Spellman’s new MPS20W series are a family of high voltage 20 Watt modules that provide output voltages ranging from 1kV to 10kV.

The MPS20W series are high performance products designed with Spellman’s hybrid topology of linear and switch mode power conversion techniques delivering lower noise with higher efficiency. The MPS20W series produces excellent ripple and stability performance specifications from a compact footprint. Additionally the MPS20W series features, as standard, a differential amplifier input for the voltage programming signal to improve immunity from external system noise and addressing any offset issues. Alternatively the output voltage may be pre-set by an internal potentiometer. A fully featured remote user interface is provided via 15-pin D-type connector as standard. The output voltage is arc and short circuit protected and the power input has a current limiter fitted.

Spellman’s proprietary HV technology coupled with SMT circuitry results in an ultra compact and lightweight module that is available as either a positive or negative supply that is ideal for OEM applications.

**TYPICAL APPLICATIONS**
- Photomultiplier Tubes
- Microchannel Plate Detectors
- Scintillators
- Mass Spectrometry
- Electron and Ion Beams
- Electrostatic Lenses
- Nuclear Instruments
- Electrostatic Printing

**OPTIONS**
- VCC Variable Current Control

**SPECIFICATIONS**

**Input Voltage:**
- +24 Vdc, ±2Vdc

**Input Current:**
- ≤1.5 amps

**Output Voltage:**
- 5 models available from 1kV to 10kV

**Output Polarity:**
- Positive or negative, specify at time of order

**Power:**
- ≤20 watts

**Voltage Regulation:**
- Line: ≤0.001% of rated output voltage over specified input voltage
- Load: ≤0.001% of rated output voltage for full load change

**Current Regulation (Vcc Option):**
- Line: ≤0.01% for 1V input voltage change under any load conditions
- Load: ≤0.001% for 0 to full load

**Ripple:**
- See “model selection” table

**Stability:**
- ≤0.01% per hour, 0.02% per 8 hours after 1.0 hour warm up period.

**Temperature Coefficient:**
- ≤25ppm per degree C

**Environmental:**
- **Temperature Range:**
  - Operating: 0°C to 50°C
  - Storage: -35°C to 85°C
- Humidity:
  - 20% to 85% RH, non-condensing

**Cooling:**
- Convection cooled

**Dimensions:**
- 1.31” H X 3.74” W X 5.91” D (33.5mm x 95mm x 150mm)

**Weight:**
- 1-2kV: 15.17 oz. (430g)
- 3-10kV: 25.76 oz. (730g)

**Interface Connector:**
- 15 pin male D connector

**Output Connector:**
- A captive 39.4” (1 meter) long shielded HV cable is provided

**Regulatory Approvals:**
- Compliant to 2004/108/EC, the EMC Directive and 2006/95/EC, the Low Voltage Directive.
MPS20W SELECTION TABLE

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Ripple (Vpp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS1*20/24</td>
<td>0-1kV</td>
<td>20mA</td>
<td>&lt;25mV</td>
</tr>
<tr>
<td>MPS2*20/24</td>
<td>0-2kV</td>
<td>10 mA</td>
<td>&lt;50mV</td>
</tr>
<tr>
<td>MPS3*20/24</td>
<td>0-3kV</td>
<td>6.67mA</td>
<td>&lt;75mV</td>
</tr>
<tr>
<td>MPS5*20/24</td>
<td>0-5kV</td>
<td>4mA</td>
<td>&lt;125mV</td>
</tr>
<tr>
<td>MPS10*20/24</td>
<td>0-10kV</td>
<td>2mA</td>
<td>&lt;250mV</td>
</tr>
</tbody>
</table>

*Specify “P” for positive polarity or “N” for negative polarity.
Custom units available.

MPS20W ANALOG INTERFACE – 15 PIN D CONNECTOR

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL DESCRIPTION</th>
<th>SIGNAL PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power/Signal Ground</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>+24Vdc Input</td>
<td>+24Vdc @ 1.5 amp maximum</td>
</tr>
<tr>
<td>3</td>
<td>Voltage Monitor Output</td>
<td>0 to 10Vdc=0 to 100% Rated Output, Zout = 2.2kΩ</td>
</tr>
<tr>
<td>4</td>
<td>Local Programming Potentiometer Wiper Output</td>
<td>Potentiometer connected to +10Vdc and Ground. 0 to 10Vdc adjustable wiper output provided</td>
</tr>
<tr>
<td>5</td>
<td>Voltage Program Input</td>
<td>0 to 10Vdc=0 to 100% Rated Output, Zin = 10MΩ</td>
</tr>
<tr>
<td>6</td>
<td>Voltage Program Differential Amplifier Output</td>
<td>0 to 10Vdc=0 to 100% Rated Output, Zout = 2.2kΩ</td>
</tr>
<tr>
<td>7</td>
<td>Voltage Program Differential Amplifier Input—Positive</td>
<td>0 to 10Vdc differential between pin 7 and pin 9 = 0 to 100% of rated output, diode clamped to ground, Zin = 38kΩ</td>
</tr>
<tr>
<td>8</td>
<td>Current Monitor Output</td>
<td>0 to 10Vdc = 0 to 100% Rated Output, Zout = 2.2kΩ</td>
</tr>
<tr>
<td>9</td>
<td>Voltage Program Differential Amplifier Input—Negative</td>
<td>0 to 10Vdc differential between pin 7 and pin 9 = 0 to 100% of Rated Output, diode clamped to ground, Zin = 38kΩ</td>
</tr>
<tr>
<td>10</td>
<td>No Connection</td>
<td>No Connection</td>
</tr>
<tr>
<td>11</td>
<td>Current Program Input</td>
<td>Standard: Internally connected to provide 110% fixed current limit. VCC Option: 0 to 10Vdc=0 to 100% Rated Output, Zin = 1MΩ</td>
</tr>
<tr>
<td>12</td>
<td>Enable Input</td>
<td>Low = Enable, TTL, CMOS, Open Collector Compliant</td>
</tr>
<tr>
<td>13</td>
<td>Internal Connection</td>
<td>No Connection</td>
</tr>
<tr>
<td>14</td>
<td>No Connection</td>
<td>No Connection</td>
</tr>
<tr>
<td>15</td>
<td>Analog Signal Ground</td>
<td>Analog Signal Ground</td>
</tr>
</tbody>
</table>