
PXI-2503

Specifications

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PXI-2503 Specifications



Caution The protection provided by the PXI-2503 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	1-wire 64 × 1 multiplexer 1-wire 48 × 1 multiplexer 
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	2-wire 24 × 1 multiplexer <u>□</u>
	2-wire Dual 12 × 1 multiplexers
	2-wire Quad 6 × 1 multiplexers
	4-wire 12 × 1 multiplexer
	2-wire 4 × 6 matrix

Input

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



Caution The switching power is limited by the maximum switching current and the maximum voltage. Switching power must not exceed 30 W (37.5 VA) per channel.

Maximum switching voltage (channel-to-channel and channel-to-ground)	30 VAC, 60 VDC
Maximum switching current (per channel)	1 A
Maximum carry current (per channel)	1 A
Maximum switching power (per channel)	30 W
Minimum switch load	10 μA, 10 mV
DC path resistance^[2]	
Initial	<1 Ω, warranted
End-of-life	>2 Ω

Thermal EMF (differential)	<2 μV
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RF Performance

Bandwidth (50 Ω termination)	≥ 10 MHz, typical
Channel-to-channel isolation (50 Ω termination)	
10 kHz	>100 dB, typical
100 kHz	>80 dB, typical
1 MHz	>55 dB, typical
10 MHz	>30 dB, typical

Dynamic

Maximum scan rate	100 channels/s, typical
Relay operate time (at 20 $^{\circ}\text{C}$) ^[3]	3 ms, typical 5 ms, maximum
Release time (at 20 $^{\circ}\text{C}$)	1.5 ms, typical 5 ms, maximum
Expected relay life	
Mechanical	5×10^7 cycles
Electrical (maximum load)	2×10^5 cycles

Trigger

Input trigger	
Sources	PXI trigger lines <0...7>, front panel
Minimum pulse width	
PXI trigger lines	70 ns
Front panel	500 ns
Output trigger	
Destinations	PXI trigger lines <0...7>, front panel
Pulse width	1 μ s

Physical

Relay type	Electromechanical, nonlatching
I/O connector	68-pin male SCSI
Power requirement	
+5 VDC	370 mA, typical 700 mA, maximum
Relay contact material	Gold-clad silver alloy
Dimensions (L \times W \times H)	3U, one slot, PXI/cPCI module 21.6 cm \times 2.0 cm \times 13.0 cm (8.5 in. \times 0.8 in. \times 5.1 in.)

Weight	228 g (8 oz)
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Environment

Operating temperature	0 °C to 50 °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

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}
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.

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 the [Product Certifications and Declarations](#) section.

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.)

¹ The 1-wire 48×1 and the 2-wire 24×1 multiplexer topologies can enable a unity gain amplifier to reduce FET settling time.

² Path resistance is a combination of relay contact resistance and trace resistance. Contact resistance typically remains low for the life of a relay. At the end of relay life, the contact resistance rapidly rises above 1.0Ω .

³ Certain applications might require additional time for proper settling. For information about including additional settling time, refer to the **NI Switches Help**.