

Specifications for the NI SCXI™-1192

18 GHz 8-SPDT 50 Ω Relay Module

This document lists specifications for the NI SCXI-1192 relay module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

Configuration 8-channel SPDT

RF Performance Characteristics

Characteristic impedance (Z_0)..... 50 Ω nominal

Insertion loss

| | |
|----------------|---------|
| ≤4 GHz..... | <0.2 dB |
| ≤8 GHz..... | <0.3 dB |
| ≤12.4 GHz..... | <0.4 dB |
| ≤18 GHz..... | <0.5 dB |

VSWR

| | |
|----------------|-------|
| ≤1 GHz..... | <1.10 |
| ≤4 GHz..... | <1.15 |
| ≤8 GHz..... | <1.25 |
| ≤12.4 GHz..... | <1.35 |
| ≤18 GHz..... | <1.50 |

Open channel isolation

| | |
|----------------|--------|
| ≤1 GHz..... | >85 dB |
| ≤4 GHz..... | >80 dB |
| ≤8 GHz..... | >70 dB |
| ≤12.4 GHz..... | >65 dB |
| ≤18 GHz..... | >60 dB |

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Input Characteristics

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

Maximum switching voltage30 V
(channel-to-channel and channel-to-ground)

Maximum carry current2 A
(per channel)



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. Consult your RF source documentation for more information.

Maximum RF carry power120 W up to 3 GHz
(per channel) 80 W up to 8 GHz
 60 W up to 12.4 GHz
 50 W up to 18 GHz

The input power for each channel should not exceed the preceding specifications. When carrying active signals on multiple channels, refer to Table 1 for adjusted maximum input power.

Table 1. Maximum Carry Power Per Channel (No Switching)

| Active Channels | 1 GHz to 3 GHz | 3 GHz to 8 GHz | 8 GHz to 12.4 GHz | 12.4 GHz to 18 GHz |
|------------------------|-----------------------|-----------------------|--------------------------|---------------------------|
| 1 | 120 W | 80 W | 60 W | 50 W |
| 2 | 60 W | 40 W | 30 W | 25 W |
| 4 | 30 W | 20 W | 15 W | 12.5 W |
| 8 | 15 W | 10 W | 7.5 W | 6.25 W |

DC path resistance
Initial.....<0.1 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 .

Dynamic Characteristics

| | |
|--------------------------------------|------------------|
| Maximum cycle speed | 2 cycles/s |
| Relay operate time (at 20 °C)..... | 15 ms |
| Expected relay life | |
| Mechanical | 5,000,000 cycles |
| Electrical | 5,000,000 cycles |
| (5 W, 3 GHz, 50 Ω, VSWR maximum 1.2) | |

Physical Characteristics

| | |
|-----------------------------|---|
| Relay type | Electromechanical, latching |
| I/O connectors | 24 SMA jacks |
| Contact material | Gold plate |
| Dimensions (W × H × D)..... | 3.0 cm × 17.3 cm × 19.6 cm (1.2 in. × 6.7 in. × 7.6 in.) |
| Weight..... | 1090 g (2 lb 7 oz) |

Environment

| | |
|----------------------------|-------------------------|
| Operating temperature..... | 0 °C to 50 °C |
| Storage temperature | –20 °C to 70 °C |
| Relative humidity | 5% to 85% noncondensing |
| Pollution Degree | 2 |

Compliance and Certifications

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 3111-1, UL 61010B-1
- CAN/CSA C22.2 No. 1010.1



Note For UL and other safety certifications refer to the product label or visit ni.com.

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, you *must* 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, click **Declarations of Conformity Information** at ni.com/hardref.nsf/.

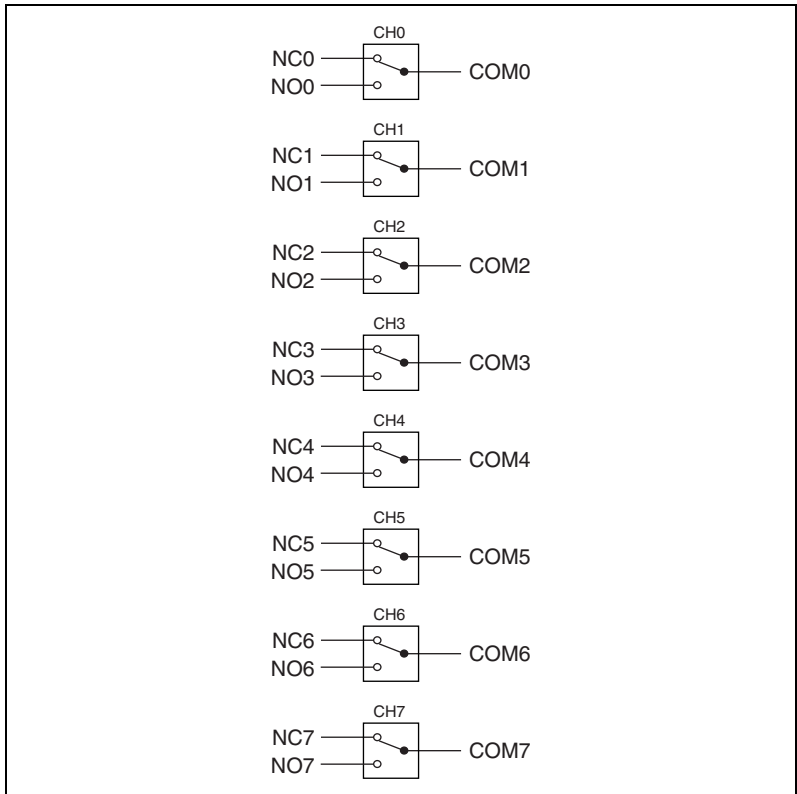


Figure 1. NI SCXI-1192 8-SPDT