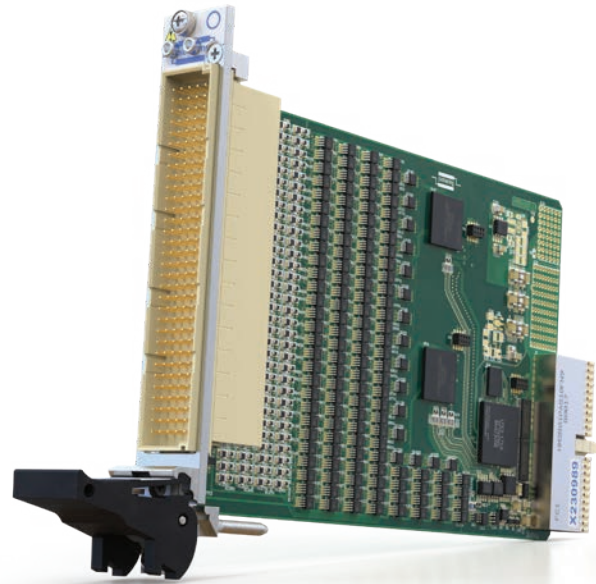


PRELIMINARY DATA

- Available as a PXI or PXIe Module
- 128 Channel Digital Inputs
- Dual Programmable Thresholds on all Channels
- Up to 300 V Inputs
- Independent Banks of 8 Channels Allow Use With Multiple Voltage Threshold Systems
- Drivers Supplied for Windows and Linux, Plus Support for Real-time Systems
- PXI Versions Supported by PXI or LXI Chassis
- 3 Year Warranty

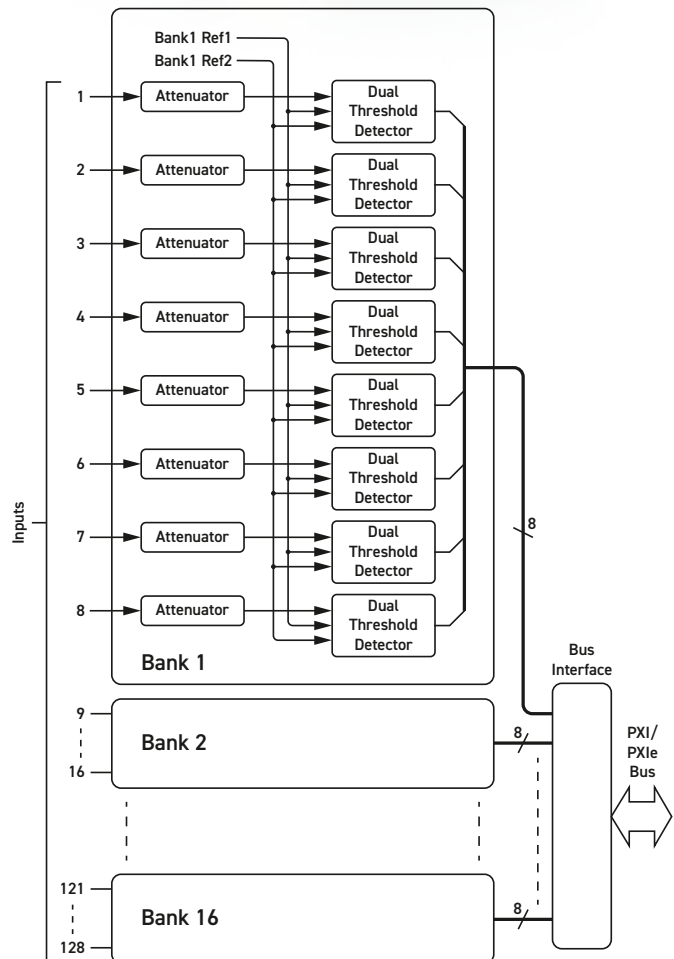


The 40-414 (PXI) and 42-414 (PXIe) provide a convenient way of determining the status of input lines by comparing the input voltage with two threshold voltages - quickly establishing if the input is low, high or in an intermediate logic state.

The inputs are arranged in banks of 8 channels, each bank having an independent pair of threshold voltages. This allows systems with a mixture of supply voltages to be supported with different criteria. The threshold voltages can be set from 0 to 300 V and are independently set for each bank. The use of two thresholds allows the user to determine the logic state of a selected input within a bank. The state of each input can be read independently or in one parallel block.

The 40/42-414 provides an effective solution to establishing the state of digital signals such as those used in transport systems, avoiding the use of external signal conditioning circuits therefore reducing the complexity and footprint.

The user connector is a simple to manage 160-pin DIN 41612 type which is fully supported by Pickering's range of cable connector accessories.



40/42-414 128-Channel High Density Digital Input Module

Specification

No. of Input Channels:	128 organised in 16 banks of 8 channels.
Logic Threshold:	For each bank, the input is compared to two voltage thresholds which are settable by the user. The thresholds are independent for each bank.
Threshold Setting:	When set to an absolute voltage, settable from 0 to 50 V, 100 V, 200 V or 300 V depending on the variant.
Threshold Resolution:	14-bit
Input Impedance:	1 MΩ
Next Loading:	100 kΩ
Settling Time:	50 μs following a state change at input.

Power Requirements - 40-414

+3.3V	+5V	+12V	-12V
TBD	TBD	0	0

Power Requirements - 42-414

+3.3V	+12V
TBD	TBD

Mechanical Characteristics

40-414 - Single slot 3U PXI (CompactPCI card).

42-414 - Single slot 3U PXIe, compatible with PXIe hybrid slot.

Module weight: <500 g

3D models for all versions in a variety of popular file formats are available on request.

Connectors

40-414 - PXI bus via 32-bit P1/J1 backplane connector.

42-414 - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via male 160-pin DIN 41612 connector. Please refer to the user manual for pin out information

PXI & CompactPCI Compliance - 40-414

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

PXIe Compliance - 42-414

The module is compliant with the PXIe Specification 1.0. Local Bus, Trigger Bus & Star Trigger are not implemented.

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.

Operating/Storage Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000 m
Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000 m

Product Order Codes

PXI High Density Digital Input Module		
128 Channel, 50 V		40-414-101
96 Channel, 50 V		40-414-102
64 Channel, 50 V		40-414-103
32 Channel, 50 V		40-414-104
PXIe High Density Digital Input Module		
128 Channel, 50 V		42-414-101
96 Channel, 50 V		42-414-102
64 Channel, 50 V		42-414-103
32 Channel, 50 V		42-414-104
PXI High Density Digital Input Module		
128 Channel, 100 V		40-414-201
96 Channel, 100 V		40-414-202
64 Channel, 100 V		40-414-203
32 Channel, 100 V		40-414-204
PXIe High Density Digital Input Module		
128 Channel, 100 V		42-414-201
96 Channel, 100 V		42-414-202
64 Channel, 100 V		42-414-203
32 Channel, 100 V		42-414-204
PXI High Density Digital Input Module		
128 Channel, 200 V		40-414-301
96 Channel, 200 V		40-414-302
64 Channel, 200 V		40-414-303
32 Channel, 200 V		40-414-304
PXIe High Density Digital Input Module		
128 Channel, 200 V		42-414-301
96 Channel, 200 V		42-414-302
64 Channel, 200 V		42-414-303
32 Channel, 200 V		42-414-304
PXI High Density Digital Input Module		
128 Channel, 300 V		40-414-401
96 Channel, 300 V		40-414-402
64 Channel, 300 V		40-414-403
32 Channel, 300 V		40-414-404
PXIe High Density Digital Input Module		
128 Channel, 300 V		42-414-401
96 Channel, 300 V		42-414-402
64 Channel, 300 V		42-414-403
32 Channel, 300 V		42-414-404

Product Customization

Pickering 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.

Connection Accessories

For a complete list of connection accessories and documentation for the 40/42-414 module, please refer to our [160-pin DIN 41612 datasheet \(90-001D\)](#).



42-414-101 128-Channel High Density Digital Input Module in PXIe Format

PRELIMINARY DATA

Chassis Compatibility

The PXI versions of this module are 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

The PXIe versions of this module are compatible with the following chassis types:

- All chassis conforming to the 3U PXIe specification
- PXIe and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis

Chassis Selection Guide

PXI and PXIe (with PXIe and/or Hybrid slots) Chassis from any Vendor:

- Mix our 1000+ PXI/PXIe switching & simulation modules with any vendor's PXI/PXIe 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 PXI Switching & Simulation Modules:

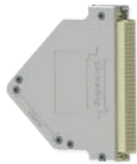
- Choose from 1000+ Pickering PXI Modules
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating system



PRELIMINARY DATA

Connectivity Solutions

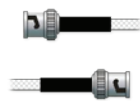
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules. These accessories are detailed in Connector Accessories data sheets, where a complete list and documentation can be found for each accessory.



Connectors & Backshells



Multi-way Cable Assemblies



RF Cable Assemblies



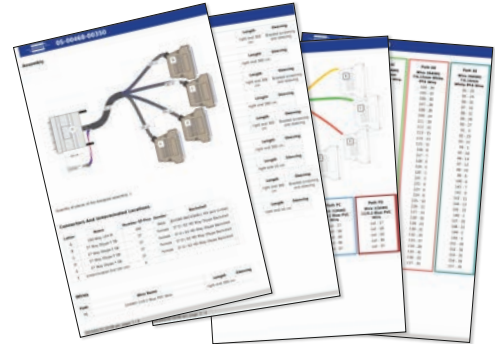
Breakouts



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.

- Fully supported on modern browsers and tablet operating systems.
- Built-in tutorials and videos allow you to get quickly up to speed.
- Store cable assemblies in the Cloud and develop over time.
- Each cable design has a downloadable PDF documentation file detailing all specifications



Start designing your custom cabling, go to pickeringtest.com/cdt

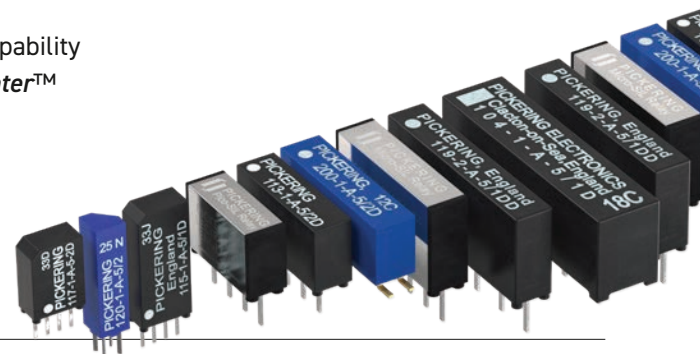
Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for PXI/LXI based test systems. Our modules are fully supported by Virginia Panel and MacPanel.

Pickering Reed Relays

We are the only switch provider with in-house reed relay manufacturing capability via our Relay Division. These instrument grade reed relays feature **SoftCenter™** technology, ensuring long service life and repeatable contact performance.

To learn more go to pickeringrelay.com



PRELIMINARY DATA

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 more information go to pickeringtest.com/os

The VISA driver support is provided for LabVIEW Real Time Operating Systems (Pharlap and Linux-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++)
- Programming Languages C, C++, C#, Python
- Keysight VEE and OpenTAP
- Mathworks MATLAB, Simulink
- Marvin ATEasy
- MTQ Testsolutions Tecap Test & Measurement Suite

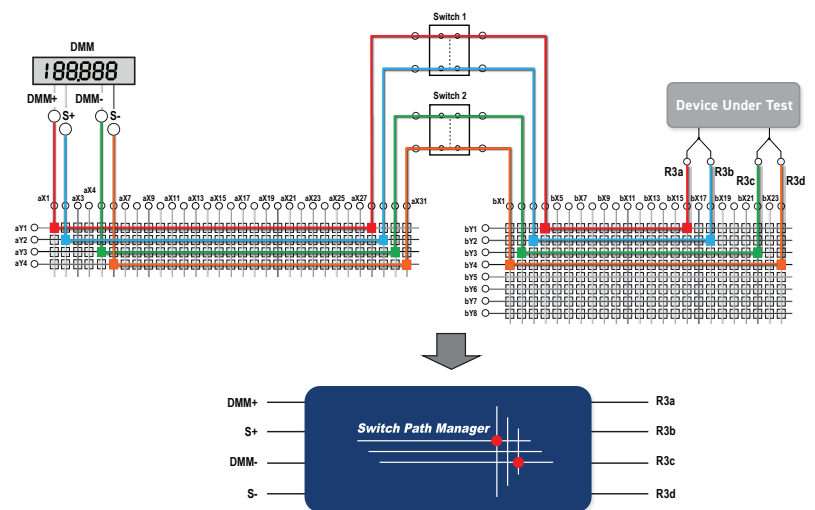
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments 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 go to pickeringtest.com/spm



PRELIMINARY DATA

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 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 three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available with various levels for 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 go to pickeringtest.com/support

Available Product Resources

We have a library of resources including success stories, product and support videos, articles and white papers as well as application-specific brochures to assist you. We have also published reference books on switching technology and the PXI and LXI standards.

To view, download or request any of our product resources go to pickeringtest.com/resources

