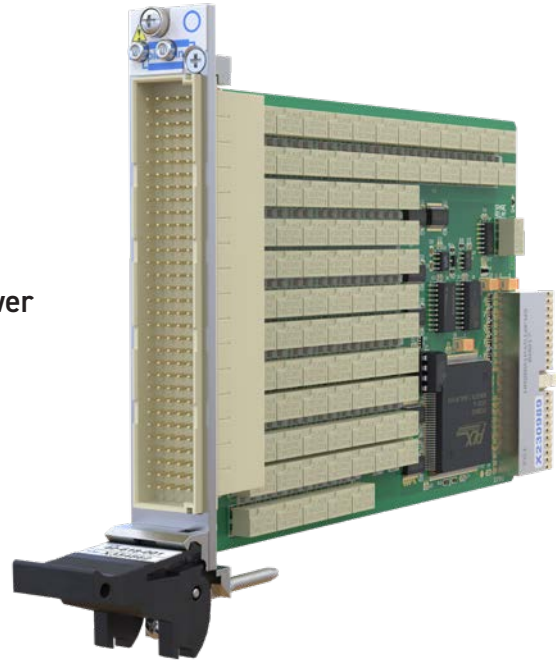- **Designed to Support the Requirements of the ARINC 608A Specification**
- **44xSPST Relay Contacts and 12 Banks of 4 Channel Multiplexer in a Single PXI Module**
- **Uses High Quality Electro-mechanical Relays**
- **Maximum Current 2A Hot or Cold Switching**
- **Switch up to 300VDC/250VAC and up to 60W Max Power**
- **Breakdown Voltage >500V**
- **VISA & Kernel Drivers Supplied for Windows**
- **Supported by PXI or LXI Chassis**
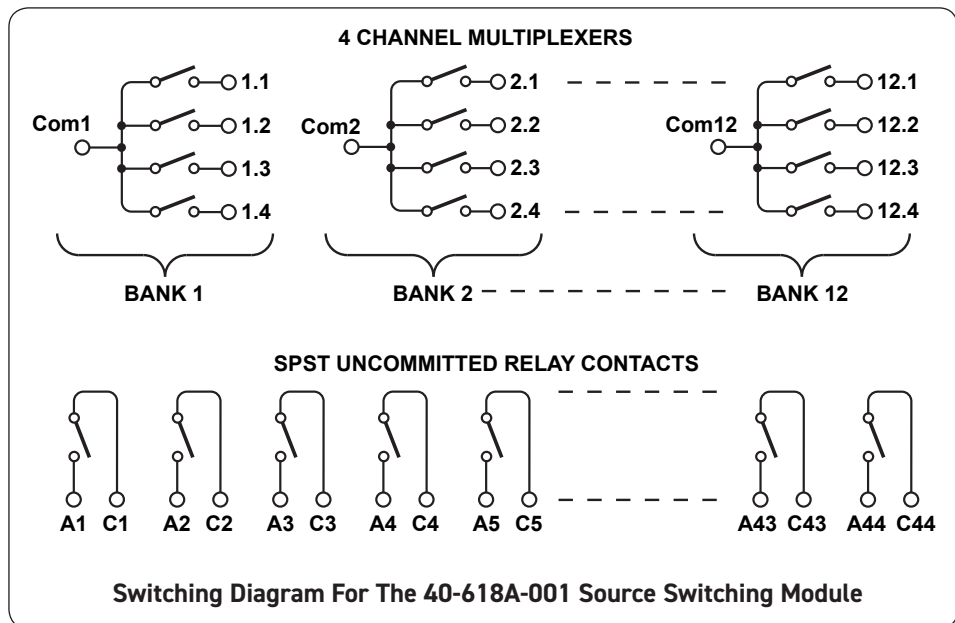- **3 Year Warranty**

The 40-618A Source Switching Module consists of 12 separate 4-channel multiplexers and 44 uncommitted SPST relay contacts in a single width PXI module. Typical applications include signal routing for avionics test systems that conform to the ARINC 608A specification.

Switching is performed using high quality electro-mechanical signal relays with 2A switch/carry current and voltage handling of 300VDC/250VAC. The signal breakdown voltage is greater than 500V.
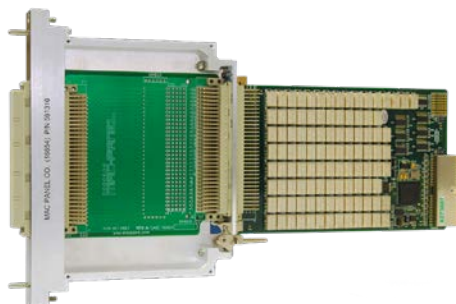
The multiplexers of the 40-618A can be operated in the conventional way with break-before-make action when a new channel is selected. Alternatively, product variants can be supplied that allow multiple channels to be simultaneously selected.

The 40-618A channel selection configurations have been revised from the 40-618. The 40-618A defaults to single channel selection with multiple channel selection variants defined by use of a suffix.

Other configurations for this module can be supplied, please contact Pickering Interfaces with your requirements.

4 CHANNEL MULTIPLEXERS

Com1 — 1.1, 1.2, 1.3, 1.4 — BANK 1
Com2 — 2.1, 2.2, 2.3, 2.4 — BANK 2
Com12 — 12.1, 12.2, 12.3, 12.4 — BANK 12

SPST UNCOMMITTED RELAY CONTACTS

A1 C1 A2 C2 A3 C3 A4 C4 A5 C5 A43 C43 A44 C44

Switching Diagram For The 40-618A-001 Source Switching Module

Pickering PXI Modules are compatible with Mass Interconnect solutions from both VPC and MAC Panel. Shown is the 40-618A module with the terminal block for the MAC Panel Scout.

MAC-PANEL
Interconnect Solutions & Services
Since 1958

SCOUT

Relay Type

The 40-618A is fitted with high quality electro-mechanical signal relays.

Switching Specification

Switch Type:	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold Covered Bifurcated
Max Hot Switch Voltage: Breakdown Voltage:	300VDC/250VAC* >500V
Max Power:	62.5VA, 60W from 30V to 220VDC, 30W to 300VDC (resistive load)
Max Switch Current:	2A
Max Continuous Carry Current:	2A
Max Pulsed Carry Current Example (for a single switch path):	6A for 100ms (up to 10% duty cycle)
Initial Path Resistance	
On (Single Module):	<300mΩ
Off (Single Module):	>10^9Ω
Minimum Voltage:	100µV
Thermal Offset:	<5µV
Minimum Breakdown Voltage:	>500V
Estimated Bandwidth	
SPST Switch:	30MHz
4-Channel MUX:	30MHz (dependent upon application)
Operate Time:	6ms typical, 3ms for multichannel mode
Expected Life (operations)	
Very low power signal load: Low power load (2W): Medium power load (30W): Full power load (60W):	>$1x10^8$ >$1.5x10^7$ (0.1A 20VDC) >$5x10^6$ (1A 30VDC) >$1x10^5$ (2A 30VDC) >$1x10^5$ (0.1A 300VDC)

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

Power Requirements

+3.3V	+5V	+12V	-12V
0	<2A	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 160-pin male DIN 41612 connector, for pin outs please refer to the operating manual.

The connector includes a strain relief fixing for use with Pickering's cables.

We recommend that Pickering mating connectors are used with this module which are designed to ensure there are no mechanical interference problems when used in a PXI chassis.

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.

The 40-618A module is based on a simple combination of the proven features of Pickering's 40-613 Multiplexer and the 40-139 General Purpose Relay module.

Product Order Codes

Channel Selection	Model Variant	Order Code
Single	**Source Switching Module**	**40-618A-001**

Note: The above module is available in multiple channel selection mode by adding the "-M" suffix to the part number. The MUX with multiple channel capability would be: **40-618A-001-M**

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

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
40-618A-001	**91-100-003**

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

Mating Connectors & Cabling

For connection accessories for the 40-618A module please refer to the 90-001D 160-pin DIN 41612 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
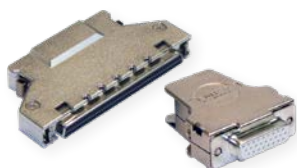- Integrated module timing and synchronization

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
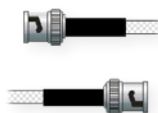- Independence from Windows operating system

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 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
- **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.
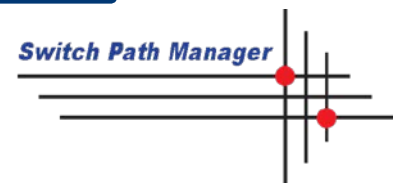
We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

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.

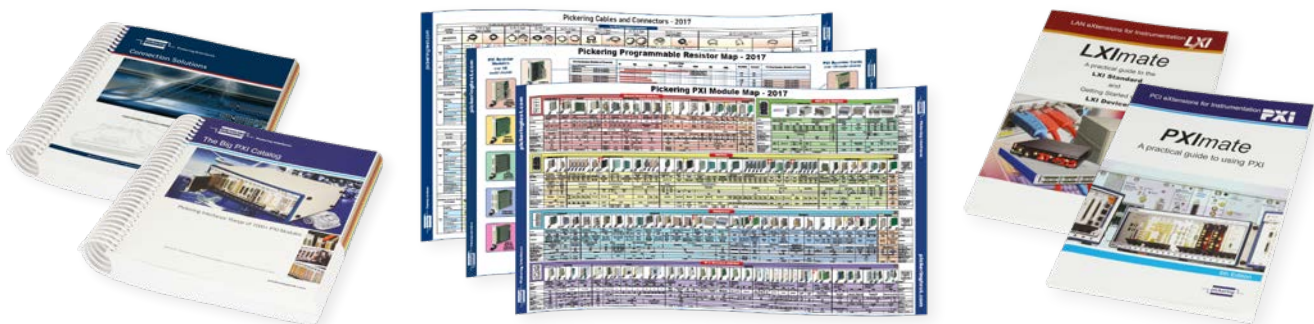To learn more, please go to: pickeringtest.com/ebirst

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 for the PXI and LXI standards.

To view, download or request any of our product resources, please visit: pickeringtest.com/resources