KMC CONTROLS BAC-5900A Series Controller Installation Guide

Contents

KMC CONTROLS BAC-5900A Series Controller

Specifications

- **Product Name:** BAC-5900A Series Controller
- **Manufacturer**: KMC Controls
- **Model:** BAC-5900A
- **Communication Protocol:** BACnet
- **Input Terminals:** Green color-coded terminals
- **Output Terminals:** Green color-coded terminals

Product Usage Instructions

Mount Controller

To mount the controller:

1. Position the controller on a flat surface or a DIN rail for easy access to terminal blocks.
2. Secure the controller using appropriate screws or by engaging the DIN latch on the rail.

Connect Sensors and Equipment

To connect sensors and equipment:

1. Plug an Ethernet patch cable connected to a compatible sensor into the ROOM SENSOR port of the controller.
2. Wire additional sensors to the green input terminal blocks following the provided wiring guidelines.
3. Ensure not to exceed two 16 AWG wires at a common point.

FAQ

- **Q:** Can I use any Ethernet patch cable to connect a sensor to the controller?
- **A:** No, the Ethernet patch cable should be maximum 150 feet (45 meters) in length and should be compatible

with the controller's specifications.

- **Q:** What should I do if I accidentally connect an Ethernet cable to the Room Sensor port on Conquest E models?
- **A:** Do NOT plug an Ethernet cable into the Room Sensor port on Conquest E models as it may damage the equipment. Ensure to use the appropriate cables as specified in the manual.

INTRODUCTION'

Complete the following steps to install a KMC Conquest BAC-5900A Series BACnet General Purpose Controller. For controller specifications, see the data sheet at kmccontrols.com. For additional information, see the KMC Conquest Controller Application Guide.

MOUNT CONTROLLER

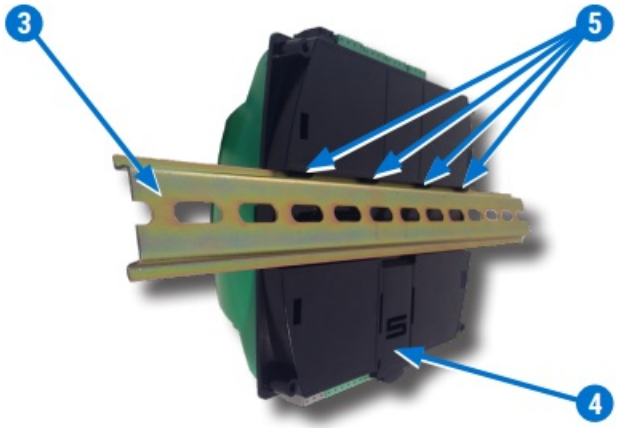
- NOTE: Mount the controller inside a metal enclosure for RF shielding and physical protection.
- NOTE: Input accuracy can be directly affected by both internal and external factors. Pay close attention to installation best practices, mount product and temperature measuring devices and other input devices away from outside walls and drafts that can Interfere with accurate measurements.
- NOTE: To mount the controller with screws on a flat surface, complete the steps in On a Flat Surface on page 1. Or to mount the controller on a 35 mm DIN rail (such as integrated in an HCO-1103 enclosure), complete the steps in On a DIN Rail on

On a Flat Surface

1. Position the controller on a flat surface so that the color-coded terminal blocks **1** are easy to access for wiring after the controller is mounted.
   NOTE: The black terminals are for power. The green terminals are for inputs and outputs. The gray terminals are for communication.
2. Secure a #6 sheet metal screw through each corner **2** of the controller

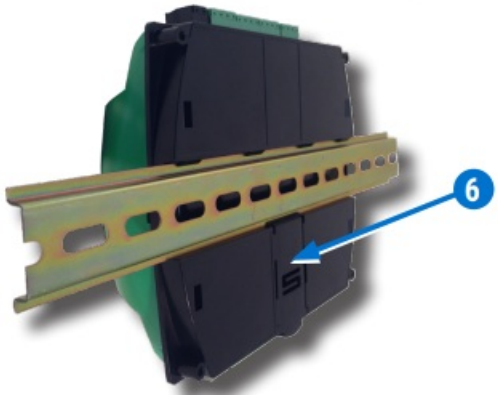
On a DIN Rail

1. Position the DIN rail **3** so that the color-coded terminal blocks are easy to access for wiring after the controller is mounted.
2. Pull out the DIN latc**h 4** until it clicks once.
3. Position the controller so that the top four tabs **5** of the back channel rest on the DIN rail.



4. Lower the controller against the DIN rail.
5. Push in the DIN latch **6** to engage the rail.

   NOTE: To remove the controller, pull the DIN latch until it clicks once and lift the controller off the DIN rail.

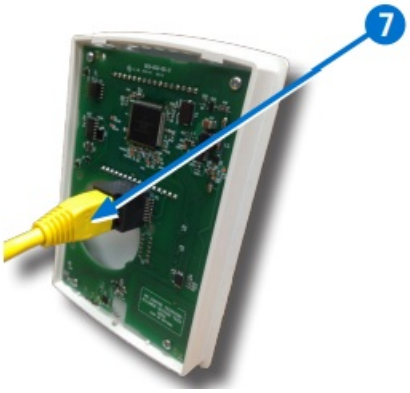


CONNECT SENSORS AND EQUIPMENT

NOTE: A digital STE-9000 Series NetSensor can be used for configuring the controller (see Configure/Program the Controller on page 7). After the controller has been configured, an STE-6010, STE-6014, or STE-6017 analog sensor can be connected to the controller in place of the NetSensor. See the relevant installation guide for additional details.

NOTE: See Sample (BAC-5900A) Wiring for more information.

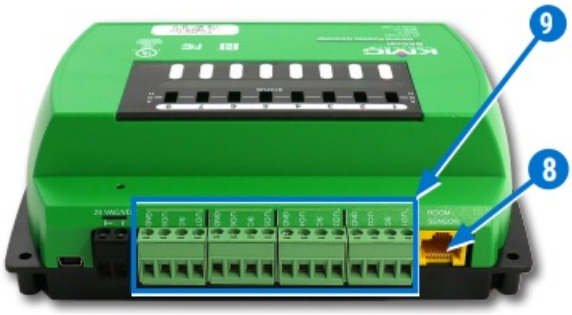
1. Plug an Ethernet patch cable **7** connected to an STE-9000 Series or STE-6010/6014/6017 sensor into the (yellow) ROOM SENSOR port **8** of the controller.



NOTE: The Ethernet patch cable should be a maximum of 150 feet (45 meters).

CAUTION On Conquest " E" models, do NOT plug a cable meant for Ethernet communications into the Room

Sensor port! The Room Sensor port powers a NetSensor, and the supplied voltage may damage an Ethernet switch or router



2. Verify the controller is not connected to power.
3. Wire any additional sensors to the green (input) terminal blocks **9** . .
    1. NOTE: Wire sizes 12–24 AWG can be clamped together into each terminal.
    2. NOTE: No more than two 16 AWG wires can be joined at a common point

4. Connect equipment to the green (output) terminals 10 . See Sample (BAC-5900A) Wiring on page 8 and BAC-5900A series videos on the KMC Conquest Controller Wiring playlist

    CAUTION

    Do NOT connect 24 VAC to any output without first installing an HPO-6701, HPO-6703, or HPO- 6705 override board first!

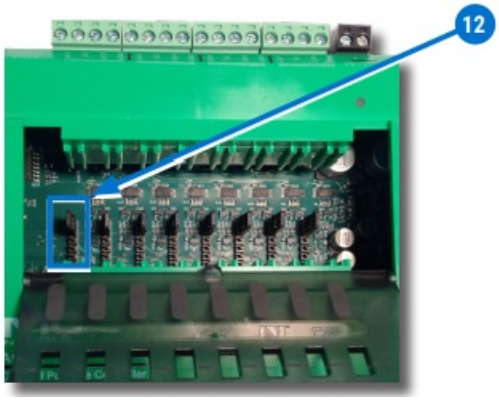
INSTALL (OPTIONAL) OVERRIDE BOARDS

NOTE: Install 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.

1. Verify the controller is not connected to power.

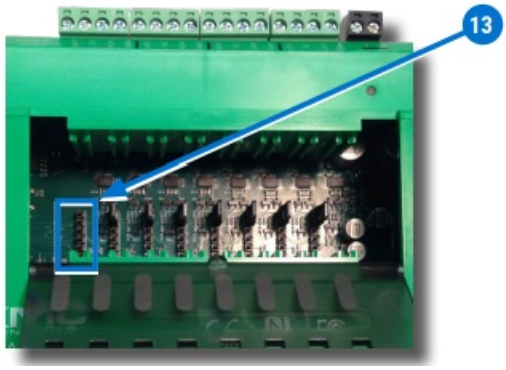
    CAUTION Connecting 24 VAC or other signals that exceed the operation specifications of the controller before an override board is installed will damage the controller.
2. Open the plastic cover

3. Remove the jumper **12** from the slot in which the override board will be installed.

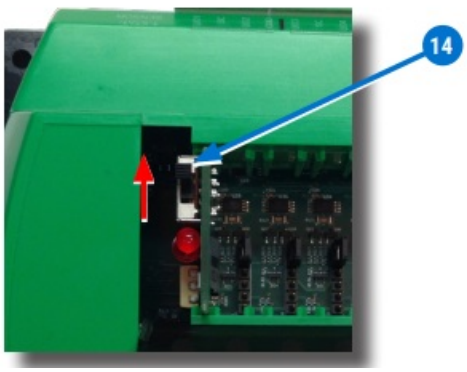


NOTE: Each of the eight override slots ships from KMC with a jumper installed on the two pins closest to the output terminal blocks.\ Only remove a jumper if an override board will be installed

4. Install the override board in the slot in which the jumper was removed **13**



NOTE: Position the board with the selection switch **14** towards the top of the controller



5. Close the plastic cover.
6. Move the A-O-H selection switch **15** on the override board to the appropriate position.

   NOTE:

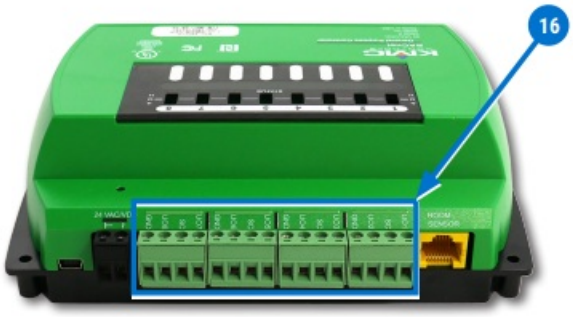
   A = Automatic (Controller Operated)

O = Off

H = Hand (On)

NOTE: For more information, see the HPO-6700 Series installation guide and the HPO- 6700 series videos in the KMC Conquest Controller Wiring playlist

7. Wire the output device to the corresponding green (output) terminal block **16** of the override board

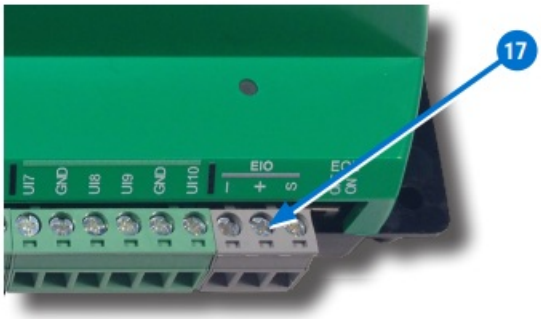


NOTE: HPO-6701 triac and HPO-6703/6705 relay board circuits use the Switched Common SC terminal—not the Ground Common GND terminal.
NOTE: HPO-6701 triac outputs are for 24 VAC only

CONNECT (OPT.) EXPANSION MODULES
NOTE: Up to four CAN-5901 I/O expansion modules can be connected in series (daisy-chained) to a BAC-5900A series controller to add additional inputs and outputs.

1. Wire the gray EIO (Expansion Input Output) terminal block **17** of the BAC-5900A series controller to the gray EIO terminal block of the CAN-5901.

   NOTE: See the CAN-5901 I/O Expansion Module Installation Guide for details.



CONNECT (OPT.) ETHERNET NETWORK

1. For a BAC-5901ACE, connect an Ethernet patch cable 7 to the 10/100 ETHERNET port 18 .

CAUTION
On Conquest " E" models, do NOT plug a cable meant for Ethernet communications into the Room Sensor port! The Room Sensor port powers a NetSensor, and the supplied voltage may damage an Ethernet switch or router

NOTE: The Ethernet patch cable should be T568B Category 5 or better and a maximum of 328 feet (100 meters) between devices.
NOTE: BAC-xxxxACE models have dual Ethernet ports **18 ,** enabling daisy-chaining of controllers. See the Daisy-Chaining Conquest Ethernet Controllers Technical Bulletin for more information

CONNECT (OPTIONAL) MS/TP NETWORK

1. For a BAC-5901AC, connect the network to the gray BACnet MS/TP terminal block **19** .
   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
   1. Connect the –A terminals in parallel with all other –A terminals on the network.
   2. Connect the +B terminals in parallel with all other +B terminals on the network.
   3. Connect the shields of the cable together at each device using a wire nut or the S terminal\ on KMC controllers.
      NOTE: For more information, see Sample (BAC- 5900A) Wiring on page 8 and the BAC- 5900 series videos in the KMC Conquest Controller Wiring playlist.
2. Connect the cable shield to a good earth ground at one end only.

NOTE: For principles and good practices when connecting an MS/TP network, see Planning BACnet Networks (Application Note AN0404A).

SELECT END OF LINES (EOL)

NOTE: EOL switches are shipped in the OFF position.

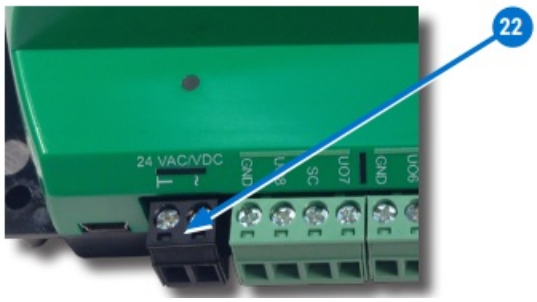
1. If the controller is at either end of a BACnet MS/TP network (only one wire under each terminal), turn that EOL switch **20** to ON.

2. If the controller is at the end of an EIO (Expansion Input Output) network, turn that EOL switch **21** to ON.

CONNECT POWER

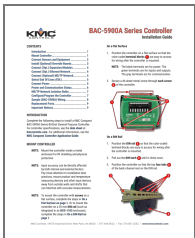
NOTE: Follow all local regulations and wiring codes.

1. Connect a 24 VAC, Class-2 transformer to the black power terminal block **22** of the controller



1. Connect the neutral side of the transformer to the controller's common terminal 23 .
   B. Connect the AC phase side of the transformer
   to the controller's phase terminal 24 .

Documents / Resources

	KMC CONTROLS BAC-5900A Series Controller [pdf] Installation Guide BAC-5900A Series Controller, BAC-5900A Series, Controller

References

- Kmccontrols.com
- KMC Controls | Building Automation and Control Solutions
- KMC Controls | Building Automation and Control Solutions
- User Manual