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Find the *Pickering 40-780A-522* at our website: *Click HERE*

PXI Microwave SPDT Relay 40-780A

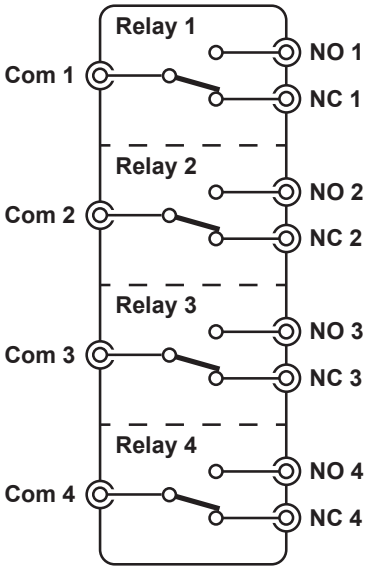
- 1, 2, 3 or 4 SPDT Relays Per Module
- 12.4GHz, 18GHz, 26.5GHz, 40GHz, 50GHz & 67GHz Bandwidth in 50Ω
- 2.5GHz Bandwidth in 75Ω
- High Power N-Type Options
- Tree Networks may be Constructed by Inter-Linking Individual Modules
- LED Indication
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty



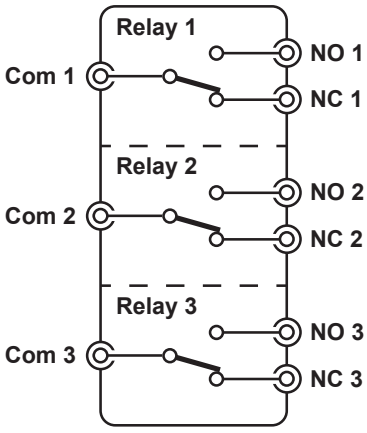
The 40-780A Microwave switching module consists of one, two, three or four SPDT switches capable of switching frequencies to 67GHz in 50Ω or 2.5GHz in 75Ω.

Connections are made via front panel mounted high quality RF coaxial connectors, SMA/N-Type for 50Ω and 1.6/5.6 in 75Ω versions.

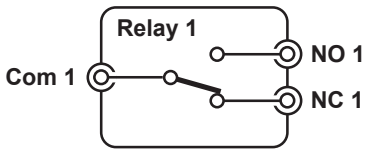
The 40-780A range gives you the highest RF and microwave switching performance available within a Pickering switching system. Although designed for microwave applications, they have many uses in the RF spectrum where extremely low insertion loss and ultra high isolation are critical. They may also be used for lower frequency RF applications where power handling to 240W is required (700W for N-Type options).



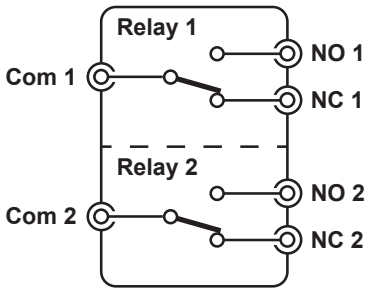
40-780A Quad SPDT Microwave Relay Module



40-780A Triple SPDT Microwave Relay Module



40-780A Single SPDT Microwave Relay Module



40-780A Dual SPDT Microwave Relay Module

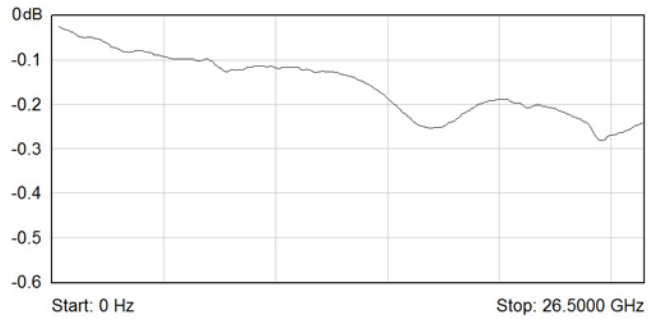
ISSUE 4.0 MAY 2019

General Specification - 50Ω Versions

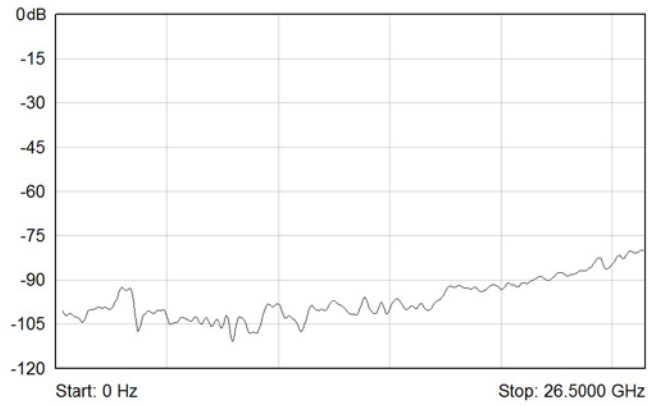
Configuration:	SPDT Microwave Switch, 1 to 4 independent banks.
LED Indicators:	Blue LEDs indicate activated relays
Operate Time:	15ms for 65GHz relays, 10ms for all other relays
Expected Life:	>1 million operations for 65GHz relays, >10 million operations for all other relays

Additional Specification - 18GHz & 26.5GHz Versions

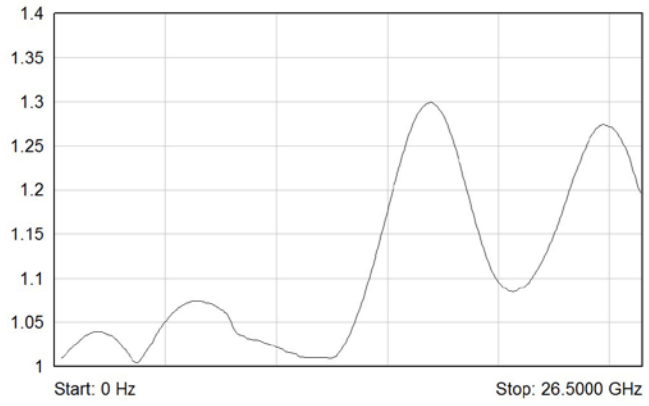
Connectors:	SMA
Insertion Loss:	<0.2dB to 3GHz <0.3dB to 8GHz <0.4dB to 12.4GHz <0.5dB to 18GHz <0.7dB to 26.5GHz (26.5GHz versions only)
Isolation:	>80dB to 3GHz >70dB to 8GHz >60dB to 18GHz >55dB to 26.5GHz (26.5GHz versions only)
VSWR:	<1.2:1 0 to 3GHz <1.3:1 to 8GHz <1.4:1 to 12.4GHz <1.5:1 to 18GHz <1.7:1 to 26.5GHz (26.5GHz versions only)
RF Average Carry Power at 25°C:	240W to 3GHz 150W to 8GHz 120W to 12.4GHz 100W to 18GHz 40W to 26.5GHz (26.5GHz versions only)



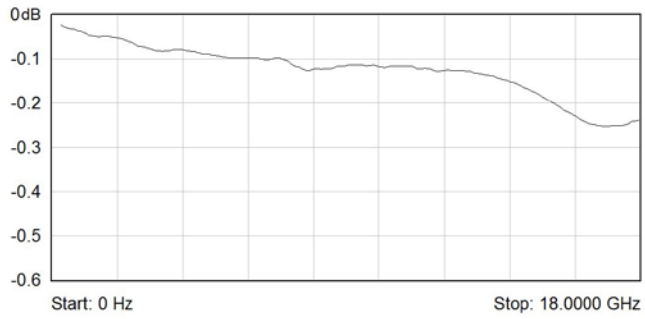
Insertion Loss Plot for 26.5GHz Versions



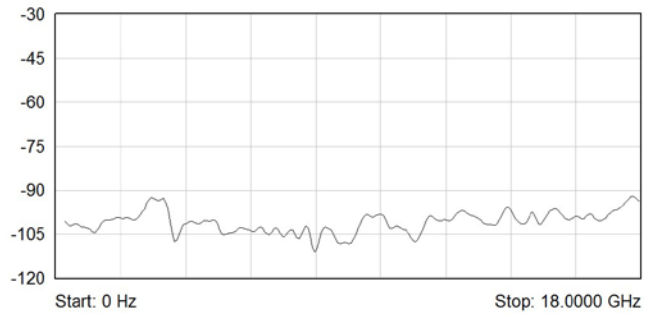
Isolation Plot for 26.5GHz Versions



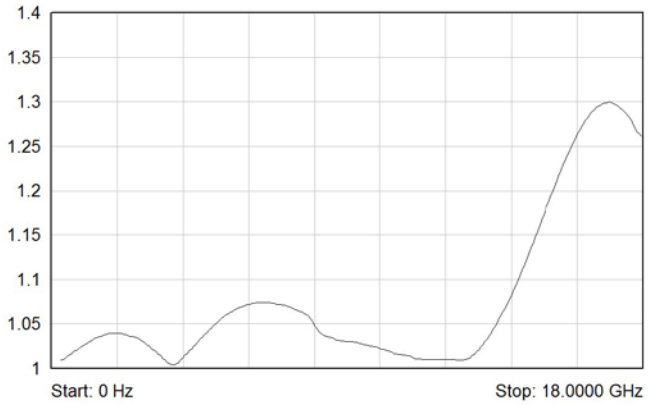
VSWR Plot for 26.5GHz Versions



Insertion Loss Plot for 18GHz Versions



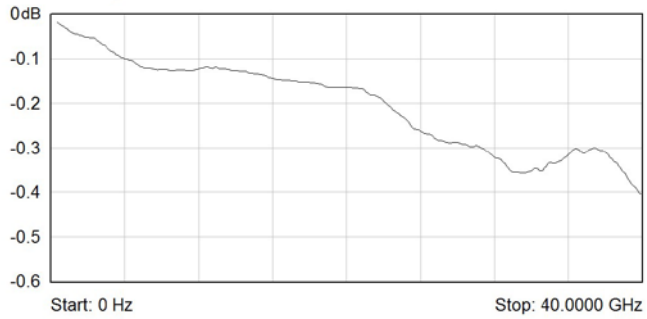
Isolation Plot for 18GHz Versions



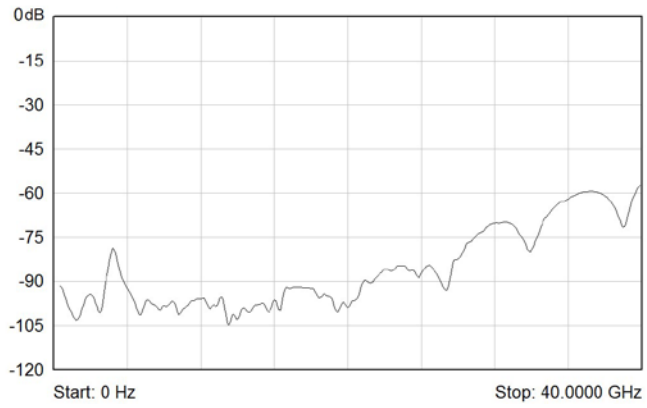
VSWR Plot for 18GHz Versions

Additional Specification - 40GHz & 50GHz Versions

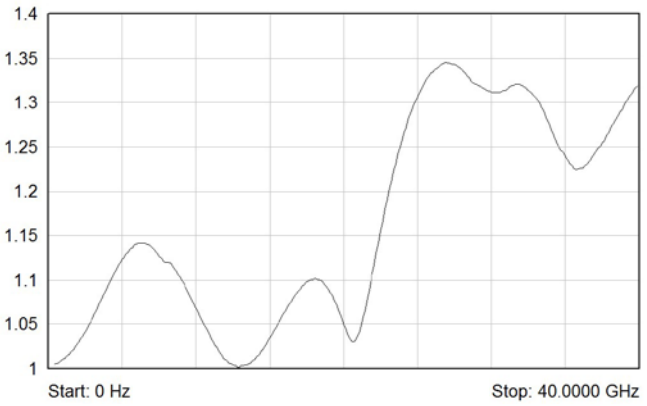
Connectors:	SMA-2.9 (40GHz) SMA-2.4 (50GHz)
Insertion Loss:	<0.8dB to 40GHz <1.1dB to 50GHz
Isolation:	>50dB to 50GHz
VSWR:	<1.9:1 to 50GHz
RF Average Carry Power at 25°C:	80W to 6GHz 60W to 12.4GHz 50W to 18GHz 20W to 25.5GHz 10W to 40GHz 5W to 50GHz



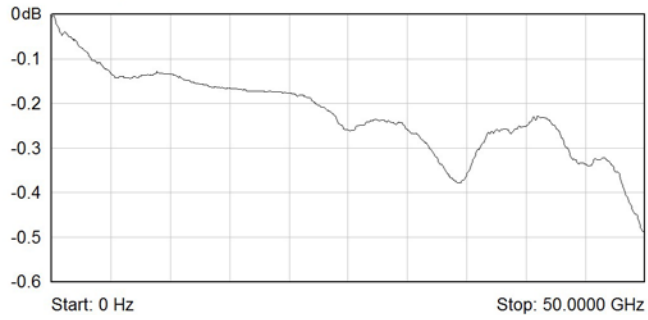
Insertion Loss Plot for 40GHz Versions



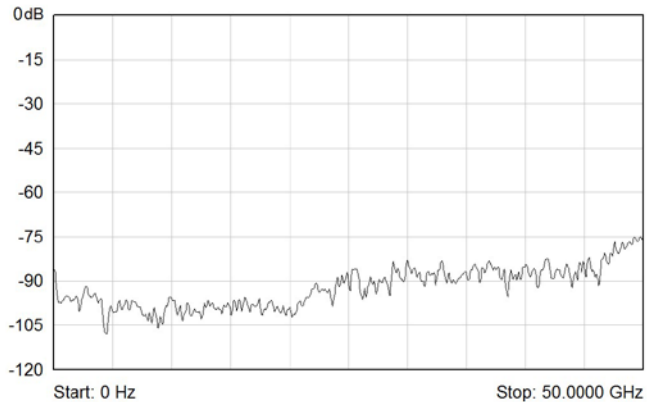
Isolation Plot for 40GHz Versions



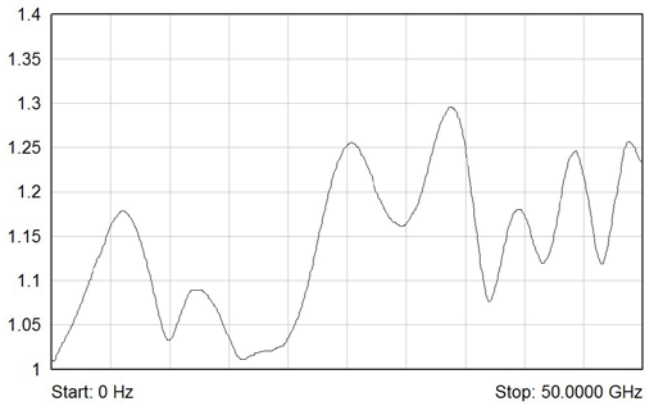
VSWR Plot for 40GHz Versions



Insertion Loss Plot for 50GHz Versions



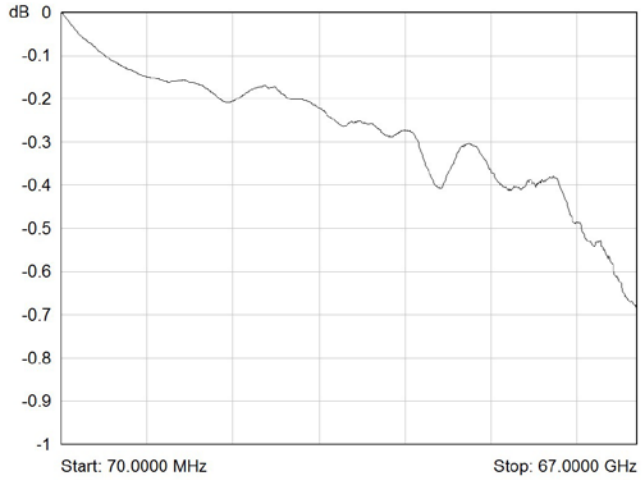
Isolation Plot for 50GHz Versions



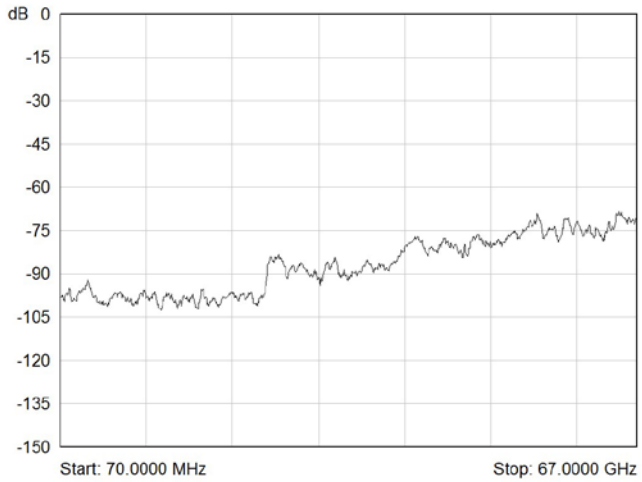
VSWR Plot for 50GHz Versions

Additional Specification - 67GHz Versions

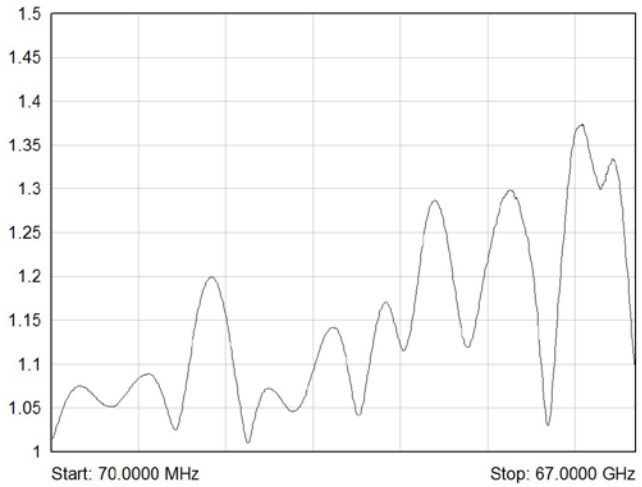
Connectors:	SMA-1.85
Insertion Loss:	<0.30dB to 6GHz <0.40dB to 12.4GHz <0.50dB to 18GHz <0.70dB to 26.5GHz <0.80dB to 40GHz <1.10dB to 67GHz
Isolation:	>70dB to 6GHz >60dB to 12.4GHz >60dB to 18GHz >55dB to 26.5GHz >50dB to 67GHz
VSWR:	<1.3:1 to 6GHz <1.4:1 to 12.4GHz <1.5:1 to 18GHz <1.7:1 to 26.5GHz <1.9:1 to 67GHz
RF Average Carry Power at 25°C:	80W to 6GHz 60W to 12.4GHz 50W to 18GHz 20W to 26.5GHz 10W to 40GHz 5W to 50GHz 3W to 67GHz



Insertion Loss Plot for 67GHz Versions



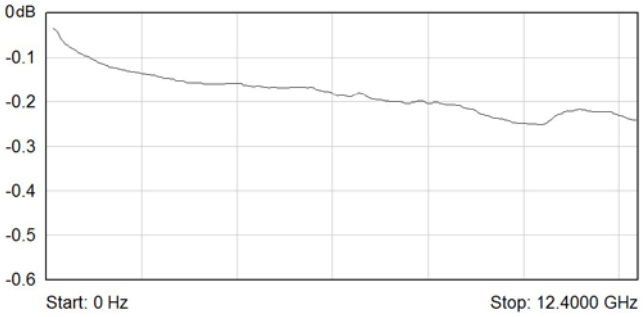
Isolation Plot for 67GHz Versions



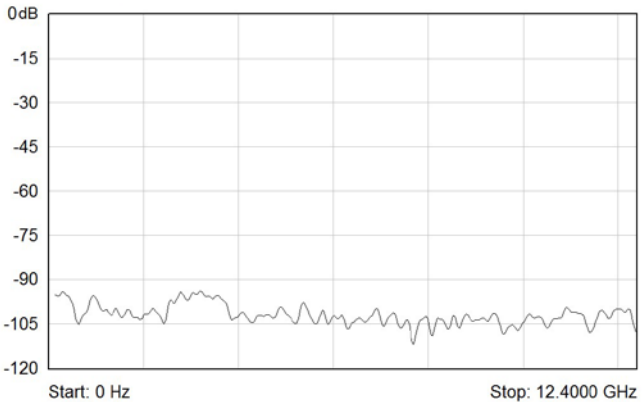
VSWR Plot for 67GHz Versions

Additional Specification - 12.4GHz N-type Versions

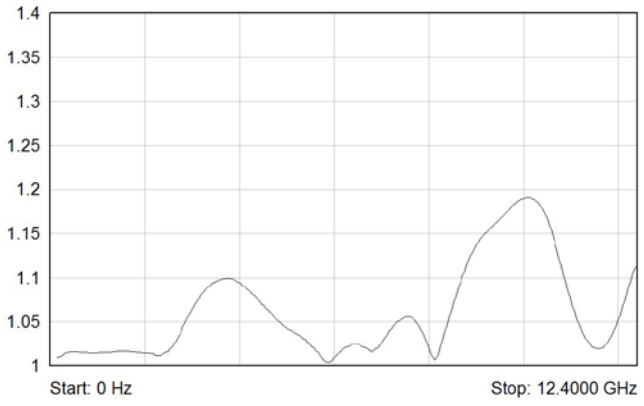
Connectors:	N-type
Insertion Loss:	<0.15dB to 1GHz <0.20dB to 2GHz <0.25dB to 3GHz <0.35dB to 8GHz <0.50dB to 12.4GHz
Isolation:	>85dB to 1GHz >80dB to 2GHz >75dB to 3GHz >70dB to 8GHz >60dB to 12.4GHz
VSWR:	<1.15:1 to 1GHz <1.20:1 to 2GHz <1.25:1 to 3GHz <1.35:1 to 8GHz <1.50:1 to 12.4GHz
RF Average Carry Power at 25°C:	700W to 1GHz 500W to 2GHz 400W to 3GHz 250W to 8GHz 200W to 12.4GHz



Insertion Loss Plot for 12.4GHz N-Type Versions



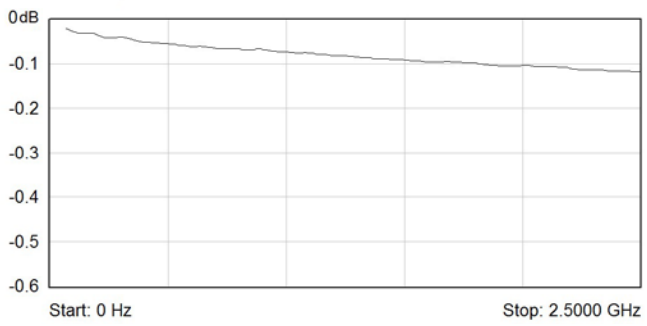
Isolation Plot for 12.4GHz N-Type Versions



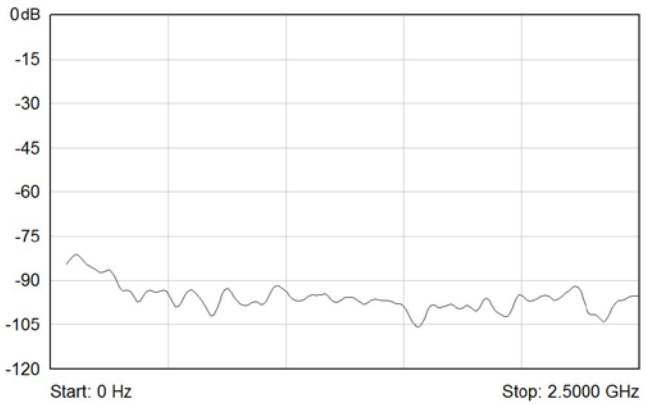
VSWR Plot for 12.4GHz N-Type Versions

Additional Specification - 2.5GHz 75Ω Versions

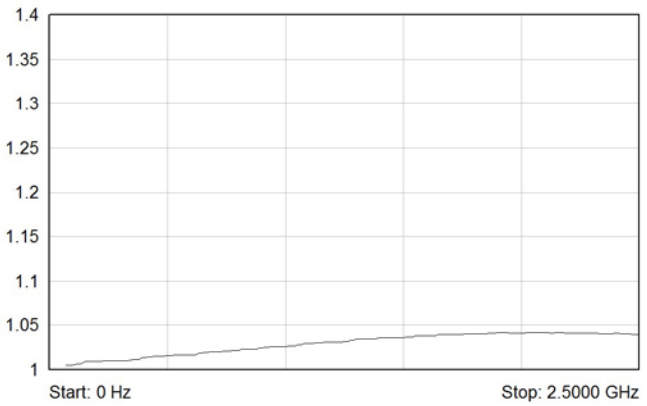
Connectors:	1.6/5.6 Female
Insertion Loss:	<0.20dB to 1GHz <0.30dB to 2.5GHz
Isolation:	>80dB to 1GHz >70dB to 2.5GHz
VSWR:	<1.20:1 to 1GHz <1.30:1 to 2.5GHz
RF Average Carry Power at 25°C:	400W to 1GHz 240W to 2.5GHz



Insertion Loss Plot for 2.5GHz 75Ω Versions



Isolation Plot for 2.5GHz 75Ω Versions



VSWR Plot for 2.5GHz 75Ω Versions

Power Requirements

+3.3V	+5V	+12V	-12V
0.1A	0.2A (1.3A for 65GHz versions)	1.0A	0

Mechanical Characteristics

- 40-780A single & dual (except -511 & -512) - Single slot 3U PXI (CompactPCI card)
- 40-780A-511 - Double slot 3U PXI (CompactPCI card).
- 40-780A-512 - Triple slot 3U PXI (CompactPCI card).
- 40-780A triple & quad: Double slot 3U PXI (CompactPCI card).

Module weight: 200g (40-780-522).
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.

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 a 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2010, EMC Immunity EN61326-1:2013, Emissions EN55011:2009+A1:2010.

Product Order Codes

12.4GHz Microwave Relays, 50Ω N-Type	
1 x Changeover (SPDT)	40-780A-511
2 x Changeover (SPDT)	40-780A-512
18GHz Microwave Relays, 50Ω SMA	
1 x Changeover (SPDT)	40-780A-521
2 x Changeover (SPDT)	40-780A-522
3 x Changeover (SPDT)	40-780A-523
4 x Changeover (SPDT)	40-780A-524
26.5GHz Microwave Relays, 50Ω SMA	
1 x Changeover (SPDT)	40-780A-531
2 x Changeover (SPDT)	40-780A-532
3 x Changeover (SPDT)	40-780A-533
4 x Changeover (SPDT)	40-780A-534
40GHz Microwave Relays, 50Ω SMA-2.9	
1 x Changeover (SPDT)	40-780A-541
2 x Changeover (SPDT)	40-780A-542
3 x Changeover (SPDT)	40-780A-543
4 x Changeover (SPDT)	40-780A-544
50GHz Microwave Relays, 50Ω SMA-2.4	
1 x Changeover (SPDT)	40-780A-551
2 x Changeover (SPDT)	40-780A-552
3 x Changeover (SPDT)	40-780A-553
4 x Changeover (SPDT)	40-780A-554
67GHz Microwave Relays, 50Ω SMA-1.85	
1 x Changeover (SPDT)	40-780A-571
2 x Changeover (SPDT)	40-780A-572
3 x Changeover (SPDT)	40-780A-573
4 x Changeover (SPDT)	40-780A-574
2.5GHz Microwave Relays, 75Ω 1.6/5.6	
1 x Changeover (SPDT)	40-780A-751
2 x Changeover (SPDT)	40-780A-752
3 x Changeover (SPDT)	40-780A-753
4 x Changeover (SPDT)	40-780A-754

Mating Connectors & Cabling

For connection accessories for the 40-780A series please refer to the 90-011D RF Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Product Customization

Pickering PXI modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements.

Customization can include:

- Alternative relay types
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

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.

Chassis Compatibility

This PXI module must be used in a suitable chassis. It is compatible with the following chassis types:

- All chassis conforming to the 3U PXI and 3U Compact PCI (cPCI) specification
- Legacy and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis
- Pickering Interfaces LXI or LXI/USB Modular Chassis



Chassis Selection Guide

Standard PXI or hybrid PXIe Chassis from any Vendor:

- Mix our 1000+ PXI switching & simulation modules with any vendor's PXI instrumentation
- Embedded or remote Windows PC control
- Real-time Operating System Support
- High data bandwidths, especially with PXI Express
- Integrated module timing and synchronization

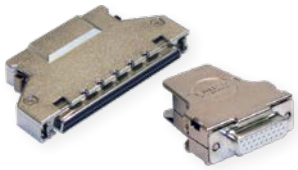
Pickering LXI or LXI/USB Modular Chassis—only accept our 1000+ PXI Switching & Simulation Modules:

- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating system



Connectivity Solutions

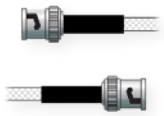
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules.



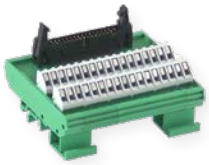
Connectors & Backshells



Multiway Cable Assemblies



RF Cable Assemblies



Connector Blocks

We also offer customized cabling and have a free online Cable Design Tool that can be used to create custom cable solutions for many applications.
Visit: pickeringtest.com/cdt to start your design.



Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for a PXI or LXI based test system. Our modules are fully supported by both Virginia Panel and MacPanel.

Pickering Reed Relays

We are the only switch provider with in-house reed relay manufacturing capability via our sister company, Pickering Electronics. These instrument grade reed relays feature ***SoftCenter***® technology, ensuring long service life and repeatable contact performance

To learn more, please go to: pickeringrelay.com



Programming

Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. For a list of all supporting operating systems, please see: pickeringtest.com/os

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:

- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE
- **Mathworks** Matlab
- **Marvin** ATEasy
- **MTQ Testsolutions** Tecap Test & Measurement Suite

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

We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments, please go to: pickeringtest.com/software

Signal Routing Software



Our signal routing software, Switch Path Manager, automatically selects and energizes switch paths through Pickering switching systems. Signal routing is performed by simply defining test system endpoints to be connected together, greatly accelerating Test System software development.

To learn more, please go to: pickeringtest.com/spm

Diagnostic Relay Test Tools



eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

To learn more, please go to: pickeringtest.com/ebirst

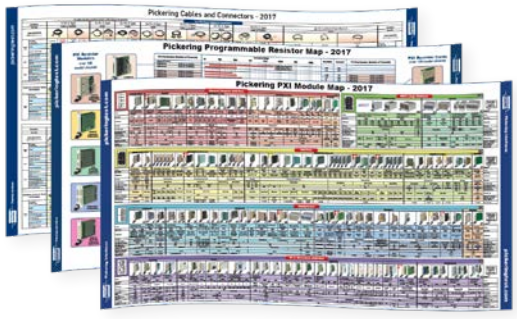
Three Year Warranty & Guaranteed Long-Term Support

All standard products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for a period of three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available for all our modules and systems with various levels to suit your requirements. Although we offer a 3-year warranty as standard, we also include guaranteed long-term support—with a history of supporting our products for typically 15-20 years. To learn more, please go to: pickeringtest.com/support

Available Product Resources

We have a large library of product resources including success stories, product and support videos, articles, as well as complete product catalogs and product reference maps to assist when looking for the switching, simulation and cable and connector solutions you need. We have also published handy reference books for the PXI and LXI standards.







To view, download or request any of our product resources, please visit: pickeringtest.com/resources

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Pickering Interfaces maintains a commitment to continuous product development, consequently we reserve the right to vary from the description given in this data sheet.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

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