PXI-2596 Specifications

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Contents

PXI-2596 Specifications

Caution The protection provided by the PXI-2596 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 **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

Topology	Dual 6 × 1 multiplexer

Input

Caution Use precaution when using the PXI-2596 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.[1]

Caution When hazardous voltages (>42.4 V_{pk}/60 V DC) are present on any channel, safety low-voltage (≤42.4 V_{pk}/60 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)[2]	150 W
Minimum switch load[3]	-35 dBm

RF Performance

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	<0.6 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	<1.6, 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

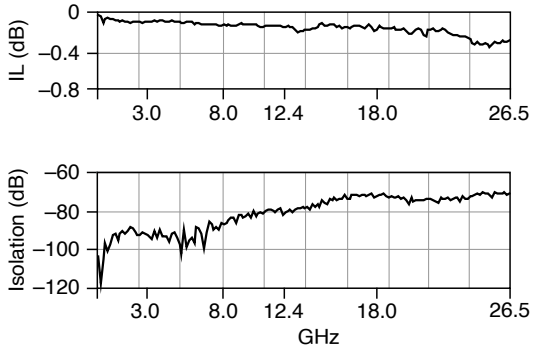
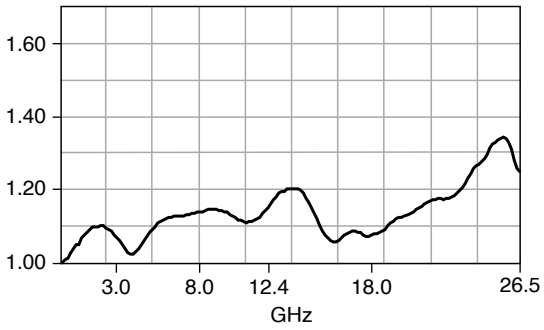


Figure 2. VSWR, Typical



Dynamic

Relay operate/release time[4]	10 ms

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

Trigger

Input trigger	
Sources	PXI trigger lines <0...7>
Minimum pulse width[5]	150 ns

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

Physical

Relay manufacturer/PN	Radiall/R591 series
Relay type	Electromechanical, non-latching
Contact material	Beryllium copper, gold-plated
I/O connector	14 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
5 V	1 W
12 V	6 W

Dimensions (L × W × H)	3U, two slot, PXI/cPCI module, 21.6 cm × 4.1 cm × 13.0 cm (8.5 in. × 1.6 in. × 5.1 in.)
Weight	391 g (13.8 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 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 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]

[2] 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.

[3] National Instruments recommends against switching RF signals below -35 dBm with this device.

[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] The PXI-2596 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.