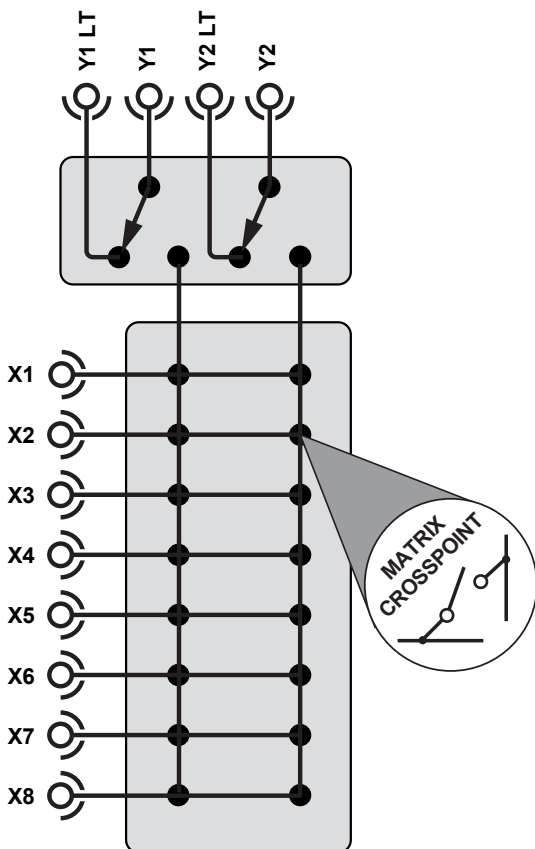


- 8x2 RF Coaxial Matrix
- 1 GHz Bandwidth
- 50  $\Omega$  Characteristic Impedance
- Built-in Y-Axis Loop-Thru Simplifies the Construction of Larger RF Matrices
- High Density SMA or SMB Coaxial Connectors
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty



**8x2 Coaxial Matrix Schematic Diagram  
(Switch positions in "Initialized State")**

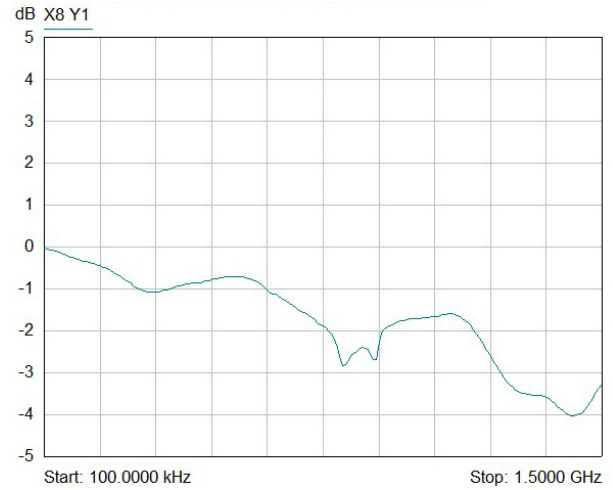
The 40-750 is an 8x2 RF matrix module suitable for switching frequencies up to 1000 MHz. It has a 50  $\Omega$  characteristic impedance with front panel mounted SMA or SMB coaxial connectors. The matrix is intended for the easy construction of high performance bi-directional switching systems.

Automatic loop-thru switching of Y-axis signals is also provided. This means Y signals that are not connected to the matrix are automatically routed to connectors on the front panel. Loop-thru Y signals can be routed to adjacent modules for matrix expansion or to 50  $\Omega$  terminators.

Applications include routing high frequency signals to and from oscilloscopes, network/spectrum analysers, signal generators and synthesizers, switching high frequency logic and many other situations involving coaxial switching.



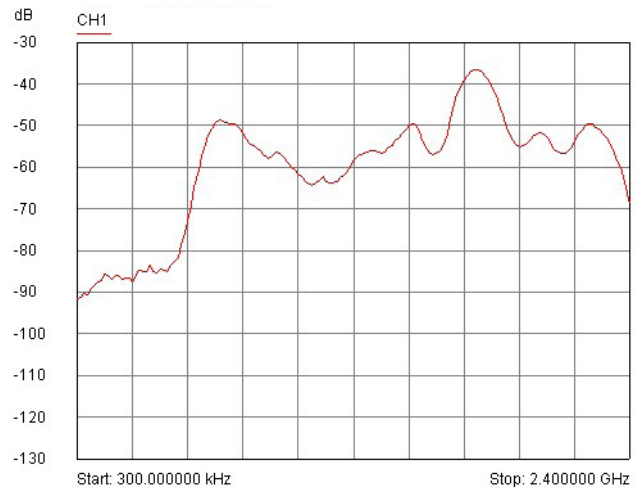
**40-750-521 RF Matrix Typical Crosstalk Plot**



**40-750-521 RF Matrix Typical Insertion Loss Plot**



**40-750-521 RF Matrix Typical VSWR Plot**



**40-750-521 RF Matrix Typical Isolation Plot**



**40-750-521 RF Matrix Typical Insertion Loss Plot Using Loop Thru**

## General Switching Specification

Maximum Voltage:	60 VDC
Maximum Power:	10 W
Maximum Carry Power (900MHz):	10 W
Maximum Switch Current:	0.1 A
Characteristic Impedance:	50 $\Omega$
Initial On Path Resistance:	<600 m $\Omega$
Off Path Resistance:	>1x10 <sup>8</sup> $\Omega$
Thermal Offset:	<30 $\mu$ V
Expected Life (Low power):	>2x10 <sup>7</sup> operations
Expected Life (Max power):	>3x10 <sup>5</sup> operations
Operate Time:	<5 ms
Release Time:	<5 ms

## RF Specification (50 $\Omega$ SMA)

Maximum Frequency:	1 GHz
Typical Rise Time:	500 ps
Insertion Loss (<1000 MHz):	<3 dB (Typical)
VSWR (<1000 MHz):	1:1.8
Isolation (<1000 MHz):	>50 dB
Crosstalk (<1000 MHz):	>35 dB

## Power Requirements

+3.3V	+5V	+12V	-12V
0	320 mA (typ 240 mA)	0	0

## Mechanical Characteristics

Single 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 coaxial connectors:

- 40-750-511 - 12 x SMB 50  $\Omega$
- 40-750-521 - 12 x SMA 50  $\Omega$

## 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

---

### PXI 8x2 1 GHz Coaxial Matrix:

<b>SMA Connectors, 50 <math>\Omega</math></b>	<b>40-750-521</b>
<b>SMB Connectors, 50 <math>\Omega</math></b>	<b>40-750-511</b>

---

## Product Customization

Pickering PXI 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.

<b>Product</b>	<b>Relay Kit</b>
<b>40-750-521/511</b>	<b>91-100-014</b>

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

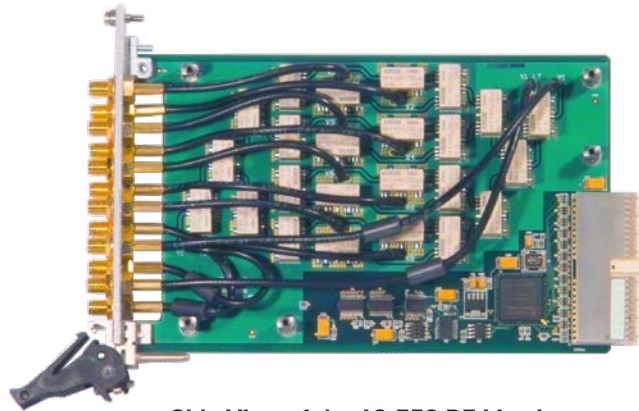
---

## Mating Connectors & Cabling

---

For connection accessories for the 40-750 module 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.

---



**Side View of the 40-750 RF Matrix Module With the Cover Removed**

## 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

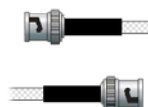
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



Connectors & Backshells



Multiwire 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](http://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](http://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](http://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:

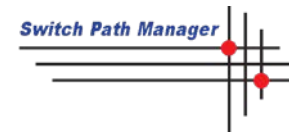
- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
- **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](http://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](http://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](http://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](http://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](http://pickeringtest.com/resources)