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- 25, 32, 50 or 64 Reed Relays Per Card
- SPST, DPST and SPDT Configurations
- Ruthenium Reed Relays Suitable For Low Level Signals
- Uses High Reliability Pickering Reed Relays For Maximum Performance
- Fast Operating Speed 250 µs Typical
- Switch up to 150 VDC/100 VAC, 1.25 A with 20 W Max Power
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- Shares Similar Architecture To PXI 40-110 Module
- 3 Year Warranty

3 Year Warranty
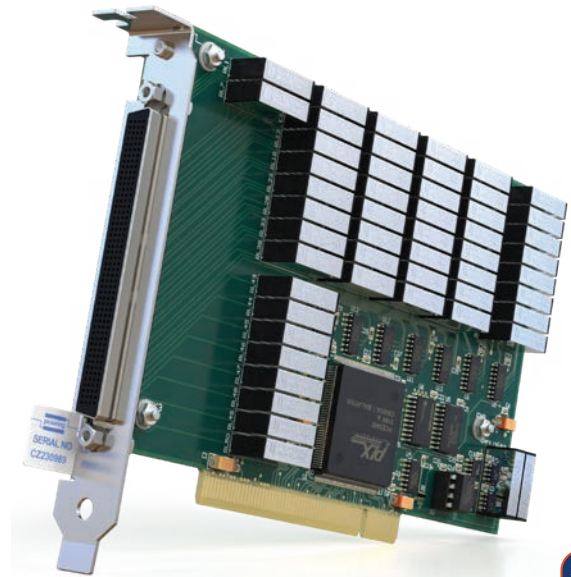
The 50-110/115 range of switching cards is available in both Changeover (SPDT) and Normally Open (SPST & DPST) configurations. Connections are made via a front panel 200-pin female connector.

General purpose reed relays are suitable for the construction of small switching networks, for switching larger relays or for operating external devices (e.g. lamps, solenoids etc.).

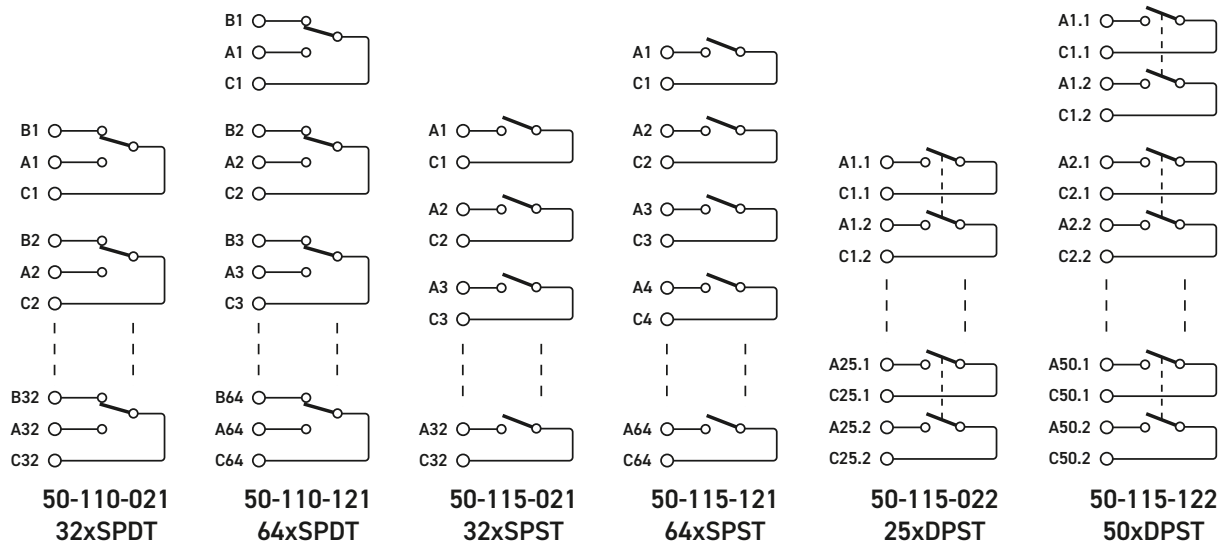All of the reed relays used in our PCI cards are manufactured by our Relay Division.

Pickering reed relays offer very high reliability (over 10^8 operations) with maximum switching performance, especially for low level signals.

Range Description:

- 50-110-x21   32 or 64 SPDT Reed Relays.
- 50-115-x21   32 or 64 SPST Reed Relays.
- 50-115-x22   25 or 50 DPST Reed Relays.

Front Panel Connector

This product is based on the obsolete Molex LFH series connector that has been superseded by a Pickering commissioned form, fit, function equivalent. The new connector series is 100% compatible with the Molex connectors allowing either gender of Pickering connector to mate with the corresponding Molex part without issue.

50-110-021 32xSPDT	50-110-121 64xSPDT	50-115-021 32xSPST	50-115-121 64xSPST	50-115-022 25xDPST	50-115-122 50xDPST

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Relay Type

The 50-110 & 50-115 are fitted with ruthenium reed relays, these offer very long life with good low level switching performance and excellent contact resistance stability. Spare reed relays are built onto the circuit board to allow easy maintenance with minimum downtime.

All reed relays are manufactured by our Relay Division, for more information visit: pickeringrelay.com

Switching Specification

Switch Type:	Ruthenium Reed
Max Switching Voltage:	150 VDC/100 VAC*
Max Power:	3 W (50-110) 20 W (50-115)
Max Switch Current:	0.25 A (50-110) 1 A (50-115)
Max Carry Current:	1.25 A
On Path Resistance:	<800 mΩ (400 mΩ typical)
Off Path Resistance:	>10^9 Ω
Thermal Offset:	<20 μV (50-110) <30 μV (50-115)
Operate Time:	<0.5 ms, 0.25 ms typical
Release Time:	<0.5 ms, 0.25 ms typical
Expected Life, low power:	>1×10^8 operations
Expected Life, full power:	>1×10^6 operations

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

Power Requirements

+3.3 V	+5 V Backplane	+12 V	-12 V
0	Min: 0.8 W Typical: 1.4 W Max: 5 W	0	0

Mechanical Characteristics

Single slot short PCI format.
3D models for all versions in a variety of popular file formats are available on request.

Connectors

Signals via a 200-pin female LFH* connector, for pin outs please refer to the operating manual.

* LFH relates to the obsolete Molex connector series and is retained for continuity, products will be fitted with a form, fit, function Pickering equivalent connector that is intermateable with the original Molex parts.

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 50-110/115 range complies with the PCI Specification 2.0 (issued Aug 2000).

Signalling Environment: 33 MHz, 32-bit (+5 V only).

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

32 x SPDT, Ruthenium Reed Relays	50-110-021
64 x SPDT, Ruthenium Reed Relays	50-110-121
32 x SPST, Ruthenium Reed Relays	50-115-021
64 x SPST, Ruthenium Reed Relays	50-115-121
25 x DPST, Ruthenium Reed Relays	50-115-022
50 x DPST, Ruthenium Reed Relays	50-115-122

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 reed relay types
- Mixture of reed 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
50-110-021/121	91-100-026
50-115-021/121	91-100-048
50-115-022/122	91-100-062

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

Mating Connectors & Cabling

For connection accessories for the 50-110/115 range please refer to the 90-002D 200-pin LFH Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Pickering can supply mating 200-pin connectors and cable assemblies to enable easy integration of the 50-110 & 50-115 series of relay cards
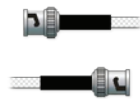
Connectivity Solutions

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
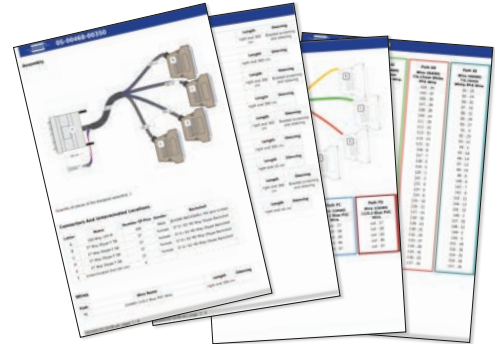
Start designing your custom cabling, go to pickeringtest.com/cdt

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
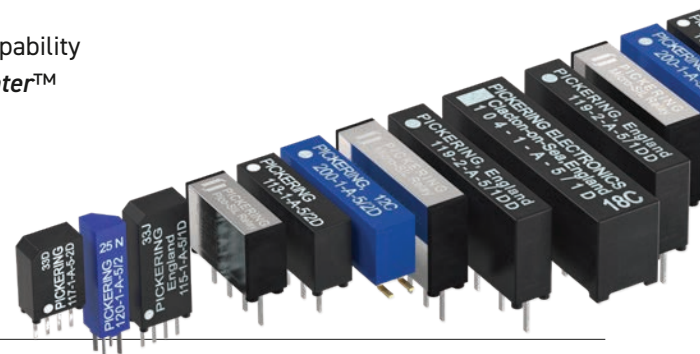
Programming

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
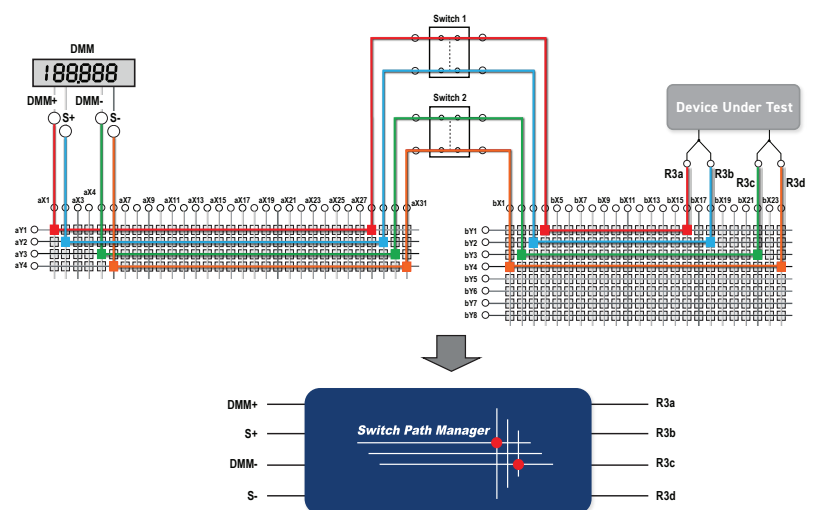
Diagnostic Relay Test Tools

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