Fig. 1 OFC AC/Gas/Hydronic/Electric

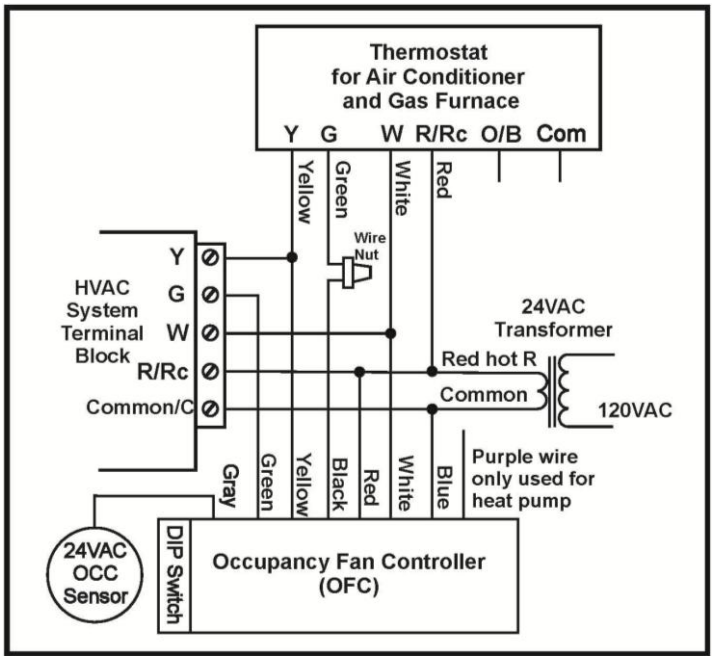


Fig. 2 OFC Orange Reversing Valve Heat Pump

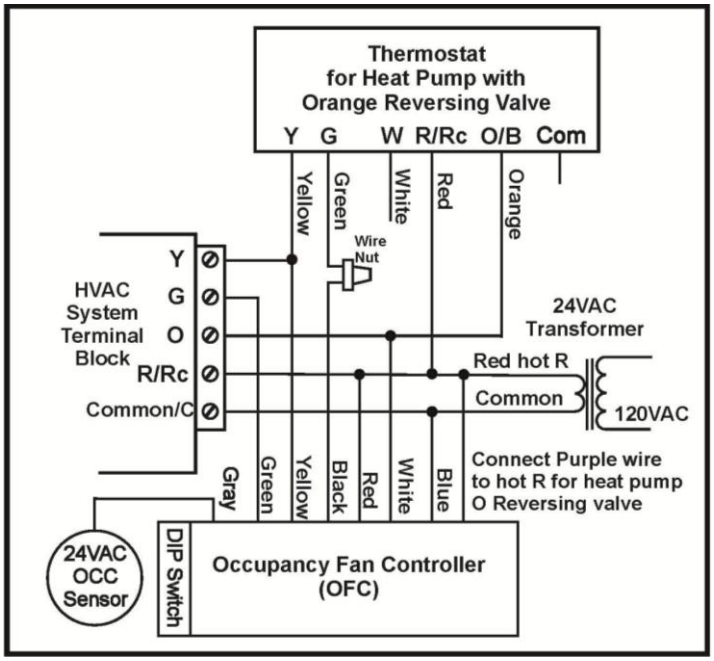
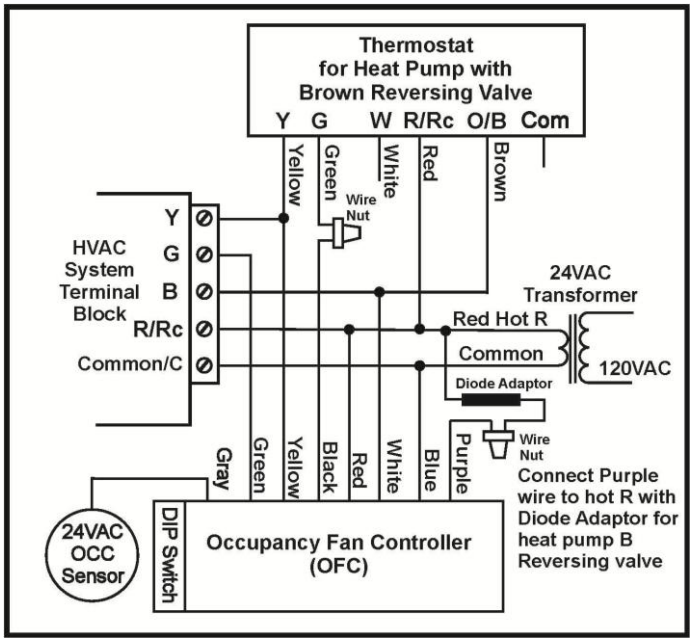
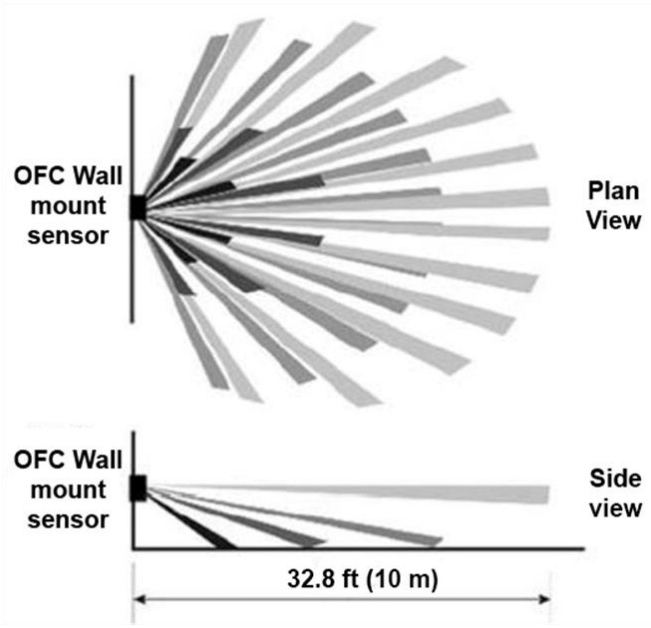


Fig. 3 OFC Brown Reversing Valve Heat Pump





1. PRE-INSTALLATION CHECKS

- ☐ HVAC system must be operational with no gas leaks, good condition, all ducts connected, panel doors secure, and air filter clean. HVAC system and thermostat controls must be 24VAC with fan switch or G connection at FAU.
- ☐ Install OFC near thermostat with occupancy (OCC) sensor having clear view of zone to monitor occupancy.
- ☐ OFC works with smart thermostats on gas, heat pump, hydronic, and electric heating with different wiring for each system. Heat pump reversing valve is energized for cooling (orange wire) or energized for heating (brown wire).
- ☐ For installations without labels on control boards check wire colors. Check thermostat wires or verify function by connecting jumper wire from hot R (red) to green (fan), yellow (AC), white (heat), etc.

2. INSTALLATION

- ☐ Verify HVAC system works in heating and cooling. Smart thermostats have default delays of 150 seconds or more between heating or cooling cycles. Make sure TXV bulb is strapped to suction line and properly insulated.
- ☐ Turn off power to FAU either at disconnect (packaged units) or wall plug/switch (split systems). Install OFC above thermostat or on ceiling with OCC sensor having clear view of zone controlled by thermostat.

- ☐ Step 1: Connect OFC red wire to "R/Rc" terminal (red).
- ☐ Step 2: Connect OFC white wire to heat "W" terminal. If unit is heat pump, leave white wire disconnected and see section 3. If separate "Rh" (red heat) do not connect white wire.
- ☐ Step 3: Connect OFC yellow wire to AC "Y" terminal.
- ☐ Step 4: Disconnect green wire from fan "G" terminal and connect OFC black to thermostat green wire.
- ☐ Step 5: Connect OFC green wire to fan "G" terminal (or wire nut).
- ☐ Step 6: Connect OFC blue wire to C terminal (common). This is return from 24VAC transformer and colors vary.
- ☐ If system is not a heat pump, purple wire can be capped with a wire nut or cut off. Secure OFC to wall or ceiling near thermostat. Double-check wire connections are tight. Turn power ON to HVAC system.
- ☐ For hydronic or electric forced-air heating set smart thermostat to electric heating to energize fan G with heat W.

3. INSTALLATION FOR HEAT PUMP ORANGE REVERSING VALVE (ENERGIZED FOR COOLING)

- ☐ Connect OFC white wire to orange wire (**FIG. 2**). Connect OFC purple and red wires to FAU "R/Rc" terminal (red).

INSTALLATION FOR HEAT PUMP BROWN REVERSING VALVE (ENERGIZED FOR HEATING)

- ☐ Connect OFC white wire to brown reversing valve wire (**FIG. 3**). Connect OFC purple wire to one end of brown HP diode adapter (FIG. 3). Connect other end of brown HP adapter to FAU "R/Rc" terminal (red) and OFC red wire.
- ☐ For smart thermostats go to equipment settings > heat pump and select B or O.

INSTALLATION FOR WATER SOURCE HEAT PUMP (REVERSING VALVE ENERGIZED FOR COOLING)

- ☐ Please refer to **FIG. 2** for orange wire (energized for cooling) or **FIG. 3** for brown wire (energized for heating).

4. FAN CONTROL CHECK

- ☐ Set DIP switches to test time of 30 seconds, switch fan control from AUTO to ON, move and verify fan turns ON.
- ☐ Stop moving for 30 sec. and OFC turns off fan. Switch fan to Auto and verify fan turns OFF without a fan-off delay.
- ☐ After installation test is completed, set OCC sensor delay to 20 to 60 minutes using DIP switches.

5. FAN-OFF DELAY CHECKS

- ☐ **Cool fan-off delay check:** Lower thermostat setpoint to turn ON cooling for less than10 seconds and raise thermostat setpoint until cooling turns OFF to verify fan operates for 10 seconds and turns OFF. Fan may operate longer due to built-in fan-off delay of 30 to 90 seconds. Wait for fan to turn off to verify proper fan operation.
- ☐ **Heat fan-off delay check:** Raise thermostat setpoint to turn ON heating for less than 10 seconds and lower thermostat setpoint until heating turns OFF to verify fan operates for 10 seconds and turns OFF. Fan may operate longer due to built-in fan-off delay of 30 to 150 seconds. Wait for fan to turn off to verify proper fan operation.

6. TROUBLESHOOTING

- ☐ If two transformer wires "Rc" (red cool) and "Rh" (red heat), install OFC red wire to "Rc." Do not install OFC red wire to "Rh", do not connect OFC white wire to thermostat "W", insulate OFC white wire with wire nut.
- ☐ Double-check wiring connection from thermostat to furnace, condenser, reversing valve, and water valve for hydronic systems. **Ensure all wire connections are tight and secure.**
- ☐ If OFC does not produce fan delay at end of cooling cycle, ensure OFC yellow wire is connected to AC Y terminal.
- ☐ If unit is a heat pump do not connect OFC white wire to "W". Connect white wire as outlined in section 3.
- ☐ Installation is not complete until system operates properly.
- ☐ If system does not function, then continue to Troubleshooting sections 7 and 8.

7. TROUBLESHOOTING FOR FAN OPERATION ISSUES

- ☐ If blower runs continuously with OFC installed, remove thermostat face plate.
- ☐ If blower continues to run with face of thermostat removed, disconnect OFC green and black wires from fan relay connection to temporarily remove OFC fan control. Leave all other wires in place, reconnect thermostat fan wire (usually green) to fan relay terminal, or wire nut connection. If blower continues to run with thermostat faceplate removed and thermostat fan wire connected to fan relay, fan relay is faulty, or there is a short in thermostat fan wire.
- ☐ **Make sure all connections are tight** and thermostat has new batteries and terminals on thermostat are good.
- ☐ If fan does not operate and system is hydronic make sure water valve is not stuck closed.

8. TROUBLESHOOTING FOR COOLING OR HEATING ISSUES

- ☐ If insufficient cooling install new thermostat batteries, replace air filter, clean condenser, check compressor contactor, and/or check and correct refrigerant charge.
- ☐ If insufficient heating, install new thermostat batteries, replace air filter, check igniter, inducer fan, and gas valve. If heat pump is not providing sufficient heating replace air filter and clean condenser, check compressor contactor, reversing valve, and/or check and correct refrigerant charge. If hydronic system is not providing sufficient heating, then check pump, air filter, and check water heater to ensure minimum 130°F hot water supply temperature.