- Provides Seamless Interface Between a PC Controller PCI and PXI Chassis
- Supports Two PXI Chassis From A Single PCI Card
- 2.5Gb/s StarFabric™ Serial Interface Ensures Fast Operation
- Supports 32/64 Bit & 33/66MHz PCI Interfacing
- Compatible With Windows 7 32/64 Bit
- Uses RJ45 Connectors, Shielded Cat 5E Cables
- Operating System Independent
- Low Power Consumption, Supporting 5V and 3.3V PCI
- Single Slot 3U PXI Module (41-921A)
- Single Slot Short PCI Card (51-921A)
- 3 Year Warranty

The 41-921A and 51-921A provide a seamless connection between a control PC's PCI interface and a PXI chassis. The 51-921A resides in one of the controller's PCI slots and provides two independent StarFabric™ serial interfaces, each capable of driving a separate PXI chassis.

The 41-921A resides in the Slot 1 position of a PXI chassis and interfaces to the backplane of the PXI chassis. When located in a generic peripheral slot the 41-921A can be used to drive two extension PXI chassis.

The use of the StarFabric™ interface operating at 2.5Gb/s minimizes the impact on system speed. The PCI interface of the 51-921A supports both 32-bit and 64-bit operation and backplane speeds of 33MHz and 66MHz, ensuring the highest speed of operation under all conditions. The interface ensures the modules perform seamlessly with no impact on the test system software.

The serial interface connections are made using RJ45 connectors and shielded twisted pair cables (2 per interface connection) to cover distances up to 10m.
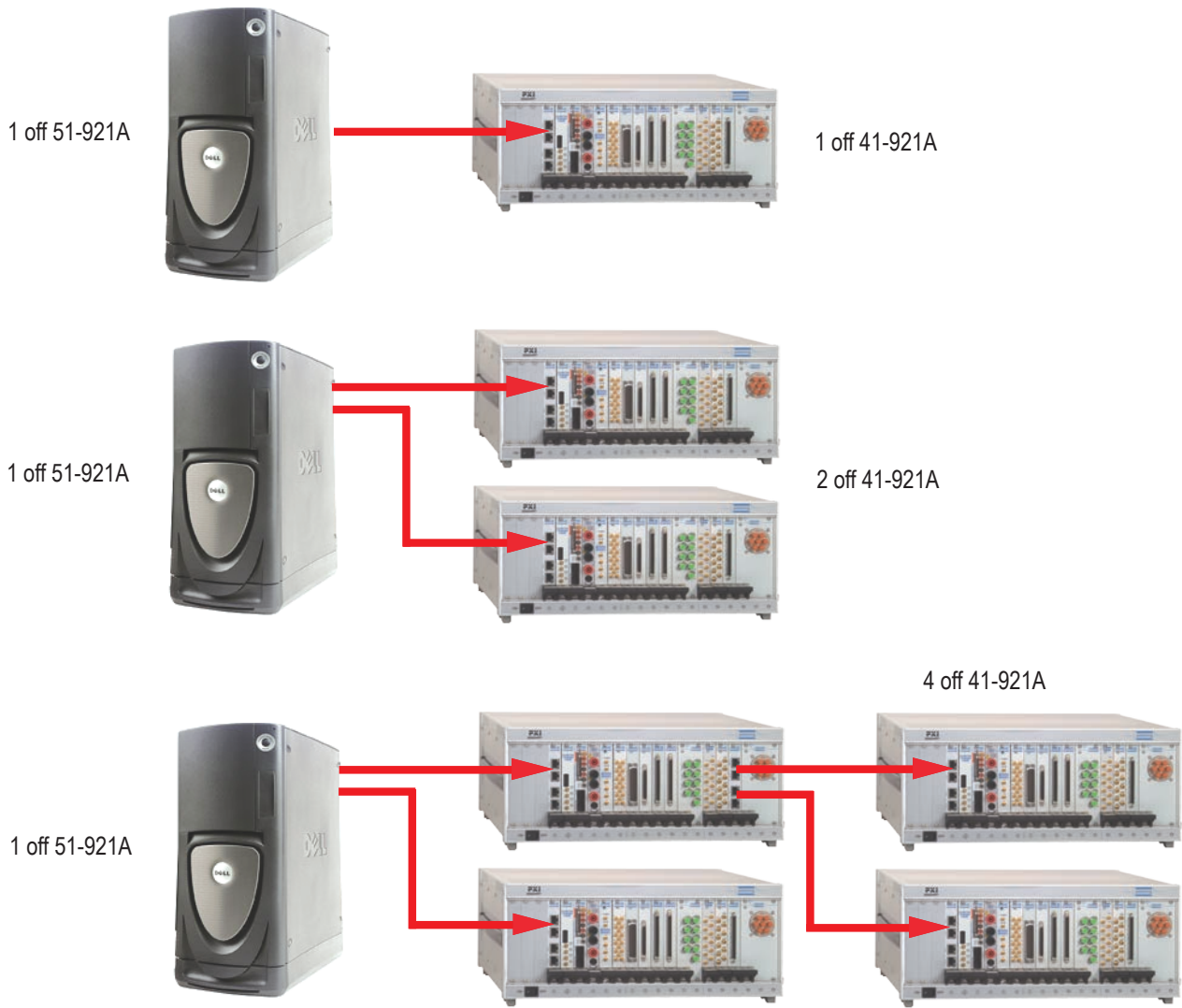
The 41-921A and 51-921A are designed to minimize the space and cost of the control interface in both the control computer and the PXI chassis.
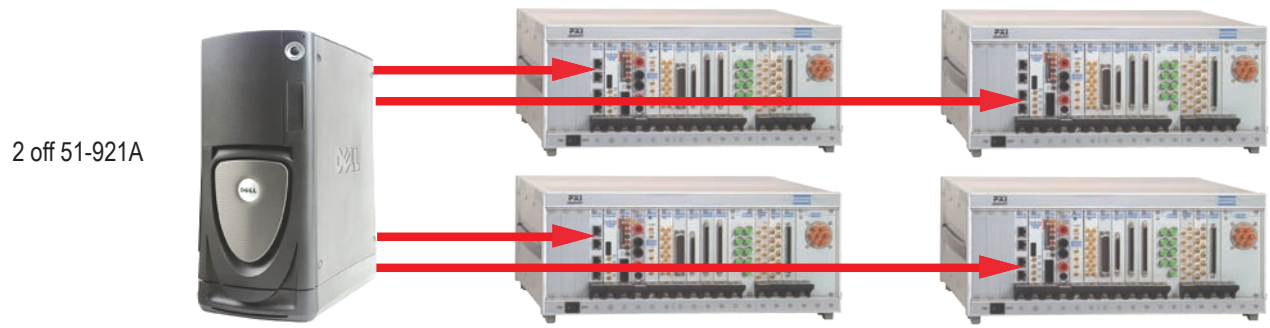

Typical PXI System Using the 41-921A Remote Control Interface

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Typical System Configurations

Based on Single 51-921A module.

1 off 51-921A 1 off 41-921A

1 off 51-921A 2 off 41-921A

4 off 41-921A

1 off 51-921A

Based on Dual 51-921 modules.

4 off 41-921A

2 off 51-921A

The 41-921A and 50-921A modules each support two serial interfaces allowing the cost effective expansion of PXI test systems with the minimum number of slots being consumed.

Specification

Functionality:
51-921A provides two ports between PCI backplane and independent StarFabric serial interfaces.
41-921A provides a StarFabric serial interface connection to the PXI backplane. When placed in a generic PXI slot the 40-921A provides two StarFabric interfaces that extend the PXI chassis connection to two further chassis. Further chassis can be added in daisy chain or tree arrangements.
Operation of the modules is operating system and test system software independent
Chassis Compatibility:
51-921A is suitable for any PC with a single PCI slot.
41-921A is suitable for any chassis compliant with the PXI/cPCI standard
Maximum Data Transfer:
132 Mbytes/sec (32 bit, 33 MHz PCI)
528 Mbytes/sec (64 bit, 66 MHz PCI)
Maximum Connection Distance:
10 m using shielded RJ 45 Cat 5E cables (two per link)
Fitting:
51-921A: 1 PCI slot of the control PC
41-921A: 1 slot of 3U or 6U PXI/cPCI chassis (using a mechanical adaptor)
Each module supports two StarFabric serial interfaces.

Power Requirements

	+3.3V	+5V	+12V	-12V
51-921	250mA	190mA	0	0
41-921	0	540mA	0	0

Mechanical Characteristics

51-921A: Single slot short PCI Card

41-921A: Single 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.
Serial interface connections use RJ45 connectors, 2 pairs per interface.

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

All Pickering Interfaces PXI modules comply with the PXI Specification 2.2. Local Bus, Interrupts, Trigger Bus and 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.*

Comparison With National Instruments MXI-4™

National Instruments launched the original MXI-3 serial remote interface for PXI in the late '90s. Pickering's 41-921A/51-921A has all the capabilities of the original MXI-3 but with much improved capacity, operating speed, bus width and value and all built around an industry standard interconnect, StarFabric™.

	Pickering 41-921A/51-921A	National Instruments MXI-4
Transparent Operation	Yes	Yes
Supports All OSs	Yes	Yes
Supports Both 3.3V and 5V PCI	Yes	Yes
Uses Industry Standard Interconnect	Yes, StarFabric™	No, Proprietary
Bus Speeds Supported	33MHz and 66MHz	33MHz only
Bus Widths Supported	32 Bit and 64 Bit	32 Bit only
Uses Low Cost Cabling	Yes	No, Proprietory only
Supports 1 or 2 PXI Chassis	Yes	1 only

Product Order Codes

PCI to PXI Remote Control Kit	41-921A-001-KIT

(Complete kit 51-921A-001, 41-921A-001, 2xCat5E 2m cables)

PCI to Star Fabric Module	51-921A-001
Star Fabric to PXI Module	41-921A-001

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.

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
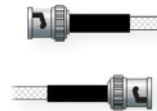- Independence from Windows operating system

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

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.

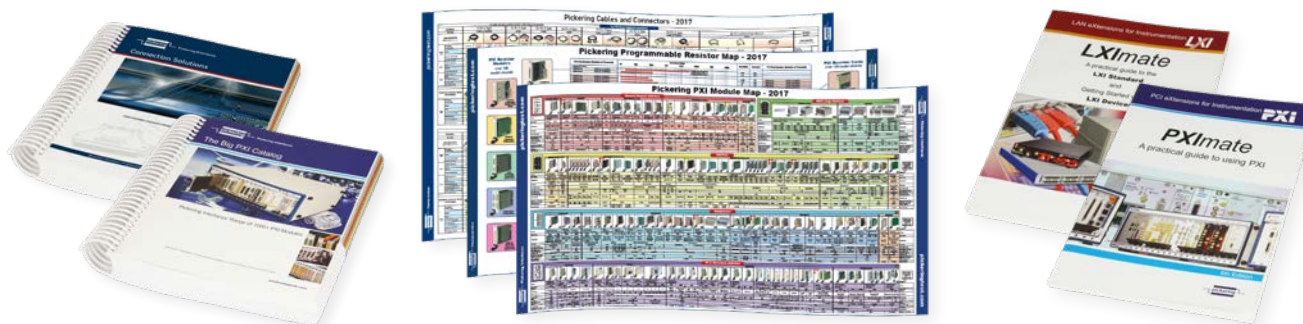To learn more, please go to: pickeringtest.com/ebirst

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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