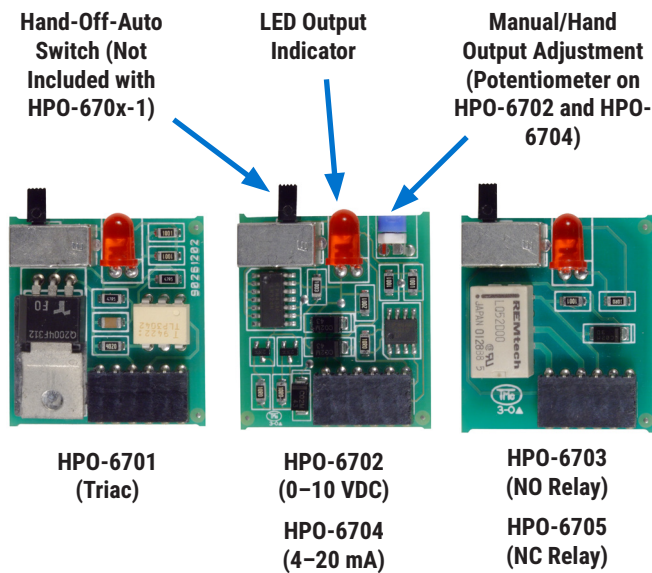


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INTRODUCTION



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 000-035-09 ([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.

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 KMD-5801/5802s), 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**.

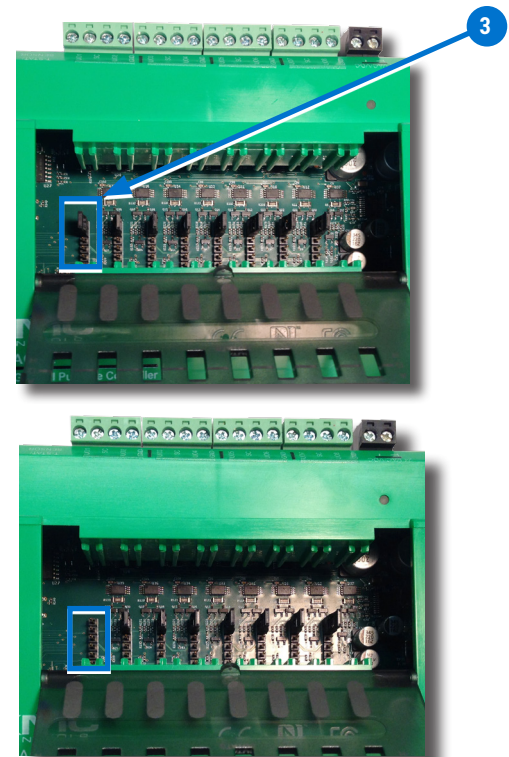
CONQUEST CONTROLLERS/MODULES

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**.

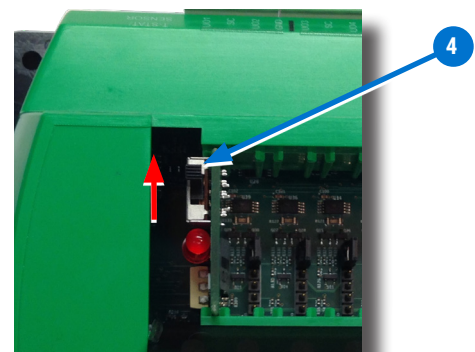


2. Pull the top edge of the (translucent black) override board cover away from the case and flip open the **cover**.
3. Remove the **jumper** from the slot in which the override board will be installed.



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



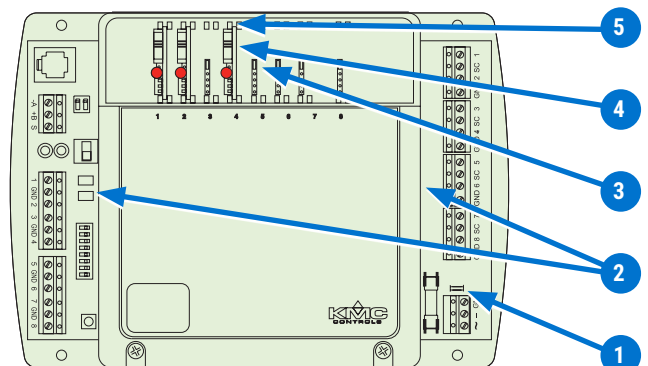
These instructions apply to controllers with **"top-mounting" raised plastic** cases (e.g., BAC-5801/5802 and newer KMD-5801/5802). After installation of the boards, the existing cover is reinstalled.

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

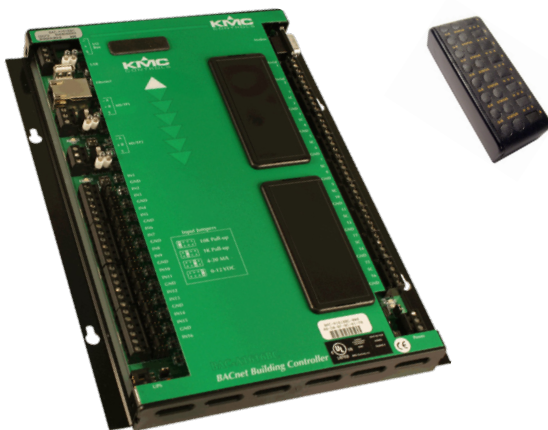


appropriate position.

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 Step 1.

OLDER "METAL" CASE CONTROLLERS

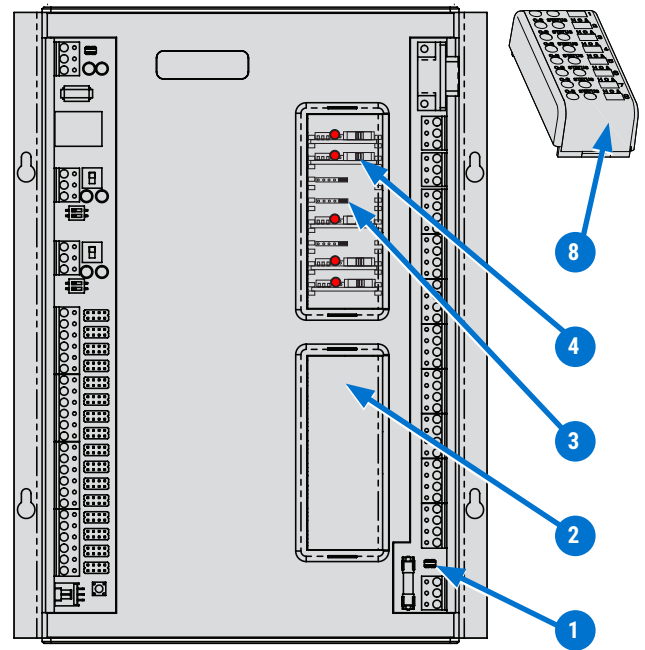


These instructions apply to controllers with **metal** (e.g., BAC-5831, BAC-A1616BC) **and older "side-mounting" plastic cases** (e.g., older KMD-5801/5802). After installation of the boards, the existing slot cover needs to be replaced by a raised HPO-6802 output board cover.

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 right-hand 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

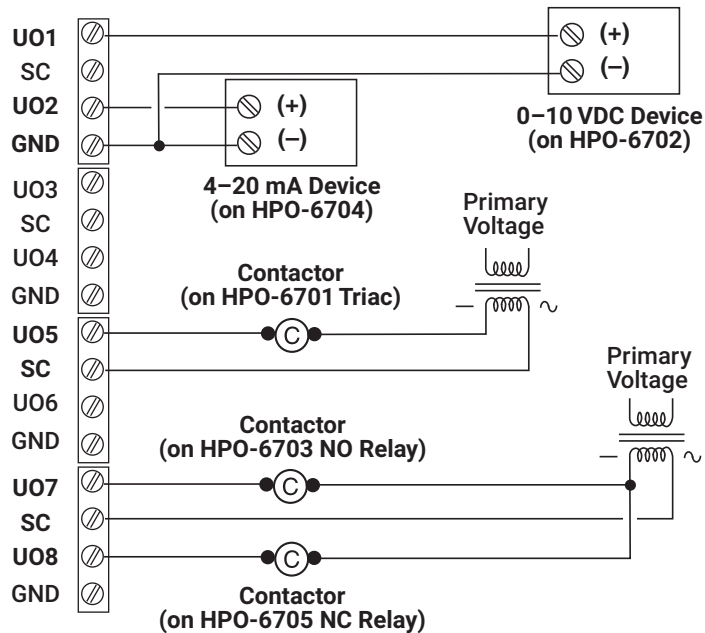
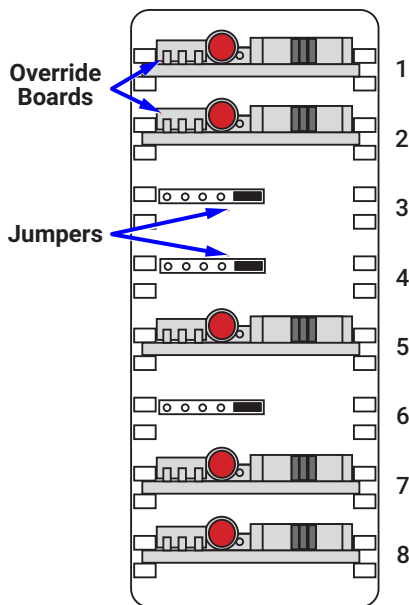


with a jumper installed on the two pins closest to the output terminal blocks. Only remove a jumper if an override board will be installed.

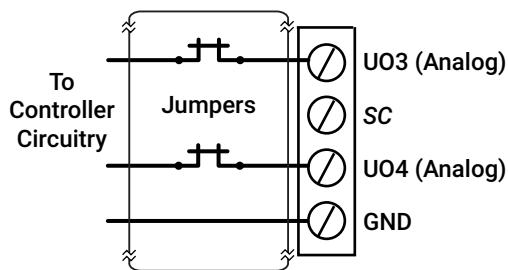
4. Orient the override board with the HOA selection slide **switch toward the outputs** of the controller.
5. Slide the override **board into the slot** in which the jumper was removed.
6. Move the **A-O-H selection switch** on the override board to the appropriate position.

NOTE: **H** = Hand/On.
O = Off.
A = Automatic.

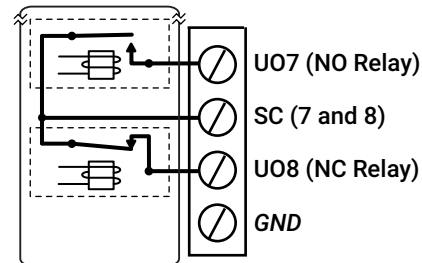
7. Repeat steps 3 through 6 for all desired boards.
8. Remove the necessary label slots for each board location in the **HPO-6802 output board cover** (purchased separately).
9. Snap the HPO-6802 cover over the boards.
10. Connect output devices to the controller outputs.
(See [Wiring on page 4.](#))
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 override board before connecting AC or other voltage to the output of 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 HPO-6701 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.

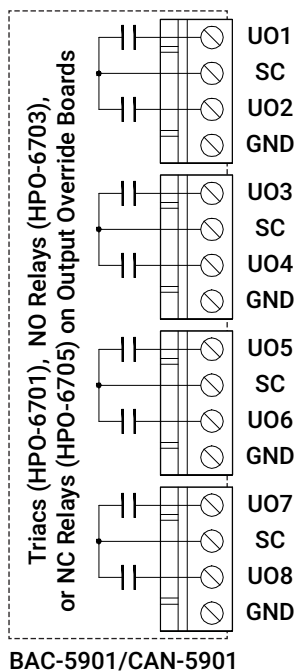
GROUNDS VERSUS SWITCHED COMMONS

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 long-term reliability and performance.

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