

- Integrated PXI 2A Matrix Module With Built In High Performance Screened Analog Bus
- Fully Scalable Matrix Solution
- High Density With 4-Slot Configurations to 165x4 (2-Pole) & 8-Slot Configurations to 385x4 (2-Pole)
- Flexible Matrix Architecture Through Isolation Switching Enabling Multiple Independent Matrices (Up To 7 Per BRIC8)
- Partially Populated Versions Available
- Maximum Current 2A Hot or Cold Switching
- 2-Pole Switching up to 150VDC/100VAC and up to 60W Max Power
- VISA, Kernel & IVI Drivers Supplied
- 3 Year Warranty



8-Slot BRIC8 Illustrated
(4-Slot BRIC4 Also Available)

BRIC™ 2nd Generation PXI 2Amp Switch Matrix

The 40-566 BRIC is a range of high density matrix modules able to switch up to 2 Amps at 150VDC/100VAC. The 40-566 BRIC modules are available in 4 or 8-slot sizes to suit most high performance PXI Matrix requirements, constructed using quality electro-mechanical relays.

Typical applications include signal routing for functional ATE systems. With its high level of switching density, 40-566 PXI matrix modules allow a complete functional ATE system to be housed in a single 3U PXI chassis, BRIC Modules allow the use of much lower cost 8 slot PXI chassis.

- **40-566 BRIC4** is a 4 slot PXI Module which can hold up to 3 matrix daughtercards with 660 crosspoints (maximum matrix size of 165x4, 2-pole).
- **40-566 BRIC8** is an 8 slot PXI Module which can hold up to 7 matrix daughtercards with 1540 crosspoints (maximum matrix size of 385x4, 2-pole).

High Reliability and Easy of Use

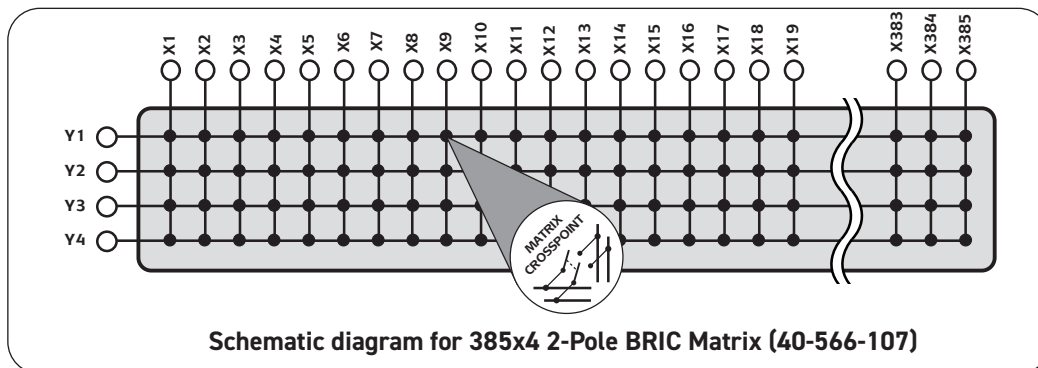
The 40-566 PXI BRIC is designed to minimise the cost and complexity of cable assemblies to the device under test and

instrumentation. Analog busing is housed within the module using a high performance screened analog bus backplane. Pickering can construct custom cable assemblies for all of our PXI modules, please contact sales office for further assistance.

Pickering 2A BRIC matrices are higher signal power versions of our established range of PXI BRIC modules. Comprising high quality electromechanical relays they feature higher voltage, current and power handling capabilities than existing ultra high density reed relay based BRICs.

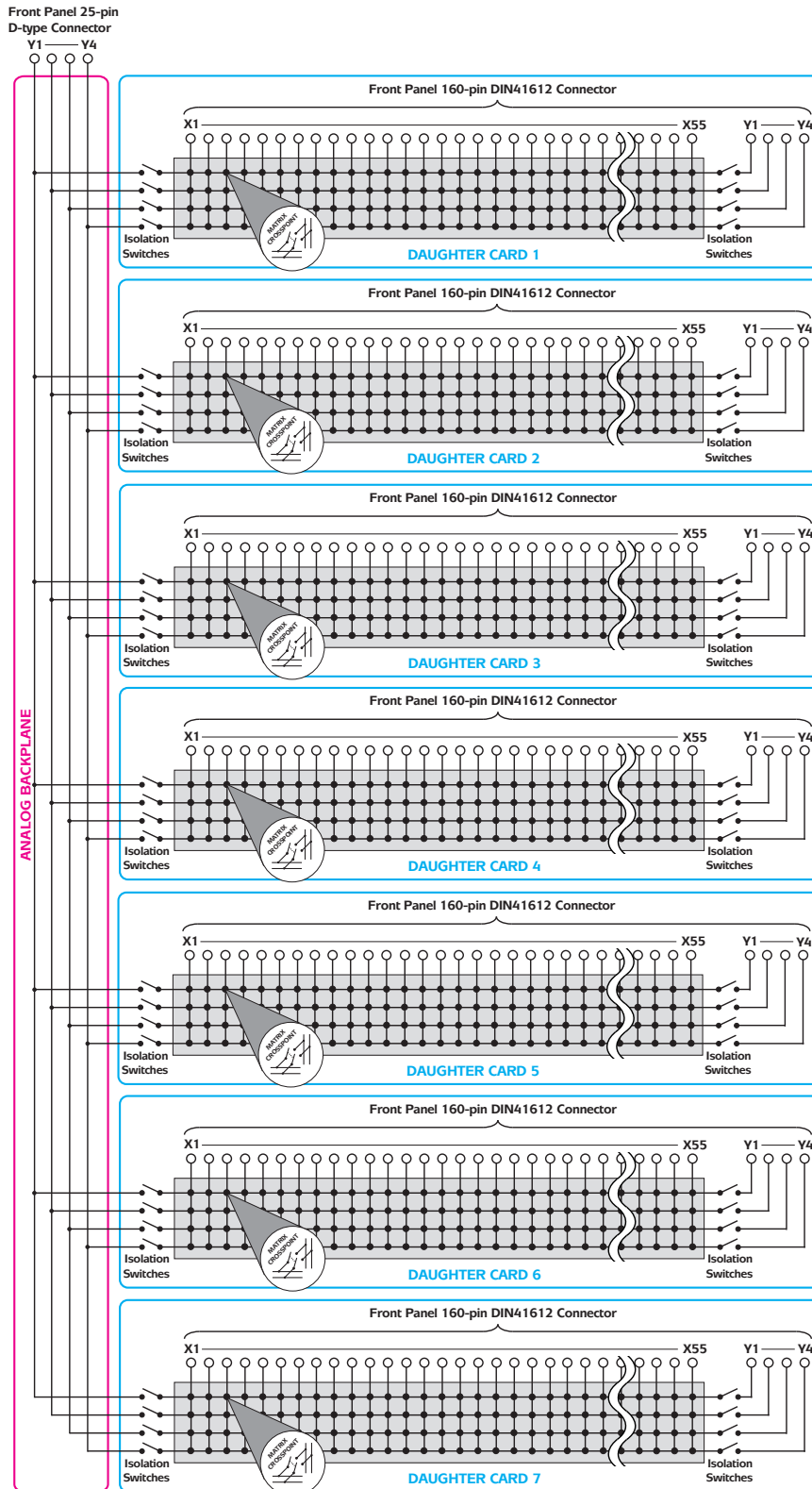
The 40-566 is an ideal choice for simultaneously busing up to four higher power signal pairs, where improved robustness is required (please refer to our 40-565 for busing up to eight higher power signal pairs simultaneously).

For lower level switching requirements, please also consider our 40-560/561/562 range of sputtered ruthenium reed relay solutions that exhibit superior operating speed & life performance.



Flexible Matrix Architecture

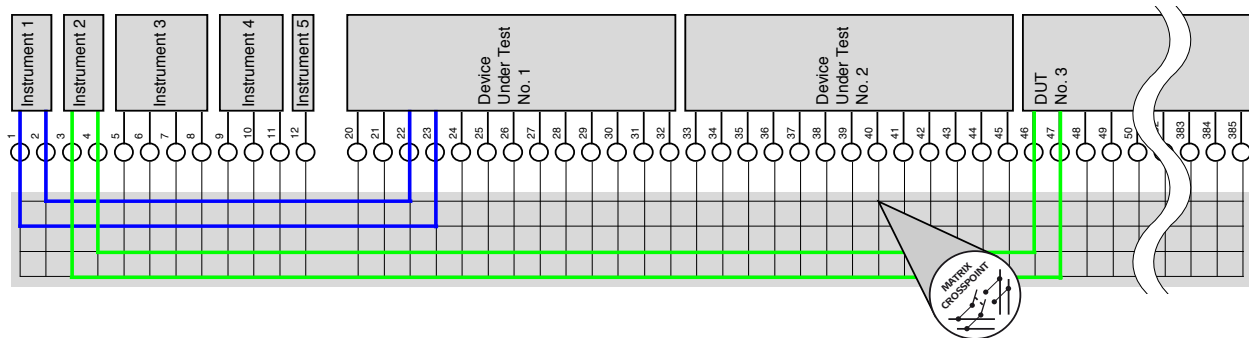
Isolation Switching within the 40-566 enables the configuration of multiple independent matrices (up to 7 per BRIC8). These switches allow the removal of redundant rows/columns within a system, maintaining signal integrity through maximized bandwidth (along with keeping interconnection capacitance, leakage and crosstalk to an absolute minimum.)



40-566 BRIC Key Advantages

- Complete PXI Switching Solution in one PXI Module.
- Simplified cabling, easy to connect to the DUT thus minimizing costs.
- Internal Shielded Analog Bus giving maximum signal integrity with easy expansion at minimal cost with maximum bandwidth and isolation.
- Program as one whole matrix, so very easy to achieve fast operate time.
- Targeted at high performance matrix switching with minimized cost.
- Build just the matrix configuration you need. Modular architecture allows users to buy just as much matrix capacity as they require, expansion cards can be added later.
- BRICs allow use of much lower cost 8 slot PXI chassis (such as 40-908).
- Simpler and faster programming with Direct I/O, VISA and IVI Drivers + LabView Soft Front Panels. Fully compatible with NI Switch Executive.
- Custom versions built to order.

Example Application of the 40-566 2A BRIC Matrix (All connections via X-axis for maximum efficiency)



Schematic diagram showing a 385 x 4 BRIC Matrix being used to parallel test multiple DUTs. The BRIC Matrix allows tremendous test system flexibility.

Relay Type

The 40-566 BRIC modules are fitted with electro-mechanical relays.

Switching Specification (40-566)

Switch Type:	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold Covered Bifurcated
Max Switch Voltage:	150VDC/100VAC*
Max Power:	62.5VA, 60W
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 (Single Module):	<850mΩ (X to X) <750mΩ (X to Y)
Off (Single Module):	>10°Ω
Differential Thermal Offset:	<10μV per relay
Operate Time:	<3ms
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)
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.

Typical Bandwidth

Typical Bandwidth For Fully Loaded 385x4 Matrix (40-566-107):	10MHz
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Maximum Crosspoint Count

The 40-566 has a suggested maximum number of simultaneously operated crosspoints of 50 per BRIC4 or 100 per BRIC8, please contact the factory for higher closure requirements.

Power Requirements

+3.3V	+5V	+12V	-12V
0	4A max (fully loaded 40-566-107, 100 crosspoints energised), typically <2A	0	0

Width and Dimensions

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
BRIC4	0.9Kg	2.1Kg
BRIC8	1.6Kg	4.0Kg
BRIC daughter card	0.2Kg	

Connectors

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

X connections are made via multiple front panel 160-pin male DIN 41612 connectors (Up to 3 per 4-slot module or up to 7 per 8-slot module).

Y connections are made via a single front panel 25-pin male D-type connector.

Note: We recommend that Pickering mating connectors are used with this module which are designed to ensure there are no mechanical interference problems when used in a PXI chassis.

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.

40-566 BRIC Matrix Product Order Codes

BRIC4 - 4-Slot High Density Matrix

2A 2-Pole 55x4 Matrix	40-566-001
2A 2-Pole 110x4 Matrix	40-566-002
2A 2-Pole 165x4 Matrix	40-566-003

BRIC8 - 8-Slot High Density Matrix

2A 2-Pole 55x4 Matrix	40-566-101
2A 2-Pole 110x4 Matrix	40-566-102
2A 2-Pole 165x4 Matrix	40-566-103
2A 2-Pole 220x4 Matrix	40-566-104
2A 2-Pole 275x4 Matrix	40-566-105
2A 2-Pole 330x4 Matrix	40-566-106
2A 2-Pole 385x4 Matrix	40-566-107

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

Special Versions

BRIC modules can be built in special versions, for example where an exact matrix size is required then partly populated daughtercards may be ordered.

Upgrading With Daughtercards

BRIC modules can be upgraded to a larger matrix size using daughtercards, please consult your local sales office for further information.

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
40-566	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 40-566 module please refer to the [90-001D](#) 160-pin DIN 41612 and [90-008D](#) 25-pin D-type Connector Accessories data sheets where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

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

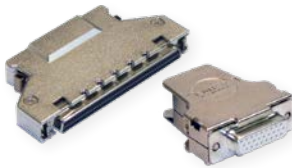
Pickering LXI or LXI/USB Modular Chassis—only accept our 1000+ PXI Switching & Simulation Modules:

- 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

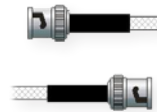
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed 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 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

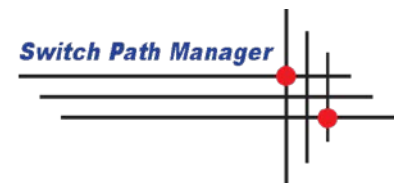
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help 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

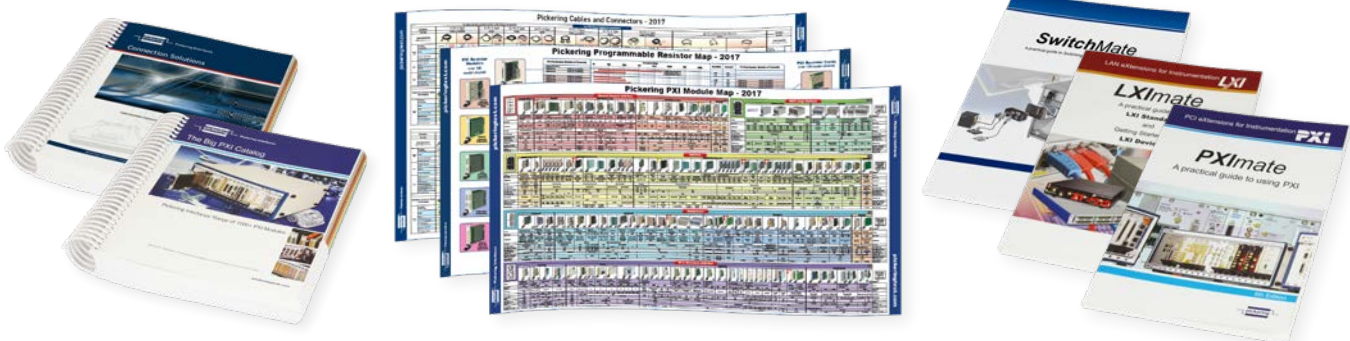


Three Year Warranty & Guaranteed Long-Term Support

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