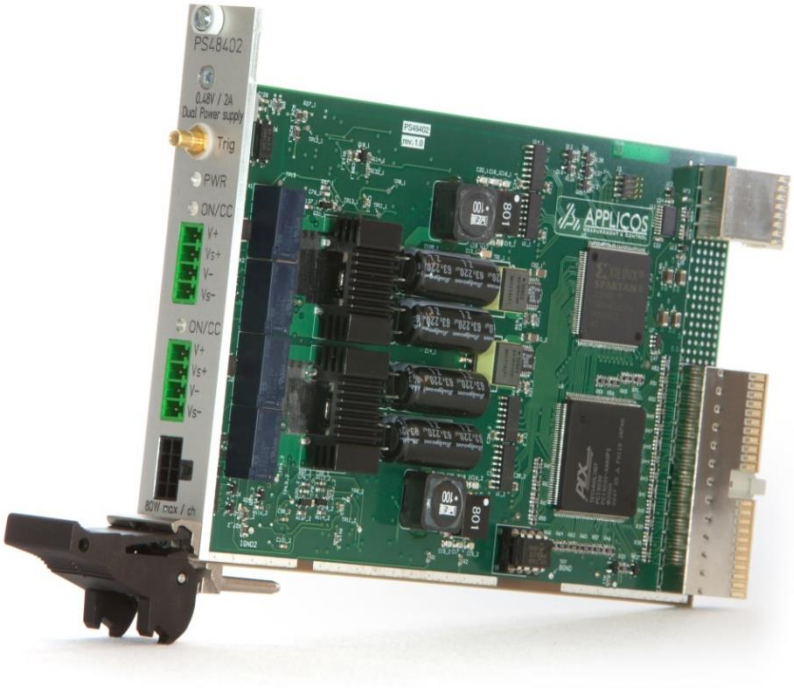
PS48402 – Dual channel Programmable PXI Power Supply



Features

- 2 channels of 80W max. each
- 0-48VDC / 2A per channel
- Isolated outputs
- High accuracy, low noise output voltage
- 4-Wire / Remote Sensing connection
- Programmable Current Limit
- 16 Bit Read Back of Output Voltage / Current
- Integrated transient recorder
- Flexible trigger options
- .NET, LabVIEW and LabWindows/CVI (VXIplug&play compatible) drivers included

Application areas

- Automotive
- Telecom
- Board level testing
- Component level testing
- DUT power supply

Product description

The PS48402 is a dual-channel Programmable DC Power supply in a single-slot 3u PXI / cPCI form factor. Each output is fully isolated and capable of providing 0 - 48V DC / 2A / 80W per channel. Both current and voltage are programmable and readable with 16-bit resolution. This makes the PS48402 a very cost- and rackspace-effective solution to power your dual-rail unit under test.

Integrated transient recorder

The PS48402 has a programmable current limit and the ability to measure the output voltage and current under software or trigger control. An integrated transient recorder allows capturing up to 16384 samples of output current or voltage with a maximum sample rate of 10kSps.

Triggered actions

Both the output voltage and current can be updated under trigger control and the transient recorder can be started on the same trigger. This allows for recording step responses without additional instruments.

Input power

Each unit comes with an external AC/DC power box that provides power for the outputs from the mains voltage. This minimizes loading of the backplane/chassis power source, improving overall system stability.

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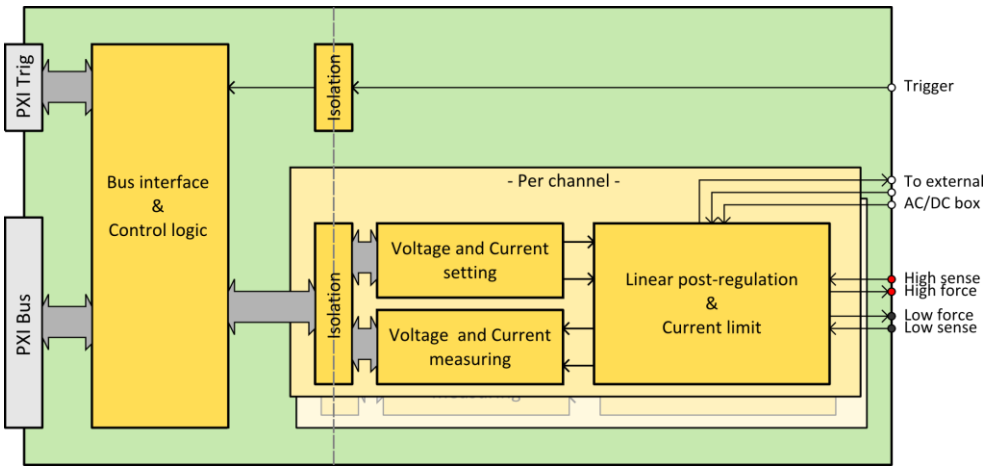
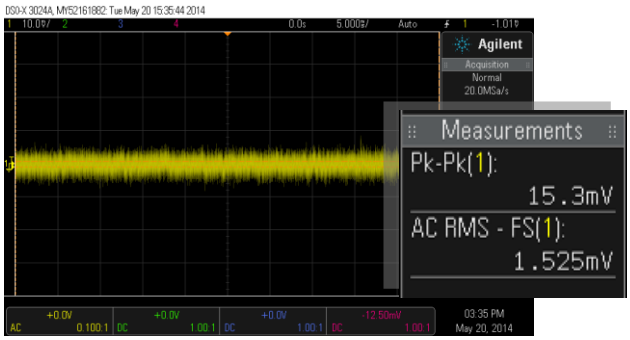
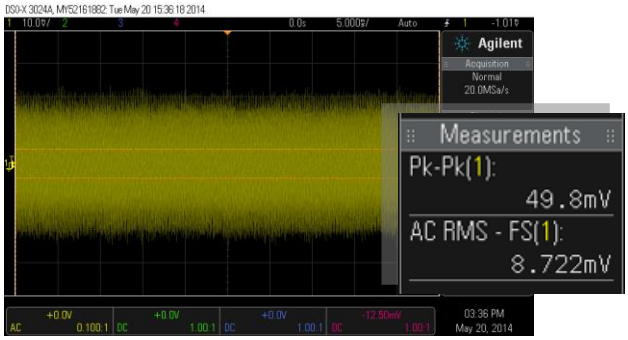




PS48402 output noise (20Hz-1MHz BW, 24V, 82Ω load)



Competitor output noise (20Hz-1MHz BW, 24V, 82 Ω load)

Low noise due to linear post-regulation

The PS48402 is optimized for low noise. Its main noise sources, the AC/DC and DC/DC converters, are placed in an external power box, away from the output nodes.

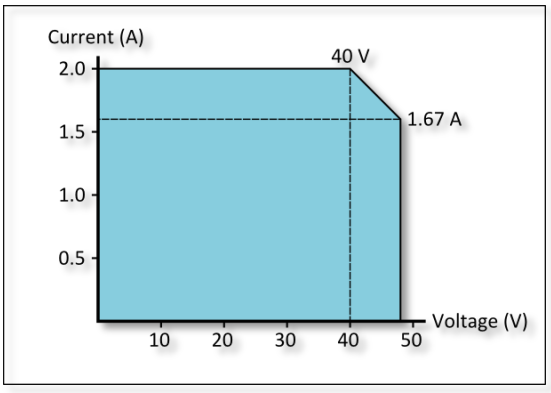
Linear regulators are used to regulate the supply voltage down to the final value.

The external power box outputs a voltage just a few volts above the output voltage, controlled by the PS48402 module. This minimizes power dissipation and generated heat.

The linear post-regulation used in the PS48402 ensure output noise levels in an order of magnitude lower than competitor DC/DC-conversion based output stages.

High accuracy and precision

16-bit DACs and ADCs with a high accuracy and precision allow fine control on the setting of output voltage and current, and reading back the actual output values. With 0.74mV and 35uA resolution the step size is better than 0.0015% of the full scale.



More power

The PS48402 provides the highest power in its class: each channel can provide up to 80 Watt. When the programmed voltage and current setting exceed the maximum output power, the values are automatically adjusted within safe limits.

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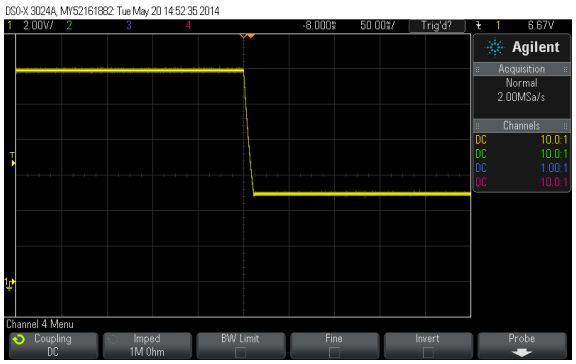
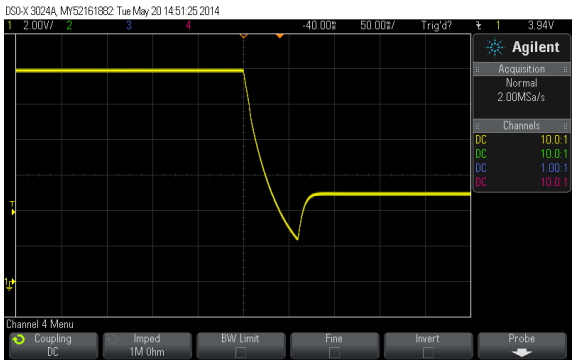
Accurate step response

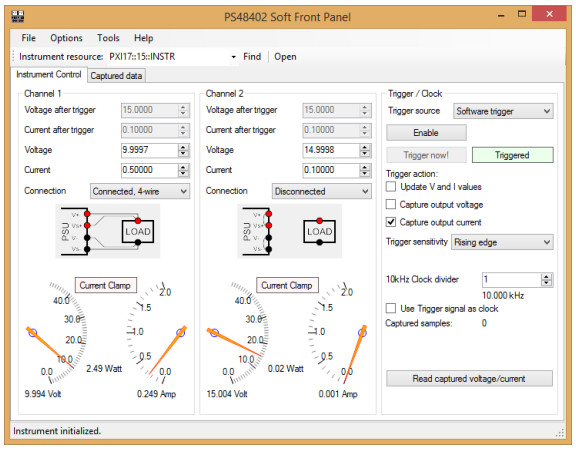
The topology of the PS48402 enables a quick response on changes in output voltage and output current, where competitors' DC/DC conversion based topology can show uncontrolled glitches.
Also a quick change in output load is handled without any problems.

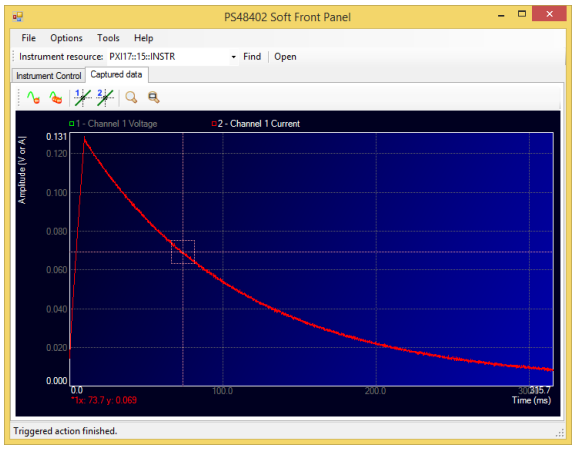


PS48402 step response (12V-5V step programmed, 82Ω load)



Competitor step response (12V-5V step programmed, 82Ω load)





Software

Soft Front Panel

A Soft Front Panel application allows you to quickly get started with the instrument. Advanced features such as updating the outputs and starting a record are supported as well.

The Soft Front Panel runs on any Windows computer that has the Microsoft .NET framework 2.0 or newer installed (Windows XP/Vista/7/8, x86/x64).

Instrument drivers

The provided instrument drivers allow controlling the instrument under a wide variety of programming environments, including Microsoft Visual Studio (C, C++, C#, Visual Basic, VB.NET etc), NI LabWindows and LabVIEW, etc. The driver source code is provided and the driver is fully documented.

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Specifications

Electrical characteristics

Output Voltage	0 to 48V per channel
Voltage setting resolution	0.74mV (16-bit)
Voltage setting accuracy	±0.2% of programmed value ±25mV
Load regulation	0.1% of programmed value + 5mV (10 to 90% load change)
Output current	2A max per channel. Above 40V linearly de-rating to 1.67A (80W max)
Current limit resolution	35µA (16-bit)
Current limit accuracy	0.5% of programmed value ±10mA
Sense line regulation area	0.5V (sum of both sense lines)
Output ripple (typical)	<3 mV RMS under full load (Bandwidth 20Hz - 1MHz)
Voltage Read back resolution	0.74mV (16-bit)
Voltage Read back accuracy	±0.1% of reading ±10mV
Current read back resolution	35µA (16-bit)
Current read back accuracy	±0.2% of reading ±5mA
Rise time	1Volt/ms (typical at full load)
Trigger sources	Software, Front, PXI0..7, PXI Star
Front Trigger input	Floating opto-coupler input (220 Ohm in series with a diode)
Front Trigger level	4.0V - 12V (approx. 10mA - 50mA)
Trigger pulse low / high time	min. 20µs
Trigger actions	Update V_{OUT} and I_{OUT}, Capture V_{OUT} or I_{OUT}, Update V_{OUT} and I_{OUT} & Capture V_{OUT} or I_{OUT}
Capture memory depth	8k per channel
Maximum capture frequency	10kHz
Capture clock sources	Internal sample clock, Trigger source
Voltage to chassis (any pin)	60V DC (Safety limit. Design breakdown voltage >250V DC)
Insulation resistance	>100MΩ
Operating temperature	0°C to 50°C
External AC/DC box input range	100-240V AC, 50/60Hz

Physical characteristics

PS48402 module:

Dimensions	3U, 1-slot, PXI/CompactPCI module (hybrid slot compatible);
Weight	185 g

External AC/DC converter:

Dimensions	20.5 cm x 17.5 cm x 5.5 cm
Weight	1750g
Cable length	1 m (other lengths on request)

External AC/DC converter

Ordering information

PS48402

Dual-channel PXI programmable Power Supply

Includes: PS48402 PXI card, external AC/DC adapter + interconnect cable and power cord, CD-ROM with Soft Front Panel software, compiled driver and driver source, driver documentation and user manual, Certificate of Calibration and two AKZ1550/4-3.81-GREEN connectors.

Related products

PS48401: Single channel PXI Programmable Power Supply, chassis-powered.

ATX-Hybrid: Applicos ATX style high-performance test system chassis combined with 6 PXI slots.

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Applicos || Veldkampseweg 1 || 8181LN Heerde || The Netherlands || Tel: +31 578 696769 || www.applicos.com