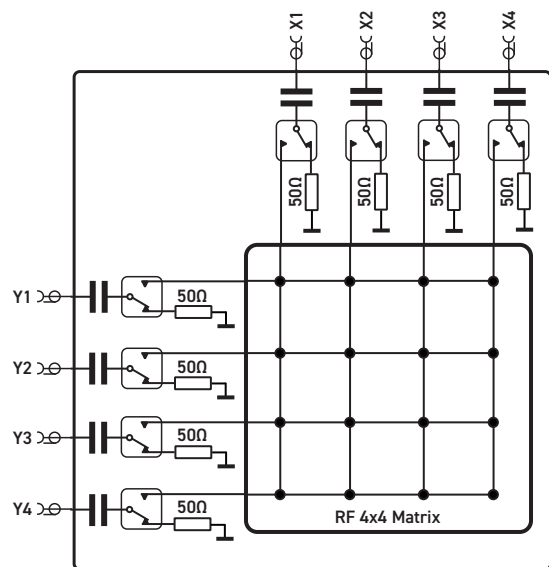


# PXI/PXIe 50 $\Omega$ 4x4 Terminated 8 GHz RF Matrix 40/42-884B

- Available as PXI or PXIe Module
- Wide Frequency Range 10 MHz to 8 GHz
- High Performance Solid State Switch
- 4x4 Matrix
- Automatic Termination of Unused Ports
- +30 dBm Input Power Handling
- Excellent Crosstalk & Isolation
- Compact 3 Slot Form Factor
- Fast Operating Speed & Long Service Life
- SMA Coaxial Connectors
- Relay Cycle Counting Included
- Drivers Supplied for Windows and Linux, Plus Support for Real-time Systems
- PXI Version Supported in PXI or LXI Chassis
- 3 Year Warranty



4x4 Terminated RF Matrix Simplified Diagram

The 40-884B (PXI) and 42-884B (PXIe) are all solid state microwave matrices which can operate beyond 8 GHz and handle RF power to +30 dBm. The matrix can support up to 4 point to point connections at the same time.

An innovative construction method ensures the 40/42-884B provides a compact 3 slot solution with excellent RF performance. A 4x4 matrix allows concurrent testing of up to 4 devices with 4 different sets of test equipment. This improves speed of test in RF systems and makes efficient use of expensive test equipment.

The design has high isolation between selected paths, ensuring a high degree of independence in test processes. Fast operating speed reduces the time taken in setting switches for the following test. With the ability to handle signals up to +30 dBm and an IP3 of typically +60 dBm the module can switch signals with levels found in most applications without introducing appreciable distortion.

RF connections are made via SMA connectors ensuring cabling maintains the high performance of the matrix.

The 40/42-884B is supplied with drivers that allow support in all popular software environments. The PXI version can also be supported in all Pickering's LXI Modular Switching chassis, allowing the use of a PXI or LAN controlled switching solution with the same high levels of performance.

## Relay Cycle Counting

To aid with module "health" monitoring all versions are provided with a relay cycle counting feature. The number of operations per contact are stored on the host computer and can be used to determine if a relay is approaching EOL. This information could allow system connections to be revised so that signals applied to heavily used contacts are swapped with lightly used contacts to prolong the working life of the relay(s).

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## RF Specification

RF Frequency Range:	10 MHz to 8 GHz
Insertion Loss:	Typically <7.0 dB to 6 GHz Typically <8.0 dB to 8 GHz
VSWR thru path Y to X:	Typically <1.75:1 to 7 GHz Typically <1.85:1 to 8 GHz
VSWR thru path X to Y:	Typically <1.7:1 to 6 GHz Typically <1.8:1 to 8 GHz
VSWR Internal termination:	Typically <1.6:1 to 8 GHz
Crosstalk:	Typically <-63 dB to 5 GHz Typically <-57 dB to 6 GHz Typically <-45 dB to 8 GHz
Isolation (no path selected):	Typically > 90 dB to 3 GHz Typically > 75 dB to 5 GHz Typically > 60 dB to 8 GHz
Maximum RF Power:	+30 dBm CW +20 dBm Hot switching +26 dBm Into terminations
Maximum DC Voltage:	7 V (AC coupled)
Life Expectancy:	Indefinite when used within ratings
Operate Time:	50 $\mu$ s
RF Switching Time:	10 $\mu$ s typical rise and fall time
RF Connectors:	SMA

## Power Requirements - 40-884B

+3.3 V	+5 V	+12 V	-12 V
0.03 A	0.05 A	0	0

## Power Requirements - 42-884B

+3.3 V	+12 V
0.03 A	0.03 A

## Mechanical Characteristics

40-884B - 3 slot 3U PXI (CompactPCI card)

42-884B - 3 slot 3U PXIe, compatible with PXIe hybrid slot

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

## Connectors

40-884B - PXI bus via 32-bit P1/J1 backplane connector.

42-884B - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via front panel SMA connectors.

## PXI & CompactPCI Compliance - 40-884B

The module is compliant with the PXI Specification 2.2.

Local Bus, Trigger Bus & Star Trigger are not implemented.

Uses a 33 MHz 32-bit backplane interface.

## PXIe Compliance - 42-884B

The module is compliant with the PXIe Specification 1.0.

Local Bus, Trigger Bus & Star Trigger are not implemented.

## 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.

## Operating/Storage Conditions

Operating Temperature: 0 °C to +55 °C

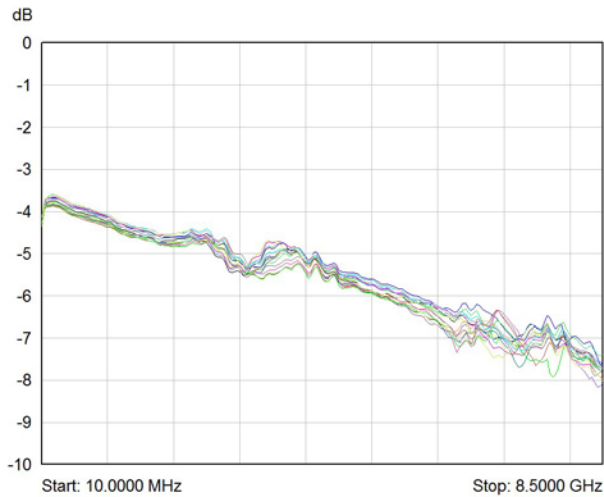
Humidity: Up to 90 % non-condensing

Altitude: 5000 m

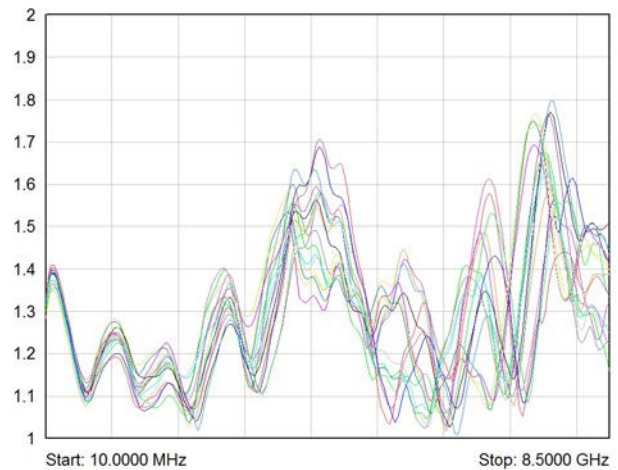
Storage/Transport Temperature: -20 °C to +75 °C

Humidity: Up to 90 % non-condensing

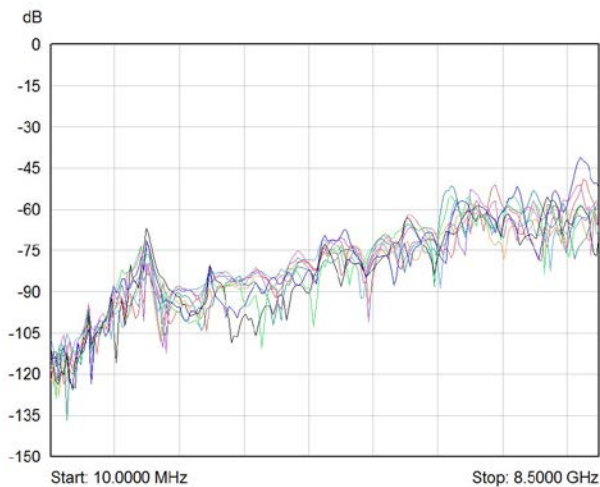
Altitude: 15000 m



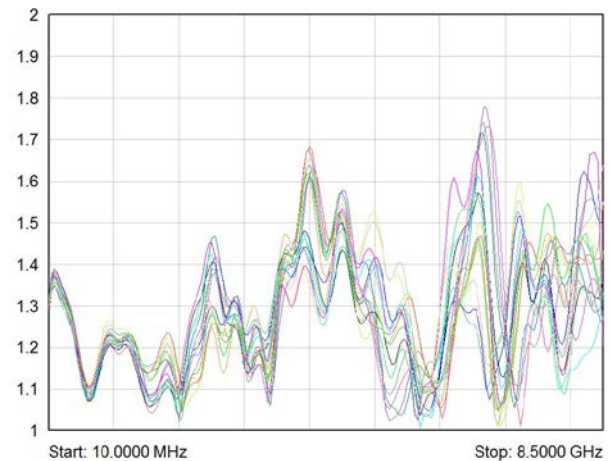
**Insertion loss for 40/42-884B-001  
for all matrix paths up to 8.5 GHz**



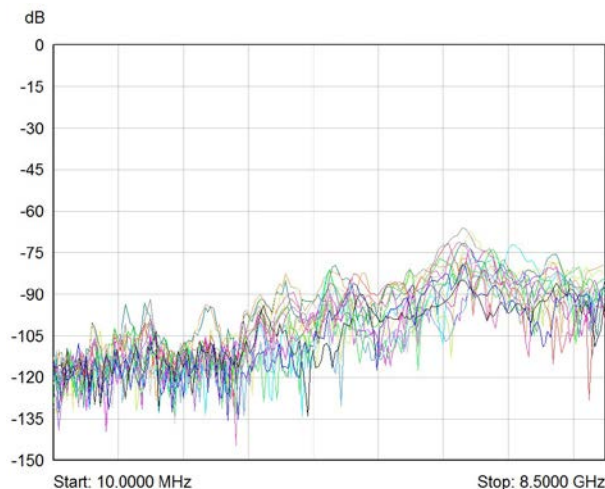
**VSWR for 40/42-884B-001  
for Y to X paths up to 8.5 GHz**



**Crosstalk for 40/42-884B-001  
for adjacent paths up to 8.5 GHz**



**VSWR for 40/42-884B-001  
for X to Y paths up to 8.5 GHz**



**Isolation for 40/42-884B-001 no path selected up to 8.5 GHz**

## Product Order Codes

PXI 4x4 Terminated 8 GHz RF Matrix	40-884B-001
PXIe 4x4 Terminated 8 GHz RF Matrix	42-884B-001

## 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.

## Connection Accessories

For a complete list of connection accessories and documentation for the 40/42-884B module, please refer to our [RF connectors datasheet \(90-011D\)](#).



**42-884B-001 PXIe 4x4  
Terminated 8 GHz RF Matrix**

## Chassis Compatibility

The PXI versions of this module are 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

The PXIe versions of this module are compatible with the following chassis types:

- All chassis conforming to the 3U PXIe specification
- PXIe and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis

## Chassis Selection Guide

### PXI and PXIe (with PXIe and/or Hybrid slots) Chassis from any Vendor:

- Mix our 1000+ PXI/PXIe switching & simulation modules with any vendor's PXI/PXIe 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

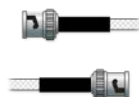
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with **1200+** products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



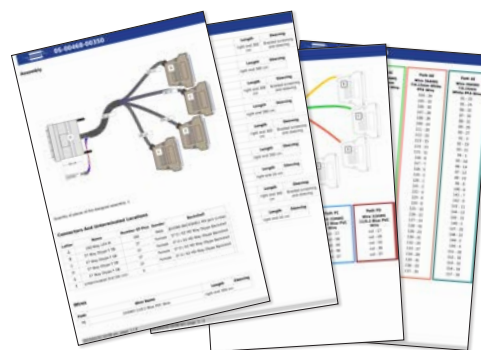
Breakouts



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](http://pickeringtest.com/cdt)

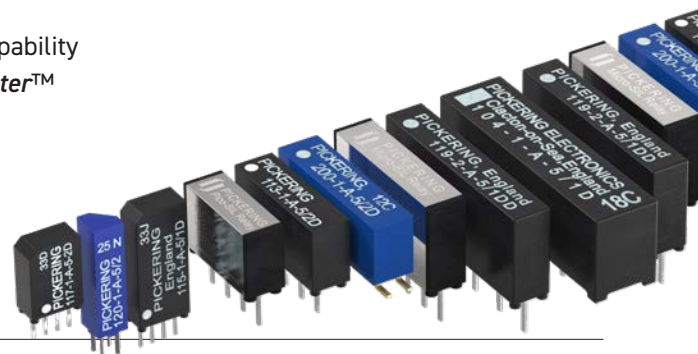
## Mass Interconnect

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](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 more information go to [pickeringtest.com/os](http://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

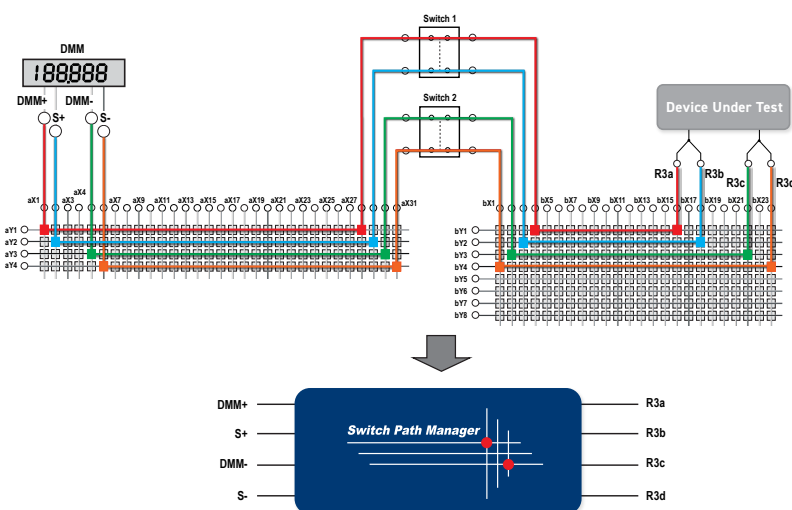
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments go to [pickeringtest.com/software](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 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 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 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](http://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](http://pickeringtest.com/resources)

