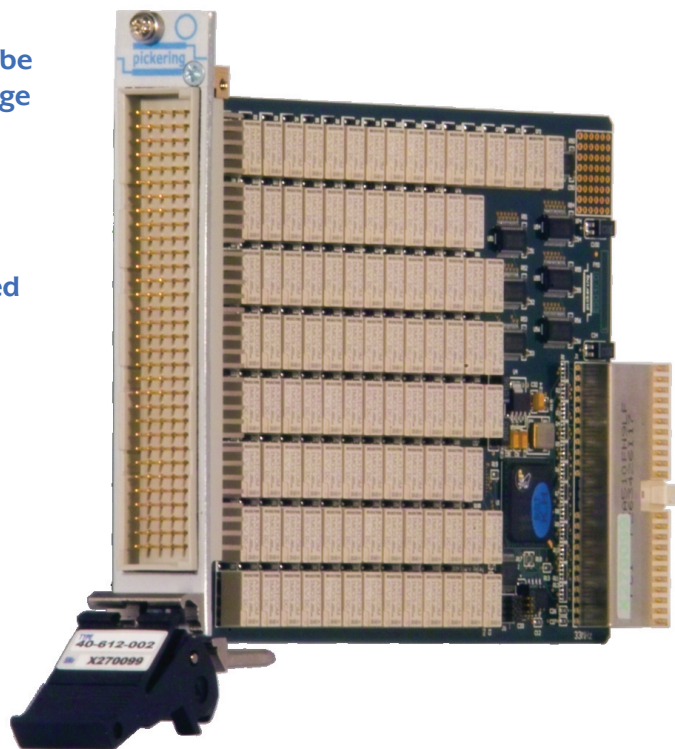


Very High Density Versatile Multiplexer

- **VERSATILE MULTIPLEXER - FOR NOW AND THE FUTURE**
- Flexible Software Configured Architecture Can be Set To Different Configurations As Needs Change
- 8-Bank 8-Channel 2-Pole Multiplexers, 1-Pole Selection, Inter-bank Connection & Isolation Switching
- Many Different Configurations up to a Single 128-Channel 1-Pole Multiplexer, Including Mixed Channel Count & Custom Configurations
- 2A Hot or Cold Switching
- Switch up to 300Vdc with 60W Max Power or 250Vac at 62.5VA
- Isolation Switches Reduce Capacitive Loading in Large Systems
- VISA, IVI and Kernel Drivers Supplied for Windows 2000/XP/Vista
- Supported by PXI or LXI Chassis
- 2 Year Warranty



The 40-612 Very High Density Versatile Multiplexer module features a wide range of software selectable switching configurations. The 40-612 is especially useful where a high density MUX array is required that can adapt to different test configurations for different test targets, or where a test system may have to be reconfigured in the future. Typical applications include signal routing in ATE and data acquisition systems. The 40-612 module uses high quality electro-mechanical relays, connections are made via a front panel 160 pin DIN41612 connector.

MUX Configurations

The module can be software configured into one of a large number of different multiplexer modes. Relays allow the multiplexer banks to be set in 1 or 2 pole mode and inter-bank switching enables the channel count to be increased up to a maximum of 128 (refer to schematic diagram overleaf).

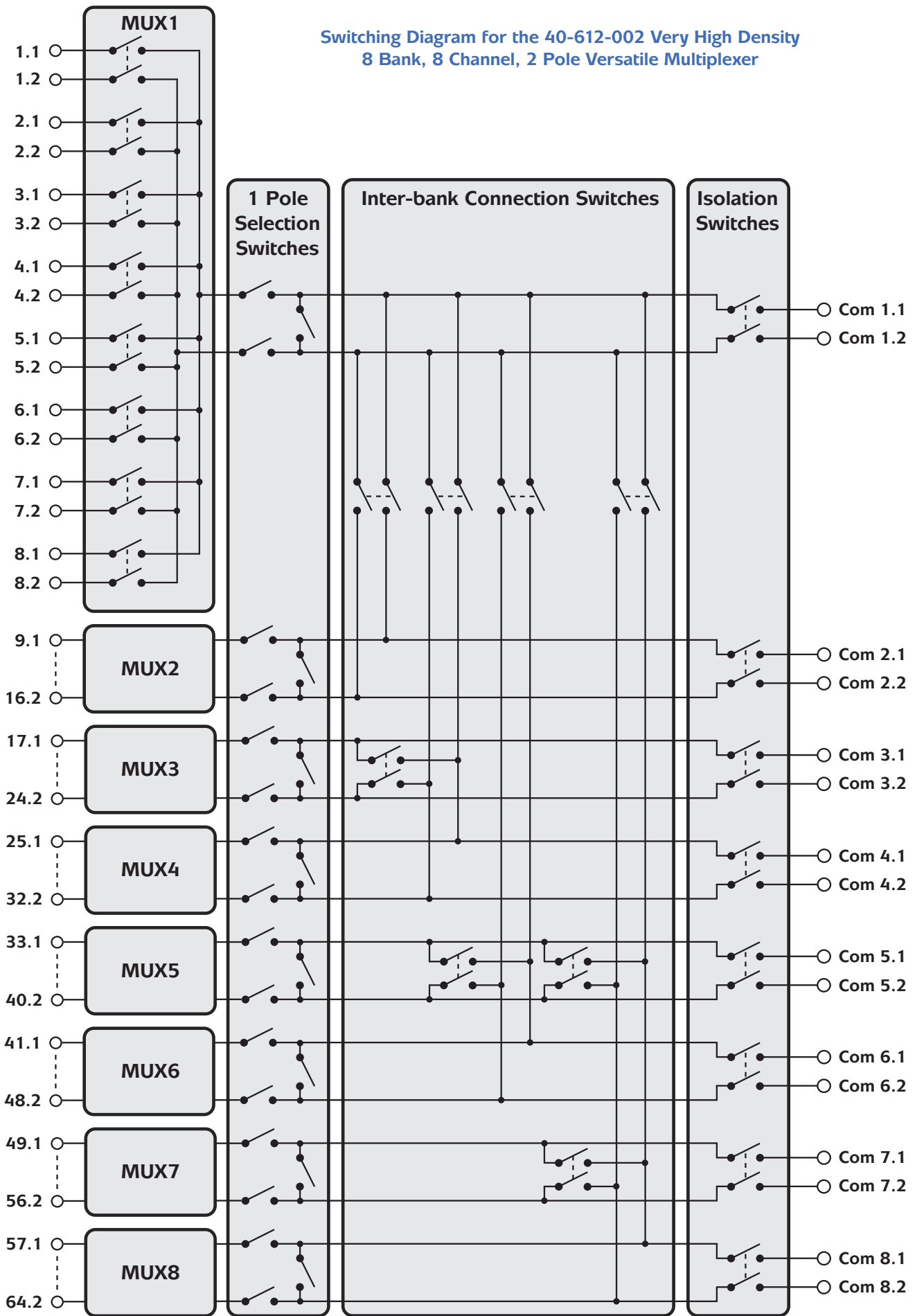
Some possible multiplexer formats are:-	
8 Banks 16 Channel 1 Pole	8 Banks 8 Channel 2 Pole
4 Banks 32 Channel 1 Pole	4 Banks 16 Channel 2 Pole
2 Banks 64 Channel 1 Pole	2 Banks 32 Channel 2 Pole
1 Bank 128 Channel 1 Pole	1 Bank 64 Channel 2 Pole

The versatility of the 40-612's architecture allows all multiplexer banks to be inter-linked and common connections used as extra signal inputs, creating a 71-channel 2-pole multiplexer.

The 40-612 multiplexer may be operated as a conventional multiplexer with break-before-make action when a new channel is selected. For 2-pole configurations multiple channels can be simultaneously selected without restriction, for 1-pole configurations the channels that can be simultaneously selected are limited by the use of 2-pole relays.

Isolation Switching connects only the currently active multiplexer bank to the analog common, 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 PXI modules.

Switching Diagram for the 40-612-002 Very High Density
8 Bank, 8 Channel, 2 Pole Versatile Multiplexer



Relay Type

The 40-612 is fitted with electro-mechanical double pole relays, Palladium-Ruthenium Gold covered contacts. A **Spare Relay** is built onto the circuit board to facilitate easy maintenance with minimum downtime.

Programming

Pickering provide kernel, IVI and VISA drivers which are compatible with Windows 2000/XP/Vista operating systems. The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. Additionally, QNX is fully supported, for other RTOS support contact Pickering.

These drivers may be used with a variety of programming environments and applications including:

National Instruments products (LabVIEW/LabWindows/CVI/MAX/TestStand etc.)

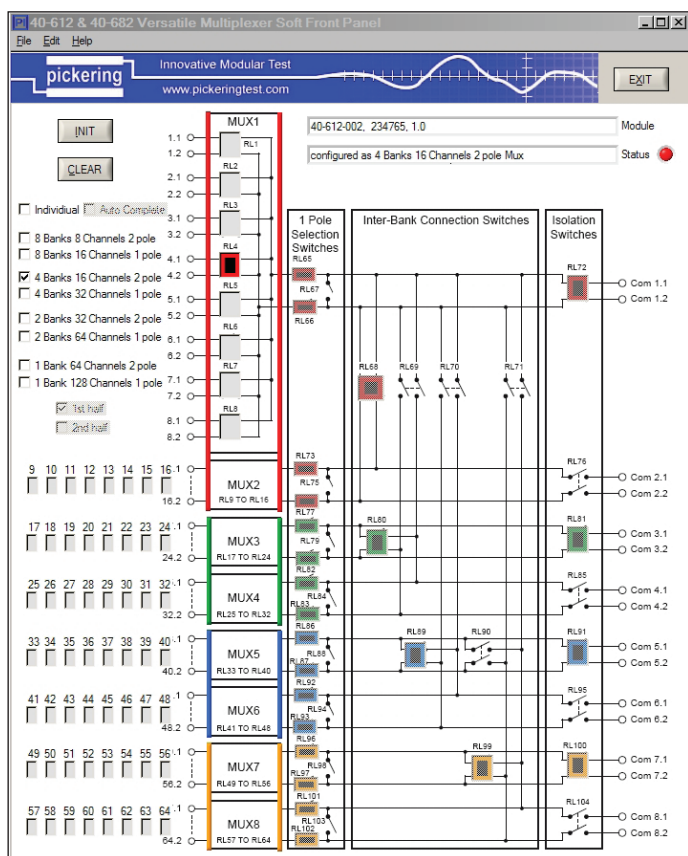
Microsoft Visual Studio products (Visual Basic/Visual C+)

Agilent VEE

Mathworks Matlab

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.

The Versatile Multiplexer Soft Front Panel for the 40-612-002 and 40-682-002 allows easy setting of various configurations from 8-bank 8-channels 2-pole multiplexers, up to 1-bank 128-channels 1-pole multiplexers as well as individual relay control for custom configurations. The schematic in the background of the SFP simplifies understanding of the selected topology. During configuration setting, all relay control information is logged in a text file which can be re-used in a programming environment.



Soft Front Panel for the 40-612 and 40-682 Very High Density Versatile Multiplexers

Switching Specification

Switch Type	Electro-mechanical
Contact Type:	Palladium-Ruthenium, Gold Covered Bifurcated
Max Switch Voltage:	300Vdc/250Vac
Max Power:	60W/62.5VA
Max Switch Current:	2A
Max Carry Current:	2A
Initial Path Resistance - On:	500mΩ max, 300mΩ typ †
Path Resistance - Off:	>10 ⁹ Ω
Minimum Voltage:	100μV
Thermal Offset:	<10μV †
Operate Time:	<3ms
Expected Life (operations)	
Very low power signal load:	>1x10 ⁸
Low power load (2W):	>1.5x10 ⁷ (0.1A 20Vdc)
Medium power load (30W):	>5x10 ⁶ (1A 30Vdc)
Full power load (60W):	>1x10 ⁵ (2A 30Vdc)
	>1x10 ⁵ (0.2A 300Vdc)

† Path resistance & thermal offset are dependent upon the signal route selected.

Power Requirements

+3.3V	+5V	+12V	-12V
5mA	2A max (typ 280mA)	0	0

Width and Dimensions

Single slot 3U PXI (CompactPCI card).

Connectors

Signals via front panel 160 way DIN41612 male connector, for pin outs please refer to the operating manual.

We recommend that Pickering mating connectors are used with this module which are designed to ensure there are no mechanical interference problems when used in a PXI chassis.

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented. Uses 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

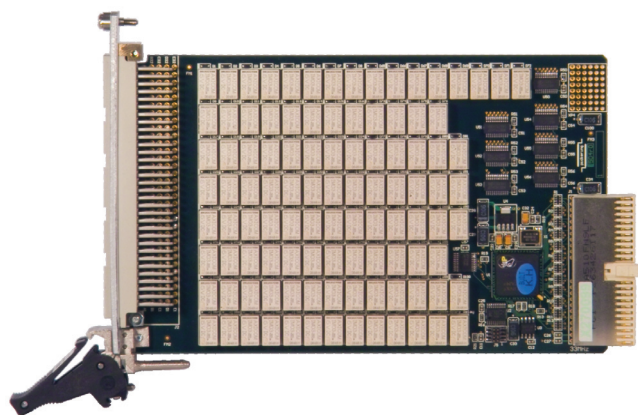
Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

PXI & LXI Chassis Compatibility

Compatible with all chassis conforming to the 3U PXI and 3U cPCI specification. Compatible with Legacy and Hybrid peripheral slots in a 3U PXI Express chassis.

Compatible with Pickering Interfaces LXI Modular Switching chassis. For information on driving your switching solution in an LXI environment refer to the LXI Short Form Catalog.



PCB Layout for the 40-612-002 Very High Density Versatile MUX

Product Order Codes

8 Bank, 8 Channel, 2 Pole
Versatile Multiplexer Module

40-612-002

Support Products

Spare Relay Kits

Kits of replacement relays are available for the majority of Pickering's PXI switching modules, simplifying servicing and reducing down-time. The relay kit for the 40-612 module is as follows:

91-612-022 kit for 40-612-022

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

Latest Details

Please refer to our Web Site for Latest Product Details.

www.pickeringtest.com

Mating Connectors & Cabling

To ensure the best performance from the 40-612, connectors and cabling from Pickering are recommended as these include specially designed strain relief fixings:

40-960-160 160 way, 2A, crimp pin connector.

40-970-160-1M Cableform, 160 way DIN41612 Style, Female to Female, 2A, 1m Length.

40-967-160 DIN Rail Breakout, 160 way DIN41612 Style plug, to screw terminals.

Please refer to the Pickering Interfaces "Interconnection Solutions" catalog for the full list of connector/cabling options, including drawings, photos and specifications. This is available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.

