NATIONAL INSTRUMENTS PXIe-6396 PXI Multifunction Input or Output Module Instructions

Contents

PXIe-6396 PXI Multifunction Input or Output Module

Product Information

The PXIe-6396 is a multifunction I/O module with 8 analog input channels, 2 analog output channels, and 24 digital I/O channels. It has a high resolution of 18-bit and a sampling rate of 14 MS/s per channel. The module is designed to be used in a PXI/PXIe chassis and is compatible with various software platforms.

Safety, Environmental, and Regulatory Information

Before installing, configuring, operating, or maintaining the product, users must familiarize themselves with the installation and wiring instructions as well as the requirements of all applicable codes, laws, and standards. The product should only be used indoors and must be operated with shielded cables and accessories to ensure specified EMC performance. The maximum working voltage for the channel to earth is 11V in Measurement Category I. The product should not be connected to signals or used for measurements within Measurement Categories II, III, or IV.

Icons

The caution icon indicates that precautions should be taken to avoid injury. When this icon is printed on the model, users should consult the model documentation for cautionary statements. These statements are localized into French for compliance with Canadian requirements.

Safety Compliance Standards

The product complies with safety certifications such as UL. Users should refer to the product label or the Product Certifications and Declarations section for more information.

EMC Guidelines

Users should refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified EMC performance:

- Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.
- Operate this product only with shielded cables and accessories.

The product is classified as Group 1 equipment (per CISPR 11) and is intended for use in heavy-industrial locations in Europe, Canada, Australia, and New Zealand. In the United States (per FCC 47 CFR), the product is classified as Class A equipment and is intended for use in commercial, light-industrial, and heavy-industrial locations.

Environmental Guidelines
The product is intended for use in indoor applications only.

Product Usage Instructions

1. Install the PXI/PXIe chassis according to the manufacturer's instructions.
2. Insert the PXIe-6396 module into an available slot in the chassis.
3. Connect the shielded cables and accessories to the module.
4. Familiarize yourself with the software platform you will be using with the module.
5. Configure the module according to your application's requirements using the software platform.
6. Use the analog input channels to measure signals from specially protected secondary circuits. Do not connect the module to signals or use it for measurements within Measurement Categories II, III, or IV.
7. Use the analog output channels to generate signals with a resolution of 18-bit.
8. Use the digital I/O channels to interface with digital devices such as sensors and switches.
9. Follow all applicable codes, laws, and standards when using the product.

SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

PXIe-6396
8 AI (18-Bit, 14 MS/s/ch), 2 AO, 24 DIO, PXI Multifunction I/O Module
Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Icons

-  Notice—Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.
-  Caution—Take precautions to avoid injury. Consult the model documentation for cautionary statements when you see this icon printed on the model. Cautionary statements are localized into French for compliance with Canadian requirements.

Safety

-  **Caution** Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.

Maximum Working Voltage
Maximum working voltage refers to the signal voltage plus the common-mode voltage.

- Channel to earth: 11 V, Measurement Category I

Caution
Do not connect the PXIe-6396 to signals or use for measurements within Measurement Categories II, III, or IV.

Measurement
Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.

Note Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Safety Compliance Standards

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

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note
For UL and other safety certifications, refer to the product label or the Product Certifications and Declarations section.

EMC Guidelines
This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) stated in the product specifications. These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.
This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.
Furthermore, any changes or modifications to the product not expressly approved by NI could void your authority to operate it under your local regulatory rules.

EMC Notices
Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified EMC performance.

- **Notice:** Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.
- **Notice:** Operate this product only with shielded cables and accessories.

Electromagnetic Compatibility Standards
This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions

- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-003: Class A emissions

Note: Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.
Note: In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in heavy-industrial locations.
Notice: For EMC declarations and certifications, and additional information, refer to the Product Certifications and Declarations section.

Environmental Guidelines

Notice: This model is intended for use in indoor applications only.

Environmental Characteristics
Temperature and Humidity
Temperature

- Operating 0 °C to 55 °C
- Storage -40 °C to 71 °C

Humidity

- Operating 10% to 90% RH, noncondensing
- Storage 5% to 95% RH, noncondensing
- Pollution Degree 2
- Maximum altitude 2,000 m (800 mbar) (at 25 °C ambient temperature)

Shock and Vibration
Random vibration

- Operating 5 Hz to 500 Hz, 0.3 g RMS
- Non-operating 5 Hz to 500 Hz, 2.4 g RMS
- Operating shock 30 g, half-sine, 11 ms pulse

Environmental Management
NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.
For additional environmental information, refer to the Commitment to the Environment web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)
EU Customers At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

National Instruments (RoHS)
National Instruments RoHS ni.com/environment/rohs_china
(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

Environmental Standards
This product meets the requirements of the following environmental standards for electrical equipment.

- IEC 60068-2-1 Cold
- IEC 60068-2-2 Dry heat
- IEC 60068-2-78 Damp heat (steady state)
- IEC 60068-2-64 Random operating vibration
- IEC 60068-2-27 Operating shock
- MIL-PRF-28800F
  - Low temperature limits for operation Class 3, for storage Class 3
  - High temperature limits for operation Class 2, for storage Class 3
  - Random vibration for non-operating Class 3
  - Shock for operating Class 2

    Note: To verify marine approval certification for a product, refer to the product label or visit ni.com/certification and search for the certificate.

Power Requirements
Caution
The protection provided by the device can be impaired if the device is used in a manner not described in the X Series User Manual.

- +3.3 V 6 W
- +12 V 30 W

Physical Characteristics

- Printed circuit board dimensions Standard 3U PXI
- Weight 294 g (10.4 oz)
- I/O connectors
  - Module connector 68-Pos Right Angle PCB-Mount VHDCI (Receptacle)
  - Cable connector 68-Pos Offset IDC Cable Connector (Plug) (SHC68-*)
- **Note**
  For more information about the connectors used for DAQ devices, refer to the document, NI DAQ Device Custom Cables, Replacement Connectors, and Screws, by going to ni.com/info and entering the Info Code rdspmb.

Maintenance
Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service.

CE Compliance
This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)

Export Compliance
This model is subject to control under the U.S. Export Administration Regulations (15 CFR Part 730 et. seq.) administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) (www.bis.doc.gov) and other applicable U.S. export control laws and sanctions regulations. This model may also be subject to additional license requirements of other countries' regulations.

Additionally, this model may also require export licensing before being returned to NI. The issuance of a Return Material Authorization (RMA) by NI does not constitute export authorization. The user must comply with all applicable export laws prior to exporting or re-exporting this model. See **ni.com/legal/export-compliance** for more information and to request relevant import classification codes (e.g. HTS), export classification codes (e.g. ECCN), and other import/export data.

Product Certifications and Declarations
Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit **ni.com/product-certifications**, search by model number, and click the appropriate link.

Additional Resources
Visit **ni.com/manuals** for more information about your model, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

Worldwide Support and Services
The NI website is your complete resource for technical support. At **ni.com/support**, you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.
Visit **ni.com/services** for information about the services NI offers.
Visit **ni.com/register** to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. NI also has offices located around the world. For support in the United States, create your service request at **ni.com/support** or dial 1 866 ASK MYNI (275 6964). For support outside the United States, visit the Worldwide Offices section of **ni.com/niglobal** to access the branch office websites, which provide up-to-date contact information.

Documents / Resources

	NATIONAL INSTRUMENTS PXIe-6396 PXI Multifunction Input or Output Module [pdf] Instructions PXIe-6396, PXI Multifunction Input or Output Module, PXIe-6396 PXI Multifunction Input or Output Module, Multifunction Input or Output Module, Input or Output Module, Output Module, Module
	NATIONAL INSTRUMENTS PXIe-6396 PXI Multifunction Input or Output Module [pdf] User Guide PXIe-6396, PXIe-6396 PXI Multifunction Input or Output Module, PXI Multifunction Input or Output Module, Multifunction Input or Output Module, Input or Output Module, Module

References

- NI DAQ Device Custom Cables, Replacement Connectors, and Screws - NI
- Engineer Ambitiously - NI
- Engineer Ambitiously - NI
- Product Certifications - NI
- Engineering a Healthy Planet - NI
- Managing Critical Substances - NI
- Managing Critical Substances - NI
- Product Take-Back Program and Recycling - NI
- Example Programs - NI Community
- NI Learning Center - NI
- Using Info Codes - NI
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