PXI 2 A 2-Pole Matrix Module

40-519A

- High Density Single-Slot 3U PXI 2A Matrices With 128 Crosspoints
- 2-Pole 32x4 Configuration
- Maximum Current 2 A 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
- VISA/IVI Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Supported by ***BIRST*** ™ and ***eBIRST*** ™ Test Tools
- 3 Year Warranty

The 40-519A is a 32x4 2-pole 2 A matrix module and is part of our range PXI switching solutions.

The module is designed for switching medium voltage/ power signals in test applications where reed relays do not have sufficient rating. It is also suitable for telecoms applications where send and return signals need to be switched simultaneously.

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

Built-In Relay Self-Test - *BIRST*

The *BIRST* facility provides a quick and simple way of finding relay failures. 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

The 40-519A is part of Pickering's family of High Density, 128 crosspoint, BIRST enabled EMR PXI matrices, the range is as follows:

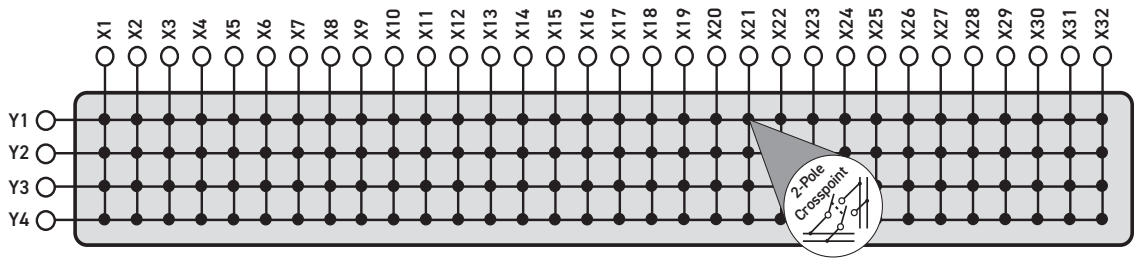
- 40-518A-002 - 16x8 1-Pole, 2 A Matrix
- 40-527-001 - 64x2 1-Pole, 2 A Matrix
- 40-528-001 - 32x4 1-Pole, 2 A Matrix
- 40-529-001 - 16x8 1-Pole, 2 A Matrix

Also available from Pickering is a range of Very High Density, 256 crosspoint EMR PXI matrices, also fitted with BIRST:

- 40-582-001 - 16x16 2-Pole, 2 A Matrix
- 40-584-001 - 128x2 1-Pole, 2 A Matrix
- 40-585-001 - 64x4 1-Pole, 2 A Matrix
- 40-586-001 - 32x8 1-Pole, 2 A Matrix
- 40-587-001 - 16x16 1-Pole, 2 A Matrix

Supported by *eBIRST*

This module is also supported by our *eBIRST* test tools. These tools simplify switch fault-finding by quickly testing the system and graphically identifying faulty relays.
For more information go to: pickeringtest.com/ebirst



40-519A Matrix 32x4 2-Pole (each line is a 2-wire connection)

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Spare Relay

A Spare Relay is built onto the daughter board to allow 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:	<500 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:	>10 MHz

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
100 mA (Typical)	400 mA (Typical)	50 mA (Typical)	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 78-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 & Star Trigger are not implemented.

Uses a 33 MHz 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

32x4 Matrix Module, 2-Pole with BIRST	40-519A-002

Product Customization

Pickering 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	Termination
40-519A-002	93-006-001	Not Required	93-006-101

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
40-519A-002	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 40-519A please refer to the 90-006D 78-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:

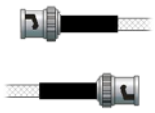
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating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

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 Relay Division. 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

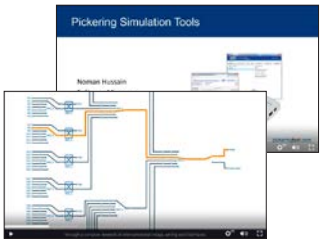
eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

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 and white papers as well as application specific product brochures to assist when looking for the switching, simulation and connection 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