PXI 17off SPDT 50 Ω RF Switches, 1.2 GHz

40-754

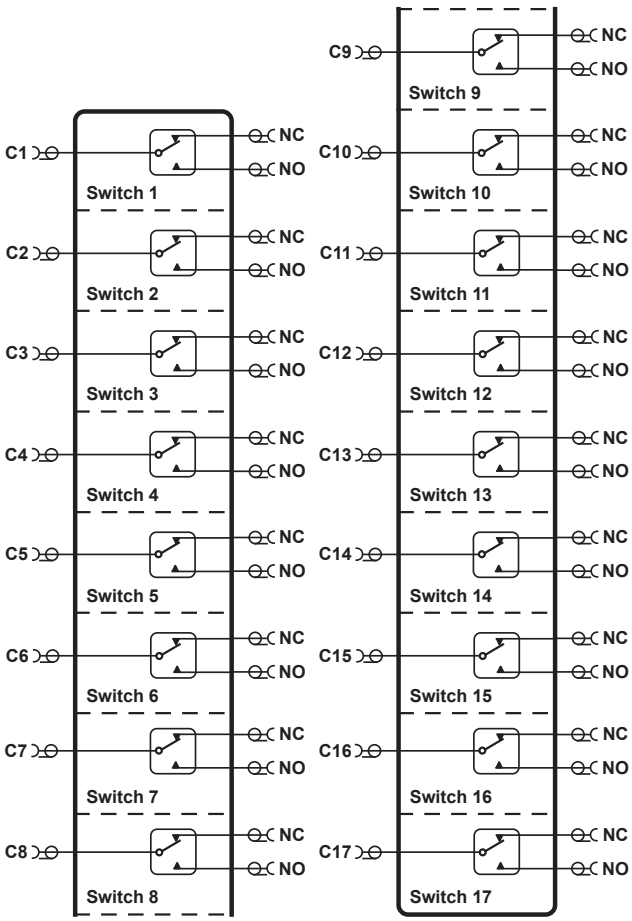
- 1.2 GHz Switching (SMB Version)
- 17off SPDT & 9off SPDT Versions
- SMB and MS-M RF Connector Versions
- High Performance, Low Cost
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty

The 40-754 is a 50 Ω High Density RF switch available with 17 or 9 SPDT relays in a single PXI module. The 40-754 is available with two connector options; an SMB connector that provides a frequency range of 1.2 GHz (usable to 1.8 GHz) occupying two PXI slots, or an MS-M RF multiway connector which limits the bandwidth to 500 MHz but offers a high density solution occupying one PXI slot. The RF switch design is identical in each case.

The module offers low insertion loss and low VSWR throughout its usable frequency range and each switch has approximately equal loss on its signal paths. Careful attention to the mechanical and electrical design results in low levels of unwanted signal noise.

The array of SPDT switches can be connected into alternative configurations using external cabling. The module's RF connectors are fully supported by Pickering's range of connection solutions.

The 40-754 is supplied with drivers that allow users to support the module in all the popular PXI software environments. In addition, the module can be supported in all Pickering's LXI Modular Chassis, allowing users to freely choose PXI or LAN controlled switching solutions with the same high levels of performance.



40-754-017/117 17off SPDT RF Switch
Functional Diagram (Default Switch Paths Shown)

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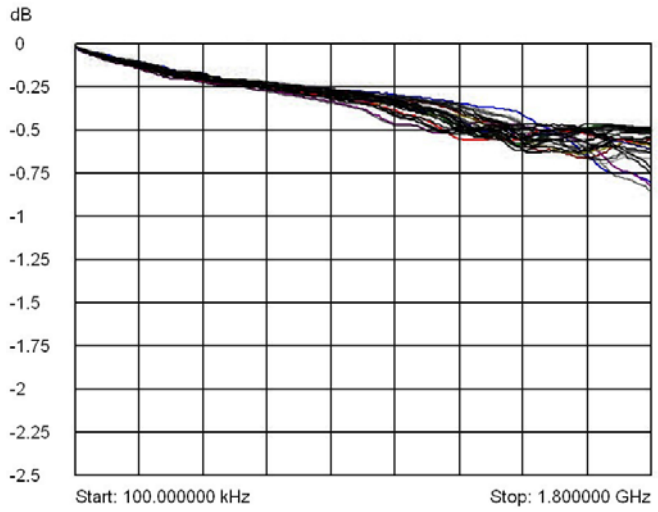
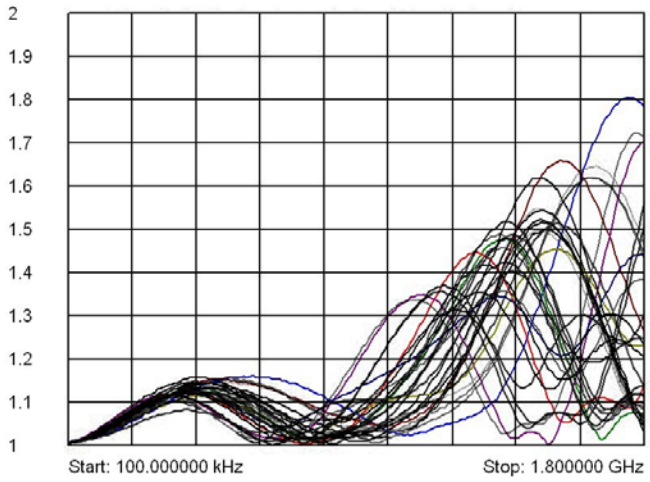
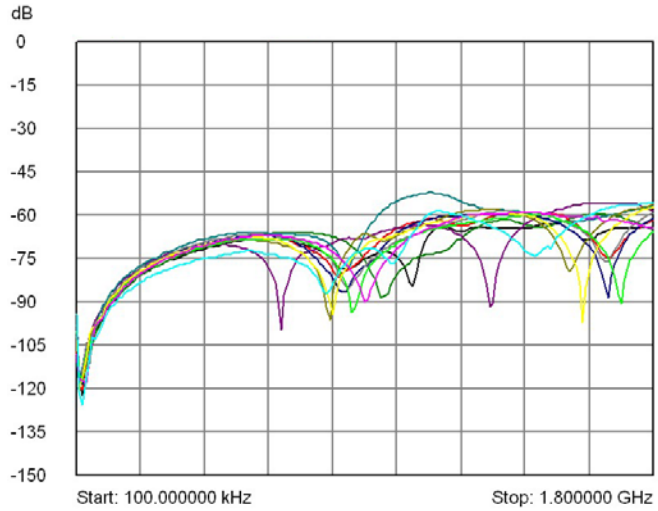


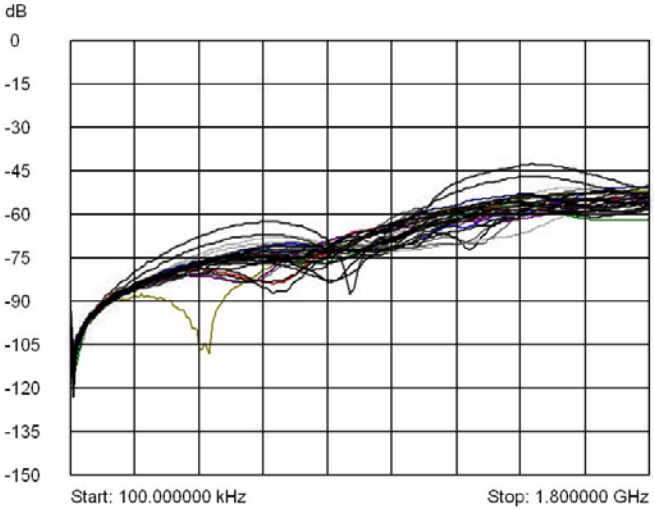
Typical insertion loss plot for all channels of 40-754-117 (17-off SPDT with SMB connectors)



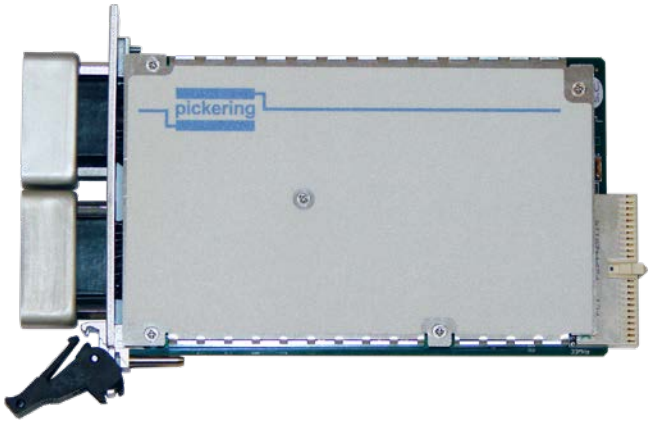
Typical VSWR plot for all channels of 40-754-117 (17-off SPDT with SMB connectors)



Typical crosstalk plot for 40-754-117 (17-off SPDT with SMB connectors)



Typical isolation plot for all channels of 40-754-117 (17-off SPDT with SMB connectors)



40-754 17-off SPDT RF Switch with MS-M connectors - side view

RF Specification - MS-M RF Multiway Connector Versions

Impedance:	50 Ω
RF Frequency Range:	DC to 500 MHz
Insertion Loss:	<0.6 dB to 500 MHz (typically 0.3 dB)
VSWR:	<1.8:1 to 500 MHz (typically 1.5:1 max)
Isolation:	>50 dB to 500 MHz
Crosstalk:	<-55 dB to 500 MHz
Maximum RF Power:	10 W

RF Specification - SMB Connector Versions

Impedance:	50 Ω
RF Frequency Range:	DC to 1.2 GHz (usable to 1.8GHz)
Insertion Loss:	<0.75 dB to 1.2GHz (typically 0.5 dB)
VSWR:	<1.5:1 to 1.2 GHz
Isolation:	>45 dB to 1.2 GHz
Crosstalk:	<-50 dB to 1.8 GHz
Maximum RF Power:	10 W

Other Switching Specifications

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

Power Requirements from PXI Power Supply

+3.3 V	+5 V	+12 V	-12 V
1 A	0.65 A	0	0

Mechanical Characteristics - MS-M RF Connector Versions

Single slot 3 U PXI (CompactPCI card).
3D models for all versions in a variety of popular file formats are available on request.

Connectors - MS-M RF Connector Versions

PXI bus via 32-bit P1/J1 backplane connector.
Signals via 2 front panel 26-pin male high density RF connectors, for pin outs please refer to the operating manual.

Mechanical Characteristics - SMB Connector Versions

Dual slot 3U PXI (CompactPCI card).
3D models for all versions in a variety of popular file formats are available on request.

Connectors - SMB Connector Versions

PXI bus via 32-bit P1/J1 backplane connector.
Signals via front panel connectors:

- 40-754-117 51off SMB
- 40-754-109 27off SMB

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

17off RF SPDT Switch, 500 MHz MS-M RF	40-754-017
9off RF SPDT Switch, 500 MHz MS-M RF	40-754-009
17off RF SPDT Switch, 1.2 GHz SMB	40-754-117
9off RF SPDT Switch, 1.2 GHz SMB	40-754-109

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

Spare Relay Kits

Kits of replacement relays are available for the majority of Pickering's PXI switching products, simplifying servicing and reducing down-time.

Product	Relay Kit
40-754-017/009/117/109	91-100-014

For further assistance, please contact your local Pickering sales office.

Mating Connectors & Cabling

For connection accessories for the SMB version of the 40-754 please refer to the 90-011D RF Cable Assemblies data sheet, or for the multiway MS-M RF connector version please refer to the 90-017D Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

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 40-754.

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:

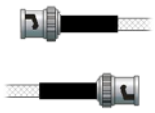
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating 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

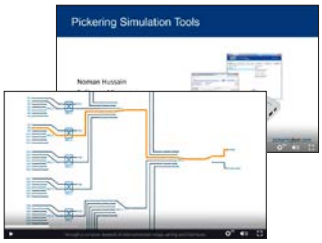
eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

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