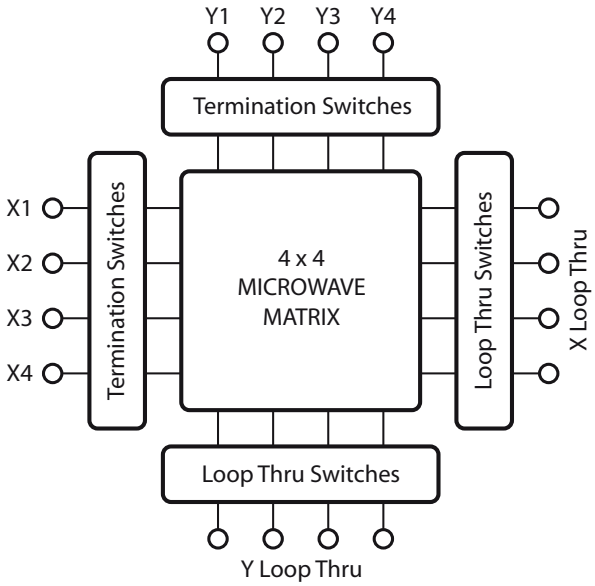
60-750/751
LXI Microwave Matrix

- Versatile Microwave Matrix Switching Platform
- Versions Available up to Dual 4 x 4
- Loop-Thru Options For Easy Expansion
- Internally Terminated Versions
- Up to 20GHz Bandwidth
- Low Loss
- Equal Loss on Each 4x4 Matrix
- 50Ω Impedance
- Auxiliary Port For External Control of Relays
- Custom Versions Available on Request
- LXI Standard 1.3 Compliant
- 2 Year Warranty

The 60-750/751 is an LXI Microwave Switching platform controlled through an LXI compliant Ethernet connection. The matrix is available in a variety of configurations and frequencies up to 20GHz (60-751).

The matrix is characterized for 50Ω applications, for 75Ω versions please consult your local sales representative.



Single 60-750/751 Non-Blocking 4 x 4 Matrix With Optional Loop-Thru and Internal Terminations

The 60-750/751 is supplied in a 2U full rack width enclosure, providing a compact solution that is easily mounted in a rack for ATE systems or for use on the bench. The matrix is fully configured to the specified dimensions with no extra cabling needed, saving users the cost and time of creating matrices from individual components.

Each 3x3 or 4x4 matrix is designed to have a nominally matched path loss no matter which path is selected. The matrices are non blocking, allowing any input to be connected to any unused output.

The availability of Loop-Thru connections allows matrices to be easily combined to make larger arrays using external interconnect cables.

The 60-750 can be supplied as dual or single 10GHz matrices, allowing users to select the most appropriate model for their application. Alternatively, the 60-750 can be supplied configured as a single 8x4 matrix with the two 4x4 matrices internally connected. The 60-751 can be supplied as a single 3x3 or 4x4 20GHz matrix. Models can be ordered with or without internal terminations for disconnected inputs.

For applications where external microwave switches may be required the 60-750/751 provides an auxiliary output that can be used to supply 12V power and control for 16 external switches.

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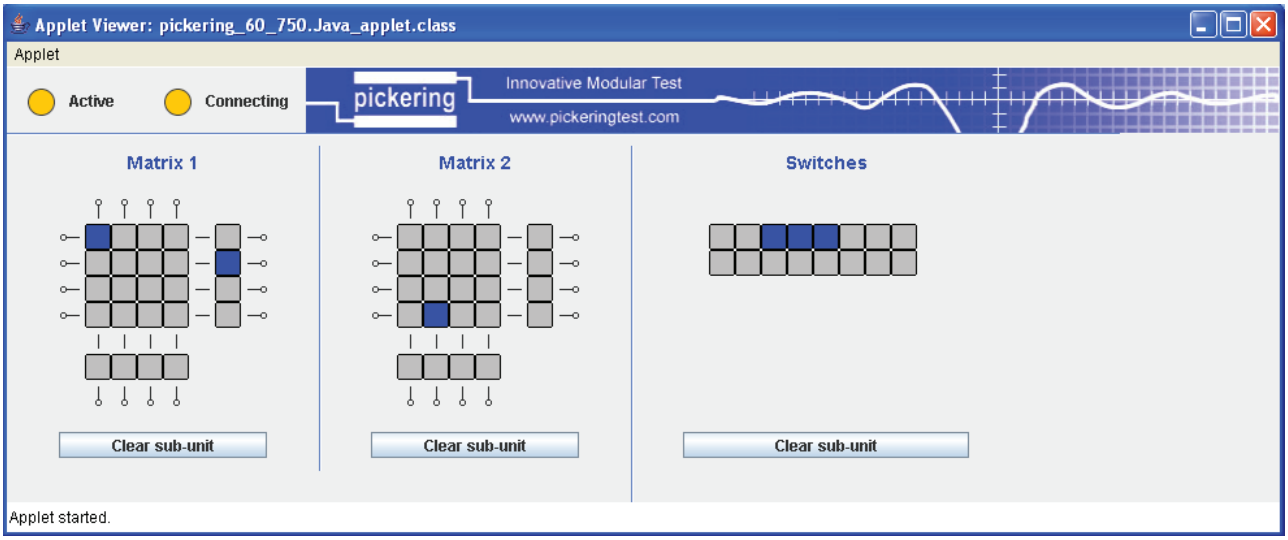
Control of the matrices could not be simpler. Connect to the 60-750/751 over the Ethernet interface using any W3C compliant browser and run the soft front panel served up by the LXI interface to control the switch system from a PC or a Mac. Alternatively use the programmatic interface based on Pickering Interfaces switch driver to control the 60-750/751 through DLL's or an IVI compliant driver.

The 60-750/751 is ideal for applications where a simple start up process is required and for applications requiring control at large distance.

The 60-750/751 is the first of a range of commercial and custom microwave switching products with the LXI control interface. For alternative configurations please contact your local sales office.



Example Of The Soft Front Panel Supplied With The 60-750/751 Matrix

Rear View Of The 60-750/751 Matrix Showing Power And LAN Connections

Specification

General Matrix Information

Connectors:	Front panel SMA, alternatives available on request.
Operating Time:	<18ms (limited by switches)
Maximum Voltage:	100V DC
Maximum Switch Current:	1A
Path Resistance:	On: <500mΩ Off: >10^{10}Ω (unterminated)
Expected Life:	Low power: >5 million per position Max power: 0.3 million

General Characteristics

Power:	Universal AC mains inlet on rear panel, IEC male connector, 90 to 264 VAC, 50/60Hz.
LXI Interface:	LXI Standard 1.3 Compliant. Ethernet connection is 100baseT on rear panel RJ45 connector.
LXI Status Indicators:	Front panel mounted LEDs: • Power • Ready • Error • LAN • Active
Cooling:	Fan assisted cooling, side air intakes and rear exhaust.
Rack Mounting:	Supplied with front panel ears to enable rack mounting on a shelf or other rear support mechanism.
Dimensions:	2U full rack width, 500mm deep

Auxiliary Control

Type:	Relay operated interface that can be used to operate 16 external switches, outputs fully floating to support common ground or common power configurations. Each output can switch up to 2A and 100V, maximum power 10W.
Power Connection:	+12V protected by resettable fuse with 1.2A to 2.5A trip current (operating temperature dependent).
Connector:	37-way Female D-type.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to 55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

Matrix Specification

Extensive typical performance information is provided in the operating manual which can be downloaded from the Pickering Interfaces web site.

10GHz Version (60-750)

Characteristic Impedance:	50Ω
Maximum Power:	100W to 3GHz 60W to 12GHz Terminated versions limited to 1W on all frequencies.
Typical Isolation:	-90dB
Typical Crosstalk:	-85dB

10GHz Single 4 x 4 and 3 x 3 Matrix

	Frequency			
	2.5GHz	5GHz	7.5GHz	10GHz
Insertion Loss	1.3dB	2.3dB	2.9dB	3.6dB
VSWR	1:1.12	1:1.2	1:1.35	1:1.6

10GHz Dual 4 x 4 and 3 x 3 Matrix

	Frequency			
	2.5GHz	5GHz	7.5GHz	10GHz
Insertion Loss	1.3dB	2.3dB	2.9dB	3.6dB
VSWR	1:1.12	1:1.2	1:1.35	1:1.6

10GHz 8 x 4 Matrix

	Frequency			
	2.5GHz	5GHz	7.5GHz	10GHz
Insertion Loss Y to X1, X2, X3 or X4	1.3dB	2.3dB	2.9dB	3.6dB
VSWR Y to X1, X2, X3 or X4	1:1.12	1:1.2	1:1.35	1:1.6
Insertion Loss Y to X5, X6, X7 or X8	1.8dB	3.2dB	4.1dB	5.0dB
VSWR Y to X5, X6, X7 or X8	1:1.2	1:1.3	1:1.5	1:1.8

20GHz Version (60-751)

Characteristic Impedance:	50Ω
Maximum Power:	100W to 3GHz 60W to 10GHz 30W to 20GHz Terminated versions limited to 1W on all frequencies.
Typical Isolation:	-60dB
Typical Crosstalk:	-90dB

20GHz Single 4 x 4 and 3 x 3 Matrix

	Frequency			
	5GHz	10GHz	15GHz	20GHz
Insertion Loss	1.5dB	3dB	4dB	4.5dB
VSWR	1:1.2	1:1.3	1:1.4	1:1.6

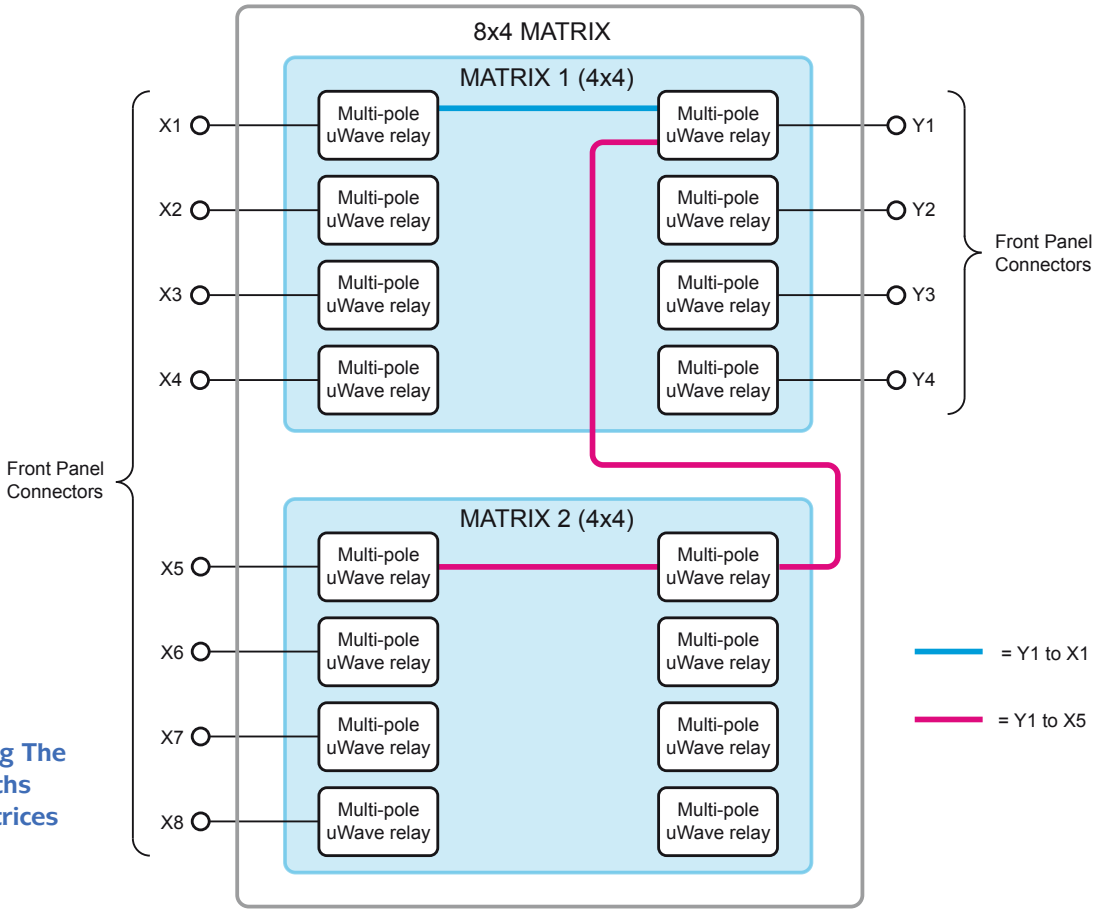


Diagram Illustrating The Two Path Lengths Used In 8 x 4 Matrices

Product Order Codes

Single 10GHz 50Ω Matrix:	
3 x 3 matrix	**60-750-133**
4 x 4 matrix	**60-750-144**
8 x 4 matrix	**60-750-184**
Dual 10GHz 50Ω Matrix:	
Dual 3 x 3 matrix	**60-750-233**
Dual 4 x 4 matrix	**60-750-244**
Single 20GHz 50Ω Matrix:	
3 x 3 matrix	**60-751-133**
4 x 4 matrix	**60-751-144**

Terminations and Loop Thru:
For versions with Loop Thru connections, add the suffix **-A**.
For versions with internal terminations, add the suffix **-B**.
For versions with Loop Thru and internal terminations, add the suffix **-C**.
For example:
4x4 20GHz Matrix with Loop Thru and internal termination
60-751-144-C

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

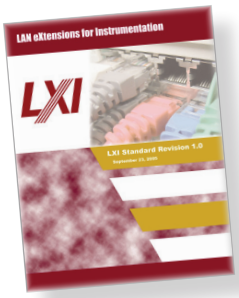
Latest Details

Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com

Mating Connectors & Cabling

For connection accessories for the 60-750/751 please refer to the **90-011D** RF Connector Accessories data sheets where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

LXI is the new standard for Ethernet control of instrumentation. It is the natural successor to GPIB (IEEE-488) incorporating LAN connectivity, full web browser support, IVI drivers and advanced triggering capability.



Pickering Interfaces is a Board level member of the LXI Consortium (www.lxistandard.org) and together with Agilent Technologies was the first company to release a fully compliant LXI device. Pickering is developing a large range of products conforming to the LXI standard and is constantly introducing new products in response to specific user demand. For further information go to www.pickeringtest.com/lxi