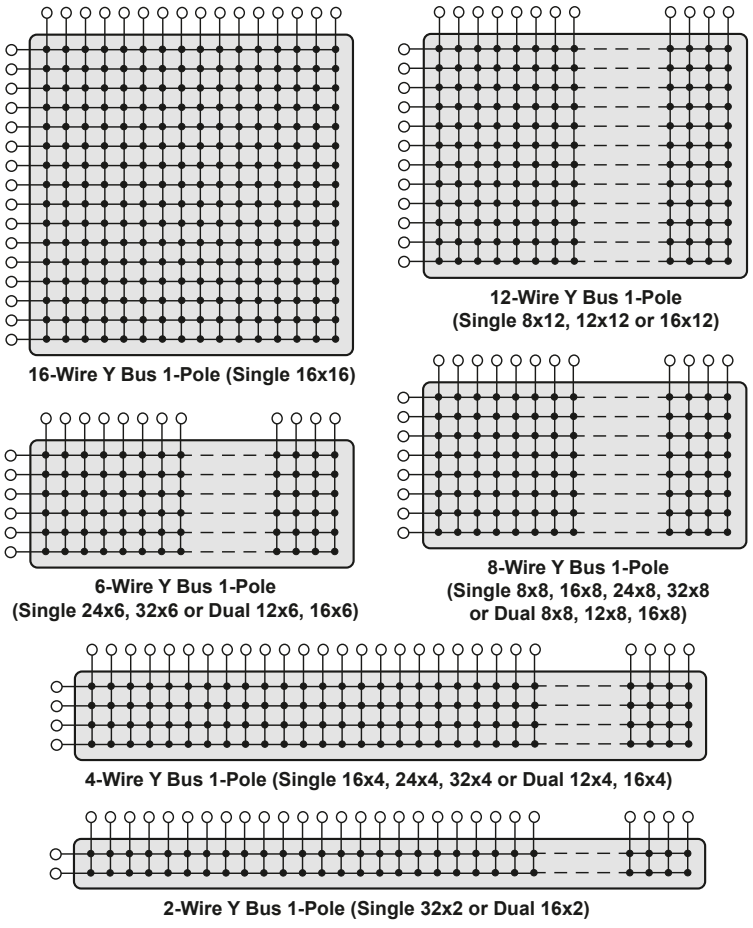
40-520
High Density Matrix Module

- 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 150Volts, 1A with 15W Max Power
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Built-In Diagnostics - BIRST™
- Supported by eBIRST Test Tool
- 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.



40-520 High Density Matrix Range Overview

Relay Type

The 40-520 module is fitted with high quality reed relays (Ruthenium sputtered type), 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 facilitate easy maintenance with minimum downtime.

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

Built-In-Relay-Self-Test BIRST™

The BIRST facility provides a quick and simple way of finding relay failures within the module. No supporting test equipment is required to run a BIRST test, simply disconnect the UUT from the module's user connector, launch the supplied BIRST application software and the tool will run a diagnostic test that will find all relays with contacts welded closed or with high (open) contact resistance. It makes it simple for systems integrators to diagnose the cause of switching failures in a system.

If a relay failure is detected by BIRST the user can quickly identify the failed relay, locate the cause of the failure and replace the failed device. More information on the use of the BIRST tool is contained within the module's operating manual. For general information see BIRST.

Supported by eBIRST

As an alternative to BIRST this product is also supported by eBIRST which tests the switching system using an external tool. eBIRST provides a graphical output of its tests which includes an image showing the location of any defective relay. For more information on eBIRST see 93-000D.pdf

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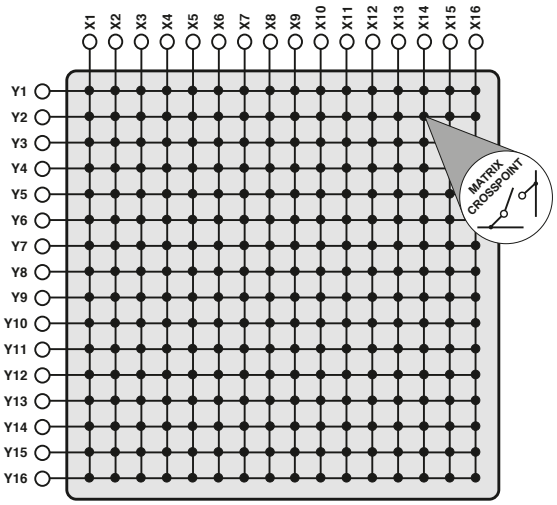
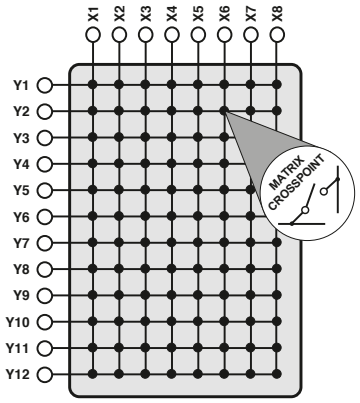
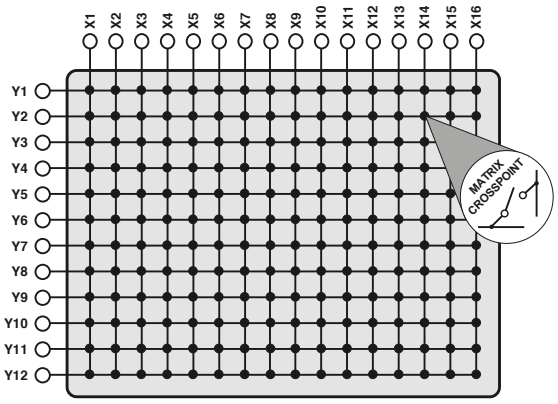


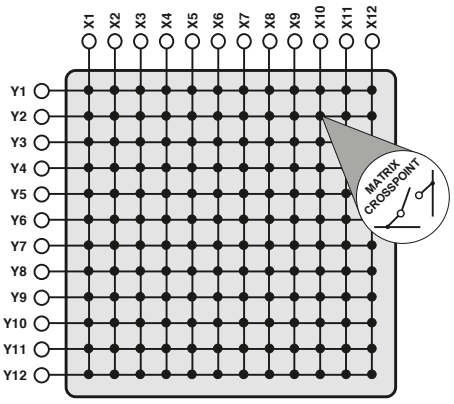
40-520-001 Single 16x16 1-Pole Matrix



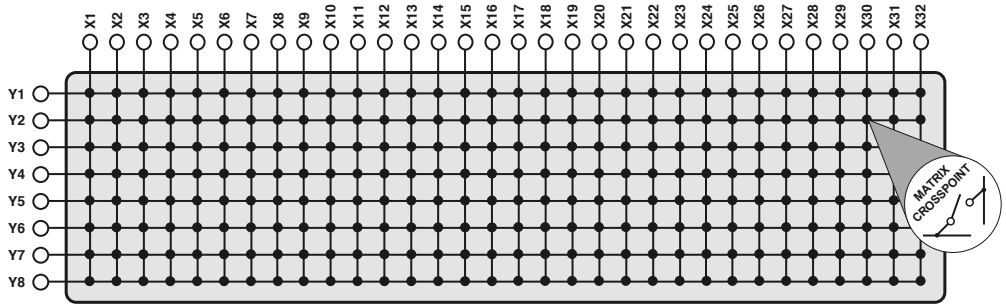
40-520-103 Single 8x12 1-Pole Matrix



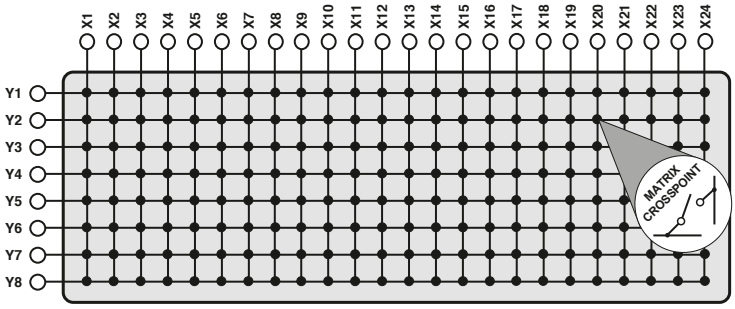
40-520-101 Single 16x12 1-Pole Matrix



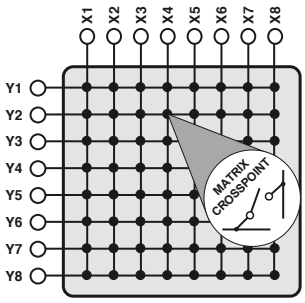
40-520-102 Single 12x12 1-Pole Matrix



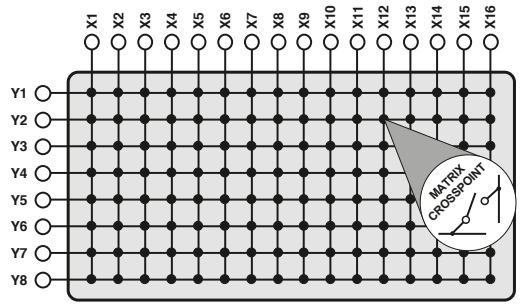
40-520-201 Single 32x8 1-Pole Matrix



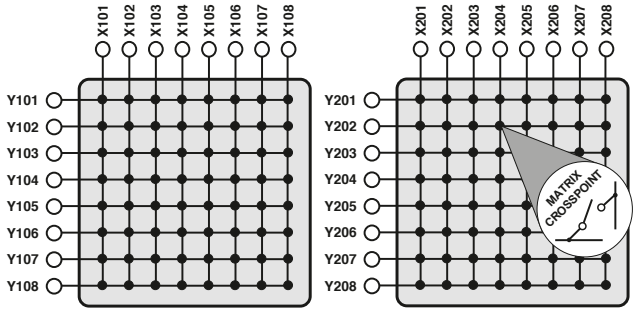
40-520-202 Single 24x8 1-Pole Matrix



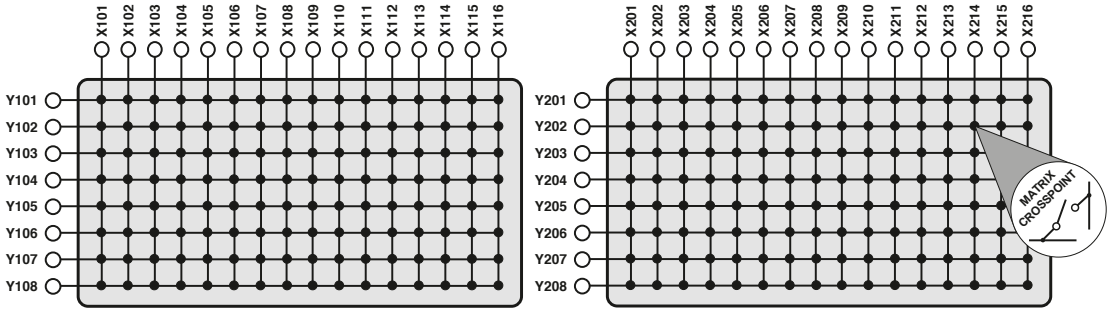
40-520-204 Single 8x8 1-Pole Matrix



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



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



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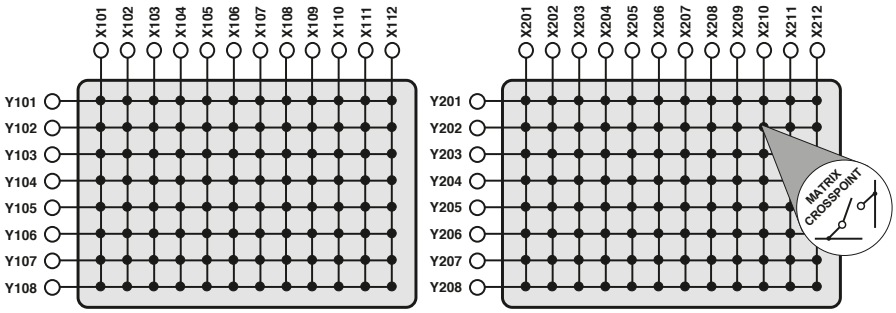
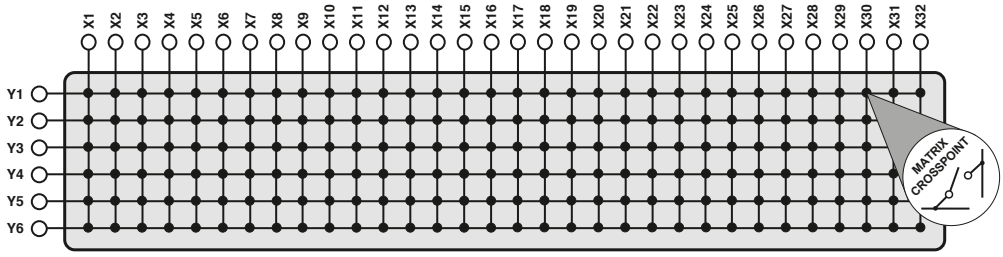
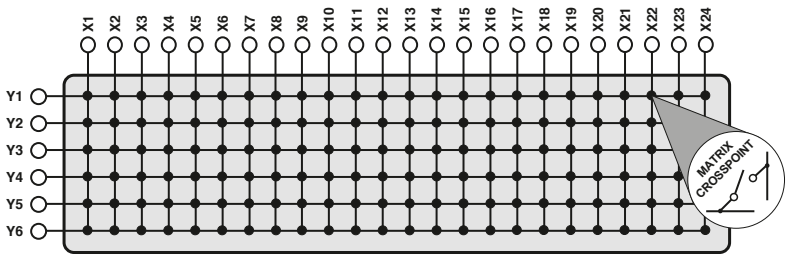


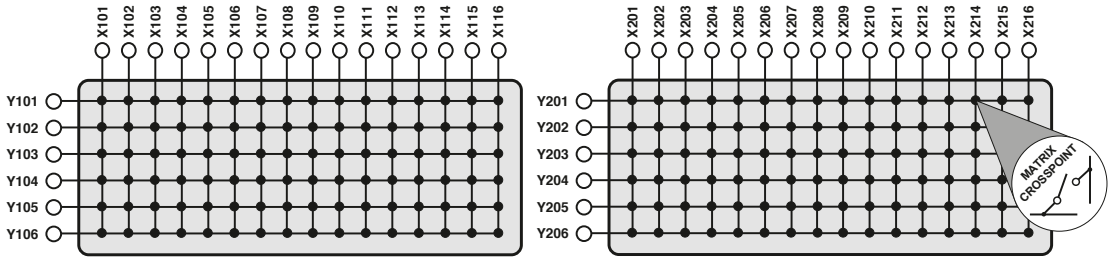
40-520-206 Dual 12x8 1-Pole Matrix



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



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



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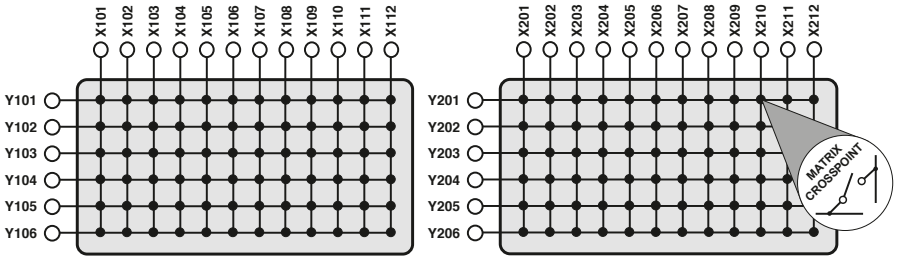
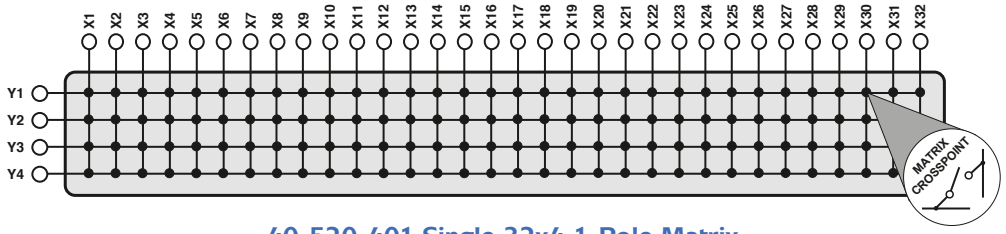
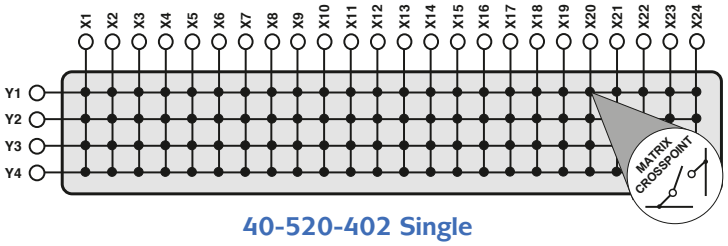


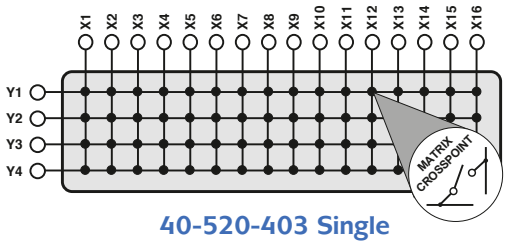
40-520-304 Dual 12x6 1-Pole Matrix



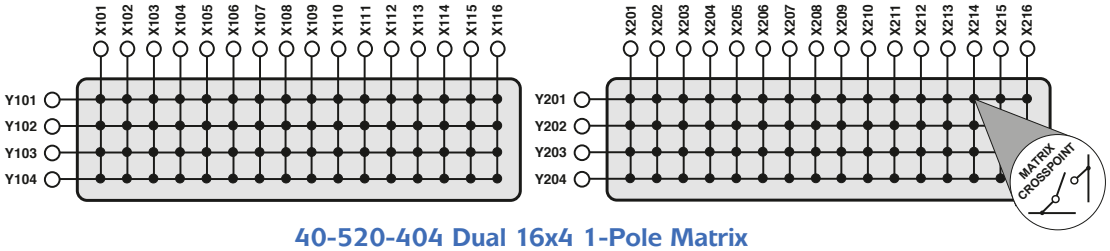
40-520-401 Single 32x4 1-Pole Matrix



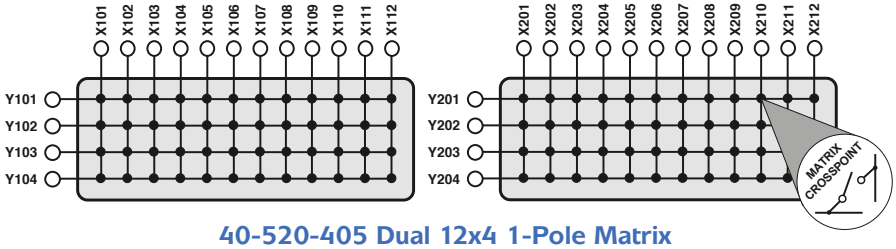
40-520-402 Single
24x4 1-Pole Matrix



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



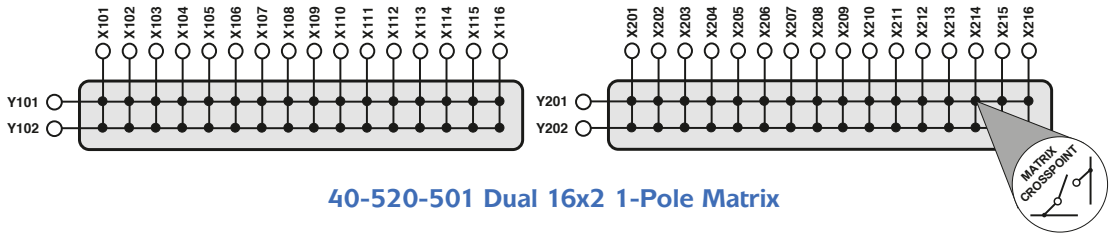
40-520-404 Dual 16x4 1-Pole Matrix



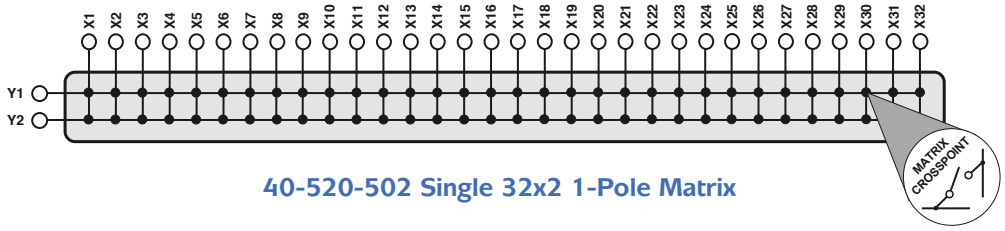
40-520-405 Dual 12x4 1-Pole Matrix

PRELIMINARY DATA

PRELIMINARY DATA



40-520-501 Dual 16x2 1-Pole Matrix



40-520-502 Single 32x2 1-Pole Matrix

Switching Specification

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

RF Specification

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

Pickering Electronics
State-Of-The-Art Reed Relays

This matrix module is constructed using Series 115 Reed Relays manufactured by our sister company Pickering Electronics.

For further information please visit **www.pickeringrelay.com**

Power Requirements

+3.3V	+5V	+12V	-12V
200mA	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 mounted 50-pin male D-type connector.

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**

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 see **eBIRST**.

Product	Test Tool	Adapter
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 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 sheets where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Programming

Pickering provide kernel, IVI and VISA (NI and Agilent) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. 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:

- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Agilent** VEE
- **Mathworks** Matlab
- **Marvin** ATE Easy
- **MTQ Testsolutions** Tecap
- **Tecap Switching**

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.

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 33MHz 32-bit backplane interface.

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.

PXI & LXI Chassis Compatibility

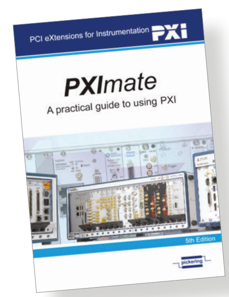
Compatible with all chassis conforming to the 3U PXI and 3U cPCI specification. Compatible with Legacy and Hybrid peripheral slots in a 3U PXI Express chassis.
Compatible with Pickering Interfaces LXI Modular Chassis. For information on driving your switching solution in an LXI environment refer to the LXI Product Catalog.

Latest Details

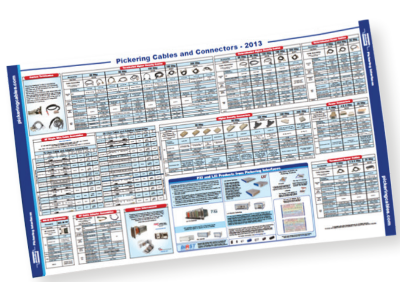
Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com

Please refer to the 200 page Pickering Interfaces "**Connection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. Available in either print or as a download.
Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.

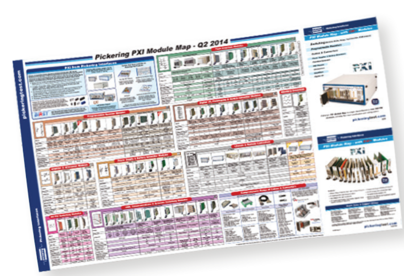
"**The Big PXI Catalog**" gives full details of Pickering's entire range of PXI switch modules, instrument modules and support products.
At over 500 pages, the Big PXI Catalog is available on request or can be downloaded from the Pickering website.



Ever wondered what PXI is all about?
Pickering Interfaces' "**PXImate**" explains the basics of PXI and provides useful data for engineers working on switch based test systems.
The PXImate is available free on request from the Pickering website.



The "**Cables & Connectors Map**" - outlines the cable and connector options available for all PXI Modules.



The "**PXI Module Map**" - a simple fold-out selection guide to all Pickering's 1000+ PXI Modules.

因为专业
型号超多

开关 | 仪器 | 可编程电阻 | 定制设计 | 线缆与连接器

HongKe 虹科

广州虹科电子科技有限公司

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