

Complete the following steps to install a Conquest™ CAN-5901 Expansion Module that will be connected to a Conquest BAC-5900 Series Controller.

For CAN-5901 specifications, see the [data sheet](#) at kmccontrols.com.

MOUNT THE EXPANSION MODULE

NOTE: Complete Steps 1–2 to install the expansion module with screws, or complete Steps 3–7 to install the expansion module on a 35 mm DIN rail.

NOTE: Install the expansion module in a metal enclosure (such as an [HCO-1103](#)) for RF shielding and physical protection.

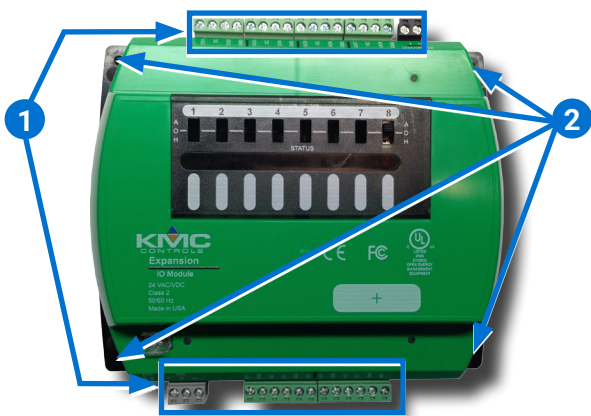
On a Flat Surface

1. Position the expansion module so that the color coded **terminal blocks** **1** are easy to access for wiring.

NOTE: The black terminals are for power. The green terminals are for inputs and outputs. The gray terminals are for communication.

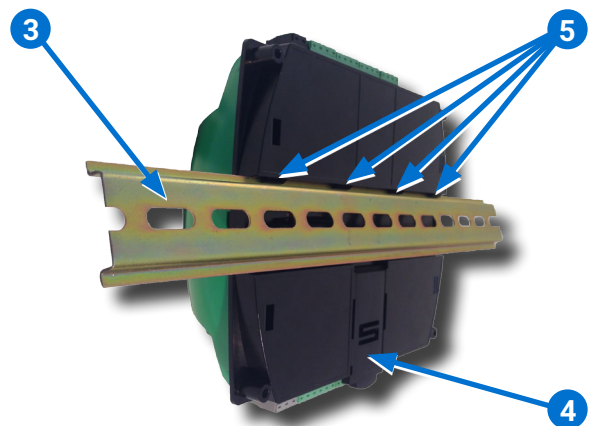
2. Screw a #6 sheet metal screw through each corner of the **expansion module** **2**.

NOTE: Complete steps 3–7 to install the expansion module on a 35 mm DIN rail instead.

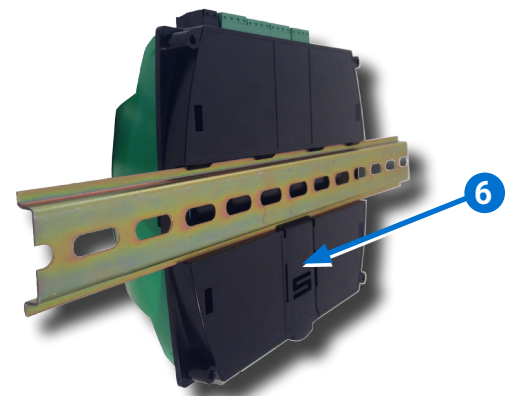


On a DIN Rail

3. Position the **DIN rail** **3** so that when the expansion module is installed the color coded terminal blocks are easy to access for wiring.
4. Pull out the **DIN Latch** **4** until it clicks once.
5. Position the expansion module so the top **four tabs** **5** of the back channel rest on the DIN rail.
6. Lower the expansion module against the DIN rail.
7. Push in the **DIN Latch** **6** to engage the DIN rail.



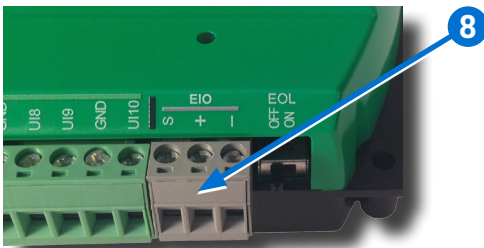
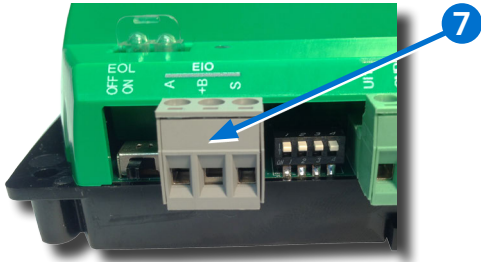
NOTE: To remove the expansion module, pull the DIN Latch out until it clicks once and lift the expansion module off the DIN rail.



CONNECT THE BAC-5900 CONTROLLER

NOTE: Four CAN-5901 expansion modules can be connected in series (daisy chained) to a BAC-5900 series controller to add additional inputs and outputs.

- Wire an expansion module from the **gray EIO (Expansion Input Output) terminal block 7** of the expansion module to the **gray EIO terminal block 8** of the BAC-5900 series controller.



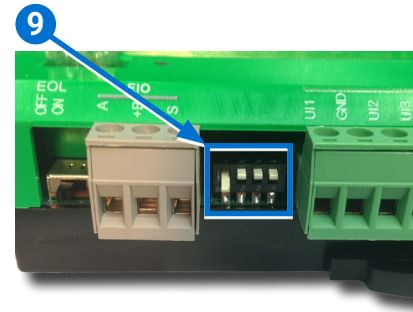
NOTE: The expansion module can be installed up to 200 feet (61 meters) away from the BAC-5900 controller. Up to four expansion modules can be used.

NOTE: Use 18 gauge AWG shielded twisted pair cable with maximum capacitance of 51 picofarads per foot (0.3 meters) for all network wiring (Belden cable #82760 or equivalent).

- Connect the -A terminals in parallel with all other -A terminals on the network.
- Connect the +B terminals in parallel with all other +B terminals on the network.
- Connect the shields of the cable together at each device using a wire nut or the S terminal on the controllers or modules.
- Connect the cable shield to a good earth ground at **one end only**.

ADDRESS THE CAN-5900 MODULES

The **address switches 9** are used to identify the CAN-5900 modules inputs and outputs.



NOTE: When only one CAN-5900 module is used, the address EIO_1 (factory default) does not need to be changed. See the table below.

INPUTS AND OUTPUTS ADDRESSES			
Module	Inputs	Outputs	Address
Controller	3-10	1-8	0
EIO_1	11-18	9-16	1 (default)
EIO_2	19-26	17-24	2
EIO_3	27-34	25-32	3
EIO_4	35-42	33-40	4

NOTE: Switch 4 should always be up (Off). Switches 1 through 3 should be configured for the appropriate address as shown in the graphic below.

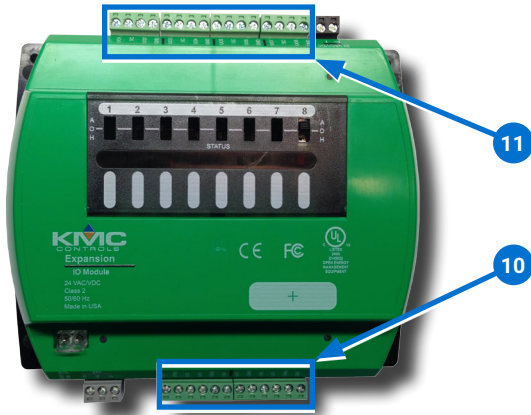
		OFF/UP	ON/DOWN
Address 1		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Address 2		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Address 3		<input type="checkbox"/>	<input type="checkbox"/>
Address 4		<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE: Address the modules in consecutive order if more than one CAN module is used. If the modules are not addressed in consecutive order, gaps will exist between the input and output objects.

CONNECT AUXILIARY EQUIPMENT

NOTE: Auxiliary VAV equipment such as fans, heaters, reheat valves, and discharge air temperature sensors can be connected to the expansion module.

13. Verify the expansion module is not connected to power.
14. Connect additional sensors to the **green (input) terminals** **10**.



NOTE: Wire sizes 12–24 AWG can be clamped together into each terminal.

NOTE: No more than two 16 AWG wires can be joined at a common point.

15. Connect additional equipment to the **green (output) terminals** **11**.

INSTALL (OPT.) OVERRIDE BOARDS

NOTE: Install (optional) output override boards for enhanced output options, such as manual control, using large relays, or for devices that cannot be powered directly from a standard output.

16. Verify the expansion module is not connected to power.

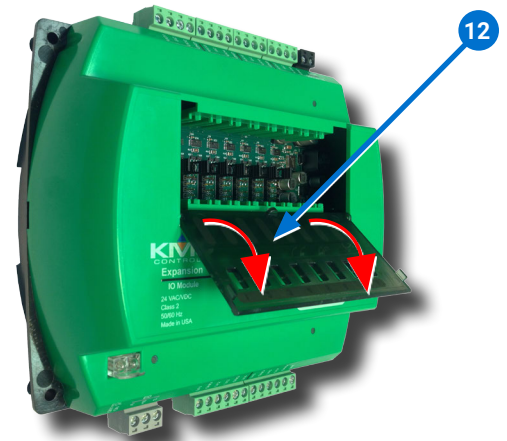
⚠ CAUTION

Connecting 24 VAC before an override board is installed will damage the expansion module.

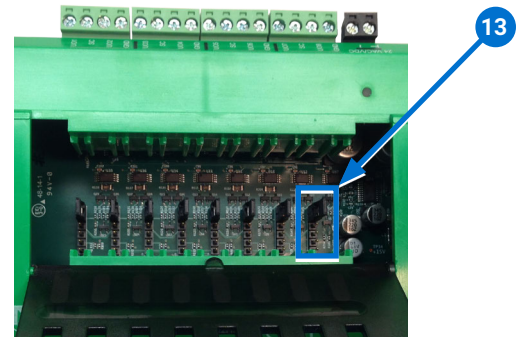
⚠ CAUTION

Connecting signals that exceed the operation specifications of the expansion module may damage it.

17. Open the **plastic cover** **12**.

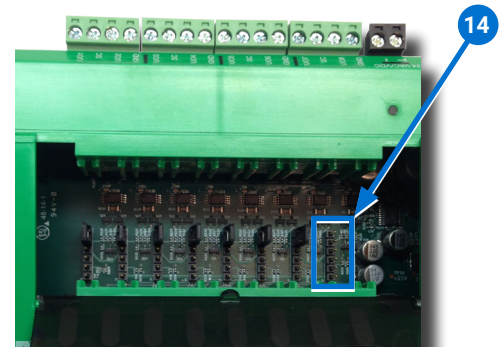


18. Remove the **jumper** **13** from the slot where the override board will be installed.

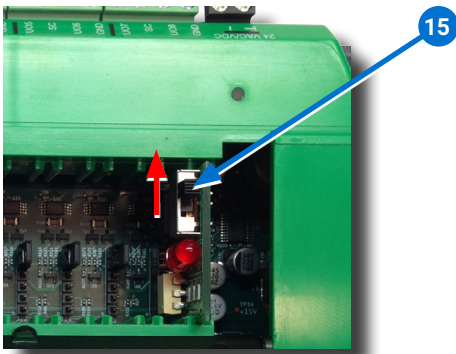


NOTE: Each of the eight override slots ships from KMC with a jumper installed on the two pins closest to the output terminal blocks. Only remove a jumper if an override board will be installed.

19. Install the override board in the slot from which the jumper was removed **14**.



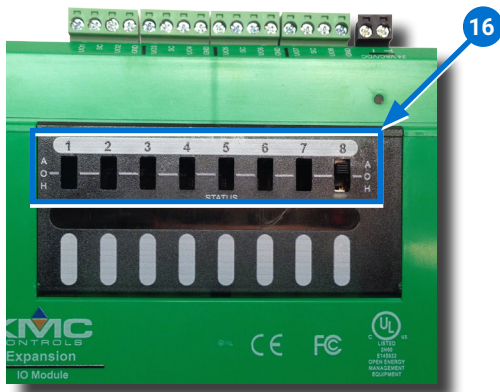
NOTE: Position the board with the **selection switch** **15** towards the top of the expansion module.



20. Close the plastic cover.

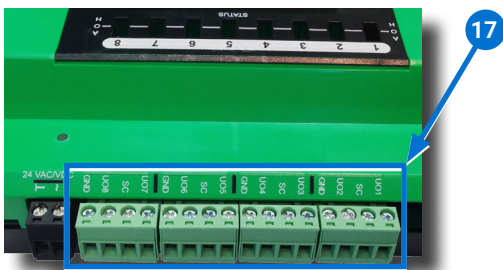
21. Move the **A-O-H selection switch** 16 on the override board to the appropriate position.

NOTE: A = Automatic
O = Off
H = Hand (Manual On)



NOTE: For more information about output override boards see the **HPO-6700 Series**.

22. Wire the output device to the corresponding **green (output) terminal block** 17 of the override board.

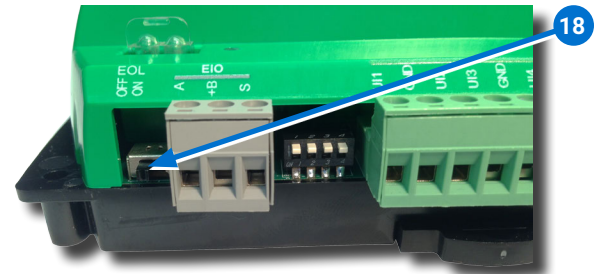


NOTE: Wire the HPO-6701 triac and HPO-6703/6705 relay output override boards to the Switched Common **SC** not the Ground Common **GND** terminal.

SET END OF LINE (EOL) SWITCHES

NOTE: The EOL switch is shipped from KMC in the OFF position.

23. If the expansion module or controller is at either end of the EIO network (only one wire under the terminals), turn the **EOL switch** 18 to **ON**.



CONNECT POWER

NOTE: Connect only one expansion module to each 24 VAC, Class-2 transformer with 12–24 AWG copper wire.

NOTE: The CAN-5901 is controlled by the BAC-5900 series controller. If they are on separate electrical circuits, the possibility exists that power could fail to the controller but remain on to the CAN-5901. If this occurs, the outputs of the CAN-5901 would remain in their current state until (at least) the controller has its power restored. Having the transformers for the controller and all expansion modules on the same electrical circuit is recommended.

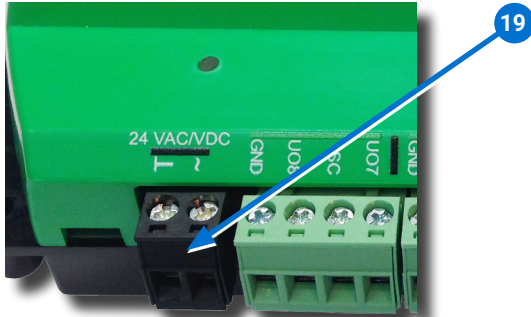
CAUTION

If the CAN-5901 will control a device that has a minimum required “off” time (e.g., a large compressor), for proper operation after a power failure, power the CAN-5901 from the same electrical circuit as the connected BAC-5900 series controller. The CAN-5901 should restart at the same time as the controller after a power failure.

NOTE: Follow all local regulations and wiring codes.

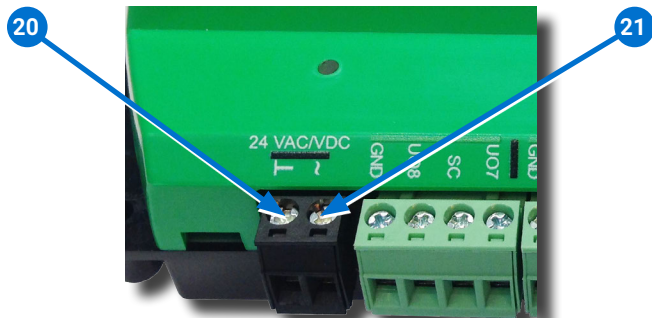
NOTE: Use either shielded connecting cables or enclose all cables in conduit to maintain RF emissions specifications.

24. Connect a 24 VAC, Class-2 transformer to the **black power terminal block 19** of the controller.



25. Connect the neutral side of the transformer to the expansion module **common terminal 20**.

26. Connect the AC phase side of the transformer to the **phase terminal ~ 21** of the expansion module.



POWER AND COMMUNICATION STATUS

The **status LEDs** indicate power connection and network communication.

NOTE: If neither the green READY LED nor the amber COMM LED is ON, check the transformer fuse, power, and connections to the controller.

GREEN READY LED 22

- ◆ During initialization, the green READY LED is ON for a few seconds.

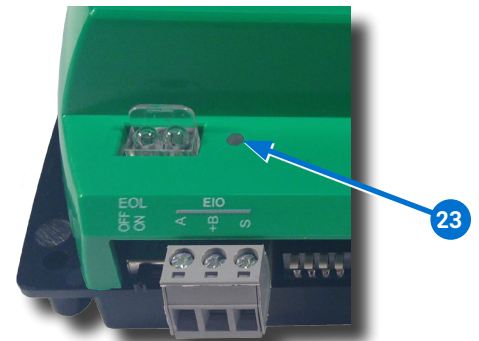
THEN

- ◆ The green READY LED flashes once per second, indicating power.



AMBER CAN COMM LED 23

The amber **Computer Area Network (CAN) status LED** indicates CAN network communication. It flickers as it receives and passes the token.

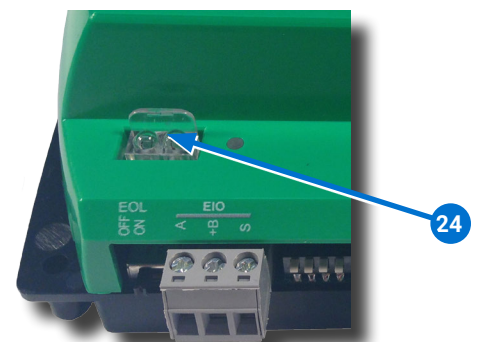


NOTE: The amber CAN COMM LED is active when a Conquest CAN-5901 Expansion Module is connected to the controller.

NOTE: If the amber CAN COMM LED is OFF, the module is not communicating with the CAN network. Check the power and EIO network connection.

NETWORK ISOLATION BULBS

The two **network isolation bulbs 24** serve three functions:



1. Removing the (**HPO-0055**) bulb assembly opens the EIO circuit and isolates the expansion module from the network.

2. If one or both bulbs are lit, it indicates the network is improperly phased.
 - ◆ This means the ground potential of the expansion module is not the same as other modules or the controller on the network.
 - ◆ If this happens, fix the wiring. (See [Connect the BAC-5900 Controller on page 2.](#))
3. If the voltage or current on the network exceeds safe levels, the lamps blow, opening the circuit. If this happens, fix the problem and replace the bulb assembly.

REPLACEMENT PARTS

HPO-0055	Replacement Network Bulb Modules (Pack of 5)
HPO-9901	Conquest Hardware Replacement Parts Kit

NOTE: HPO-9901 includes the following:

Terminal Blocks	DIN Clips
(1) Black 2 Position	(2) Small
(2) Grey 3 Position	(1) Large
(2) Green 3 Position	
(4) Green 4 Position	
(2) Green 5 Position	
(2) Green 6 Position	

NOTE: See the [Conquest Selection Guide](#) for more information about replacement parts and accessories.

EXPANSION MODULE CONFIGURATION

Input and output objects for the expansion module are **not** automatically created in the controller. Use KMC Connect, KMC Converge, or TotalControl to create and configure the input and output objects for the expansion module. For more information, see the documents or help systems for the respective KMC software tool.

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