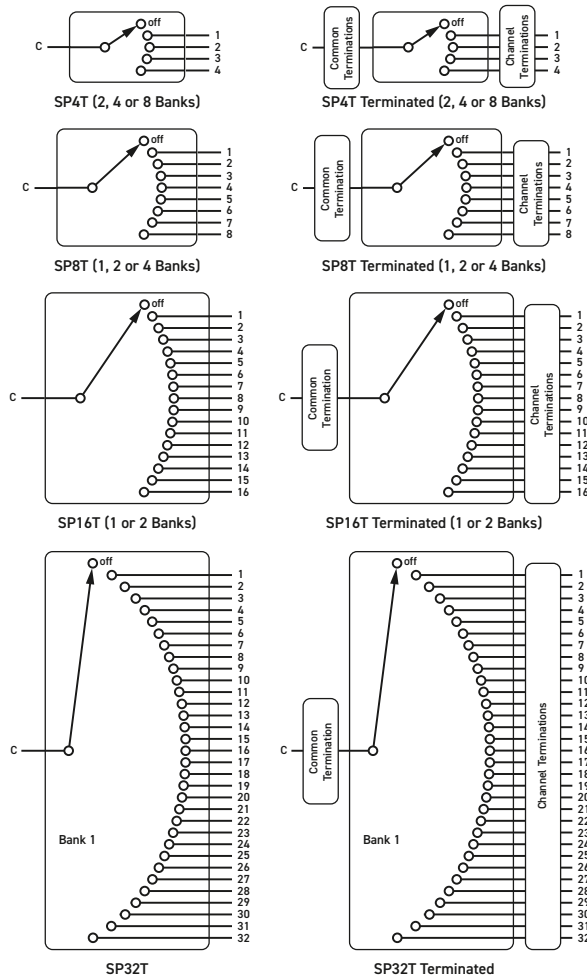
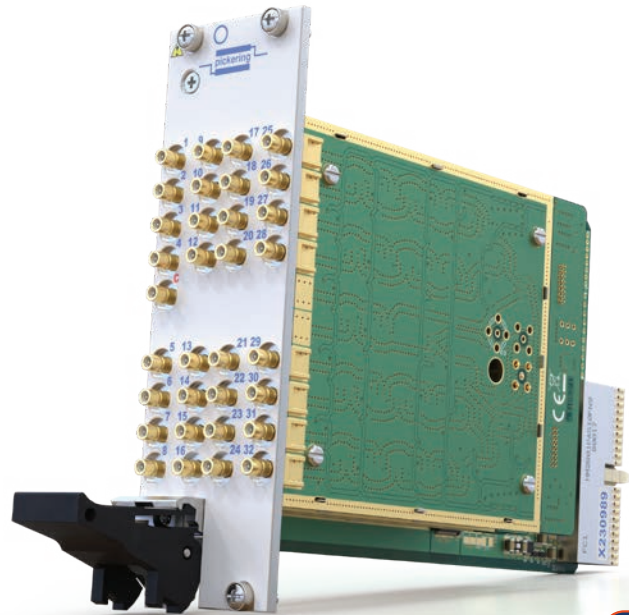


PXI/PXIe 50 Ω 600MHz RF Multiplexer

40/42-760B Series

- Available as a PXI or PXIe Module
- Range of 600 MHz 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
- Relay Cycle Counting Included
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- PXI Versions Supported by PXI or LXI Chassis
- Supported by **eBIRST™**
- 3 Year Warranty



40/42-760B RF Multiplexer Range Overview

The 40-760B (PXI) and 42-760B (PXIe) series is a range of 50 Ω RF multiplexers available in SP4T, SP8T, SP16T and SP32T formats. All multiplexers have the option of 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 40/42-760B range is supplied with drivers that allow users to support the module in all popular PXI software environments. In addition, the PXI versions can be supported in all Pickering's LXI/USB Modular Switching chassis, allowing the use of a PXI, PXIe, LAN or USB controlled switching solution with the same high levels of performance.

Supported by eBIRST

eBIRST switching system test tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

For more information go to: pickeringtest.com/ebirst

Relay Cycle Counting

To aid with module "health" monitoring all versions are provided with a relay cycle counting feature. The number of operations per contact are stored on the module and can be used to determine if a relay is approaching EOL. This information could allow system connections to be revised so that signals applied to heavily used contacts are swapped with lightly used contacts to prolong the working life of the relay(s).

Updated Product Information

This product has been introduced as a "form & fit" update to the 40-760 and 40-760A, the changes are to provide PXIe options, relay cycle counting and an updated bus interface which will require the use of an updated software driver. Otherwise, the electrical performance is very similar and the software and pinout are identical.

RF Specification

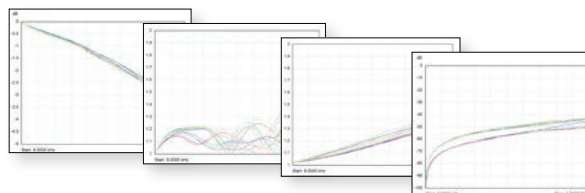
RF Frequency Range:	DC to 600 MHz
Impedance	50 Ω
Insertion Loss:	Typically <0.5 dB to 100 MHz Typically <3 dB to 600 MHz
VSWR:	Typically <1.3:1 to 100 MHz Typically <1.6:1 to 600 MHz
Isolation (all channels off):	Terminated versions: Typically >80 dB to 100 MHz Typically >70 dB to 600 MHz Unterminated 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) 1 W (unterminated versions)

* Pulse capability up to 12 W / 650 ns pulse / cycle >32 μ s

RF Performance Plots

RF plots up to 1 GHz for all versions in the 40/42-760B series 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
Maximum Switching Voltage:	30 VDC
Maximum Current:	1 A
Operate Time:	10 ms typical
Expected Life (operations)	
Very low power load:	>1x10 ⁸
Low power load:	>1.5x10 ⁷ (0.1 A, 20 VDC)
Full power load:	>5x10 ⁶ (1 A, 30 VDC)

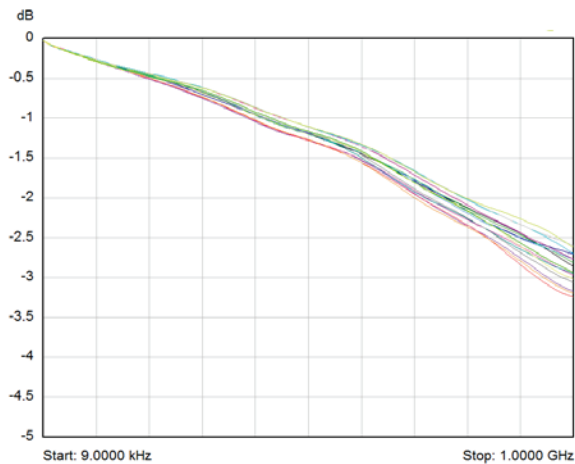
Power Requirements - 40-760B

+3.3 V	+5 V	+12 V	-12 V
170 mA (typical)	0	1.2 A (max)	0

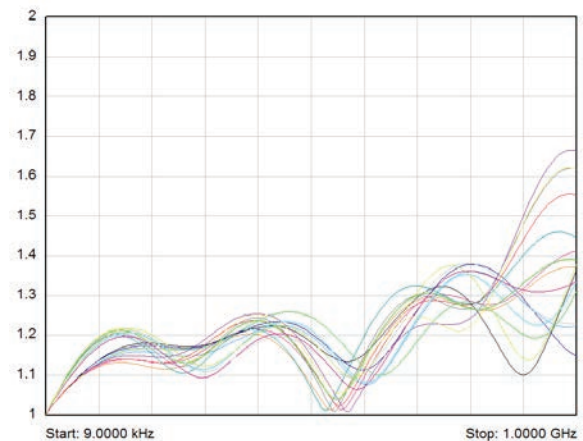
Power Requirements - 42-760B

+3.3 V	+12 V
390 mA (typical)	520 mA (max)

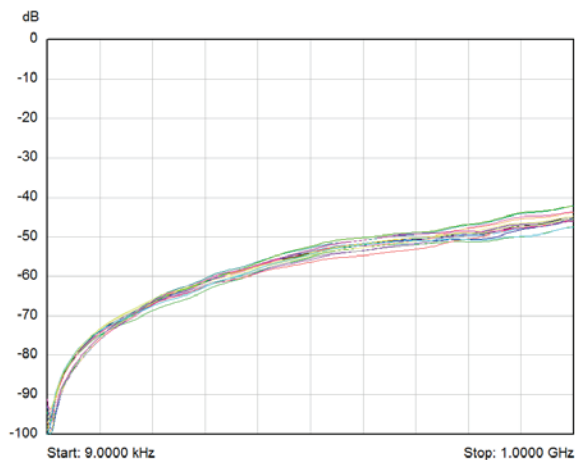
Example RF Performance plots for 40/42-762B-002 Dual SP8T RF MUX



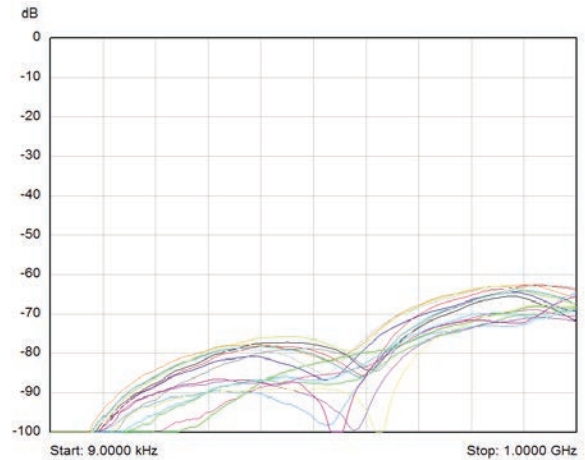
Typical insertion loss plot for all channels of 40/42-762B-002 (Dual SP8T RF MUX)



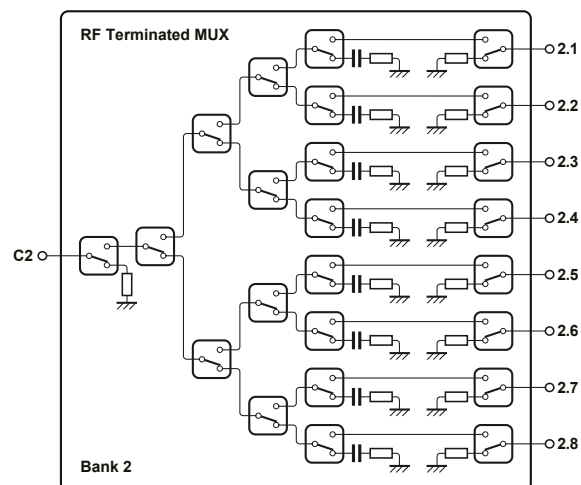
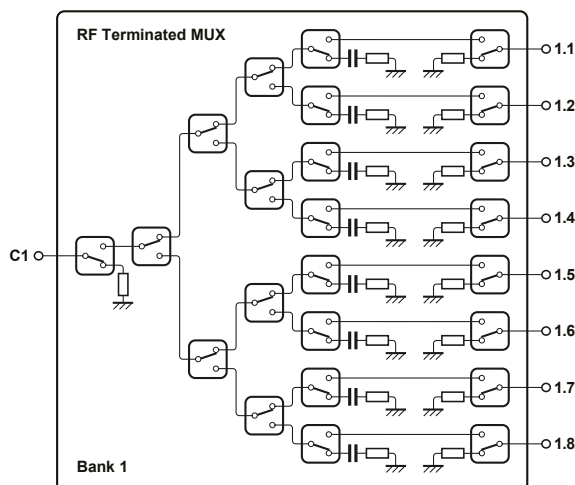
Typical VSWR plot for all channels of 40/42-762B-002 (Dual SP8T RF MUX)



Typical crosstalk plot between channels for 40/42-762B-002 (Dual SP8T RF MUX)



Typical crosstalk plot between banks for 40/42-762B-002 (Dual SP8T RF MUX)



Example Relay Configuration for 40/42-763B-002 Dual Terminated SP8T RF MUX (Default Switch Paths Shown)

Mechanical Characteristics

40-760B - Single or dual slot 3U PXI (CompactPCI card).

42-760B - Single or dual slot 3U PXIe, compatible with PXIe hybrid slot.

Module weight: 460 g (42-761B-008)

450 g (40-766B-001)

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

Connectors

40-760B - PXI bus via 32-bit P1/J1 backplane connector.

42-760B - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via front panel SMB coaxial connectors.

Operating/Storage Conditions

Operating Temperature: 0 °C to +55 °C

Humidity: Up to 90 % non-condensing

Altitude: 5000 m

Storage/Transport Temperature: -20 °C to +75 °C

Humidity: Up to 90 % non-condensing

Altitude: 15000 m

PXI & CompactPCI Compliance - 40-760A

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus & Star Trigger are not implemented.

Uses a 33 MHz 32-bit backplane interface.

PXIe Compliance - 42-760A

The module is compliant with the PXIe Specification 1.0. Local Bus, Trigger Bus & Star Trigger are not implemented.

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.



40-763B-001
Single SP8T Terminated
RF Multiplexer
in PXI Format



42-764B-001
Single SP16T RF
Multiplexer
in PXIe Format

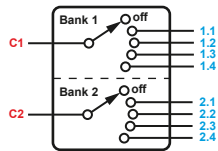


42-766B-001
Single SP32T RF
Multiplexer
in PXIe Format

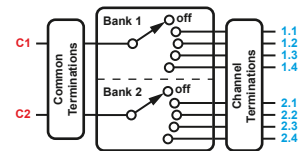
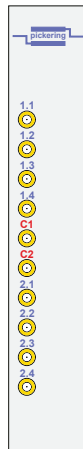


40-761B-008
Octal SP4T Terminated
RF Multiplexer
in PXI Format

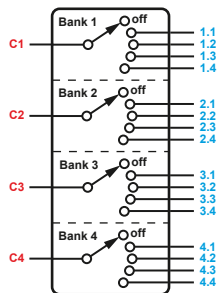
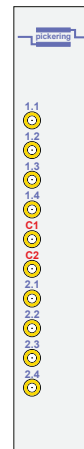
MUX Configurations - SP4T Versions



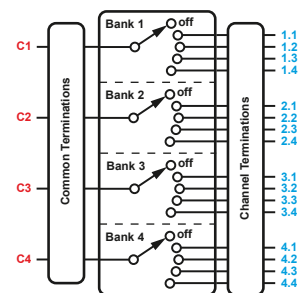
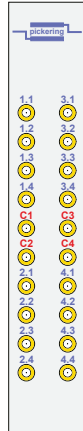
40/42-760B-002 Dual SP4T RF Multiplexer



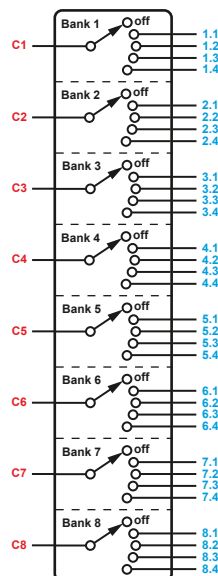
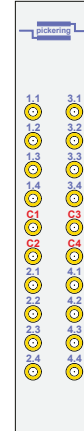
40/40-761B-002 Dual SP4T Terminated RF Multiplexer



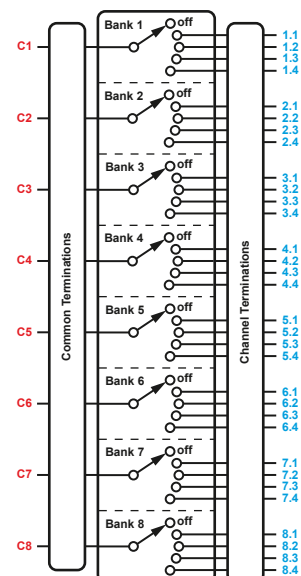
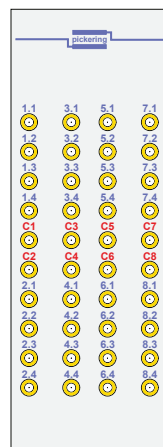
40/42-760B-004 Quad SP4T RF Multiplexer



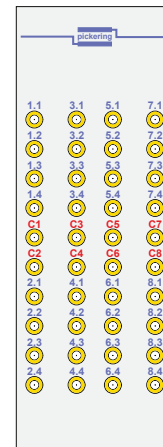
40-761B-004 Quad SP4T Terminated RF Multiplexer



40/42-760B-008 Octal SP4T RF Multiplexer



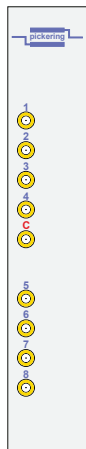
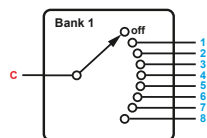
40/72-761B-008 Octal SP4T Terminated RF Multiplexer



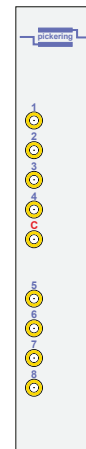
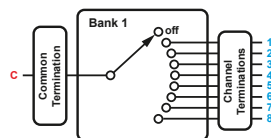
Note: The default state of all multiplexers is the "off" position. Additionally, the default state of terminated versions is with all common and channel signals terminated into 50Ω.

MUX Configurations - SP8T Versions

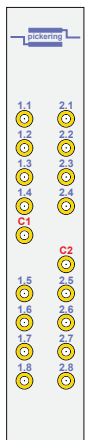
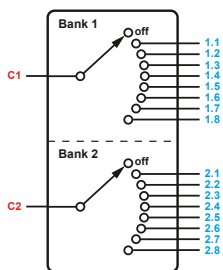
40/42-762B-001 Single SP8T RF Multiplexer



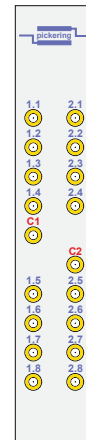
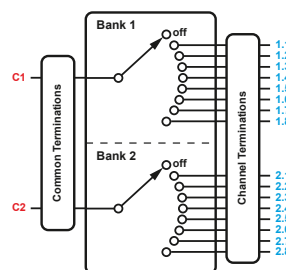
40/42-763B-001 Single SP8T Terminated RF Multiplexer



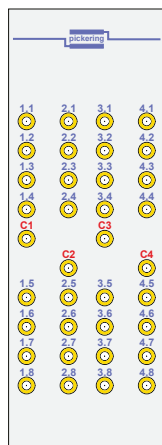
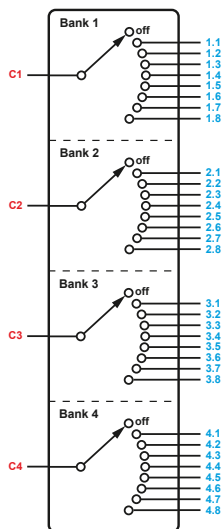
40/42-762B-002 Dual SP8T RF Multiplexer



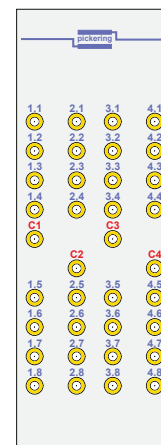
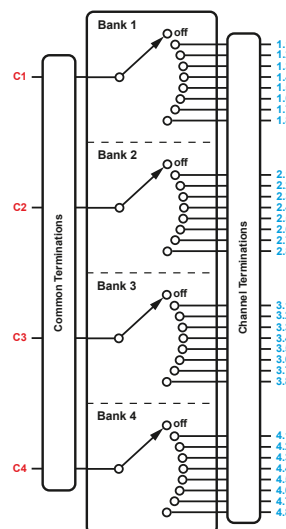
40/42-763B-002 Dual SP8T Terminated RF Multiplexer



40/42-762B-004 Quad SP8T RF Multiplexer

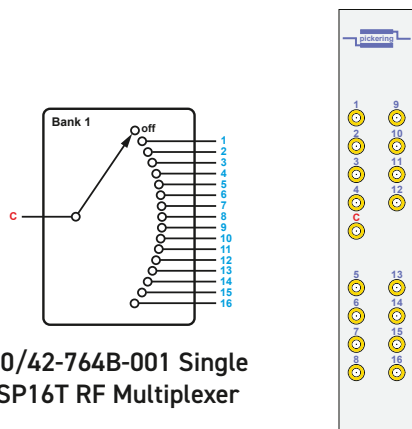


40/42-763B-004 Quad SP8T Terminated RF Multiplexer

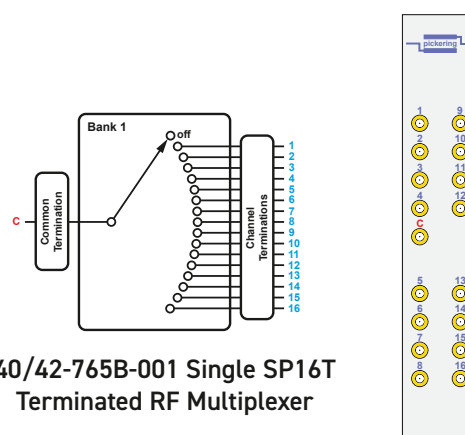


Note: The default state of all multiplexers is the "off" position. Additionally, the default state of terminated versions is with all common and channel signals terminated into 50 Ω.

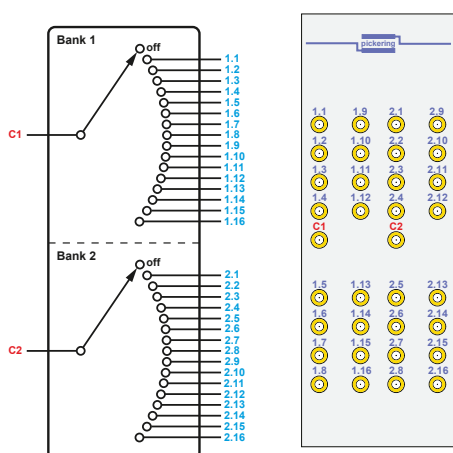
MUX Configurations - SP16T & SP32T Versions



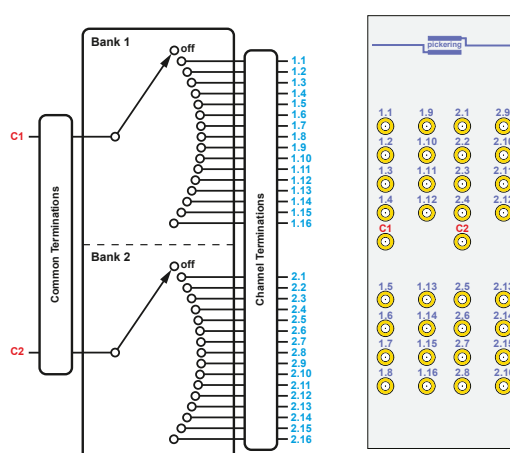
40/42-764B-001 Single SP16T RF Multiplexer



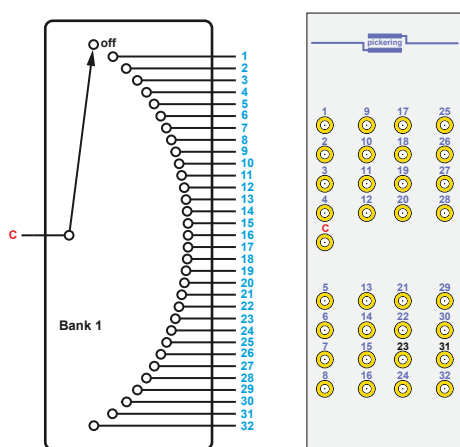
40/42-765B-001 Single SP16T Terminated RF Multiplexer



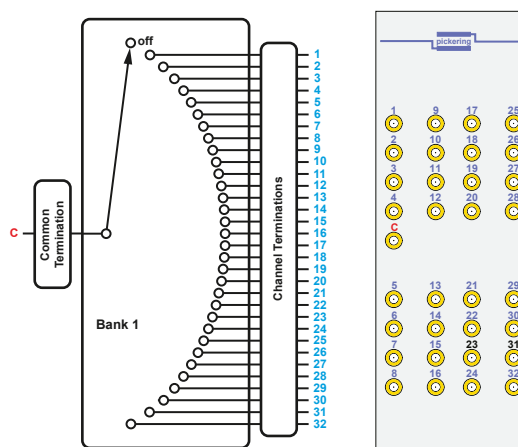
40/42-764B-002 Dual SP16T RF Multiplexer



40/42-765B-002 Dual SP16T Terminated RF Multiplexer



40/42-766B-001 Single SP32T RF Multiplexer



40/42-767B-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.

Product Order Codes

PXI RF Multiplexer SP4T 600 MHz	
Dual SP4T, SMB Connectors (Single Slot)	40-760B-002
Quad SP4T, SMB Connectors (Single Slot)	40-760B-004
Octal SP4T, SMB Connectors (Dual Slot)	40-760B-008
PXI RF Multiplexer SP4T 600 MHz Terminated	
Dual SP4T, SMB Connectors (Single Slot)	40-761B-002
Quad SP4T, SMB Connectors (Single Slot)	40-761B-004
Octal SP4T, SMB Connectors (Dual Slot)	40-761B-008
PXI RF Multiplexer SP8T 600 MHz	
Single SP8T, SMB Connectors (Single Slot)	40-762B-001
Dual SP8T, SMB Connectors (Single Slot)	40-762B-002
Quad SP8T, SMB Connectors (Dual Slot)	40-762B-004
PXI RF Multiplexer SP8T 600 MHz Terminated	
Single SP8T, SMB Connectors (Single Slot)	40-763B-001
Dual SP8T, SMB Connectors (Single Slot)	40-763B-002
Quad SP8T, SMB Connectors (Dual Slot)	40-763B-004
PXI RF Multiplexer SP16T 600 MHz	
Single SP16T, SMB Connectors (Single Slot)	40-764B-001
Dual SP16T, SMB Connectors (Dual Slot)	40-764B-002
PXI RF Multiplexer SP16T 600 MHz Terminated	
Single SP16T, SMB Connectors (Single Slot)	40-765B-001
Dual SP16T, SMB Connectors (Dual Slot)	40-765B-002
PXI RF Multiplexer SP16T 600 MHz	
Single SP32T, SMB Connectors (Dual Slot)	40-766B-001
PXI RF Multiplexer SP32T 600 MHz Terminated	
Single SP32T, SMB Connectors (Dual Slot)	40-767B-001

PXIe RF Multiplexer SP4T 600 MHz	
Dual SP4T, SMB Connectors (Single Slot)	42-760B-002
Quad SP4T, SMB Connectors (Single Slot)	42-760B-004
Octal SP4T, SMB Connectors (Dual Slot)	42-760B-008
PXIe RF Multiplexer SP4T 600 MHz Terminated	
Dual SP4T, SMB Connectors (Single Slot)	42-761B-002
Quad SP4T, SMB Connectors (Single Slot)	42-761B-004
Octal SP4T, SMB Connectors (Dual Slot)	42-761B-008
PXIe RF Multiplexer SP8T 600 MHz	
Single SP8T, SMB Connectors (Single Slot)	42-762B-001
Dual SP8T, SMB Connectors (Single Slot)	42-762B-002
Quad SP8T, SMB Connectors (Dual Slot)	42-762B-004
PXIe RF Multiplexer SP8T 600 MHz Terminated	
Single SP8T, SMB Connectors (Single Slot)	42-763B-001
Dual SP8T, SMB Connectors (Single Slot)	42-763B-002
Quad SP8T, SMB Connectors (Dual Slot)	42-763B-004
PXIe RF Multiplexer SP16T 600 MHz	
Single SP16T, SMB Connectors (Single Slot)	42-764B-001
Dual SP16T, SMB Connectors (Dual Slot)	42-764B-002
PXIe RF Multiplexer SP16T 600 MHz Terminated	
Single SP16T, SMB Connectors (Single Slot)	42-765B-001
Dual SP16T, SMB Connectors (Dual Slot)	42-765B-002
PXIe RF Multiplexer SP16T 600 MHz	
Single SP32T, SMB Connectors (Dual Slot)	42-766B-001
PXIe RF Multiplexer SP32T 600 MHz Terminated	
Single SP32T, SMB Connectors (Dual Slot)	42-767B-001

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.

Support Products

eBIRST Switching System Test Tool

This product is supported by the eBIRST test tools which simplify the identification of failed relays, the required eBIRST tools are below. For more information go to:

pickeringtest.com/ebirst

Product	Test Tool	Adaptor
40/42-76xB	93-006-001	93-006-202

Mating Connectors & Cabling

For connection accessories for the 40/42-760B 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 Pickering website.

The 40/42-760B series is part of a range of RF multiplexers with bandwidth up to 2 GHz:

Pickering's Range of PXI/PXIe RF Multiplexers up to 2 GHz			
Multiplexer Configuration	Impedance	Maximum Frequency	Model No.
Single SP4T terminated	50 Ω or 75 Ω	Up to 2 GHz	40-740
Single SP4T or SP8T	50 Ω or 75 Ω	Up to 2 GHz	40-745
Dual SP4T	50 Ω or 75 Ω	Up to 2 GHz	40-746
Single SP16T	50 Ω or 75 Ω	1 GHz	40-747
Dual SP8T	50 Ω or 75 Ω	Up to 2 GHz	40-748
Quad SP4T	50 Ω or 75 Ω	1 GHz	40-749
4xSP4T, 5xSP4T or 10xSP4T	50 Ω or 75 Ω	Up to 1.8 GHz	40/42-755A
1xSP8T, 2xSP8T, 3xSP8T, 1xSP16T, 2xSP16T	50 Ω or 75 Ω	Up to 1.8 GHz	40-756
1xSP4T, 4xSP4T, 8xSP4T, 1xSP8T, 2xSP8T, 4xSP8T, 1xSP16T, 2xSP16T or 1xSP32T unterminated or terminated	50 Ω	600 MHz	40/42-760B Range



Chassis Compatibility

The PXI versions of this module are 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

The PXIe versions of this module are compatible with the following chassis types:

- All chassis conforming to the 3U PXIe specification
- PXIe and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis

Chassis Selection Guide

PXI and PXIe (with PXIe and/or Hybrid slots) Chassis from any Vendor:

- Mix our 1000+ PXI/PXIe switching & simulation modules with any vendor's PXI/PXIe 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 PXI Switching & Simulation Modules:

- Choose from 1000+ Pickering PXI 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

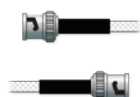
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with **1200+** products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules. These accessories are detailed in Connector Accessories data sheets, where a complete list and documentation can be found for each accessory.



Connectors
& Backshells



Multi-way
Cable Assemblies



RF Cable
Assemblies



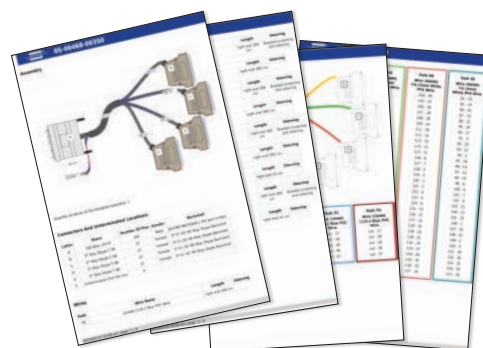
Breakouts



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.

- Fully supported on modern browsers and tablet operating systems.
- Built-in tutorials and videos allow you to get quickly up to speed.
- Store cable assemblies in the Cloud and develop over time.
- Each cable design has a downloadable PDF documentation file detailing all specifications



Start designing your custom cabling, go to pickeringtest.com/cdt

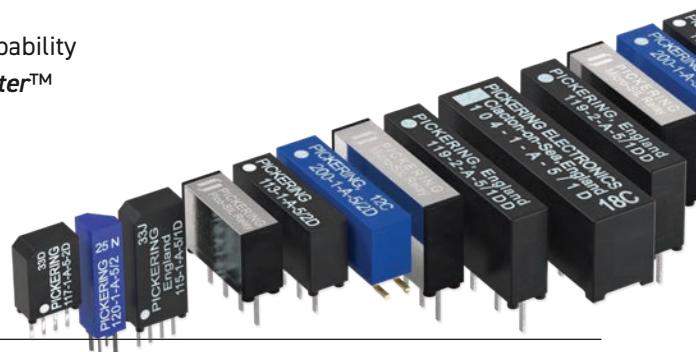
Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for PXI/LXI based test systems. Our modules are fully supported by 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 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 more information go to pickeringtest.com/os

The VISA driver support is provided for LabVIEW Real Time Operating Systems (Pharlap and Linux-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++)
- **Programming Languages** C, C++, C#, Python
- **Keysight VEE** and **OpenTAP**
- **Mathworks MATLAB, Simulink**
- **Marvin ATEasy**
- **MTQ Testsolutions** Tecap Test & Measurement Suite

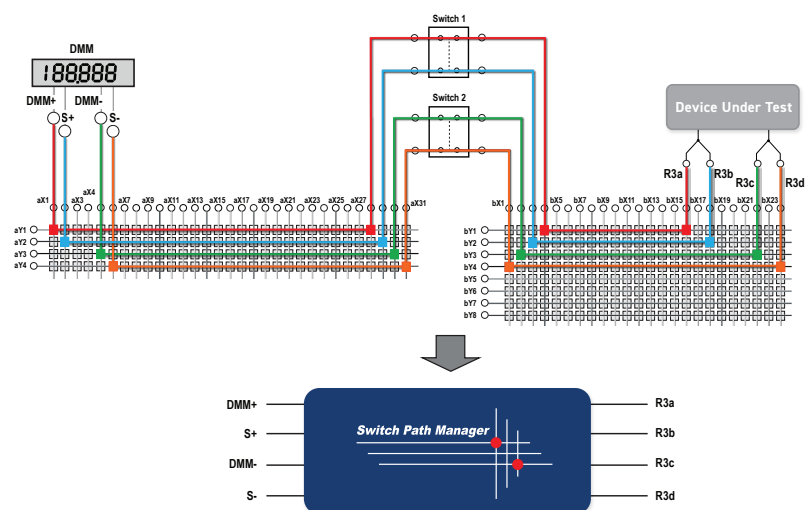
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments 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 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 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 three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available with various levels for 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 go to pickeringtest.com/support

Available Product Resources

We have a library of resources including success stories, product and support videos, articles and white papers as well as application-specific brochures to assist you. We have also published reference books on switching technology and the PXI and LXI standards.

To view, download or request any of our product resources go to pickeringtest.com/resources

