

# SNAP B-Series Racks

## Features

- Secure mounting for SNAP I/O modules plus a SNAP brain or on-the-rack SNAP controller
- Analog, digital, and serial modules on the same rack
- Panel or DIN-rail mounting
- Modules snap into place

## Description

**NOTE:** For racks to use with SNAP PAC controllers and brains, see Opto 22 form #1684, the *SNAP PAC Racks Data Sheet*.

**NOTE:** M-series racks (such as the SNAP-M64), used with SNAP Simple brains and SNAP-UP1-M64 controllers, have been replaced by SNAP PAC racks. See form #1684.

SNAP B-series mounting racks are designed to hold an intelligent SNAP I/O processor—either a SNAP brain or an on-the-rack controller—and several I/O modules.

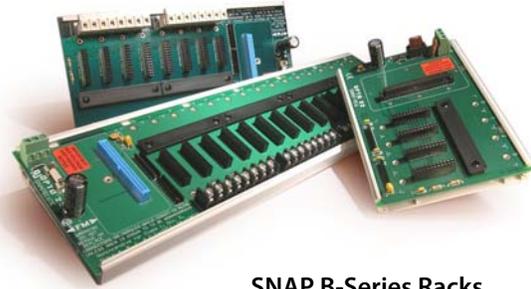
This rack family includes racks that are compatible with ARCNET and serial SNAP brains, including those using Modbus® and Profibus® protocols, and with some Ethernet-based SNAP Ultimate I/O™ on-the-rack controllers and SNAP Ethernet I/O™ brains. For specific processor compatibility, see “Specifications” on page 3.

Since SNAP analog, digital, and serial I/O modules have the same footprint, customers using most SNAP B-series racks can mix modules on the same I/O mounting rack. However, module types, features, and positions on the rack vary depending on the capabilities of the brain or on-the-rack controller used. See the brain or controller data sheet for details.

Field devices are wired directly to the top-mounted removable connectors on the modules plugged into each rack. SNAP B-series racks can accommodate up to 4, 8, 12, or 16 modules. The module and rack design allows modules to simply “snap” on and off the mounting rack.

SNAP racks use a retention rail locking system that holds modules securely to the rack. Normally, a hold-down screw is not required. However, for applications that require additional module security, SNAP racks have provisions for two 4-40 by ½-inch standard machine screws to hold each module in position.

MC and MC-P model racks provide an auxiliary screw-type terminal strip for field wiring common connections such as loop power distribution. MC racks use a fixed terminal strip, while MC-P racks use removable connectors for easy maintenance (see enlarged view on the following page).



SNAP B-Series Racks

All SNAP racks offer panel mounting and the option of DIN-rail mounting. SNAP racks require a 5 VDC power source.

SNAP-B4M, SNAP-B8M, SNAP-B12M, SNAP-B16M, and SNAP-D64RS racks are Factory Mutual approved.

## Part Numbers

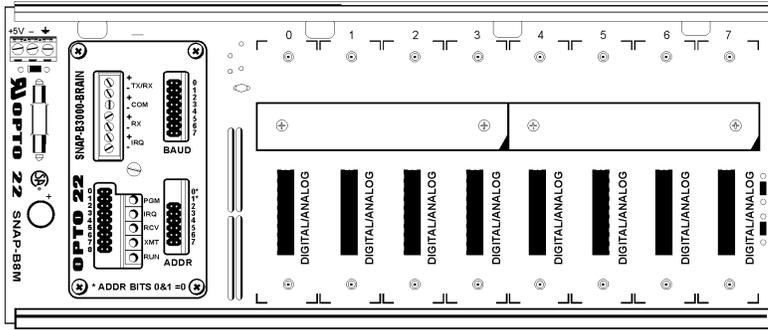
| Part            | Description  |
|-----------------|--|
| SNAP-B4M*       | 4-module rack  |
| SNAP-B8M*       | 8-module rack  |
| SNAP-B12M*      | 12-module rack   |
| SNAP-B16M*      | 16-module rack   |
| SNAP-B8MC       | 8-module rack with extra terminal block for field wiring                                       |
| SNAP-B12MC      | 12-module rack with extra terminal block for field wiring                                      |
| SNAP-B16MC      | 16-module rack with extra terminal block for field wiring                                      |
| SNAP-B8MC-P     | 8-module rack with extra terminal block for field wiring, pluggable                            |
| SNAP-B12MC-P    | 12-module rack with extra terminal block for field wiring, pluggable                           |
| SNAP-B16MC-P    | 16-module rack with extra terminal block for field wiring, pluggable                           |
| SNAP-D64RS*     | 16-module rack for digital-only SNAP Ultimate, SNAP Ethernet, and SNAP-PDPRS64 Profibus brains |
| SNAP-FUSE7.5AB  | 7.5-amp fuse, 25-pack  |
| SNAP-FUSE4AB    | 4-amp fuse, 25-pack  |
| SNAP-FUSE1AB    | 1-amp fuse, 25-pack  |
| SNAP-TEX-DRC10  | SNAP PAC rack DIN-rail adapter clip, 10-pack   |
| SNAP-TEX-REC10N | Narrow end cap for SNAP PAC racks DIN-rail assemblies, 10-pack                                 |
| SNAP-TEX-REC10W | Wide end cap for SNAP PAC racks DIN-rail assemblies with terminal strips, 10-pack              |

\* Factory Mutual (FM) approved

### Description (continued)

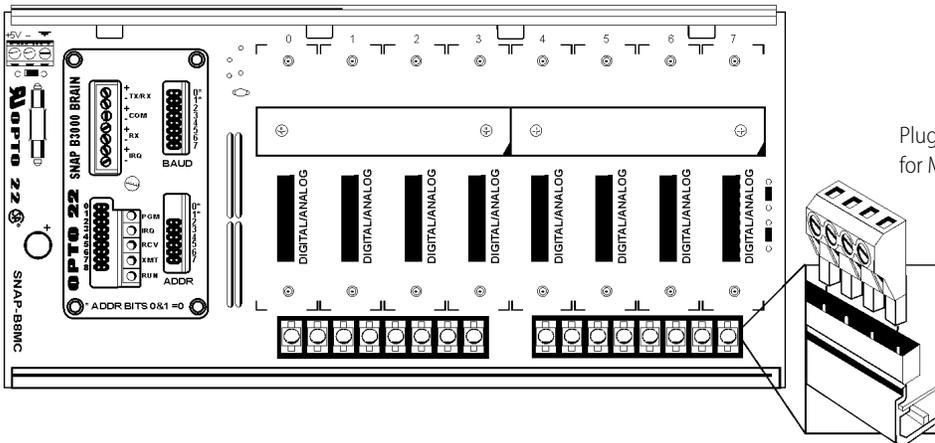
#### SNAP-B8M (8-Module Position I/O Mounting Rack)

Shown with B3000 brain (purchased separately)



#### SNAP-B8MC (8-Module Position I/O Mounting Rack)

Shown with B3000 brain (purchased separately)



# SNAP B-Series Racks

## Specifications

| Part Number  | Description <sup>1</sup>                                | Power <sup>2</sup> Requirements | I/O Processor <sup>3</sup> Compatibility  | Replacement Fuse                       | Operating Temperature | Relative Humidity   |
|--------------|---|---------------------------------|---|--|-----------------------|---------------------|
| SNAP-B4M     | 4-module mixed  | 5.0 to 5.2 VDC @ 1.8 Amps max   | SNAP-UP1-ADS<br>SNAP-B3000-ENET<br>SNAP-ENET-RTC<br>B3000<br>B3000-HA<br>SNAP-B4<br>SNAP-B6<br>SNAP-BRS<br>SNAP-BRS-HA<br>SNAP-B3000-MODBUS | SNAP-FUSE4A or Bel <sup>5</sup> 5HF4   | 0 to 70 °C            | 95%, non-condensing |
| SNAP-B8M     | 8-module mixed  | 5.0 to 5.2 VDC @ 2.6 Amps max   |   |  |                       |                     |
| SNAP-B8MC    | 8-module mixed, terminal block                          |                                 |   |  |                       |                     |
| SNAP-B8MC-P  | 8-module mixed, pluggable terminal block                |                                 |   |  |                       |                     |
| SNAP-B12M    | 12-module mixed <sup>4</sup>                            | 5.0 to 5.2 VDC @ 3.4 Amps max   |   |  |                       |                     |
| SNAP-B12MC   | 12-module mixed <sup>4</sup> , terminal block           |                                 |   |  |                       |                     |
| SNAP-B12MC-P | 12-module mixed <sup>4</sup> , pluggable terminal block |                                 |   |  |                       |                     |
| SNAP-B16M    | 16-module mixed <sup>4</sup>                            | 5.0 to 5.2 VDC @ 4.2 Amps max   |   |  |                       |                     |
| SNAP-B16MC   | 16-module mixed <sup>4</sup> , terminal block           |                                 |   |  |                       |                     |
| SNAP-B16MC-P | 16-module mixed <sup>4</sup> , pluggable terminal block |                                 |   |  |                       |                     |
| SNAP-D64RS   | 16-module digital only (limited digital functions)      | 5.0 to 5.2 VDC @ 1.8 Amps max   | SNAP-UP1-D64<br>SNAP-ENET-D64<br>SNAP-PDPRS64   | SNAP-FUSE1A or Buss <sup>5</sup> GDC1A |                       |                     |

1 "Mixed" means the rack can hold analog, digital, and serial modules. Most Ethernet-based I/O processors handle all these types of modules; other processors do not. See the processor's data sheet for details.

2 Power requirements shown are for a rack, a processor, and a full load of 2-channel analog modules (for the SNAP-D64RS, a full load of 4-channel digital modules). Power requirements for other SNAP modules are higher. See module data sheets.

3 "I/O Processor" means a SNAP brain or on-the-rack controller.

4 Four-channel SNAP digital modules can be used in positions 0–7 only.

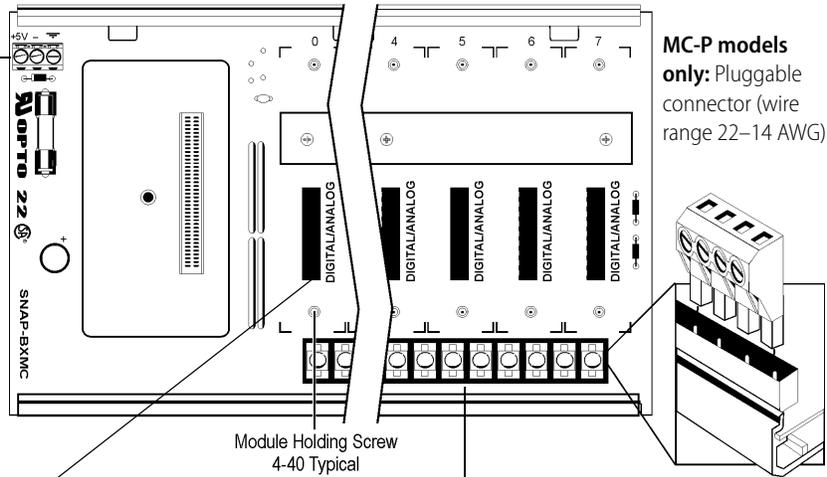
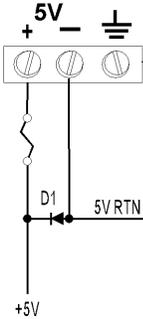
5 Manufacturer's part number (not available through Opto 22).

### Specifications (continued)

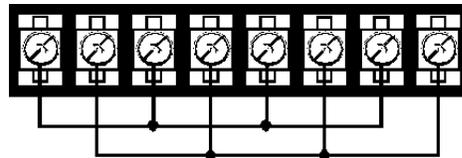
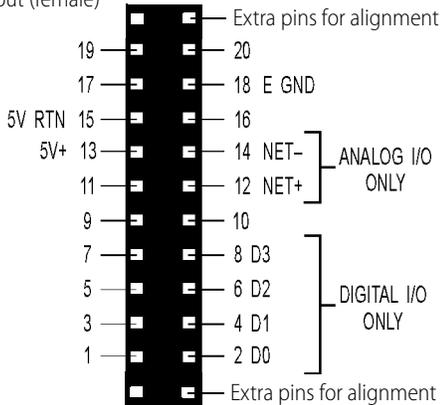
**All models:**

**Power schematic**

For fuse part numbers, see Specifications on [page 3](#).



**All models:** Module mating connector pinout (female)



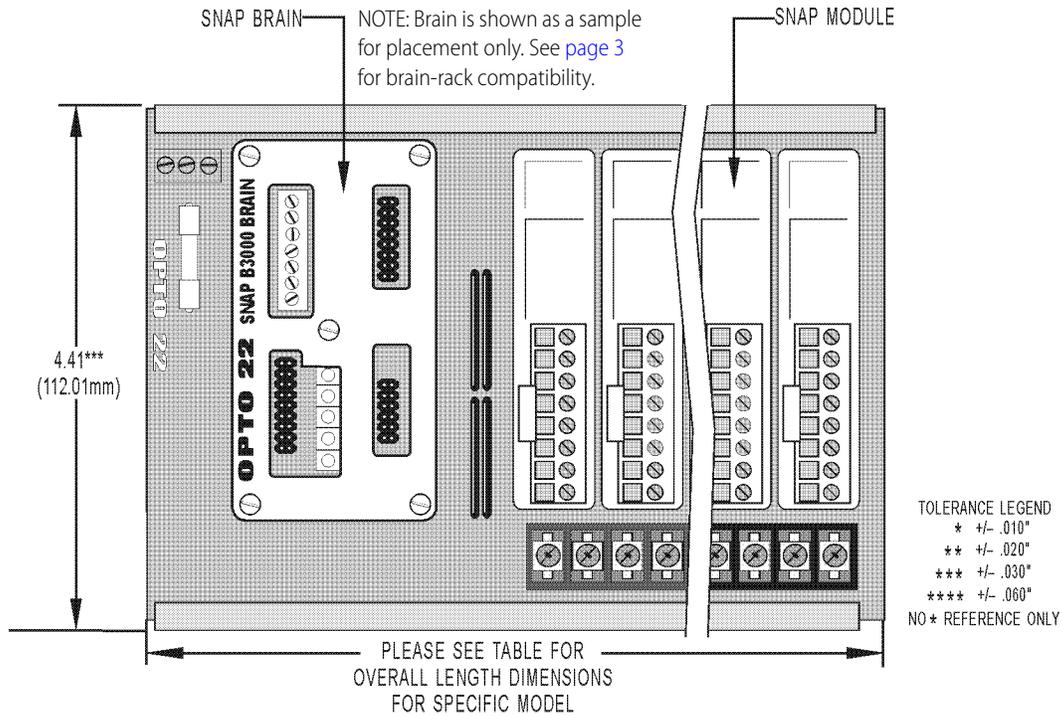
**MC and MC-P models only:** For detailed information on terminal strip usage, see [page 12](#) through [page 16](#).

**IMPORTANT:** The mounting rack connector has 24 pins; the module connector has 20 pins. The extra pins on the mounting rack connector prevent misalignment of the module during installation.

# SNAP B-Series Racks

## Dimensional Drawings

Dimensions—SNAP-D64RS Rack and B-Series Racks with Terminal Strips



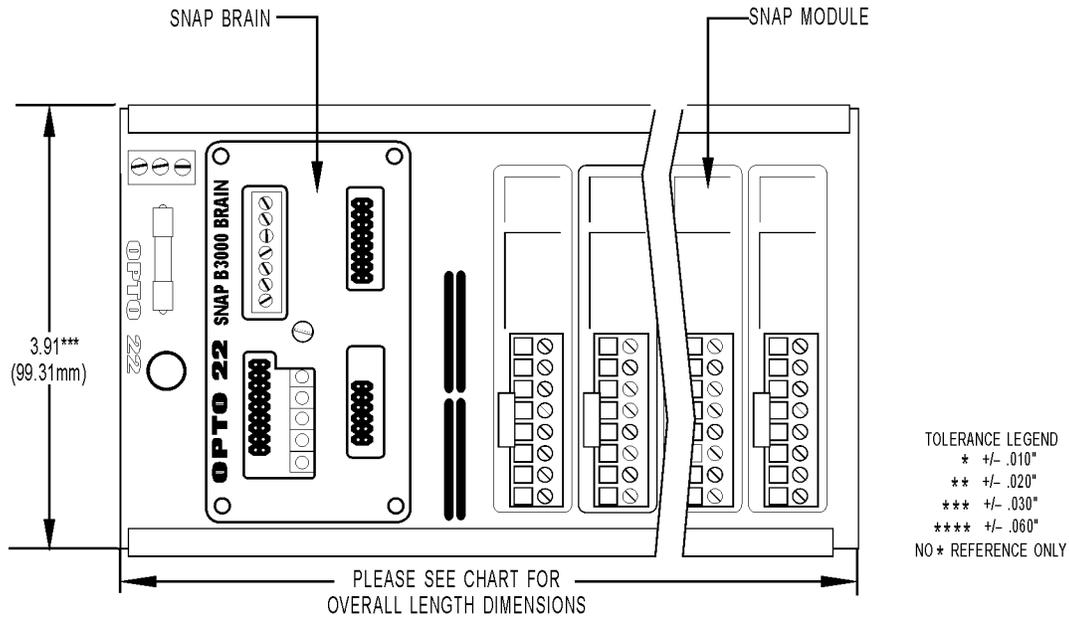
Overall Length Dimensions (SNAP-D64RS and B-series racks with terminal strips)

| Part Number                | Description  | Width (inches) | Width (mm) | Length (inches) | Length (mm) |
|----------------------------|--|----------------|------------|-----------------|-------------|
| SNAP-B8MC<br>SNAP-B8MC-P   | 8-module rack for other brains, with terminal block  | 4.41           | 112.01     | 9.25            | 234.95      |
| SNAP-B12MC<br>SNAP-B12MC-P | 12-module rack for other brains, with terminal block | 4.41           | 112.01     | 12.25           | 311.15      |
| SNAP-B16MC<br>SNAP-B16MC-P | 16-module rack for other brains, with terminal block | 4.41           | 112.01     | 15.25           | 387.35      |
| SNAP-D64RS                 | 16-module rack, digital only                         | 4.41           | 112.01     | 15.25           | 387.35      |

# SNAP B-Series Racks

## Dimensional Drawings (continued)

### Dimensions—B-Series Racks Without Terminal Strips



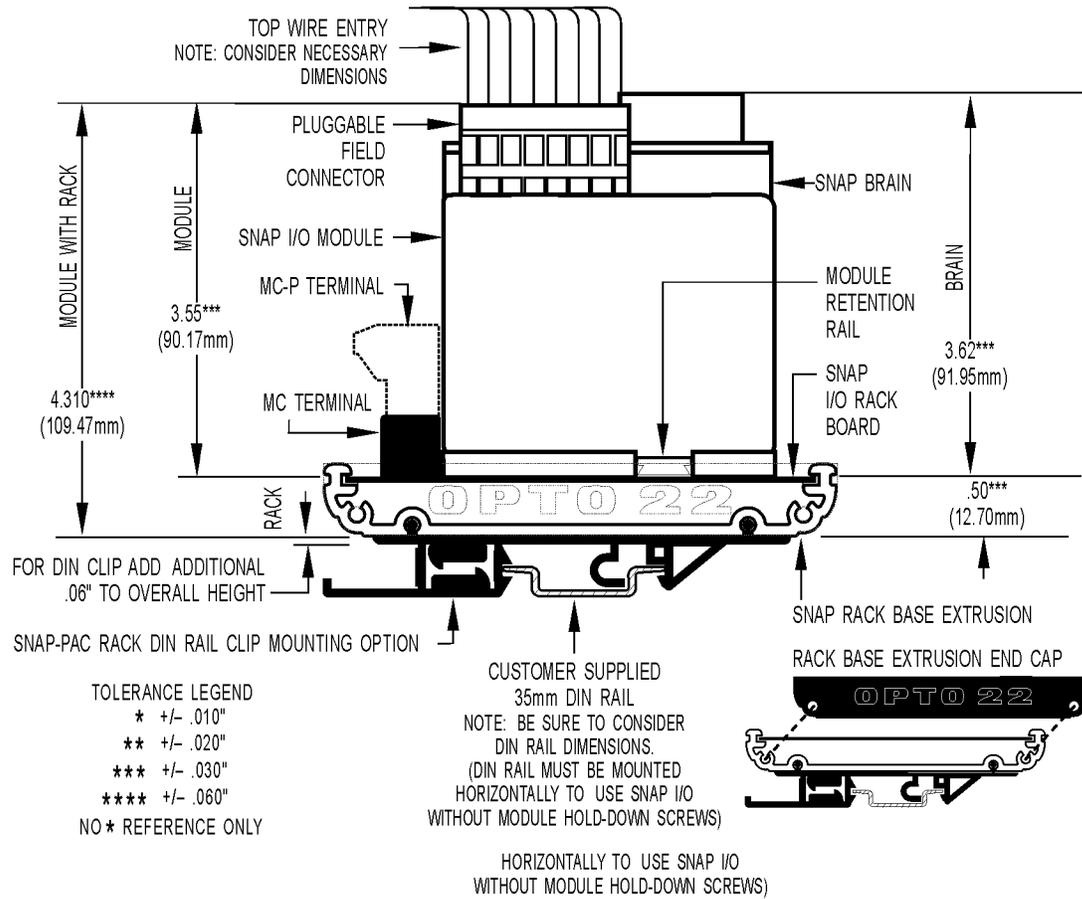
### Overall Length Dimensions (B-series racks without terminal strips)

| Part Number | Description    | Width (inches) | Width (mm) | Length (inches) | Length (mm) |
|-------------|----------------|----------------|------------|-----------------|-------------|
| SNAP-B4M    | 4-module rack  | 3.91           | 99.31      | 6.24            | 158.41      |
| SNAP-B8M    | 8-module rack  | 3.91           | 99.31      | 9.24            | 234.70      |
| SNAP-B12M   | 12-module rack | 3.91           | 99.31      | 12.24           | 310.90      |
| SNAP-B16M   | 16-module rack | 3.91           | 99.31      | 15.24           | 387.10      |

# SNAP B-Series Racks

## Dimensional Drawings (continued)

### SNAP-D64RS Rack and B-Series Racks with Terminal Strips: Right Side View with DIN-Rail Option Installed



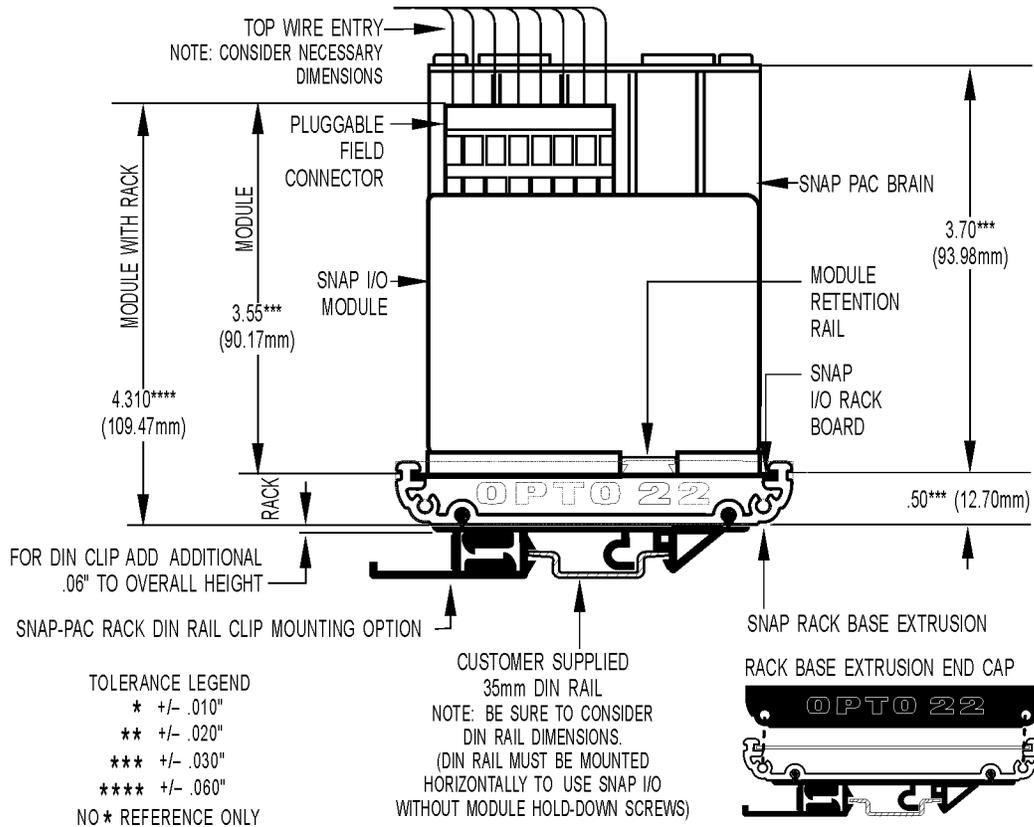
| Processor Height*   | Processor Part Number   | Rack       |
|---------------------|---|------------|
| 4.12 in. (104.6 mm) | SNAP-UP1-ADS<br>SNAP-B3000-ENET<br>SNAP-ENET-RTC  | B-series   |
|                     | SNAP-UP1-D64<br>SNAP-ENET-D64   | SNAP-D64RS |
| 3.70 in. (95.9 mm)  | B3000    B3000-HA<br>SNAP-B4    SNAP-BRS-HA<br>SNAP-B6    SNAP-B3000-MODBUS<br>SNAP-BRS | B-series   |

\* Height listed is from the processor's mounting surface to the highest part of the processor. Height does not include wiring or cables.

# SNAP B-Series Racks

## Dimensional Drawings (continued)

### B-Series Racks Without Terminal Strips: Right Side View with DIN-Rail Option Installed



| Processor Height*   | Processor Part Number                   |  |
|---------------------|---|--|
| 4.12 in. (104.6 mm) | SNAP-UP1-ADS<br>SNAP-B3000-ENET         | SNAP-ENET-RTC                                |
| 3.70 in. (95.9 mm)  | B3000<br>SNAP-B4<br>SNAP-B6<br>B3000-HA | SNAP-BRS<br>SNAP-BRS-HA<br>SNAP-B3000-MODBUS |

\* Height listed is from the processor's mounting surface to the highest part of the processor. It does not include wiring or cables.

# SNAP B-Series Racks

## Mounting

NOTE: If you are not using hold-down screws, the SNAP rack assembly should be mounted horizontally.

Use the following steps to mount racks as shown in the diagrams on the next two pages.

### Preferred Method: Template

(Product on site)

1. Use SNAP rack mounting extrusion as template.
2. Be sure to use the diagrams on the next two pages to determine required product and option clearances.

### Alternate Method: Prefabrication of Panels

(No product on site)

Mounting holes are in sets of two, located on lower left and upper right with respect to a center line (CL).

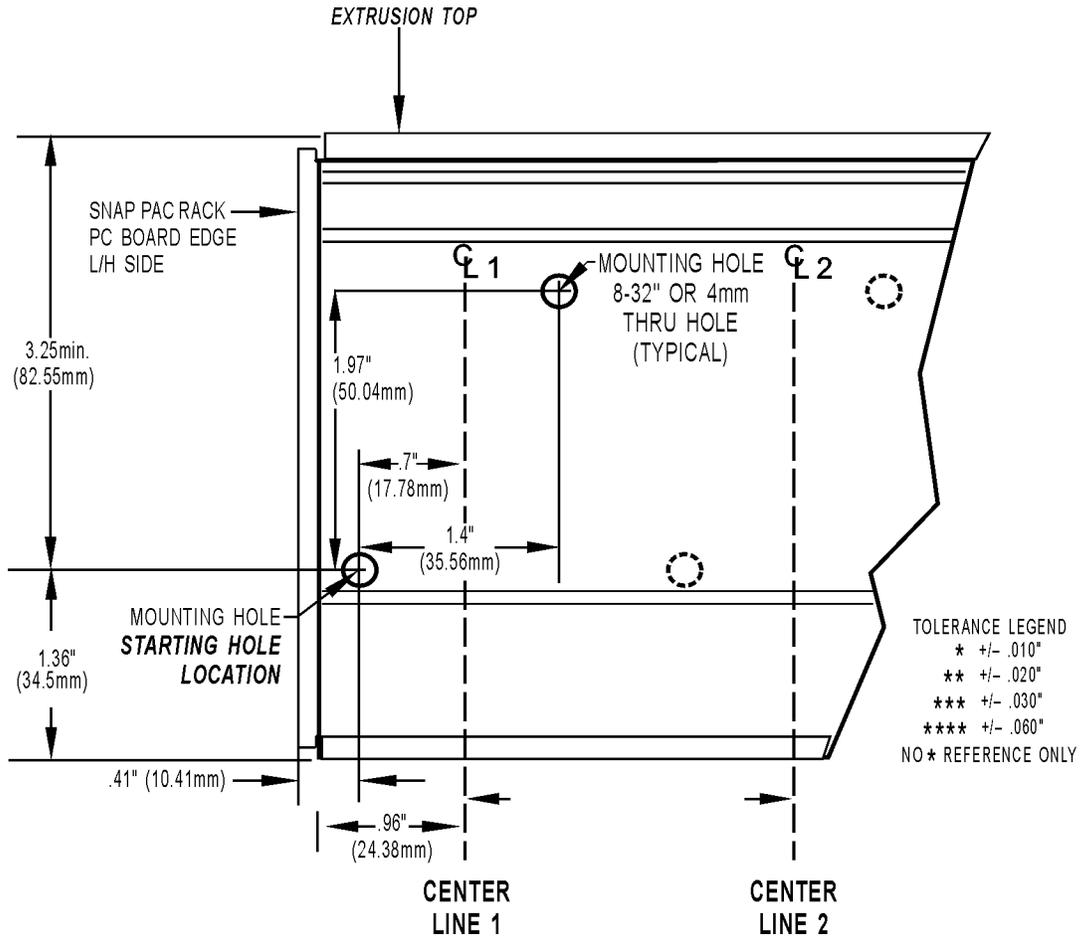
1. Using the diagrams on the next two pages, determine CL1 mounting hole positions. (CL1 is located on the left side of all SNAP rack mounting extrusions.)
2. Use the center-to-center length specification table below to determine the offset between center lines and the number of center line positions for each model.
3. Repeat the process for each center line position.

### Center-to-Center Length (All Models)

| Part Number   | Description    | Center-to-Center Length | Number of Center Positions |
|---|----------------|-------------------------|----------------------------|
| SNAP-B4M  | 4-module rack  | 4.01 in.                | 2                          |
| SNAP-B8M<br>SNAP-B8MC<br>SNAP-B8MC-P                  | 8-module rack  | 3.51 in.                | 3                          |
| SNAP-B12M<br>SNAP-B12MC<br>SNAP-B12MC-P               | 12-module rack | 5.01 in.                | 3                          |
| SNAP-B16M<br>SNAP-B16MC<br>SNAP-B16MC-P<br>SNAP-D64RS | 16-module rack | 4.34 in.                | 4                          |

## Mounting (continued)

### SNAP-D64RS Rack and B-Series Racks with Terminal Strips: Typical Plain View of SNAP Mounting Extrusion

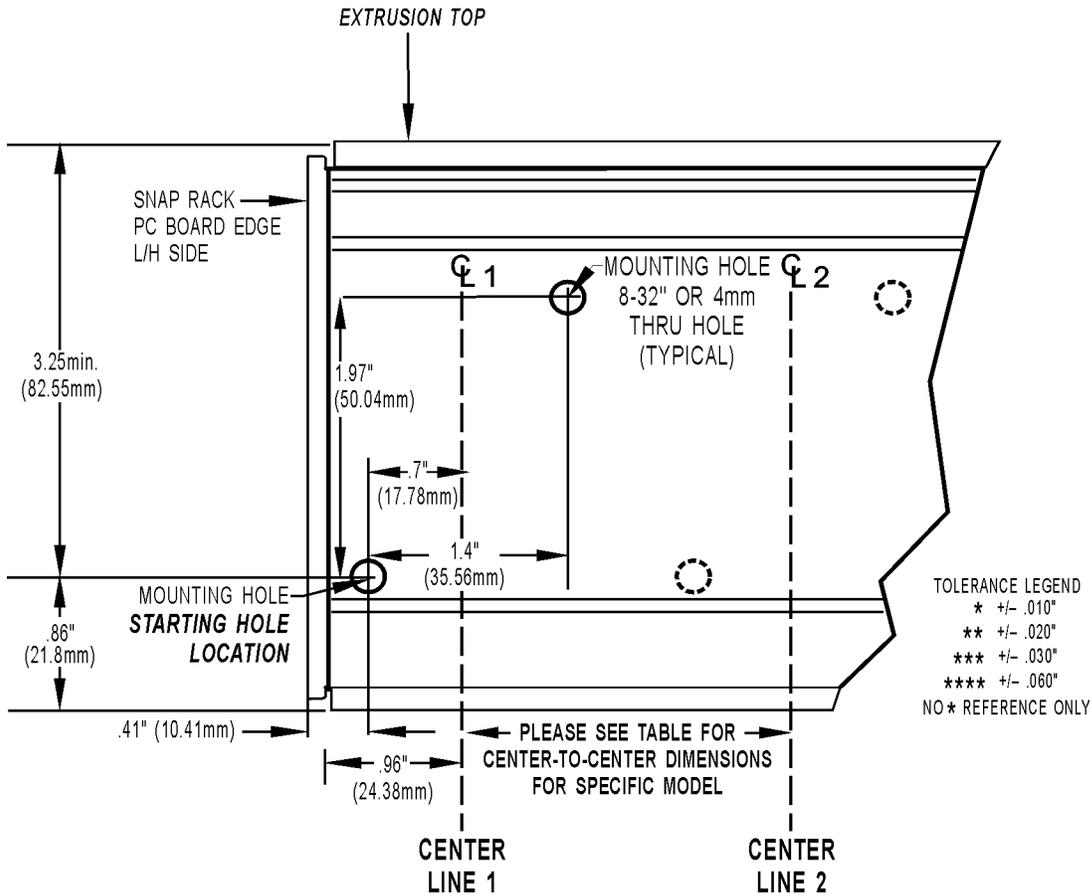


See instructions and table on [page 9](#).

# SNAP B-Series Racks

## Mounting (continued)

### B-Series Racks Without Terminal Strips: Typical Plain View of SNAP Mounting Extrusion



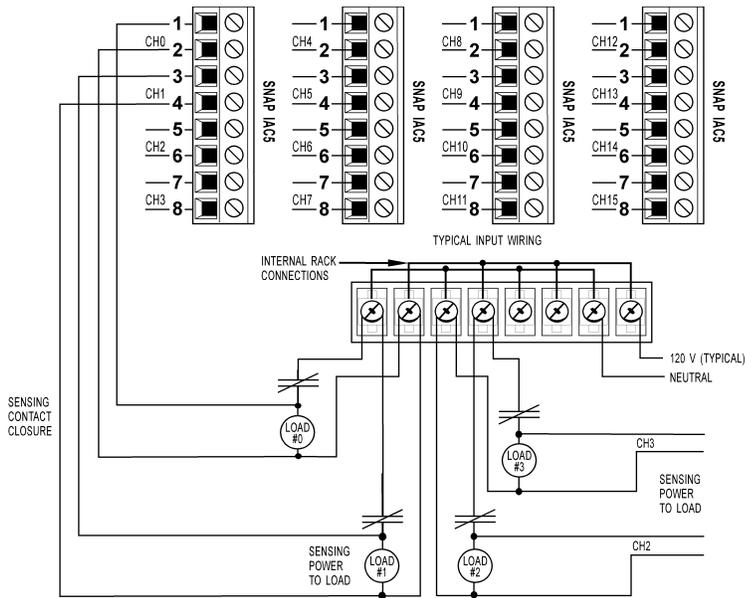
See instructions and table on [page 9](#).

## Wiring Diagrams—B-Series Models with Terminal Strips

### Terminal Strip Usage—Digital

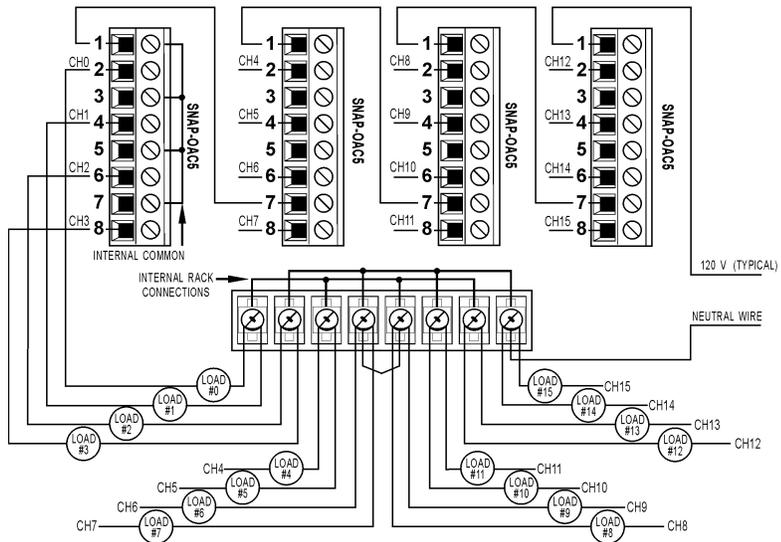
NOTE: Consult the SNAP module data sheet for your specific module for additional wiring information.

#### Example: Digital Input Using Terminal Strip



#### Example: Digital AC Output Using Terminal Strip

TYPICAL WIRING FOR "SNAP OAC5" DIGITAL OUTPUT MODULE ON A FOUR-MODULE SNAP RACK



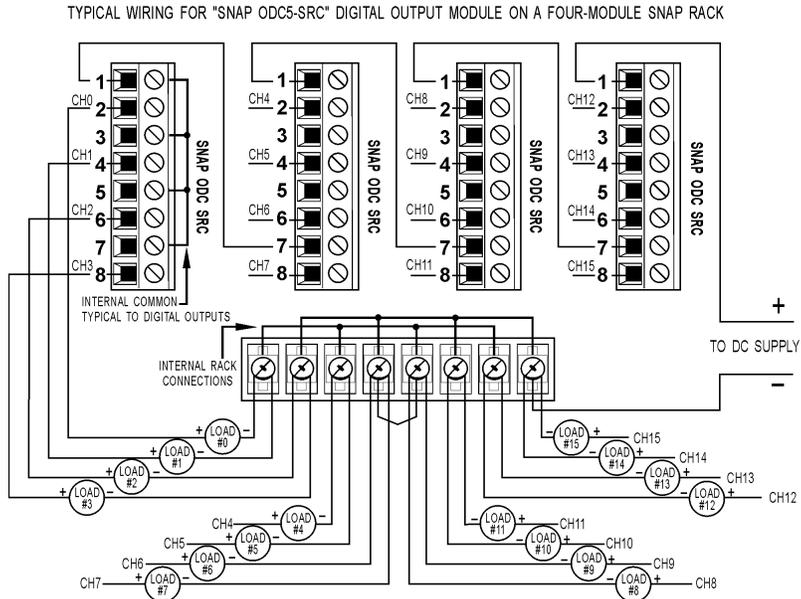
# SNAP B-Series Racks

## Wiring Diagrams—B-Series Models with Terminal Strips

### Terminal Strip Usage—Digital (continued)

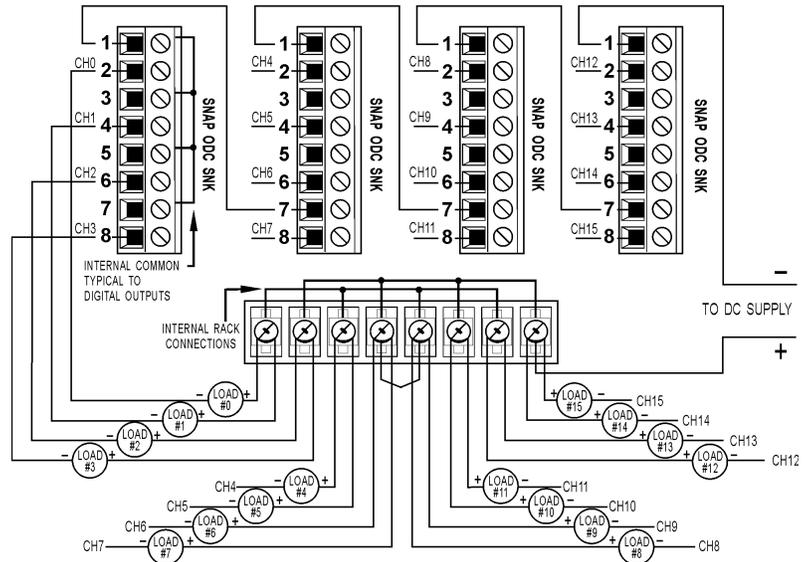
#### Example: Digital DC Output (Sourcing) Using Terminal Strip

NOTE: Consult the SNAP module data sheet for your specific module for additional wiring information.



#### Example: Digital DC Output (Sinking) Using Terminal Strip

TYPICAL WIRING FOR "SNAP ODC5-SNK" DIGITAL OUTPUT MODULE ON A FOUR-MODULE SNAP RACK

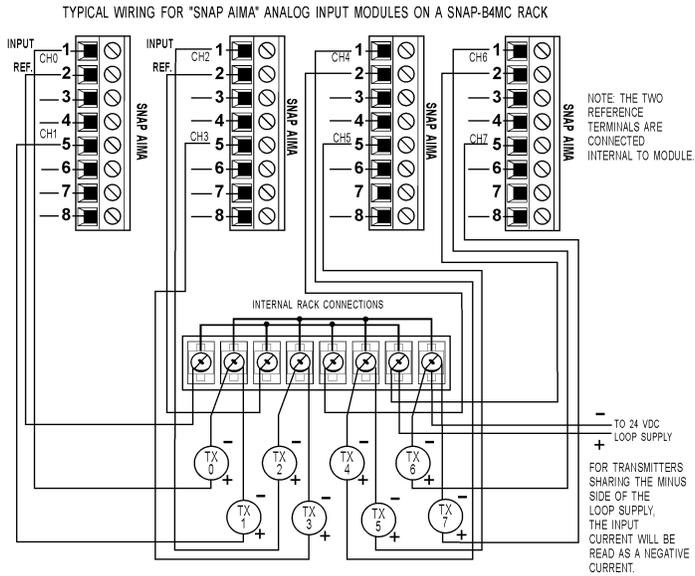


## Wiring Diagrams—B-Series Models with Terminal Strips

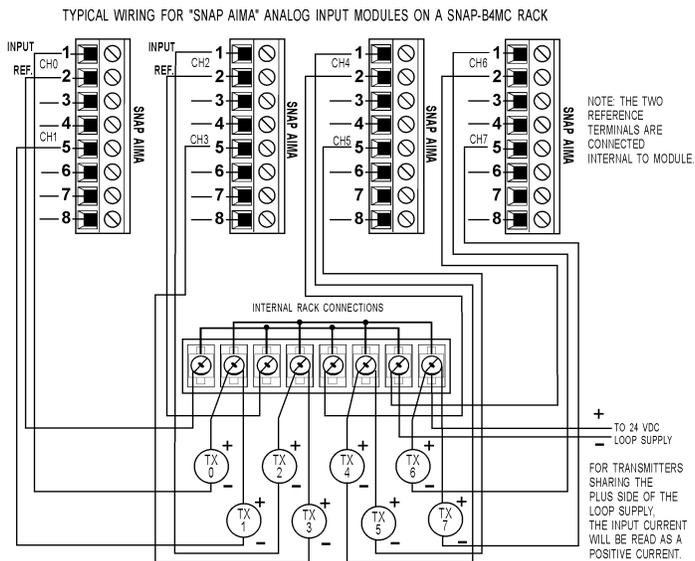
### Terminal Strip Usage—Analog

NOTE: Consult the SNAP module data sheet for your specific module for additional wiring information.

#### Example: Analog Input (Current: Negative) Using Terminal Strip



#### Example: Analog Input (Current: Positive) Using Terminal Strip



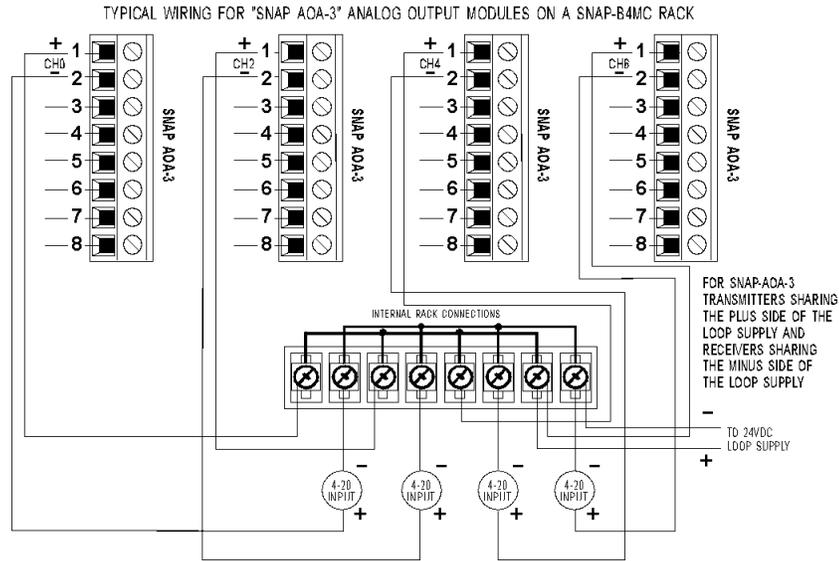
# SNAP B-Series Racks

## Wiring Diagrams—B-Series Models with Terminal Strips

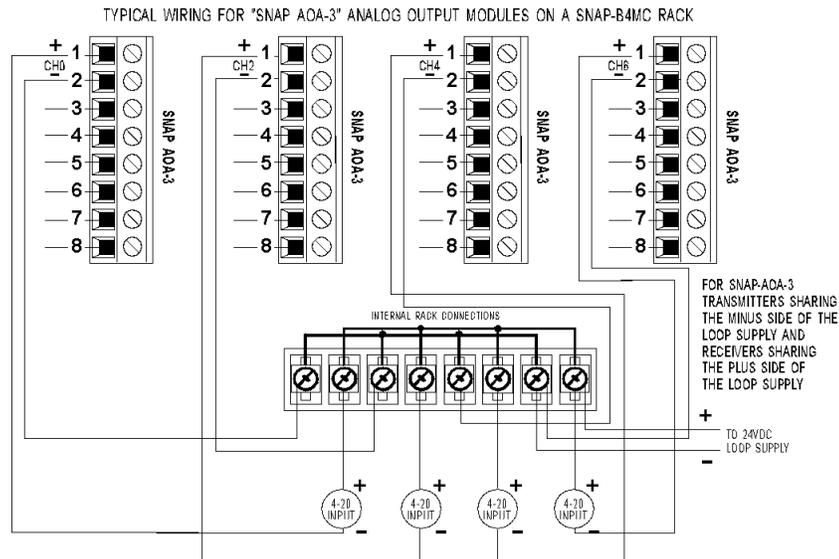
### Terminal Strip Usage—Analog (continued)

#### Example: Analog Output (4–20 mA Current: Sourcing) Using Terminal Strip

NOTE: Consult the SNAP module data sheet for your specific module for additional wiring information.



#### Example: Analog Output (4–20 mA Current: Sinking) Using Terminal Strip

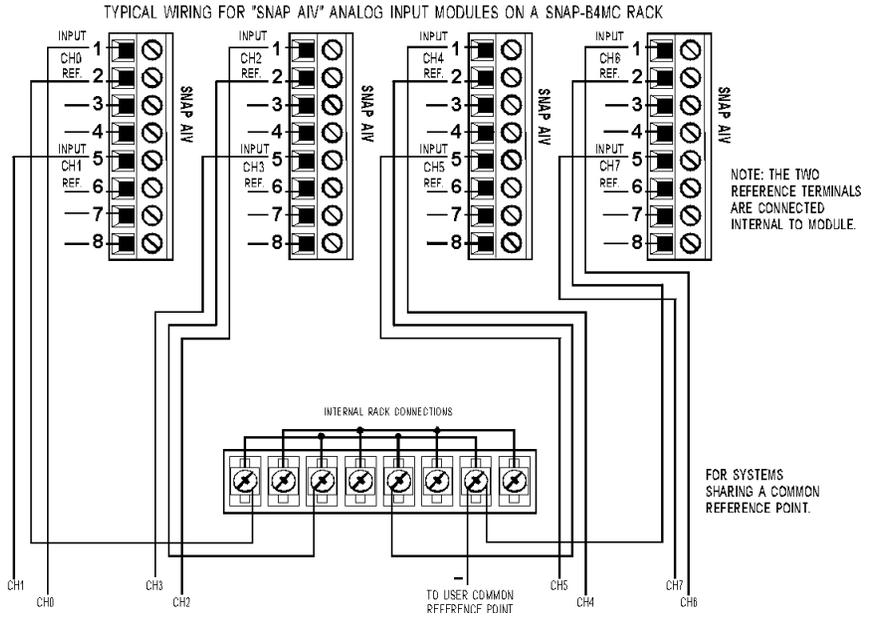


## Wiring Diagrams—B-Series Models with Terminal Strips

### Terminal Strip Usage—Analog (continued)

NOTE: Consult the SNAP module data sheet for your specific module for additional wiring information.

#### Example: Analog Input (Voltage) Using Terminal Strip



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