

Installation Instructions

This flow center includes a wiring kit for connecting the flow center pump(s) to the heat pump control panel. Constant speed (including 3-speed) pumps are wired differently than variable speed pumps. Instructions for both types of pumps are shown below. *Please read these instructions entirely before attempting to connect the flow center pump(s).*

1. Verify package contents. Included in the package are two black wires with fuse holders, a brown wire, and these installation instructions.
2. Complete ground loop and heat pump piping. Finish piping and flushing before wiring the pump(s) to avoid loop fluid in contact with the pump(s).




WARNING: MAKE SURE THAT HEAT PUMP POWER IS DISCONNECTED AND THE AREA AROUND THE PUMP(S) IS COMPLETELY DRY BEFORE PROCEEDING TO STEP #3 (page 2 for variable speed pumps, page 3 for single and 3-speed pumps).

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and current editions of the National Electrical Code (NEC) NFPA 70. In Canada, refer to current editions of the Canadian electrical code CSA 22.1.

Recognize safety information. This is the safety--alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words; DANGER, WARNING, and CAUTION. These words are used with the safety--alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies hazards which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.



WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

VARIABLE SPEED FLOW CENTERS

Use this section for flow centers with part number starting with: FCD23, FCP13, FCM13, FCN13, FCK13, FCD34, FCP24, FCM24, FCN24, FCK24.

3. Complete high voltage wiring to the pump(s).

HIGH VOLTAGE WIRING, variable speed pump: Attach black wires with fuse holders in the kit to the “L” side of the compressor contactor (see CAUTION below). Connect field-supplied wiring from the black wires to the pump terminals (refer to Figure 1). Wiring must meet all applicable code requirements, including requirements for wire protection, such as conduit. Wire size must be at least 14 AWG copper conductor.

CAUTION: DO NOT CONNECT THE VARIABLE SPEED PUMP TO THE “T” SIDE OF THE HEAT PUMP CONTACTOR. THE VARIABLE SPEED PUMP MUST BE POWERED AT ALL TIMES. AFTER VERIFYING THAT THE HEAT PUMP BREAKER AND WIRE SIZE IS SUFFICIENT FOR BOTH THE HEAT PUMP AND THE FLOW CENTER PUMP(S), CONNECT THE VARIABLE SPEED PUMP TO THE “L” SIDE OF THE CONTACTOR.

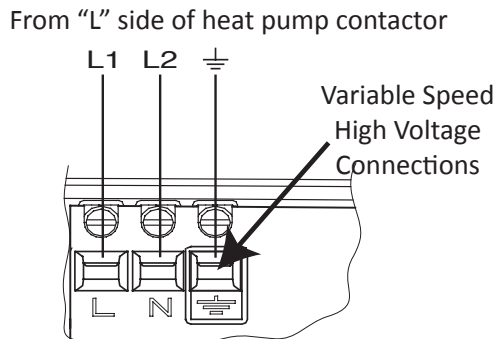
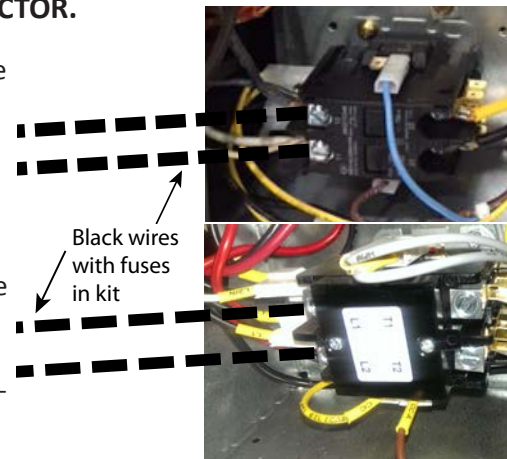


Figure 1: Variable Speed Pump High Voltage Connections

Pump high voltage wiring from “L” side of contactor (communicating UPM board)

Pump high voltage wiring from “L” side of contactor (non-communicating UPM board)



Use the next section (in addition to the section above) if the flow center includes a variable speed pump AND a 2nd 3-speed pump (Flow center models: FCD34, FCP24, FCM24, FCN24, FCK24). If a 2nd pump is not installed, skip to step #4.

HIGH VOLTAGE WIRING, second (3-speed) pump: If a second pump is installed, the second pump must be wired to the Grundfos controller, so that the relay in the controller can engage/disengage the pump based upon heat pump operation (for example, first or second stage operation/flow rate). Refer to Figure 2 for wiring. Run high voltage wiring from the “L” side of the compressor contactor to the Grundfos controller terminals. Run wiring from the controller to the second pump. Wiring must meet applicable code requirements, including requirements for wire protection, such as conduit. Wire size must be at least 14 AWG copper conductor.

4. Wire **LOW VOLTAGE CONNECTIONS** (variable speed flow centers only, heat pumps with non-communicating UPM board only). Disconnect brown wire from compressor contactor coil (labeled CC-A). See Figure 3. Replace with brown wire from kit (piggy-back end), and re-attach original brown wire to the piggy-back terminal. Use stripped end of the brown wire as terminal ACC (see Variable Speed Flow Center Quick Start Guide or UPC Controller I.O.M.).

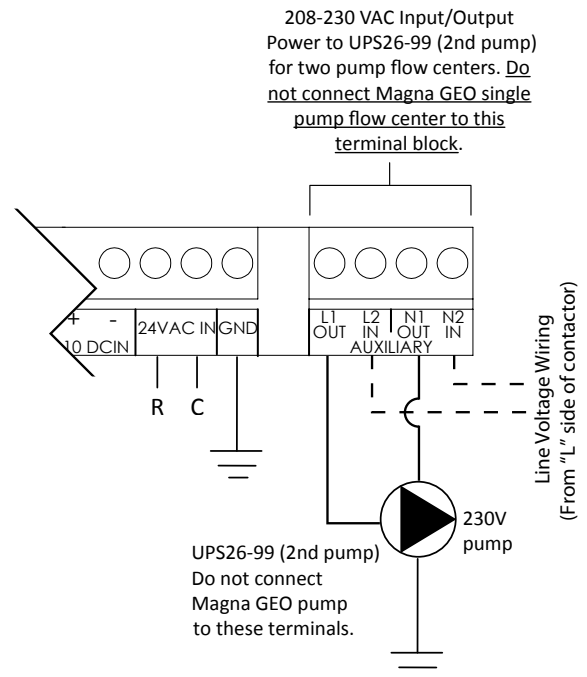


Figure 2: High Voltage to 2nd Pump (Variable Speed Flow Center Only)

IMPORTANT: Step #4 (above) is for units with non-communicating UPM (Unit Protection Module). If heat pump has communicating UPM board (Infinity/Evolution), use wiring harness extension (RC Part # 4129). DO NOT use Figure 3.

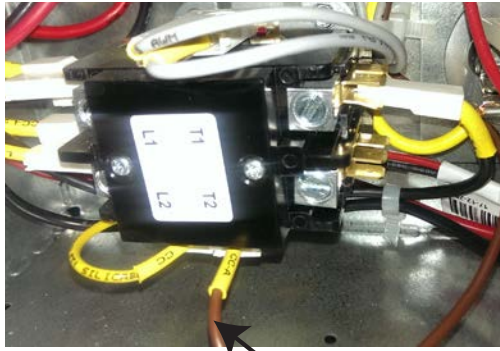
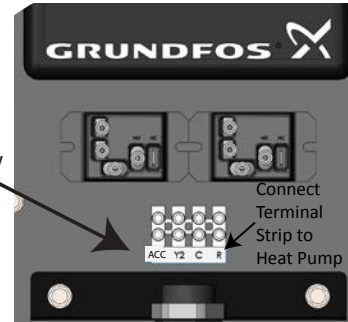


Figure 3: Low Voltage Wiring (Variable speed flow center only, heat pumps with non-communicating UPM board only)

Remove brown wire. Replace with brown wire from kit. Re-attach to piggy-back.

Terminal ACC at flow center controller (remove cover to access low voltage wiring)



IMPORTANT: Figure 3 is for heat pumps with non-communicating UPM board only. If heat pump has communicating UPM board (Infinity/Evolution), use wiring harness extension (RC Part # 4129). DO NOT use Figure 3.

CONSTANT SPEED FLOW CENTERS

Use this section for flow centers with part numbers starting with: FCD21, FCD22, FCD31, FCD32, FCD41, FCD42, FCP11, FCP12, FCP21, FCP22, FCP31, FCP32, FCP41, FCP42, FCN11, FCN12, FCN21, FCN22.

3. Complete high voltage wiring to the pump(s).

Flow centers with constant speed (including 3-speed) pumps: Attach the black wires with the fuse holders in the kit to the "T" side of the compressor contactor (refer to Figure 4). Connect field-supplied wiring from the black wires to the pump terminals. Wiring must meet all applicable code requirements, including requirements for wire protection, such as conduit. Wire size must be at least 14 AWG copper conductor.

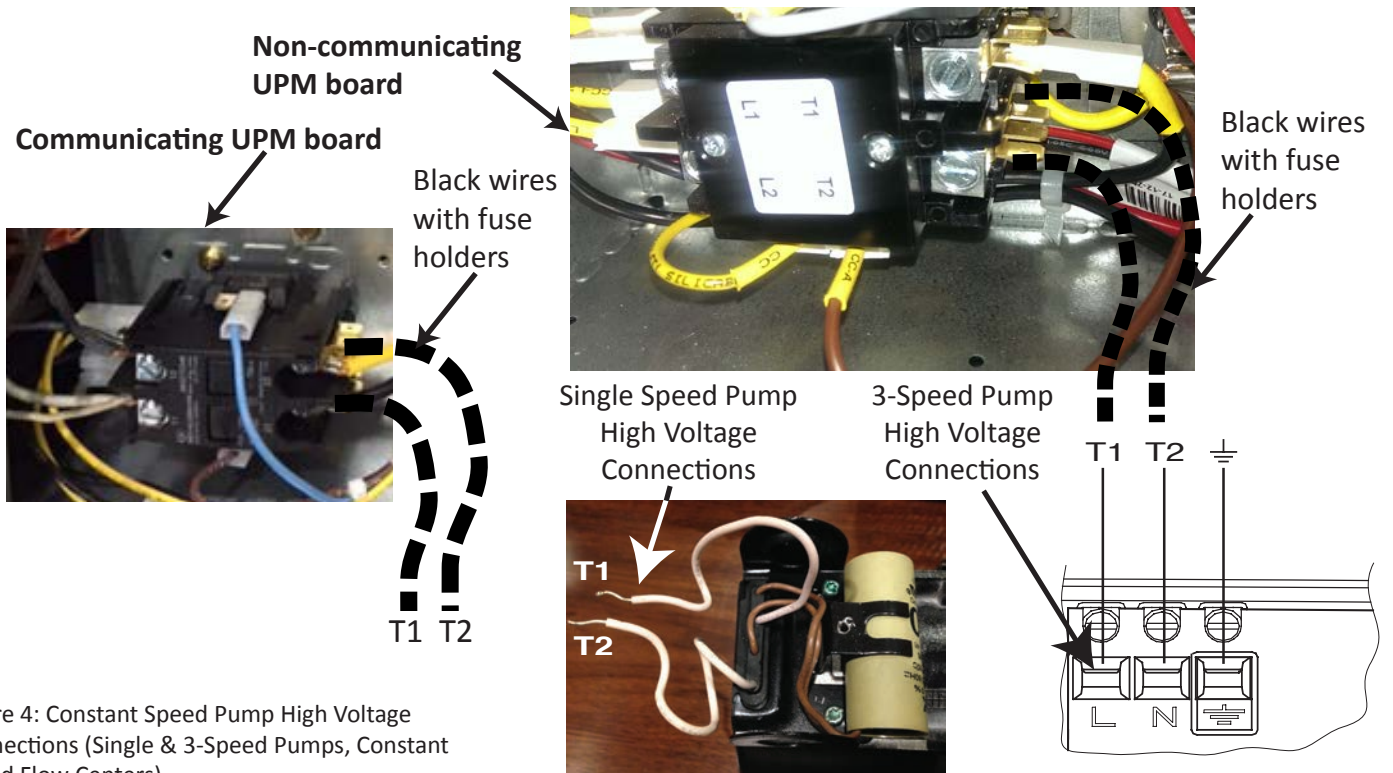


Figure 4: Constant Speed Pump High Voltage Connections (Single & 3-Speed Pumps, Constant Speed Flow Centers)