

Keysight Technologies

M9161D PXI Dual SP4T Solid State Switch Module

50 MHz to 20 GHz

Data Sheet



Introduction

Description

The Keysight Technologies, Inc. M9161D is a one slot PXI Dual SP4T solid state switch module, operating from 50 MHz to 20 GHz. The M9161D has an unmatched ultra-long cycle life, fast switching speed and high isolation, all within a single slot enclosure.

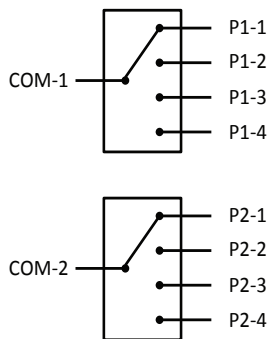


Figure 1. Schematic diagram of M9161D

Features and benefits

- Fast switching speed with ultra-long cycle life helps to reduce total cost of test
- Unmatched isolation 100 dB at 9 GHz minimizes cross talk in high density ATE systems
- Broadband from 50 MHz to 50 GHz fits most communication and aerospace/defense applications
- Fast switching speed with ultra-long cycle life helps to reduce total cost of test

Easy Setup ... Test ... and Maintenance

Hardware platform

Compliance

The M9161D is PXI compliant, using either a PXI-H, PXI-1 or cPCI slot. Designed to benefit from fast data interfaces, this module can be integrated with other test and automation modules in PXI, CompactPCI, and Hybrid chassis. The PXI format offers high performance in a small, rugged package. It is an ideal deployment platform for many automated test systems. A wide array of complementary PXI products are available today, including multimeters, waveform generators, local oscillators, digitizers, and switch multiplexers.

Software platform

Drivers

Keysight's switches come complete with software drivers for Windows XP, Windows Vista, Windows 7, and LabVIEW. Also included are application code examples for LabVIEW, LabWindows/CVI, Visual Studio, C, C++, MATLAB.

Soft front panel

The M9161D's graphical user interface guides developers through the module setup process. Users can quickly configure the module parameters. The interfaces are implemented using the IVI standard supporting both IVI-COM and IVI-C.

Easy software integration

Keysight's M9161D comes complete with software drivers for Windows XP, Windows Vista, Windows 7, and LabVIEW. Also included are application code examples for LabVIEW, LabWindows/CVI, Visual Studio, C, C++, C#, Visual Basic, and MATLAB, which provides the M9161D with set up and basic switching functionality. The application code examples are easily modified to quickly integrate the module into your measurement system.

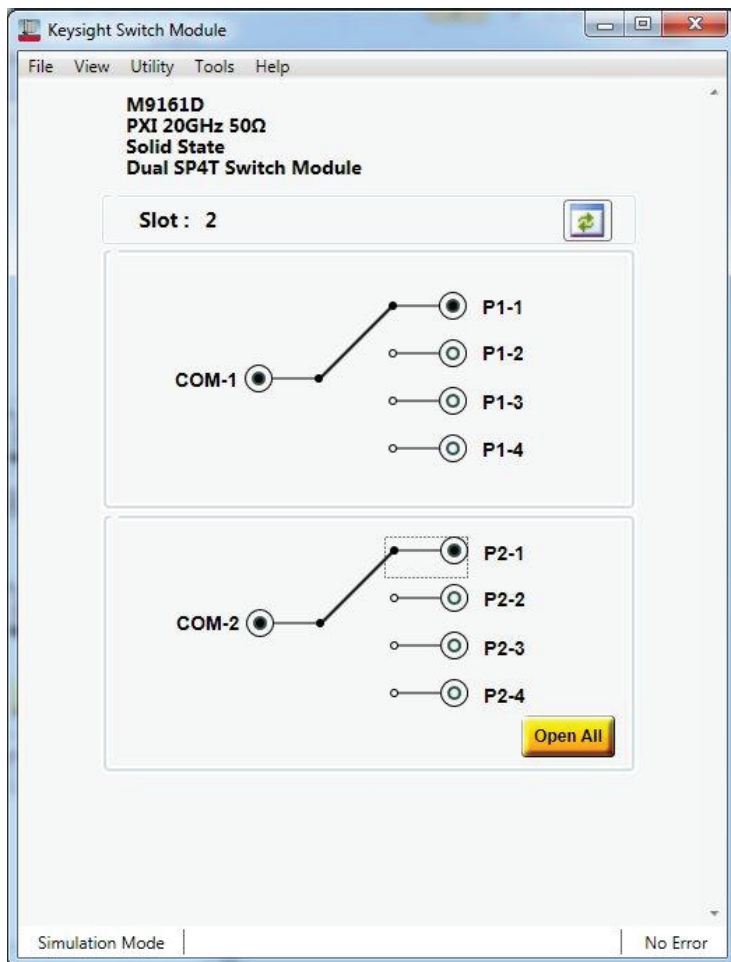


Figure 2. Soft front panel for M9161D

Technical specifications

Operating frequency:	50 MHz to 20 GHz			
Max insertion loss (dB):	50 MHz to 250 MHz	-2.5f + 3.125, f in GHz		
	250 MHz to 10 GHz	0.564f + 2.359, f in GHz		
	10 to 13.5 GHz	8		
	13.5 to 20 GHz	0.539f + 0.731, f in GHz		
Min isolation (dB):	50 to 500 MHz	-70.5		
	500 MHz to 1 GHz	-85.5		
	1 to 2 GHz	-90.5		
	2 to 9 GHz	-100.0		
	9 to 18 GHz	-81.0		
	18 to 20 GHz	-71.5		
Min return loss (Common port, ON)(dB):	50 MHz to 1.3 GHz	-17.0		
	1.3 to 3 GHz	-15.0		
	3 to 7 GHz	-11.5		
	7 to 9 GHz	-10.0		
	9 to 20 GHz	-8.0		
Min return loss (RF port, ON)(dB)	50 MHz to 1.3 GHz	-19.5		
	1.3 to 3 GHz	-15.5		
	3 to 8 GHz	-11.0		
	8 to 14 GHz	-9.5		
	14 to 20 GHz	-7.5		
Min return loss (RF port, OFF)(dB):	50 MHz to 3 GHz	-20.0		
	3 to 4.5 GHz	-15.0		
	4.5 to 15 GHz	-12.0		
	15 to 20 GHz	-8.0		
Maximum input RF power	30 dBm			
Typical switching speed:	60 us			
Typical Video leakage:	470mV			
Typical Settling time (0.01 dB to final value at 10 GHz):	120uS			
Typical Input P1dB (3 GHz):	27 dBm			
Typical Output IP3 (3 GHz):	32.3 dBm			
Typical COM1 to COM2 isolation:	120 dB			
RF connector:	SMA (f)			
PXI slot power requirement:				
Voltage	+3.3 V	+5V	+12V	-12V
Current	0	223mA max	58mA max	71mA max

Recommended configuration

Model	Description
M9018A	PXIe chassis, 18-slots, 3U, 8 Gb/s
M9161D	Dual SP4T Solid State Switch Module, 50 MHz to 20 GHz
M9021A	PXIe system interface

Related products

Model	Description
M9374A	PXIe Vector Network Analyzer, 300 kHz to 20 GHz
M9485A	PXIe Multiport Vector Network Analyzer, 1 MHz to 9 GHz
M9155C	PXI hybrid coaxial switch, DC to 26.5 GHz, dual SPDT, unterminated
M9156C	PXI hybrid coaxial switch, DC to 26.5 GHz, dual transfer
M9157C	PXI hybrid coaxial switch, DC to 26.5 GHz, single SP6T, terminated

Environmental specifications

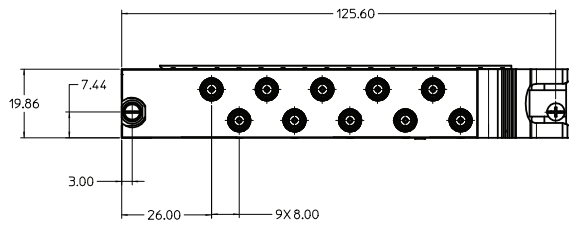
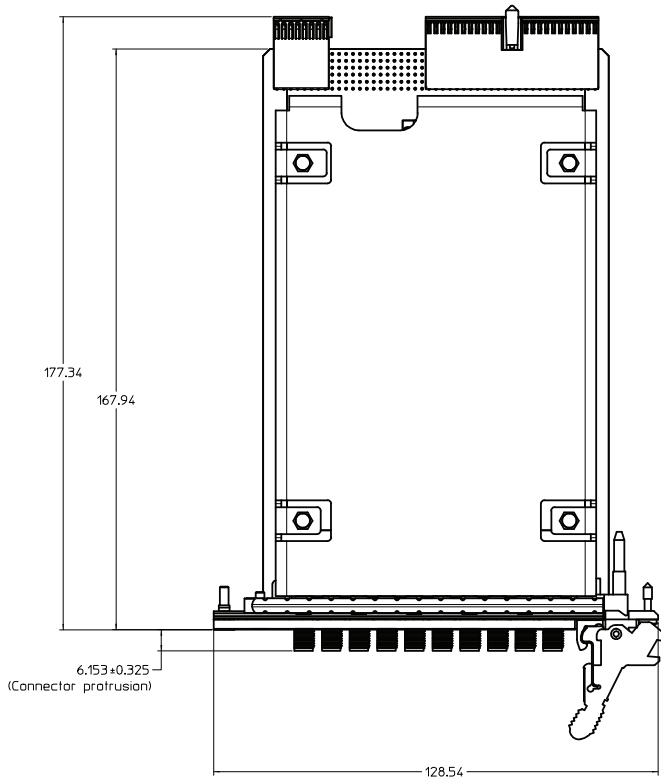
Temperature	
Operating	0 °C to 55 °C
Non-operating	-40 °C to 70 °C
Relative humidity	
Operating	95 % RH at 40 °C
Non-operating	95 % RH at 65 °C
Vibration	
Operating random vibration	5 - 500 Hz, 0.21 g RMS
Survival random vibration	5 - 500 Hz, 2.09 g RMS
Survival swept sine vibration	5 - 500 Hz - 5 Hz, 0.5 g
Shock	
End use handling shock	Delta V 1.6 m/s, duration < 3ms
Transportation shock	0 < m <= 4.54 kg : 30 G, delta V 8 m/s
ESD immunity	
Air discharge	8 kV per EN61000-4-2
Contact discharge	4 kV per EN61000-4-2
Safety	This product has input power below the requirements as specified in the Low Voltage Directive (2006/95/EC)
EMC	
EMC standard	IEC61326-1:2012/EN61326-1:2013
Emissions	CISPR11:2009/ EN55011:2009
Immunity	IEC 61000-4-2:2008 / EN 61000-4-2:2009 IEC 61000-4-3:2006+A1:2007+A2:2010 / EN 61000-4-3:2006+A1:2008+A2:2010 IEC 61000-4-4:2004+A1:2010 / EN 61000-4-4:2004+A1:2010 IEC 61000-4-5:2005 / EN 61000-4-5:2006 IEC 61000-4-6:2008 / EN 61000-4-6:2009 IEC 61000-4-8:2009 / EN 61000-4-8:2010 IEC 61000-4-11:2004 / EN 61000-4-11:2004
CE compliance	EMC Directive (2004/108/EC)

Ordering

M9161D PXI Dual SP4T Solid State Switch Module, 50 MHz to 20 GHz

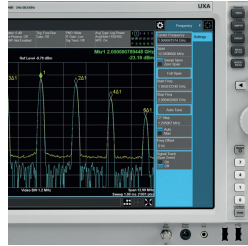
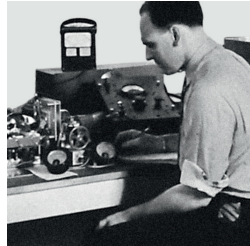
Mechanical dimensions

Weight: 0.4 kg



UNIT: mm

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1939

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