NI PXI-1010

PXI/SCXI Combination Chassis

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PXI/CompactPCI Chassis with Integrated SCXI Signal Conditioning

PXI-1010, PXI-1011

- Ideal for data acquisition and switching applications that require high channel count, thermocouples, RTDs, thermistors, bridge-based devices (strain gauges), high-voltage signals, current inputs, filtering
- Internal interface between PXI/CompactPCI and SCXI backplanes
- Filtered, forced-air cooling
- Complies with PXI and CompactPCI specifications
- Complies with IEEE 1101.10 mechanical packaging

PXI-1010

- 8 slots for 3U PXI and 3U CompactPCI modules
- 4 slots for SCXI signal conditioning and switching modules
- Multiplexed and parallel operating modes for SCXI

PXI-1011

- 4 slots for 3U PXI and 3U CompactPCI modules
- 8 slots for SCXI signal conditioning and switching modules
- Multiplexed operating mode for SCXI
- SCXI high-voltage analog backplane integrated internally

Model	Number of Slots		SCXI Operation Mode[1]	High-Voltage Analog Backplane
	PXI	SCXI		
PXI-1010	8	4	Multiplexed and Parallel	–
PXI-1011	4	8	Multiplexed	✔

[1] See page 167 for more information on SCXI operation modes

Table 1. PXI-1010 and PXI-1011 Selection Guide

INFO CODES

For more information, or to order products online visit ni.com/info and enter:

pxi1010
pxi1011

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Overview

The National Instruments PXI-1010 and PXI-1011 chassis integrate a high-performance PXI backplane with a SCXI backplane to offer a complete solution for demanding data acquisition and switching applications. Within a single chassis, you get the choice of a wide variety of data acquisition, instrumentation, switching, bus interface, image acquisition, and motion control PXI modules and the signal conditioning of SCXI. SCXI is a signal conditioning front-end system for multifunction I/O data acquisition modules. SCXI expands the functionality of your data acquisition module to accept signals from thermocouples, RTDs, thermistors, bridge-based devices such as strain gauges and pressure sensors, high-voltage signals and current inputs. You also can add modules for programmatic filtering, simultaneous sample-and-hold, isolated current or voltage output, digital I/O, or general-purpose switching. You can multiplex input channels across the SCXI backplane to build high channel count systems. And for even higher channel count systems, you can daisy-chain additional SCXI chassis. See page 167 for more information on independent SCXI chassis.

PXI and SCXI Backplanes

The PXI-1010 and PXI-1011 backplanes offer rugged, shielded construction that provides a low-noise environment for data acquisition and signal conditioning. The PXI backplane section complies fully with the PXI specification, offering built-in reference clock, trigger bus, star trigger, and local bus features. Because of the interoperability with CompactPCI defined by the PXI specification, the chassis accept both PXI and CompactPCI modules. The SCXI backplane section of the PXI-1010 and PXI-1011 chassis includes the full SCXIbus with analog, digital, and timing buses for intermodule communication and integrated analog multiplexing over the backplane. The connection between the SCXI backplane section and the PXI backplane section is made through a local bus interface to a PXI multifunction I/O module installed in the rightmost slot of the PXI section. Therefore, you need no external cabling to connect one PXI multifunction I/O module to the SCXIbus in multiplexed mode. The PXI-1010 has eight PXI and four SCXI slots, while the PXI-1011 has four PXI and eight SCXI slots (See Table 1).

SCXI Operation Modes and High–Voltage Analog Backplane

The PXI-1010 and PXI-1011 both support the multiplexed SCXI operational mode. The multiplexed operational mode multiplexes all the SCXI channels onto one channel of your data acquisition module, so one data acquisition module can control all SCXI modules. The PXI-1010 also supports parallel operation mode. With parallel operation, the channels of one SCXI module are multiplexed to one data acquisition module. All SCXI modules can be configured

PXI/CompactPCI Chassis with Integrated SCXI Signal Conditioning

in parallel, with each SCXI module having a dedicated data acquisition module; or some can be configured in multiplexed mode and others in parallel mode. Parallel mode connections are made with an external cable. Some SCXI switching modules require use of the high-voltage analog bus (HVAB). The HVAB is built into the PXI-1011, and the HVAB interface is located on the front of the chassis for easy connection to the NI 4060 digital multimeter. The PXI-1010 requires the use of the SCXI-1357 high-voltage backplane kits to add the HVAB. See page 208 for more information on the SCXI-1357.

Installation

The PXI-1010 and PXI-1011 have differentiated designs that make them ideally suited for different environments. For bench-top use, the PXI-1011 has supporting feet that tilt up for more comfortable access to module front panels. You also can set the feet to level the chassis with the bench-top, or completely remove them. The PXI-1010 comes standard with removable rubber feet for your bench-top applications. Both chassis are ideally suited for embedded applications, with mounting points located on both sides of the chassis (see Figure 3 and Figure 4). These same mounting points also can be used to attach the optional rack-mount kits (see Figure 1 and Figure 2). You can also use them to recess the PXI-1010 or PXI-1011 chassis in your instrument cabinet. The PXI-1011 is better suited for portable applications. In addition to being lighter and having softer corners than the PXI-1010, it comes with a built-in carrying handle and has the SCXI HVAB built in. All of these configurations can be assembled or disassembled without ever accessing the interior of the chassis.

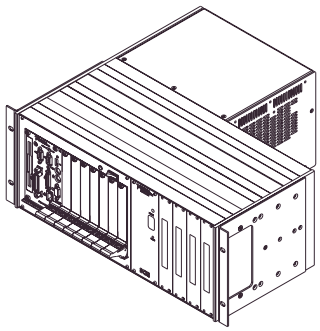

Figure 1. PXI-1010 with Rack-Mount Kit

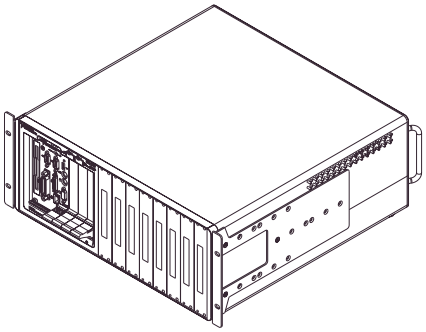

Figure 2. PXI-1011 with Rack-Mount Kit

Ordering Information

Step 1. Select your chassis.

PXI-1010 includes power cord

U.S. 120 VAC.....777570-01
Swiss 220 VAC 777570-02
Australian 240 VAC 777570-03
Universal Euro 240 VAC 777570-04
North American 240 VAC 777570-05
United Kingdom 240 VAC 777570-06
Japanese 100 VAC.....777570-07

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

Step 2. Select one or more power cords.

U.S. 120 VAC.....763000-01
Japanese 100 VAC.....763000-01
United Kingdom 240 VAC 763064-01
Swiss 220 VAC 763065-01
Australian 240 VAC 763066-01
Universal Euro 240 VAC 763067-01
North American 240 VAC 763068-01

Step 3. Select additional accessories.

Rack-mount kit (PXI-1010).....776577-70
Rack-mount kit (PXI-1011).....778074-01
SCXI Front Filler Panel.....776576-60
SCXI Rear Filler Panel (PXI-1010 only).....776576-61
Handle and feet kit for portability (PXI-1010 only) 776577-74

Step 4. Select an E Series module.

An E Series DAQ module (see page 79) is required to control the SCXI portion of the chassis.

Step 5. Select system set up and installation services.

NI Factory Installation Service (see page 249)
Customer-Defined Configuration.....960596-01
Standard Factory-Defined Configuration 960596-02

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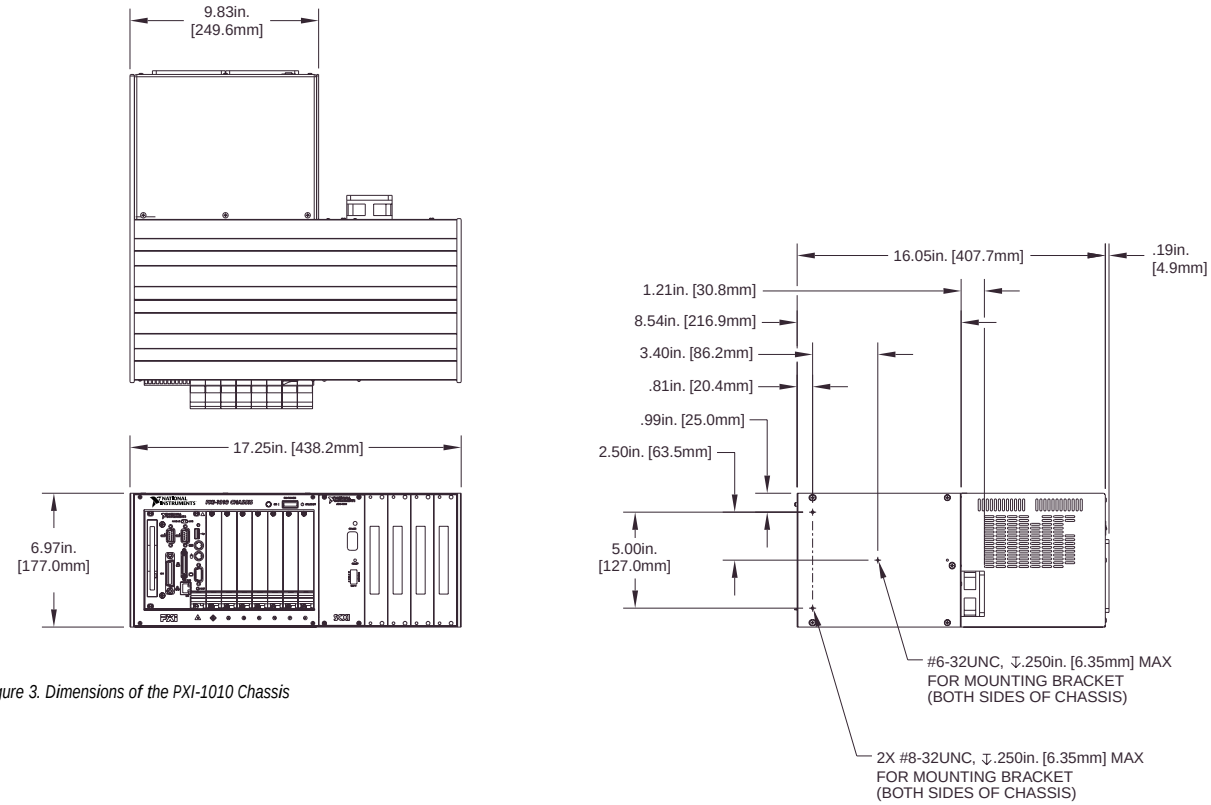

Figure 3. Dimensions of the PXI-1010 Chassis

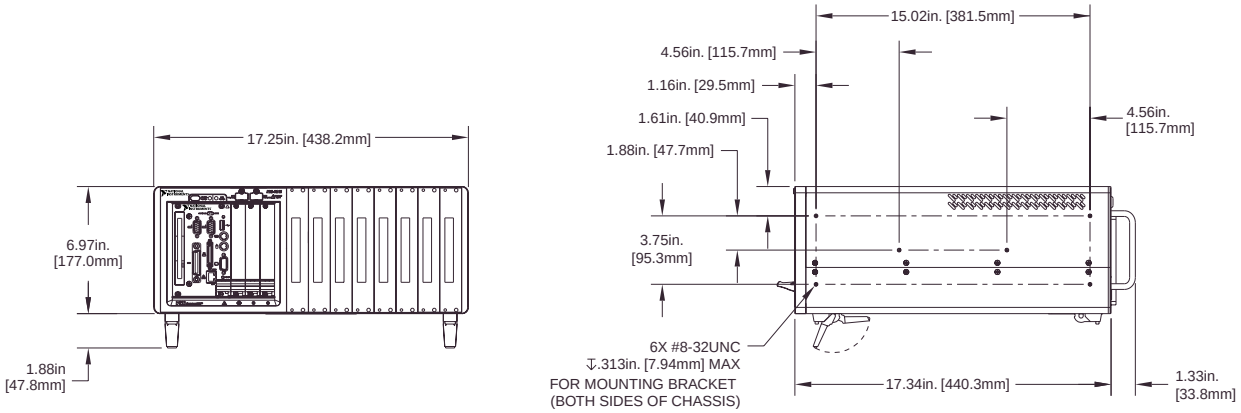

Figure 4. Dimensions of the PXI-1011 Chassis

PXI/CompactPCI Chassis with Integrated SCXI Signal Conditioning

Specifications* – PXI-1010, PXI-1011

Complies with PXI specification
Accepts modules compliant with CompactPCI, 2.0 PICMG specification

Electrical

AC Power Supply

Input voltage
- PXI-1010 ..... 100, 120, 220, or 240 VAC
- PXI-1011 ..... 85 to 264 VAC universal

Input frequency ..... 50 to 60 Hz

Output power

Maximum usable power
- PXI-1010 ..... 300 W
- PXI-1011 ..... 140 W

Available current for PXI section

VDC	PXI-1010 ADC	PXI-1011 ADC
+3.3	40	15
+5	20	12
+12	4.0	2.0
-12	1.0	0.5

Output current for SCXI Section

VDC	mADC (per slot)
+5	50
+18.5 to +25.5	170
-18.5 to -25.5	170

Cooling

Fans
- PXI-1010 ..... 2 at 69 cfm, 1 at 19 cfm, with filters
- PXI-1011 ..... 2 at 93 cfm, with filters

Total capacity
- PXI-1010 ..... 300 W
- PXI-1011 ..... 240 W

Physical

Number of PXI slots
- PXI-1010 ..... 8 (1 controller, 7 peripheral)
- PXI-1011 ..... 4 (I controller, 3 peripheral)

Number of controller expansion slots ..... 3 (left of controller)

Number of SCXI slots
- PXI-1010 4
- PXI-1011 8

Dimensions
- PXI-1010 ..... 41.3 by 43.8 by 16.2 cm [16.2 by 17.3 by 7.0 in.]
- PXI-1011 ..... 43.8 by 47.4 by 17.7 cm [17.3 by 18.7 by 7.0 in.]

Height for rack-mount installation 4U

Weight
- PXI-1010 ..... 13 kg [29 lb]
- PXI-1011 ..... 9 kg [20 lb]

Mean Time Between Failures (MTBF)

PXI-1010 ..... 110,000 hours
(Predictions performed in accordance with Belcore methods)

Operating Environment

Ambient temperature range ..... 0 to 55 °C (Meets IEC 60068-2-1 and IEC 60068-2-2.)

Relative humidity range ..... 10 to 90%, noncondensing (Meets IEC 60068-2-56.)

Storage Environment

Ambient temperature range ..... -20 to 70 °C (Meets IEC 60068-2-1 and IEC 60068-2-2.)

Relative humidity range ..... 5 to 95%, noncondensing (Meets IEC 60068-2-56.)

Backplane

Backplane bare-board material ..... UL 94V-0 rated

Backplane connector ..... Conforms to IEC 917 and IEC 1076-4-101, UL 94V-0 rated

Shock and Vibration

Functional shock ..... 30 g peak, half-sine, 11 ms pulse (Meets IEC 60068-2-27. Test profile developed in accordance with MIL-T-28800E.)

Random vibration
- Operating ..... 5 to 500 Hz, 0.3 grms
- Nonoperating ..... 5 to 500 Hz, 2.4 grms

(Meets IEC 60068-2-64. Nonoperating test profile developed in accordance with MIL-T-28800E and MIL-STD-810E Method 514.)

Safety and EMC/EMI Compliance

Safety ..... EN 61010-1:1993

EMC/EMI ..... CE, C-Tick, and FCC Part 15

Electrical Emissions ..... EN 55011 Class A at 10 meters, and FCC Part 15 Class A above 1 GHz

Electrical Immunity ..... EN 61326:1998, Table 1

***Specifications subject to change without notice.**

Specifications – SCXI Chassis (page 167)

Power Requirements

Input voltage
- SCXI-1000 and 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 ..... 1.25 A at 100 or 120 VAC, 0.7 A at 220 or 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)
- SCXI-1000,SCXI-1000DC ..... 18.0 by 19.5 by 24.8 cm (7.1 by 7.7 by 9.8 in.)
- SCXI-1001 ..... 18.0 by 43.9 by 24.8 cm (7.1 by 17.3 by 9.8 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)