PXI Relay Driver Module

PXI-2567

- **Software:** Includes interactive soft front panel, API support for LabVIEW and text-based languages, shipping examples, and detailed help files
- Control up to 64 external relays
- Source up to 50 V or 600 mA per channel
- Source up to 25 A per module

Built for Automated Test and Measurement

The PXI Relay Driver Module controls up to 64 external relays with up to 50 VDC or 600 mA per channel drive capacity when using an external power supply. This device can drive small DC motors or other inductive relay coils, and they include overcurrent, overvoltage, and flyback protection to ensure long operation. The PXI Relay Driver Module provides a commercial-off-the-shelf (COTS) option for controlling individual relays, regardless of relay types or configuration, while using the standard IVI-compliant NI-SWITCH driver software. This device is ideal for applications that need custom switching topologies, certain relay types, or switching as close to the device under test (DUT) as possible, while still utilizing COTS components and standard driver software.

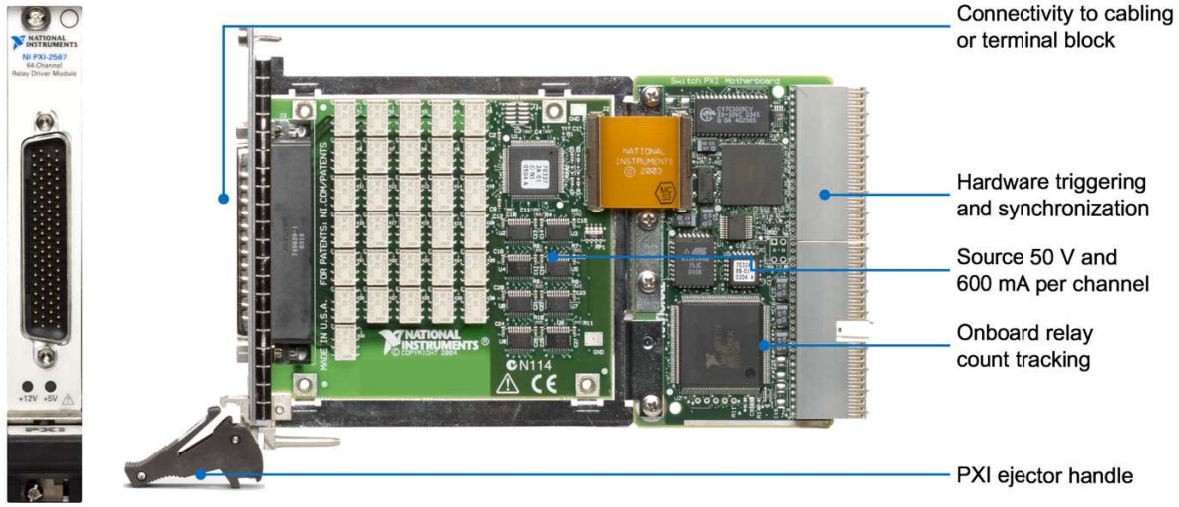
Additionally, the PXI Relay Driver Module offers advanced features, such as hardware triggering and scanning to improve throughput, offering a smarter way to tackle difficult applications in industries ranging from consumer electronics to aerospace and defense.

Table 8. NI PXI Relay Driver Modules provide a commercial-off-the-shelf (COTS) solution for controlling individual relays, allowing you to pick various relay types and design custom switch topologies, regardless of relay location.

	Number of Channels	[1]Maximum Drive Voltage	[1]Maximum Drive Current
PXI-2567	64	50 V	25 A (per module) 600 mA (per channel)

[1]With external power

Detailed View of PXI-2567 Relay Driver Module



Key Features

Drive External Relays

The PXI Relay Driver Module is capable of driving 64 external relays, including high-current, high-voltage, multipole, RF relays, and more. You can use the external relays independently as individual relays, or combine them in a unique way to create a custom topology, such as a multiplexer or fault insertion unit (FIU).

The PXI-2567 can provide up to 50 V and 600 mA of drive capacity per channel when connected to an external power supply. Without an external power supply, it can source up to 1.25 A from the 5 V pin or 500 mA from the 12 V pin provided by the PXI backplane. For added protection, the eight banks of eight relay drivers are protected against overvoltage and overcurrent conditions. When the condition clears, the channel is automatically reset so no disassembly of the module is required. Additionally, a Zener diode is included to protect against damage from inductive loads.

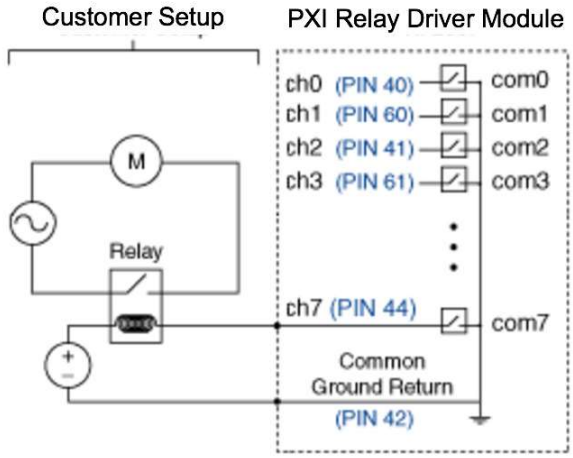


Figure 11. Example configuration for connecting a single coil, non-latching relay using one channel of the PXI Relay Driver Module and an external power supply.

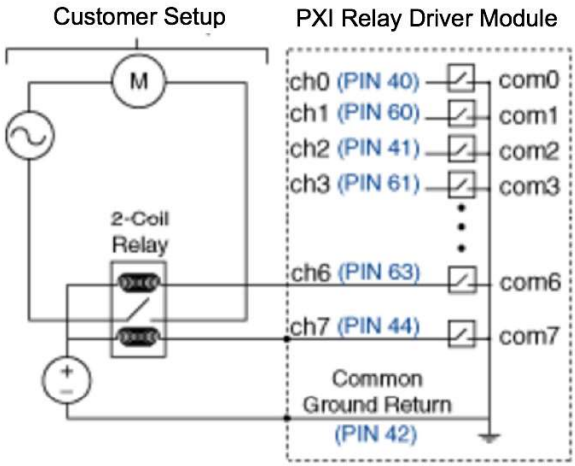
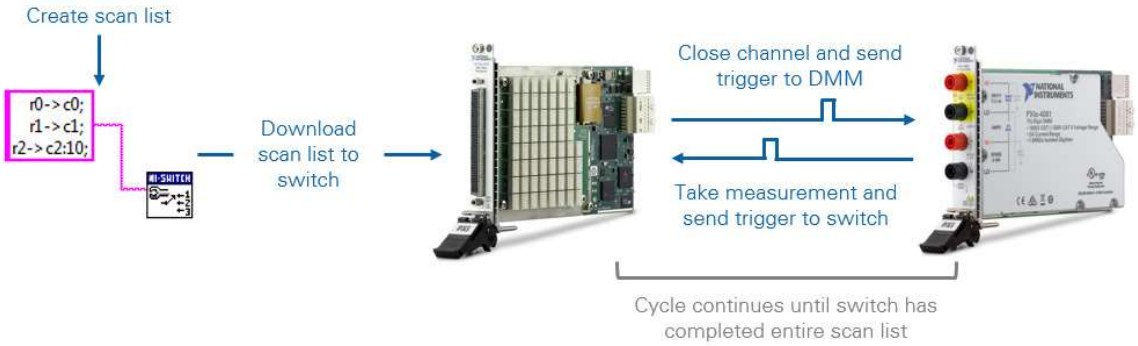


Figure 12. Example configuration for connecting a two coil, latching relay using two channels of the PXI Relay Driver Module and an external power supply.

Synchronization and Integration

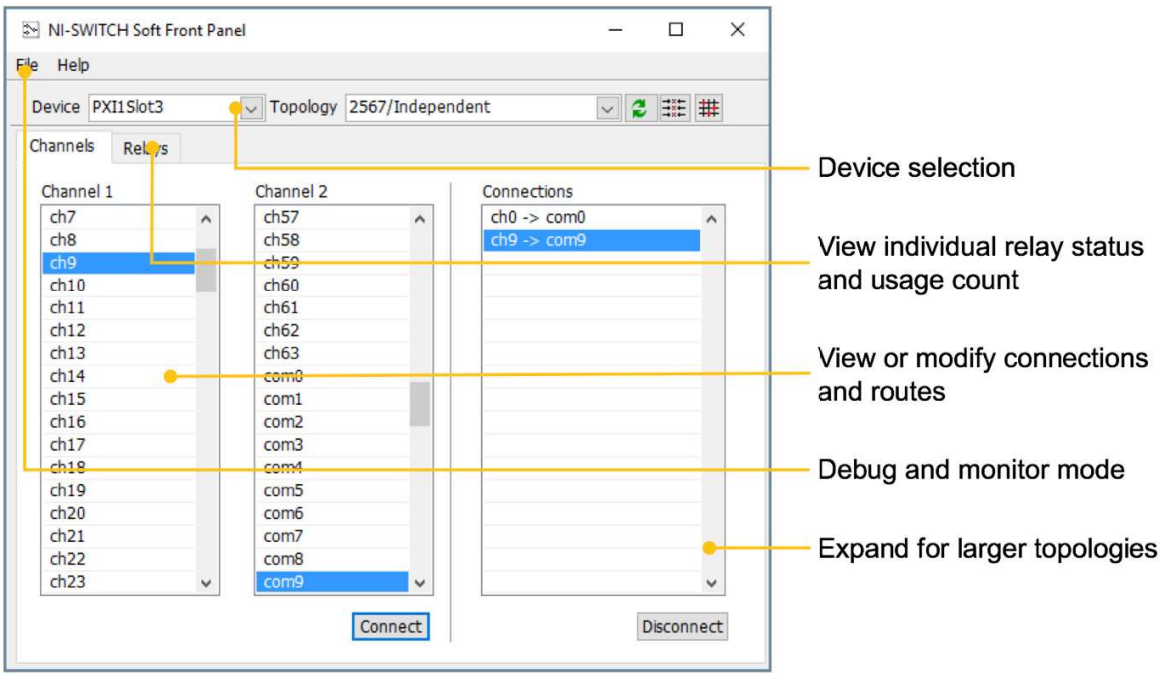
NI switches use the inherent timing and synchronization capabilities of the PXI platform to communicate with other instruments within the PXI chassis[1]. You can store a list of switch connections in memory onboard the switch module and then use the integrated hardware scanning and triggering engine to advance the switch sequence and rapidly communicate with any PXI instrument that can send and receive digital triggers, such as DMM or oscilloscope. This advanced switching method removes the software overhead and reduces the bus latency associated with traditional software-controlled switching operations for faster test execution with more repeatable timing.



[1]Triggering is available on most NI switches. To check if this feature is supported by a switch module, reference the “Trigger Characteristics” section of the product specification document.

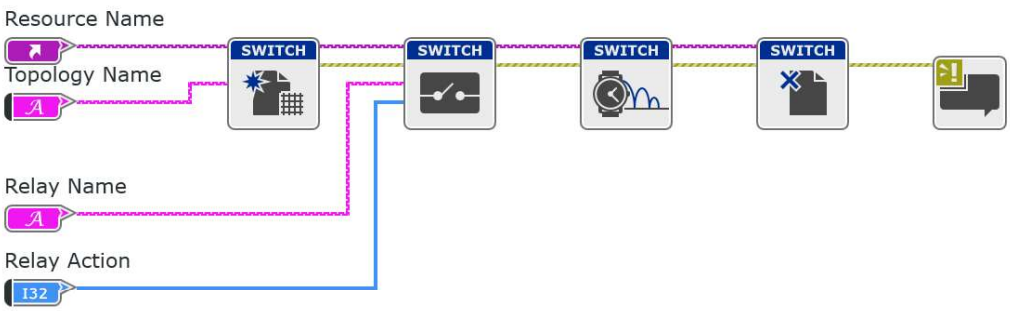
NI-SWITCH Soft Front Panel

The NI-SWITCH driver software includes an interactive soft front panel for full out-of-the-box functionality. This interactive soft front panel allows you to configure the switch topology and change switch connections with a simple click. In addition, you can use the **Debug Driver Session** mode to monitor and debug the switch during automated measurement. For example, you can monitor which signal paths are active, which individual relays are open/closed, and how many times each relay has been used.



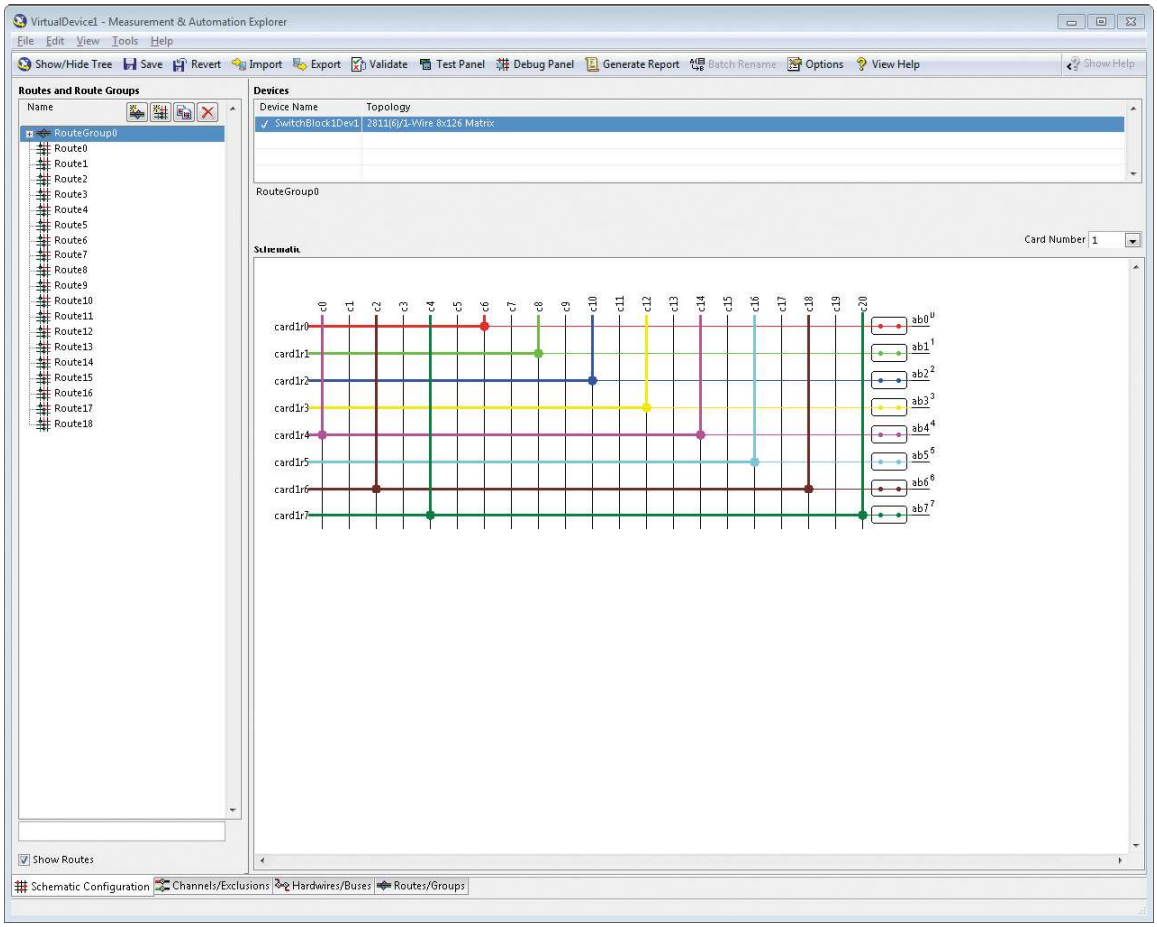
NI-SWITCH Application Programming Interface (API)

In addition to the soft front panel, the NI-SWITCH driver includes a best-in-class API that works with a variety of development options such as LabVIEW, C, C#, and others. The driver also provides access to help files, documentation, and dozens of ready-to-run shipping examples you can use as a starting point for your application.



Switch Executive Application Software

While the NI-SWITCH driver provides all the low-level functionality required to program switch actions, Switch Executive is application software for intelligent switch management and routing that accelerates development and simplifies maintenance of complex switch systems. The point-and-click graphical configuration and automatic routing capabilities make it easy to design your switch system. Using intuitive channel aliases and route names keeps your system documented for future modifications. Save time and increase test code reuse by integrating your system with TestStand, LabVIEW, LabWindows™ /CVI, and Measurement Studio.



- Graphically configure routes and route groups
- Develop reusable switching code and integrate it into NI TestStand or NI LabVIEW
- Automatically route signals between switch endpoints
- Scale switch configuration using Microsoft Excel
- Maintain switch configuration using route validation, reporting and debugging features