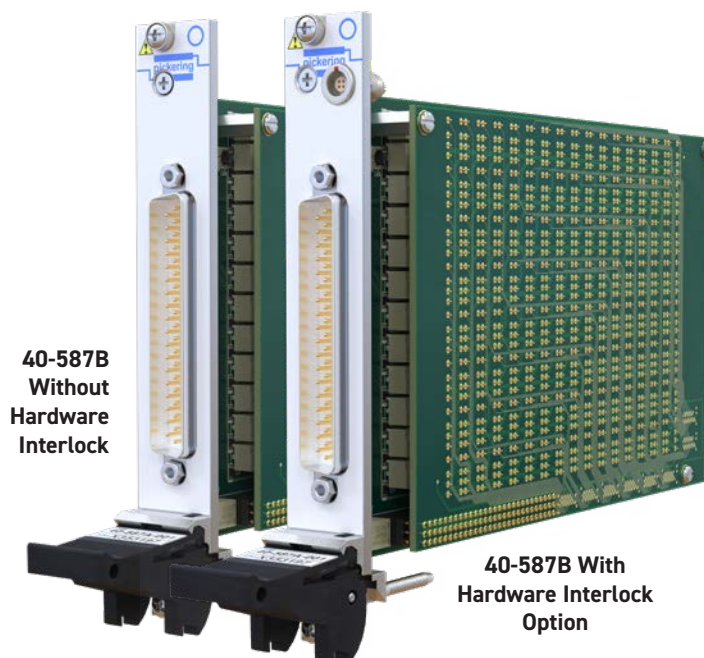


- HIGH DENSITY SINGLE-SLOT 3U PXI 2 A MATRIX WITH 256 CROSSPOINTS
- 16x16 Configuration
- Maximum Current 2 A Hot or Cold Switching
- Switch up to 300 VDC/250 VAC and up to 60 W Max Power
- Uses Gold-Plated Contact Electro-mechanical Relays
- Available With Optional Hardware Interlock
- VISA/IVI Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Supported by **BIRST™** and **eBIRST™** Test Tools
- 3 Year Warranty

The 40-587B is a 256 crosspoint PXI matrix with single pole switching. The matrix is configured as 16x16 using electro-mechanical relays with 2 A current handling.

The module is designed for switching medium voltage and power signals, typical applications include signal routing in ATE and data acquisition systems. The user signal connections are via a 37-pin D-type connector that is fully supported by our wide range of cable and connector accessories.



Pickering's Range of 256 Crosspoint 2 A PXI Matrix Modules

| Matrix Size | Poles | Max Current | Model No. |
|-------------|-------------|-------------|-------------|
| 32x8 | 2 | 2 A | 40-580-001 |
| 16x16 | | | 40-582A-001 |
| 64x4 | | | 40-583-001 |
| 128x2 | 40-584A-001 | | |
| 64x4 | 1 | | 40-585A-001 |
| 32x8 | | | 40-586B-001 |
| 16x16 | 1 | 2 A | 40-587B-001 |

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 module's connector, 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

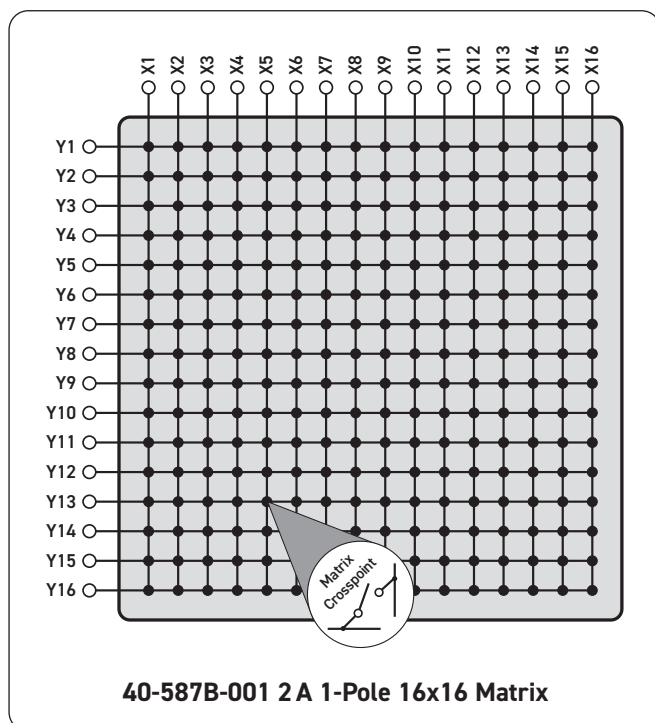
Supported by eBIRST

In addition to **BIRST**, this module is supported by our **eBIRST** test tools. These tools simplify switching fault-finding by quickly testing the system and graphically identifying the faulty relay.

For more information go to: pickeringtest.com/ebirst

Updated Product Information

This product has been introduced as an update to the 40-587A, the changes are an updated PXI interface and the addition of the optional hardware interlock feature. The electrical performance of the 40-587A and 40-587B are identical.



Switching Specification

| | |
|---|---|
| Switch Type: | Electro-mechanical |
| Contact Type: | Palladium-Ruthenium, Gold plated, bifurcated |
| Max Switch Voltage: | 300 VDC/250 VAC* |
| Max Power: | 62.5 VA/60 W |
| Max Switch Current: | 2 A |
| Max Continuous Carry Current: | 2 A |
| Max Pulsed Carry Current | |
| Example (for single switch path): | 6 A for 100 ms (up to 10 % duty cycle) |
| Initial On Path Resistance: | 500 mΩ |
| Off Path Resistance: | >10 ⁹ Ω |
| Thermal Offset: | <5 μV |
| Max Number of Simultaneously Closed Crosspoints: | 100 |
| Operate Time: | <3ms |
| Expected Life (Operations) | |
| Very low power load: | >1x10 ⁸ |
| Low power load: | >1.5x10 ⁷ (0.1 A 20 VDC) |
| Medium power load: | >5x10 ⁶ (1 A 30 VDC) |
| Full power load: | >1x10 ⁵ (2 A 30 VDC) >1x10 ⁵ (0.1 A 300 VDC) |

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

RF Specification

| | |
|----------------------|--|
| Bandwidth (-3dB): | 15MHz (typical) |
| Crosstalk (typical): | 10kHz: -80dB 100kHz: -80dB 1MHz: -65dB 10MHz: -45dB |
| Isolation (typical): | 10kHz: 60dB 100kHz: 60dB 1MHz: 40dB 10MHz: 25dB |

Power Requirements

| +3.3 V | +5 V | +12 V | -12 V |
|---------------------|---------------------------------|--------------------|-------|
| 260 mA (typical) | 650 mA (typical) 1.2 A (max) | 40 mA (typical) | 0 |

Mechanical Characteristics

Single slot 3U PXI (CompactPCI card).

Module weight: 400 g.

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.

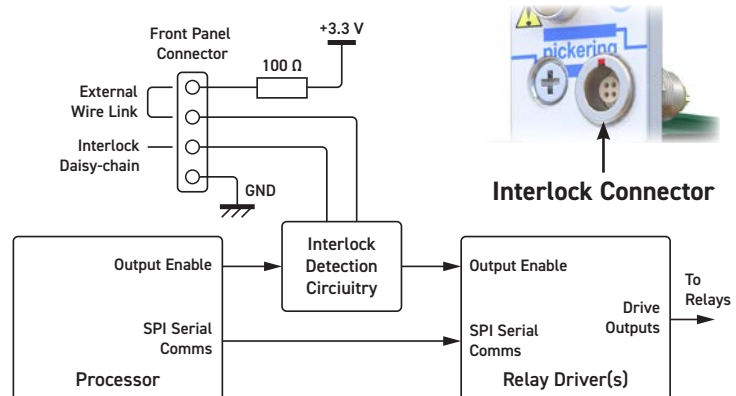
Front panel signals are via a 37-pin male D-type connector.

Version fitted with hardware interlock option, interlock is via a 4-pin female 00 series connector (mating half supplied when hardware interlock option ordered).

For pin outs please refer to the operating manual.

Hardware Interlock

The 40-587B is available with an optional hardware interlock. The interlock, when activated, will return all relays to their default unpowered state (assuming the relays are fully functional) and also provide error notification via the software interface. The interlock feature can be daisy-chained between additional hardware interlock enabled modules for example to allow one signal to disable multiple cards. For further details please refer to the Hardware Interlock section within the user manual.



**Interlock Signal Routing Diagram for 40-587B
Version With Hardware Interlock Option**

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 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.

Product Order Codes

| | |
|---|----------------|
| PXI High Density Matrix Module, 16x16, 1-pole (2 A, 60 W) | 40-587B-001 |
| PXI High Density Matrix Module, 16x16, 1-pole (2 A, 60 W) With Hardware Interlock | 40-587B-001-HI |

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 |
|-------------|------------|------------|-------------|
| 40-587B-001 | 93-005-001 | 93-005-418 | 93-005-101 |

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 |
|-------------|------------|
| 40-587B-001 | 91-100-001 |

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

Interlock Connectors

For the version of this module with the hardware interlock option (40-587B-001-HI) spare/replacement connectors can be ordered.

| Product | Description |
|------------|---|
| 44-961-040 | Connector with internal link (replacing that supplied with the module). |
| 44-960-040 | Connector only, no internal wiring. |

Mating Connectors & Cabling

For connection accessories for the 40-587B module please refer to the [90-007D](#) 37-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

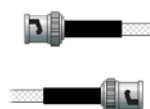
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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

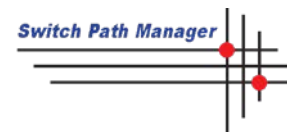
- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C++)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
-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