

- Available as PXI or PXIe Modules
- 2.7 GHz RF Single-Pole Changeover Switch
- Triple and Hex Versions
- SMB or MCX Connector Versions
- High Performance, Low Cost
- VISA, IVI & Kernel Drivers Supplied for Windows
- PXI Versions Supported by PXI or LXI Chassis
- 3 Year Warranty



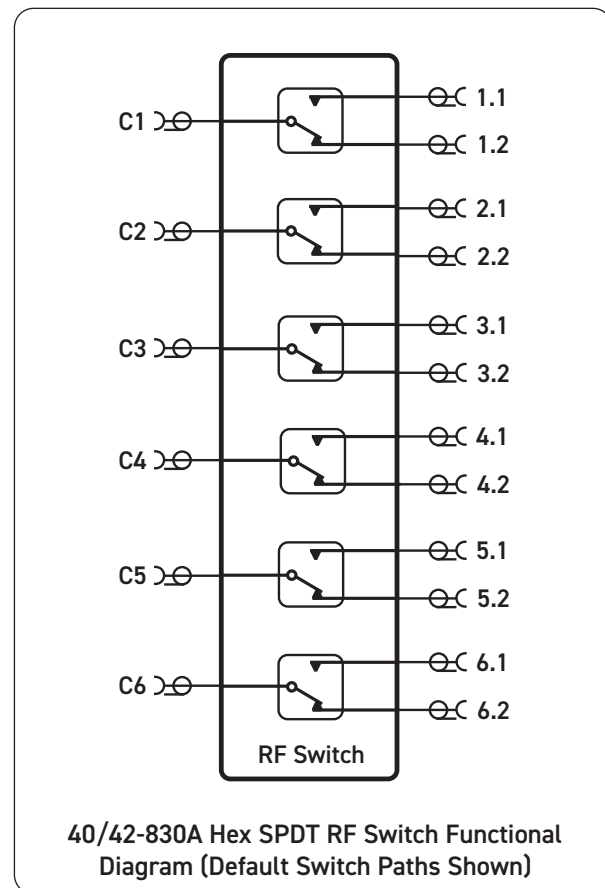
The 40-830A (PXI) and 42-830A (PXIe) are 75 Ω RF Switches available with 3 or 6 separate SPDT relays in a single PXI or PXIe slot.

The module has low insertion loss and VSWR through the use of modern RF relay technology at an affordable cost. The switches have excellent and repeatable RF characteristics to 3GHz with each path having a nominally equal insertion loss. The 40/42-830A minimizes the injection of noise and unwanted signals into the signal path by careful mechanical and electrical design.

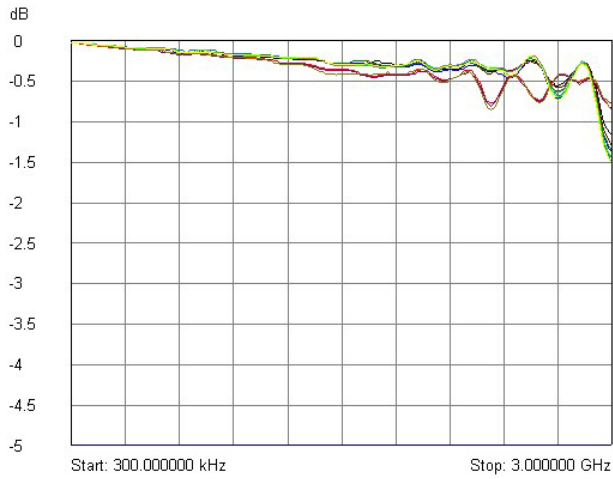
Versions with MCX or SMB connectors are available, allowing users to simplify cabling issues by matching them to other connectors in their test system.

The 40/42-830A 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 a PXI or LAN controlled switching solution with the same high levels of performance.

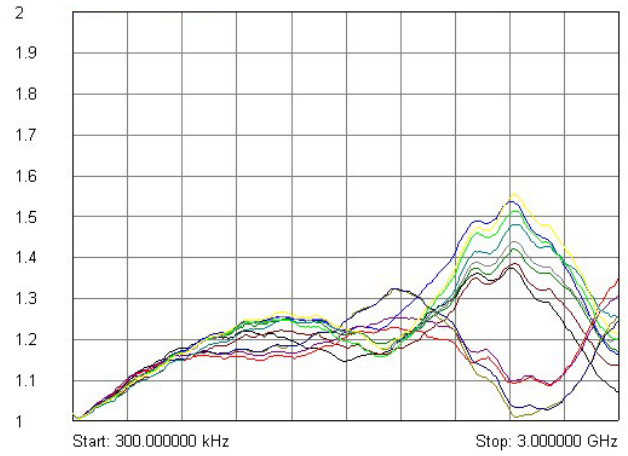
A 50 Ω version of the 40/42-830A is also available, the 40/42-870A.



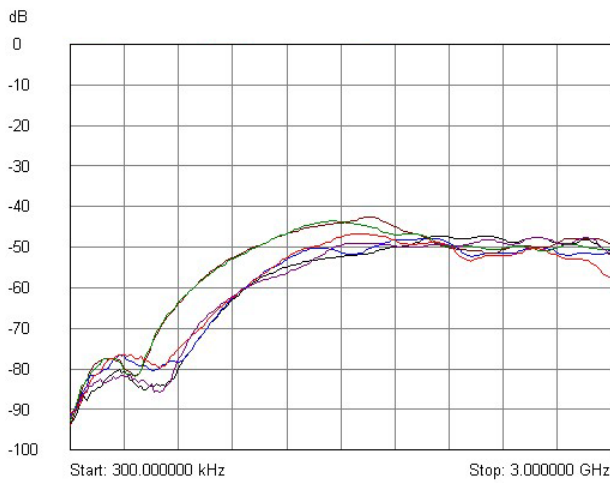
40/42-830A RF Performance Plots (Plots taken from typical sample showing all connecting paths for parameter)



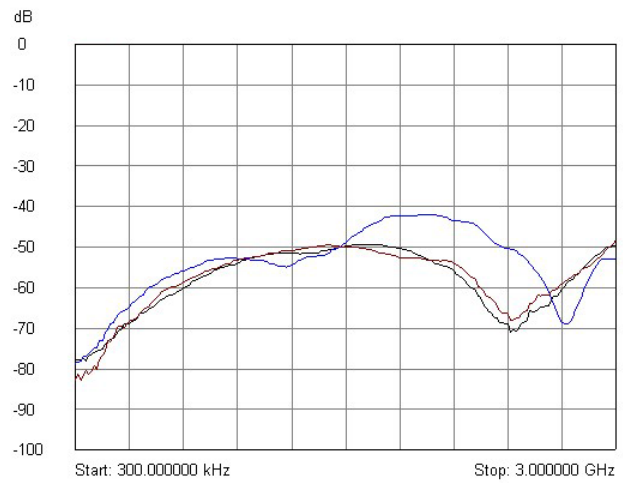
Typical Insertion Loss Plot For Each Signal Path



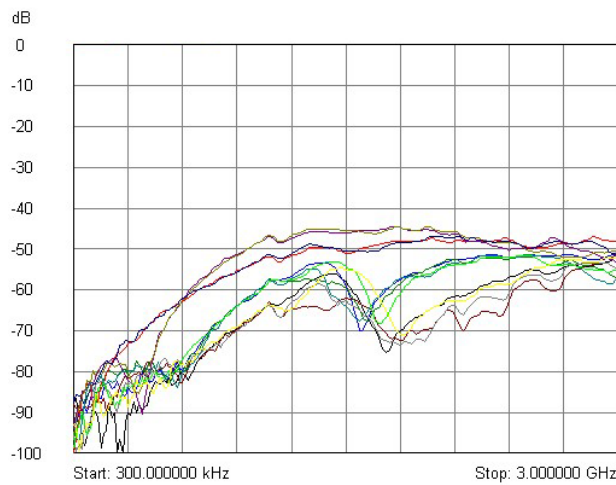
Typical VSWR Plot For Each Signal Path



Typical Crosstalk Plot Between Relay Inputs



Typical Crosstalk Plot Between Adjacent Terminals



Typical Isolation Plot Between Signal Paths

RF Specification

RF Frequency Range:	DC to 3 GHz
Insertion Loss:	Typically <0.25 dB to 1 GHz Typically <0.5 dB to 2 GHz Typically <0.9 dB to 2.7 GHz
VSWR:	Typically <1.3:1 to 1 GHz Typically <1.4:1 to 2 GHz Typically <1.6:1 to 2.7 GHz
Note: VSWR measurements were carried out for each selected input with a 75 Ω load fitted to the common terminal of the multiplexer.	
Isolation:	Typically >46 dB to 1 GHz Typically >42 dB to 3 GHz
Crosstalk:	Typically <-47dB to 1 GHz Typically <-42dB to 3 GHz
Maximum RF Power:	10 W at 3 GHz

Other Switching Specifications

Maximum DC Voltage:	100 V
Maximum DC Current:	1 A
Operating Time:	3 ms typical
Life Expectancy:	10 million operations at <100 mW

Power Requirements - 40-830A

+3.3 V	+5 V	+12 V	-12 V
0.03 A	0.23 A	0	0

Power Requirements - 42-830A

+3.3 V	+12 V
0.03 A	0.12 A

Mechanical Characteristics

40-830A - Single slot 3U PXI (CompactPCI card).

42-830A - Single 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

40-830A - PXI bus via 32-bit P1/J1 backplane connector.

42-830A - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via front panel SMB or MCX connectors.

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 - 40-830A

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 - 42-830A

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.

Product Order Codes

PXI Triple 75 Ω SPDT RF Switch, SMB	40-830A-003
PXI Hex 75 Ω SPDT RF Switch, SMB	40-830A-006
PXI Triple 75 Ω SPDT RF Switch, MCX	40-830A-103
PXI Hex 75 Ω SPDT RF Switch, MCX	40-830A-106
PXIe Triple 75 Ω SPDT RF Switch, SMB	42-830A-003
PXIe Hex 75 Ω SPDT RF Switch, SMB	42-830A-006
PXIe Triple 75 Ω SPDT RF Switch, MCX	42-830A-103
PXIe Hex 75 Ω SPDT RF Switch, MCX	42-830A-106

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.

Mating Connectors & Cabling

For connection accessories for the 40/42-830A 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.



42-830A-006 PXIe Hex 75 Ω SPDT RF Switch



42-830A-003 PXIe Triple 75 Ω SPDT RF Switch

Chassis Compatibility

The PXI versions of this module must be used in a suitable chassis. They 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

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

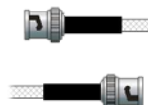
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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

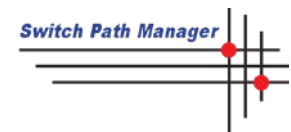
- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
-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