RACKS
SNAP
D SERIES
(WITH AUXILIARY TERMINAL STRIP)

OPTO 22

DATA SHEET

Form 778-091203

Description

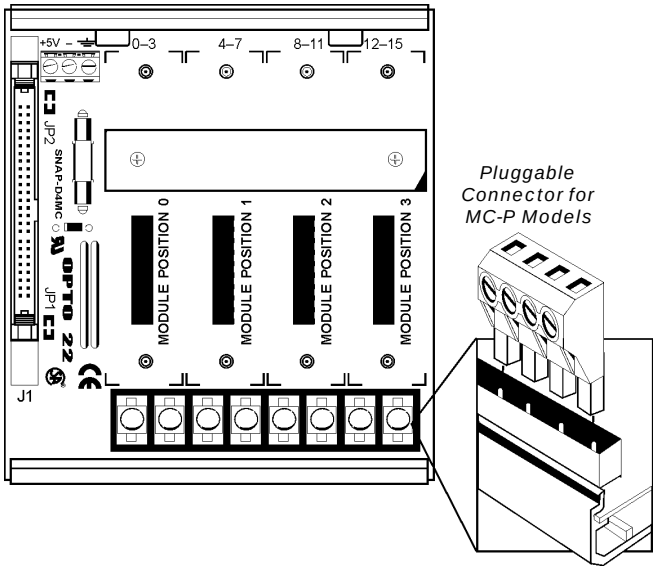
Opto 22 SNAP "D Series" racks are designed for discrete control applications and can accommodate 4, 6, 8, or 12 SNAP 4-channel digital modules. These racks use an industry-standard 50-pin header connector, which allows them to be used in a variety of applications. The logic side of the I/O circuitry can be controlled directly, or by using an ISA bus or PCI bus computer with an Opto 22 adapter card. Use G4AC5 with an ISA bus computer or use PCI-AC5 with a PCI bus computer. In addition, the 4-module position SNAP-D4M can be used with Opto 22's Classic brain boards. These boards use one of Opto 22's industry-standard protocols (Mistic,® Optomux,® or Pamux®) to control the I/O, and communicate either serially or in parallel.

The MC and MC-P model racks provide an auxiliary screw-type terminal strip for additional wiring requirements. The MC racks use a fixed terminal strip while the MC-P uses removable connectors for easy maintenance (see enlarged view below).

Field devices are wired directly to the top-mounted removable connectors on the SNAP I/O® 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 mounting security, SNAP racks have provisions for two 4-40 by ½-inch standard machine screws to hold each module in position. All SNAP racks offer panel mounting and the option of DIN-rail mounting. SNAP racks use a single 5 VDC power source.

Part Number	Ordering Guide
SNAP-D4MC	SNAP I/O mounting rack: Digital 4-module rack with header connector. Common terminal block
SNAP-D4MC-P	SNAP I/O mounting rack: Digital 4-module rack with header connector. Common terminal block pluggable
SNAP-D6MC	SNAP I/O mounting rack: Digital 6-module rack with header connector. Common terminal block
SNAP-D6MC-P	SNAP I/O mounting rack: Digital 6-module rack with header connector. Common terminal block pluggable
SNAP-D8MC	SNAP I/O mounting rack: Digital 8-module rack with header connector. Common terminal block
SNAP-D8MC-P	SNAP I/O mounting rack: Digital 8-module rack with header connector. Common terminal block pluggable
SNAP-D12MC	SNAP I/O mounting rack: Digital 12-module rack with header connector. Common terminal block
SNAP-D12MC-P	SNAP I/O mounting rack: Digital 12-module rack with header connector. Common terminal block pluggable
SNAP-CDBBN	Classic digital brain board DIN-rail adapter
SNAP-FUSE1A	SNAP 1-Amp fuse
SNAP-TEX-DRC10	SNAP PAC rack DIN-rail adapter clip

SNAP-D4M 4-Module Position I/O Mounting Rack



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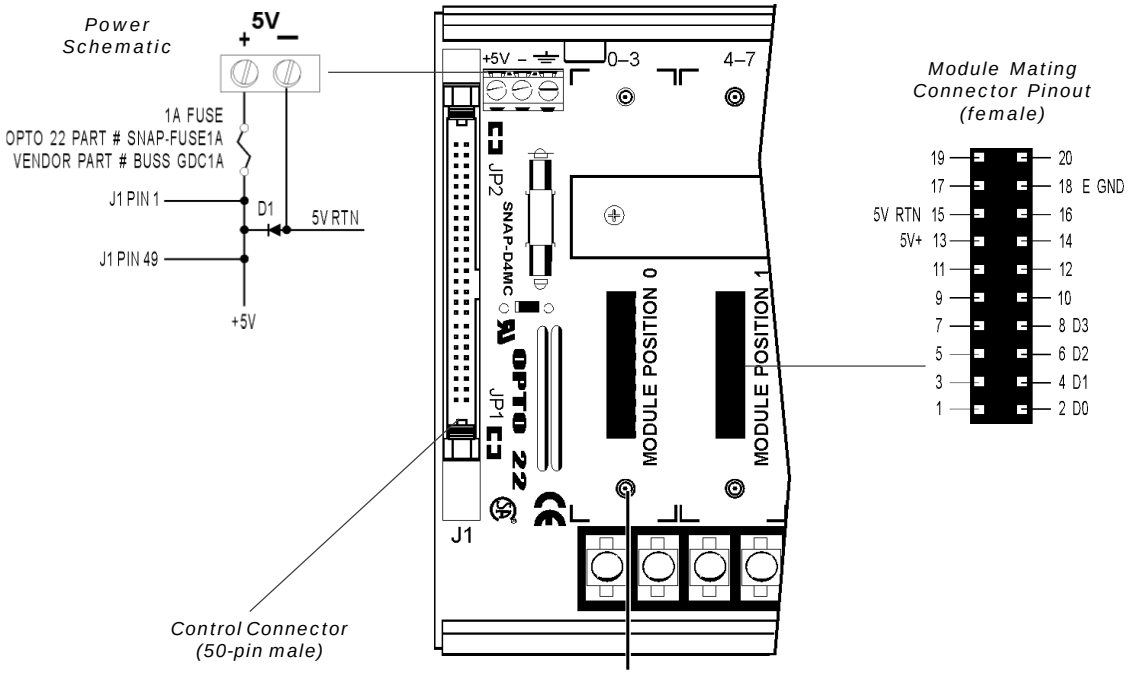
Inside Sales: (800 321-OPTO • Product Support: (800)TEK-OPTO • (951) 695-3080 • Fax: (951) 695-3017 • E-mail: sales@opto22.com

Specifications

SNAP-D4MC/MC-P (4 Module Position)



Position	Channel Position	J1 Control Connector
0	0	47
	1	45
	2	43
	3	41
1	4	39
	5	37
	6	35
	7	33
2	8	31
	9	29
	10	27
	11	25
3	12	23
	13	21
	14	19
	15	17

Operating Requirements

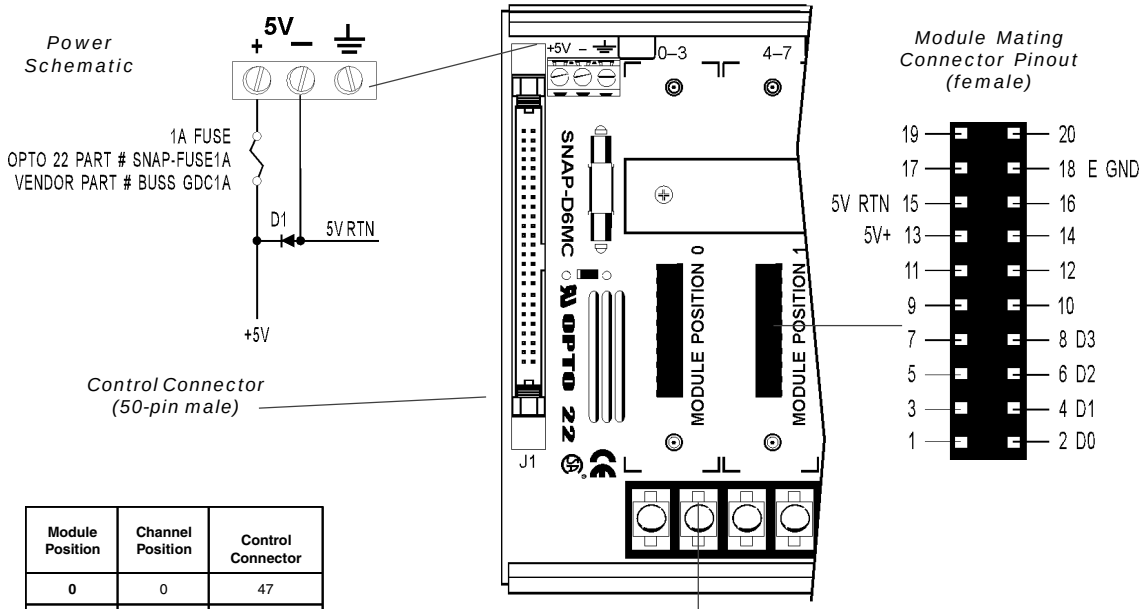
Power Requirements	5 VDC ± 0.1 VDC @ 200mA max. (700mA with brain board)
Operating Temperature Range	0° to 70°C
Relative Humidity	95%, non-condensing

Notes

1. Even pins on control connector are connected common to +5V RTN.
2. Pin 1 of control connector J1 is connected common to +5V through jumper JP1.
3. Pin 49 of control connector J1 is connected common to +5V through jumper JP2.
4. For operation of SNAP-D4MC/MC-P with Classic plug-in brain boards (B100, B1, and B5), install jumpers JP1 and JP2.
5. For operation with PC adapter cards (i.e. G4AC5), remove jumpers JP1 and JP2.
6. Odd numbered pins 3 through 15 of control connector are not used.

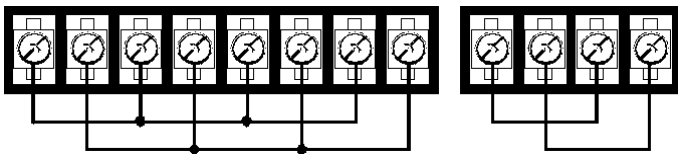
Specifications

SNAP-D6MC/MC-P (6 Module Position)



Module Position	Channel Position	Control Connector
0	0	47
	1	45
	2	43
	3	41
1	4	39
	5	37
	6	35
	7	33
2	8	31
	9	29
	10	27
	11	25
3	12	23
	13	21
	14	19
	15	17
4	16	15
	17	13
	18	11
	19	9
5	20	7
	21	5
	22	3
	23	1

Connection Diagram for 12-position terminal strip (MC and MC-P models, MC shown)



For detailed information on terminal strip, see pages 9-10.

Notes

1. Even pins on control connectors are connected to +5V RTN.
2. SNAP-D6MC/MC-P is designed to interface with PC adapter cards (i.e. AC5 or G4AC5). It will not work with brain boards because there is no power to the control connector.
3. Pin 49 - "no" connection.

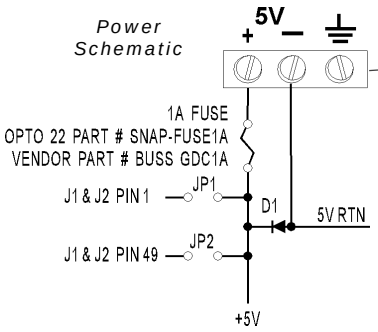
Operating Requirements

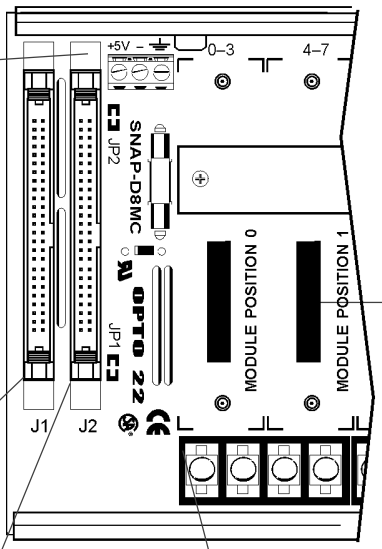
Power Requirements	5 VDC ± 0.1 VDC @ 300mA max.
Operating Temperature Range	0° to 70°C
Relative Humidity	95%, non-condensing

Specifications

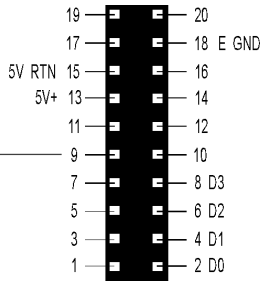
SNAP-D8MC/MC-P (8 Module Position)

Power Schematic

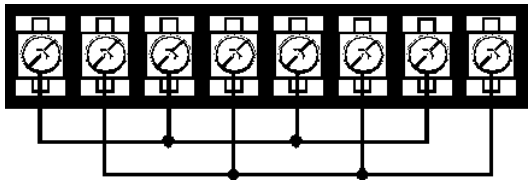




Module Mating Connector Pinout (female)



Connection Diagram for each of the two 8-position terminal strips (MC and MC-P models, MC shown)



For detailed information on terminal strip, see pages 9–10.

Control Connectors (50-pin male)

Position	Channel Position	J1 Control Connector
0	0	47
	1	45
	2	43
	3	41
1	4	39
	5	37
	6	35
	7	33
2	8	31
	9	29
	10	27
	11	25
3	12	23
	13	21
	14	19
	15	17

Module Position	Channel Position	J2 Control Cnnector
4	16	47
	17	45
	18	43
	19	41
5	20	39
	21	37
	22	35
	23	33
6	24	31
	25	29
	26	27
	27	25
7	28	23
	29	21
	30	19
	31	17

Operating Requirements

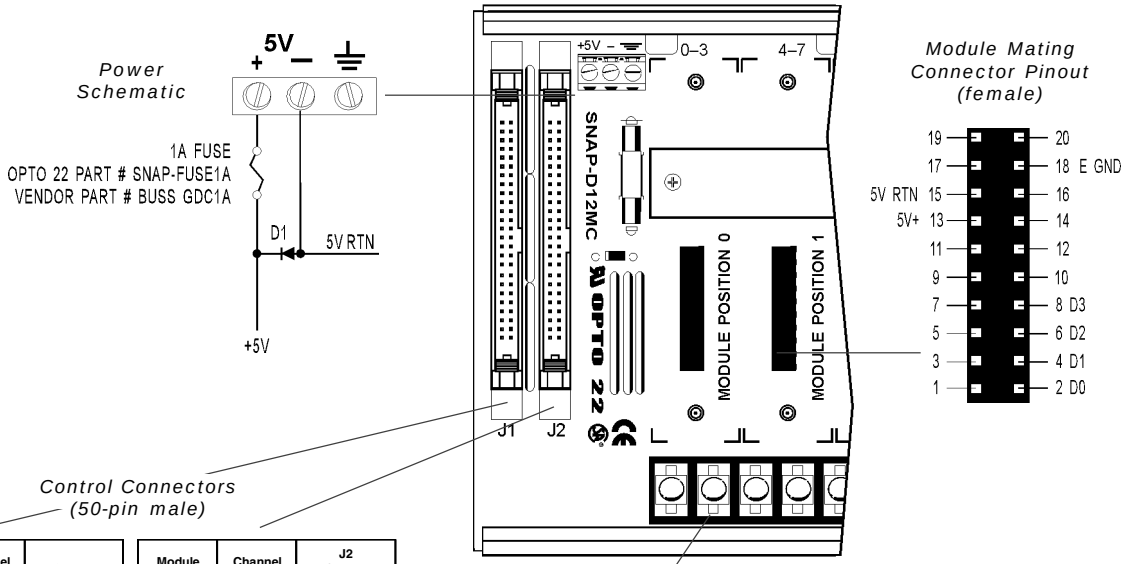
Power Requirements	5 VDC ± 0.1 VDC @ 400mA max.
Operating Temperature Range	0° to 70°C
Relative Humidity	95%, non-condensing

Notes

1. Even pins on control connectors are connected to +5V RTN.
2. Pin 1 of control connectors J1 and J2 is connected to +5V through jumper JP1.
3. Pin 49 of control connectors J1 and J2 is connected to +5V through jumper JP2.
4. For operation with PC adapter cards (i.e. AC5 or G4AC5), remove jumpers JP1 and JP2.
5. Odd numbered pins 3 through 15 of control connectors are not used.

Specifications

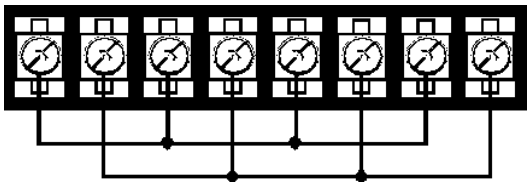
SNAP-D12MC/MC-P (12 Module Position)



Module Position	Channel Position	Control Connector
0	0	47
	1	45
	2	43
	3	41
1	4	39
	5	37
	6	35
	7	33
2	8	31
	9	29
	10	27
	11	25
3	12	23
	13	21
	14	19
	15	17
4	16	15
	17	13
	18	11
	19	9
5	20	7
	21	5
	22	3
	23	1

Module Position	Channel Position	J2 Control Connector
6	0	47
	1	45
	2	43
	3	41
7	4	39
	5	37
	6	35
	7	33
8	8	31
	9	29
	10	27
	11	25
9	12	23
	13	21
	14	19
	15	17
10	16	15
	17	13
	18	11
	19	9
11	20	7
	21	5
	22	3
	23	1

Connection diagram for each of the three 8-position terminal strips (MC and MC-P models, MC shown)



For detailed information on terminal strip, see pages 9–10.

Operating Requirements

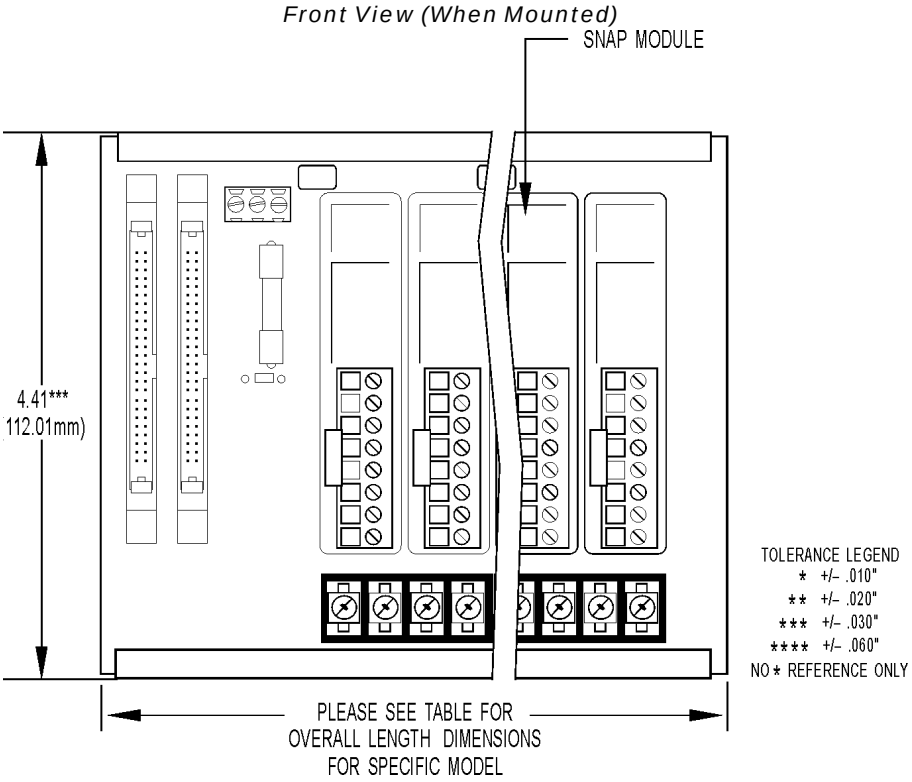
Power Requirements	5 VDC ± 0.1 VDC @ 1200mA max.
Operating Temperature Range	0° to 70°C
Relative Humidity	95%, non-condensing

Notes

1. Even pins on control connectors are connected to +5V RTN.
2. SNAP-12MC/MC-P is designed to interface with PC adapter cards (i.e. AC5 or G4AC5). It will not work with brain boards because there is no power to the control connector.

Dimensional Drawing

All Models

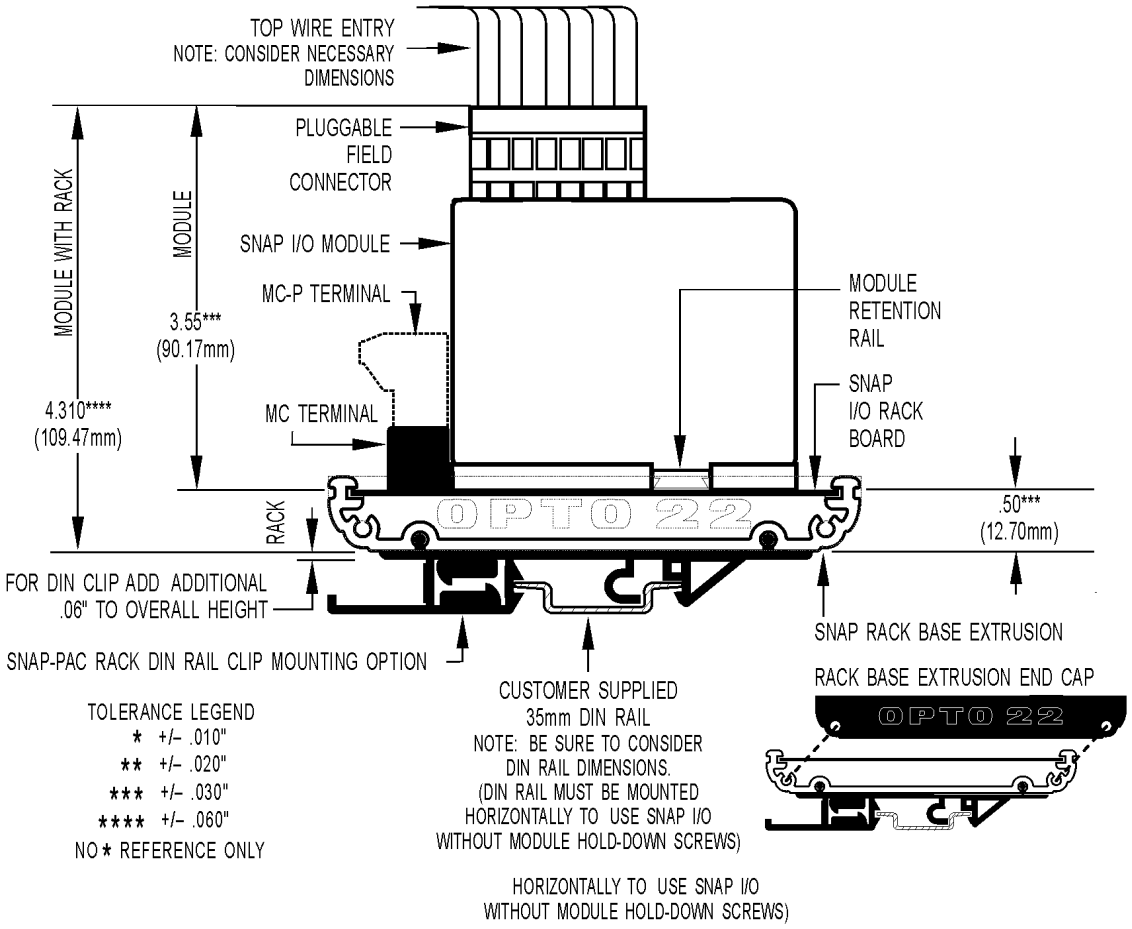


Overall Length Dimension (All Models)

Part Number	Description	Length (inches)	Length (mm)
SNAP-D4M	4-module rack	4.19	106.43
SNAP-D6M	6-module rack	5.74	145.8
SNAP-D8M	8-module rack	7.74	196.6
SNAP-D12M	12-module rack	10.74	272.8

Dimensional Drawing
All Models

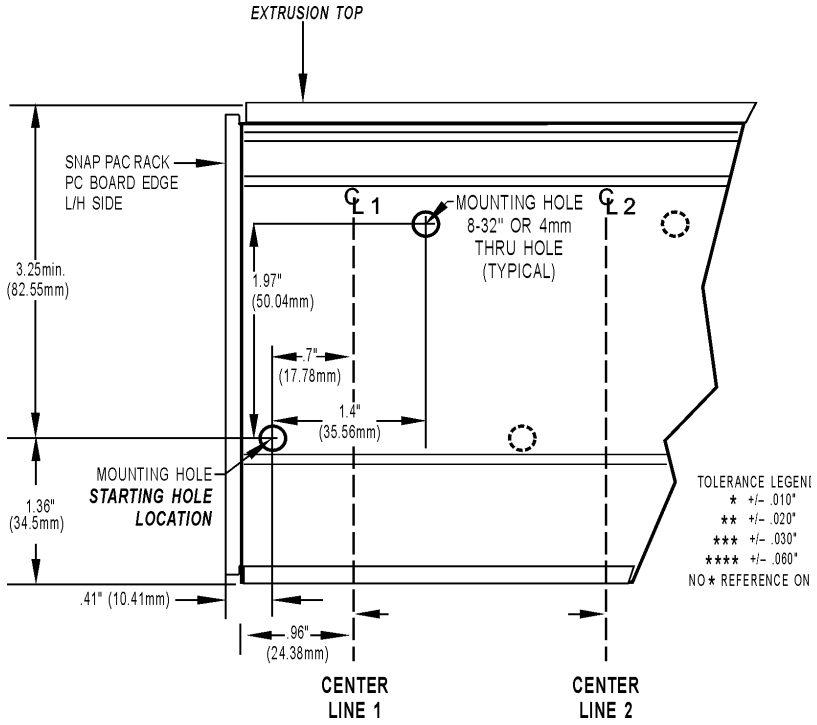
Right Side View (with DIN-Rail Option)



Dimensional Drawing

All Models

Typical Plain View of SNAP Mounting Extrusion



General

If not using module hold-down screws, the SNAP rack assembly should be mounted horizontally, as shown in diagram.

Preferred Method

Template (product on site)

1. Use SNAP rack mounting extrusion as template.
2. Be sure to use drawing to determine required product and option clearances.

Alternate Method

Prefabrication of Panels (no product on site)

1. Mounting holes are in sets of two located on lower left and upper right, with respect to a centerline (CL).
2. Using the drawing, determine CL_1 mounting hole positions. (CL_1 is located on the left side of all SNAP rack mounting extrusions.)
3. Use the center-to-center length specification table to determine offset between centerlines and number of centerline positions for each model.
4. Repeat process for each centerline position.
5. Dimensions shown in drawing apply to all models.

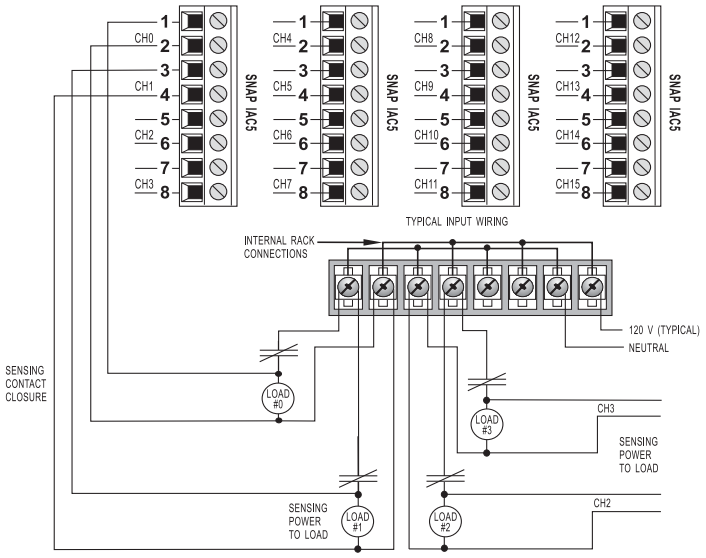
Center-to-Center Length (All Models)

Part Numbers	Description	Center to Center Length	# of Center Positions
SNAP-D4MC	4-module rack with extra terminal block for field wiring	1.98"	2
SNAP-D4MC-P	4-module rack with extra terminal block for field wiring, pluggable	1.98"	2
SNAP-D6MC	6-module rack with extra terminal block for field wiring	3.53"	2
SNAP-D6MC-P	6-module rack with extra terminal block for field wiring, pluggable	3.53"	2
SNAP-D8MC	8-module rack with extra terminal block for field wiring	5.53"	2
SNAP-D8MC-P	8-module rack with extra terminal block for field wiring, pluggable	5.53"	2
SNAP-D12MC	12-module rack with extra terminal block for field wiring	4.26"	3
SNAP-D12MC-P	12-module rack with extra terminal block for field wiring, pluggable	4.26"	3

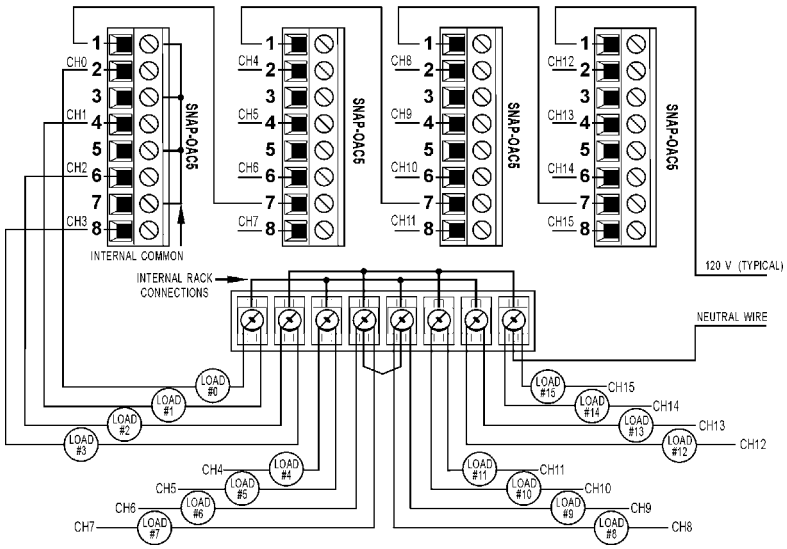
Schematics

Terminal Strip Usage - Digital

Typical Digital Input Using Terminal Strip



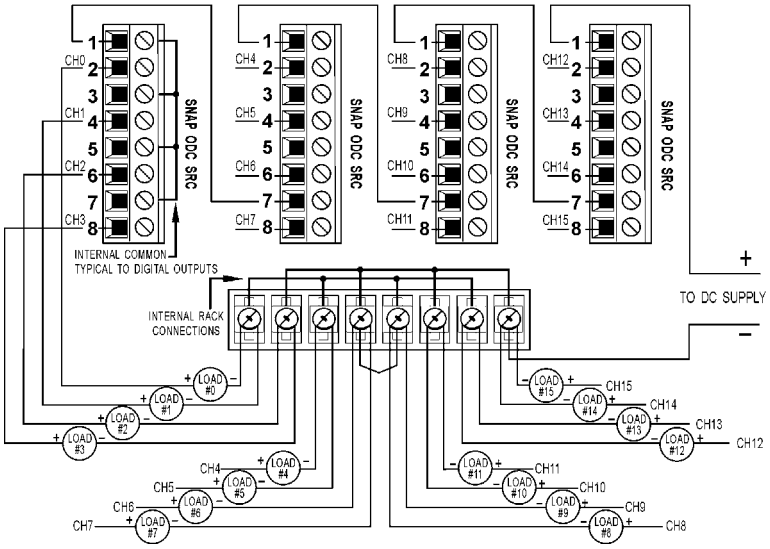
Typical Digital AC Output Using Terminal Strip



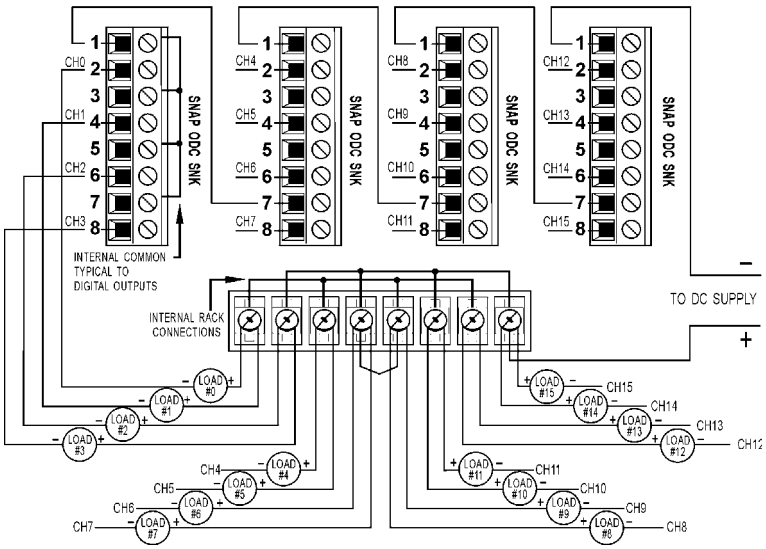
Schematics

Terminal Strip Usage - Digital

Typical Digital DC Output (Sourcing) Using Terminal Strip



Typical Digital DC Output (Sinking) Using Terminal Strip



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More About Opto 22

Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, remote monitoring, and data acquisition applications.

SNAP PAC System

Designed to simplify the typically complex process of understanding, selecting, buying, and applying an automation system, 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

Programmable automation controllers (PACs) are multifunctional, multidomain, modular controllers based on open standards and providing an integrated development environment.

Opto 22 has been manufacturing PACs for many years. The latest models include the standalone SNAP PAC S-series and the rack-mounted SNAP PAC R-series. Both handle a wide range of digital, analog, and serial functions and are equally suited to data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can 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 provides full-featured and cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software to power your SNAP PAC System.

These fully integrated software applications share a single tagname database, so the data points you configure in PAC Control™ are immediately available for use in PAC Display™, OptoOPCServer™, and OptoDataLink™. 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 OptoOPCServer, OptoDataLink, options for Ethernet link 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; PID loop control; and optional high-speed digital counting (up to 20 kHz), quadrature counting, TPO, and pulse generation and measurement.

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, depending on the type of module and your needs. Analog, digital, serial, and special-purpose modules are all mixed on the same mounting rack and controlled by the same processor (SNAP PAC brain or rack-mounted controller).

Quality

Founded in 1974 and with over 85 million devices sold, 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 do no statistical testing and each part is tested twice before leaving our factory, we can guarantee most solid-state relays and optically isolated I/O modules for life.

Free Product Support

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

Free Customer Training

Hands-on training classes for the SNAP PAC System are offered at our headquarters in Temecula, California. Each student has his or her own learning station; classes are limited to nine students. Registration for the free training class is on a first-come, first-served basis. See our website, www.opto22.com, for more information or email training@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 or 951-695-3000, or visit our website at www.opto22.com.

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