- Single, Dual, Triple SP8T or Single, Dual SP16T Multiplexers in a Single Module
- 1.8 GHz Switching (50 Ω SMB or SMA Versions)
- 1.3 GHz Switching (75 Ω SMB Versions)
- 1.3 GHz Switching (50 Ω Multiway Versions)
- 1.3 GHz Switching (75 Ω Multiway Versions)
- SMB, SMA and Multiway Connector Versions
- Low Cost, High Performance
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- Supported by PXI or LXI Chassis
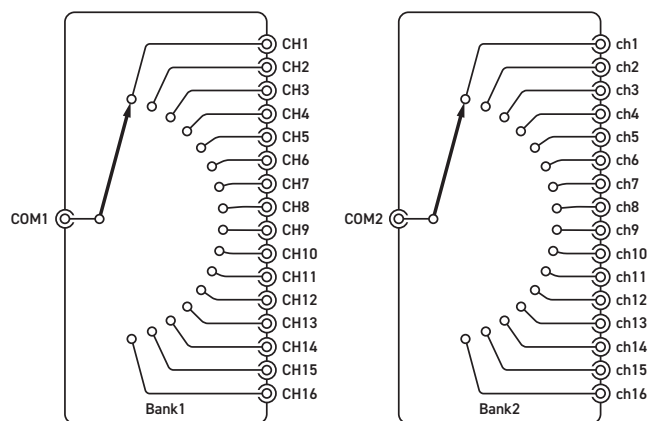- SMB Versions Supported by *eBIRST ™*
- 3 Year Warranty

The 40-756 is a high density RF multiplexer available in 50 Ω and 75 Ω variants with up to 3xSP8T or 2xSP16T switches in a single PXI module. It is available with three connector options; SMB or SMA that provide a frequency range of 1.8 GHz (50 Ω) / 1.3 GHz (75 Ω), or multiway which limits the bandwidth to 1.3 GHz but offers a high density solution occupying one PXI slot. The connectors used are fully supported by the range of Pickering Interfaces connection solutions.

The 40-756 Range is as follows:

- Single, Dual or Triple SP8T, 50 Ω or 75 Ω, SMB Connectors
- Single, Dual or Triple SP8T, 50 Ω or 75 Ω, Multiway Connectors
- Single, Dual or Triple SP8T, 50 Ω, SMA Connectors
- Single or Dual SP16T, 50 Ω or 75 Ω, SMB Connectors
- Single or Dual SP16T, 50 Ω or 75 Ω, Multiway Connectors
- Single or Dual SP16T, 50 Ω, SMA Connectors

Dual SP16T 50 Ω RF Multiplexer with SMB Connectors (Part No. 40-756-120)

Dual SP16T RF Multiplexer (Part No. 40-756-x2x)

These modules offer low insertion loss and low VSWR through the usable frequency range and each multiplexer has been designed to have path independent loss.

The 40-756 is supplied with drivers that allow the user to support the module in all popular PXI software environments. In addition, the module can be supported in all Pickering's LXI Modular Chassis, allowing the use of a PXI or LAN controlled switching solution with the same high levels of performance.

Supported by *eBIRST*

SMB builds of this product are supported by eBIRST test tools which simplify fault-finding by quickly testing the system and graphically identifying the faulty relay. For more information go to: pickeringtest.com/ebirst
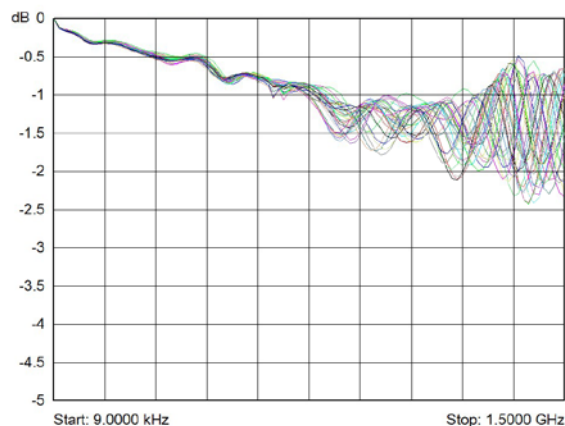
Issue 1.1 February 2023

Specification - SP8T & SP16T 50 Ω Versions with Multiway Connectors

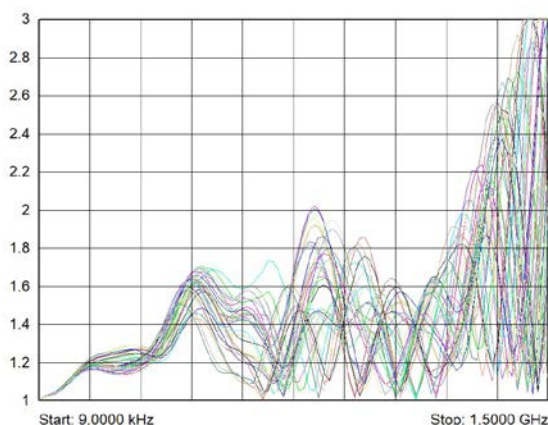### RF Specification

Impedance:	50 Ω
RF Frequency Range:	DC to 1.3 GHz
Insertion Loss:	<1 dB to 500 MHz (typically 0.7 dB)
	2.5 dB to 1.3 GHz (typically 2.0 dB)
VSWR:	<1.8:1 to 500 MHz (typically 1.7:1)
	3.2:1 to 1.3 GHz (typically 2.8:1)
Isolation:	>50 dB to 1.3 GHz
	(typically >55 dB)
Crosstalk:	<-50 dB to 1.3 GHz
	(typically <-55 dB)
Maximum RF Power:	10 W at 1.3 GHz

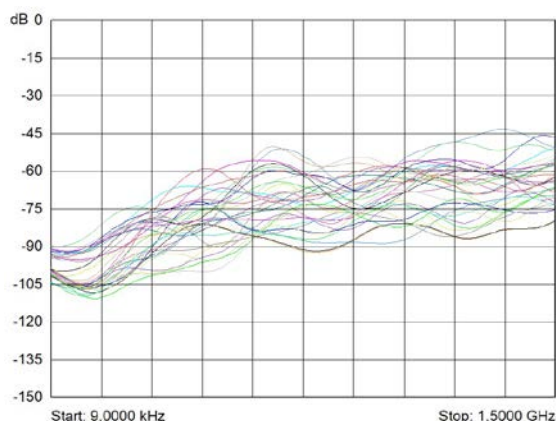### Other Switching Specification

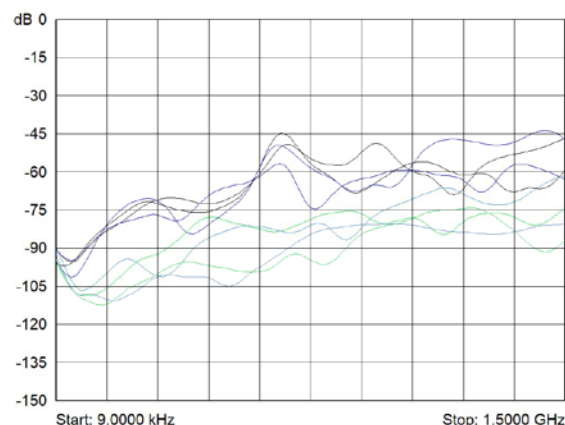|	
Maximum Hot Switch Voltage:	200 VDC or AC peak
Maximum Hot Switch Current:	1 A
Maximum Cold Switch Current:	1 A
Maximum Hot Switch Power:	10 W
Operating Time:	3 ms typical
Life Expectancy:	10 million operations at <100 mW

Typical insertion loss plot - 50 Ω multiway

Typical VSWR plot - 50 Ω multiway

Typical channel to common isolation plot - 50 Ω multiway

Typical bank to bank crosstalk plot - 50 Ω multiway

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
1 A (typical)	0.65 A (typical)	0	0

Mechanical Characteristics

40-756-121: Single slot 3U PXI (CompactPCI card).
Module weight (40-756-121): 394 g
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 RF connectors:

- 40-756-010   9x SMB coaxial connectors
- 40-756-020   18x SMB coaxial connectors
- 40-756-030   27x SMB coaxial connectors
- 40-756-011   1x male 26-pin MS-M RF multiway
- 40-756-021   1x male 26-pin MS-M RF multiway
- 40-756-031   2x male 26-pin MS-M RF multiway
- 40-756-012   9x SMA coaxial connectors
- 40-756-022   18x SMA coaxial connectors
- 40-756-032   27x SMA coaxial connectors
- 40-756-210   9x SMB coaxial connectors
- 40-756-220   18x SMB coaxial connectors
- 40-756-230   27x SMB coaxial connectors
- 40-756-211   1x male 26-pin MS-M RF multiway
- 40-756-221   1x male 26-pin MS-M RF multiway
- 40-756-231   2x male 26-pin MS-M RF multiway
- 40-756-110   14x SMB coaxial connectors
- 40-756-120   34x SMB coaxial connectors
- 40-756-111   1x male 26-pin MS-M RF multiway
- 40-756-121   2x male 26-pin MS-M RF multiway
- 40-756-112   14x SMA coaxial connectors
- 40-756-122   34x SMA coaxial connectors
- 40-756-310   14x SMB coaxial connectors
- 40-756-320   34x SMB coaxial connectors
- 40-756-311   1x male 26-pin MS-M RF multiway
- 40-756-321   2x male 26-pin MS-M RF multiway

For pin outs please refer to the operating manual.

Operating/Storage Conditions

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

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

MUX Size	Number of Banks	Impedance	Connector Type	Part Number
SP8T	1	50Ω	SMB	40-756-010
	2			40-756-020
	3			40-756-030
	1		Multiway (MS-M)	40-756-011
	2			40-756-021
	3			40-756-031
	1		SMA	40-756-012
	2			40-756-022
	3			40-756-032
	1	75Ω	SMB	40-756-210
	2			40-756-220
	3			40-756-230
	1		Multiway (MS-M)	40-756-211
	2			40-756-221
	3			40-756-231
SP16T	1	50Ω	SMB	40-756-110
	2			40-756-120
	1		Multiway (MS-M)	40-756-111
	2			40-756-121
	1		SMA	40-756-112
	2			40-756-122
	1	75Ω	SMB	40-756-310
	2			40-756-320
	1		Multiway (MS-M)	40-756-311
	2			40-756-321

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.
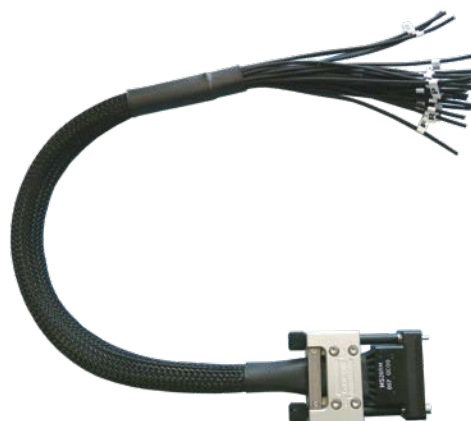
Support Products

eBIRST Switching System Test Tool

SMB builds of 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
40-756-xx0	93-005-001	93-005-202A
40-756-xx1	Unsupported	
40-756-xx2	Unsupported	

Mating Connectors & Cabling

For connection accessories for the SMB and SMA versions of the 40-756 please refer to the 90-011D RF Cable Assemblies data sheet, or for the multiway MS-M connector versions please refer to the 90-017D Cable Assemblies where a complete list and documentation can be found for accessories.

Pickering can supply cable assemblies for all its modules. The cable shown (MS-M RF to unterminated coax) is suitable for multiway connector versions of the 40-756.

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 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.

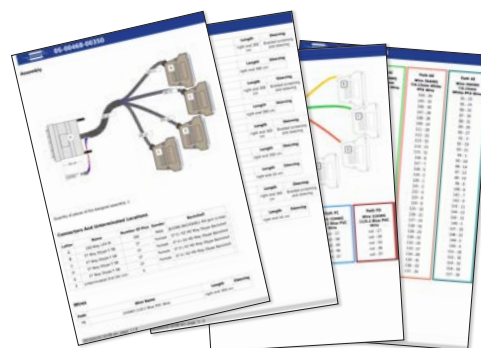| Connectors & Backshells | Multi-way Cable Assemblies | RF Cable Assemblies | Breakouts | Connector Blocks |

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

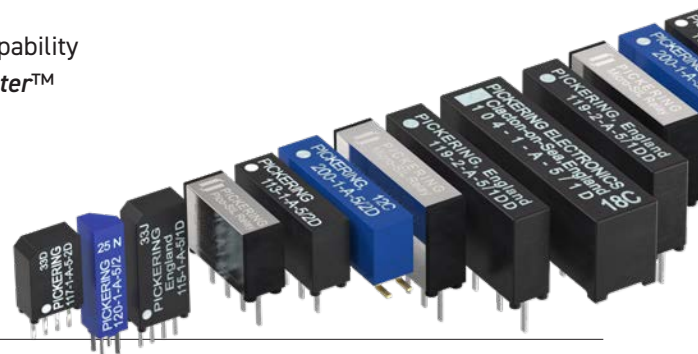Start designing your custom cabling, go to pickeringtest.com/cdt

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
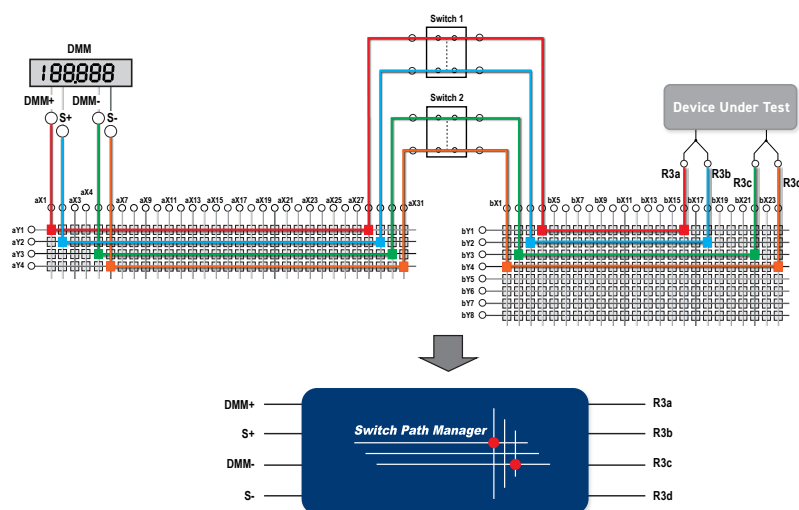- **MTQ Testsolutions** Tecap Test & Measurement Suite

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