
PXle-2569 User Manual

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PXIe-2569 User Manual

The PXIe-2569 User Manual provides detailed descriptions of the product functionality and the step by step processes for use.

Looking for Something Else?

For information not found in the User Manual for your product, such as specifications and API reference, browse ***Related Information***.

Related information:

- [PXIe-2569 Specifications](#)
- [NI-SWITCH User Manual](#)
- [Software and Driver Downloads](#)
- [License Setup and Activation](#)
- [Dimensional Drawings](#)
- [Product Certifications](#)
- [Letter of Volatility](#)
- [Discussion Forums](#)
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Table 1. Signal Descriptions

Signal	Description
CHxW0	Wire 0 signal connection
CHxW1	Wire 1 signal connection
COMxW0	Routing destination for Wire 0 on the corresponding channel
COMxW1	Routing destination for Wire 1 on the corresponding channel

100-SPST Topology

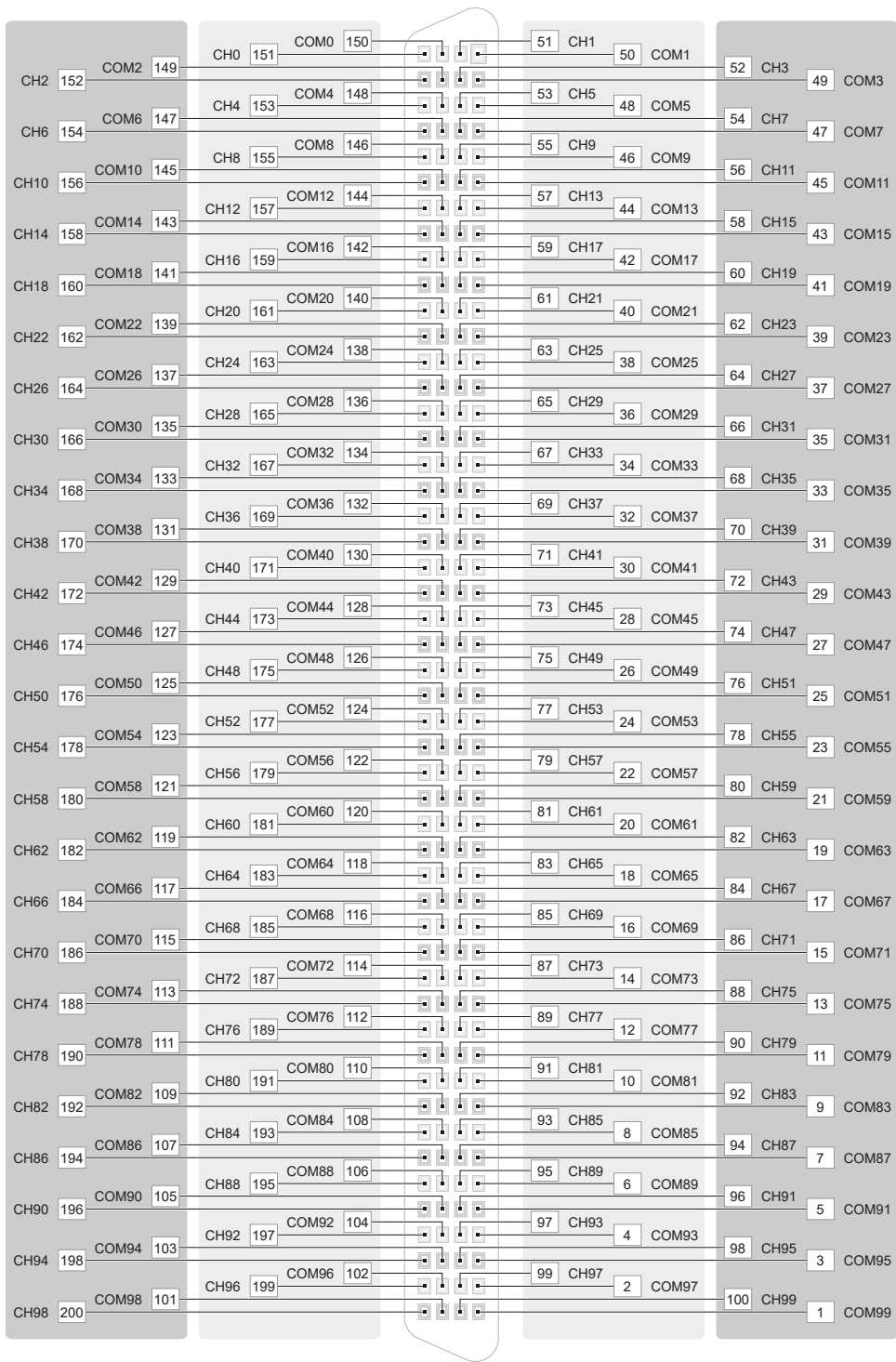


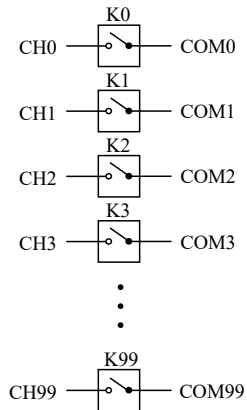
Table 2. Signal Descriptions

Signal	Description
CHx	Signal connection

Signal	Description
COMx	Routing destination for the corresponding channel

PXIe-2569 Hardware Diagram

This figure shows the hardware diagram of the module.



PXIe-2569 50-DPST Topology

Module software name: 2569/50-DPST (NISWITCH_TOPOLOGY_2569_50_DPST)

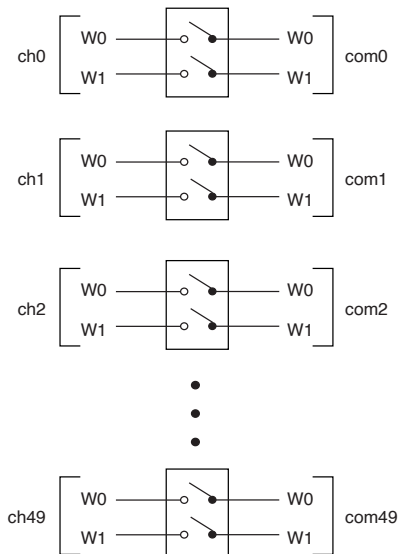
The module is composed of 100 armature latching SPST relays.

For certain applications, you may need to increase the default settling time.



Note Switching inductive loads (for example, motors and solenoids) can produce high voltage transients in excess of the module's rated voltage. Without additional protection, these transients can interfere with module operation and impact relay life.

50-DPST Topology



Making a Connection

Both the scanning command, `ch2->com2 ;`, and the immediate operation, `niSwitch Connect Channels VI` or the `niSwitch_Connect` function with parameters `ch2` and `com2`, result in the following connections:

- signal connected to CH2W0 is routed to COM2W0
- signal connected to CH2W1 is routed to COM2W1

PXIe-2569 100-SPST Topology

Module software name: 2569/100-SPST (NISWITCH_TOPOLOGY_2569_100_SPST)

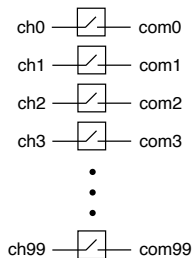
The module is composed of 100 armature latching SPST relays.

For certain applications, you may need to increase the default settling time.



Note Switching inductive loads (for example, motors and solenoids) can produce high voltage transients in excess of the module's rated voltage. Without additional protection, these transients can interfere with module operation and impact relay life.

100-SPST Topology



Making a Connection

You can control the channels using the niSwitch Connect Channels VI or the `niSwitch_Connect` function.

For example, to close the relay of channel 2, call `niSwitch_Connect(vi, "ch2", "com2")`. To open the relay of channel 2, call `niSwitch_Disconnect(vi, "ch2", "com2")`.

When scanning the module, a typical scan list entry could be `ch2->com2;`. This entry closes the relay between CH2 and COM2.

PXIe-2569 Relay Replacement

The module uses electromechanical armature relays.

Refer to the following table for information about ordering replacement relays.

Replacement Relay	Part Number
AXICOM (Tyco Electronics) (relay manufacturer)	IM42GR (3-1462037-1)
NI relay kit (10 relays)	779356-01

Ensure you have the following:

- Temperature-regulated soldering iron
 - Set to 371 °C (700 °F) for lead-free solder rework
 - Set to 316 °C (600 °F) for lead solder rework
- Solder
 - 96.5/3.0/0.5 Tin/Silver/Copper solder (flux core) for lead-free solder rework
 - 63/37 Tin/Lead solder (flux core) for lead solder rework
- Solder wick
- Fine pick
- Isopropyl alcohol
- Cotton swabs



Note NI recommends using lead-free solder for relay replacement on lead-free assemblies, and lead solder for relay replacement on lead assemblies.




Notice Do not rework lead assemblies using a lead-free work station. Lead solder from the unit could contaminate the station.



Notice If a lead-free assembly is reworked with lead solder, label the assembly to indicate this. This can prevent the same unit from being reworked later on a lead-free solder station, which could contaminate the station.

Complete the following sets of steps to disassemble your module and replace a failed relay.

1. Ground yourself using a grounding strap or a ground connected to your PXI chassis.

 **Note** Properly grounding yourself prevents damage to your module from electrostatic discharge.

2. Locate the relay you want to replace. Refer to the following figure and table for relay locations.

Figure 1. Base Board

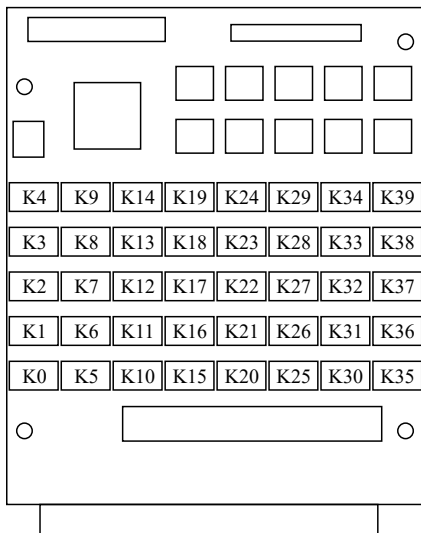
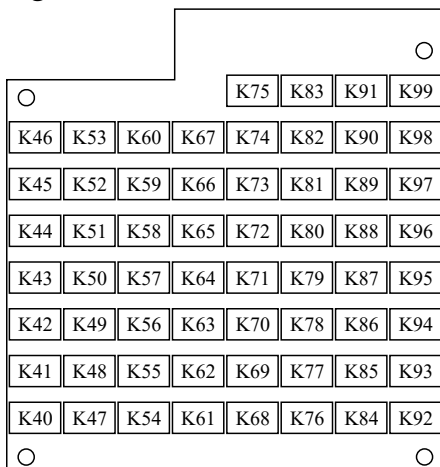


Figure 2. Mezzanine Board



Channel Name	Relay Name	Channel Name	Relay Name	Channel Name	Relay Name	Channel Name	Relay Name
CH0	K0	CH25	K25	CH50	K50	CH75	K75
CH1	K1	CH26	K26	CH51	K51	CH76	K76
CH2	K2	CH27	K27	CH52	K52	CH77	K77
CH3	K3	CH28	K28	CH53	K53	CH78	K78
CH4	K4	CH29	K29	CH54	K54	CH79	K79
CH5	K5	CH30	K30	CH55	K55	CH80	K80
CH6	K6	CH31	K31	CH56	K56	CH81	K81
CH7	K7	CH32	K32	CH57	K57	CH82	K82
CH8	K8	CH33	K33	CH58	K58	CH83	K83
CH9	K9	CH34	K34	CH59	K59	CH84	K84
CH10	K10	CH35	K35	CH60	K60	CH85	K85
CH11	K11	CH36	K36	CH61	K61	CH86	K86
CH12	K12	CH37	K37	CH62	K62	CH87	K87
CH13	K13	CH38	K38	CH63	K63	CH88	K88
CH14	K14	CH39	K39	CH64	K64	CH89	K89
CH15	K15	CH40	K40	CH65	K65	CH90	K90
CH16	K16	CH41	K41	CH66	K66	CH91	K91
CH17	K17	CH42	K42	CH67	K67	CH92	K92
CH18	K18	CH43	K43	CH68	K68	CH93	K93
CH19	K19	CH44	K44	CH69	K69	CH94	K94
CH20	K20	CH45	K45	CH70	K70	CH95	K95
CH21	K21	CH46	K46	CH71	K71	CH96	K96
CH22	K22	CH47	K47	CH72	K72	CH97	K97
CH23	K23	CH48	K48	CH73	K73	CH98	K98
CH24	K24	CH49	K49	CH74	K74	CH99	K99

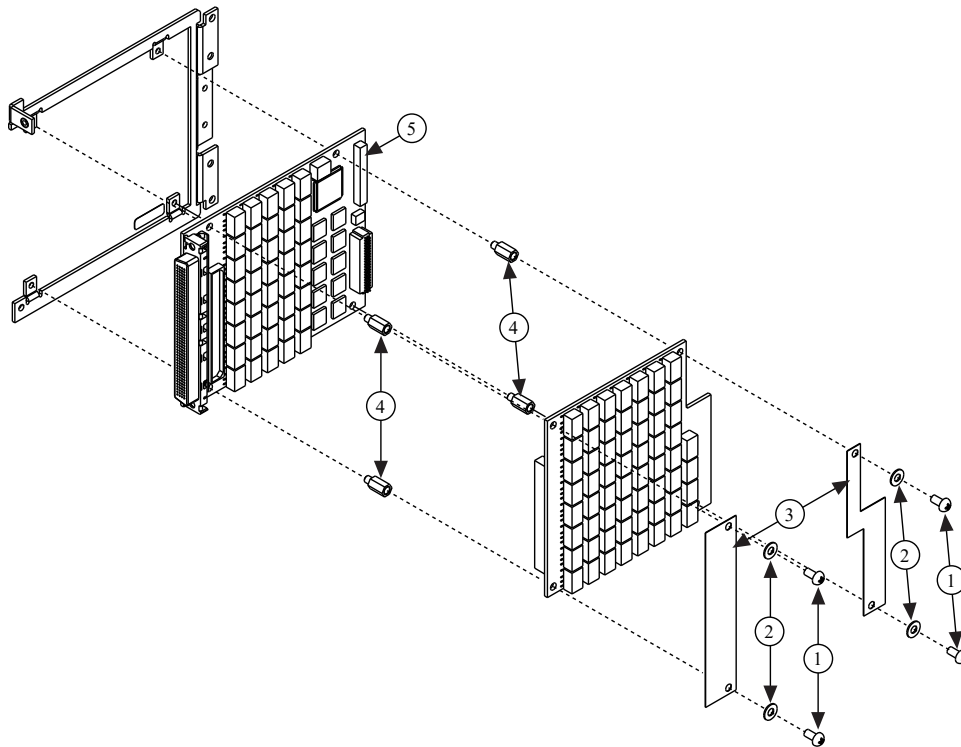
3. Remove the four screws and washers, and two lead covers (if present), that secure

the mezzanine board to the base board. Do not remove the hex standoffs or the base board.



Note Older versions of this module might have adhesive plastic lead covers that you must remove. The module retains full specifications even if the covers are not reinstalled.

Figure 3. Disassembling the Module



1. Screws
2. Washers
3. Lead Covers (If Present)
4. Hex Standoff
5. Base Board

4. Separate the mezzanine board from the base board.
 5. Locate the assembly and serial number labels on the board with the relay you want to replace.
 - Green labels indicate the board was assembled using lead-free solder (Sn 96.5Ag 3.0Cu 0.5). Lead-free assemblies have assembly numbers ending in L.
 - White labels indicate the board was assembled using lead solder (Sn 63Pb 37).
- The different label types are shown in the following figure.

Lead-free



188504C-01L

Lead



188504C-01

If you have a surface mount rework station, replace the relay as you would any other surface mount part. Otherwise, complete the following steps to replace the relay:

1. Use the soldering iron and solder wick to remove as much solder from the relay pads as possible. Do not leave the soldering iron on any lead for more than 5 seconds.



Note If it is necessary to reapply the soldering iron to the pad, allow the connection to cool completely before reapplying the soldering iron.

2. Apply heat to the pads one at a time, and use the pick to gently pry the relay pins from the pads. Make sure that the solder is molten before prying.



Notice Using excessive force on a soldered pad can result in lifting the PCB trace and ruining the board.

3. Remove the relay.
4. Clean the pads with isopropyl alcohol and cotton swabs.
5. Place the new relay on the PCB pads and solder.
6. Remove the excess flux with isopropyl alcohol and cotton swabs.



Notice Do not use flux remover to clean the board after relay replacement.



Tip Use the NI-SWITCH Switch Soft Front Panel to reset the relay count after you have replaced a failed relay. Refer to the **Switch Soft Front Panel Help** for more information.