

NI PXI-2594 Specifications

2.5 GHz 4×1 Multiplexer

This document lists specifications for the NI PXI-2594 multiplexer module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

Configuration 4 × 1 multiplexer

Input Characteristics

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

Maximum switching voltage 30 V

Maximum switching current 0.5 A

Maximum carry current 0.5 A

Maximum RF power 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.

DC path resistance

Initial <0.35 Ω

End-of-life >1 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) 50 Ω nominal

Insertion loss

≤1.0 GHz <0.60 dB

≤2.0 GHz <1.10 dB

≤2.5 GHz <1.35 dB

Voltage standing wave ratio (VSWR)

≤1.0 GHz <1.25

≤2.0 GHz <1.40

≤2.5 GHz <1.45

Isolation

≤1.0 GHz >55 dB

≤2.0 GHz >45 dB

≤2.5 GHz >35 dB

Typical channel-to-channel skew <1 ps

Typical propagation delay <700 ps

Typical rise time (10% to 90%) <74 ps

Refer to Figures 1, 2, and 3 for typical insertion loss, typical VSWR, and typical isolation, respectively.

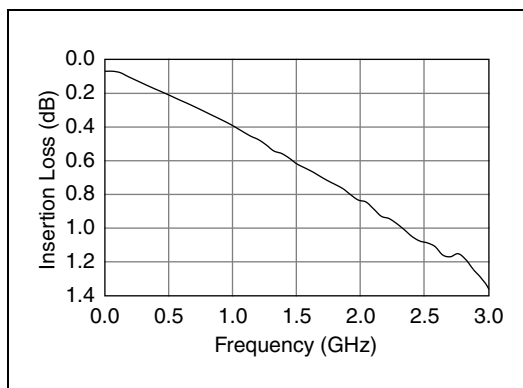


Figure 1. Typical Insertion Loss

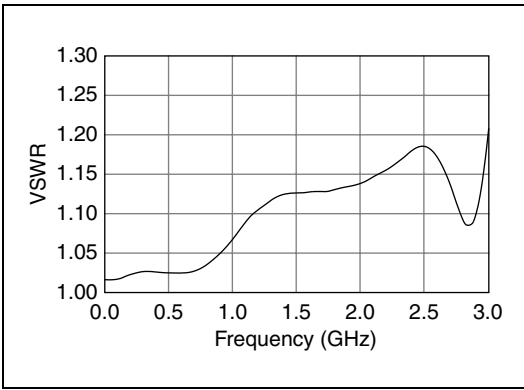


Figure 2. Typical VSWR

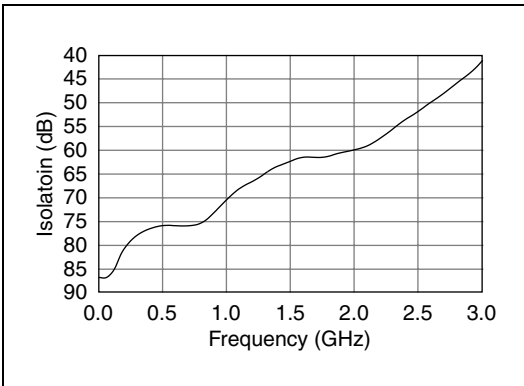


Figure 3. Typical Isolation

Dynamic Characteristics

Maximum scan rate	45 channels/s
Relay operate time	10.4 ms
Expected relay life	
Mechanical	1,000,000 cycles
Electrical	300,000 cycles
(30 V, 10 mA, DC resistive)	

Trigger Characteristics

Input trigger

Sources PXI trigger lines 0–7 and STAR

Minimum pulse width 150 ns



Note The NI PXI-2594 can recognize trigger pulse widths less than 150ns by disabling digital filtering. For information about disabling digital filtering, refer to the *NI Switches Help*.

Output trigger

Destinations PXI trigger lines 0–7

Pulse width Programmable
(1 μ s to 62 μ s)

Physical Characteristics

Relay type Electromechanical, latching

I/O connectors 5 SMA jacks

PXI power requirement 3 W at 5 V,
0.5 W at 3.3 V

Dimensions (W \times H \times D) 3U, one slot,
PXI/cPCI module
2.0 cm \times 13.0 cm \times
21.6 cm
(0.8 in. \times 5.1 in. \times 8.5 in.)

Weight 197 g (6.95 oz)

Environment

Operating temperature 0 $^{\circ}$ C to 55 $^{\circ}$ C

Storage temperature –20 $^{\circ}$ C to 70 $^{\circ}$ C

Relative humidity 5% to 85%,
noncondensing

Pollution Degree 2

Approved at altitudes up to 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 to 500 Hz, 0.3 g_{rms}
Nonoperating..... 5 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.)

Accessories

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

Table 1. NI Accessories for the NI PXI-2594

Accessory	Length	Part Number
SMA 100, SMA male to SMA male flexible cable	0.15 m	763443-01
	0.45 m	763444-01
SMA 50 Ohm termination plug	—	778353-01
Torque wrench for SMA connectors	—	187106-01
SMA plug to SMB jack adapter	—	779674-01

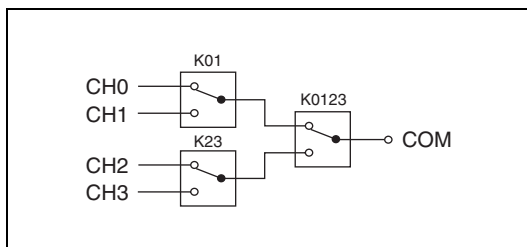


Figure 4. NI PXI-2594 Power-On State

Compliance and Certifications

Safety

This product meets the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1
- CAN/CSA-C22.2 No. 61010-1



Note For UL and other safety certifications, refer to the product label, or visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

Emissions EN 55011 Class A
at 10 m
FCC Part 15A
above 1 GHz

Immunity EN 61326:1997 +
A2:2001, Table 1

EMC/EMI..... CE, C-Tick,
and FCC Part 15
(Class A) Compliant



Note For EMC compliance, operate this device with shielded cabling.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

Low-Voltage Directive (safety)..... 73/23/EEC

Electromagnetic Compatibility

Directive (EMC)..... 89/336/EEC



Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain 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.

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