Spellman’s new DXM Series of X-Ray generator modules are designed for OEM applications up to 70kV at 1200 watts. Its universal input, small package size and choice of three standard digital interfaces simplifies integrating the DXM into your X-Ray analysis system. Models are available to operate either floating filament (negative HV polarity) or ground referenced filament (positive HV polarity), X-Ray tube designs. DSP based emission control circuitry provides excellent regulation of emission current, along with outstanding stability performance.

**TYPICAL APPLICATIONS**
- Plastics Sorting
- Crystal Inspection
- Plating Measurement
- Diamond Inspection
- Mineral Analysis
- X-Ray Fluorescence
- X-Ray Diffraction

**SPECIFICATIONS**

**Input Voltage:**
- Power factor corrected input
  - 90-264Vac, 47-63 Hertz, for 300 watt units
  - 180-264Vac, 47-63 Hertz for 600 and 1200 watt units

**Output Voltage:**
- 6 models—20kV, 30kV, 40kV, 50kV, 60kV and 70kV

**Output Polarity:**
- Negative-for floating filament X-ray tubes
- Positive-for ground referenced filament X-ray tubes

**Power:**
- 3 power ranges available—300 watts, 600 watts and 1200 watts
  - Other power levels available on special order.

**Output Voltage Regulation:**
- ≤0.01% of rated output voltage over specified input voltage range
- ≤0.01% of rated output voltage for a full load change

**Emission Current Regulation:**
- ≤0.01% of rated output current over specified input voltage range
- ≤0.01% of rated output current for a change from 30% to 100% of rated output voltage
- Filament is disabled when kV is <30% of full scale output

**Ripple:**
- ≤1%rms at >20 kHz, 0.1%rms below 20 kHz

**Stability:**
- ≤25ppm/hr after a 2 hour warm up

**Temperature Coefficient:**
- ≤50ppm per degree C

**Environmental:**
- Temperature Range:
  - Operating: 0°C to 40°C
  - Storage: -40°C to 85°C
- Humidity:
  - 20% to 85% RH, non-condensing.

**Filament Configuration:**
- Closed loop emission control regulates filament setting to provide desired X-ray tube emission current.
- Two types are available: Floating Filament (ac output referenced to negative output voltage) and Ground Referenced Filament (dc output referenced to ground).

**Output:**
- 0-5 amps at a compliance of 10 volts, maximum.
  - The filament loop is disabled when the kV output is less than 30% of full scale output to protect the X-Ray tube.
  - Other filament levels available on special order.

**Control Interface**

- **Local Interface:**
  - Potentiometers are provided to adjust filament limit and preheat levels

- **Remote Interface:**
  - USB, Ethernet and RS232 are standard.
  - All digital monitors have an accuracy specification of 2%

**Control Software:**
- A Windows graphical user interface example is provided. Built-in diagnostics can be performed via an Ethernet via a Java applet and any standard web browser

**High Voltage Enable:**
- A hardware based, dry contact closure will enable the power supply into the high voltage on mode

**Monitor Signals:**
- Voltage and current monitor signals are scaled 0-10Vdc equals 0-100% of full scale, accuracy is 1%

**Cooling:**
- Forced air

**Dimensions:**
- 300/600 Watts: 4.75”H X 6”W X 12”D
  - (120.65mm x 152.4mm x 304.8mm)
- 1200 Watts: 4.75”H X 12”W X 12”D
  - (120.65mm x 304.8mm x 304.8mm)
**ETHERNET DIGITAL INTERFACE — J5 8 PIN RJ45 CONNECTOR**

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>SIGNAL PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>Transmit Data +</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td>Transmit Data -</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>Receive Data +</td>
</tr>
<tr>
<td>4</td>
<td>RX-</td>
<td>Receive Data -</td>
</tr>
<tr>
<td>5</td>
<td>NC</td>
<td>No Connection</td>
</tr>
<tr>
<td>6</td>
<td>NC</td>
<td>No Connection</td>
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<tr>
<td>7</td>
<td>NC</td>
<td>No Connection</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
<td>No Connection</td>
</tr>
</tbody>
</table>

*Specify *P* for positive polarity or *N* for negative polarity.

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**USB DIGITAL INTERFACE — J4 4 PIN USB “B” CONNECTOR**

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>SIGNAL PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VBUS</td>
<td>+5 Vdc</td>
</tr>
<tr>
<td>2</td>
<td>D-</td>
<td>Data -</td>
</tr>
<tr>
<td>3</td>
<td>D+</td>
<td>Data +</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>

**FILAMENT TERMINAL BLOCK— TB1 TWO POSITION TERMINAL BLOCK**

<table>
<thead>
<tr>
<th>POSITION</th>
<th>SIGNAL</th>
<th>SIGNAL PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Filament Output</td>
<td>0-5 amps, 10Vdc Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Filament Return</td>
<td>Filament Return</td>
</tr>
</tbody>
</table>

For positive polarity/ground referenced filament units.

**ETHERNET DIGITAL INTERFACE — J5 8 PIN RJ45 CONNECTOR**

**HIGH VOLTAGE OUTPUT CONNECTOR— J6: FLOATING FILAMENT**

Negative Polarity: Claymount Mini Federal Standard X-ray connector

**HIGH VOLTAGE OUTPUT CONNECTOR— J6: GROUND FILAMENT**

Positive Polarity: Spellman High Voltage Delrin Drywell connector.

For positive polarity units a ground referenced filament output is provided on a two position terminal TB1. See table.

**CLAYMOUNT HV CONNECTOR PINOUT**

<table>
<thead>
<tr>
<th>PIN</th>
<th>OUTPUT CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>High Voltage Output</td>
</tr>
<tr>
<td>S</td>
<td>High Voltage Output</td>
</tr>
<tr>
<td>L</td>
<td>Filament Output</td>
</tr>
<tr>
<td>G</td>
<td>Filament Output</td>
</tr>
</tbody>
</table>

Note: No high voltage cable is provided

Recommended Cable: Claymount part number: 12096

Cable assembly, L3 CA11, CA11, 10F, CS= Bare 10 foot, Mini Federal Connectors on both ends, “C” and “S” are both connected to the bare shield wire.