



- High Performance 6-Channel RF Multiplexers
- Available With 4, 8, 12 or 16 Multiplexer Banks
- 2.5 GHz Bandwidth
- 75  $\Omega$  Characteristic Impedance
- Low Loss, High Isolation
- Compact 2U Form Factor
- Simple Remote Control Via LXI Interface
- LXI Standard 1.4 Compliant
- 3 Year Warranty

The 60-820 Microwave Multiplexer is suitable for switching 75  $\Omega$  signals up to 2.5 GHz. With up to 16 banks of 6 channels it is ideal for constructing complex microwave switching systems for many applications. Connection is by front panel mounted DIN1.6/5.6 style connectors.

The multiplexer has an extremely high level of performance with low VSWR, very high isolation, low loss and high power handling. It is ideal for switching 75  $\Omega$  systems from HF band to low microwave frequencies. It occupies 2U of rack space, providing a compact switching solution. Multiplexers can be user connected to create customized switching systems which include both multiplexer and matrix arrangements.

## Controlling the Multiplexer

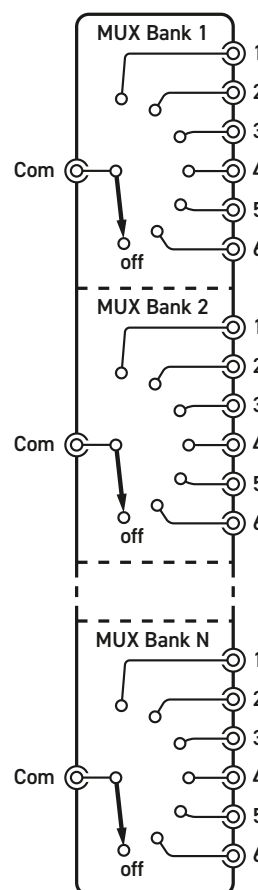
The 60-820 is controlled through an LXI interface based on Ethernet 1000Base-T connectivity. This provides a quick and easy method of installing the 60-820 and a simple way of controlling the it at a remote location through its API or built in soft front panel. The ability to control the unit at a distance aids the testing of systems without the need for a physical presence.

## Easy Repair

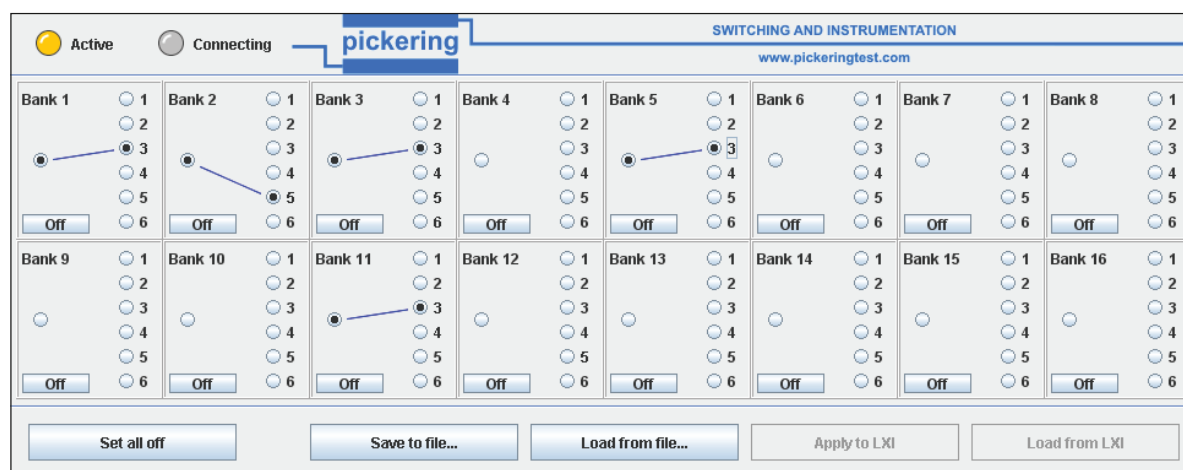
To allow fast in field repair, relays may be individually replaced without removing the covers from the chassis or the chassis from the host rack.

## Other Microwave Switching Configurations

We are able to offer other microwave switching solutions, if you have a custom requirement for switching please contact your Pickering sales representative. The 60-820 can be supplied with other frequency ranges and connector styles. A 50  $\Omega$  version of the 60-820, the 60-800, is also available.



Schematic Diagram for the 60-820  
Microwave MUX - up to 16 Multiplexer  
Modules can be supported



Soft Front Panel for the 60-820 16-Bank 6 to 1 Microwave Multiplexer

## General Multiplexer Information

Configuration:	6 to 1 Microwave Multiplexer with up to 16 independent banks.
Connectors:	Front panel DIN1.6/5.6 (DIN47295)
Operating Time:	<18 ms
Max Voltage:	100 VDC*
Max Switch Current:	1 A
Path Resistance:	On: <200 mΩ Off: >10 <sup>10</sup> Ω (unterminated)
Expected Life:	Low power: >2 million per position Max power: 0.3 million

\* For full voltage rating, signal sources to be switched must be fully isolated from mains supply and safety earth.

## Multiplexer RF Specification

Impedance:	75 Ω
Bandwidth	2.5 GHz
Maximum Power:	400 W to 1 GHz 240 W to 2.5 GHz
Isolation:	>80 dB to 1 GHz >70 dB to 2.5 GHz
Insertion Loss:	<0.2 dB to 1 GHz <0.3 dB to 2.5 GHz
VSWR:	<1:1.2 to 1 GHz <1:1.3 to 2.5 GHz

## Power Source

Universal AC mains supply, 90-264 VAC, 50-60 Hz	
Power Inlet:	Male IEC connector

## LAN Interface

Compliant to LXI Standard 1.4, the 60-820 has a 1000Base-T Ethernet Interface via a standard RJ-45 connector mounted on the rear panel with an LCD display showing the unit's IP address\*.

**\*Note:** Legacy units may not have 1000Base-T support or be fitted with an LCD display.

## LXI Status Indicators

Front panel mounted LEDs: Power, Ready, Error, LAN, Active.

## Mechanical Characteristics

Supplied with front panel ears to enable rack mounting on a shelf or other rear support mechanism.

Dimensions: 2U high, full 19" rack width, 500 mm depth  
3D models for all versions in a variety of popular file formats are available on request.

## Connectors

Signals via front panel DIN1.6/5.6 connectors.

## Cooling

Fan assisted cooling, side air intakes and rear exhaust.

## Product Order Codes

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LXI Microwave MUX, 50 $\Omega$	
6 to 1 MUX, 2.5 GHz, DIN1.6/5.6, 4-Banks,	60-820-004
6 to 1 MUX, 2.5 GHz, DIN1.6/5.6, 8-Banks,	60-820-008
6 to 1 MUX, 2.5 GHz, DIN1.6/5.6, 12-Banks,	60-820-012
6 to 1 MUX, 2.5 GHz, DIN1.6/5.6, 16-Banks,	60-820-016

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Versions with other bank counts, alternative connector types and different frequency ranges can be made to order, please contact sales office.

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## Product Customization

Pickering LXI units 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.

## 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

## Safety & CE Compliance

All products 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.

## Mating Connectors & Cabling

For connection accessories for the 60-820 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 our website.

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## 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



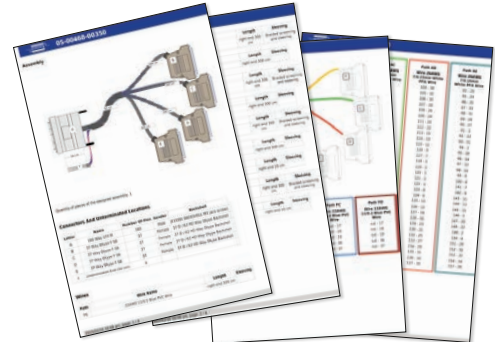
Breakouts



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)

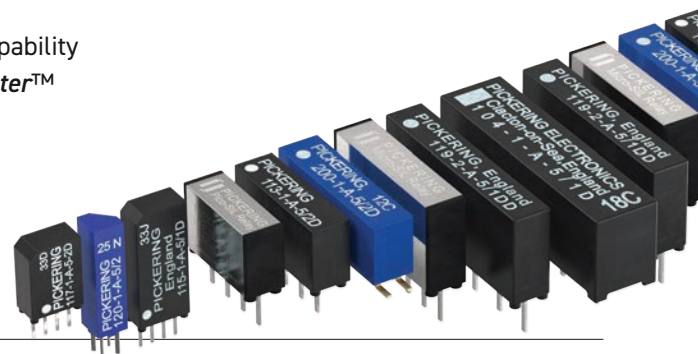
## Mass Interconnect

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

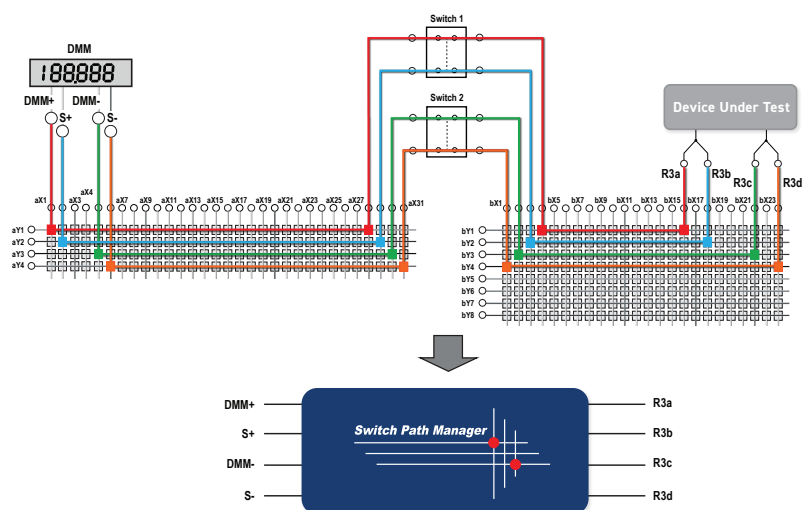
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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

