

Device Power Supply - Voltage Source & Measurement Unit

AXIe Compatible Instrument with 12 Independent Channels



Analog Functionality & Features:

- 16 bit Force Voltage resolution
- 16 bit Measure Voltage / Current
- Multiple Voltage Ranges
 - -12V to +12V Range
 - 0V to +22V Range
 - -20V to 0V Range
- 6 Current Ranges (25 μ A to 1.2A)
- Channel Ganging to 2.4A
- Current Clamps and Alarms
- Active guard per channel
- Programmable Slew Rates
- Programmable Load Compensation
- User Analog Bus for channel connect flexibility
- Gate ON / OFF
- Built-in Ramp Function
- Features for Go/No-Go Testing
- Full Kelvin Sense / Alarm per Channel
- Window Comparator per Channel
- 200 KHz AWG Source Memory Engine
- 200 KHz PMU Digitizer Memory Channels
- Robust Triggering Capability
- Hardware Averaging

Applications

Characterization and Validation
Multi-Site Automated Production Test
Leakage Current Measurement
Continuity Measurement
Multi-Channel Voltmeter
I-V Curve Measurement

DPS12 Hardware Description

The DPS12 is a 12 channel analog source / measurement unit in a single slot AXIe format. It has voltage forcing functionality along with an AWG and PMU Digitizers up to 200 KHz sample rate. The 12 pins are independently programmed and can be operated in any combination. The DPS12 is divided into two banks with 6 channels per bank. Each bank can have its -12 V to +12 V range shifted up or down to match application needs.

The DPS12 is compatible with the AXIe standard (ATCA Extensions for ATE) including a Calibration Bus and star trigger bus connected to each slot (point-to-point) on the backplane: AXI_DSTAR_A, B, C & D.

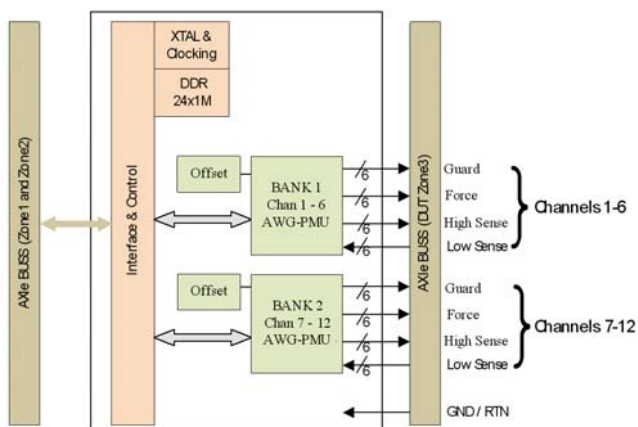


Figure 1: DPS12 Block Diagram

Force Voltage Functionality

- The DPS12 has 4 quadrant capability with (-12 V to 12 V, 0 V to +22 V, and -20 V to 0 V per bank) voltage ranges and 7 current ranges from 1200 mA to 25 μ A.
- Each channel can independently FV/MV, FV/MI, MV, MI or HiZ.
- Each channel has a 16 bit resolution, 200 KHz PMU digitizer unit.
- One 16 bit resolution 200 KHz AWG source unit; parallel operation across all channels.
- The AWG and digitizer channels share a 32 M-sample memory.
- All channels can be paired in a master/slave capability to allow ganging higher current capacity.
- Trigger or clock mode operation for all channels, allowing pattern control and inter-instrument triggering of source and measure operations.
- On-instrument functionality allows go/no-go testing.

Programming

- Drivers for C++, LabWindows/CVI

SPECIFICATIONS

Force/Measure Voltage	Current Range	Resolution	Accuracy
0 V to 22.0 V -12.0 V to +12.0 V -20 V to 0 V	± 500 mA ± 25 mA ± 2.5 mA ± 250 μ A ± 25 μ A	0.38 mV	$\pm (0.05\% \text{ of value} + 12.5 \text{ mV})$
-6.0 V to +6.0 V	± 1200 mA		

Measure Current	Resolution	Accuracy
± 1200 mA ± 500 mA ± 25 mA ± 2.5 mA ± 250 μ A ± 25 μ A	0.76 nA, Min	$\pm (0.1\% \text{ of value} + 50 \text{ nA}), \text{ Max}$

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