
PXle-2727

2022-07-06



Contents

PXIe-2727 Specifications..... 3

PXIe-2727 Specifications

This document lists specifications for the PXIe-2727 16-bit resistor module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

Definitions

Warranted specifications describe the warranted performance of a calibrated model under the stated operating conditions.

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

- **Typical** specifications describe product performance met by a majority of the models.
- **Nominal** specifications describe additional information about the product performance that may be useful.

Conditions

Specifications are valid at 23 °C unless otherwise noted.

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



Caution The protection provided by the PXIe-2727 can be impaired if it is used in a manner not described in this document.

Input Characteristics

Number of channels	9
Maximum voltage	

Channel-to-channel	60 VDC, 30 VAC _{rms} , CAT I ^[1]
Channel-to-ground	60 VDC, 30 VAC _{rms} , CAT I ^[1]
Maximum current	0.3 A (per channel)
Maximum power	0.25 W (per channel)
Resistor accuracy	0.5%
TCR	100 ppm
Resolution	0.25 Ω steps
Range	0.25 Ω to 16,320 Ω (per channel)

Channel accuracy is a function of the overall resistor accuracy, plus relay and trace path resistance, plus any effects of temperature.

Typical minimum resistance	2 Ω
Typical DC offset resistance (per channel)	
Initial	<2 Ω
End-of-life	\geq 3 Ω

Channel resistance is a combination of relay contact resistance, trace resistance, and resistor value. Contact resistance typically remains low for the life of a relay. At the end of relay life, the offset resistance may rapidly rise above 3 Ω .

The following figures show the expected resistance error and the expected resistance.

Dynamic Characteristics

Simultaneous drive limit	161 relays
Relay operate/release time	250 μ s



Note Certain applications may require additional time for proper settling. Refer to the **NI Switches Help** at ni.com/manuals for information about including additional settling time.

Typical relay life

Low power load (<50 mW)	1×10^8 cycles
Full power load (<250 mW)	1×10^6 cycles



Note Reed relays are highly susceptible to damage caused by switching capacitive and inductive loads. Capacitive loads can cause high inrush currents, whereas 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 PXIe-2727 are field replaceable. Refer to the **NI Switches Help** at ni.com/manuals for information about replacing a failed relay.

Trigger Characteristics

Input trigger

Sources	PXI trigger lines <0...7>
Minimum pulse width	150 ns



Note The PXIe-2727 can recognize trigger pulse widths that are less than 150 ns by disabling digital filtering. For information about disabling digital filtering, refer to the **NI Switches Help** at ni.com/manuals.

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	37-pin D-SUB connector
DMM port	2 × 2 Micro-Fit connector
Power requirement	1.2 W at 3.3 V 11 W maximum at 12 V
Dimensions (L × W × H)	3U, one slot, PXIe/cPCI module, 21.6 × 2.0 × 13.0 cm (8.5 × 0.8 × 5.1 in.)
Weight	323 g (11.3 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

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 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
- 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, 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 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.