
PXI-2599

Specifications

2025-07-21



Contents

PXI-2599 Specifications 3

PXI-2599 Specifications

PXI-2599 Specifications

These specifications apply to the PXI-2599.

All specifications are subject to change without notice.



Notice The protection provided by the PXI-2599 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 **Typical** unless otherwise noted.

PXI-2599 Pinout

Use the pinout to connect to terminals on the PXI-2599.

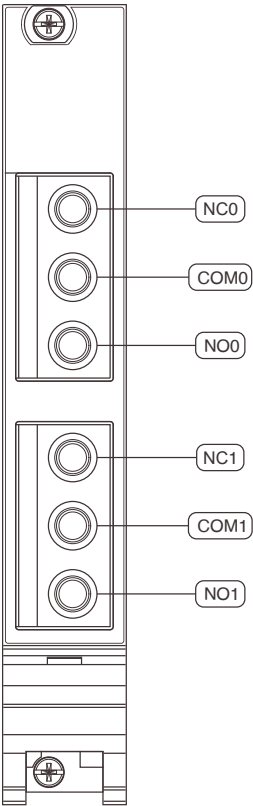


Table 1. Signal Descriptions

Signal	Description
COMx	Routing destination for corresponding signal connections
NCx	Normally closed signal connection
NOx	Normally open signal connection

Related information:

- [PXI-2599 Hardware Diagram](#)
- [NI Switches Cable and Accessory Compatibility](#)

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-SPDT
------------	--------

Input

**Caution** Use precaution when using the PXI-2599 to avoid electrical shock.

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

Maximum voltage (cold-switching only)	90 V _{rms} , CAT I
Maximum carry current (per channel)	1.73 A _{rms}
Maximum RF carry power (50 Ω load) ¹	150 W
Minimum switch load ²	-35 dBm

- 1. NI recommends against switching active RF signals. As a relay actuates, the channel is momentarily unterminated. Some RF sources can be damaged by reflections if their outputs are not properly terminated. Refer to your RF source documentation for more information.
- 2. National Instruments recommends against switching RF signals below -35 dBm with this device.

RF Performance Characteristics

Characteristic impedance (Z_0)		50 Ω , nominal
Insertion loss		
≤ 3 GHz	<0.2 dB, warranted	
≤ 8 GHz	<0.3 dB, warranted	
≤ 12.4 GHz	<0.4 dB, warranted	
≤ 18 GHz	<0.5 dB, warranted	
≤ 26.5 GHz	<0.7 dB, warranted	
Voltage standing wave ratio (VSWR)		
≤ 3 GHz	<1.2, warranted	
≤ 8 GHz	<1.3, warranted	
≤ 12.4 GHz	<1.4, warranted	
≤ 18 GHz	<1.5, warranted	
≤ 26.5 GHz	<1.7, warranted	
Open channel isolation		

≤3 GHz	>80 dB, warranted	
≤8 GHz	>70 dB, warranted	
≤12.4 GHz	>60 dB, warranted	
≤18 GHz	>60 dB, warranted	
≤26.5 GHz	>55 dB, warranted	
RF carry power		
≤3 GHz		150 W
≤8 GHz		95 W
≤12.4 GHz		75 W
≤18 GHz		65 W
≤26.5 GHz		25 W

Figure 1. Insertion Loss and Isolation, Typical

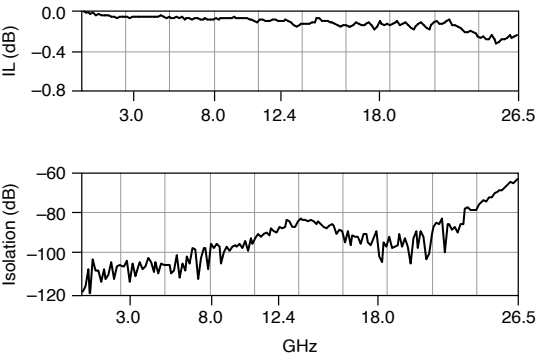
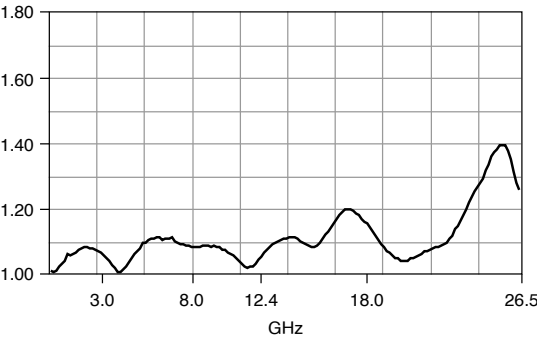


Figure 2. VSWR, Typical



Dynamic Characteristics

Relay operate/release time ³	10 ms
Recommended cycle speed	5 channels/s
Expected mechanical relay life	1×10^7 cycles
Insertion loss repeatability	<0.03 dB, typical

Trigger Characteristics

Input trigger

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

Sources	PXI trigger lines <0...7>
Minimum pulse width ⁴	150 ns
Output trigger	
Destinations	PXI trigger lines <0...7>
Default pulse width	2 μ s, typical

Physical Characteristics

Relay manufacturer/ PN	Radiall/R570 series
Relay type	Electromechanical, latching
Contact material	Beryllium copper, gold-plated
I/O connector	6 SMA jacks
SMA torque	0.8 N · m to 1.1 N · m (7 in. · lbs to 10 in. · lbs)
PXI power requirement	
3.3 V	2.5 W

4. The PXI-2599 recognizes trigger pulse widths less than 150 ns if digital filtering is disabled. Refer to the ***NI Switches Help*** for information about disabling digital filtering.

5 V	1 W
12 V	5.5 W
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	260 g (9.2 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	-40 °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 grms (Tested in accordance with IEC 60068-2-64.)
Nonoperating	5 Hz to 500 Hz, 2.46 grms (Tested in accordance with IEC 60068-2-64. 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 ***Product Certifications and Declarations***.

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.)