

SNAP DIGITAL OUTPUT MODULES

Features

- > Four channels per module
- > Convenient pluggable wiring terminals; accepts 22 to 14 AWG wire
- > Powered by a single 5-volt supply
- > Channel-specific LEDs
- > Operating temperature: -20 to 70 °C
- > UL and CE approved (most modules); Factory Mutual approved (part numbers ending in FM)



SNAP Digital Output Modules

DESCRIPTION

Opto 22 SNAP I/O digital output modules are part of the SNAP PAC System.

Choose from AC or DC models. Optical isolation on all solid-state modules provides 4,000 volts of transient (4000 V for 1 ms) protection for sensitive control electronics from industrial field signals.

Most SNAP digital modules have removable top-mounted connectors to provide easy access for field wiring. All operate on 5 VDC control logic. Each digital module features integral channel-specific LEDs for convenient troubleshooting and maintenance.

Each module is factory tested twice before shipment, and most modules are UL and CE approved. In addition, part numbers ending in FM are Factory Mutual approved.

SNAP output modules are used to switch up to four separate AC or DC loads. Output modules that are fused use a standard fuse with a convenient handle for easy replacement. DC outputs are available in either a source or sink configuration. AC outputs are zero voltage turn on and zero current turn off for transient-free switching.

SNAP-OAC5MA and SNAP-ODC5MA are special modules featuring manual-on/manual-off/automatic switches, ideal for diagnostic testing of control applications. The switches override output from the application, so you can quickly check field device wiring. These modules each contain four isolated channels.

The SNAP-OAC5-i, SNAP-ODC5-i, and SNAP-ODC5A-i modules provide four isolated output channels.

Part Numbers

| Part | Description | See pages |
|----------------|--|-----------|
| SNAP-OAC5 | SNAP 4-channel 12–250 VAC output, 5 VDC logic | 3, 5 |
| SNAP-OAC5MA | SNAP 4-channel isolated 12–250 VAC output, 5 VDC logic with manual/auto switches | 3, 6 |
| SNAP-OAC5FM | SNAP 4-channel 12–250 VAC output, 5 VDC logic | 4, 5 |
| SNAP-OAC5-i | SNAP 4-channel isolated 12–250 VAC output, 5 VDC logic | 3, 7 |
| SNAP-OAC5-iFM | SNAP 4-channel isolated 12–250 VAC output, 5 VDC logic | 4, 7 |
| SNAP-ODC5SRC | SNAP 4-channel 5–60 VDC output, 5 VDC logic source | 8, 12 |
| SNAP-ODC5SRCFM | SNAP 4-channel 5–60 VDC output, 5 VDC logic source | 10, 12 |
| SNAP-ODC5SNK | SNAP 4-channel 5–60 VDC output, 5 VDC logic sink | 8, 13 |
| SNAP-ODC5SNKFM | SNAP 4-channel 5–60 VDC output, 5 VDC logic sink | 10, 13 |
| SNAP-ODC5ASNK | SNAP 4-channel 5–200 VDC output, 5 VDC logic sink | 9, 13 |
| SNAP-ODC5MA | SNAP 4-channel isolated 5–60 VDC output, 5 VDC logic with manual/auto switches | 9, 14 |
| SNAP-ODC5-i | SNAP 4-channel isolated 5–60 VDC output, 5 VDC logic | 9, 15 |
| SNAP-ODC5-iFM | SNAP 4-channel isolated 5–60 VDC output, 5 VDC logic | 11, 15 |
| SNAP-ODC5A-i | SNAP 4-channel isolated 5–200 VDC output, 5 VDC logic | 9, 15 |
| SNAP-ODC5A-iFM | SNAP 4-channel isolated 5–200 VDC output, 5 VDC logic | 11, 15 |
| SNAP-RETN4 | SNAP 4-module retention rail (OEM) | ----- |
| SNAP-RETN4B | SNAP 4-module retention rail, 25-pack (OEM) | ----- |
| SNAP-RETN6 | SNAP 6-module retention rail (OEM) | ----- |
| SNAP-RETN6B | SNAP 6-module retention rail, 25-pack (OEM) | ----- |
| SNAP-FUSE4AB | SNAP 4-amp fuse, 25-pack | ----- |
| SNAP-MODFUSEH | SNAP digital output module fuse holder, 10-pack | ----- |

For Ethernet-based applications requiring higher density of digital I/O points, see Opto 22 form #1556, the *SNAP High-Density Digital Module Data Sheet*.

I/O Processor Compatibility

SNAP digital output modules are compatible with all SNAP PAC brains and rack-mounted controllers, including both standard wired models and Wired+Wireless™ models.

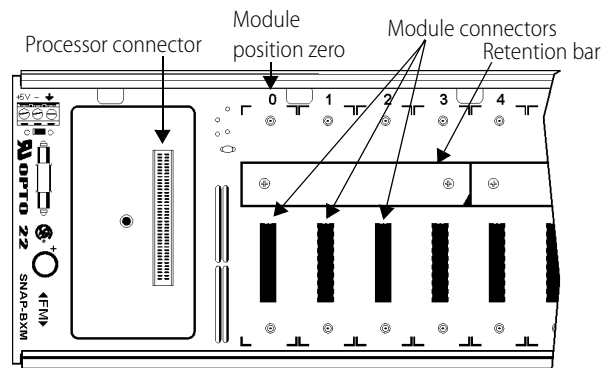
Notes for legacy hardware: SNAP digital output modules are also compatible with SNAP Ultimate, SNAP Ethernet, and SNAP Simple brains, as well as other SNAP brains such as the serial B3000 and the B3000HA. These modules can also be used on B-series and M-series mounting racks.

INSTALLATION

The following diagram shows part of a SNAP mounting rack. The rack is shown without screw connectors.

Modules snap securely into place in the row of connectors on the rack. Each module connector has a number. Digital output modules and other types of SNAP I/O modules are mounted on the module connectors starting at module position zero.

NOTE: Check the data sheet or user's guide for the brain or on-the-rack controller you are using to determine module features available and any restrictions on module placement.



1. Place the rack so that the module connector numbers are right-side up, with zero on the left, as shown in the diagram above. (If your rack has screw connectors, the screw connectors will be at the bottom.)
2. Position the module over the module connector, aligning the small slot at the base of the module with the retention bar on the rack. When positioning modules next to each other, be sure to align the male and female module keys at the tops of the modules before snapping a module into position.
3. With the module correctly aligned, push on the module to snap it into place.
4. Use standard 4-40 x 1/2 truss-head Phillips hold-down screws to secure both sides of each module.
CAUTION: Do not over-tighten screws. See Specifications.
5. Follow the wiring diagrams beginning on [page 5](#) to attach modules to the devices they monitor.

Modules require a special tool (provided) for removal.

SPECIFICATIONS—AC MODULES

| | SNAP-OAC5 | SNAP-OAC5MA | SNAP-OAC5-I |
|---|--|--|--|
| Key Feature | -- | Diagnostic switches Four isolated channels | Four isolated channels |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | | |
| Line Voltage - Range | 12–250 VAC | 12–250 VAC | 12–250 VAC |
| Line Voltage - Nominal | 120/240 VAC | 120/240 VAC | 120/240 VAC |
| Current Rating 0 °C to 70 °C Ambient | 3 amps per module | 3 amps per module | 3 amps per module |
| One Cycle Surge | 80 amps peak (50/60 Hz) | 80 amps peak (50/60 Hz) | 80 amps peak (50/60 Hz) |
| Minimum Load Current | 20 mA | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max.@ 0.75 amps | 1.6 volts max.@ 0.75 amps | 1.6 volts max.@ 0.75 amps |
| Off-state Leakage at Nominal Voltage - 60 Hz | 2.5 mA @ 240 VAC 1.25 mA @ 120 VAC | 2.5 mA @ 240 VAC 1.25 mA @ 120 VAC | 2.5 mA @ 240 VAC 1.25 mA @ 120 VAC |
| Peak Blocking Voltage | 500 V | 500 V | 500 V |
| Operating Frequency | 25–65 Hz | 25–65 Hz | 25–65 Hz |
| dV/ dt - Off-state | 200 volts/msec | 200 volts/msec | 200 volts/msec |
| dV/ dt - Commutating | Snubbed for rated 0.5 power factor load | Snubbed for rated 0.5 power factor load | Snubbed for rated 0.5 power factor load |
| Fuse (Common to all Channels) | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part: BEL 5HF4 Opto 22 Part: SNAP-FUSE4AB | Has four isolated channels. User must provide own fusing. | Has four isolated channels. User must provide own fusing. |
| Channel-to-channel isolation | Not applicable | 300 VAC (1500 V transient) | 300 VAC (1500 V transient) |
| Logic Side Ratings | | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum | 50 mA maximum |
| Module Ratings | | | |
| Number of Channels Per Module | 4 | 4 | 4 |
| Turn-on Time | 0.5 cycle maximum (zero volts crossover) | 0.5 cycle maximum (zero volts crossover) | 0.5 cycle maximum (zero volts crossover) |
| Turn-off Time | 0.5 cycle maximum (zero current crossover) | 0.5 cycle maximum (zero current crossover) | 0.5 cycle maximum (zero current crossover) |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 ° to 70 °C, operating -40 ° to 85 °C, storage | -20 ° to 70 °C, operating -40 ° to 85 °C, storage | -20 ° to 70 °C, operating -40 ° to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | UL, CE, CSA, RoHS, DFARS | UL, CE, RoHS, DFARS | UL, CE, RoHS, DFARS |
| Warranty | Lifetime | 30 months | Lifetime |

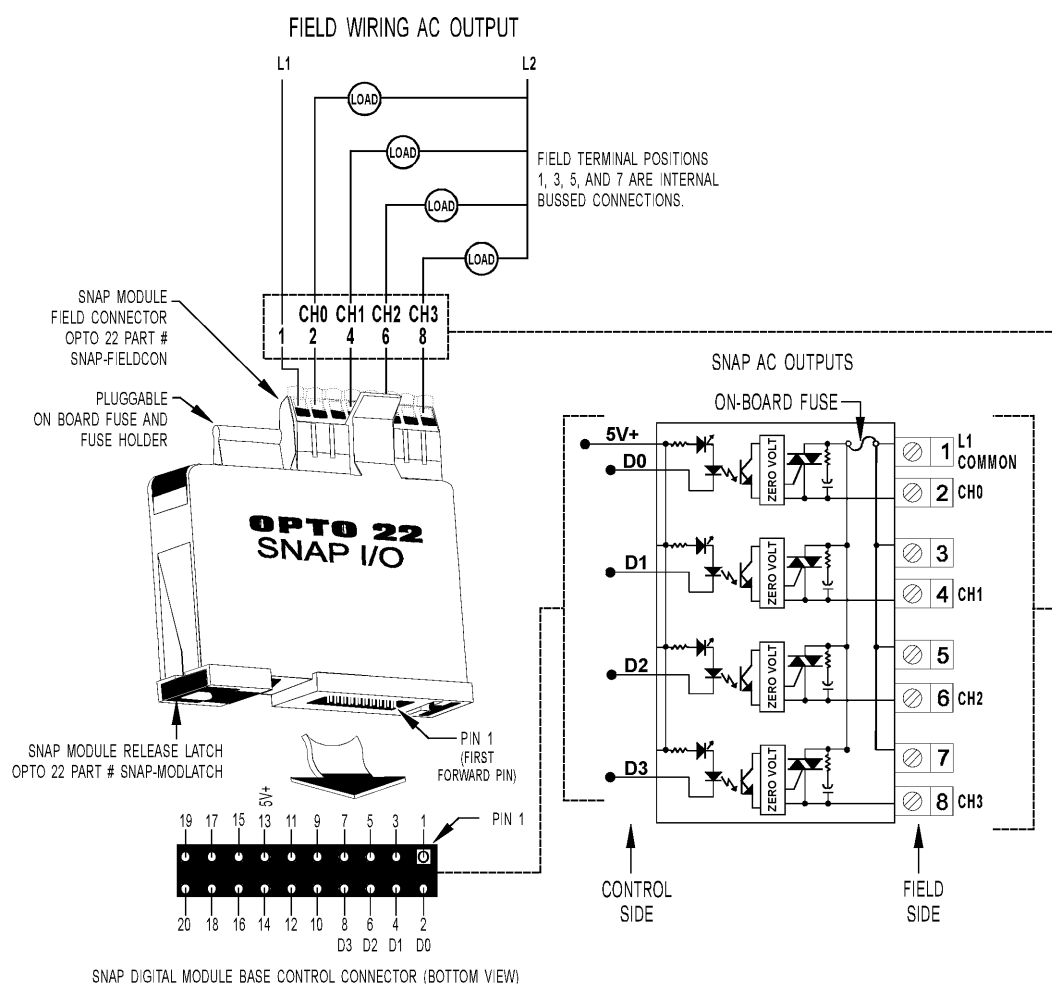
SPECIFICATIONS—AC MODULES (CONTINUED)

| | SNAP-OAC5-FM | SNAP-OAC5-I-FM |
|--|--|--|
| Key Feature | Factory Mutual approved | Four isolated channels Factory Mutual approved |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | |
| Line Voltage - Range | 12–250 VAC | 12–250 VAC |
| Line Voltage - Nominal | 120/240 VAC | 120/240 VAC |
| Current Rating 0 °C to 70 °C Ambient | 3 amps per module | 3 amps per module |
| One Cycle Surge | 80 amps peak (50/60 Hz) | 80 amps peak (50/60 Hz) |
| Minimum Load Current | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max.@ 0.75 amps | 1.6 volts max.@ 0.75 amps |
| Off-state Leakage at Nominal Voltage - 60 Hz | 2.5 mA @ 240 VAC 1.25 mA @ 120 VAC | 2.5 mA @ 240 VAC 1.25 mA @ 120 VAC |
| Peak Blocking Voltage | 500 V | 500 V |
| Operating Frequency | 25–65 Hz | 25–65 Hz |
| dV/ dt - Off-state | 200 volts/msec | 200 volts/msec |
| dV/ dt - Commutating | Snubbed for rated 0.5 power factor load | Snubbed for rated 0.5 power factor load |
| Fuse (Common to all Channels) | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part No. BEL 5HF4 Opto 22 Part No. SNAP-FUSE4AB | Has four isolated channels. User must provide own fusing. |
| Channel-to-channel isolation | Not applicable | 300 VAC (1500 V transient) |
| Logic Side Ratings | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum |
| Module Ratings | | |
| Channels Per Module | 4 | 4 |
| Turn-on Time | 0.5 cycle maximum (zero volts crossover) | 0.5 cycle maximum (zero volts crossover) |
| Turn-off Time | 0.5 cycle maximum (zero current crossover) | 0.5 cycle maximum (zero current crossover) |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 ° to 70 °C, operating -40 ° to 85 °C, storage | -20 ° to 70 °C, operating -40 ° to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | CE, FM, RoHS, DFARS | CE, FM, RoHS, DFARS |
| Warranty | Lifetime | Lifetime |

SCHEMATICS

SNAP-OAC5 Output Module

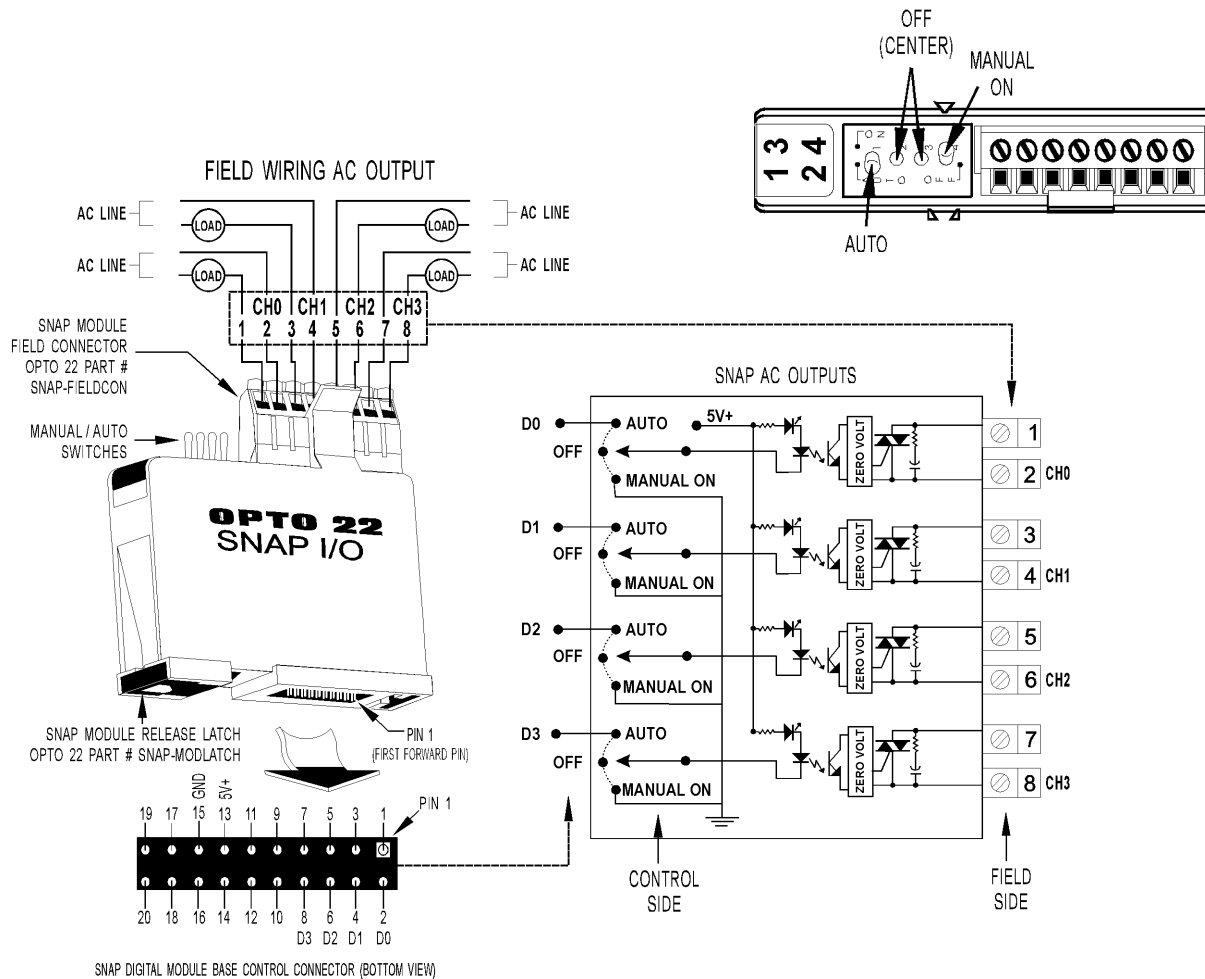
| Part Number | Description |
|-------------|---|
| SNAP-OAC5 | 4-channel AC output 12–250 VAC 5 VDC logic |
| SNAP-OAC5FM | 4-channel AC output 12–250 VAC 5 VDC logic, Factory Mutual approved |



SCHEMATICS

SNAP-OAC5MA Output Module With Manual/Auto Switches

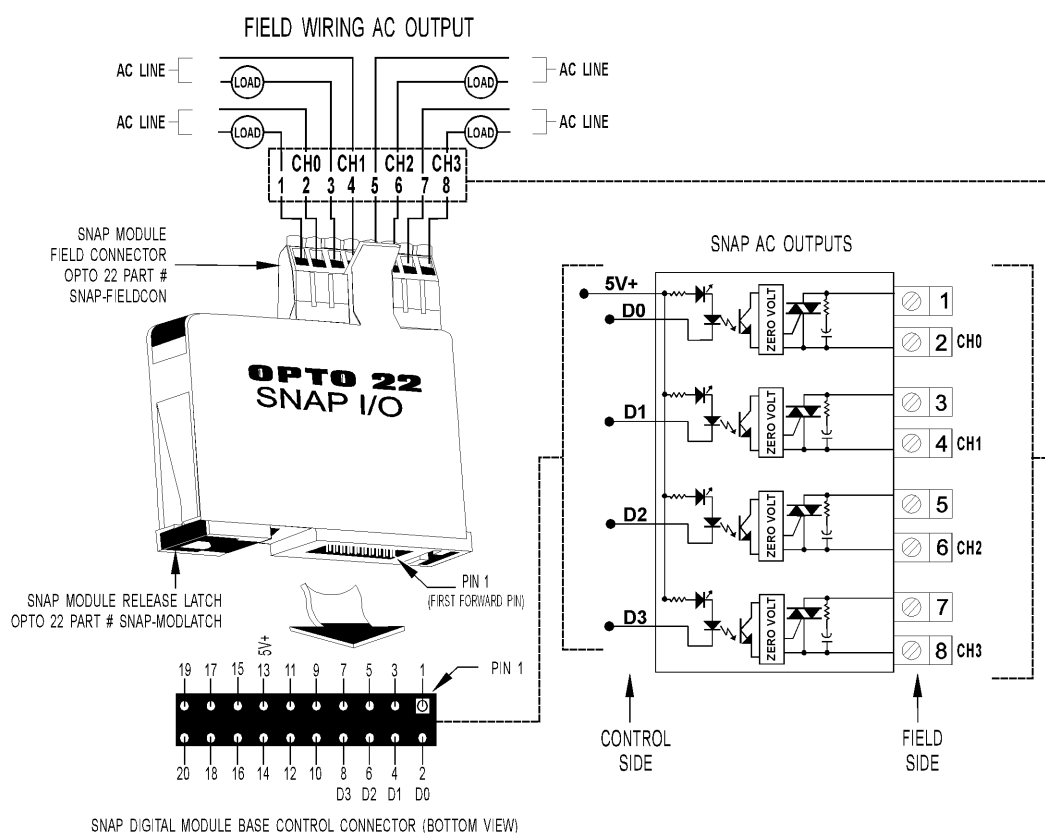
| Part Number | Description |
|-------------|---|
| SNAP-OAC5MA | 4-channel isolated AC output 12–250 VAC, 5 VDC logic, with manual/auto switch |



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SNAP-OAC5i Isolated Output Module

| Part Number | Description |
|---------------|---|
| SNAP-OAC5-i | 4-channel isolated AC output 12–250 VAC, 5 VDC logic |
| SNAP-OAC5-IFM | 4-channel isolated AC output 12–250 VAC, 5 VDC logic, Factory Mutual approved |



SPECIFICATIONS—DC MODULES

| | SNAP-ODC5SRC | SNAP-ODC5SNK |
|--|---|---|
| Key Feature | Load sourcing | Load sinking |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | |
| Line Voltage - Range | 5–60 VDC | 5–60 VDC |
| Line Voltage - Nominal | 5–48 VDC | 5–48 VDC |
| Current Rating 0 °C to 70 °C Ambient | 3 amps per module | 3 amps per module |
| Surge Current | 5 amps peak for 1 second | 5 amps peak for 1 second |
| Minimum Load | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max. @ 0.75 amps | 1.6 volts max. @ 0.75 amps |
| Off-state Leakage | 1 mA @ 60 VDC | 1 mA @ 60 VDC |
| Peak Blocking Voltage | 60 VDC | 60 VDC |
| Fuse (Common to all Channels) | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part No. BEL 5HF4 Opto 22 Part SNAP-FUSE4AB | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part No. BEL 5HF4 Opto 22 Part SNAP-FUSE4AB |
| Channel-to-channel isolation | Not applicable | Not applicable |
| Logic Side Ratings | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum |
| Module Ratings | | |
| Number of Channels Per Module | 4 | 4 |
| Turn-on Time | 100 usec | 100 usec |
| Turn-off Time | 750 usec | 750 usec |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 to 70 °C, operating -40 to 85 °C, storage | -20 to 70 °C, operating -40 to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | UL, CE, CSA, RoHS, DFARS | UL, CE, CSA, RoHS, DFARS |
| Warranty | Lifetime | Lifetime |

SPECIFICATIONS—DC MODULES (CONTINUED)

| | SNAP-ODC5MA | SNAP-ODC5-I | SNAP-ODC5A-I | SNAP-ODC5ASNK |
|--|---|---|---|---|
| Key Feature | Diagnostic switches Four isolated channels | Four isolated channels | Four isolated channels | Load sinking |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | | | |
| Line Voltage - Range | 5–60 VDC | 5–60 VDC | 5–200 VDC | 5–200 VDC |
| Line Voltage - Nominal | 5–48 VDC | 5–48 VDC | 5–200 VDC | 5–200 VDC |
| Current Rating 0 °C to 70 °C Ambient | 2 amps per module 0.5 amps per channel | 3 amps per module | 3 amps per module | 3 amps per module |
| Surge Current | 1.5 amps peak for 1 second | 5 amps peak for 1 second | 5 amps peak for 1 second | 5 amps peak for 1 second |
| Minimum Load | 20 mA | 20 mA | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max. @ 0.75 amps | 1.6 volts max. @ 0.75 amps | 1.6 volts max. @ 0.75 amps | 1.6 volts max. @ 0.75 amps |
| Off-state Leakage | 1 mA @ 60 VDC | 1 mA @ 60 VDC | 1 mA @ 200 VDC | 1 mA @ 200 VDC |
| Peak Blocking Voltage | 60 VDC | 60 VDC | 200 VDC | 200 VDC |
| Fuse (Common to all Channels) | Has four isolated channels. User must provide own fusing. | Has four isolated channels. User must provide own fusing. | Has four isolated channels. User must provide own fusing. | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part: BEL 5HF4 Opto 22 Part: SNAP- FUSE4AB |
| Channel-to-channel isolation | 300 VAC (1500 V transient) | 300 VAC (1500 V transient) | 300 VAC (1500 V transient) | Not applicable |
| Logic Side Ratings | | | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum | 50 mA maximum | 50 mA maximum |
| Module Ratings | | | | |
| Number of Channels Per Module | 4 | 4 | 4 | 4 |
| Turn-on Time | 100 usec | 100 usec | 100 usec | 100 usec |
| Turn-off Time | 750 usec | 750 usec | 750 usec | 750 usec |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 to 70 °C, operating -40 to 85 °C, storage | -20 to 70 °C, operating -40 to 85 °C, storage | -20 to 70 °C, operating -40 to 85 °C, storage | -20 to 70 °C, operating -40 to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | UL, CE, RoHS, DFARS | UL, CE, RoHS, DFARS | UL, CE, RoHS, DFARS | UL, CE, RoHS, DFARS |
| Warranty | 30 months | Lifetime | Lifetime | Lifetime |

SPECIFICATIONS—DC MODULES (CONTINUED)

| | SNAP-ODC5SRCFM | SNAP-ODC5SNKFM |
|--|--|--|
| Key Feature | Factory Mutual approved | Factory Mutual approved |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | |
| Line Voltage - Range | 5–60 VDC | 5–60 VDC |
| Line Voltage - Nominal | 5–48 VDC | 5–48 VDC |
| Current Rating 0°C to 70°C Ambient | 3 amps per module | 3 amps per module |
| Surge Current | 5 amps peak for 1 second | 5 amps peak for 1 second |
| Minimum Load | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max.@ 0.75 amps | 1.6 volts max.@ 0.75 amps |
| Off-state Leakage | 1 mA @ 60 VDC | 1 mA @ 60 VDC |
| Peak Blocking Voltage | 60 VDC | 60 VDC |
| Fuse (Common to all Channels) | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part No. BEL 5HF4 Opto 22 Part SNAP-FUSE4AB | 250 VAC - 4A 5x20 mm Fast-acting Bell Fuse Part No. BEL 5HF4 Opto 22 Part SNAP-FUSE4AB |
| Logic Side Ratings | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum |
| Module Ratings | | |
| Number of Channels Per Module | 4 | 4 |
| Turn-on Time | 100 usec | 100 usec |
| Turn-off Time | 750 usec | 750 usec |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 to 70 °C, operating -40 to 85 °C, storage | -20 to 70 °C, operating -40 to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | CE, FM, RoHS, DFARS | CE, FM, RoHS, DFARS |
| Warranty | Lifetime | Lifetime |

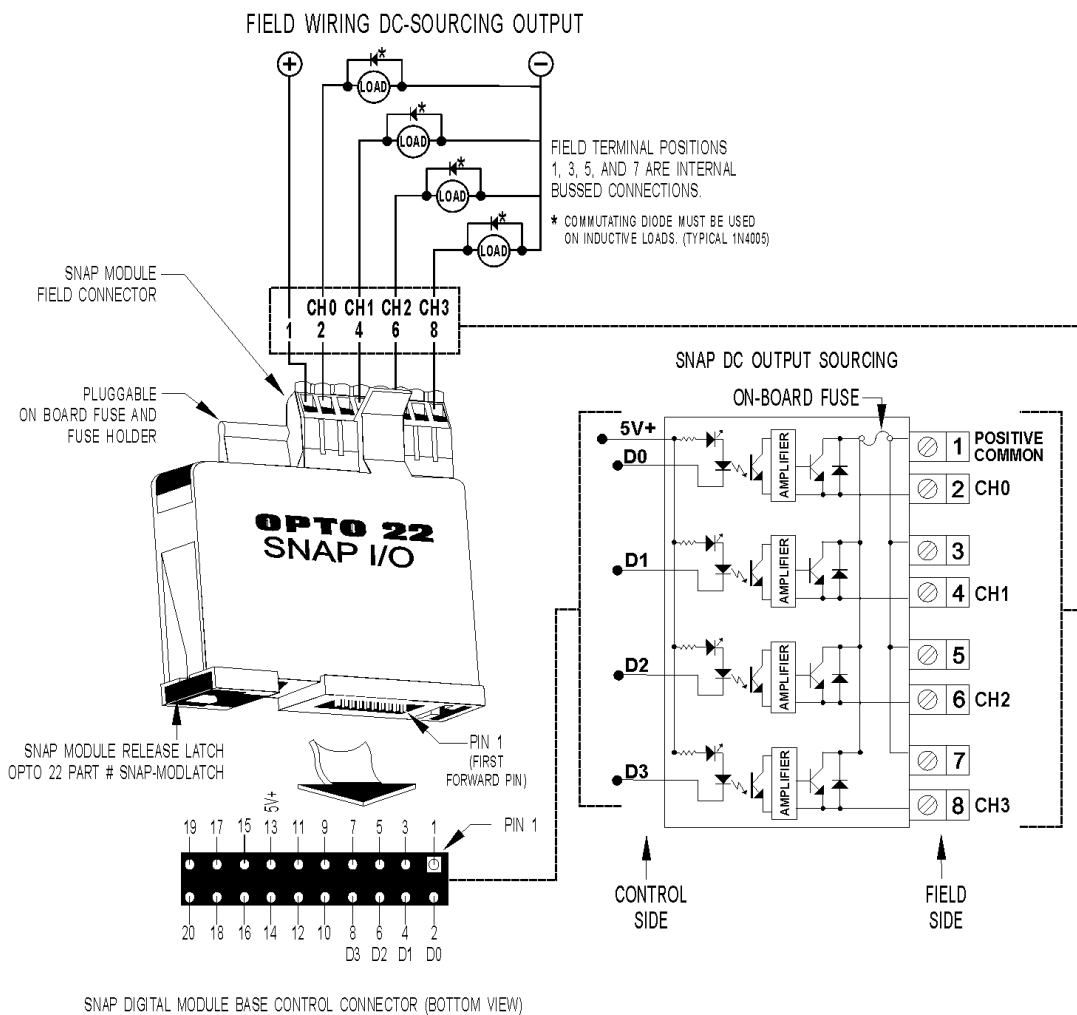
SPECIFICATIONS—DC MODULES (CONTINUED)

| | SNAP-ODC5-IFM | SNAP-ODC5A-IFM |
|--|--|--|
| Key Feature | Four isolated channels Factory Mutual approved | Four isolated channels Factory Mutual approved |
| Torque, hold-down screws | 4 in-lb (0.45 N-m) | 4 in-lb (0.45 N-m) |
| Torque, connector screws | 5.26 in-lb (0.6 N-m) | 5.26 in-lb (0.6 N-m) |
| Field Side Ratings (each channel) | | |
| Line Voltage - Range | 5–60 VDC | 5–200 VDC |
| Line Voltage - Nominal | 5–48 VDC | 5–200 VDC |
| Current Rating 0°C to 70°C Ambient | 3 amps per module | 3 amps per module |
| Surge Current | 5 amps peak for 1 second | 5 amps peak for 1 second |
| Minimum Load | 20 mA | 20 mA |
| Output Voltage Drop | 1.6 volts max.@ 0.75 amps | 1.6 volts max.@ 0.75 amps |
| Off-state Leakage | 1 mA @ 60 VDC | 1 mA @ 60 VDC |
| Peak Blocking Voltage | 60 VDC | 200 VDC |
| Fuse (Common to all Channels) | Has four isolated channels. User must provide own fusing. | Has four isolated channels. User must provide own fusing. |
| Logic Side Ratings | | |
| Pickup Voltage | 4 V @ 5.5 mA | 4 V @ 5.5 mA |
| Dropout Voltage | 1 VDC | 1 VDC |
| Control Resistance | 220 ohms | 220 ohms |
| Logic Supply Voltage | 5 VDC ± 0.25 VDC | 5 VDC ± 0.25 VDC |
| Logic Supply Current | 50 mA maximum | 50 mA maximum |
| Module Ratings | | |
| Number of Channels Per Module | 4 | 4 |
| Turn-on Time | 100 usec | 100 usec |
| Turn-off Time | 750 usec | 750 usec |
| Isolation (Field Side to Logic Side) | 4,000 volts (transient) | 4,000 volts (transient) |
| Temperature | -20 ° to 70 °C, operating -40 ° to 85 °C, storage | -20 ° to 70 °C, operating -40 ° to 85 °C, storage |
| Wire size range | 22 to 14 AWG | 22 to 14 AWG |
| Agency Approvals | CE, FM, ATEX, RoHS, DFARS | CE, FM, RoHS, DFARS |
| Warranty | Lifetime | Lifetime |

SCHEMATICS

SNAP-ODC5SRC Output Module— Sourcing

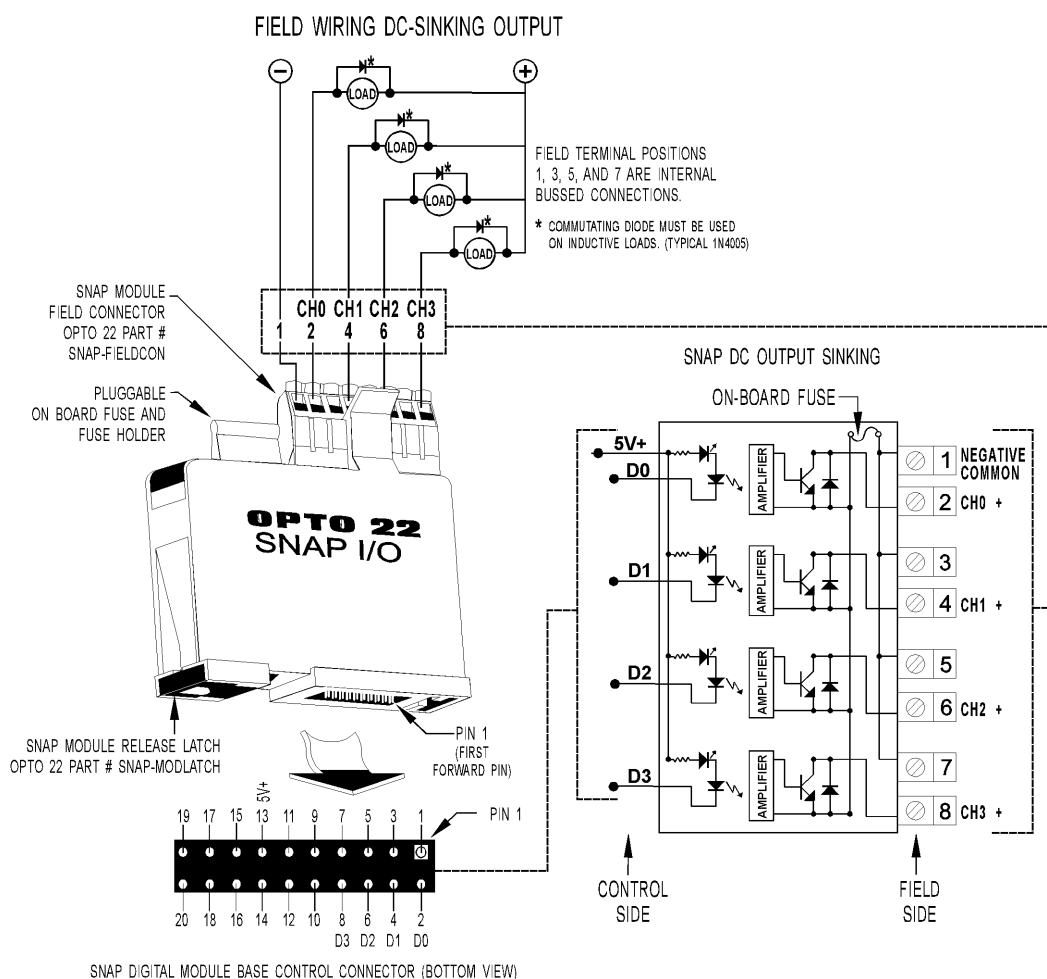
| Part Number | Description |
|----------------|---|
| SNAP-ODC5SRC | 4-channel DC output 5–60 VDC logic source |
| SNAP-ODC5SRCFM | 4-channel DC output 5–60 VDC logic source, Factory Mutual approved |



SCHEMATICS

SNAP-ODC5SNK and SNAP-ODC5ASNK Output Modules—Sinking

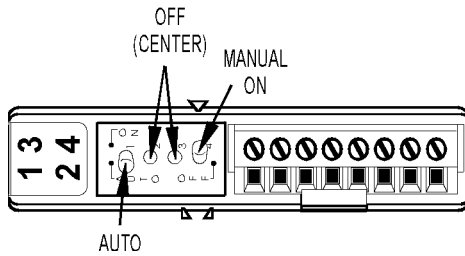
| Part Number | Description |
|----------------|---|
| SNAP-ODC5SNK | 4-channel DC output 5–60 VDC logic sink |
| SNAP-ODC5SNKFM | 4-channel DC output 5–60 VDC logic sink, Factory Mutual approved |
| SNAP-ODC5ASNK | 4-channel DC output 5–200 VDC logic sink |



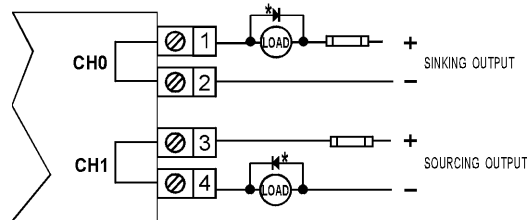
SCHEMATICS

SNAP-ODC5MA Output Module with Manual/Auto Switches

| Part Number | Description |
|-------------|---|
| SNAP-ODC5MA | 4-channel isolated DC output 5–60 VDC, 5 VDC logic, with manual/auto switches |

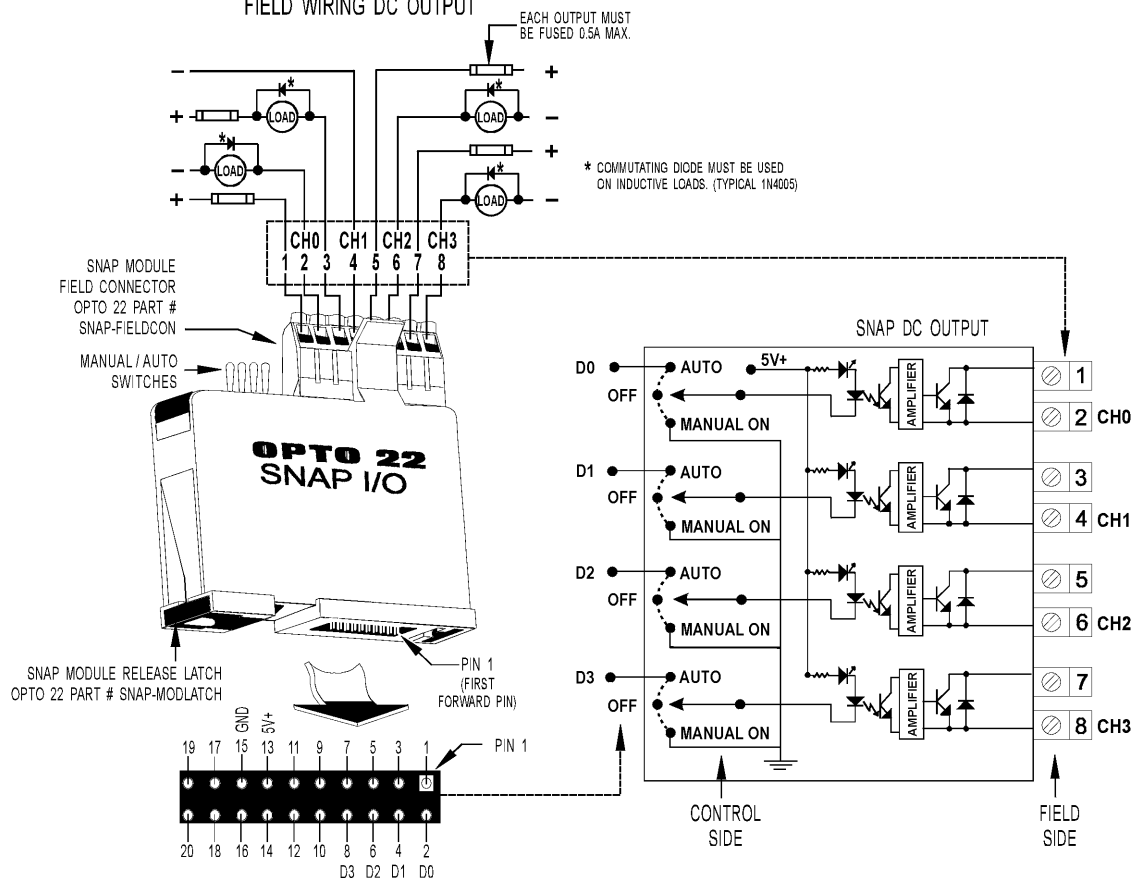


TYPICAL WIRING EXAMPLES



* COMMUTATING DIODE MUST BE USED ON INDUCTIVE LOADS. (TYPICAL 1N4005)

FIELD WIRING DC OUTPUT



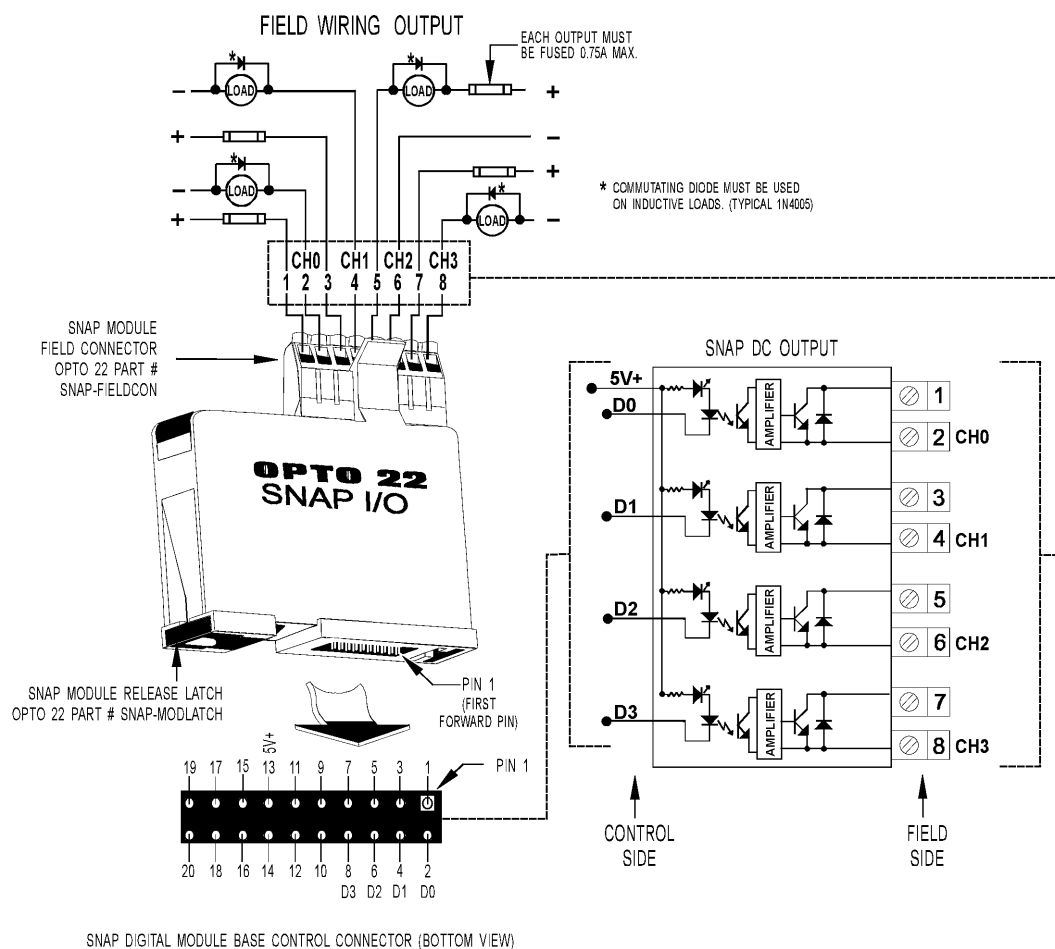
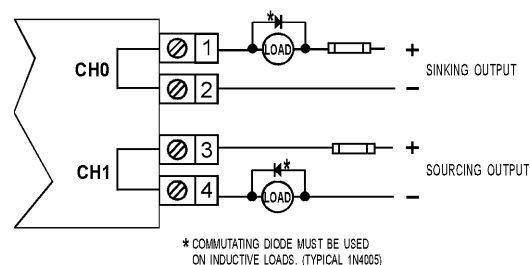
SNAP DIGITAL MODULE BASE CONTROL CONNECTOR (BOTTOM VIEW)

SCHEMATICS

SNAP-ODC5-i and SNAP-ODC5A-i Isolated Output Module

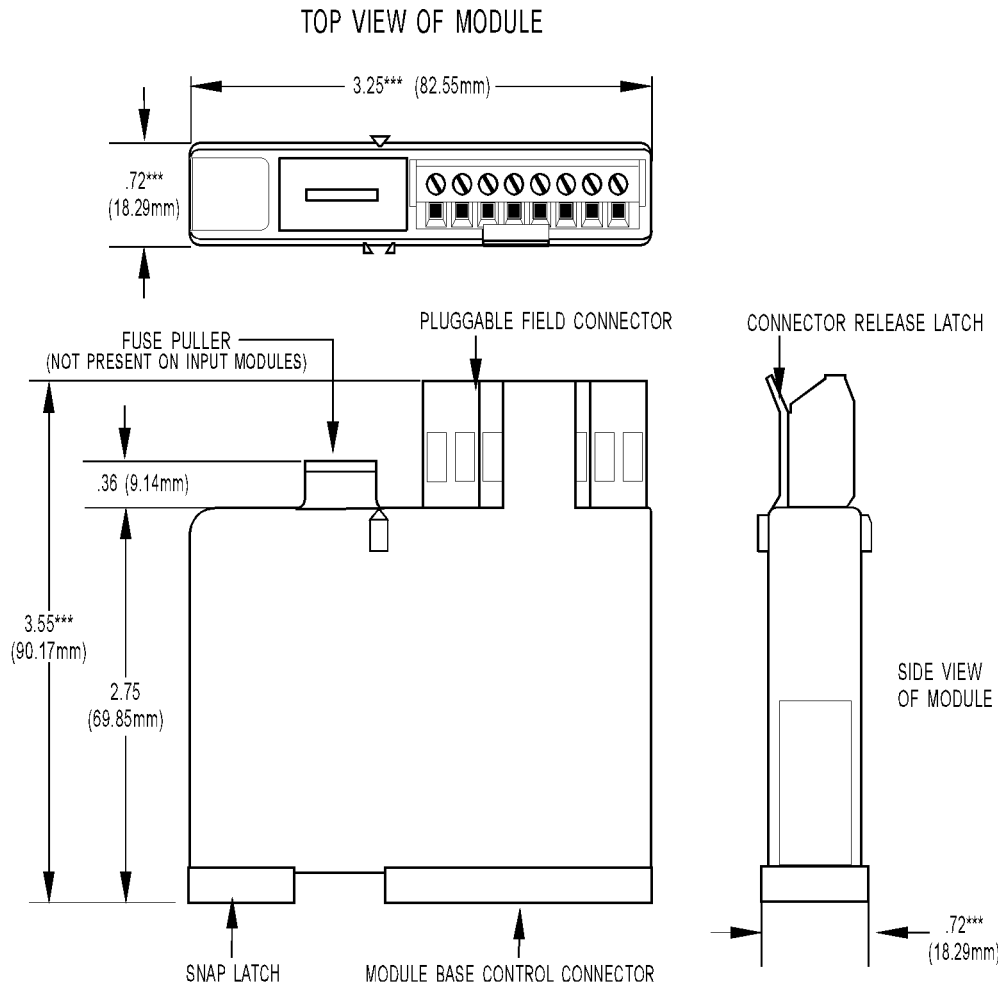
| Part Number | Description |
|----------------|--|
| SNAP-ODC5-i | 4-channel isolated DC output 5–60 VDC, 5 VDC logic |
| SNAP-ODC5A-i | 4-channel isolated DC output 5–200 VDC, 5 VDC logic |
| SNAP-ODC5-iFM | 4-channel isolated DC output 5–60 VDC, 5 VDC logic, Factory Mutual approved |
| SNAP-ODC5A-iFM | 4-channel isolated DC output 5–200 VDC, 5 VDC logic, Factory Mutual approved |

TYPICAL WIRING EXAMPLES



DIMENSIONAL DRAWING

All Models Except MA

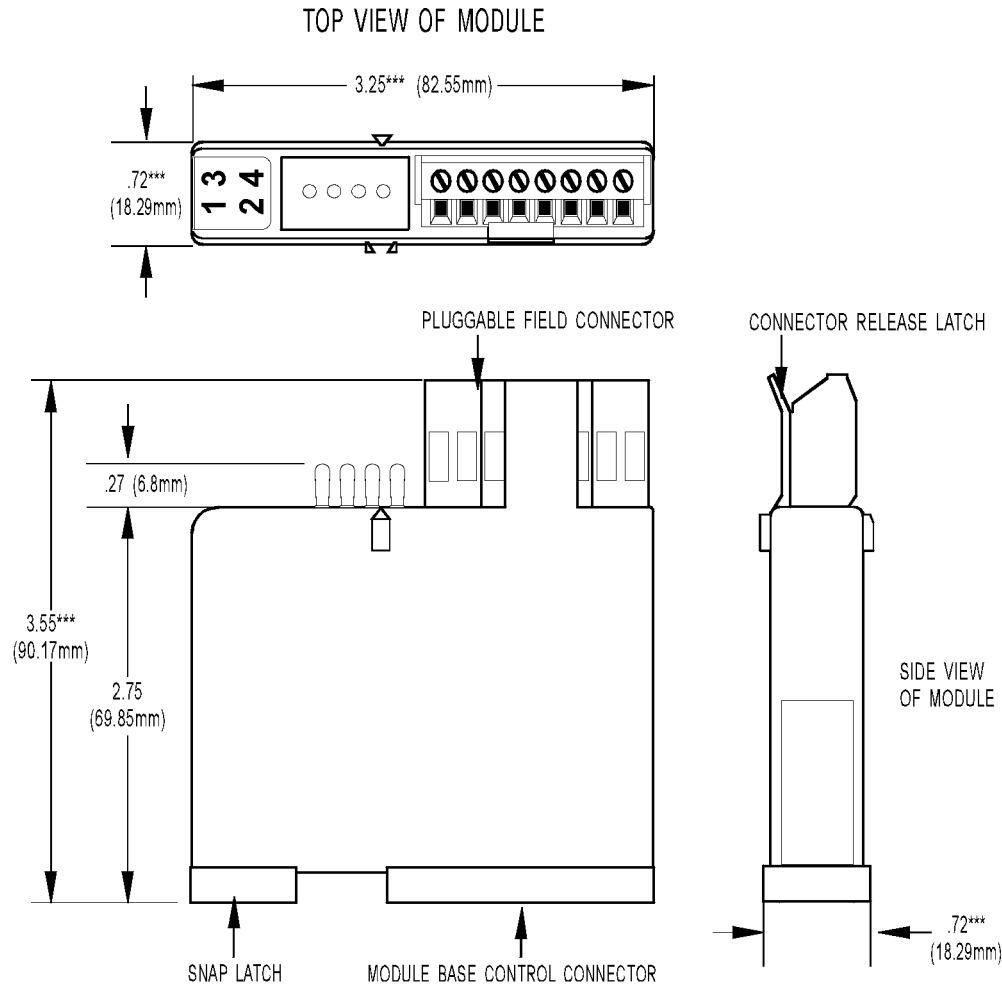


TOLERANCES LEGEND

* +/- .010" ** +/- .020"
*** +/- .030" **** +/- .060"
NO * REFERENCE ONLY

DIMENSIONAL DRAWING

All MA Models

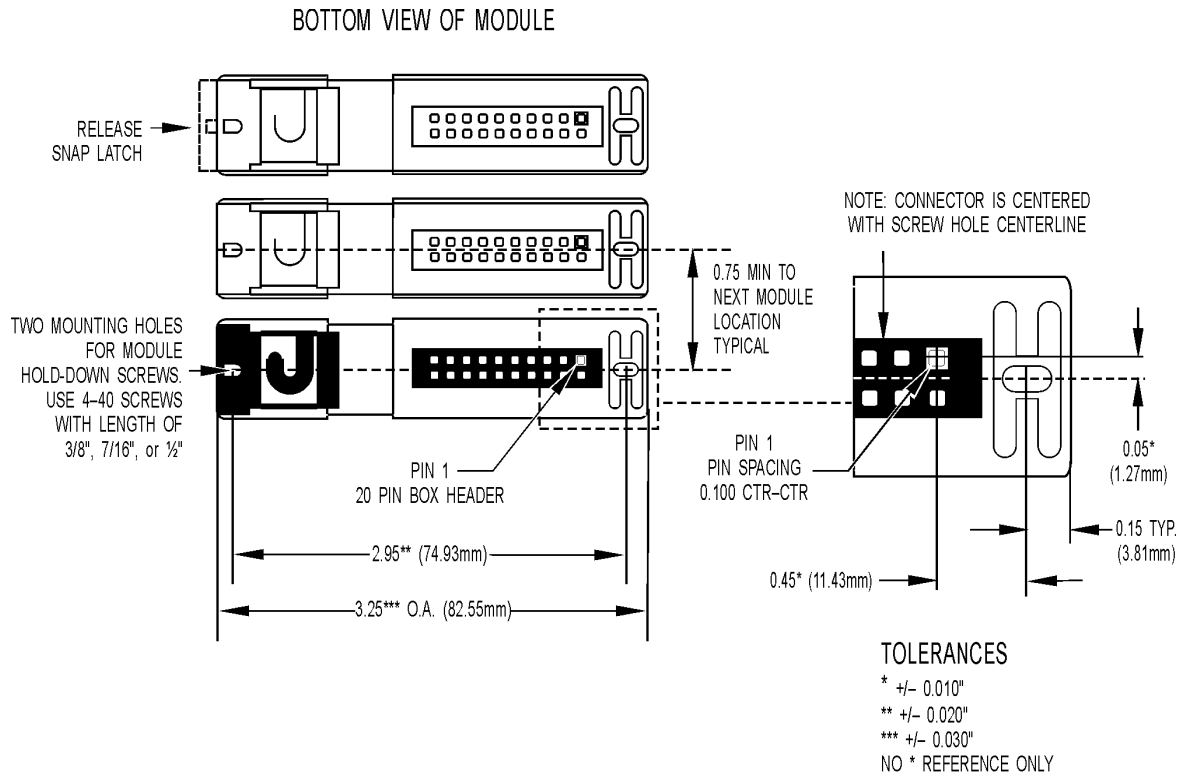


TOLERANCES LEGEND

* +/- .010" ** +/- .020"
*** +/- .030" **** +/- .060"
NO * REFERENCE ONLY

DIMENSIONAL DRAWING

All Models

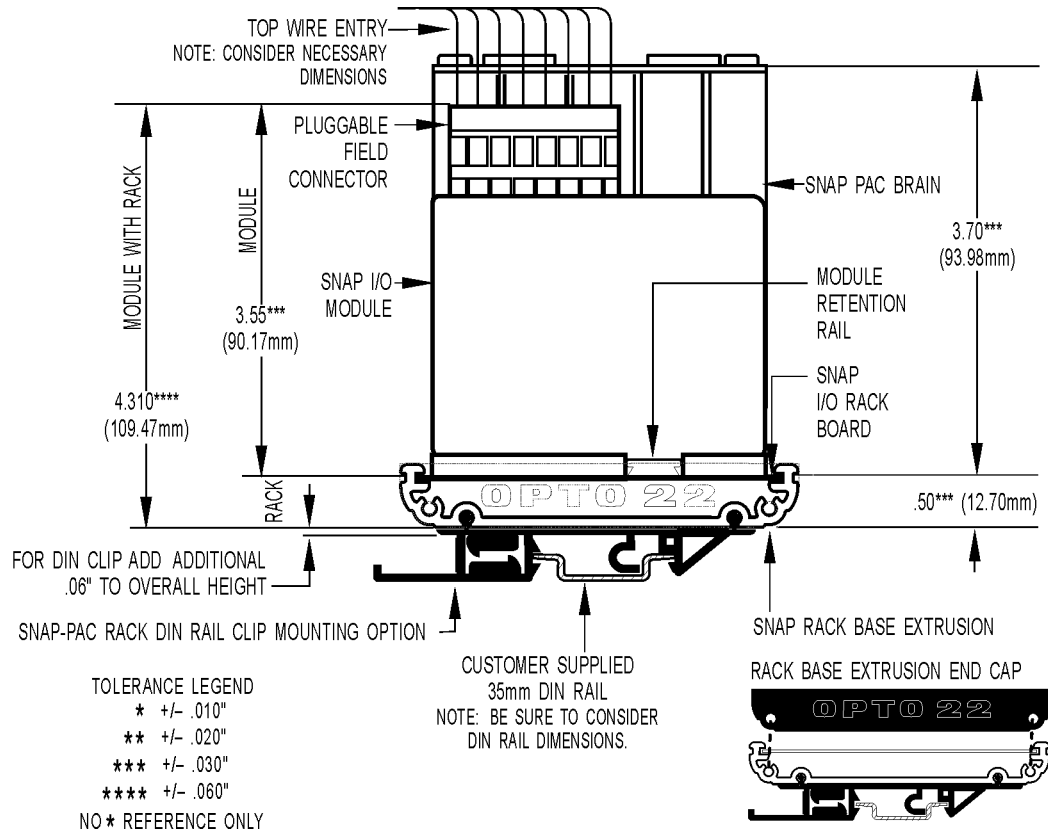


IMPORTANT: The mounting rack connector has 24 pins; the module connector has 20 pins. The extra pins on the mounting rack connector prevent misalignment of the module during installation.

DIMENSIONAL DRAWING

All Models

SNAP Digital Module Mounted on SNAP Rack



PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products used worldwide.

Industrial automation, process control, building automation, industrial refrigeration, remote monitoring, data acquisition, and Industrial Internet of Things (IIoT) applications all rely on Opto 22.



groov

Monitor and control your equipment from anywhere using your smartphone or tablet with groov. Build your own mobile app easily—just drag, drop, and tag. No programming or coding. Visit groov.com for more information and your free trial.

SNAP PAC System

Developer- and IIoT-ready, the SNAP PAC System connects physical assets to databases and applications using open standards. The SNAP PAC System consists of four integrated components:

- SNAP PAC controllers
- PAC Project™ Software Suite
- SNAP PAC brains
- SNAP I/O™

SNAP PAC Controllers

SNAP PAC programmable automation controllers handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

For IIoT applications and easier integration with company systems, standalone and rack-mounted SNAP PACs include a built-in HTTP/HTTPS server and **RESTful API** (application program interface). The REST API gives you secure, direct access to I/O and variable data using your choice of programming languages. No middleware, protocol converters, drivers, or gateways needed.

Based on open Ethernet and Internet Protocol (IP) standards, SNAP PACs make it easier to build or extend a system without the expense and limitations of proprietary networks and protocols.

PAC Project Software Suite

Opto 22's PAC Project Software Suite offers full-featured, cost-effective control programming, HMI (human machine interface), OPC server, and database connectivity software.

Control programming includes both easy-to-learn flowcharts and optional scripting. Commands are in plain English; variables and I/O point names are fully descriptive.

PAC Project Basic offers control and HMI tools and is free for download on our website, www.opto22.com. PAC Project Professional, available for separate purchase, adds one SoftPAC software-based controller, OptoOPCServer, OptoDataLink, options for controller redundancy or segmented networking, and support for legacy Opto 22 serial *mistic™* I/O units.

SNAP PAC Brains

While SNAP PAC controllers provide central control and data distribution, SNAP PAC brains provide distributed intelligence for I/O processing and communications. Brains offer analog, digital, and serial functions, including thermocouple linearization, local PID loop control, watchdog, totalizing, and much more.

SNAP I/O

I/O provides the local connection to sensors and equipment. Opto 22 SNAP I/O offers 1 to 32 points of reliable I/O per module. Analog, digital, and serial modules are mixed on one mounting rack and controlled by a SNAP PAC brain or rack-mounted PAC.

QUALITY

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California.



Because we test each product twice before it leaves our factory, rather than only testing a sample of each batch, we can guarantee most solid-state relays and optically isolated I/O modules for life.

FREE PRODUCT SUPPORT

Opto 22's California-based Product Support Group offers free, comprehensive technical support for Opto 22 products from engineers with decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Support is always available on our website: how-to videos, user's guides, OptoKnowledgeBase, self-training guide, troubleshooting, and OptoForums. In addition, hands-on training is available for free at our Temecula, California headquarters, and you can [register online](http://www.opto22.com).

PURCHASING OPTO 22 PRODUCTS

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-6786 (toll-free in the U.S. and Canada) or 951-695-3000, or visit our website at www.opto22.com.