PXI-2529 Specifications

2022-06-30

Contents

PXI-2529 Specifications

Caution The protection provided by the PXI-2529 can be impaired if it is used in a manner not described in this document.

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

Caution Device relays might change state momentarily during electrostatic discharge.

Caution Refer to the **Read Me First: Safety and Electromagnetic Compatibility** document at ni.com/manuals for important safety and compliance information.

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	2-wire 4 × 32 matrix 2-wire 8 × 16 matrix 2-wire 4 × 16 matrix

Input

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

Caution This module is rated for Measurement Category I and is 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 connections to signals or for measurements within Measurement Categories II, III, or IV.

Caution Do not connect to MAINs supply circuits (e.g., wall outlets) of 115 or 230 VAC. Refer to the **Read Me First: Safety and Electromagnetic Compatibility** document for more information about Measurement Categories.

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	150 V
Channel-to-ground	150 V, CAT I

Caution The maximum switching power is limited by the maximum switching current, the maximum voltage, and must not exceed 30 W, 37.5 VA.

Note Switching inductive loads (for example, motors and solenoids) can produce high voltage transients in excess of the module's rated voltage. 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.

Maximum switching power (per channel)	30 W, 37.5 VA
Maximum switching current (per channel)	1 A
Maximum carry current (per channel)	2 A
Maximum module current	8 A
DC path resistance[1]	
Initial	<1 Ω, warranted
End-of-life	≥2 Ω
Thermal EMF	<9 µV

Minimum current	10 µA

RF Performance

Single crosspoint bandwidth (50 Ω system, one row to one column)	>10 MHz, typical

Crosstalk (50 Ω system)

10 kHz	<-80 dB, typical
100 kHz	<-65 dB, typical
1 MHz	<-50 dB, typical

Dynamic

Relay operate time[2]	4 ms, maximum
Release time (at 20 °C)	4 ms, maximum

Expected relay life[3]

Mechanical	5×10^7 cycles

Trigger

Input trigger[4]

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
Front panel voltage	+3.3 V TTL, 8 mA, nominal

Physical

Relay type	Electromechanical, non-latching
Relay contact material	Silver palladium and gold
I/O connector	100-pin high-density interconnect (HDI)
Power requirement	
PXI	6 W at 5 V 2.5 W at 3.3 V
PXI Express	7.5 W at 12 V 2.5 W at 3.3 V
Dimensions (L × W × H)	3U, one slot, PXI/cPCI module 21.6 cm × 2.0 cm × 13.0 cm (8.5 in. × 0.8 in. × 5.1 in.)
Weight	410 g (15 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
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] Path resistance is a combination of relay contact resistance and trace resistance and is measured as the combined resistance of the high and low signal paths from

one row to one column. Contact resistance typically remains low for the life of a relay. At the end of relay life, the contact resistance rises rapidly above 1 Ω.

[2] Certain applications may require additional time for proper settling. Refer to the **NI Switches Help** for more information about including additional settling time.

[3] The relays used in the PXI-2529 are field replaceable. Refer to the **NI Switches Help** for information about replacing a failed relay.

[4] The PXI-2529 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.