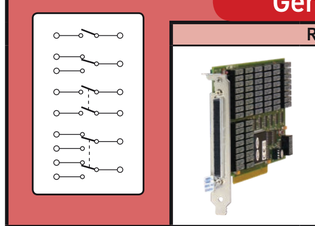
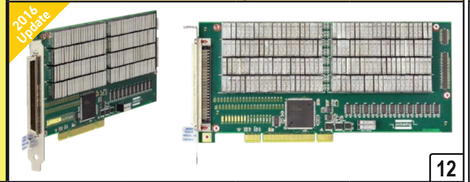
Pickering PCI Card Map - 2018

General Purpose Relay Cards

	Reed Relay Card			2 Amp Relay Card	
	 6			5	
Features	• Low Cost General Purpose Switching • Uses High Reliability Pickering Reed Relays			• 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	32 or 64 x SPST	25 or 50 x DPST	16 or 26 x SPDT	16, 32 or 39 x SPST
Relay Type	Pickering Instrumentation Reed			Electro-mechanical	
Max Switch Voltage	150VDC/100VAC	100VDC/70VAC		300VDC/250VAC	
Max Switch/Carry Current	0.25A/1A	1A		2A	
Max Switch Power	3W	10W		60W	
Typical Operate Time	0.5ms			3ms	
Connector Type	200-pin LFH			78-pin D-type	
Card Size/Signalling	Single Slot Short PCI / Universal			Single Slot Short PCI / Universal	
Mating Connectors and Cabling Datasheet	90-012D			90-006D	
Spare Relay Kits	91-100-017/048/058/061/074			91-100-001	

Matrix Cards

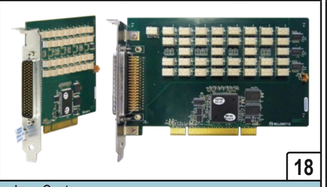
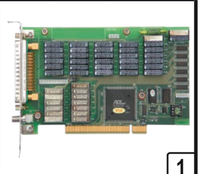
	Reed Relay Matrix				2 Amp Relay Matrix		
	2016 Update  12				5		
Features	• Reed Relay Matrix • High Density				• 2A Matrix • 128 Crosspoints		
Model Family	**50-510A**	**50-511A**	**50-512A**	**50-513A**	**50-527**	**50-528**	**50-529**
Configurations	Single 22x4, 1 or 2-Pole or 1-Pole Shielded	Dual 12x4, 1 or 2-Pole or 1-Pole Shielded	Single 22x8, 1 or 2-Pole or 1-Pole Shielded	Single 44x4. 1 or 2-Pole or 1-Pole Shielded	Single 32x2, 1-Pole	Single 32x4 or 16x4 1-Pole	Single 16x8 or 8x8, 1-Pole
Relay Type	Pickering Instrumentation Reed				Electro-mechanical		
Max Switch Voltage	150VDC/100VAC				300VDC/250VAC		
Max Switch/Carry Current	1A/1.2A				2A		
Max Switch Power	20W				60W		
Typical Operate Time	0.5ms				3ms		
Connector Type	68-pin micro-D				78-pin D-type	50-pin D-type	37-pin D-type
Card Size/Signalling	Single Slot PCI / Universal				Single Slot Short PCI / Universal		
Mating Connectors and Cabling Datasheet	90-015D				90-006D	90-005D	90-007D
Spare Relay Kits	91-100-003/008/011				91-100-001		

RF Cards

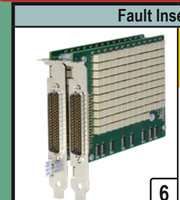
	RF Matrix	
	2016 Update 2	
Features	• X and Y Isolation Switching • 75Ω Version Suitable for Telecoms and High Quality Video Switching	
Model Family	**50-725A**	
Impedance	50Ω	75Ω
Configurations	8x9 Matrix	
Max Frequency	500MHz	250MHz
Insertion Loss	<3dB	
VSWR	<3:1	
Max Power	10W	
Typical Operate Time	0.5ms	
Relay Type	Instrumentation Reed	
Connector Type	SMB	
Card Size/Signalling	Single Slot Short PCI / Universal	

Number shows the quantity of cards in a particular range

Multiplexer Cards

	2 Amp MUX			High Density MUX			High Voltage MUX
	 18			2016 Update 12			 1
Features	• Low Cost • 2A Switching			• Wide Range of Configurations		• Very High Density	• Designed For Cable Testing Applications
Model Family	**50-635**			**50-670A-021**	**50-670A-022**	**50-671**	**50-350**
Configurations	Single - 64:1 or 32:1 1-Pole, 32:1 or 16:1 2-Pole, 16:1 or 8:1 4-Pole, 8:1 or 4:1 8-Pole	Dual - 32:1 or 16:1 1-Pole, 16:1 or 8:1 2-Pole, 8:1 or 4:1 4-Pole	Quad - 6:1 or 8:1 1-Pole, 8:1 or 4:1 2-Pole	Between 99:1 1-Pole & 5:1 16-Pole	Between 198:1 1-Pole & 5:1 32-Pole	4-Bank, 24:1, 2-Pole	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			0.5ms			0.5ms
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			91-100-013/016/018		91-100-001	—

Fault Insertion

	Fault Insertion Switches		
	 6	NEW 2016 4	
Features	• 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	75, 64 or 36 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	100V	
Max Switch/Carry Current	2A	0.3A (2A Fault Bus)	
Max Switch Power	60W	30W (60W Fault Bus)	
Typical Operate Time	3ms		
Connector Type	1 or 2x78-pin D-type	78-pin D-type	
Card Size/Signalling	Single or Dual Slot Short PCI / Universal	Single Slot Short PCI / Universal	
Mating Connectors & Cabling Datasheet	90-006D		
Spare Relay Kit	91-100-001		

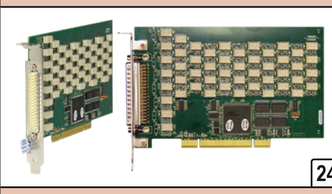
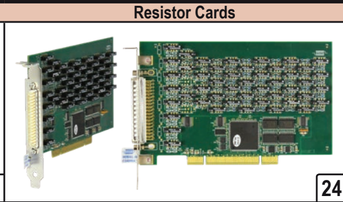
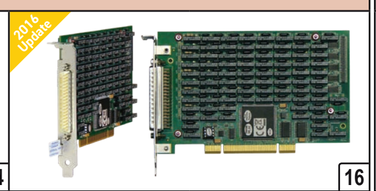
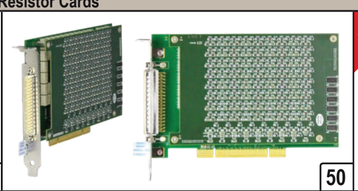
Digital I/O Cards

	Digital I/O Cards	
	2018 Update 1	1
Features	• 64ch Driver • Internal or External Relay Supply	• 32ch 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	

Waveform Generation

	Function Generator
	1
Features	• Simple Generation of Repetitive Arbitrary Waveforms
Model Family	**51-620**
Capability	Amplitude Modulation, Edge or Level Triggering, Settable DC Offset, Frequency Sweep
Number of Channels	3
Frequency Range	DC to 10MHz
Frequency Resolution	48-Bit
Clock Source	10MHz PXI clock or external clock
Connector Type	SMB
Card Size/Signalling	Single Slot Short PCI/ Universal
Mating Connectors & Cabling Datasheet	90-011D

Programmable Resistor Cards

	Resistor Cards				Precision Resistor Cards								
	 24	 24	2016 Update  16		2	2016 Update 15			 50	NEW 2018 50			
Features	• Short & Open Simulation • Simple Software Control • Based on Electro-mechanical Relays	• Short & Open Simulation • Fast Operation, Long Switching Life • Based on Pickering High Performance Reed Relays	• High Density Programmable Resistor • Custom Options Available	• High Density Potentiometer Card • Custom Options Available	• Emulates RTDs • High Accuracy, Fine Resolution	• Emulates Resistive Strain Gauge Bridge Circuits			• Simple Software Control • Short & Open Simulation • Based on Electro-mechanical Relays	• 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		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	0.25Ω, 0.5Ω, 1Ω or 2Ω		8, 12, 16 or 24-Bit		<10mΩ	<100mΩ	<2mΩ	<10mΩ	<12.5mΩ	<20mΩ	<25mΩ	0.125, 0.25, 0.5, 1 or 2Ω	
Accuracy	Card Accuracy ±0.3% ±0.1Ω	Card Accuracy ±0.3% ±0.2Ω	Resistor Accuracy ±0.5% (±1% >1MΩ)		Card Accuracy 0.1%		Card Accuracy 0.03%	Card Accuracy 0.06%				Card Accuracy ±0.2% ±Resolution	
Resistance Range	Up to 131kΩ		Up to 16MΩ		40Ω - 290Ω	400Ω - 2.9kΩ	350Ω Bridge	1kΩ Bridge	1.5kΩ Bridge	2kΩ Bridge	3kΩ Bridge	Up to 22.3MΩ	
Max Resistor Power	0.5W				100mW							0.5W	
Typical Operate Time	3ms	0.5ms			3ms								0.3ms
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	

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Pickering Interfaces

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Pickering PCI Card Map - 2018

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

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

Pickering is the **only PCI switch provider with in-house reed relay manufacturing capability**. These instrument grade reed relays feature ***SoftCenter®*** technology, ensuring long service life and repeatable contact performance (for further information visit www.pickeringrelay.com). In addition, most of our switch cards use through-hole technology relays (as opposed to surface mount) allowing easy replacement without the need for special tools.

New from Pickering, the High Density Series 120 reed relay with the world's smallest footprint of 4mm x 4mm. Switching up to 20 Watts, 1 Amp. Ideal for high density matrices and multiplexers.

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
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

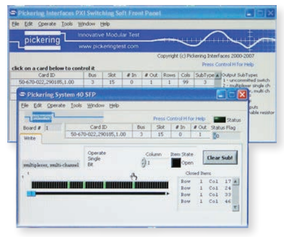
All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

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 33MHz 32-bit bus using either +5V or universal signalling (see individual card data sheets for details).



Software Compatibility

Our PCI Card drivers are compatible with all popular software: Windows, National Instruments products (LabVIEW, LabWindows/ CVI, Switch Executive, MAX, NI TestStand, etc.), Microsoft Visual Studio products (Visual Basic, Visual C+), Keysight (Agilent) VEE, Mathworks Matlab and Marvin ATEasy. and our Switch Path Manager - signal routing software.

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.

Pickering PCI cards can be freely mixed with PCI instrumentation cards from other vendors, including:

- ADLink (75 models)
- Contec (120 models)
- General Standards (80 models)
- Interface Corporation (40 models)
- Keysight (15 models)
- National Instruments (100 models)
- Spectrum (105 models).

(Note: these figures represent approximate model counts for February 2015)

PCI Card Accessories

Our PCI card range is fully supported by an extensive range of breakouts, cables and connectors that are outlined in the Cable & Connectors Map and Catalog. By utilizing our connection solutions, you are able to minimize the time required to specify your test system.

Cables & Connectors Catalog

Details the available cable and connector options we can supply for any card in the PCI range - 170 pages.

Cables & Connectors Map

Outlines the range of cable and connector options available for PCI and PXI switching products.

All books and catalogs can be ordered from your local sales office or downloaded from: https://www.pickeringtest.com/resources/literature

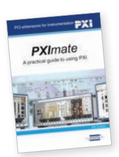
PXI from Pickering Interfaces

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 manufacturer of PXI switching modules. Offering the widest range of PXI switching solutions available, over 1000 modules, we can help you with your test and measurement requirements. We first entered the PXI market in 1998 and now offers more PXI modules than our competitors combined.

- Modules vary from our BRIC high density switching matrix, RF & microwave, 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

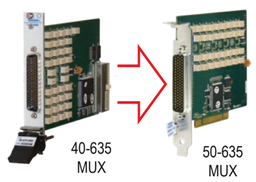


PXImate Book

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

The PXI Module Map

A fold-out selection guide to all our 1000+ PXI Modules.



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

Connectivity

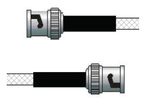
Cables & Connectors

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

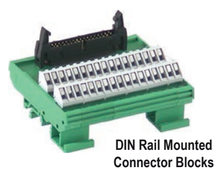
For more information please refer to our website: **pickeringtest.com/cables-connectors**

Connectors & Backshells

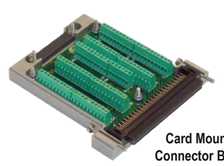


RF Cable Assemblies

Multiway Cable Assemblies



DIN Rail Mounted Connector Blocks



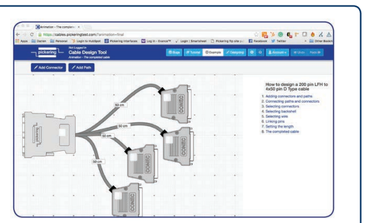
Card Mounted Connector Blocks

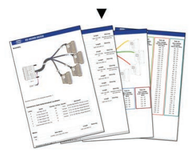
Cable Design Tool

Our Cable Design Tool is an 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 vist: **pickeringtest.com/cdt**





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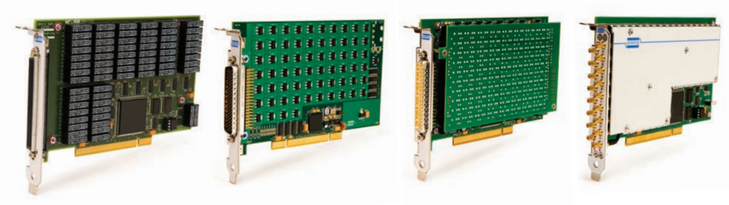
PCI Card Map

- **Switching** (Matrices, MUXs, Relays, Fault Insertion, RF)
- **Simulation** (Programmable Resistors, Function Generator, Digital I/O)
- **Cables & Connectors**



Pickering's PCI Card Map is a single sheet reference to our range of PCI Switching and Simulation cards, including their basic specifications and cabling options.

3 Year Warranty

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2018

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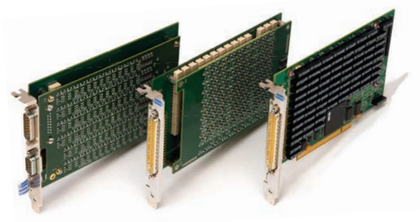
PCI Card Map



eBIRST Switching System Test Tools

The eBIRST test tools, available for all of our PCI switch cards, simplify switching system fault-finding by quickly testing the system and identifying the faulty relays. Once identified, the tools then display a graphical representation of the switching system's PCB assembly, highlighting the relays that need to be replaced.

To learn more about these tools, please visit our website at: pickeringtest.com/ebirst

Switching | Simulation | Programmable Resistors | Custom Design | Connectivity & Cables

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