

PI-41702 Four Channel Low-Noise DC Bias Card

Features:

- ± 8 Volt Output
- ± 100 mA Output Current
- Low Noise Circuitry
- V/I Sense

Applications:

- Device Characterization
- FPA Testing
- CMOS Imager Testing
- CCD Testing
- Test Instrumentation
- Test Systems

Introduction:

The PI-41702 is a four channel, low noise, bipolar DC Bias supply for the Compact-PCI® modular instrumentation platform. Four independently-programmable DC bias channels are capable of delivering up to 100 mA per channel. The output voltage ranges from -8.192 V to +8.188 V.

This card has special filter circuitry to reduce the output noise for those applications that require a low noise bias. Additionally there is a 'D' type connector that allows the introduction of laboratory-type supplies to reduce the noise further. To change from using the internal power supplies to external power supplies requires repositioning a jumper.

The PI-41702 also has voltage and current sense for remote measurement of the voltage and current levels. This sense circuitry is

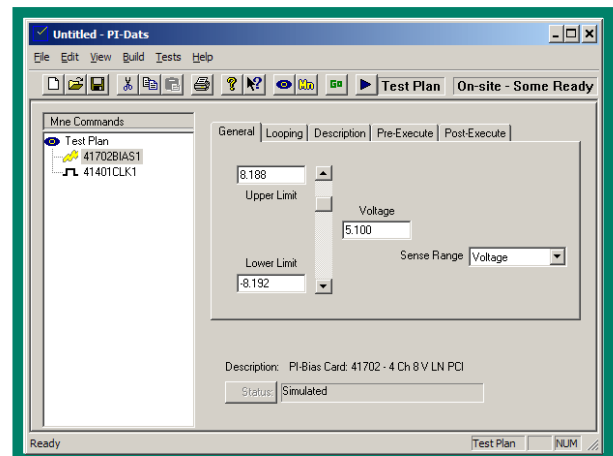
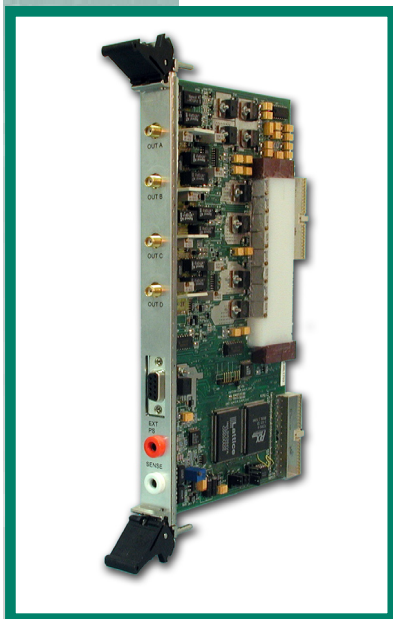
accessed via banana jacks on the front card flange, for measurement on an external DVM.

The voltage and current can also be sensed with an on-board 8-bit A/D converter and sent over the PCI bus. This A/D sense circuitry is meant for measurements not requiring high precision. For precision measurements use of the banana jacks and an external DVM is recommended.

For device protection the PI-41702 has a "Disconnect" mode that grounds the outputs when connecting or disconnecting a DUT from the test system. There is also a voltage-sequencing feature to control the order in which bias and clock signals are applied to or removed from the DUT.

Instrument Control:

The PI-41702 is programmed by Pulse Instruments' PI-Controller or PI-DATS software running under Windows 2000/XP. The card can also be programmed by 3rd-party software over GPIB or via an included Win32 DLL using the fully-documented command set. The command set is highly backward-compatible with applications written for Pulse Instruments' 4000 Series DC bias supplies.



Pulse Instruments

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Specifications:

Output Voltage: -8.192 V to +8.188 V
Resolution: 4 mV
Accuracy: 0.1% of programmed value ± 10 mV

Output Current: ± 100 mA maximum

Output Resistance: 75 milliohms for $I_o < 100$ mA

Output Noise (using internal power supplies):

| | |
|--------|----------------------------|
| 1 Hz | 250 nV/ $\sqrt{\text{Hz}}$ |
| 10 Hz | 200 nV/ $\sqrt{\text{Hz}}$ |
| 100 Hz | 150 nV/ $\sqrt{\text{Hz}}$ |
| 1 kHz | 150 nV/ $\sqrt{\text{Hz}}$ |
| 10 kHz | 75 nV/ $\sqrt{\text{Hz}}$ |

Voltage Sense: 0.2% of reading ± 5 mV

Current Sense:

Range/Accuracy:

| | |
|---------------|---|
| 100 mA range: | 0.3% of reading ± 200 μA |
| 10 mA range: | 0.3% of reading ± 20 μA |
| 1 mA range: | 0.3% of reading ± 2 μA |

Voltage ADC Sense: 200 mV to 8.188 V, not specified below 1 volt
Accuracy: 3% ± 100 mV

Current ADC Sense:

Range/Accuracy:

| | |
|--------------|---------------------------------------|
| 100 mA Range | 5% of reading ± 2 mA |
| 10 mA Range | 5% of reading ± 200 μA |
| 1 mA Range | 5% of reading ± 20 μA |

Power Consumption:

| Power Supply | Min | Typical | Max. |
|-----------------|-----|-----------|------|
| 5.0 V $\pm 5\%$ | | 0.60 Amps | |
| 3.3 V $\pm 5\%$ | | 0.50 Amps | |
| 12 V $\pm 5\%$ | | 0.65 Amps | |
| -12 V $\pm 5\%$ | | 0.60 Amps | |

Mechanical:

- Size 6U Eurocard
- Dimensions 6.30" x 9.18" (160.00 mm x 233.35 mm)
- One card slot

Ordering Information:

Contact Pulse Instruments Sales at (310) 515-5330 or sales@pulseinstruments.com

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