



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:

+VE Positive with respect to the high voltage source (-VE) which it is floated upon

Isolation Voltage:

Up to 15kV total to ground.

Note: When the unit output is set to zero and no load is connected: If the reference supply is positive (up to +15kV), +VE will always be less than 100V with respect to -VE. If the reference supply is negative (up to -15kV), a 47M Ω pre-load resistor fitted within the MCP4 limits +VE (with respect to -VE) to $\leq 1400V$

- **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. Accuracy $\pm 1\%$. I_{out}=300uA maximum

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:

Both HV cables (+VE and -VE):

HRG58 coaxial 45.3"(1150mm)

Regulatory Approvals:

Designed to meet IEC/UL 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use; CAN/CSA-C22.2 No.61010-1. CE marked to EN 61010-1. UKCA marked to BS EN 61010-1. RoHS compliant.

EMC:

As the unit is designed for incorporation within the users system it is not tested against any specific EMC standards. The user will need to take sensible EMC precautions when designing the unit in and verify the overall system EMC performance against any relevant standards.

INTERFACE/POWER CONNECTOR—9 PIN MALE D

PIN	SIGNAL	SIGNAL PARAMETERS
1	Voltage Programing Input	0 to 10 volt. Accuracy=2% $Z_{in}=20k\Omega$
2	Voltage Programing Return	Differential return for Voltage programming
3	Enable	Enable = High (>2V) $V_{max} = 11V$, $I_{max} = 19mA$
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. Accuracy $\pm 1\%$. $I_{out}=300\mu A$ maximum
8	N/C	N/C
9	+24V Input	+24Vdc Input

How to Order:

Standard: PART NO.:MCP4P

DIMENSIONS: in.[mm]

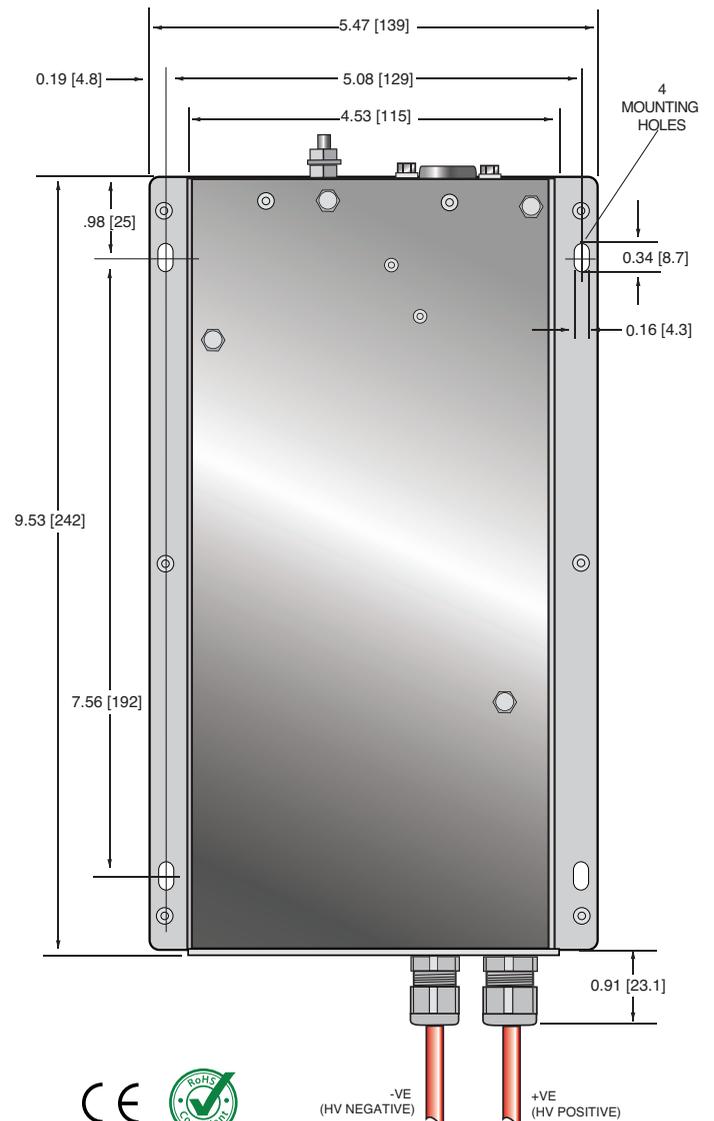
FRONT VIEW



SIDE VIEW



TOP VIEW



-VE (HV NEGATIVE)

+VE (HV POSITIVE)