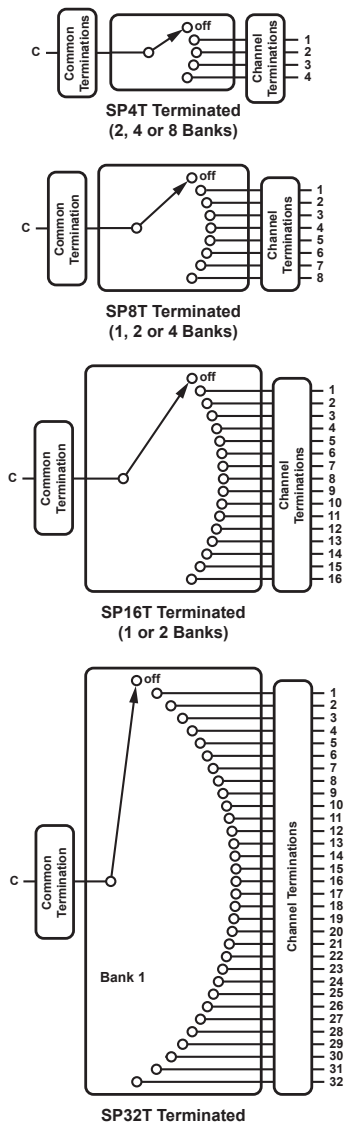- **Range of 600 MHz RF Multiplexers**
- Available as Dual, Quad & Octal SP4T,
  Single, Dual & Quad SP8T,
  Single & Dual SP16T or Single SP32T
- All Versions With Automatic Termination of
  Unused MUX Channels
- SMB Connectors
- VISA, IVI & Kernel Drivers Supplied for
  Windows
- Supported by PXI or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

**40-761 Terminated RF Multiplexer Range Overview**

The 40-761 series is a range of 50 Ω RF multiplexers available in SP4T, SP8T, SP16T and SP32T formats. All multiplexers have automatic termination which offers the advantage of reducing standing waves which can cause degradation in isolation and crosstalk.

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

The 40-761 range is supplied with drivers that allow users to support the module in all popular PXI software environments. In addition, the 40-761 range can be supported in all Pickering's LXI Modular Switching chassis, allowing the use of a PXI or LAN controlled switching solution with the same high levels of performance.
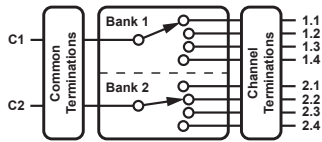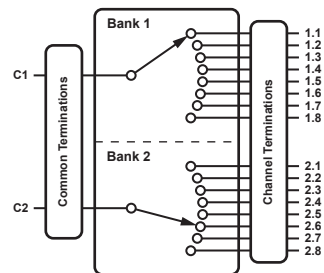
40-761-002 Dual SP4T
Terminated RF Multiplexer
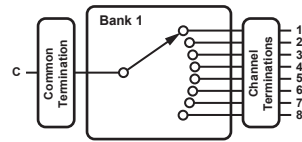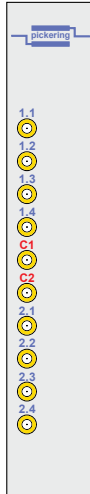
40-763-001 Single SP8T
Terminated RF Multiplexer
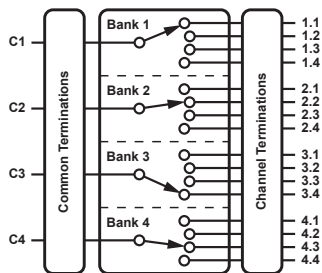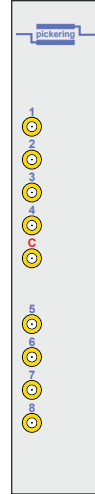
40-761-004 Quad SP4T
Terminated RF Multiplexer

40-763-002 Dual SP8T
Terminated RF Multiplexer

40-761-008 Octal SP4T Terminated RF Multiplexer

40-763-004 Quad SP8T Terminated RF Multiplexer

Note: The default state of the terminated multiplexers is with all common and channel signals terminated into 50Ω.
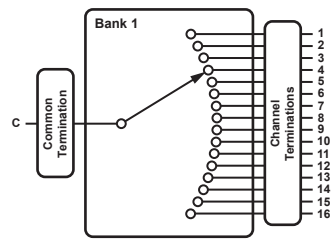
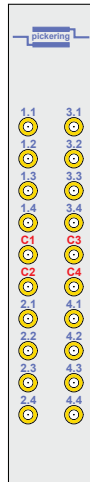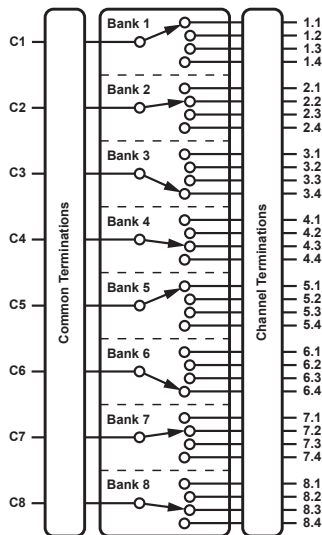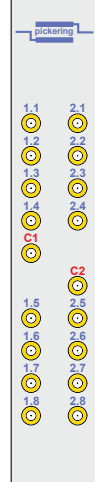**40-765-001 Single SP16T Terminated RF Multiplexer**
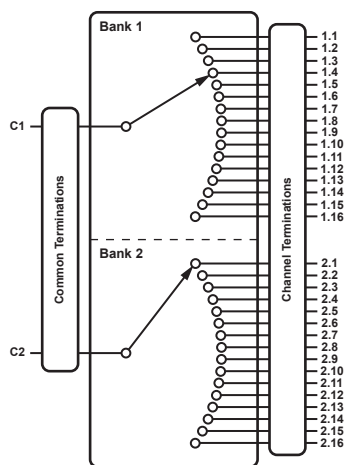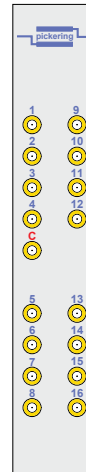
40-765-002 Dual SP16T Terminated RF Multiplexer
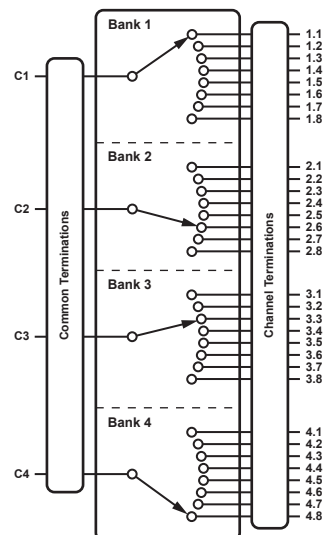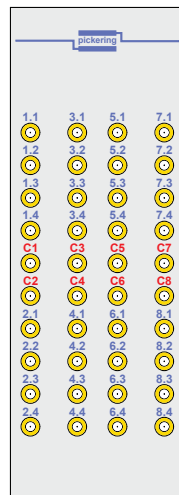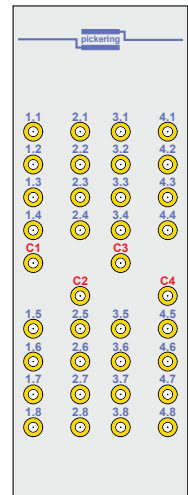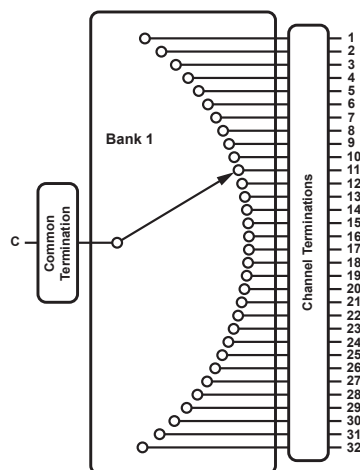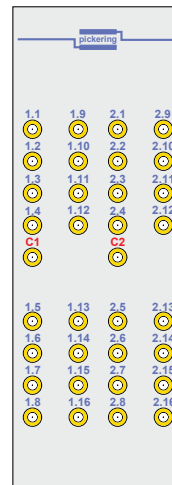

40-767-001 Single SP32T Terminated RF Multiplexer
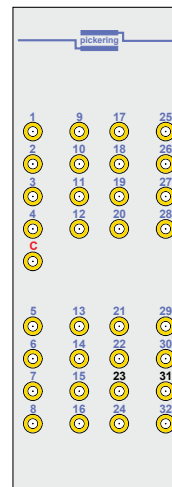
Note: The default state of the terminated multiplexers is with all common and channel signals terminated into 50Ω.

Example RF Performance plots for 40-761-004 Quad SP4T Termnated RF MUX
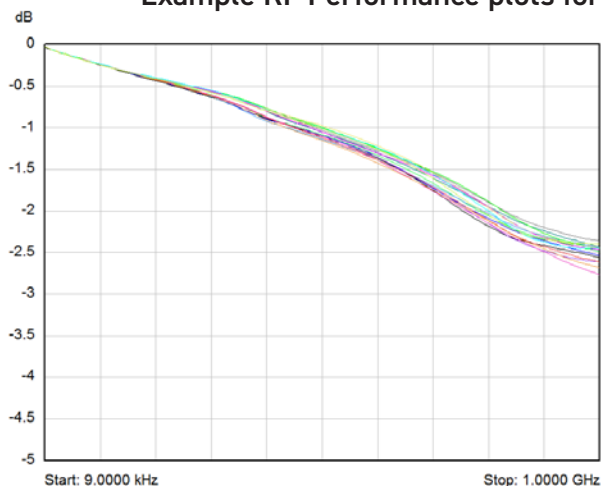
Typical insertion loss plot for all channels of
40-761-004 (Quad SP4T Terminated RF MUX)
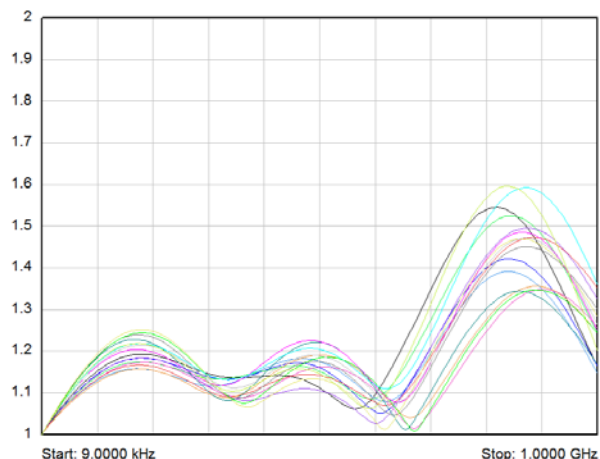
Typical VSWR plot for all channels of
40-761-004 (Quad SP4T Terminated RF MUX)
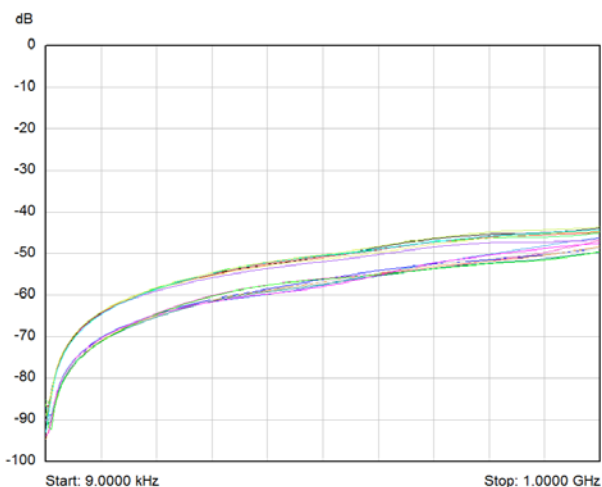
Typical crosstalk plot between channels for
40-761-004 (Quad SP4T Terminated RF MUX)
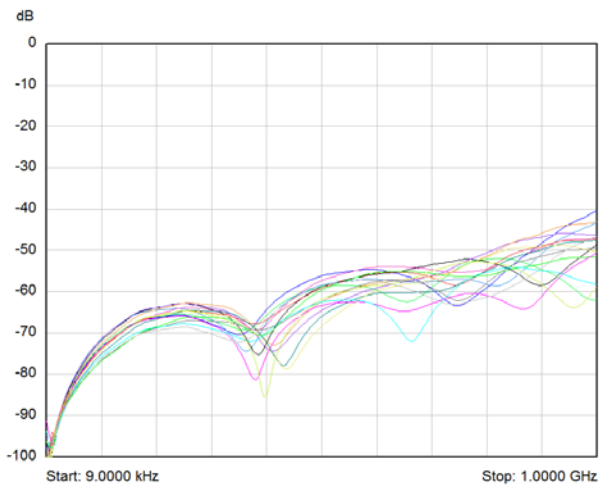
Typical crosstalk plot between banks for
40-761-004 (Quad SP4T Terminated RF MUX)

RF Terminated MUX

Bank 1

C1

1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8

RF Terminated MUX

Bank 2

C2

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)

RF Specification

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

RF Performance Plots

RF plots up to 1 GHz for all versions in the 40-761 range are shown in the User Manual for:

- Insertion Loss
- VSWR
- Crosstalk
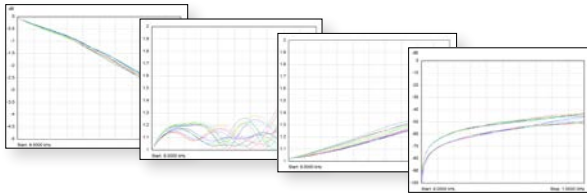
Switching Specification (excluding terminations)

Switch Type:	Electro-mechanical
Contact Type:	Palladium-ruthenium, Gold Covered Bifurcated contact
Maximum Switching Voltage:	30 VDC
Maximum Current:	1 A
Operate Time:	10 ms typical
Expected Life (operations)	
Very low power load: Low power load: Full power load:	>1x10^8 >1.5x10^7 (0.1 A, 20 VDC) >5x10^6 (1 A, 30 VDC)

Power Requirements

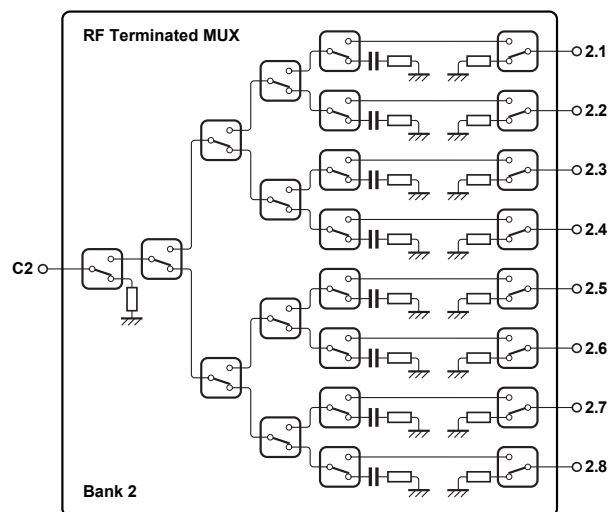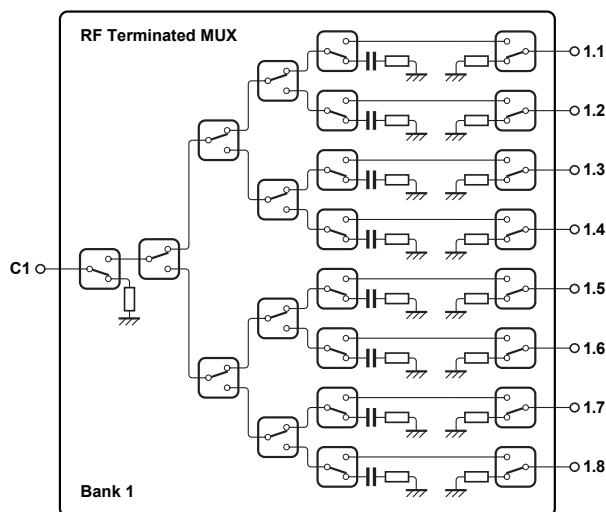| +3.3 V	+5 V	+12 V	-12 V
0.18 A	1.15 A	0	0

Mechanical Characteristics

Single or dual slot 3 U 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 SMB connectors as detailed in User Manual.

Operating/Storage Conditions

Operating Conditions

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

Storage and Transport Conditions

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

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 33 MHz 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

SP4T Terminated 600 MHz RF MUX

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 Terminated 600 MHz RF MUX

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 Terminated 600 MHz RF MUX

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 Terminated 600 MHz RF MUX

Dual PXI Slot:

Single SP32T Terminated, SMB Connectors	**40-767-001**

Mating Connectors & Cabling

For connection accessories for the 40-761 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.

Product Customization

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

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.

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
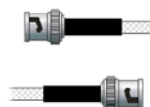- Independence from Windows operating system

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 Relay Division. These instrument grade reed relays feature *SoftCenter*™ technology, ensuring long service life and repeatable contact performance. To learn more, please go to: pickeringrelay.com

pickering

pickering**test**.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 and OpenTAP
- **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`
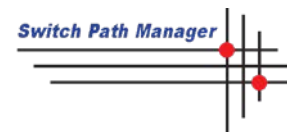
Diagnostic Relay Test Tools

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 and white papers as well as application specific product brochures to assist when looking for the switching, simulation and connection solutions you need. We have also published handy reference books on Switching Technology and for the PXI and LXI standards.

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

pickeringtest.com