LXI 1 GHz Matrix

60-732

- High Bandwidth 75 Ω RF Matrix
- Usable to 1.5 GHz
- Fully Integrated Design
- Configurations to 32x4
- Automatic Termination of Unused Inputs
- Excellent RF Performance
- Simple Remote Control Via LXI Interface
- LXI Standard 1.4 Compliant
- 3 Year Warranty

The 60-732 is a family of integrated RF matrices suitable for use up to 1.5 GHz.

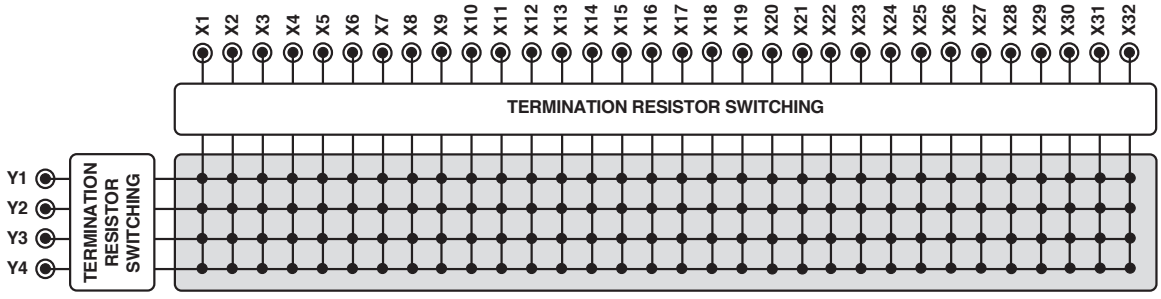
The construction of the 60-732 provides a cost effective alternative to RF switching based on microwave relays while maintaining a high level of performance.

The matrix is fully scalable, allowing a variety of sizes to be offered in a single family. The innovative design maintains a close insertion loss match for all signal routes, minimizing the calibration required when optimizing test system performance.

The design is non-blocking Y to X (or X to Y) allowing any input to be connected to any output. The construction is based on high quality electro-mechanical relays providing fast operating time compared to microwave relays.

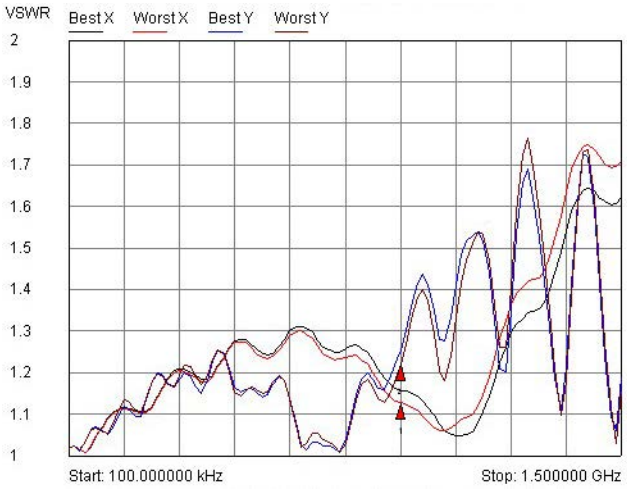
The unit is programmable via the LAN interface using Pickering's switch driver. Standard (W3C) web browsers can be used to access and change configuration information and provide control via the built in soft front panels.

The 60-732 is fitted with F-Type signal connectors simplifying connection to appliances and distribution systems typical of a domestic environment. The unit can be supplied with alternative connectors with improved performance and other matrix sizes can be specified. Contact your Pickering sales representative for information.

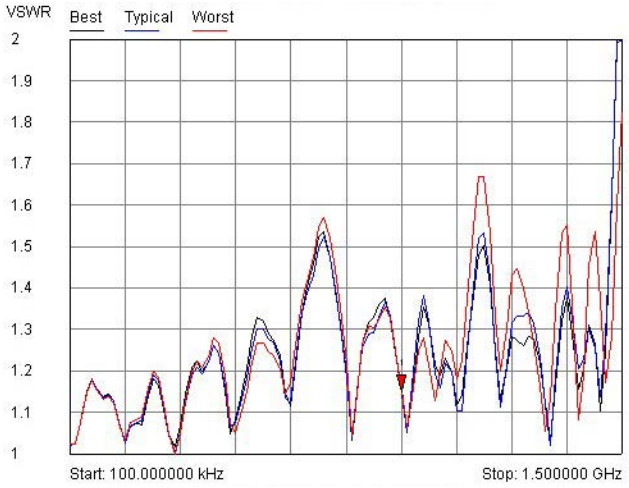


Schematic Diagram for the 60-732 Matrix in 32x4 Format With Termination For Unused Signals

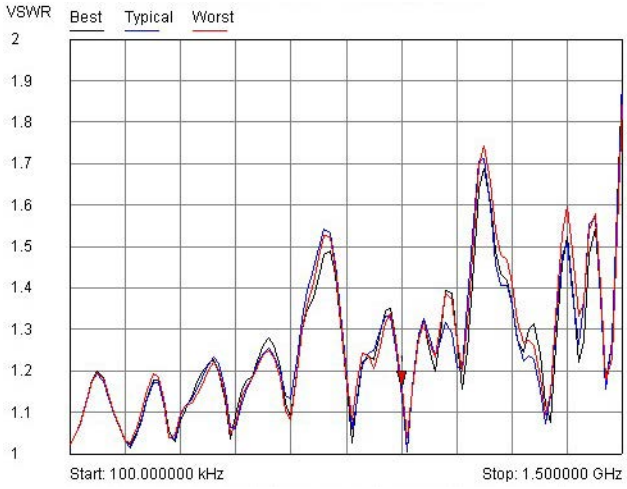
Insertion Loss



VSWR - Internal Terminations

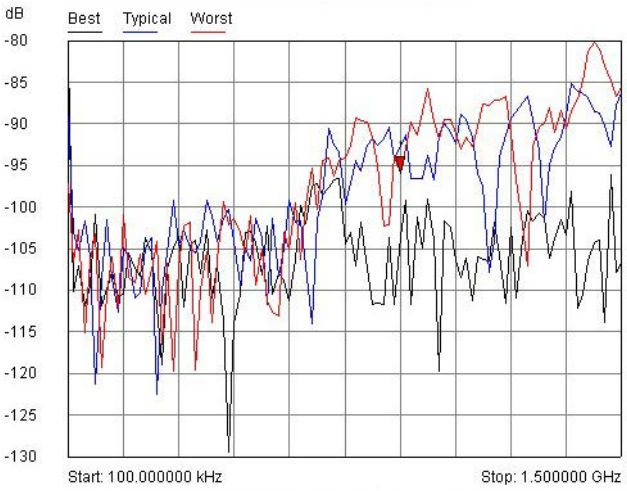


VSWR - Y Port Thru Path to X Port



VSWR - X Port Thru Path to Y Port

Typical Crosstalk (red trace is typical worst case)



Isolation - X to Y Path

NOTE: Marker on plots indicates a frequency of 900 MHz

General Matrix Information

Matrix Size:	32x4, 24x4, 16x4 or 8x4
Connectors:	Front panel Precision F-type.
Operating Time:	3 ms
Max. DC Switch Voltage:	6 V
Max. DC Current:	0.08 A
Max Power Rating:	0.48 W per path
Life Expectancy:	10^7 operations at <100 mW

Matrix RF Specification

Characteristic Impedance:	75 Ω
Usable Frequency Range:	DC to 1.5 GHz
Insertion Loss (typical):	-0.3 dB at 100 kHz -1.7 dB at 900 MHz -2.5 dB at 1.5 GHz
VSWR (typical)	
Internal termination:	1.4:1 at 900 MHz 1.8:1 at 1.5 GHz
Thru path:	1.6:1 at 900 MHz 1.8:1 at 1.5 GHz
Isolation (typical):	
Single X to Y path:	-85 dB at 900 MHz -80 dB at 1.5 GHz
Crosstalk	
Typical:	-75 dB at 900 MHz -65 dB at 1.5 GHz
Other paths:	-75 dB at 900 MHz -70 dB at 1.5 GHz
Maximum RF Power:	0.125 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:	2.5 A, 250 V

LAN Interface

Compliant to LXI Standard 1.4, the 60-732 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:

32x4 & 24x4 Versions:	3U high, full 19" rack width, 500 mm depth
16x4 & 8x4 Versions:	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 F-type connectors.

Operating/Storage Conditions

Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 85% non-condensing
Altitude:	5000 m
Storage/Transport Temperature:	-20 °C to +75 °C
Humidity:	Up to 85% non-condensing
Altitude:	15000 m

Product Order Codes

1GHz, 75Ω Matrix, 32x4 terminated	60-732-001
1GHz, 75Ω Matrix, 24x4 terminated	60-732-002
1GHz, 75Ω Matrix, 16x4 terminated	60-732-003
1GHz, 75Ω Matrix, 8x4 terminated	60-732-004

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.

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 60-732 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

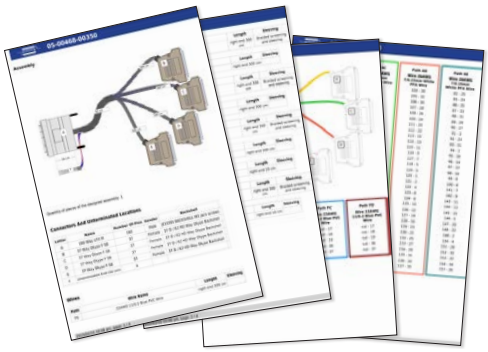
Breakouts

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

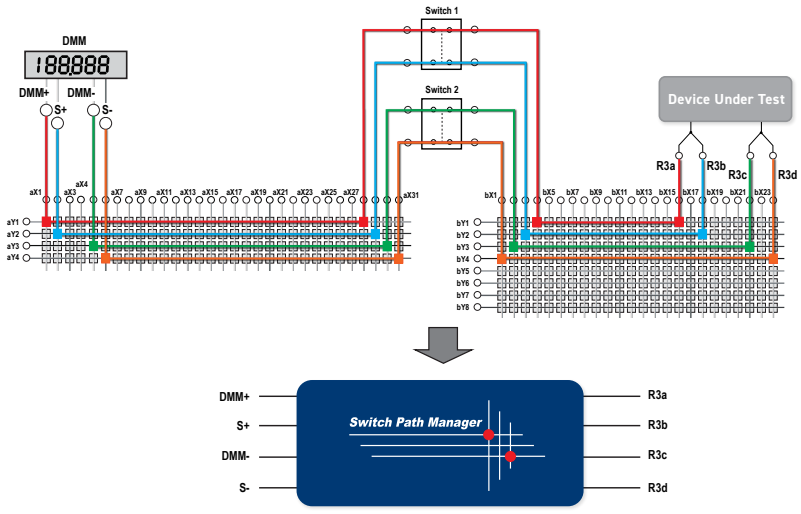
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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