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PXI Very High Density Multiplexer Module 40-670A

- Very High Density Multiplexer
- Up to 198 Switch Pins Available with 1, 2, 4, 8, 16 or 32-Pole Switching Formats
- All Versions Use High Reliability Pickering Reed Relays
- Fast Operating Speed 500 µs Typical per Relay
- Switch up to 150 VDC/100 VAC, 0.5 A with 10 W Max Power
- Automatic Isolation Switches Reduce Capacitive Loading in Large Systems
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- Supported by PXI or LXI Chassis
- Supported by ***eBIRST*** ™
- 3 Year Warranty



The 40-670A module features a wide range of multiplexer configurations based on high performance ruthenium reed relays. Typical applications include signal routing in ATE and data acquisition systems. User connections are via a front panel 200-pin socket.

40-670A Very High Density Multiplexer Range:
198-Channel, 1-Pole (with isolation switching)
99-Channel, 2-Pole (with isolation switching)
99-Channel, 1-Pole (with isolation switching)
49-Channel, 4-Pole (with isolation switching)
49-Channel, 2-Pole (with isolation switching)
24-Channel, 8-Pole (with isolation switching)
24-Channel, 4-Pole (with isolation switching)
10-Channel, 16-Pole (no isolation switching)
10-Channel, 8-Pole (no isolation switching)
5-Channel, 32-Pole (no isolation switching)
5-Channel, 16-Pole (no isolation switching)

The majority of 40-670A models (see order codes) allow multiple channels to be simultaneously selected. Alternatively, product variants can be supplied that operate as a conventional multiplexer with break-before-make action when a new channel is selected.

Note: The multiple channel selection option is not available for the 40-670A-022-198/1 multiplexer.

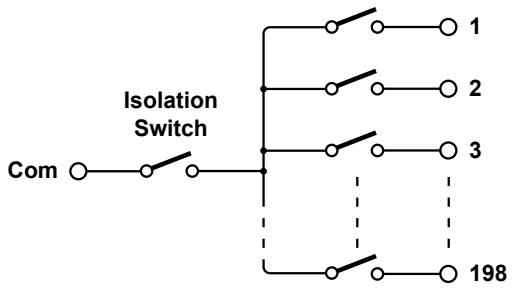
Versions with automatic isolation switching (see range table above) connect only the active multiplexer bank to the common terminal, thereby keeping capacitive loading and leakage currents in large multiplexer systems to a minimum. Larger multiplexers may be constructed by daisy chaining the common signals from multiple modules.

Supported by *eBIRST*

These test tools simplify fault-finding by quickly testing the system and graphically identifying the faulty relay.
For more information go to: pickeringtest.com/ebirst

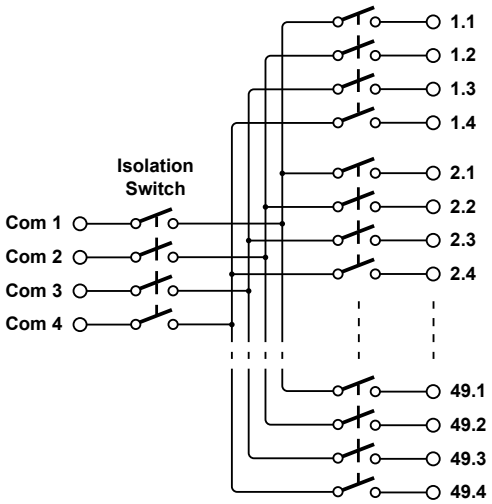
Front Panel Connector

This product is based on the obsolete Molex LFH series connector that has been superseded by a Pickering commissioned form, fit, function equivalent. The new connector series is 100% compatible with the Molex connectors allowing either gender of Pickering connector to mate with the corresponding Molex part without issue.

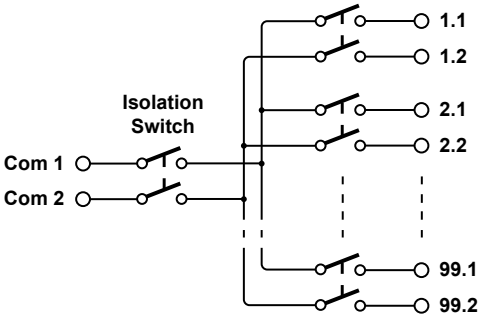


40-670A-022 198-Channel 1-Pole Multiplexer
(Multiple channel selection not available for this version)

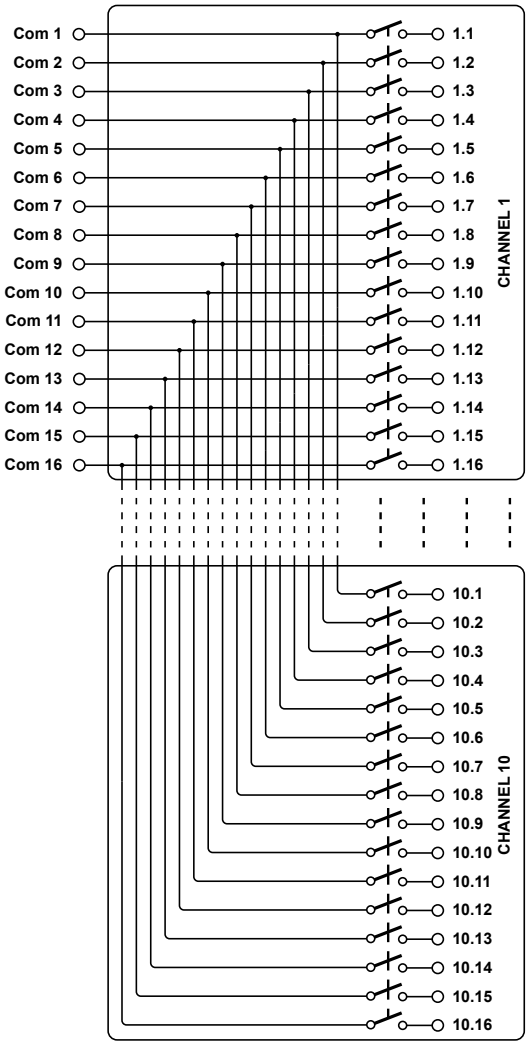
Issue 11.4 January 2026



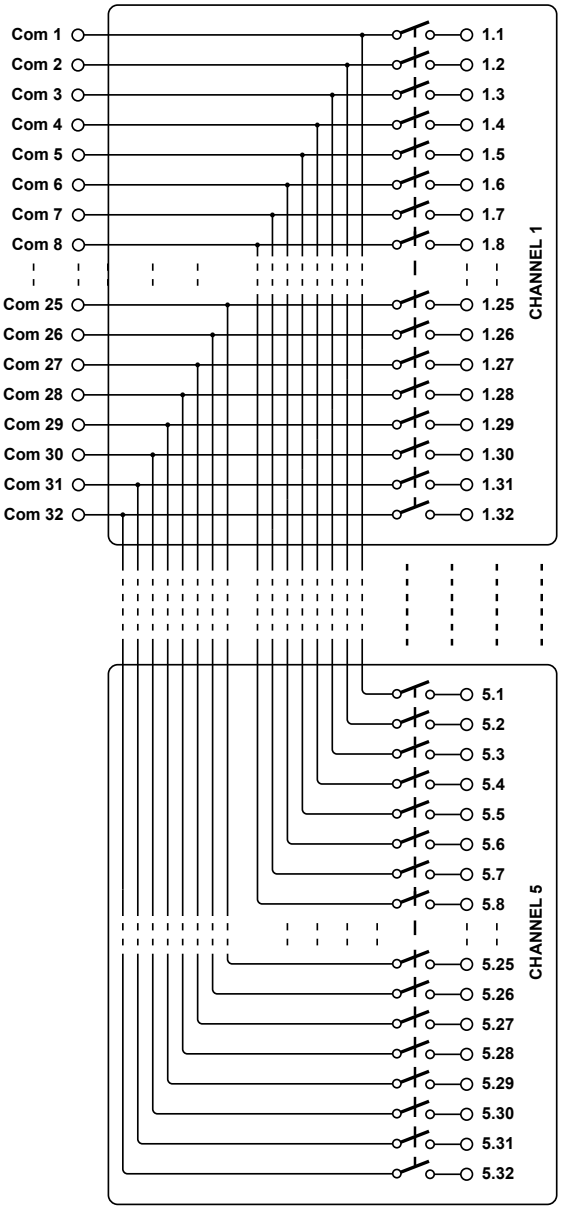
40-670A-022 49-Channel 4-Pole Multiplexer



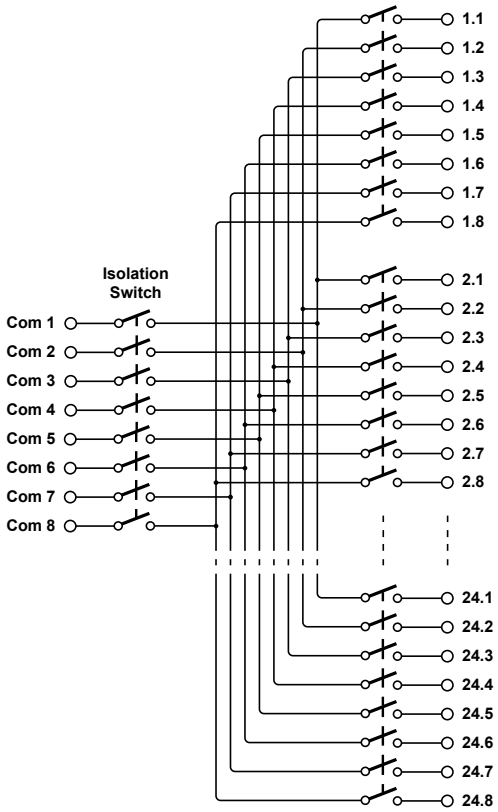
40-670A-022 99-Channel 2-Pole Multiplexer



40-670A-022 10-Channel 16-Pole Multiplexer



40-670A-022 5-Channel 32-Pole Multiplexer



40-670A-022 24-Channel 8-Pole Multiplexer

Relay Type

The 40-670A is fitted with ruthenium sputtered reed relays, these offer very long life with good low level switching performance and excellent contact resistance stability. Spare reed relays are built onto the circuit board to allow easy maintenance with minimum downtime. All reed relays are manufactured by our sister company Pickering Electronics: pickeringrelay.com

Mechanical Characteristics

Single slot 3U PXI (CompactPCI card).
Module weight: 200 g (40-670A-022-99/2).
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 connector, for pin outs please refer to the operating manual.

*Compatible with the obsolete Molex LFH connector.

Switching Specification

Switch Type:	Ruthenium Reed
Max Switching Voltage:	150 VDC/100 VAC*
Max Power: Max Switch Current: Max Carry Current:	10 W 0.5 A 0.5 A
Initial Path Resistance - On (Single Module): Path Resistance - Off (Single Module): Differential Thermal Offset:	<1200 mΩ >10^9 Ω <10 µV
Bandwidth (3 dB, 1 module)	>5 MHz †
Operate Time:	1 ms typical, 500 µs for multi-channel mode
Expected Life, low power load: Expected Life, full power load:	1x10^9 operations >1x10^6 operations

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

† Bandwidth is configuration dependent (please consult sales office for further information).

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
0	1340 mA (typ 300 mA)	0	0

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 - Very High Density Multiplexer

Channel Selection	Model Variant	Order Code
Single	198-Channel, 1-Pole	40-670A-022-198/1
Note: The above module can only select a single channel per bank.		
Channel Selection	Model Variant	Order Code
Single	99-Channel, 2-Pole	40-670A-022-99/2-S1
Note: The above modules are available to only select a single channel per bank.		
Channel Selection	Model Variant	Order Code
Multiple	99-Channel, 1-Pole	40-670A-021-99/1
Multiple	49-Channel, 2-Pole	40-670A-021-49/2
Multiple	24-Channel, 4-Pole	40-670A-021-24/4
Multiple	10-Channel, 8-Pole	40-670A-021-10/8
Multiple	5-Channel, 16-Pole	40-670A-021-5/16
Multiple	99-Channel, 2-Pole	40-670A-022-99/2
Multiple	49-Channel, 4-Pole	40-670A-022-49/4
Multiple	24-Channel, 8-Pole	40-670A-022-24/8
Multiple	10-Channel, 16-Pole	40-670A-022-10/16
Multiple	5-Channel, 32-Pole	40-670A-022-5/32

Note: Contact factory if the above modules are required in single channel selection mode.

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 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 below. For more information go to: pickeringtest.com/ebirst

Product	Test Tool	Adaptor
40-670A	93-002-001	Not Required

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
40-670A-021	91-100-018
40-670A-022	91-100-013

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

Mating Connectors & Cabling

For connection accessories for the 40-670A range please refer to the 90-002D 200-pin Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the website.



Pickering can supply mating 200-pin connectors and cable assemblies to enable easy integration of the 40-670A series of multiplexer modules

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 PXI Switching & Simulation Modules:

- Choose from 1000+ Pickering PXI 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. These accessories are detailed in Connector Accessories data sheets, where a complete list and documentation can be found for each accessory.



Connectors & Backshells



Multi-way Cable Assemblies



RF Cable Assemblies



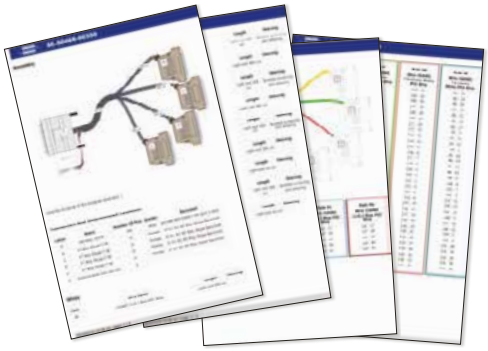
Breakouts



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.

- Fully supported on modern browsers and tablet operating systems.
- Built-in tutorials and videos allow you to get quickly up to speed.
- Store cable assemblies in the Cloud and develop over time.
- Each cable design has a downloadable PDF documentation file detailing all specifications



Start designing your custom cabling, go to pickeringtest.com/cdt

Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for PXI/LXI based test systems. Our modules are fully supported by 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 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 more information go to pickeringtest.com/os

The VISA driver support is provided for LabVIEW Real Time Operating Systems (Pharlap and Linux-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++)
- **Programming Languages** C, C++, C#, Python
- **Keysight** VEE and OpenTAP
- **Mathworks MATLAB, Simulink**
- **Marvin** ATEasy
- **MTQ Testsolutions** Tecap Test & Measurement Suite

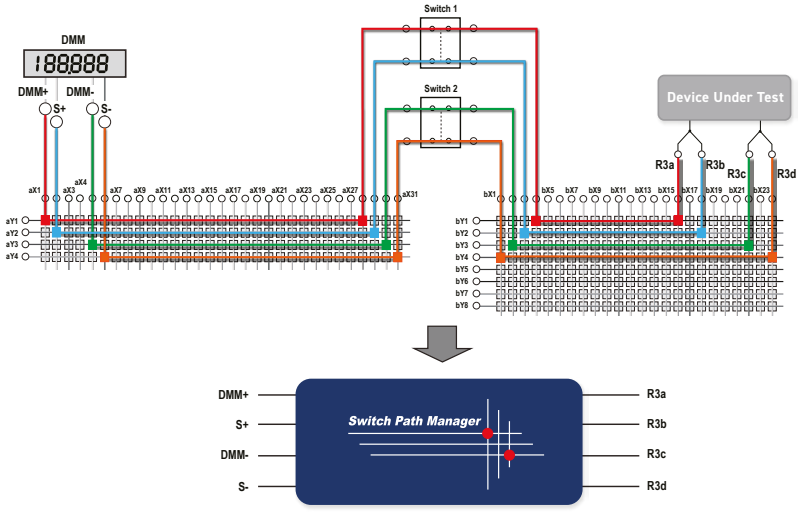
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help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

To learn more about software drivers and development environments 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 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 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 three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available with various levels for 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 go to pickeringtest.com/support

Available Product Resources

We have a library of resources including success stories, product and support videos, articles and white papers as well as application-specific brochures to assist you. We have also published reference books on switching technology and the PXI and LXI standards.

To view, download or request any of our product resources go to pickeringtest.com/resources



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Pickering Interfaces maintains a commitment to continuous product development, consequently we reserve the right to vary from the description given in this data sheet.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

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We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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