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Multifunction DAQ Accessory and Cable Selection Guides

NI Cable Design Advantages

The cables designated "EP" are the most commonly used data acquisition device cables. Each type of cable is designed to work specifically with the NI Multifunction DAQ devices to preserve signal integrity with these technologies:

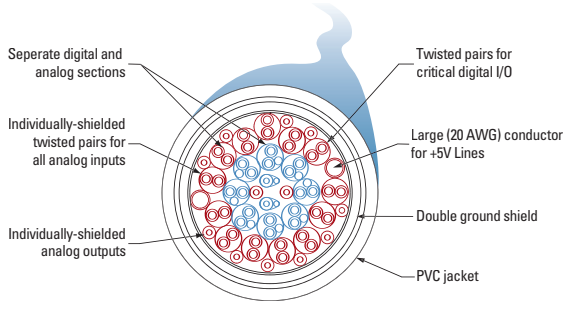


Figure 1. SH68-68-EP Cable

Accessories

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Use the following tables to choose the most appropriate cables and accessories.

M Series		Feature	Connect to…	Connector[1]	Cable	Cable Adapter	Accessory
NI 6220	NI 6224	Noise-reducing	SCC portable signal	0 only	SHC68-68-EPM	–	See page 168
NI 6221	NI 6229		signal conditioning				
NI 6250	NI 6254	Noise-reducing	SCXI high-performance	0 only	SHC68-68-EPM	–	See page 183
NI 6251	NI 6259		signal-conditioning				
NI 6280	NI 6284	Noise-reducing	Screw terminals	0 or 1	SHC68-68-EPM	–	SCB-68 or TBX-68
NI 6281	NI 6289	Noise-reducing	BNC terminal block	0 or 1	SHC68-68-EPM	–	BNC-2110,
			50-pin connector		SHC68-68-EPM	68M-50F MIO	Custom-built or third-party
		Low-cost	Screw terminals	0 or 1	SHC68-68-S	–	CB-68LP of CB-68LPR
		Low-cost	50-pin connector	0 or 1	SHC68-68-S	68M-50F MIO	Custom-built or third-party

[1]Connector 0 is available on all M Series devices. 0 and 1 are available on NI 62x4 and 62x9 devices.

Product		Feature	Connect to…	Cable	Accessory
68-pin E Series (except DAQCards):		Noise-reducing	SCC portable signal conditioning	SH68-68-EP	See page 168
NI 6070E	NI 6032E	Noise-reducing	SCXI high-performance signal-conditioning	SH68-68-EP	See page 183
NI 6052E	NI 6030E	Noise-reducing	Screw terminals	SH68-68-EP	SCB-68 or TBX-68
NI 6040E	NI 6024E	Noise-reducing	BNC terminal block	SH68-68-EP	BNC-2110, BNC-2120, or BNC-2190
NI 6036E	NI 6023E	Noise-reducing	50-pin connector	SH6850	Custom-built or third-party
NI 6034E		Low-cost	Screw terminals	RC68-68	CB-68LP of CB-68LPR
		Low-cost	50-pin connector	RC68-68	Custom-built or third-party
100-pin E Series		Noise-reducing	Screw terminals	SH100100	SCB100
NI 6071E		Noise-reducing	Screw terminals	SH1006868	2 SCB-68
NI 6033E		Noise-reducing	BNC terminal block	SH1006868	BNC-2115 and BNC-2110, BNC-2120, or BNC-2190
NI 6031E		Noise-reducing	50-pin connector	SH1006868	Custom-built or third-party
NI 6025E		Low-cost	Screw terminals	SH1006868	CB68LP and/or CB68LPR
		Low-cost	50-pin connector	SH1006868	Custom-built or third-party
E Series DAQCards		Noise-reducing	SCC portable signal conditioning	SHC68-68-EP	See page 168
NI DAQCard-6062E		Noise-reducing	SCXI high-performance signal-conditioning	SHC68-68-EP	See page 183
NI DAQCard-6036E		Noise-reducing	Screw terminals	SHC68-68-EP	SCB-68 or TBX-68
NI DAQCard-6024E		Noise-reducing	BNC terminal block	SHC68-68-EP	BNC-2210, BNC-2120, or BNC 2190
		Noise-reducing	50-pin connector	SHC68-68-EP	Custom-built or third-party
		Low-cost	Screw terminals	RC68-68	CB-68LP of CB-68LPR
		Low-cost	50-pin connector	RC68-68	Custom-built or third-party
S Series (except NI 6143)		Noise-reducing	Screw terminals	SH68-68-EP	SCB-68
NI 6133	NI 6115	Noise-reducing	Screw terminals1	N/A	TB-2705
NI 6132	NI 6111	Noise-reducing	BNC terminal block	SH68-68-EP	BNC-2110
NI 6120	NI 6110	Low-cost	Screw terminals	R6868	CB-68LP
S Series		Noise-reducing	Screw terminals	SHC68-68-EP	SCB-68
NI 6143		Noise-reducing	BNC terminal block	SHC68-68-EP	BNC-2110
		Low-cost	Screw terminals	RC68-68	CB-68LP
B Series (PCI Only)[2]		Noise-reducing	SCC portable signal conditioning	SH68-68-EP	See page 168
NI 6013		Noise-reducing	Screw terminals	SH68-68-EP	SCB-68
NI 6014		Noise-reducing	BNC terminal block	SH68-68-EP	BNC-2110, BNC-2120, or BNC 2190
		Low-cost	Screw terminals	R6868	CB-68LP

[1]PXI only. [2]USB B Series devices require no accessories.

NATIONAL INSTRUMENTS™

Multifunction DAQ Accessories and Cables

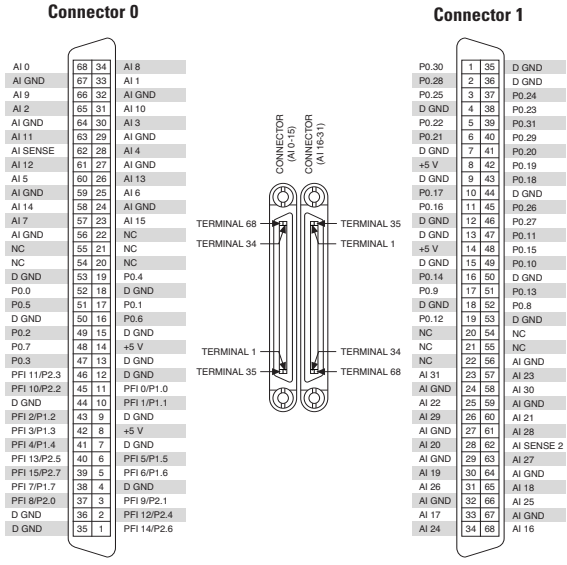


Figure 2. M Series Device Connectors

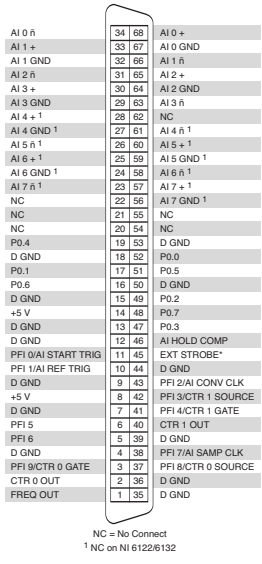


Figure 3. S Series Devices Connector

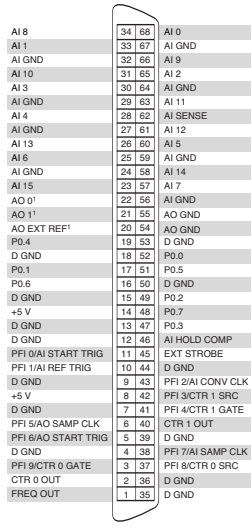


Figure 4. I/O Connector for 16-Channel E Series and B Series Devices, except NI 6025E

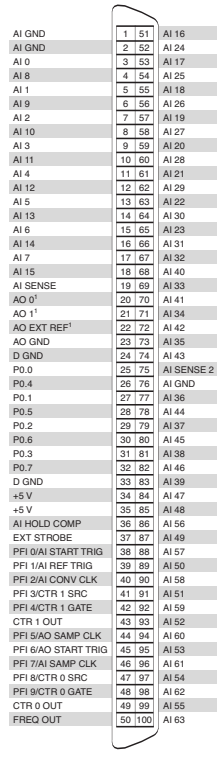


Figure 5. I/O Connector for 64-Channel E Series Devices

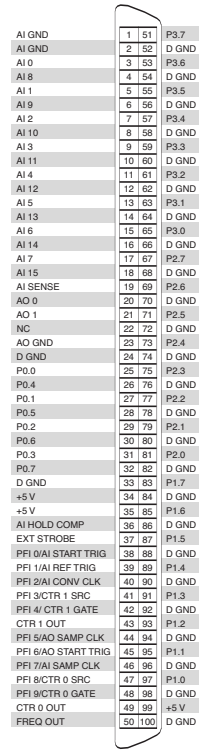


Figure 6. I/O Connector for the NI 6025E Device

Multifunction DAQ Accessories and Cables

Ribbon I/O Cables

R6868 – A low-cost, 68-conductor flat ribbon cable terminated with two 68-pin connectors. Use this cable to connect a 68-pin E Series, S Series (except NI 6143), or B Series multifunction DAQ device to 68-pin accessories.

1 m 182482-01

RC68-68 – A 68 conductor ribbon cable that connects a DAQCard, an M Series device, or an NI 6143 directly to 68-pin accessories. Two RC68-68 cables can be used together in adjacent PCMCIA slots or adjacent connectors on 2-connector M Series devices.

0.25 m.....187252-0R25
1 m 187252-01

R1005050 – Connects 100-pin E Series devices, to standard 50-pin third-party or custom connectors.

1 m 182762-01
2 m 182762-02

R6850 – Combines a 68F-50M cable adapter and a standard 50-pin cable with female connectors on both ends. It is designed to adapt a 68-pin E Series, S Series, or B Series multifunction DAQ device to a third-party or custom 50-pin accessory.

1 m 776842-01

Shielded I/O Cables

SHC68-68-EPM – A high-performance shielded 68-conductor cable terminated with a VHDCI 68-pin male connector at one end and a 68-pin female 0.050 D-type connector at the other end for connecting M Series DAQ devices to standard 68-pin accessories.

0.5 m.....192061-0R5
1 m 192061-01
2 m 192061-02

SHC68-68-S – A low-cost cable for connecting M Series DAQ devices to 68-pin accessories and signal conditioning systems. It features individually twisted cable pairs, but does not have shields between the analog and digital signals. For improved noise rejection, consider the SHC68-68-EPM.

1 m 191945-01
2 m 191945-02

SH68-68-EP – A shielded 68-conductor cable terminated with two 68-pin female 0.050 series D-type connectors. This cable connects to 68-pin E Series, S Series, and B Series devices. If you need a right-angle connector, the SH68-68R1-EP shielded cable is electrically equivalent.

1 m 184749-01
2 m 184749-02
Please call for other length options.

SH68-68R1-EP – A shielded 68-conductor cable for use with 68-pin E Series, S Series (except NI 6143), and B Series devices. One end terminates with a 68-pin female 0.050 series D-type connector and the other end terminates with a right-angle 68-pin female 0.050 series D-type connector.

1 m 187051-01

SH100100 – A shielded 100-conductor cable terminated with 100-pin male 0.050 series D-type connectors. This cable connects the 100-pin E Series devices to 100-pin accessories.

1 m 182853-01
2 m 182853-02

SH1006868 – A shielded cable that connects to 100-pin E Series devices and terminates with two female 68-pin 0.050 series D-type connectors.

1 m 182849-01
2 m 182849-02

SHC68-68-EP and SHC68U-68-EP – Shielded 68-conductor cables terminated with a VHDCI 68-pin male connector at one end and a 68-pin female 0.050 series D-type connector at the other. When using two E Series DAQCards in adjacent slots, use one SHC68-68-EP and one SHC68U-68-EP.

SHC68-68-EP
0.5 m 186838-0R5
1 m 186838-01
SHC68U-68-EP
0.5 m 187406-0R5
1 m 187406-01



R6868



RC68-68



SH68-68R1-EP



SH100100



SH1006868



SHC68-68-EP and SHC68U-68-EP

Multifunction DAQ Accessories and Cables

SH6850 – A shielded cable that connects a 68-pin E Series, S Series (except NI 6143), or B Series multifunction DAQ product to a third party or custom standard 50-pin accessory. The cable provides a screw-latching 68-pin female connector on one side and a standard 50-pin female connector on the other side.

1 m 776784-01
2 m 776784-02

68M-50F – Adapter that connects a 68-pin NI shielded cable to a standard 0.1 by 0.1 in. 50-pin connector on third-party or custom accessories. Use the 68M-50F MIO with the SHC68-68-EPM, SH68-68-EP, SHC68-68-EP, SHC68U-68-EP, or the multifunction I/O portion of the SH1006868. Use The 68M-50F Extended I/O cable adapter for the extended I/O portion of the SH1006868.

68M-50F MIO 184670-01

RTSI Bus Cables – Connect timing and synchronization signals among data acquisition, M Series, E Series, S Series, vision, motion, and CAN boards for PCI. For systems using long and short boards, order the extended RTSI cable.

2 boards 776249-02
3 boards 776249-03
4 boards 776249-04
5 boards 776249-05
Extended, 5 boards.....777562-05

Signal Conditioning

SCC – A portable modular signal conditioning system consisting of modules that plug into a low-profile shielded carrier. Choose from a variety of signal conditioning options including sensor, input, isolation, and filtering modules. SCC is compatible with M Series, E Series, and some B Series and portable devices.

SCC Signal Conditioning.....See page 168

SCXI – A high-performance modular signal conditioning platform that provides a front end to your M Series or E Series DAQ device. You can expand your analog inputs to 3,072 channels. SCXI offers a variety of modules for sensor conditioning, amplification, filtering, and other modules.

SCXI Signal Conditioning .....See page 183

Connector Blocks

BNC-2100 Series – Shielded connector blocks with signal-labeled BNC connectors for easy connectivity of your I/O signals. The BNC-2110 and BNC-2120 work with all E Series, M Series, S Series, and B Series multifunction DAQ or analog output devices. The BNC-2120 also provides a function generator, quadrature encoder, temperature reference, thermocouple connector, and LED so that you can test the functionality of your hardware. The BNC-2115 has 24 BNC inputs for connecting to the extended I/O channels of 100-pin E Series DAQ devices.

BNC-2110.....777643-01
Dimensions – 20.3 by 11.2 by 5.5 cm (8.0 by 4.4 by 2.2 in.)
BNC-2115.....777807-01
Dimensions – 20.3 by 11.2 by 5.5 cm (8.0 by 4.4 by 2.2 in.)
BNC-2120.....777960-01
Dimensions – 26.7 by 11.2 by 6.0 cm (10.5 by 4.4 by 2.4 in.)

BNC-2090 – A shielded, rack-mountable adapter with 22 signal-labeled BNC connectors and 28 spring terminal blocks to simplify connections to your I/O signals. The BNC-2090 includes component locations for passive signal conditioning and connects to any 68-pin M Series, S Series, E Series, or B Series DAQ device.

BNC-2090.....777270-01
Dimensions – 48.3 by 4.4 by 18.8 cm (19.0 by 1.7 by 7.4 in)

SC-2075 – Connector block with breadboard area for prototyping, as well as BNC and spring terminal connectivity for 68-pin M Series, E Series, and B Series multifunction DAQ devices. The built-in ±15 V or adjustable 0 to 5 V power supply and LEDs for digital lines make the SC-2075, ideal for academic laboratories.

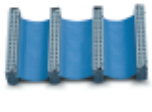
SC-2075 778147-90
Dimensions – 26.7 by 20.7 by 4.4 cm (10.5 by 8.2 by 1.7 in.)

TBX-68 – Connector block for easy connection of field I/O signals to 68-pin M Series, E Series, S Series, and B Series DAQ devices. The TBX-68 includes 68 screw terminals and one 68-pin male connector for direct connection to 68-pin cables. The TBX-68 is mounted in a protective plastic base with hardware for mounting on a standard DIN rail.

TBX-68 777141-01
Dimensions – 12.50 by 10.74 cm (4.92 by 4.23 in.)



68M-50F



RTSI Bus Cable



SCC Portable, Modular Signal Conditioning



SCXI High-Performance Signal Conditioning



BNC-2100 Series



BNC-2090



SC-2075

Multifunction DAQ Accessories and Cables

CA-1000 – A configurable enclosure that gives you maximum user-defined connectivity and flexibility through customized panelettes. Each enclosure can accommodate up to nine panelettes.
CA-1000 .....See page 222
Dimensions – 30.7 by 25.4 by 4.3 cm (21.1 by 10 by 1.7 in.

TB-2705 – Terminal block for 68-pin devices. It latches to the front of your PXI E Series or S Series DAQ module with locking screws and provides strain relief and easy access to your I/O signals through screw terminals.
TB-2705 778241-01
Dimensions – 8.43 by 10.41 by 2.03 cm (3.32 by 4.1 by 0.8 in.)

SCB-68 and SCB-100 – Shielded I/O connector blocks for rugged, low-noise signal termination with M Series, E Series, S Series, or B Series DAQ devices. They include general-purpose breadboard areas and an IC temperature sensor for cold-junction compensation in temperature measurements.
SCB-68 (for M Series, 68-pin E Series, S Series, or B Series) 776844-01
Dimensions – 19.5 by 15.2 by 4.5 cm (7.7 by 6.0 by 1.8 in.)
SCB-100 (for 100-pin E Series).....776990-01
Dimensions – 19.5 by 15.2 by 4.5 cm (7.7 by 6.0 by 1.8 in.)

CB-68LP and CB-68LPR – Low-cost termination accessories with 68 screw terminals for easy connection of I/O signals to 68-pin M Series, E Series, S Series, or B Series multifunction DAQ devices. They include one 68-pin male connector for direct connection to 68-pin cables and standoffs for use on a desktop or for mounting in a custom panel. The CB-68LP has a vertical-mounted 68-pin connector. The CB-68LPR has a right-angle mounted connector, and can be used with the CA-1000 (see page 222).
CB-68LP 777145-01
Dimensions – 14.35 by 10.74 cm (5.65 by 4.23 in.)
CB-68LPR 777145-02
Dimensions – 7.62 by 16.19 cm (3.00 by 6.36 in.)

DAQ Signal Accessory – For demonstration of analog, digital, and counter/timer functions of DAQ devices. You can use the DAQ Signal Accessory with any 68-pin M Series, E Series, or B Series DAQ device. It features a built-in function generator, quadrature encoder, solid-state relay, IC temperature sensor, noise generator, microphone jack, thermocouple jack, four LEDs, and a digital trigger button.
DAQ Signal Accessory 777382-01
Dimensions – 12.7 by 12.7 cm (5.0 by 5.0 in.)

Custom Connectivity Components

68-Pin Custom Cable Connector/Backshell Kit – A 68-pin kit used to make custom cables. Solder-cup contacts are available for soldering cable wires to the connector.
68-pin connector/backshell kit 776832-01

PCB Mounting Connectors for Custom Accessories – Build custom accessories that connect to 68-conductor or 100-conductor shielded and ribbon cables using these connectors. Two connectors are available, one for right-angle and one for vertical mounting onto a PCB.
68-pin, male, right-angle mounting 777600-01
68-pin, male, vertical mounting 777601-01
100-pin, female, right-angle mounting.....777778-01
100-pin, female, vertical mounting.....777779-01

Strain-Relief Accessory – Attaches to the bottom of your notebook computer or DAQPad and provides adjustable strain relief for one or two PCMCIA cables attached to DAQCards, or a USB cable attached to a DAQPad device.
Strain-relief accessory 777550-01


CA-1000


TB-2705


SCB-68 and SCB-100


CB-68LP and CB-68LPR


DAQ Signal Accessory


Strain-Relief Accessory

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