PXI-2566 Features

2025-03-20

Contents

PXI-2566 Overview

PXI-2566 Pinout

8-DPDT Topology

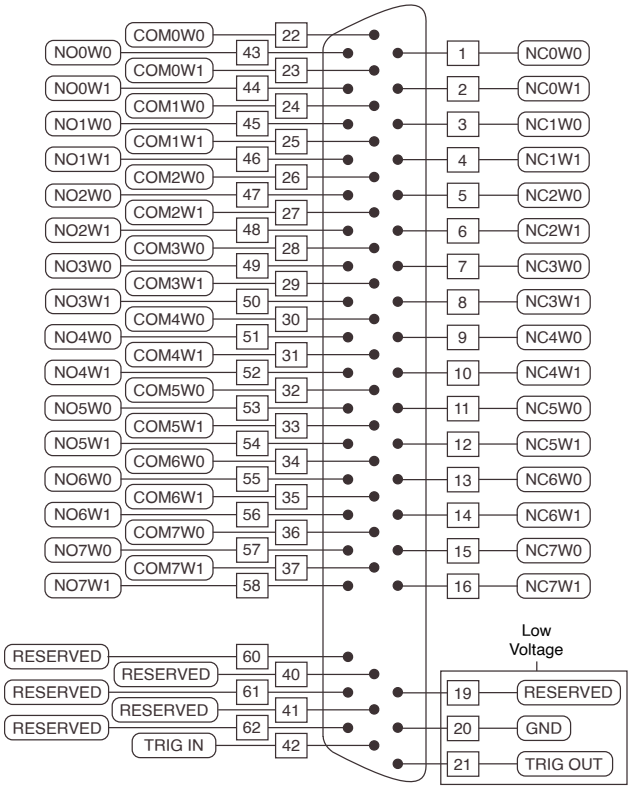


Table 1. Signal Descriptions

Signal	Description
COM***x***W0	Wire 0 routing destination for corresponding signal connections
COM***x***W1	Wire 1 routing destination for corresponding signal connections
GND	Ground connection
NC***x***W0	Wire 0 for normally closed signal connection

Signal	Description
NC*x*W1	Wire 1 for normally closed signal connection
NO*x*W0	Wire 0 for normally open signal connection
NO*x*W1	Wire 1 for normally open signal connection
RSVD	Reserved, do not connect
TRIG IN	Trigger input connection
TRIG OUT	Trigger output connection

Notice Do not connect to RESERVED pins. Keep low-voltage pins isolated from row and column channels when high voltage is present.

16-SPDT Topology

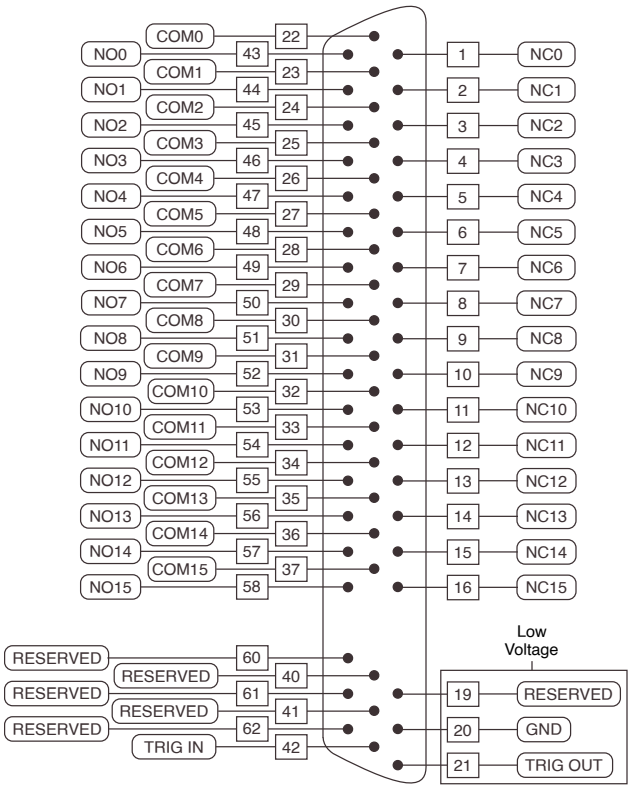


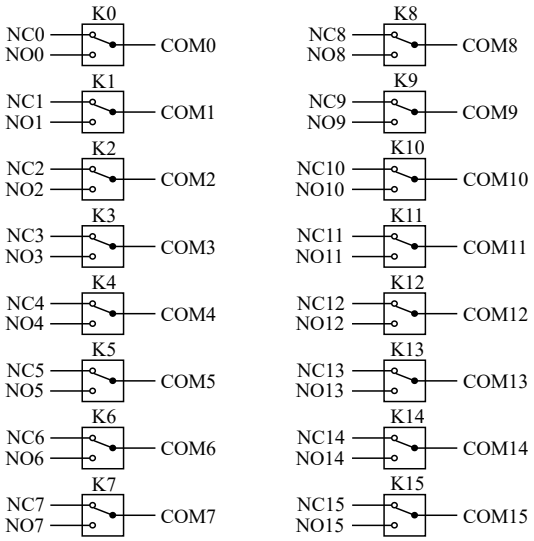
Table 2. Signal Descriptions

Signal	Description
COM***x***	Routing destination for corresponding signal connections
GND	Ground connection
NC***x***	Normally closed signal connection
NO***x***	Normally open signal connection
RSVD	Reserved, do not connect
TRIG IN	Trigger input connection
TRIG OUT	Trigger output connection

Notice Do not connect to RESERVED pins. Keep low-voltage pins isolated from row and column channels when high voltage is present.

PXI-2566 Hardware Diagram

This figure shows the hardware diagram of the module.



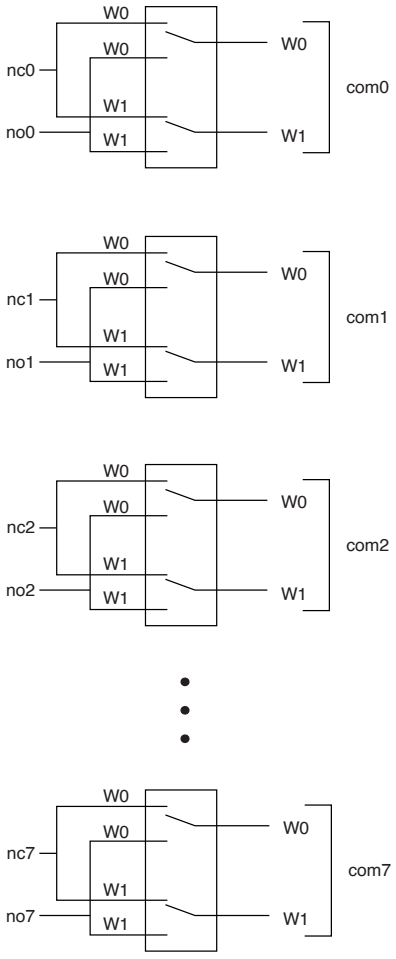
Topologies

PXI-2566 8-DPDT Topology

Module software name: 2566/8-DPDT (NISWITCH_TOPOLOGY_2566_8_DPDT)

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.

8-DPDT Topology



Making a Connection

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

To connect the NO terminal to the COM terminal of that channel, disconnect the NC terminal from the COM of that channel.

For example, to connect NO2 to COM2, use the following code:

```
niSwitch_Disconnect(vi, "nc2", "com2")
```

```
niSwitch_Connect(vi, "no2", "com2")
```

Note To connect NO to COM you do not need to disconnect NC from COM after the module has been reset or a call to the niSwitch Disconnect All Channels VI or the `niSwitch_DisconnectAll` function has been made.

Note `niSwitch_Disconnect(vi, "nc2", "com2")` does not activate the relay until `niSwitch_Connect(vi, "no2w0", "com2w0")` is executed.

To connect the NC terminal to the COM terminal of that channel, disconnect the NO terminal from the COM of that channel.

For example, to connect NC2 to COM2, use the following code:

```
niSwitch_Disconnect(vi, "no2", "com2")
```

```
niSwitch_Connect(vi, "nc2", "com2")
```

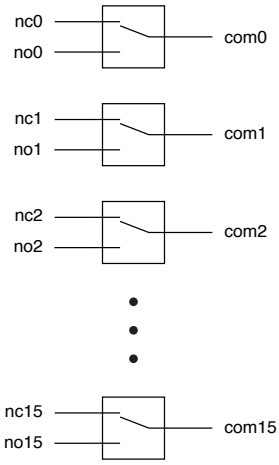
When scanning the module, a typical scan list entry could be `nc2->com2;`. This entry routes the signal connected to NC2 to COM2.

PXI-2566 16-SPDT Topology

Module software name: 2566/16-SPDT (NISWITCH_TOPOLOGY_2566_16_SPDT)

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.

16-SPDT Topology



Making a Connection

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

To connect the NO terminal to the COM terminal of that channel, disconnect the NC terminal from the COM of that channel.

For example, to connect NO2 to COM2, use the following code:

```
niSwitch_Disconnect(vi, "nc2", "com2")
```

```
niSwitch_Connect(vi, "no2", "com2")
```

Note To connect NO to COM you do not need to disconnect NC from COM after the module has been reset or a call to the niSwitch Disconnect All Channels VI or the `niSwitch_DisconnectAll` function has been made.

Note `niSwitch_Disconnect(vi, "nc2", "com2")` does not activate the relay until `niSwitch_Connect(vi, "no2", "com2")` is executed.

To connect the NC terminal to the COM terminal of that channel, disconnect the NO terminal from the COM of that channel.

For example, to connect NC2 to COM2, use the following code:

```
niSwitch_Disconnect(vi, "no2", "com2")
```

```
niSwitch_Connect(vi, "nc2", "com2")
```

When scanning the module, a typical scan list entry could be `nc2->com2;`. This entry routes the signal connected to NC2 to COM2.

PXI-2566 Relay Replacement

The module uses electromechanical armature relays.

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

Replacement Relay Manufacturer	Part Number
Aromat (NAiS)	TQ2SA-5V

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.

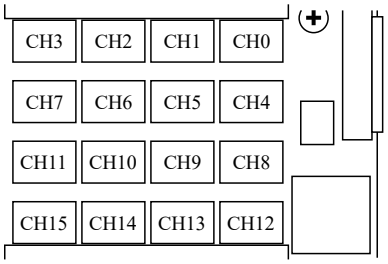
Notice If a lead-free assembly is reworked with lead solder, label the assembly to indicate this. This can prevent the same unit from being reworked later on a lead-free solder station, which could contaminate the station.

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.

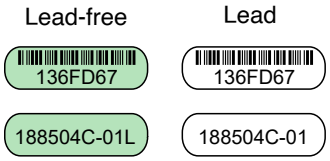
2. Locate the relay you want to replace. Refer to the following figure for relay locations.



> **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.

3. 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.