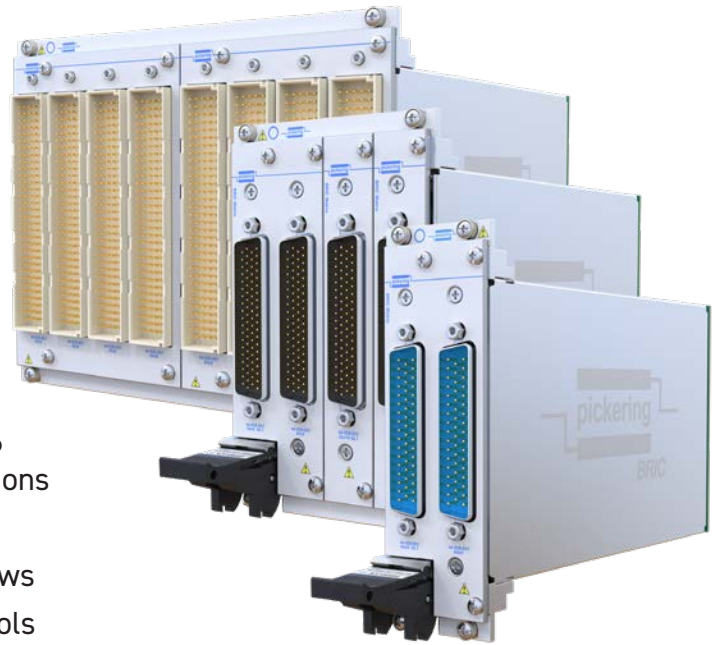


- **New Generation of 1A PXI Matrices with 2x the Density of Competing Products**
- Integrated PXI Matrix Module with Built-In High Performance Screened Analog Bus
- Robust 1A/20W Switching, with up to 4,096 Crosspoints per Module
- Automatic Isolation Relay Switching Maximizes Bandwidth and Reliability
- Uses High Reliability Pickering Ruthenium Reed Relays for Maximum Performance
- Choice of Analog Bus Widths: 4, 6, 8, 12 and 16 Pole with Single, Dual & Quad Analog Bus Options
- Available as 2, 4 and 8-Slot 3U PXI Modules
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by **BIRST™** and **eBIRST™** Test Tools
- 3 Year Warranty



### BRIC PXI Reed Relay Matrices

The 40-559 PXI BRIC is an ultra high density matrix module available in two, four or eight slot sizes suitable for high performance matrix requirements.

With its high level of switching density, the 40-559 allows a complete Functional ATE system to be housed in a single 3U PXI chassis, the integrated BRIC design saves on valuable chassis slots compared to standard PXI matrix modules. The 40-559 range is as follows:

- **BRIC2** is a 2-slot PXI module with two matrix daughter cards - a maximum of 1024 crosspoints.
- **BRIC4** is a 4-slot PXI module with up to four matrix daughter cards - a maximum of 2048 crosspoints.
- **BRIC8** is an 8-slot PXI module with up to eight matrix daughter cards - a maximum of 4096 crosspoints.

### High Reliability and Ease of Use

The module is fitted with high quality reed relays (Ruthenium sputtered type), these offer very long life with good low level switching performance and excellent

contact resistance stability. Spare relays are included with the module to allow easy maintenance with minimum downtime.

All reed relays are manufactured by our Relay Division:

[pickeringrelay.com](http://pickeringrelay.com)

The BRIC's internal high performance screened analog backplane minimizes the complexity and cost of cable assemblies. We can construct custom cables for all our PXI modules, please contact the sales office for assistance.

### Built-In Relay Self-Test - BIRST

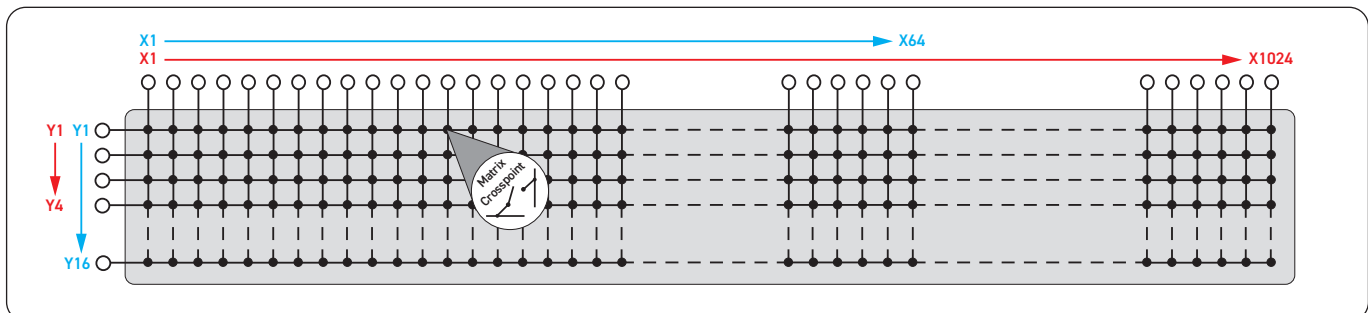
The **BIRST** facility provides a quick and simple way of finding relay failures. No test equipment is required, simply disconnect the UUT from the BRIC's connectors, launch the **BIRST** application and the tool will run a diagnostic test that will find all relays with faulty contacts. For more information go to:

[pickeringtest.com/birst](http://pickeringtest.com/birst)

### Supported by eBIRST

These modules are also supported by our **eBIRST** test tools. These 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](http://pickeringtest.com/ebirst)



The 40-559 BRIC Module is available with matrix sizes between 64x16 and 1024x4

## Pickering Reed Relay BRIC Advantages

- Only uses the highest quality instrument grade reed relays – be wary of inferior copies.
- Simplified cabling and interconnection for large matrix solutions.
- Extensive accessory support.
- Built in self-test to find defective and degrading relays with full path resistance characterisation.
- Simplified operation through automated isolation relay operation and single matrix presentation.
- Highest density reed relay solution in PXI.
- Simple relay replacement and ease of field service.
- Extensive range of configurations and solutions.
- Fast operation through VISA driver with multiple relay operation in one command or have the convenience and simplicity of IVI drivers.

## Pickering *SoftCenter*<sup>®</sup> Instrumentation Grade Reed Relays

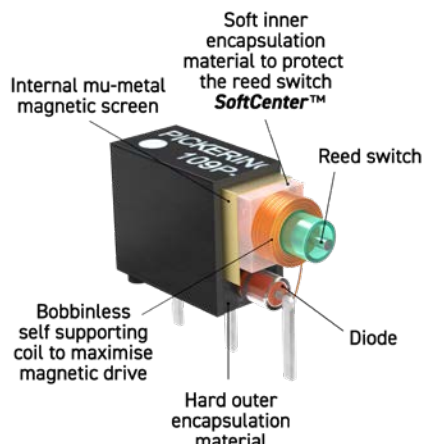
Reed relay switching solutions can only be as good as the relays used, and Pickering uses only the highest quality instrumentation grade reed relays manufactured by our Relay Division.

These are the reed relays of choice for ATE manufacturers, providing the most reliable and consistent switching available in the industry.

Pickering has over 50 years of experience designing relays to the highest quality levels demanded by the ATE industry. We know what makes a good relay and how to construct a reliable relay.

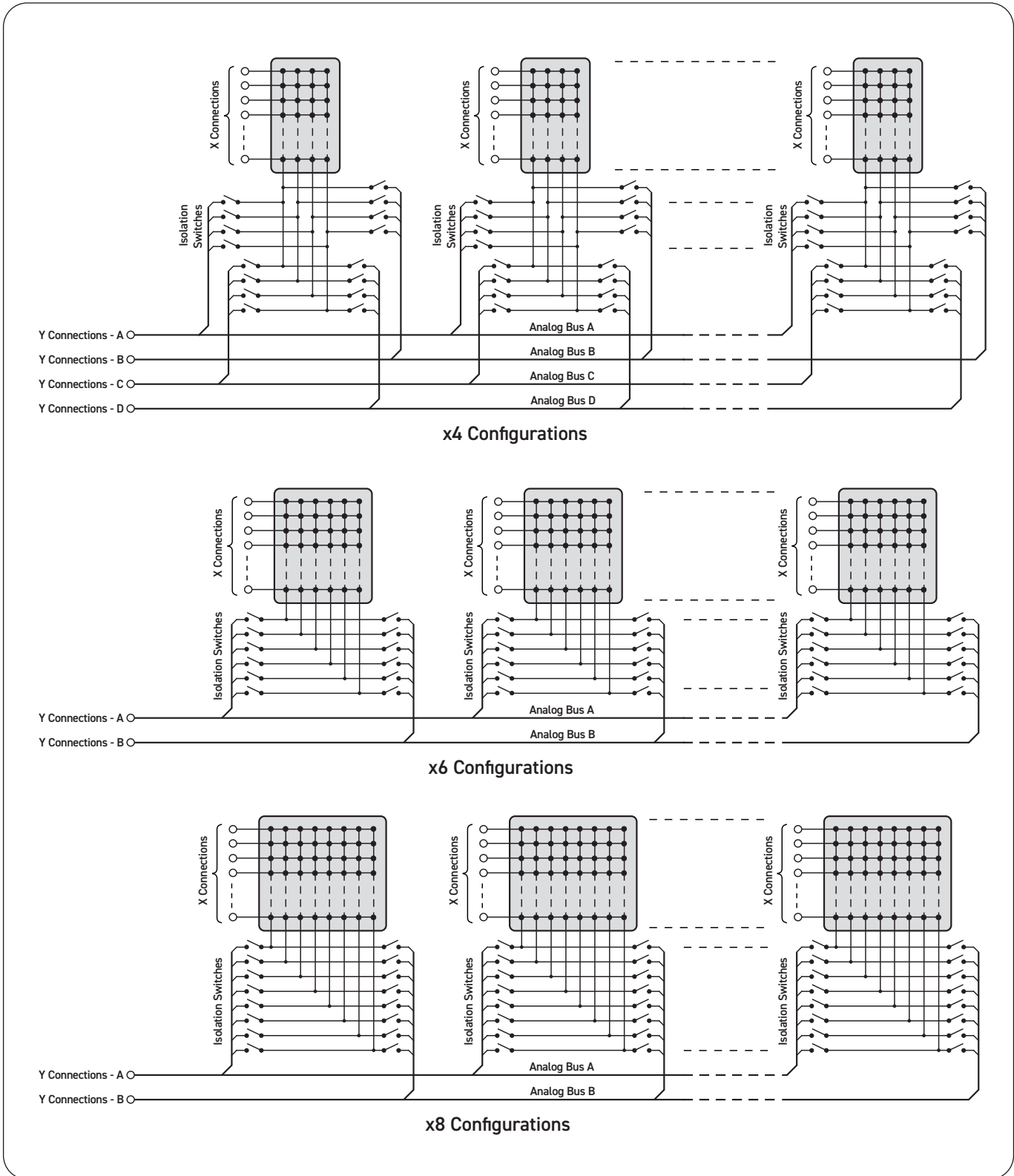
All our reed relays use *SoftCenter* construction that allows for the constant expansion and contraction of the reed relay coils and glass body without fear of damage to wires or glass seals. The high performance of reed relays is due to their hermetic structure, and only *SoftCenter* provides the means to reliably avoid damage, ensuring long contact life.

So choose the right matrix solution, and use the best quality reed relays by choosing Pickering Interfaces' reed relay BRICs.

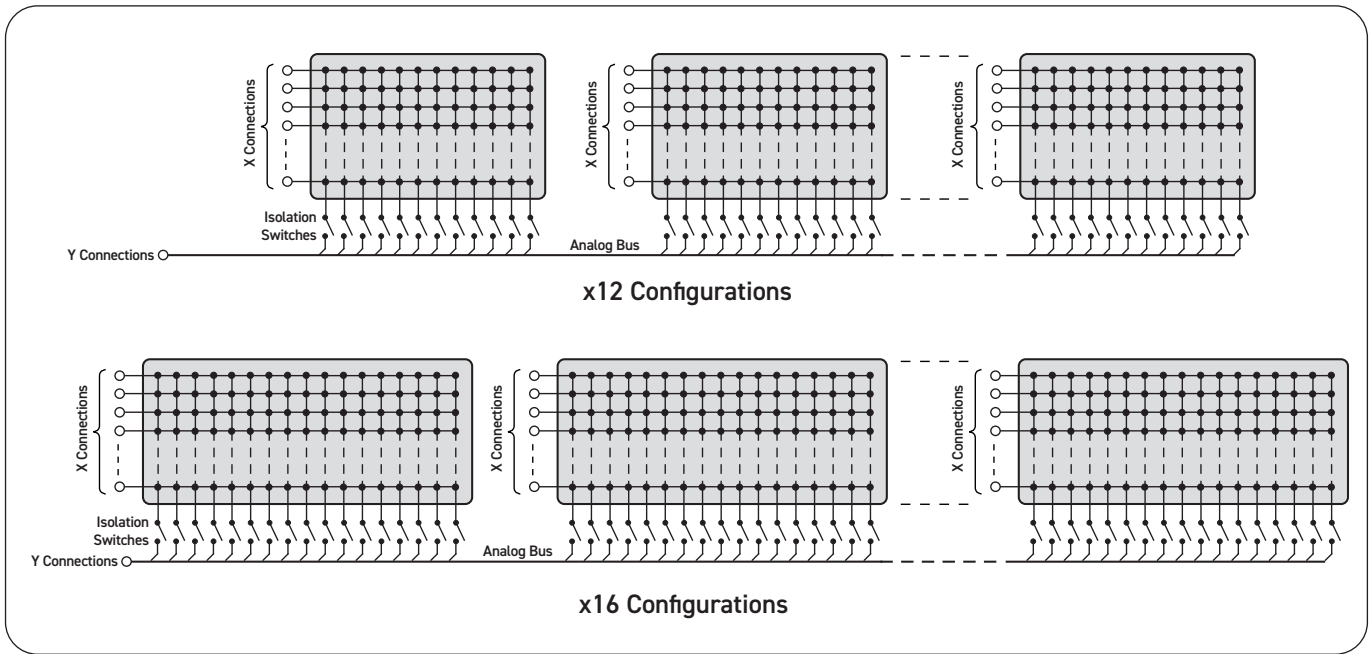


## Pickering's Range of BRIC Matrix Modules

<b>40-559 - 1-Pole Matrix, 1A Reed Relay</b>	
BRIC2	Up to 256x4, 168x6, 128x8, 84x12 or 64x16
BRIC4	Up to 512x4, 336x6, 256x8, 168x12 or 128x16
BRIC8	Up to 1024x4, 672x6, 512x8, 336x12 or 256x16
<b>40-560A - 1-Pole Matrix, 0.5A Reed Relay</b>	
BRIC2	Up to 276x4, 138x8 or 69x16
BRIC4	Up to 552x4, 276x8 or 138x16
BRIC8	Up to 1104x4, 552x8 or 276x16
<b>40-561A - 1-Pole or 2-Pole Matrix, 0.5A Reed Relay</b>	
BRIC2	Up to 90x8 or 45x16
BRIC4	Up to 180x8 or 90x16
BRIC8	Up to 360x8 or 180x16
<b>40-562A - 1-Pole or 2-Pole Matrix, 1A Reed Relay</b>	
BRIC2	Up to 132x4, 66x8, 33x16 or 15x32
BRIC4	Up to 264x4, 132x8, 66x16 or 30x32
BRIC8	Up to 528x4, 264x8, 132x16 or 60x32
<b>40-563A - 1-Pole Matrix, 0.25A Solid State</b>	
BRIC2	Up to 96x8
BRIC4	Up to 192x8
BRIC8	Up to 384x8
<b>40-565B - 2-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 58x8
BRIC4	Up to 116x8
BRIC8	Up to 232x8
<b>40-566A - 2-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC4	Up to 165x4
BRIC8	Up to 385x4
<b>40-567 - 1-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 88x8
BRIC4	Up to 176x8
BRIC8	Up to 352x8
<b>40-568 - 1-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 150x4
BRIC4	Up to 300x4
BRIC8	Up to 600x4
<b>40-596 - 1-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 116x6
BRIC4	Up to 232x6
BRIC8	Up to 464x6
<b>40-597 - 1-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 64x12
BRIC4	Up to 128x12
BRIC8	Up to 356x12
<b>40-598 - 1-Pole Matrix, 2A Electro-mechanical Relay</b>	
BRIC2	Up to 48x16
BRIC4	Up to 96x16
BRIC8	Up to 192x16



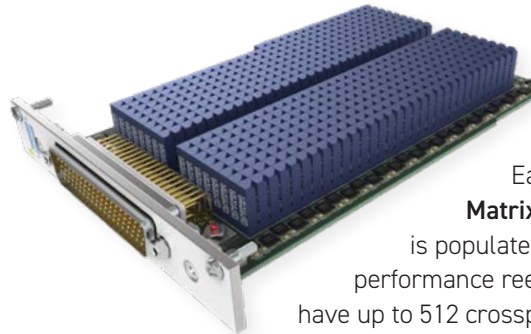
Architecture diagrams for x4, x6 and x8 configurations of the 40-559 range showing how the matrix daughter cards are interconnected with either quad or dual analog buses.



Architecture diagrams for x12 and x16 configurations of the 40-559 range showing how the matrix daughter cards are interconnected with a single analog bus.

### Analog Bus

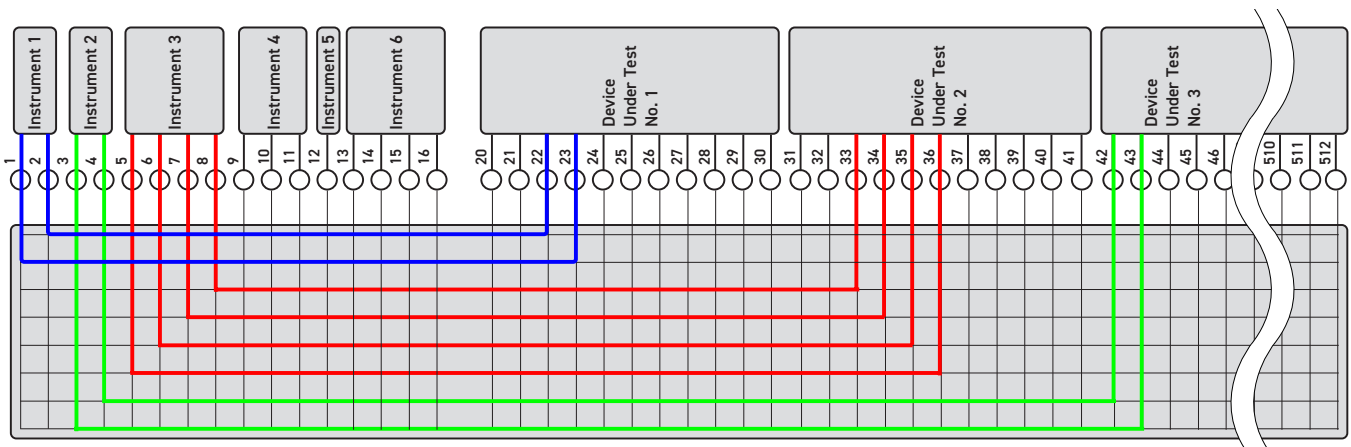
The Y-buses of the 40-559 daughter cards are linked via the analog bus on the BRIC backplane. x16 and x12 versions have a single analog bus, x8 and x6 versions have the added versatility of a dual analog bus and x4 versions have a quad analog bus. Multiple analog buses allow the matrix to be configured as totally separate matrices within the same BRIC module.



Each **40-559 BRIC Matrix** daughter card is populated with high performance reed relays and can have up to 512 crosspoints.

### Isolation Switching

Each of the 40-559 daughter cards is fitted with isolation switches between the matrix Y-bus and the analog bus on the BRIC backplane.



Schematic diagram showing the efficient use of a 512x8 BRIC Matrix for parallel testing multiple DUTs. The BRIC Matrix allows tremendous test system flexibility.

**Pickering Electronics**  
**State-Of-The-Art Reed Relays**

This matrix module is constructed using Series 120 Reed Relays manufactured by our Relay Division.

For further information please visit:

[pickeringrelay.com](http://pickeringrelay.com)



**Switching Specifications**

Switch Type:	Ruthenium Reed
Max Switch Voltage:	190VDC/200VAC*
Max Power:	20W
Max Switch Current:	1.0A
Max Carry Current:	1.2A
Relay Resistance:	100mΩ typical
Path Resistance X to X - on:	0.6Ω typical, 1Ω max (within same daughter card) 0.7Ω typical, 1Ω max (across different daughter cards)
Path Resistance - off:	10°Ω
Thermal Offset	<410μV
Operate Time:	1ms typical, 1.5ms max
Expected Life (Operations)	
Low Power Load:	>10 <sup>9</sup>
Full Power Load:	>5x10 <sup>6</sup>
Bandwidth (-3dB)	x4 configurations, 8MHz x6 configurations, 10MHz x8 configurations, 8MHz x12 configurations, 7.5MHz x16 configurations, 14MHz
Crosstalk (typical)	70dB at 10kHz 50dB at 100kHz 35dB at 1MHz 15dB at 10MHz
Isolation (typical)	80dB at 10kHz 70dB at 100kHz 50dB at 1MHz 30dB at 10MHz

\* 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
300mA	2A max	35mA	0

**Maximum Crosspoint Count**

The 40-559 series has a suggested maximum number of simultaneously operated crosspoints of 50 per BRIC2, 50 per BRIC4 or 100 per BRIC8 (please contact factory for applications requiring higher closure counts).

**Width and Dimensions**

Two, four or eight slot 3U PXI module (CompactPCI).

3D models for these modules in a variety of popular file formats are available on request.

**Module Weight**

	Empty BRIC	Fully Loaded BRIC
BRIC2	0.6Kg	1.3Kg
BRIC4	0.9Kg	2.3Kg
BRIC8	1.6Kg	4.4Kg
BRIC daughter card	0.35Kg	

**Connectors**

PXI bus via 32-bit P1/J1 backplane connector.

Signals are carried via multiple front panel connectors (one or two per 2-slot module, up to four per 4-slot module or up to eight per 8-slot module), the types are as follows:

- x4 Configurations: 160-pin male DIN 41612
- x6 Configurations: 104-pin male D-type
- x8 Configurations: 78-pin male D-type
- x12 Configurations: 78-pin male D-type
- x16 Configurations: 50-pin male D-type

**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

<b>BRIC2 - 2-Slot 1-Pole Matrix</b>	<b>40-559-201-(config)</b>
<b>BRIC4 - 4-Slot 1-Pole Matrix</b>	<b>40-559-401-(config)</b>
<b>BRIC8 - 8-Slot 1-Pole Matrix</b>	<b>40-559-801-(config)</b>

When ordering 40-559 modules the matrix configuration **must** be specified, this includes the prefix code together with the configuration code, see the tables for specific details.

For the expansion of an existing BRIC matrix or replacement of faulty BRIC daughter cards please contact the sales office.

## 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 listed below. This product requires master slave testing and two sets of tools are required together with the master slave cable: **93-970-301**.

For more information go to: [pickeringtest.com/ebirst](http://pickeringtest.com/ebirst)

Product	Test Tool	Adaptor
<b>x4 Configurations</b>	<b>93-002-001</b>	<b>93-002-226</b>
<b>x6 Configurations</b>	<b>93-022-001</b>	<b>Not Required</b>
<b>x8 Configurations</b>	<b>93-006-001</b>	<b>Not Required</b>
<b>x12 Configurations</b>	<b>93-006-001</b>	<b>Not Required</b>
<b>x16 Configurations</b>	<b>93-005-001</b>	<b>Not Required</b>

### Spare Relay Kits

Replacement relays are available for the majority of our products, simplifying servicing and reducing down-time.

Product	Relay Kit
<b>All Configurations</b>	<b>91-100-099</b>

For further assistance, please contact the sales office.

## Mating Connectors & Cabling

For connection accessories for the 40-559 module please refer to the [90-001D](#) 160-pin DIN 41612, [90-022D](#) 104-pin D-type [90-006D](#) 78-pin D-type and [90-005D](#) 50-pin D-type Connector Accessories data sheets where a complete list and documentation can be found for accessories.

<b>x4 Configuration Options (Quad Analog Bus)</b>			
	<b>BRIC2 40-559-201</b>	<b>BRIC4 40-559-401</b>	<b>BRIC8 40-559-801</b>
256x4 Matrix	-256x4	-256x4	-256x4
384x4 Matrix		-384x4	-384x4
512x4 Matrix		-512x4	-512x4
640x4 Matrix			-640x4
768x4 Matrix			-768x4
896x4 Matrix			-896x4
1024x4 Matrix			-1024x4

<b>x6 Configuration Options (Dual Analog Bus)</b>			
	<b>BRIC2 40-559-201</b>	<b>BRIC4 40-559-401</b>	<b>BRIC8 40-559-801</b>
168x6 Matrix	-168x6	-168x6	-168x6
252x6 Matrix		-252x6	-252x6
336x6 Matrix		-336x6	-336x6
420x6 Matrix			-420x6
504x6 Matrix			-504x6
588x6 Matrix			-588x6
672x6 Matrix			-672x6

<b>x8 Configuration Options (Dual Analog Bus)</b>			
	<b>BRIC2 40-559-201</b>	<b>BRIC4 40-559-401</b>	<b>BRIC8 40-559-801</b>
128x8 Matrix	-128x8	-128x8	-128x8
192x8 Matrix		-192x8	-192x8
256x8 Matrix		-256x8	-256x8
320x8 Matrix			-320x8
384x8 Matrix			-384x8
448x8 Matrix			-448x8
512x8 Matrix			-512x8

<b>x12 Configuration Options (Single Analog Bus)</b>			
	<b>BRIC2 40-559-201</b>	<b>BRIC4 40-559-401</b>	<b>BRIC8 40-559-801</b>
84x12 Matrix	-84x12	-84x12	-84x12
126x12 Matrix		-126x12	-126x12
168x12 Matrix		-168x12	-168x12
210x12 Matrix			-210x12
252x12 Matrix			-252x12
294x12 Matrix			-294x12
336x12 Matrix			-336x12

<b>x16 Configuration Options (Single Analog Bus)</b>			
	<b>BRIC2 40-559-201</b>	<b>BRIC4 40-559-401</b>	<b>BRIC8 40-559-801</b>
64x16 Matrix	-64x16	-64x16	-64x16
96x16 Matrix		-96x16	-96x16
128x16 Matrix		-128x16	-128x16
160x16 Matrix			-160x16
192x16 Matrix			-192x16
224x16 Matrix			-224x16
256x16 Matrix			-256x16

## 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



Multiwire 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](http://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 Relay Division. These instrument grade reed relays feature **SoftCenter™** technology, ensuring long service life and repeatable contact performance. To learn more, please go to: [pickeringrelay.com](http://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](http://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:

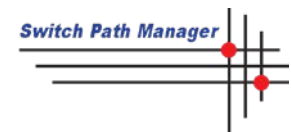
- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
- **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](http://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](http://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](http://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](http://pickeringtest.com/support)

## Available Product Resources

We have a large library of product resources including success stories, product and support videos, articles and white papers as well as application specific product brochures to assist when looking for the switching, simulation and connection 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](http://pickeringtest.com/resources)