

Pickering - PCI Card Map

GENERAL PURPOSE RELAY CARDS

	Reed Relay Card	2 Amp Relay Card
Features	<ul style="list-style-type: none"> Low Cost General Purpose Switching Uses High Reliability Pickering Reed Relays 	<ul style="list-style-type: none"> Low Cost Relay Module For Medium Power Switching Applications
Model Family	50-110A 50-115A	50-131 50-132
Configurations	32 or 64 x SPDT 25 or 50 x DPST	16 or 26 x SPDT 16, 32 or 39 x SPST
Relay Type	Pickering Instrumentation Reed	
Max Switch Voltage	150VDC/100VAC	100VDC/70VAC
Max Switch/Carry Current	0.25A/1A	1A
Max Switch Power	3W	10W
Typical Operate Time	0.5 ms	
Connector Type	200-pin LFH	78-pin D-type
Card Size/Signalling	Single Slot Short PCI / Universal	
Mating Connectors and Cabling Datasheet	90-002D	90-006D
Spare Relay Kits	91-100-026/048/062	91-100-001

MATRIX CARDS

	Reed Relay Matrix	2 Amp Relay Matrix
Features	<ul style="list-style-type: none"> Reed Relay Matrix High Density 	<ul style="list-style-type: none"> 2 A Matrix 128 Crosspoints
Model Family	50-510A 50-511A 50-512A 50-513A	50-527 50-528 50-529
Configurations	1 or 2-Pole: Single 22x4 1 or 2-Pole: Dual 20x4 1 or 2-Pole: Single 22x8 1 or 2-Pole: Single 44x4	1-Pole: Single 32x2 1-Pole: Single 32x4 or 16x4 1-Pole: Single 16x8 or 8x8
Relay Type	Pickering Instrumentation Reed	
Max Switch Voltage	100VDC/100VAC	
Max Switch/Carry Current	0.5A/1.2A	
Max Switch Power	20W	
Typical Operate Time	0.5 ms	
Connector Type	96-pin micro-D	
Card Size/Signalling	Single Slot PCI / Universal	
Mating Connectors and Cabling Datasheet	90-016D	
Spare Relay Kits	91-100-003/008	

RF CARDS

	RF Matrix
Features	<ul style="list-style-type: none"> X and Y Isolation Switching 75 Ω Version Suitable for Telecoms and High Quality Video Switching
Model Family	50-725A
Impedance	50 Ω 75 Ω
Configurations	8x9 Matrix
Max Frequency	500 MHz 150 MHz
Insertion Loss	<4 dB
VSWR	<3:1
Max Power	3W
Typical Operate Time	0.5 ms
Relay Type	Instrumentation Reed
Connector Type	SMB
Card Size/Signalling	Single Slot Short PCI / Universal

MULTIPLEXER CARDS

	2 Amp MUX	High Density MUX	High Voltage MUX
Features	<ul style="list-style-type: none"> Low Cost 2 A Switching 	<ul style="list-style-type: none"> Wide Range of Configurations Very High Density 	<ul style="list-style-type: none"> Designed For Cable Testing Applications
Model Family	50-635A	50-670C-021 50-670C-022 50-671A	50-350
Configurations	Single - 1-Pole: 32:1 or 64:1 2-Pole: 16:1 or 32:1 4-Pole: 8:1 or 16:1 8-Pole: 4:1 or 8:1 Dual - 1-Pole: 16:1 or 32:1 2-Pole: 8:1 or 16:1 4-Pole: 4:1 or 8:1 Quad - 1-Pole: 16:1 or 8:1 2-Pole: 8:1 or 4:1	Between 1-Pole 99:1 & 16-Pole 5:1 Between 1-Pole 198:1 & 32-Pole 5:1 2-Pole, 4-Bank, 24:1	15-Bank 2:1 MUX Plus Isolation Relays For Test Equipment
Relay Type	Electro-mechanical	Pickering Instrumentation Reed	Rhodium Reed
Max Switch Voltage	300VDC/250VAC	150VDC/100VAC 100V	500VDC/500VAC peak
Max Switch/Carry Current	2A	1A/1.2A	0.5A/1.2A
Max Switch Power	60W	20W	10W
Typical Operate Time	3ms	0.5 ms	0.5 ms
Connector Type	78-pin D-type	200-pin LFH	25-pin High Voltage D-type With Co-axial Inserts, Plus SMA Socket
Card Size/Signalling	Single Slot Short PCI / Universal	Single Slot Short PCI / Universal Single Slot Short PCI / 5V Signalling	Single Slot Short PCI / 5V Signalling
Mating Connectors & Cabling Datasheet	90-006D	90-002D	-
Spare Relay Kits	91-100-001	91-100-003/008 91-100-001	-

FAULT INSERTION

	Fault Insertion Switches
Features	<ul style="list-style-type: none"> High Density, Low Cost Suitable for Automotive/Avionics ECU Burn-in/Endurance Test Applications Differential Suitable for CAN, FlexRay High Bandwidth Suitable for Ethernet, AFDX, BroadR-Reach
Model Family	50-190 50-200 50-201
Configurations	36, 64 or 75 Channels, 1 or 2 Fault Bus (3 or 6 Fault Input) 4 or 8 Pair Differential 4 Fault Buses (8 Fault Inputs) 4 or 8 Pair Differential 2 Fault Buses (4 Fault Inputs)
Relay Type	Electro-mechanical
Max Switch Voltage	165VDC/115VAC
Max Switch/Carry Current	2A
Max Switch Power	60W
Typical Operate Time	3ms
Connector Type	1 or 2x78-pin D-type
Card Size/Signalling	Single or Dual Slot Short PCI / Universal
Mating Connectors & Cabling Datasheet	90-006D
Spare Relay Kit	91-100-001

DIGITAL I/O CARDS

	Digital I/O Cards
Features	<ul style="list-style-type: none"> 64 Channel Driver Internal or External Relay Supply 32 Channel I/O Programmable Threshold
Model Family	50-411A 50-412
Configurations	Relay Driver Module Digital Input/Output Module With Programmable Threshold
Number of I/P Channels	- 32
Input Channel Type	- 0.3V - 50V Threshold
Number of O/P Channels	64 32
Output Channel Type	60V Drive Capability Up to 1A Per Channel High or Low-Side Drivers (0.4A source, 0.5A sink)
Connector Type	78-pin D-type
Card Size/Signalling	Single Slot Short PCI / Universal
Mating Connectors & Cabling Datasheet	90-006D

PROGRAMMABLE RESISTOR CARDS

	Resistor Cards	Precision Resistor Cards						
Features	<ul style="list-style-type: none"> Short & Open Simulation Simple Software Control Based on Electro-mechanical Relays 	<ul style="list-style-type: none"> Short & Open Simulation Fast Operation, Long Switching Life Based on Pickering High Performance Reed Relays 	<ul style="list-style-type: none"> High Density Programmable Resistor Custom Options Available 	<ul style="list-style-type: none"> High Density Potentiometer Card Custom Options Available 	<ul style="list-style-type: none"> Emulates RTDs High Accuracy, Fine Resolution 	<ul style="list-style-type: none"> Emulates Resistive Strain Gauge Bridge Circuits 	<ul style="list-style-type: none"> Simple Software Control Short & Open Simulation Based on Electro-mechanical Relays 	<ul style="list-style-type: none"> Simple Software Control Short & Open Simulation Based on Reed Relays
Model Family	50-293	50-294	50-295A 50-296A	50-262	50-265	50-297	50-298	
Configurations	Programmable Resistor With Optional 8xSPDT Relays	Programmable Resistor With Optional 8xSPST Reed Relays	Programmable Resistor Programmable Potentiometer	PT100 RTD Simulator PT1000 RTD Simulator	Strain Gauge Simulator	High Density Precision Programmable Resistor		
Number of Channels	2 or 4	2 or 4	3, 5, 6, 10 or 18	1, 2, 3, 4, 5 or 9	6	2, 4 or 6	3, 4, 6, 9 or 18	
Resolution	0.25 Ω, 0.5 Ω, 1 Ω or 2 Ω		8, 12, 16 or 24-Bit		<8mΩ <90mΩ	<2mΩ <10mΩ <12.5mΩ <20mΩ <25mΩ	0.125, 0.25, 0.5, 1 or 2 Ω	
Accuracy	Card Accuracy ±0.3% ±0.1 Ω	Card Accuracy ±0.3% ±0.2 Ω	Resistor Accuracy ±0.5% (±5% >1 MΩ)		Card Accuracy 0.1% Card Accuracy 0.03%	Card Accuracy 0.06%	Card Accuracy ±0.2% ±Resolution	
Resistance Range	Up to 131 kΩ		Up to 16MΩ		90 Ω - 250 Ω 900 Ω - 2.5 kΩ	350 Ω Bridge 1 kΩ Bridge 1.5 kΩ Bridge 2 kΩ Bridge 3 kΩ Bridge	Up to 22.3 MΩ	
Max Resistor Power	0.5W				100mW		0.5W	
Typical Operate Time	3ms	0.5 ms			3ms		0.5 ms	
Connector Type	37-pin D-type				15 & 9-pin D-type	26 & 9-pin D-type	37-pin D-type	
Card Size/Signalling	Single Slot Short PCI / Universal				Single Slot Short PCI / Universal			
Mating Connectors & Cabling Datasheet	90-007D				90-010D (15), 90-003D (9)	90-009D (26), 90-003D (9)	90-007D	

Pickering - PCI Card Map

pickering

PCI Switching & Simulation Map

- Relays
- Programmable Resistors
- Matrices
- Digital I/O
- Multiplexers
- Connectivity & Cables
- Fault Insertion

PCI FROM PICKERING INTERFACES

About Pickering Interfaces

Pickering designs and manufactures signal switching and instrumentation for use in electronic test and simulation - offering the largest range of switching for PXI, LXI and PCI applications in the industry. Our expanding range enables us to give you the right amount of switching with the required performance at the right cost.

A test system may not require a large number of switching or instrumentation modules or the need for a PXI or LXI chassis. In these cases a PCI plug-in card may provide a low-cost solution that is perfectly adequate. In some cases, full-length PCI cards can be used that offer more capacity than their PXI equivalents, the complexity limitation usually being the connector space on the card's panel. Our range of PCI cards includes:

- General Purpose Relay
- Programmable and Precision Resistors
- Matrices including High Density and RF
- Relay Drivers and Digital I/O
- Multiplexers including High Voltage

A common driver and software package ensures programs can be exchanged with minimal effort between the PCI and PXI platforms.

Product Customization

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

Our PCI cards 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 relay types
- Alternative number of relays
- Mixture of relay types
- 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.

Long Term Product Support

We have extensive switching experience - all of our critical components, software & cabling designs and manufacturing processes are done in-house. All of this experience adds to our ability to provide you with long-term support - typically 15+ years for many products.

Hardware Compatibility

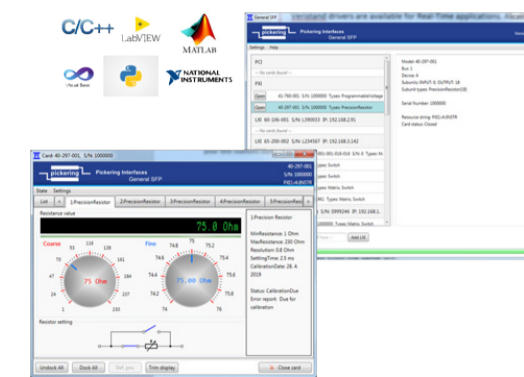
Our PCI Cards are compatible with Specification 2.0 of the PCI standard and operate with a 33 MHz 32-bit bus using either +5V or universal signalling (see individual card data sheets for details).



PCI CONVENTIONAL

Software Compatibility

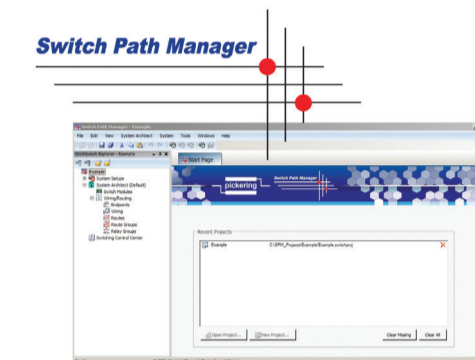
We provide driver packages for PCI products offering seamless installation and support of all popular Programming languages such as C/C++, LabVIEW™, LabVIEW RT, .NET, VB, LabWindows/CVI, MATLAB®, Python, ATEasy, TestStand™, Veristand™ and Switch Executive™ (via the IVI driver).



Our drivers use a common General Soft Front Panel with dedicated views for all of our products. Our software application packages include Diagnostic Test Tools, Switch Path Manager™ signal routing software, Sequence Manager, Cable Design Tool and PCI, PXI & LXI simulation tools. Learn more at pickeringtest.com/software.

Switch Path Manager™ Signal routing software

Switch Path Manager (SPM), simplifies signal routing through switching systems and speeds up the development of switching system software. Once a switching system model has been created, simply defining the endpoints that are required to be connected together can perform signal routing. Features include Short circuit detection and Endpoint protection. The ability to automate signal routing results in effective and easy switching system management—safely and quickly. Switch Path Manager is available in a full version and a lower-cost lite version.



PCI Application Examples

PCI cards are commonly used in Rack Mount Industrial PCs (IPCs), these feature a choice of up to 15 PCI or PCIe slots with a wide range of peripherals in a rack mount enclosure varying in size from 1U to 6U suitable for many different user markets. IPCs are available from a very wide range of suppliers including: Advantech, Siemens, Kontron and ADLink, plus many users choose to build their own IPCs to their exact requirements.

Pickering Interfaces has over 100 PCI cards used in the following application areas:

- Hardware-In-The-Loop Simulation (HILS) - typically where users want to integrate our PCI Switch and Resistor cards with other PCI cards into a high performance Industrial PC
- Low-cost Functional Test system - typically with just a few PCI instrument and switch cards
- Industrial automation - where use of Industrial PCs is very popular
- Custom test system - often users will obtain their own Industrial PC, built to their exact requirements, and then integrate the required PCI switch and instrument cards

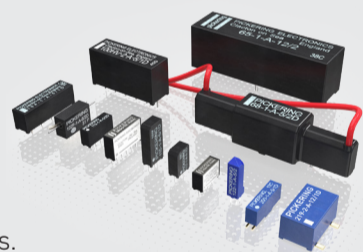
Advantages of Industrial PC based systems include:

- System cost and cost per card slot is often very much lower than competing modular instrument systems.
- Simple and low cost maintenance - users can easily maintain and repair their own Industrial PCs, e.g. swap or upgrade: motherboard, processor, hard drive, power supply, memory, etc. Many even build their own Industrial PCs to their exact requirements, this cannot be done with PXI/VXI
- Familiarity - most users (and IT departments) are very familiar with PCI based industrial PCs, they do not feel as comfortable with more specialized PXI/VXI systems. Especially true in low cost markets

Reed Relays

Pickering is the only switch provider with in-house reed relay manufacturing capability. Most of these instrument grade reed relays feature **SoftCenter™** technology, ensuring long service life and repeatable contact performance. In addition, most of our switch modules use through-hole technology relays (as opposed to surface mount) allowing easy replacement without the need for special tools.

Learn more: pickeringrelay.com



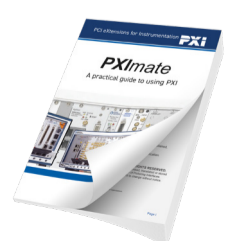
PXI FROM PICKERING INTERFACES

Our PCI cards are built using the same basic technology as our acclaimed PXI module range, utilizing the same software drivers, soft front panels and control electronics. They are 100% software compatible allowing users to migrate from PXI to PCI or from PCI to PXI as required by the application.

Pickering is a leading designer and manufacturer of PXI modules, with a reputation for helping customers with their test and measurement requirements. We first entered the PXI market in 1998 and now offer over 1000 PXI switching and simulation products - more than all of our competitors combined.

- Modules vary from our BRIC high density switching matrix, fault insertion switches, battery simulators, RF & microwave, multiplexers, high voltage switches, and optical switching products, through to simple and precision resistor switching networks for sensor emulation
- All modules come with a standard 3-year warranty
- We are a Sponsor Member of the PXI Systems Alliance

Available PXI Product Literature



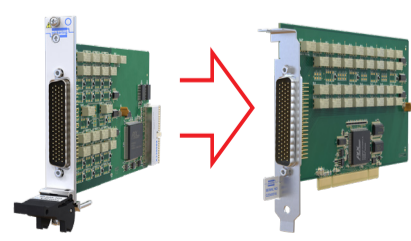
PXI Mate Book
Explains the basics of PXI and provides useful data for test engineers.



The PXI Switching and Instrumentation Maps
Fold-out selection guides to our PXI products.



PXI



40-635A MUX

50-635A MUX

We can often port existing PXI designs over to PCI if the customer has a good business case.

CONNECTIVITY

Cables & Connectors

To support our products we offer a comprehensive range of cable & connector solutions:

- 20+ connector product families
- Over 1000 individual products
- Customized cabling
- Online Cable Design Tool

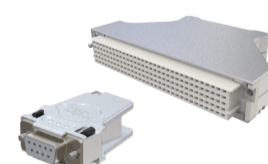
For more information visit: pickeringtest.com/cables-connectors



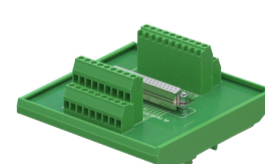
Multiway Cable Assemblies



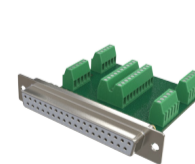
The Cables & Connectors Map
A fold-out guide to Pickering Cables & Connectors



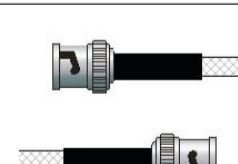
Connectors & Backshells



DIN Rail Mounted Connector Blocks



Card Mounted Connector Blocks



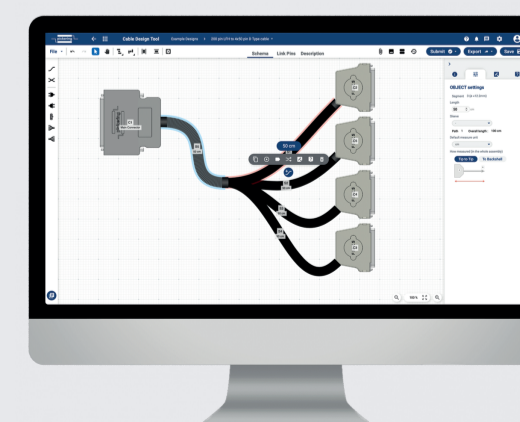
RF Cable Assemblies

Cable Design Tool

Our Cable Design Tool is a free online tool that allows you to define a cable assembly to exactly meet your requirements.

- Graphical design of customized cable assemblies
- Built-in library of standard cable sets can be used as the basis for customization, or cables can be defined from scratch
- The ability to store cable assemblies in the Cloud and develop them over time
- Each cable design has a PDF documentation file detailing all the specifications
- Allows detailed design including: connector types, wire type, pin definitions, pin & cable labelling, cable bundling, length selection, sleeving, comments, etc.
- Add your own connectors and wires
- Fully supported on major tablet operating systems

For more information visit: pickeringtest.com/cdt



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Pickering Switching & Simulation

At Pickering, we understand that to design, deploy and sustain your test system can be challenging, and we believe in offering you the PXI, PCI, LXI & USB products and services to help your engineering team get the job done on time and on budget.

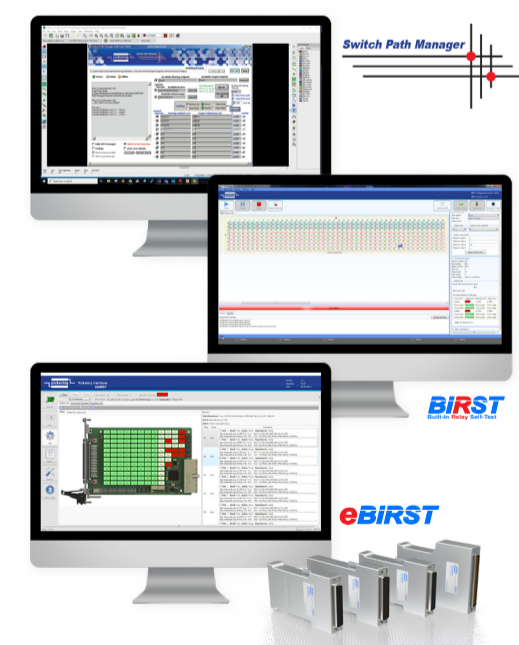
- All our products come with a standard 3-year warranty and long-term support of typically 15 to 20 years
- If our product range doesn't fit your application, we have the agility and expertise to develop a product to your specifications - this includes the design and manufacture of turnkey microwave and optical signal routing sub-assemblies
- We design and manufacture a full range of supporting cable and connector solutions, including custom cables - please try out our free graphical on-line **Cable Design Tool** (pickeringtest.com/cdt)

Software - Our S/W drivers support all major Windows and Linux (32 & 64-Bit) platforms and all popular Programming languages including C/C++, LabVIEW, LabVIEW RT, .NET, VB, LabWindows/CVI, MATLAB, Python, ATEasy, TestStand, Veristand and Switch Executive. Our drivers include a common Soft Front Panel for manual control and monitoring.

We provide a range of software tools to help streamline the design, deployment and sustainment of our switching systems, including:

- **Signal Routing** - **Switch Path Manager (SPM)** automates signal routing through our switch systems and provides a 50% reduction in program development time
- **Simulation Tools** - Allow users to simulate most of our PXI & LXI products, allowing for code development independent of your application hardware
- **Sequence Manager** - Users can load and execute (via H/W or S/W triggers) predefined switch operations for our modules, accelerating test execution times
- **Diagnostic Test Tools** - **BIRST** (Built-in Relay Self-Test) and **eBIRST** Test Tools automatically find faulty relays in Pickering switching systems, significantly reducing repair costs and test system downtime

Learn more at pickeringtest.com/software.



Switching | Simulation | Programmable Resistors | Custom Design | Software | Reed Relays | Connectivity & Cables

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