PXI-2557 Specifications

2025-03-14

Contents

PXI-2557 Specifications

This document lists specifications for the PXI-2557 multiplexer module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

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.

Topology	8 × 1 multiplexer

About These Specifications

Specifications characterize the warranted performance of the instrument under the stated operating conditions. Data in this document are ***Specifications*** unless otherwise noted.

Typical Specifications are specifications met by the majority of the instrument under the stated operating conditions and are tested at 23 °C ambient temperature. Typical specifications are not warranted.

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

Caution The protection provided by the PXI-2557 can be impaired if it is used in a manner not described in this document.

Input Characteristics

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

Maximum switching voltage	30 V
Maximum switching current (per channel)	0.5 A
Maximum carry current (per channel)	0.5 A
Maximum RF power	10 W

Caution The switching power is limited by the maximum switching current and the maximum voltage. Channel to common switching power must not exceed 10 W.

Note National Instruments 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.

Typical DC path resistance	
Initial	< 0.35 Ω

End-of-life	≥1.0 Ω

Path resistance is a combination of relay contact resistance and trace resistance. Contact resistance typically remains low for the life of a relay. At the end of relay life, the contact resistance rises rapidly above 1.0 Ω.

RF Performance Characteristics

Characteristic impedance (Z_0)	75 Ω nominal

Values in parentheses are typical.

Insertion loss	
≤1 GHz	<1.1 dB (<0.6 dB)
≤2 GHz	<1.7 dB (<1.3 dB)
≤2.5 GHz	<2.15 dB (<1.75 dB)
Voltage standing wave ratio (VSWR)	
≤1 GHz	<1.25 dB (<1.15 dB)
≤2 GHz	<1.5 dB (<1.35 dB)
≤2.5 GHz	<1.75 dB (<1.5 dB)
Typical isolation	

≤1 GHz	>48 dB
≤2 GHz	>41 dB
≤2.5 GHz	>41 dB
Typical channel-to-channel skew	<25 ps
Typical propagation delay	1.2 ns
Typical rise time (10% to 90%)	91 ps

Figure 1. Typical Insertion Loss

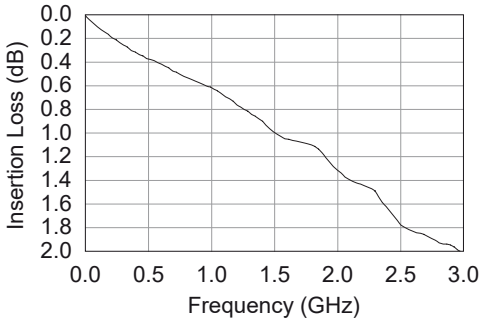


Figure 2. Typical VSWR

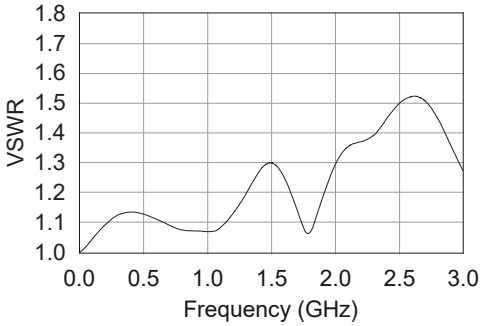
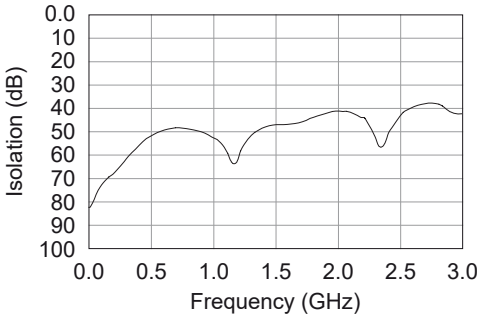


Figure 3. Typical Isolation



Dynamic Characteristics

Maximum relay operate time	10.4 ms

Note Certain applications may require additional time for proper settling. For information about including additional settling time, refer to the ***NI Switches Help***.

Expected relay life	
Mechanical	1×10^6 cycles
Electrical (30 V, 10 mA, DC resistive)	3×10^5 cycles

Trigger Characteristics

Input trigger	
Sources	PXI trigger lines 0 to 7
Minimum pulse width	150 ns

Note The PXI-2557 can recognize trigger pulse widths less than 150 ns if you disable digital filtering. For information about disabling digital filtering, refer to the ***NI Switches Help***.

Output trigger	
Destinations	PXI trigger lines 0 to 7
Pulse width	Programmable (1 µs to 62 µs)

Physical Characteristics

Relay type	Electromechanical, latching
I/O connectors	9 mini-75 Ohm SMB jacks, gold plated
PXI power requirement	3.7 W at 5 V, 0.3 W at 3.3 V
Dimensions (L × W × H)	3U, one slot, PXI/cPCI module 21.6 × 2.0 × 13.0 cm(8.5 × 0.8 × 5.1 in.)
Weight	227 g (8.0 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.)

Diagrams

Figure 4. PXI-2557 Power-on State

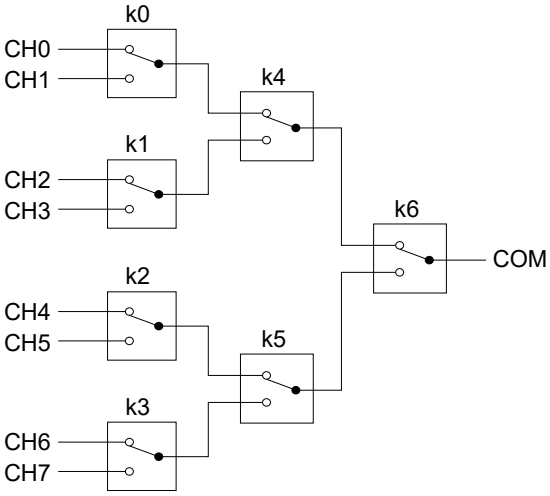
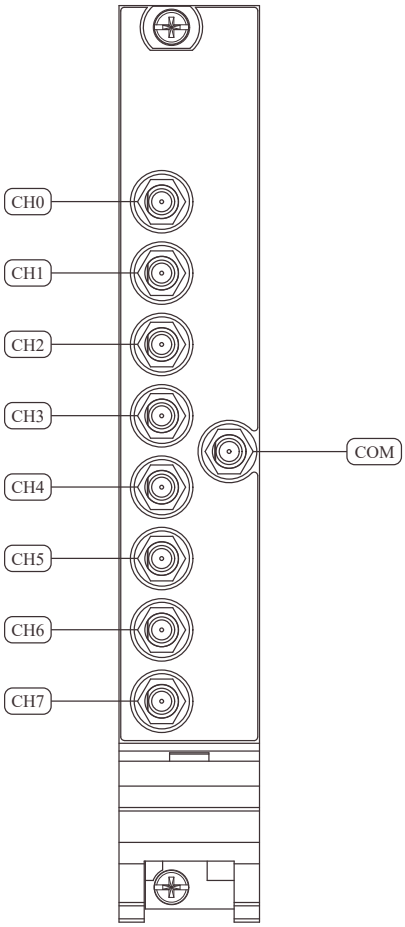


Figure 5. PXI-2557 Front Panel Connector



Note For topology-specific connection information, refer to your device in the ***NI Switches Help***.

Accessories

Visit ni.com for more information about the following accessories.

Table 1. NI Accessories for the PXI-2557

Accessory	Length	Part Number
Mini-75 Ohm SMB plug to mini-75 Ohm SMB plug coaxial cable	0.3 m	197211-0R3
	1.0 m	197211-01
Type F female to mini-75 Ohm SMB plug coaxial cable	0.3 m	197210-0R3

Caution You must install mating connectors according to local safety codes and standards and according to the specifications provided by the connector manufacturer. You are responsible for verifying safety compliance of third-party connectors and their usage according to the relevant standard(s), including UL and CSA in North America and IEC and VDE in Europe.

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`.)