- Modular Matrix Design With a Y Matrix Size of 10
- Loop-Thru Connections for Easy Expansion
- Maximum Switch Current of 8A
- Switch up to 125VDC/250VAC and up to 240W Max Power
- User Configurable for X Dimensions by Plugin addition
- Fully Compliant to 1.4 LXI Standard
- 3 Year Warranty

The 65-239 is a modular matrix platform that provides a large matrix solution with 8A current carrying capacity on all Y paths.

Matrices are created by populating the 65-200 chassis with plugin modules that have access to X and Y signals on 20-pin GMCT connectors. The chassis is capable of supporting matrices with a Y size of 10 and X sizes up to 60 in increments of 10. Users can specify as many or as few plugin modules as they require and can field upgrade the chassis to extend the matrix.

The chassis can be fitted with up to 6 plugin modules. These can be X or Y types:

The X-type plugin is a 10(X)x10(Y) matrix with X-bus access on a 20-pin GMCT connector. A second 20-pin GMCT connector is included for X-bus loop-thru. Partially populated X-type plugins are also available with an 8(X)x10(Y) matrix.

The Y-type plugin has two 20-pin GMCT connectors, each giving access to the Y-bus via isolation relays. These are for user connection to the Y-bus and Y loop-thru - allowing easy expansion of the matrix. The chassis can have none of these plugin modules (no direct Y access), 1 or more – the latter providing a simple means of adding Switched Signal connections for the attachment of measurement equipment.

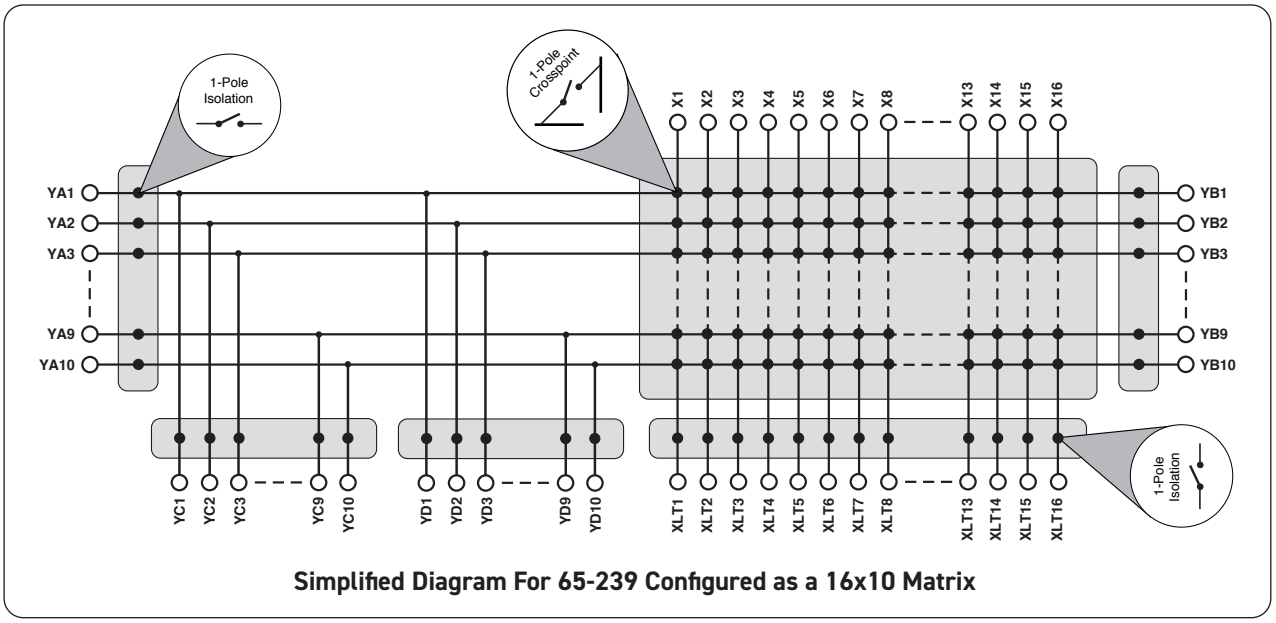
Cooling for the chassis is provided by rear fans and front air intakes ensuring no wasted space when it is rack mounted. The cooling system is adaptive, minimizing acoustic noise when used in quiet laboratory environments. Unused chassis slots are filled using supplied blanking pieces to ensure correct air flow.

Plugins are loaded into the chassis via the front panel, greatly improving the flexibility and ease of maintenance of the unit.

Configuring the Matrix

To select the parts that you need to create a matrix simply:

- Specify a **65-200-001** Modular Matrix Chassis.
- Add **65-239-101** Y Plugin Modules as required.
- Add **65-239-20X** X1 to X10 or X1 to X8 Plugin Modules needed to make up the X dimension of the matrix – simply divide the X size by 10 or 8 and round up to the next integer to find the number required.



Simplified Diagram For 65-239 Configured as a 16x10 Matrix

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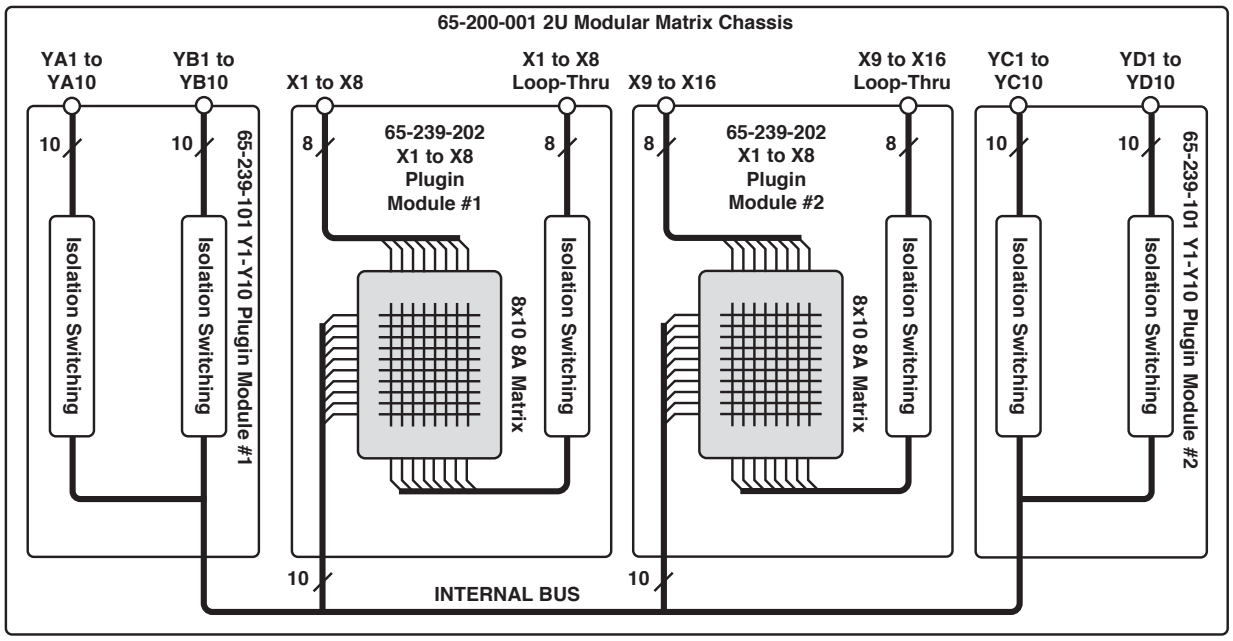
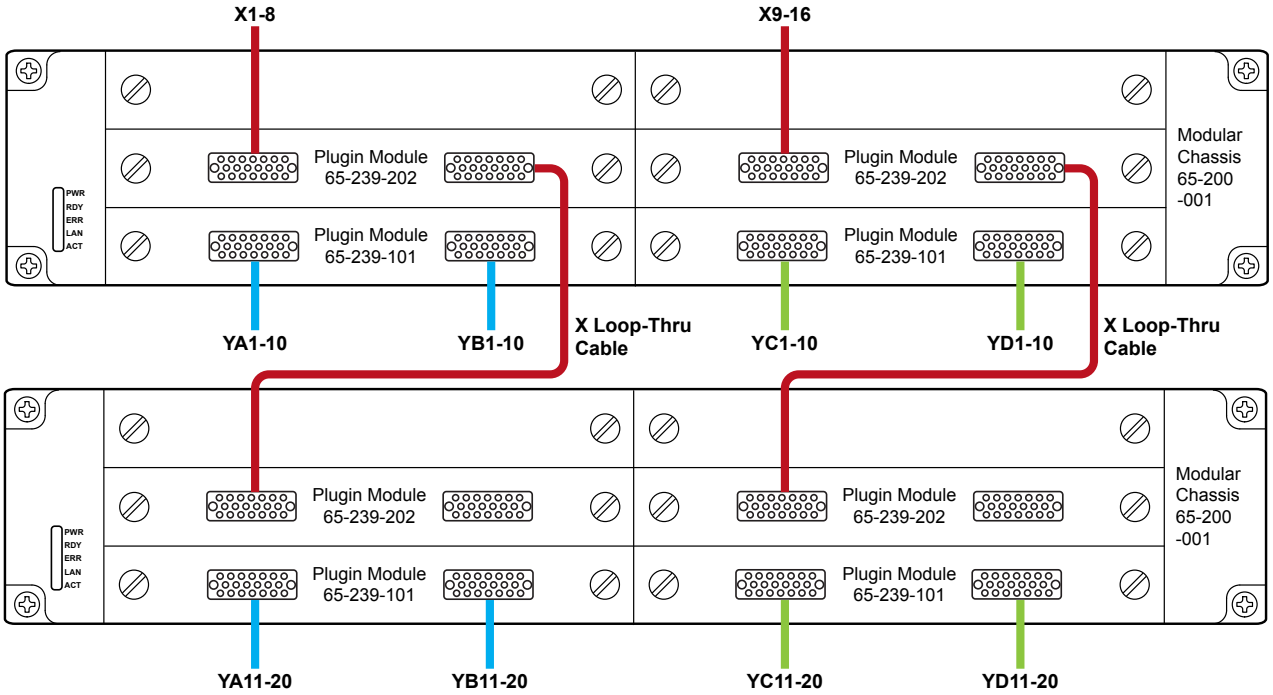
Example Configurations

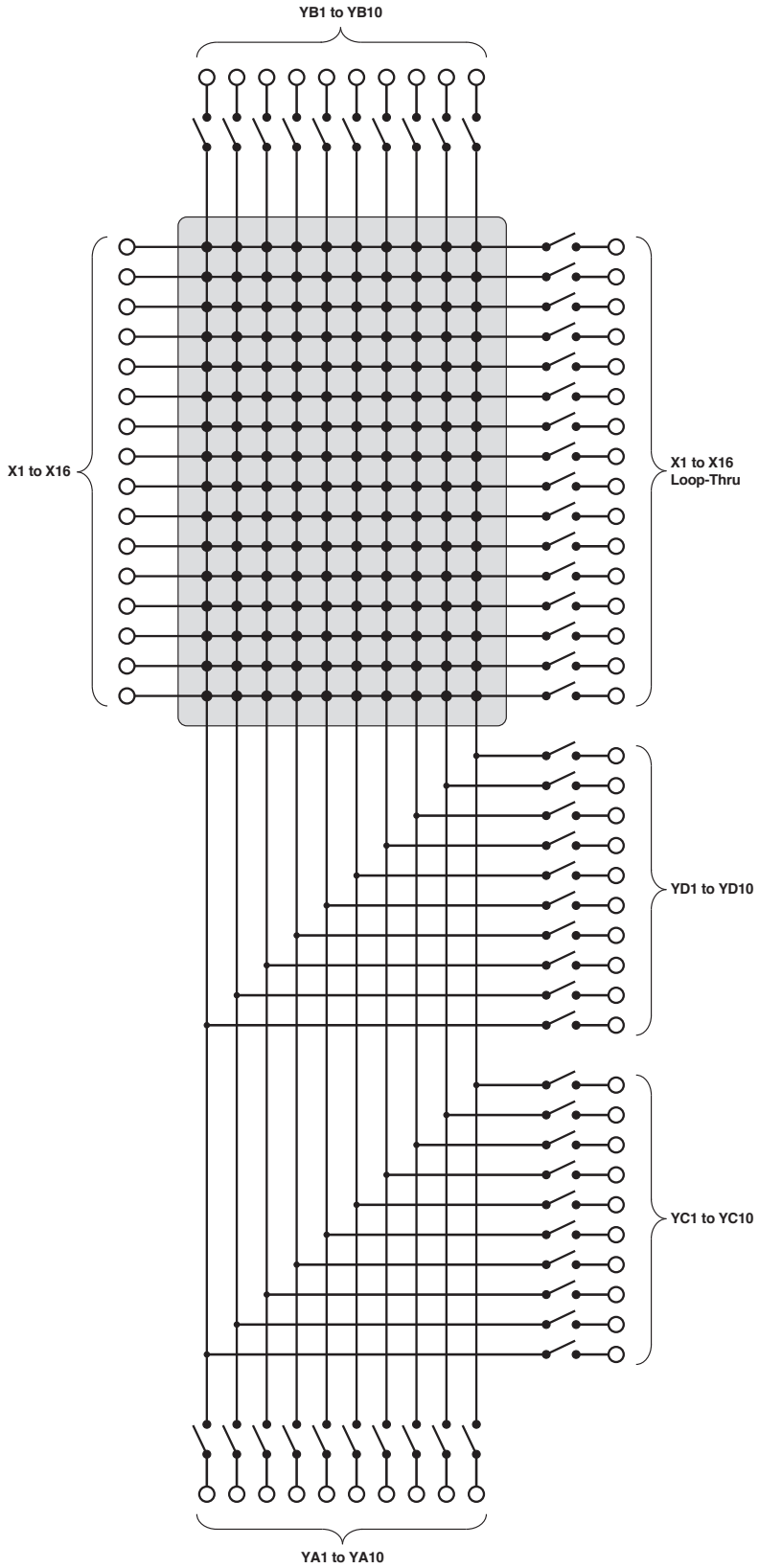
2U 16x10 Matrix Matrix that permits 10 concurrent connections to be made between Y and X or 8 between X and X with multiple Y access.	1 off X65-200-001 2U Modular Matrix Chassis 2 off X65-239-101 Y1 to Y10 Plugin Module 2 off X65-239-202 X1 to X8 Plugin Modules



65-200 Configured as a 16x10 matrix with multiple Y connections using a 65-200-001 2U Modular Matrix Chassis, 2 off 65-239-101 Y1 to Y10 Plugin Modules and 2 off 65-239-202 X1 to X8 Plugin Modules



Linking two 16x10 matrices to create a 16x20 matrix. Two interconnecting cables are required to link the X-Loop-Thru connectors on the first chassis to the X connectors on the second chassis



65-239 16x10 Matrix Switching Diagram

Matrix Specification

General:	Provides 10 concurrent X to Y or 8 X to X connections.
Maximum Size:	60x10 (no Y access)
Maximum Switch Current:	8A
Maximum Switch Voltage:	125VDC/250AC*
Maximum Power:	240W/2000VA
Minimum Switch Capacity:	10mA, 5VDC
Relay Type:	Electromechanical (Au-flashed $AgSNO_2$ type)
Plugin Setting Time:	10ms (per relay operation)
Initial Path Resistance:	X Plugin: <0.03Ω (X to XLT) Y Plugin: <0.03Ω (YA to YB) System*: <0.2Ω (X to Y)
Anticipated Switch Life:	$>1x10^7$ (Low Load) $>1x10^5$ (Full Load)
* This represents an example system configured as a 16x10 matrix consisting of 2x 65-239-101 Y Plugins and 2x 65-239-202 X Plugins housed within a 65-200-001 Chassis.	

* For full voltage rating, signal sources to be switched must be fully isolated from mains supply and safety earth.

Mechanical Specification

Chassis Dimensions:	2U rack mountable full width, depth 500mm.
Number of Plugins Supported:	6 (any combination of 65-239 plugins).
X Plugin Connectors:	20-pin male GMCT
Y Plugin Connectors:	20-pin male GMCT
Chassis Cooling:	Front air intakes through plugin module holes, temperature controlled speed adjustable fans.

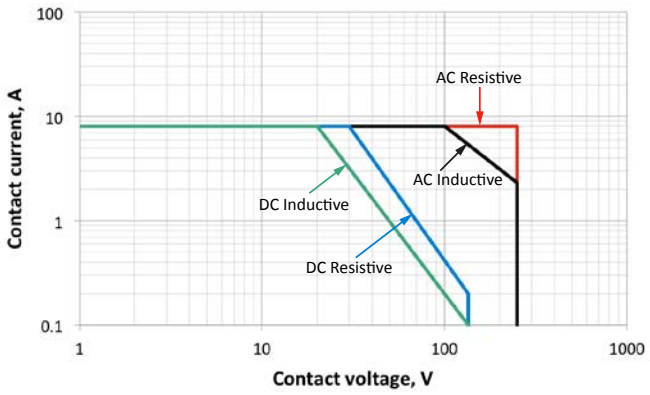
Power Source

Universal AC mains supply, 90-120/200-240V 50-60Hz.

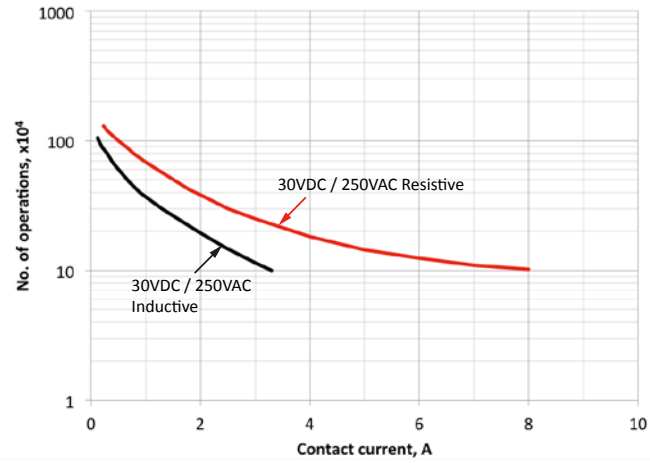
Power Inlet:	Male IEC connector
Power Rating:	100VA maximum
Fuse Rating:	(F) 5A 250V

LAN Interface

1000Base-T Ethernet Interface with a standard RJ-45 connector mounted on the rear panel. Compliant to LXI Standard 1.4.



65-239 Current/Voltage Curve



65-239 Current/Operating Life Curve

Operating/Storage Conditions

Operating Conditions (operating with specified airflow)

Operating Temperature:	0°C to +55°C
Humidity:	10% to 90% non-condensing

Storage and Transport Conditions

Storage Temperature:	-20°C to +70°C
Humidity:	10% to 90% non-condensing

Safety, CE & RoHS 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.

The 65-200 Chassis also complies with the European Restriction of Hazardous Substances directive (RoHS).

Product Order Codes

Specify which modules are required to build the matrix, Pickering Interfaces will supply the chassis with the modules installed if ordered at the same time. Plug-in modules can be ordered for chassis already supplied.

Chassis	
2U Modular Matrix Chassis, 6-Slot	**65-200-001**
Plugins	
Y1 to Y10 Plugin Y Module	**65-239-101**
10(X) x 10(Y) Plugin X Module	**65-239-201**
8(X) x 10(Y) Plugin X Module	**65-239-202**

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

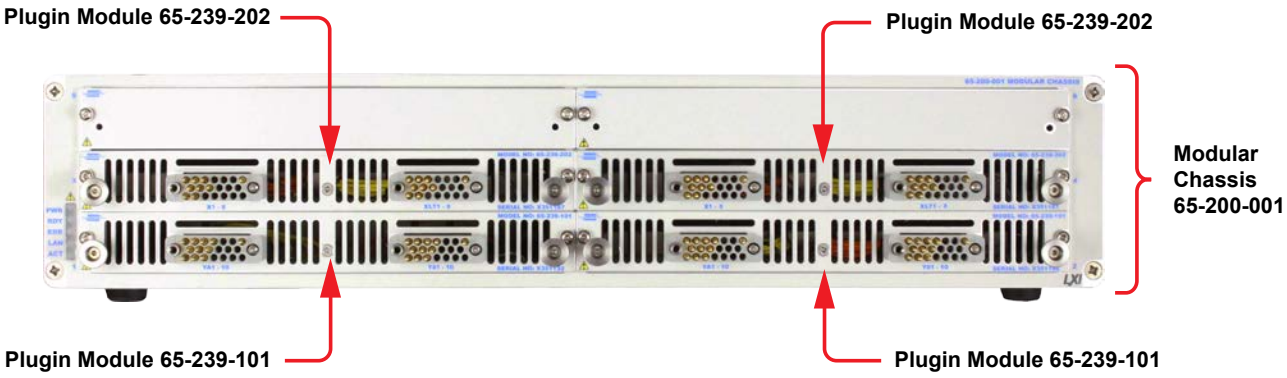
All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

Mating Connectors & Cabling

For connection accessories for the 65-239 range of modules please refer to the 90-014D 20-pin GMCT Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

The 65-200 range is part of a growing family of Scalable Matrix systems available from Pickering Interfaces. Illustrated is the LXI 65-110 200MHz RF Matrix, available in sizes up to 104x16.

Also available from Pickering are the 60-102B and 60-103B LXI Modular Chassis. These are 7 and 18 slot chassis capable of hosting any of our range of PXI switching and programmable resistor modules under LXI control via a Gigabit Ethernet interface.



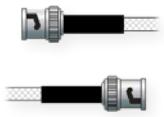
Example of Plugin Module Types Fitted to 65-200 Matrix Chassis

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 sister company, Pickering Electronics. 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

All LXI devices are supplied with built-in software drivers, web pages for configuration and soft front panels as required by the LXI specification. A variety of drivers are provided (C, .NET, IVI, SOAP) 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 drivers may be used in many commonly used 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++, Visual C#)
- **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.

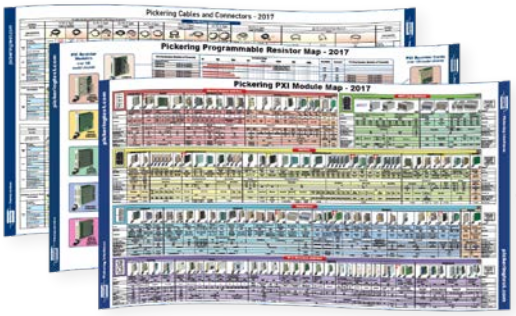
To learn more, please go to: pickeringtest.com/ebirst

Three Year Warranty

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, as well as complete product catalogs and product reference maps to assist when looking for the switching, simulation and cable and connector 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