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Detailed Specifications
For user manuals and dimensional drawings, visit the product page resources tab on ni.com.

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General-Purpose 4-Slot Chassis for PXI

NI PXI-1031

- Accepts both 3U PXI and 3U CompactPCI modules
- Low acoustic noise emissions
- 400 W universal AC power supply
- HALT tested

- Auto/High temperature controlled fan speed
- Software configuration of chassis/system
- Options: Rack-mount/wall-mount kit, handle and rubber feet kit, slot blockers for improved cooling performance, & factory installation services

Overview

The National Instruments PXI-1031 is a 4-slot PXI chassis designed for a wide range of desktop, rack-mounted, and portable applications. With its enhanced cooling capability, 400 W universal AC power supply, and HALT-tested chassis design, the NI PXI-1031 meets the demanding cooling and power requirements of today's high-performance PXI applications.

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Application and Technology

Low Acoustic Noise Emissions

The PXI-1031 chassis is equipped with an Auto/High fan switch for quiet operation in office, laboratory, and educational environments. Acoustic noise emissions as low as 35 dBA are realized at the lowest fan speed (sound pressure measured according to ISO 7779 at operator position). In environments with fluctuating temperatures, an onboard temperaturesensing device automatically increases/decreases fan speed when the switch is set to Auto, thus ensuring sufficient cooling of the PXI chassis and peripheral devices.

Software System Configuration

Configure the PXI-1031 with NI Measurement & Automation Explorer (MAX). With this software configuration tool, you can easily configure PXI-1031-based systems without

time-consuming manual installation of initialization files. MAX creates the pxisys.ini file that defines the layout and parameters of your PXI system including chassis, controller, and plug-in devices.

PXI-1031 Optional Accessories

The PXI-1031 has several optional accessories for optimized chassis functionality. A front rack-mount kit is available for 19 in. rack-mounted systems or wall-mounted systems. Use the handle and rubber feet kit for portable and desktop applications. You can insert slot blockers into empty slots of the PXI-1031 to improve the overall cooling performance of the chassis.

PXI Factory Installation Services and Global Technical Support

With National Instruments Factory Installation Services (FIS), you receive complete system-level functional testing of the PXI chassis, controller, and all peripheral devices, as well as installation of all device drivers and software programs (such as NI LabVIEW). After purchasing FIS, you can use PXI systems right out of the box with little or no installation and configuration of hardware or software. In addition, National Instruments offers global technical support for all PXI systems and provides access to a wealth of online Web support information. See ni.com/pxiadvisor and ni.com/support for more information on FIS and technical support resources.

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Support and Services

System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box. When you configure your system with the NI Standard System Assurance Program, you can select from available NI system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at ni.com/advisor to find a system assurance program to meet your needs.

Calibration

NI measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. NI offers a number of calibration services to help maintain the ongoing accuracy of your measurement hardware. These services allow you to be completely confident in your measurements, and help you maintain compliance to standards like ISO 9001, ANSI/NCSL Z540-1 and ISO/IEC 17025. To learn more about NI calibration services or to locate a qualified service center near you, contact your local sales office or visit ni.com/calibration.

Technical Support

Get answers to your technical questions using the following National Instruments resources.

- **Support** - Visit ni.com/support to access the NI KnowledgeBase, example programs, and tutorials or to contact our applications engineers who are located in NI sales offices around the world and speak the local language.
- **Discussion Forums** - Visit forums.ni.com for a diverse set of discussion boards on topics you care about.
- **Online Community** - Visit community.ni.com to find, contribute, or collaborate on customer-contributed technical content with users like you.

Repair

While you may never need your hardware repaired, NI understands that unexpected events may lead to necessary repairs. NI offers repair services performed by highly trained technicians who quickly return your device with the guarantee that it will perform to factory specifications. For more information, visit ni.com/repair.

Training and Certifications

The NI training and certification program delivers the fastest, most certain route to increased proficiency and productivity using NI software and hardware. Training builds the skills to more efficiently develop robust, maintainable applications, while certification validates your knowledge and ability.

- **Classroom training in cities worldwide** - the most comprehensive hands-on training taught by engineers.
- **On-site training at your facility** - an excellent option to train multiple employees at the same time.
- **Online instructor-led training** - lower-cost, remote training if classroom or on-site courses are not possible.
- **Course kits** - lowest-cost, self-paced training that you can use as reference guides.

- **Training memberships** and training credits - to buy now and schedule training later.

Visit ni.com/training for more information.

Extended Warranty

NI offers options for extending the standard product warranty to meet the life-cycle requirements of your project. In addition, because NI understands that your requirements may change, the extended warranty is flexible in length and easily renewed. For more information, visit ni.com/warranty.

OEM

NI offers design-in consulting and product integration assistance if you need NI products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Alliance

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

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Detailed Specifications

⚠️ **Caution** If the PXI-1031/PXI-1031DC chassis is used in a manner inconsistent with the instructions or specifications listed by National Instruments, the protective features of the chassis may be impaired.

📝 **Note** Specifications are subject to change without notice.

This appendix contains specifications for the PXI-1031 and PXI-1031DC chassis.

PXI-1031 Chassis	
Electrical	
AC Input	
Input voltage range	100–240 VAC
Operating voltage range [1]	90–264 VAC
Input frequency	50/60 Hz
Operating frequency range [1]	47–63 Hz
Input current rating	4–2 A
Efficiency	>70% at full load, normal input voltage
Power disconnect	The AC power cable provides main power disconnect. The front-panel power switch controls the internal chassis power supply that provides DC power to the CompactPCI/PXI backplane.
DC Output	

DC current capacity (I_{MP})	
Voltage	**0–50 °C**
+3.3 V	12 A
+5 V	17 A
+12 V	2 A
−12 V	0.8 A

All outputs protected from short circuit

Over-current protection

Over-voltage protection		
Over-voltage at	Active Range	
	Minimum	Maximum
+3.3 V	3.76 V	4.3 V
+5 V	5.74 V	7.0 V
+12 V	13.4 V	15.6 V

Chassis Cooling	
Per slot cooling capacity	25 W
Slot airflow direction	P1 to P2, bottom of module to top of module
Module cooling	
System	Forced air circulation (positive pressurization) through a High Flow fan with HIGH/AUTO speed selector
Intake	Bottom of chassis
Exhaust	Along rear, right side, and top of chassis
Power supply cooling	
System	Forced air circulation through integrated fan
Intake	Front side of chassis
Exhaust	Rear side of chassis
Environmental	
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient)
Measurement Category	II
Pollution Degree	2
For indoor use only.	
Operating Environment	
Ambient temperature range	0 to 50 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2. Meets MIL-PRF-28800F Class 3 low temperature limit and high temperature limit.)
Relative humidity range	20 to 80%, noncondensing (Tested in accordance with IEC-60068-2-56.)
Storage Environment	
Ambient temperature range	–20 to 70 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2. Meets MIL-PRF-28800F Class 3 limits.)
Relative humidity range	10 to 95%, noncondensing (Tested in accordance with 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. Meets MIL-PRF-28800F Class 2 limits.)
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.)

Acoustic Emissions

Sound Pressure Level (at Operator Position)

(Tested in accordance with ISO 7779. Meets MIL-PRF-28800F requirements.)

PXI-1031

Auto fan (at 25 °C ambient)	35.0 dBA
High fan	51.7 dBA

Sound Power

(Tested in accordance with ISO 7779.)

PXI-1031

Auto fan (at 25 °C ambient)	43.4 dBA
High fan	59.5 dBA

PXI-1031DC Chassis

Electrical

AC Input

Input voltage range	100–120/200–240 VAC
Operating voltage range [1]	90–132/180–264 VAC
Input frequency	50/60 Hz
Operating frequency range [1]	47–63 Hz
Input current rating	4–2 A
Over-current protection	6.3 A fuse in power supply (no user-serviceable components inside chassis)
Efficiency	65% minimum
Power disconnect	The AC power cable provides main power disconnect. The front-panel power switch controls the internal chassis power supply that provides DC power to the CompactPCI/PXI backplane.

DC Input

Input voltage range	18-30 VDC
Input current rating	30 A maximum
Efficiency	65% typical
Power disconnect	The DC power cable provides main power disconnect. The front-panel power switch controls the internal chassis power supply that provides DC power to the CompactPCI/PXI backplane.

DC Output

DC current capacity (I_{MP})	
Voltage	**0–50 °C**
+3.3 V	12 A
+5 V	17 A
+12 V	2 A
−12 V	0.8 A

Notes The output power is derated –5 W/°C above 45 °C.	

The combined loading on +5 VDC and +3.3 VDC must not exceed 112 W.

For AC powered applications, the combined loading must not exceed 145.6 W.

Overcurrent protection	All outputs protected from short circuit and overload
Overvoltage protection	All outputs protected from overvoltage. Cycle the primary power and front power switch to restart.
Chassis Cooling	
Per slot cooling capacity	25 W
Slot airflow direction	P1 to P2, bottom of module to top of module
Module cooling	
System	Forced air circulation (positive pressurization) through a High Flow fan with HIGH/AUTO speed selector
Intake	Bottom of chassis
Exhaust	Along rear, right side, and top of chassis
Power supply cooling	
System	Forced air circulation through integrated fan
Intake	Front side of chassis
Exhaust	Rear side of chassis
Environmental	
Operating location	Indoor use
Maximum altitude	2,000 m
Installation Category	II
Pollution Degree	2
Operating Environment	
Ambient temperature range	0 to 50 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
Relative humidity range	10 to 90%, noncondensing (Tested in accordance with IEC-60068-2-56.)
Storage Environment	
Ambient temperature range	–20 to 70 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
Relative humidity range	5 to 95%, noncondensing (Tested in accordance with 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.)
Acoustic Emissions	
Sound Pressure Level (at Operator Position)	

(Tested in accordance with ISO 7779.)

PXI-1031DC

Auto fan (at 25 °C ambient)	45.5 dBA
High fan	49.4 dBA

Sound Power

(Tested in accordance with ISO 7779.)

PXI-1031DC

Auto fan (at 25 °C ambient)	54.3 dBA
High fan	58.2 dBA

Common Specifications

Safety

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

- EN 61010-1, IEC 61010-1
- UL 61010-1, CSA 61010-1

Note For UL and other safety certifications, refer to the product label, or visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

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

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A

Note For EMC compliance, operate this device according to printed documentation.

CE Compliance

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, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment, visit ni.com/environment/weee.htm.

Backplane

|	
Size	3U-sized; one system slot (with three system expansion slots) and three peripheral slots. Compliant with IEEE 1101.10 mechanical packaging. *PXI Hardware Specification, Revision 2.2* compliant. Accepts both PXI and CompactPCI 3U modules.
V(I/O) [2]	+5 V
Backplane bare-board material	UL 94 V-0 recognized
Backplane connectors	Conform to IEC 917 and IEC 1076-4-101, and are UL 94 V-0 rated

10 MHz System Reference Clock (10 MHz REF)

Maximum clock skew between slots	250 ps
Built-in 10 MHz clock	
Accuracy	±25 ppm (guaranteed over the operating temperature range)
Mechanical	
Overall dimensions (standard chassis)	
Height	177 mm (6.97 in.)

> **Note** 12.7 mm (0.50 in.) is added to height when feet are installed.

Width	257.1 mm (10.12 in.)
Depth	212.8 mm (8.38 in.)
Weight	5 kg (11.0 lbs)
Chassis materials	Sheet Aluminum, Extruded Aluminum, Cold Rolled Steel, Nylon
Finish	Clear Chromate Conversion Coat on Aluminum, Electrodeposited Nickel Plate on Cold Rolled Steel, Polyester Urethane Powder Paint

The following two figures show the PXI-1031/PXI-1031DC dimensions. The holes shown are for the installation of the optional rack-mount kits as shown in the third figure. Notice that the front and rear rack mounting holes (size M4) are symmetrical.

PXI-1031/PXI-1031DC Dimensions (Front and Side) in Inches (mm)
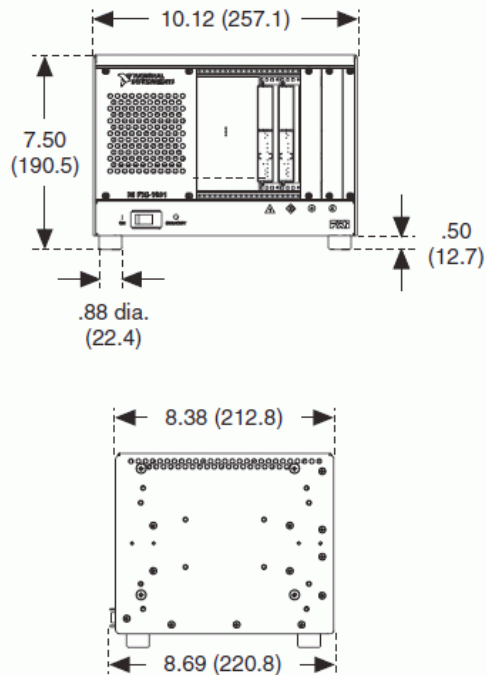
PXI-1031/PXI-1031DC Dimensions (Bottom) in Inches (mm)
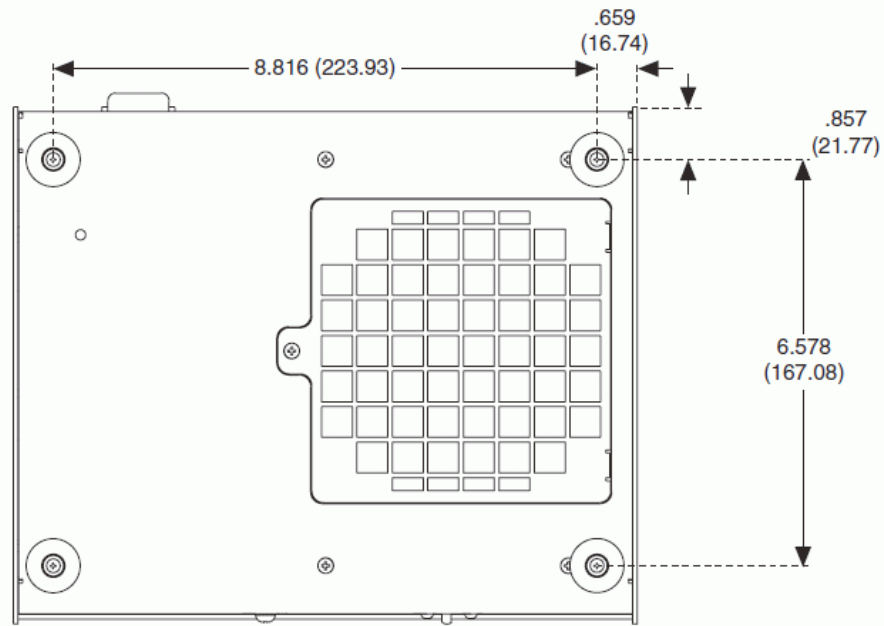
The following figure shows the PXI-1031/PXI-1031DC rack mount kit components.

PXI-1031/PXI-1031DC Rack Mount Kit Components
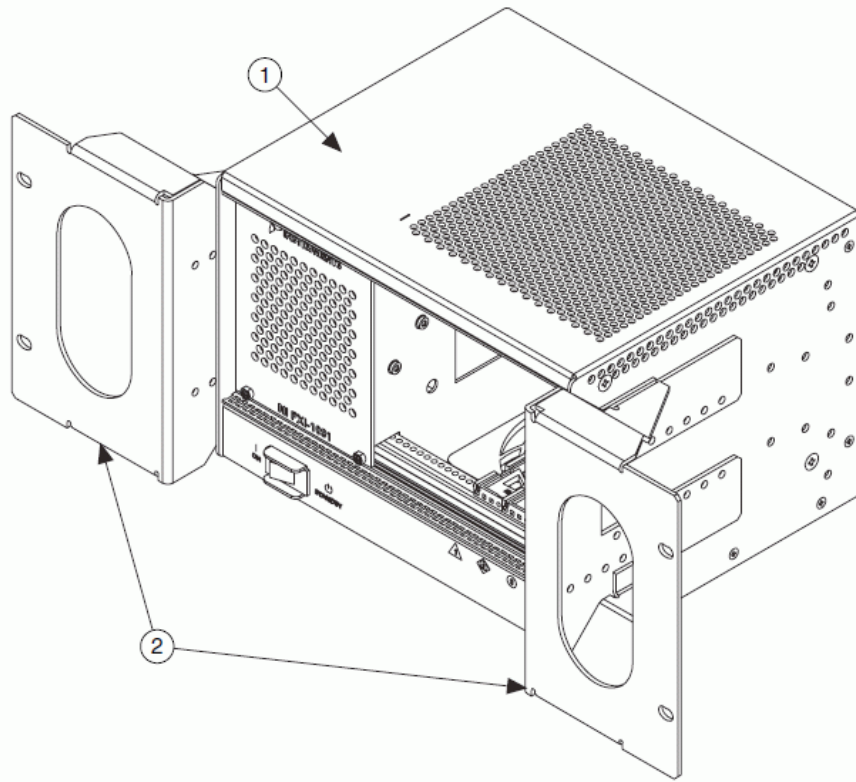
| 1 PXI-1031/PXI-1031DC Chassis | 2 Rack Mount Kit |

[1] The operating range is guaranteed by design.

[2] V(I/O) is connected to the +5 V DC power plane, so the same specifications apply to V(I/O) and +5 V.

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