SNAP MECHANICAL RELAY OUTPUT

Features

- Four isolated channels
- Each channel switches up to 6 A at 250 VAC or 30 VDC
- Channel-specific LEDs
- Operating temperature: -20 to 70 °C
- UL approved



SNAP-OMR6T-C

DESCRIPTION

SNAP mechanical power relay output modules offer four channels for switching loads of up to 6 amps at 250 VAC or 30 VDC.

These modules handle more current than other SNAP output modules. Each contact can carry 6 amps, and having more than one channel on at the same time does not reduce the amount of power each channel can carry.

These are form C modules, so each of the four mechanical contacts can be wired as normally open or normally closed. Fusing is not provided; you must provide fusing when wiring the module.

SNAP mechanical power relay output modules provide channel-to-channel isolation. These modules can mechanically switch either AC or DC loads, potentially reducing the number of modules needed.

Additionally, SNAP mechanical power relay output modules offer little or no leakage current when the contacts are open. In contrast, possible leakage current in solid-state SNAP AC output modules might cause an electronic input to stick in the ON state. These modules are suitable for piloting electronic coil contactors.

NOTE: These modules may not be suitable for low-level switching.

NOTE: Transient protection is recommended for inductive loads. For DC loads, install a reverse-biased diode, such as an 1N4005 (or equivalent) at the load.

Two mechanical power relay output modules are available: the **SNAP-OMR6T-C** and the **SNAP-OMR6-C**. They are identical except that the SNAP-OMR6-C does not include integrated transient suppression.

The **SNAP-OMR6T-C** is recommended for most applications, including applications with long wire runs.

NOTE: For very high inductive loads, additional transient protection is recommended.

When using the **SNAP-OMR6-C**, you must provide transient suppression at the load. If long wire runs are used, transient suppression is required at the terminals of the module as well.

NOTE: SNAP-OMR6-C modules manufactured prior to March 2014 have four black field wiring connectors; newer modules have a single large gray connector as shown above. Field connector wiring and module function are identical. Note torque differences in "Specifications" on page 3.

Compatibility

Part of the SNAP PAC System, these modules mount on a SNAP PAC rack with a SNAP PAC brain or rack-mounted controller. Analog, digital, and serial I/O modules can all be on the same rack. This kind of I/O unit is also well suited for PC-based control or for use as intelligent remote I/O for an Allen-Bradley PLC system.

PAC Project—The SNAP-OMR6T-C is supported in PAC Project R9.4009 and higher. The SNAP-OMR6-C is supported in PAC Project R9.2 and higher.

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

Legacy hardware—These 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 B3000-B. They can be mounted on both B-series and M-series mounting racks.

Part Numbers

Part	Description
SNAP-OMR6T-C	SNAP 4-channel Mechanical Power Relay Module, SPDT (Form C), with Integrated Transient Suppression
SNAP-OMR6-C	SNAP 4-channel Mechanical Power Relay Module, SPDT (Form C)

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SNAP-OMR6-A

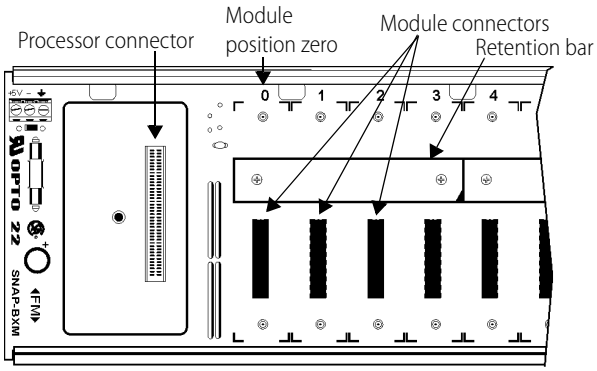
A previous module, the form A SNAP-OMR6-A, is no longer available. Use the SNAP-OMR6T-C as a pin-identical, drop-in replacement for this obsolete module.

Specifications and wiring diagrams for the obsolete SNAP-OMR6-A are included in this data sheet for reference only.

INSTALLATION

The following diagram shows part of a SNAP mounting rack.

Modules snap securely into place in the row of connectors on the rack. Each module connector is numbered, starting with position zero.



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.)

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

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 (provided) to secure both sides of each module.
   CAUTION: Do not overtighten screws. Torque for hold-down screws: 4 in-lb (0.45 N-m)
5. Follow the wiring diagrams on page 5 to attach the module to field devices. Torque for connector screws: 1.7 in-lb (0.2 N-m)

Modules require a special tool (provided) for removal.

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SPECIFICATIONS

	SNAP-OMR6-C	SNAP-OMR6T-C
Field Side Ratings (each channel)		
Contact Configuration	Form C (SPDT, normally open or closed)	Form C (SPDT, normally open or closed)
Line Voltage - Range	0–250 VAC or 5–30 VDC	0–250 VAC or 5–30 VDC
Current Rating	6 amps switching @ 250 VAC / 30 VDC	6 amps switching @ 250 VAC / 30 VDC
Surge Current	6 amps	6 amps
Minimum Load	5 VDC, 10 mA	5 VDC, 10 mA
Contact Resistance	≤ 100 milliohms	≤ 100 milliohms
Leakage Current	none	< 1 microamp @ 250 VAC
Clamping Voltage (for transient suppression)	External transient suppression required	440 V nominal
Duty Cycle	-- Not applicable --	1 Hz
Switching Power	1500 VA / 144 W (DC)	1500 VA / 144 W (DC)
Peak Blocking Voltage	250 VAC @ 360 V_{pk}	250 VAC @ 360 V_{pk}
Channel-to-channel isolation	300 VAC (1500 Vtransient)	300 VAC (1500 Vtransient)
Logic Side Ratings		
Pickup Voltage	1 V @ 2 mA	1 V @ 2 mA
Dropout Voltage	4 VDC	4 VDC
Control Resistance	220 ohms	220 ohms
Logic Supply Voltage	5 VDC ± 0.25 VDC	5 VDC ± 0.25 VDC
Logic Supply Current	160 mA maximum	160 mA maximum
Module Ratings		
Number of Channels Per Module	4	4
Turn-on Time	8 milliseconds	8 milliseconds
Turn-off Time	8 milliseconds	8 milliseconds
Torque, hold-down screws	Not to exceed 1 in-lb (0.11 N-m)	Not to exceed 1 in-lb (0.11 N-m)
Torque, connector screws	Single gray connector: 5.22 in-lb (0.59 N-m) Black connectors: 1.7 in-lb (0.2 N-m)	5.22 in-lb (0.59 N-m)
Temperature	-20 to 70 °C, operating -30 to 85 °C, storage	-20 to 70 °C, operating -30 to 85 °C, storage
Agency Approvals	UL, CE, RoHS, DFARS; UKCA	UL, CE RoHS, DFARS
Mechanical Life	10 x 10^6 operations	10 x 10^6 operations
Operational Life	30 x 10^3 operations	30 x 10^3 operations
Warranty	30 months	30 months

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SPECIFICATIONS (CONTINUED)

IMPORTANT: Specifications for the SNAP-OMR6-A are included for reference only. This module is no longer available.

	SNAP-OMR6-A [Obsolete]
Field Side Ratings (each channel)	
Contact Configuration	Form A (SPST, normally open)
Line Voltage - Range	0–250 VAC or 0–30 VDC
Current Rating	6 amps switching @ 250 VAC / 30 VDC
Surge Current	6 amps
Minimum Load	5 VDC, 10 mA
Contact Resistance	≤ 100 milliohms
Switching Power	1500 VA / 144 W (DC)
Peak Blocking Voltage	250 VAC / 30 VDC
Channel-to-channel isolation	300 VAC (1500 Vtransient)
Logic Side Ratings	
Pickup Voltage	1 V @ 2 mA
Dropout Voltage	4 VDC
Control Resistance	220 ohms
Logic Supply Voltage	5 VDC ± 0.25 VDC
Logic Supply Current	160 mA maximum
Module Ratings	
Number of Channels Per Module	4
Turn-on Time	8 milliseconds
Turn-off Time	8 milliseconds
Torque, hold-down screws	Not to exceed 1 in-lb (0.11 N-m)
Torque, connector screws	Single gray connector: 5.22 in-lb (0.59 N-m) Black connectors: 1.7 in-lb (0.2 N-m)
Temperature	-20 to 70 °C, operating -30 to 85 °C, storage
Agency Approvals	CE, RoHS, DFARS
Mechanical Life	10 x 10^6 operations
Operational Life	30 x 10^3 operations
Warranty	30 months

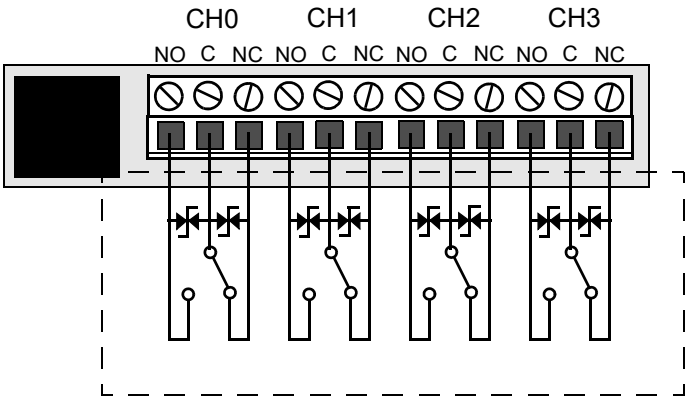
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WIRING DIAGRAMS

See page 6 for SNAP-OMR6-C and page 7 for SNAP-OMR6-A.

SNAP-OMR6T-C Field Connections

Note: User must provide own fusing.



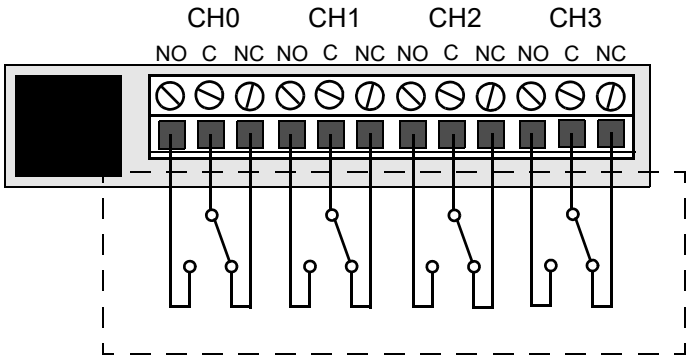
NOTE: External transient protection is recommended for highly inductive loads.

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WIRING DIAGRAMS (CONTINUED)

SNAP-OMR6-C Field Connections - Newer Terminal (gray)

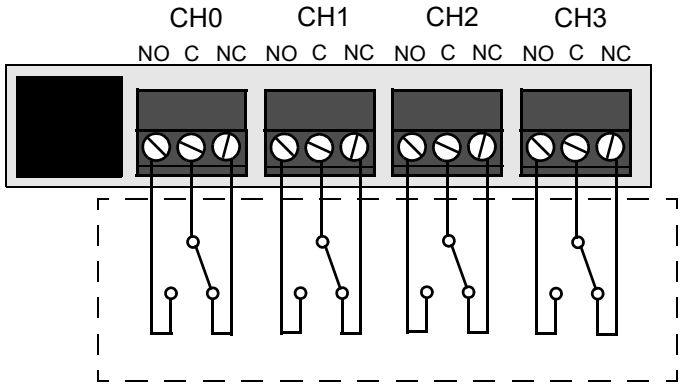
Note: User must provide own fusing.



NOTE: Transient protection is recommended for inductive loads.
NOTE: For DC loads, install a reverse-biased diode, such as an 1N4005 (or equivalent) at the load.

SNAP-OMR6-C Field Connections - Older Terminals (black)

Note: User must provide own fusing.



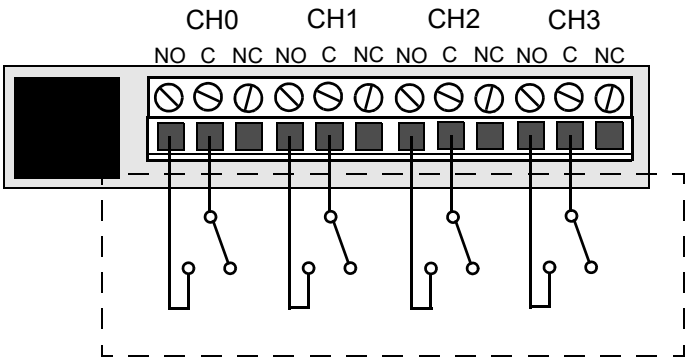
NOTE: Transient protection is recommended for inductive loads.
NOTE: For DC loads, install a reverse-biased diode, such as an 1N4005 (or equivalent) at the load.

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WIRING DIAGRAMS (CONTINUED)

SNAP-OMR6-A Field Connections - Newer Terminal (gray)

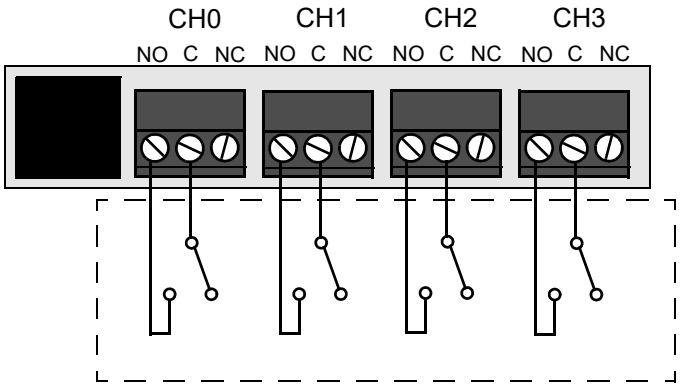
Note: User must provide own fusing.



NOTE: Transient protection is recommended for inductive loads.
NOTE: For DC loads, install a reverse-biased diode, such as an 1N4005 (or equivalent) at the load.

SNAP-OMR6-A Field Connections - Older Terminals (black)

Note: User must provide own fusing.

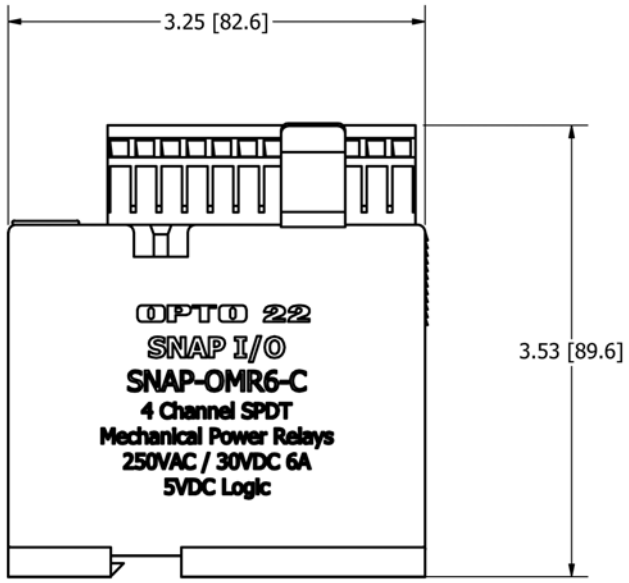


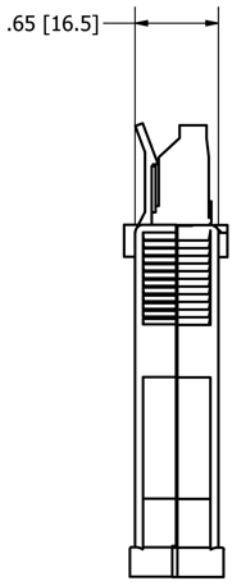
NOTE: Transient protection is recommended for inductive loads.
NOTE: For DC loads, install a reverse-biased diode, such as an 1N4005 (or equivalent) at the load.

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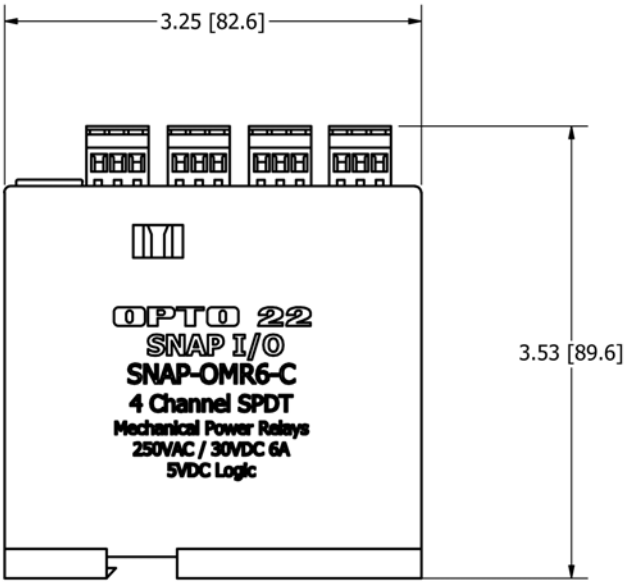
DIMENSIONAL DRAWINGS

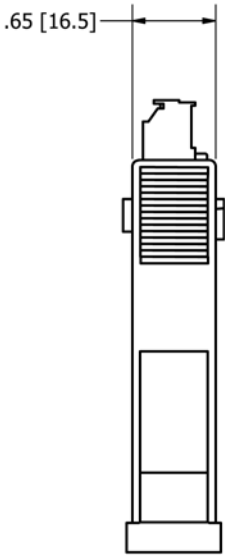
Newer field wiring terminal: one 12-position connector





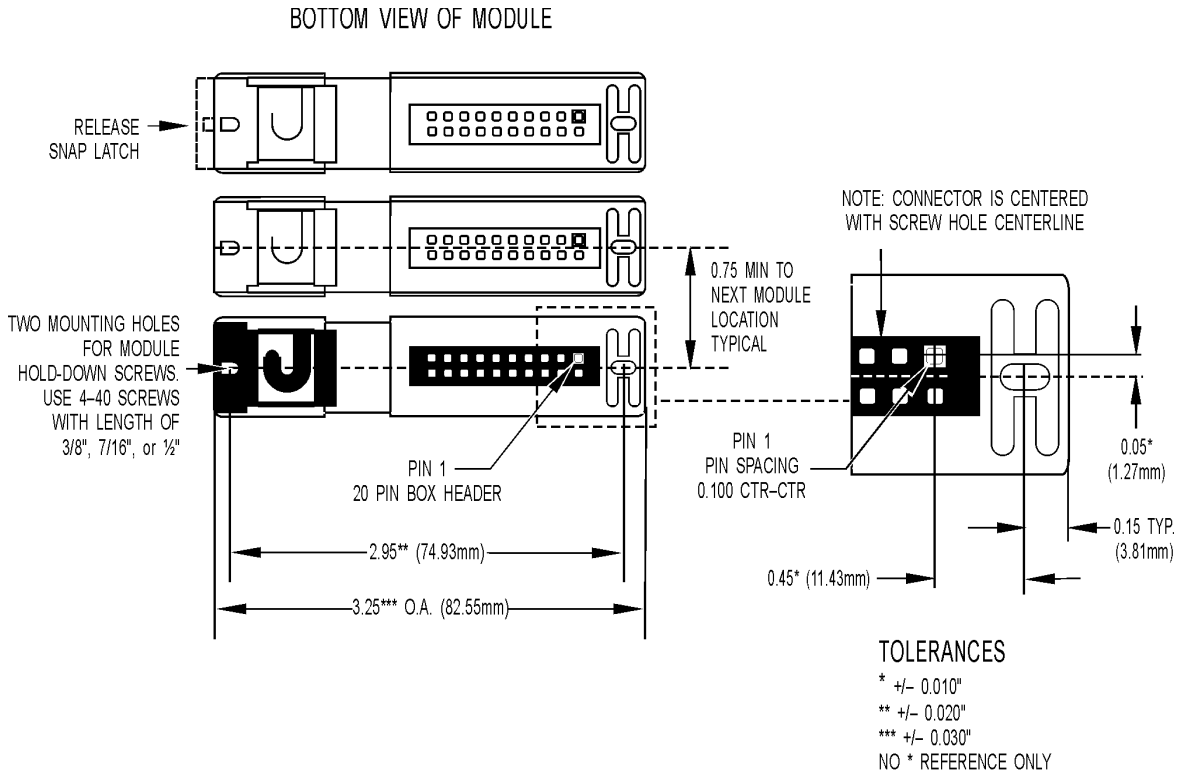
Older field wiring terminals: four 3-position connectors





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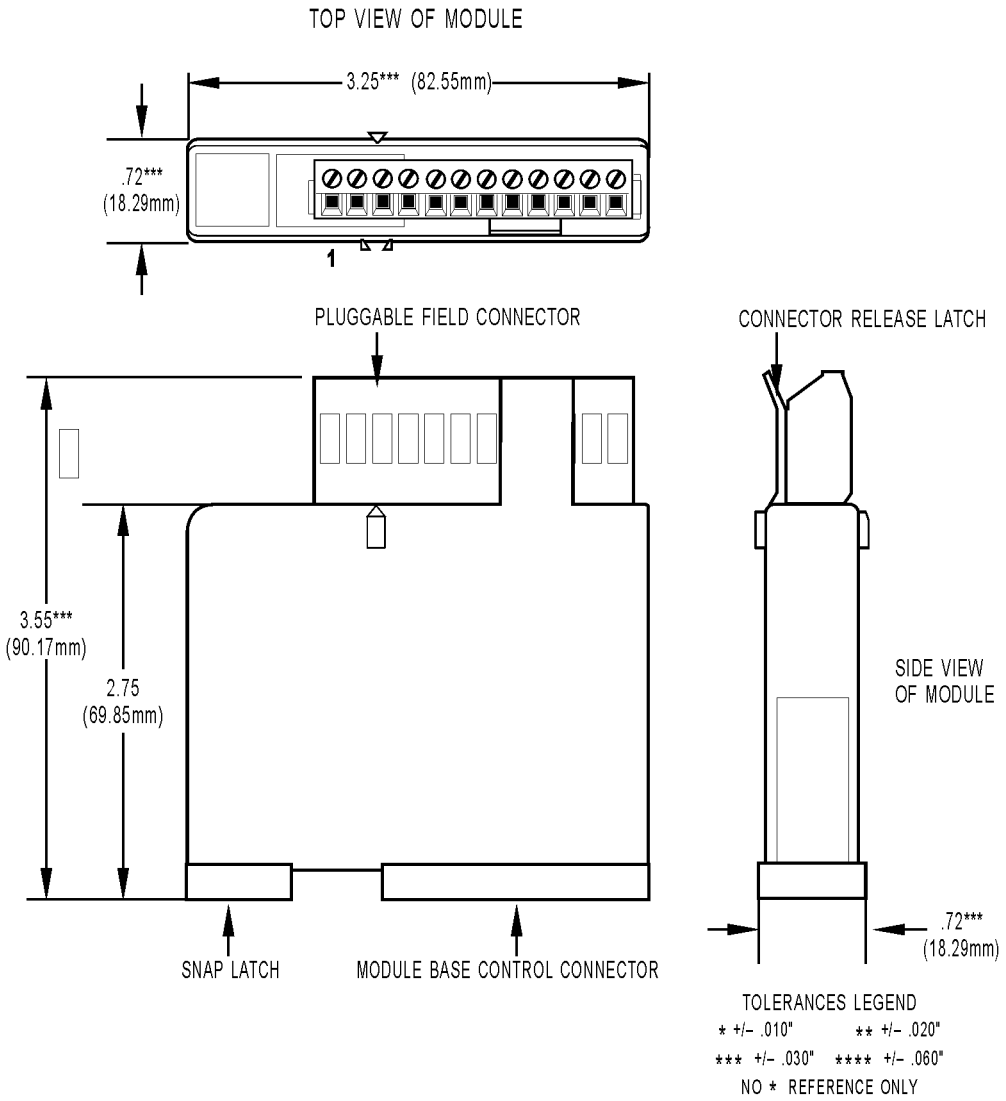
DIMENSIONAL DRAWINGS (CONTINUED)



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.

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DIMENSIONAL DRAWINGS (CONTINUED)



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More about Opto 22

OPTO 22

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.



groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov* RIO connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a RIO EMU energy monitoring unit that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can also use *groov* RIO with a Modbus/TCP master or as remote I/O for a *groov* EPIC system.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov* EPIC processor. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov* EPIC processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov* View to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

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 testing a sample of each batch, we can afford to 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 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, including free online training at OptoU, how-to videos, user's guides, the Opto 22 KnowledgeBase, and OptoForums.

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