# 40-760/761/762/763/764/765/766/767
50Ω 600MHz RF Multiplexer

- ● **Range of 600MHz RF Multiplexers**
- ● **Available as Dual, Quad & Octal SP4T, Single, Dual & Quad SP8T, Single & Dual SP16T or Single SP32T**
- ● **All Versions Available With Automatic Termination of Unused MUX Channels**
- ● **SMB Connectors**
- ● **VISA, IVI & Kernel Drivers Supplied for Windows**
- ● **Supported in PXI or LXI Chassis**
- ● **3 Year Warranty**

**40-760 RF Multiplexer Range Overview**
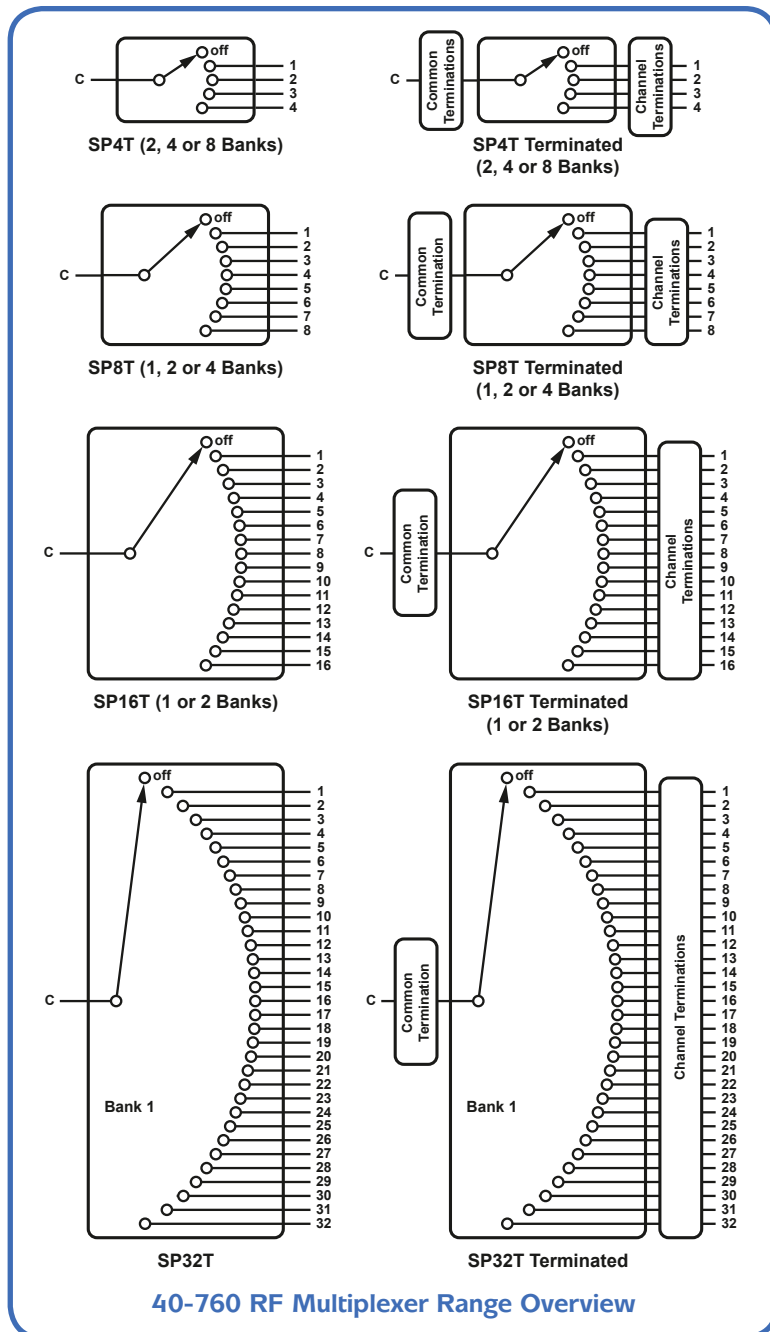
The 40-760 series is a range of 50Ω RF multiplexers available in SP4T, SP8T, SP16T and SP32T formats. All multiplexers have the option of automatic terminations which offer advantages at system level by reducing the presence of standing waves in the system which can cause degradation in isolation and crosstalk.

All versions exhibit low insertion loss and VSWR through the use of modern RF relay technology at an affordable cost. Each MUX has been carefully designed to ensure excellent and repeatable RF characteristics to frequencies of 600MHz with each path having a nominally equal insertion loss. The injection of noise and unwanted signals into the signal paths of the 40-760 range has been minimized by careful attention to the mechanical and electrical design.

The 40-760 range is supplied with drivers that allow users to support the module in all the popular PXI software environments. In addition, the 40-760 range can be supported in all Pickering's LXI Modular Switching chassis, permitting users to freely choose their switching platform with the same high performance switching module and driver environment.
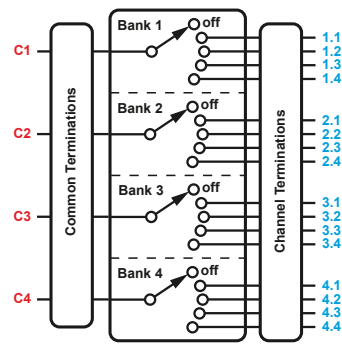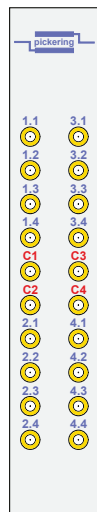
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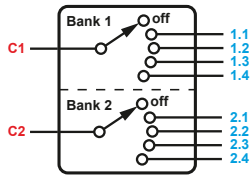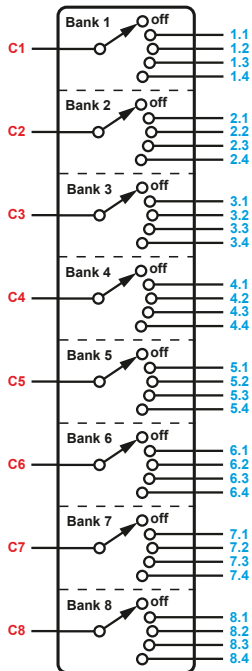
40-760-002 Dual SP4T RF Multiplexer
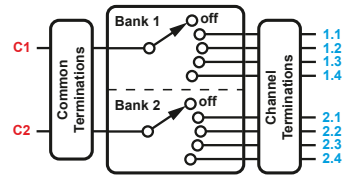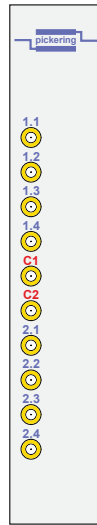
40-761-002 Dual SP4T Terminated RF Multiplexer
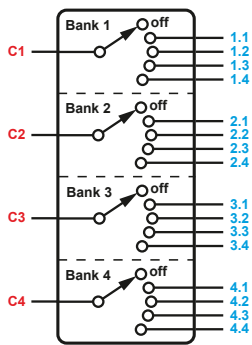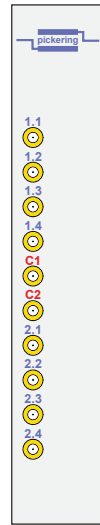
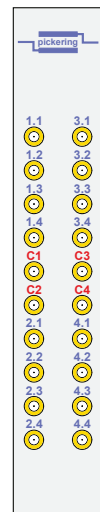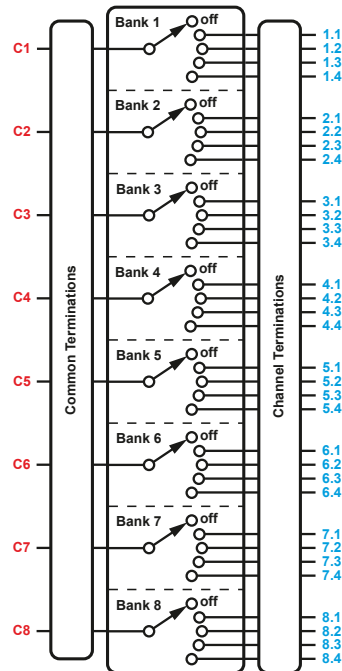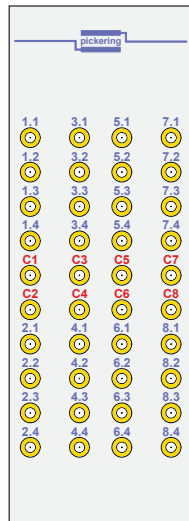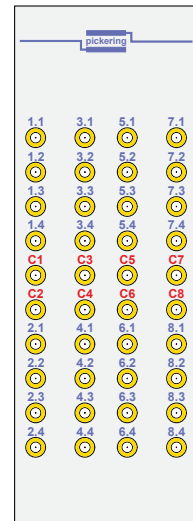**40-760-004 Quad SP4T RF Multiplexer**

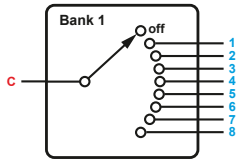**40-761-004 Quad SP4T Terminated RF Multiplexer**

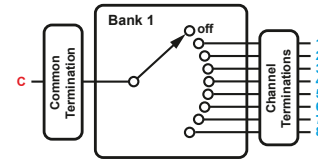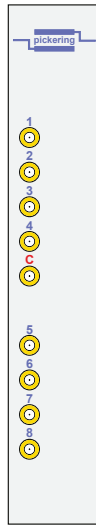**40-760-008 Octal SP4T RF Multiplexer**

40-761-008 Octal SP4T Terminated RF Multiplexer

NOTE: The default state of all multiplexers is the "off" position. Additionally, the default state of terminated versions is with all common and channel signals terminated into 50Ω.

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Bank 1

off

C

1
2
3
4
5
6
7
8

1
2
3
4
C
5
6
7
8

40-762-001 Single SP8T RF Multiplexer

Common Termination

Bank 1

off

C

Channel Terminations

1
2
3
4
5
6
7
8

1
2
3
4
C
5
6
7
8

40-763-001 Single SP8T Terminated RF Multiplexer

Bank 1

off

C1

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

Bank 2

off

C2

2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8

1.1   2.1
1.2   2.2
1.3   2.3
1.4   2.4
C1
    C2
1.5   2.5
1.6   2.6
1.7   2.7
1.8   2.8

40-762-002 Dual SP8T RF Multiplexer

Common Terminations

Bank 1

off

C1

Channel Terminations

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

Bank 2

off

C2

2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8

1.1   2.1
1.2   2.2
1.3   2.3
1.4   2.4
C1
    C2
1.5   2.5
1.6   2.6
1.7   2.7
1.8   2.8

40-763-002 Dual SP8T Terminated RF Multiplexer

Bank 1

off

C1

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

Bank 2

off

C2

2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8

Bank 3

off

C3

3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8

Bank 4

off

C4

4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8

1.1   2.1   3.1   4.1
1.2   2.2   3.2   4.2
1.3   2.3   3.3   4.3
1.4   2.4   3.4   4.4
C1   C3
    C2   C4
1.5   2.5   3.5   4.5
1.6   2.6   3.6   4.6
1.7   2.7   3.7   4.7
1.8   2.8   3.8   4.8

40-762-004 Quad SP8T RF Multiplexer

Common Terminations

Bank 1

off

C1

Channel Terminations

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

Bank 2

off

C2

2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8

Bank 3

off

C3

3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8

Bank 4

off

C4

4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8

1.1   2.1   3.1   4.1
1.2   2.2   3.2   4.2
1.3   2.3   3.3   4.3
1.4   2.4   3.4   4.4
C1   C3
    C2   C4
1.5   2.5   3.5   4.5
1.6   2.6   3.6   4.6
1.7   2.7   3.7   4.7
1.8   2.8   3.8   4.8

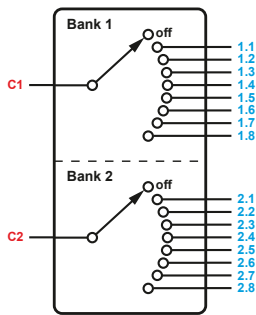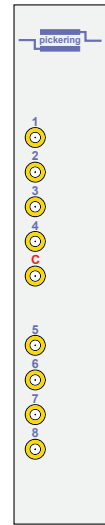**40-763-004 Quad SP8T Terminated RF Multiplexer**
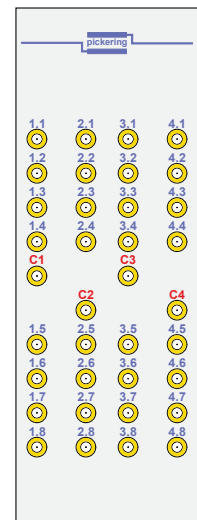
NOTE: The default state of all multiplexers is the "off" position. Additionally, the default state of terminated versions is with all common and channel signals terminated into 50Ω.
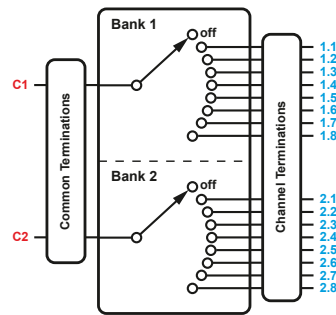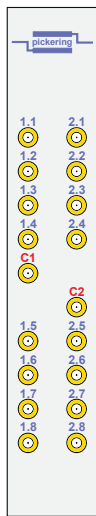
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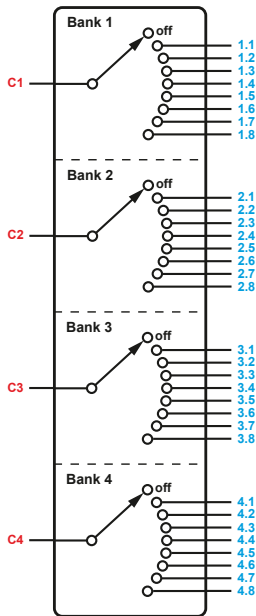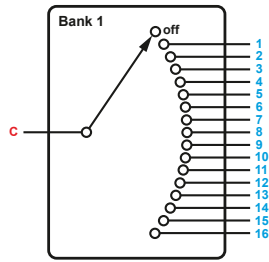
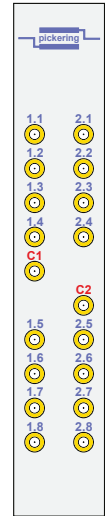**40-764-001 Single SP16T RF Multiplexer**
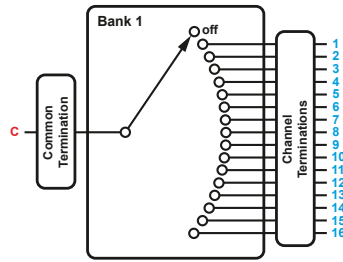
40-765-001 Single SP16T Terminated RF Multiplexer
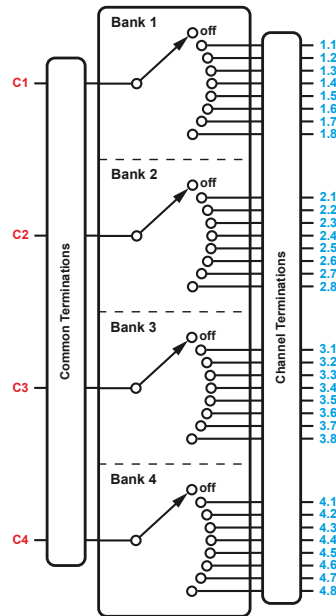

40-764-002 Dual SP16T RF Multiplexer
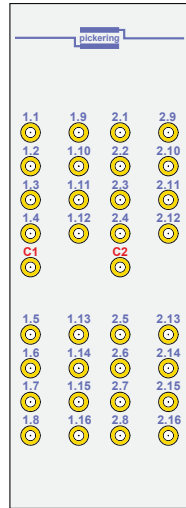
40-765-002 Dual SP16T Terminated RF Multiplexer
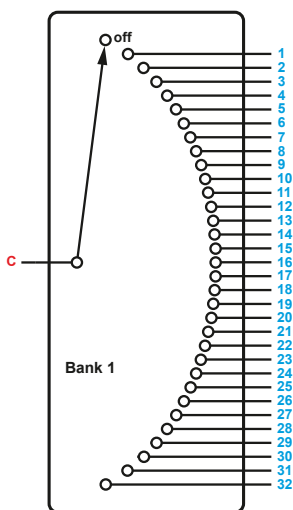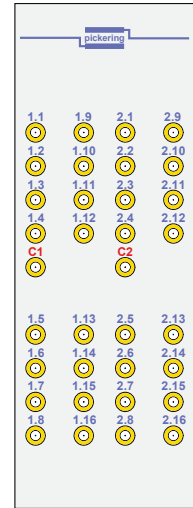
40-766-001 Single SP32T RF Multiplexer
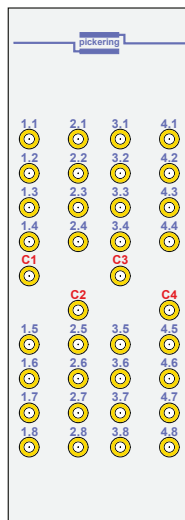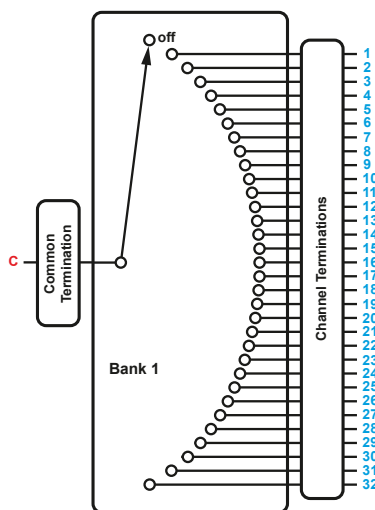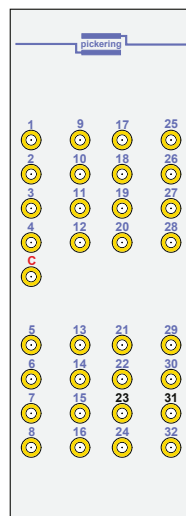

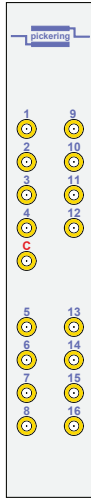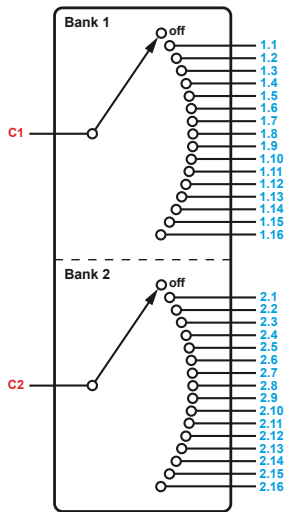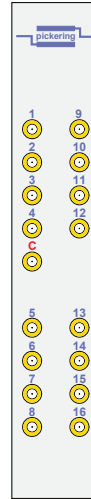**40-767-001 Single SP32T Terminated RF Multiplexer**
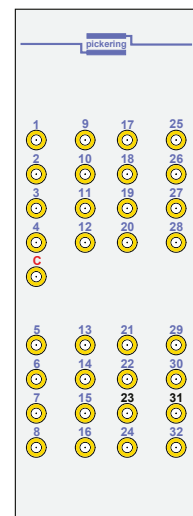
NOTE: The default state of all multiplexers is the "off" position. Additionally, the default state of terminated versions is with all common and channel signals terminated into 50Ω.
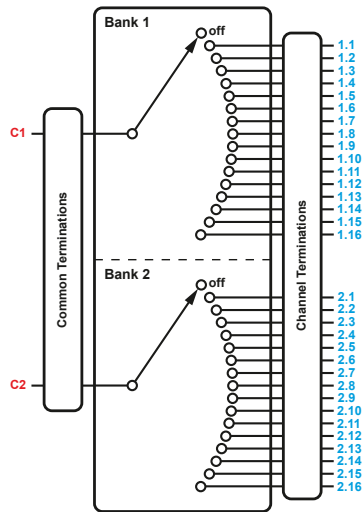
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Example RF Performance plots for 40-762-002 Dual SP8T RF MUX

dB

Start: 9.0000 kHz   Stop: 1.0000 GHz
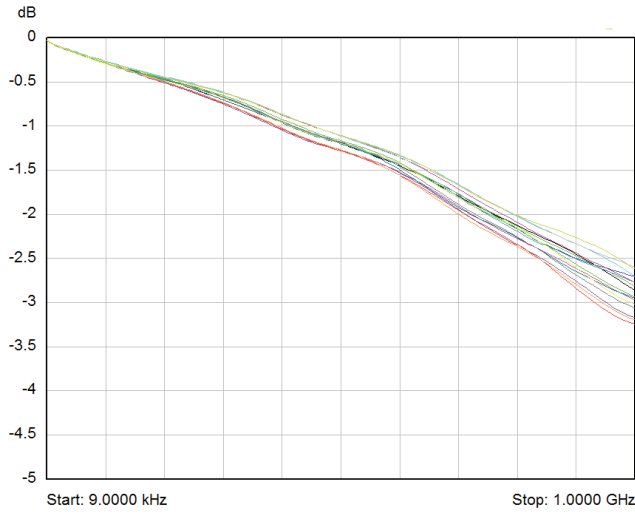
Typical insertion loss plot for all channels of
40-762-002 (Dual SP8T RF MUX)

Start: 9.0000 kHz   Stop: 1.0000 GHz
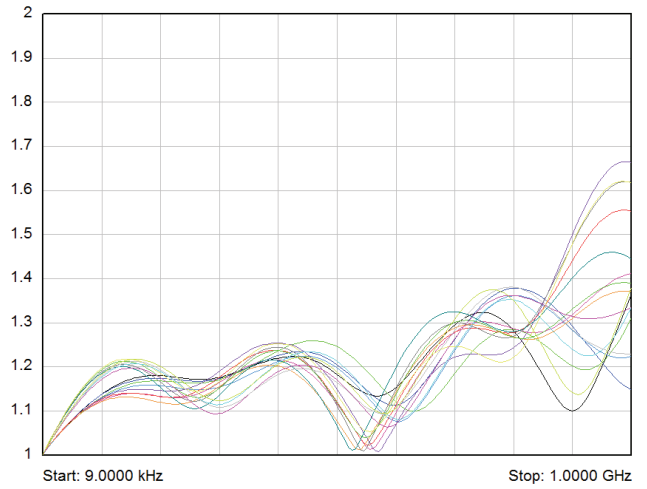
Typical VSWR plot for all channels of
40-762-002 (Dual SP8T RF MUX)

dB

Start: 9.0000 kHz   Stop: 1.0000 GHz
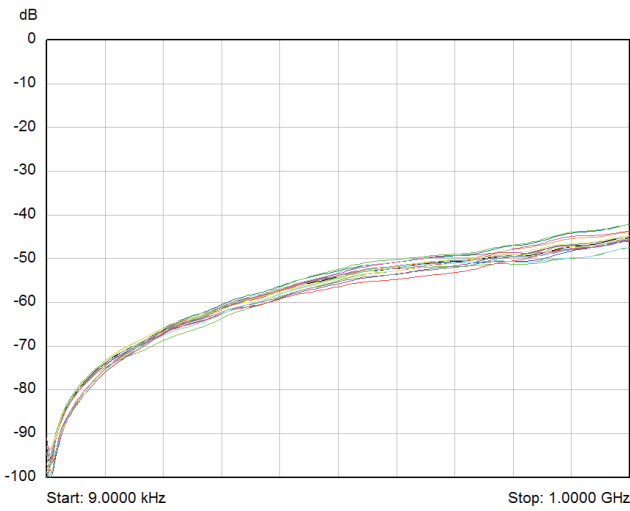
Typical crosstalk plot between channels for
40-762-002 (Dual SP8T RF MUX)

dB

Start: 9.0000 kHz   Stop: 1.0000 GHz
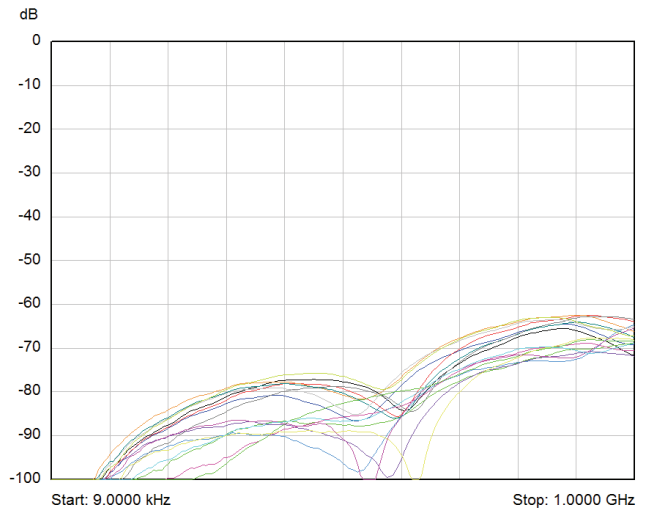
Typical crosstalk plot between banks for
40-762-002 (Dual SP8T RF MUX)

RF Terminated MUX

C1

Bank 1

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

RF Terminated MUX

C2

Bank 2

2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
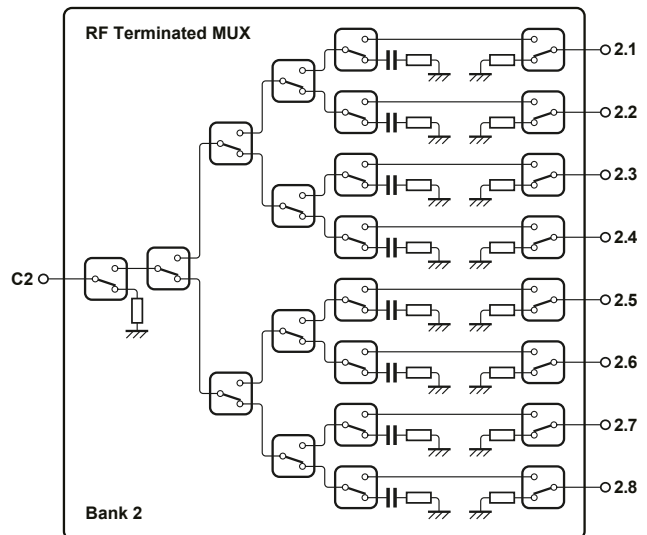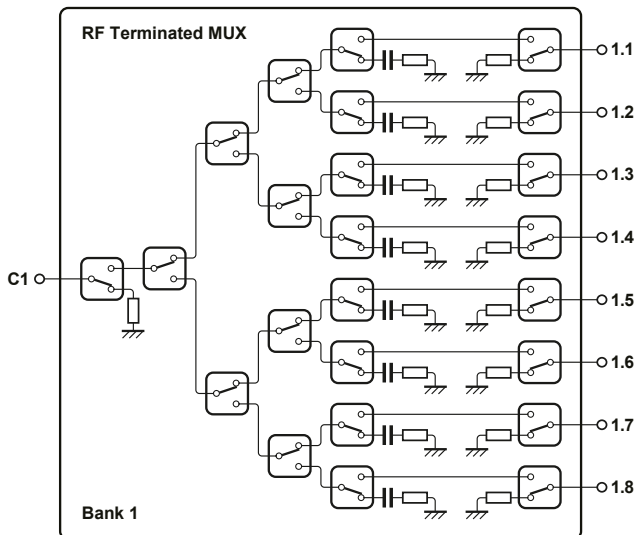
Example Relay Configuration for 40-763-002 Dual Terminated SP8T RF MUX (Default Switch Paths Shown)

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RF Specification

RF Frequency Range:	DC to 600MHz
Insertion Loss:	Typically <0.5dB to 100MHz Typically <3dB to 600MHz
VSWR:	Typically <1.3:1 to 100MHz Typically <1.6:1 to 600MHz
Isolation (all channels off):	Terminated versions: Typically >80dB to 100MHz Typically >70dB to 600MHz Unterminated versions: Typically >75dB to 100MHz Typically >50dB to 600MHz
Crosstalk:	Typically <-60dB to 100MHz Typically <-45dB to 600MHz
Maximum RF Power:	0.25W (terminated versions) 1W (unterminated versions)

RF Performance Plots

RF plots up to 1GHz for all versions in the 40-760 range are shown in the User Manual for:

- Insertion Loss
- VSWR
- Crosstalk
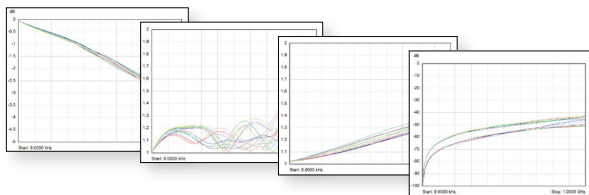
Switching Specifications

Switch Type:	Electro-mechanical
Contact Type:	Palladium-ruthenium, Gold Covered Bifurcated contact
Max Switching Voltage:	30VDC
Max Switch Current:	1A (unterminated)
Max Carry Current:	1A (unterminated)
Minimum Voltage:	100µV
Operate Time:	<10ms

Expected Life (operations)
Very low power load:	$>1 \times 10^8$
Low power load:	$>1.5 \times 10^7$ (0.1A, 20VDC)
Full power load:	$>5 \times 10^6$ (1A, 30VDC)

Power Requirements from PXI Power Supply

+3.3V	+5V	+12V	-12V
0.18A	1.15A	0	0

Mechanical Characteristics

Single or dual slot 3U PXI (CompactPCI card), see product order code list.

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

Product Order Codes

SP4T 600MHz RF Multiplexer

Single PXI Slot Versions:
Dual SP4T, SMB Connectors	**40-760-002**
Quad SP4T, SMB Connectors	**40-760-004**

Dual PXI Slot Version:
Octal SP4T, SMB Connectors	**40-760-008**

SP4T Terminated 600MHz RF Multiplexer

Single PXI Slot Versions:
Dual SP4T Terminated, SMB Connectors	**40-761-002**
Quad SP4T Terminated, SMB Connectors	**40-761-004**

Dual PXI Slot Version:
Octal SP4T Terminated, SMB Connectors	**40-761-008**

SP8T 600MHz RF Multiplexer

Single PXI Slot Versions:
Single SP8T, SMB Connectors	**40-762-001**
Dual SP8T, SMB Connectors	**40-762-002**

Dual PXI Slot Version:
Quad SP8T, SMB Connectors	**40-762-004**

SP8T Terminated 600MHz RF Multiplexer

Single PXI Slot Versions:
Single SP8T Terminated, SMB Connectors	**40-763-001**
Dual SP8T Terminated, SMB Connectors	**40-763-002**

Dual PXI Slot Version:
Quad SP8T Terminated, SMB Connectors	**40-763-004**

SP16T 600MHz RF Multiplexer

Single PXI Slot Version:
Single SP16T, SMB Connectors	**40-764-001**

Dual PXI Slot Version:
Dual SP16T, SMB Connectors	**40-764-002**

SP16T Terminated 600MHz RF Multiplexer

Single PXI Slot Version:
Single SP16T Terminated, SMB Connectors	**40-765-001**

Dual PXI Slot Version:
Dual SP16T Terminated, SMB Connectors	**40-765-002**

SP32T 600MHz RF Multiplexer

Dual PXI Slot Version:
Single SP32T, SMB Connectors	**40-766-001**

SP32T Terminated 600MHz RF Multiplexer

Dual PXI Slot Version:
Single SP32T Terminated, SMB Connectors	**40-767-001**

Mating Connectors & Cabling

For connection accessories for the 40-760 range 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.

Programming

Pickering provide kernel, IVI and VISA (NI and Agilent) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. 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
- **Marvin** ATE Easy
- **MTQ Testsolutions** Tecap
- **Tecap Switching**

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

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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.
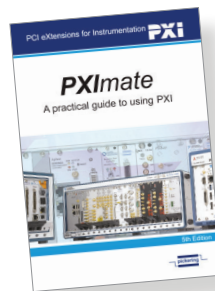
Ever wondered what PXI is all about?
Pickering Interfaces' "**PXImate**" explains the basics of PXI and provides useful data for engineers working on switch based test systems.
The PXImate is available free on request from the Pickering website.
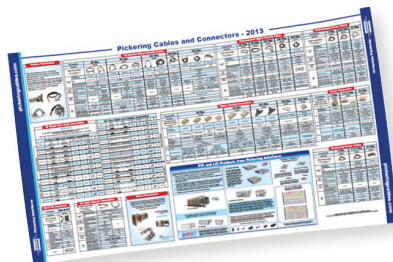
The "**Cables & Connectors Map**" – outlines the cable and connector options available for all PXI Modules.
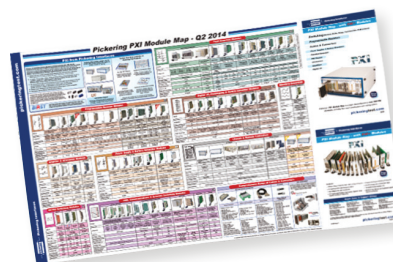
The "**PXI Module Map**" – a simple fold-out selection guide to all Pickering's 1000+ PXI Modules.

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