
PXI-2530B

2022-06-30



Contents

PXI-2530B Specifications..... 3

PXI-2530B Specifications

This document lists specifications for the PXI-2530B 128-channel multiplexer/matrix module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

PXI-2530B Specifications

Specifications characterize the warranted performance of the instrument under the stated operating conditions. Data in this document are **Specifications** unless otherwise noted.

Typical Specifications are specifications met by the majority of the instrument under the stated operating conditions and are tested at 23 °C ambient temperature. Typical specifications are not warranted.

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



Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.



Caution The protection provided by the PXI-2530B can be impaired if it is used in a manner not described in this document.

Topology

Refer to the **NI Switches Help** at ni.com/manuals for detailed topology information.

Topologies	1-wire 128 x 1 multiplexer 1-wire dual 64 x 1 multiplexer 1-wire quad 32 x 1 multiplexer
------------	--

	1-wire octal 16 x 1 multiplexer
	2-wire 64 x 1 multiplexer
	2-wire dual 32 x 1 multiplexer
	2-wire quad 16 x 1 multiplexer
	4-wire 32 x 1 multiplexer
	4-wire dual 16 x 1 multiplexer
	1-wire 4 x 32 matrix
	1-wire 8 x 16 matrix
	2-wire 4 x 16 matrix
	Independent

Input Characteristics

Maximum switching voltage	
Channel-to-channel	60 VDC, 30 VAC _{rms} , CAT I
Channel-to-ground	60 VDC, 30 VAC _{rms} , CAT I

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as **MAINS** voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.



Caution Do not connect the PXI-2530B to signals or use for measurements within Measurement Categories II, III, or IV.



Note Measurement Categories CAT I and CAT O 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.

Maximum current (per terminal or internal path)	0.4 A
Maximum switching power (per channel, resistive)	10 W
DC path resistance^[1] (channel-to-common)	
Initial	<2 Ω , typical
End-of-life	$\geq 3 \Omega$, typical
Thermal EMF (1-wire configuration, channel-to-common)	<50 μV , typical

RF Performance Characteristics

Bandwidth (50 Ω system, 1-wire configuration referenced to 1WREF)	
16 \times 1	>19 MHz, typical
128 \times 1	>12 MHz, typical
Channel-to-channel isolation (50 Ω system, 1-wire configuration referenced to 1WREF)	
200 kHz	>60 dB, typical

1 MHz	>40 dB, typical
-------	-----------------

Dynamic Characteristics

Simultaneous drive limit	64 relays
Relay operate/release time	555 μ s



Note Certain applications may require additional time for proper settling.

Relay life (no load)

Mechanical $1 * 10^9$ cycles, typical

Electrical (resistive, <10 pF load)

10 V, 100 mA $1 * 10^8$ cycles, typical

25 V, 400 mA $5 * 10^6$ cycles, typical

60 V, 160 mA $1 * 10^6$ cycles, typical



Note 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.



Note The relays used in the PXI-2530B are field replaceable.

Trigger Characteristics

Input trigger

Sources	PXI trigger lines 0 to 7, front panel
Minimum pulse width	150 ns

Front panel input voltage

Minimum	-0.5 V
V_{IL} maximum	+0.7 V
V_{IH} minimum	+2.0 V
Nominal	+3.3 V
Maximum	+5.5 V



Note The PXI-2530B can recognize trigger pulse widths less than 150 ns if you disable digital filtering.

Output trigger

Destinations	PXI trigger lines 0 to 7, front panel
Pulse width	Programmable (1 μ s to 62 μ s)
Front panel nominal voltage	+3.3 V TTL, 8 mA

Physical Characteristics

Relay type	Reed
------------	------



Note 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.

Front panel connector	LFH matrix 50, 160 positions, female
PXI power requirement	4.2 W at 5 V, 1.2 W at 3.3 V
Dimensions (L × W × H)	3U, one slot, PXI/cPCI module, 21.6 × 2.0 × 13.0 cm (8.5 × 0.8 × 5.1 in.)
Weight	266 g (9.4 oz)

Environment

Operating temperature	0 °C to 55 °C
Storage temperature	-40 °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

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 61010-1



Note For UL and other safety certifications, refer to the product label or the [Online Product Certification](#) section.

Electromagnetic Compatibility

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

- EN 61326-2-1 (IEC 61326-2-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, 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 and certifications, and additional information, refer to the [Online Product Certification](#) section.

CE Compliance

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

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

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 **Minimize Our Environmental Impact** 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.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers 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)

中国客户 National Instruments 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 National Instruments 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 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 may rapidly rise above 3 Ω.