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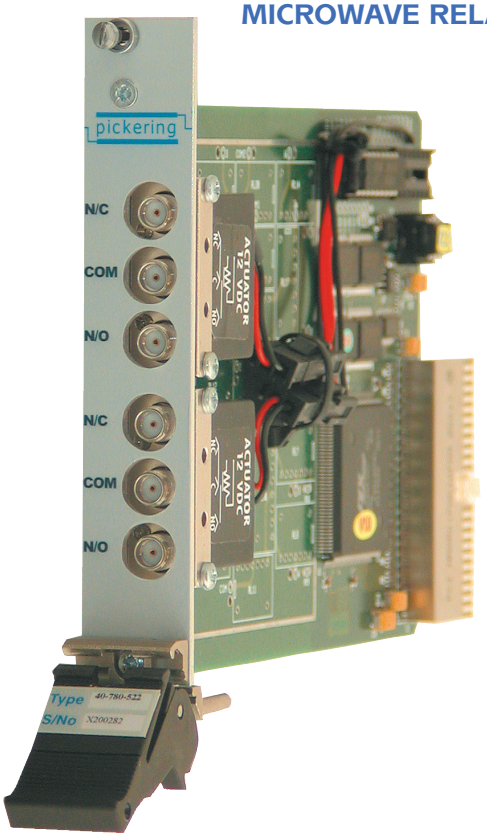
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40-780/782
Microwave Relay & Transfer Switch

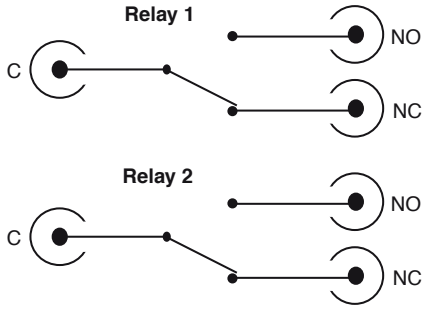
- 40-780: 1 or 2 Changeover Relays Per Module
- 40-782: 1 or 2 Transfer Switches Per Module
- 20GHz Bandwidth in 50Ω with Switch Options to 65GHz
- 2 or 4GHz Bandwidth in 75Ω
- Tree Networks may be Constructed by Inter-Linking Individual Modules
- VISA/IVI Drivers Supplied for Windows 2000/NT/XP
- Supported by PXI or LXI Chassis
- 2 Year Warranty



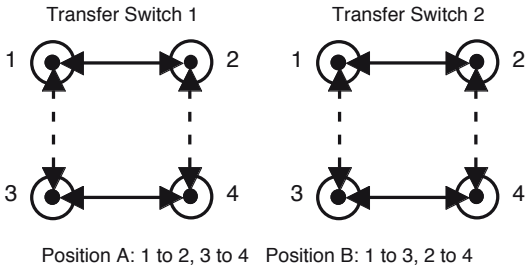
The 40-780 Microwave switching module consists of either 1 or 2 changeover switches capable of switching frequencies to 20GHz (optionally to 65GHz) in 50Ω or 2GHz or 4GHz in 75Ω. The 40-782 module consists of one or two microwave transfer switches (see diagram). It has a characteristic impedance of 50Ω and a maximum operating frequency of 18GHz

Connections are made via front panel mounted high quality RF coaxial connectors, SMA for 50Ω and SMZ/Type 43 or mini-SMB for 75Ω versions.

The 40-780 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 100W is required.



Schematic of 40-780 Microwave Relay Module



Schematic of 40-782 Microwave Transfer Switch

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Specification (20GHz Version)

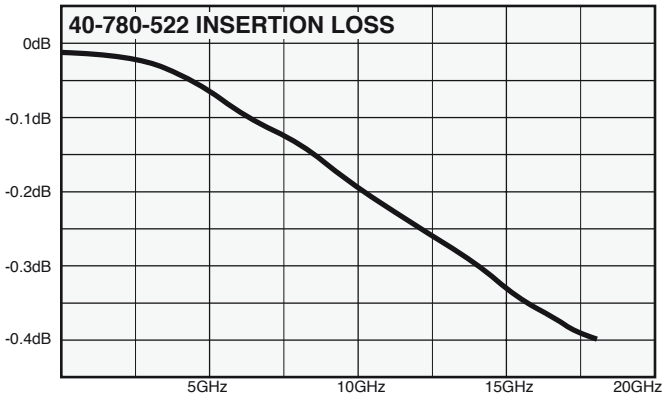
Characteristic Impedance:	50Ω
Maximum Frequency: Rise Time: Insertion Loss (<20GHz): V.S.W.R. (<20GHz): Isolation (<20GHz):	20GHz <3ps <0.5dB <1:1.5 >60dB
Maximum Power (<3GHz): Maximum Power (3 - 12GHz): Maximum Power (12 - 20GHz):	100W 60W 30W
Maximum Voltage: Maximum Switch Current:	100V DC 1A
On Path Resistance: Off Path Resistance:	<200mΩ $>10^{10}$Ω
Vibration:	Sine 1mm, 5 - 60Hz Sine 10g 60 - 2000Hz
Expected Life (Low Power): Expected Life (Max Power):	$1x10^9$ operations $>5x10^6$ operations
Switching Time:	15ms

Additional Specification (26.5GHz & 40GHz Versions)

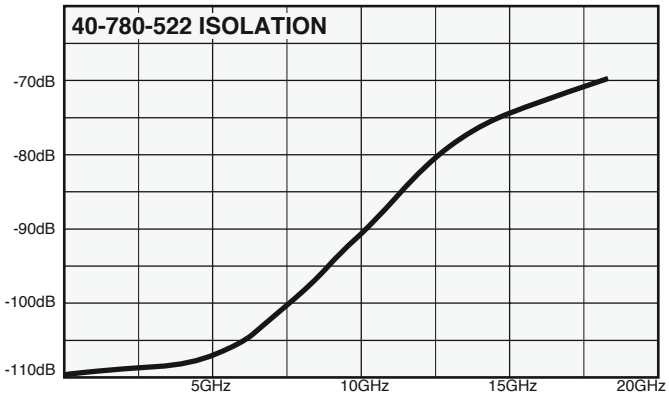
Insertion Loss (<26.5GHz): V.S.W.R. (<26.5GHz): Isolation (<26.5GHz):	<0.7dB <1:1.7 >55dB
Expected Life:	$>1x10^7$ operations
Insertion Loss (<40GHz): V.S.W.R. (<40GHz): Isolation (<40GHz):	<0.8dB <1:1.9 >50dB
Expected Life:	$1x10^7$ operations

Additional Specification (50GHz & 65GHz Versions)

Insertion Loss (<50GHz): V.S.W.R. (<50GHz): Isolation (<50GHz):	<1.1dB <1:1.9 >50dB
Expected Life:	$>1x10^7$ operations
Insertion Loss (<65GHz): V.S.W.R. (<65GHz): Isolation (<65GHz):	<1.1dB <1:1.9 >50dB
Expected Life:	$1x10^7$ operations







Performance Plots for 40-780-522 Microwave Changeover Relay Module (50Ω)

Programming

Pickering provide kernel, VISA and IVI drivers which are compatible with Windows 2000/NT/XP operating systems, the VISA driver is also compatible with the LabVIEW RT operating system.

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

Other environments are also supported, please contact Pickering with specific enquiries.

Power Requirements

Power consumption from the backplane supply is as follows:

+3.3V	+5V	+12V	-12V
0	0.5A (typ 0.34A)	0	0

Width and Dimensions

40-780: Single slot 3U PXI (CompactPCI card).
40-782: Double slot 3U PXI (CompactPCI card).

PXI & CompactPCI Compliance

All Pickering Interfaces PXI modules comply with the PXI Specification 2.1. Local Bus, Interrupts, Trigger Bus and Star Trigger are not implemented.

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.

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 95% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 95% non-condensing
Altitude:	15000m

Product Order Codes

20GHz Microwave Relays, 50Ω SMA	
1 x Changeover (SPDT)	**40-780-521**
2 x Changeover (SPDT)	**40-780-522**
26.5GHz Microwave Relays, 50Ω SMA	
1 x Changeover (SPDT)	**40-780-531**
2 x Changeover (SPDT)	**40-780-532**
40GHz Microwave Relays, 50Ω SMA-2.9	
1 x Changeover (SPDT)	**40-780-541**
2 x Changeover (SPDT)	**40-780-542**
50GHz Microwave Relays, 50Ω SMA-2.4	
1 x Changeover (SPDT)	**40-780-551**
2 x Changeover (SPDT)	**40-780-552**
65GHz Microwave Relays, 50Ω SMA-1.8	
1 x Changeover (SPDT)	**40-780-561**
2 x Changeover (SPDT)	**40-780-562**
2GHz Microwave Relays, 75Ω SMZ/Type 43	
1 x Changeover (SPDT)	**40-780-711**
2 x Changeover (SPDT)	**40-780-712**
4GHz Microwave Relays, 75Ω mini-SMB	
1 x Changeover (SPDT)	**40-780-751**
2 x Changeover (SPDT)	**40-780-752**
18GHz Microwave Transfer Switch, 50Ω SMA	
1 x Transfer Switch	**40-782-521**
2 x Transfer Switch	**40-782-522**

Mating Connectors & Cabling

Examples of connectors and cabling for the 40-780 are:

40-977-711-1M Cable, 75Ω SMZ/Type 43, Plug to Plug, 1 Meter Length.

40-977-521-1M Cable, 50Ω SMA, Plug to Plug, 1 Meter Length.

40-977-751-1M Cable, 75Ω Mini SMB, Plug to Plug, 1 Meter Length.

Please refer to the Pickering Interfaces "**Interconnection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. This is 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.



Latest Details

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

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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.

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