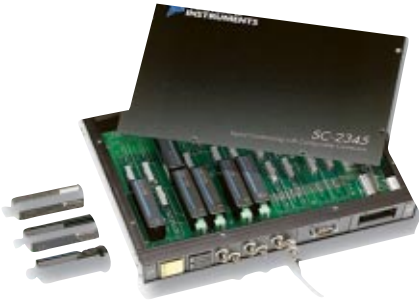


Portable Modular DAQ Systems SCC Configuration Guide



Step 2 – Choose an SCC Carrier (See Table 2)

SCC carriers are available either with a hinged lid or with configurable connectors using panelettes. Hinged lids provide quick access to the modules. Configurable connectors provide custom signal-interface options.

Step 3 – Select Your Panelettes (See Table 3)

If you have chosen an SCC carrier with configurable connectors, you can also select connector and interface panelettes. Different carriers offer different numbers of panelette slots. Also, some panelettes occupy more than one slot.



SCC Configuration Guide

Step 1 – Select Your SCC Modules (See Table 1)

Analog input, analog output, and digital I/O modules have dedicated slots. You can select up to eight noncascaded modules for analog input and eight modules for digital I/O. Feedthrough modules can be installed in any slot, but are especially useful for accessing counter/timers on your E Series or Basic multifunction DAQ device.

	Module	Number of Channels	Signal Types								Description	Gain	Signal Range	Filtering	Isolation	Excitation Sources	Excitation Values	Page			
			Millivolts/Volts	Current (4 to 20 mA)	Frequency-to-Voltage	Thermocouples	RTD	Strain Gauges	Force, Load, Torque Pressure	Accelerometer									TTL/CMOS		
Analog Input	SCC-AIOx	2 ISO	✓										Isolation amplifier	0.2	±50 mV to ±42 V	10 kHz	300 V _{rms}	–	–	257	
	SCC-AI1x	2 ISO	✓										Isolation amplifier	1.2	±10 V, ±5 V	4 Hz	300 V _{rms}	–	–	257	
	SCC-A10	2 DI	✓										Attenuator	0.1	±100 V	–	250 V _{rms}	–	–	258	
	SCC-LP01	2 DI	✓										Lowpass filter	0.5	±10 V	25 Hz	–	–	–	259	
	SCC-LP02	2 DI	✓										Lowpass filter	0.5	±10 V	50 Hz	–	–	–	259	
	SCC-LP03	2 DI	✓										Lowpass filter	0.5	±10 V	150 Hz	–	–	–	259	
	SCC-LP04	2 DI	✓										Lowpass filter	0.5	±10 V	1 kHz	–	–	–	259	
	SCC-FV01	2 DI	✓	✓										Frequency-to-voltage	1	0 to 100 Hz	–	–	–	259	
	SCC-TC01	1 DI	✓			✓								Thermocouple input	100	±100 mV	2 Hz	–	–	–	255
	SCC-TC02	1 DI	✓			✓								Thermocouple input	100	±100 mV	2 Hz	–	–	–	255
	SCC-RTD01	2 DI	✓				✓							RTD input	25	±400 mV	30 Hz	–	1 current	1 mA	255
	SCC-SG01	2 DI	✓					✓	✓					Strain (¼-bridge, 120 Ω)	100	±100 mV	1.6 kHz	–	1 voltage	2.5 V	256
	SCC-SG02	2 DI	✓					✓	✓					Strain (¼-bridge, 350 Ω)	100	±100 mV	1.6 kHz	–	1 voltage	2.5 V	256
	SCC-SG03	2 DI	✓					✓	✓					Strain (½-bridge)	100	±100 mV	1.6 kHz	–	1 voltage	2.5 V	256
	SCC-SG04	2 DI	✓					✓	✓					Strain (full-bridge)	100	±100 mV	1.6 kHz	–	1 voltage	2.5 V	256
	SCC-SG24	201	✓					✓	✓					Full bridge input (350 Ω)	100	±100 mV	1.6 kHz	–	1 voltage	10 V	256
SCC-SG11	2						✓	✓					Strain shunt calibration	–	–	–	–	–	–	256	
SCC-ACC01	1 DI	✓							✓				IEPE accelerometer input	2	±5 V	19 kHz	–	1 current	4 mA	257	
SCC-CI20	2 DI	✓	✓										Current input	–	4 to 20 mA	–	–	–	–	260	
Output	SCC-AO10	1 ISO	✓										Isolated voltage output	–	±10 V	–	250 V _{rms}	–	–	258	
	SCC-DO20	1 ISO		✓									Isolated current output	–	0 to 20 mA	–	300 _{rms}	–	–	260	
DIO/Switching	SCC-DI01	1 ISO									✓		Isolated digital input	–	±24 VDC	–	24 V	–	–	261	
	SCC-DO01	1 ISO									✓		Isolated digital output	–	±24 VDC	–	24 V	–	–	261	
	SCC-RLY01	1	✓	✓									SPDT Relay	–	5 A at 30 VDC 250 VAC	–	–	–	–	262	
	SCC-FT01	SE/101											Feedthrough	–	–	–	–	–	–	262	

Table 1. National Instruments SCC Modules

Portable Modular DAQ Systems SCC Configuration Guide

Step 4 – Determine Your Power Option (Table 4)

You can power an SCC system using a +5 VDC, 120/240 VAC, or 7 to 42 VDC external power source. To indicate the power option for your SCC system, select 01, 02, or 03 as the last two digits of the part number of the SC-2345 carrier (as indicated in Table 4).

Please note that if you choose power option 01, it is possible to power your SCC system using the internal power source of your DAQ device. For DAQCards and DAQ Pads, the total power required by your SCC modules must be less than 800 mW (490 mW of analog power). For PCI or PXI E Series or Basic multifunction DAQ devices, the total power required by your SCC modules must be less than 4.55 W (1.74 W for analog modules). Additional power modules are sold separately. To determine the power requirements of the modules in your SCC DAQ system, use the online SCC Advisor at ni.com/advisors

SC-2345 Carriers – Page 266



Description	Number of Panelette Slots
SCC carrier with a hinged lid	–
SCC carrier with configurable connectors (side 68-pin interface)	18
SCC carrier with configurable connectors (rear 68-pin interface)	15

-x denotes your power option from Table 4.

Table 2. SCC Carriers

Panelettes – Page 267



Panelette	Description	Connectors/Units per Panelette	Slot Width
Minithermocouple jack	J or K-type	2	1
	or uncompensated	2	1
Thermocouple jack	J or K-type	1	1
	or uncompensated	1	1
BNC	BNC connector	2	1
SMB	SMB connector	4	1
Banana jack	Banana jack	2	1
LEMO (B-Series)	2-pin female	2	1
	4, 6-pin female	1	1
MIL-C-26482	2, 4, or 6-pin female	1	1
9-pin D-Sub	Single (male – female)	1	2
	Dual (male – female)	2	3
Momentary switch	On – off	2	1
Toggle switch	On – off – on	2	1
Rocker switch	On – off – on	1	1
LED	A red, green, yellow, and orange LED	4	1
Potentiometer	1 turn, 10 kΩ	1	1
Strain relief	Small	1	1
Blank	Filler panel	–	–

Table 3. Panelettes

Step 5 – Select Your DAQ Device and Cable (Table 5)

Select the DAQ device to control your system. See page 191 for a complete list of E Series or Basic multifunction DAQ devices.

Step 6 – Select Your Accessories

Choose from rack/panel mount kits and stacking kits. See page 268 for more information. You can also select additional power kits separately if your application requires multiple power configurations.

Power Options – Page 268

Power Type	Power Supplied By	Power Option
+ 5 VDC	DAQCard/DAQPad (800 mW maximum)	-01
	PCI/PXI (4.55 W maximum)	-01
120 VAC, 240 VAC	External ²	-02
	External ¹	-03

¹ External power supply not included. ² AC transformer included. However, you must purchase a separate power cord to match your country's power requirements.

Table 4. SC-2345 Power Options

Recommended DAQ Devices – Page 191



Product	Multifunction I/O Features	Bus	Cabling To
DAQCard-6036E	16-bit, 200 kHz	PCMCIA	SHC6868-EP
DAQPad-6020E	12-bit, 100 kHz	USB	SH6868-EP
DAQPad-6070E	12-bit, 1 MHz	IEEE 1394	SH6868-EP
68-pin PCI/PXI E Series	Multifunction I/O	PCI, PXI	SH6868-EP
100-pin PCI/PXI E Series	Multifunction I/O	PCI, PXI	SH100688

Table 5. National Instruments DAQ Devices

The screenshot shows the 'SCC Advisor - National Instruments' software interface. The main heading is 'Build Your Own Signal Conditioning (SCC) System'. Below this, there are three bullet points: 'Choose from a variety of modules for analog input and digital I/O operations', 'Select the carrier to house your SCC modules', and 'Select your data acquisition device and measurement software'. It also says 'Either print an itemized list or visit the online store to purchase your system'. A section titled 'The steps involved are:' shows a flowchart with six steps: 1. Modules, 2. Carrier, 3. Boards, 4. Software, 5. Summary, and 6. Cart. Each step is represented by an icon and a number. At the bottom, there is a 'Start' button and a footer with '© 2009 National Instruments Corporation. All rights reserved.'