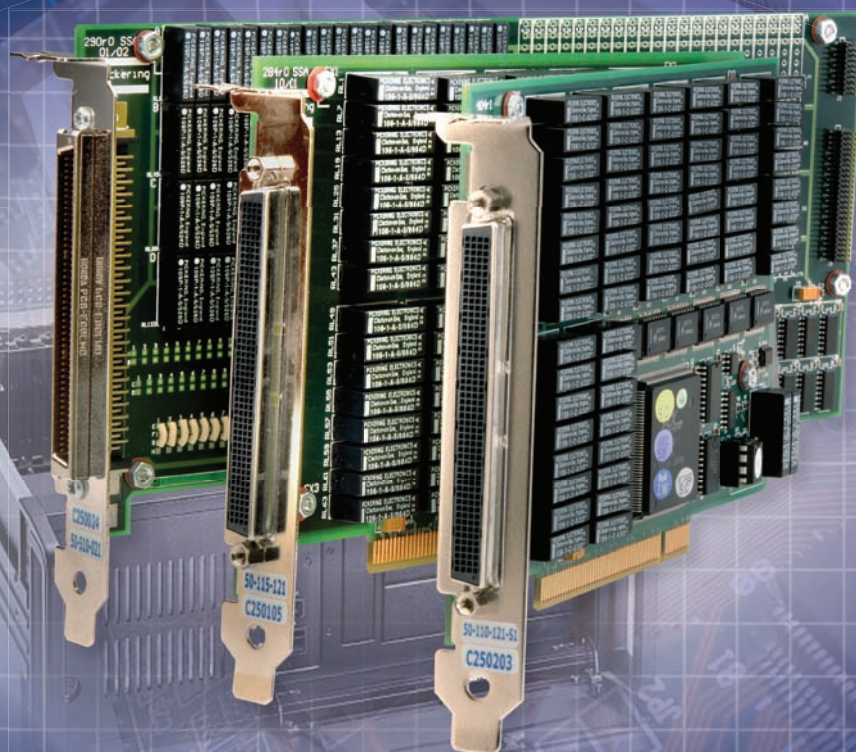


FALL '06

PCI - SYSTEM 50

SWITCH & INSTRUMENTATION MODULES

SHORTFORM CATALOG



Detailed Price and Technical Information On-Line
www.pickeringtest.com

pickering

Innovative Modular Test
from Pickering Interfaces

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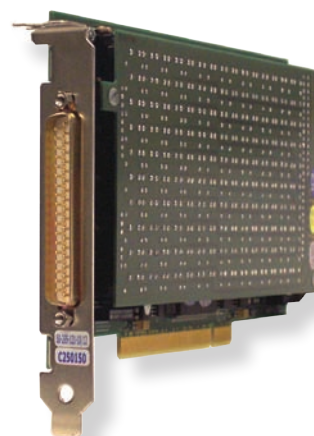
INTRODUCTION - PICKERING'S PCI SWITCH CARDS

Not every application requires a large number of modules providing switching or instrumentation functionality for a test system. Many applications do not require the capability of a PXI or LXI chassis to host modular products. For these applications PCI plug in cards may offer a lower cost alternative method of deploying a functional test system.

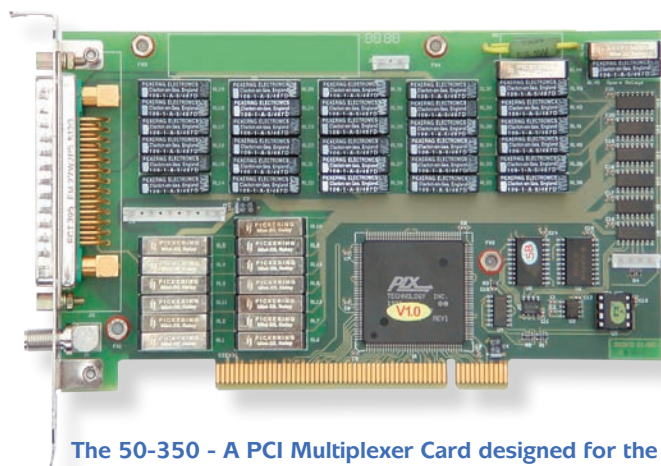
Pickering Interfaces provides a range of switching and instrumentation functions in the PCI format. They use a common driver and software package that ensures that programs and experience can be exchanged with a minimal effort between the PCI and PXI platforms.

PCI solutions are simple to create, there is no need for an additional chassis – the cards can be installed directly into the desk top PC's expansion slots. All you need to do is make sure the controller has enough space available to host either the entire test system or the overspill from chassis that are becoming full.

In some cases full length PCI cards may be used that offer more capacity than their PXI equivalents, the complexity limitation usually being the connector space on the card's panel.



The 50-295/296 Programmable Resistor Card is available with a resolution of 8 to 24 bits



The 50-350 - A PCI Multiplexer Card designed for the specialist testing of submarine cables

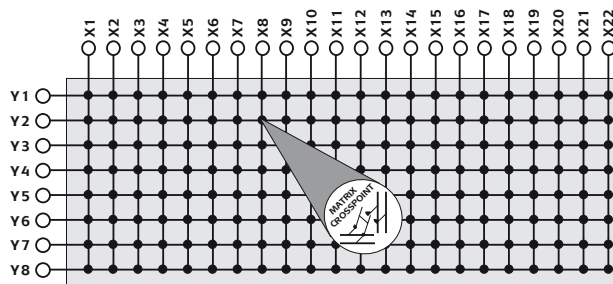
The range of Pickering Interfaces PCI cards is fully supported by the extensive range of breakouts, cables and connectors that Pickering offer in its Interconnection Solutions catalog. The availability minimizes the time users need to spend identifying and sourcing their interconnect requirements.

Pickering Interfaces can quickly develop custom solutions for users of PCI cards. If you have requirements not covered by our standard range of solutions please contact your local sales representative.

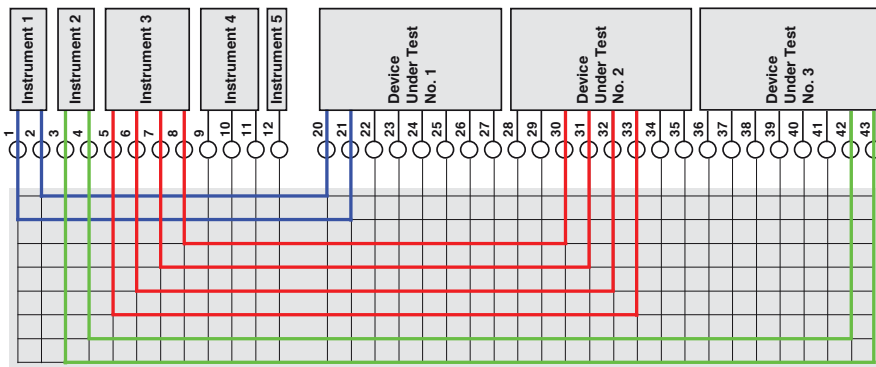
All Pickering Interfaces PCI cards are fully supported by IVI, VISA and kernel drivers, allowing users to select the most appropriate software environment for their application.

Pickering offer switch products in a variety of forms:

Matrix Cards function as crosspoint switches and provide great flexibility in connecting different ports together. Matrix solutions can use Y connections for instrumentation access and X ports for UUT access, but often a more efficient design results from placing the test equipment and the UUT connections on the X axis and permitting only a limited number of concurrent connections



50-512 Configured as a 2-Pole
22 x 8 Matrix



Efficient Use of a High Density Matrix: All test equipment and DUTs are connected to the X bus - the Y bus is only used for the interconnections required for each test.

RF Matrices are optimized for their RF characteristics in 50Ω or 75Ω systems. Isolation relays are included on X and Y buses to reduce loading on unused signal lines.

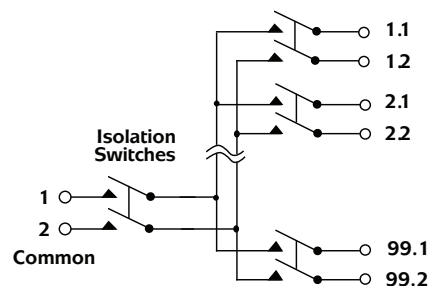
A range of **Instrumentation Cards** includes **Programmable Resistor Cards** and a 2-channel **Function Generator**. The resistor cards are available in various configurations including resistor chains and potentiometers with resolutions ranging from 8 to 24 bits.



The 50-110-121 Consists of 64 Electrically Isolated
Single Pole Changeover Relays

Multiplexers connect a single port to one of a number of other ports. They are ideal for systems requiring high bandwidth or for applications requiring less flexibility and lower cost than a matrix.

General Purpose Relay Cards provide the ultimate in flexibility where access to individual relays is a requirement. They use the highest density connectors for the application to provide the high contact count required for these applications.

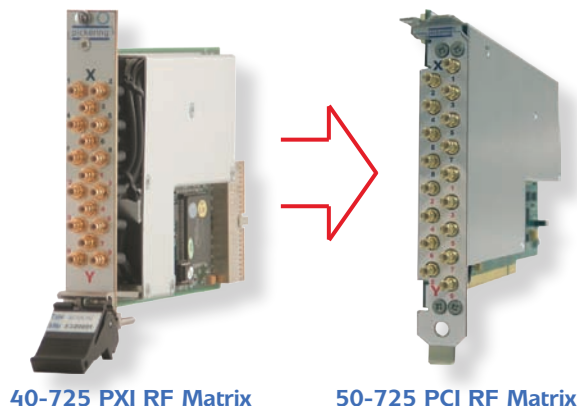


50-670 Configured as a 2-Pole,
99 Channel Multiplexer

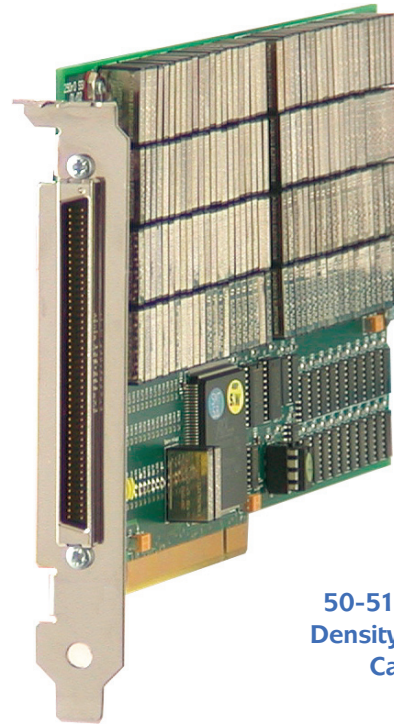
NEW AND CUSTOM DESIGN PCI CARDS

Pickering are often asked to produce PCI versions of popular PXI cards, usually for users who are building lower cost or smaller footprint testers which were originally built in the PXI format. Because all Pickering PCI and PXI cards are code compatible, there are no required software changes when moving from PXI to PCI.

If you are looking for a PCI Switch or Instrument card for your next test system and cannot find a solution on the market, then please feel free to discuss your requirement with a Pickering sales office. We will often produce new designs for low quantity requirements, especially if we feel they are a valuable addition to our general PCI card range.



- Ruthenium Reed Relay Versions For Maximum Signal Performance
- Single and Dual Matrix Configurations
- 50Ω, 50MHz Screened Reed Versions
- Expansion Capability Across Multiple Cards
- Fast Operating Speed <500μs
- Occupy Single Short PCI Slot
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies with PCI Specifications



50-510 High Density Matrix Card

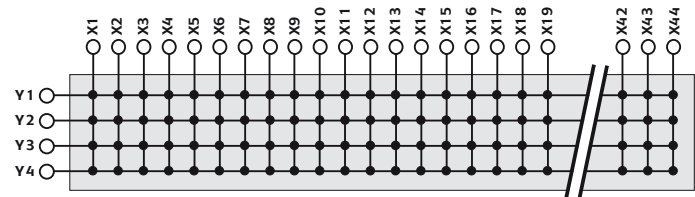
Pickering Interfaces offers a comprehensive range of PCI matrix cards that use either ruthenium reed relays. They are a cost effective solution for applications that require mid range matrices in the PCI format, and can be expanded by connecting together multiple cards.

All versions use high quality instrumentation grade Sputtered Ruthenium Reed Relays that exhibit excellent contact performance under low and medium level switching conditions.

All the connectors used by these cards are supported by a comprehensive range of cable and connector accessories.

For more information on these cards please refer to the individual data sheets or visit our web site at:

www.pickeringtest.com



**Example Matrix Configuration:
Single 44 x 4 Matrix with 1 pole contacts
(50-513-021)**

Matrix Configuration	Number of Poles	Front Panel Connector	Relay Type	Max Standoff Voltage	Max Power	Max Switch Current	Max Carry Current	Order Code
Single 22 x 4	1-Pole	96-pin SCSI type	Sputtered Ruthenium Reed (screened reed option available for 1-pole matrices)	150V DC 100V AC	20W	0.5A	1.2A	50-510-021†
	2-Pole							50-510-022
Dual 20 x 4	1-Pole							50-511-021†
	2-Pole							50-511-022
Single 22 x 8	1-Pole							50-512-021†
	2-Pole							50-512-022
Single 44 x 4	1-Pole							50-513-021†
	2-Pole							50-513-022

† To order the screened reed relay version of a 1-pole matrix, please add **-S** suffix

- Versatile Multiplexer Range With Channel Counts From 5 to 1, Up To 198 to 1
- Pole Count From 1 Up To 32
- Version Available For Specialist High Voltage Cable Testing
- All Versions Use High Quality Instrumentation Grade Reed Relays
- Screened 50Ω Option with 50MHz Bandwidth
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies with PCI Specifications



**50-670
High Density
Multiplexer Card**

The range of PCI High Density Multiplexers provide a compact array of MUX solutions with differing combinations of channel counts and poles. Most high density solutions include isolation relays that allows the MUX to be disconnected from the single input/output port, allowing the MUX to conveniently connect other channels together. All cards are contained within a single PCI slot.

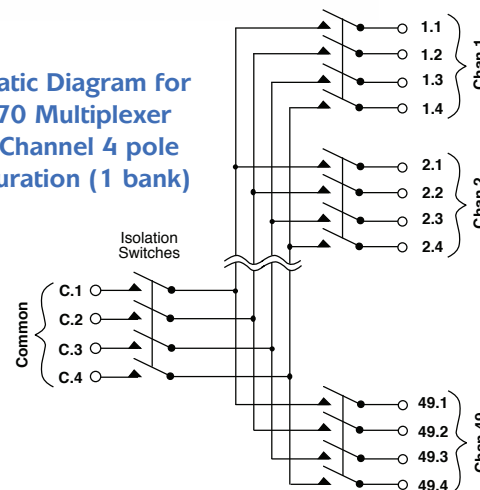
The high voltage multiplexer version is specifically designed for the testing of submarine cables. It consists of a 15 channel multiplexer for connection to the cable assembly under test and 8 channels for connection to test equipment and test voltage sources

The cards use high density connectors that are fully supported by the Pickering Interfaces range of connector and cable accessories.

For more information on these cards please refer to the individual data sheets or visit our web site at:

www.pickeringtest.com

**Schematic Diagram for
50-670 Multiplexer
in 49 Channel 4 pole
Configuration (1 bank)**

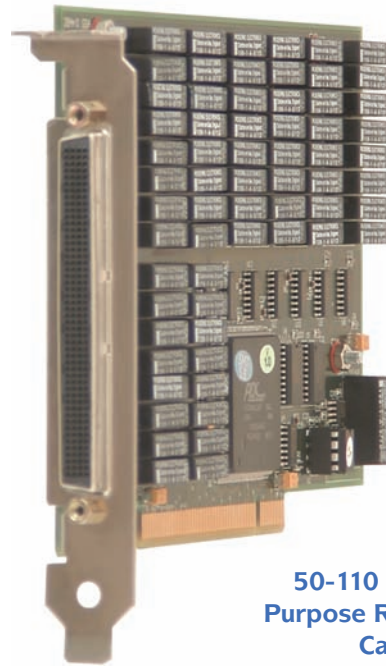


Channels	Poles	Banks	Relay Type	Switching Voltage	Max Carry (Switch) Current	Order Code
198	1	1	Sputtered Ruthenium Reed	100V DC	0.5A (0.5A)	50-670-022-198/1
99	2					50-670-022-99/2
49	4					50-670-022-49/4
24	8					50-670-022-24/8
10	16					50-670-022-10/16
5	32					50-670-022-5/32
99	1					50-670-021-99/1 †
49	2					50-670-021-49/2 †
24	4					50-670-021-24/4 †
10	8					50-670-021-10/8 †
5	16					50-670-021-5/16 †
23	2	1	Rhodium Reed	500V DC	1.2A (0.5A)	50-350-001 ‡

‡ This is for specialist cable test applications, 8 of the 23 channels are screened with 500MHz BW for measurement purposes.

† Screened reed relays are available for these configurations by specifying an -S suffix.

- Between 25 and 64 Reed Relays Per Card
- SPST, DPST, SPDT and Shielded Configurations
- Ruthenium Reed Relays Suitable For Low Level Signals
- Uses High Reliability Pickering Reed Relays For Maximum Performance
- Fast Operating Speed 250µs Typical
- Switch up to 100Volts, 1.25A with 20W Max Power
- Occupies a Single PCI Slot
- 200-Pin Front Panel Connector
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies with PCI Specifications



50-110 General Purpose Reed Relay Card

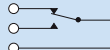
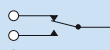
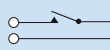
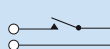
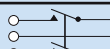
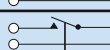
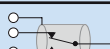
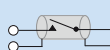
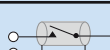
Pickering Interfaces range of PCI general purpose reed relay cards provide a cost effective solution for applications where a very high relay count is not required. All these cards are fitted with a 200 pin female connector that is supported by a comprehensive range of cable and connector accessories, ensuring they can be quickly integrated into the user's test system with a minimum of effort.

The relays are not committed to a particular configuration and are available in changeover and normally open configurations. Cards are available that use shielded reed relays to minimize crosstalk and maximize bandwidth.

The use of sputtered ruthenium reed relays allows the modules to be used for low and medium level switching with minimal level dependent characteristics. This provides enhanced reliability for low level switching compared to electromechanical or rhodium reed relays.

For more detailed information on each card please refer to the individual data sheets or visit our web sit at:

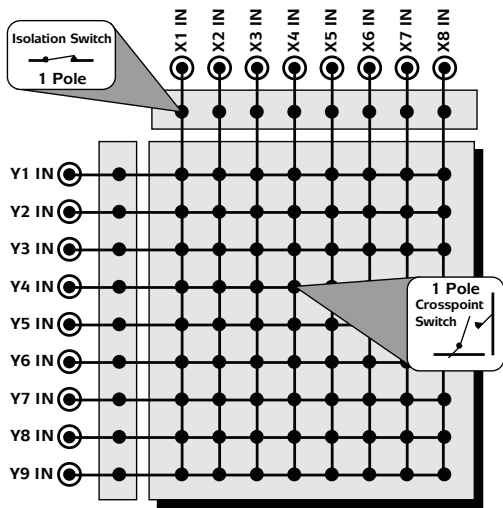
www.pickeringtest.com

Configuration	Description	Relay Type	Max Standoff Voltage	Max Power	Max Switch Current	Max Carry Current	Order Code							
 x32	Single Pole, Double Throw	Sputtered Ruthenium Reed	100V	3W	0.25A	1.25A	50-110-021							
 x64							50-110-121							
 x32	Single Pole, Single Throw (normally open)			20W	1A		50-115-021							
 x64							50-115-121							
 x25	Double Pole, Single Throw (normally open)												50-115-022	
 x50													50-115-122	
 x32	Single Pole, Double Throw	Shielded Sputtered Ruthenium Reed		3W	0.25A		50-120-021							
 x32	Single Pole, Single Throw (normally open)			20W	1A		50-125-021							
 x50							50-125-121							

- High Performance 8 x 9 RF Matrix Card
- 50Ω and 75Ω Versions Available
- 500MHz Bandwidth
- Choice of SMB or Mini SMB Signal Connectors
- Power Handling Up To 3 Watts
- 75Ω Version Suitable for Telecoms and High Quality Video Switching
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies PCI Specifications



50-725 8 x 9 RF Coaxial Matrix Card



Schematic Diagram for the 50-725 RF Matrix Card

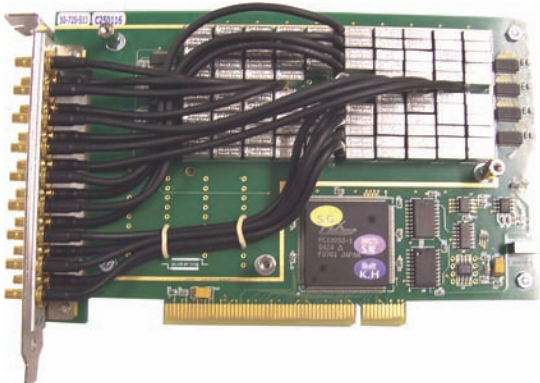
Pickering's PCI RF matrix cards are capable of providing economic switching for frequencies up to 500MHz. The 8 x 9 matrix is available in 50Ω or 75Ω versions and includes automatic isolation switching to maximize RF performance.

The matrix is designed for the easy construction of high performance, bi-directional switching systems and utilizes instrumentation grade Sputtered Ruthenium Reed Relays for consistent contact performance.

The cards can be provided with either SMB (50Ω) or miniSMB (75Ω) high density coaxial connectors which are supported by a comprehensive range of cable and connector accessories.

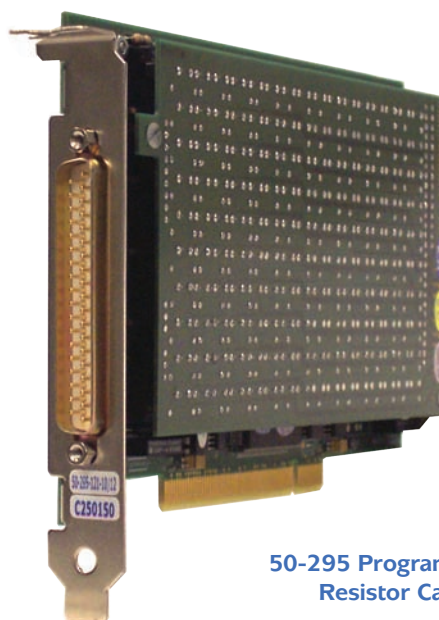
For more information on these cards please refer to the individual data sheets or visit our web site at: www.pickeringtest.com

RF Switch Configuration	Maximum Frequency	Characteristic Impedance	Signal Connectors	Maximum Power	Order Code
8 x 9 Matrix	500MHz	50Ω	SMB	3W	50-725-511
		75Ω	miniSMB		50-725-751

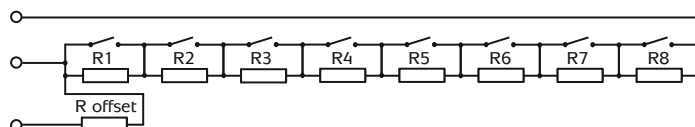


50-725 8 x 9 RF Coaxial Matrix Card With Cover Removed

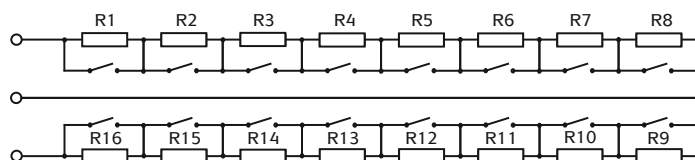
- Range of Resistor Cards Including Programmable Resistor Chains and Potentiometers
- Fully Programmable With Resolution of Up to 24-bit
- Resistance Range From 0 to 16M Ω
- Provides Fully Isolated Variable Resistors
- All Versions Use High Reliability Pickering Ruthenium Reed Relays
- Custom Resistance Values Available
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies with PCI Specifications



50-295 Programmable Resistor Card



Schematic Diagram for the 50-295 Resistor Card in 8-bit Configuration (10 or 18 programmable channels per card)



Schematic Diagram for the 50-296 Potentiometer Card in 8-bit Configuration (5 or 9 programmable channels per card)

The range of programmable resistor cards includes fully programmable resistor and potentiometers for applications that require fine adjustment with a resolution of up to 24-bit. For maximum accuracy, on board non-volatile memory is used for storage of calibration data for each resistor.

All resistor cards are based on high quality ruthenium reed relays that provide a very long service life and consistent contact operations at all rated switching levels.

All the connectors used by these cards are supported by a comprehensive range of cable and connector accessories.

For more information on these cards please refer to the individual data sheets or visit our web site at: www.pickeringtest.com

Resistor Card Configuration	Number of Channels	Resolution	Resistance Range ‡	Max Resistor Power	Front Panel Connector	Order Code †
Programmable Resistor	10 or 18	8-bit	0 to 255 Ω	0.5W	37-way D-type	50-295
	5 or 10	12-bit	0 to 4k Ω			
		16-bit	0 to 65k Ω			
	3 or 6	24-bit	0 to 16M Ω			
Programmable Potentiometer	5 or 9	8-bit	0 to 255 Ω			50-296
	2 or 4	12-bit	0 to 4k Ω			
		16-bit	0 to 65k Ω			
	1 or 3	24-bit	0 to 16M Ω			

‡ Most cards can be offered with alternative resistance range, for more information contact Pickering Interfaces

† For the full order number and configuration codes for each variant, please refer to the data sheet.

PCI Function Generator Card

FUNCTION GENERATOR CARD

- 2 Channel PCI Function Generator Card
- Simple Generation of Repetitive Arbitrary Waveforms
- DC to 10MHz With 48-bit Resolution
- Amplitude Modulation Capability
- DC Offset Capability
- Flexible Sweep Capability
- Front Panel Mounted SMB Signal Connectors
- Drivers Supplied For Windows 98/2000/NT/XP
- Complies with PCI Specifications



51-620-002 Dual Channel Function Generator Card

The 51-620 Function Generator card is available in single or dual channel configurations. It is capable of generating sine waves up to 10MHz with a 48-bit resolution referenced to an internal clock or an external reference clock. It can generate arbitrary waveforms from data loaded into on-board memory allowing the emulation of many different waveform types.

The use of Direct Digital Synthesis to produce output frequencies means the function generator can easily produce repetitive waveforms. Also swept frequencies are easily generated as single shot events or as continuous up and down ramps.

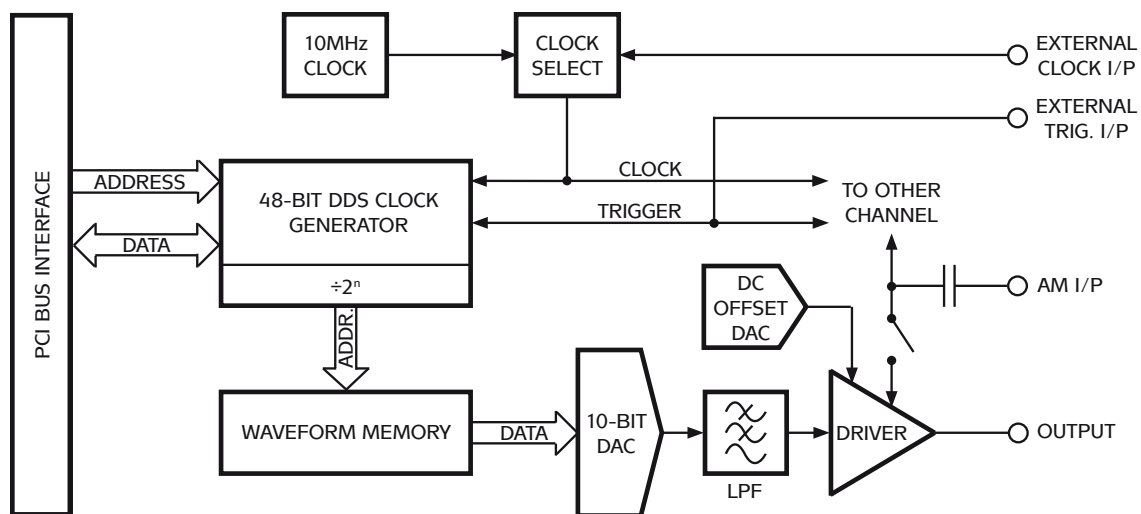
The output waveform of either channel can be amplitude modulated by an external signal applied to an input on the front panel. Also a DC offset with a programmable level can be applied to the output signal.

All the connectors used by this card are supported by a comprehensive range of cable and connector accessories.

For more information on this card please refer to the individual data sheets or visit our web site at:

www.pickeringtest.com

Card Type	Frequency Range	Resolution	Waveform Memory	Max Output	No. of Channels	Order Code
Function Generator	DC to 10MHz	48-Bits	256k x 16-bit	10V p-p	1	51-620-001
					2	51-620-002



Block Diagram for the 51-620-002 Dual Channel PCI Function Generator Card

Pickering Interfaces understands that just providing the switching and instrumentation modules is not enough, users need to be provided with fast and effective ways of connecting their investment to the device under test.

The cards in the Pickering Interfaces System 50 series PCI range are fully supported by a comprehensive range of connector and cable accessories. The accessories are detailed in the 64 page Interconnection Solutions Catalog available in paper or downloadable format. The catalog is cross referenced to all System 50 PCI cards as well as all other PXI and LXI modules, making it easy for the user to find the perfect accessories to compliment their chosen module.

- **Connectors & Prototyping Cables For Pickering PCI, PXI and LXI Modules.**

Comprehensive range of mating connectors for all Pickering PCI, PXI and LXI modules, including suggestions for suitable wire types.

- **Cable assemblies For Pickering Interfaces PCI, PXI and LXI.**

Pickering Interfaces offer a range of standard cables, providing a means of connecting your DUT to any Pickering Interfaces PCI, PXI or LXI module.

- **Connector Blocks & Breakouts For Pickering PCI, PXI and LXI Modules**

Pickering have a good selection of Connector Blocks and Breakouts for most PCI, PXI and LXI modules.

- **Fuse Holders and Terminals For PCI, PXI and LXI.** We offer a range of DIN rail mounted Fuse Holders and Terminals, providing a means of building and protecting your test system.

- **Custom Connectors & Cabling** can be made to special order, please contact Pickering sales office to discuss your application.



OTHER SWITCH AND INSTRUMENT SYSTEMS FROM PICKERING INTERFACES

Pickering have been manufacturing Modular Switching & Instrumentation systems since 1988. Our sister company Pickering Electronics have manufactured instrumentation quality reed relays since the late 1960's. Pickering Interfaces design & manufacture solutions for all major modular Test platforms including PXI, GPIB, PCI, VXI and now LXI, we also manufacture many customer solutions and have a wide range of connector/cabling designed for the demanding Functional Test Developer.

PXI Switch, Instrument & Systems – SYSTEM 40

Pickering have a full range of competitively priced 3U & 6U PXI (CompactPCI) Switch Modules, including Relay, Digital I/O, Matrix, Multiplexer, RF, Microwave, Optical and Telecom, our 3U PXI matrix modules offer up to 4400 crosspoints per module.

Pickering PXI Instruments include Arbs, Amplifiers, Digitizers, Automotive Serial Protocol Communications, 5½, 6½ & 7½ DMMs, Power Supplies, RF Power Meters, RF Attenuators, Programmable Resistor/Potentiometers, Avionics Bus Analyzers, Breadboards & Digital I/O. We are continually adding to our PXI range (over 500 models), so if the product you require is not listed please ask.



LXI Instruments (LAN eXtensions for Instrumentation), LXI – SYSTEM 60

Pickering Interfaces are Strategic members of the LXI Consortium, www.lxistandard.org. LXI is the next generation of test instrumentation combining state-of-the-art measurements in a small package at a cost-effective price using enhanced Ethernet connectivity and built in Triggering.



VXI Switching System Modules – SYSTEM 30

Pickering Interfaces have a range of high density VXI switching modules, System 30, containing up to 2340 relays per module. These are C sized modules with a SCPI message based interface, VXI Plug/Play & IVI Drivers, offering up to 10 times density advantage over competing VXI switching products.



IEEE-488.2 & RS-232 Controlled Switching Systems – SYSTEM 10/20

Pickering Interfaces' System 10 and System 20 Programmable Relay Switching Systems now offer the most comprehensive range of switching modules currently available.

Our switching systems will switch from nanoVolts to 7.5 kiloVolts, D.C. to 26.5GHz and picoAmps to 30Amps. Models are programmable using a wide range of interfaces: IEEE 488, Ethernet, USB or RS-232.



Custom Switching Solutions

Pickering Interfaces are able to meet your exact custom switching needs. With extensive experience in PXI, PCI, VXI, IEEE-488, and Ethernet architectures, we can develop a switching solution that matches your exact needs. For further information please visit the Custom Design area of the "Sales" section of our web site or call your local Pickering Sales office.

"A Switching Module Is Only As Good As The Relays Used"

Ruthenium Sputtered Reed Relays offer maximum performance, are hermetically sealed and offer a very stable, long life relay contact (>10⁹ operations) with fast operate time. Alternative cheaper types such as electro-mechanical armature relays or non-instrumentation grade reed relays (Rhodium plated) don't offer the consistent contact resistance, long life, fast switching speed and low level switching capability of an instrumentation reed relay. All reed relays used in our switch modules are manufactured by our sister company Pickering Electronics. www.pickeringrelay.com.



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