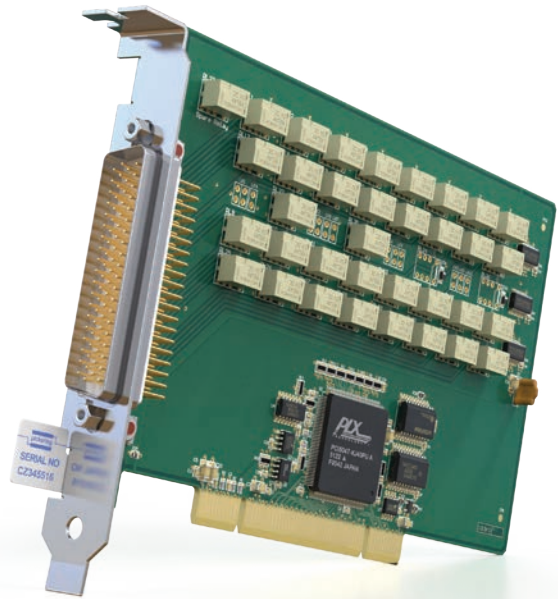- Single: 64-Channel 1-Pole, 32-Channel 2-Pole, 16-Channel 4-Pole, 8-Channel 8-Pole

  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
- 2 A Hot or Cold Switching
- Switch up to 300 VDC/250 VAC and up to 60 W Max Power
- Simple 78-Pin D-Type Connection
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by *eBIRST* ™
- 3 Year Warranty

The 50-635 2 A Multiplexer card is available in 9 standard and 9 half density configurations. All configurations use high quality electro-mechanical signal relays allowing each channel to switch up to 2 A and up to 300 VDC/250 VAC.

The card is suitable for signal routing in ATE and data acquisition systems. Connections are made via a front panel 78-pin D-type plug.
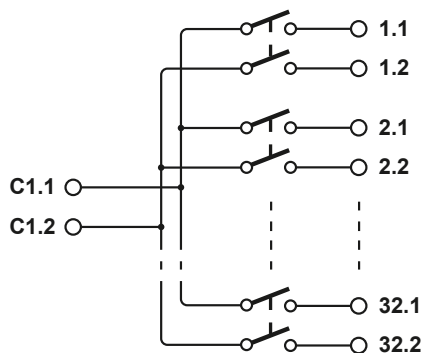
The 2-pole, 4-pole and 8-pole versions of the 50-635 allow multiple channels to be simultaneously selected. Alternatively, product variants can be supplied that operate as a conventional multiplexer with break-before-make action when a new channel is selected.

Note: The multiple channel selection option is not available for 1-pole versions of the 50-635 multiplexer.
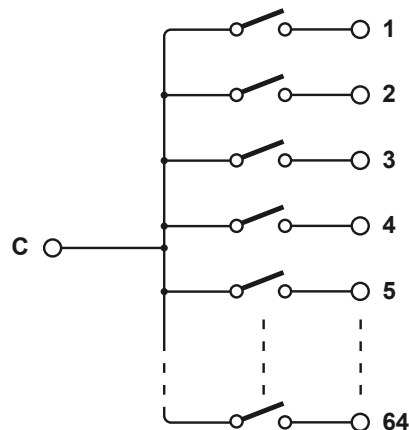
Supported by *eBIRST*

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

For more information go to: pickeringtest.com/ebirst
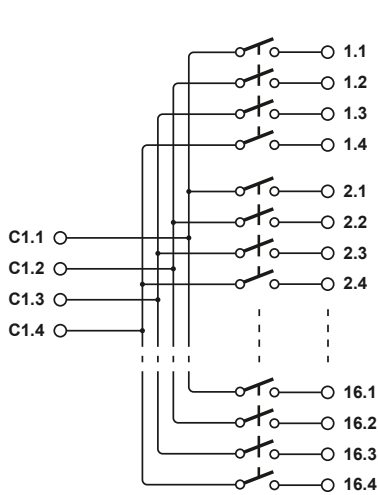

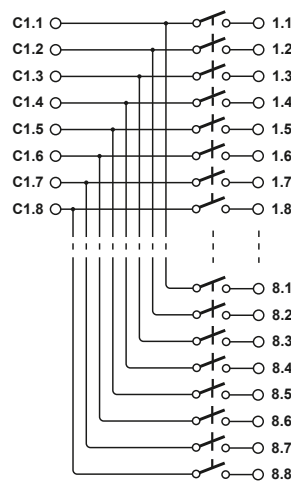50-635-002 Multiplexer Card
(32-Channel 2-Pole)

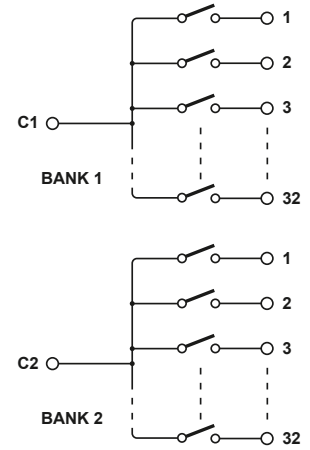50-635-001 Multiplexer Card
(64-Channel 1-Pole)

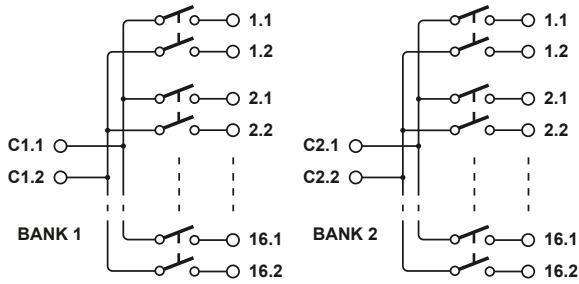## 50-635 Multiplexer Standard Configuration Schematics
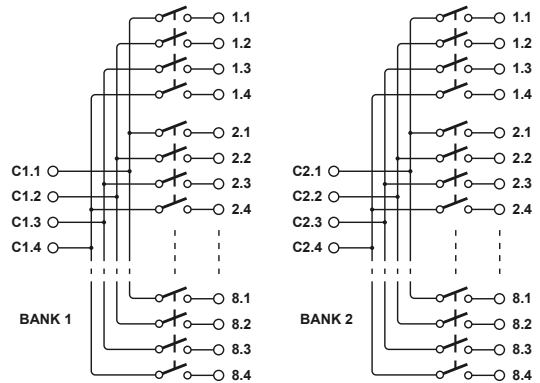
50-635-003
Single 16-Channel 4-Pole MUX

50-635-004
Single 8-Channel 8-Pole MUX

50-635-005
Dual 32-Channel 1-Pole MUX

50-635-006
Dual 16-Channel 2-Pole MUX

50-635-007 Dual 8-Channel 4-Pole MUX

50-635-008 Quad 16-Channel 1-Pole MUX

50-635-009 Quad 8-Channel 2-Pole MUX

50-635 Multiplexer Half Density Configuration Schematics

50-635-101
32-Channel 1-Pole MUX

50-635-102
16-Channel 2-Pole MUX

50-635-105
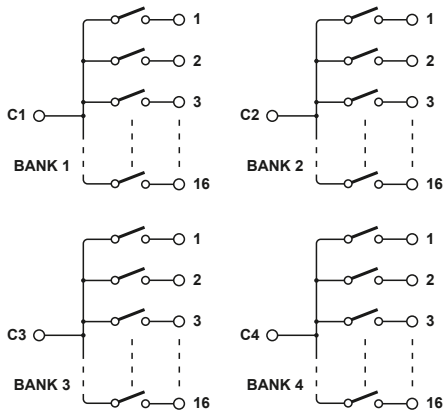Dual 16-Channel 1-Pole MUX

50-635-103
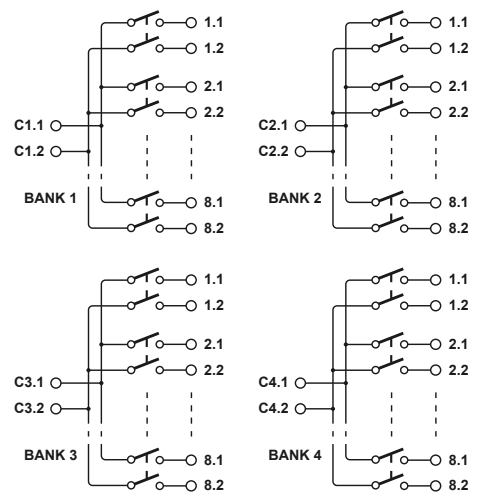Single 8-Channel 4-Pole MUX

50-635-106
Dual 8-Channel 2-Pole MUX

50-635-104
Single 4-Channel 8-Pole MUX
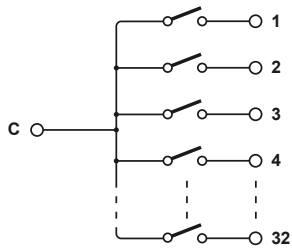
50-635-107
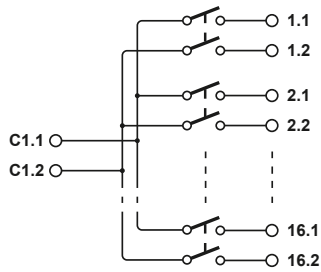Dual 4-Channel 4-Pole MUX

50-635-108 Quad 8-Channel 1-Pole MUX
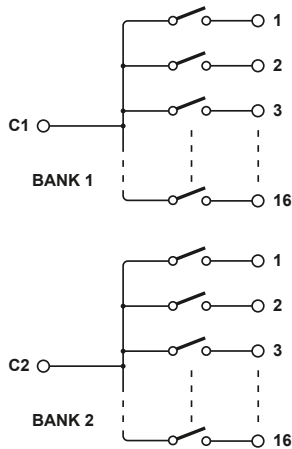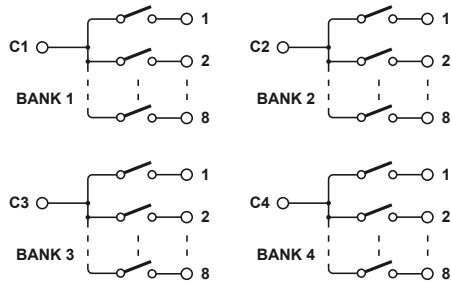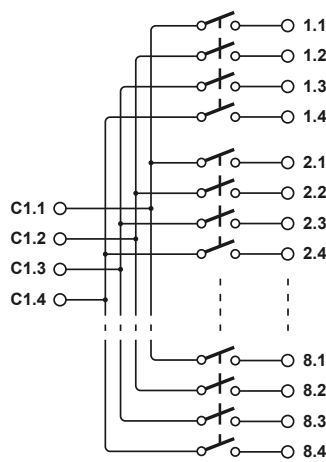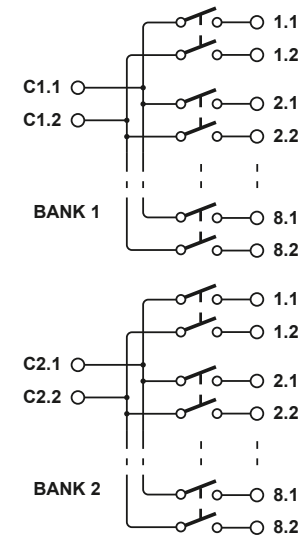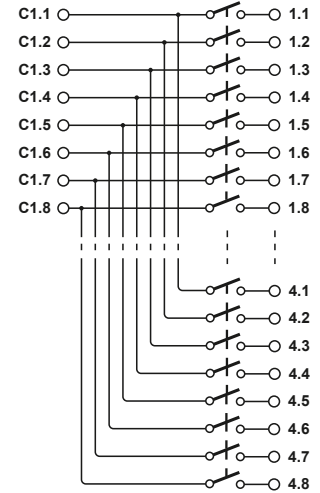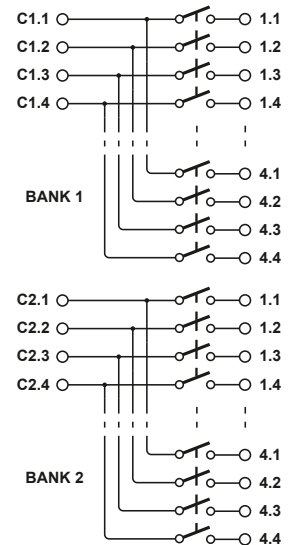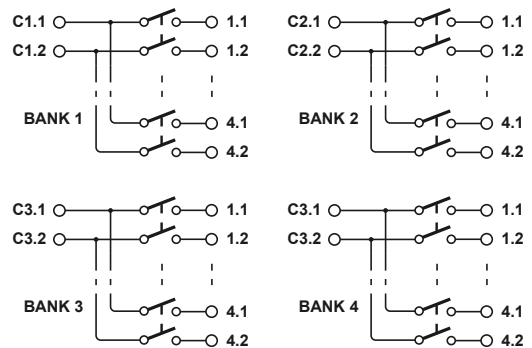
50-635-109 Quad 4-Channel 2-Pole MUX

Relay Type

The 50-635 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:	300 VDC/250 VAC*
Max Power:	62.5 VA at 250 VAC, 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 (single switch path):	6 A for 100 ms (up to 10 % duty cycle)
Initial Path Resistance - On:	<300 mΩ
Path Resistance - Off:	>10^9 Ω
Single-Ended Thermal Offset:	<10 µV
Differential Thermal Offset:	<5 µV
Operate Time:	6 ms typical, 3 ms for multichannel mode
Expected Life (operations) Very low power signal load:	>1×10^8
Low power load (2 W):	>1.5×10^7 (0.1 A 20 VDC)
Medium power load (30 W):	>5×10^6 (1 A 30 VDC)
	>1×10^5 (0.1 A 300 VDC)
Full power load (60 W):	>1×10^5 (2 A 30 VDC)

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

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
200 mA	350 mA	30 mA	0

Mechanical Characteristics

Single slot short PCI format.
Card weight: 166 g (typical)
3D models for all versions in a variety of popular file formats are available on request.

RF Specification - In a 50 Ω System

Bandwidth (typical, -3 dB):	12 MHz	(50-635-001)
	13 MHz	(50-635-002)
	18 MHz	(50-635-003)
	21 MHz	(50-635-004)
	16 MHz	(50-635-005)
	15 MHz	(50-635-006)
	21 MHz	(50-635-007)
	21 MHz	(50-635-008)
	26 MHz	(50-635-009)
Crosstalk (typical):	10 kHz:	-90 dB
	100 kHz:	-70 dB
	1 MHz	-50 dB
	10 MHz	-30 dB
Isolation (typical):	10 kHz:	100 dB
	100 kHz:	80 dB
	1 MHz	60 dB
	10 MHz	40 dB

Connections

User connection via a 78-pin male D-type, for pin outs please refer to the operating manual.

Operating/Storage Conditions

Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 90 % non-condensing
Altitude:	5000 m
Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m

PCI Compliance

The 50-635 complies with the PCI Specification 2.0 (issued Feb 2004).

Signalling Environment: 33 MHz, 32-bit Universal (+3.3 V & +5 V).

Safety & CE Compliance

All cards 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 - 2 A MUX Standard Configurations

Channel Selection	Model Variant	Order Code
Single	Single 64-Ch/1-Pole	50-635-001
Single	Dual 32-Ch/1-Pole	50-635-005
Single	Quad 16-Ch/1-Pole	50-635-008

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

Channel Selection	Model Variant	Order Code
Single	Single 16-Ch/4-Pole	50-635-003
Single	Single 8-Ch/8-Pole	50-635-004

Note: The above cards are available to select a single channel.

Channel Selection	Model Variant	Order Code
Multiple	Single 32-Ch/2-Pole	50-635-002
Multiple	Dual 16-Ch/2-Pole	50-635-006
Multiple	Dual 8-Ch/4-Pole	50-635-007
Multiple	Quad 8-Ch/2-Pole	50-635-009

Note: Contact factory if the above cards are required in single channel selection mode.

Product Order Codes - 2 A MUX Half Density Configurations

Channel Selection	Model Variant	Order Code
Single	Single 32-Ch/1-Pole	50-635-101
Single	Dual 16-Ch/1-Pole	50-635-105
Single	Quad 8-Ch/1-Pole	50-635-108

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

Channel Selection	Model Variant	Order Code
Multiple	Single 16-Ch/2-Pole	50-635-102
Multiple	Single 8-Ch/4-Pole	50-635-103
Multiple	Single 4-Ch/8-Pole	50-635-104
Multiple	Dual 8-Ch/2-Pole	50-635-106
Multiple	Dual 4-Ch/4-Pole	50-635-107
Multiple	Quad 4-Ch/2-Pole	50-635-109

Note: Contact factory if the above cards are required in single channel selection mode.

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
50-635	93-006-001	Not Required

Spare Relay Kits

Kits of replacement relays are available for the majority of Pickering's PCI switching products, simplifying servicing and reducing down-time.

Product	Relay Kit
50-635	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 50-635 card 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.

Pickering can supply mating connectors and cable assemblies to enable easy integration of the 50-635 series of PCI cards

Product Customization

Pickering PCI cards 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.

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.

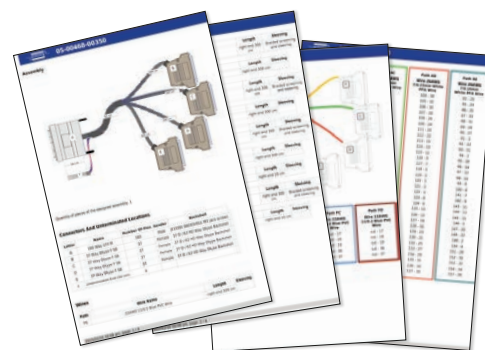| Connectors & Backshells | Multi-way Cable Assemblies | RF Cable Assemblies | Breakouts | Connector Blocks |

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
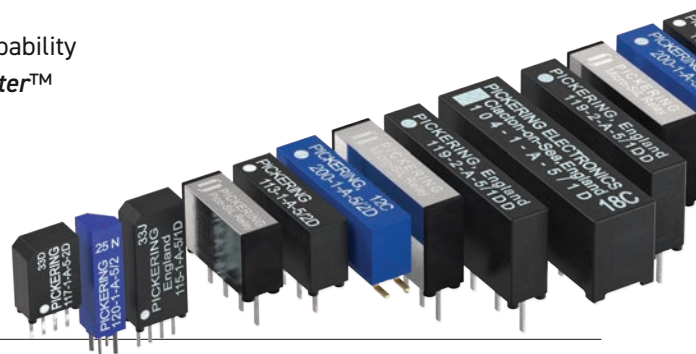
Mass Interconnect

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
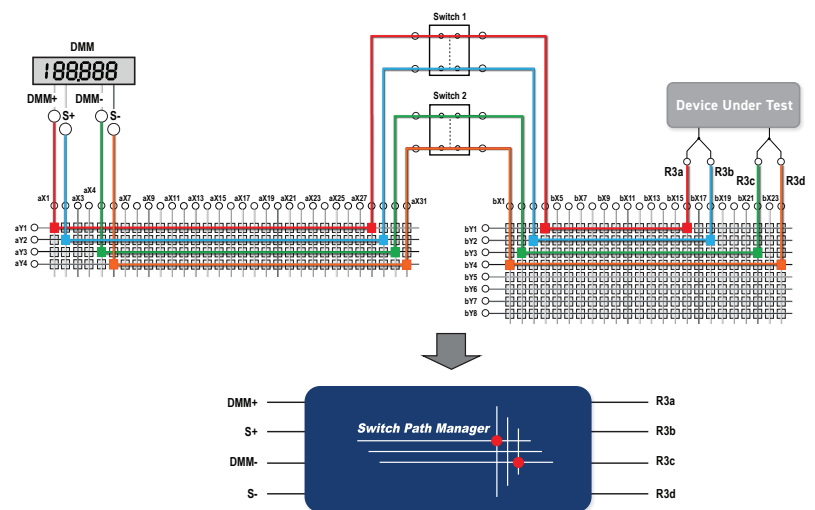- **MTQ Testsolutions** Tecap Test & Measurement Suite

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