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Find the *National Instruments PXI-1050* at our website: *Click HERE*

# PXI Chassis with Integrated Signal Conditioning

## NI PXI-1050, NI PXI-1052

- Integrated SCXI signal conditioning
- Ideal for high-channel-count data acquisition applications
- Built-in cabling to SCXI slots
- HALT tested for increased reliabilty

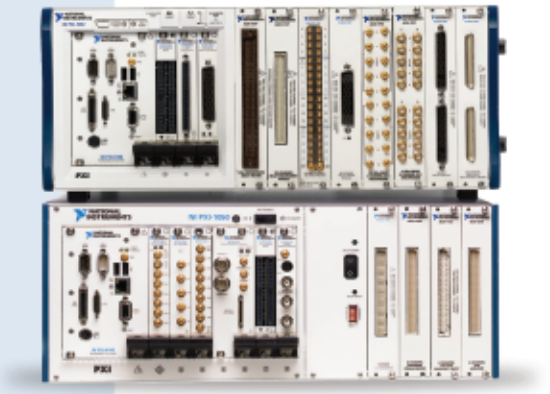
### PXI-1050

- 8 PXI slots and 4 SCXI slots
- Multiplexed and parallel operating modes for SCXI
- Latest chassis technology

### PXI-1052

- 4 PXI slots and 8 SCXI slots
- Latest chassis technology
- AUTO/HIGH fan-speed selector to optimize cooling and acoustic emissions
- Quieter operation, as low as 42 dBA
- Extended temperature range to 55 °C
- Multiplexed operating mode for SCXI
- SCXI high-voltage analog backplane integrated internally

NEW



| | Slots | | SCXI | High-Voltage |
|---|---|---|---|---|
| Model | PXI | SCXI | Operation Mode | Analog Backplane |
| PXI-1050 | 8 | 4 | Multiplexed and Parallel | – |
| PXI-1052 | 4 | 8 | Multiplexed | ✓ |

*Table 1. PXI-1050 and PXI-1052 Features*

| PXI-1052 Acoustic Emissions | |
|---|---|
| **Sound Pressure Level**[1] (measured at operator position) | dBA |
| Auto Fan (25 °C ambient) | 41.6 |
| High Fan | 51.5 |
| **Sound Power**[1] | |
| Auto Fan (25 °C ambient) | 51.9 |
| High Fan | 60.0 |

[1]Tested in accordance with ISO 7779

*Table 2. PXI-1052 Acoustic Emissions*

## Overview

National Instruments offers PXI chassis with integrated SCXI so you can have the benefits of SCXI and the PXI platform integrated in a single PXI chassis. The PXI platform offers a variety of modules such as multifunction I/O, digital I/O, switching, and instrument modules. With SCXI you can expand the functionality of your data acquisition system with modules for multiplexing, linearization, filtering, isolation, amplification, switching, and more. The NI PXI and SCXI combination chassis offer a complete solution for a wide range of test and measurement applications that require signal conditioning, switching and multiplexing. Visit the PXI/SCXI advisor at **ni.com/pxiadvisor** to view a complete list of SCXI modules and configure a PXI and SCXI system.

## PXI-1050, PXI-1052

The PXI-1050 and PXI-1052 offer the latest chassis technology from NI. The PXI-1050 is an upgrade to the PXI-1010, and works with all NI PXI controllers. The PXI-1052 implements fan-speed control of the power supply and module fans to reduce acoustic emissions, and offers an AUTO/HIGH fan-speed selector switch. When set to AUTO, the PXI-1052 optimizes cooling and acoustic emissions based on air intake temperature.

## SCXI Operating Modes

NI PXI chassis with integrated SCXI provide a built-in digital and analog bus between the rightmost PXI slot and the SCXI subsystem so that a DAQ or DMM module can control the SCXI subsystem in multiplexed mode without external cabling. Using the PXI-1050, you can also connect additional PXI DAQ modules to SCXI modules in parallel mode (requires additional cabling). In multiplexed mode, one DAQ module controls the entire SCXI subsystem; all measurements are multiplexed back to this one device so users can create a cost-effective high-channel-count system. SCXI handles many types of sensor measurements, including voltages, resistances, thermocouples, strain gages, accelerometers, RTDs, and LVDTs.

## Software for Configuring Your System

National Instruments is a leading supplier of integrated hardware and software for test and measurement applications. With software such as Measurement & Automation Explorer (MAX), you can easily configure your PXI/SCXI system. Using LabVIEW and NI-DAQ, you can quickly configure your measurement and begin acquiring signals. MAX automatically detects which PXI and SCXI modules are installed in your system so you can configure your measurements. In Figure 1, MAX is used to configure measurements.

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*Figure 1. Use MAX to select your measurement type.*

## Automatic Code Generation

With LabVIEW and NI-DAQ 7.0 or later, you can use NI-DAQ Express VIs to configure your measurement type, as shown in Figure 1, and then automatically generate the code necessary to acquire that measurement. With the flexibility of PXI, the benefits of SCXI, and easy-to-use software such as MAX and LabVIEW, you can take full advantage of flexible hardware and software from National Instruments, to develop robust applications to meet your measurement needs.

## Installation

The PXI-1050 and PXI-1052 have differentiated designs that make them ideally suited for different environments. For benchtop use, the PXI-1052 has supporting feet that easily tilt up. You can also set the feet to level the chassis with the benchtop, or completely remove them. The PXI-1050 comes with removable rubber feet for benchtop applications. Both chassis offer mounting points located on each side of the chassis, to which you can attach optional rack-mount kits. You can also use them to recess the PXI-1050 or PXI-1052 chassis in your instrument cabinet. The PXI-1052 is well suited for portable applications, with a built-in carrying handle. It also has the SCXI high-voltage analog back plane (HVAB) built in. All of these configurations can be assembled or disassembled without accessing the interior of the chassis.

## Ordering Information

**Step 1. Select your chassis.**

NI PXI-1050
- 120 VAC .....779199-01
- 100 VAC .....779199-02
- 220 VAC .....779199-03
- 240 VAC .....779199-04

NI-PXI-1052 (universal input) .....778693-01

**Step 2. Select one or more power cords.**

U.S. 120 VAC .....763000-01
Japan 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.**

SCXI-1370 Rack Mount kit for the
- SCXI-1001 or PXI-1050 chassis .....776577-70

SCXI-1360 rront filler panel .....776576-60
SCXI-1361 rear filler panel .....776576-61
SCXI-1374 handle kit.....776577-74

PXI-1052 rront rack-mount kit
- (for 19 in. rack) .....778931-01

PXI-1052 rear rack-mount kit
- (for 19 in. rack) .....778931-02

EMC filler panels (6 single-slot .....778700-01
Filler panels (3 double-slot and
- 3 single-slot)[1] .....778679-01

Slot blockers (2 single-slot)[2] .....778678-01

[1]Every PXI-1052 chassis comes with two single-slot filler panels.

[2]Slot blockers are optional for improved thermal performance of your PXI-1052 system. Please refer to National Instruments KnowledgeBase entry on slot blocker usage criteria on ni.com/support for additional information on this optional system feature.

**Step 4. Select system setup and installation services.**

If you are ordering this chassis as part of a system, select NI Factory Installation Services to have your hardware/software installed and receive your new PXI system ready to use right out of the box.

NI Factory Installation Services – PXI Systems .....960596-01

### *BUY NOW!*

*For complete product specifications, pricing, and accessory information, call (800) 813 3693 (U.S. only) or go to ni.com/pxi.*



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# PXI Chassis with Integrated Signal Conditioning

## Specifications PXI-1050

Complies with PXI Specification, Rev 2.1

### Electrical

AC Power Supply

### AC Input

Input voltage range ..... 100/120/220/240 VAC
Input frequency ..... 50/60 Hz
Operating frequency range ..... 47 to 63 Hz

### DC Output – Available Power Per Rail

| Voltage (V) | $I_{MP}$ (steady-state current) (A) |
|---|---|
| +3.3 | 30 |
| +5 | 20 |
| +12 | 4 |
| -12 | 2 |

### Maximum Ripple and Noise

| Voltage (V) | Maximum Ripple and Noise ($mV_{pp}$) |
|---|---|
| +3.3 | 50 |
| +12 | 120 |
| +5 | 50 |
| -12 | 120 |

### Cooling

Per slot cooling capacity ..... 25 W per slot
Module cooling system ..... Forced air circulation (positive pressurization) through two fans
Module cooling intake ..... Bottom rear of chassis
Module cooling exhaust ..... Top sides of chassis
Power supply cooling system ..... Forced air circulation from integrated fan
Power supply cooling intake ..... Rear of chassis
Power supply cooling exhaust ..... Sides of chassis

### Physical

Dimensions ..... 41.3 by 43.8 by 16.2 cm [16.2 by 17.3 by 7.0 in.]
Height for rack-mount installation ..... 4U
Weight ..... 13 kg [29 lb]

Mean Time Between Failures (MTBF) ..... 110,000 hours (Predictions performed in accordance with Belcore methods)

### Operating Environment

Ambient temperature ..... 0 to 50 °C (Meets IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity ..... 10 to 90%, noncondensing (Meets IEC 60068-2-56.)

### Storage Environment

Ambient temperature ..... -20 to 70 °C (Meets IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity ..... 5 to 95%, noncondensing (Meets IEC 60068-2-56.)

### Shock and Vibration

Operational shock ..... 30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800F)

Random vibration
Operating ..... 5 to 500 Hz, 0.3 $g_{rms}$
Nonoperating ..... 5 to 500 Hz, 2.4 $g_{rms}$ (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3)

### Safety and EMC/EMI Compliance

Safety ..... EN 61010-1, IEC 61010-1, UL 61010-1, CAN/CSA C22.2 No. 61010.1
EMC/EMI ..... CE, C-Tick, and FCC Part 15
Electrical Emissions ..... EN 55011 Class A at 10 m, and FCC Part 15 Class A above 1 GHz
Electrical Immunity ..... EN 61326:1998, Table 1 A2:2001, Table 1

## Specifications PXI-1052

Complies with PXI Specification, Rev 2.1
Complies with CompactPCI, PICMG 2.0 R3.0

### Electrical

### AC Input

Input voltage range ..... 100 to 240 VAC
Operating voltage range ..... 90 to 264 VAC
Input frequency ..... 50/60 Hz
Maximum Usable Power ..... 450 W

### DC Output – Available Power Per Rail

| | $I_{MP}$ (steady-state current) (A) | |
|---|---|---|
| Voltage (V) | 0 to 50 °C | 50 to 55 °C |
| +3.3 | 12 | 12 |
| +5 | 17 | 17 |
| +12 | 2 | 2 |
| -12 | 1 | 1 |
| +20 | 1.36 | 1.16 |
| -20 | 1.36 | 1.16 |

### Maximum ripple and noise (20 MHz bandwidth)

| Voltage (V) | Maximum Ripple and Noise ($mV_{pp}$) |
|---|---|
| +3.3 | 50 |
| +5 | 50 |
| +12 | 120 |
| -12 | 120 |
| +20 | 200 |
| -20 | 200 |

Over-current protection ..... All outputs protected from short circuit and overload
Over-voltage protection ..... 115 to 140% above nominal output voltage

### PXI Subsystem Cooling

Fans ..... 1 @ 115 cfm, with filters
Per slot cooling capacity ..... 25 W with fan speed set to HIGH
Slot airflow direction ..... P1 to P2, bottom of module to top of module

Module cooling
System ..... Forced air circulation (positive pressurization) fan with HIGH/AUTO speed selector
Exhaust ..... Along both sides and top of chassis
Power supply cooling
System ..... Forced air circulation through integrated fan
Intake ..... Right side of chassis
Exhaust ..... Left side of chassis

### Sound Pressure Level (at Operator position)

(Tested in accordance with ISO 7779)
Auto Fan (at 25°C ambient) ..... 41.6 dBA
High Fan ..... 51.5 dBA

### Sound Power

(Tested in accordance with ISO 7779)
Auto Fan (at 25°C ambient) ..... 51.9 dBA
High Fan ..... 60.0 dBA

### Environment (Indoor use only)

Altitude ..... 2,000 m
Installation Category ..... II
Pollution Degree ..... 2



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# PXI Chassis with Integrated Signal Conditioning

### Operating Environment

Ambient temperature ..... 0 to 55 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)

Relative humidity ..... 10 to 90% (Tested in accordance with IEC-60068-2-56.)

### Storage Environment

Ambient temperature ..... –20 to 70 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)

Relative humidity ..... 5 to 95% noncondensing (Tested in accordance with IEC-60068-2-56.)

### 10 MHz System Reference Clock (PXI_CLK10)

Maximum clock skew between slots ..... 250 ps

Built-in 10 MHz clock

- Accuracy ..... ±25 ppm (guaranteed over the operating temperature range)
- Maximum jitter ..... 5 $ps_{rms}$ in 10 Hz to 1 MHz range

External clock sources

- Connectors ..... BNC on rear of chassis (ground referenced) or Slot 2 J2
- Input frequency ..... 10 MHz ±100 ppm or better
- Input amplitude
  - Rear connector ..... 200 mVpp to 5 Vpp, 10 MHz squarewave or sinewave
  - Slot 2 ..... 5 or 3.3 V, 10 MHz TTL signal
- Input impedance ..... 50±5 Ω (rear connector)
- Maximum jitter introduced by backplane circuitry ..... 1 $ps_{rms}$ in 10 Hz to 1 MHz range

### Shock and Vibration

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

Random Vibration

- Operating ..... 5 to 500 Hz, 0.31 $g_{rms}$
- Nonoperating ..... 5 to 500 Hz, 2.46 $g_{rms}$ (Tested in accordance with IEC 60068-2-64)

### Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 3111-1, UL 61010B-1
- CAN/CSA C22.2 No. 1010.1

NOTE: For UL and other safety certifications, refer to the product label or to **ni.com**.

### Electromagnetic Compatibility

Emissions ..... EN 55011 Class A at 10 m. FCC Part 15A above 1 GHz

Immunity ..... EN 61326-1:1997 + A1:1998, Table 1

CE, C-Tick and FCC Part 15 (Class A) Compliant

NOTE: For EMC compliance, operate this device with shielded cabling.

### CE Compliance CE

This product meets the essential requirements of applicable European Directives, as amended for CE Marking, as follows:

Low-Voltage Directive (safety) ..... 73/23/EEC

Electromagnetic Compatibility Directive (EMC) ..... 89/336/EEC

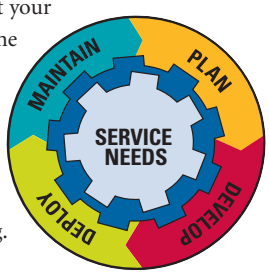
NOTE: Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, click Declarations of Conformity Information at **ni.com/hardref.nsf/**.



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## Hardware Services

### NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with ni.com/pxiadvisor.

### Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit ni.com/calibration.

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