
PXI-2569

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PXI-2569 Specifications



Caution The protection provided by the PXI-2569 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.

The following characteristic specifications 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.

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

Topology	100-SPST (latching) 50-DPST
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Input



Caution This module is rated for Measurement Category I. It is intended to carry signal voltages no greater than $100 V_{\text{rms}}$, $150 V_{\text{pk}}$, or 150 VDC. This module can withstand up to 800 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 VAC or 230 VAC.^[1]



Caution When hazardous voltages ($>42.4 V_{\text{pk}}/60 \text{ V DC}$) are present on any channel, safety low-voltage ($\leq 42.4 V_{\text{pk}}/60 \text{ V DC}$) cannot be connected to any other channel.

Maximum switching voltage

Channel-to-channel	100 V
Channel-to-ground	100 V, CAT I



Caution The switching power is limited by the maximum switching current and the maximum voltage and must not exceed 60 W, 62.5 VA.

Maximum switching power (per channel) ^[2]	60 W, 62.5 VA (DC to 60 Hz)
Maximum current (switching or carry, per channel)	1 A

Module Load Derating at $>35 \text{ }^\circ\text{C}$

Load derating is dependent on the ambient temperature and the sum of the current squared of each channel simultaneously carrying a signal. The result must fall

within the shaded region of the following figure. The following examples represent this calculation:

Example 1: Fifty channels carry 0.75 A while 10 channels carry 0.5 A.

$$(50 \times 0.75^2) + (10 \times 0.5^2) = 30.6 \text{ A}^2 \times \text{channels}$$

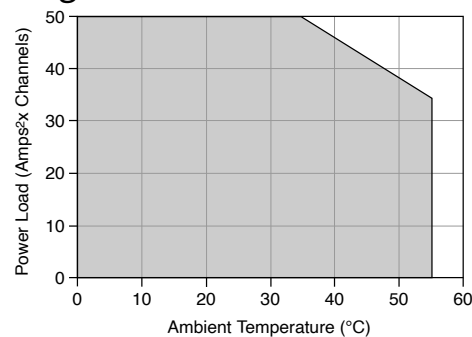
Example 1 can be used at ambient temperatures between 0 °C and 55 °C.

Example 2: Sixty channels carry 0.75 A while 35 channels carry 0.5 A.

$$(60 \times 0.75^2) + (35 \times 0.5^2) = 42.5 \text{ A}^2 \times \text{channels}$$

Example 2 can be used at ambient temperatures between 0 °C and 45 °C.

Figure 1. Module Load Derating



Minimum switch load	20 mV/10 mA
DC path resistance^[3]	
Initial	<0.55 Ω, warranted
End of life	≥1.0 Ω
Thermal EMF	<12 μV, typical

Bandwidth (-3 dB, 50 Ω termination)	≥ 20 MHz, typical
Crosstalk (50 Ω termination, channel-to-channel)	
10 kHz	≤ -85 dB, typical
100 kHz	≤ -65 dB, typical
1 MHz	≤ -45 dB, typical
10 MHz	≤ -25 dB, typical
Isolation (50 Ω termination, open channel)	
10 kHz	≥ 85 dB, typical
100 kHz	≥ 65 dB, typical
1 MHz	≥ 45 dB, typical
10 MHz	≥ 25 dB, typical

Dynamic

Relay operate time ^[4]	1 ms, typical 3.4 ms, maximum
Expected relay life^[5]	
Mechanical	1×10^8 cycles
Electrical	

10 VDC, 100 mADC resistive	2.5×10^6 cycles
10 VDC, 1 ADC resistive	1×10^6 cycles
30 VDC, 1 ADC resistive	5×10^5 cycles
60 VDC, 1 ADC resistive	1×10^5 cycles

Trigger

Input trigger

Sources	PXI trigger lines <0...7>
Minimum pulse width ^[6]	150 ns

Output trigger

Destinations	PXI trigger lines <0...7>
Pulse width	Software-selectable: 1 μ s to 62 μ s

Physical

Relay type	Electromechanical, latching
Relay contact material	Palladium-ruthenium, gold covered
I/O connector	200 POS LFH Matrix 50, receptacle
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, PXIe compatible, 21.6 cm × 2.0 cm × 13.0 cm (8.5 in. × 0.8 in. × 5.1 in.)
Weight	289 g (10.2 oz)

Environment

Maximum altitude	2,000 m (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Ambient temperature range	0 °C to 55 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity range	10% to 90%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Storage Environment

Ambient temperature range	-20 °C to 70 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)
Relative humidity range	5% to 95%, noncondensing (Tested in accordance with IEC 60068-2-56.)

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, 0.31 g _{rms} (Tested in accordance with IEC 60068-2-64.) Nonoperating 5 Hz to 500 Hz, 2.46 g _{rms} (Tested in accordance with IEC 60068-2-64. 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 C22.2 No. 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 are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.
- ² 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 relayflyback.
- ³ DC path resistance typically remains low for the life of the relay. At the end of relay life, the path resistance rises rapidly above the specified value. Load ratings apply to relays used within the specification before the end of relay life.
- ⁴ Certain applications may require additional time for proper settling. Refer to the **NI Switches Help** for more information about including additional settling time.
- ⁵ Relays are field replaceable. Refer to the **NI Switches Help** for more information about replacing a failed relay.
- ⁶ The PXI-2569 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.