PRODUCT FLYER

PXI Programmable Power Supplies

CONTENTS

PXI Programmable Power Supplies

PXIe-4112 and PXIe-4113

- **Software:** Includes interactive soft front panel, API support for LabVIEW and text-based languages, shipping examples, and detailed help files

- Two isolated, 60 W channels per module

- Hardware timing and triggering

- Output disconnect relays

- Four-wire remote sense

- Built-in voltage and current readback

Built for Automated Test and Measurement

NI PXI Express power supplies provide two isolated, 60 W channels in a single PXI slot. The combined capability of 120 W of power in a single PXI slot simplifies the task of designing automated test systems by saving expensive rack space and reducing the need for multiple instrument form factors within the test system. The fully programmable power supplies have output disconnect relays to isolate the instrument from the device under test (DUT), remote sense to correct for losses in system wiring, and integrated timing and synchronization through the PXI platform. Combining these standard power supply features with a tightly integrated programming API and the PXI platform makes these instruments ideal for automated test applications in aerospace and defense, transportation, consumer electronics, and more.

Table 1. NI programmable power supplies provide reliable and accurate power for a variety of automated test applications.

	PXIe-4112	PXIe-4113
Number of Isolated Channels	2	2
Maximum Voltage (V)	60	10
Maximum DC Current (A)	1	6
Voltage Programming Resolution (mv)	2	0.32
Current Programming Resolution (µA)	34	190
Maximum Sampling Rate (S/s)	5,250	5,250
Output Disconnect Relays	●	●
4-wire Remote Sense	●	●
Hardware Timing and Triggering	●	●
Auxiliary Power Supply	●	●

Detailed View of the PXIe-4112
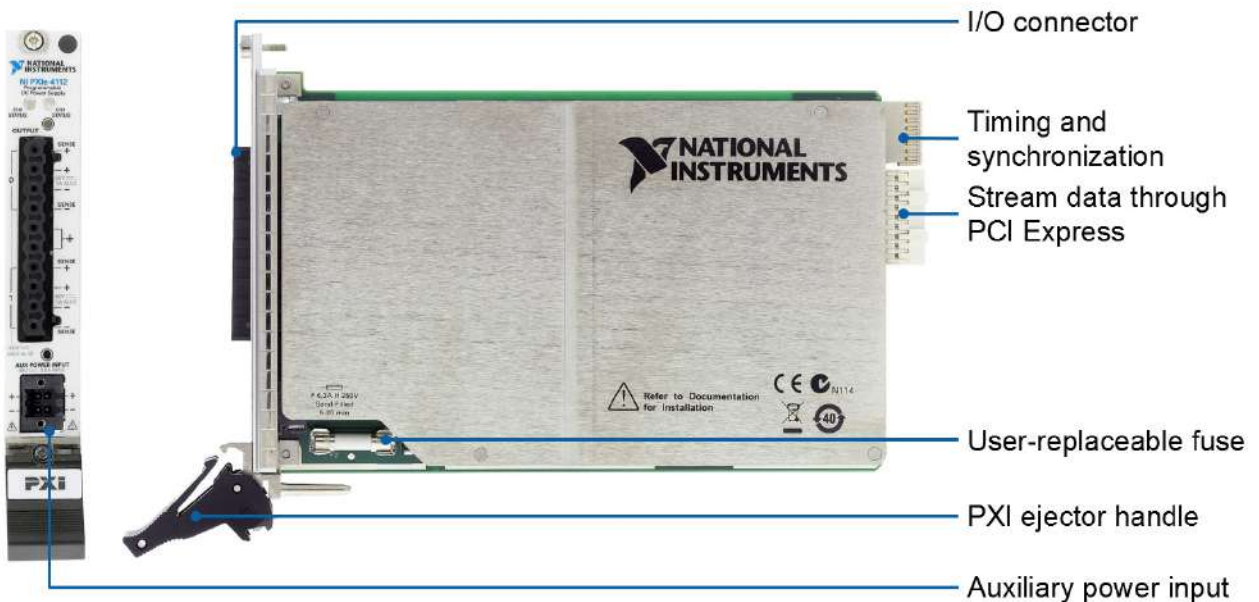
Key Features

Output Disconnect Relays and Remote Sense

NI power supplies give you the flexibility to programmatically disconnect the output of the instrument and to configure local or remote sense for each channel. Programmatically disconnecting the output of the power supply allows you to isolate the instrument from your DUT without manually disconnecting the output or routing the power supply through an external relay. Remote sense uses a pair of high impedance sense lines to measure the voltage at your DUT and compensate for any voltage drop between the terminals of the power supply and the DUT.
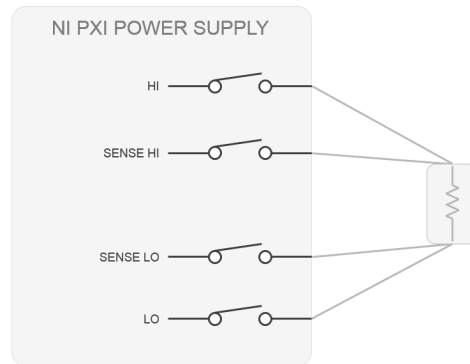

Figure 1. PXI Power Supplies allow you to isolate the instrument from your DUT without manually disconnecting the output or routing the power supply through an external relay.

Hardware Timed Sequencing and Triggering

NI power supplies have a hardware-timed, deterministic sequencing engine that allows the instrument to execute commands and acquire data without any intervention from the host software. This eliminates the software overhead and jitter associated with software controlled sequences, and reduces the execution time of your overall test. The timing engine also gives you the flexibility to repeat a sequence for a finite number of steps, or continuously source and measure for an infinite amount of time. Each instrument has numerous triggers and events such as source trigger, measure trigger, and measure complete, that you can share via the backplane of the PXI chassis to communicate between different instruments. This allows you to synchronize the start of multiple power supplies, create nested sweeps, or send/receive commands from other instruments like oscilloscopes and RF analyzers.

InstrumentStudio Software for Interactive Measurements

InstrumentStudio helps you to unify your display, export instrument configurations to code, and monitor and debug your automated test system. You can view data on unified displays with large, high-resolution monitors, and then capture multi-instrument screenshots and measurement results. Save project-level configurations for easier test repeatability with specific devices under test, or export instrument configurations to programming environments to simplify your code and guarantee measurement correlation. You can also use InstrumentStudio in parallel with your code to monitor and debug running test applications. InstrumentStudio is free software included with NI-SCOPE, NI-FGEN, NI-DMM, and NI-DCPower driver downloads 18.1 and later.
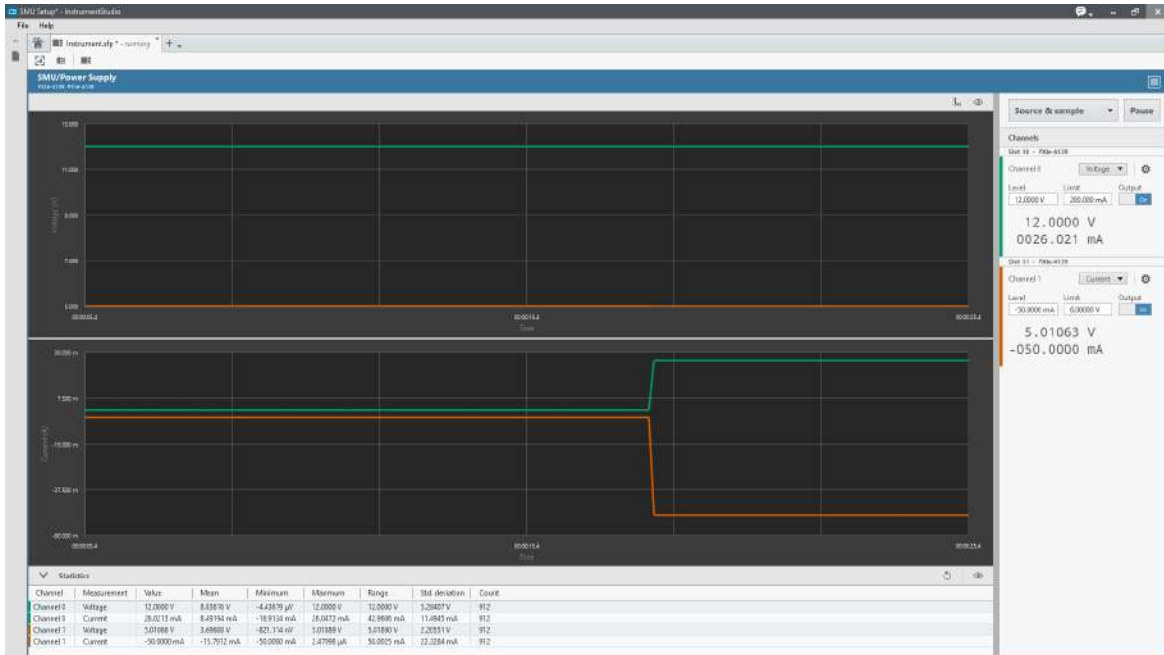

NI-DCPOWER Application Programming Interface (API)

In addition to the soft front panel, the NI-DCPower driver includes a best-in-class API that works with a variety of development options such as LabVIEW, C/C++, C#, and others. To ensure long-term interoperability of SMUs and power supplies, the NI-DCPower driver API is the same API used for all past and current NI SMUs and power supplies. The driver also provides access to help files, documentation, and dozens of ready-to-run shipping examples you can use as a starting point for your application.

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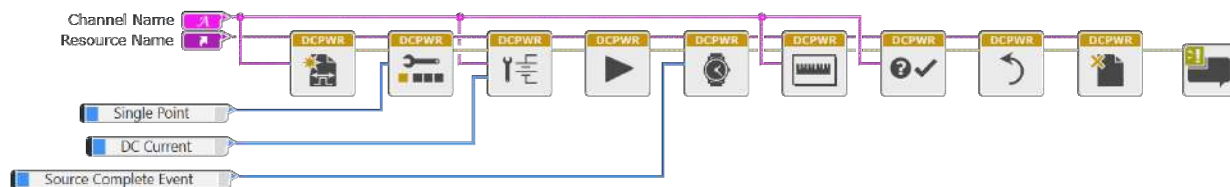
Platform-Based Approach to Test and Measurement

What Is PXI?

Powered by software, PXI is a rugged PC-based platform for measurement and automation systems. PXI combines PCI electrical-bus features with the modular, Eurocard packaging of CompactPCI and then adds specialized synchronization buses and key software features. PXI is both a high-performance and low-cost deployment platform for applications such as manufacturing test, military and aerospace, machine monitoring, automotive, and industrial test. Developed in 1997 and launched in 1998, PXI is an open industry standard governed by the PXI Systems Alliance (PXISA), a group of more than 70 companies chartered to promote the PXI standard, ensure interoperability, and maintain the PXI specification.
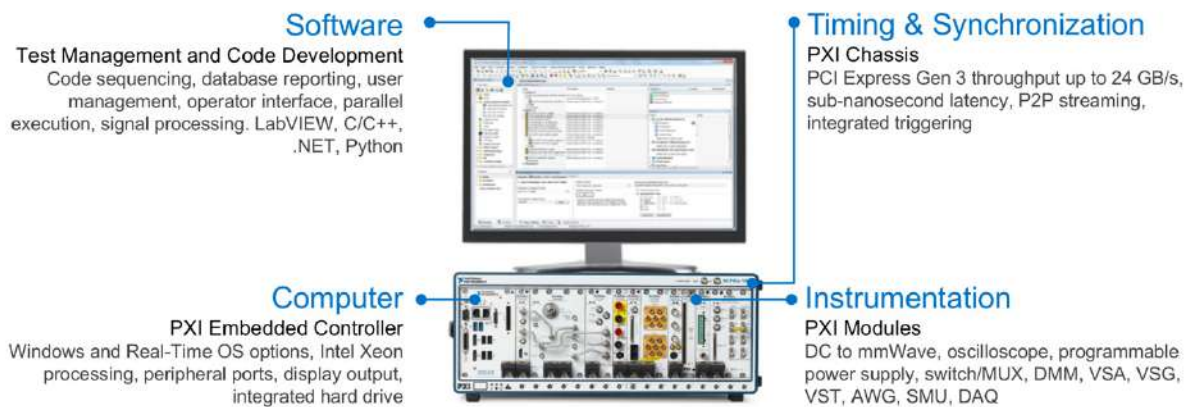
Integrating the Latest Commercial Technology

By leveraging the latest commercial technology for our products, we can continually deliver high-performance and high-quality products to our users at a competitive price. The latest PCI Express Gen 3 switches deliver higher data throughput, the latest Intel multicore processors facilitate faster and more efficient parallel (multisite) testing, the latest FPGAs from Xilinx help to push signal processing algorithms to the edge to accelerate measurements, and the latest data converters from TI and ADI continually increase the measurement range and performance of our instrumentation.

PXI Instrumentation

NI offers more than 600 different PXI modules ranging from DC to mmWave. Because PXI is an open industry standard, nearly 1,500 products are available from more than 70 different instrument vendors. With standard processing and control functions designated to a controller, PXI instruments need to contain only the actual instrumentation circuitry, which provides effective performance in a small footprint. Combined with a chassis and controller, PXI systems feature high-throughput data movement using PCI Express bus interfaces and sub-nanosecond synchronization with integrated timing and triggering.

Oscilloscopes
Sample at speeds up to 12.5 GS/s with 5 GHz of analog bandwidth, featuring numerous triggering modes and deep onboard memory

Digital Multimeters
Perform voltage (up to 1000 V), current (up to 3A), resistance, inductance, capacitance, and frequency/period measurements, as well as diode tests

Digital Instruments
Perform characterization and production test of semiconductor devices with timing sets and per channel pin parametric measurement unit (PPMU)

Waveform Generators
Generate standard functions including sine, square, triangle, and ramp as well as user-defined, arbitrary waveforms

Frequency Counters
Perform counter timer tasks such as event counting and encoder position, period, pulse, and frequency measurements

Source Measure Units
Combine high-precision source and measure capability with high channel density, deterministic hardware sequencing, and SourceAdapt transient optimization

Power Supplies & Loads
Supply programmable DC power, with some modules including isolated channels, output disconnect functionality, and remote sense

FlexRIO Custom Instruments & Processing
Provide high-performance I/O and powerful FPGAs for applications that require more than standard instruments can offer

Switches (Matrix & MUX)
Feature a variety of relay types and row/column configurations to simplify wiring in automated test systems

Vector Signal Transceivers
Combine a vector signal generator and vector signal analyzer with FPGA-based, real-time signal processing and control

GPIB, Serial, & Ethernet
Integrate non-PXI instruments into a PXI system through various instrument control interfaces

Data Acquisition Modules
Provide a mix of analog I/O, digital I/O, counter/timer, and trigger functionality for measuring electrical or physical phenomena

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Hardware Services

All NI hardware includes a one-year warranty for basic repair coverage, and calibration in adherence to NI specifications prior to shipment. PXI Systems also include basic assembly and a functional test. NI offers additional entitlements to improve uptime and lower maintenance costs with service programs for hardware. Learn more at ni.com/services/hardware.

	Standard	Premium	Description
Program Duration	3 or 5 years	3 or 5 years	Length of service program
Extended Repair Coverage	•	•	NI restores your device's functionality and includes firmware updates and factory calibration.
System Configuration, Assembly, and Test[1]	•	•	NI technicians assemble, install software in, and test your system per your custom configuration prior to shipment.
Advanced Replacement[2]		•	NI stocks replacement hardware that can be shipped immediately if a repair is needed.
System Return Material Authorization (RMA)[1]		•	NI accepts the delivery of fully assembled systems when performing repair services.
Calibration Plan (Optional)	Standard	Expedited[3]	NI performs the requested level of calibration at the specified calibration interval for the duration of the service program.

[1]This option is only available for PXI, CompactRIO, and CompactDAQ systems.
[2]This option is not available for all products in all countries. Contact your local NI sales engineer to confirm availability.
[3]Expedited calibration only includes traceable levels.

PremiumPlus Service Program
NI can customize the offerings listed above, or offer additional entitlements such as on-site calibration, custom sparing, and life-cycle services through a PremiumPlus Service Program. Contact your NI sales representative to learn more.

Technical Support
Every NI system includes a 30-day trial for phone and e-mail support from NI engineers, which can be extended through a Software Service Program (SSP) membership. NI has more than 400 support engineers available around the globe to provide local support in more than 30 languages. Additionally, take advantage of NI's award winning online resources and communities.

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