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NI Switches

For NI PXI and NI SCXI™ Switch Modules

This document contains English and Japanese language instructions.

このドキュメントは、英語および日本語で記載されています。ナショナルインスツルメ
日本語マニュアルは、ni.com/jp/manuals でご覧いただけます。

This document explains how to install, configure, and test a National Instruments PXI or SC
module. This document contains information about the NI-DAQ driver software relative to
modules. For more detailed information about NI-DAQ, refer to the *NI-DAQ Readme* at **Sta**
Programs»National Instruments»NI-DAQ.

For detailed information about the features and programming options specific to the switch
refer to the *NI Switches Help* at **Start»All Programs»National Instruments»NI-SWITCH**
Documentation.

Refer to the specifications document included with the switch module for additional safety
information. Current specifications are available at ni.com/manuals. Visit ni.com/upd
the latest version of NI-SWITCH driver software.

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Conventions

The following conventions are used in this guide:

<> Angle brackets that contain numbers separated by an ellipsis represent a rang associated with a bit or signal name—for example, AO <3..0>.

» The » symbol leads you through nested menu items and dialog box options t The sequence **File»Page Setup»Options** directs you to pull down the **File** m **Page Setup** item, and select **Options** from the last dialog box.



This icon denotes a note, which alerts you to important information.



This icon denotes a caution, which advises you of precautions to take to avoid or a system crash. When this symbol is marked on the product, refer to the *R Safety and Radio-Frequency Interference* document that shipped with your c precautions to take.

bold Bold text denotes items that you must select or click in the software, such as dialog box options. Bold text also denotes parameter names.

italic Italic text denotes variables, emphasis, or a cross-reference. Italic text also de a placeholder for a word or value that you must supply.

`monospace` Text in this font denotes text or characters that you should enter from the key of code, programming examples, and syntax examples. This font is also used names of disk drives, paths, directories, programs, subprograms, subroutines functions, operations, variables, filenames, and extensions.

`monospace italic` Italic text in this font denotes text that is a placeholder for a word or value th supply.

PCI Peripheral Component Interconnect (PCI) is a high-performance expansion b originally developed by Intel to replace ISA and EISA.

Platform Text in this font denotes a specific platform and indicates that the text followin to that platform.

PXI PCI eXtensions for Instrumentation (PXI) is a rugged, open system for modu instrumentation based on CompactPCI, with special mechanical, electrical, a features.

SCXI Signal Conditioning eXtensions for Instrumentation—The National Instrume line for conditioning low-level signals within an external chassis near sensor high-level signals are sent to DAQ devices in the noisy PC environment. SCX standard available for all vendors.

Safety and Compliance

Refer to the *Read Me First: Safety and Radio-Frequency Interference* document for importan and compliance information. For additional safety information, refer to the specifications do included with the switch module.

1. Verifying the System Requirements

Your system must meet certain requirements to use NI switch modules with NI-SWITCH. Fo information on minimum system, recommended system, and supported application developm environments (ADEs), refer to the *NI-SWITCH Readme*, which is available on the NI-SWITC



Note After you install NI-SWITCH, you can access the *NI-SWITCH Readme* at **Start» All Programs»National Instruments»NI-SWITCH»Documentation.**

2. Unpacking

The NI switch module ships in an antistatic package to prevent electrostatic discharge (ESD). damage several components on the device.



Caution *Never* touch the exposed pins of connectors.

To avoid ESD damage in handling the device, take the following precautions:

- Ground yourself with a grounding strap or by touching a grounded object.
- Touch the antistatic package to a metal part of your computer chassis before removing t from the package.

Remove the device from the package and inspect it for loose components or any other signs o Notify NI if the device appears damaged in any way. Do *not* install a damaged device in your or chassis.

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

3. Verifying the Kit Contents

Verify that the kit contains the following items:

- ❑ NI-SWITCH case, which contains the following items:
  - NI-SWITCH driver software CD, which includes the *NI Switches Help* and the *NI Readme*
- ❑ NI switch module
- ❑ Other documents
  - Specifications document for the NI switch module
  - *Read Me First: Safety and Radio-Frequency Interference*
  - *NI Switches Getting Started Guide*

Other Required Items

In addition to the items contained in the kit, you need the following items:

NI PXI Module Required Items

- ❑ NI PXI chassis or NI PXI/SCXI combination chassis
- ❑ 1/8 in. flathead screwdriver

NI SCXI Required Items

- ❑ NI SCXI chassis or NI PXI/SCXI combination chassis
- ❑ Switch controller

If cabling directly to a switch controller, you also need the following:

- ❑ Cable adapter
- ❑ Cable

4. Installing the Software

Caution NI-DAQ 7.*x* or later cannot exist on the same system with versions of NI version 7.0.

NI switch modules are packaged with two drivers—NI-SWITCH and NI-DAQmx. Ea own API with an extensive library of VIs and functions you can call from your ADE NI switch module. Install or upgrade NI-SWITCH *before* installing new hardware so detect your device. To install NI-SWITCH, complete the following steps:

1. (Optional) Install an ADE, such as LabVIEW or LabWindows™/CVI™, if you ar application for the switch module. NI-DAQmx is supported in NI application soft LabWindows/CVI, or Measurement Studio versions 7.*x* or later, LabVIEW Signa or later, and the LabVIEW Real-Time Module 7.1 or later. NI-SWITCH support LabWindows/CVI 7.1 or later.

Note Always install or upgrade your application software *before* installing the dri application software after installing NI-SWITCH, you must run the NI-SWITCH i install the correct application software support.

2. Insert the NI-SWITCH CD. The NI-SWITCH installer should open automaticall **Start»Run**, and enter `x:\setup.exe`, where *x* is the letter of the CD drive.
3. Follow the instructions in the installation prompts.

   (Windows Vista) Users may see access and security messages during installation. prompts to complete the installation.
4. When the NI-SWITCH installer completes, a dialog box appears asking if you wa down, or restart later. Click one of the following options:
   - **Restart** or **Shut Down** if you are ready to install your device.
   - **Restart** if you are using a system running the LabVIEW Real-Time Module NI-DAQ to the target using Measurement & Automation Explorer (MAX). *Measurement & Automation Explorer Help* by selecting **Help»Help Topics Systems** in MAX.
   - **Restart Later** to install more NI software or documentation.
     - If you are using a MXI-3 link from a PC to control an NI PXI chassis, ex MXI-3 software at `ni.com/downloads` before using the switch mod

5. Installing the Hardware

Caution Power off the chassis *before* installing a switch module. Switch modules are no hot-swappable. Adding or removing a switch module while the chassis is powered on ca blown chassis fuses or damage to the chassis and the switch module.

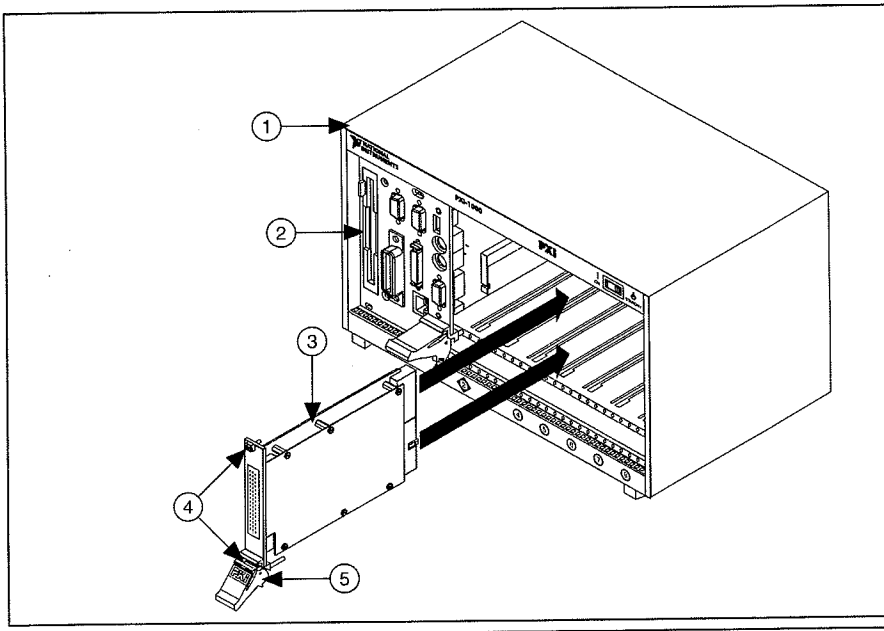
Follow proper ESD precautions to ensure you are grounded before installing the hardwar the specifications document for your switch module for important safety and compliance information.

To install your NI switch module, follow the instructions in the section that describes your h platform.

Install the NI-SWITCH driver software *before* installing the hardware to ensure proper insta auto-detection of the switch module.

Installing a PXI Switch Module

Refer to Figure 1 and complete the following steps to install an NI PXI switch module.



1	NI PXI or NI PXI/SCXI Combination Chassis	4	Screws
2	Controller	5	Injector/Ejector Handle
3	NI PXI Switch Module		

Figure 1. Installing an NI PXI Switch Module

1. Power off and unplug the NI PXI chassis.
2. If the NI PXI chassis has multiple fan speed settings, ensure that the fans are set to hi
3. Position the NI PXI chassis so that inlet and outlet vents are not obstructed. Refer to t documentation for more information.

4. Remove the filler panel of an unused PXI slot.
5. Touch any metal part of the chassis to discharge static electricity.
6. Ensure that the ejector handle of the device is in the unlatched (down) position an
7. Holding the device by the injector/ejector handle, slide it into the empty slot, ensuri card (the card on the left when looking at the front of the device) engages with the the chassis, as shown in Figure 1.
8. Insert the device completely into the chassis.
9. When you begin to feel resistance, pull up on the injector/ejector handle to latch t
10. Tighten the screws at the top and bottom of the device front panel.
11. Cover all empty PXI slots using blank PXI filler panels.
12. Plug in and power on the NI PXI chassis.
13. Proceed to the *Configuring and Testing a PXI Switch Module* section of this docu

Installing an SCXI Switch Module

NI SCXI switch modules require a dedicated switch controller, often cabled to the switc an adapter kit. Before installing an NI SCXI switch module, install a switch controller.

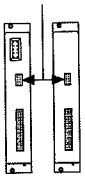
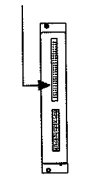
Installing a Switch Controller

Refer to Table 1 and complete the following steps to install a switch controller.

1. Verify that your switch controller supports the switch module you want to install.
2. Identify the adapter kit(s) required to cable the switch controller or the computer t module.

Some switch controllers, like the NI USB-1359/1358/1357, can connect an NI SCXI sv directly to a computer. Alternatively, a switch controller installed in the rightmost PXI NI PXI-1010/1011/1050/1052 chassis, does not require any additional cables or adapte the switch module. Refer to the *NI Switches Help* for more information about NI switch adapter kits.

Table 1. NI Switch Controllers and Supported NI SCXI Switches

Rear Connector	NI Switch Module	NI Switch Controllers				
		NI 4021	NI 4060	NI 4065 or NI 407*x*	NI USB	N M
	SCXI-1127	SCXI-1357 kit or SCXI-1358 kit or SCXI-1359 kit	SCXI-1357 kit or SCXI-1358 kit or SCXI-1359 kit	SCXI-1357 kit or SCXI-1358 kit or SCXI-1359 kit	USB-1357 kit or USB-1358 kit or USB-1359 kit	Indir contr
	SCXI-1128					
	SCXI-1129					
	SCXI-1130		Not supported*			
	All other modules					
	SCXI-1160‡	SCXI-1362 kit	SCXI-1362 kit	SCXI-1362 kit	Indirect control**	SH6 and
	SCXI-1161‡					
	SCXI-1163R					
	SCXI-1190					

* The NI 4060 can only control the NI SCXI-1127/1128/1129/1160/1161/1163R/1190 switch modules configur Traditional NI-DAQ (Legacy). For software support information, refer to Table 3.

† An NI E Series or NI M Series device can control these switches when cabled to a 50-pin rear connector NI S module in the same chassis. The cabled NI SCXI module can be an NI SCXI signal conditioning module or an switch module. Alternatively, you can install an NI E Series or an NI M Series device, not PXI Express compati rightmost PXI slot of an NI PXI-1010, NI PXI-1011, NI PXI-1050, or NI PXI-1052 chassis.

‡ To use this module with the listed controllers, set jumpers W2, W3, and W4 on the NI switch module to MIO. *NI SCXI-1160/1161 Jumpers Note to Users* or the *NI Switches Help* for more information.

** An NI USB device can control these switches when cabled to a 10-pin rear connector NI SCXI switch module chassis. NI USB switch controllers cannot be used with an NI PXI-1011 or an NI PXI-1052 chassis.

3. Install and configure the switch controller, including any adapter kit(s), as descrit documentation.
   - If you are installing an NI E Series, NI M Series, or NI 4021, refer to the *DAQ Guide*.
   - If you are installing an NI 406*x*/407*x*, refer to the *NI Digital Multimeters Ge Guide*.
   - If you are installing an NI USB switch controller, proceed to *Procedure 4*.

Determining the NI SCXI Switch Installation Procedure

Refer to Table 2 to determine the appropriate installation procedure for your NI SCXI

Table 2. Determining the NI SCXI Switch Installation Procedure

NI Switch Controller Type	NI Switch Module Location	In Pr
Any existing type	Any unused SCXI slot	
PCI or PXI	SCXI-1000 SCXI-1001	
• PXI not in rightmost PXI slot • PXI Express* in any slot	PXI-1010 PXI-1050	
PXI† in rightmost PXI slot	PXI-1010 PXI-1011 PXI-1050 PXI-1052	
USB	PXI-1010 PXI-1050 SCXI-1000 SCXI-1001	

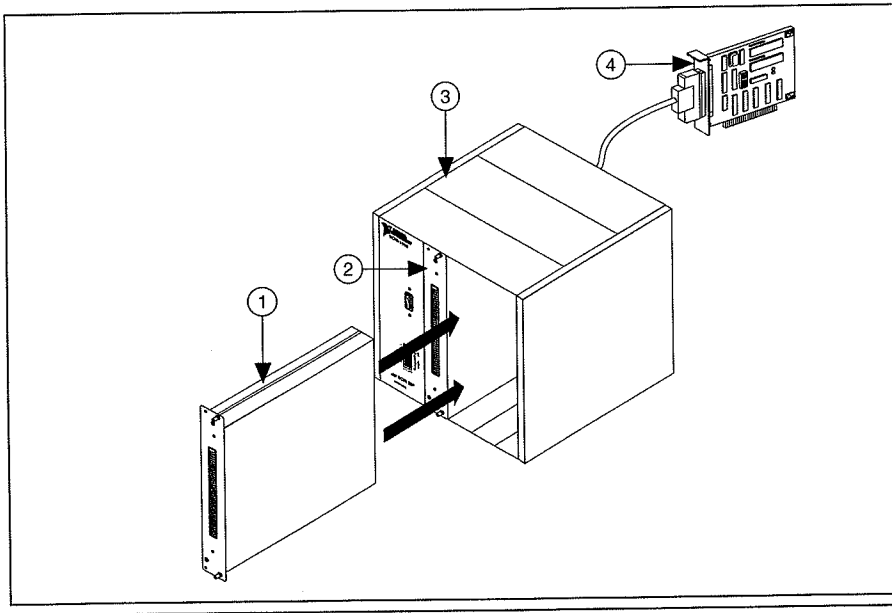
* PXI Express compatible device. Refer to *Appendix A: PXI Express Compatible Devices* for m about PXI Express compatible devices.

† PXI device, not PXI Express compatible.

Procedure 1

Use this procedure to install an NI SCXI switch module in an existing system. Refer to Table verify that the existing switch controller supports the switch module.

Refer to Figure 2 and complete the following steps to install an NI SCXI switch module in a system.



1	New NI SCXI Switch Module	3	NI SCXI Chassis
2	Existing NI SCXI Module	4	Existing Controller

Figure 2. Installing an NI SCXI Switch Module in an Existing System

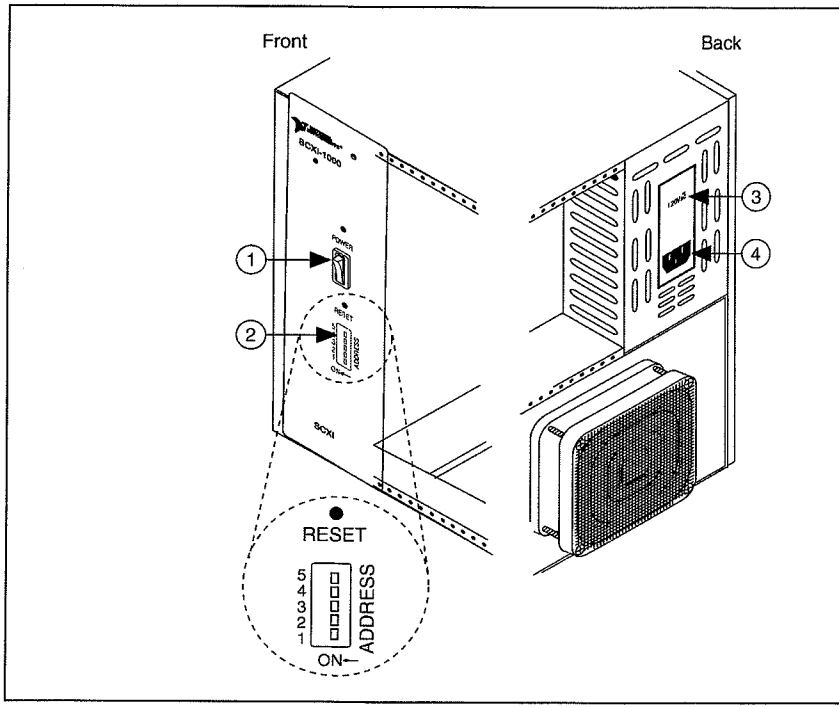
1. Power off and unplug the NI SCXI chassis.
2. Remove the filler panel from an unused SCXI slot.
3. Touch any metal part of the chassis to discharge static electricity.
4. Insert the switch module into the SCXI slot.
5. Screw the switch front panel to the chassis front panel mounting rail.
6. Proceed to step 6 in the *Configuring and Testing an SCXI Switch Module* section of this to add the switch module to the existing NI SCXI chassis in MAX.

Procedure 2

Use this procedure to install an NI SCXI switch module in any of the following config

- NI SCXI-1000/1001 chassis with an NI PCI or NI PXI switch controller
- NI PXI-1010/1050 chassis with a switch controller *not* in the rightmost PXI slot
- NI PXI-1010/1050 chassis with an NI PXI Express compatible switch controller i chassis

Refer to Figure 3 and complete the following steps to install an NI SCXI switch modu



1	Chassis Power Switch	3	Chassis Power Settings
2	Chassis Address Switches	4	Power Cord Connector

Figure 3. Chassis Preparation

1. Power off and unplug the chassis.
2. Set the chassis address switches to the OFF position as illustrated in Figure 3.

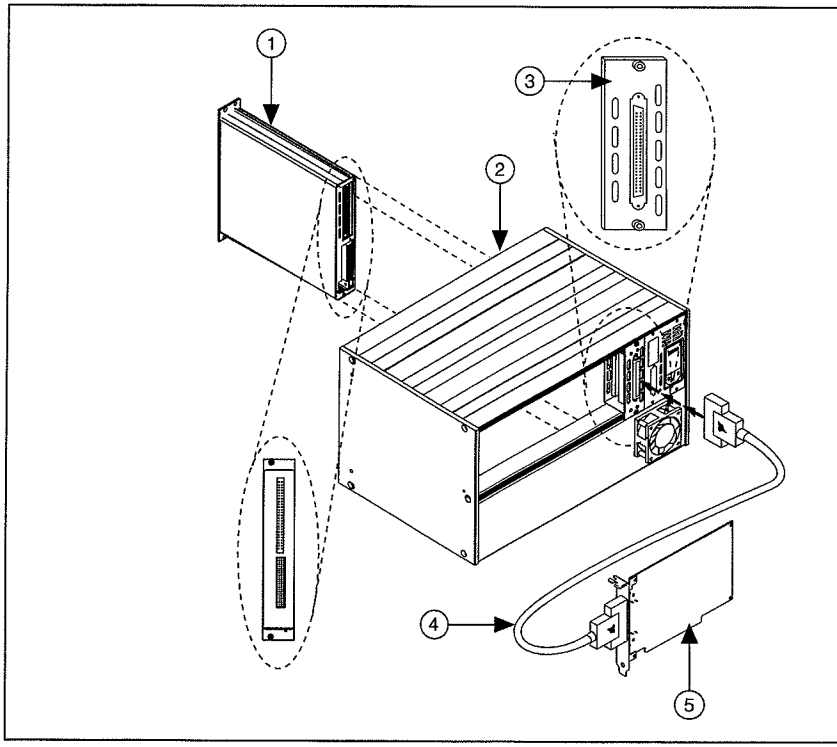
Note Earlier chassis use jumpers inside the chassis front panel instead of chassis a switches. Earlier chassis also differ in fuses and AC power selection. Refer to the d specific to your chassis for more information.

3. Confirm the correct power settings of the chassis (100, 120, 220, or 240 VAC) as sh
4. Remove the filler panel from an unused SCXI slot.
5. Touch any metal part of the chassis to discharge static electricity.

6. Insert the switch module into the SCXI slot.
7. Screw the switch front panel to the chassis front panel mounting rail.
8. Determine the type of switch controller you want to use, and complete the appropriate s below to cable the NI SCXI switch module to the switch controller.
   - (**NI E Series or M Series**) Refer to Figure 4 and complete the following steps to c switch controller to the switch module. Notice that an NI E Series or M Series dev directly cable only to an NI SCXI switch module with a 50-pin rear connector.
     a. Attach the NI SCXI-1349 cable adapter to the rear of the NI SCXI switch mo
     b. Screw the cable adapter to the chassis mounting rail.
     c. Connect one end of the NI SH6868 cable to the NI SCXI-1349 cable adapter other end to the NI E Series or M Series device.
     d. Power on the chassis.
     e. Proceed to the *Configuring and Testing an SCXI Switch Module* section of th document.
   - (**NI 4021/406*x*/407*x***) Refer to Table 1, determine the number of pins on the rear co the NI SCXI switch module, and complete the appropriate set of steps below to ca switch controller to the switch module.
     – (**10-Pin Rear Connector**) Refer to Figure 5 and complete the following step the switch controller to an NI SCXI switch module with a 10-pin rear connec
       a. Attach the NI SCXI-1359, included with your kit, to the rear of the NI SC module. Ensure that the 10-pin rear connector of the switch module conr lower-right 10-pin rear connector on the NI SCXI-1359.

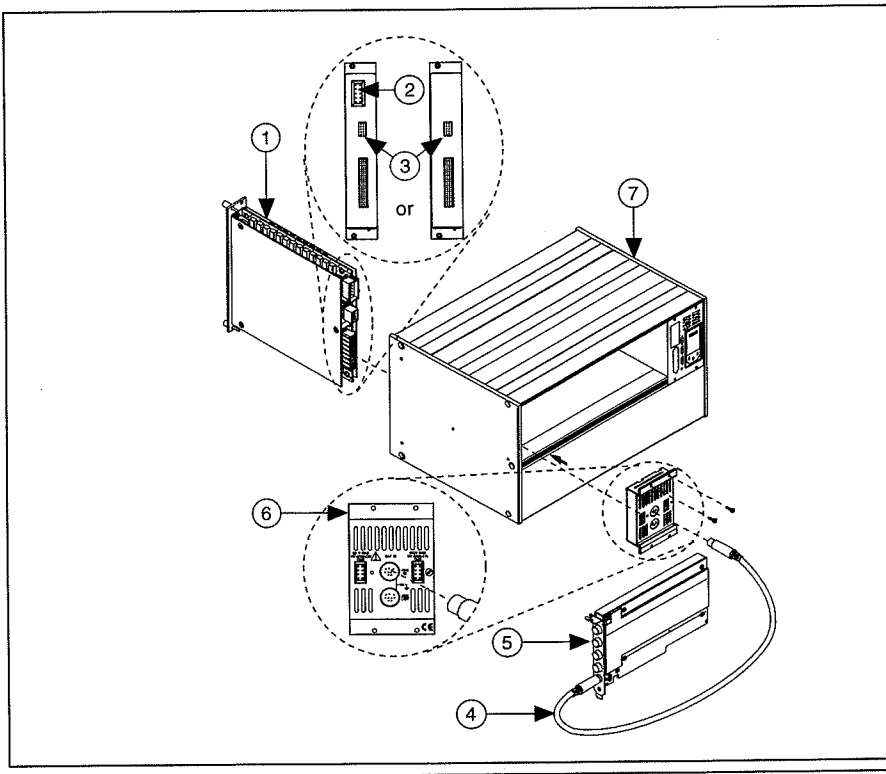
Note Refer to the *NI Switches Help*, for more information about the connectors on the NI SCXI-1359.

       b. Screw the backplane adapter to the chassis mounting rail.
       c. Connect one end of the SH9MD-AUX cable to the AUX IN of the NI S and the other end to the NI 4021/406*x*/407*x*.
       d. Power on the chassis.
       e. Proceed to the *Installing an SCXI Switch Module* section of this docum
     – (**50-Pin Rear Connector**) Refer to Figure 6 and complete the following ste the switch controller to an NI SCXI switch module with a 50-pin rear conne
       a. Attach the NI SCXI-1362 cable adapter to the rear of the NI SCXI swit
       b. Screw the cable adapter to the chassis mounting rail.
       c. Connect one end of the SH9MD-AUX cable to the NI SCXI-1362 cable the other end to the NI 4021/406*x*/407*x*.
       d. Power on the chassis.
       e. Proceed to the *Configuring and Testing an SCXI Switch Module* sectio document.



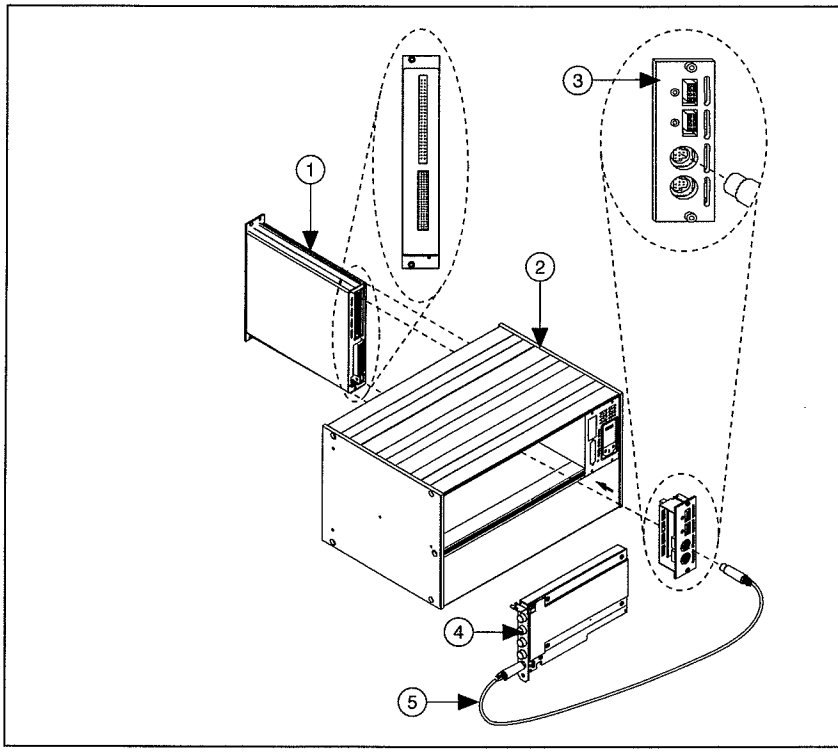
1	NI SCXI Switch Module	4	NI SH6868 Cable
2	NI SCXI-1000/1001 or NI PXI-1010 Chassis	5	NI E Series or M Series Device
3	NI SCXI-1349 Cable Adapter		

Figure 4. Cabling an NI E Series or M Series Device to an NI SCXI Switch Mo



1	NI SCXI Switch Module	5	NI Switch Controller
2	HVAB Connector	6	NI SCXI-1359 Cable Adapter
3	10-Pin Rear Connector	7	NI SCXI-1000/1001 or NI PXI-1010 Chassis
4	SH9MD-AUX Cable		

Figure 5. Cabling an NI 4021/406*x*/407*x* to a 10-Pin Rear Connector Switch Module



1	NI SCXI Switch Module	4	NI Switch Controller
2	NI SCXI-1000/1001 or NI PXI-1010 Chassis	5	SH9MD-AUX Cable
3	NI SCXI-1362 Cable Adapter		

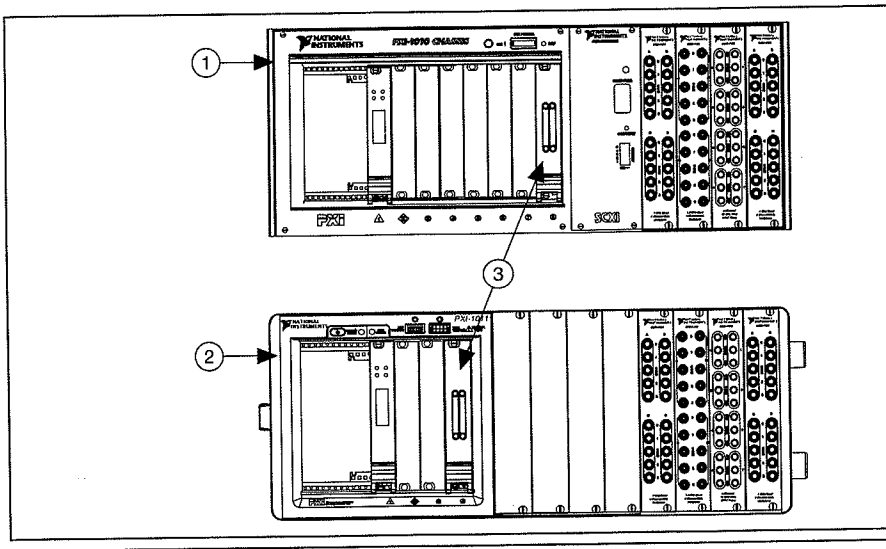
Figure 6. Cabling an NI 4021/406*x*/407*x* to a 50-Pin Rear Connector Switch M

Procedure 3

Use this procedure to install an NI SCXI switch module in an NI PXI-1010/1011/1050/1052 with a PXI switch controller in the rightmost PXI slot of the chassis. In this configuration, no required to connect the switch module to the switch controller.

Note Refer to Table 1 and verify that the switch controller supports the NI SCXI switch m are installing. Refer to Table 2 to verify that you can use the switch controller in the rightm the PXI chassis.

Refer to Figure 7 and complete the following steps to install an NI SCXI switch module.



1 NI PXI-1010 Chassis 2 NI PXI-1011/1052 Chassis 3 Controller

Figure 7. NI Switch Controller in the Rightmost PXI Slot

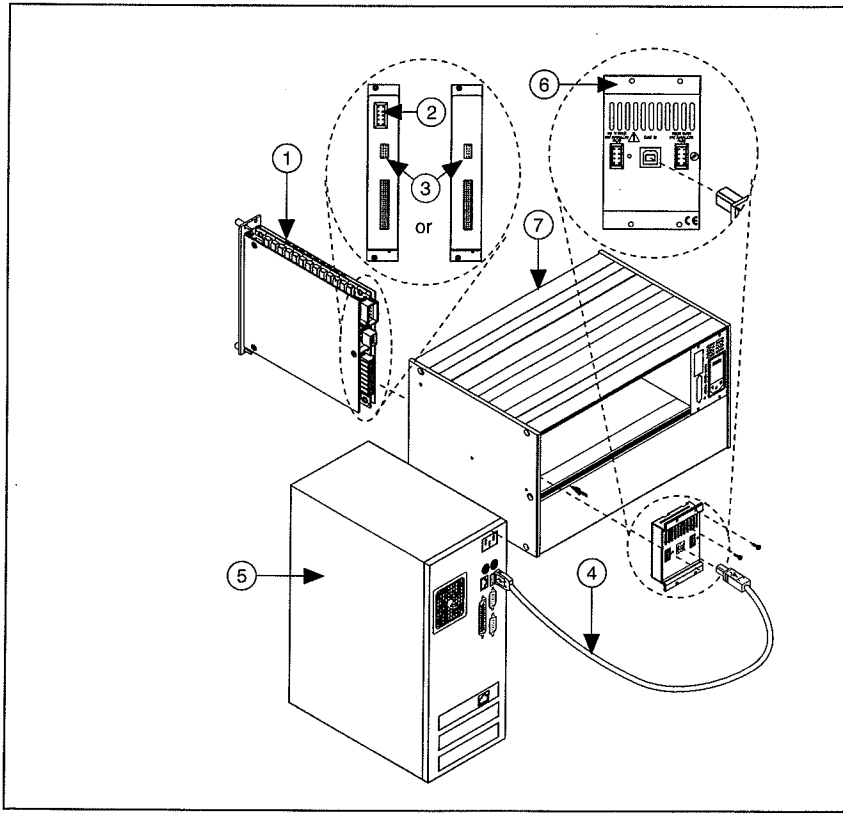
1. Power off and unplug the chassis.
2. (**NI PXI-1010 only**) Set the chassis address switches to the OFF position as shown in
3. Confirm the correct power settings of the chassis (100, 120, 220, or 240 VAC) as shown
4. Remove the filler panel from an unused SCXI slot.
5. Touch any metal part of the chassis to discharge static electricity.
6. Insert the switch module into the SCXI slot.
7. Screw the switch front panel to the chassis front panel mounting rail.
8. Power on the chassis.
9. Proceed to the *Configuring and Testing an SCXI Switch Module* section of this docun

Procedure 4

Use this procedure to connect an NI USB switch controller/adapter directly to an NI SC module with a 10-pin rear connector. To determine the number of pins on the rear conn switch module, refer to Table 1.

Note Refer to the *NI 1357/1358/1359 SCXI Controller/Adapter Kit Installation Gu* information about USB switch control.

Refer to Figure 8 and complete the following steps to install an NI SCXI switch module an NI USB switch controller.



1	NI SCXI Switch Module	5	NI Switch Controller
2	HVAB Connector	6	NI 1359 Cable Adapter
3	10-Pin Rear Connector	7	NI SCXI-1000/1001 or NI PXI-1010 Cha
4	USB Cable		

Figure 8. Cabling an NI USB Switch Controller to a 10-Pin Rear Connector Switch

1. Power off and unplug the NI SCXI chassis.
2. Remove the filler panel in an unused SCXI slot.
3. Touch any metal part of the chassis to discharge static electricity.
4. Insert the switch module into the SCXI slot.

5. Screw the switch front panel to the chassis front panel mounting rail.
6. Attach the NI 1359, included with the kit, to the rear of the NI SCXI switch module. En the 10-pin rear connector of the switch module connects to the lower-right 10-pin rear c of the NI 1359.

Note Refer to the *NI Switches Help*, for more information about the connectors on the N

7. Screw the backplane adapter to the chassis mounting rail.
8. Power on the chassis. You must power on the chassis *before* you connect the NI USB-1 computer to auto-detect the NI USB-1359 and auto-create the chassis in MAX.

Note If you are using an NI PXI-1010 the chassis appears in MAX as an NI SCXI-1000

9. Connect one end of the USB cable to the NI USB-1359 and the other end to a USB hub port on a computer.
10. Proceed to the *Configuring and Testing an SCXI Switch Module* section of this docume

6. Configuring and Testing in MAX

To configure and test your NI switch module, follow the instructions in the section that desc hardware platform.

Configuring and Testing a PXI Switch Module

Configure all NI PXI switch modules under **NI-DAQmx Devices** in MAX.

1. If necessary, power on the chassis.
2. Double-click the **Measurement & Automation** icon on the desktop to open MAX.
3. Expand **Devices and Interfaces**, then expand **NI-DAQmx Devices**. If you are using a real-time (RT) target, expand **Remote Systems**, find and expand the target, and then ex **Devices and Interfaces** and **NI-DAQmx Devices**.
4. Check that the NI PXI switch module appears under **NI-DAQmx Devices**. If the devic appear, press <F5> to refresh the view in MAX. If the device still does not appear, repe in *5. Installing the Hardware* section. Refer to NI Technical Support at `ni.com/supp` troubleshooting information if the module is still not recognized. For more information a MAX, refer to the available help files within MAX.
5. Right-click the switch you want to test and select **Self-Test**. After the self-test, a messag successful verification or if an error occurred. If an error occurs, refer to `ni.com/sup` troubleshooting information.
6. Under **NI-DAQmx Devices**, right-click the switch module name and select **Propertie**

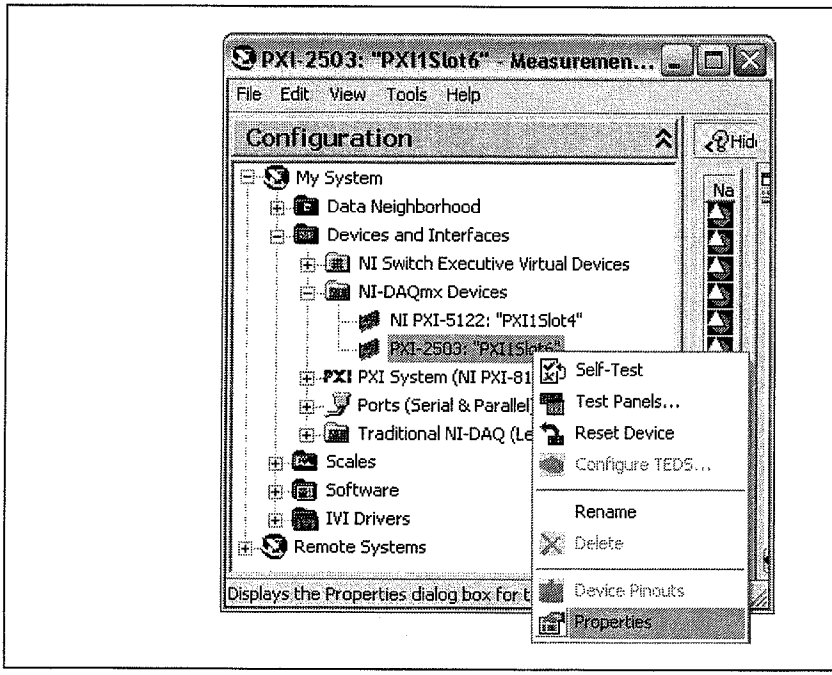


Figure 9. Configuring NI Switch Modules Under NI-DAQmx Devices

7. The **Terminal Block/Topology** tab is selected by default. Select the terminal blo the switch module from the **Terminal Block/Accessory** listbox.
8. Set a default topology from the **Topology** listbox.
9. Select the **Channels** tab.
10. If necessary, designate source channels for the topology selected in the **Terminal** tab. You can set different source channels for each topology.
11. If necessary, designate reserved channels for routing. You can reserve different cha in each topology.
12. Click **OK** to accept the changes.

Configuring and Testing an SCXI Switch Module

Configure NI SCXI switch modules in MAX under the API you are using to control th module—NI-DAQmx and/or Traditional NI-DAQ (Legacy).

Your NI SCXI switch and your switch controller determine your MAX configuration example, the NI 4021 can control a switch module configured under NI-DAQmx Devic NI-DAQ (Legacy) Devices. The NI 4060 can control only NI SCXI switch modules co Traditional NI-DAQ (Legacy) Devices. Refer to Table 3 to determine your MAX confi

Table 3. Switch Module Configuration in MAX by Controller

NI Controller	NI SCXI-1127/1128/1129/1160/1161/ 1163R/1190/1191/1192 Switches	All Other NI SC Switches
NI 4021 NI 407*x* E Series M Series	NI-DAQmx/ Traditional NI-DAQ (Legacy)	NI-DAQmx
NI 4060	Traditional NI-DAQ (Legacy)	—
USB NI 4065	NI-DAQmx	

NI-DAQmx Devices

1. If necessary, power on the chassis.
2. Choose one of the following options to configure your device in MAX:
   - For devices cabled to an NI SCXI-1357/1358/1359 kit, proceed to step 3.
   - For devices cabled to an NI USB-1357/1358/1359 kit, where the NI USB-1359 i auto-detected and the chassis is auto-created in MAX as shown in Figure 10, cor following steps.
     a. Expand the **NI-DAQmx Devices** tab.
     b. Right-click the chassis and choose **Properties**. The SCXI Chassis Configur box opens. The **Modules** tab is selected by default.
     c. Proceed to step 6b.
   - For all other devices, proceed to step 3.

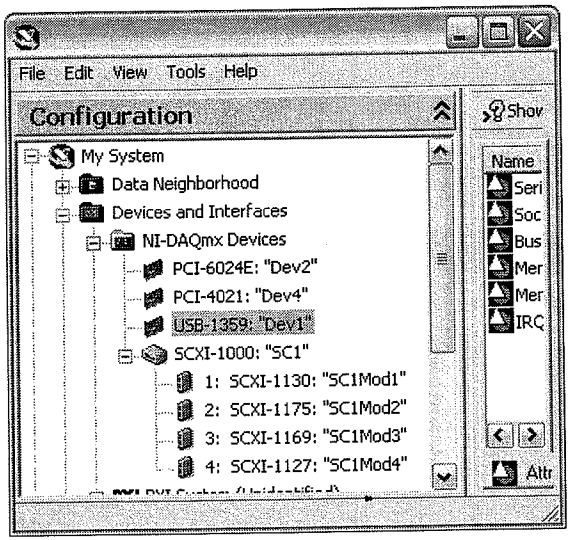


Figure 10. Auto-Detection of the NI USB-1359 and Auto-Creation of the Chassis in I

3. Right-click **NI-DAQmx Devices** in the configuration tree in MAX, and select **Cr NI-DAQmx Device**. If you are using a remote RT target, browse for your module **Systems»Devices and Interfaces»NI-DAQmx Devices**.
4. Select **NI-DAQmx SCXI Chassis**, and choose the chassis. The Create New SCXI box opens as shown in Figure 11.

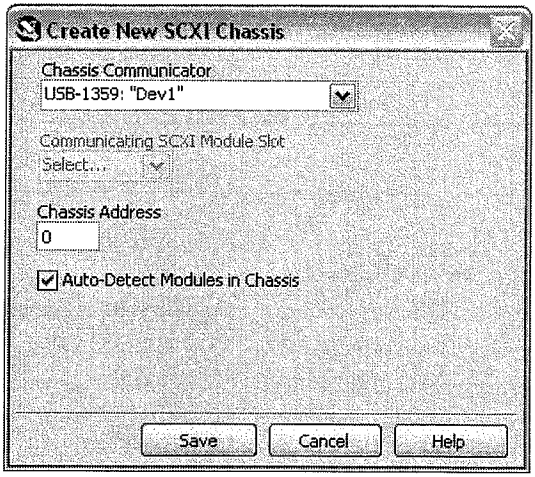


Figure 11. Creating a New NI SCXI Chassis

5. Create a new NI SCXI chassis.

Note If you are using an NI PXI-1010 chassis and the switch controller is *not* in the slot, or you are using an NI PXI Express switch controller in the rightmost PXI slot, chassis as an NI SCXI-1000 in MAX.

a. Select the switch controller (**NI USB-1359** or **NI 4021/406*x*/407*x***) cabled to communicating NI SCXI switch module from the **Chassis Communicator** li detects only one communicating device, this device is selected as the chassis by default and the listbox is dimmed.

b. (**NI SCXI kits only**) Select the module slot connected to the chassis commun **Communicating SCXI Module Slot** listbox.

c. Enter the chassis address setting in the **Chassis Address** field. Ensure that the enter matches the address setting on the NI SCXI chassis as shown in Figure

d. Enable the **Auto-Detect Modules in Chassis** option to auto-detect installed N modules. If you do not auto-detect switch modules, MAX disables the **Comm SCXI Module Slot** listbox.

e. Click **Save**.

After you create a new chassis, the SCXI Chassis Configuration dialog box opens as s
Figure 12. The **Modules** tab is selected by default.

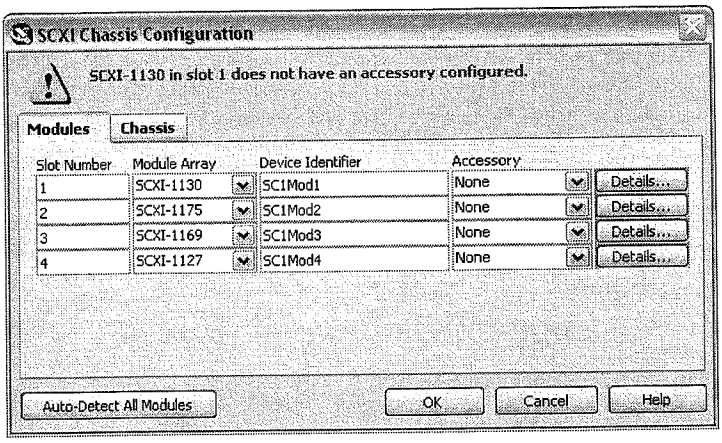


Figure 12. Configuring the NI SCXI Chassis

6. Configure the NI SCXI switch module.
   a. If you did not enable switch module auto-detection in step 5d, select an NI SCXI module from the **Module Array** listbox. Assign the switch module the slot numb matches the physical slot location of the switch module in the chassis.
   b. MAX assigns a default name to the NI SCXI switch module in the **Device Identif** The **Device Identifier** is the **resource name** string in the NI-SWITCH API and **sw** string in the NI-DAQmx API. To edit the default name, click the **Device Identifi** and enter a unique alphanumeric ID for the switch module.
   c. If you are using a connected accessory, such as a terminal block, select it from the listbox.
7. Click **Details** to configure the switch module options. The Details dialog box for the sw configuration dialog box opens. The **Terminal Block/Topology** tab is selected by de
8. Configure the **Details** dialog box for an NI SCXI switch module.
   a. Select the terminal block connected to the switch module from the **Terminal Bloc** listbox.
   b. Set a default topology from the **Topology** listbox.

Note During scanning, the NI SCXI-1127/1128 can connect to the high-voltage analo bus (HVAB). To configure the switch module to automatically connect to the HVAB duri enable the optional checkbox in the switch module configuration dialog box.

   c. Select the **Channels** tab.
   d. Designate source channels for the topology selected in the **Terminal Block/To** You can set different source channels for each topology.
   e. Designate reserved channels for routing. You can reserve different channels for each topology.
   f. Click **OK** to accept the changes.

9. To configure additional NI SCXI switch modules, repeat steps 7 and 8.
10. If necessary, select the **Chassis** tab to modify chassis settings.
11. Click **OK** to accept and save the settings for the chassis.



Note You can save the chassis configuration only *after* you enter the switch module message at the top of the SCXI Chassis Configuration dialog box displays the config If a warning appears in the message box, you can save the configuration. If an error message box, you cannot save the configuration.

12. To test the configuration, right-click the chassis name listed under **Devices and In** select **Test**. After the test, a message indicates successful verification of the config error occurred. If an error occurs, refer to `ni.com/support` for troubleshooting

Traditional NI-DAQ (Legacy) Devices

Refer to the *NI Switches Help* for instructions about configuring and testing switch mod Traditional NI-DAQ (Legacy).

7. Connecting Signals



Caution Exceeding specified switch signal ratings can create a shock or fire hazard a devices connected to the switch module. Always refer to the specifications document your switch module for safety and EMC information *before* connecting signals. Spec available at `ni.com/manuals`.

Complete the following steps to connect signals to the switch module.

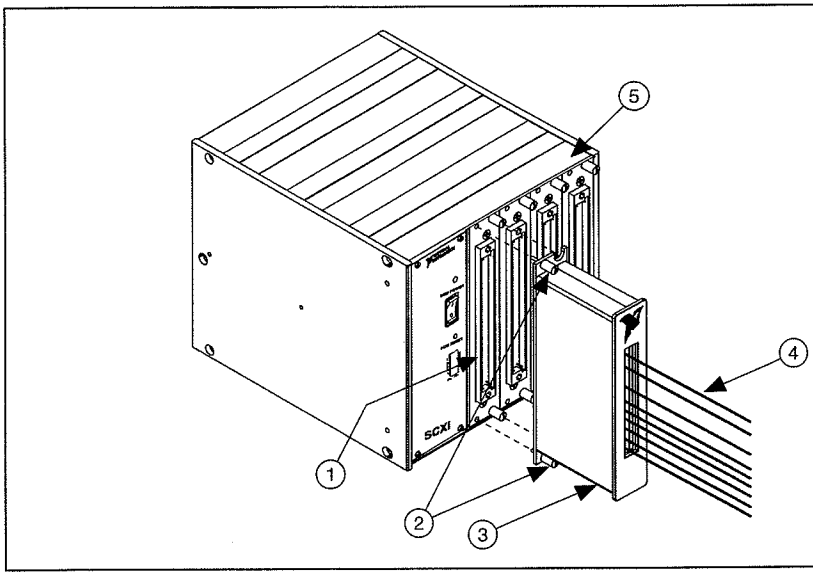
1. Attach wire sensors to the switch module or the terminal block. Refer to the termin installation guide or the *NI Switches Help* for signal connection information.



Caution Modules that share a common HVAB derate to their lowest common voltage signals are not connected to the backplane. For derating examples and more informa HVAB backplane, refer to the High-Voltage Analog Bus (HVAB) topic in the *NI Swi*

2. Connect the switch module front connector to its mating connector on the terminal
3. Tighten the top and bottom thumbscrews on the back of the terminal block rear pa securely in place.

Figure 13 illustrates the installation of a terminal block for signal connection.



1	Switch Module	3	Terminal Block	5	Chassis
2	Thumbscrews	4	Signal Wires		

Figure 13. Installing a Terminal Block

8. Programming the Switch Module

You can operate the switch module in one of the following ways:

- Interactively using the NI-SWITCH Soft Front Panel
- Programmatically using NI-SWITCH or NI-DAQmx

NI-SWITCH Soft Front Panel (SFP)

The NI-SWITCH SFP is an interactive tool you can use to test the basic functionality of th become familiar with its operation, and troubleshoot your applications. The NI-SWITCH S all NI switch modules.

You can launch the NI-SWITCH SFP from **Start»All Programs»National Instruments» NI-SWITCH»NI-SWITCH Soft Front Panel**.

Refer to the *NI Switches Help* for more information about the NI-SWITCH SFP.

NI-SWITCH Driver

The NI-SWITCH API includes a set of operations and attributes that use all the functio switch module, including configuration, control, and other module-specific functions. Th API supports all NI switch modules.

Refer to the *NI Switches Help* for more information about programming with NI-SWITC *Help* contains measurement tasks, concepts, a detailed VI/function reference for NI-SW information specific to your switch module.

For the location of example programs that you can integrate into your applications, refe *NI-SWITCH Readme* at **Start»All Programs»National Instruments»NI-SWITCH» Documentation**.

NI Example Finder

LabVIEW 7.1 or later and LabWindows/CVI 7.1 or later users can use the NI Example F or browse examples. NI-SWITCH examples are classified by keyword, so you can search device or measurement function.

To browse for NI-SWITCH examples available in LabVIEW or LabWindows/CVI, laun application, select **Help»Find Examples**, then navigate to **Hardware Input and Outpu Instruments»NI-SWITCH**.

NI-DAQmx Driver

You can operate switch modules with the NI-DAQmx API. NI-DAQmx is particularly u multimodule scanning operations. The NI-DAQmx API supports all NI switch modules.

Refer to the *NI-DAQmx Help* for more information about programming with the NI-DAQ to the *NI Switches Help* for information specific to your switch module.

For the location of example programs that you can integrate into your applications, refe *Getting Started Guide* at **Start»All Programs»National Instruments»NI-DAQ** after y installed NI-DAQ.

NI Example Finder

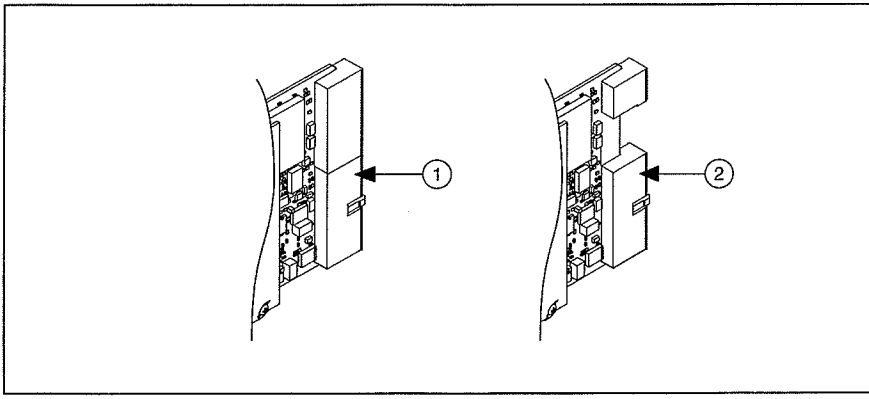
LabVIEW 7.1 or later and LabWindows/CVI 7.1 or later users can use the NI Example F or browse examples. NI-SWITCH examples are classified by keyword, so you can search device or measurement function.

To browse for DAQmx switches example programs available in LabVIEW or LabWindow the application, select **Help»Find Examples,** then navigate to **Hardware Input and Ou DAQmx»Switches**.

Appendix A: PXI Express Compatible Devices

To determine if your switch is PXI Express compatible, refer to Figure 14. To install a PXI compatible switch, refer to the *Installing a PXI Switch Module* section using a PXI Express compatible slot.

Note Refer to your PXI chassis documentation to determine which slots are PXI Express compatible.



1 PXI Switch

2 PXI Express Compatible Switch

Figure 14. PXI Switch and PXI Express Compatible Switch

Appendix B: Where to Go for Support

The National Instruments Web site is your complete resource for technical support. At `support` you have access to everything from troubleshooting and application develop resources to email and phone assistance from NI Application Engineers.

National Instruments corporate headquarters is located at 11500 North Mopac Expressv Texas, 78759-3504. National Instruments also has offices located around the world to h your support needs. For telephone support in the United States, create your service requ `support` and follow the calling instructions or dial 512 795 8248. For telephone suppo United States, contact your local branch office:

Australia 1800 300 800, Austria 43 662 457990-0, Belgium 32 (0) 2 757 0020,
Brazil 55 11 3262 3599, Canada 800 433 3488, China 86 21 5050 9800,
Czech Republic 420 224 235 774, Denmark 45 45 76 26 00, Finland 358 (0) 9 725 725
France 01 57 66 24 24, Germany 49 89 7413130, India 91 80 41190000, Israel 972 3 6
Italy 39 02 41309277, Japan 0120-527196, Korea 82 02 3451 3400, Lebanon 961 (0) 1
Malaysia 1800 887710, Mexico 01 800 010 0793, Netherlands 31 (0) 348 433 466,
New Zealand 0800 553 322, Norway 47 (0) 66 90 76 60, Poland 48 22 3390150,
Portugal 351 210 311 210, Russia 7 495 783 6851, Singapore 1800 226 5886,
Slovenia 386 3 425 42 00, South Africa 27 0 11 805 8197, Spain 34 91 640 0085,
Sweden 46 (0) 8 587 895 00, Switzerland 41 56 2005151, Taiwan 886 02 2377 2222,
Thailand 662 278 6777, Turkey 90 212 279 3031, United Kingdom 44 (0) 1635 523545

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