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TECHNOLOGY GROUP

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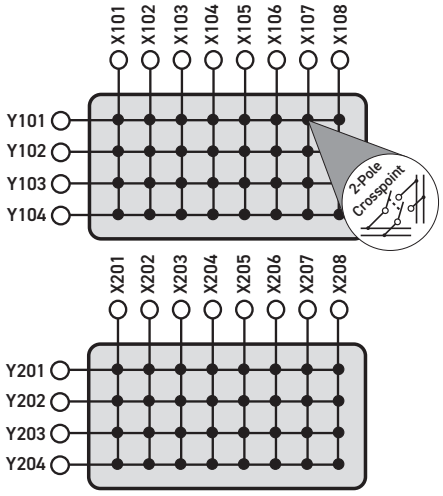
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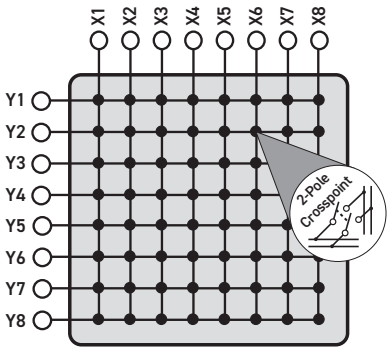
PXI 2 Amp 2 Pole Matrix

40-515/516/517

- 2-Pole Switch Matrix
- Available in 8x8, 16x4 or Dual 8x4 Formats
- Maximum Current 2A Hot or Cold Switching
- Switch up to 300 VDC/250 VAC and up to 60 W Max Power
- Uses Gold-Plated Contact Electro-mechanical 2-Pole Relays
- Operating Speed Less Than 3 ms
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- Supported by PXI or LXI Chassis
- Supported by *eBIRST* ™
- 3 Year Warranty



40-515 Matrix Dual 8x4 2-Pole
(each line is a 2 wire connection)



40-516 Matrix 8x8 2-Pole
(each line is a 2 wire connection)



The 40-515/516/517 2 Amp, 2-pole matrix modules are part of our range PXI switching solutions. The configurations are as follows:

- 40-515 Dual 8x4 2-Pole Matrix
- 40-516 Single 8x8 2-Pole Matrix
- 40-517 Single 16x4 2-Pole Matrix

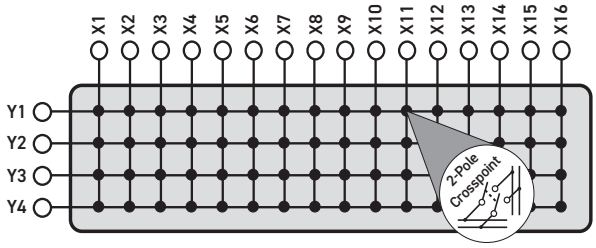
These modules are designed for switching medium voltage/ power signals in test applications where reed relays do not have sufficient rating. They are also suitable for telecoms applications where send and return signals need to be switched simultaneously.

The modules use 2-pole electro-mechanical relays with palladium-ruthenium, gold-plated, bifurcated contacts for maximum reliability and long operational life. The contacts have a maximum carry and switching current of 2 Amps. The maximum voltage is 300 VDC/250 VAC with a maximum power rating of 60 W/62.5 VA.

Supported by *eBIRST*

eBIRST switching system test 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



40-517 Matrix 16x4 2-Pole
(each line is a 2 wire connection)

Issue 8.1 November 2024

Spare Relay

A spare relay is built onto the circuit board to facilitate easy maintenance with minimum downtime.

Switching Specification

Switch Type:	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold plated, bifurcated
Max Switch Voltage:	300 VDC/250 VAC*
Max Power:	62.5 VA, 60 W from 30 V to 220 VDC, 30 W to 300 VDC (resistive load)
Max Switch Current:	2 A
Max Continuous Carry Current:	2 A
Max Pulsed Carry Current Example (for a single switch path):	6 A for 100 ms (up to 10 % duty cycle)
Initial On Path Resistance:	<600 mΩ
Off Path Resistance:	>10^9 Ω
Minimum Voltage	100 µV
Differential Thermal Offset:	<10 µV
Operate Time:	<3 ms
Expected Life (Operations)	
Very low power load:	>$1x10^8$
Low power load:	>$1.5x10^7$ (0.1 A 20 VDC)
Medium power load:	>$5x10^6$ (1 A 30 VDC)
Full power load:	>$1x10^5$ (2 A 30 VDC)
	>$1x10^5$ (0.1 A 300 VDC)

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

Bandwidth

Typical Bandwidth:	25 MHz

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
0	155 mA (Nominal) 1.54 A (Maximum)	0	0

Mechanical Characteristics

Single slot 3U PXI (CompactPCI card).
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:	5000 m

Storage and Transport Conditions

Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m

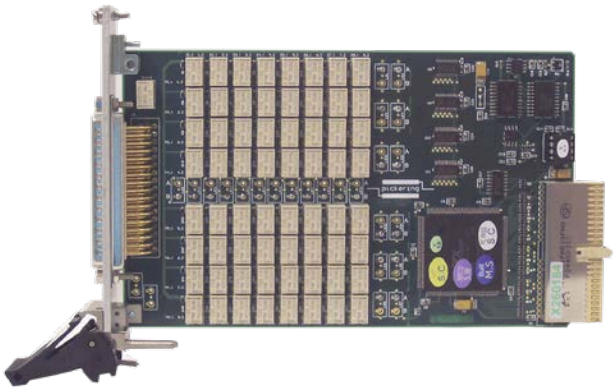
PXI & CompactPCI Compliance

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.



PCB Layout for the 40-515 Matrix Module

Product Order Codes

Dual 8x4 Matrix Module, 2-Pole (2A, 60W)	40-515-002
8x8 Matrix Module, 2-Pole (2A, 60W)	40-516-002
16x4 Matrix Module, 2-Pole (2A, 60W)	40-517-002

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 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.

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
40-515/516 /517	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	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 40-515/516/517 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 website

The 40-515/516/517 is part of a range modules suitable for switching applications that require a relatively small matrix.

Pickering's Range of PXI/PXIe Low Density Matrix Modules			
Matrix Configuration	Max Switch Voltage	Max Switch/ Carry Current	Model No.
12x4, 1-pole or 2-pole	150 VDC/100 VAC	1 A/1.2 A	40-510
Dual 12x4, 1-pole or 2-pole	150 VDC/100 VAC	1 A/1.2 A	40-511
12x8, 1-pole or 2-pole	150 VDC/100 VAC	1 A/1.2 A	40-512
24x4, 1-pole or 2-pole	150 VDC/100 VAC	1 A/1.2 A	40-513
6x8 or 6x4, 2-pole (wide current range)	220 VDC/250 VAC	2 A/2.5 A	40/42-514
Dual 8x4, 2-pole	300 VDC/250 VAC	2 A/2 A	40-515
8x8, 2-pole	300 VDC/250 VAC	2 A/2 A	40-516
16x4, 2-pole	300 VDC/250 VAC	2 A/2 A	40-517
8x4 or 16x4 (switched guard)	100 V	250 mA	40/42-590





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 PXI Switching & Simulation Modules:

- Choose from 1000+ Pickering PXI 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. 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

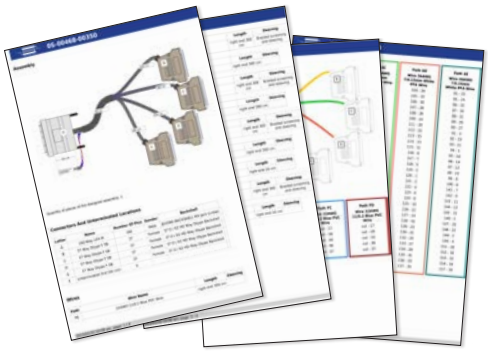


Connector Blocks

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



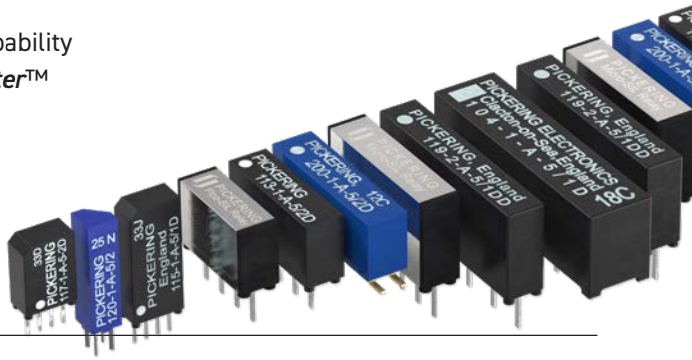
Mass Interconnect

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

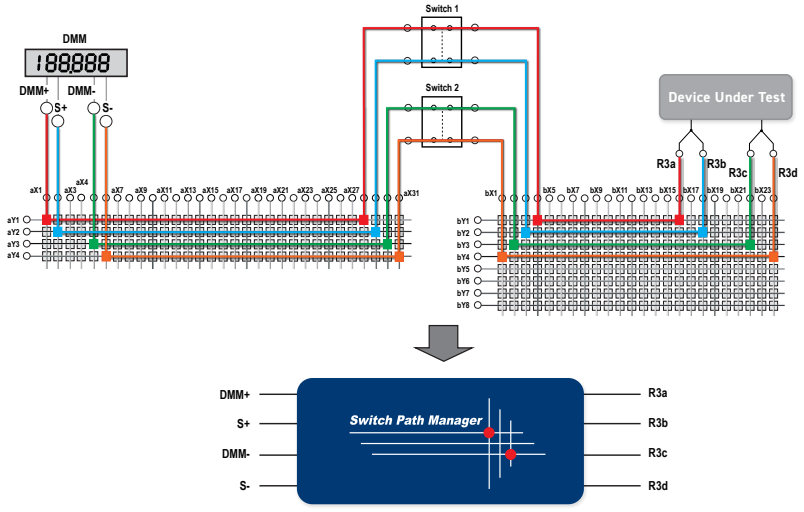
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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



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Pickering Interfaces maintains a commitment to continuous product development, consequently we reserve the right to vary from the description given in this data sheet.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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We're here to make your life easier. How can we help you today?

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