



- High Performance 36-Channel RF Multiplexer
- 18 GHz Bandwidth (SMA Version)
- 4 GHz Bandwidth (BNC Version)
- 50 Ω Characteristic Impedance
- Low Loss, High Isolation
- Compact 2U Form Factor
- LXI Standard 1.4 Compliant
- IVI & Direct I/O Drivers
- 3 Year Warranty

The 60-891-001 36 channel Microwave Multiplexer is suitable for switching 50 Ω signals up to 18 GHz. Connection is by front panel SMA connectors.

The 60-891-001 is also available in a 50 Ω BNC version which can switch signals up to 4 GHz.

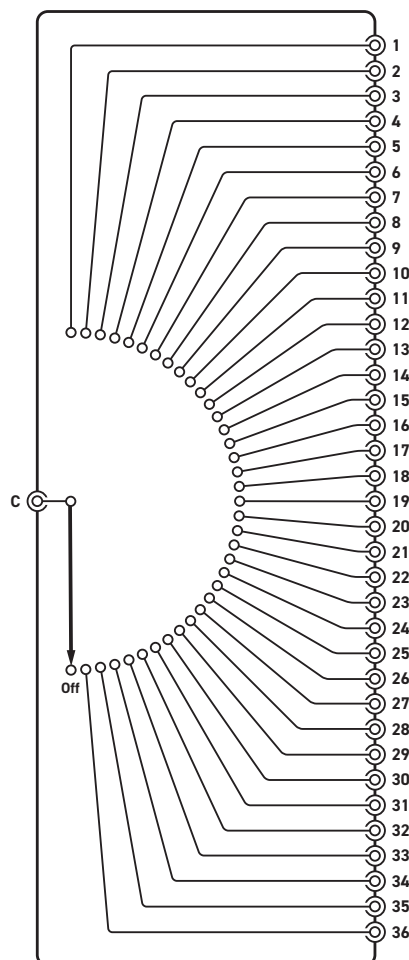
The multiplexer has an extremely high level of performance with low VSWR, very high isolation, low loss and high power handling. It is ideal for switching 50 Ω systems for HF up to microwave frequencies. It occupies 2U of rack space, providing a compact switching solution.

Controlling the Multiplexer

The 60-891-001 is controlled through an LXI interface based on 1000Base-T Ethernet. This provides a quick and easy method of installing the 60-891-001 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

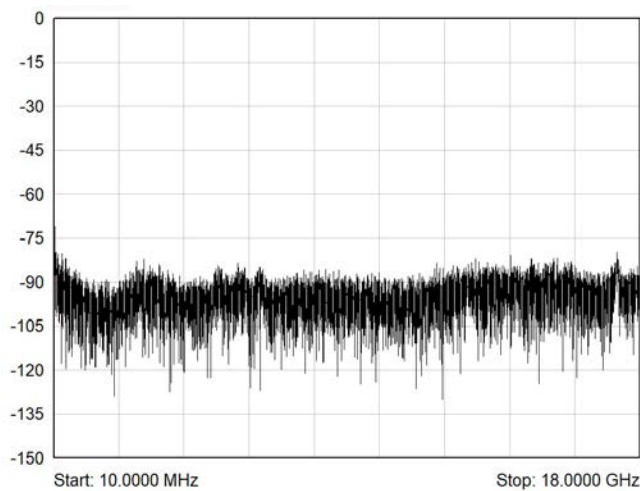
We are able to offer other microwave switching solutions, if you have a custom requirement please contact your Pickering sales representative.



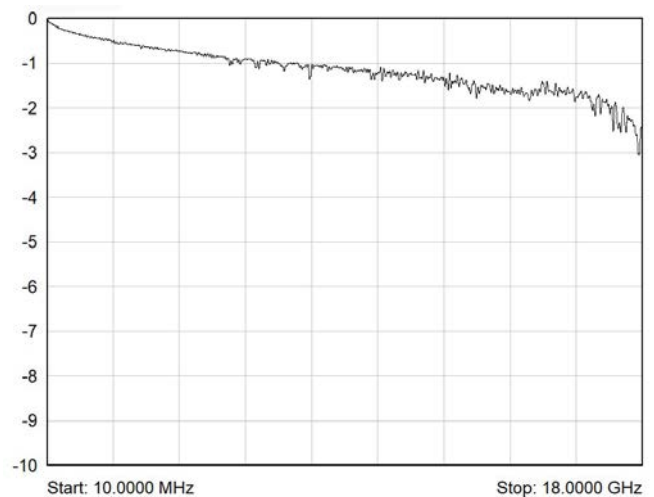
Schematic Diagram for the 60-891-001 36-Channel Multiplexer - Default Switch Position Shown

RF Specification for 60-891-001-001 (SMA 18 GHz Version)

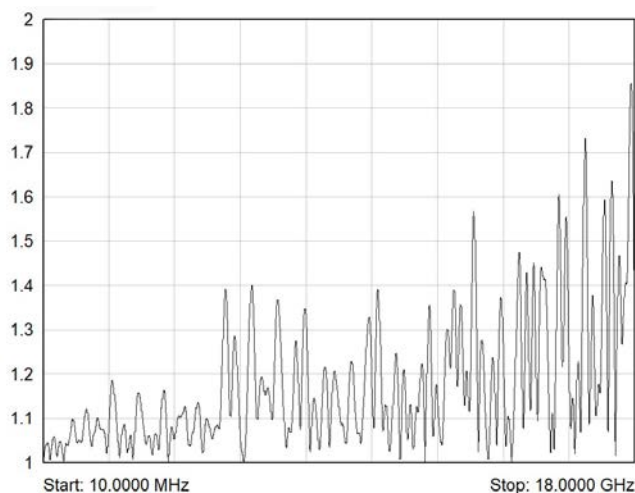
Characteristic Impedance:	50 Ω
Bandwidth	DC to 18 GHz
Maximum Power:	240 W (0 - 3 GHz) 150 W (3 - 8 GHz) 120 W (8 - 12.4 GHz) 100 W (12.4 - 18 GHz)
Isolation:	Typically >75 dB to 18 GHz
Insertion Loss:	Typically <3 dB to 18 GHz
VSWR:	Typically <1.5:1 to 7 GHz Typically <1.6:1 to 12 GHz Typically <1.9:1 to 16 GHz Typically <2.2:1 to 18 GHz
Crosstalk:	Typically <-70 dB to 18 GHz



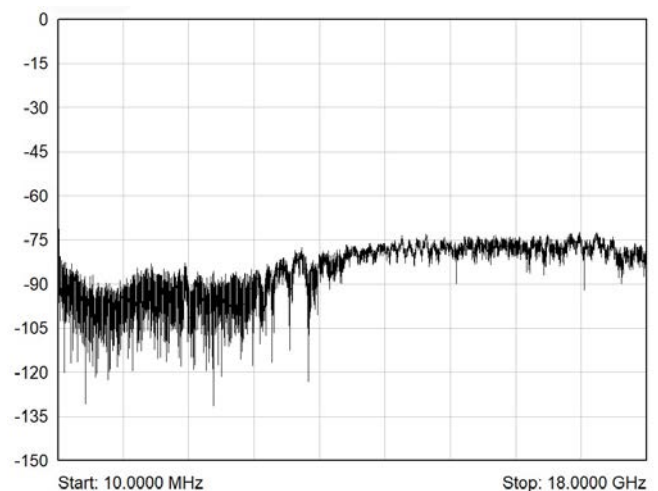
Typical Isolation (dB) Plot for SMA 18 GHz Version



Typical Insertion Loss (dB) Plot for SMA 18 GHz Version



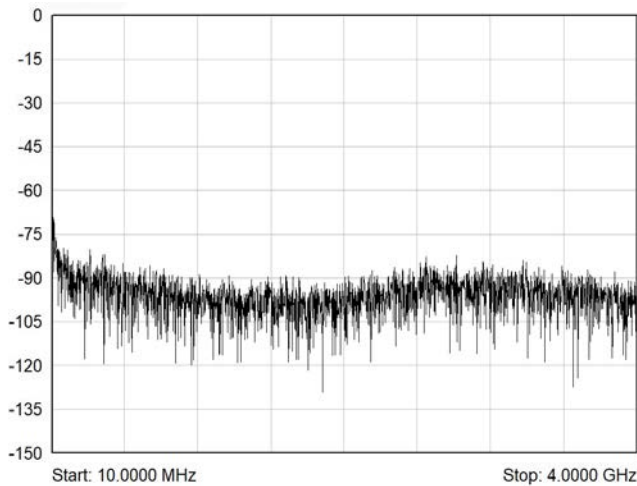
Typical VSWR Plot for SMA 18 GHz Version



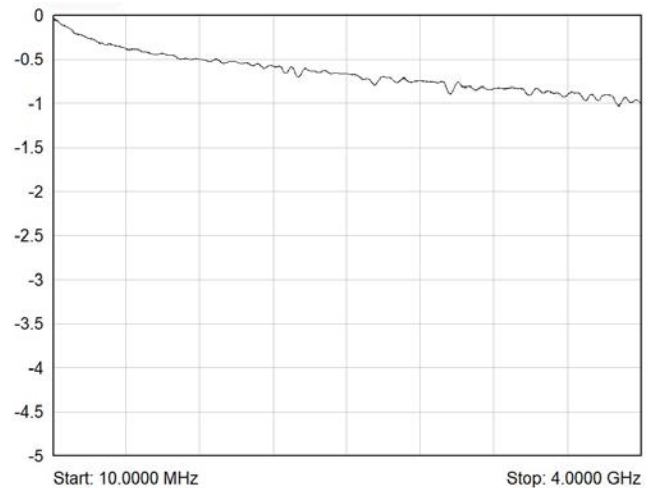
Typical Crosstalk (dB) Plot for SMA 18 GHz Version

RF Specification for 60-891-001-002 (BNC 4 GHz Version)

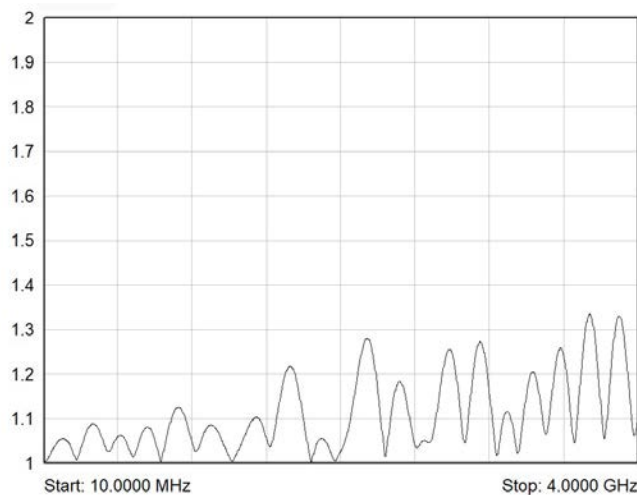
Characteristic Impedance:	50 Ω
Bandwidth	DC to 4 GHz
Maximum Power:	150 W (0 - 1 GHz) 70 W (1 - 4 GHz)
Isolation:	Typically >75 dB to 4 GHz
Insertion Loss:	Typically <1.5 dB to 4 GHz
VSWR:	Typically <1.45:1 to 4 GHz
Crosstalk:	Typically <-70 dB to 4 GHz



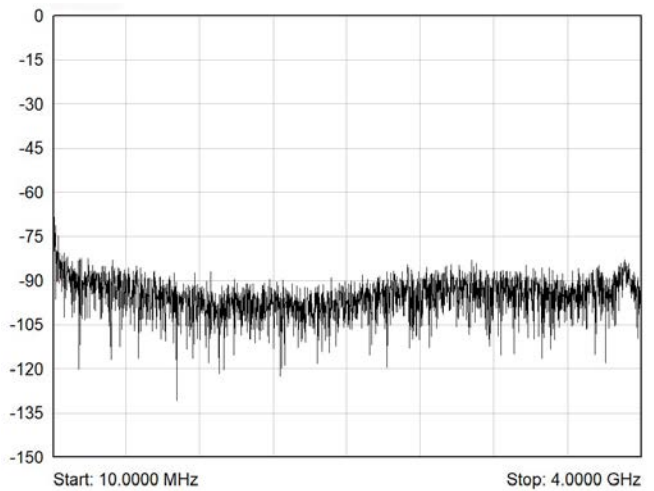
Typical Isolation (dB) Plot for BNC 4 GHz Version



Typical Insertion Loss (dB) Plot for BNC 4 GHz Version



Typical VSWR Plot for BNC 4 GHz Version



Typical Crosstalk (dB) Plot for BNC 4 GHz Version

General Multiplexer Information

Configuration:	36 to 1 Microwave Multiplexer.
Connectors:	Front panel SMA or BNC, alternatives available on request
Operating Time:	<18 ms
Maximum Voltage:	100 VDC*
Maximum Switch Current:	1A
Path Resistance:	On: <200 mΩ Off: >10 ¹⁰ Ω
Expected Life:	Low power: >5 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.

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 60-891-001 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: 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 SMA or BNC connectors.

Cooling

Fan assisted cooling, side air intakes and rear exhaust.

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 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

LXI Microwave MUX, 50 Ω	
36 to 1 MUX, 18 GHz, SMA	60-891-001-001
36 to 1 MUX, 4 GHz, BNC	60-891-001-002

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.

Support Products

Mating Connectors & Cabling

For connection accessories for the 60-891-001 unit 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.

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



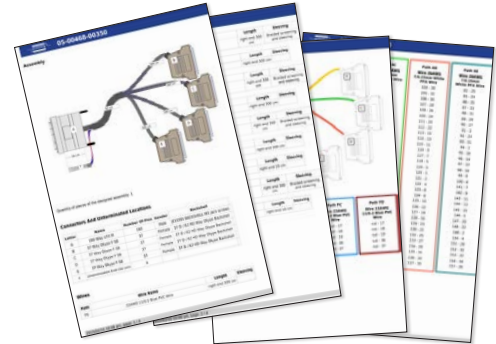
Breakouts



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

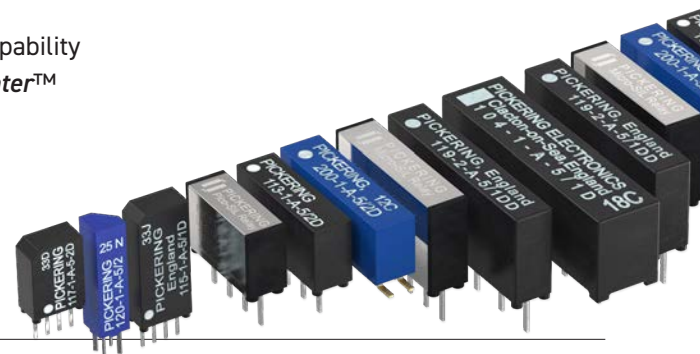
Mass Interconnect

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

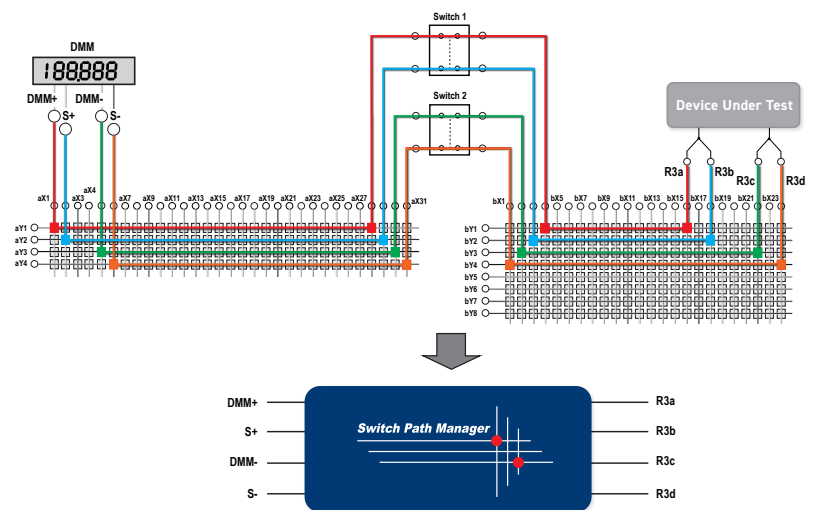
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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

