

- Designed to Support the Requirements of the ARINC 608A Specification
- Integrated PXI 2 A Matrix Module With Built In High Performance Screened Analog Bus
- Hot Switching 200 VDC/180 VAC, 2 A, 60 W
- Separate Bus Matrix Inputs and Resource Distributor Daughter Cards
- Load Just The Number Of Daughter Switch Cards You Need For Your Application, Expansion Cards Can Be Added Later
- Partially Populated Versions Available
- VISA/IVI Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty



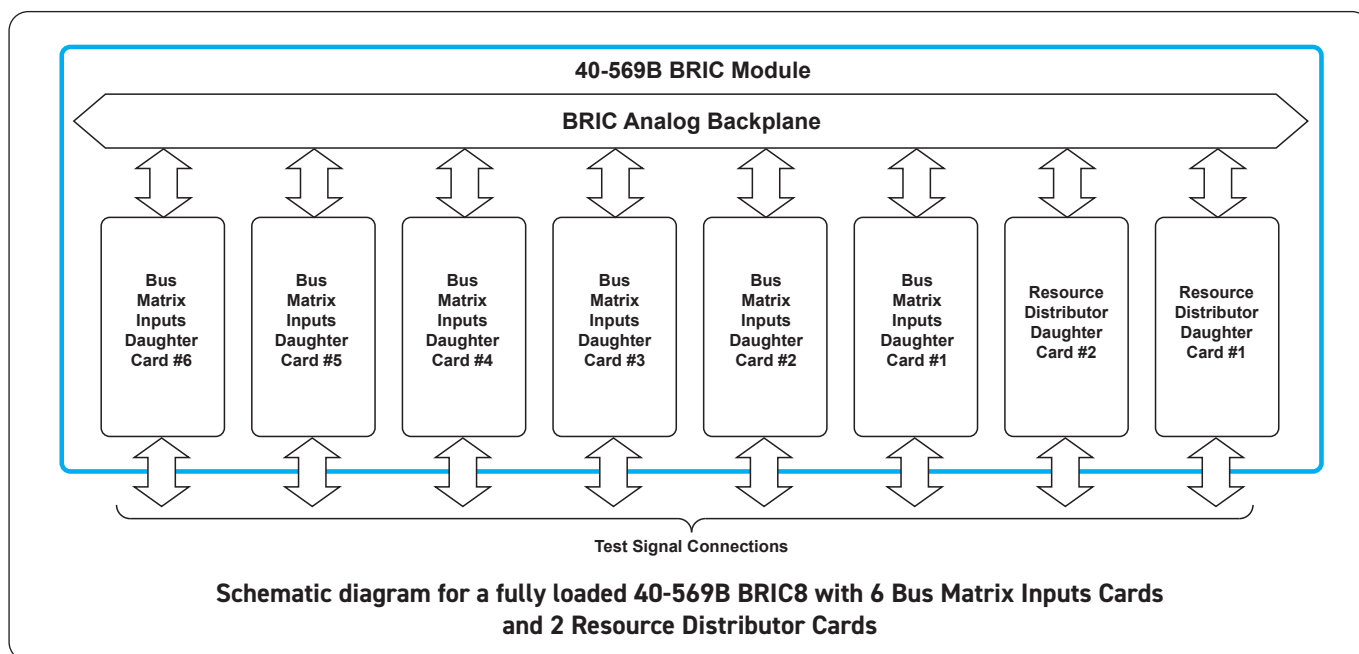
BRIC™ 2nd Generation PXI 2A Switch Matrix

The 40-569B BRIC is a range of high density bus matrix inputs and resource distributor based configurations capable of hot switching up to 2 A and up to 200 VDC/180 VAC. The 40-569B BRIC modules are available in 4 or 8 slot PXI sizes and are constructed using high quality electro-mechanical relays.

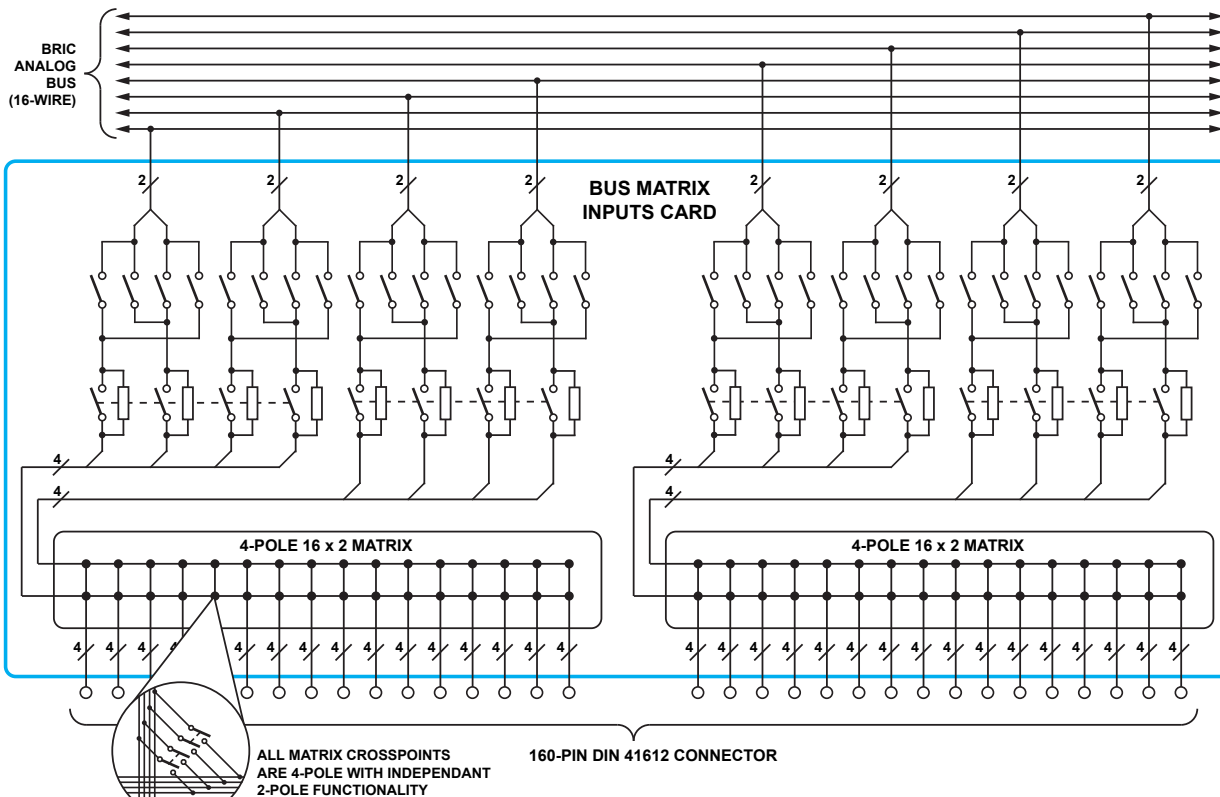
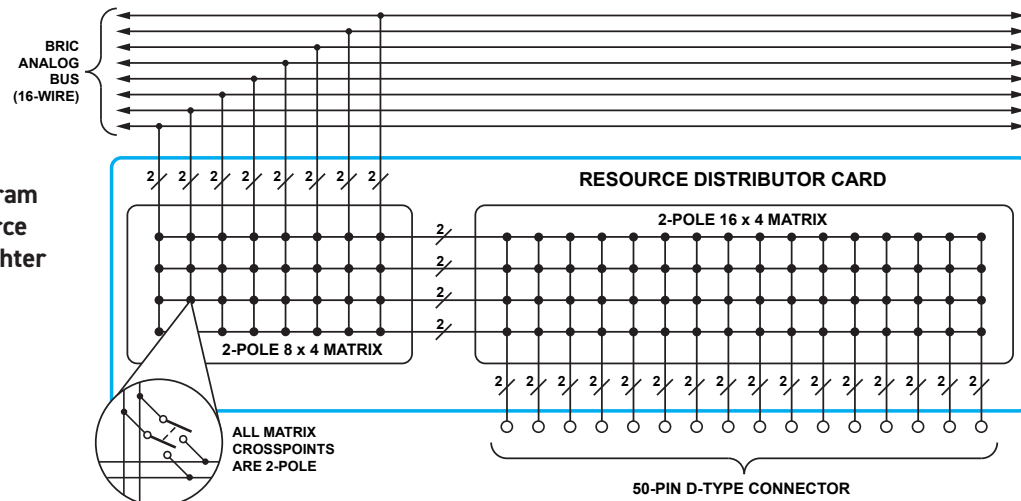
Typical applications include signal routing for avionics test systems that conform to the ARINC 608A specification. The flexibility of the 40-569B BRIC module allows a custom combination of Bus Matrix Inputs and Resource Distributor cards to meet the user's requirements.

High Reliability and Ease of Use

The 40-569B 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 backplane. Pickering can construct custom cable assemblies for all of our PXI modules, please contact sales office for further assistance.

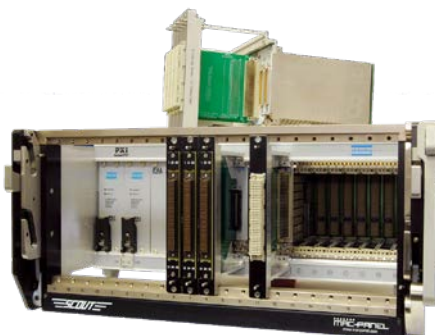


**Schematic Diagram
For The Resource
Distributor Daughter
Card**



Schematic Diagram For The Bus Matrix Inputs Daughter Card

Pickering PXI Modules are compatible with Mass Interconnect solutions from both VPC and MAC Panel. Shown is the 40-569B with the MAC Panel Scout



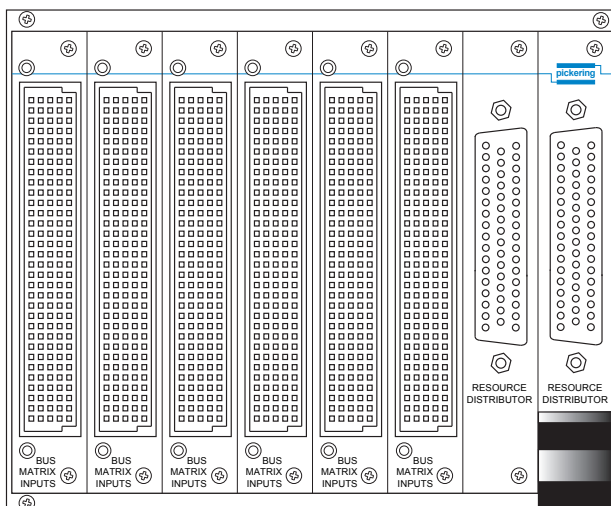
MAC-PANEL
Interconnect Solutions & Services
Since 1958

SCOUT

40-569B 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.
- 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 or 14 slot PXI chassis (such as 40-908 or 40-914).
- Simpler and faster programming with Direct I/O, VISA and IVI Drivers + LabView Soft Front Panels.
- Custom versions built to order.

The 40-569B Matrix module is based on the proven features of Pickering's large range of BRIC Integrated Matrix modules.



Available Versions of the 40-569B

The 40-569B can be supplied in BRIC4 or BRIC8 format with a minimum configuration of a single Bus Matrix card and a single Resource Distributor card. The maximum configuration is a BRIC8 populated with 6 Bus Matrix cards and 2 Resource Distributor cards as shown below. For a list of all the possible configurations, please refer to the product codes on the Ordering Information page.

Relay Type

The 40-569B BRIC modules are fitted with electro-mechanical relays.

Switching Specification

Switch Type:	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold Covered Bifurcated
Max Hot Switch Voltage:	200 VDC/180 VAC*
Max Cold Switch Voltage:	270 VDC/180 VAC* (maximum voltage slew rate 3 V/ μ s)
Max Power:	60 W/62.5 VA
Max Switch Current:	2 A †
Max Continuous Carry Current:	2 A †
Max Pulsed Carry Current Example (for a single switch path):	6 A for 100 ms (up to 10 % duty cycle)
Initial Path Resistance (Bus Matrix Inputs to Resource Distributor)	
On:	<1000 m Ω
Off:	>10 ⁹ Ω
Minimum Voltage:	100 μ V
Differential Thermal Offset:	<10 μ V
Operate Time:	<3 ms typical, single operation
Expected Life (operations)	
Very low power signal load:	>1x10 ⁸
Low power load (2 W):	>1.5x10 ⁷ (0.1 A 20V DC)
Medium power load (30 W):	>5x10 ⁶ (1 A 30 VDC)
Full power load (60 W):	>1x10 ⁵ (2 A 30 VDC)
Bus Matrix Inputs isolation path resistors:	100 k Ω , 0.5 W, 1 %

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

† Please be aware of switch path current restriction with Bus Matrix Inputs isolation path resistors in circuit

Typical Bandwidth and Crosstalk

Bandwidth (-3 dB):	>8 MHz	
Crosstalk (typical):	10 kHz:	-60 dB
	100 kHz:	-50 dB
	1 MHz:	-30 dB
	10 MHz:	-12 dB
Isolation:	10 kHz:	>90 dB
	100 kHz:	>80 dB
	1 MHz:	>56 dB
	10 MHz:	>36 dB

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
0	<4 A (typ 1 A)	0	0

Maximum Crosspoint Count

The 40-569B has a suggested maximum number of simultaneously operated crosspoints of 104, please refer to manual for detailed breakdown. Higher closure counts are possible, please contact sales office for further information.

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

Connectors

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

Connections are made to the Bus Matrix Inputs card via a front panel 160-pin male DIN 41612 connector (includes a strain relief fixing for use with Pickering's cableforms).

Connections are made to the Resource Distributor card via a front panel 50-pin male D-type connector.

Note: We recommend that Pickering mating connectors are used with this module. These 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:	5000 m

Storage and Transport Conditions

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

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 33 MHz 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

**BRIC4 - 4 Slot High Density 2 A
Resource Distributor & Bus Matrix
Inputs Module** **40-569B-0XX**

**BRIC8 - 8 Slot High Density 2 A
Resource Distributor & Bus Matrix
Inputs Module** **40-569B-1XX**

When ordering a 40-569B module the number of daughter cards is specified by XX shown in the part number, see the configuration table below for the specific code.

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

Number of Resource Distributor Cards	Number of Bus Matrix Inputs Cards	BRIC4	BRIC8
1	1	40-569B-011	40-569B-111
2	1	40-569B-021	40-569B-121
1	2	40-569B-012	40-569B-112
2	2	40-569B-022	40-569B-122
1	3	40-569B-013	40-569B-113
2	3		40-569B-123
1	4		40-569B-114
2	4		40-569B-124
1	5		40-569B-115
2	5		40-569B-125
1	6		40-569B-116
2	6		40-569B-126

Upgrading With Daughtercards

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

Product Customization

Pickering 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.

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
40-569B	91-100-001

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

Mating Connectors & Cabling

For connection accessories for the 40-569B module please refer to the [90-001D](#) 160-pin DIN 41612 and [90-005D](#) 50-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

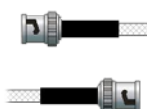
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



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:

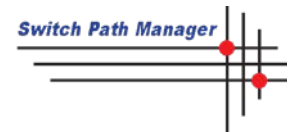
- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C++)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
-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