- **Ultra High Density Reed Relay Matrix With 256 Crosspoints**
- **1-Pole 32x8 Matrix**
- **1-Slot PXI (CompactPCI) Module**
- **Large Matrices Built Using Multiple Modules**
- **Uses High Reliability Pickering Ruthenium Reed Relays For Maximum Performance**
- **Fast Operating Speed <1000µs**
- **Switch up to 150 Volts with 20W Max Power**
- **Max Current 1A Cold or Hot Switching**
- **VISA, IVI & Kernel Drivers Supplied for Windows**
- **Supported by PXI or LXI Chassis**
- **Supported by *eBIRST ™***
- **3 Year Warranty**

The 40-530 is a very high density matrix in single slot PXI format. It has 256 crosspoints configured as a 32x8 single pole matrix.
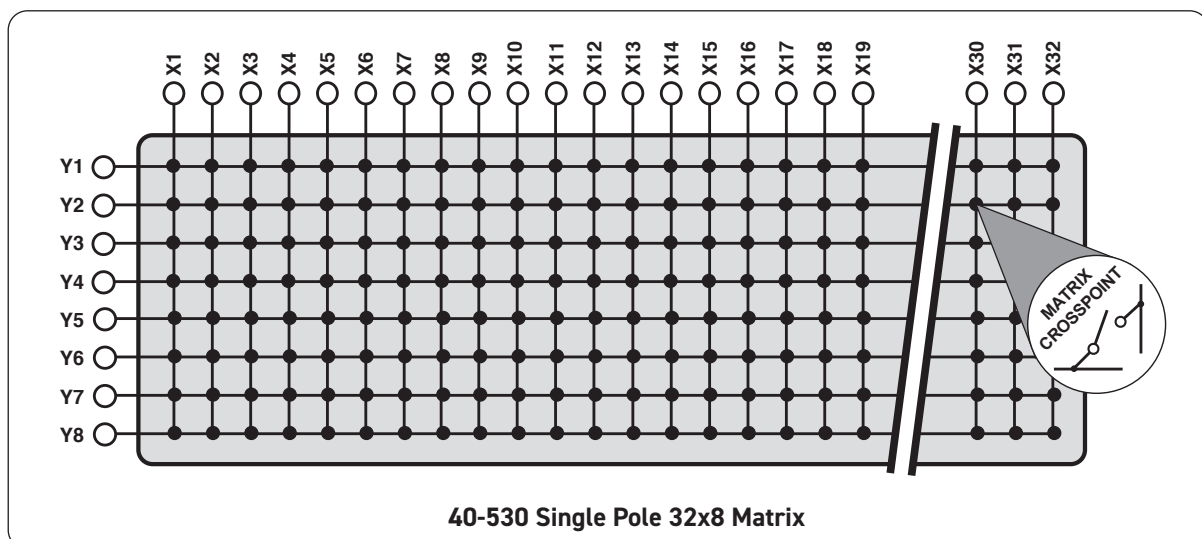
Typical applications include signal routing in Functional ATE and data acquisition systems. The modules are constructed using high reliability sputtered ruthenium reed relays, offering 10^9 operations to give maximum switching confidence with long life and stable contact resistance.

Larger matrices may be constructed by daisy chaining the common signals from multiple modules. However, for applications that require a very large matrix, Pickering's BRIC™ modules are best suited.

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

40-530 Single Pole 32x8 Matrix

pickering

pickering**test**.com

Relay Type

The 40-530 modules are fitted with ruthenium sputtered 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 sister company Pickering Electronics: pickeringrelay.com

Switching Specification

Switch Type:	Ruthenium Reed
Max Switch Voltage:	150VDC/100VAC
Max Power:	20W
Max Switch Current:	1.0A
Max Carry Current:	1.0A
Initial Path Resistance	
On (Single Module):	<500mΩ
Off (Single Module):	>10^9Ω
Operate Time:	<1ms, 0.5ms typical
Release Time:	<1ms, 0.5ms typical
Expected Life	
Low power load:	1×10^9 operations
Full power load:	>5×10^6 operations

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

RF Specification – In a 50Ω System

Bandwidth (-3dB):	30MHz	(40-530-021)
Crosstalk (typical):	10kHz:	-90dB
	100kHz:	-65dB
	1MHz	-35dB
	10MHz:	-24dB
	25MHz	-23dB
	50MHz	-19dB
Isolation (typical):	10kHz:	90dB
	100kHz:	85dB
	1MHz	70dB
	10MHz:	51dB
	25MHz	37dB
	50MHz	21dB

Power Requirements

+3.3V	+5V	+12V	-12V
0	1A (typ 280mA)	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 96-pin male micro-D 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:	5000m

Storage and Transport Conditions

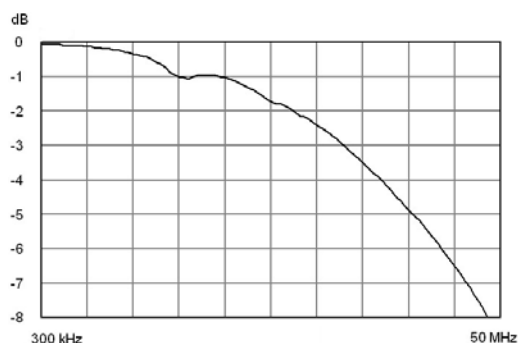|	
Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

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.

Insertion Loss Plot For 40-530-021
(typical worst case)

Product Order Codes

Single 32x8 Matrix Module, 1-Pole	40-530-021

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 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

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

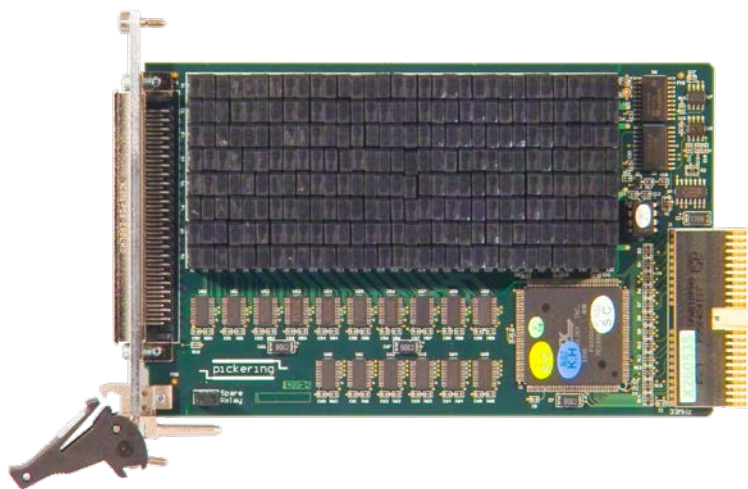| Product	Test Tool	Adaptor	Termination
40-530	93-002-001	93-002-226	93-016-103

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
40-530	91-100-019

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

Mating Connectors & Cabling

For connection accessories for the 40-530 module please refer to the 90-016D 96-pin micro-D Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

PCB View of the 40-530 Ultra High Density Matrix Module

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 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

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