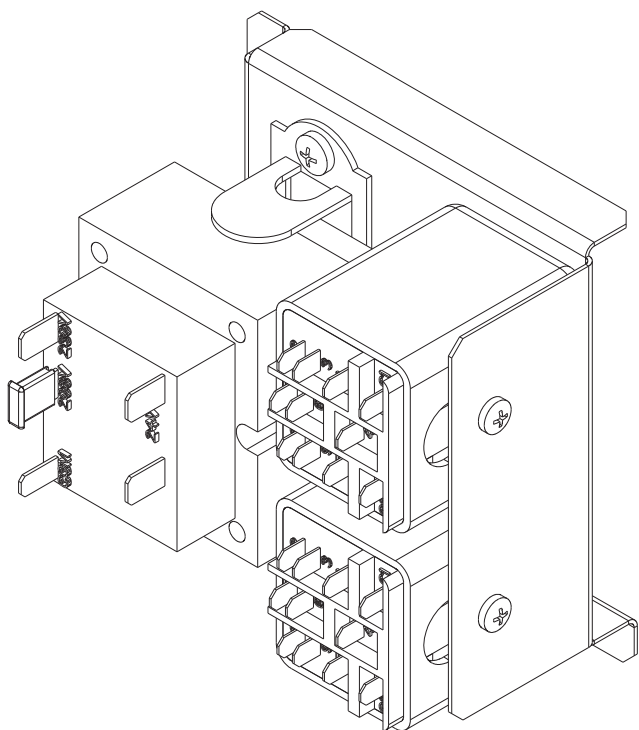


KHAVC0101AAA

**Control Voltage Adapter Kit for Heat Pump
24HHA4/224ANS Outdoors Paired with
40MKQB**B High- Wall Indoors**

Installation Instructions



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Fig. 1- KHAVC0101AAA Control Voltage Adapter Kit

NOTE: Read the entire instruction manual before starting the installation.

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. Replacement components are not available for this kit. If components are malfunctioning, replace the entire kit.

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 the 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 **may** 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 and install a lockout tag. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.



CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing and gloves when handling parts.

DESCRIPTION AND USAGE

Included in this kit:

- One (1) KHAVC0101AAA Control Voltage Adapter Kit
- Three (3) 1/4 inch Phillips Mounting Screws
- These Installation Instructions
- Wire Ties
- One (1) Electrical Shock Hazard Warning Label
- One (1) Wiring Diagram Label
- One (1) Label Cover

These instructions cover installation of the KHAVC0101AAA Control Voltage Adapter Kit in single-speed heat pumps. For cooling-only systems, the required kit is the KAAVC0101AAA Control Voltage Adapter Kit.

The kit is designed to allow communication between specific indoor and outdoor units that otherwise would not be compatible. The kit is compatible with 208/230V high wall ductless indoor units and 208/230V horizontal discharge outdoor units with single-phase or three-phase power at 60Hz. The kit is not compatible with 460V outdoor units.

The KHAVC0101AAA Kit converts high-voltage control signals from a high wall indoor unit into low-voltage control signals for a horizontal outdoor unit. In heat pump systems, the kit carries both the compressor and the reversing valve control signals.

The kit consists of two relays and one transformer mounted to a metal bracket which is designed to fit within the outdoor unit. The kit is pre-wired for heat pump applications; there are nine free wires available for the installer to connect to the indoor and outdoor units.

Parts necessary for mounting and connecting the KHAVC0101AAA Kit are included in the kit. Upon receipt of shipment, check the kit for damage. If there is any damage, forward claim papers directly to the transportation company. Manufacturer is not responsible for damage incurred in transit.

INSTALLATION

A. Procedure 1 - Mounting the Kit

⚠ 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 and install a lockout tag. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

1. Make sure all power to the unit is turned off.
2. Open the unit by removing the corner panel which is attached with 5/16" hex screws.

NOTE: If the system will be powered using a 208V supply, please make the following change now otherwise skip to step 6:

3. Remove the cap covering the 208V terminal on the transformer.
4. Disconnect the white wire connected to the 230V terminal on the transformer (this is labeled "TO CONTACTOR 11").
5. Reconnect this wire to the 208V terminal on the transformer, and place the cap on the exposed 230V terminal.
6. Attach the kit to the partition in the space above the capacitor using the three holes indicated in Fig. 2 below.
7. Ensure the screws are tightened to approximately 30 ft-lbs of torque.

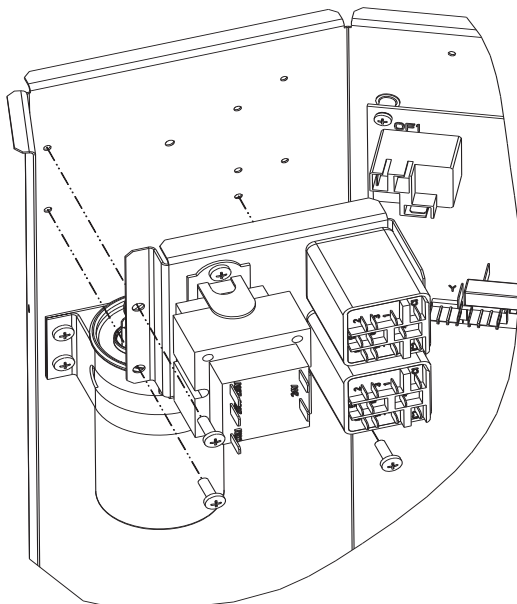


Fig. 2- Installing the KHAVC0101AAA Control Voltage Adapter Kit

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B. Procedure 2 – Kit Connections

⚠ WARNING

ELECTRICAL SHOCK HAZARD

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

This kit requires high voltage (230V) non-metallic field wire to connect the indoor unit to the kit in the outdoor unit. Some regions may require metal conduit for this wire. Check relevant local building codes before installing. **DO NOT USE** regular low voltage (24V) thermostat wire with this kit.

1. After the indoor unit is installed, connect 230V field control wiring to the terminal block on the indoor unit. Use only 18 AWG non-metallic wire with an insulation thickness of at least 2/64 inches. For wires longer than 50 feet, use 16 AWG non-metallic wire.
2. Remove the rubber grommet in the control wire entry hole near the service panel on the outdoor unit. Replace this grommet with a (field-supplied) watertight strain relief.
3. After running the 230V field wire to the outdoor unit, connect the high voltage wires from the kit (INDOOR C, O, Y) as shown in Fig. 7.
4. Connect the low voltage wires from the kit (OUTDOOR R, C, O, Y) to the corresponding colored wires in the outdoor unit using wire nuts. To make this connection, cut the snap-in wire tie that holds the existing low voltage wires and remove them from the low voltage junction box (See Fig. 4 for location). Remove the old snap-in wire tie from the hole to make room for the new snap-in wire tie on the high voltage wires.
5. Connect the transformer power wires from the kit (CONTACTOR 11, 23) to the top of the contactor in the outdoor unit using the quick connect terminals. (See Fig. 3.)

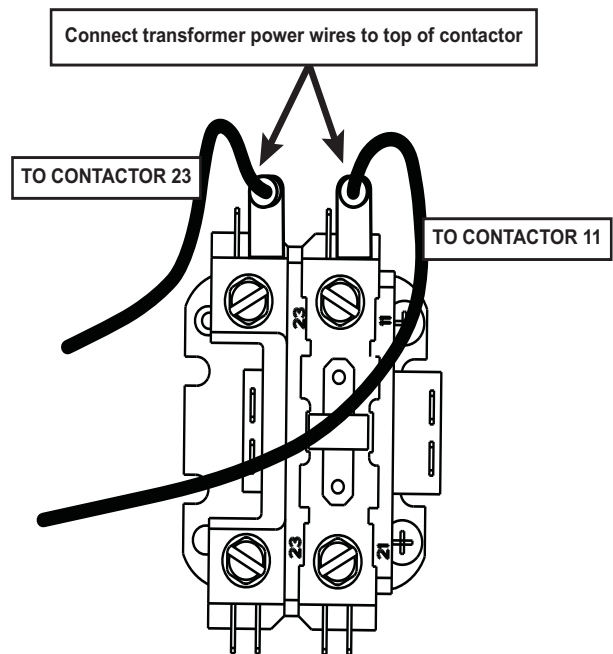


Fig. 3- Contactor Connections

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C. Procedure 3 – Securing Wires

1. If any of the kit wires pass adjacent to copper tubing, use one or both of the included double-headed wire ties to secure those wires, preventing them from touching the copper.
2. Use an included wire tie to relieve strain on the low voltage wires and prevent the wire nuts from coming apart. Ensure the wire nuts are pointing upwards to prevent water from collecting on the wire leads.
3. Place the high voltage connections in the low voltage junction box (See Fig. 4 for location). Use the snap-in wire tie included on these wires to secure them to the hole where the low voltage wires were connected before.
4. Place the low voltage connections in the compressor compartment, separate from the high voltage connections.

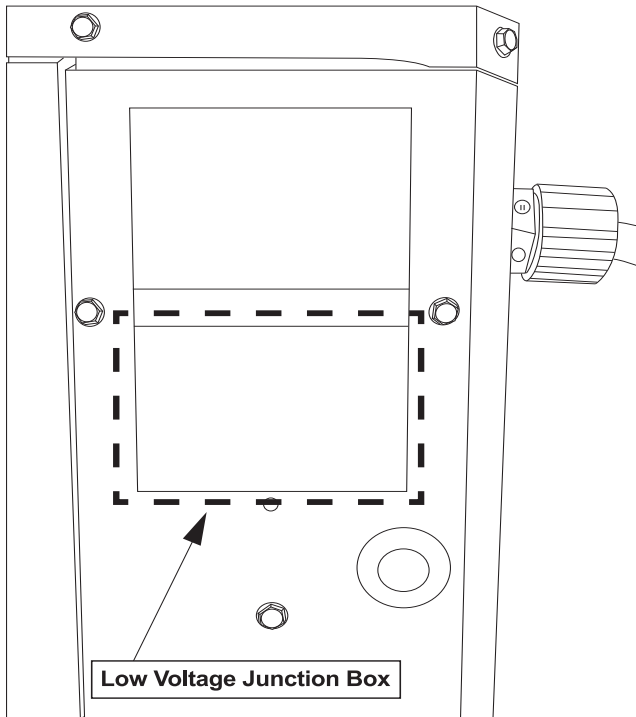
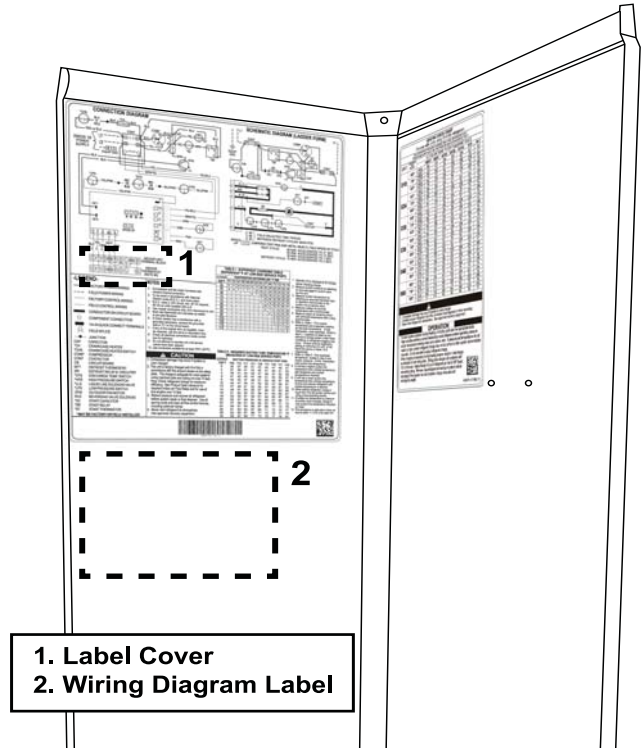


Fig. 4- Low Voltage Junction Box Location

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D. Procedure 4 - Label Placement

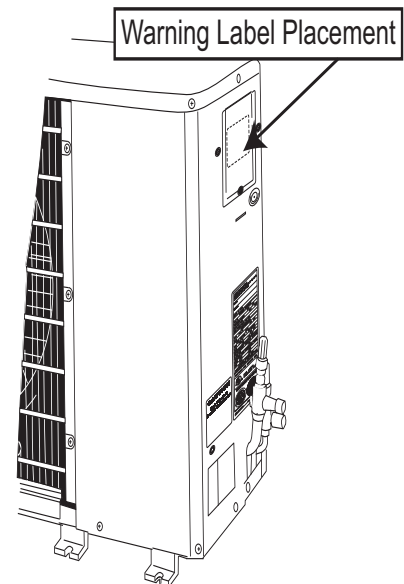
1. Apply the included wiring diagram label to the inside of the corner panel below the existing wiring diagram. See Fig. 5 for placement.
2. Apply the included Label Cover which reads "SEE VOLTAGE ADAPTER KIT WIRING DIAGRAM", to the existing wiring diagram to hide the symbol depicting the old indoor terminal block. This terminal block does not apply when the Control Voltage Adapter Kit is in use. See Fig. 5 for placement.



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Fig. 5- Wiring Label Placement

3. Apply the included Electrical Shock Hazard Warning Label to the outside of the service panel door. See Fig. 6 for placement.



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Fig. 6- Warning Label Placement

4. Close the unit by replacing the corner panel with the screws removed in the installation step.

FIELD RUN TEST

1. Turn the unit power on.
2. Switch the unit to cooling mode.
3. Set the thermostat below room temperature.
4. Verify that the compressor is running and the unit is providing cooling.
5. Set the thermostat above room temperature.
6. Verify that the compressor stops running.
7. Switch the unit to heating mode.
8. Set the thermostat above room temperature.
9. Wait 3 to 4 minutes for the automatic safety timer before compressor starts running.
10. Verify that the compressor is running and the unit is providing heating.
11. Set the thermostat below room temperature.
12. Verify that the compressor stops running.

SERVICE FOR THE KHAVC0101AAA KIT

The following section uses abbreviations to represent wires in this kit:

- IC = TO INDOOR C
- IO = TO INDOOR O
- IY = TO INDOOR Y
- OC = TO OUTDOOR C
- OO = TO OUTDOOR O
- OY = TO OUTDOOR Y
- OR = TO OUTDOOR R
- C11 = TO CONTACTOR 11
- C23 = TO CONTACTOR 23

The compressor does not turn on in either mode:

- The following wires may be loose or disconnected: IC, IY, OR, OC, OY, C11, C23
- IC may be connected to L1 or L2 on the indoor terminal block

The compressor does not turn on in cooling mode:

- The following wires may be switched: IO switched with IY, OC switched with OO

The compressor does not turn on in heating mode:

- The following wires may be switched: IC switched with IO, OR switched with OO, OO switched with OY

The compressor does not turn off in either mode:

- The following wires may be switched: OR switched with OY
- IC or IY may be connected to L1 or L2 on the indoor terminal block

The compressor does not turn off in cooling mode:

- The following wires may be switched: OC switched with OY, OO switched with OY
- IC switched with IO, and IY connected to L1 or L2 on the indoor terminal block

The compressor does not turn off in heating mode:

- The following wires may be switched: IC switched with IO, IO switched with IY

The system does not provide cooling in cooling mode:

- The following wires may be loose or disconnected: OO
- The following wires may be switched: IC switched with IY, OR switched with OY, OC switched with OY, OO switched with OY
- IC or IO may be connected to L1 or L2 on the indoor terminal block

The system does not provide heating in heating mode:

- The following wires may be loose or disconnected: IO
- The following wires may be switched: IC switched with IY, IO switched with IY
- IC may be connected to L1 or L2 on the indoor terminal block

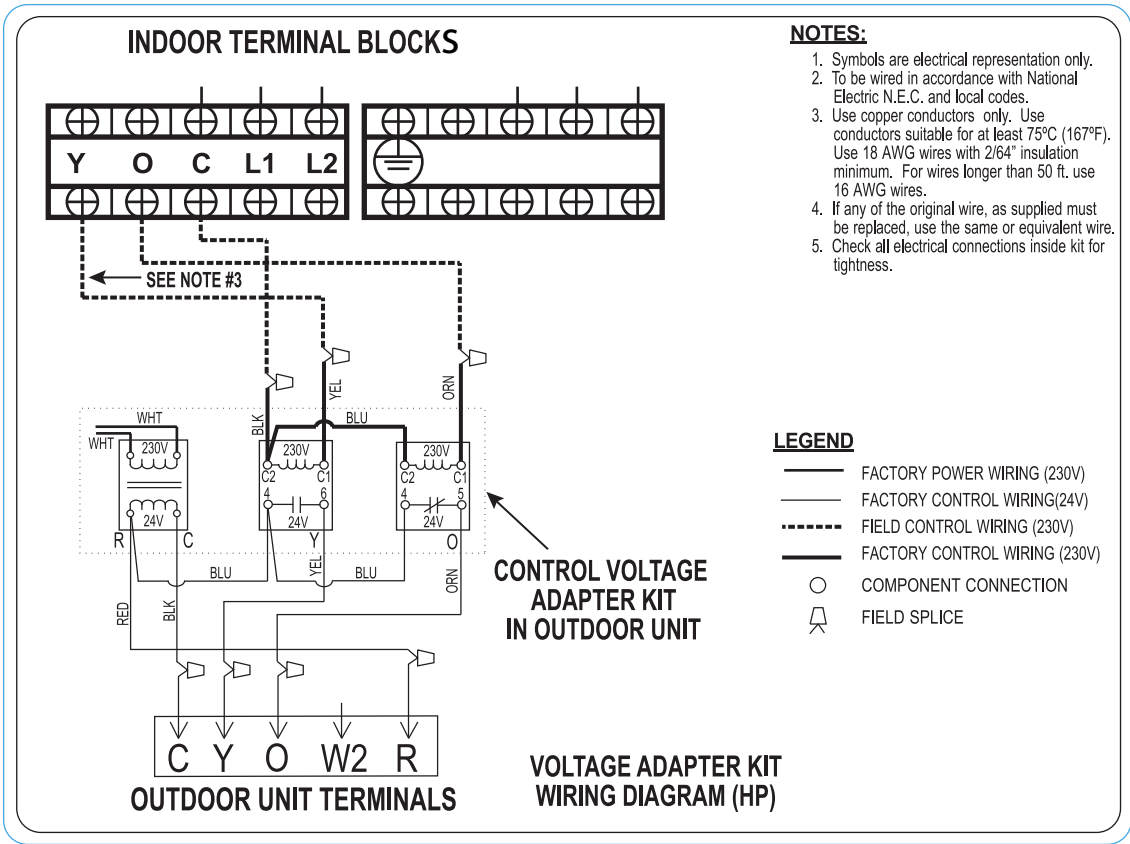


Fig. 7- Connection Diagram for KHAVC0101AAA Control Voltage Adapter Kit

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