

SNAP TEX Cables and Breakout Boards

Features

- Extend the terminals on your SNAP I/O modules for easier, cleaner wiring to field devices.
- Six-foot (1.8 meter) wiring cables plug into tops of I/O modules for quick replacement.
- Breakout boards offer options such as fusing, power to loads, and mechanical relays.
- Specialty cables integrate older G4 digital I/O with SNAP PAC I/O.

Description

SNAP TEX cables and breakout boards are part of the SNAP TEX family of wiring and mounting accessories. (See form 1772 for accessories not covered in this data sheet.) These cables and boards save time and expense during installation, maintenance, and debugging by reducing the time and effort required to wire field devices to SNAP I/O modules.

Choose the cables and breakout boards for your modules based on the table that starts on [page 2](#). Specifications and dimensions begin on [page 5](#) and wiring diagrams on [page 19](#).

Part Numbers

Part	Description
Cables	
SNAP-HD-20F6	6 ft. (1.8 m) wiring cable for SNAP-AOVA-8 module, with flying leads
SNAP-HD-ACF6	6 ft. (1.8 m) wiring harness assembly for SNAP 16-point digital modules; flying leads
SNAP-HD-BF6	6 ft. (1.8 m) wiring harness for 32-channel modules and breakout boards
SNAP-HD-CBF6	6 ft. (1.8 m) wiring harness for most 32-point modules, with flying leads
SNAP-HD-G4F6	6 ft. (1.8 m) header cable for SNAP-ODC-32-SNK and SNAP-IDC-32 digital modules and G4PB16H and G4PB16HC mounting racks. Also for SNAP-ODC-32-SRC when connecting to a SNAP-MR10-16C breakout board.
SNAP-HD-G4F6N	6 ft. (1.8 m) header cable for SNAP-IDC-32N digital modules and G4PB16H and G4PB16HC mounting racks
SNAP-TEX-CBE6	6 ft. (1.8 m), 8-wire cable for SNAP I/O modules. Even terminals commoned, flying leads.
SNAP-TEX-CBO6	6 ft. (1.8 m), 8-wire cable for SNAP I/O modules. Odd terminals commoned, flying leads.
SNAP-TEX-CBS6	6 ft. (1.8 m), 8-wire cable for SNAP I/O modules. Straight-through; no common terminals. Flying leads.



SNAP TEX Family

SNAP TEX Cables

SNAP TEX cables provide convenient connections from I/O modules to field wiring. Most cables are designed to connect to breakout boards; some cables have flying leads for direct connection to field devices.

SNAP TEX Breakout Boards

SNAP TEX breakout boards move terminals away from the crowded rack area for easier installation and maintenance. Some breakout boards, such as the SNAP-AIMA-HDB, work only with specific modules; others are designed to be used with several types of modules. See tables starting on [page 2](#).

Part Numbers (continued)

Part	Description
Breakout Boards	
SNAP-AIMA-HDB SNAP-AIMA-HDB-FM*	Breakout boards for SNAP-AIMA-32 and SNAP-AIMA-32-FM analog input modules
SNAP-AIV-HDB SNAP-AIV-HDB-FM*	Breakout boards for SNAP-AIV-32 and SNAP-AIV-32-FM analog modules
SNAP-IDC-HDB SNAP-IDC-HDB-FM*	Fused breakout board for SNAP 32-point digital input modules
SNAP-ODC-HDB SNAP-ODC-HDB-FM*	Fused breakout board for SNAP 32-point digital output modules
SNAP-TEX-FB16-H	16-point breakout board for SNAP I/O modules, with fuses, fuse-blown indicators, & bussed power (120–240 V)
SNAP-TEX-FB16-L	16-point breakout board for SNAP I/O modules, with fuses, fuse-blown indicators, & bussed power (12–24 V)
SNAP-TEX-MR10-16	Mechanical relay breakout board for one 16-point or four 4-point SNAP digital output modules.
SNAP-TEX-MR10-16C	Mechanical relay breakout board for one 16-point or four 4-point SNAP digital output modules, or connecting two boards to one 32-point digital module. Optional jumper straps.
SNAP-TEX-MR10-4	Mechanical relay breakout board for a 4-point SNAP digital output module
SNAP-TEX-32	32-point breakout board for SNAP I/O modules

* Factory Mutual approved

SNAP TEX Cables and Breakout Boards

Module, Breakout Board, and Cable Compatibility Charts

Look in the left column for the module you have. Choose the breakout board in the right columns. Compatible cables are shown in the table cells in the center.

4-Point Digital Modules

Module	Breakout Board		
	SNAP-TEX-32 **	SNAP-TEX-FB16-H SNAP-TEX-FB16-L	SNAP-TEX-MR10-4 SNAP-TEX-MR10-16 SNAP-TEX-MR10-16C
Digital input modules—4-point			
SNAP-IAC5 SNAP-IAC5A SNAP-IAC5AFM SNAP-IAC5FM SNAP-IAC5MA SNAP-IDC5MA	SNAP-TEX-CBS6 *	SNAP-TEX-CBS6 *	Not used for inputs
SNAP-IDC5 SNAP-IDC5-FAST-A SNAP-IDC5-HT SNAP-IDC5D SNAP-IDC5DFM SNAP-IDC5FAST SNAP-IDC5FM SNAP-IDC5G	SNAP-TEX-CBE6 SNAP-TEX-CBO6 SNAP-TEX-CBS6	SNAP-TEX-CBO6 SNAP-TEX-CBS6	Not used for inputs
SNAP-IDC5Q	SNAP-TEX-CBS6	Not used	Not used for inputs
SNAP-IDC5-SW SNAP-IDC5-SW-NC	SNAP-TEX-CBS6	Not used	Not used for inputs
Digital output modules—4-point			
SNAP-ODC5-I SNAP-ODC5-IFM SNAP-ODC5A-I SNAP-ODC5A-IFM SNAP-ODC5MA	SNAP-TEX-CBS6 *	SNAP-TEX-CBS6 *	SNAP-TEX-CBO6 SNAP-TEX-CBS6
SNAP-OAC5-I SNAP-OAC5-IFM SNAP-OAC5MA	SNAP-TEX-CBS6 *	SNAP-TEX-CBS6 *	Not used
SNAP-ODC5SRC SNAP-ODC5SRCFM	SNAP-TEX-CBO6 SNAP-TEX-CBS6	SNAP-TEX-CBO6 SNAP-TEX-CBS6	SNAP-TEX-CBO6 SNAP-TEX-CBS6
SNAP-OAC5 SNAP-OAC5FM SNAP-ODC5ASNK SNAP-ODC5R SNAP-ODC5R5 SNAP-ODC5R5FM SNAP-ODC5RFM SNAP-ODC5SNK SNAP-ODC5SNKFM	SNAP-TEX-CBE6 SNAP-TEX-CBO6 SNAP-TEX-CBS6	SNAP-TEX-CBO6 SNAP-TEX-CBS6	Not used
SNAP-OMR6-A SNAP-OMR6-C	Not used	Not used	Not used

* This cable maintains channel-to-channel isolation on these modules. If channel-to-channel isolation is not important, you can also use the SNAP-TEX-CBO6 cable.

** The SNAP-TEX-32 can be used with digital outputs but has no fuses. SNAP-TEX-FB16 boards are preferable for digital outputs because they include fuses.

SNAP TEX Cables and Breakout Boards

Module, Breakout Board, and Cable Compatibility Charts (continued)

Look in the left column for the module you have. Choose the breakout board in the right columns. Compatible cables are shown in the table cells in the center.

1-, 2-, and 4-Point Analog Modules

Module		Breakout Board	
		SNAP-TEX-32	SNAP-TEX-FB16-H SNAP-TEX-FB16-L
Analog input modules (not thermocouples)			
SNAP-AIARMS SNAP-AIARMS-i SNAP-AIARMS-i-FM SNAP-AICTD SNAP-AICTD-4 SNAP-AILC ^a SNAP-AILC-2 ^a SNAP-AIMA-i SNAP-AIMA-iSRC ^a SNAP-AIMA-iSRC-FM ^a SNAP-AIMA-iH SNAP-AIMA2-i	SNAP-AIRATE SNAP-AIRATE-HFi SNAP-AIRTD SNAP-AIRTD-10 SNAP-AIRTD-1K SNAP-AIV-72 SNAP-AIV-i SNAP-AIV2-i SNAP-AIVRMS SNAP-AIVRMS-i SNAP-AIVRMS-i-FM	SNAP-TEX-CBS6	Not used for analog modules
SNAP-AIMA SNAP-AIMA-4 SNAP-AIMV2-4 SNAP-AIMV-4	SNAP-AIR40K-4 SNAP-AIV SNAP-AIV-4	SNAP-TEX-CBE6 SNAP-TEX-CBS6	Not used for analog modules
SNAP-AIPM SNAP-AIPM-3 ^b SNAP-AIPM-3V SNAP-AIR400K-8 SNAP-AITM ^c	SNAP-AITM-i ^c SNAP-AITM-2 ^c SNAP-AITM-4i ^c SNAP-AITM2-i ^c SNAP-pH/ORP	No cable available	Not used for analog modules
Analog output modules			
SNAP-AOA-23	SNAP-AOA-28	SNAP-TEX-CBE6 SNAP-TEX-CBS6	Not used for analog modules
SNAP-AOA-3	SNAP-AOV-5	SNAP-TEX-CBE6 SNAP-TEX-CBO6 SNAP-TEX-CBS6	Not used for analog modules
SNAP-AOV-25	SNAP-AOV-27	SNAP-TEX-CBO6	Not used for analog modules
SNAP-AOA-23-iH SNAP-AOA-23-iSRC ^a SNAP-AOA-23-iSRC-FM ^a	SNAP-AOD-29 SNAP-AOD-29-HFi	SNAP-TEX-CBS6	Not used for analog modules

a Note that the SNAP-TEX-SBS6 cable does not include a connector for the 2-pin terminal on top of these modules, required for excitation voltage.

b Not recommended for use with breakout boards due to CT safety concerns.

c Do not use breakout boards with thermocouples.

SNAP TEX Cables and Breakout Boards

High-Density Digital Modules

Module	Breakout Board					Without a breakout board
	SNAP-TEX-32	SNAP-TEX-FB16-H SNAP-TEX-FB16-L	SNAP-TEX-MR10-4 SNAP-TEX-MR10-16 SNAP-TEX-MR10-16C	SNAP-IDC-HDB SNAP-IDC-HDB-FM	SNAP-ODC-HDB SNAP-ODC-HDB-FM	
SNAP-IAC-16 SNAP-IAC-A-16 SNAP-IAC-K-16 SNAP-IDC-16 SNAP-IDC-HT-16	SNAP-HD-ACF6 (2 modules/board)	SNAP-HD-ACF6	Not used with inputs	Not used	Not used	SNAP-HD-ACF6
SNAP-IDC-32 SNAP-IDC-32-FM SNAP-IDC-32N SNAP-IDC-32D SNAP-IDC-32DN	SNAP-HD-CBF6	SNAP-HD-CBF6 (2 boards/module)	Not used with inputs	SNAP-HD-BF6	Not used	SNAP-HD-CBF6
SNAP-ODC-32-SNK SNAP-ODC-32-SNK-FM	SNAP-HD-CBF6	SNAP-HD-CBF6 (2 boards/module)	Do not use	Not used	SNAP-HD-BF6	SNAP-HD-CBF6
SNAP-ODC-32-SRC SNAP-ODC-32-SRC-FM			SNAP-HD-CBF6 SNAP-HD-G4F6 (MR10-16C only)	Not used		

Analog Modules with More Than 4 Points

Module	Breakout Board				Without a breakout board
	SNAP-TEX-32	SNAP-TEX-FB16-H SNAP-TEX-FB16-L SNAP-TEX-MR10-4 SNAP-TEX-MR10-16 SNAP-TEX-MR10-16C SNAP-IDC-HDB SNAP-IDC-HDB-FM SNAP-ODC-HDB SNAP-ODC-HDB-FM	SNAP-AIMA-HDB SNAP-AIMA-HDB-FM	SNAP-AIV-HDB SNAP-AIV-HDB-FM	
SNAP-AICTD-8 SNAP-AIMA-8 SNAP-AITM-8 ** SNAP-AITM-8-FM ** SNAP-AIV-8	Can be used; no cable currently available	Not used with analog modules	Not used		No cable available
SNAP-AIMA-32 SNAP-AIMA-32-FM	Not recommended		SNAP-HD-BF6	SNAP-HD-BF6*	Not recommended
SNAP-AIV-32 SNAP-AIV-32-FM	SNAP-HD-CBF6		Not used	SNAP-HD-BF6	SNAP-HD-CBF6
SNAP-AOVA-8	SNAP-HD-20F6		Not used		SNAP-HD-20F6

* For specific applications. See details in wiring diagrams.

** Do not use breakout boards with thermocouples.

SNAP TEX Cables and Breakout Boards

Cables for 1-, 2-, or 4-pt modules: SNAP-TEX-CBO6, SNAP-TEX-CBE6, SNAP-TEX-CBS6

These three cables provide neat, protected wiring from the top of a 1-, 2-, or 4-point module to the breakout board. Each cable snaps into the top of one module and terminates at the breakout board with 18-gauge, color-coded flying leads, already stripped and tinned and ready for wiring. The leads attach easily to the breakout board with spring connectors.

SNAP-TEX-CBO6—Odd-numbered terminals are commoned.

SNAP-TEX-CBE6—Even-numbered terminals are commoned.

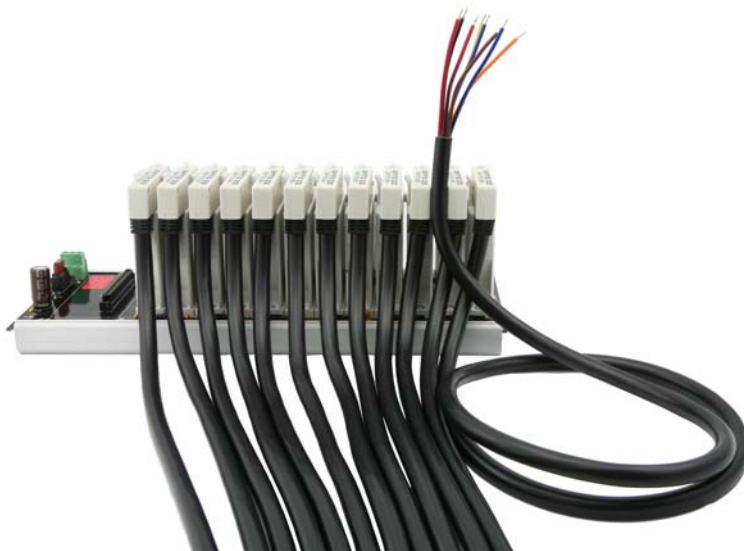
SNAP-TEX-CBS6—No common terminals; wiring is straight through.

See the tables starting on [page 2](#) to determine the correct cable for your module and breakout board.



This photo shows the contrast between a regularly wired SNAP PAC rack (at upper left) and one using SNAP-TEX-CBE6, -CBO6, and -CBS6 cables (at lower right).

The cables protect top-of-module connections and wires, and make it easier to follow wiring to field devices.



Cables terminate in color-coded flying leads, already stripped, tinned, and ready for wiring.

Installation, maintenance, and troubleshooting are faster and simpler using SNAP TEX cables.

SNAP TEX Cables and Breakout Boards

Cables for 1-, 2-, or 4-point modules (continued)

Cable Specifications

See the tables starting on [page 2](#) for module, cable, and breakout board compatibility.

Feature	SNAP-TEX-CBO6	SNAP-TEX-CBE6	SNAP-TEX-CBS6
Cable length	6 feet (1.8 meters)	6 feet (1.8 meters)	6 feet (1.8 meters)
Connector	8 pins, 0.2 in. (5.08 mm) center-to-center	8 pins, 0.2 in. (5.08 mm) center-to-center	8 pins, 0.2 in. (5.08 mm) center-to-center
Wires	8 pre-stripped, tinned, color-coded, 18 gauge	8 pre-stripped, tinned, color-coded, 18 gauge	8 pre-stripped, tinned, color-coded, 18 gauge
Bussing	Odd-numbered pins connected	Even-numbered pins connected*	No connections
Agency Approvals	CE, RoHS, DFARS	CE, RoHS, DFARS	CE, RoHS, DFARS
Warranty	30 months	30 months	30 months

*Do NOT USE the CBE6 with a SNAP-TEX-FB16-H or -L breakout board. The FB16s have odd-numbered pins connected.

Wire Colors

Point	Pin	Color wire
0	1	black
	2	red
1	3	blue
	4	orange

Point	Pin	Color wire
2	5	yellow
	6	brown
3	7	red/black
	8	blue/black



Wiring diagrams begin on [page 19](#).

SNAP TEX Cables and Breakout Boards

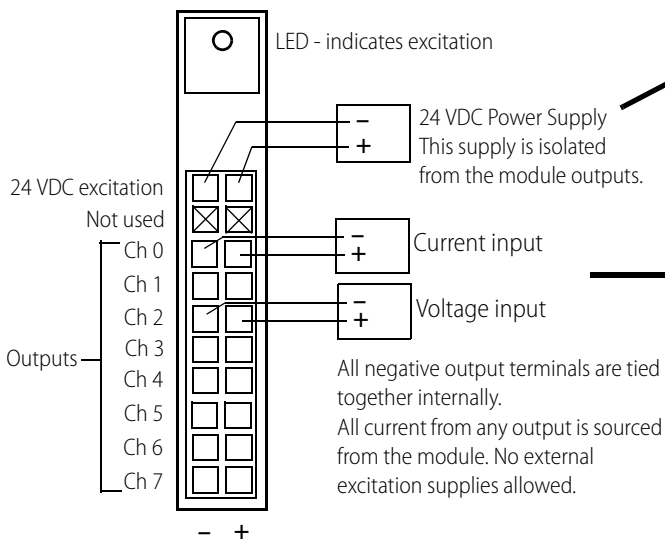
Cable for 8-point analog output module: SNAP-HD-20F6

The SNAP-HD-20F6 cable is designed for use with an 8-channel SNAP-AOVA-8 analog output module. The cable has a 20-pin connector at the module end and flying leads for field wiring.

You can also use the cable and module with a SNAP-TEX-32 breakout board (four modules per board). See [page 27](#) for a wiring diagram.



SNAP-AOVA-8 Module (from top)



For more information on the SNAP-AOVA-8 module, see form 1066, the *SNAP Analog Output Modules Data Sheet*.

SNAP-HD-20F6 Cable

Wire colors - Excitation

24 VDC	Color
-	Black
+	White with Black

Wire colors - Output points

Ch	-/+	Color
0	-	Blue
	+	White with Blue
1	-	Pink
	+	White with Pink
2	-	Gray
	+	White with Gray
3	-	Green
	+	White with Green
4	-	Orange
	+	White with Orange
5	-	Red
	+	White with Red
6	-	Purple
	+	White with Purple
7	-	Yellow
	+	White with Yellow

NOTE: Yellow with purple and purple with yellow wires are not used.

SNAP TEX Cables and Breakout Boards

Cables for 16- or 32-point modules: SNAP-HD-ACF6, SNAP-HD-CBF6, SNAP-HD-BF6

The SNAP-HD-ACF6, SNAP-HD-CBF6, and SNAP-HD-BF6 cables connect 16- and 32-channel modules to field wiring or breakout boards. Each cable is 6 ft. (1.8 m) long.

The **SNAP-HD-ACF6** and the **SNAP-HD-CBF6** have connectors at one end that attach to the top of a module and flying leads at the other end for field wiring. The ACF6 is for 16-channel modules and includes two cables, each cable wiring 8 channels. The CBF6 is for 32-channel modules.

The **SNAP-HD-BF6** has connectors at both ends, one for a 32-channel module and the other for a suitable breakout rack.



SNAP-HD-CBF6



SNAP-HD-BF6

SNAP-HD-ACF6



Cable Specifications

See tables starting on [page 2](#) for detailed module, cable, and breakout board compatibility. Wiring diagrams begin on [page 19](#).

Feature	SNAP-HD-ACF6	SNAP-HD-CBF6	SNAP-HD-BF6
Cable length	6 feet (1.8 meters)	6 feet (1.8 meters)	6 feet (1.8 meters)
Connectors	Two-cable assembly; 16-pin connector at module end; flying leads at other end	One 40-pin connector at module end; flying leads at other end	One connector at module end; one connector at breakout board end
Wires	Pre-stripped, tinned, color-coded, 22-gauge wires	Pre-stripped, tinned, color-coded, 24-gauge wires	24 gauge wires
Use with	Modules: SNAP-IAC-16 SNAP-IAC-A-16 SNAP-IAC-K-16 SNAP-IDC-16 SNAP-IDC-HT-16	Modules: SNAP-IDC-32 SNAP-IDC-32-FM SNAP-IDC-32N SNAP-IDC-32D SNAP-IDC-32DN SNAP-ODC-32-SNK SNAP-ODC-32-SNK-FM SNAP-ODC-32-SRC SNAP-ODC-32-SRC-FM SNAP-AIV-32 SNAP-AIV-32-FM	Modules to breakout boards (regular and -FM versions): SNAP-IDC-32 to SNAP-IDC-HDB SNAP-IDC-32N to SNAP-IDC-HDB SNAP-IDC-32D to SNAP-IDC-HDB SNAP-IDC-32DN to SNAP-IDC-HDB SNAP-ODC-32-SNK to SNAP-ODC-HDB SNAP-ODC-32-SRC to SNAP-ODC-HDB SNAP-AIV-32 to SNAP-AIV-HDB SNAP-AIMA-32 to SNAP-AIMA-HDB SNAP-AIMA-32 to SNAP-AIV-HDB *
Agency Approvals	CE, RoHS, DFARS	CE, RoHS, DFARS	CE, RoHS, DFARS
Warranty	30 months	30 months	30 months

* Special application; see wiring diagrams

SNAP TEX Cables and Breakout Boards

Cables to connect G4 to SNAP: SNAP-HD-G4F6, SNAP-HD-G4F6N

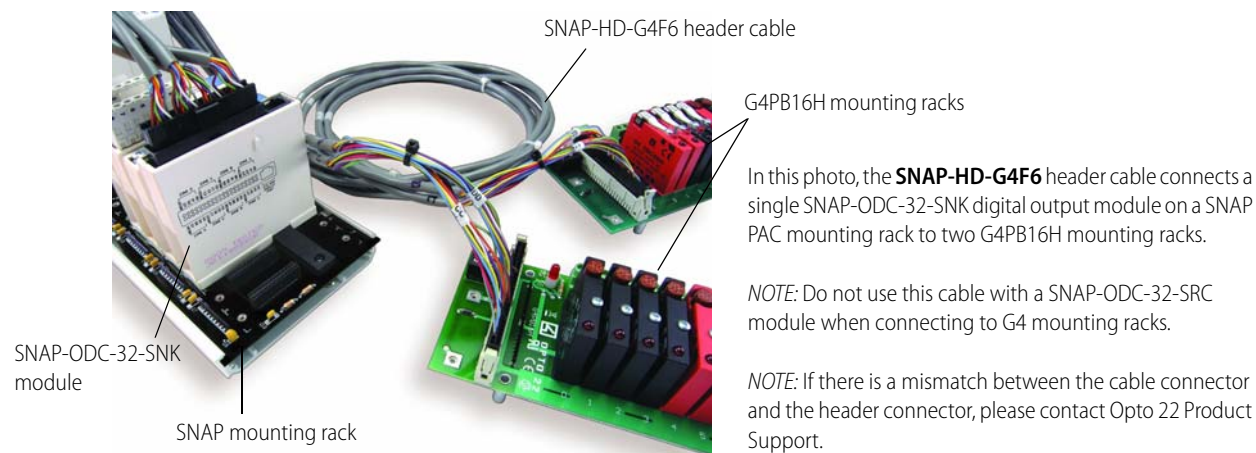
The SNAP-HD-G4F6 and cables are used to connect a SNAP high-density digital (HDD) module to G4 mounting racks in order to integrate older G4 (or even G1) digital output systems with modern PAC Project software and SNAP PAC Ethernet-based controllers.

For outputs, this connection makes available the G4 output's up to 3-amp switching and sensing capability, which can provide twelve times the 0.25 amp capability of the high-density digital modules themselves. (For G4 module specs, see Opto 22 form #727, the *G4 Digital I/O Data Book*.)

Each cable connects two 16-channel mounting racks to one 32-point digital module. Cables can also be used to connect G1 mounting racks with header connectors to these modules. See the table below for module and rack compatibility.

The SNAP-HD-G4F6 cable can also be used to connect two SNAP-TEX-MR10-16C breakout boards to one 32-point digital module. See "[Breakout Board with Mechanical Relays, High-voltage](#)" on page 14.

For more information on HDD modules, see form #1556, the *SNAP High-Density Digital Module Data Sheet*.



Cable Specifications

Feature	SNAP-HD-G4F6	SNAP-HD-G4F6N
Cable length	6 feet (1.8 meters)	6 feet (1.8 meters)
Connectors	One connector at module end; two header connectors at rack end	One connector at module end; two header connectors at rack end
Use with	32-point digital output modules	32-point digital input modules
Agency approvals	CE, RoHS, DFARS	CE, RoHS, DFARS
Warranty	30 months	30 months

SNAP-HD-G4F6 cable



Compatible Modules and Racks

Cable	Modules	Racks		Integrated I/O	
SNAP-HD-G4F6	SNAP-ODC-32-SNK SNAP-ODC-32-SNK-FM	G4PB16H G4PB16HC	PB16H PB16HC	G4PB16L	PB16L
SNAP-HD-G4F6N	SNAP-IDC-32N* SNAP-IDC-32DN*	G4PB16H G4PB16HC	PB16H PB16HC	-	

* For 15 volt or 24 volt G1 or G4 modules, use the SNAP-IDC-32N.
For 5 volt modules, use the SNAP-IDC-32DN.

NOTE: While not designed for this use, it is possible to connect the SNAP-IDC-32 module with G4 15 or 24 V inputs using a SNAP-HD-G4F6 cable. However, the SNAP-IDC-32 uses positive-true logic and therefore returns the inverse of the typical negative-true logic. For example, if the SNAP-IDC-32 is controlled by a PAC Control strategy, an "OFF" state from it actually indicates that the associated G4 module is turned ON.

SNAP TEX Cables and Breakout Boards

Breakout Boards: SNAP-TEX-32, SNAP-TEX-FB16-H, SNAP-TEX-FB16-L

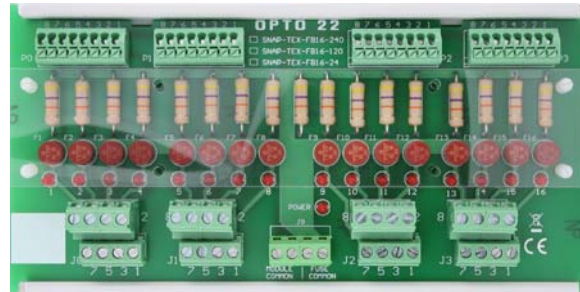
The **SNAP-TEX-32** is a simple breakout board with straight-through wiring. Designed primarily for 2- and 4-point analog inputs/outputs and for 4-point digital inputs, the breakout board is used with SNAP-TEX cables. The board can be used with digital outputs, but it does not have fuses.

The SNAP-TEX-32 can also be used with 8-, 16-, or 32-point SNAP analog modules (not thermocouples). See the table beginning on [page 2](#) for recommended cable and board combinations for your modules.

The **SNAP-TEX-FB16-H** and **SNAP-TEX-FB16-L** breakout boards provide a fuse and a fuse-blown indicator for each of their 16 channels. In addition, they provide power to loads: the SNAP-TEX-F16-H provides 120–240 volts, and the SNAP-TEX-F16-L provides 12–24 volts. Simply attach the power source to a single spot in the middle of the rack, and power

goes out to solenoids or switches, depending on the module you're using. These breakout boards are used primarily for digital inputs and outputs.

CAUTION: *Odd pins on the SNAP-TEX-FB16-H and SNAP-TEX-FB16-L breakout boards are commoned. Use only straight-through or odd cables with these boards.*



SNAP-TEX-FB16-H

Specifications

See the table beginning on [page 2](#) for recommended cable and board combinations. Wiring diagrams begin on [page 19](#).

Feature	SNAP-TEX-32	SNAP-TEX-FB16-H	SNAP-TEX-FB16-L
Use with I/O modules	2- or 4-point analog inputs/outputs; 4-point digital inputs/outputs*; 8-, 16-, or 32-point digital and analog outputs (not thermocouples)	4-point digital inputs and outputs 16- and 32-pt digital inputs/outputs	4-point digital inputs and outputs 16- and 32-pt digital inputs/outputs
Use with cables	SNAP-TEX-CBE6 (even pins connected), SNAP-TEX-CBO6 (odd pins connected), or SNAP-TEX-CBS6 (no connections), depending on module. SNAP-HD-20F6 with a SNAP-AOVA-8 module.	4-ch modules: SNAP-TEX-CBO6 (odd pins connected)** or SNAP-TEX-CBS6 (straight-through), depending on module. 16-ch modules: SNAP-HD-ACF6 32-ch modules: SNAP-HD-CBF6	4-ch modules: SNAP-TEX-CBO6 (odd pins connected)** or SNAP-TEX-CBS6 (straight-through), depending on module. 16-ch modules: SNAP-HD-ACF6 32-ch modules: SNAP-HD-CBF6
Connectors	32 spring connectors; accommodates eight 4-point modules	16 spring connectors; accommodates four 4-point modules	16 spring connectors; accommodates four 4-point modules
Fusing	none	1 A, 250 V, fast-acting fuse for each I/O point (16 total). Replace with Opto 22 PN FUSE01G4	1 A, 250 V, fast-acting fuse for each I/O point (16 total). Replace with Opto 22 PN FUSE01G4
Indicators	none	1 blown-fuse LED per fuse (16 LEDs total)	1 blown-fuse LED per fuse (16 LEDs total)
Bussed power	none	120–240 V	12–24 V
Agency Approvals	CE, RoHS, DFARS	CE, RoHS, DFARS	CE, RoHS, DFARS
Warranty	30 months	30 months	30 months

* Can be used with digital outputs but does not have fuses. SNAP-TEX-FB16 boards have fuses; they are better for digital outputs.

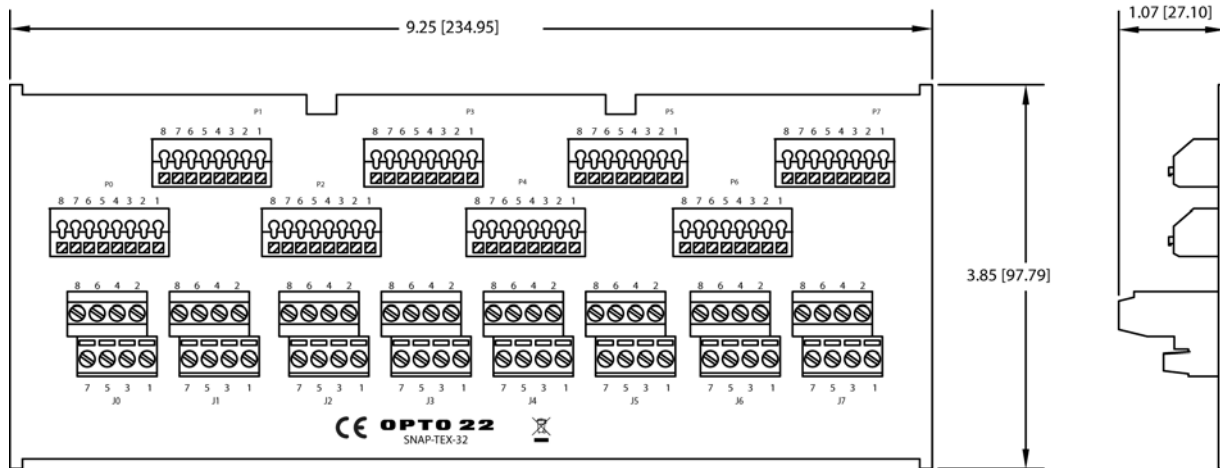
** **IMPORTANT:** Do NOT USE the FB16 breakout boards with a SNAP-TEX-CBE6 cable. The board has odd pins connected; the cable has even pins connected.

SNAP TEX Cables and Breakout Boards

Breakout Boards: SNAP-TEX-32, SNAP-TEX-FB16-H, SNAP-TEX-FB16-L (continued)

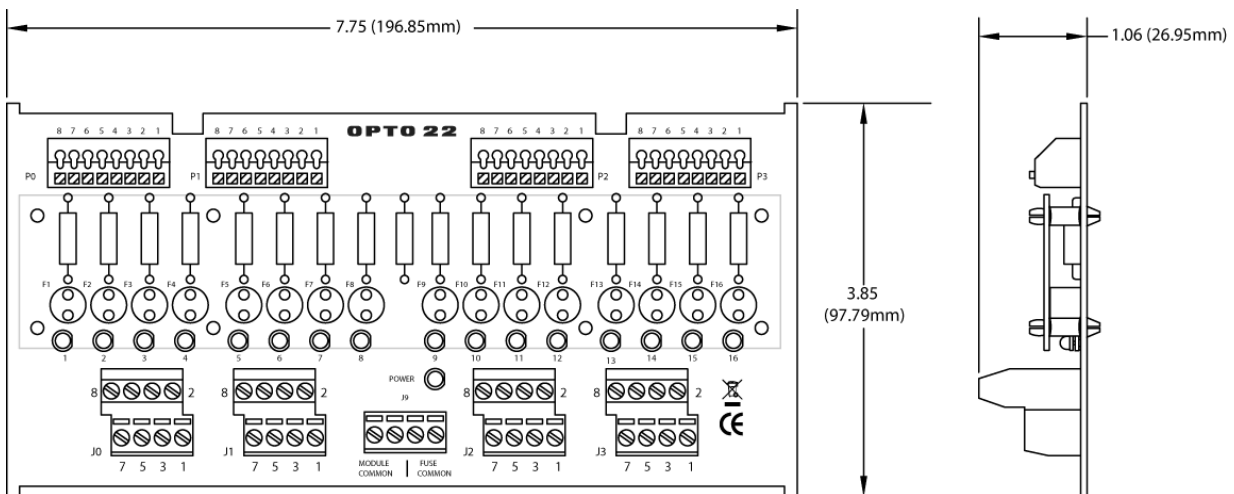
Dimensions—SNAP-TEX-32 Breakout Board

Dimensions are shown in inches (with centimeters in parentheses).



Dimensions—SNAP-TEX-FB16-H and SNAP-TEX-FB16-L Breakout Boards

Dimensions are shown in inches (with centimeters in parentheses).



SNAP TEX Cables and Breakout Boards

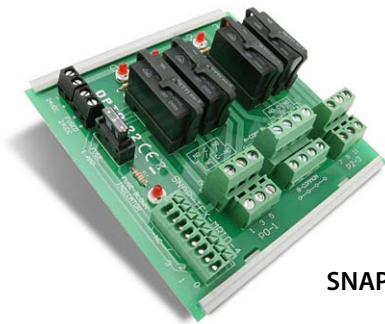
Breakout Boards with Mechanical Relays: SNAP-TEX-MR10-4, SNAP-TEX-MR10-16, and SNAP-TEX-MR10-16C

The **SNAP-TEX-MR10-4**, **SNAP-TEX-MR10-16**, and **SNAP-TEX-MR10-16C** breakout boards, designed for high-current switching, feature mechanical relays that can switch up to 10 A per channel. (Standard SNAP output modules can switch up to 0.75 A; SNAP-OMR6 output modules can switch up to 6 A.)

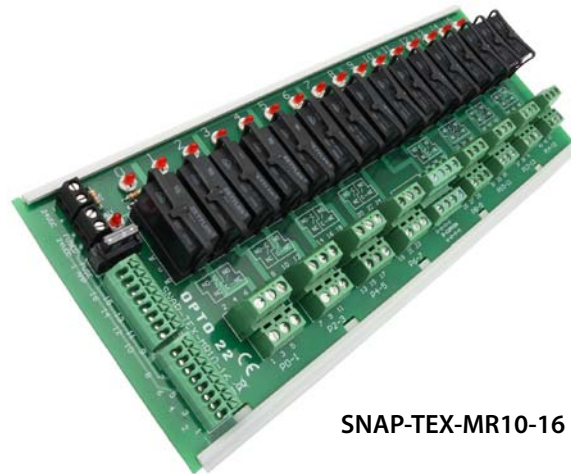
These breakout boards include on/off indicators for each channel, and each channel can be wired for normally closed or normally open. The boards require 24 VDC power.

A replacement relay is available, part number SNAP-MR10.

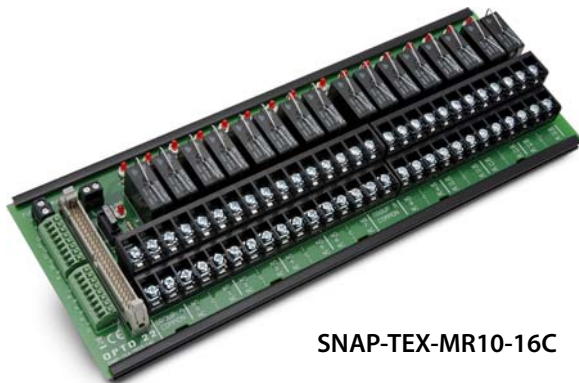
NOTE: Transient protection must be used on inductive loads.



SNAP-TEX-MR10-4



SNAP-TEX-MR10-16

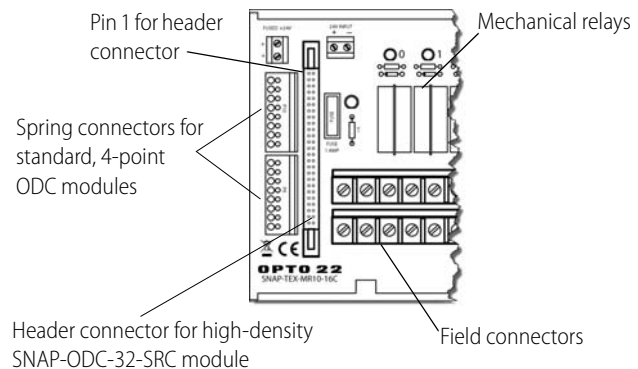


SNAP-TEX-MR10-16C

With the **SNAP-TEX-MR10-16C**, you can connect digital output modules in two ways:

- Connect four standard 4-point ODC modules using the two *spring connectors* and the appropriate cable for the modules. See [page 25](#).
- Connect one SNAP-ODC-32-SRC high-density module to the *header connectors* on two MR10-16C breakout boards. Requires a SNAP-HD-G4F6 cable (see [page 39](#)).

Also, bussed commons in 2-channel groups provide easier wiring of loads. Bussing straps (STRAP2Q and STRAP4Q) can be used for quick common power connections between relay groups. See [page 26](#).



SNAP TEX Cables and Breakout Boards

Breakout Boards with Mechanical Relays (continued)

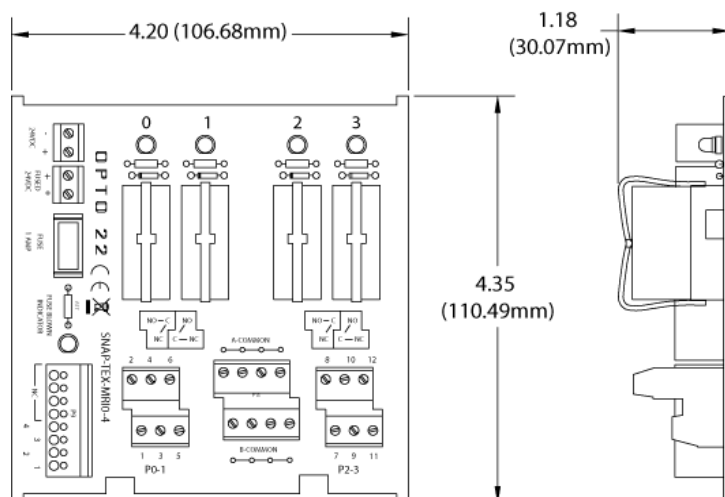
Specifications

See the tables beginning on [page 2](#) for compatible modules and cables. Wiring diagrams begin on [page 19](#).

Feature	SNAP-TEX-MR10-4 SNAP-TEXMR10-16	SNAP-TEX-MR10-16C
Use with I/O modules	SNAP-ODC5-i, SNAP-ODC5A-i, SNAP-ODC5SRC, SNAP-ODC-32-SRC	SNAP-ODC5-i, SNAP-ODC5A-i, SNAP-ODC5SRC, SNAP-ODC-32-SRC
Use with cables	SNAP-TEX-CBO6 (odd pins bussed), SNAP-TEX-CBS6 (no bussing), or SNAP-HD-CBF6, depending on module	<ul style="list-style-type: none"> For one high-density SNAP-ODC-32-SRC module, use a SNAP-HD-G4F6 cable to connect two breakout boards to one module. For four 4-point modules, use SNAP-TEX-CBO6 (odd pins bussed) or SNAP-TEX-CBS6 (no bussing), depending on module.
Use with jumper straps	---	STRAP2Q, STRAP4Q
Relay contacts	SPDT (1 Form C) Typical life expectancy (Electrical): 1×10^5	SPDT (1 Form C) Typical life expectancy (Electrical): 1×10^5
Switching capacity	10 A @ 240 VAC	10 A @ 240 VAC
Switch On time	7 ms nominal	7 ms nominal
Switch Off time	3 ms nominal	3 ms nominal
Fusing	24 V fuse for board. Opto 22 p/n SNAP-FUSE1AC	24 V fuse for board. Opto 22 p/n SNAP-FUSE1AC
Indicators	On/Off status indicators (one for each channel) 1 fuse-blown indicator	On/Off status indicators (one for each channel) 1 fuse-blown indicator
Power requirements (all positions On)	24 VDC @ 75 mA	24 VDC @ 300 mA
Agency Approvals	CE, RoHS, DFARS	CE, RoHS, DFARS
Warranty	30 months from date of manufacture	30 months from date of manufacture

Dimensional Drawing—SNAP-TEX-MR10-4 Breakout Board

Dimensions are shown in inches (with centimeters in parentheses).

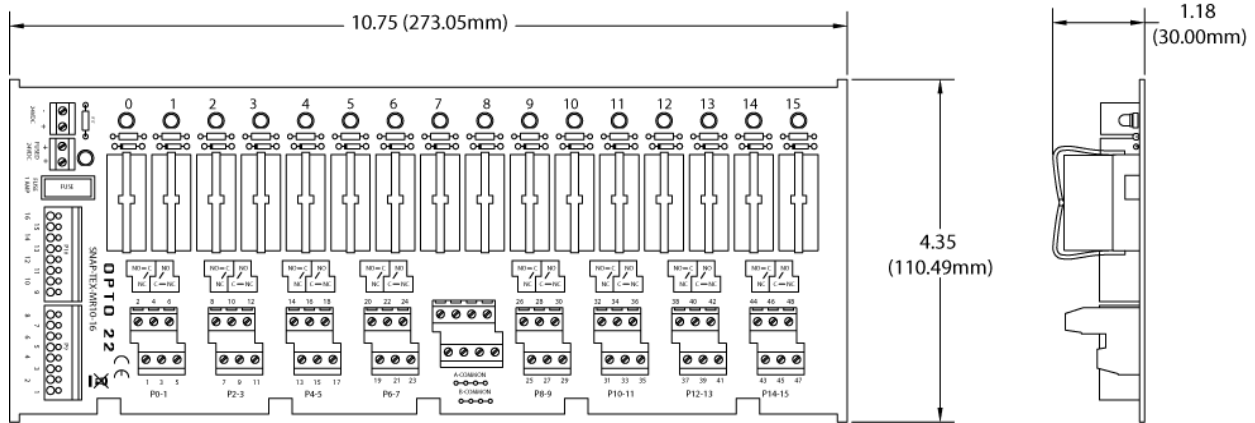


SNAP TEX Cables and Breakout Boards

Breakout Board with Mechanical Relays, High-voltage

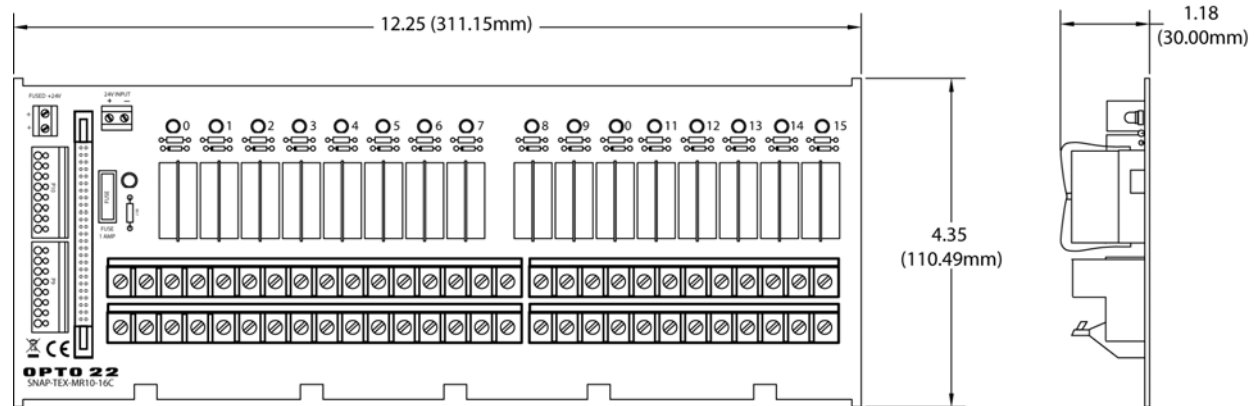
Dimensional Drawing—SNAP-TEX-MR10-16 Breakout Board

Dimensions are shown in inches (with centimeters in parentheses).



Dimensional Drawing—SNAP-TEX-MR10-16C Breakout Board

Dimensions are shown in inches (with centimeters in parentheses).

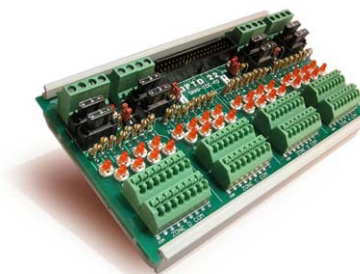


SNAP TEX Cables and Breakout Boards

Breakout Boards for 32-point Digital Modules: SNAP-IDC-HDB, SNAP-ODC-HDB

SNAP-IDC-HDB, SNAP-IDC-HDB-FM, SNAP-ODC-HDB, and SNAP-ODC-HDB-FM breakout boards provide LED indicators and easily accessible fused connectors for points on 32-point digital input or output modules.

Wiring diagrams begin on [page 32](#).



Specifications

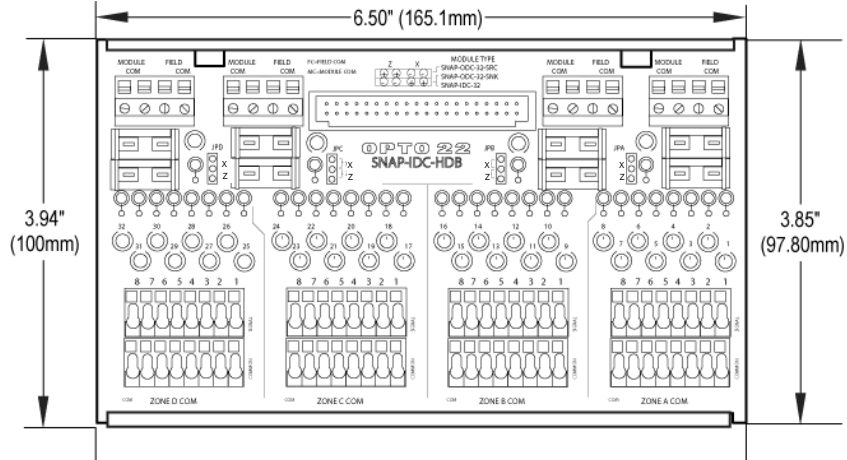
SNAP-IDC-HDB and SNAP-IDC-HDB-FM Breakout Racks for High-Density Digital Input Modules	
Used with	SNAP-IDC-32, SNAP-IDC-32-FM, SNAP-IDC-32N, and SNAP-IDC-32DN
Connectors	40-pin header connects to 32-point input module using SNAP-HD-BF6 header cable. 32 signal input connectors; each signal connector has a corresponding common connector. For each zone of 8 signal inputs, 1 connection for either module common or field common.
Indicators	1 LED for On/Off status of each signal input (32 signal LEDs total) 1 power status LED for each zone of 8 signal inputs (4 power LEDs total)
Fusing	2 fuses (Module Common, Field Common) for each zone of 8 signal inputs (8 fuses total) 1 A fuses; replace with Pudenz 1 A automobile mini-fuse or equivalent.
Jumpers	For each zone of 8 signal inputs, 1 jumper controls whether module common or field common is used. Set jumpers to X position for digital input modules.
Voltage	32 VDC maximum, 12-24 VDC nominal
Agency Approvals	SNAP-IDC-HDB: UL, CE, RoHS, DFARS SNAP-IDC-HDB-FM: FM, CE, RoHS, DFARS
Warranty	30 months from date of manufacture

SNAP-ODC-HDB and SNAP-ODC-HDB-FM Breakout Racks for High-Density Digital Output Modules	
Used with	SNAP-ODC-32-SRC, SNAP-ODC-32-SRC-FM, SNAP-ODC-32-SNK, and SNAP-ODC-32-SNK-FM
Connectors	40-pin header; connects to 32-point sourcing or sinking module using SNAP-HD-BF6 header cable. 32 signal output connectors; each signal connector has a corresponding common connector. For each zone of 8 signal outputs, 1 connection for either module common or field common.
Indicators	1 LED for On/Off status of each signal output (32 signal LEDs total) 1 power status LED for each zone of 8 signal outputs (4 power LEDs total)
Fusing	1 A fuses; 1 fuse for each signal output (32 signal fuses total) Replace with Pudenz 1 A automobile mini-fuse or equivalent.
Jumpers	For each zone of 8 signal inputs, 1 jumper controls whether module common or field common is used. Set jumpers to Z position for digital output modules.
Voltage	32 VDC maximum, 12-24 VDC nominal
Agency Approvals	SNAP-ODC-HDB: UL, CE, RoHS, DFARS SNAP-ODC-HDB-FM: FM, CE, RoHS, DFARS
Warranty	30 months from date of manufacture

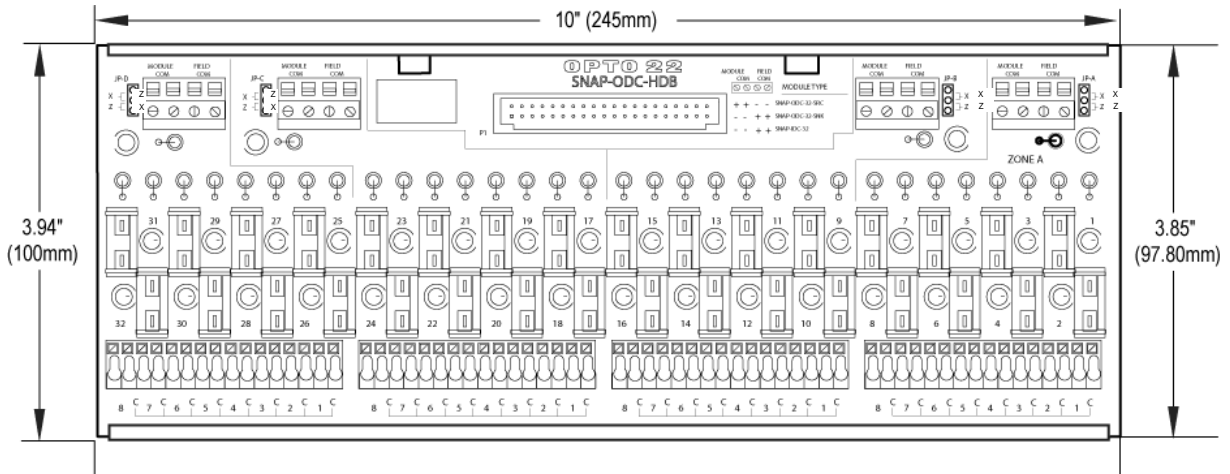
SNAP TEX Cables and Breakout Boards

Breakout Boards for 32-point Digital Modules (continued)

Dimensional Drawings



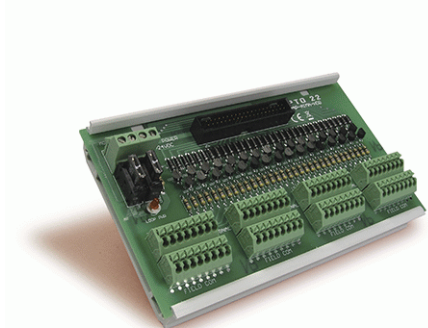
SNAP-IDC-HDB and SNAP-IDC-HDB-FM breakout racks



SNAP-ODC-HDB and SNAP-ODC-HDB-FM breakout racks

SNAP TEX Cables and Breakout Boards

Breakout Boards for 32-point Analog Modules: SNAP-AIMA-HDB and SNAP-AIV-HDB



SNAP-AIMA-HDB breakout board

SNAP-AIMA-HDB, SNAP-AIMA-HDB-FM, SNAP-AIV-HDB, and SNAP-AIV-HDB-FM breakout boards are primarily designed for use with SNAP-AIMA-32, SNAP-AIMA-32-FM, SNAP-AIV-32, and SNAP-AIV-32-FM analog input modules, respectively. Each of these modules provides 32 input points. The breakout boards provide easy accessibility for wiring points to field devices. Use the SNAP-HD-BF6 cable for wiring connections between the module and the breakout board.

Note for the SNAP-AIMA-32 or SNAP-AIMA-32-FM: if you are using one of these modules with loop powered (2-wire) devices, connect to the SNAP-AIMA-HDB or SNAP-AIMA-HDB-FM rack as shown on [page 40](#). However, if you are using the SNAP-AIMA-32 (or -FM) with self-powered devices (4-wire), do not use the SNAP-AIMA-HDB (or -FM) boards, which have a current limiter. Instead, wire to the SNAP-AIV-HDB or SNAP-AIV-HDB-FM as shown on [page 41](#) (negative common) or [page 42](#) (positive common).

CAUTION: We strongly recommend that you use a breakout board with the SNAP-AIMA-32 (or -FM) module. Without the board, miswiring of any point on the module can cause severe out-of-warranty damage. The breakout board protects the module from many wiring errors.

Working with Module Values

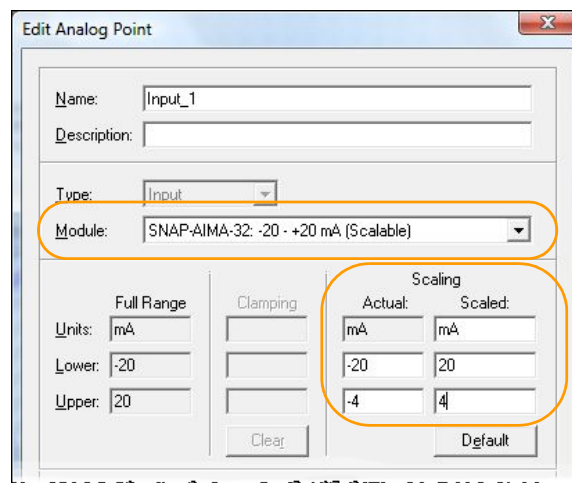
AIMA modules used with a SNAP-AIV-HDB board read normally. However, values on AIMA modules used with a SNAP-AIMA-HDB board are read as *negative values*. For example, a value of 10 mA on the module will be read as -10 mA. (Note: If no readings appear, try reversing field connections on the board.)

Because these readings are negative values, they can be confusing to work with. This section shows you how to easily change them to positive values or scale them to the positive

readings you need. This section applies only to the SNAP-AIMA-HDB board.

Changing Negative to Positive Values

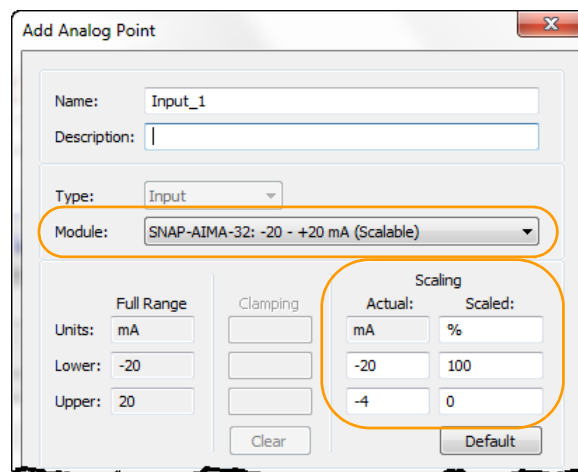
(SNAP-AIMA-HDB board only) To read positive values, when you configure points on the module, choose the scalable option and enter the corresponding positive values, like this:



This may seem odd, but it works. Don't be confused by the "Lower" and "Upper" labels for the values. Positive values sent to the module will be shown as the correct positive values within your PAC Control strategy.

Scaling Values

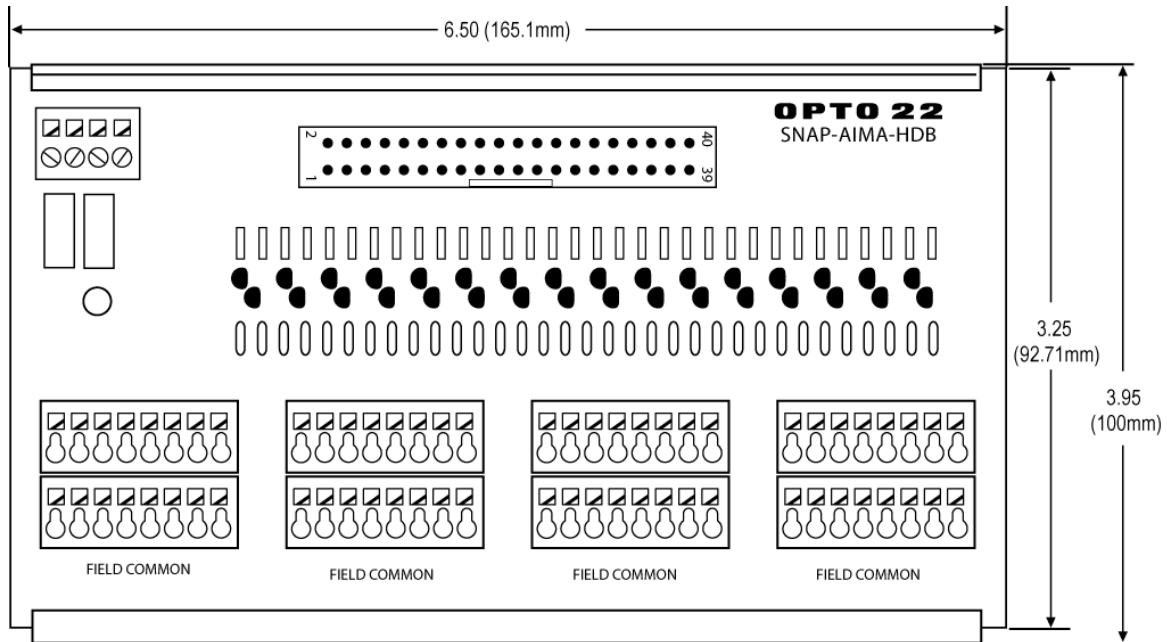
Similarly, if you need to scale values for your application, enter the positive values you need. If you want the field signal of 4 to 20 mA to be scaled as 0 to 100%, then configure as shown below:



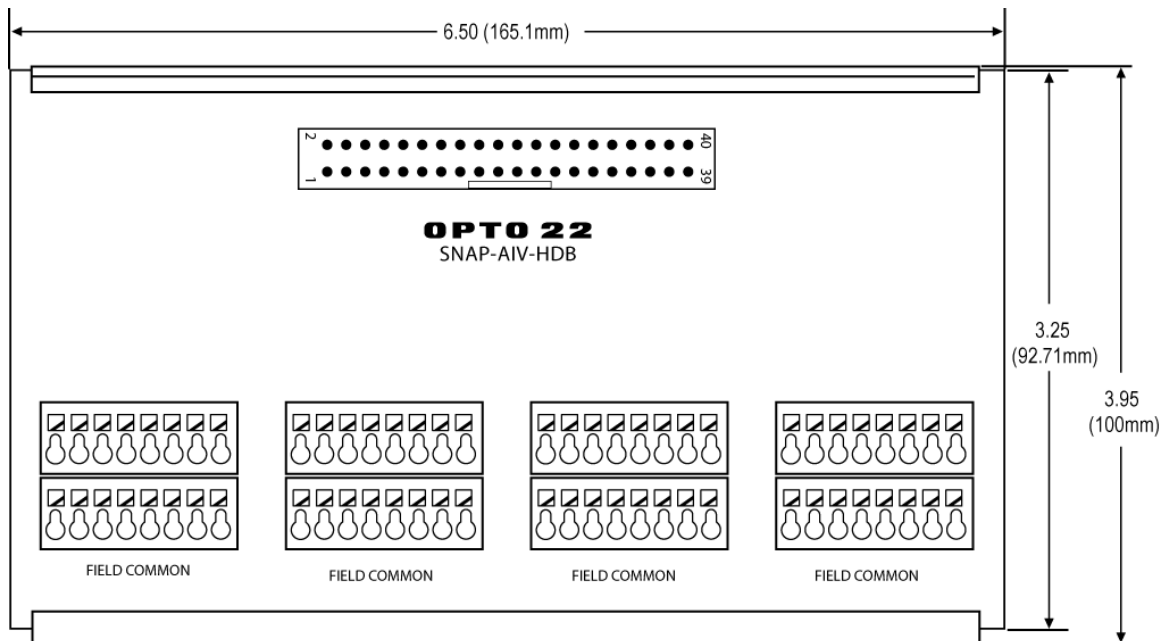
SNAP TEX Cables and Breakout Boards

Breakout Boards for 32-point Analog Modules (continued)

Dimensional Drawing—SNAP-AIMA-HDB and SNAP-AIMA-HDB-FM Breakout Boards



Dimensional Drawing—SNAP-AIV-HDB and SNAP-AIV-HDB-FM Breakout Boards



SNAP TEX Cables and Breakout Boards

Wiring Diagrams for Cables and Breakout Boards

Module Type	To Breakout Board	See page
4-point digital modules	SNAP-TEX-32	20
	SNAP-TEX-FB16-H SNAP-TEX-FB16-L	21
	SNAP-TEX-MR10-4 SNAP-TEX-MR10-16	24
	SNAP-TEX-MR10-16C	25
1-, 2-, or 4-point analog modules	SNAP-TEX-32	20
8-point analog output module	SNAP-TEX-32	27
16-point digital modules	SNAP-TEX-32	28
	SNAP-TEX-FB16-H SNAP-TEX-FB16-L	29
	SNAP-TEX-MR10-16C	26
32-point digital modules	SNAP-TEX-32	30
	SNAP-TEX-FB16-H SNAP-TEX-FB16-L	31
32-point digital inputs	SNAP-IDC-HDB	32
32-point digital outputs	SNAP-ODC-HDB	35
32-point digital outputs (sourcing only)	SNAP-TEX-MR10-16	38
	SNAP-TEX-MR10-16C	39
32-point SNAP-AIMA-32	SNAP-AIMA-HDB	40
32-point SNAP-AIV-32	SNAP-AIV-HDB	41
32-point SNAP-AIV-32	SNAP-TEX-32	30

SNAP TEX Cables and Breakout Boards

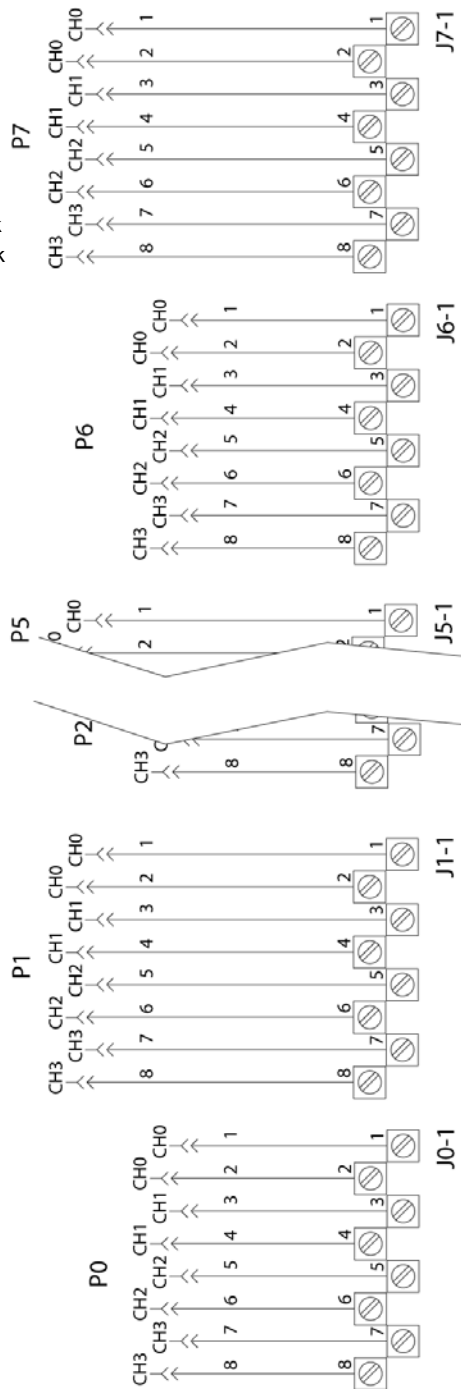
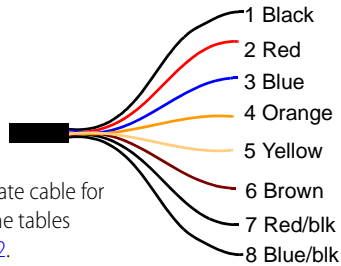
Wiring: 4-Point Digital or Analog Module to SNAP-TEX-32 Breakout Board

Wire up to eight 4-point modules to the SNAP-TEX-32. Only one module is shown below.

Cable:

- SNAP-TEX-CBO6
- SNAP-TEX-CBE6
- SNAP-TEX-CBS6

Find the appropriate cable for your module in the tables starting on [page 2](#).



SNAP-TEX-32 breakout board

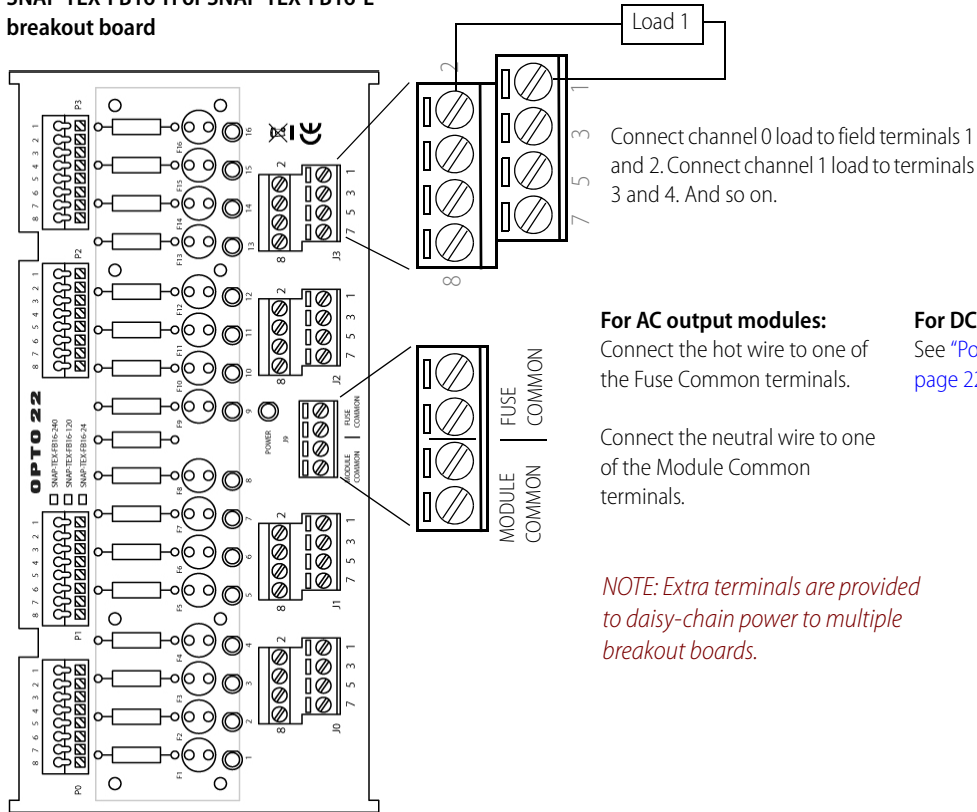
For field wiring, see the data sheet for the module you are using.

SNAP TEX Cables and Breakout Boards

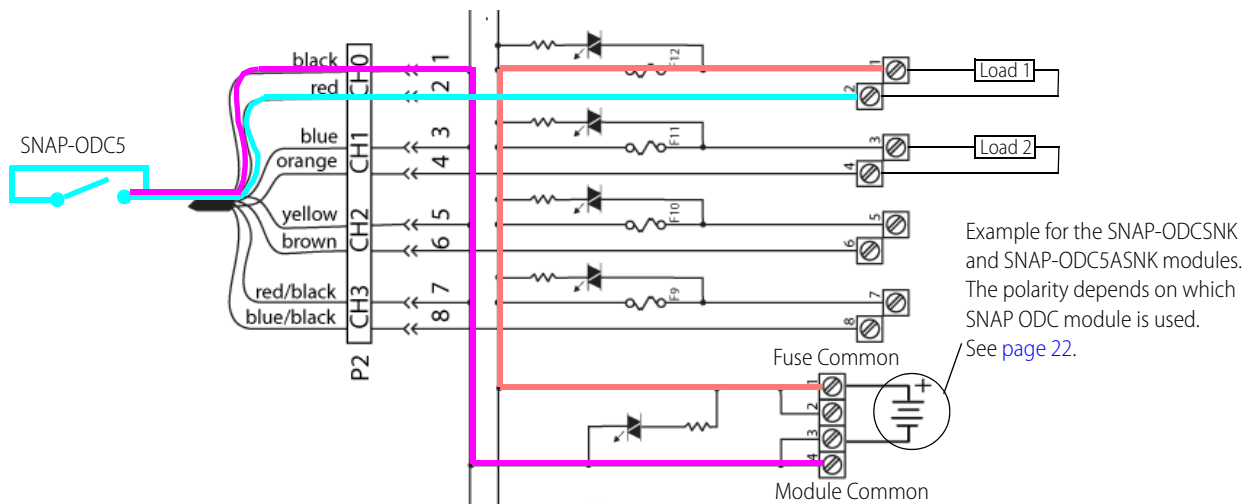
Wiring: 4-Point Digital Module to SNAP-TEX-FB16-H or SNAP-TEX-FB16-L Board

General Instructions

SNAP-TEX-FB16-H or SNAP-TEX-FB16-L breakout board



SNAP-TEX-FB16-H or SNAP-TEX-FB16-L breakout board



SNAP TEX Cables and Breakout Boards

4-point Digital Module to SNAP-TEX-FB16-H or SNAP-TEX-FB16-L (continued)

Polarity and Module Type

When using DC output modules, the polarity for connecting the DC power source to the Module Common and Fuse Common terminals on the breakout board depends on the SNAP digital output module being used.

The SNAP-TEX-FB16-H and SNAP-TEX-FB16-L breakout boards use the Module Common to connect to all the odd terminals of the SNAP output module.

Fuse Common goes to the individual fuses, which go to the odd terminals on this breakout board.

The even terminals on the SNAP output modules go to the even terminals via the SNAP-TEX cable.

SNAP-ODC5SNK, SNAP-ODC5ASNK

These modules internally tie all odd terminals together.

- Connect the positive side of the DC power source to Fuse Common.
- Connect the negative side of the DC power source to Module Common.

SNAP-ODC5SRC

This module internally ties all even terminals together.

- Connect the positive side of the DC power source to Module Common.
- Connect the negative side of the DC power source to Fuse Common.

SNAP-ODC5MA, SNAP-ODC5-i, SNAP-ODC5A-i

IMPORTANT: The points on these modules are isolated from each other. However, when used with this breakout board, the channel-to-channel isolation is bypassed, because this breakout board ties the module's odd terminals together.

- Connect the positive side of the DC power source to Module Common.
- Connect the negative side of the DC power source to Fuse Common.

SNAP TEX Cables and Breakout Boards

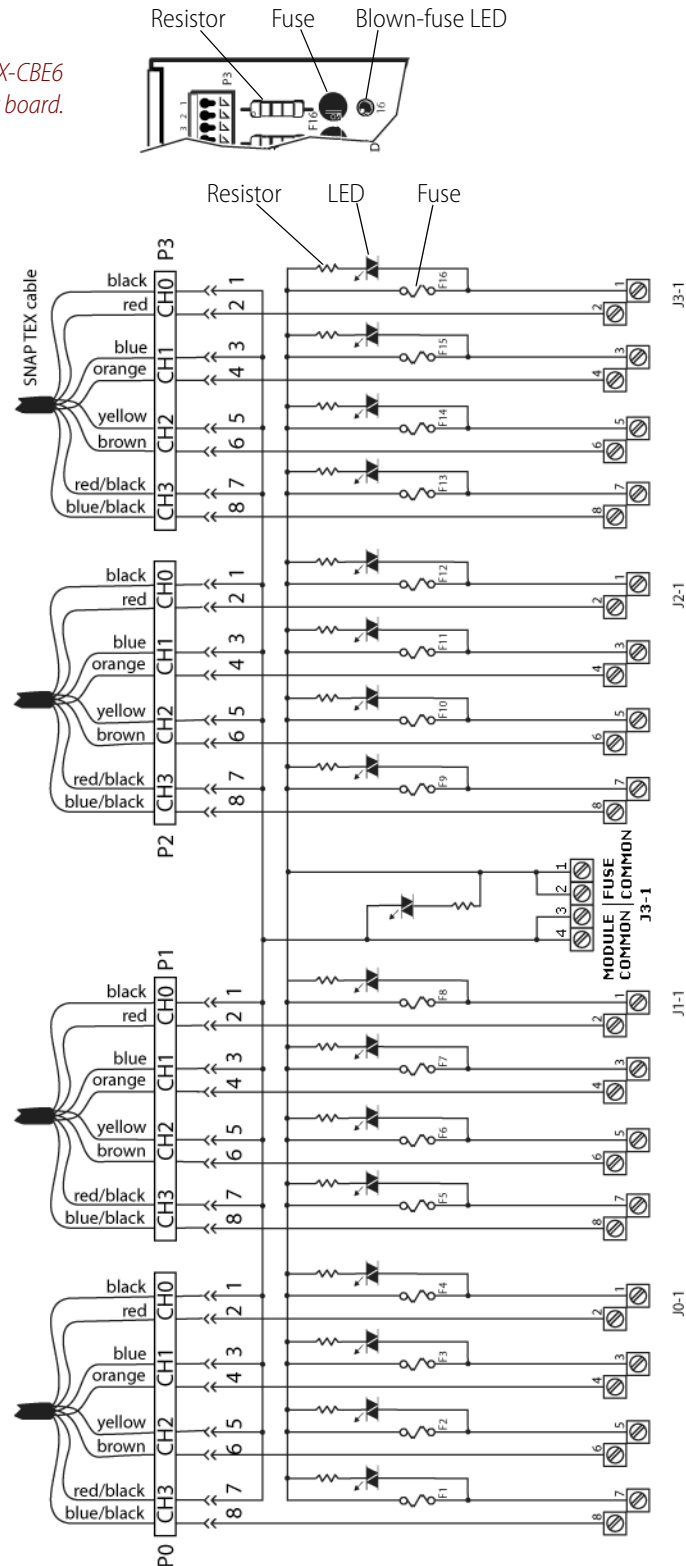
4-point Digital Module to SNAP-TEX-FB16-H or SNAP-TEX-FB16-L (continued)

CAUTION: Do NOT use the SNAP-TEX-CBE6 (even pins commoned) cable with this board. The board has odd pins commoned.

Cable:

SNAP-TEX-CBO6
SNAP-TEX-CBS6
Find the appropriate cable for your module in the tables starting on page 2.

Also see "General Instructions" on page 21.

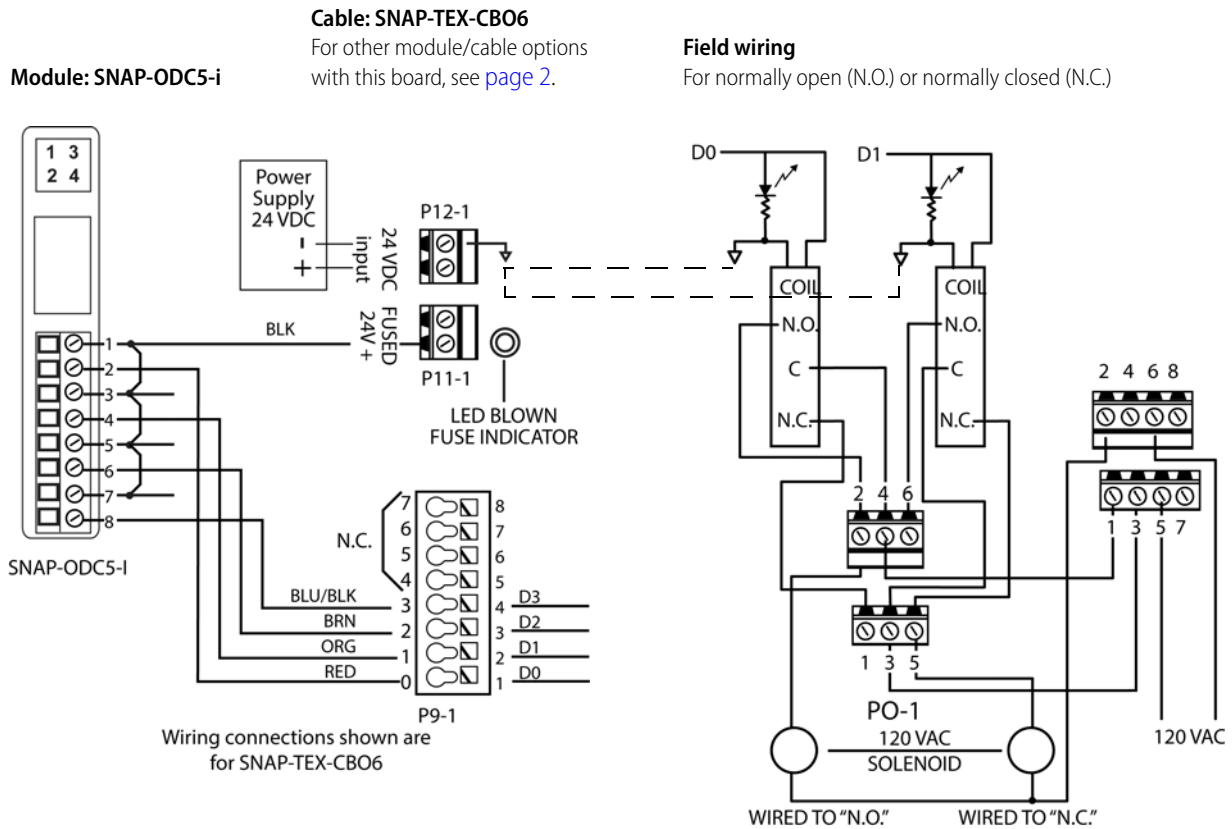


SNAP TEX Cables and Breakout Boards

Wiring: 4-point Digital Module to SNAP-TEX-MR10-4 or SNAP-TEX-MR10-16 Board

The example shows wiring for the first two points on a SNAP-ODC5-i module to a SNAP-TEX-MR10-4 board. Wiring connections shown are for a SNAP-TEX-CBO6 cable.

Wiring 4-point modules to a SNAP-TEX-MR10-16 board is similar. The MR10-16 has 16 channels rather than four.

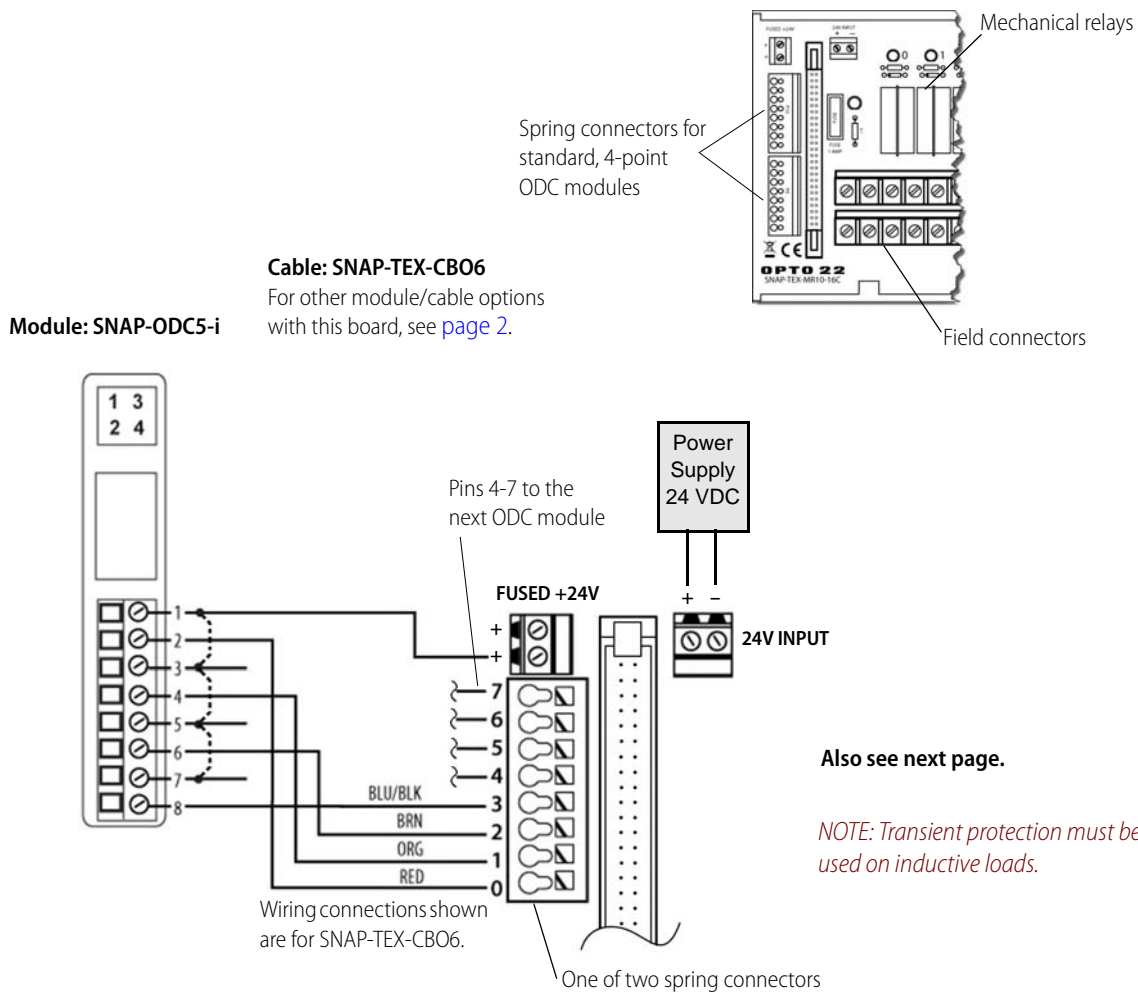


NOTE: Transient protection must be used on inductive loads.

SNAP TEX Cables and Breakout Boards

Wiring: 4-point Digital Output Module to SNAP-TEX-MR10-16C Board

Two 4-point ODC modules can be wired to each of the two spring connectors. The example shows the first two points on a SNAP-ODC5-i module. Wiring connections shown are for a SNAP-TEX-CBO6 cable.



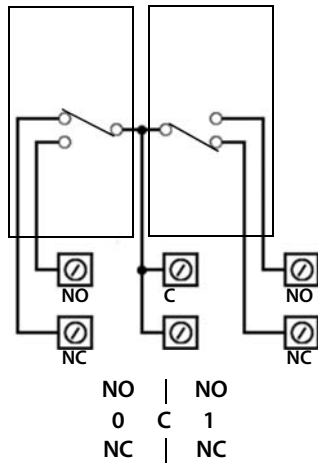
NOTE: If you are using a SNAP-TEX-CBS6 cable instead of the SNAP-TEX-CBO6, jumpers are required for a SNAP-ODC5-I module. They are not required for a SNAP-ODC5SRC module.

SNAP TEX Cables and Breakout Boards

4-pt or 16-pt Digital Output Module to SNAP-TEX-MR10-16C

SNAP-TEX-MR10-16C Relay Group

The diagram below shows relays 0 and 1 in a relay group.



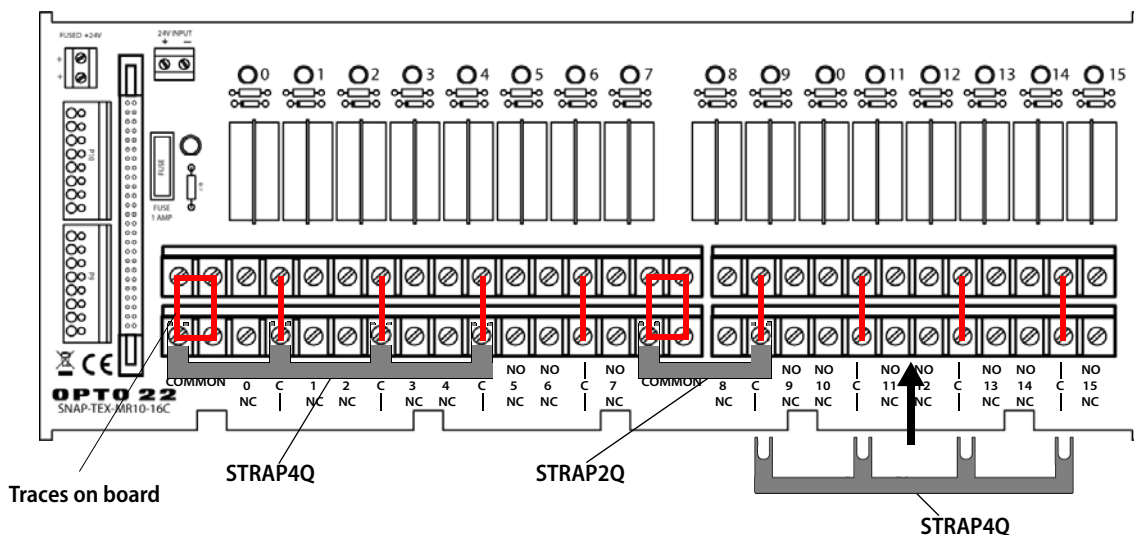
Terminals 0 and 1

NOTE: The diagrams on this page apply to the SNAP-TEX-MR10-16C breakout board used with either a 4-point digital output module or a 16-point digital output module.

NOTE: Transient protection must be used on inductive loads.

Jumper Straps—SNAP-TEX-MR10-16C Breakout Board

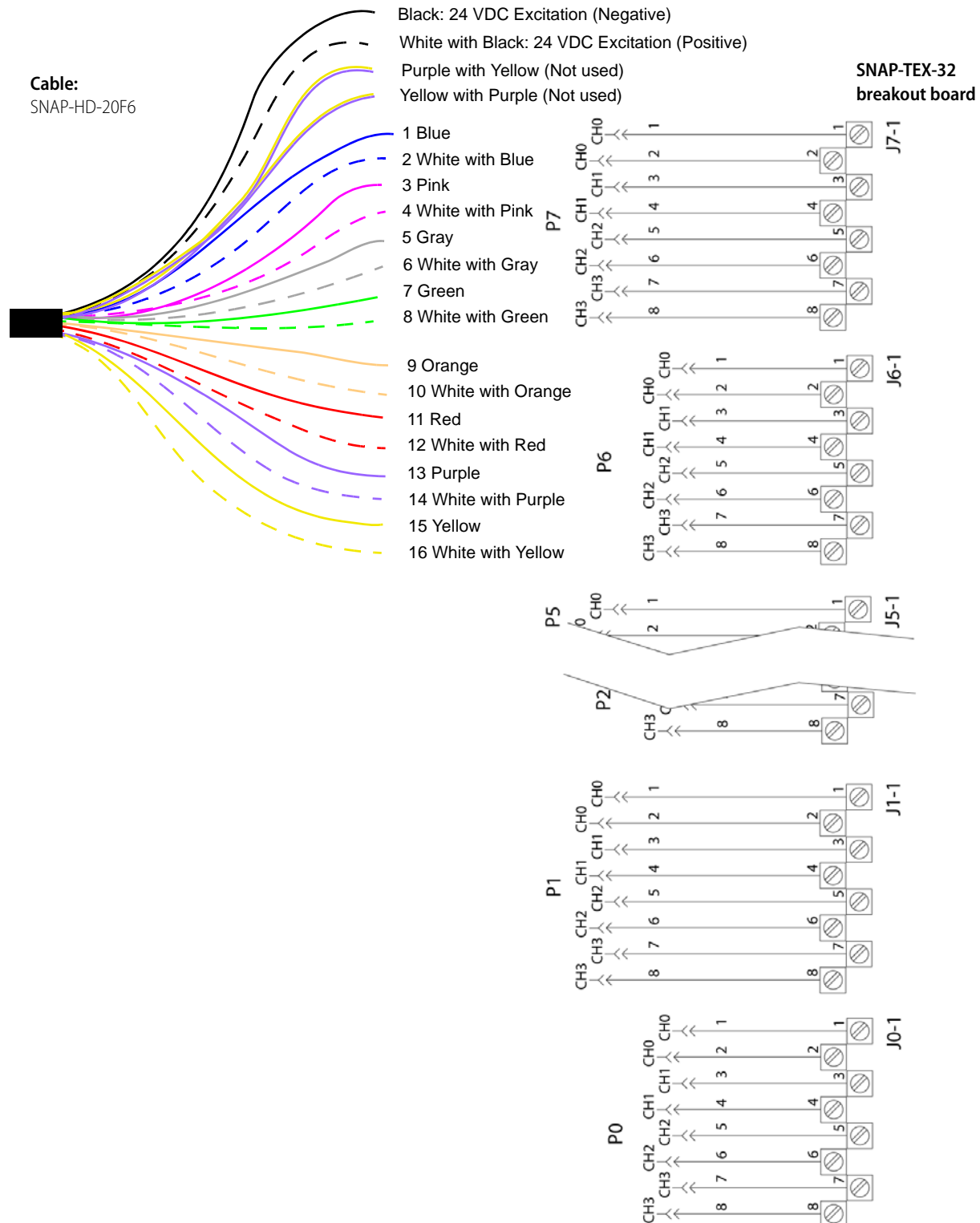
This diagram shows an example using jumper straps, Opto 22 part numbers STRAP2Q and STRAP4Q.



SNAP TEX Cables and Breakout Boards

Wiring: 8-Point Analog Output Module to SNAP-TEX-32 Breakout Board

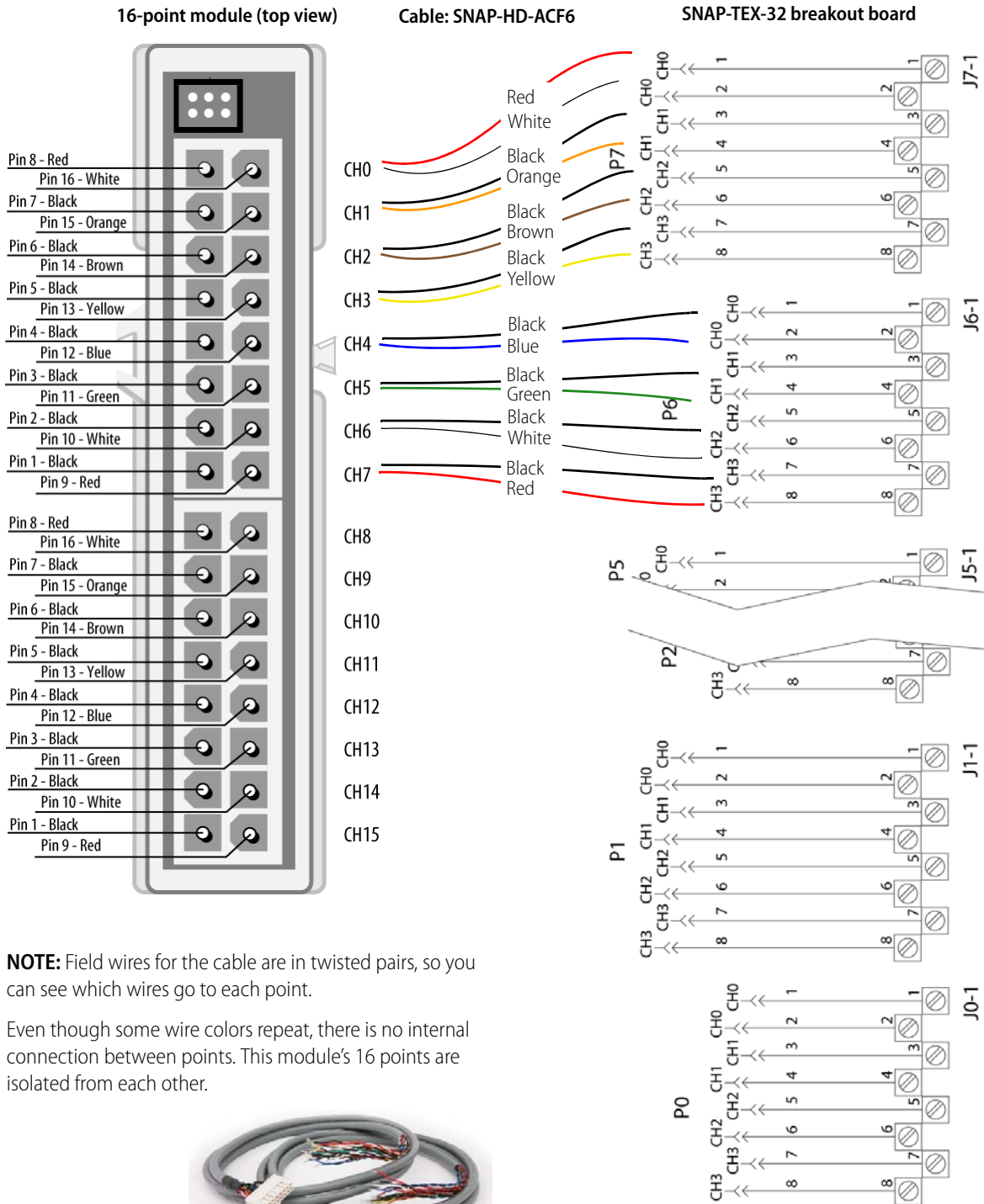
Use up to four 8-point SNAP-AOVA-8 analog output modules per board. Use cable SNAP-HD-20F6.
Wiring example for one module is shown below.



SNAP TEX Cables and Breakout Boards

Wiring: 16-point Digital Module to SNAP-TEX-32 Breakout Board

Use two modules per board. The SNAP-HD-ACF6 cable assembly includes two identical cables, each with a 16-pin connector. It takes both cables to cover one module. Wiring for one cable is shown in the diagram below. Field connection wires are twisted pair.



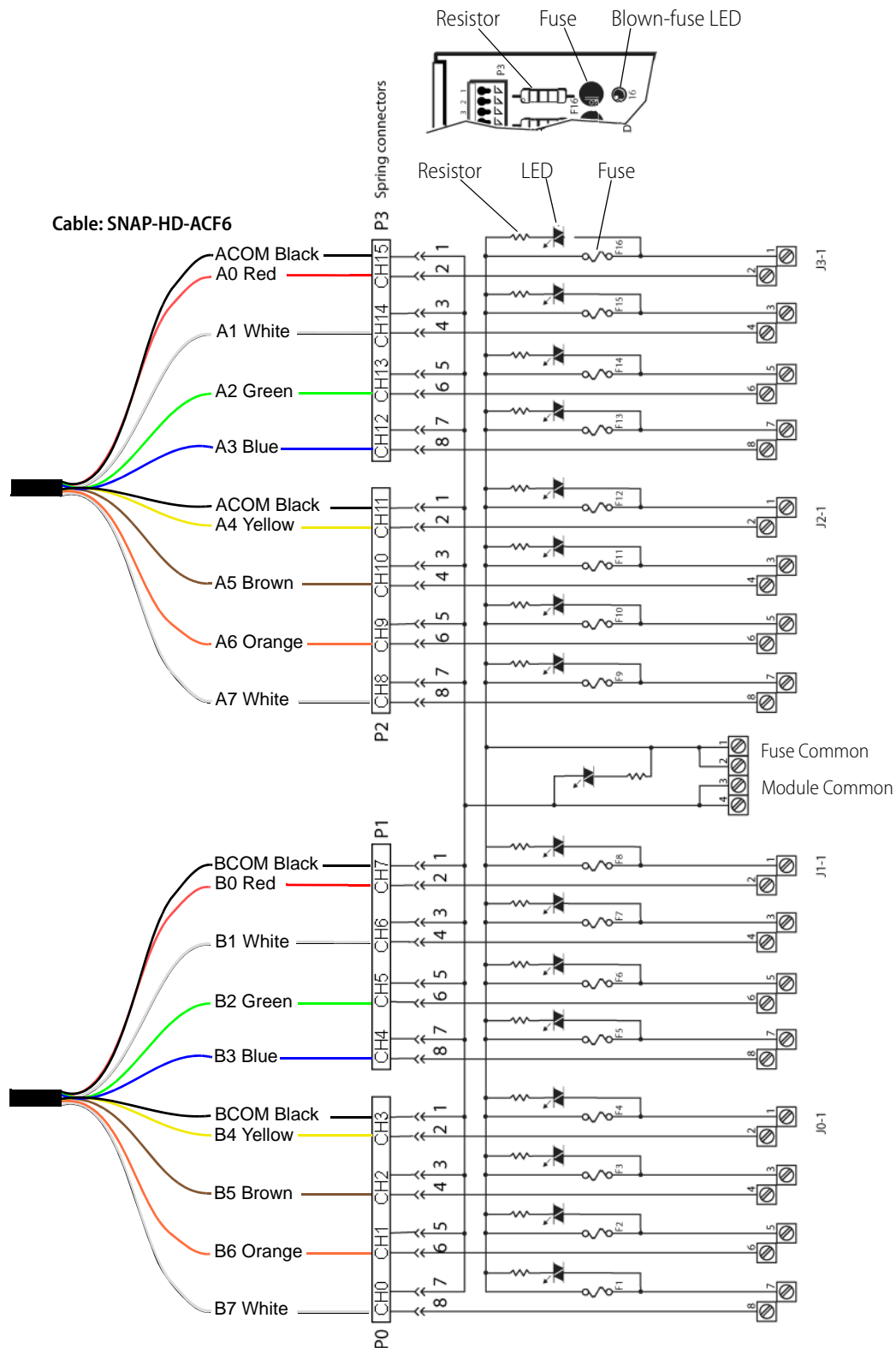
NOTE: Field wires for the cable are in twisted pairs, so you can see which wires go to each point.

Even though some wire colors repeat, there is no internal connection between points. This module's 16 points are isolated from each other.



SNAP TEX Cables and Breakout Boards

Wiring: 16-point Digital Input Module to SNAP-TEX-FB16-H or SNAP-TEX-FB16-L



SNAP TEX Cables and Breakout Boards

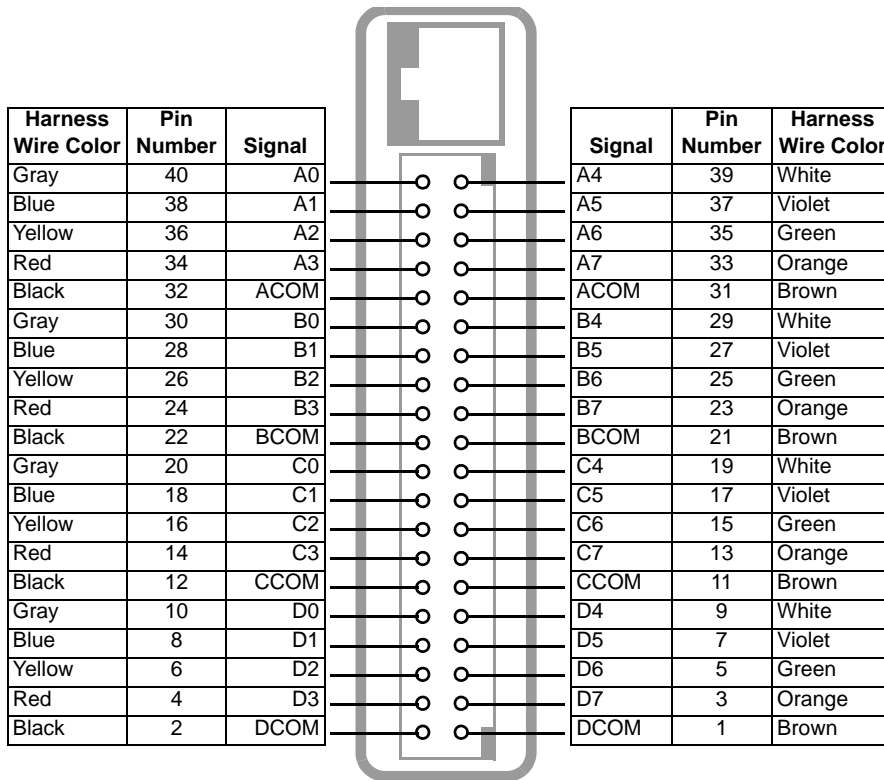
Wiring: 32-point Digital Module to SNAP-TEX-32 Breakout Board

SNAP-HD-CBF6 Cable Wiring

The following table shows connector wiring for the SNAP-HD-CBF6. Wires from the cable are grouped into four sets.

Set A			Set B			Set C			Set D		
Wires		Point	Wires		Point	Wires		Point	Wires		Point
A0	Gray	0	B0	Gray	8	C0	Gray	16	D0	Gray	24
A1	Blue	1	B1	Blue	9	C1	Blue	17	D1	Blue	25
A2	Yellow	2	B2	Yellow	10	C2	Yellow	18	D2	Yellow	26
A3	Red	3	B3	Red	11	C3	Red	19	D3	Red	27
A4	White	4	B4	White	12	C4	White	20	D4	White	28
A5	Violet	5	B5	Violet	13	C5	Violet	21	D5	Violet	29
A6	Green	6	B6	Green	14	C6	Green	22	D6	Green	30
A7	Orange	7	B7	Orange	15	C7	Orange	23	D7	Orange	31
ACOM	Blk/Brn	com	BCOM	Blk/Brn	com	CCOM	Blk/Brn	com	DCOM	Blk/Brn	com

The four sets relate to point numbers on the module as shown below.



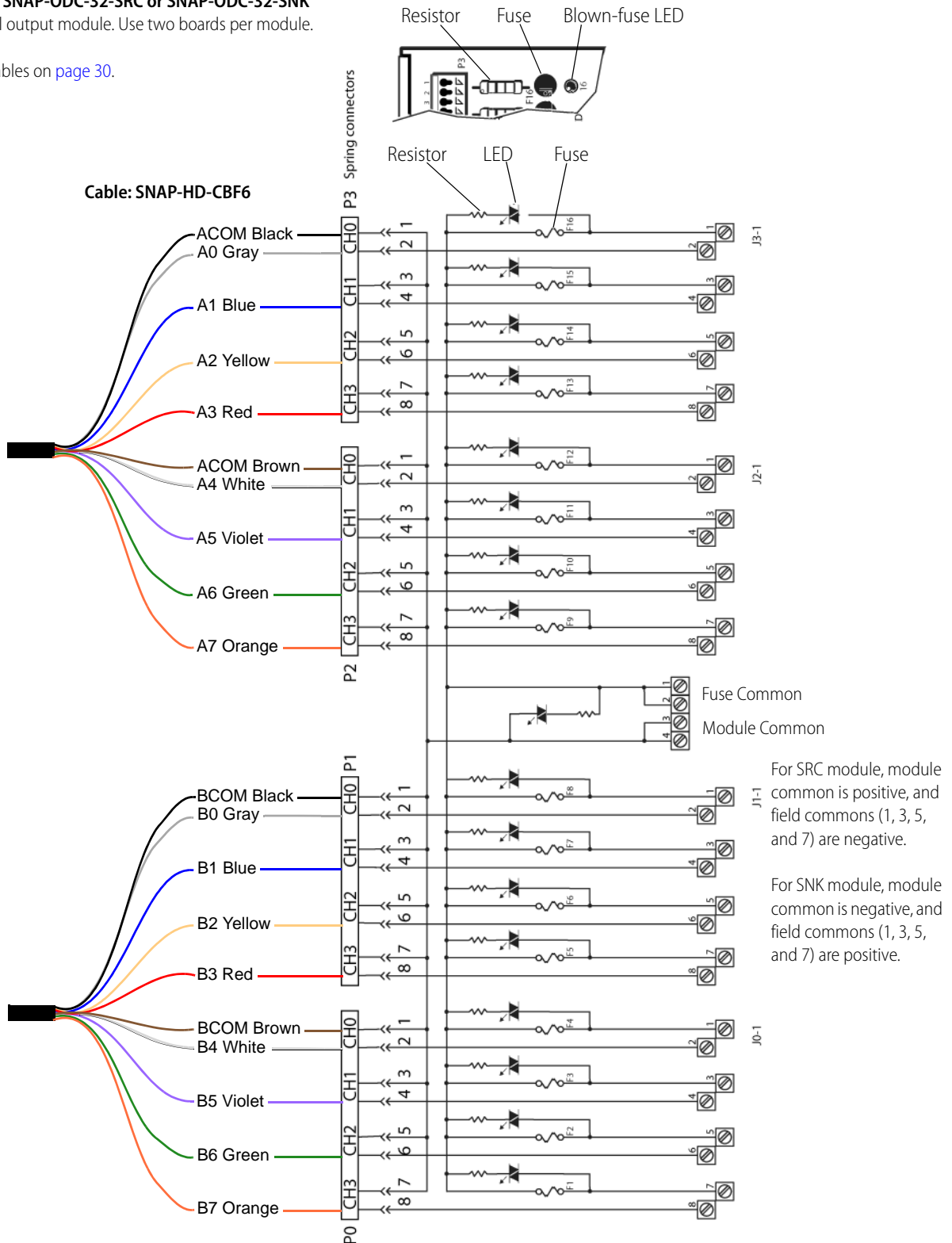
Connector wiring for SNAP-ODC-32-SNK, SNAP-ODC-32-SRC, SNAP-IDC-32, -FM versions, SNAP-IDC-32N, and SNAP-IDC-32DN (top view of module)

SNAP TEX Cables and Breakout Boards

Wiring: 32-point Digital Output Module to SNAP-TEX-FB16-H or SNAP-TEX-FB16-L

From SNAP-ODC-32-SRC or SNAP-ODC-32-SNK digital output module. Use two boards per module.

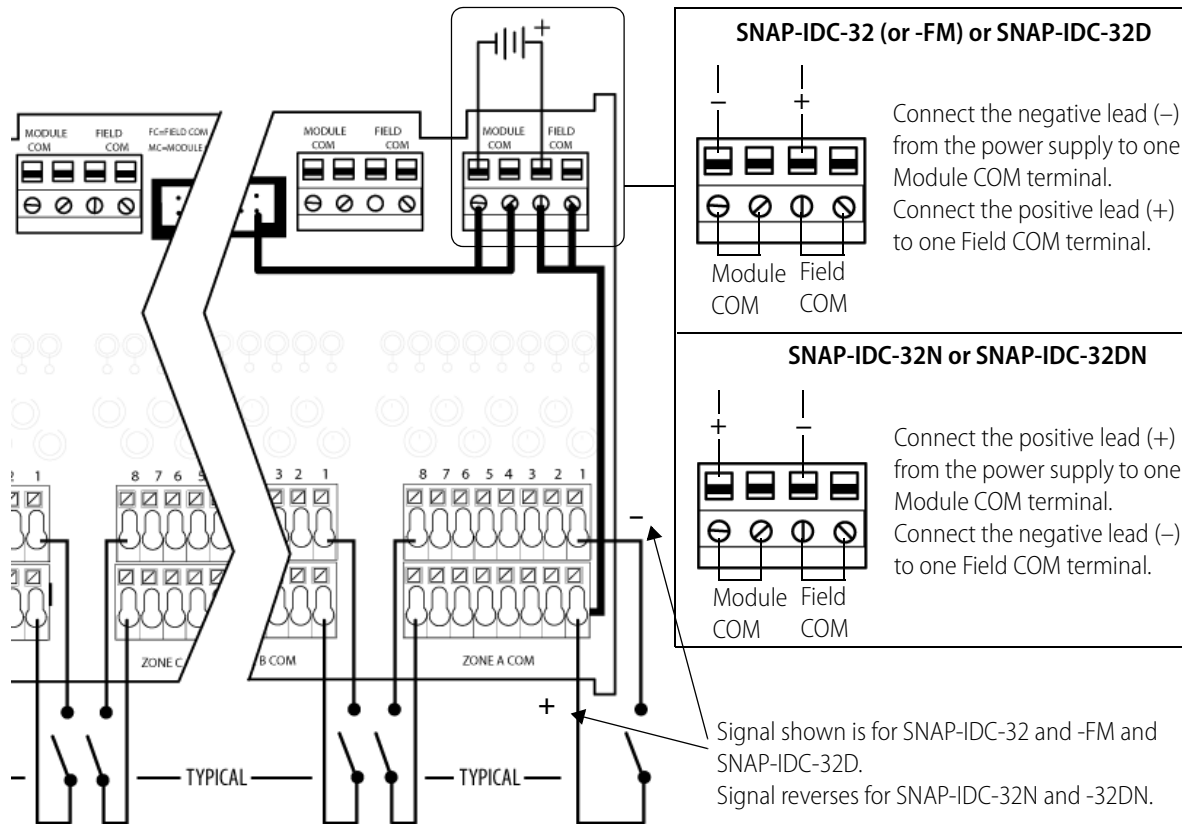
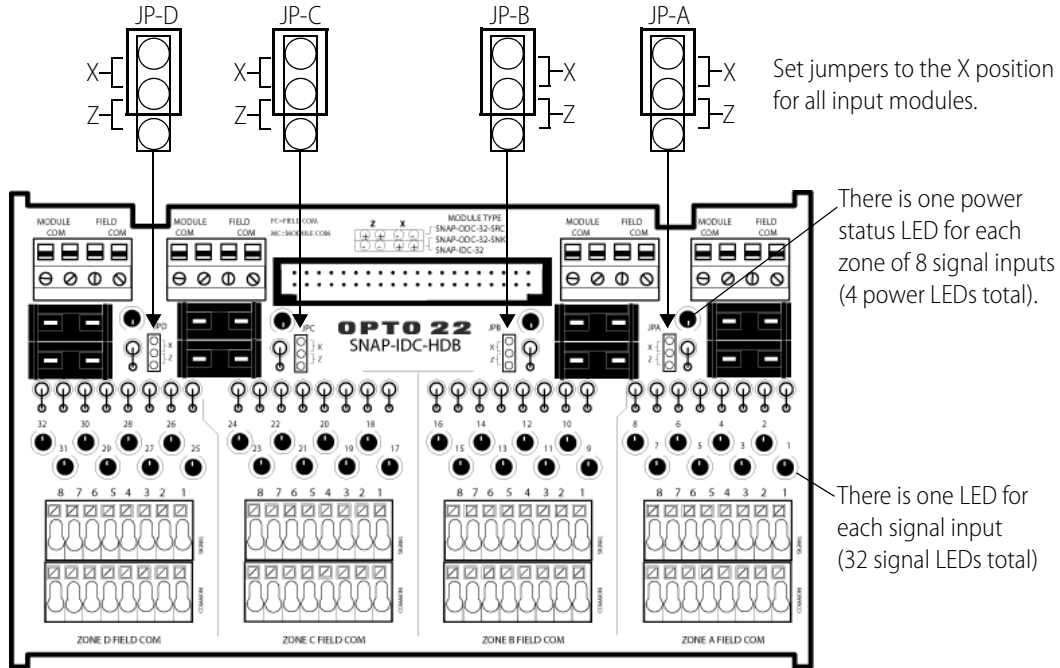
See tables on [page 30](#).



SNAP TEX Cables and Breakout Boards

Wiring: 32-point Digital Input Module to SNAP-IDC-HDB Board

For more information, see the *SNAP High-Density Digital Modules User's Guide*, form 1547.

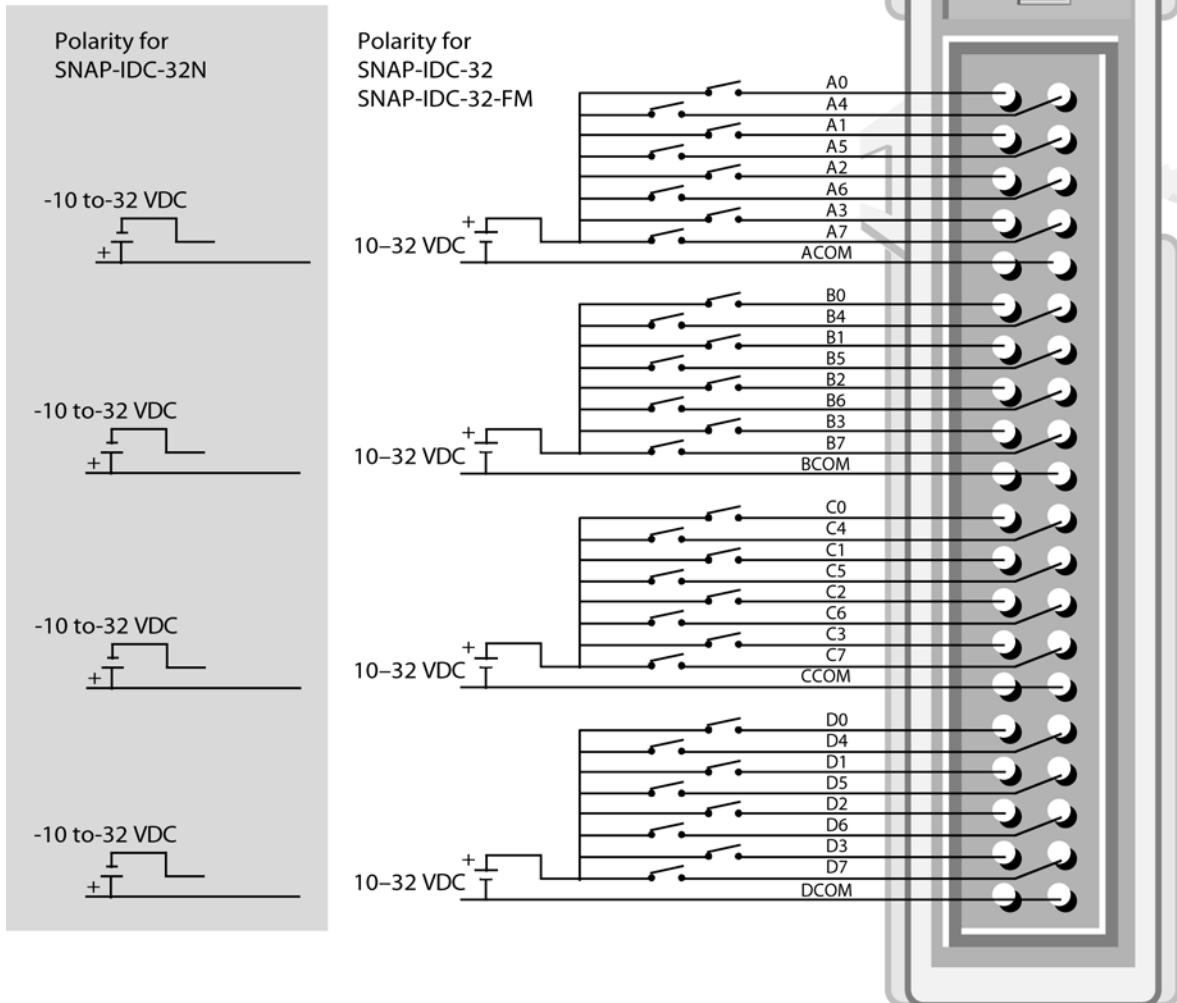


SNAP TEX Cables and Breakout Boards

32-point Digital Input Module to SNAP-IDC-HDB (continued)

Modules—this diagram applies to:
 SNAP-IDC-32
 SNAP-IDC-32-FM
 SNAP-IDC-32N

IMPORTANT: All SNAP-IDC-32 modules are polarity specific and must be wired as shown.

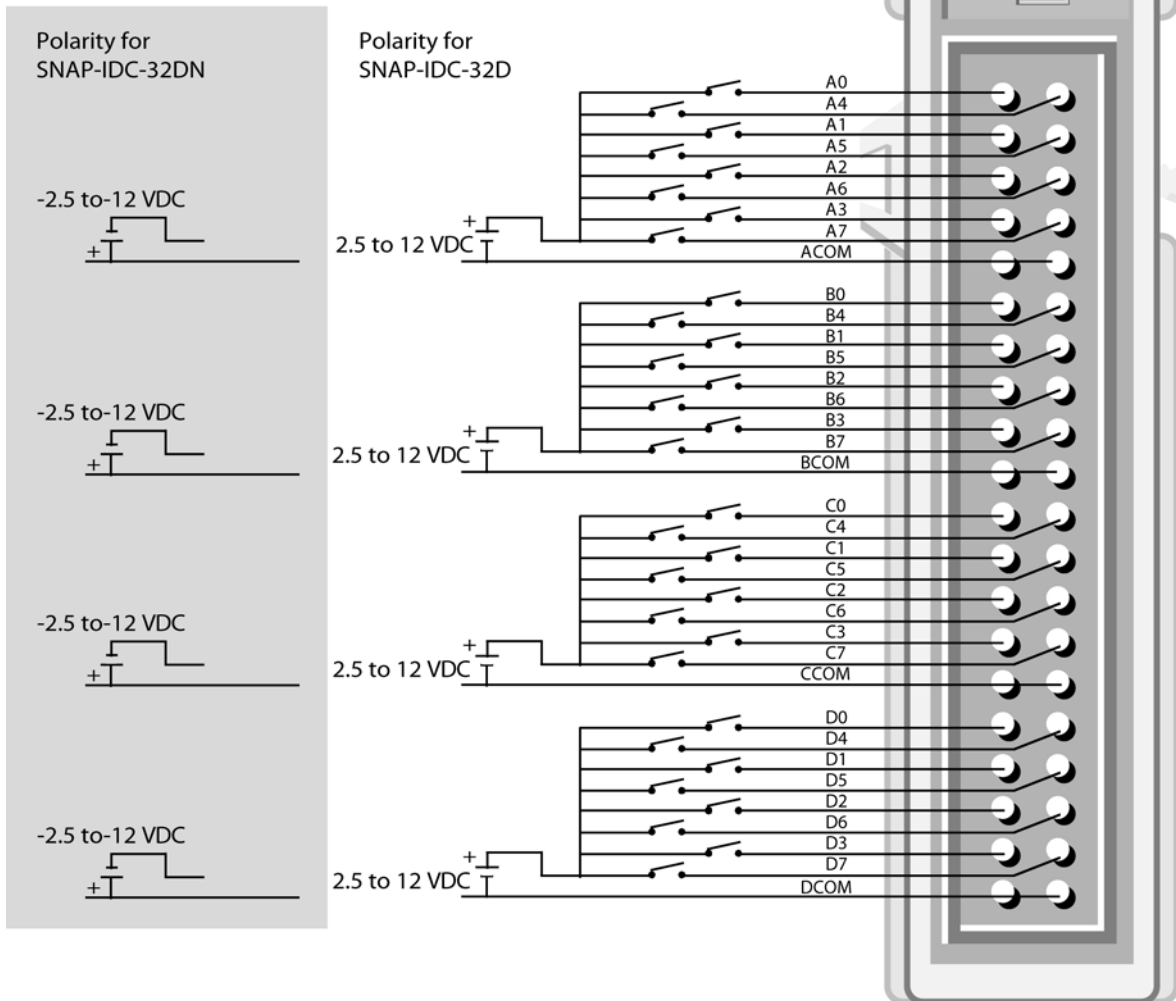


SNAP TEX Cables and Breakout Boards

32-point Digital Input Module to SNAP-IDC-HDB (continued)

Modules—this diagram applies to:
 SNAP-IDC-32-D
 SNAP-IDC-32-DN

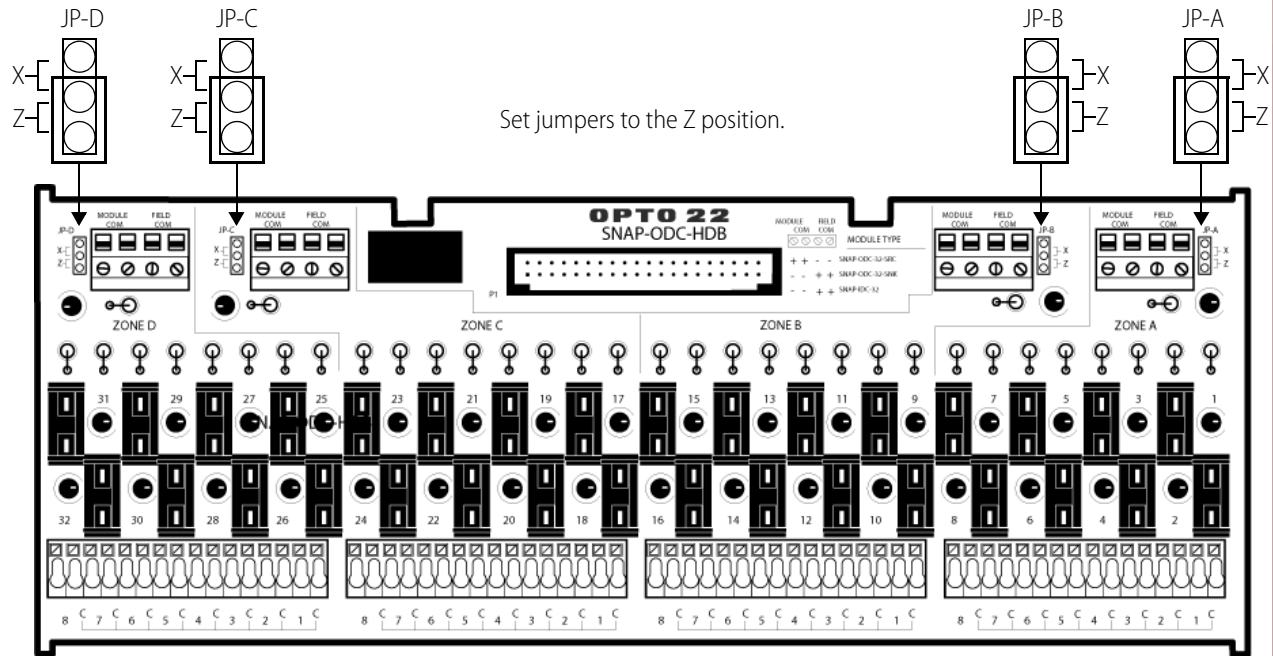
IMPORTANT: All SNAP-IDC-32 modules are polarity specific and must be wired as shown.



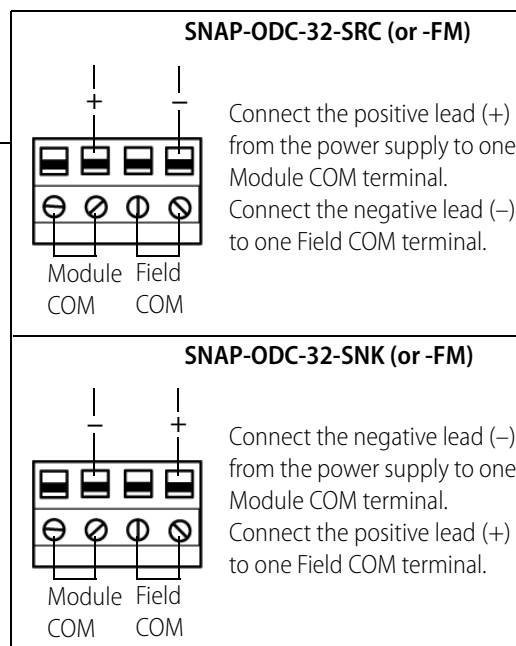
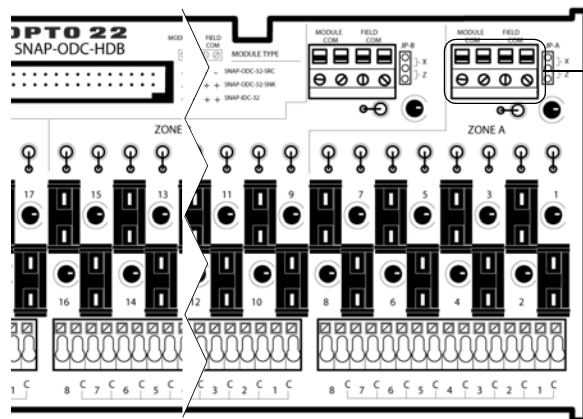
SNAP TEX Cables and Breakout Boards

Wiring: 32-point Digital Output Module to SNAP-ODC-HDB Board

For more information, see the *SNAP High-Density Digital Modules User's Guide*, form 1547.



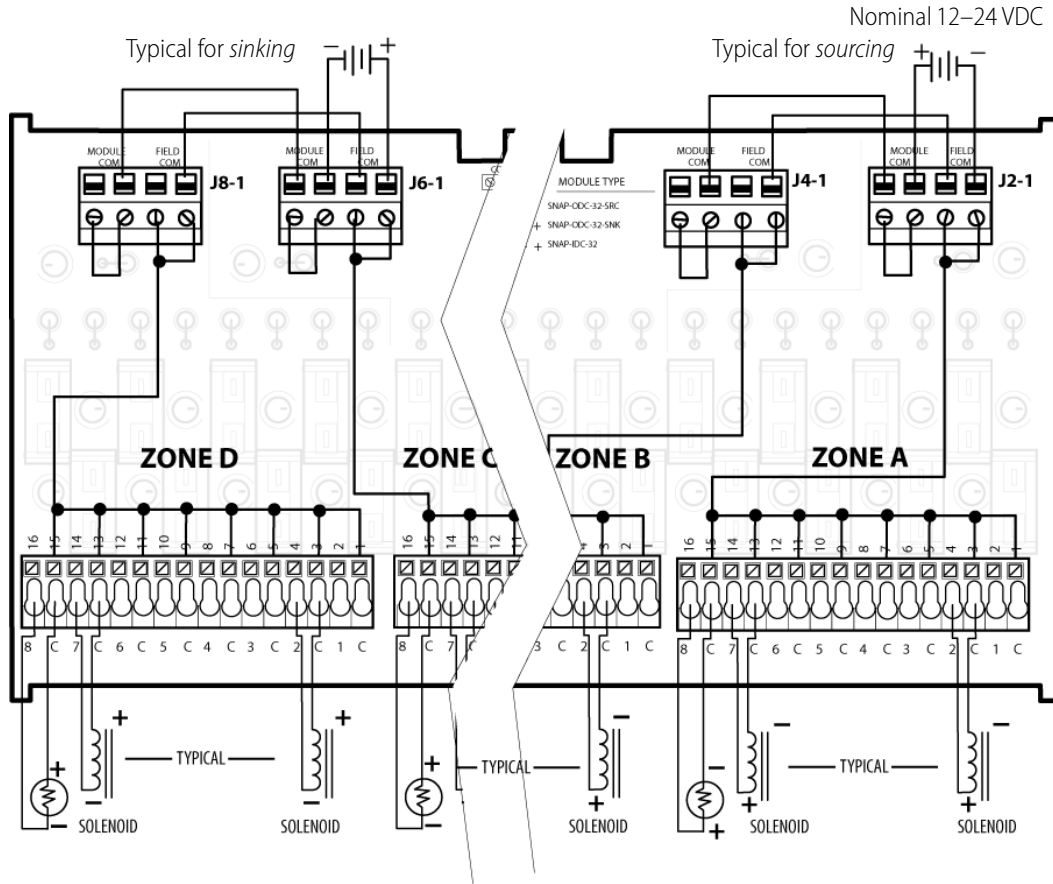
Power Supply Connections



SNAP TEX Cables and Breakout Boards

32-point Digital Output Module to SNAP-ODC-HDB (continued)

Field Connections

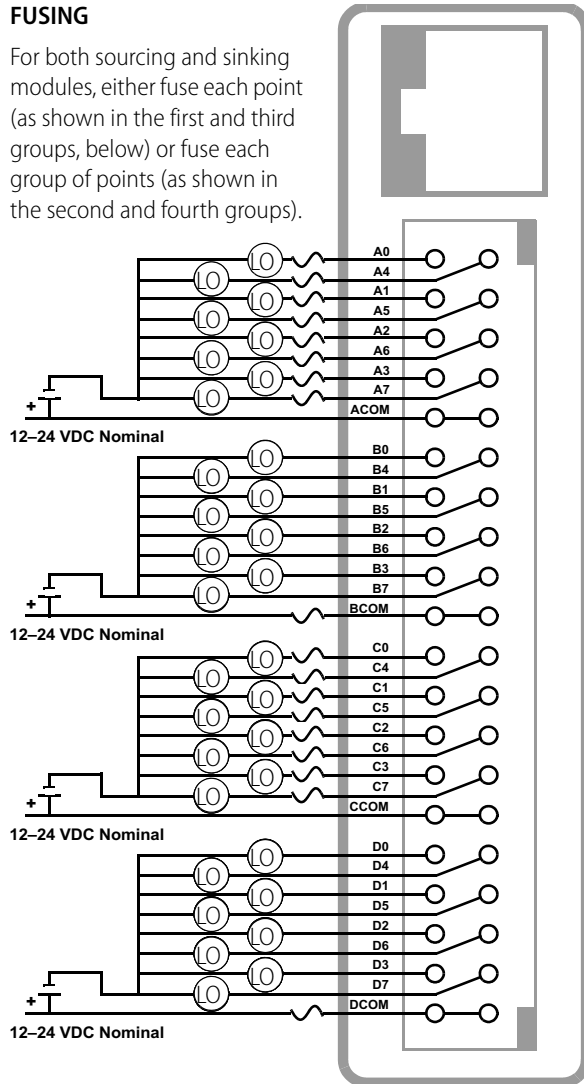


SNAP TEX Cables and Breakout Boards

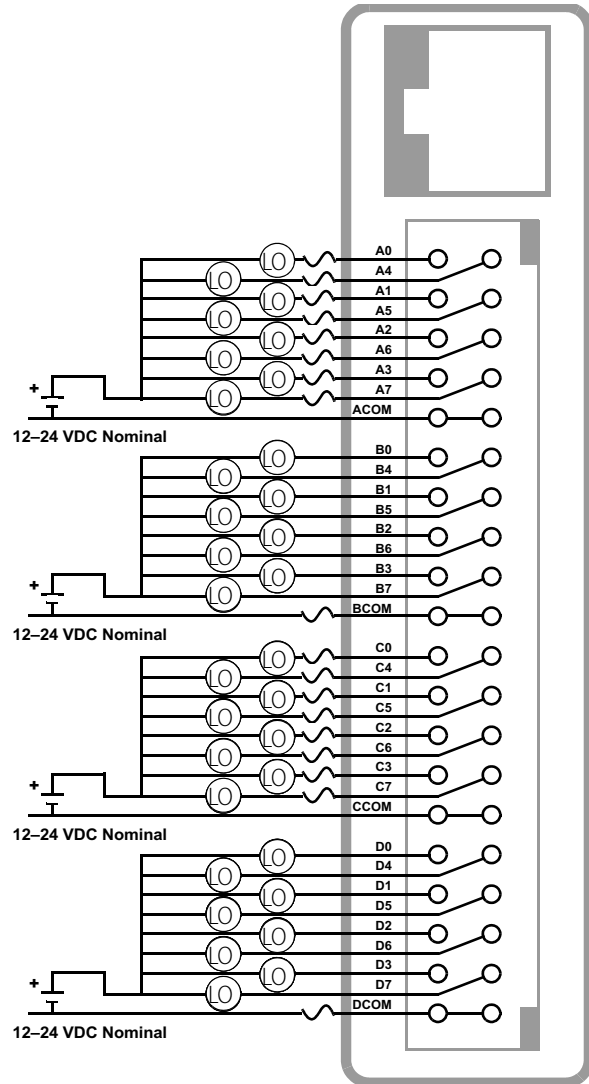
32-point Digital Output Module to SNAP-ODC-HDB (continued)

FUSING

For both sourcing and sinking modules, either fuse each point (as shown in the first and third groups, below) or fuse each group of points (as shown in the second and fourth groups).



SNAP-ODC-32-SRC
Load Sourcing Module
(Top view of module)



SNAP-ODC-32-SNK
Load Sinking Module
(Top view of module)

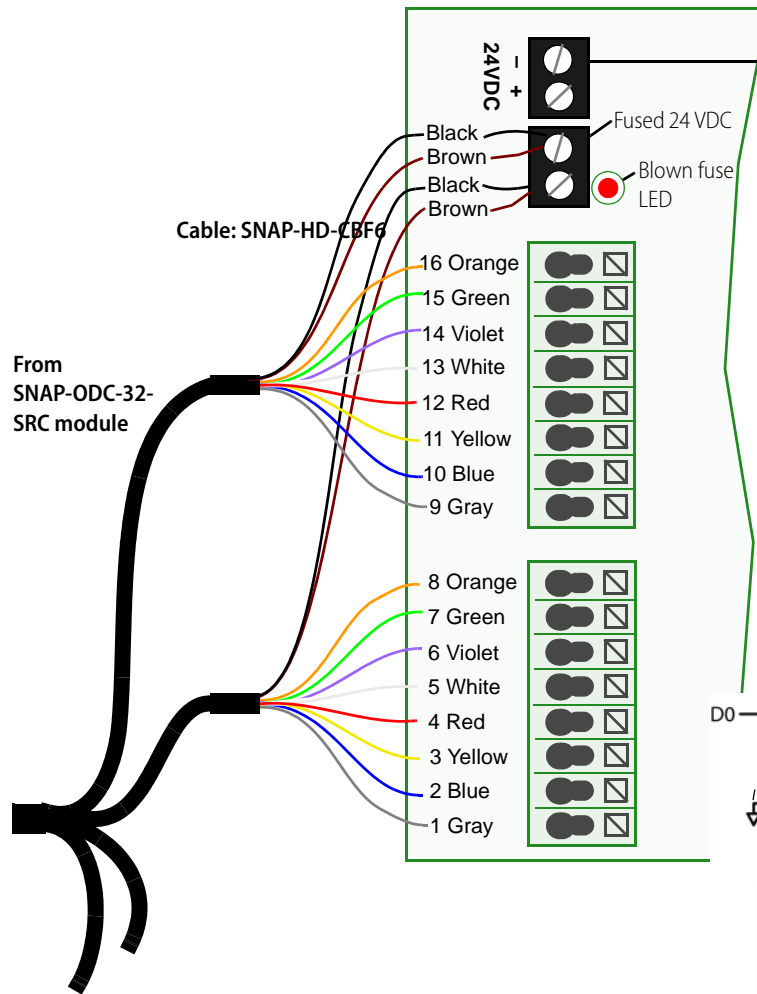
SNAP TEX Cables and Breakout Boards

Wiring: 32-point Digital Output Module to SNAP-TEX-MR10-16 Board

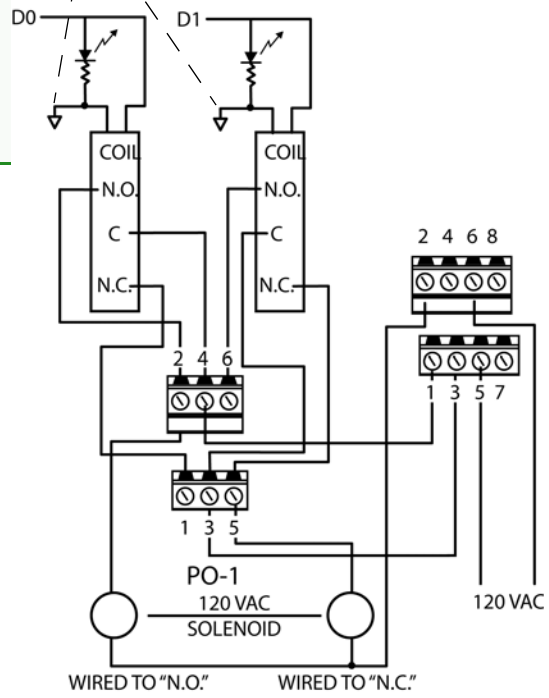
For 32-point sourcing modules only (SNAP-ODC-32-SRC or SNAP-ODC-32-SRC-FM).
Use two breakout boards with one module and one SNAP-HD-CBF6 cable.

SNAP-TEX-MR10-16 breakout board

Two breakout boards are required for the 32 points on the module.



Field wiring—For normally open (N.O.) or normally closed (N.C.).

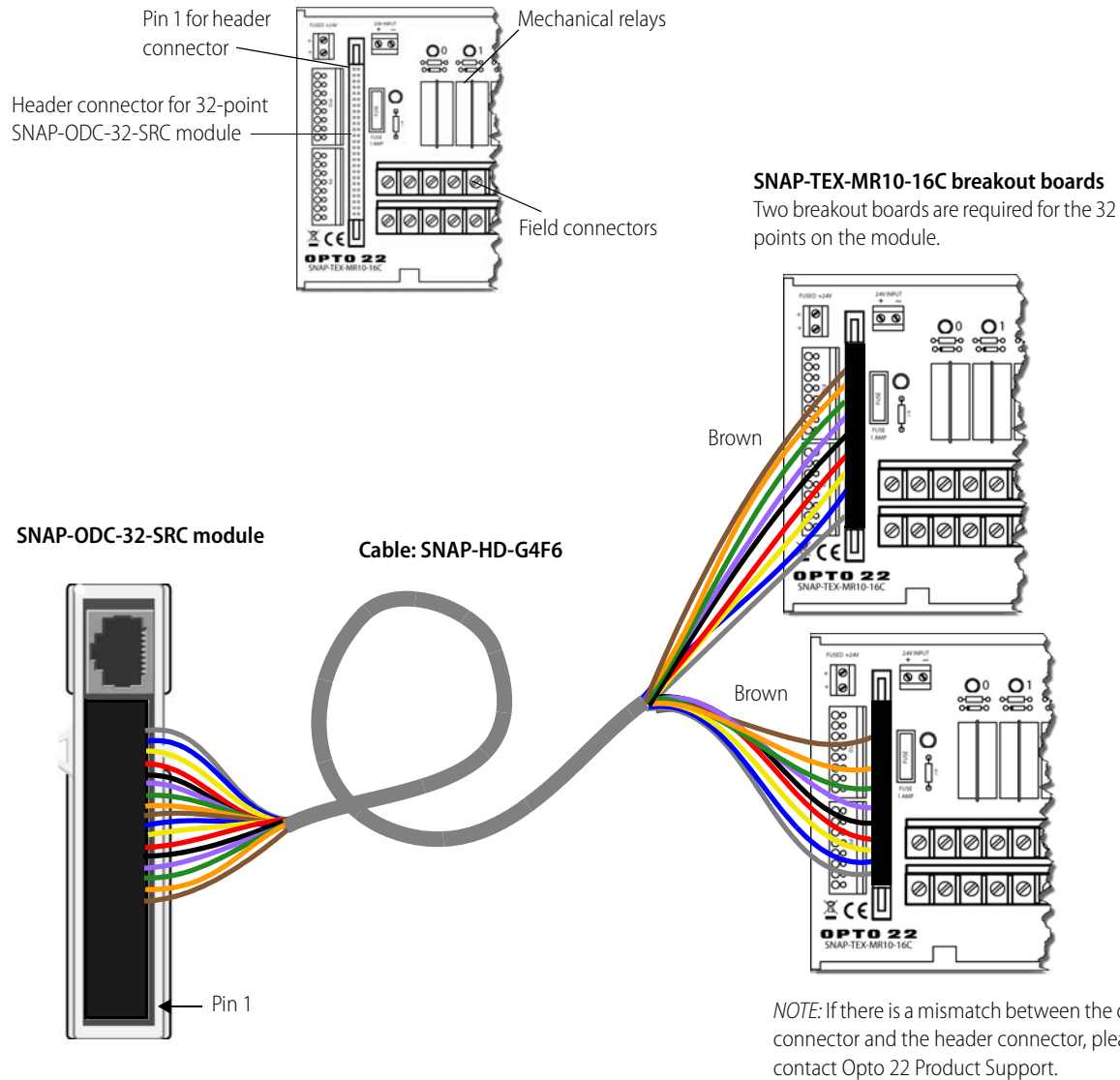


Wire the other I/O points to a second breakout board.

SNAP TEX Cables and Breakout Boards

Wiring: 32-point Digital Output Module to SNAP-TEX-MR10-16C Board

For 32-point sourcing modules only (SNAP-ODC-32-SRC or SNAP-ODC-32-SRC-FM). Use two breakout boards with one module and one SNAP-HD-G4F6 cable (each cable has two header connectors).

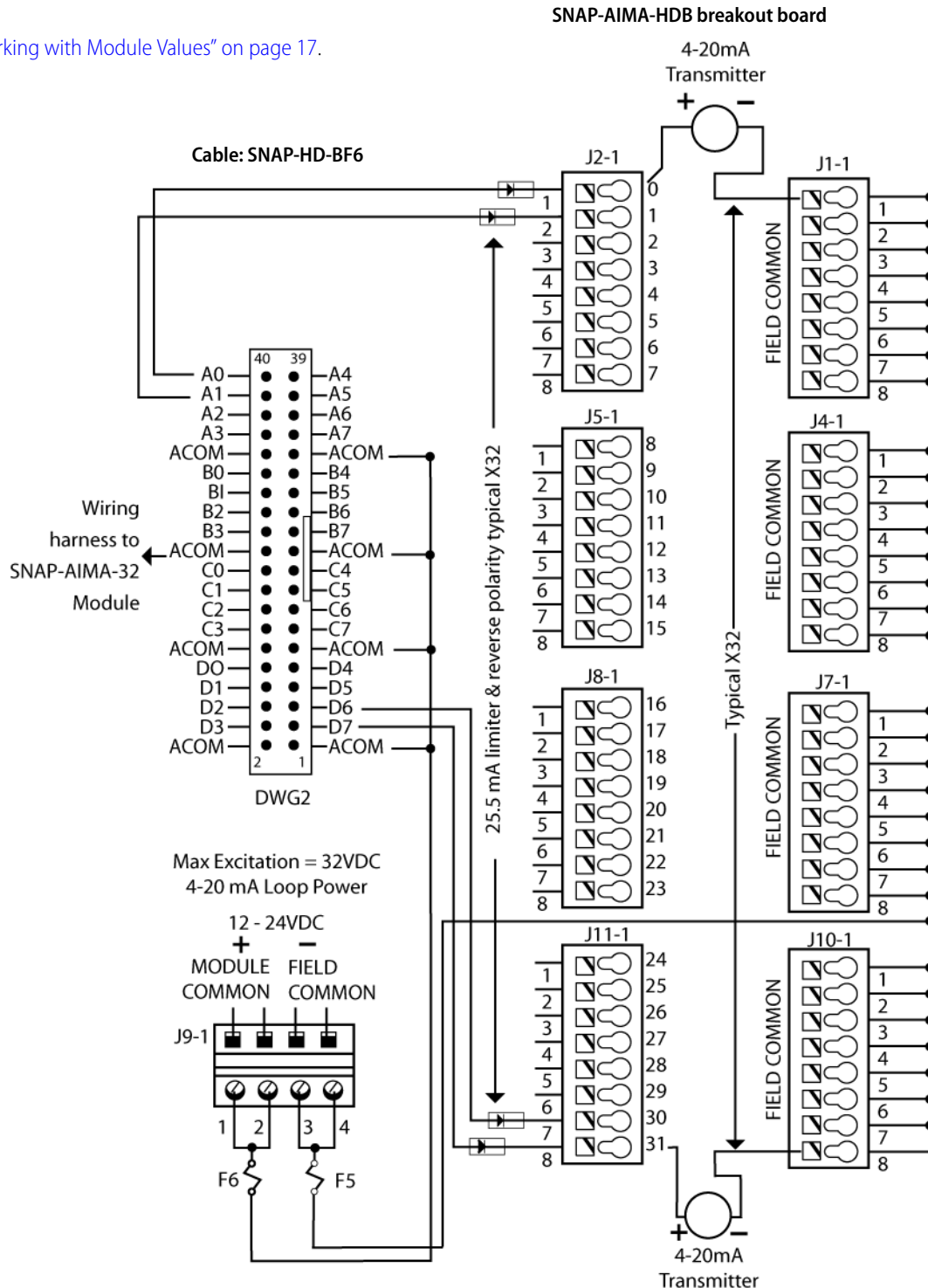


SNAP TEX Cables and Breakout Boards

Wiring: 32-point Analog Current Module to SNAP-AIMA-HDB Board

This diagram cannot be used with self-sourcing transmitters. Use this diagram only with loop power (2-wire) negative common devices. For self-powered (4-wire) devices, use a SNAP-AIV-HDB board and the wiring diagram on [page 41](#) (for negative common devices) or [page 42](#) (for positive common devices).

See "Working with Module Values" on page 17.



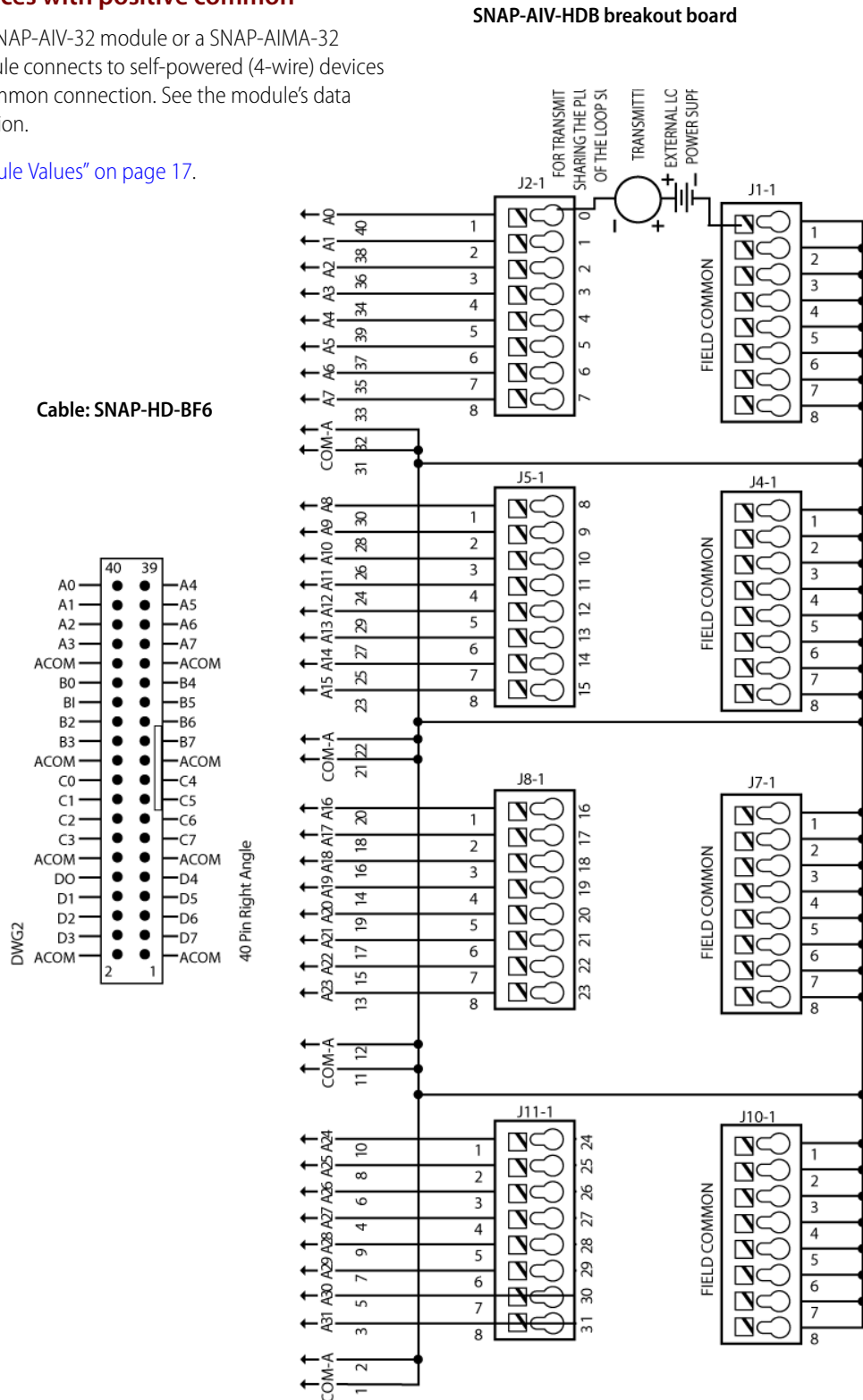
SNAP TEX Cables and Breakout Boards

Wiring: 32-point Analog Module to SNAP-AIV-HDB Breakout Board

Self-powered devices with positive common

Use this diagram for a SNAP-AIV-32 module or a SNAP-AIMA-32 module when the module connects to self-powered (4-wire) devices that share a positive common connection. See the module's data sheet for more information.

See "Working with Module Values" on page 17.



More About Opto 22

Products

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

groov

groov puts your system on your mobile device. With zero programming, you can build mobile operator interfaces to monitor and control systems from Allen-Bradley, Siemens, Schneider Electric, Modicon, and many more. Web-based groov puts mobile-ready gadgets at your fingertips. Tag them from your existing tag database, and they automatically scale for use on any device with a modern web browser. See groov.com for more information and your free trial.

SNAP PAC System

Designed to simplify the typically complex process of selecting 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, modular controllers based on open standards.

Opto 22 has been manufacturing PACs for over two decades. The standalone SNAP PAC S-series, the rack-mounted SNAP PAC R-series, and the software-based SoftPAC™ all handle a wide range of digital, analog, and serial functions for 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 easily, without the expense and limitations of proprietary networks and protocols. Wired+Wireless™ models are also available.

PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured, cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software for your SNAP PAC System.

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, 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; 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, and serial 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, 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. Our staff of support engineers represents 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.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free at our Temecula, California headquarters, and you can [register online](#).

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.



www.opto22.com