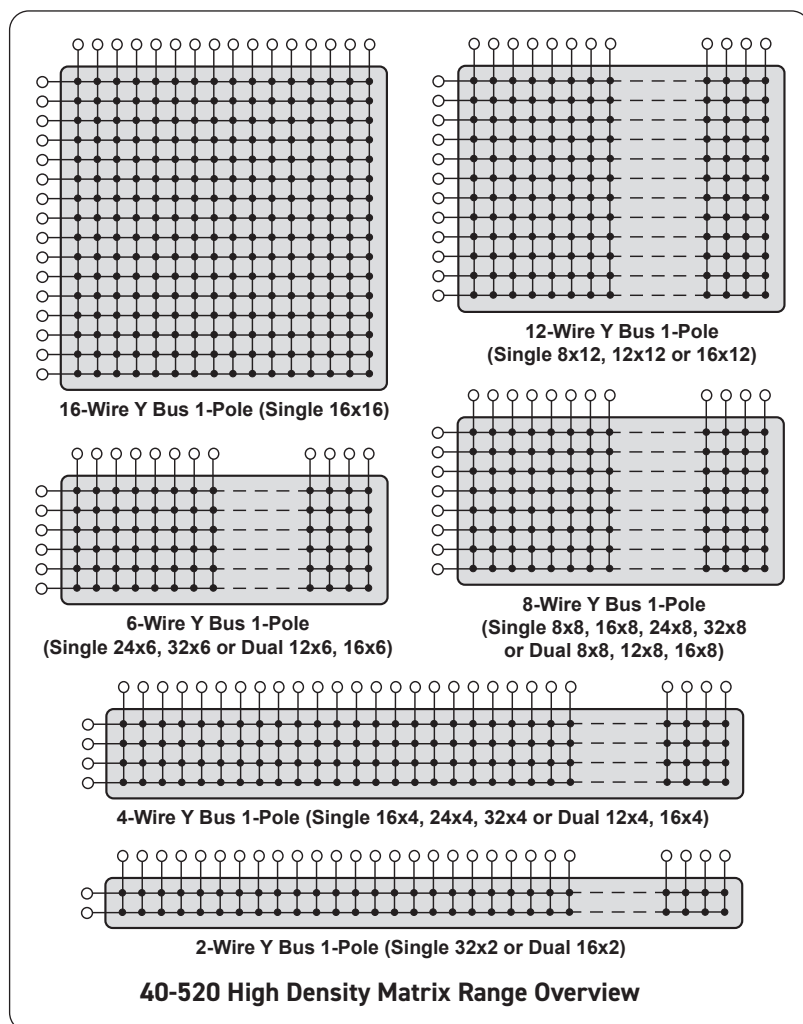


- High Density Reed Relay Matrix Module
- Low/Medium Density Options For Smaller Requirements
- 22 Different Matrix Configurations With Up To 256 Crosspoints
- Uses High Reliability Pickering Ruthenium Reed Relays For Maximum Performance
- Fast Operating Speed of 500µs
- Switch up to 150V, 1A with 15W Max Power
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Supported by *BIRST™* and *eBIRST™* Test Tools
- 3 Year Warranty



The 40-520 is a high density reed relay matrix with 22 different configurations. Typical applications include signal routing in ATE and data acquisition systems. The user signal connection is via a robust 50-pin D-Type connector that is fully supported by the wide range of Pickering Interfaces cable and connector accessories.

Built-In Relay Self-Test - *BIRST*

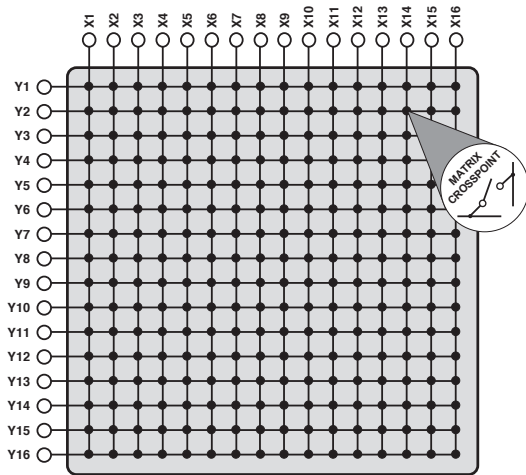
The *BIRST* facility provides a quick and simple way of finding relay failures within the module. No test equipment is required, simply disconnect the UUT from the module's connector, launch the *BIRST* application and the tool will run a diagnostic test that will find all relays with faulty contacts.

For more information go to: pickeringtest.com/birst

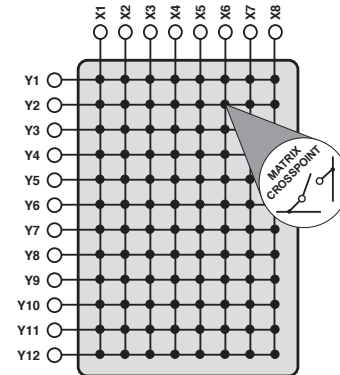
Supported by *eBIRST*

In addition to *BIRST*, these modules are also supported by our *eBIRST* test tools. These tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

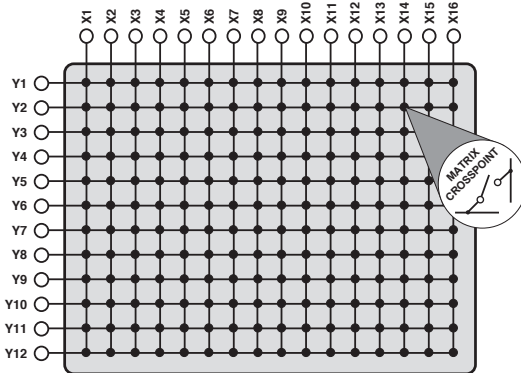
For more information go to: pickeringtest.com/ebirst



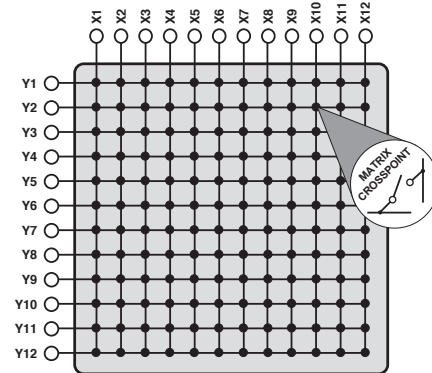
40-520-001 Single 16x16 1-Pole Matrix



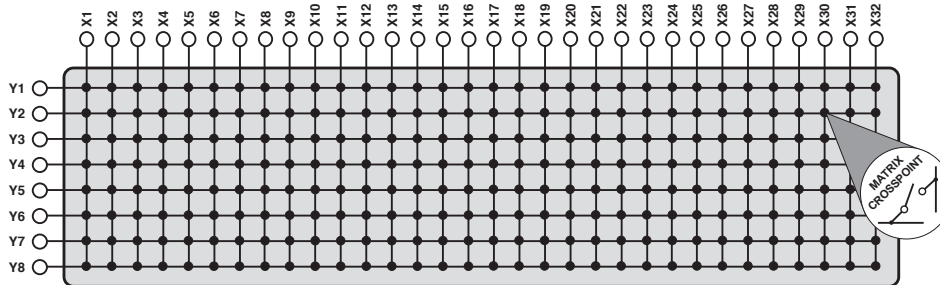
40-520-103 Single 8x12 1-Pole Matrix



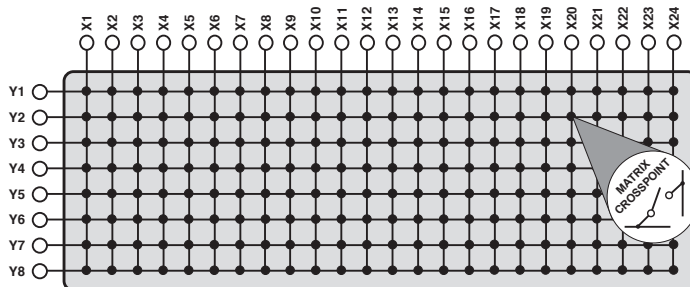
40-520-101 Single 16x12 1-Pole Matrix



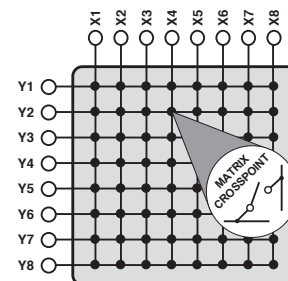
40-520-102 Single 12x12 1-Pole Matrix



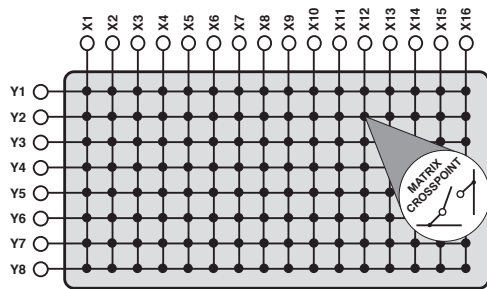
40-520-201 Single 32x8 1-Pole Matrix



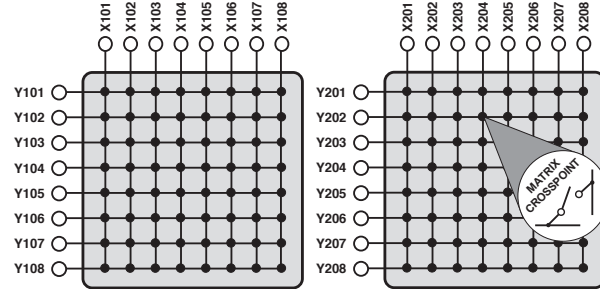
40-520-202 Single 24x8 1-Pole Matrix



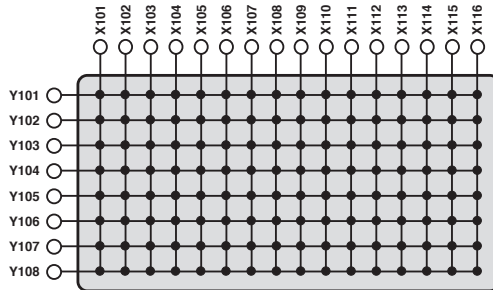
40-520-204 Single 8x8 1-Pole Matrix



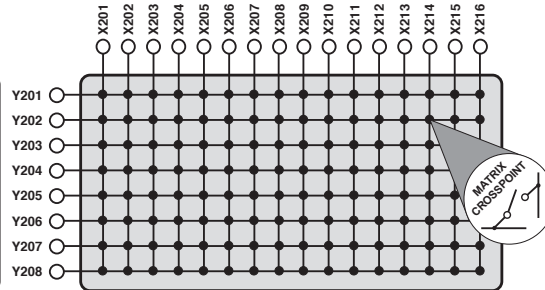
40-520-203 Single 16x8 1-Pole Matrix



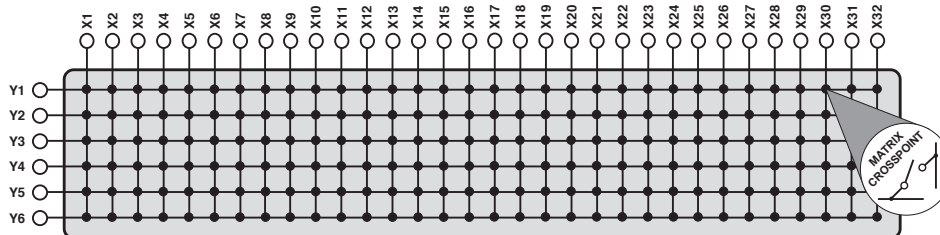
40-520-207 Dual 8x8 1-Pole Matrix



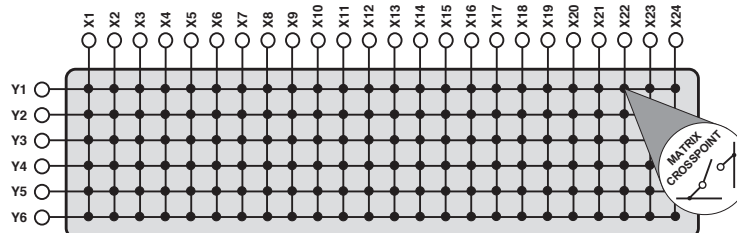
40-520-205 Dual 16x8 1-Pole Matrix



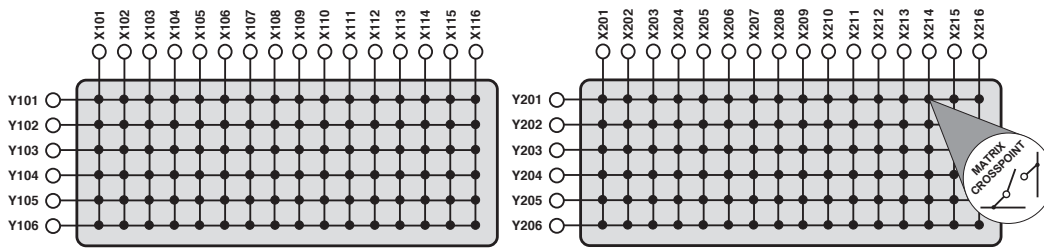
40-520-206 Dual 12x8 1-Pole Matrix



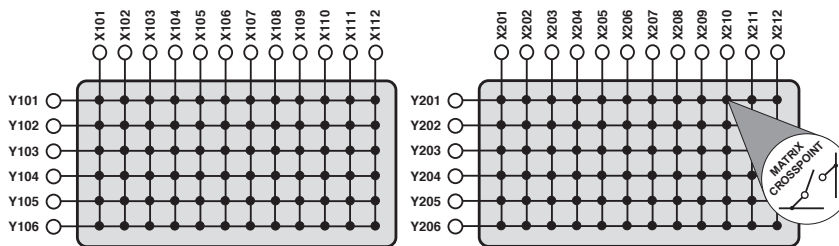
40-520-301 Single 32x6 1-Pole Matrix



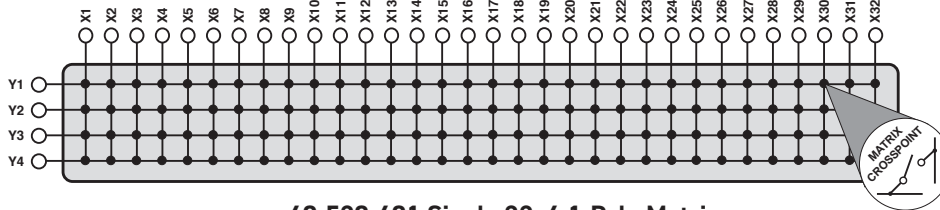
40-520-302 Single 24x6 1-Pole Matrix



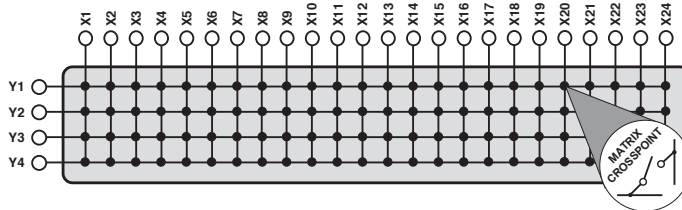
40-520-303 Dual 16x6 1-Pole Matrix



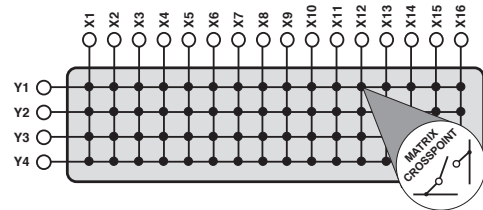
40-520-304 Dual 12x6 1-Pole Matrix



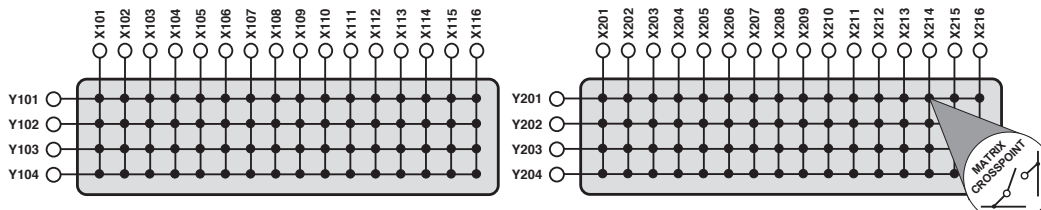
40-520-401 Single 32x4 1-Pole Matrix



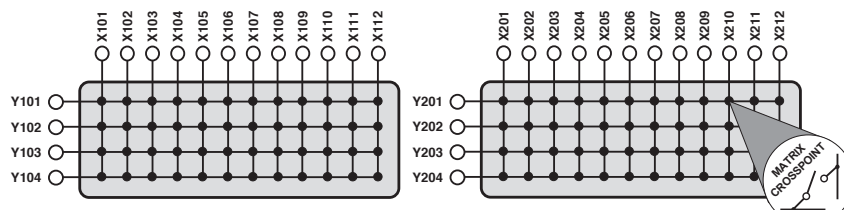
40-520-402 Single 24x4 1-Pole Matrix



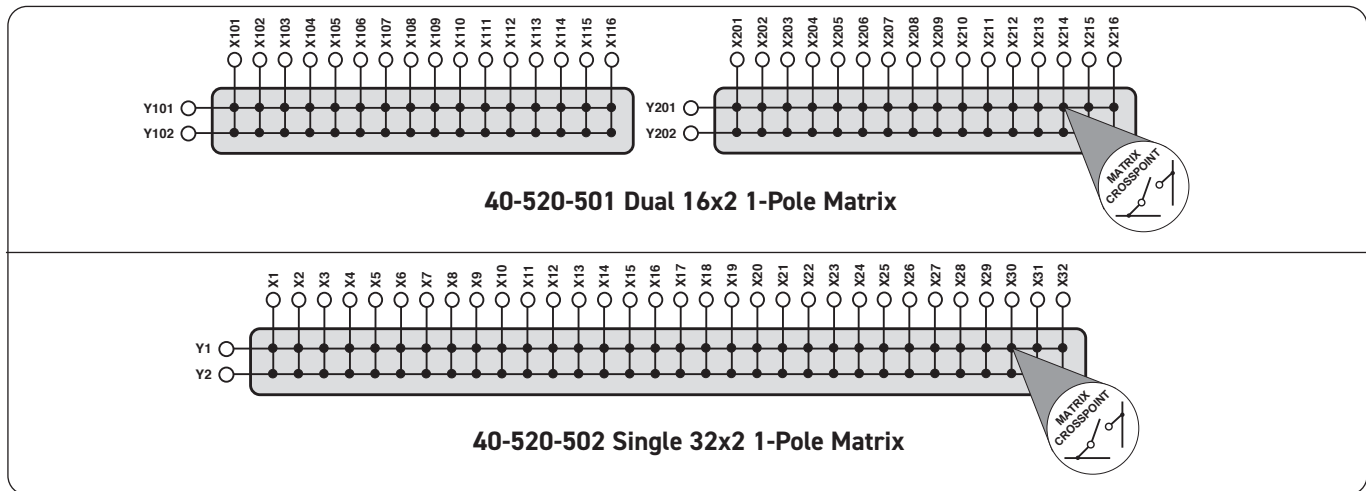
40-520-403 Single 16x4 1-Pole Matrix



40-520-404 Dual 16x4 1-Pole Matrix



40-520-405 Dual 12x4 1-Pole Matrix



Relay Type

The 40-520 module is fitted with high quality ruthenium sputtered reed relays, these offer very long life with good low level switching performance and excellent contact resistance stability. A spare reed relay is built onto the circuit board to allow easy maintenance with minimum downtime.

All reed relays are manufactured by our sister company Pickering Electronics: pickeringrelay.com

Switching Specification

Switch Type:	Ruthenium Reed
Max Switch Voltage:	150VDC/100VAC*
Max Power:	15W/15VA
Max Switch Current:	1A
Max Carry Current:	1.2A
Initial On Path Resistance:	<550mΩ, 300mΩ typical
Off Path Resistance:	>10 ⁹ Ω
Thermal Offset:	<35μV
Operate Time:	0.5ms typical
Expected Life, low power:	1x10 ⁹ operations
Expected Life, full power:	>5x10 ⁶ operations

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

RF Specification

Bandwidth (-3dB):	25MHz
Crosstalk (typical):	10kHz: -75dB
	100kHz: -65dB
	1MHz: -40dB
	10MHz: -25dB
Isolation (typical):	10kHz: 75dB
	100kHz: 65dB
	1MHz: 35dB
	10MHz: 20dB

Power Requirements

+3.3V	+5V	+12V	-12V
220mA	2.6A	40mA	0

Mechanical Characteristics

Single slot 3U PXI (CompactPCI card).

Module weight: 323g

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

Connectors

PXI bus via 32-bit P1/J1 backplane connector.

Signals via front panel 50-pin male D-type connector, for pin outs please refer to the operating manual.

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

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented.

Uses a 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules 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

Single 16x16 Matrix Module, 1-Pole	40-520-001
Single 16x12 Matrix Module, 1-Pole	40-520-101
Single 12x12 Matrix Module, 1-Pole	40-520-102
Single 8x12 Matrix Module, 1-Pole	40-520-103
Single 32x8 Matrix Module, 1-Pole	40-520-201
Single 24x8 Matrix Module, 1-Pole	40-520-202
Single 16x8 Matrix Module, 1-Pole	40-520-203
Single 8x8 Matrix Module, 1-Pole	40-520-204
Dual 16x8 Matrix Module, 1-Pole	40-520-205
Dual 12x8 Matrix Module, 1-Pole	40-520-206
Dual 8x8 Matrix Module, 1-Pole	40-520-207
Single 32x6 Matrix Module, 1-Pole	40-520-301
Single 24x6 Matrix Module, 1-Pole	40-520-302
Dual 16x6 Matrix Module, 1-Pole	40-520-303
Dual 12x6 Matrix Module, 1-Pole	40-520-304
Single 32x4 Matrix Module, 1-Pole	40-520-401
Single 24x4 Matrix Module, 1-Pole	40-520-402
Single 16x4 Matrix Module, 1-Pole	40-520-403
Dual 16x4 Matrix Module, 1-Pole	40-520-404
Dual 12x4 Matrix Module, 1-Pole	40-520-405
Dual 16x2 Matrix Module, 1-Pole	40-520-501
Single 32x2 Matrix Module, 1-Pole	40-520-502

Product Customization

Pickering PXI modules 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 reed relay types
- Mixture of reed 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.

Support Products

eBIRST Switching System Test Tool

This product is supported by the eBIRST test tools which simplify the identification of failed relays, the required eBIRST tools are below. For more information go to: pickeringtest.com/ebirst

Product	Test Tool	Adaptor
All Types	93-005-001	Not Required

Spare Relay Kits

Kits of replacement relays are available for the majority of Pickering's PXI switching products, simplifying servicing and reducing down-time.

Product	Relay Kit
All Types	91-100-097

For further assistance, please contact your local Pickering sales office.

Mating Connectors & Cabling

For connection accessories for the 40-520 module please refer to the [90-005D](#) 50-pin D-type Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Chassis Compatibility

This PXI module must be used in a suitable chassis. It is compatible with the following chassis types:

- All chassis conforming to the 3U PXI and 3U Compact PCI (cPCI) specification
- Legacy and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis
- Pickering Interfaces LXI or LXI/USB Modular Chassis

Chassis Selection Guide

Standard PXI or hybrid PXIe Chassis from any Vendor:

- Mix our 1000+ PXI switching & simulation modules with any vendor's PXI instrumentation
- Embedded or remote Windows PC control
- Real-time Operating System Support
- High data bandwidths, especially with PXI Express
- Integrated module timing and synchronization

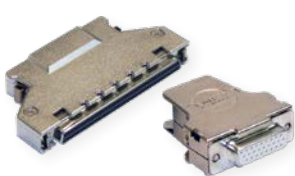
Pickering LXI or LXI/USB Modular Chassis—only accept our 1000+ PXI Switching & Simulation Modules:

- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating system



Connectivity Solutions

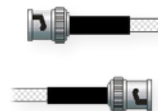
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules.



Connectors & Backshells



Multiwire 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

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 is also compatible with Real-Time Operating Systems such as LabVIEW 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+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
- **MTQ Testsolutions** Tecap Test & Measurement Suite

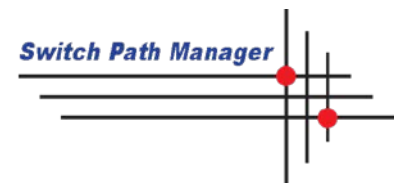
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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

To learn more about software drivers and development environments, 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

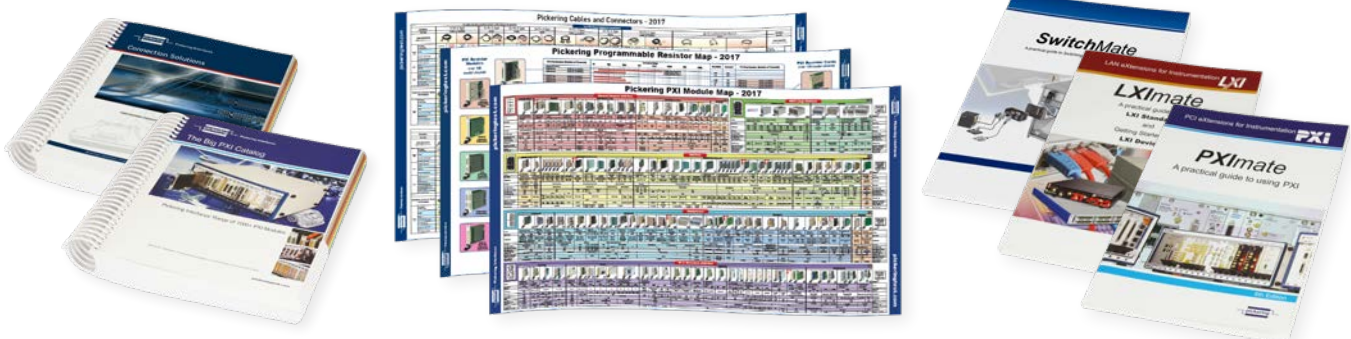


Three Year Warranty & Guaranteed Long-Term Support

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, 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