PXI-2586 Features

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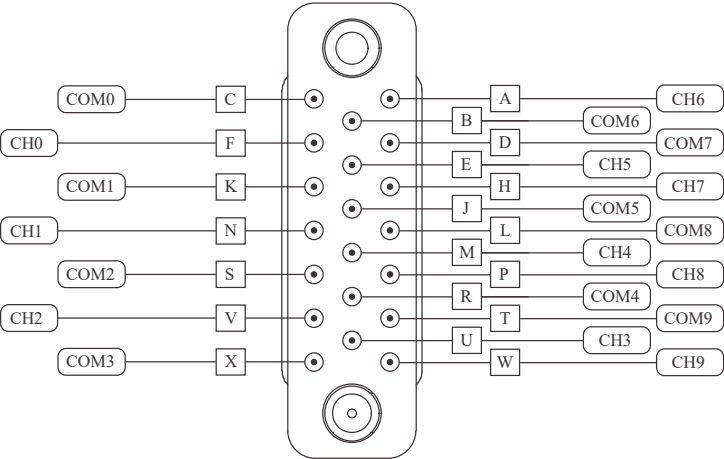
Table 1. Signal Descriptions

Signal	Description
CH*x*	Signal connection
COM*x*	Routing destination for the corresponding channel

5-DPST Topology
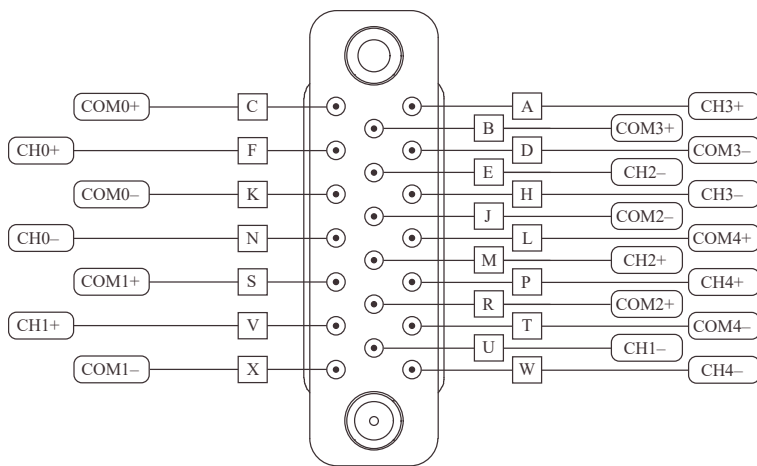
Table 2. Signal Descriptions

Signal	Description
CH*x*+	Positive signal connection
CH*x*-	Negative signal connection
COM*x*+	Routing destination for the corresponding positive channel
COM*x*-	Routing destination for the corresponding negative channel

PXI-2586 Hardware Diagram

This figure shows the hardware diagram of the module.
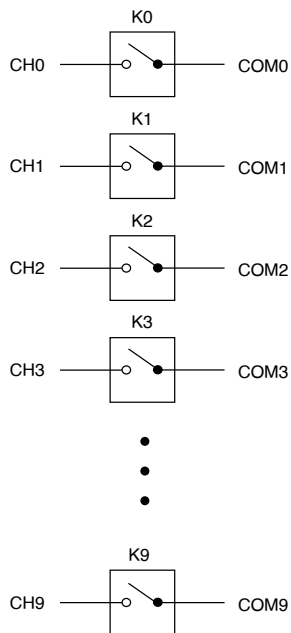
Topologies

PXI-2586 10-SPST Topology

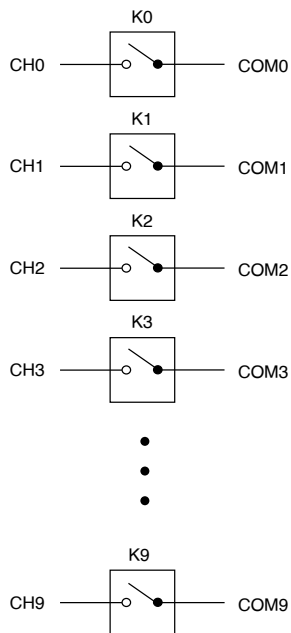Module software name: 2586/10-SPST (NISWITCH_TOPOLOGY_2586_10_SPST)

The module is composed of 10 SPST armature nonlatching 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.

10-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-2586 5-DPST Topology

Module software name: 2586/5-DPST (NISWITCH_TOPOLOGY_2586_5_DPST)

The module is composed of 10 SPST armature nonlatching 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.

5-DPST Topology
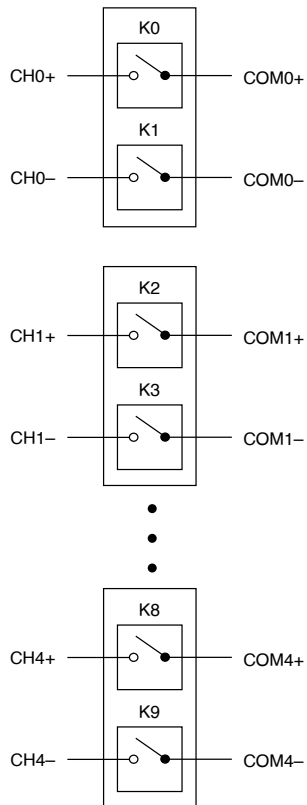
Making a Connection

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;`. entry closes the relays between CH2+ and COM2+ and between CH2- and COM2-.

PXI-2586 Relay Replacement

The module uses electromechanical armature relays.

Replacement Relay Manufacturer	Part Number
Potter & Brumfield (Tyco Electronics)	RTB14005F (2-1419108-4)

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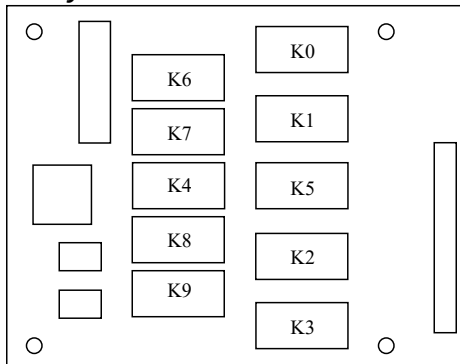
1. Ground yourself using a grounding strap or a ground connected to your PXI chassis.

   > ✎ **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.

Channel Name	Relay Name
CH0	K0
CH1	K1
CH2	K2
CH3	K3
CH4	K4
CH5	K5
CH6	K6
CH7	K7
CH8	K8
CH9	K9

3. Remove the four screws from the back of the relay board, and carefully peel off the plastic safety shield.

Figure 1. Disassembling the Module
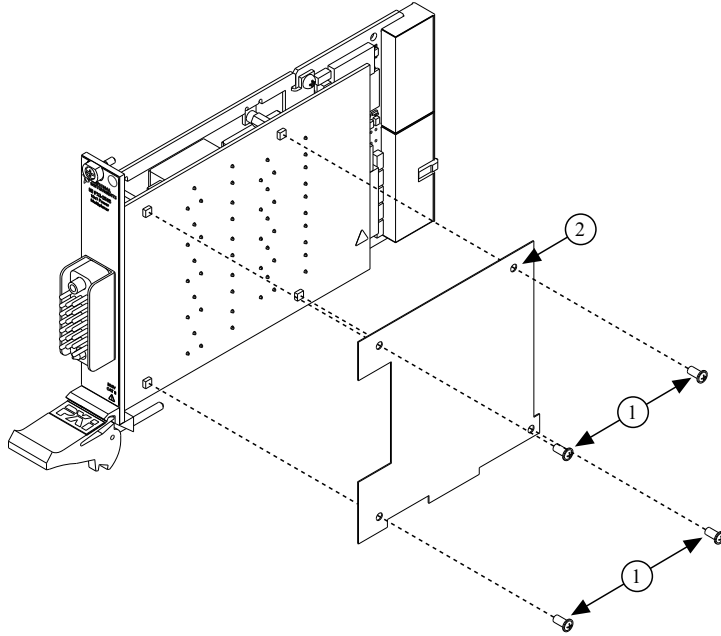
1. Screws
2. Pastic Safety Shield

4. 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.