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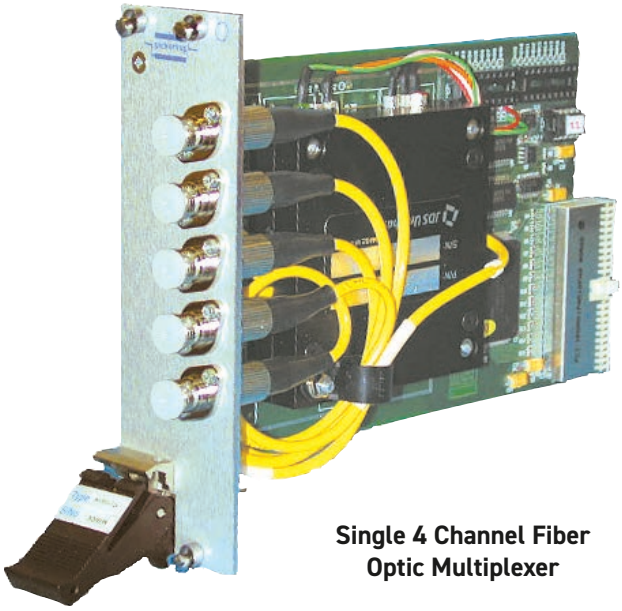
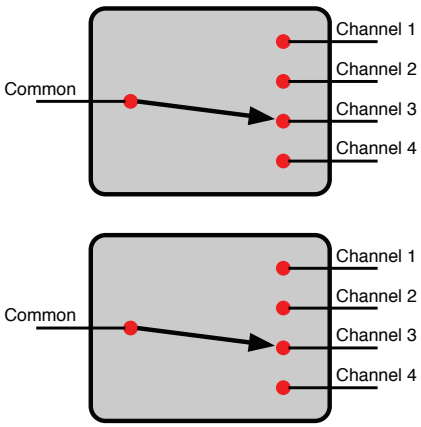
- Single or Dual 4 to 1 Fiber Optic Multiplexer
- Single or Dual 2 to 1 Fiber Optic Multiplexer
- Single or Dual 2 x 2 Insert/Bypass Fiber Optic Switch
- 2 or 3 Slot Width Modules
- FC/APC, FC/PC or SC/PC Connectors
- 1300 to 1550nm
- Single Mode Fiber
- Return Loss >55dB
- High Repeatability Typical Insertion Loss 0.5dB with ± 0.03dB Stability and ± 0.003dB Repeatability
- Crosstalk -70dB Typical
- 10ms Typical Switching Time
- VISA, IVI & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty



Single 4 Channel Fiber Optic Multiplexer



Block Diagram of Dual 4 Channel Fiber Optic Multiplexer Module, Type 40-810

Pickering PXI Fiber Optic Multiplexers connect a common signal to one of two or four channels. They are available in single or dual multiplexer configurations supporting single-mode fiber. A wide choice of connector types are available.

The 40-810 multiplexer connects the optical channel by redirecting the optical signal into a selected output fiber. This is achieved using optical prisms driven by a highly precise mechanism activated via an electrical control signal. Also available is a 2x2 Insert/Bypass switch, type 40-820.

The use of collimating lenses minimizes the insertion loss and improves the repeatability and stability of the switch parameters. The optical multiplexer is optically passive and is therefore transparent to signalling formats.

Pickering can construct custom optical switching systems to customer's requirements. We also have a large range of electrical switching modules which can form a complete PXI based telecom switching solution.

Optical prism technology is used in modules 40-810/815/820. Pickering have introduced a new range of high density fiber optic switches, types 40-850/852/855/860, these use MEMS (micro-electro-mechanical systems) Mirror technology which offers much faster switching, very high reliability (>10^9 operation) and greater packing densities. Please refer to the 40-850 series data sheet for full details.

Key Features

- Typical insertion loss 0.5dB
- Return loss greater than 55dB
- High repeatability over a broad range of environmental conditions

Applications

- Optical signal routing
- Fiber network configuration
- Fiber optic component test

ISSUE 7.0 JAN 2024

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General Specification

Fiber Switch Type:	Prism
Internal Fiber Type:	100/140
Insertion loss single mode (SM):	0.8dB Max
Return loss SM:	45dB Min
Return loss SM (high RL):	55dB Min
Polarization dependent loss SM:	0.07dB Max
Insertion loss stability:	±0.05dB Max
Repeatability:	±0.005dB Max
Crosstalk:	-60dB Max
Optical Input Power:	300mW Max
Typical Switching Time:	10ms
Maximum Switching Time:	15ms
Cycle Rate:	5/sec

Power Requirements

+3.3V	+5V	+12V	-12V
0	300mA (typ 220mA)	0	0

Dual 4 Channel Fiber Optic Multiplexer

Mechanical Characteristics

Modules are either 2 or 3 slot 3U PXI (CompactPCI) cards as indicated in Product Order Codes.
Module weight: <1Kg.
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 fiber optic connectors (choice of FC/APC, FC/PC and SC/PC types).

Other Connector Styles

Pickering can manufacture fiber optic switch modules with other connector styles, please contact sales office for further information.

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.

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Product Order Codes

4 Channel Multiplexer	
FC/APC, 1300 to 1550nm, Single-Mode	
Single 4 Channel Fiber MUX, 2 slot	40-810-014
Dual 4 Channel Fiber MUX, 2 slot	40-810-024
FC/PC, 1300 to 1550nm, Single-Mode	
Single 4 Channel Fiber MUX, 2 slot	40-810-114
Dual 4 Channel Fiber MUX, 2 slot	40-810-124
SC/PC, 1300 to 1550nm, Single-Mode	
Single 4 Channel Fiber MUX, 2 slot	40-810-214
Dual 4 Channel Fiber MUX, 3 slot	40-810-224
2 Channel Multiplexer	
FC/APC, 1300 to 1550nm, Single-Mode	
Single 2 Channel Fiber MUX, 2 slot	40-815-012
Dual 2 Channel Fiber MUX, 2 slot	40-815-022
FC/PC, 1300 to 1550nm, Single-Mode	
Single 2 Channel Fiber MUX, 2 slot	40-815-112
Dual 2 Channel Fiber MUX, 2 slot	40-815-122
SC/PC, 1300 to 1550nm, Single-Mode	
Single 2 Channel Fiber MUX, 2 slot	40-815-212
Dual 2 Channel Fiber MUX, 2 slot	40-815-222
2x2 Insert/Bypass Switch	
FC/APC, 1300 to 1550nm, Single-Mode	
Single 2x2 Insert Bypass Switch, 2 slot	40-820-012
Dual 2x2 Insert Bypass Switch, 2 slot	40-820-022
FC/PC, 1300 to 1550nm, Single-Mode	
Single 2x2 Insert Bypass Switch, 2 slot	40-820-112
Dual 2x2 Insert Bypass Switch, 2 slot	40-820-122
SC/PC, 1300 to 1550nm, Single-Mode	
Single 2x2 Insert Bypass Switch, 2 slot	40-820-212
Dual 2x2 Insert Bypass Switch, 3 slot	40-820-222

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 switch types
- Mixture of switch types
- Alternative number of switches
- 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.

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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:

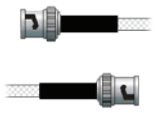
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating 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

Multiway Cable Assemblies



RF Cable Assemblies

Connector Blocks

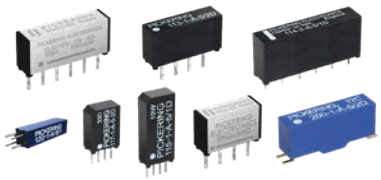
We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications. Visit: pickeringtest.com/cdt to start your design.

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



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Programming

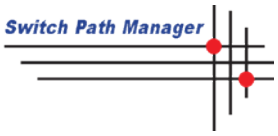
Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. For a list of all supporting operating systems, please see: pickeringtest.com/os

The VISA driver 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
- **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

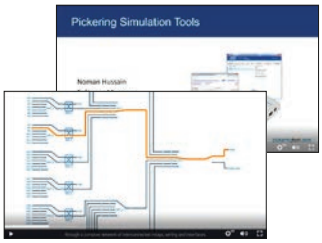
eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

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 also have 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