
PXI-2566

Specifications

2025-11-04



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These specifications apply to the PXI-2566.

All specifications are subject to change without notice.



Notice The protection provided by the PXI-2566 can be impaired if it is used in a manner not described in this document.

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- **Typical** specifications describe the performance met by a majority of models.
- **Nominal** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are **Typical** unless otherwise noted.

Conditions

Specifications are valid at 23 °C unless otherwise noted.

All voltages are specified in DC, AC_{pk}, or a combination unless otherwise specified.

Topology

Topologies	16-SPDT (nonlatching) 8-DPDT
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PXI-2566 Pinout

8-DPDT Topology

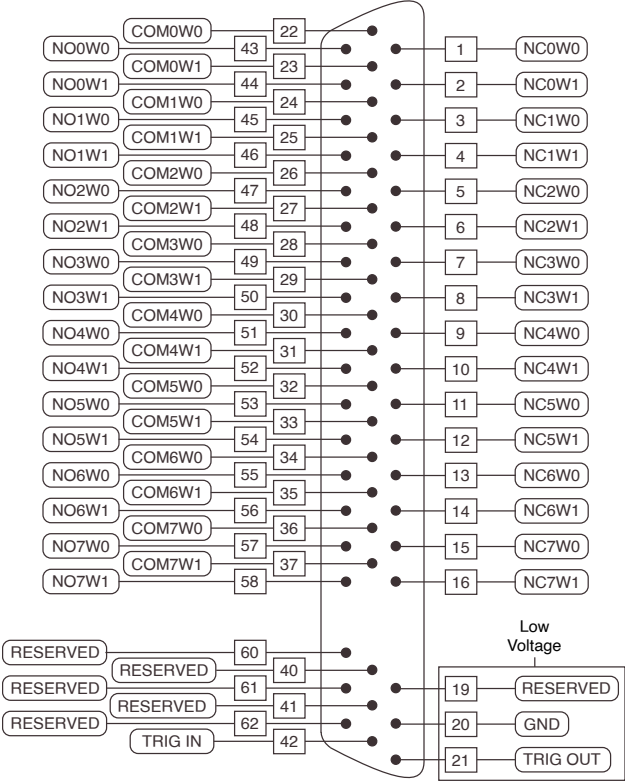


Table 1. Signal Descriptions

Signal	Description
COMxW0	Wire 0 routing destination for corresponding signal connections
COMxW1	Wire 1 routing destination for corresponding signal connections

Signal	Description
GND	Ground connection
NCxW0	Wire 0 for normally closed signal connection
NCxW1	Wire 1 for normally closed signal connection
NOxW0	Wire 0 for normally open signal connection
NOxW1	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

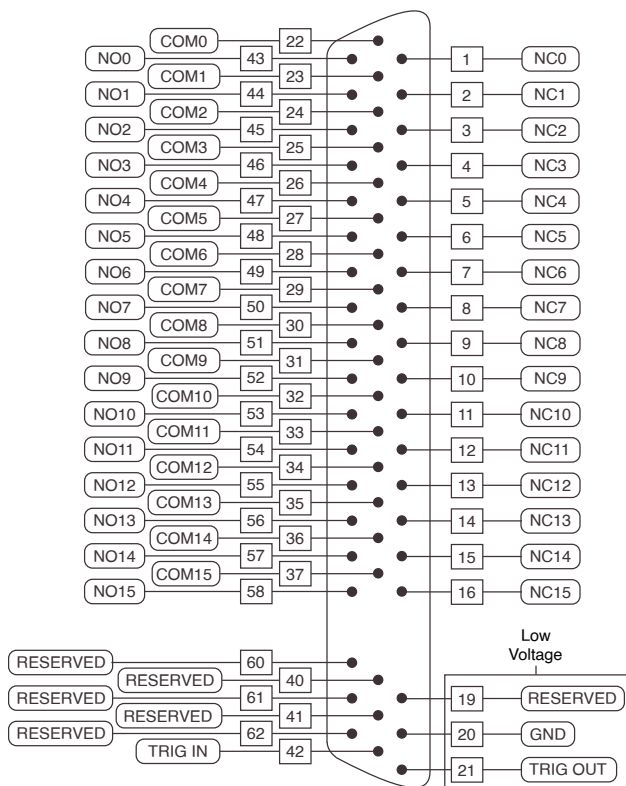


Table 2. Signal Descriptions

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.

Related information:

- [PXI-2566 Hardware Diagram](#)
- [NI Switches Cable and Accessory Compatibility](#)

Input



Caution This module is rated for Measurement Category I and intended to carry signal voltages no greater than 150 V. This module can withstand up to 800 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 V AC.



Caution When hazardous voltages ($>42.4 V_{pk}/60 V DC$) are present on any relay terminal, safety low-voltage ($\leq 42.4 V_{pk}/60 V DC$) cannot be connected to any other relay terminal.



Caution The switching power is limited by the maximum switching current

and the maximum voltage, and must not exceed 60 W, 62.5 VA.

Maximum switching voltage ¹	
Channel-to-channel	150 V DC, 125 V AC
Channel-to-ground	150 V DC, 125 V AC, CAT I ²
Maximum switching power (per channel)	60 W, 62.5 VA (DC to 60 Hz)
Maximum switching current (per channel)	2 A DC, 2 A AC
Simultaneous channels at maximum switching current ($\leq 25^\circ\text{C}$)	16
Maximum carry current (per channel)	5 A DC, 5 A AC
Simultaneous channels at maximum carry current ($\leq 25^\circ\text{C}$)	9

Module Load Derating at $>25^\circ\text{C}$

Load derating is dependent on the ambient temperature and the sum of the current squared of each channel simultaneously carrying a signal. The result must fall within the shaded region of the following figure. The following examples represent this calculation:

1. Switching inductive loads (for example, motors and solenoids) can produce high-voltage transients in excess of the rated voltage of the module. Without additional protection, these transients can interfere with module operation and impact relay life. For more information about transient suppression, visit ni.com/info and enter the Info Code induct.
2. Measurement Categories CAT I and CAT O (Other) are equivalent. These test and measurement circuits are not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Example 1: Five channels carry 4 A while ten channels carry 2 A.

$$(5 \times 4^2) + (10 \times 2^2) = 120 \text{ A}^2 \times \text{channels}$$

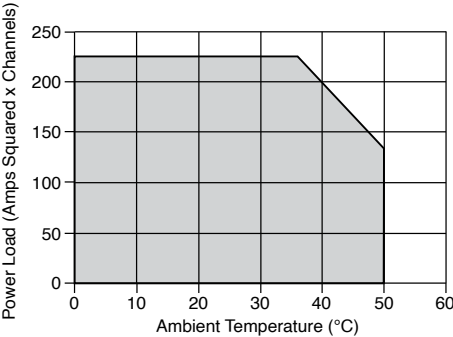
Example 1 can be used at ambient temperatures between 0 °C and 50 °C.

Example 2: Six channels carry 5 A while ten channels carry 2 A.

$$(6 \times 5^2) + (10 \times 2^2) = 190 \text{ A}^2 \times \text{channels}$$

Example 2 can be used at ambient temperatures between 0 °C and 41 °C.

Figure 1. Module Load Derating



DC path resistance ³	
Initial	<0.1 Ω, warranted
Initial, with TB-2666 ^{4[4]}	<0.19 Ω, warranted
End of life	≥1.0 Ω
DC isolation	

3. DC path resistance typically remains low for the life of the relay. At the end of relay life, the path resistance rapidly rises above 1 Ω. Load ratings apply to relays used within the specification before the end of relay life.
4. Specifications including the TB-2666 accessory are characterized from screw terminal to screw terminal for the applicable path or paths.

Open channel, with TB-2666 ^[4]	100 GΩ, typical
Channel-to-channel, with TB-2666 ^[4]	100 GΩ, typical
Thermal EMF	<13 μV, typical
Minimum switching capacity	10 μA at 10 mV DC
Bandwidth (-3 dB, 50 Ω system)	≥70 MHz, typical
Bandwidth with TB-2666 (-3 dB, 50 Ω system) ^[4]	≥10 MHz, typical
Crosstalk (50 Ω system)	
Channel-to-channel	
10 kHz	≤-75 dB, typical
100 kHz	≤-65 dB, typical
1 MHz	≤-45 dB, typical

Dynamic

Relay operate time ⁵	2 ms, typical 4.4 ms, maximum
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5. Certain applications may require additional time for proper settling. Refer to the ***NI Switches Help***

Maximum cycle speed	115 cycles/s
Expected relay life⁶	
Mechanical	1×10^8 cycles
Electrical	
30 V DC, 1 ADC resistive	5×10^5 cycles
30 V DC, 2 ADC resistive	1×10^5 cycles
125 V AC, 0.2 AAC resistive	3×10^5 cycles
125 V AC, 0.5 AAC resistive	1×10^5 cycles

Trigger Characteristics

Input trigger	
Sources	PXI trigger lines <0...7>
Minimum pulse width ⁷	150 ns
Front panel/terminal block input voltage	-0.5 V, minimum

for information about including additional settling time.

6. The relays used in the PXI-2566 are field replaceable. Refer to the ***NI Switches Help*** document for information about replacing a failed relay.

7. The PXI-2566 recognizes trigger pulse widths less than 150 ns if digital filtering is disabled. Refer to

		+0.7 V, VL maximum +2.0 V, VH minimum +3.3 V, nominal +5.5 V, maximum
Output trigger		
Destinations	PXI trigger lines <0...7>	
Default pulse width	2 μ s, typical	
Front panel voltage	3.3 V TTL, 8 mA, nominal	

Physical

Relay type	Electromechanical, nonlatching
Relay contact material ⁸	Gold-clad silver alloy
I/O connector	62-pin D-SUB connector, male
PXI power requirement	4.5 W at 5 V, 2.5 W at 3.3 V
Dimensions (L $\times$ W $\times$ H)	3U, one slot, PXI/cPCI module, 21.6 $\times$ 2.0 $\times$ 13.0 cm (8.5 $\times$ 0.8 $\times$ 5.1 in.)

the ***NI Switches Help*** for information about disabling digital filtering.

8. Certain devices are built with silver, gold covered. Contact NI for more details on a specific device.

Weight	250 g (9 oz.)
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Environment

Table 3. Environment

Operating temperature	0 °C to 55 °C
Storage temperature	-20 °C to 70 °C
Relative humidity	5% to 85%, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m

Indoor use only.

Shock and Vibration

Table 4. Shock and Vibration

Operational Shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.)
Random vibration, operating	5 Hz to 500 Hz, 0.3 g _{rms}
Random vibration, nonoperating	5 Hz to 500 Hz, 2.4 g _{rms} (Tested in accordance with IEC 60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Compliance and Certifications

Safety Compliance Standards

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

- IEC 61010-1, EN 61010-1

- UL 61010-1, CSA C22.2 No. 61010-1



Note For safety certifications, refer to the product label or the [Product Certifications and Declarations](#) section.

EMC Guidelines

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by NI could void your authority to operate it under your local regulatory rules.

Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified electromagnetic compatibility (EMC) performance.



Note Operate this product only with shielded cables and accessories.



Note Refer to the ***Read Me First: Safety and Electromagnetic Compatibility*** document for important safety and electromagnetic compatibility information. To obtain a copy of this document online, visit ni.com/docs, and search for the document title.



Note When exposed to transient electromagnetic phenomena such as electrostatic discharge (ESD) or power surges, this product may experience a temporary upset or other performance degradation that requires more than

10 seconds for self-recovery.



Note The FlexRIO FPGA module front panel interface is sensitive to electrostatic discharge. Use caution when handling the FlexRIO FPGA module to prevent damage to the internal components exposed by this interface.



Note Using the PXI-2566 in a manner not described in this document may impair the protection the PXI-2566 provides.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.



Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.



Note For EMC declarations, certifications, and additional information, refer to ***Product Certifications and Declarations***.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the ***Engineering a Healthy Planet*** web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

EU and UK Customers

-  **Waste Electrical and Electronic Equipment (WEEE)**—At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国RoHS）

-  **中国RoHS**—NI符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于NI中国RoHS合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)