

- Choice of Multiplexer Configurations
- Up to 160-Way Multiplexer
- Up to 20-Banks of 8-Way Multiplexer
- Fast Operation
- Long Service Life
- Fault Protection to Greater Than 40V
- Ideal for Low Current and Low Voltage Applications
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- Supported by *eBIRST*™
- 3 Year Warranty



The 40-680 is ideal for applications requiring high speed, long service life and frequent switch operation. Based on FET switches the multiplexers have no wear out mechanism and include fault protection that ensures they are automatically disconnected when PXI power is not applied.

40-680 Solid State Multiplexer Range:
20-Bank, 8-Channel
10-Bank, 16-Channel
5-Bank, 32-Channel
4-Bank, 40-Channel
2-Bank, 80-Channel
1-Bank, 160-Channel
4-Pole, 40-Channel
2-Pole, 80-Channel

Supported by *eBIRST*

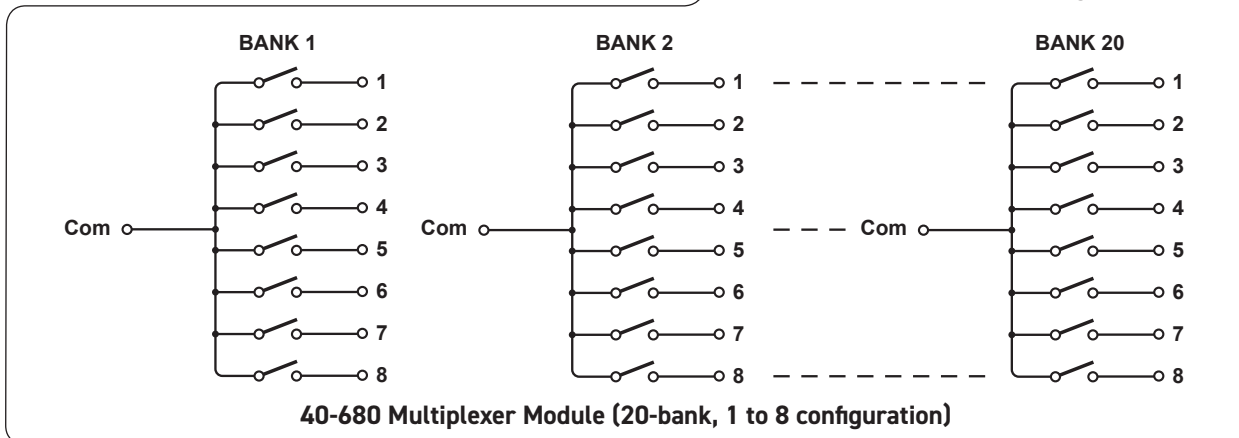
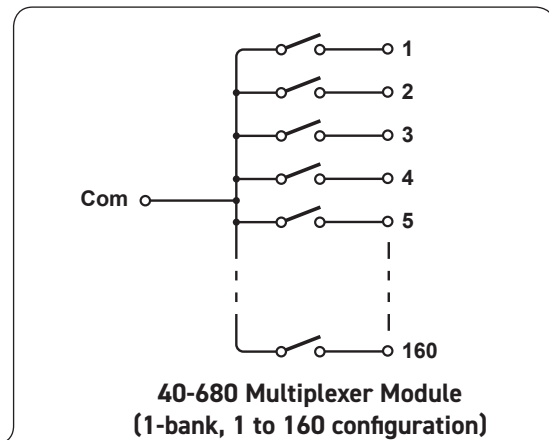
eBIRST switching system test tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

For more information go to: pickeringtest.com/ebirst

The 40-680 operates with break-before-make action when a new channel is selected. Multiple channels cannot be simultaneously selected.

Applications for the 40-680 include supporting DMM measurements of resistance and voltage or data acquisition systems. It is suitable for low current low voltage applications where cost, speed, zero contact bounce and the ability to withstand frequent operation is essential.

Pickering Interfaces is able to offer PXI solid state switching solutions in a variety of configurations. If you have a different requirement for solid state switching, contact your local sales office for a quotation.



Relay Type

The 40-680 is fitted with Solid State Switches.

Switching Specification

Switch Type:	Solid State
Recommended voltage switching range:	±15V*
Maximum Continuous Current:	20mA
Maximum Peak Current:	40mA
Typical Leakage Current (off state):	1nA
Path Resistance:	150Ω typical, 350Ω maximum.
Fault Protection:	Turns MUX off if the applied voltage exceeds ±18V with module power on. Maximum voltage range -43V to +55V.
Switch Operation Speed:	200ns, no bounce, excluding driver.
Useable Bandwidth:	5MHz
Isolation:	40dB at 5MHz
Thermal EMF:	<2μV

* 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
0	60mA	35mA	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 200-pin female LFH 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

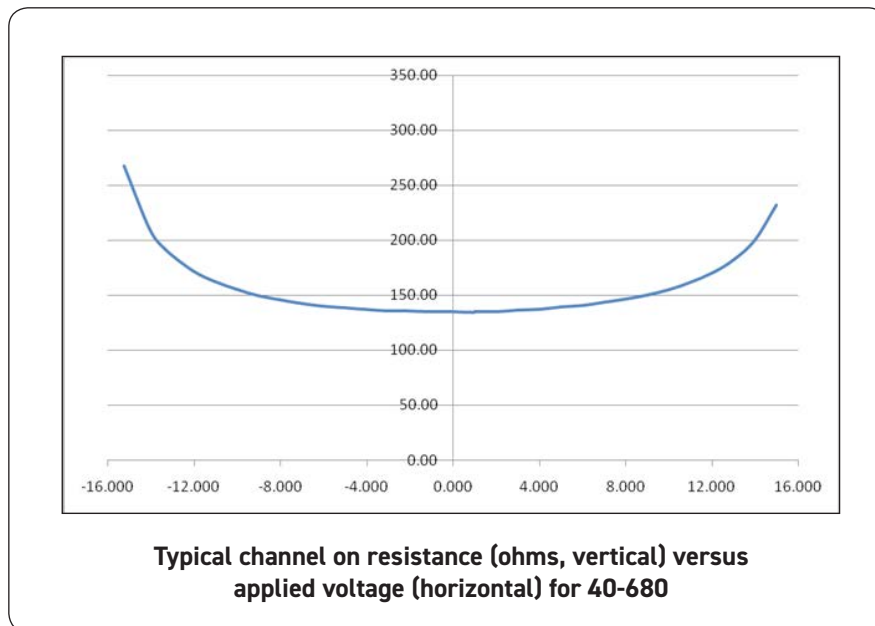
PXI & CompactPCI Compliance

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.



Product Order Codes - Solid State Multiplexer

Channel Selection	Model Variant	Order Code
Single	20-Bank, 8-Channel MUX	40-680-001
Single	10-Bank, 16-Channel MUX	40-680-002
Single	5-Bank, 32-Channel MUX	40-680-003
Single	4-Bank, 40-Channel MUX	40-680-004
Single	2-Bank, 80-Channel MUX	40-680-005
Single	1-Bank, 160-Channel MUX	40-680-006
Single	4-Pole, 40-Channel MUX	40-680-404
Single	2-Pole, 80-Channel MUX	40-680-405

Note: The above modules can only select a single channel.

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.

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
40-680	93-002-001	Not Required

Mating Connectors & Cabling

For connection accessories for the 40-680 range please refer to the [90-002D](#) 200-pin LFH Connector Accessories data sheet 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

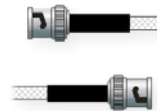
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



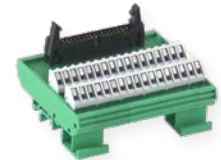
Connectors & Backshells



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
- **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.

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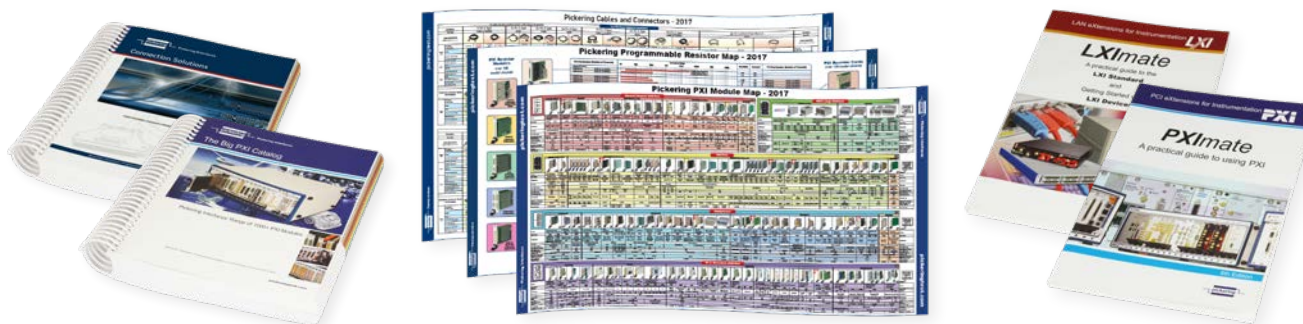


Three Year Warranty & Guaranteed Long-Term Support

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 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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