

40-781

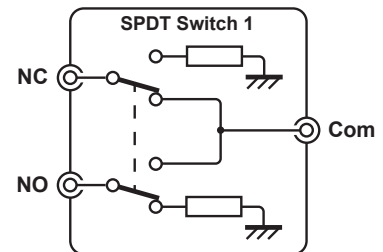
Terminated SPDT Microwave Relay

- 1 or 2 Changeover Relays Per Module
- Internal or External Termination
- 50Ω Characteristic Impedance
- 18GHz Bandwidth
- LED Indication
- VISA, IVI & Kernel Drivers Supplied for Windows XP/Vista/7/8
- Supported by PXI or LXI Chassis
- 3 Year Warranty

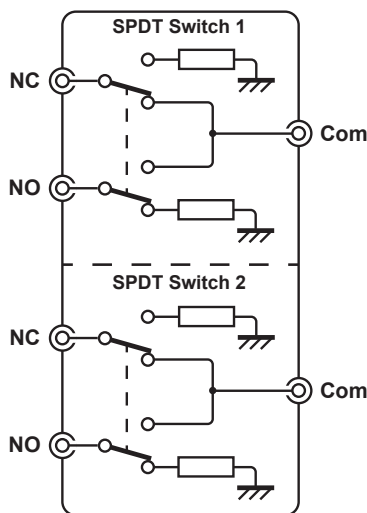
The 40-781 Microwave switching module consists of one, or two changeover switches capable of switching frequencies to 18GHz in 50Ω. Versions are available with either internal or external terminations and connections are made via front panel mounted high quality SMA RF coaxial connectors.

The externally terminated versions have the advantage that the terminations can be removed and replaced with RF loads capable of handling higher power. Also, this allows alternative configurations such as terminated 4-port bypass (1 termination removed) and 5-port DP3T (both terminations removed). See overleaf for diagrams of the alternative configurations.

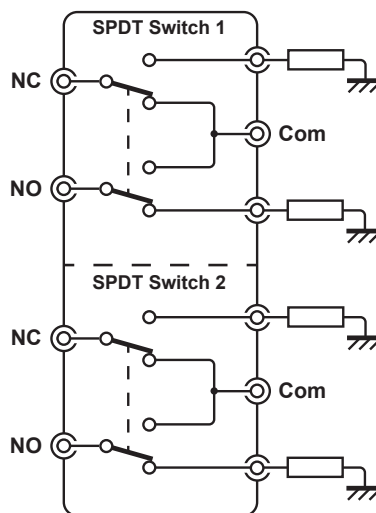
The 40-781 range gives you the highest RF & Microwave switching performance available within a Pickering Switching System. Applications are mainly in the Microwave region, however there are many uses in the RF spectrum where extremely low insertion loss and ultra high isolation are critical, they may also be used for lower frequency RF applications where power handling to 240W (without termination) is required.



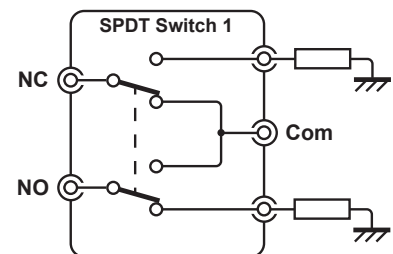
40-781 Single Changeover Microwave Relay, Internal Terminations



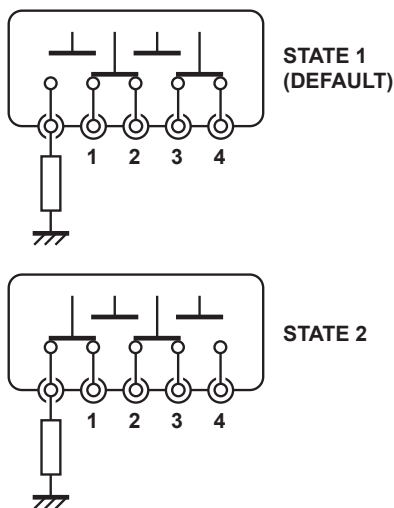
40-781 Dual Changeover Microwave Relay, Internal Terminations



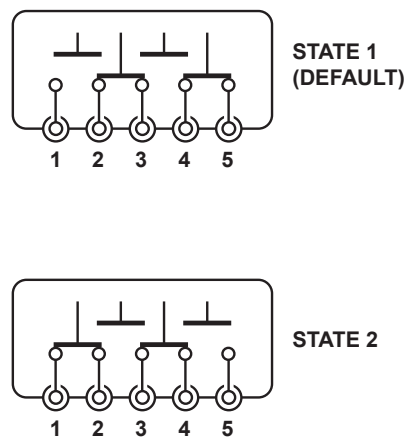
40-781 Dual Changeover Microwave Relay, External Terminations



40-781 Single Changeover Microwave Relay, External Terminations



40-781-12x Configured as a Terminated 4-Port Bypass Switch (With One External Termination Removed)



40-781-12x Configured as a 5-Port DP3T Switch (With Both External Terminations Removed)

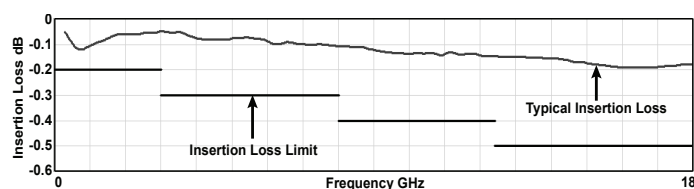
Specification

General Specification

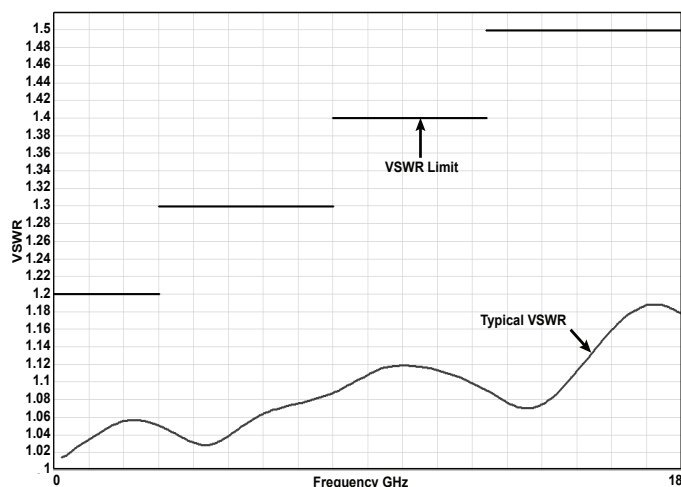
Configuration:	SPDT Microwave Switch with automatic termination on the NO and NC paths, 1 or 2 independent banks.
LED Indicators:	Blue LEDs to indicate activated relays.
Operate Time:	10ms
Characteristic Impedance:	50Ω
Connectors:	SMA
Maximum Frequency:	18GHz
Expected Life:	>10 million operations

RF Specification

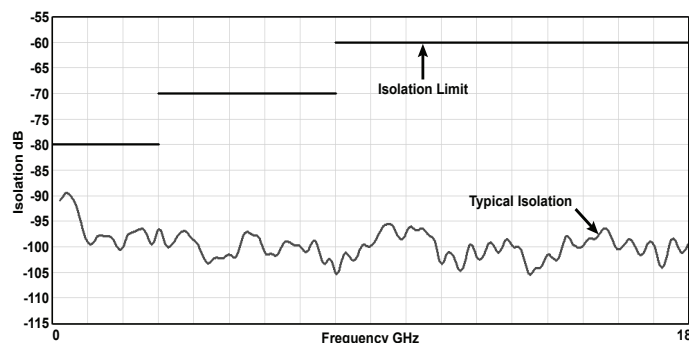
Insertion Loss:	<0.2dB to 3GHz <0.3dB to 8GHz <0.4dB to 12.4GHz <0.5dB to 18GHz
Isolation:	>80dB to 3GHz >70dB to 8GHz >60dB to 18GHz
VSWR:	<1.2:1 0 to 3GHz <1.3:1 to 8GHz <1.4:1 to 12.4GHz <1.5:1 to 18GHz
Power Handling - Externally Terminated Versions:	1W limited by terminations.
NOTE: External terminations can be removed and replaced with higher power loads.	
Power Handling - Internally Terminated Versions:	1W limited by terminations.
RF Average Carry Power at 25°C:	240W to 3GHz 150W to 8GHz 120W to 12.4GHz 100W to 18GHz



40-781 Microwave Switch Insertion Loss



40-781 Microwave Switch VSWR



40-781 Microwave Switch Isolation

Power Requirements

Power consumption from the backplane supply is as follows:

+3.3V	+5V	+12V	-12V
0	0.2A	0.5A max	0

Mechanical Characteristics

40-781 single SPDT: Single slot 3U PXI (CompactPCI card).

40-781 dual SPDT: Double slot 3U PXI (CompactPCI card).

3D models for all versions in a variety of popular file formats are available on request.

Connectors

PXI bus via 32-bit P1/J1 backplane connector.

Signals via front panel mounted coaxial connectors.

Mating Connectors & Cabling

For connection accessories for the 40-781 series please refer to the [90-011D](#) RF Cable Assemblies data sheets where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Product Order Codes

18GHz Microwave Relays, 50Ω SMA

1 x Changeover (SPDT), Internal Termination **40-781-021**

2 x Changeover (SPDT), Internal Termination **40-781-022**

18GHz Microwave Relays, 50Ω SMA

1 x Changeover (SPDT), External Termination **40-781-121**

2 x Changeover (SPDT), External Termination **40-781-122**

Warranty

This module carries a 3 year warranty. The warranty specifically applies to only the cold switching operations of the relay within the stated lifetime.

Programming

Pickering provide kernel, IVI and VISA (NI and Agilent) drivers which are compatible with 32/64-bit versions of Windows including XP, Vista, 7 and 8 operating systems. The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. For other RTOS support contact Pickering.

These drivers may be used with a variety of programming environments and applications including:

- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Agilent VEE**
- **Mathworks Matlab**
- **Geotest ATE Easy**
- **MTQ Testsolutions Tecap**

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented. Uses 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

PXI & LXI Chassis Compatibility

Compatible with all chassis conforming to the 3U PXI and 3U cPCI specification. Compatible with Legacy and Hybrid peripheral slots in a 3U PXI Express chassis.

Compatible with Pickering Interfaces LXI Modular Chassis. For information on driving your switching solution in an LXI environment refer to the LXI Product Catalog.



Latest Details

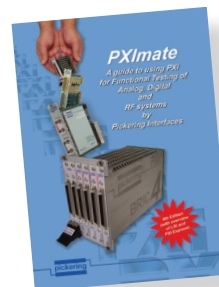
Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com



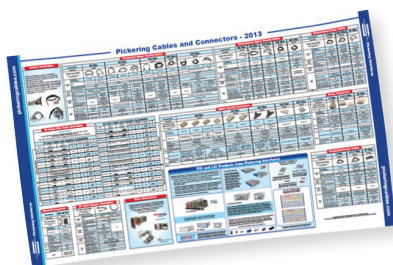
Please refer to the 200 page Pickering Interfaces "**Connection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. Available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.



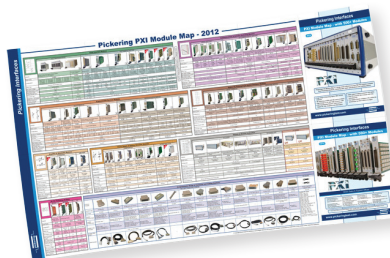
"**The Big PXI Catalog**" gives full details of Pickering's entire range of PXI switch modules, instrument modules and support products. At over 500 pages, the Big PXI Catalog is available on request or can be downloaded from the Pickering website.



Ever wondered what PXI is all about? Pickering Interfaces' "**PXImate**" explains the basics of PXI and provides useful data for engineers working on switch based test systems. The PXImate is available free on request from the Pickering website.



The "**Cables & Connectors Map**" - outlines the cable and connector options available for all PXI Modules.



The "**PXI Module Map**" - a simple fold-out selection guide to all Pickering's 600+ PXI Modules.