



KMC CONTROLS HPO-6700 Series Output Override Boards Installation Guide

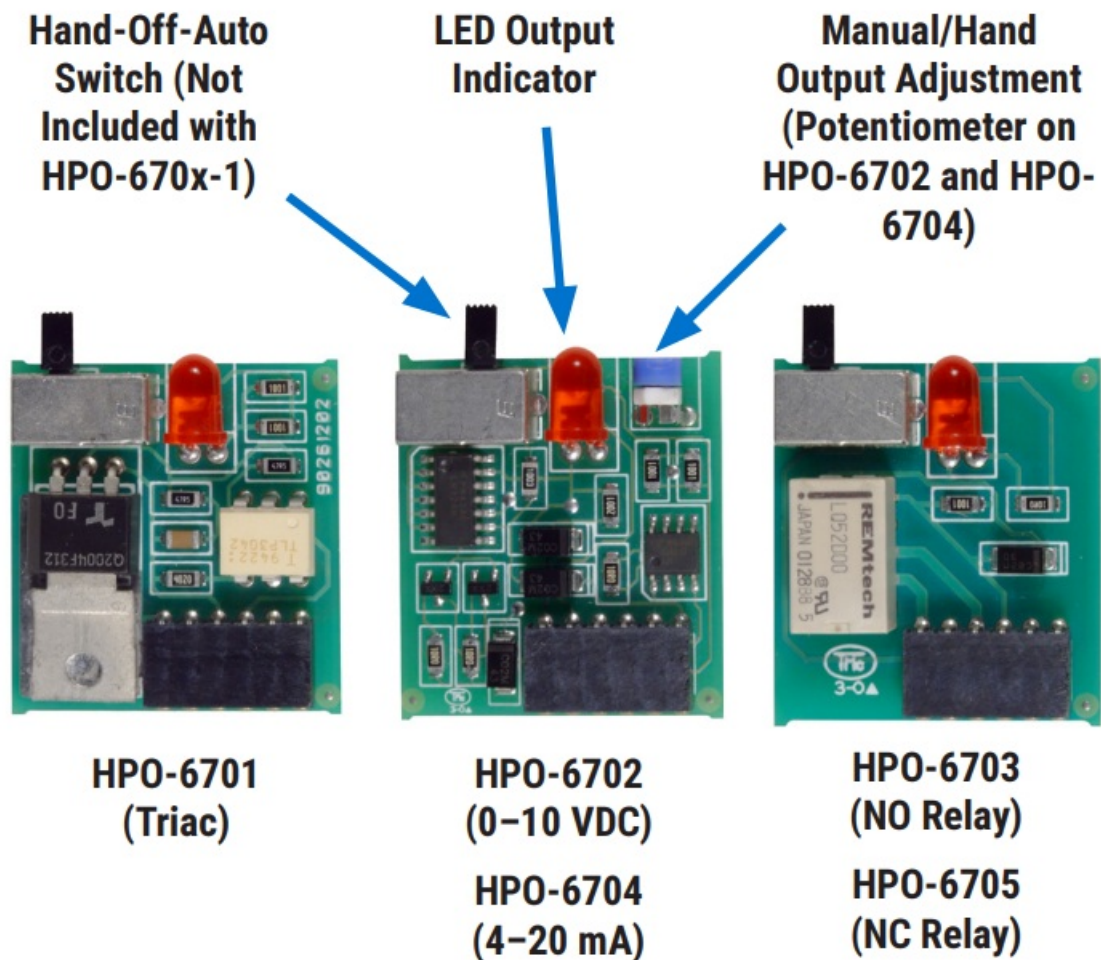
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INTRODUCTION



For enhanced controller output options (such as manual control, using large relays, or for devices that cannot be powered directly from a standard output), install output override boards (in compatible controllers). The following types of override boards are available:

- The HPO-6702 enhances the analog voltage output with a “Hand-Off-Auto” control while providing an adjustable potentiometer for override settings while in the “Hand” position.
- The HPO-6701/6703/6705 boards are designed to convert a binary/digital output to a relay contact or triac output and to provide “Hand-Off-Auto” control and feedback functions.
- The HPO-6704 converts a standard analog voltage output to a 4–20 mA output while providing an adjustable potentiometer for override settings while in the “Hand” position.

NOTE: The HPO-6704 board supplies the power and will not work with a 4–20 mA device that also supplies its own power.

Each output board has a red LED indicator that turns On when the board’s output is turned On either manually or automatically.

Output boards have an accessible three-position slide switch for selecting the “Hand-Off-Auto” functions:

- While in the H (“Hand” or manual On) position, the output is manually energized, and the controller is provided with a feedback signal to indicate the output has been overridden.
- While in the O (Off) position, the output is manually de-energized, and the controller is provided with a feedback signal to indicate the output has been overridden.
- While in the A (Auto) position, the output is under the command of the controller.

NOTE: An HPO-670x-1 is always in auto mode and does not have the manual slide switch.

NOTE: HPO-6701 triac and HPO-6703/6705 relay circuits use the Switched Common SC terminal—not the Ground Common GND terminal.

NOTE: HPO-6701 triac outputs are for 24 VAC only.

NOTE: Only the HPO-6701 triac and HPO-6704 4–20 mA boards are approved for smoke control applications. For smoke control application information, see Smoke Control Manuals 000-035-08 (BACnet) and/or 000035-09 (KMDigital).



CAUTION

Connecting 24 VAC or other signals that exceed the operation specifications of the controller before an override board is installed will damage the controller.

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For HPO-6700 series specifications, see the data sheet at kmccontrols.com. See the sections below for installation into the particular type of controller.

- For KMC Conquest BAC-5900 series controllers and CAN-5901 expansion modules, see Conquest Controllers/Modules on page 2.
- For older controllers with “top-mounting” raised plastic cases (BAC-5801/5802 and newer KMD5801/5802s), see Older “Plastic” Case Controllers on page 3.
- For older controllers with metal (e.g., BAC-5831, BAC-A1616BC) and older “side-mounting” plastic cases (older KMD-5801/5802s), see Older “Metal” Case Controllers on page 4.

CONQUEST CONTROLLERS/MODULES

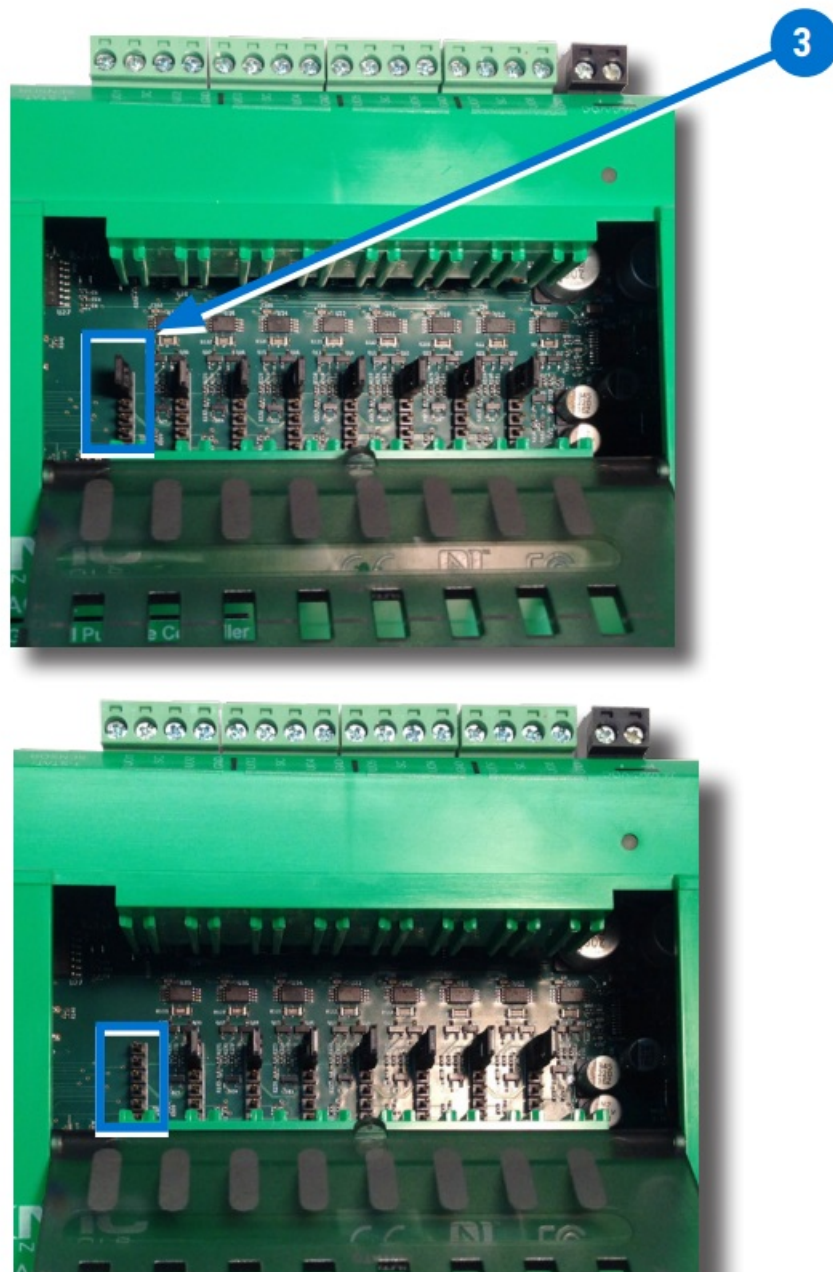
These instructions apply to KMC Conquest BAC-5900 series controllers and CAN-5901 expansion modules (with a flip-open lid).

1. Disconnect the power by removing the black power terminal block.



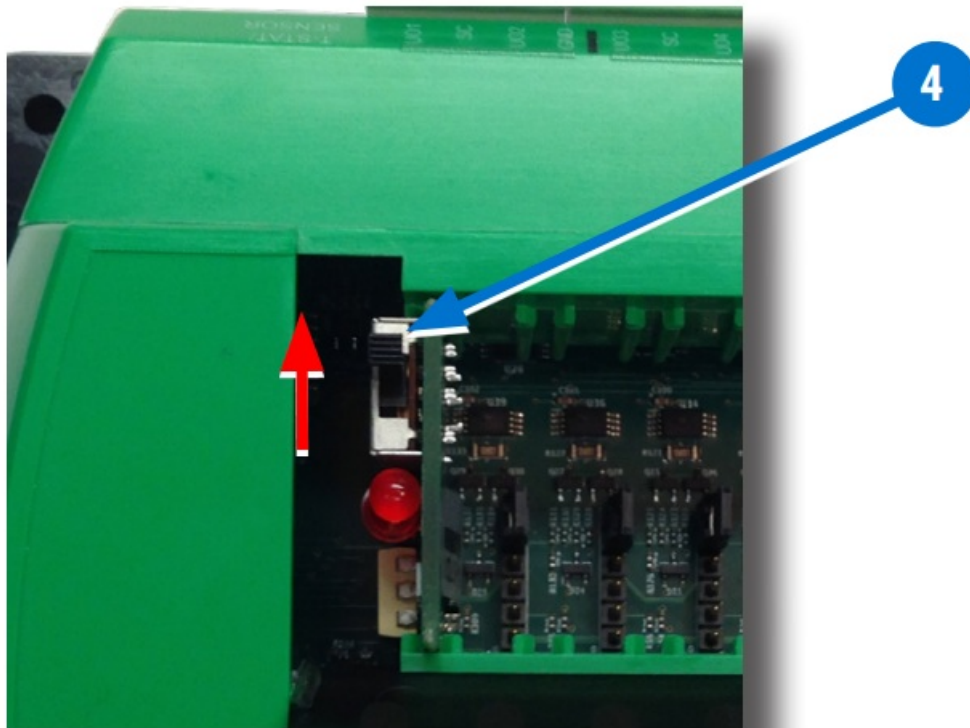
2. Pull the top edge of the (translucent black) override board cover away from the case and flip open the cover.

3. Remove the jumper from the slot in which the override board will be **installed**.



NOTE: Each of the eight override slots ships from KMC with a jumper installed on the two pins closest to the output terminal blocks. Only remove a jumper if an override board will be installed.

4. Orient the override board with the HOA selection slide switch toward the top of the controller.
5. Slide the override board into the slot in which the jumper was removed.



6. Close the plastic cover.
7. Move the A-O-H selection switch on the override board to the appropriate position.
 NOTE: A = Automatic (upper position).
 O = Off (middle position).
 H = Hand/On (lower **position**).



NOTE: For more information about output override boards, see the installation guide for the HPO-6700 Series.

8. Repeat Steps 3 through 7 for all other desired boards.
9. Wire the output device to the corresponding green (output) terminal block of the override board. (See Wiring on page 4.)



OLDER “PLASTIC” CASE CONTROLLERS



These instructions apply to controllers with “top mounting” raised plastic cases (e.g., BAC-5801/5802 and newer KMD-5801/5802). After installation of the boards, the existing cover is reinstalled.

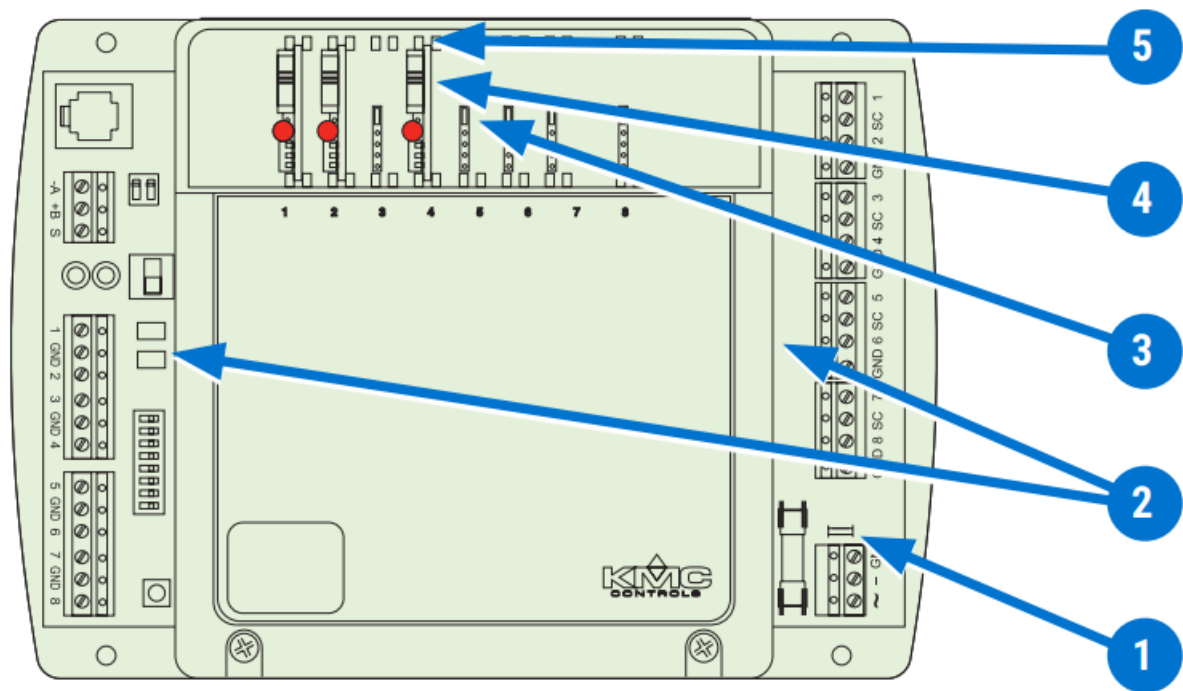
To install the HPO-6700 series override boards:

1. Disconnect the power by removing the power jumper or terminal block.
2. Remove the cover by squeezing on both sides of the cover and lifting it off.
3. Remove the jumper from the slot in which the override board will be installed.

NOTE: Each of the override slots ships from KMC with a jumper installed on the two pins closest to the output terminal blocks. Only remove a jumper if an override board will be installed.

4. Orient the override board with the HOA selection slide switch toward the top of the controller.
5. Slide the override board into the slot in which the jumper was removed.

6. Set the selection switch on the override board to the



appropriate position.

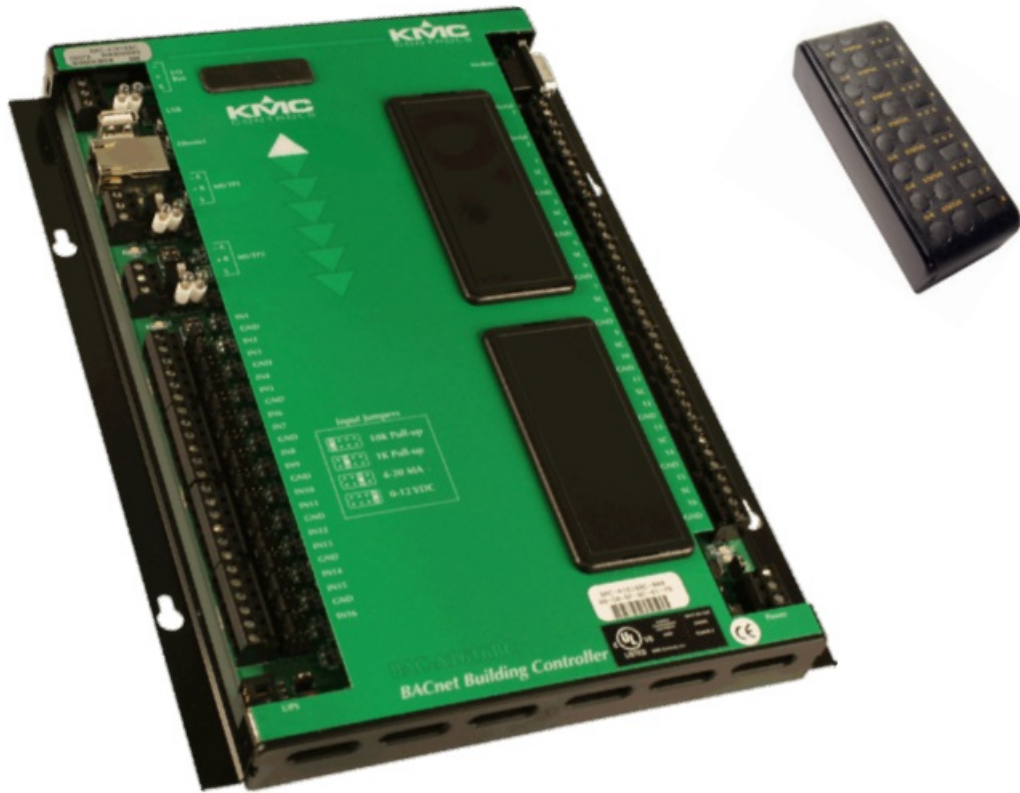
NOTE: A = Automatic (upper position).

O = Off (middle position).

H = Hand/On (lower position).

7. Repeat steps 3 through 6 for all desired boards.
8. Reinstall the cover over the boards.
9. Connect output devices to the controller outputs. (See Wiring on page 4.)
10. Reinstall the power jumper that was removed in Step1.

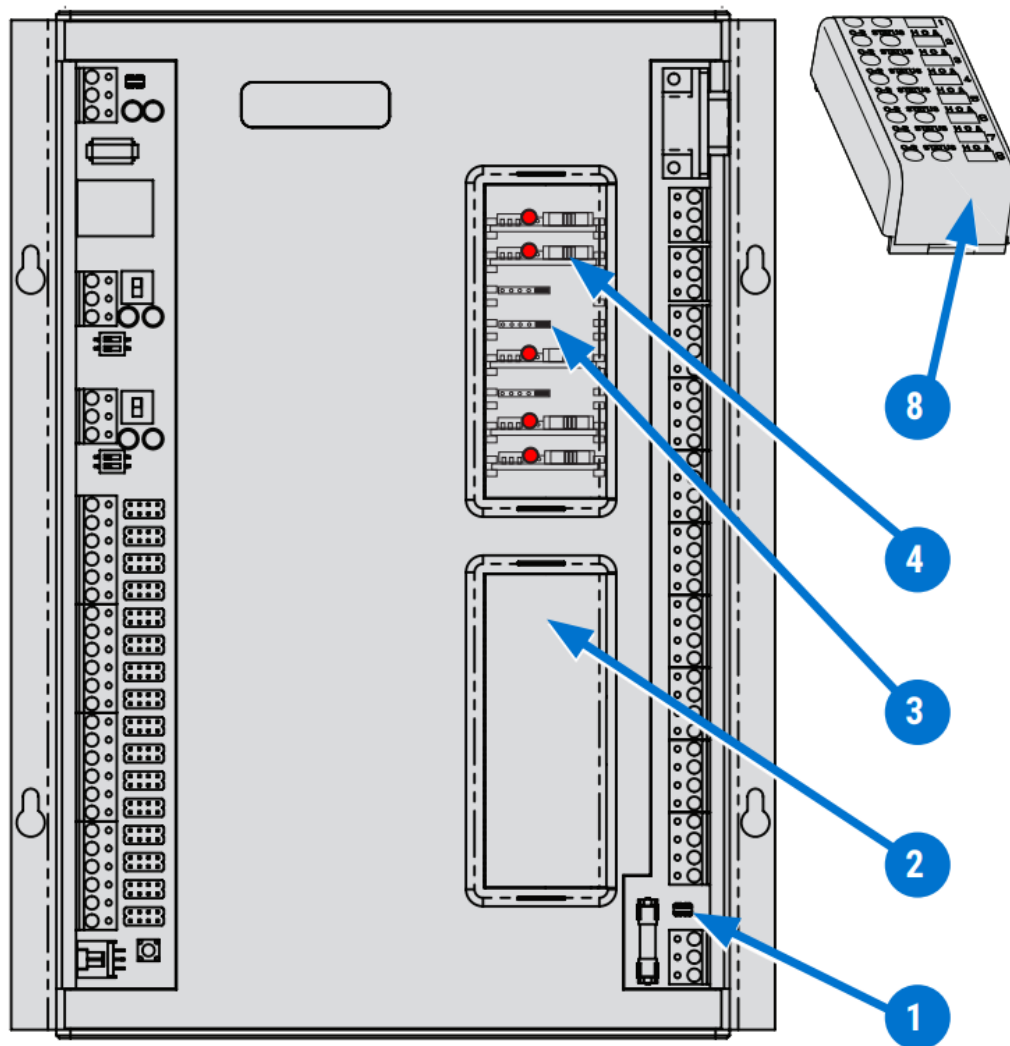
OLDER “METAL” CASE CONTROLLERS



These instructions apply to controllers with metal (e.g., BAC-5831, BAC-A1616BC) and older “side-mounting” plastic cases (e.g., older KMD-5801/5802). After installation of the boards, the existing slot cover needs to be replaced by a raised HPO-6802 output board cover.

To install the HPO-6700 series override boards:

1. Disconnect the power by removing the power jumper or terminal block.
2. Remove the relevant slot cover(s) by lifting the righthand side of the cover (within the plastic frame) toward you.
3. Remove the jumper from the slot in which the override board will be **installed**.



NOTE: Each of the override slots ships from KMC with a jumper installed on the two pins closest to the output terminal blocks. Only remove a jumper if an override board will be installed.

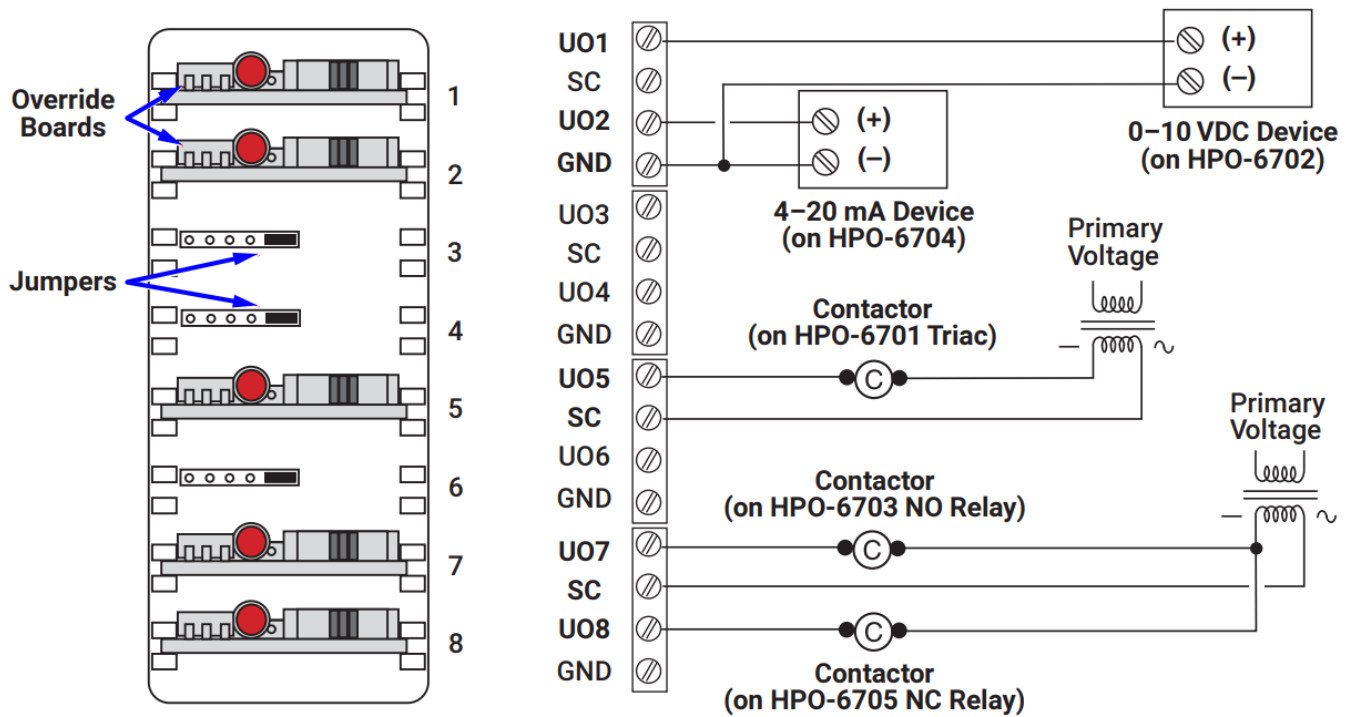
4. Orient the override board with the HOA selection slide switch toward the outputs of the controller.
5. Slide the override board into the slot in which the jumper was removed.
6. Move the A-O-H selection switch on the override board to the appropriate position.

NOTE: H = Hand/On.

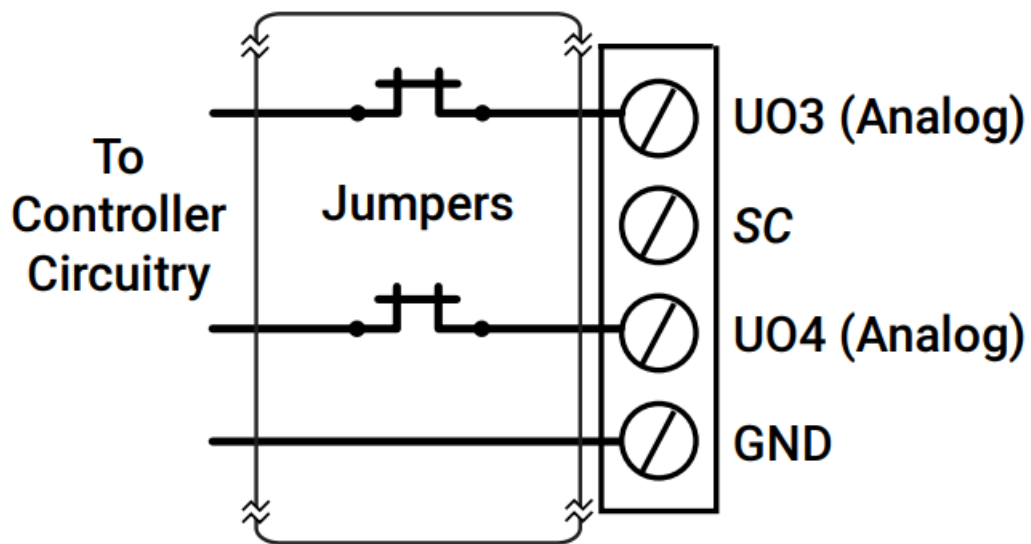
O = Off.

A = Automatic.

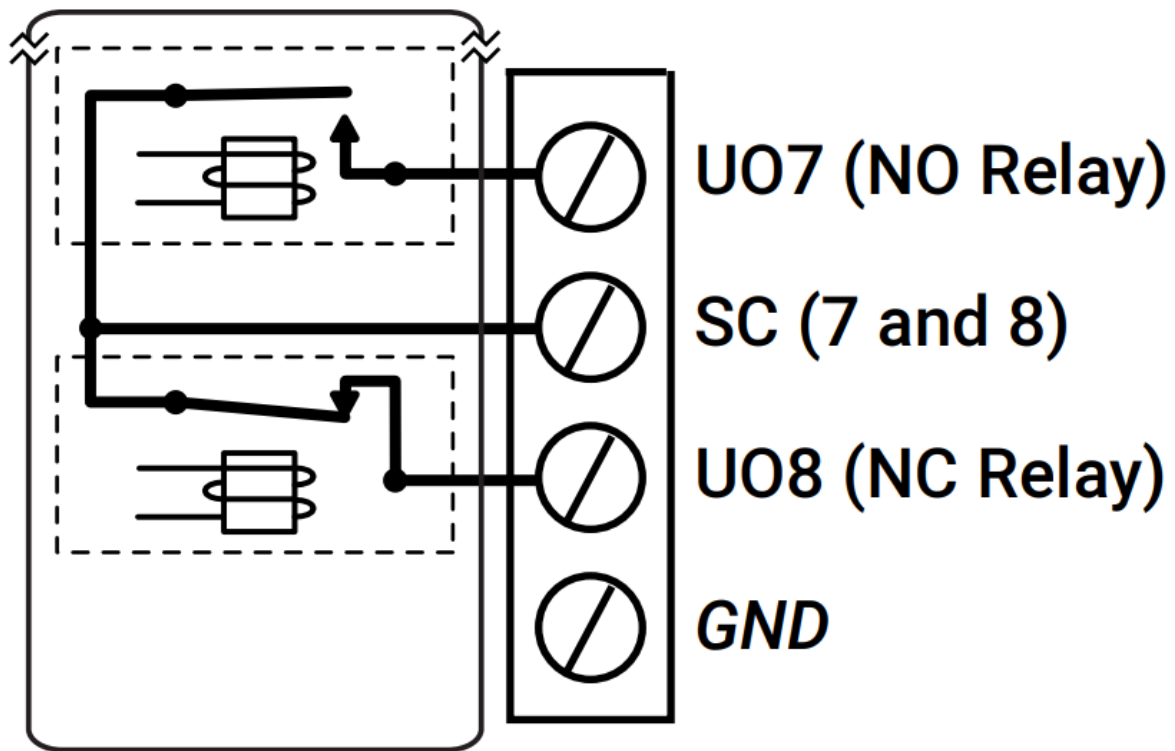
7. Repeat steps 3 through 6 for all desired boards.
8. Remove the necessary label slots for each board location in the HPO-6802 output board cover (purchased separately).
9. Snap the HPO-6802 cover over the boards.
10. Connect output devices to the controller outputs.
(See Wiring on page 4.)
11. Reinstall the power jumper or terminal block that was removed in Step 1.



Simplified Schematic of Standard Analog (GND) Outputs



Simplified Schematic of Override Board Relay (SC) Outputs



HPO-6703/6705 Relay Boards (Coils Controlled by Controller Circuitry)

CAUTION

Connecting 24 volts AC or other signals that exceed the operation specifications of the controller to the output before the output jumper is removed will damage the controller. Remove the jumper and install the controller.

NOTE: Switched Common (SC) output terminals are unconnected in these model controllers unless an appropriate override output board is installed. Use only the Switched Common instead of Ground with the HPO6701 triac and HPO-6703/6705 relays. Use the SC terminal in the same output bank as the output terminal. See Grounds Versus Switched Commons on page 6.

NOTE: The 4–20 mA HPO-6704 board supplies the power and will not work with a 4–20 mA device that also supplies its own power. For 4–20 ma applications, see also the 4–20 mA Wiring for Controllers Application Guide.

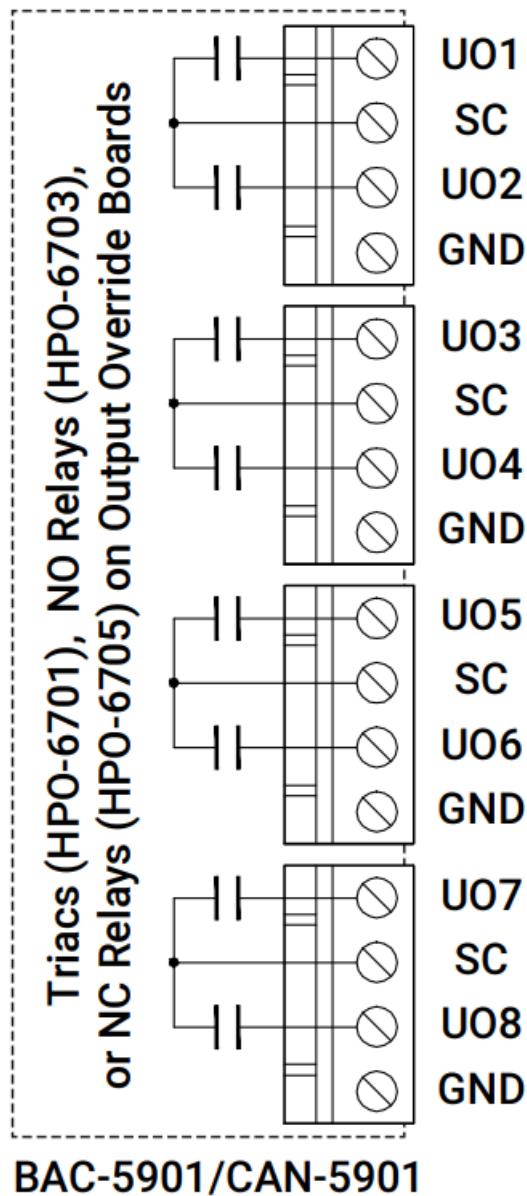
NOTE: If a board is removed from a slot, reinstall the (HPO-0063) jumper (previously removed) on the two pins closest to the outputs. The jumper enables the analog voltage output on the terminals.

GROUND VS SWITCHED COMMONS

Switched Common (SC) output terminals are unconnected in the controller unless the jumper is removed and an appropriate relay/triac override output board is installed.

Use only the SC instead of Ground with the HPO-6701 triac and HPO-6703/6705 relays! Use the SC terminal in the same output bank (individual terminal block) as its output terminal. The switched common terminals are isolated from the circuit grounds used for the universal output analog circuitry in controllers.

For samples of wiring to output devices, see Wiring on page 4.



MAINTENANCE

No routine maintenance is required. Each component is designed for dependable, long-term reliability and performance. Careful installation will also ensure longterm reliability and performance.

IMPORTANT NOTICES

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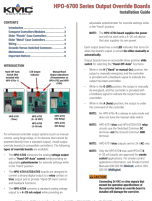
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HPO-6700 Series Output Override Boards, HPO-6700 Series, Output Override Boards, Override Boards, Boards

References

- [KMC Controls | Building Automation and Control Solutions](#)
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- [HPO-6700 Series Items | KMC Controls](#)
- [Patents](#)