

# NI PXI-2598 Specifications

## 26.5 GHz Dual Transfer Switch 50 $\Omega$ Relay Module

This document lists specifications for the NI PXI-2598 relay module. All specifications are subject to change without notice. Visit [ni.com/manuals](http://ni.com/manuals) for the most current specifications. The following specifications are typical at 23 °C unless otherwise specified.

Configuration ..... Dual transfer

### Input Characteristics



**Cautions** This module is rated for Measurement Category I and is intended to carry signals no greater than 75 W (65 V<sub>rms</sub>). This module can withstand up to 500 V impulse voltage. Do not connect to MAINS supply circuits (such as wall outlets) of 115 or 230 VAC. Do not use this module for connections to signals within Measurement Categories II, III, or IV. Refer to the *Safety and Radio-Frequency Interference Read Me First* for more information about Measurement Categories.

When hazardous voltages (>42.4 V<sub>pk</sub>/60 VDC) are present on any relay terminal, all terminals must be considered hazardous. Ensure that external wiring or any circuits connected to the device are properly insulated from human contact.



**Caution** Active RF signals must not be switched. 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.

Maximum RF carry power ..... 75 W  
(50  $\Omega$  load)

Maximum voltage ..... 65 V<sub>rms</sub>  
(cold-switching only)

Maximum carry current ..... 1.25 A<sub>rms</sub>  
(per channel)

### RF Performance Characteristics

Characteristic impedance ( $Z_0$ ) ..... 50  $\Omega$  nominal

#### Insertion loss

$\leq 3$  GHz ..... <0.2 dB  
 $\leq 8$  GHz ..... <0.3 dB  
 $\leq 12.4$  GHz ..... <0.4 dB  
 $\leq 18$  GHz ..... <0.5 dB  
 $\leq 26.5$  GHz ..... <0.7 dB

#### Voltage standing wave ratio (VSWR)

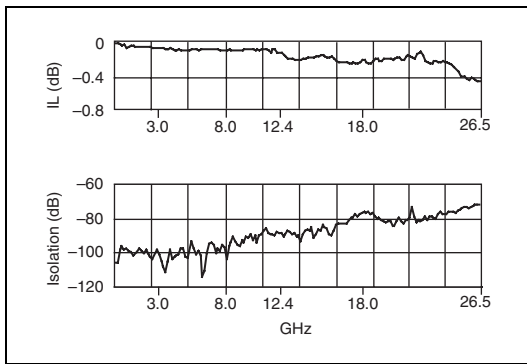
$\leq 3$  GHz ..... <1.2  
 $\leq 8$  GHz ..... <1.3  
 $\leq 12.4$  GHz ..... <1.4  
 $\leq 18$  GHz ..... <1.5  
 $\leq 26.5$  GHz ..... <1.7

#### Open channel isolation

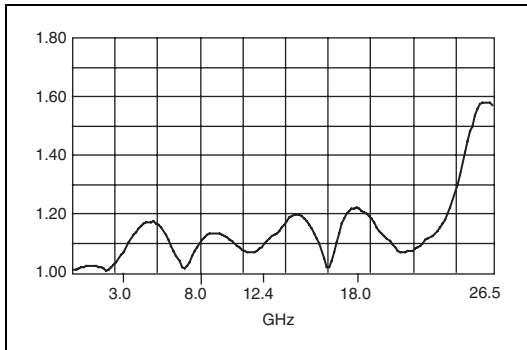
$\leq 3$  GHz ..... <80 dB  
 $\leq 8$  GHz ..... <70 dB  
 $\leq 12.4$  GHz ..... <65 dB  
 $\leq 18$  GHz ..... <60 dB  
 $\leq 26.5$  GHz ..... <50 dB

#### RF carry power

$\leq 3$  GHz ..... 75 W  
 $\leq 8$  GHz ..... 50 W  
 $\leq 12.4$  GHz ..... 35 W  
 $\leq 18$  GHz ..... 30 W  
 $\leq 26.5$  GHz ..... 25 W



**Figure 1.** Typical Insertion Loss and Isolation



**Figure 2.** Typical VSWR

## Physical Characteristics

Relay manufacturer/PN.....	Radial/R577 series
Relay type .....	Electromechanical, latching
Contact material .....	Beryllium copper, gold-plated
I/O connector .....	8 SMA jacks
SMA torque.....	0.8 N · m to 1.1 N · m (7 in · lbs to 10 in · lbs)
PXI power requirement.....	2.5 W at 3.3 V, 1 W at 5 V, 4 W at 12 V
Dimensions (W × H × D).....	3U, two slot, PXI/cPCI module; 4.0 cm × 13.0 cm × 21.6 cm; (1.6 in. × 5.1 in. × 8.5 in.)
Weight.....	302 g (10.6 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

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.)
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### Random vibration

Operating .....	5 to 500 Hz, 0.3 g <sub>rms</sub>
Nonoperating .....	5 to 500 Hz, 2.4 g <sub>rms</sub> (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

## Dynamic Characteristics

Recommended cycle speed .....	5 channels/s
Relay operate/release time.....	15 ms
Expected relay life	
Mechanical .....	2.5 × 10 <sup>6</sup> cycles

## Trigger Characteristics

### Input trigger

Sources .....	PXI trigger lines 0–7
Minimum pulse width .....	150 ns



**Note** The NI PXI-2598 can recognize trigger pulse widths less than 150 ns by disabling digital filtering. For information about disabling digital filtering, refer to the *NI Switches Help*.

### Output trigger

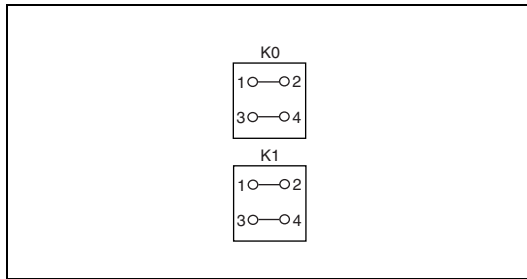
Destinations .....	PXI trigger lines 0–7
Pulse width.....	Programmable (1 μs to 62 μs)

## Accessories

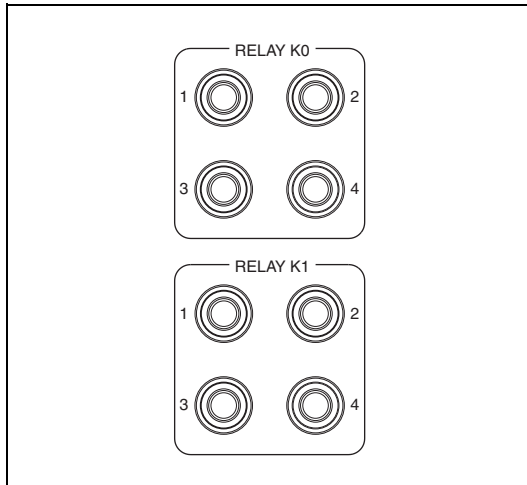
Visit [ni.com](http://ni.com) for more information about the following accessories.

**Table 1.** NI Accessories for the NI PXI-2598

Accessory	Part Number
SMA 100, SMA male to SMA male flexible cable, 0.15 m	763443-01
SMA 100, SMA male to SMA male flexible cable, 0.45 m	763444-01
Torque wrench for SMA connectors (1 N · m)	187106-01



**Figure 3.** NI PXI-2598 Power-On State



**Figure 4.** NI PXI-2598 Front Panel Connectors

## 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](http://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](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

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