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Find the *Pickering 40-220-001* at our website: ***Click HERE***

PXI Breadboard & Prototyping Module 40-220/225

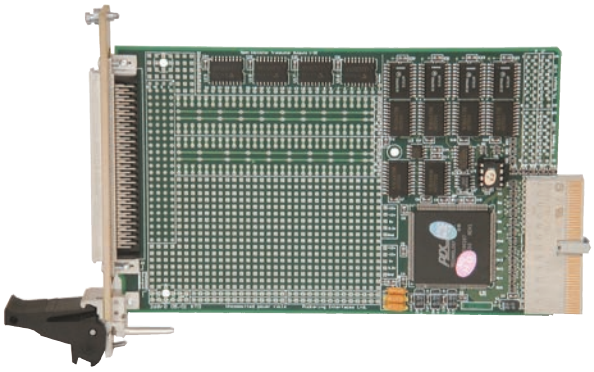
- Versatile PXI Breadboard with 65^{2}cm (10 Sq In) of Prototype Area
- Access to All PXI Power Supplies (+3.3V, +5V, +12V and -12V)
- Built-In Digital I/O, 32-Bits In, 32-Bits Out - TTL & Open Collector
- Programmable By Bit, Byte or Word
- TTL Outputs Suitable for Driving External Logic
- Open Collector Transistor Outputs Suitable for Driving Internal or External Relay Coils
- Operating Speed <10µs
- VISA, IVI & Kernel Drivers Supplied for Windows
- 3 Year Warranty

- 40-225 Prototype Module Has All Circuitry Removed



The 40-220 series of breadboard modules allow the user to construct their own circuit in situations where a PXI module is not available. For example, when it is required to integrate a non-switching function into a PXI chassis. The module is ideal for creating custom circuitry that can be housed in on a 3U board, or to build special one-off switching modules.

Two choices of output driver are available: TTL for interfacing with external logic and Open Collector Transistors for operating external devices with voltages up to 50VDC and current up to 500mA.



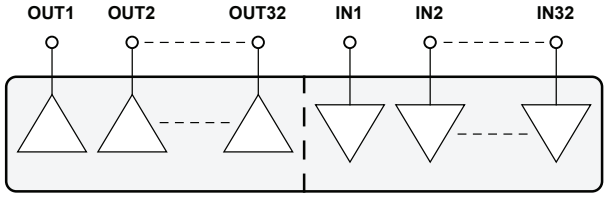
Top view of the 40-220 Breadboard PCB showing the circuit construction area. If required, the user can fit their own daughter card using the fixing holes provided.

To simplify programming, reading and writing data for the digital I/O can be done at bit, byte or word level. I/O applications include generating control signals or reading stimulus and sensing status from digital devices.

Pickering can construct and test breadboard circuits to your exact specifications, please contact sales office to discuss your application in detail.

Typical Applications

- Construction of Special One-Off Circuits
- Programmable Amplifiers
- Programmable Attenuators
- Filters
- Special Circuits to Drive External Relays
- Mounting Special Relay Types
- Dummy Multiplexer Channels for Calibration Purposes



Digital I/O Capabillity Of The 40-220 Breadboard Module

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General Specification (40-220)

TTL Output Driver	
Maximum Drive:	15 TTL Inputs
Maximum Voltage:	7V*
Maximum Current Drive:	Sink 8mA, Source 0.4mA
Operate/Release Time:	<10µs

Open Collector Transistor	
Driver Device:	ULN2803LW o.c. driver
Maximum Standoff Volts:	50V*
Maximum Power per o/p:	1.0W
Maximum Power per byte:	1.6W
Maximum Current Drive:	500mA
Operate/Release Time:	<10µs

Digital Input (All Models)	
Maximum Standoff Volts:	7V*
Nominal True Voltage:	>2.0V
Maximum Power per byte:	<0.8V
Data is strobed when the read operation executes	

* For full voltage rating, signal sources must be fully isolated from mains supply and safety earth.

Note: Care must be taken when interfacing the 40-220 module with external circuits which may produce high voltage spikes or RF interference. Additional noise protection may be required, please contact Pickering if you wish to discuss your requirement.

40-225 PXI Prototype Module

The 40-255 is a “stripped down“ version of the 40-220. This is a very basic, low cost, prototype module. It has no PXI interface, but does have access to the PXI backplane power supplies via on-board fuses.

The 40-225 is available with either a 1 slot or 2 slot front panel. The front panel can be supplied blank or fitted with a 96-pin micro-D plug.

General Breadboard Details

Square pad and DIP construction areas. Approximately 65^{2}cm (10 sq inches) of prototype area. 0.1” grid spacing.

Maximum Component Height:	13mm
Maximum Lead Length Below PCB:	1.52mm (defined by PXI)

Power Supply

All four PXI system voltages are available (+3.3V, +5V & ±12V) up to 1 Amp each (within the overall limit of the power supply). The power supplies are protected with on-board fuses rated at 1A.

The 5V and Ground lines are routed around the workspace area to facilitate easy circuit construction.

Power Requirements

Power consumption from the 5V backplane supply is as follows:
0.9W + 0.25W from User 5V.

Mechanical Characteristics

Single or Dual slot 3U PXI (CompactPCI card).
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 96-pin male micro-D connector, for pin outs please refer to the operating manual.

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

Breadboard Module 32 In/32 Out (TTL & Open Collector Outputs), 1 Slot	40-220-001
Prototype Modules Bare PCB with Blank Front Panel (Without I/O), 1 Slot	40-225-001
Bare PCB with Blank Front Panel (Without I/O), 2 Slot	40-225-002
Bare PCB with 96-Pin Micro-D Plug, (Without I/O), 1 Slot	40-225-101
Bare PCB with 96-Pin Micro-D Plug, (Without I/O), 2 Slot	40-225-102

Other options are available. Please contact the sales office to discuss you requirements.

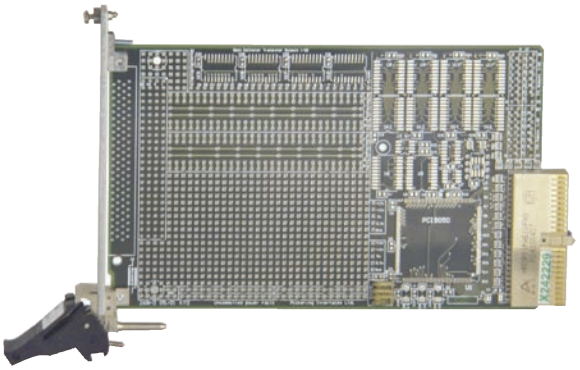
Product Customization

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.

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.

Mating Connectors & Cabling

For connection accessories for the 40-220/225 series please refer to the 90-016D 96-pin micro-D Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.



The 40-225-001 Prototype Module.
This module is for the construction of circuits which do not need an active PXI interface, just power supply access.



The 40-225-101 Prototype Module.
This is the same as above with a 96-pin micro-D plug fitted.

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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

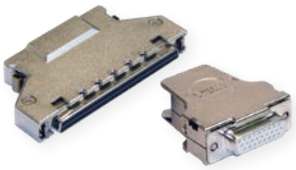
Pickering LXI or LXI/USB Modular Chassis—only accept our 1000+ PXI Switching & Simulation Modules:

- 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

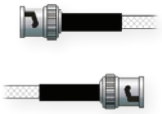
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules.



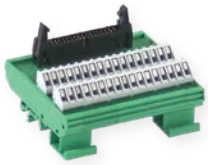
Connectors & Backshells



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.



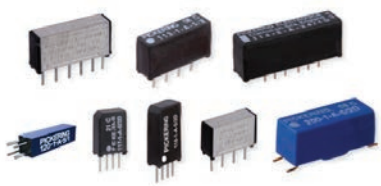
Mass Interconnect

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 sister company, Pickering Electronics. 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 is also compatible with Real-Time Operating Systems such as LabVIEW 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+)
- **Keysight** VEE
- **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

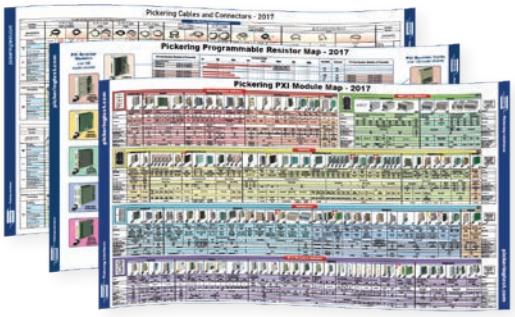
Three Year Warranty & Guaranteed Long-Term Support

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, as well as complete product catalogs and product reference maps to assist when looking for the switching, simulation and cable and connector solutions you need. We have also published handy reference books for the PXI and LXI standards.







To view, download or request any of our product resources, please visit: pickeringtest.com/resources

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We buy equipment

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Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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