LXI Dual 24x8 HF Matrix

60-760

- Single or Dual 24x8 50 Ω HF Matrix
- Software Configurable As 48x8 Matrix
- 50 MHz Bandwidth, Usable to 100 MHz
- High Density SMB Coaxial Connectors
- Also Available With BNC Connectors
- Rack Mountable Enclosure
- LXI Standard 1.4 Compliant
- Program via Windows DLL or IVI Driver
- 3 Year Warranty

The 60-760 is a Dual 24x8 HF Matrix suitable for switching frequencies up to 50 MHz. It has an impedance of 50 Ω and uses SMB signal connectors or, with a larger case size, BNC connectors.

It is designed to provide a simple and scalable bidirectional matrix for radio frequencies and is intended for the easy construction of high performance switching systems.

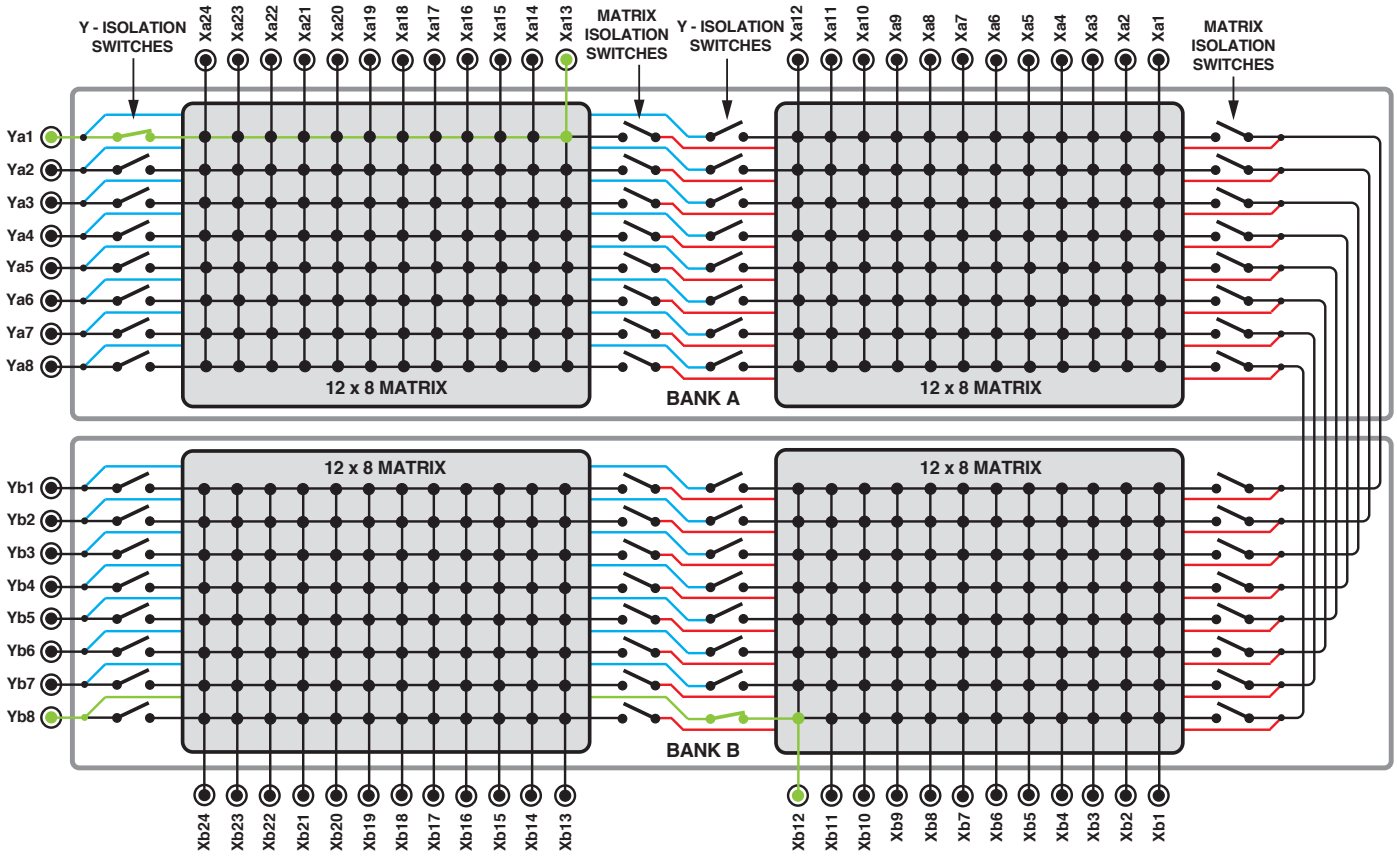
Software configuration allows the 60-760-002 matrix to be set as a dual 24x8, a single 48x8 and other configurations. Signal connections to the matrices are via the front panel.

A flexible isolation switch arrangement permits the matrices to be expanded with other modules while maximizing bandwidth.

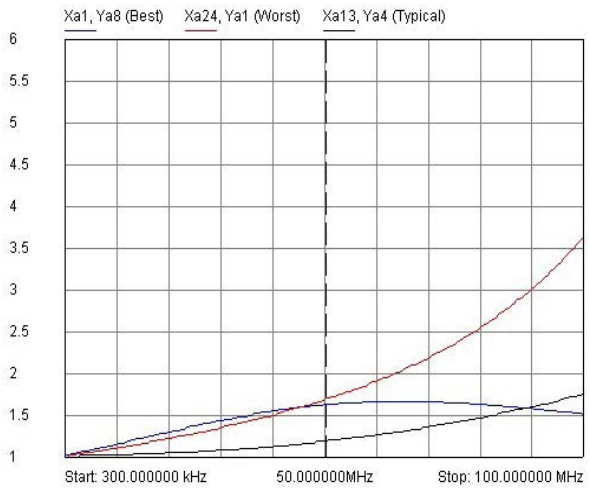
The 60-760 is designed in accordance with the LXI Standard 1.4 and is supplied in a compact 1U high, rack width case with 340mm depth. The BNC version is housed in a 2U high case with 500 mm depth.

It is programmable via the LAN interface using a variety of drivers. Industry standard (W3C) web browsers can be used to access and change configuration information and provide access to the soft front panels.

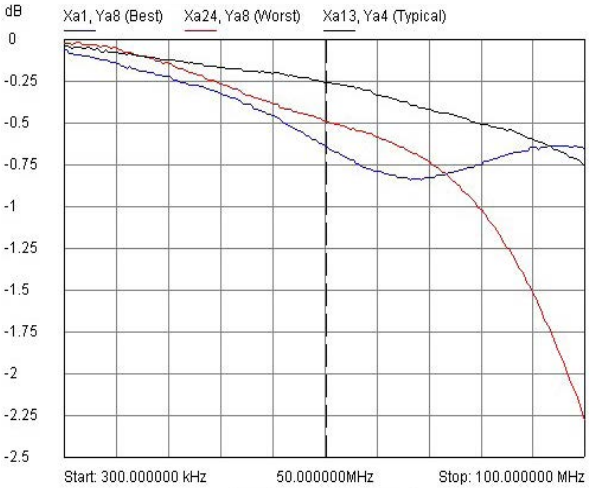
The 60-760 can be supplied in 2U format with BNC connectors



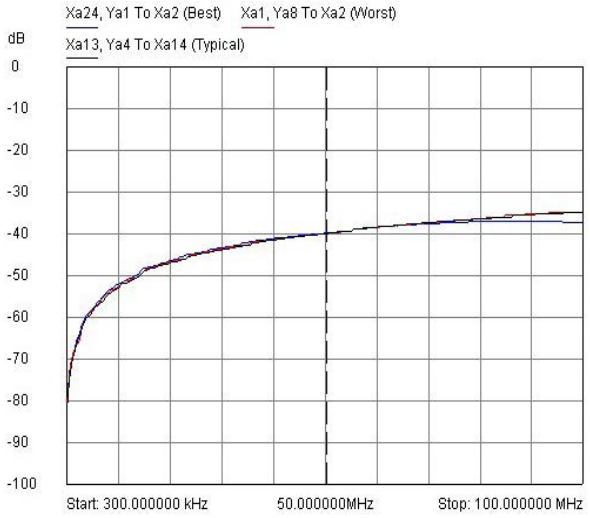
60-760 Dual 24x8 Matrix Schematic Diagram (Paths Xa13 to Ya1 and Xb12 to Yb8 selected)



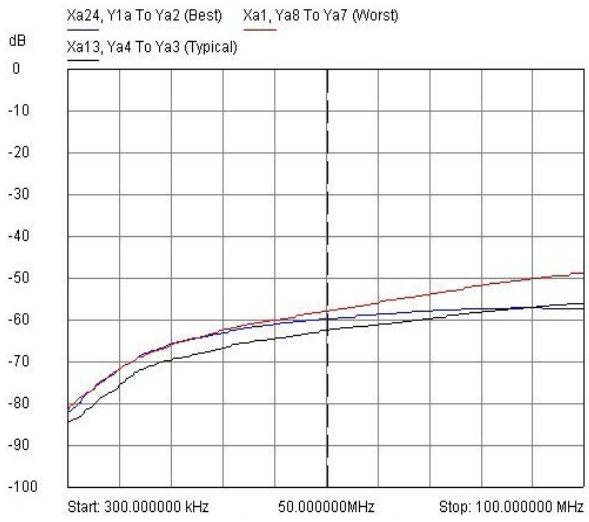
VSWR Plot for Dual 24x8 HF Matrix



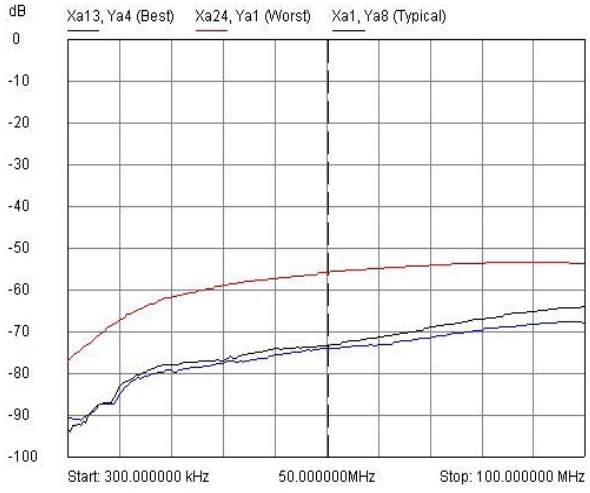
Insertion Loss Plot for Dual 24x8 HF Matrix



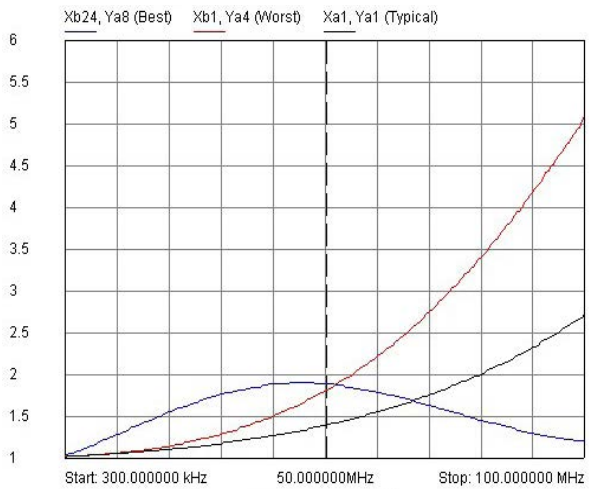
Crosstalk Plot for Dual 24x8 HF Matrix
(between X-Y path and X connection with 50Ω load)



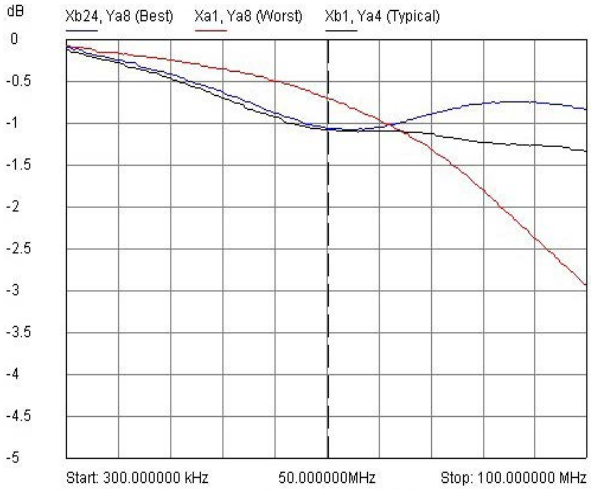
Crosstalk Plot for Dual 24x8 HF Matrix
(between X-Y path and Y connection with 50Ω load)



Isolation Plot for Dual 24x8 HF Matrix (all relays off)

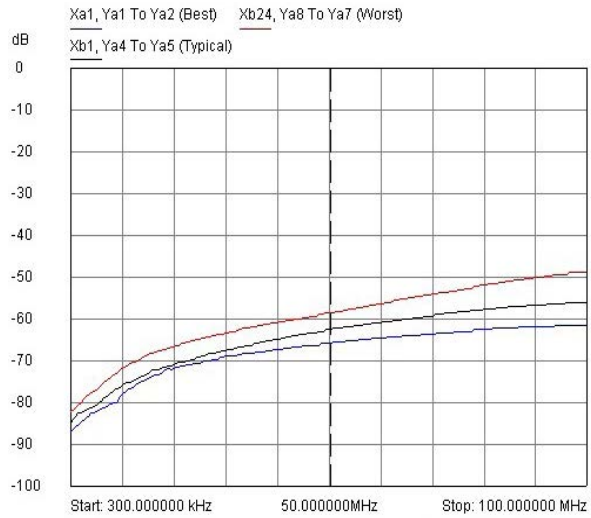


VSWR Plot for Single 48x8 HF Matrix

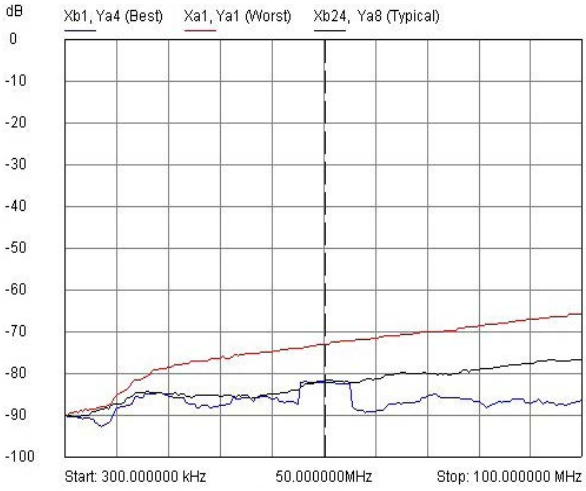


Insertion Loss Plot for Single 48x8 HF Matrix

Crosstalk Plot for Single 48x8 HF Matrix
(between X-Y path and X connection with 50Ω load)



Crosstalk Plot for Single 48x8 HF Matrix
(between X-Y path and Y connection with 50Ω load)



Isolation Plot for Single 48x8 HF Matrix (all relays off)

Relay Type

The 60-760 is fitted with electro-mechanical signal relays with palladium-ruthenium, gold covered contacts. These are leaded relays (not SMT relays) so field maintenance is greatly simplified. In addition a total of 8 spare relays are fitted to the dual 24x8 matrix and 4 are fitted to the single 24x8 matrix. This allows easy maintenance with minimum downtime.

Specification

Characteristic Impedance:	50 Ω
Frequency Range:	DC to 50 MHz (useable to 100 MHz)
Insertion Loss:	1 dB typical at 50 MHz 3 dB typical at 100 MHz
VSWR:	<1.2:1 at 5 MHz <1.3:1 typical at 10 MHz <1.8:1 typical at 50 MHz
Crosstalk:	Better than 30 dB, Typically better than 40 dB at 50 MHz
Isolation:	Typically better than 60 dB at 50 MHz
Operating Life:	$1x10^8$ for power less than 100 mW $1x10^7$ at maximum power
Maximum HF Power:	10 W at 50 MHz
DC Rating:	100 V max, 1A max, 30 W
Operating Time:	<3 ms

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 60-760 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.

Mechanical Characteristics

Supplied with front panel ears to enable rack mounting on a shelf or other rear support mechanism.

Dimensions:

SMB Connectors: 1U high, full rack width, 340 mm depth

BNC Connectors: 2U high, full rack width, 500 mm depth

Weight: 4.6 kg

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

Connectors

Signals via front panel 50 Ω SMB or 50 Ω BNC connectors.

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 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

LXI Single 24x8 HF Matrix, SMB, 50 Ω	60-760-001
LXI Dual 24x8 HF Matrix, SMB, 50 Ω	60-760-002
LXI Single 24x8 HF Matrix, BNC, 50 Ω	60-760-005
LXI Dual 24x8 HF Matrix, BNC, 50 Ω	60-760-006

Mating Connectors & Cabling

For connection accessories for the 60-760 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.

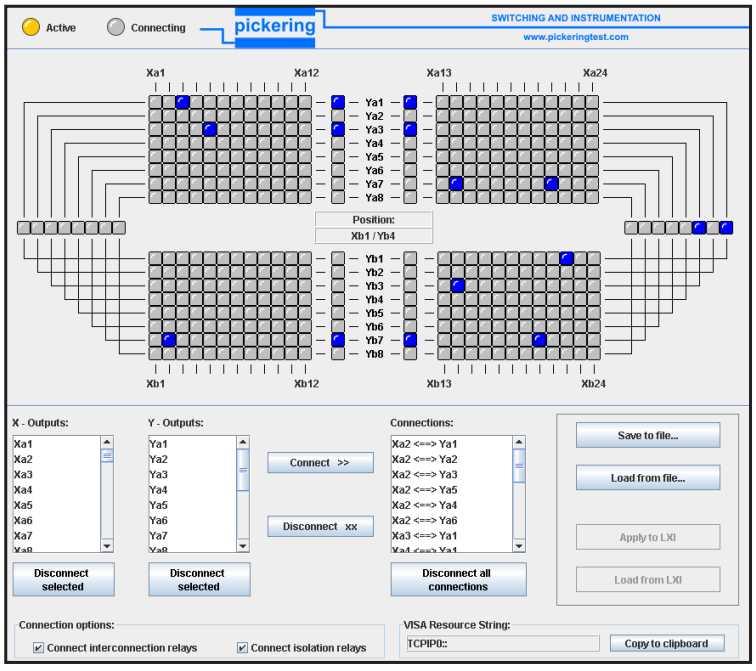
Product Customization

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.



Soft Front Panel for the 60-760 Dual 24x8 Matrix

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

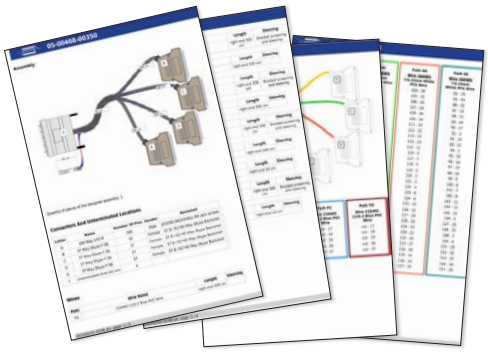
Breakouts

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



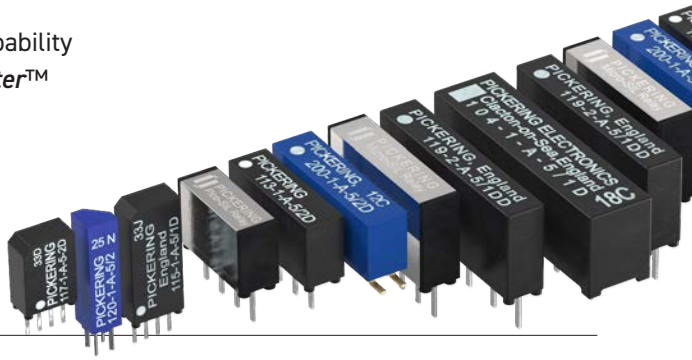
Mass Interconnect

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

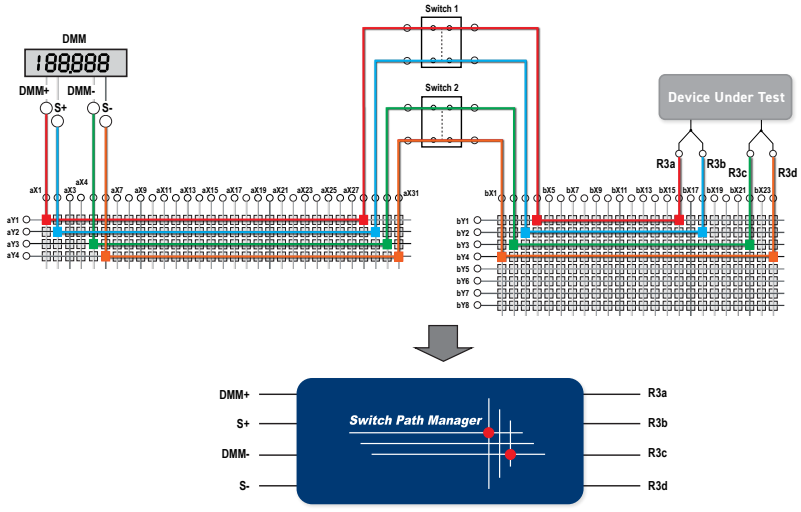
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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