controls. If there is no space inside the cabinet, the module may be located in any dry location without exposure to high temperatures.

The heat pump module is mounted in a dry location inside the heat pump cabinet near the other controls. The heat pump module is not rated for direct exposure to outdoor conditions. Do not mount it outside of the heat pump cabinet.

## Wiring

There are two installation methods. One is the "grounded commons method" and the other is the "two transformers method". In most installations the "grounded commons method" provides for the quickest installation. If this method is unsuitable then the "two transformers method" can be used.

The power supply must be between 20 to 28 volts for proper operation. The total connected load must not exceed 2 amps for each module. The connected load cannot operate at a voltage of more than 30 volts (not intended for line voltage control).

## Fossil Fuel / Supplemental Controller

The two grey wires on the heat pump module may be connected to a remote bulb type thermostat to operate the built-in fossil fuel / supplemental heat controller. The use of this controller is optional

When set for "fossil fuel mode", a temperature drop to the set point of the heat pump thermostat will shut off the compressor and the indoor unit heating system will start. When the temperature rises above the set point, the indoor unit heating system will shut off and the compressor will start.

When set for "supplemental heat mode", the compressor will continue to run and the indoor unit heating will start when the temperature drops to the set point of the heat pump located thermostat.

The grey wires are connected to the thermostat terminals that "make" when the temperature falls to the set point..

On the "heat pump module" there is a loop of purple wire. This loop of wire is cut if the heat pump has a "cool active reversing valve". Tape back the leads after cutting. This is required only if the optional use heat pump located thermostat is installed for fossil fuel or supplemental heat operation.

On the "heat pump module" there is a loop of green wire. This loop of wire is cut if the unit is to function in "fossil fuel mode". Tape back the leads after cutting. If the green loop is left intact, then it will operate in "supplemental heat mode". This is required only if the optional use heat pump located thermostat is installed for fossil fuel or supplemental heat operation

## Start Up Testing

1. Set the thermostat to "fan manual on". The fan will start. Set the fan mode selector switch to "auto mode". The fan will shut off.
2. Set the thermostat so that it will call for the indoor unit heating system to start. This is usually "backup" or "emergency" heat. The indoor unit heating system will start. Return the thermostat to the off position. The indoor unit heating system will shut off.
3. Set the thermostat to a call for cooling. The fan and compressor will start. Depending on the type of heat pump the reversing valve may energize. Set the thermostat to off. The fan and compressor will stop.
4. Set the thermostat to a call for heat. The fan and compressor will start. Depending on the type of heat pump the reversing valve may energize. Set the thermostat to off. The fan and compressor will stop.
5. Set the thermostat so that the reversing valve is on but the compressor is off. Check that the indoor unit fan is off. If the indoor unit fan is on, see the "Troubleshooting" section.

## Transformer Test

Only required if the "two transformer method" is used.

### At the Thermostat

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

### At the Heat Pump

2. Manually set the heat pump into "defrost mode" (see heat pump manual for instructions on how this is done).
3. If the LED indicator on the heat pump module is off then the transformers are properly connected.
4. If the LED indicator switches on then the heat pump transformer and indoor unit transformer are connected in series when they need to be connected in parallel. Shut off the heat pump and switch the secondary leads of the heat pump transformer. Retest starting at instruction #1 above.

### Purpose of the transformer test

The purpose is to insure that the indoor unit transformer and the heat pump transformer are connected in parallel. If they are in parallel then the indoor heating system will start when the heat pump is in defrost mode. If they are not in parallel (series connected) then the PTC (automatically resettable fuse) located in the heat pump receiver will trip. When it trips the signal from the heat pump that would start the indoor unit heating system cannot get through. No harm will occur to any part of the control system when this happens. All other functions will work properly when the transformers are series connected except that the indoor heating system will not start when the heat pump is in defrost mode.

There is no easy method of determining transformer polarity when installing the heat pump transformer. There is a 50% chance of it being correct (or incorrect) when first connected. Switching the leads from the secondary side of the heat pump transformer will correct the problem. The PTC resettable fuse usually takes about 30 seconds to cool down and reset after being tripped. The PTC resettable fuse has to reset itself before the circuit can be tested.

### If equipped with a thermostat at the heat pump

1. Set the heat pump thermostat to a temperature setting at least 10 degrees colder than ambient.
2. Set the indoor thermostat to a call for heat from the heat pump.
3. With the heat pump running in heat mode, slowly adjust heat pump thermostat setting to above ambient temperature.

If the heat pump receiver is set for fossil fuel operation then the heat pump will shut off and indoor unit will go into heating mode.

If the heat pump receiver is set for supplemental heat then the heat pump will continue run while the indoor unit goes into heat mode.

4. Set the heat pump thermostat to the temperature at which either the heat pump is to shut off or supplemental heat is to be switched on.
5. Testing is now completed. Set indoor thermostat to desired settings.

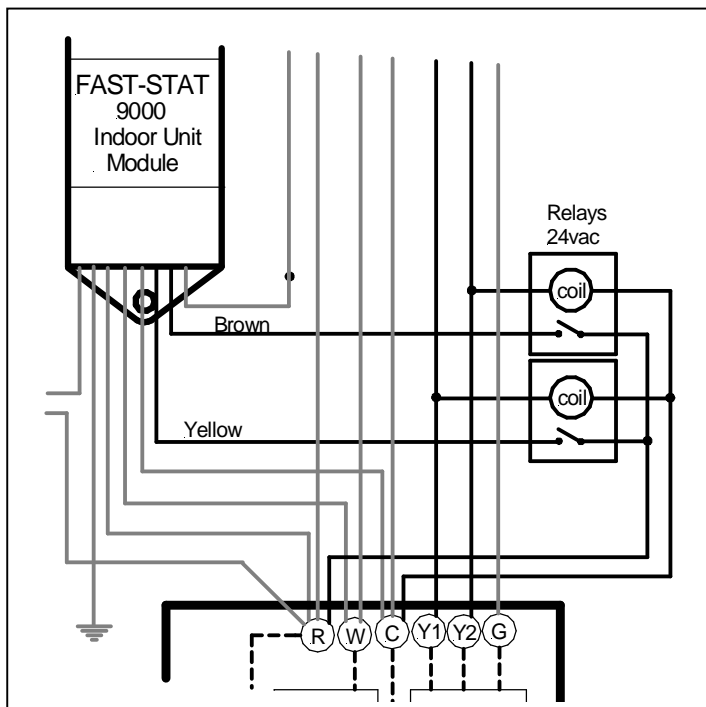
### Troubleshooting – heat pump won't run

1. Check that there is a constant 24-volt power connected to the red and black leads of both the furnace module and the heat pump module.
2. At the heat pump disconnect the orange wire from the condenser cable. Connect the orange wire to the "R" connection. The reversing valve should energize and the compressor should start (subject to any time delays caused by the heat pump control board). If this test works OK then proceed to step #3 below. If this test fails then the wiring connections are incorrect (or loose) or the heat pump module is defective.

3. At the indoor module disconnect the orange wire from the condenser cable. Connect the orange wire to the indoor unit "R" connection. The reversing valve should energize and the compressor should start (subject to any time delays caused by the heat pump control board). If the heat pump fails to start then there may be a problem with the existing condenser cable or how it has been connected. If this test works OK then proceed to step #4 below.
4. At the indoor module, jumper the Blue wire to transformer R terminal. The reversing valve should energize. Remove this connection and jumper the Brown wire to the transformer R terminal. The compressor should start-up. If this test fails then the wiring connections are incorrect (or loose) or the indoor module is defective.

### Troubleshooting – indoor unit fan runs continuously

In certain operating modes there is a 6 volts DC signal present on the Indoor Module Yellow and Brown wires. Some indoor units (furnace or air handler) will mistake this 6 volts DC for 24 volts AC and will start the fan and cause it to run continuously. If this happens, then two isolating relays (1 relay if single-speed heat pump) will need be installed as indicated below:



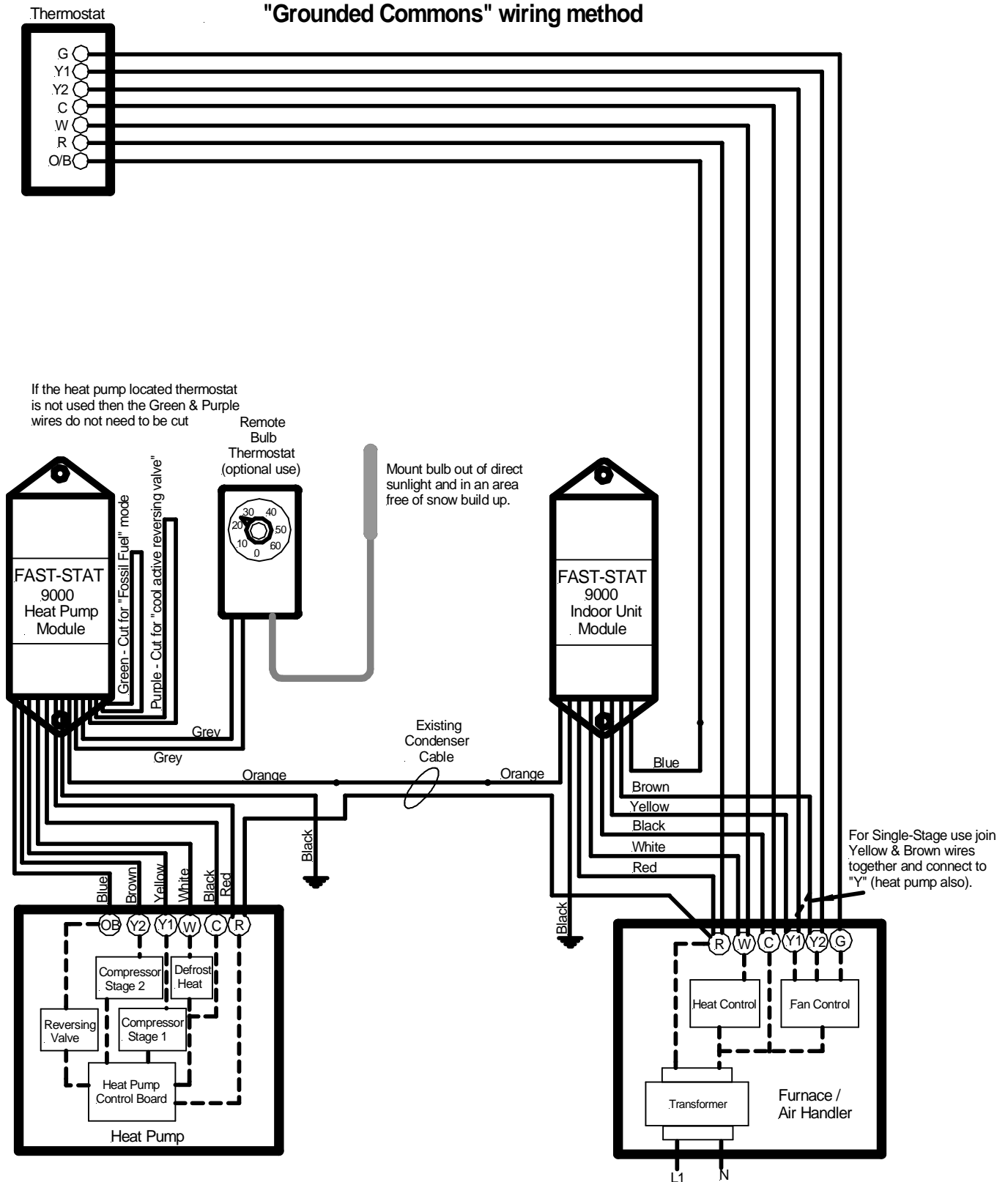
If your installation requires isolating relays please contact our Tech Support Line.

Tech Support Line: 1-800-775-4750 ext. 3

Monday – Friday: 8:30am to 4:30pm  
Pacific Standard Time

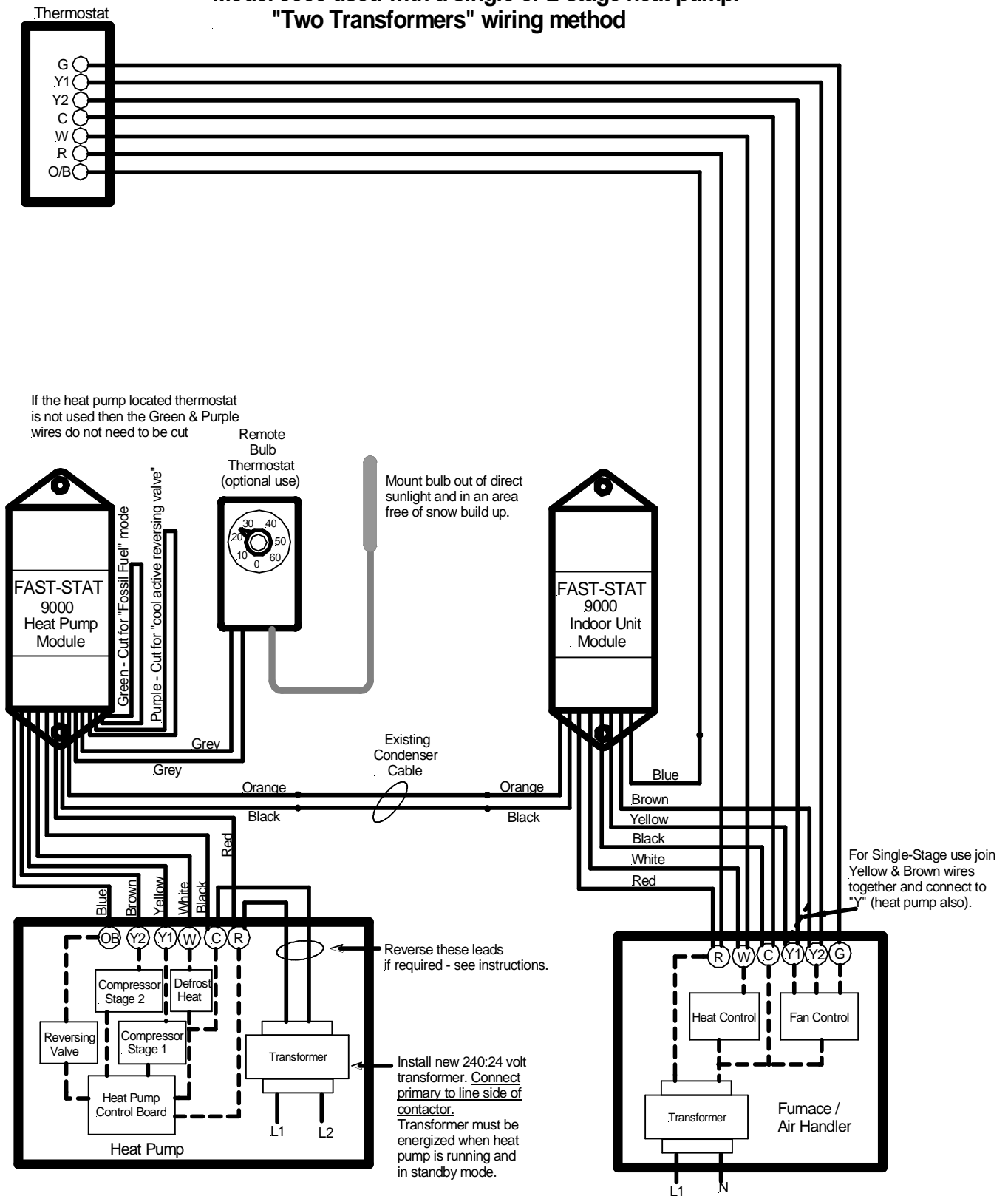
# FAST-STAT Installation Guide A

Model 9000 used with a single or 2-stage heat pump.  
"Grounded Commons" wiring method



# FAST-STAT Installation Guide B

Model 9000 used with a single or 2-stage heat pump.  
"Two Transformers" wiring method



# FAST-STAT Installation Guide C

Model 9000 used with a Zone Panel to extend wiring to a 2-stage heat pump.

