

- Single: 64-Channel 1-Pole, 32-Channel 2-Pole, 16-Channel 4-Pole, 8-Channel 8-Pole
- Dual: 32-Channel 1-Pole, 16-Channel 2-Pole, 8-Channel 4-Pole
- Quad: 16-Channel 1-Pole, 8-Channel 2-Pole
- 9 Half Density Configurations
- Low Cost
- 2A Hot or Cold Switching
- Switch up to 300VDC/250VAC and up to 60W Max Power
- Simple 78-Pin D-Type Connection
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Supported by *eBIRST*™
- 3 Year Warranty

The 40-635A 2 Amp Multiplexer module is available in 9 standard and 9 half density configurations. All configurations use high quality electro-mechanical signal relays allowing each channel to switch current up to 2A and voltage up to 300VDC/250VAC.

The module is suitable for signal routing in ATE and data acquisition systems. Larger multiplexers may be constructed by daisy chaining the common signals from multiple modules. Connections are made via a front panel 78-pin D-type connector.

The 40-635A can be operated as a conventional multiplexer with break-before-make action when a new channel is selected. Alternatively, 2-pole, 4-pole and 8-pole variants of the multiplexer can be supplied that allow multiple channels to be simultaneously selected.

Note: The multiple channel selection option is not available for 1-pole versions of the 40-635A multiplexer.

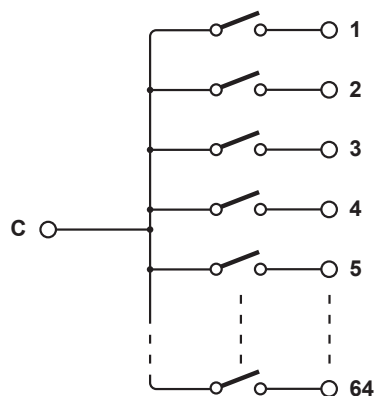


The 40-635A channel selection configurations have been revised from the 40-635. The 40-635A module defaults to single channel selection with multiple channel selection variants defined by use of a suffix.

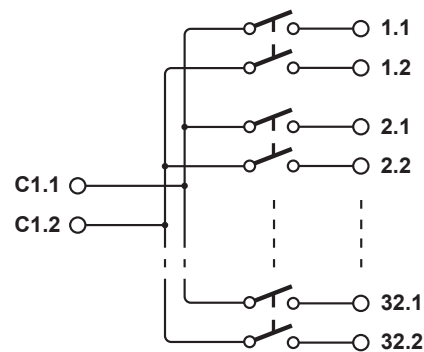
Supported by *eBIRST*

eBIRST switching system test tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

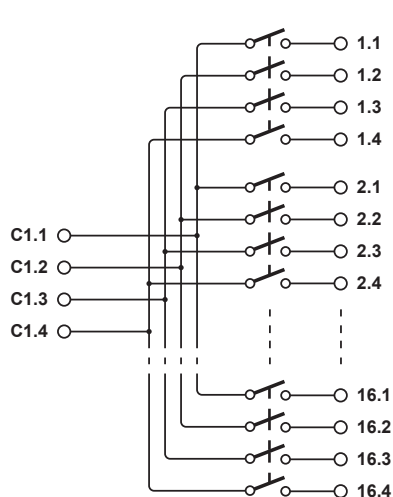
For more information go to: pickeringtest.com/ebirst



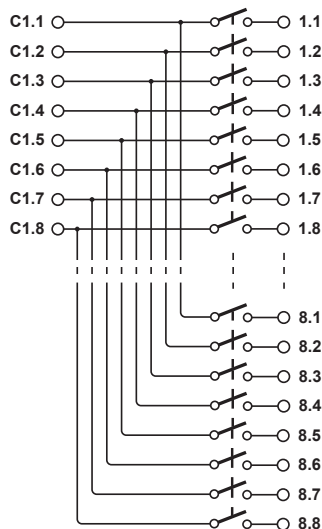
**40-635A-001 Multiplexer Module,
Single 64-Channel 1-Pole
(Standard Configuration)**



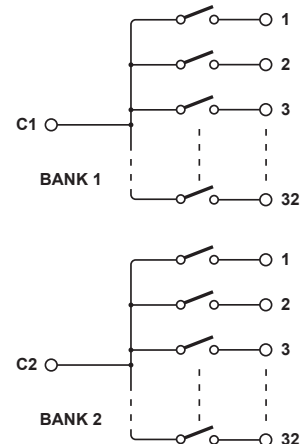
**40-635A-002 Multiplexer Module,
Single 32-Channel 2-Pole
(Standard Configuration)**



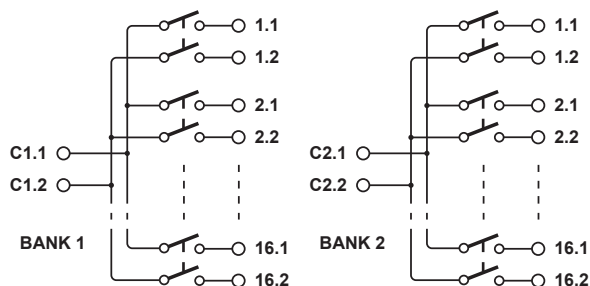
40-635A-003
Single 16-Channel 4-Pole MUX



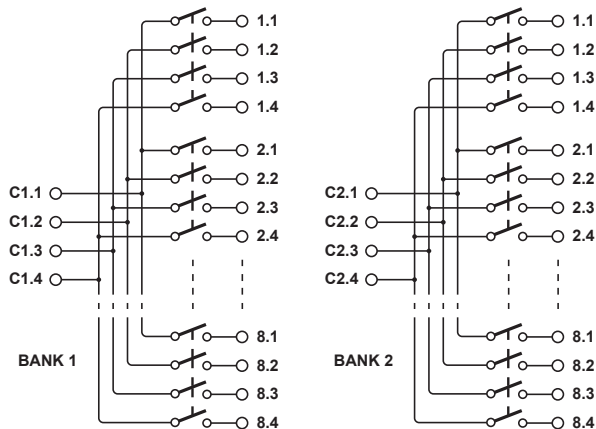
40-635A-004
Single 8-Channel 8-Pole MUX



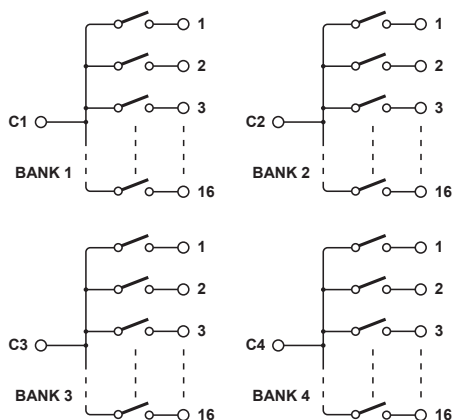
40-635A-005
Dual 32-Channel 1-Pole MUX



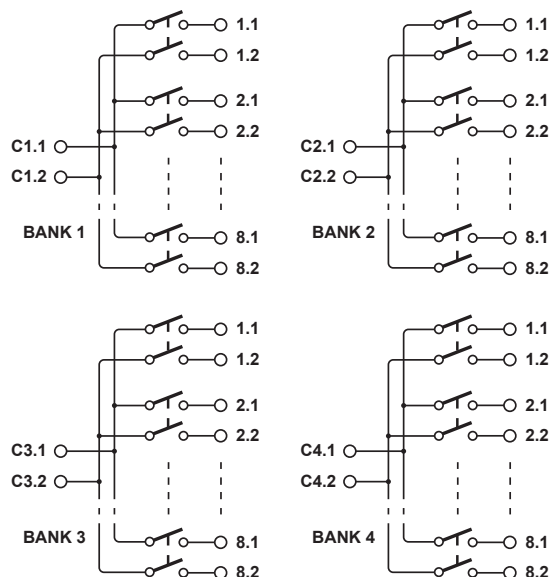
40-635A-006
Dual 16-Channel 2-Pole MUX



40-635A-007 Dual 8-Channel 4-Pole MUX

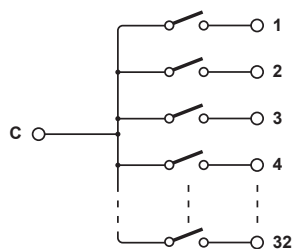


40-635A-008
Quad 16-Channel 1-Pole MUX

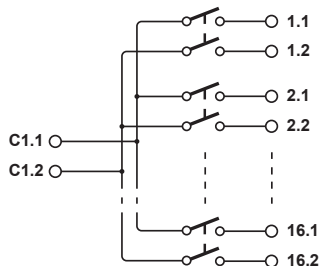


40-635A-009 Quad 8-Channel 2-Pole MUX

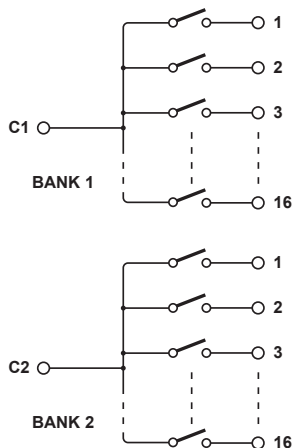
**40-635A Multiplexer Standard
Configuration Schematics**



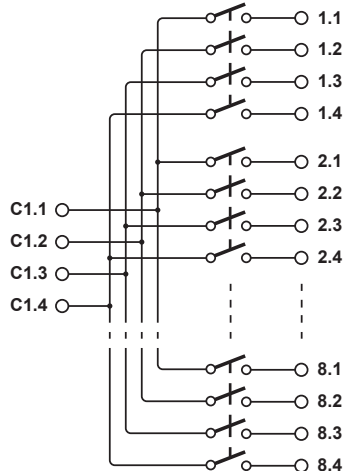
40-635A-101
32-Channel 1-Pole MUX



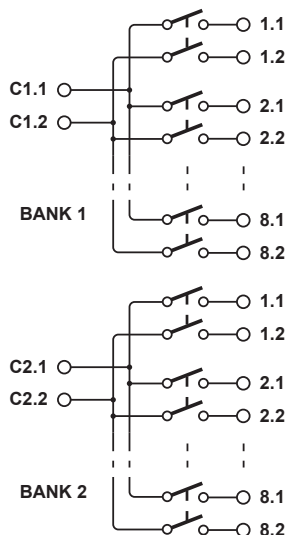
40-635A-102
16-Channel 2-Pole MUX



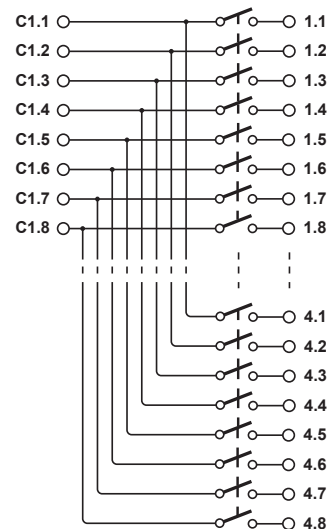
40-635A-105
Dual 16-Channel 1-Pole MUX



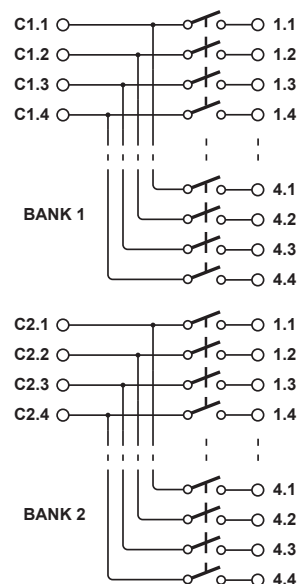
40-635A-103
Single 8-Channel 4-Pole MUX



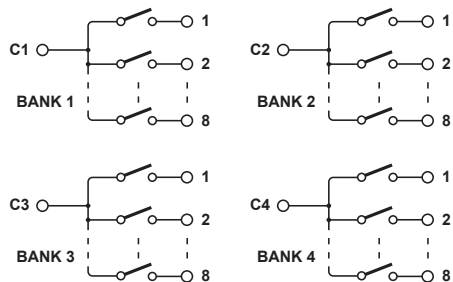
40-635A-106
Dual 8-Channel 2-Pole MUX



40-635A-104
Single 4-Channel 8-Pole MUX

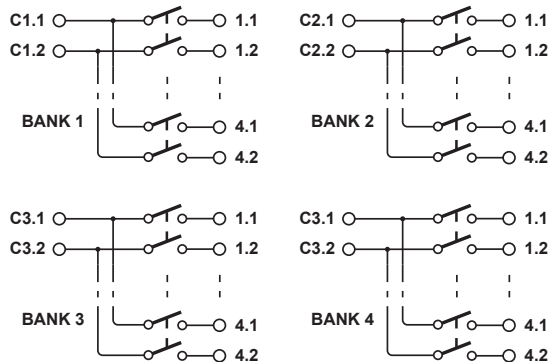


40-635A-107
Dual 4-Channel 4-Pole MUX



40-635A-108 Quad 8-Channel 1-Pole MUX

40-635A Multiplexer Half Density Configuration Schematics



40-635A-109 Quad 4-Channel 2-Pole MUX

Relay Type

The 40-635A is fitted with electro-mechanical relays with palladium-ruthenium gold covered contacts. A Spare Relay is built onto the circuit board to allow easy maintenance with minimum downtime.

Switching Specification

Switch Type:	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold Covered Bifurcated
Max Switch Voltage:	300VDC/250VAC*
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:	<300mΩ
Path Resistance - Off:	>10 ⁹ Ω
Single-Ended Thermal Offset:	<10μV
Differential Thermal Offset:	<5μV
Operate Time:	6ms typical, 3ms for multichannel mode
Expected Life (operations)	
Very low power signal load:	>1x10 ⁸
Low power load (2W):	>1.5x10 ⁷ (0.1A 20VDC)
Medium power load (30W):	>5x10 ⁶ (1A 30VDC)
	>1x10 ⁵ (0.1A 300VDC)
Full power load (60W):	>1x10 ⁵ (2A 30VDC)

* 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	350mA (max)	30mA	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.

RF Specification - In a 50Ω System

Bandwidth (-3dB):	15MHz	(40-635A-001)
	15MHz	(40-635A-002)
	20MHz	(40-635A-003)
	30MHz	(40-635A-004)
	20MHz	(40-635A-005)
	25MHz	(40-635A-006)
	30MHz	(40-635A-007)
	35MHz	(40-635A-008)
	35MHz	(40-635A-009)
	15MHz	(40-635A-101)
	15MHz	(40-635A-102)
	25MHz	(40-635A-103)
	30MHz	(40-635A-104)
	25MHz	(40-635A-105)
	25MHz	(40-635A-106)
	35MHz	(40-635A-107)
	35MHz	(40-635A-108)
	35MHz	(40-635A-109)
Crosstalk (typical):	10kHz:	-90dB
	100kHz:	-70dB
	1MHz	-50dB
	10MHz	-30dB
Isolation (typical):	10kHz:	90dB
	100kHz:	70dB
	1MHz	50dB
	10MHz	30dB

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 - 2A MUX, Standard Configurations

Channel Selection	Model Variant	Order Code
Single	Single 64-Channel, 1-Pole	40-635A-001
Single	Dual 32-Channel, 1-Pole	40-635A-005
Single	Quad 16-Channel, 1-Pole	40-635A-008

Note: The above modules can only select a single channel.

Channel Selection	Model Variant	Order Code
Single	Single 32-Channel, 2-Pole	40-635A-002
Single	Single 16-Channel, 4-Pole	40-635A-003
Single	Single 8-Channel, 8-Pole	40-635A-004
Single	Dual 16-Channel, 2-Pole	40-635A-006
Single	Dual 8-Channel, 4-Pole	40-635A-007
Single	Quad 8-Channel, 2-Pole	40-635A-009

Note: The above modules are available in multiple channel selection mode by adding the “-M” suffix to the part number. For example, the single 32-channel 2-pole MUX with multiple channel capability would be: **40-635A-002-M**

Product Order Codes - 2A MUX, Half Density Configurations

Channel Selection	Model Variant	Order Code
Single	Single 32-Channel, 1-Pole	40-635A-101
Single	Dual 16-Channel, 1-Pole	40-635A-105
Single	Quad 8-Channel, 1-Pole	40-635A-108

Note: The above modules can only select a single channel.

Channel Selection	Model Variant	Order Code
Single	Single 16-Channel, 2-Pole	40-635A-102
Single	Single 8-Channel, 4-Pole	40-635A-103
Single	Single 4-Channel, 8-Pole	40-635A-104
Single	Dual 8-Channel, 2-Pole	40-635A-106
Single	Dual 4-Channel, 4-Pole	40-635A-107
Single	Quad 4-Channel, 2-Pole	40-635A-109

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
40-635A	93-006-001	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
40-635A	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 40-635A module range 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.

NOTE: Low-cost partially populated cabling solutions are available for the half density versions of this module, significantly reducing the cost of integration.

Note: The above modules are available in multiple channel selection mode by adding the “-M” suffix to the part number. For example, the single 16-channel 2-pole MUX with multiple channel capability would be: **40-635A-102-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.

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.



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

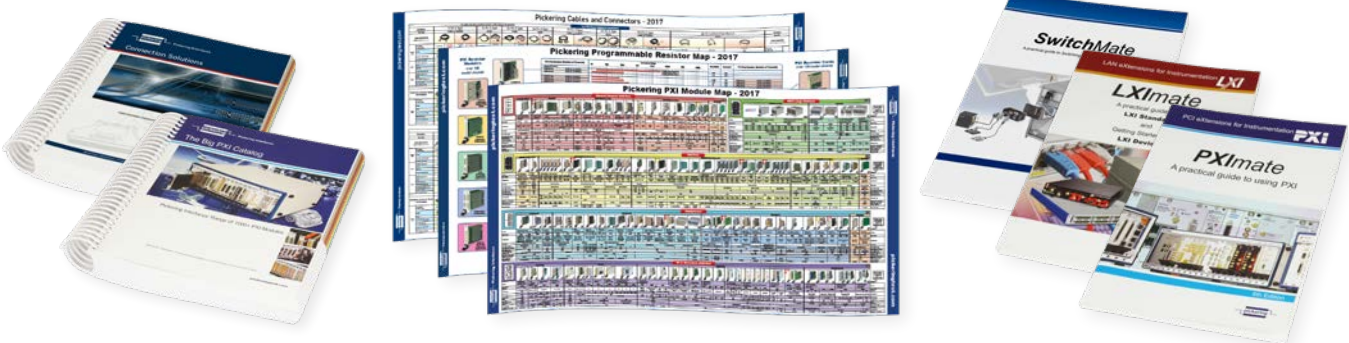


Three Year Warranty & Guaranteed Long-Term Support

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