

ARTISAN®
TECHNOLOGY GROUP

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- Single or Dual 6 Channel Panel Mounted Multiplexer
- Up To 3 Remote Multiplexers From Single Slot Version
- 18 GHz, 26.5 GHz and 40 GHz Versions
- 50 Ω SMA Style Connectors
- 50 Ω Terminated Versions
- 75 Ω Version With 4GHz Bandwidth
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty

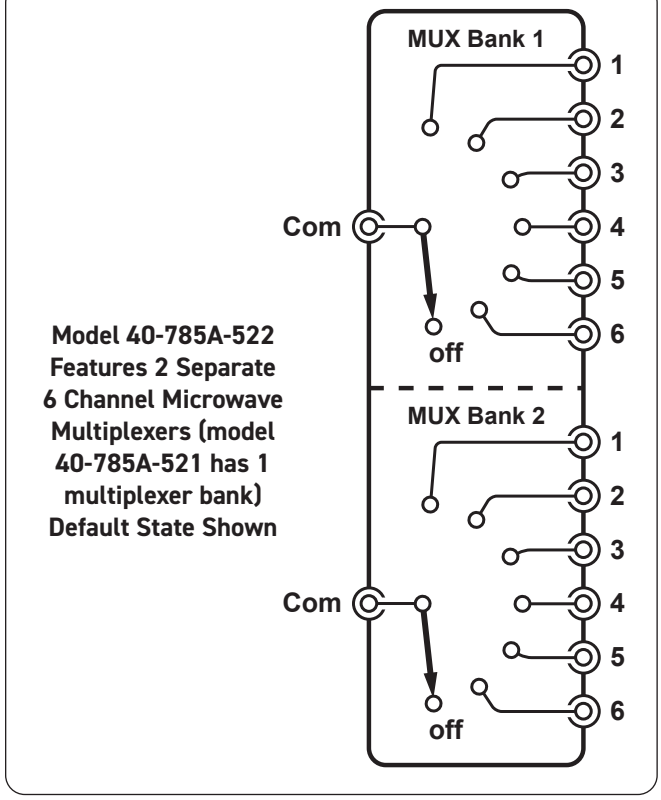


The 40-785A range of PXI microwave multiplexers are suitable for switching 50 Ω signals up to 40 GHz. They are available in single or dual 6 channel configurations, with relays mounted on the front panel. Remote versions are also available which can support up to three multiplexers in a single slot.

The remote multiplexer versions, as well as occupying less PXI panel space, allow the microwave relays to be placed closer to the UUT and RF test equipment. This can shorten the length of cables and improve system performance. Remote multiplexers are supplied with a 1.5 m interface cable.

The panel mounted 50 Ω terminated version occupies 4 slots for the single version or 6 slots for the dual version.

A 75 Ω version is available with a bandwidth of 4 GHz and uses Siemens 1.6/5.6 style connectors.



Model 40-785A-522 Features 2 Separate 6 Channel Microwave Multiplexers (model 40-785A-521 has 1 multiplexer bank) Default State Shown

The 40-785A is suitable for constructing complex microwave switching networks and provides a range of switching configurations to suit most applications. Connection is by high performance front panel mounted SMA style connectors for 50 Ω versions.



Single slot version controls up to 3 remotely mounted microwave multiplexers via interface cables

These modules have the highest RF & 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.

Easy Repair

To allow fast in field repair, any relay may be replaced without removing the module from the PXI chassis.

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Specification - 18 GHz Version

Characteristic Impedance:	50 Ω
Maximum Frequency:	20 GHz
Rise Time:	<3ps
Insertion Loss:	0.2 dB (0-3 GHz) 0.3 dB (3-8 GHz) 0.4 dB (8-12.4 GHz) 0.5 dB (12.4-18 GHz)
VSWR:	1:1.2 (0-3 GHz) 1:1.3 (3-8 GHz) 1:1.4 (8-12.4 GHz) 1:1.5 (12.4-18 GHz)
Isolation:	80 dB (0-3 GHz) 70 dB (3-8 GHz) 60 dB (8-12.4 GHz) 60 dB (12.4-18 GHz)
Non-Terminated Option	
Maximum Power Rating:	240 W (0-3 GHz) 150 W (3-8 GHz) 120 W (8-12.4 GHz) 100 W (12.4-18 GHz)
Expected Life (Low Power):	$5x10^6$ ops. per position
Expected Life (Max Power):	$3x10^5$ ops. per position
Terminated Option	
Maximum Power Rating:	120 W (0-3 GHz) 80 W (3-8 GHz) 60 W (8-12.4 GHz) 50 W (12.4-18 GHz)
Termination Power Rating:	1 W per termination, 3 W total per 6 channel multiplexer.
Expected Life (Low Power):	$2x10^6$ ops. per position
Expected Life (Max Power):	$3x10^5$ ops. per position
Maximum Voltage:	100 VDC
Maximum Switch Current:	1 A
Initial On Path Resistance:	<200 mΩ
Off Path Resistance:	$>10^{10}$ Ω (unterminated)
Vibration:	Sine 1 mm, 5 - 60 Hz Sine 10 g 60 - 2000 Hz
Switching Time:	15 ms

Mechanical Characteristics

Front panel mounted versions occupy 3 slots, terminated front panel mounted versions occupy 4 (single) or 6 (dual versions) slots.

Remote multiplexer versions occupy one slot and are supplied with a 1.5 m interface cable for each of the supplied microwave relays.

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

Switching Specification - Un-terminated 26.5 GHz Version

Insertion Loss:	<0.7 dB
VSWR:	<1:1.7
Isolation:	>50 dB
Expected Life:	$5x10^6$ operations

Switching Specification - Terminated 26.5 GHz Version

Insertion Loss:	<0.7 dB
VSWR:	<1:1.7
Isolation:	>55 dB
Expected Life:	$>2x10^6$ operations

Additional Specification - 40 GHz Version

Insertion Loss:	<1.1 dB
VSWR:	<1:2.2
Isolation:	>50 dB
Expected Life:	$2x10^6$ operations

Additional Specification - 75 Ω Version

Insertion Loss:	<0.3 dB to 2.5 GHz, typically <1.5 dB to 4 GHz
VSWR:	<1:1.3 to 2.5 GHz typically <1:1.3 at 4 GHz
Isolation:	>70 dB to 2.5 GHz
Expected Life:	$2x10^6$ operations

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
0	0.2 A	0.75 A	0

Connectors

PXI bus via 32-bit P1/J1 backplane connector.
Signals via coaxial connectors on microwave switches:

- 20 GHz & 26.5 GHz versions - SMA
- 40 GHz versions - SMA-2.9
- 75 Ω versions - 1.6/5.6 75 Ω connectors

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

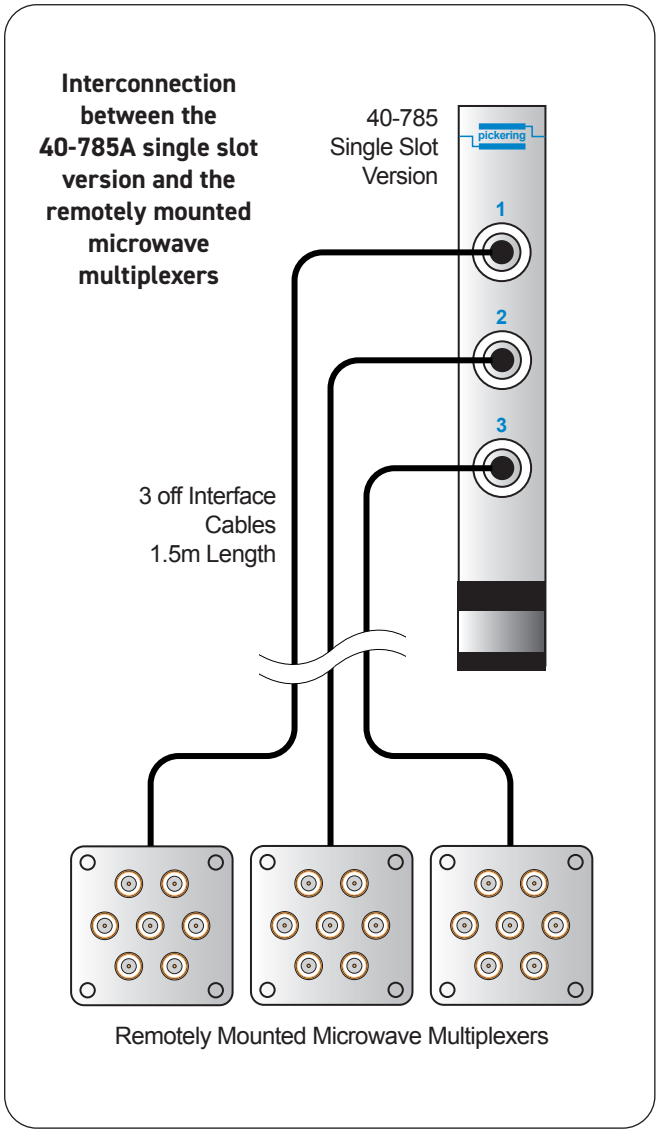
PXI & CompactPCI Compliance

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.



Mating Connectors & Cabling

For connection accessories for the 40-785A 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.

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.

Product Order Codes

18 GHz Multiplexer Versions - 50 Ω	
Single 6 Chan, Panel mount, 50 Ω SMA	40-785A-521
Dual 6 Chan, Panel mount, 50 Ω SMA	40-785A-522
Single 6 Chan, Panel mt, 50 Ω SMA, Term	40-785A-521-T
Dual 6 Chan, Panel mt, 50 Ω SMA, Term	40-785A-522-T
Single 6 Chan, Remote mount, 50 Ω SMA	40-785A-521-E
Dual 6 Chan, Remote mount, 50 Ω SMA	40-785A-522-E
Triple 6 Chan, Remote mount, 50 Ω SMA	40-785A-523-E
Single 6 Chan, Remote, 50 Ω SMA, Term	40-785A-521-TE
Dual 6 Chan, Remote, 50 Ω SMA, Term	40-785A-522-TE
Triple 6 Chan, Remote, 50 Ω SMA, Term	40-785A-523-TE
26.5 GHz Multiplexer Versions - 50 Ω	
† Single 6 Chan, Panel mount, 50 Ω SMA	40-785A-531
† Dual 6 Chan, Panel mount, 50 Ω SMA	40-785A-532
Single 6 Chan, Panel mt, 50 Ω SMA, Term	40-785A-531-T
Dual 6 Chan, Panel mt, 50 Ω SMA, Term	40-785A-532-T
Single 6 Chan, Remote mount, 50 Ω SMA	40-785A-531-E
Dual 6 Chan, Remote mount, 50 Ω SMA	40-785A-532-E
Triple 6 Chan, Remote mount, 50 Ω SMA	40-785A-533-E
Single 6 Chan, Remote, 50 Ω SMA, Term	40-785A-531-TE
Dual 6 Chan, Remote, 50 Ω SMA, Term	40-785A-532-TE
Triple 6 Chan, Remote, 50 Ω SMA, Term	40-785A-533-TE
40 GHz Multiplexer Versions - 50 Ω	
† Single 6 Chan, Panel mount, 50 Ω SMA-2.9	40-785A-541
† Dual 6 Chan, Panel mount, 50 Ω SMA-2.9	40-785A-542
Single 6 Chan, Panel mt, 50 Ω SMA-2.9, Term	40-785A-541-T
Dual 6 Chan, Panel mt, 50 Ω SMA-2.9, Term	40-785A-542-T
Single 6 Chan, Remote mount, 50 Ω SMA-2.9	40-785A-541-E
Dual 6 Chan, Remote mount, 50 Ω SMA-2.9	40-785A-542-E
Triple 6 Chan, Remote mount, 50 Ω SMA-2.9	40-785A-543-E
Single 6 Chan, Remote, 50 Ω SMA-2.9, Term	40-785A-541-TE
Dual 6 Chan, Remote, 50 Ω SMA-2.9, Term	40-785A-542-TE
Triple 6 Chan, Remote, 50 Ω SMA-2.9, Term	40-785A-543-TE
4 GHz Multiplexer Versions - 75 Ω	
Single 6 Chan, Panel mount, 75 Ω 1.6/5.6	40-785A-751
Dual 6 Chan, Panel mount, 75 Ω 1.6/5.6	40-785A-752
Single 6 Chan, Remote mount, 75 Ω 1.6/5.6	40-785A-751-E
Dual 6 Chan, Remote mount, 75 Ω 1.6/5.6	40-785A-752-E
Triple 6 Chan, Remote mount, 75 Ω 1.6/5.6	40-785A-753-E
Accessories:	
Microwave relay bracket for remote mounting - Contact Pickering Interfaces for information.	

† Please note that these models have been superceded with more competitive options from model 40-784, however remain available for legacy requirements.

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

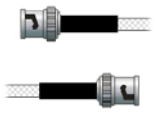
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



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



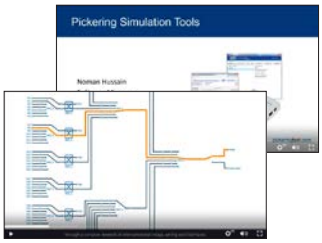
eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

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

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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.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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