- Fully Isolated 0 to 48 V PSU
- High Accuracy and Low Noise
- Current Capacity 2 A to 20 V, 0.8 A at 48 V
- Remote Sense Connections
- Programmable Current Limit
- Voltage Monitor
- Trigger For Measurement Operation or Output Update
- Backplane Power From 2 PXI Slots
- VISA & IVI Drivers Supplied For Windows Plus Soft Front Panel
- Supported by PXI or LXI Chassis

The 41-743 is a fully isolated programmable power supply capable of delivering voltages to 48 V with a resolution of less than 1 mV. It can deliver up to 40 W and requires no external power source – power is drawn from two PXI backplane slots.

Sense connections allow the 41-743 to regulate voltages at a remote point to improve accuracy of test results when wiring losses are significant. The sense facility can be set to use a remote connection or to regulate the output at the front panel terminals.
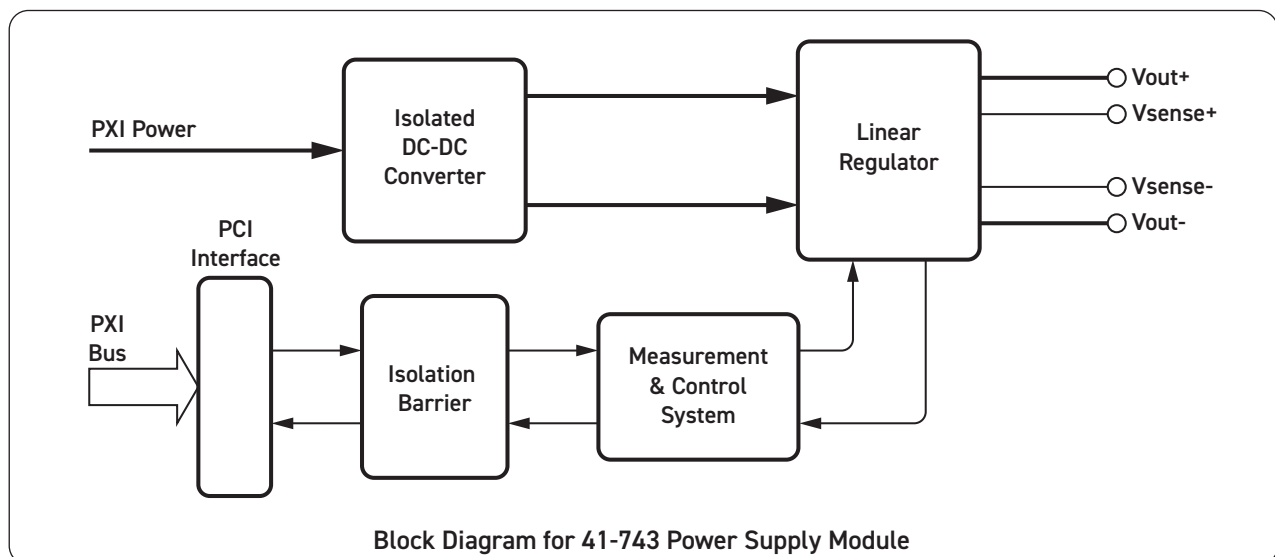
A programmable current limit protects switching systems and the UUT when faults cause excessive current.

A monitor facility allows the user to read the actual voltage being supplied and the current delivered to the load.

A trigger function allows the 41-743 to execute output current limit or voltage settings in response to a hardware event from the front panel or from the PXI Trigger Bus. The trigger also supports the capture of current and voltage measurements at the output, a buffer allows results to be stored and read when the system is ready. Measurements can also be made at timed intervals.

Output voltage rise time is controlled to avoid excessive inrush current damaging the switching system when driving capacitive loads.

The 41-743 can be supported by any PXI chassis or by Pickering Interfaces' LXI modular chassis.

Block Diagram for 41-743 Power Supply Module

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Specification

Output Voltage Range:	0 V to 48 V, 0.74 mV nominal resolution.
Output Voltage Accuracy:	±0.2 % ±25 mV.
Voltage Slew Rate:	1 V/ms nominal at full load
Output Noise:	1.5 mVrms, 6 mV peak to peak, full load, DC to 1 MHz.
Output Current Range:	2 A to 20 V, de-rating linearly to 0.8 A at 48 V.
Current Limit:	0 to 2 A, 34 µA nominal resolution.
Current Limit Accuracy:	±0.5 % of set value ±10 mA.
Voltage Sense:	Voltage sense lines compensate for up to 0.5 V voltage drop (0.25 V for each connection), can be switched to sense output voltage on user connector.
Current Monitor:	Accuracy: ±0.2 % of reading ±5 mA Resolution: 35 µA
Voltage Monitor:	Accuracy: ±0.1 % of reading ±10 mV Resolution: 0.74 mV
Isolation Barrier:	Designed with ±250 V isolation barrier, recommended to ±60 V relative to PXI ground. >100 MΩ insulation resistance from voltage outputs to PXI ground.
Trigger Input:	Front panel or PXI Trigger Bus. Permits triggered output changes or measurements, permits sampled output measurements at time intervals in multiple of 100 µs, permits a sequence of output changes from stored settings. Minimum trigger width 20 µs. Front panel trigger input is optically isolated, maximum input voltage +12 V, 50 mA.

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
750 mA	12 A max (from 2 slots)	60 mA	0
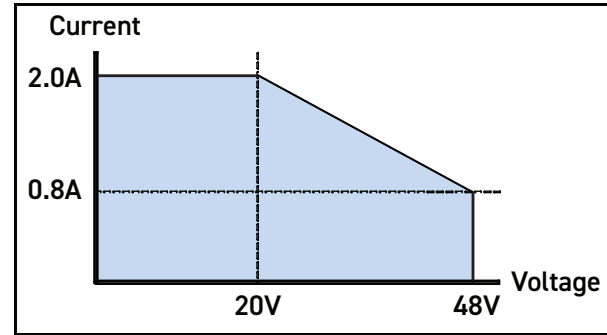
41-743 Safe Operational Area

Mechanical Characteristics

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.

Power supply outputs & sense: 4-pin plug-in screw terminal block

Trigger Input: SMB coaxial 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:	5000 m

Storage and Transport Conditions

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

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Uses a 33 MHz 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.*

Product Order Codes

0-48Vdc Programmable Power Supply	**41-743-001**

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.

Mating Connectors & Cabling

The 41-743 is supplied with a 4-pin female plug-in connector block with screw terminals for the user to construct their own cabling.

Pickering can supply spare 4-pin female plug-in connectors, contact the sales office for details.

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
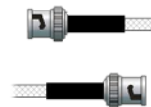- Independence from Windows operating system

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 Relay Division. 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 and OpenTAP
- **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
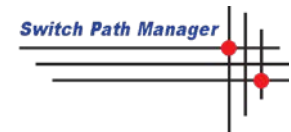
Diagnostic Relay Test Tools

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 and white papers as well as application specific product brochures to assist when looking for the switching, simulation and connection solutions you need. We have also published handy reference books on Switching Technology and for the PXI and LXI standards.

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