PXI Microwave BRIC™ Matrix 40-787

- Platform For Microwave Matrix and Switching Applications
- Standard Configurations Up To Non-Blocking 4x4 Matrix
- Options For Built-in Termination and Loop Thru
- High Quality Switches Ensure Low Loss and VSWR
- Repeatable and Path Independent Insertion Loss
- Occupies 10 Mechanical Slots of a 3U Chassis
- Single Electrical Slot Ideal For Use In Smaller Chassis
- Customized Version With Additional Switch Components and Matrix Size Available
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty

The 40-787 Microwave BRIC platform is designed to provide a solution for complex RF matrix applications. Using a common mechanical platform the module can be constructed to provide scaleable non-blocking or blocking microwave matrix for frequencies to at least 20GHz.

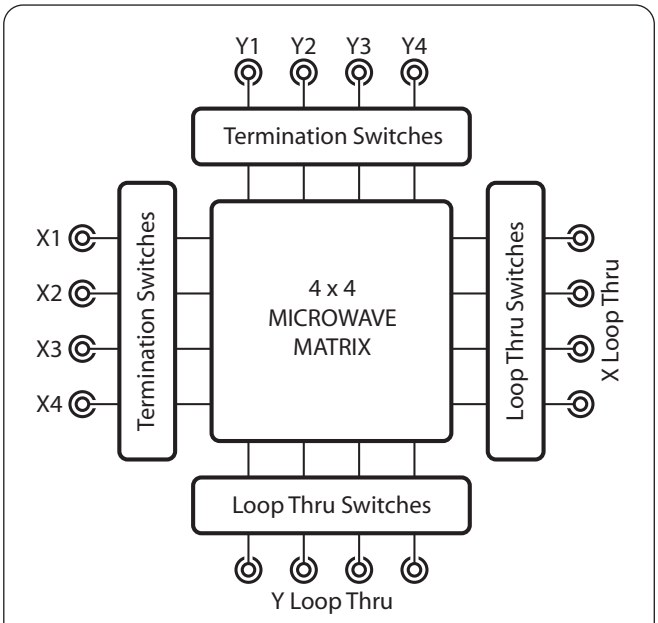
The standard configurations provide up to a 4x4 matrix. More complex matrices can be constructed by adding further switching functions and other devices inside the module.

The matrix is available with optional terminated inputs to avoid the creation of standing waves on unconnected input cables. A Loop Thru option allows the matrix size to be expanded by combining a number of modules with additional cables, enabling 8x4 or even 8x8 matrix to be constructed.

The use of high quality microwave switches ensures high performance in all applications and a similar insertion loss on all paths through a standard matrix.

The 40-787 can be used efficiently in smaller chassis since only the left hand electrical connection is used and the module can occupy the expansion slots on the right hand side of low cost chassis such as the Pickering Interfaces 40-908.

If you have an application requiring higher frequencies, more functionality or a larger matrix Pickering Interfaces can adapt the design of the this module to your requirements. Contact your local sales office for more information.



40-787 Non-Blocking matrix with optional Loop-Thru and Input Termination

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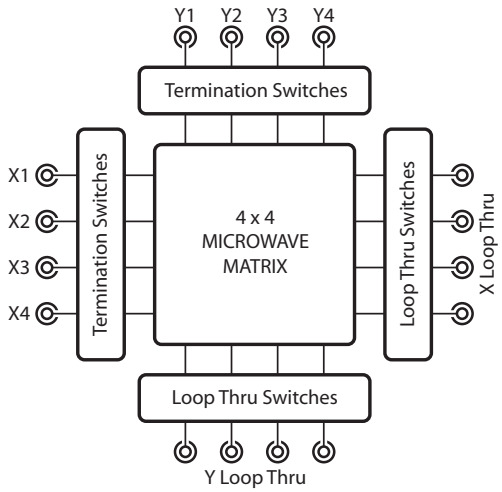
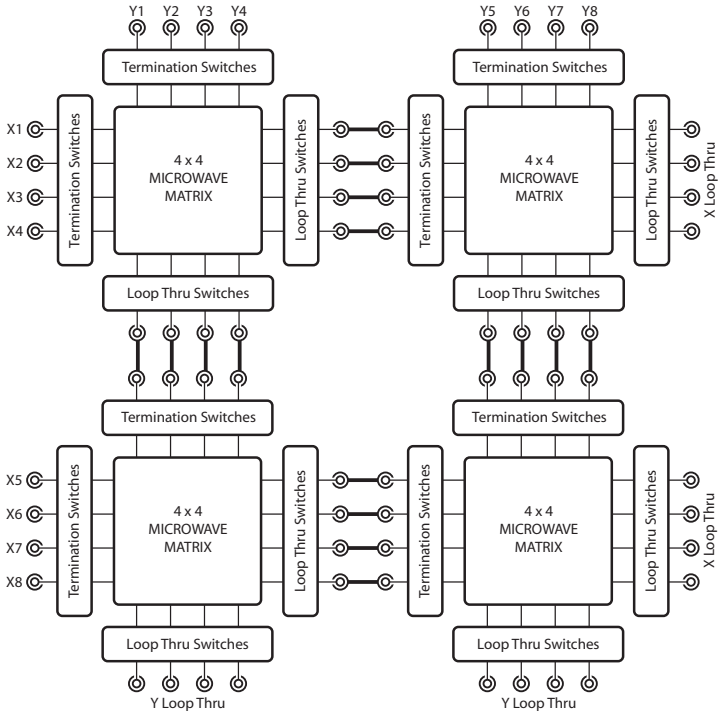


40-787 non-blocking matrix with optional Input Termination and Loop-Thru. The Y axis inputs can be routed to the X axis connections or the signal can be passed on to the Loop-Thru connectors to allow the construction of a larger matrix



By combining several 40-787 matrices with the Loop-Thru option together, a larger matrix can be constructed.

Switching Specification

Frequency range:	DC to 20GHz
Typical Insertion Loss:	
10GHz matrix:	1.5dB at 3GHz, 3.2dB at 10GHz.
20GHz matrix:	1dB at 3GHz, 2dB at 10GHz, 3.5dB at 20GHz.
Typical VSWR:	
10GHz matrix:	<1.2 to 4GHz, <1.5 to 10GHz.
20GHz matrix:	<1.15 to 4GHz, <1.4 to 10GHz, 1.7 to 20GHz
Isolation:	>80dB
Termination Power:	1 Watt
Maximum DC Voltage:	100V (matrix output not loaded)
Maximum DC Current:	1 Amp
Expected Life:	$2x10^7$ (low power)

Maximum RF Power (Non-terminated version)

	<3GHz	3GHz to 2GHz	12GHz to 20GHz
10GHz matrix	80 Watts	30 Watts	25 Watts
20GHz matrix	100 Watts	60 watts	30 Watts

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 33MHz 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.

Power Requirements

+3.3V	+5V	+12V	-12V
0	0.15A	0.35A	0

Mechanical Characteristics

Occupies 10 slots of a 3U PXI chassis, one electrical slot needed.
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 mounted SMA connectors.

Operating/Storage Conditions

Operating Conditions

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

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

Ordering Information

Product Order Codes

3x3 10 GHz Microwave Matrix	**40-787-518-3x3**
4x3 10 GHz Microwave Matrix	**40-787-518-4x3**
4x4 10 GHz Microwave Matrix	**40-787-518-4x4**
3x3 20 GHz Microwave Matrix	**40-787-528-3x3**
4x3 20 GHz Microwave Matrix	**40-787-528-4x3**
4x4 20 GHz Microwave Matrix	**40-787-528-4x4**

Add **-L** for Loop Thru option
Add **-T** for terminated input option
(both options can be ordered simultaneously

Mating Connectors & Cabling

For connection accessories for the 40-787 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 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.

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.

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:

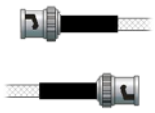
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating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

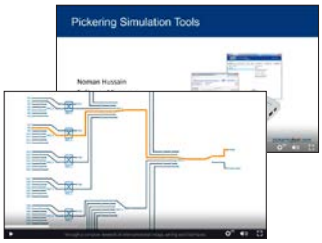
eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

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