"The best high voltage design solution"

SP7230, 3W, Fully Reg., OUT-V/I MONITORS, SPECIFICATION SHEET

Standard Model Number : SP7230

RoHs Model Number : SP7230/Y

Standard Model is NOT RoHs Compliant

ELECTRICAL SPECIFICATIONS

Input Voltage ..... 11.5V - 16Vdc
Input Current ..... <150mA (No Load)
Input Current ..... <420mA (Full Load)
Output Voltage ..... 0V to +5kVdc (Programmable)
Output Current 0.6mA
Voltage Accuracy ..... +/- 1%
Line Regulation ..... < 0.05%
Load Regulation ..... <0.1%
Output Ripple ..... < 0.1% P-P
Programming Voltage ..... 0 - 5Vdc
Programming Current .....< 100uA

Programming Linearity ..... <0.5% (5% to 100% Vout)
Input Filter ..... Low ESR Capacitor
Reverse Input Protection 50Vdc
Short Circuit Protection ..... Continuous
Switching Frequency ..... 180 kHz
Gain Adjustment ..... 5 to 10%
Response Time ..... <250 ms (Full Load, full scale response)
Programming Voltage Shutdown ..... > 5.2Vdc
Output Voltage Monitor ..... 0V to +5V = 0 to +5kVdc
Output Current Monitor ..... 0V to +5V = 0 to 0.6mA

GENERAL SPECIFICATIONS

Stability .....< 0.01% / Hr.
Temp. Stability ..... +/- 0.005%/°C
Temp. (Operating , Case) ..... -10 to +60°C
Temp. (Storage) ..... -40 to +125°C

Humidity ..... 0 to 95% (Non-Condensing)
Thermal Shock Limit ..... 1°C / 10 Seconds
EMI/RFI ..... Six-Sided Shield
Derating ..... None
Cooling ..... Free-Air Convection

PHYSICAL SPECIFICATIONS

Dimensions ..... 1.25 x 3.0 x 0.60 inches
Weight ..... 2.0 Oz

Case Material ..... Nickel Plated Steel

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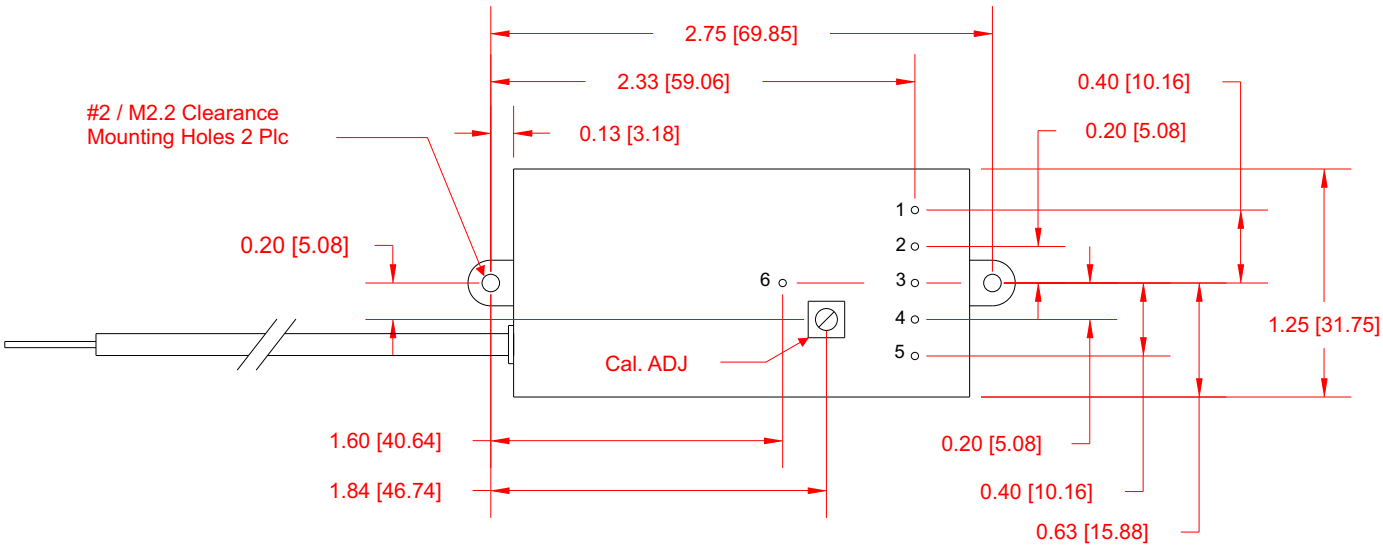
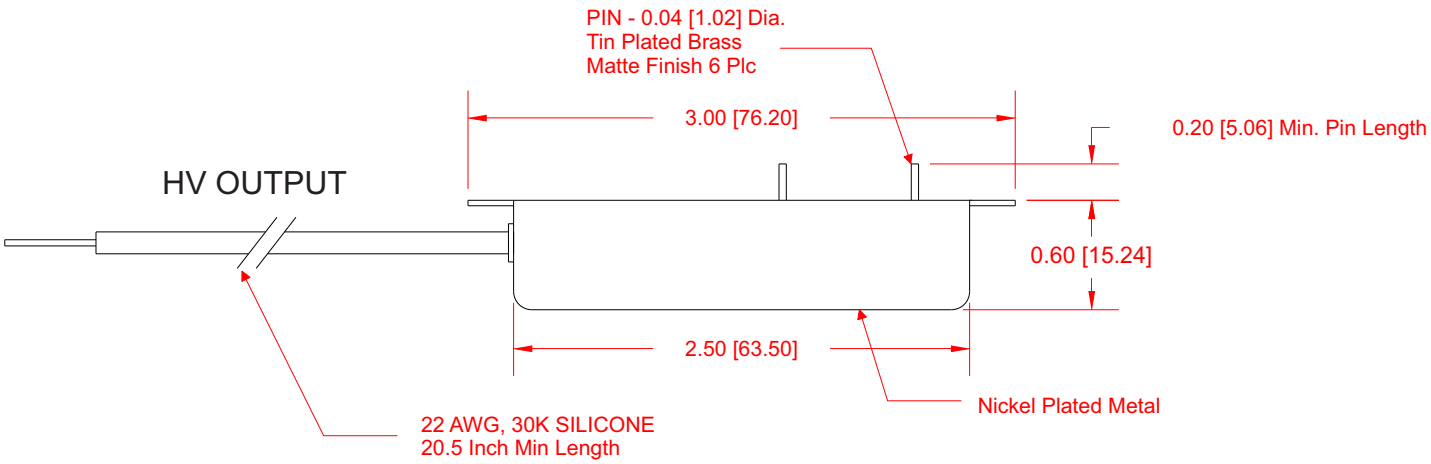


Bottom View



PIN #	FUNCTION
1	+ Input
2	Control / Programming Voltage
3	- Input
4	Output Voltage Monitor
5	Output Current Monitor
6	HV Return

Dimensions are in Inches
[Metric equivalents in brackets]

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APPLICATION NOTES

INRUSH CURRENT

The inrush current has been kept as low as possible. However, a series resistor may be inserted in the input line to limit this current further.

REVERSE INPUT PROTECTION

The SP7230 is equipped with a diode placed in series with the + Input (Pin 1) of the converter, this allows current to flow only if the correct polarity is applied.

SHORT CIRCUIT PROTECTION

The converter will fold-back the input power whenever a short circuit is applied to its output and automatically recover after the overload condition is removed.

RIPPLE AND NOISE

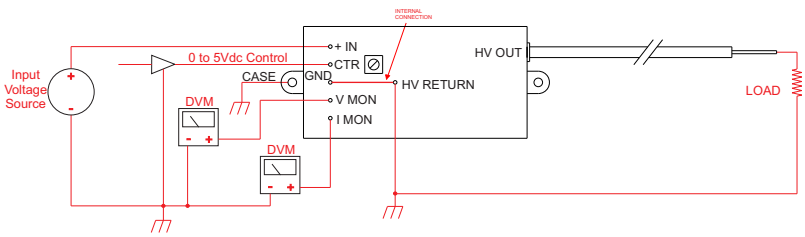
External low ESR capacitors may be added across output to further reduce ripple.

OUTPUT VOLTAGE AND CURRENT MONITORS

The SP7230 is equipped with output voltage and current monitors (Pins 4 & 5). The monitors are internally buffered to provide a low impedance (up to 1 mA) signal to external circuitry. **(0V to 5Vdc = 0 to 100%)**

Connection Diagrams

The figure below shows how to connect The SP7230 converter.



NOTE:

An internal RC network connects the Case to Gnd (Pins 3 and 6).

No more than 50 volts potential between the case ground and the circuit ground (Pins 3 and 6) otherwise, the supply may be permanently damaged .

Case should be connected to ground for optimum operation.

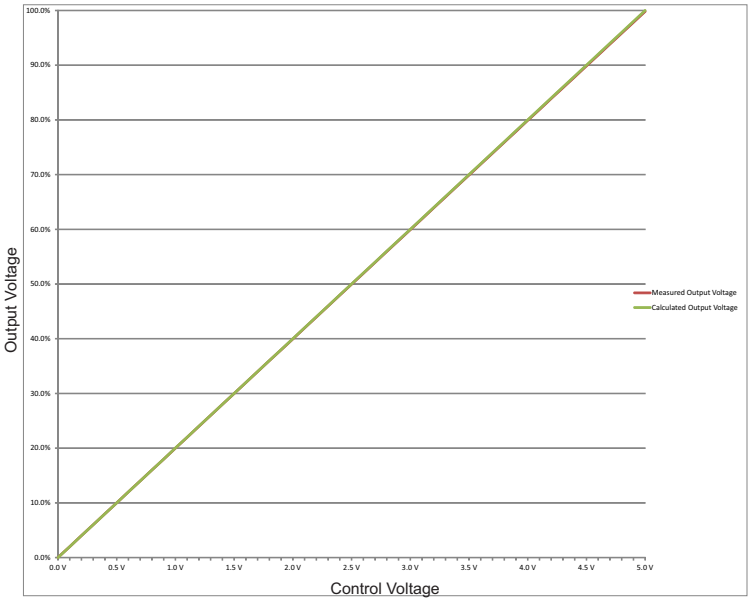
PROGRAMMING VOLTAGE

A 0V to +5V signal will program the power supply for 0 to 100% rated output voltage. The input impedance for this control pin is typically 100KΩ. If the programming signal exceeds 5.2Vdc the converter will shutdown and automatically recover when the programming signal returns to within normal operating range.

OUTPUT VOLTAGE TRACKING

The output voltage tracks the Control pin (Pin 2) within 0.5% from 5% to 100% of output voltage.

Figure below show a typical plot of both the actual and calculated output voltage as a function of control voltage.



Operating Conditions:

Nominal Input Voltage = Fixed
Output Load = Resistive (fixed at full output current @ 100% output voltage)

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APPLICATION NOTES

CLEANING AGENTS

In order to avoid possible damage, any penetration of cleaning fluids must be prevented, since the power supplies are not hermetically sealed.

NUCLEAR AND MEDICAL APPLICATIONS

American Power Design products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of American Power Design, Inc.

SAFETY REQUIREMENTS

The converters are designed to meet North American and International safety regulatory requirements per UL 60950-1/CSA 22.2 No. 60950-1-07 Second Edition, IEC 60950-1: 2005, and EN 60950-1:2006. Basic Insulation is provided between input and output. To comply with safety agencies requirements, an input line fuse (1A SB) must be used external to the converter.

If one input fuse is used for a group of modules, the maximum fuse rating should not exceed 20A.

WARRANTY

All products manufactured by American Power Design, Inc. (APD) are warranted to be free of defects due to material or workmanship for a period of one year from date of shipment. At our option, APD will repair or replace any non-conforming product.
APD expressly disclaims any liability for consequential or incidental damages resulting from the use or misuse of its products by the purchaser or others.
This warranty is in lieu of all warranties expressed or implied, including the warranties of merchantability. No other warranties, obligations, or liabilities are expressed or implied.
All products being returned for repair require a return material authorization(RMA) assigned by APD prior to return shipment.

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