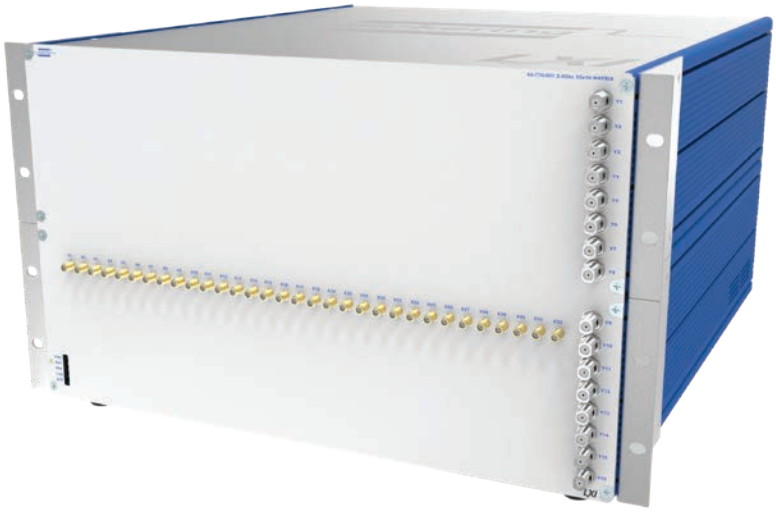
- High Bandwidth 50 Ω RF Matrix
- Configurations Up To 32x16
- Automatic Termination Of Unused Inputs
- Consistent Signal Performance On All Paths
- Fully Integrated Design In 6U Enclosure
- Simple Remote Control Via LXI Interface
- LXI Standard 1.4 Compliant
- 3 Year Warranty



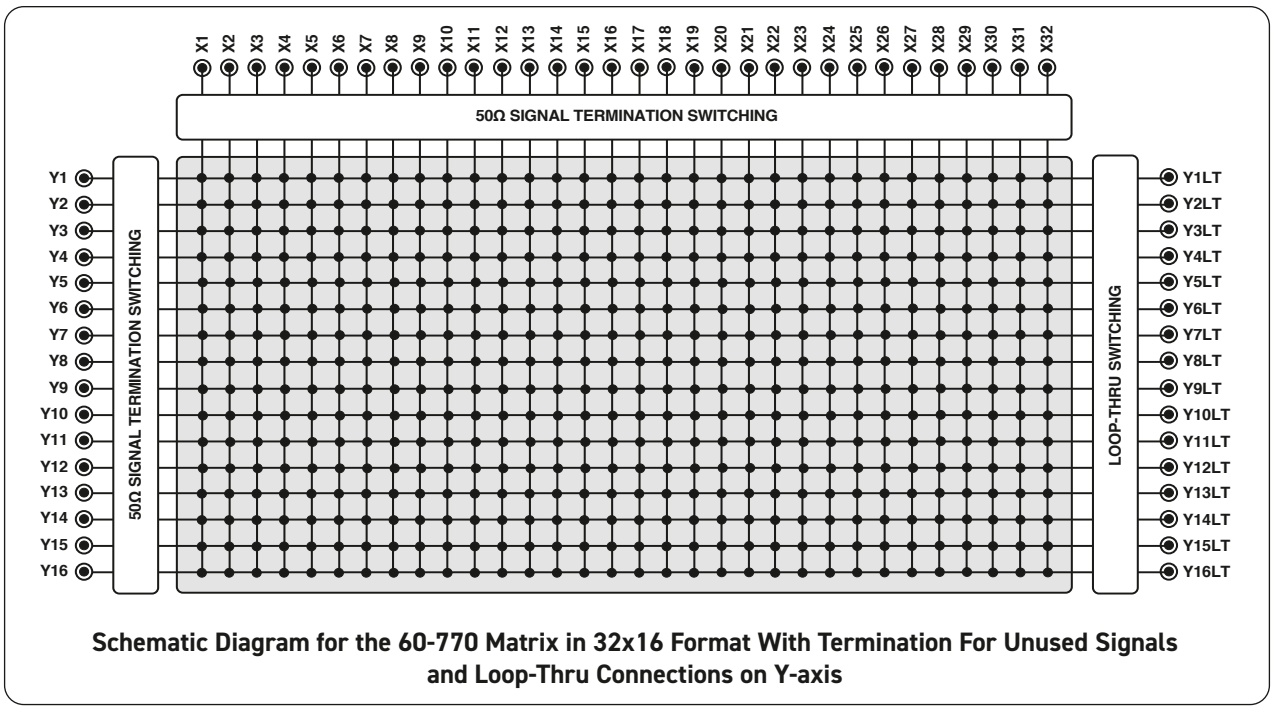
The 60-770 is a family of integrated RF matrices suitable for use up to 2.4 GHz in a 50 Ω transmission line system. The matrix design permits any one Y input to be connected to any one X input, allowing the concurrent connection of 16 signal paths. All paths are bi-directional, so any connection to be used as an input or an output.

The 60-770 can be supplied in a variety of configurations based on Y axis sizes of 16 and X axis sizes of 8, 16, 24 and 32. The matrix is factory re-configurable up to the maximum size of 32x16.

The matrix exhibits excellent RF characteristics. Unused inputs are automatically terminated in 50 Ω to ensure that VSWR effects do not impact crosstalk. Y signals are also routed via isolation switches to Loop-Thru connections to enable easy matrix expansion with minimal signal loss.

The 60-770 is contained in a 6U full rack width enclosure and is controlled via an LXI compliant interface. The unit can be manually controlled through any industry standard (W3C) web browser using the built in web interface. Remote control via the LXI Ethernet connection is provided through Pickering Interfaces switch driver.

Pickering Interfaces can use the design methods applied to 60-770 to construct RF matrices with other architectures, for more information contact your Pickering Interfaces sales representative.



Schematic Diagram for the 60-770 Matrix in 32x16 Format With Termination For Unused Signals and Loop-Thru Connections on Y-axis

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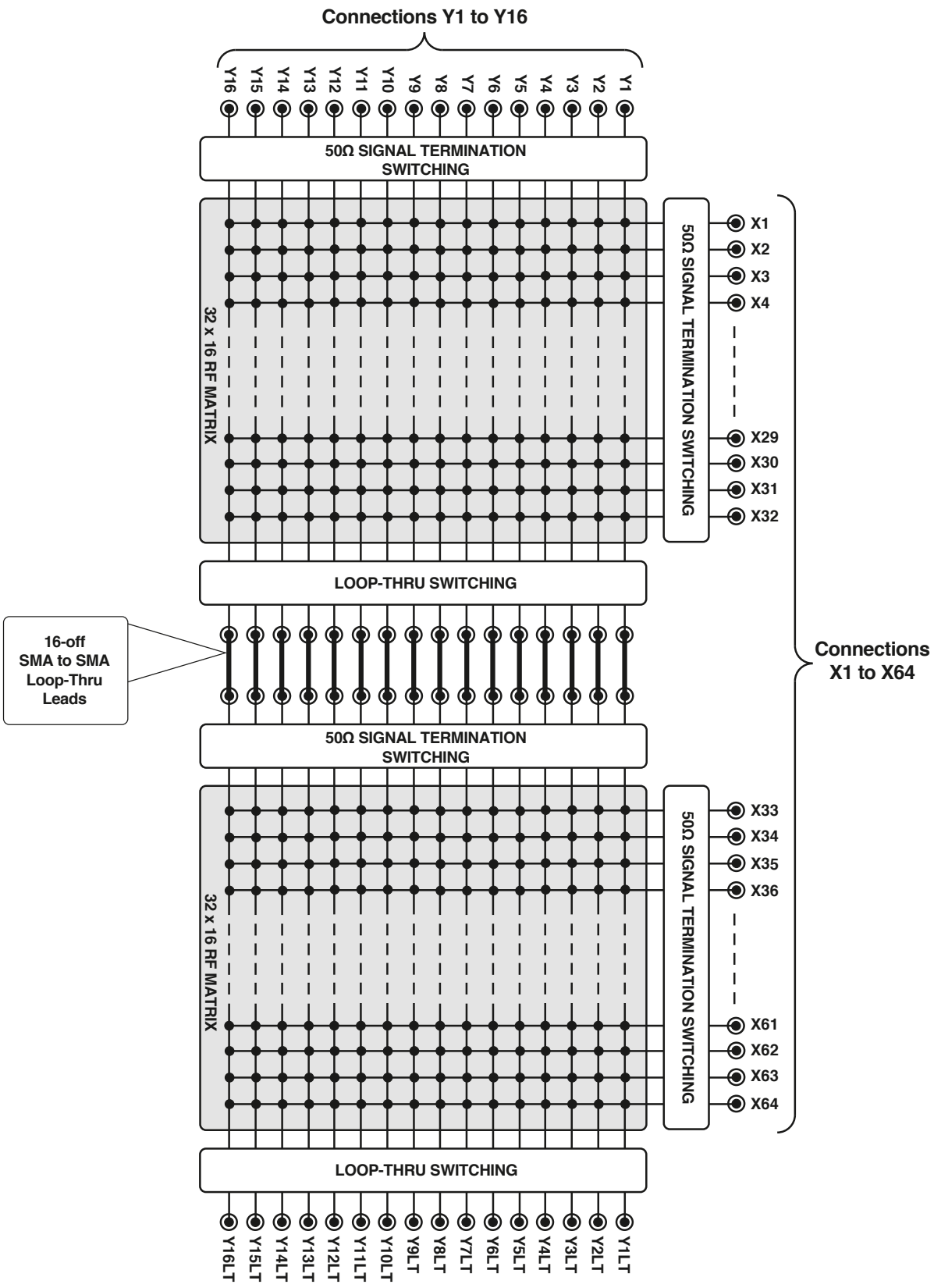
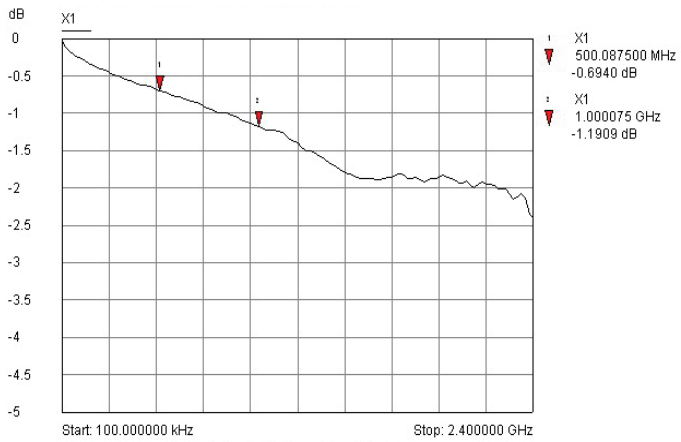
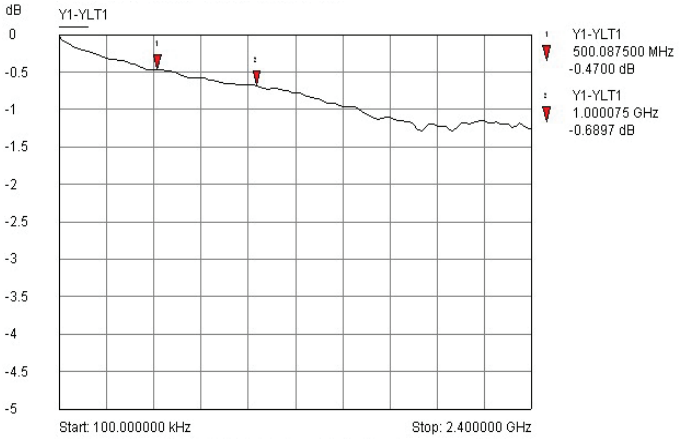


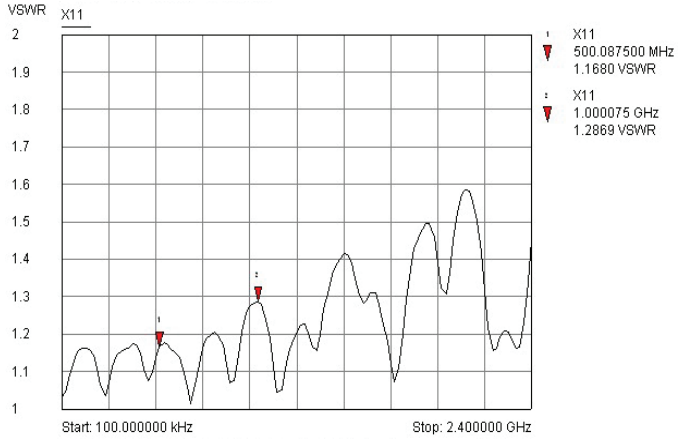
Example of how two 60-770-001 32x16 matrices can be interlinked to create a 64x16 matrix. Sixteen SMA to SMA leads are used to link the Y Loop-Thru connections from the first matrix to the Y connections of the second matrix.



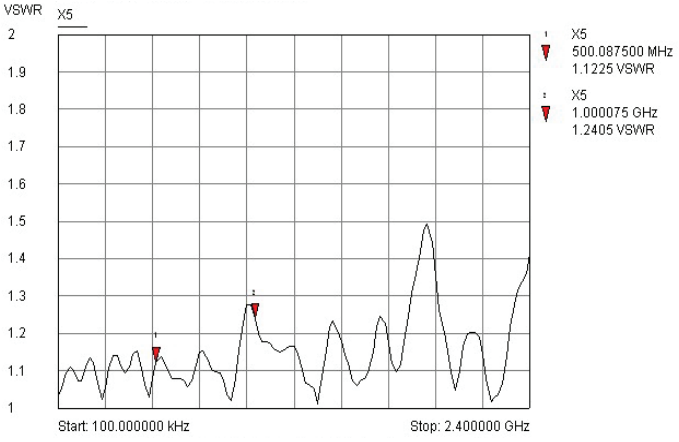
60-770 Typical Insertion Loss - X to Y Thru Path



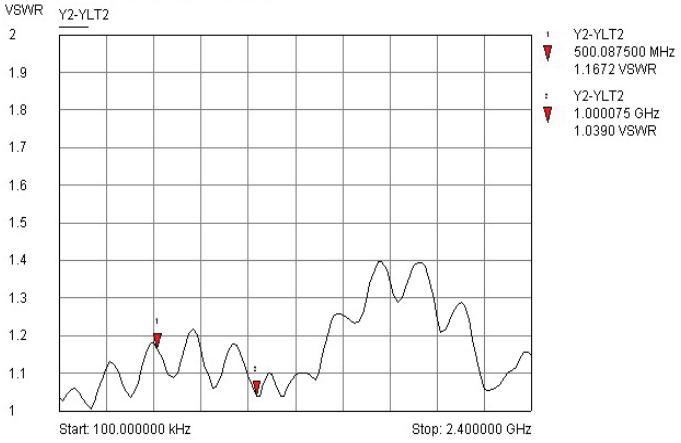
60-770 Typical Insertion Loss - Y to Y Loop-Thru



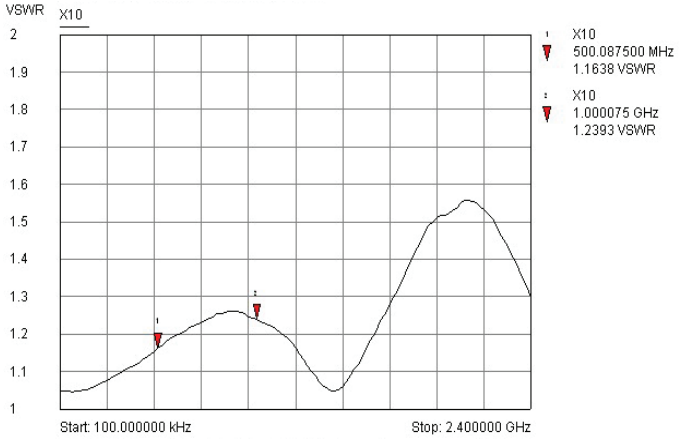
60-770 Typical VSWR - X to Y Thru Path



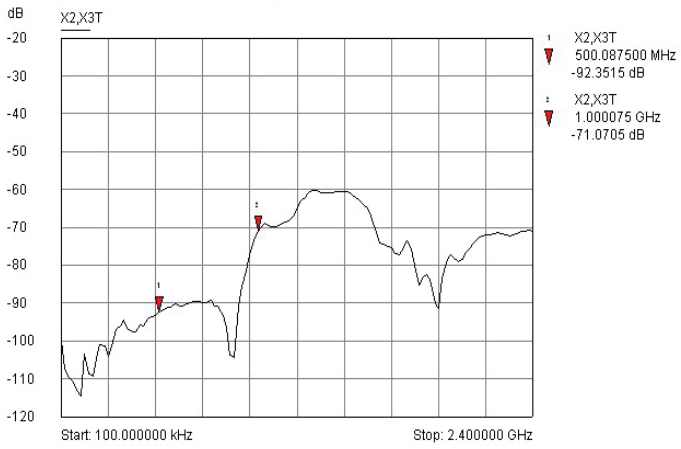
60-770 Typical VSWR - Y to X Thru Path



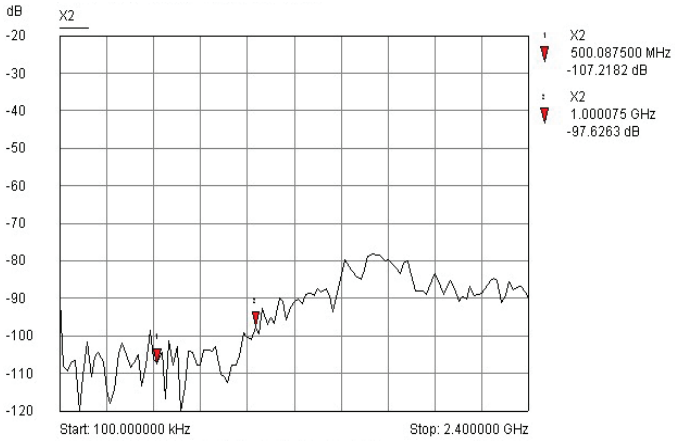
60-770 Typical VSWR - Y to Y Loop Thru Path



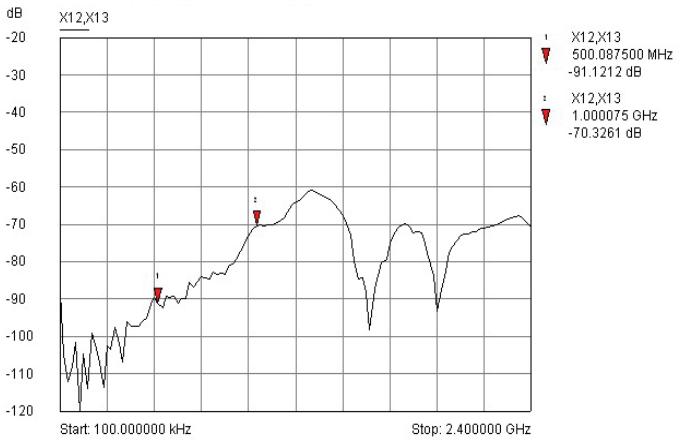
60-770 Typical VSWR - Internal Termination



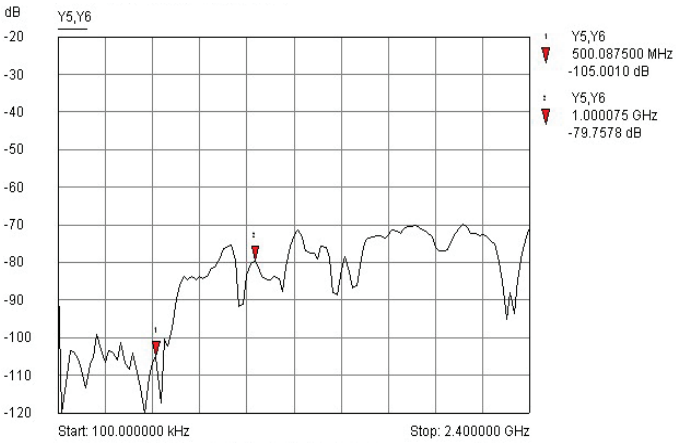
60-770 Typical Crosstalk



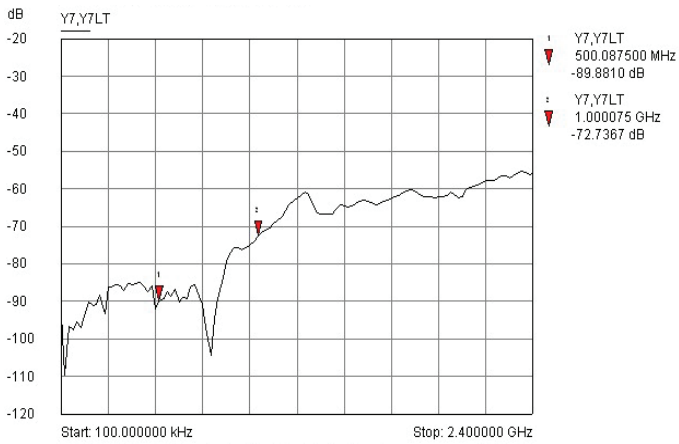
60-770 Typical Isolation - X to Y



60-770 Typical Isolation - X to X



60-770 Typical Isolation - Y to Y



60-770 Typical Isolation - Y to Y Loop-Thru

General Matrix Information

Matrix Size:	32x16, 24x16 or 16x16
Connectors:	Front panel SMA
Operating Time:	3 ms
Max. DC Switch Voltage:	5 V
Max. DC Current:	0.1 A
Max Power Rating:	0.5 W per path
Life Expectancy:	10^6 operations at <100 mW

Matrix RF Specification

Characteristic Impedance:	50 Ω
Usable Frequency Range:	DC to 2.4 GHz
Insertion Loss X to Y Switch Path: Y to Y Loop-Thru:	 -2.5 dB (typical) -1.3 dB (typical)
VSWR X to Y / Y to X Switch Path: Y to Y Loop-Thru: Internally Terminated:	 1.6:1 (typical) to 2.2 GHz 2:1 (typical) 2.2-2.4 GHz 1.4:1 (typical) 1.6:1 (typical)
Crosstalk:	-60 dB (typical)
Isolation X to Y: X-channel to X channel: Y-channel to Y channel: Y to Y Loop-Thru:	 -75 dB (typical) -60 dB (typical) -70 dB (typical) -60 dB (typical)
Maximum RF Power:	0.5 W (limited by termination resistors)

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:	(F) 5 A, 250 V

LAN Interface

Compliant to LXI Standard 1.4, the 60-770 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: 6U high, full 19" rack width, 500mm depth

3D models for all versions in a variety of popular file formats are available on request.

Connectors

Signals via front panel SMA 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

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.

Product Order Codes

2.4 GHz, 50 Ω Matrix, 32x16 terminated	**60-770-001**
2.4 GHz, 50 Ω Matrix, 24x16 terminated	**60-770-002**
2.4 GHz, 50 Ω Matrix, 16x16 terminated	**60-770-003**

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

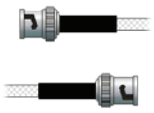
For connection accessories for the 60-770 please refer to the 90-011D RF Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

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

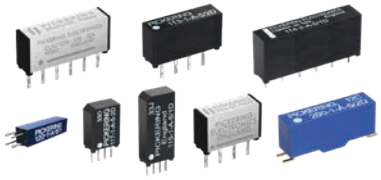
We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications. Visit: pickeringtest.com/cdt to start your design.

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 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
- **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