LXI 50 Ω Microwave Multiplexer 60-891-019

- High Performance Dual 18-Channel RF Multiplexer
- 6 GHz Bandwidth
- 50 Ω Characteristic Impedance
- Low Loss, High Isolation
- Compact 2 U Form Factor
- LXI Standard 1.4 Compliant
- IVI & Direct I/O Drivers
- 3 Year Warranty

The 60-891-019 Dual 18 channel Microwave Multiplexer is suitable for switching 50 Ω signals up to 6 GHz. Connection is by front panel SMA connectors.

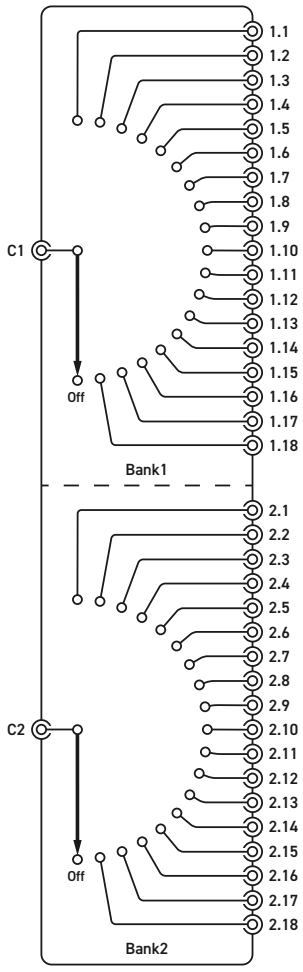
The multiplexer has an extremely high level of performance with low VSWR, very high isolation, low loss and high power handling. It is ideal for switching 50 Ω systems for HF up to microwave frequencies. It occupies 2 U of rack space, providing a compact switching solution.

Controlling the Multiplexer

The 60-891-019 is controlled through an LXI interface based on 1000Base-T Ethernet. This provides a quick and easy method of installing the multiplexer and a simple way of controlling 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.

Other Microwave Switching Configurations

We are able to offer other microwave switching solutions, if you have a custom requirement please contact your Pickering sales representative.



Schematic Diagram for the 60-891-019 Dual 18-Channel Multiplexer - Default Switch Positions Shown

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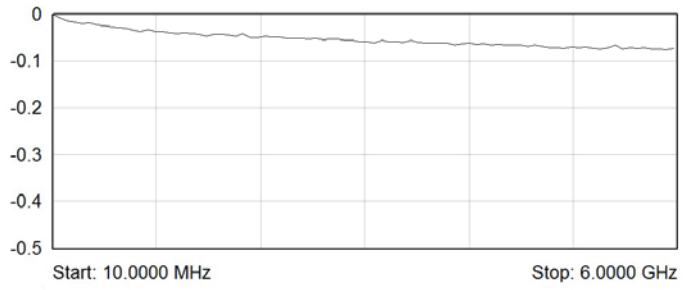
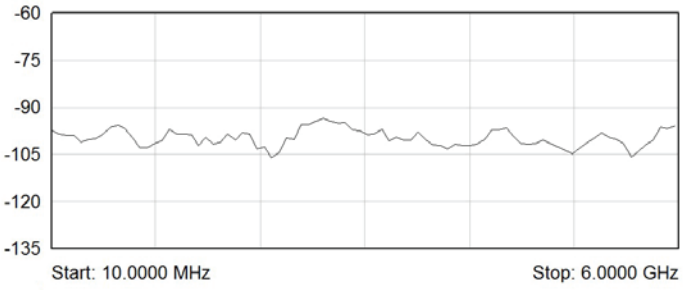
Multiplexer Specification for a Single Relay

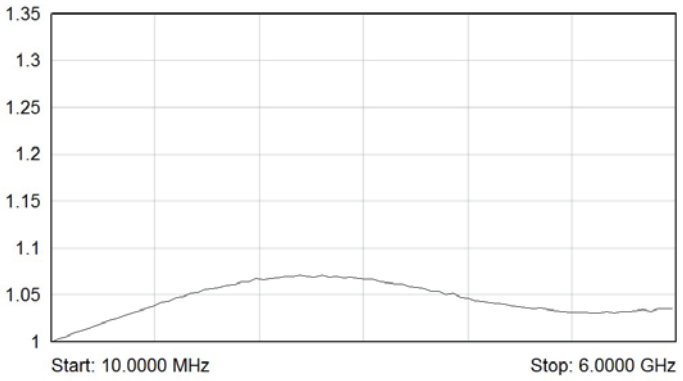
Characteristic Impedance:	50 Ω
Connectors:	SMA
Bandwidth	DC to 6 GHz
Maximum RF Carry Power:	250 W (0-3 GHz) 150 W (3-6 GHz)
Isolation:	>80 dB (0-3 GHz) >70 dB (3-6 GHz)
Insertion Loss:	<0.2 dB (0-3 GHz) <0.3 dB (3-6 GHz)
VSWR:	<1:1.2 (0-3 GHz) <1:1.3 (3-6 GHz)
Operating Time:	10 ms
Expected Life (low power):	>10 million operations per position guaranteed (typically >25 million)
Insertion Loss Repeatability:	Within 0.01 dB



Typical Insertion Loss (dB) Plot for a Single Relay



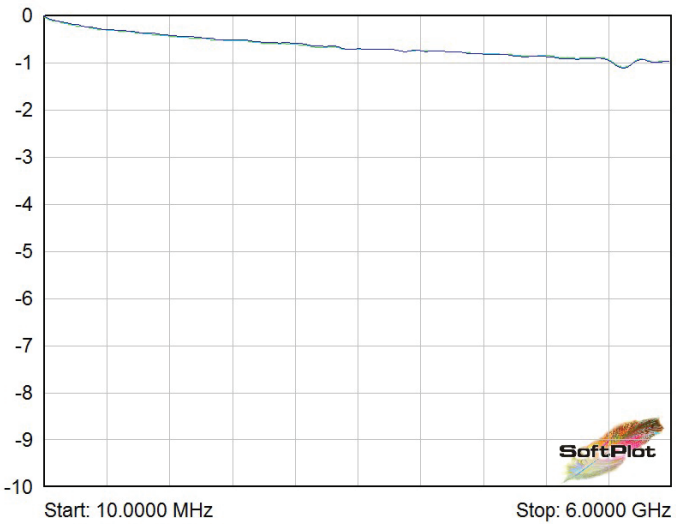
Typical Isolation (dB) Plot for a Single Relay



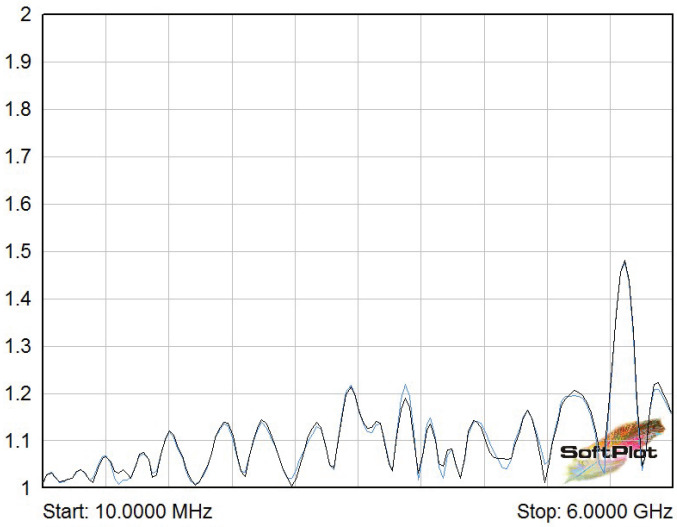
Typical VSWR Plot for a Single Relay

RF Specification for 18 Channel Multiplexer

Characteristic Impedance:	50 Ω
Bandwidth	DC to 6 GHz
Maximum RF Carry Power:	250 W (0-3 GHz) 150 W (3-6 GHz)
Isolation (typical):	>70 dB (0-6 GHz)
Insertion Loss (typical):	<1.5 dB (0-6 GHz)
VSWR (typical):	<1:1.5 (0-6 GHz)
Crosstalk (typical):	<-70 dB (0-6 GHz)



Typical Insertion Loss (dB) Plot for 18 Channel Multiplexer



Typical VSWR Plot for 18 Channel Multiplexer

General Multiplexer Information

Configuration:	Dual 18 to 1 Microwave MUX
Connectors:	Front panel SMA
LED Indicators:	Each channel has a blue LED to indicate a closed RF path.
Operating Time:	10 ms
Max Voltage:	100 VDC
Max Switch Current:	1 A
Path Resistance:	On: <200 mΩ Off: $>10^{10}$ Ω
Expected Life:	Low power: >5 million per position Max power: 0.3 million

Power Source

Universal AC mains supply, 90-120/200-240 V 50-60 Hz	
Power Inlet:	Male IEC connector
Power Rating:	100 VA maximum
Fuse Rating:	5 A, 250 V

LAN Interface

Compliant to LXI Standard 1.4, the 60-891-019 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.

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: 2 U 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 SMA connectors, alternatives available on request.

Cooling

Fan assisted cooling, side air intakes and rear exhaust.

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

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.

Ordering Information

Product Order Codes

LXI Microwave Multiplexer, 50 Ω, Dual 18 to 1, 6 GHz, SMA	**60-891-019**

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

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.

Mating Connectors & Cabling

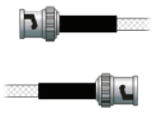
For connection accessories for the 60-891-019 please refer to the 90-011D RF Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

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

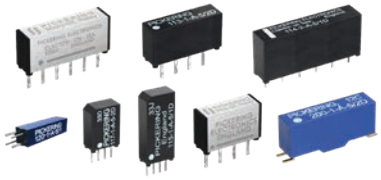
We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications. Visit: pickeringtest.com/cdt to start your design.

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

As well as various open source environments such as:

- **Sharp Develop**
- **Dev-C++**

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