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PXIe-7902

GETTING STARTED GUIDE

PXIe-7902

High-Speed Serial Module

This document explains how to install and begin using your PXIe-7902 high-speed serial module.

For more information about features and programming, refer to the *NI High-Speed Serial Instruments User Manual*. For device specifications, refer to the *PXIe-7902 Specifications*.

For the most current versions of documentation, visit ni.com/manuals.



Caution The protection provided by this product may be impaired if it is used in a manner not described in this document.

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



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 To ensure the specified EMC performance, you must install PXI EMC Filler Panels, National Instruments part number 778700-01, in all open chassis slots. A kit of six single slot EMC Filler Panels can be ordered directly from NI by visiting ni.com/info and entering partnumber.

Using Your Documentation Set

Refer to the following table to learn how to use your documentation set.

Table 1. PXIe-7902 Documentation Locations and Descriptions

Document	Location	Description
<i>PXIe-7902 Getting Started Guide</i> (this document)	Available from the Start menu and at ni.com/manuals .	Contains installation instructions for your PXIe-7902 device and driver software.
<i>NI High Speed Serial Instruments User Manual</i>	Available from the Start menu and at ni.com/manuals .	Contains information about developing applications for the PXIe-7902.
<i>NI High Speed Serial Instruments Help</i>	Available from the Start menu and at ni.com/manuals .	Contains hardware and programming support for NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments and the PXIe-7902.
<i>PXIe-7902 Specifications</i>	Available from the Start menu and at ni.com/manuals .	Contains specifications for your PXIe-7902 module.

Verifying the System Requirements

To use the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments instrument driver, your system must meet certain requirements.

Refer to the product readme, which is available on the driver software media or online at ni.com/manuals, for more information about minimum system requirements, recommended system, and supported application development environments (ADEs).

Unpacking the Kit



Caution To prevent electrostatic discharge (ESD) 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 computer chassis.
2. Remove the device from the package and inspect the device for loose components or any other sign of damage.



Caution Never touch the exposed pins of connectors.



Note Do not install a device if it appears damaged in any way.

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

Store the device in the antistatic package when the device is not in use.

PXIe-7902 Kit Contents

The following items are included in the device kit:

- The PXIe-7902
- The NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments driver software media
- Documentation:
 - *Read Me First: Safety and Electromagnetic Compatibility*
 - *Maintain Forced-Air Cooling Note to Users*
 - *PXIe-7902 Getting Started Guide* (this document)

Preparing the Environment

Ensure that the environment you are using the PXIe-7902 in meets the following specifications.



Caution Do not use the PXIe-7902 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to NI for repair.

Operating ambient temperature (IEC-60068-2-1, IEC-60068-2-2)	0 °C to 40 °C
Operating relative humidity (IEC-60068-2-56)	10% to 90%, noncondensing
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution degree	2

Indoor use only.



Note Refer to the *PXIe-7902 Specifications* at ni.com/manuals for complete specifications.

Installing the Software

You must install the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments driver software before installing the PXIe-7902.

1. Install LabVIEW. Refer to the *LabVIEW Installation Guide* for installation instructions and system requirements. Refer to the *LabVIEW Upgrade Notes* for additional information about upgrading to the most recent version of LabVIEW.

Documentation for LabVIEW is available at ni.com/manuals and by selecting **Start»All Programs»National Instruments»LabVIEW»LabVIEW Manuals**.

2. Install the LabVIEW FPGA Module. Refer to the *LabVIEW FPGA Module Release and Upgrade Notes* for installation instructions and information about getting started with the LabVIEW FPGA Module.

Documentation for the LabVIEW FPGA Module is available is available at ni.com/manuals and by selecting **Start»All Programs»National Instruments»LabVIEW»LabVIEW Manuals**.

3. Install the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments Help driver. Refer to the *NI High Speed Serial Instruments Readme* on the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments installation media for system requirements and installation instructions for the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments driver.

For the latest version of the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments driver, visit ni.com/downloads

Documentation for the NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments driver is available at ni.com/manuals and by selecting **Start»All Programs»National Instruments»High Speed Serial Instruments»High Speed Serial Instruments Documentation**.

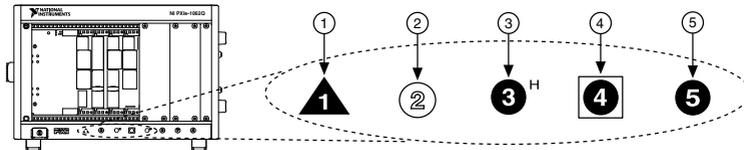
Installing the PXIe-7902 Module



Note You must install the software before you install the hardware.

1. Power off and unplug the chassis. Refer to your chassis manual to install or configure the chassis.
2. Identify a supported module slot in the chassis. The figure below shows the symbols that indicate the slot types in the chassis.

Figure 1. Symbols for Module Slots



- | | |
|---------------------------------------|-----------------------------------|
| 1. PXI Express System Controller Slot | 4. PXI Express System Timing Slot |
| 2. PXI Peripheral Slot | 5. PXI Express Peripheral Slot |
| 3. PXI Express Hybrid Peripheral Slot | |

PXI Express devices can be placed only in PXI Express slots and PXI Express Hybrid slots. Refer to the chassis documentation for details.

3. Remove the filler panel of an unused module slot.
4. Touch any metal part of the chassis to discharge any static electricity. Place the module edges into the module guides at the top and bottom of the chassis, and slide the module into the chassis until the module is fully inserted.
5. Secure the device front panel to the chassis front panel mounting rail using the front panel mounting screws.
6. Plug in and power on the chassis.

Configuring the PXIe-7902 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 LabVIEW Instrument Design Libraries for High Speed Serial Instruments.

1. Launch MAX by navigating to **Start»All Programs»National Instruments»NI MAX** or by clicking the NI MAX desktop icon.

2. In the Configuration pane, expand **Devices and Interfaces** to see the list of installed devices. Installed devices appear under the name of their associated chassis.
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 module listed, press <F5> to refresh the list of installed modules. If the module is still not listed, power off the system, ensure the module is correctly installed, and restart.

4. Record the device identifier MAX assigns to the hardware. Use this identifier when programming the PXIe-7902.
5. The MAX self-test performs a basic verification of hardware resources. To self-test a module in MAX, right click the module and select **Self-Test**.

If any module fails the self-test, refer to the *Troubleshooting* section of this document.

Accessing Sample Projects

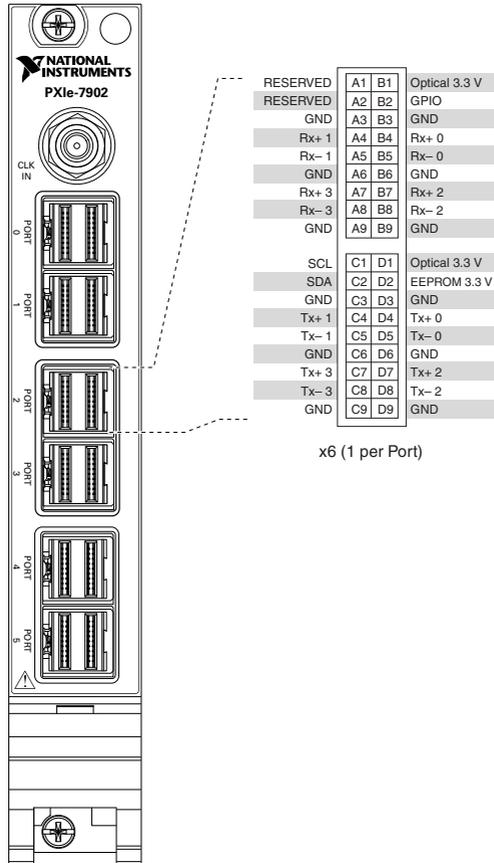
NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments includes sample projects to help you get started designing for the PXIe-7902.

1. Launch LabVIEW.
2. Select **Create Project**.
3. In the **Create Project** dialog box, select **High-Speed Serial** and select a sample project for your device.
4. Click **Next**.
5. Configure the **Project Name**, **Project Root**, and **File Name Prefix (Optional)** fields.
6. Click **Finish**.

PXIe-7902 Front Panels

The following figure shows the available signals on the PXIe-7902.

Figure 2. NI 7902 Front Panel and Connector Pinouts



Troubleshooting

What Should I Do if the PXIe-7902 Doesn't Appear in MAX?

1. In the MAX configuration tree, expand **Devices and Interfaces**.
2. Expand the **Chassis** tree to see the list of installed hardware, and press <F5> to refresh the list.
3. If the module is still not listed, power off the system, ensure that all hardware is correctly installed, and restart the system.
4. Navigate to the Device Manager.

Operating System	Description
Windows 10/8.1	Right-click the Start button, and select Device Manager .
Windows 7	Select Start » Control Panel » Device Manager .

5. If you are using a PXI or PXI Express controller, verify that a **National Instruments** entry appears in the **System Devices** list. Reinstall NI LabVIEW Instrument Design Libraries for High Speed Serial Instruments and the module if error conditions appear in the list. If you are using an MXI controller, right-click **PCI-to-PCI Bridge**, and select **Properties** from the shortcut menu to verify that the bridge is enabled.

What Should I Do if the Module Fails the Self-Test?

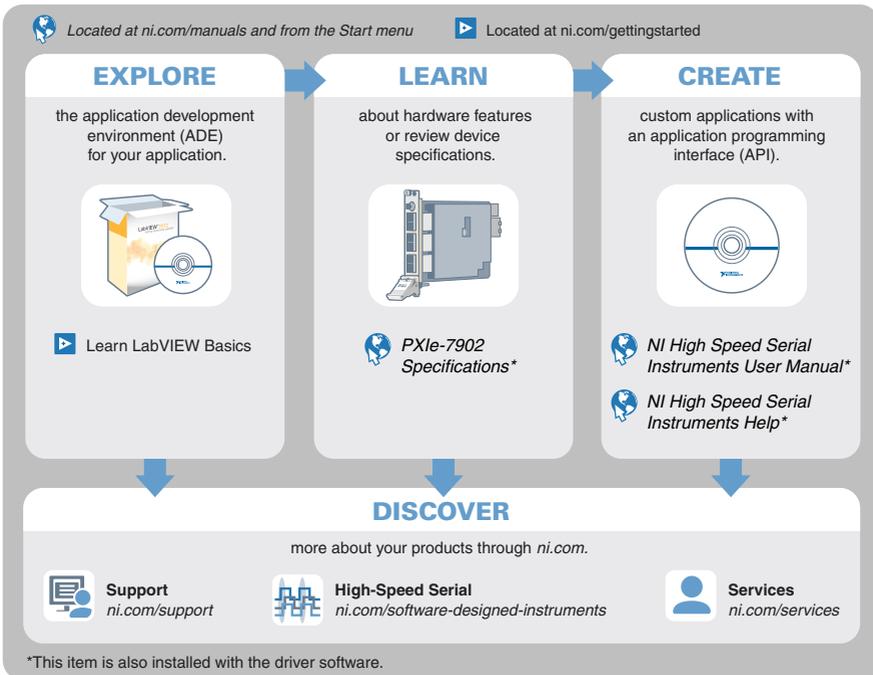
1. Restart the system.
2. Launch MAX, and perform the self-test again.
3. Power off the chassis.
4. Reinstall the failed module in a different slot.
5. Power on the chassis.
6. Perform the self-test again.

Troubleshooting

If an issue persists after you complete a troubleshooting procedure, contact NI technical support or visit ni.com/support.

Where to Go Next

Refer to the following figure for information about other product tasks and associated resources for those tasks.



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 NI Factory Installation Services, repairs, extended warranty, and other services.

Visit ni.com/register to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer’s declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

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376596A-01 Feb17