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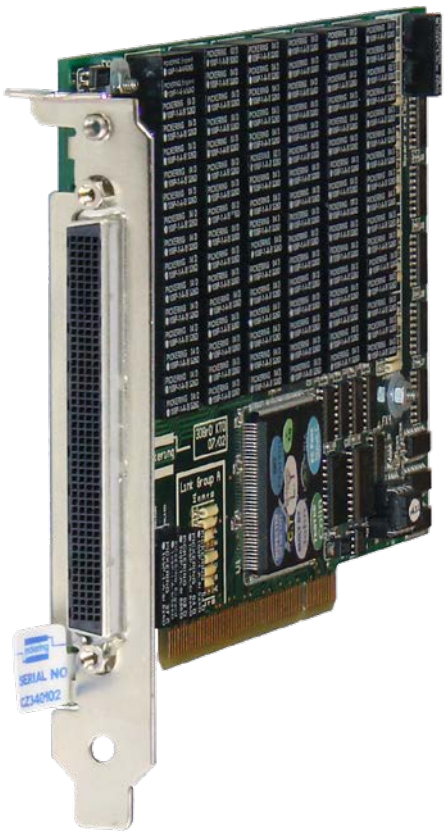
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PCI Very High Density Multiplexer 50-670

- Very High Density Multiplexer
- Up to 198 Switch Pins Available with 1, 2, 4, 8, 16 or 32-Pole Switching Formats
- Uses High Reliability Pickering Reed Relays
- Fast Operating Speed 500 µs Typical per Relay
- Hot Switch up to 100 VDC/70 VAC, Cold Switch up to 150 VDC/100 VAC
- Carry Current 1.2 A With 20 W Max Power
- Automatic Isolation Switches Reduce Capacitive Loading in Large Systems
- VISA, IVI & Kernel Drivers Supplied for Windows
- Shares Same Architecture As PXI 40-670 Module
- Supported by *eBIRST* ™
- 3 Year Warranty



The 50-670 series of very high density multiplexer cards feature a wide range of switching configurations. Typical applications include signal routing in ATE and data acquisition systems.The 50-670 shares the same architecture as the established PXI 40-670.

The card is factory set into one of the multiplexer configurations shown in the table below. Connections are made via a front panel 200-pin socket.

50-670 Very High Density Multiplexer Range:
1 Bank, 198 Channels, 1-Pole
1 Bank, 99 Channels, 2-Pole
1 Bank, 49 Channels, 4-Pole
1 Bank, 24 Channels, 8-Pole
1 Bank, 10 Channels, 16-Pole
1 Bank, 5 Channels, 32-Pole
1 Bank, 99 Channels, 1-Pole
1 Bank, 49 Channels, 2-Pole
1 Bank, 24 Channels, 4-Pole
1 Bank, 10 Channels, 8-Pole
1 Bank, 5 Channels, 16-Pole

The majority of 50-670 cards (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.

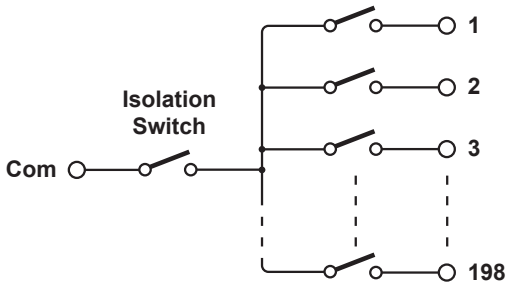
Note: The multiple channel selection option is not available for the 50-670-022-198/1 multiplexer.

Built in automatic isolation switching (available in 1, 2 and 4-pole configurations) connects only the currently active multiplexer bank on to the analogue common, keeping capacitive loading and leakage current in large multiplexer systems to a minimum. Larger multiplexers may be constructed by daisy chaining the common signals from multiple cards.

Supported by *eBIRST*

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

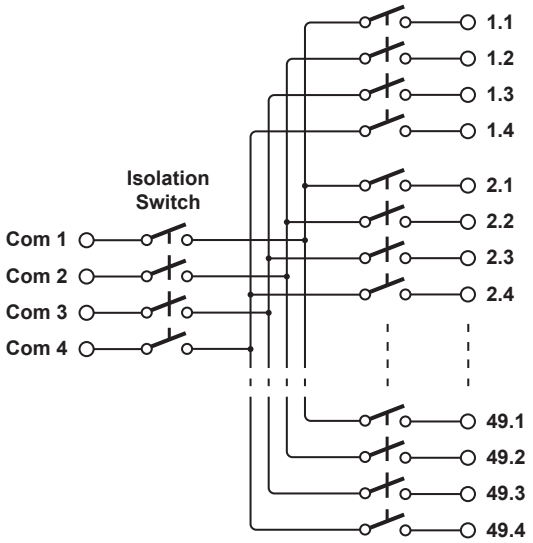
For more information go to: pickeringtest.com/ebirst



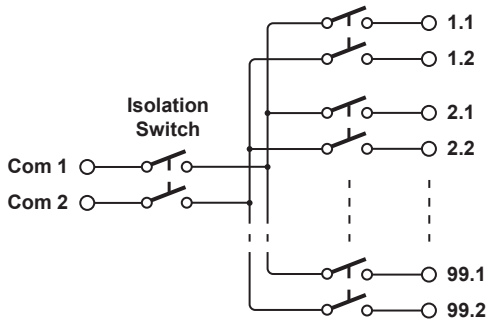
50-670-022 198-Channel 1-Pole Multiplexer

(50-670-022-198/1 multiple channel selection not available)

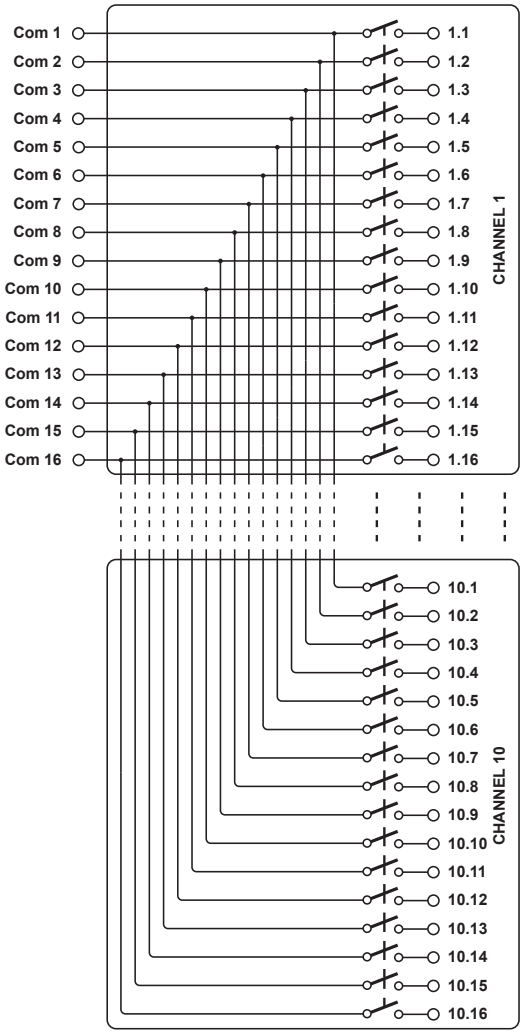
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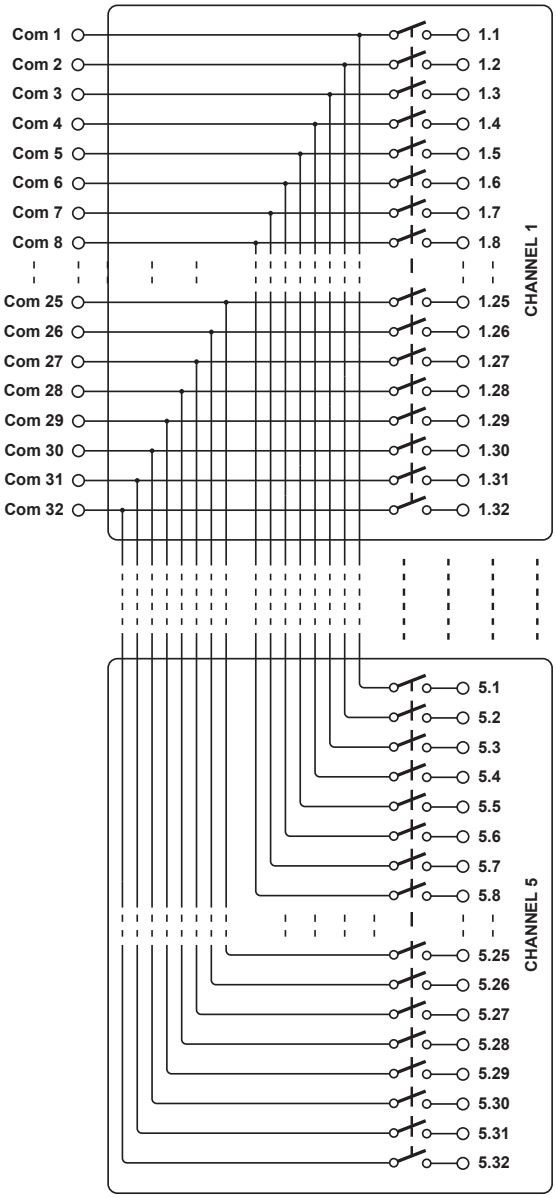
50-670-022 49-Channel 4-Pole Multiplexer



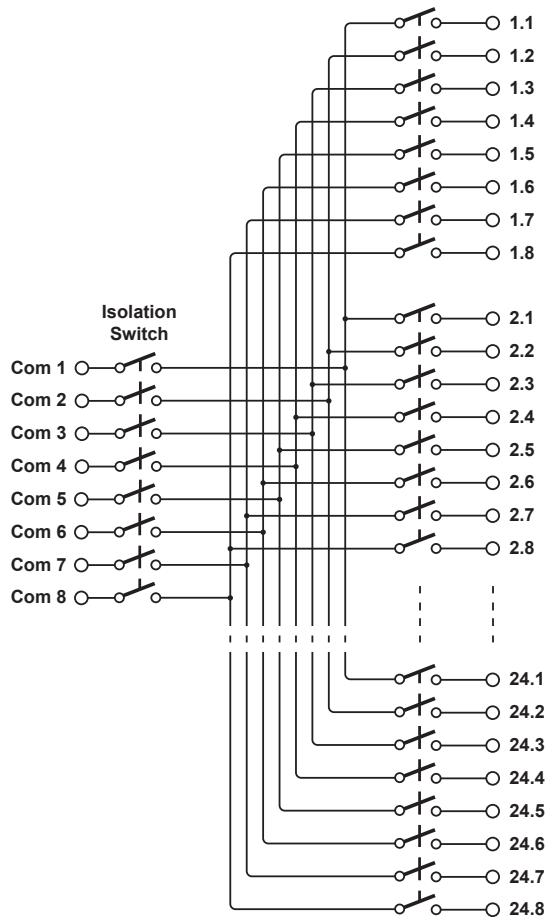
50-670-022 99-Channel 2-Pole Multiplexer



50-670-022 10-Channel 16-Pole Multiplexer



50-670-022 5-Channel 32-Pole Multiplexer



50-670-022 24-Channel 8-Pole Multiplexer

Relay Type

The 50-670 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 Relay Division, for more information please vist: pickeringrelay.com

Mechanical Characteristics

Single slot short PCI format.
3D models for all versions in a variety of popular file formats are available on request.

Connections

User signals via a 200-pin female LFH connector, for pin outs please refer to the operating manual.

Switching Specification

Switch Type:	Ruthenium Reed
Max Hot Switching Voltage: Max Cold Switching Voltage:	100 VDC/70 VAC* 150 VDC/100 VAC*
Max Power: Max Switch Current: Max Carry Current:	20 W 1 A 1.2 A
Initial Path Resistance On (Single Card):	<800 mΩ (600 mΩ typical)
Initial Path Resistance Off (Single Card): Differential Thermal Offset:	$>10^9$ Ω <10 µV
Bandwidth (3dB, 1 card):	>5 MHz †
Operate Time:	1 ms typical, 500 µs for multi-channel mode
Expected Life (operations) Low power load: Full power load:	 $>1x10^9$ $>1x10^6$

* 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

PCI Compliance

The 50-670 card complies with the PCI Specification 2.0 (issued Aug 2000).

Signalling Environment: 33 MHz, 32-bit (+5 V only).

Safety & CE Compliance

All cards 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**	**50-670-022-198/1**

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

Channel Selection	Model Variant	Order Code
Single	**99-Channel, 2-Pole**	**50-670-022-99/2-S1**

Note: The above card is available to select a single channel.

Channel Selection	Model Variant	Order Code
Multiple	**99-Channel, 1-Pole**	**50-670-021-99/1**
Multiple	**49-Channel, 2-Pole**	**50-670-021-49/2**
Multiple	**24-Channel, 4-Pole**	**50-670-021-24/4**
Multiple	**10-Channel, 8-Pole**	**50-670-021-10/8**
Multiple	**5-Channel, 16-Pole**	**50-670-021-5/16**
Multiple	**99-Channel, 2-Pole**	**50-670-022-99/2**
Multiple	**49-Channel, 4-Pole**	**50-670-022-49/4**
Multiple	**24-Channel, 8-Pole**	**50-670-022-24/8**
Multiple	**10-Channel, 16-Pole**	**50-670-022-10/16**
Multiple	**5-Channel, 32-Pole**	**50-670-022-5/32**

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

Product Customization

Pickering PCI 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
50-670	**93-002-001**	**Not Required**

Spare Relay Kits

Kits of replacement relays are available for the majority of Pickering's PCI switching products, simplifying servicing and reducing down-time.

Product	Relay Kit
50-670-021	**91-100-003**
50-670-022	**91-100-008**

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

Mating Connectors & Cabling

For connection accessories for the 50-670 card 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.





Pickering can supply mating 200-pin connectors and cable assemblies to enable easy integration of the 50-670 series of multiplexers

Connectivity Solutions

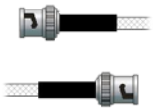
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed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



Connectors & Backshells



Multiway 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

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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.

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We buy equipment

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

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