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# PXI-2569 User Manual

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# PXI-2569 User Manual

The PXI-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***.

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- [PXI-2569 Specifications](#)
- [NI-SWITCH User Manual](#)
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# PXI-2569 Pinout

## 50-DPST Topology

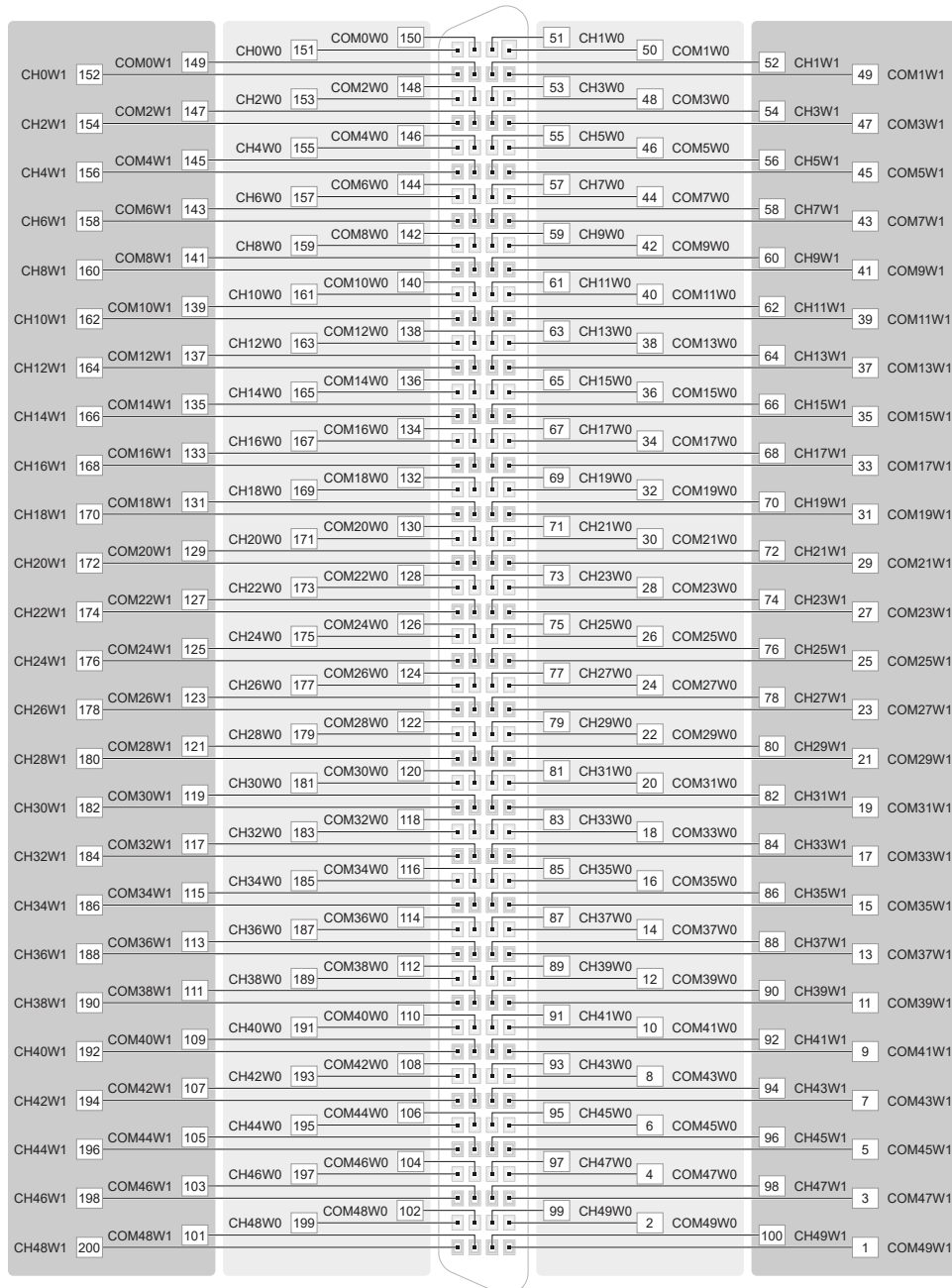


Table 1. Signal Descriptions

| 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

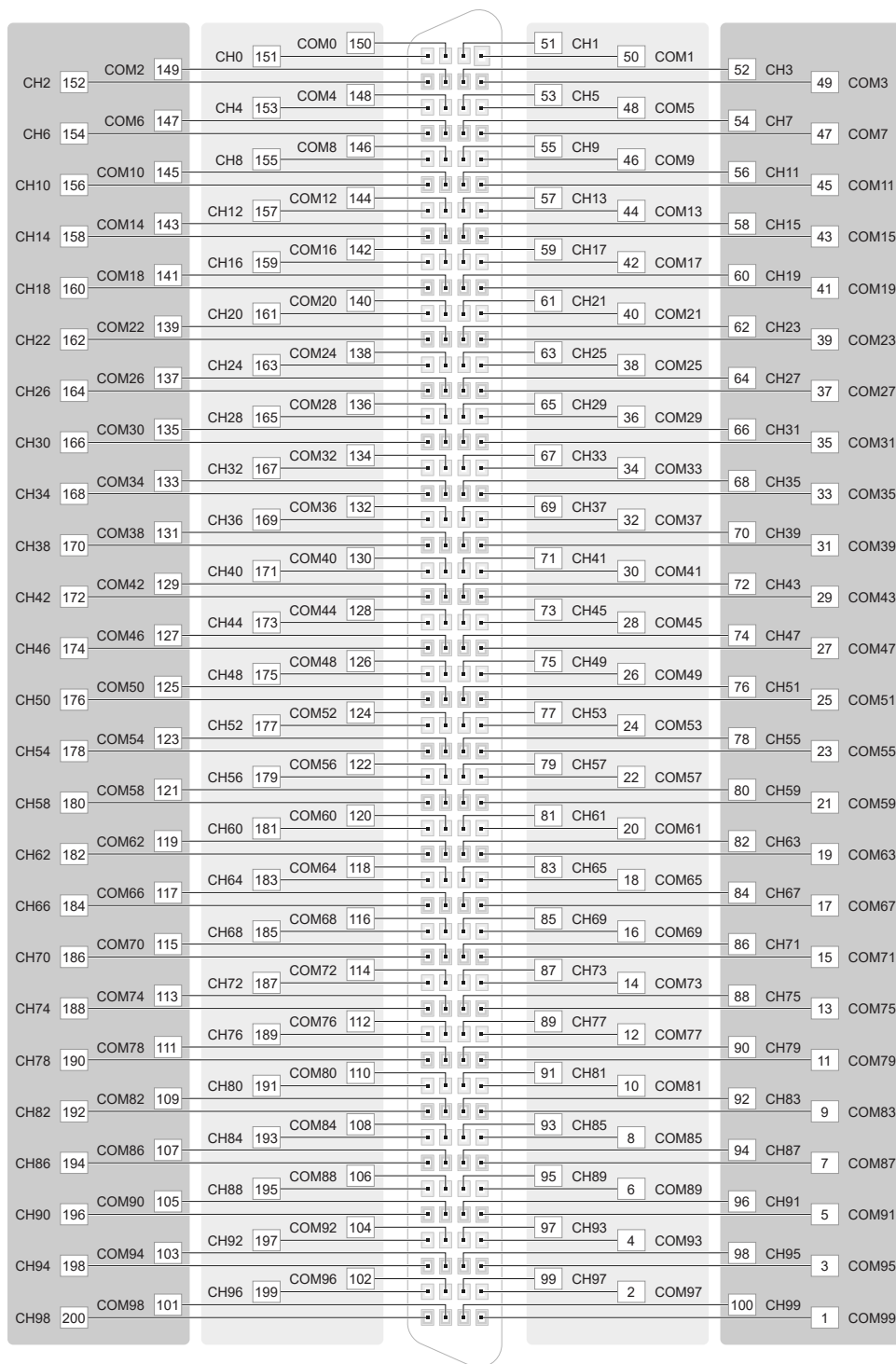


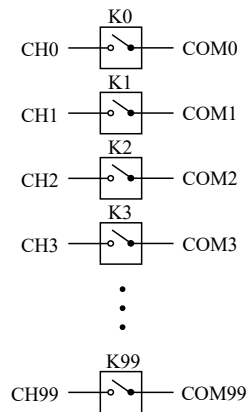
Table 2. Signal Descriptions

| Signal | Description       |
|--------|-------------------|
| CHx    | Signal connection |

| Signal | Description                                       |
|--------|---------------------------------------------------|
| COMx   | Routing destination for the corresponding channel |

# PXI-2569 Hardware Diagram

This figure shows the hardware diagram of the module.





# PXI-2569 50-DPST Topology

Module software name: 2569/50-DPST (NISWITCH\_TOPOLOGY\_2569\_50\_DPST)

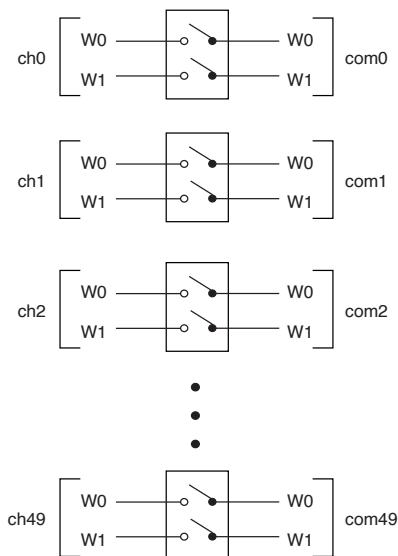
The module is composed of 100 armature latching SPST relays.

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

# PXI-2569 100-SPST Topology

Module software name: 2569/100-SPST (NISWITCH\_TOPOLOGY\_2569\_100\_SPST)

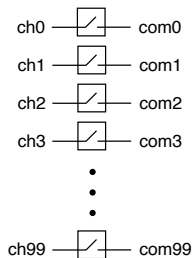
The module is composed of 100 armature latching SPST relays.

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.

# PXI-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

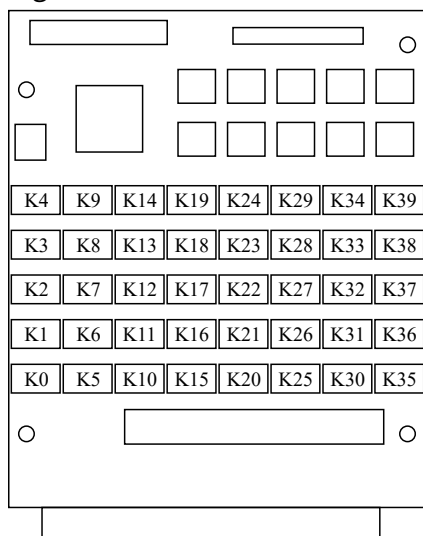
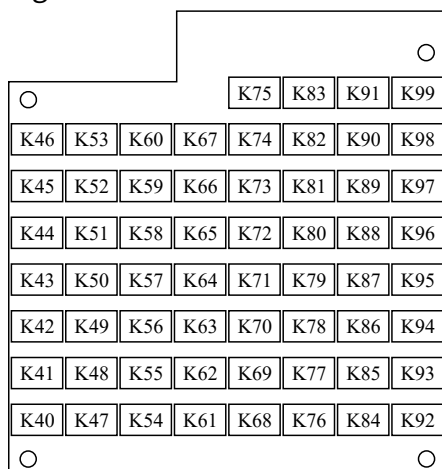


Figure 2. Mezzanine Board



| 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        |

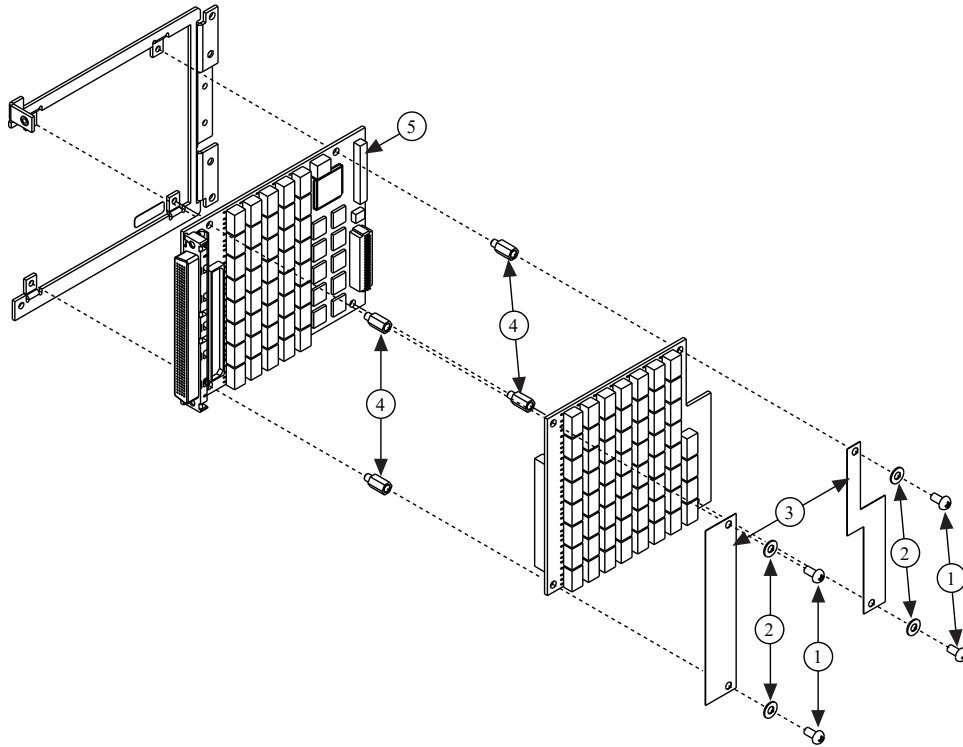
3. Remove the four screws and washers, and two lead covers (if present), that secure

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.



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.