

SCXI Configuration Guide

Step 1 – SCXI Modules

Select the SCXI analog input, analog output, digital I/O, and switching modules to meet your I/O requirements. Refer to Table 3 for module description.

Step 2 – SCXI Terminal Blocks

Select one terminal block for each SCXI module, if the module requires it. See pages 449-455 for terminal block options.

Step 3 – Chassis

Select your chassis for the number of modules you have chosen. You can use multichassis adapters to connect up to eight SCXI chassis together. Refer to Table 1 to select the appropriate chassis.

Step 4 – Measurement Device

Select the DAQ device or instrument to control your SCXI multiplexed system. If you are operating some modules in parallel mode, you must select a separate measurement device and cable assembly for each module in parallel mode. See page 231 for a complete list of measurement devices, including sampling speed and resolution. Our most popular measurement devices are listed in Table 2.

Step 5 – Cable Assembly

Select one SCXI cable assembly for each measurement device in your system. Multichassis systems require additional multichassis adapters for each SCXI chassis. Single chassis systems based on the PXI-1010 or PXI-1011 do not require an SCXI cable assembly. See pages 456-458 for complete information.

Step 6 – Accessories

Choose from a wide variety of accessories to complete your system, including rack-mount adapters and filler panels. See page 459-460 for more information.

Interactively Build Your SCXI System Online

Use the SCXI Advisor to quickly and easily specify and configure your SCXI measurement system online. The SCXI Advisor leads you step by step through the selection of the modules, terminal blocks, chassis, measurement device, and cabling you need for your application.

After building your system, you can review an online quotation to see the total price of your complete system in your local currency. When you are satisfied with your SCXI system configuration, you can automatically order your system through our online store. Visit ni.com/advisor to use the SCXI Advisor.



Figure 1. Use the SCXI Advisor to quickly configure your system application online.

Chassis	Chassis			Page
	SCXI Slots	PXI Slots	Power	
SCXI-1000*	4	–	AC	446
SCXI-1000DC	4	–	DC	446
SCXI-1001*	12	–	AC	446
PXI 1010*	4	8	AC	447
PXI 1011*	8	4	AC	447

*AC/DC converters can be used with AC chassis listed above.

Table 1. SCXI Chassis

Measurement Device	Cable Assemblies		
	Cable Assembly	Configuration	Lengths (meters)
PCI 68-pin E Series	SCXI-1349	Single-chassis system	1, 2, 5, 10
DAQCard-AI-16XE-50 ¹	SCXI-1349	Single-chassis system	1, 2, 5, 10
DAQCard 6062 ² , 6029 ²	SCXI-1349 Adapter	Single chassis	1, 2
Any E Series device	SCXI-1346 ³	Multichassis system	–
NI 4060 DMM	SCXI-1357	Single 4-slot SCXI chassis	1, 2
NI 4060 DMM	SCXI-1358	Single 12-slot SCXI chassis	1, 2

¹ Nonlatching DAQCards require the PSHR 68-68M (sold separately)
² SHC6868-EP cable sold separately
³ SH6868-EP (sold separately)

Table 2. SCXI Cable Assemblies

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	Module	Channels ¹	Signal Types											Description	Gain	Signal Types/ Ranges	Filtering	Isolation	Excitation Values	Page		
			Millivolts/Volts	Medium Voltage (60 V)	High Voltage (300 V/1,000 V)	Current (1 to 20 mA)	Frequency-to-Voltage	Thermocouples	RTDs/Thermistors	Strain Gauges	Force, Load, Torque	LVDs, RVDTs, Resolvers	Accelerometers								TTL/CMOS	
Analog Input	SCXI-1100	32 DI	✓		✓		✓									Multiplexer Amplifier	1 to 2000 ² (program)	±2.5 mV to ±10 V, 4 to 20 mA	4 Hz, 10 kHz, Bypass ³	–	–	397
	SCXI-1102	32 DI	⊗		⊗		⊗	✓								Thermocouple Amplifier	1 or 100 (per channel)	±100 mV to ±10 V, 4 to 20 mA; TC ⁴	2 Hz	–	–	400
	SCXI-1102B/C	32 DI	⊗		✓											Amplifier Multiplexer	1 or 100 (per channel)	±100 mV to ±10 V, 4 to 20 mA	1102B – 200 Hz, 1102C – 10 kHz	–	–	397
	SCXI-1104/C	32 DI	✓	⊗												Multiplexer	1	±60 VDC, ±42 VAC	1104 – 2 Hz, 1104C – 10 kHz	–	–	397
	SCXI-1112 ⁵	8 DI							⊗							Thermocouple Input	100	TC ⁴	2 Hz	–	–	400
	SCXI-1120	8 ISO		✓	✓	✓	✓		✓							Isolation Amplifier	1 to 2000 (per channel)	±2.5 mV to ±1000 V ^{6,7} , 4 to 20 mA	4 Hz, 10 kHz (per channel)	250 V _{rms} (Cat. II)	–	415
	SCXI-1120D	8 ISO		✓	✓	✓	✓		✓							Wide Band Isolation Amplifier	1 to 1000 (per channel)	±50 mV to ±1000 V ^{6,7} (per channel)	4.5 kHz, 22.5 kHz (per channel)	250 V _{rms} (Cat. II)	–	415
	SCXI-1121	4 ISO		✓	✓	✓	✓		✓	⊗	✓	✓				Isolation Amplifier with Excitation	1 to 2000 (per channel)	±2.5 mV to ±250 V ⁶ , 4 to 20 mA; TC ⁴	4 Hz, 10 kHz (per channel)	250 V _{rms} (Cat. II)	3.33 V, 10 V, 0.15 mA, 0.45 mA	419
	SCXI-1122	16 ISO		✓	✓	✓	✓		✓	✓	✓	✓				Isolated Multiplexer Amplifier	1 to 2000 ² (program)	±2.5 mV to ±250 V ⁶ , 4 to 20 mA	4 Hz, 4 kHz ²	480 V _{rms} (Cat. II)	3.33 V, 1 mA	419
	SCXI-1125	8 ISO		⊗	⊗	⊗	⊗		⊗							Isolation Amplifier	1 to 2000 (per channel)	±2.5 mV to ±1000 V ^{6,7} , 4 to 20 mA; TC ⁴	4 Hz, 10 kHz (per channel)	300 V _{rms} (Cat. II)	–	415
	SCXI-1126	8 ISO		✓	✓	✓	✓	⊗								Programmable Isolated F-to-V	–	±50 mV to ±1000 V ^{6,7} , 15 Hz to 128 kHz	–	250 V _{rms} (Cat. II)	–	425
	SCXI-1140	8 DI		✓												Track-and-Hold Amplifiers	1 to 500 (per channel)	±10 mV to ±10 V	–	–	–	428
	SCXI-1141/2/3	8 DI		✓												Programmable Lowpass Filter	1 to 100 (per channel)	±50 mV to ±5 V	10 Hz to 25 kHz	–	–	430
	SCXI-1520	8 DI		✓							⊗	⊗				Programmable Strain Input Module w/SSH ⁸	1 to 1000 (per channel)	±10 mV to ±10 V	10 Hz to 10 kHz (program per channel)	–	0 to 10 V (17 settings)	405
	SCXI-1530/1 ⁵	4/8 SE or DI		✓									⊗			Programmable Accelerometer Input w/SSH ⁸	1 to 100 (per channel)	±50 mV to ±5 V AC Coupled	2.5 to 20 kHz (program per channel)	–	4 mA, (program per Channel)	409
SCXI-1540	8 DI											⊗			Programmable LVDT Input	0.8 to 25 (per channel)	±0.5 to ±6 V _{rms} (per channel)	250 Hz	–	1 to 3 V _{rms} , 2.5 to 10 kHz	412	
Analog Output	SCXI-1124	6 ISO Output	⊗		⊗										Isolated Voltage/Current Output	–	±1 to ±10 V, 1 to 10 V, 0 to 20 mA (per channel)	–	250 V (Cat. II)	–	434	
	SCXI-1581	32													Current Excitation	–	–	–	–	100 µA	436	
DIO	SCXI-1162/HV	32			✓ ¹⁰									⊗ ¹¹	Isolated Digital Input	–	TTL/CMOS ±240 VAC/VDC	–	300 V _{rms}	–	438	
	SCXI-1163	32												⊗	Isolated Digital Output	–	TTL/CMOS	–	300 V _{rms}	–	440	
Switching	SCXI-1127/ SCXI-1128	64 SE, 32 DI, 8x4	✓	✓	⊗	✓		✓	⊗						Multiplexer/ Matrix Switch	–	±5 mV to ±250 V, 20 mA; TC ⁴	–	250 V _{rms}	–	443	
	SCXI-1129	256 Cross Point	✓	✓	✓	✓		✓	⊗						Matrix Switch (Mechanical)	–	±5 mV to ±150 V, 20 mA; TC ⁴	–	150 V _{rms}	–	443	
	SCXI-1160	16	✓	✓	✓										SPDT Relay (latching)	–	2 A at 250 VAC, 2 A at 30 VDC	–	250 V _{rms}	–	444	
	SCXI-1161 ⁵	8	✓	✓	✓	✓									SPDT Relay (nonlatching)	–	8 A at 125 VAC, 6 A at 250 VAC, 5 A at 30 VDC	–	250 V _{rms}	–	444	
	SCXI-1163R	8 4x1	✓	✓	✓	✓									Solid-State Relay	–	200 mA at 240 VAC, 200 mA at 240 VDC	–	250 V _{rms}	–	440	
	SCXI-1190/1 ⁵	Quad 4x1	✓		✓										RF Switch	–	Up to 4 GHz	–	300 V _{rms}	–	444	
SCXI-1192	8	✓												RF SPDT	–	18 GHz	–	–	–	444		

¹DI – differential, SI – single-ended, ISO – isolated input ²One programmable gain amplifier per module. ³One filter for entire module, low-bandwidth settings will reduce usable scanning rate. ⁴TC – works with these thermocouple types: J,K,T,E,R,S,N,B, or custom ⁵Module does not require a terminal block. ⁶Input signals greater than ±5 V require SCXI-1313 or SCXI-1327 terminal blocks. ⁷Input signals above ±300 V require the TBX-1316. ⁸SSH – simultaneous sample-and-hold amplifiers. ⁹Add the SCXI-1581 current excitation module to SCXI-1102 for high-channel-count RTD measurements. ¹⁰SCXI-1162 HV only. ¹¹SCXI-1162 only.
 ⊗ Recommended module for that type of measurement

Table 3. You can select from a wide variety of SCXI modules to build your custom solution.