



Spellman's MCP4 is a well-regulated, high performance DC-DC converter featuring a floating 4kV @ 600uA output, isolated to 15kV. The MCP4 low output ripple specification and high stability make it ideal for use with detectors in Mass Spectrometry applications such as: Electron Multipliers (EM's), Microchannel Plates Detectors (MCP's) and Channel Electron Multipliers. This module is packaged in a shielded metal enclosure and the high voltage output is provided via two captive one meter long shielded coaxial cables. The unit has remote 0-10Vdc = 0-100% rated voltage programming and voltage monitor. A TTL compliant Enable signal provides simple control of the high voltage output. This unit has specifically designed to minimize crosstalk with the high voltage source which it is floated upon. The MCP4 can be customized to meet OEM requirements.

TYPICAL APPLICATIONS

Mass Spectrometry Detectors
Microchannel Plates
Electron Multipliers
Channel Electron Multipliers

SPECIFICATIONS

Input Voltage:

+24Vdc, $\pm 5\%$

Input Current:

700 mA maximum

Output Voltage:

0 to 4kV, continuously variable over the entire output range

Output Current:

600uA maximum

Current Limit:

1900uA maximum

Polarity:

Reversible polarity inherent by design

Isolation Voltage:

Up to 15kV total to ground.

Note: Resistors in the MCP HV network will allow a voltage on the MCP +VE output whenever the HV input is negative for a positive connected unit, or for a positive HV input, a negative connected MCP. This voltage will be 47:500 of the isolation voltage, thus <1400V at 15kV, without a load connected.

- **Floating, Programmable 4kV Output**
- **Output Isolated to 15kV**
- **Well Regulated, Low Ripple**
- **Output Voltage Monitor**
- **Compact Shielded Metal Enclosure**
- **Arc and Short Circuit Protected**

Line Regulation:

50ppm for a $\pm 5\%$ line change

Load Regulation:

300ppm for a 10% to 100% load change

Voltage Programming:

0 to 10 volt corresponds to 0 to 100% of rated output voltage

Voltage Monitor:

0 to 10 volts corresponds to 0 to 100% of rated output voltage, $\pm 1\%$, $Z_{out} = 10k\Omega$

Accuracy:

$\pm 2\%$

Ripple:

100mVpp

Injected Ripple:

30mVpp, on an appropriate, properly connected ground referenced high voltage generator

Temperature Coefficient:

20ppm per degree C

Drift:

50ppm, maximum excursion in any 8 hours period at 40°C

Environmental:

Temperature Range:

Operating: 0°C to 50°C

Storage: -30°C to 85°C

Humidity:

5% to 90%, non-condensing.

Cooling:

Convection cooled

Dimensions:

1.81" H X 5.74" W X 9.53" D (46mm X 139mm X 242mm)

Weight:

3.85 pounds (1.75kg)

Interface/Power Connector:

9 pin male D connector

High Voltage Output Cable:

HV positive: 45.3" (1150mm) fly wire, HRG58 coaxial HV cable

HV negative: 45.3" (1150mm) fly wire, HRG58 coaxial HV cable

Regulatory Approvals:

Compliant to EEC Low Voltage Directive. RoHS compliant.

The unit is designed to meet the requirements of EN 61010-1, IEC/UL 61010-1 and CAN/CSA-22.2 No. 61010-1.

EMC:

As this unit is intended for incorporation into user's equipment it will not be tested as a stand-alone unit to EMC directive. The user will need to follow sensible EMC precautions in using the unit.

INTERFACE/POWER CONNECTOR—9 PIN MALE D

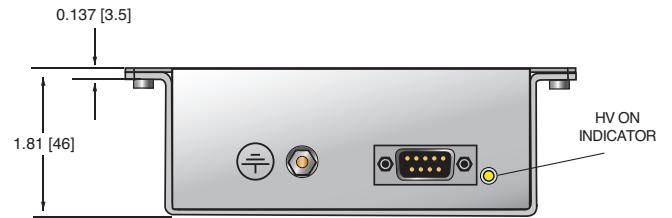
PIN	SIGNAL	SIGNAL PARAMETERS
1	Voltage Programing Input	0 to 10 volt corresponds to 0 to 100% of rated output voltage
2	Voltage Programing Return	Differential return for Voltage programming
3	Enable	Enable = High (>2V) Vmax = 11V, Imax = 19mA
4	Enable Return	Differential return for Enable
5	Power Ground	Power Ground
6	Signal Ground	Signal Ground
7	Voltage Monitor	0 to 10 volt corresponds to 0 to 100% of rated output voltage
8	N/C	N/C
9	+24V Input	+24Vdc Input

How to Order:

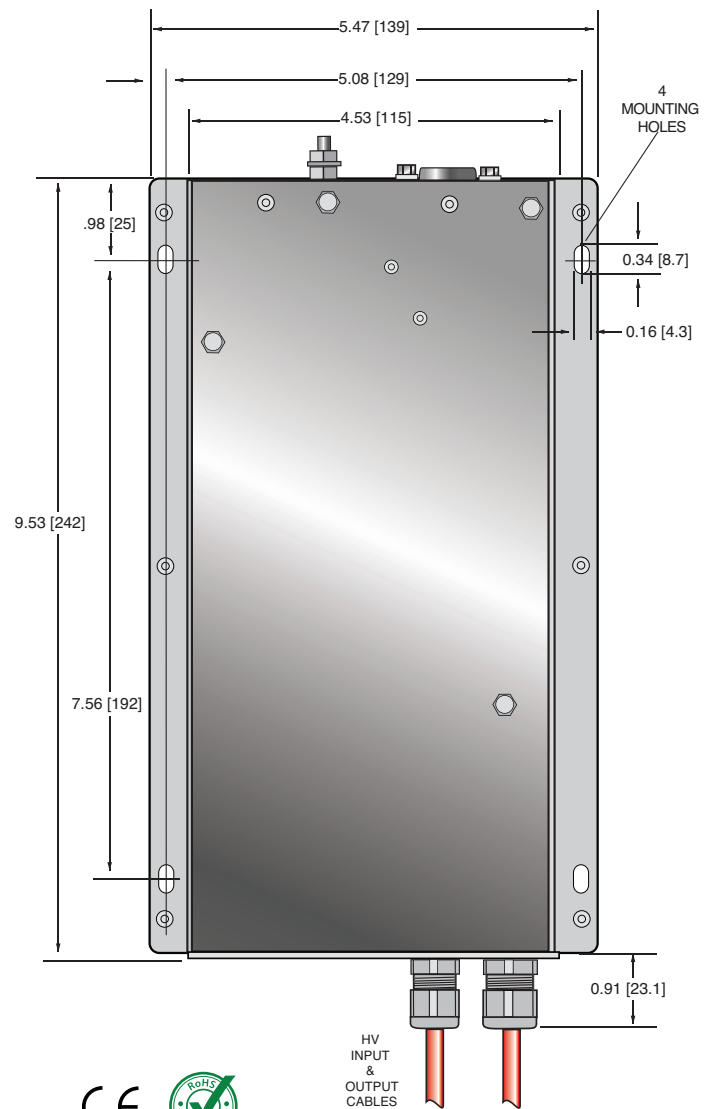
Standard: PART NO.:MCP4PN24

DIMENSIONS: in.[mm]

FRONT VIEW



TOP VIEW



SIDE VIEW



HV INPUT & OUTPUT CABLES