PXIe-2532B Specifications

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Contents

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This document lists specifications for the PXIe-2532B. All specifications are subject to change without notice.

PXI-2532B Specifications

> **Caution** The protection provided by the PXIe-2532B 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 **Warranted** 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 4 x 128 matrix 1-wire 8 x 64 matrix 1-wire 16 x 32 matrix 1-wire dual 4 x 64 matrix 1-wire dual 8 x 32 matrix 1-wire dual 16 x 16 matrix 1-wire quad 4 x 32 matrix 1-wire sixteen 2 x 16 matrix 2-wire 4 x 64 matrix 2-wire 8 x 32 matrix 2-wire 16 x 16 matrix 2-wire dual 4 x 32 matrix

Input

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.

> **Caution** 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 voltage	
Channel-to-channel	100 V
Channel-to-ground	100 V, CAT I
Maximum current	0.5 A (switching or carry, per channel)
Maximum switching power[1]	10 W (per channel)
DC path resistance[2]	
Initial	<1 Ω, warranted
End-of-life	≥2 Ω
Open channel	>1 × 10^9 Ω
Thermal EMF	
1-wire	<50 µV
2-wire	<20 µV
Bandwidth (-3 dB, 50 Ω termination)	
1-wire row/column	≥30 MHz
2-wire row/column	≥25 MHz

Channel-to-channel crosstalk (50 Ω termination) Channel-to-channel	
10 kHz	<-85 dB
100 kHz	<-65 dB
1 MHz	<-45 dB

Open channel isolation (50 Ω termination) Open channel	
10 kHz	>84 dB
100 kHz	>64 dB
1 MHz	>44 dB

Dynamic

Simultaneous drive limit	40 relays
Relay operate time[3]	0.25 ms
Release time	0.25 ms

Relay life (no load)[4][5][6]	
Mechanical	1×10^9 cycles, typical
Electrical (resistive, <10 pF load)	
10 V, 100 mA	1×10^7 cycles, typical
20 V, 500 mA	5×10^6 cycles, typical

100 V, 10 mA	5×10^5 cycles, typical

Trigger

Input trigger[7]	
Sources	PXI trigger lines <0...7>
Minimum pulse width	150 ns
Output trigger	
Destinations	PXI trigger lines <0...7>
Pulse width	Software-selectable: 1 µs to 62 µs

Physical

Relay type[8]	Reed
Relay contact material	Rhodium
I/O connectors[9]	2, 150 pos, Samtec ERM8-EM series

Power requirement	
PXI	
5 V	10 W
3.3 V	2 W

PXI Express	
12 V	15 W
3.3 V	2 W
Dimensions (L × W × H)	3U, one slot, PXI/cPCI module, PXI Express compatible 18.5 × 2.0 × 13.0 cm (7.3 × 0.8 × 5.1 in.)
Weight	454 g (1 lb)

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

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 maximum switching power is limited by the maximum switching current and the maximum voltage, and must not exceed 10 W.

[2] DC path resistance typically remains low for the life of the relay. At the end of relay life, the path resistance rapidly rises above 2 Ω. Load ratings apply to relays used within the specification before the end of relay life.

[3] Certain applications may require additional time for proper settling.

[4] Optional series protection resistance, available for the terminal blocks, increases the expected relay life at higher voltages. This series protection resistance shields the reed relays from the effects of cable and load capacitance. For more information, refer to the **Reed Relay Protection** tutorial.

[5] Reed relays are highly susceptible to damage caused by switching capacitive and inductive loads. Capacitive loads can cause high inrush currents while inductive loads can cause high flyback voltages. The addition of appropriate resistive protection can greatly improve contact lifetime. For more information about adding protection circuitry to a capacitive load, visit ni.com/info and enter the Info Code relaylifetime. For information about inductive loads, enter the Info Code relayflyback.

[6] The relays used in the PXIe-2532B are field replaceable.

[7] The PXIe-2532B can recognize trigger pulse widths less than 150 ns if you disable digital filtering. Refer to the **NI Switches Help** for information about disabling digital filtering.

[8] NI advises against installing reed relay modules directly adjacent to an embedded controller with a magnetic hard drive because of the sensitivity of reed relays and the possibility of interference.

[9] Terminal block connectivity is with standard 0.050 inch pitch headers.