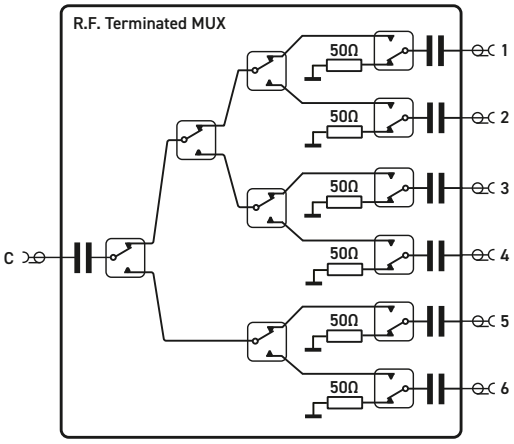
PXI/PXIe 50 Ω SP6T Terminated 8 GHz MUX

4x-881B

- Available as PXI or PXIe Modules
- Wide Frequency Range 10 MHz to 8 GHz
- High Performance Solid State Switch
- 6 Channel Multiplexer
- Single and Dual Versions
- Automatic Termination of Unused MUX Channels
- +36 dBm Input Power Handling
- Excellent Crosstalk & Isolation
- SMA Coaxial Connectors
- Relay Cycle Counting Included
- Drivers Supplied for Windows and Linux, Plus Support for Real-time Systems
- PXI Versions Supported by PXI or LXI Chassis
- 3 Year Warranty



Single SP6T Terminated 8 GHz MUX (Part No. 4x-881B-001)

The 40-881B (PXI) and 42-881B (PXIe) are 50 Ω SP6T multiplexers which can operate beyond 8 GHz. They are available as single format in one PXI or PXIe slot or dual format in two slots.

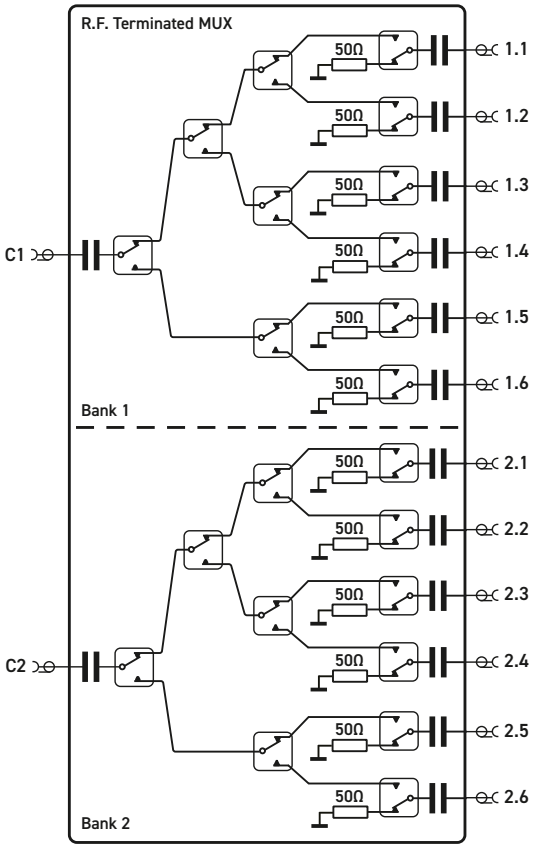
The 4x-881B has low VSWR characteristics over the full frequency range and consistent insertion loss. The use of solid state switches ensure a long service life with no wear out mechanism, making the module ideal for ATE systems requiring frequent and fast operating RF switching with no contact bounce. The multiplexer can handle RF power up to +36 dBm CW and +38 dBm pulsed and is able to sustain frequent hot switching without performance degradation.

The module is fitted with SMA connectors, ensuring module compatibility with commonly used cables.

The 4x-881B is supplied with drivers that allow support in all popular PXI software environments. The PXI version can be supported in all Pickering's LXI Modular Switching chassis, allowing a PXI or LAN controlled switching solution.

Relay Cycle Counting

To aid with module "health" monitoring all versions are provided with a relay cycle counting cycle feature. The number of operations per contact are stored on the module 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).



Dual SP6T Terminated 8 GHz MUX (Part No. 4x-881B-002)

RF Specification

RF Frequency Range:	10 MHz to 8 GHz
Insertion Loss:	Typically <3.5 dB @10 MHz Typically <4.3 dB to 3 GHz Typically <5.5 dB to 6 GHz Typically <6.8 dB to 8 GHz
VSWR Channel to COM:	Typically <1.55:1 to 8 GHz
VSWR COM to Channel:	Typically <1.65:1 to 6 GHz Typically <1.75:1 to 8 GHz
VSWR Internal termination:	Typically <1.4:1 to 8 GHz
Isolation:	Typically >60 dB to 6 GHz Typically >55 dB to 8 GHz
Crosstalk:	Typically <-60 dB to 6 GHz Typically <-55 dB to 8 GHz
Maximum RF Power:	+36 dBm CW +38 dBm Pulsed +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 µs
RF Switching Time:	10 µs typical rise and fall time
RF Connectors:	SMA

Power Requirements - 40-881B

+3.3 V	+5 V	+12 V	-12 V
0.03 A	0.01 A	0	0

Power Requirements - 42-881B

+3.3 V	+12 V
0.03 A	0.01 A

Mechanical Characteristics

- 40-881B-001 - 1 slot 3U PXI (CompactPCI card)
- 40-881B-002 - 2 slot 3U PXI (CompactPCI card)
- 42-881B-001 - 1 slot 3U PXIe, compatible with PXIe hybrid slot
- 42-881B-002 - 2 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

40-881B - PXI bus via 32-bit P1/J1 backplane connector.

42-881B - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via front panel SMA connectors.

PXI & CompactPCI Compliance - 40-881B

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 - 42-881B

The module is compliant with the PXIe Specification 1.0.
Local Bus, Trigger Bus & Star Trigger are not implemented.

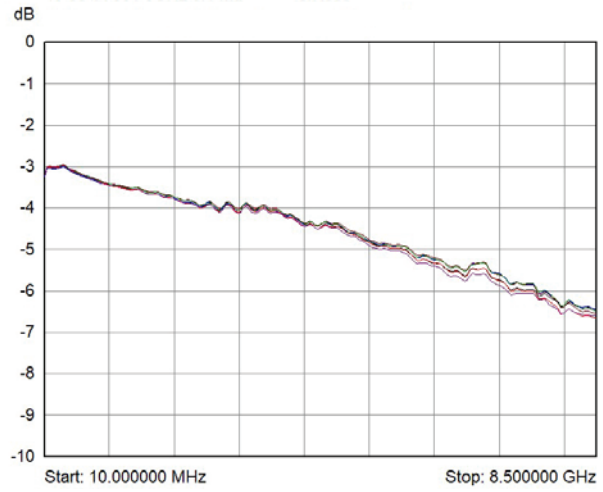
Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives:

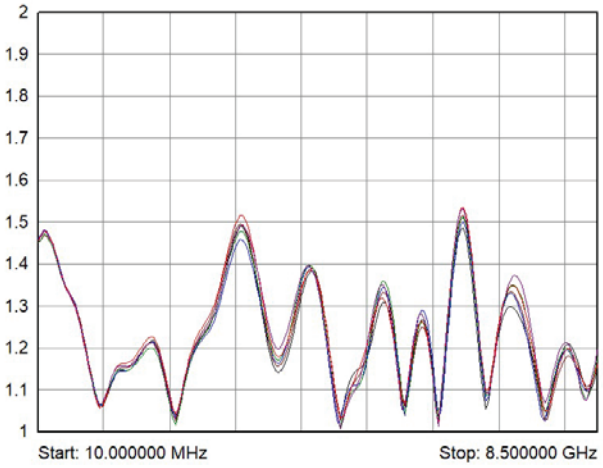
Low-voltage safety EN61010-1:2010,
EMC Immunity EN61326-1:2013,
Emissions EN55011:2009+A1:2010.

Operating/Storage Conditions

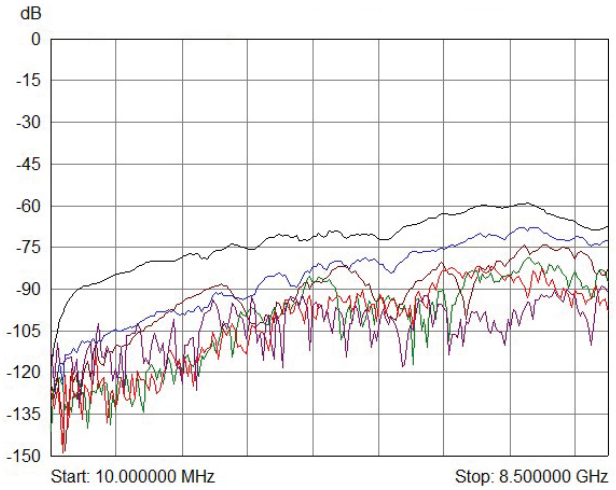
Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 90 % non-condensing
Altitude:	5000 m
Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m



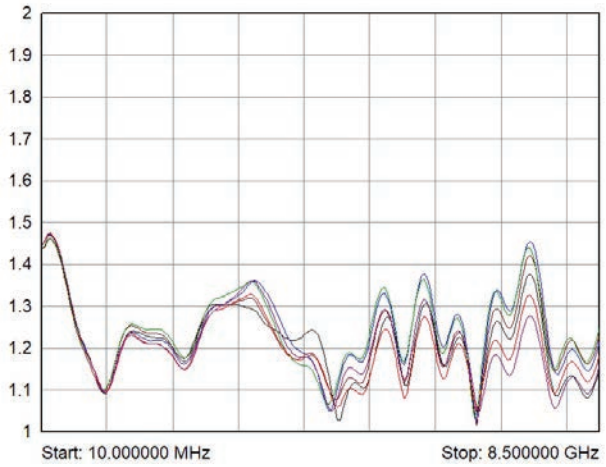
Insertion loss for 40-881B-001 showing all paths up to 8.5 GHz



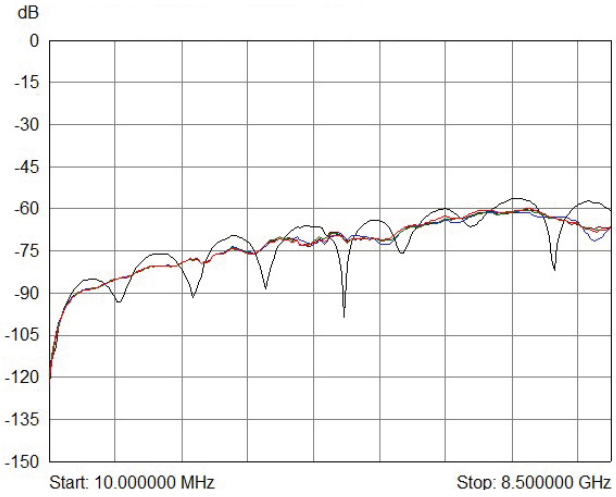
VSWR COM to Channel for 40-881B-001 showing all paths up to 8.5 GHz



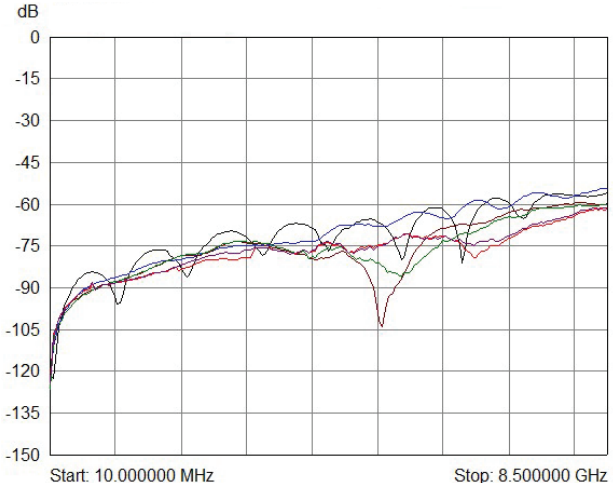
Max isolation for each channel with distant path selected for 40-881B-001 up to 8.5 GHz



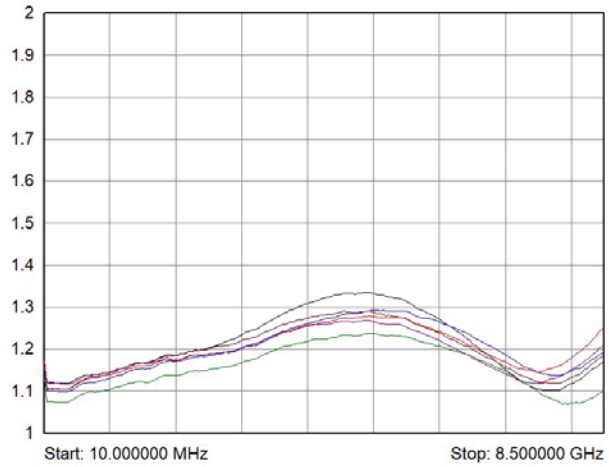
VSWR Channel to COM for 40-881B-001 showing all paths up to 8.5 GHz



Crosstalk for 40-881B-001 between channel 1 and all other paths (worst case) up to 8.5 GHz



Isolation between adjacent channels for 40-881B-001 showing all paths up to 8.5 GHz



VSWR internal termination on channel for 40-881B-001 showing all paths up to 8.5 GHz

Product Order Codes

PXI Single SP6T 8 GHz MUX, SMA, Terminated	40-881B-001
PXI Dual SP6T 8 GHz MUX, SMA, Terminated	40-881B-002
PXIe Single SP6T 8 GHz MUX, SMA, Terminated	42-881B-001
PXIe Dual SP6T 8 GHz MUX, SMA, Terminated	42-881B-002

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 4x-881B module, please refer to our RF connectors datasheet (90-011D).

42-881B-001 PXIe Single SP6T Terminated 8 GHz MUX

40-881B-002 PXI Dual SP6T Terminated 8 GHz MUX

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

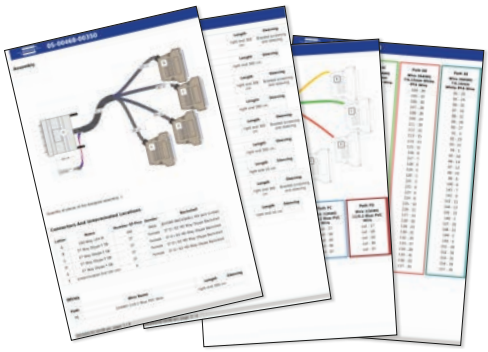
Breakouts

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



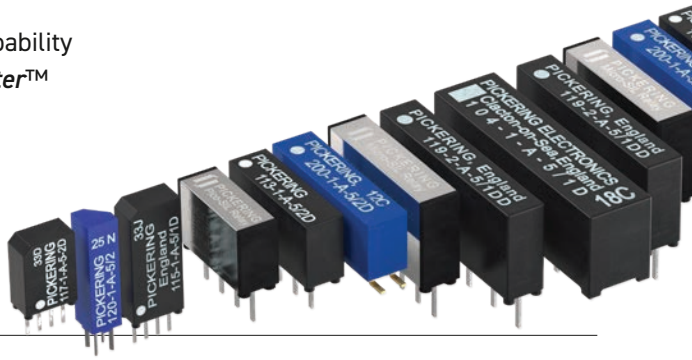
Mass Interconnect

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

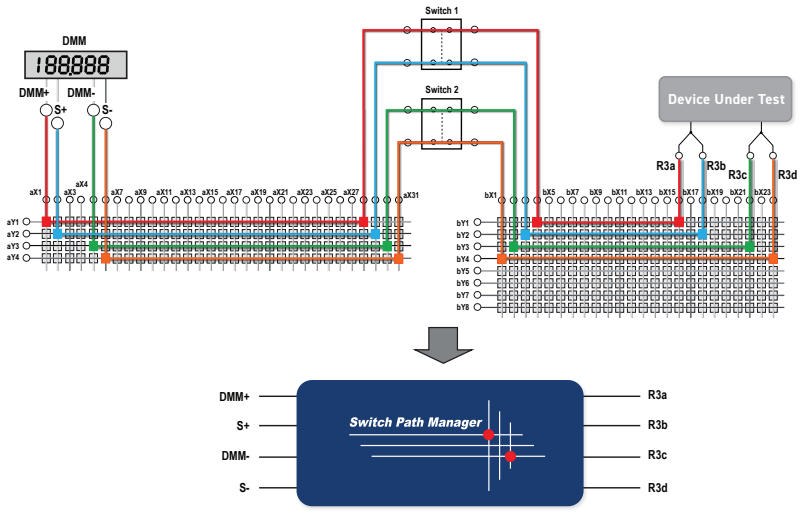
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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