NI PXI-2570 Specifications

40-Channel SPDT Relay Module

This document lists specifications for the NI PXI-2570 general-purpose relay module. All specifications are subject to change without notice. Visit `ni.com/manuals` for the most current specifications.

Configuration ..... 40-channel SPDT, latching

Input Characteristics

All input characteristics are DC, AC_{rms}, or a combination unless otherwise specified.

Maximum switching voltage

Channel-to-channel ..... 100 V

Channel-to-ground ..... 100 V, CAT I

Caution This module is rated for Measurement Category I and intended to carry signal voltages no greater than 100 V. This module can withstand up to 500 V impulse voltage. Do *not* use this module for connection to signals or for measurements within Categories II, III, or IV. Do not connect to MAINS supply circuits (for example, wall outlets) of 115 or 230 VAC. Refer to the *Safety and Radio-Frequency Interference Read Me First* document for more information on measurement categories.

When hazardous voltages (>42.4 V_{pk}/60 VDC) are present on any relay terminal, safety low-voltage (<42.4 V_{pk}/60 VDC) cannot be connected to any other relay terminal.

Maximum switching power ..... 60 W, 62.5 VA (DC to 60 Hz)
(per channel)

Maximum current..... 1 A
(switching or carry, per channel)

Simultaneous channels at maximum
current (≤55 °C) 40

NATIONAL INSTRUMENTS

DC path resistance

Initial.....<0.5 Ω

End of life.....≥1.0 Ω

DC path resistance typically remains low for the life of the relay. At the end of relay life, the path resistance rises rapidly above 1 Ω. Load ratings apply to relays used within the specification before the end of relay life.

Thermal EMF (typical at 23 °C).....≤12 µV

Bandwidth (–3 dB, typical at 23 °C)
50 Ω termination.....≥40 MHz

Crosstalk (typical at 23 °C, 50 Ω termination)

Channel-to-channel

10 kHz.....≤–100 dB

100 kHz.....≤–80 dB

1 MHz.....≤–60 dB

10 MHz.....≤–40 dB

Isolation (typical at 23 °C, 50 Ω termination)

Open channel

10 kHz.....≥85 dB

100 kHz.....≥65 dB

1 MHz.....≥45 dB

10 MHz.....≥25 dB

Dynamic Characteristics

Maximum cycle speed.....145 cycles/s

Relay operate time

Typical.....1 ms

Maximum.....3.4 ms

Note Certain applications may require additional time for proper settling. For information about including additional settling time, refer to the *NI Switches Help*.

Expected relay life

- Mechanical ..... 100,000,000 cycles
- Electrical
  - 10 VDC, 100 mADC resistive ..... 2,500,000 cycles
  - 10 VDC, 1 ADC resistive ..... 1,000,000 cycles
  - 30 VDC, 1 ADC resistive ..... 500,000 cycles
  - 60 VDC, 1 ADC resistive ..... 100,000 cycles

Trigger Characteristics

Input trigger

- Sources ..... PXI trigger lines 0–7
- Minimum pulse width ..... 150 ns

Note The NI PXI-2570 can recognize trigger pulse widths less than 150 ns if you disable digital filtering. For information about disabling digital filtering, refer to the *NI Switches Help*.

Output trigger

- Destinations ..... PXI trigger lines 0–7
- Pulse width ..... Programmable (1 µs to 62 µs)

Physical Characteristics

Relay type	Electromechanical, latching
Relay contact material	Palladium-ruthenium, gold covered
I/O connector	200 POS LFH Matrix 50, receptacle
PXI power requirement	6 W at 5 V 2.5 W at 3.3 V
Dimensions (W × H × D)	Single PXI slot, 3U 2 cm × 10 cm × 17.5 cm (0.8 in. × 3.9 in. × 6.9 in.)
Weight	227 g (8.0 oz)

Environment

Operating temperature .....0 °C to 55 °C

Storage temperature .....–20 °C to 70 °C

Relative humidity .....5% to 85% noncondensing

Pollution Degree 2

Approved at altitudes up to 2,000 m.

Indoor use only.

Accessories

Table 1. Third-Party Accessories for the NI PXI-2570

Accessory	Manufacturer	Manufacturer Part Number
Terminal pin rows (four required)	Molex	71715-4002
Plug connector subassembly	Molex	71719-3000
Backshell only	Jevons	JDC200B-832
Mass interconnect cable assembly, 20 in.	Virginia Panel at www.vpc.com	540 005 010 105

Glossary

channel	A single SPDT (form C) relay. Each channel has three terminals—common (COM), normally closed (NC), normally open (NO).
cycle	The actuation of a SPDT relay twice, leaving it in its original state.
operate	The actuation of a SPDT relay once, leaving it in the opposite state.
SPDT	Single-pole double-throw.

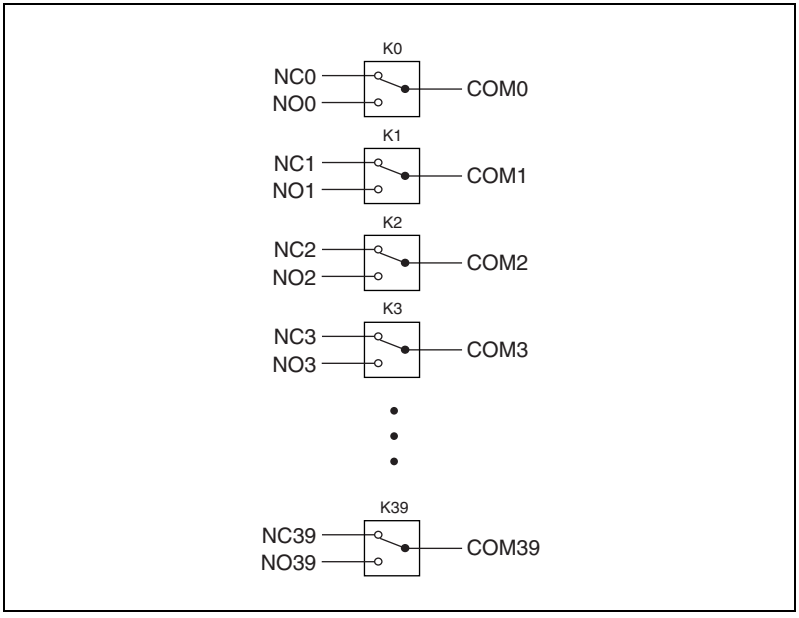

Figure 1. NI PXI-2570 Power-On State

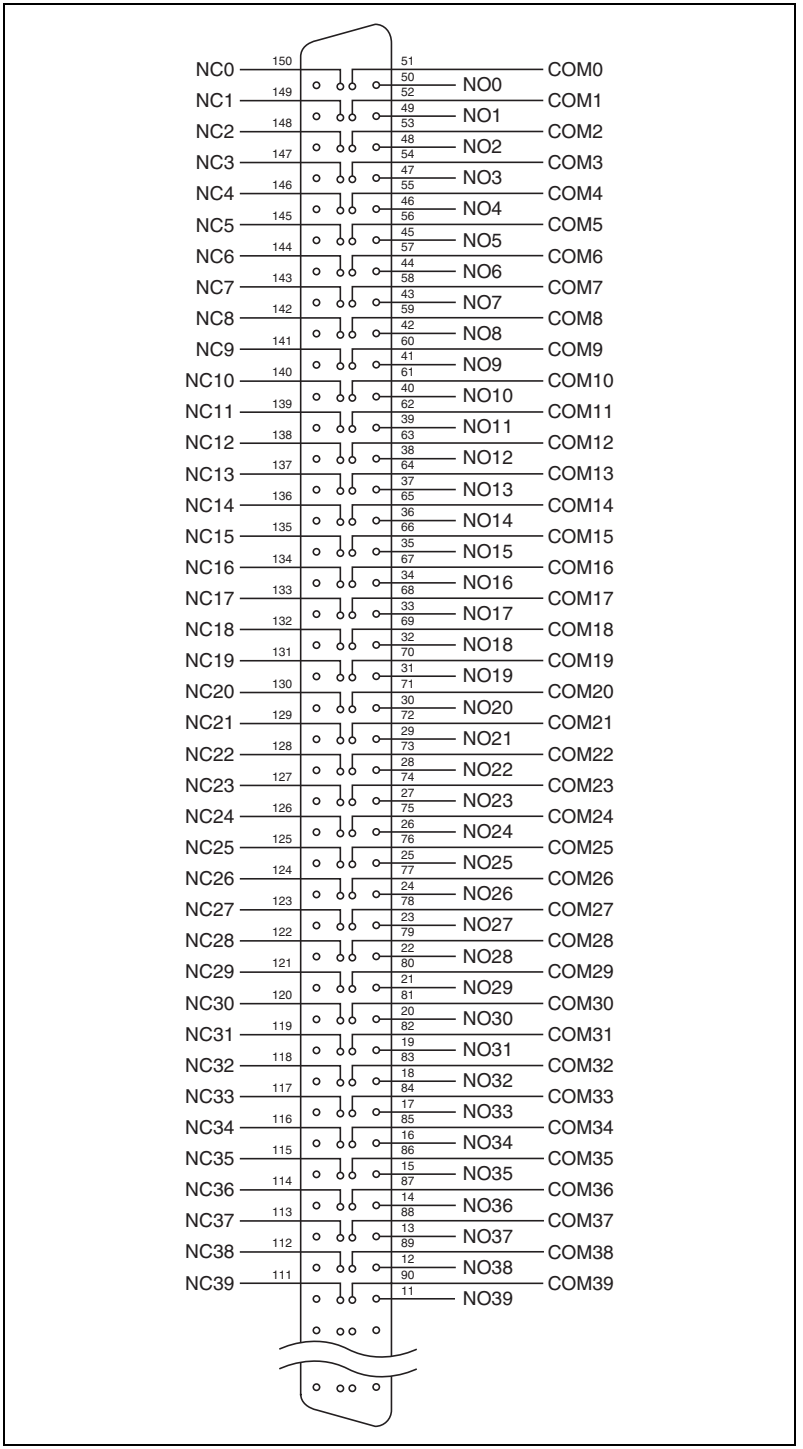

Figure 2. NI PXI-2570 Front Panel Pinout

Compliance and Certifications

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 3111-1, UL 61010B-1
- CAN/CSA C22.2 No. 1010.1

Note For UL and other safety certifications, refer to the product label or visit `ni.com/hardref.nsf`, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

Emissions ..... EN 55011 Class A at 10 m
FCC Part 15A above 1 GHz

Immunity ..... EN 61326:1997 + A2:2001, Table 1

CE, C-Tick, and FCC Part 15 (Class A) Compliant

Note For EMC compliance, you *must* operate this device with shielded cabling.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

Low-Voltage Directive (safety) 73/23/EEC

Electromagnetic Compatibility
Directive (EMC) 89/336/EEC

Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit `ni.com/hardref.nsf`, search by model number or product line, and click the appropriate link in the Certification column.

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