

Switch Module, 40 GHz, 2xSPDT

Dual SPDT mm-Wave switch module for high frequency applications

Features:

- DC-40 GHz frequency bandwidth
- 2xSPDT, reflective, normally open
- 50 dB isolation at 40 GHz
- 1.0 dB insertion loss at 40 GHz
- 1.3:1 VSWR at 40 GHz
- On-board switch counters
- Indicators for coil current
- 5 million switch cycles with 0.03 dB repeatability
- 2.4 mm connectors
- 2-slot, 3HU PXI module
- LabView drivers
- Windows and Linux support

Overview

The Ranatec RI 1201 is a wideband PXI switch module for switching of mm-wave signals with high repeatability. It features 50 dB of isolation and 1.0 dB insertion loss at 40 GHz. This is accomplished by using high-end electromechanical relays. The accumulated number of switch cycles is continuously stored on a non-volatile memory for each relay. This enables users to get an alert when it's time to change relays for preventive purposes.

Hardware Architecture

All logic functions are done in an FPGA. This enables users to always be up-to-date with the latest available firmware. For advances users, there is also a possibility to download their own, proprietary, switch logic. This could, for example, be grouping of switches into a matrix, special triggering functions, delays and counter alarms.

Triggering and Synchronization

- Full PXI triggering support, including trigger bus, local bus and star trigger
- Phase lock to PXI 10 MHz reference
- The flexible hardware architecture enables user-defined triggering events

Applications

This switch module was designed for high reliability, high repeatability and high-end electrical performance. Together with the novel software functionalities, this makes it ideal for critical mm-Wave production tests and automated design verifications.



Ranatec RI 1201 is a mm-Wave PXI switch module with high reliability and novel software functionality.

Specifications

Number of relays	2
Relay function	SPDT, reflective, normally open
Frequency range	DC-40 GHz
Insertion loss	DC-26.5 GHz 0.2+0.023f dB
	26.5-40 GHz 0.75+0.023f dB
Typical insertion loss	0.2 dB @ 4 GHz
	0.5 dB @ 20 GHz
	0.7 dB @ 26.5 GHz
	1.0 dB @ 40 GHz
Isolation	DC-26.5 GHz 110-2.25f dB
	26.5-40 GHz 50 dB
Typical isolation	120 dB @ 4 GHz
	90 dB @ 20 GHz
	60 dB @ 26.5 GHz
	50 dB @ 40 GHz
VSWR	DC-4 GHz < 1.10
	4-26.5 GHz < 1.30
	26.5-40 GHz < 1.50
Typical VSWR	DC-4 GHz < 1.05
	4-26.5 GHz < 1.24
	26.5-40 GHz < 1.30
Connectors	2.4 mm(f) opt. 241
	2.92 mm(f) opt. 292
Repeatability (< 5 Mcycles)	< 0.03 dB
Maximum power rating	2 W average
	100 W peak
Lifetime	10 million cycles
Switching speed	15 ms maximum
Environment	
Operating temperature	-25 to 75 °C
Storage temperature	-55 to 85 °C
Relative humidity	10 to 90 %
Ordering	
RI 1201 - 241	2.4 mm(f) connectors
RI 1201 - 292	2.92 mm(f) connectors