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, ±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.

**Line Regulation:**
50ppm for a ±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, ±1%, Zout = 10kΩ

**Accuracy:**
±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

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

How to Order:
Standard: PART NO.: MCP4PN24

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