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Find the *National Instruments PXIe-4464* at our website: *Click HERE*

GETTING STARTED GUIDE

PXIe-4464

204.8 kS/s, 119 dB, 6 Gains, AC/DC-Coupled, 4-Input PXI Sound and Vibration Module

This document explains how to install, configure, and set up the PXIe-4464 Sound and Vibration Module. Driver support for the PXIe-4464 was first available in NI-DAQmx 14.1. For the list of devices supported by a specific release, refer to the NI-DAQmx Readme, available on the version-specific download page or installation media. To download NI-DAQmx 14.1, visit `ni.com/info` and enter the Info Code `PXIE4464`. The PXIe-4464 is available with BNC connectors or Mini-XLR connectors.

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Electromagnetic Compatibility 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 modifications to the product not expressly approved by National Instruments could void your authority to operate it under your local regulatory rules.

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Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

Caution To ensure the specified EMC performance, the length of all I/O cables must be no longer than 3 m (10 ft).

Caution BNC version only—Electromagnetic interference can adversely affect the measurement accuracy of this product. The construction of a BNC coaxial cable is inherently unbalanced in that the outer conductor (LO) is used as a shield for the inner conductor (HI). However, for functional reasons, there is no input configuration of the PXIe-4464 that directly connects the LO terminal to the chassis ground. Without a direct connection to chassis ground, the outer conductor does not act as a shield for unwanted noise and may act as an antenna for coupling noise into the module inputs. For single-ended measurements, the noise immunity for the system can be improved by directly connecting the outer conductor to the chassis or earth ground at the load end of the cable. For differential measurements, where such a connection is inherently not possible, the BNC cable can alternatively be wrapped in a separate grounded shield. In addition, you might need to use snap-on ferrite beads or other remedial measures to improve electromagnetic compatibility.

Unpacking the Kit

The PXIe-4464 module ships in an antistatic package to prevent electrostatic discharge from damaging module components.

Caution To prevent electrostatic discharge from damaging the device, ground yourself using a grounding strap or by holding a grounded object, such as your computer chassis:

1. Touch the antistatic package to a metal part of the grounded object before removing the module from package.
2. Remove the module from the package and inspect the module for loose components or any other sign of damage.

Caution Never touch the exposed pins of connectors

3. Unpack any other items and documentation from the kit.

Notify NI if the module appears damaged in any way. Do not install a damaged module. Store the module in the antistatic package when the device is not in use.

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Preparing the Environment

Ensure that the environment you are using the PXIe-4464 in meets the following specifications.

Operating ambient temperature ..... 0 °C to 55 °C
(IEC 60068-2-1, IEC 60068-2-2)

Operating relative humidity ..... 10% to 90%, noncondensing
(IEC 60068-2-56)

Altitude ..... 2,000 m (800 mbar)
(at 25 °C ambient temperature)

Pollution Degree 2

Indoor use only.

Caution 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.

Note Refer to the *PXIe-4464 Specifications* at `ni.com/manuals` for complete specifications.

Verify the Kit Contents

The following items are necessary to set up and use the PXIe-4464:

- PXIe-4464 analog input module
- NI-DAQmx installation media
- *PXIe-4464 Getting Started Guide* (this document)

Note You can download any needed documents from `ni.com/manuals`.

Other Equipment

The following additional items, not included in the module kit, are necessary to operate the PXIe-4464:

- PXI Express chassis with
  - controller, or
  - MXI-Express (card or built-in)
- (optional) LabVIEW

Note For the list of LabVIEW versions supported by a specific version of NI-DAQmx, refer to the NI-DAQmx Readme, available on the version-specific download page at `ni.com/downloads` or on the installation media.

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Install the Software

Software support for the PXIe-4464 is provided by NI-DAQmx. The *DAQ Getting Started Guide*, which you can download at `ni.com/manuals`, offers step-by-step NI-DAQmx instructions for installing software and hardware, configuring channels and tasks, and getting started developing an application. For detailed NI software version support, refer to the NI-DAQmx Readme.

You must install the software before using the hardware.

Note You must be an Adminstrator to install NI software on your computer.

1. Install an ADE, such as LabVIEW or LabWindows™/CVI™.
2. Install the latest service packs for your operating system.
3. Insert the driver software media into your computer. The installer should open automatically.

   If the installation window does not appear, navigate to the drive, double-click it, and double-click `autorun.exe`.
4. Follow the instructions in the installation prompts.

Note Windows users may see access and security messages during installation. Accept the prompts to complete the installation.

5. When installation completes, select **Restart** in the dialog box that asks if you want to restart, shut down, or restart later.

Install the Hardware

Note To maintain forced air cooling in the PXIe system, refer to the *Maintain Forced-Air Cooling* document.

Caution To prevent damage to the device caused by ESD or contamination, handle the device using the edges or the metal bracket.

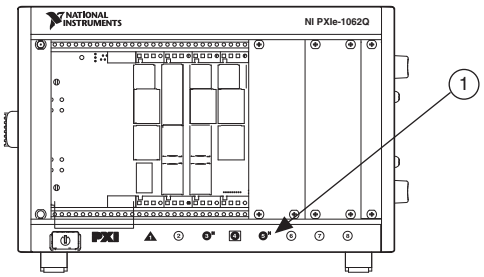
1. Ensure the AC power source is connected to the chassis before installing the module. The AC power cord grounds the chassis and protects it from electrical damage while you install the module.
2. Power off the chassis.

Caution To protect yourself, the chassis, and the PXIe-4464 from electrical hazards, leave the chassis powered off until you finish installing the PXIe-4464 module.

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3. Inspect the slot pins on the chassis backplane for any bends or damage prior to installation. Do not install a module if the backplane is damaged.
4. Remove the black plastic connectors from all the captive screws on the module front panel.
5. Identify a supported slot in the chassis. The PXIe-4464 module can be placed only in the supported slot types identified in Table 1. Figure 1 shows the slot type symbols of the various slot types. Refer to your chassis documentation for more details

Figure 1. PXI/PXIe Chassis Slot Type Symbol Location



1 Slot Type Symbols Locations

Table 1. PXIe-4464 Supported Slot Types

PXI Chassis Slot Type Symbol	Supported Slot Type Description
●	PXI Express Peripheral
●^{H}	PXI/PXI Express Hybrid Peripheral
◉	PXI Express System Timing or Peripheral

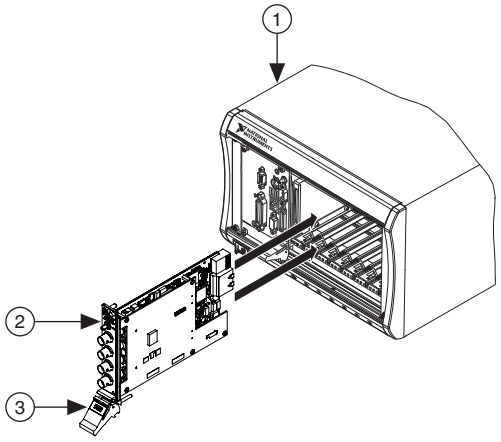
6. Touch any metal part on the chassis to discharge any static electricity.
7. Ensure that the injector/ejector handle is in the unlatched (downward) position.

Caution When installing the module, make sure both edges are positioned inside the guides and that the module components do not come into contact with adjacent modules.

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8. Place the module edges into the module guides at the top and bottom of the chassis. Slide the module into the slot until it is fully inserted.

Figure 2. Sliding the PXIe-4464 into the Chassis



1	Chassis	3	Injector/Ejector Handle in Down (Unlatched) Position
2	Hardware Module (BNC model shown)		

9. Latch the module in place by pulling up on the ejector handle.
10. Secure the device front panel to the chassis using the front-panel mounting screws.

Note Tightening the top and bottom mounting screws increases mechanical stability and also serves to electrically connect the front panel to the chassis, which can improve the signal quality and electromagnetic performance.

11. Cover all empty slots using EMC filler panels or slot blockers to maximize cooling air flow, depending on your application.
12. Power on the chassis.

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Configuring the PXIe-4464 in MAX

Use Measurement & Automation Explorer (MAX) to configure your National Instruments hardware. MAX informs other programs about which devices reside in the system and how they are configured. MAX is automatically installed with NI-DAQmx.

1. Launch MAX.
2. In the Configuration pane, expand **Devices and Interfaces** to see a list of installed devices. Installed devices appear under the name of their associated chassis.



Note If you are using the PXIe-4464 with the LabVIEW Real-Time Module, expand **Remote Systems**. Find your target IP address or name, expand it, and then expand **Devices and Interfaces**.

3. Expand your **Chassis** tree item. MAX lists all devices installed in the chassis. Your default device names may vary.



Note If you do not see your hardware listed, press <F5> to refresh the list of installed devices. If the device is still not listed, power off the system, ensure the device is correctly installed, and restart.

4. Record the device identifier MAX assigns to the hardware. Use this identifier when programming the PXIe-4464.

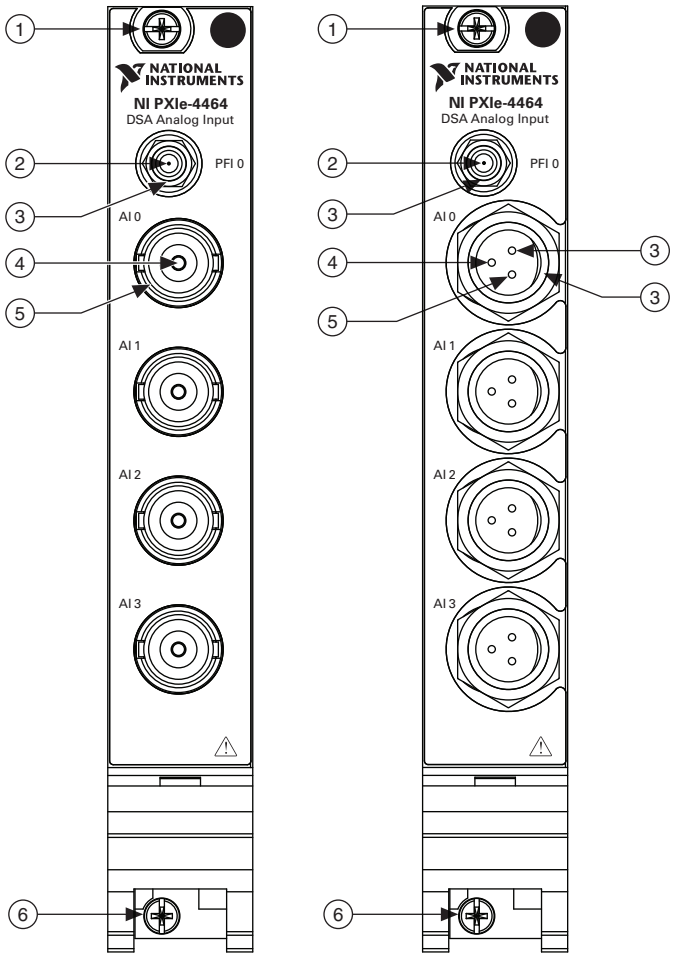
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Connect a Signal Source to the PXIe-4464

The following figure shows the front panel connections of the PXIe-4464 with BNC connectors and the PXIe-4464 with Mini-XLR connectors.

Note Refer to the *PXIe-4464 Specifications* for information about the operating input range and overvoltage protection.

Figure 3. PXIe-4464 BNC and Mini-XLR Connector Front Panel



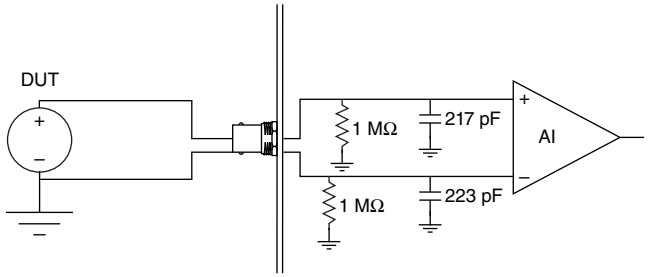
1	Top Module Mounting Screw	2	PFI	4	AI+	6	Bottom Module Mounting Screw
		3	Chassis Ground	5	AI-		

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PXIe-4464 Input Connections

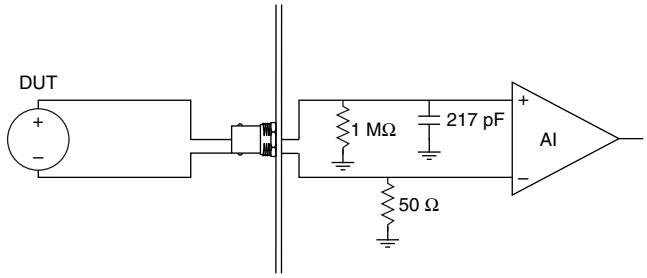
The following figure shows the PXIe-4464 input connection with the terminal configuration in differential mode. Refer to the *NI-DAQmx Help* for more information about terminal configuration.

Figure 4. PXIe-4464 Input Connection in Differential Mode



The following figure shows an PXIe-4464 input connection with the terminal configuration in pseudodifferential mode.

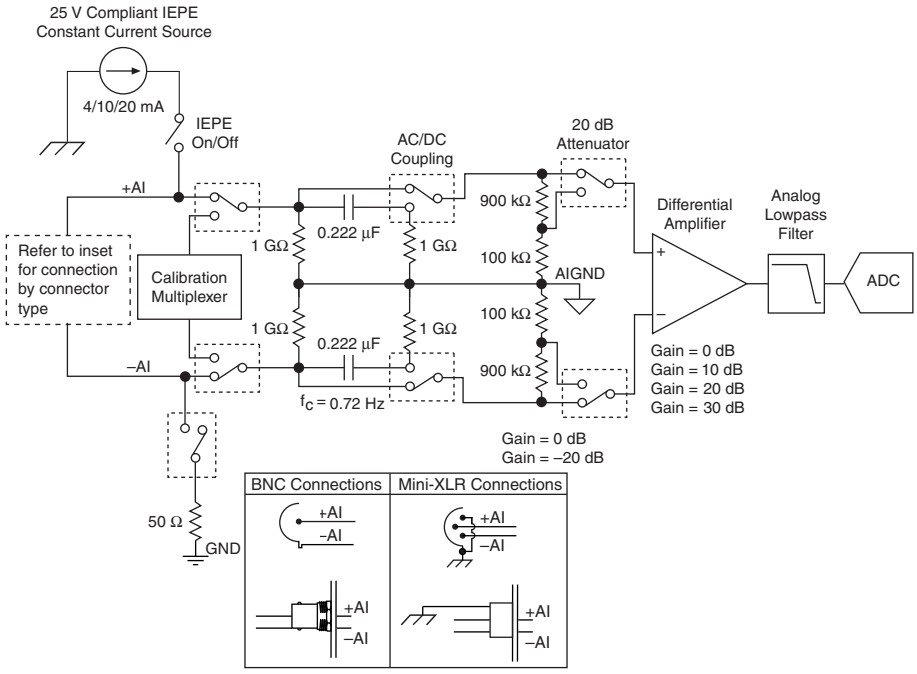
Figure 5. PXIe-4464 Input Connection in Pseudodifferential Mode



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The following figure shows the PXIe-4464 analog input circuitry block diagram. Depending on the connector type, connect the signals as shown in the inset.

Figure 6. PXIe-4464 Analog Input Block Diagram



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