SCXI Chassis

NI SCXI-1000, NI SCXI-1000DC, NI SCXI-1001

- Shielded enclosures for SCXI modules
- Low-noise environment for signal conditioning
- Rugged, compact chassis
- Forced air cooling
- Optional rack mounting
- 3 internal analog buses
- Timing circuitry for high-speed multiplexing
- AC, DC, or battery-power options
- NI-DAQ driver software simplifies chassis configuration, autodetection of modules, and self-testing of configuration

Operating Systems
- Windows 2000/NT/XP

Recommended Software
- LabVIEW
- LabWindows/CVI
- Measurement Studio
- Lookout
- VILogger

Driver Software*
- NI-DAQ 7
- NI-SWITCH

*Included with DAQ device or switch

Overview

National Instruments offers rugged, low-noise SCXI chassis to house, power, and control your SCXI modules and conditioned signals. The unique SCXI chassis architecture includes the SCXIbus, which routes analog and digital signals and acts as the communication conduit between modules. Chassis control circuitry manages this bus, synchronizing the timing between each module and the DAQ device. With this architecture, you can scan input channels from several modules in several chassis at rates up to 333 kS/s for every DAQ device.

The versatility of SCXI lies in its various chassis options and expandability. You can choose from a number of different standard AC or DC power options. You can control the system by connecting directly to an E Series or Basic multifunction DAQ device. You can even daisy-chain up to eight chassis for control by a single DAQ device. Regardless of your configuration, programming the system does not change. You use the same function calls you use with a DAQ device by itself. NI-DAQ or NI-SWITCH driver software handles all low-level programming.

The SCXIbus

The SCXIbus is a guarded analog and digital bus located in the backplane of the SCXI chassis. Modules inserted into the chassis connect to this backplane automatically. This bus acts as a conduit for signal routing, transferring data, programming modules, and passing timing signals.

Chassis Control Circuitry

Each SCXI chassis includes control circuitry. This circuitry handles all signal routing on the SCXIbus. During high-speed analog input operations, it controls which input signals are connected to the bus and routed back to the DAQ device. It also ensures tight synchronization between the SCXI modules and the DAQ device.

Expandability

If your initial system requires more SCXI modules than one chassis can hold, or your system requirements change, simply add another chassis. With the SCXI expandable architecture, you can daisy-chain up to eight chassis to a single multifunction DAQ device. Whether you are using a single-chassis or multichassis system, you can still acquire data at rates up to 333 kS/s.

Power Options

These SCXI chassis offer a number of standard AC power options. Simply choose the option for your country or a country compatible with your power specifications. If you move your system to another country, you can easily reconfigure the system for any of the other AC power configurations.

SCXI Chassis

SCXI-1000

The NI SCXI-1000 is a 4-slot chassis available with a number of standard AC power options. This chassis is ideal for single-chassis or low-channel count applications. If your application grows, you can daisy-chain two or more SCXI-1000 chassis. You can also use off-the-shelf true sine wave DC-to-AC power inverters to power AC chassis with a DC power supply.

SCXI-1001

The SCXI-1001 is a 12-slot chassis with a number of standard AC power options. Like the SCXI-1000 Series, you can daisy-chain up to eight chassis to acquire or control up to 3,072 channels with a single DAQ device. This chassis is ideal for high-channel-count systems. You can also use off-the-shelf true sine wave DC-to-AC power inverters to power AC chassis with a DC power supply.

SCXI-1000DC

The SCXI-1000DC is a 4-slot chassis that accepts DC power. You can power it with any 9.5 to 16 VDC power supply, or use the optional SCXI-1382 12 VDC battery pack (shown in the picture). You should also consider the optional SCXI-1383 power supply/float charger to operate the chassis from an AC power outlet when necessary. This chassis is ideal for portable applications or other times when AC power is not always available.

Ordering Information

NI SCXI-1000 ..... 776570-0P*
NI SCXI-1000DC ..... 776570-00[1]
NI SCXI-1001 ..... 776571-0P*

[1]See the SCXI accessory pages for SCXI-1382 power options on page 341.

*To choose your power option, replace the "P" with the appropriate number for your country's power:

1 – U.S. 120 VAC
2 – Swiss 220 VAC
3 – Australian 240 VAC
4 – Universal Euro 240 VAC
5 – North American 240 VAC
6 – United Kingdom 240 VAC
7 – Japanese 100 VAC

For information on extended warranty and value-added services, see page 20.

BUY ONLINE!

Visit ni.com/info and enter scxi1000, scxi1000dc and/or scxi1001.

See page 341 for rack mount, panel-mount, and other power accessories

Combination Chassis for SCXI and PXI Modules

Overview

NI offers two chassis that combine PXI and SCXI. They are versatile platforms for any measurement and automation application. Within a single chassis, you get the choice of a wide variety of PXI data acquisition devices, instrumentation, bus interface, image acquisition, and motion control modules, and the I/O flexibility of SCXI signal conditioning. Each chassis uses rugged, shielded construction to provide a low-noise environment for data acquisition and signal conditioning. You can rack mount either unit into a 4U (7 in. high) section of a standard 19 in. instrumentation rack or simply leave it on your desktop. Both units also offer a choice of standard AC power options.

PXI-1010 – Combination Chassis for SCXI, PXI, and CompactPCI Modules

PXI-1011 – Combination Chassis for SCXI, PXI, and CompactPCI Modules

PXI-1010, PXI-1011

The PXI-1010 is a single chassis offering eight PXI slots and four SCXI slots. The PXI-1011 is a single chassis offering four PXI slots and eight SCXI slots.

The connection between the SCXI backplane and the PXI backplane is made through a local bus interface to any PXI DAQ module installed in the rightmost slot of the PXI section. Therefore, you need no external cabling to connect one PXI DAQ module to the SCXIbus. You can connect additional PXI DAQ modules to SCXI modules operating in parallel mode with the PXI-1010, but this configuration requires additional cabling. You cannot operate SCXI modules in parallel mode in the PXI-1011.

PXI DAQ modules include one additional analog input channel for SCXI inputs; therefore, you do not lose any of the eight differential analog inputs of the PXI DAQ modules when using SCXI. However, certain digital and timing I/O signals (DIO 0, 1, 2, 4) are reserved for SCXI communication. For large-channel-count systems, you can add additional SCXI chassis to the PXI-1010 or PXI-1011 by using the appropriate SCXI cable assembly connected to the front of a PXI DAQ module. In the PXI 1011, you can operate SCXI modules in only multiplexed mode of operation, not parallel mode.

PXI-1010 systems using the SCXI-1127 multiplexer/matrix module can require the optional SCXI-1357 or SCXI-1358 high-voltage backplane kit. The PXI-1011 includes an embedded high-voltage analog bus (HVAB); therefore, you can use any number of SCXI-1127/1128/1129 multiplexer/matrix switches without purchasing additional hardware. The HVAB interface is also located on the front of the chassis, for easy connection to an NI PXI-4070 FlexDMM, which you can mount in any PXI slot.

Ordering Information

NI PXI-1010 with power cord
- U.S. 120 VAC 777570-01
- Swiss 220 VAC 777570-02
- Austrailian 240 VAC 777570-03
- Universal Euro 240 VAC 777570-04
- North American 240 VAC 777570-05
- United Kingdom 240 VAC 777570-06
- Japan 100 VAC 777570-07

NI PXI-1011 with universal AC input and no power cord 777965-01

See page 151 for more information on PXI Chassis.
See page 333 for more information on SCXI Chassis.

Power Cord
- U.S. 120 VAC 763000-01
- Japan 100 VAC 763000-01
- United Kingdom 240 VAC 763064-01
- Swiss 220 VAC 763065-01
- Austrailian 240 VAC 763066-01
- Universal Euro 240 VAC 763067-01
- North American 240 VAC 763068-01

For information on extended warranty and value-added services, see page 20.

BUY ONLINE!

Visit ni.com/info and enter pxi1010 and/or pxi1011.

SCXI and Combination Chassis Specifications

Specifications

Typical for 25 °C unless otherwise noted.

SCXI-1000, SCXI-1000DC, SCXI-1001

Power Requirements

Input voltage

SCXI-1000, SCXI-1001,	100, 120, 220, or 240 VAC at 50 or 60 Hz
SCXI-1000DC	12 VDC nominal (9.5 to 16.0 VDC)

Operating current, maximum

SCXI-1000	0.6 A at 100 VAC 0.5 A at 120 VAC 0.25 A at 220 or 240 VAC
SCXI-1000DC	5.5 A (at 9.5 VDC)
SCXI-1001	1.75 A at 100 VAC 1.5 A at 120 VAC 0.80 A at 220 VAC 0.75 A at 240 VAC

Module power

+5 VDC	50 mA per slot
+18.5 to +25.0 VDC	170 mA per slot
-18.5 to -25.0 VDC	170 mA per slot

Physical

Dimensions (including fan)[1]

SCXI-1000, SCXI-1000DC	24.8 by 19.5 by 17.7 cm (DxWxH) (9.8 by 7.7 by 7.0 in.)
SCXI-1001	24.8 by 43.9 by 17.7 cm (9.8 by 17.3 by 7.0 in.)

Weight

SCXI-1000	3.9 kg (8 lb 10 oz)
SCXI-1000DC	3.3 kg (7 lb 5 oz)
SCXI-1001	6.8 kg (14 lb 14 oz)

Certification and Compliance

European Compliance CE

EMC	EN 61326 Group I Class A, 10 m, Table 1 Immunity
Safety	EN 61010-1

North American Compliance

EMC	FCC Part 15 Class A using CISPR
Safety (SCXI-1000 Only)	UL Listed to UL 3111-1 CAN/CSA C22.2 No. 1010.1

Australia & New Zealand Compliance

EMC (except SCXI-1001)	AS/NZS 2064.1/2 (CISPR-11)

PXI-1010, PXI-1011

Complies with PXI Specification, Rev 1.0
Complies with CompactPCI, PICMG 2.0 R2.1

Electrical Data

Power supply input	100, 120, 220, or 240 VAC
AC line frequency	50 or 60 Hz
Power available to PXI section	300 W for PXI-1010, 160 W for PXI-1011

PXI power supply

	ADC

SCXI power supply

VDC	mA/slot
+5	50
+18.5 to +25.0	170
-18.5 to -25.0	170

Physical

Slot configuration

	Slot Count

Dimensions

PXI-1010	40.4 by 43.9 by 17.7 cm (15.9 by 17.3 by 7 in.)[1]
PXI-1011	44.7 by 43.9 by 17.7 cm (17.6 by 17.3 by 7 in.)[1]

Weight

PXI-1010	13 kg (29 lb)
PXI-1011	9 kg (20 lb)
Height for rack-mount installation	4U
Cooling	20 W per PXI peripheral slot 8 W per SCXI slot

Shock and Vibration

Functional shock	MIL-T-28800E Class 3, (30 g shock pulse) also meets IEC 60068-2-27
Random vibration	MIL-T-28800E, MIL-STD-810E Category 1
Operational	5 to 500 Hz, 0.3 g_{rms}
Nonoperational	5 to 500 Hz, 2.4 g_{rms}

Safety Compliance

Certification and Compliance

European Compliance CE

EMC	EN 61326 Group I Class A, 10 m, Table 1 Immunity
Safety	EN 61010-1

North American Compliance

EMC	FCC Part 15 Class A using CISPR
Safety (PXI-1010)	UL Listed to UL 3111-1 CAN/CSA C22.2 No. 1010.1
Safety (PXI-1011)	ETL listed to UL 3111-1 CAN/CSA C22.2 No. 1010.1

Australia & New Zealand Compliance

EMC	AS/NZS 2064.1/2 (CISPR-11)

[1]Dimensions do not include terminal block mounted to front of chassis, which will add 7.5 cm to depth.

For a definition of specific terms, please visit *ni.com/glossary*