



The EBM powers E-Beam Columns in Scanning Electron Microscopes providing acceleration, bias and filament sources in a single compact package. Spellman's proprietary HV packaging and encapsulation technology gives dramatic improvements in size, cost and performance compared to other SEM power supply offerings. The EBM provides a highly regulated, low noise, ultra stable accelerator supply programmable from 0 to -30kV at 170uA. The EBM has floating bias and filament supplies referenced to the accelerator. Programming signals utilize differential analog inputs to minimize external noise and offset voltages effects. A ground referenced accelerator current monitor is provided. The EBM is arc and short circuit immune, along with over voltage and over current protection.

### TYPICAL APPLICATIONS

Scanning Electron Microscope

### SPECIFICATIONS

#### Input Voltage:

+24Vdc, ±5%

#### High Voltage Outputs:

#### ACCELERATOR:

##### Voltage:

0V to -30kV full load with respect to ground

##### Current:

170µA maximum, continuous from -300V to -3kV

##### Accuracy:

±2% or ±15V (whichever is greater)

##### Load Regulation:

<±100ppm

##### Line Regulation:

<±100ppm for 22.8V to 26.4V line change

##### Ripple:

<15ppm p-p at -30kV, 170µA, maximum bias and filament output

##### Temperature Coefficient:

<100ppm/°C

##### Stability:

8ppm/3 minutes at 150µA load current after 1 hour warm up

#### BIAS:

(Referenced to Accelerator)

##### Voltage:

0 to +3.5kV (max allowable output limited to 2kV)

##### Current:

150µA maximum

##### Accuracy:

±5% of full scale

- **TRIODE SUPPLY FOR ELECTRON BEAM COLUMNS**
- **HIGH PRECISION, LOW NOISE, ULTRA STABLE**
- **OVER CURRENT/VOLTAGE PROTECTION**
- **ARC AND SHORT CIRCUIT PROTECTION**
- **OEM CUSTOMIZATION AVAILABLE**
- **UL, CE AND RoHS COMPLIANT**

#### Line Regulation:

<±0.1% for 10% line change

#### Ripple:

<150mVp-p at 30kV, 150µA, max. bias and filament output

#### Temperature Coefficient:

<1000ppm/°C

#### Stability:

6V/10 minutes

#### FILAMENT:

(Referenced to Accelerator)

#### Power:

0 to 15W

#### Load Resistance:

1 ±5%

#### Accuracy:

±3% of FS or 0.1V, which ever is greater

#### Load Regulation:

<2% for 10% change in load resistance

#### Line Regulation:

<1% for 10% line change

#### Ripple:

<0.1% p-p max

#### Temperature Coefficient:

<300ppm/°C

#### Stability:

100ppm/10 minutes

#### INTERFACE:

##### Input:

Analog control for beam energy, filament and bias

##### Output:

Mini75 receptacle (Claymount CA11 or similar)

##### Temperature:

Operating: 0°C to +45°C

Storage: -20°C to +75°C

##### Humidity:

0 to 85% RH, non-condensing

##### Dimensions:

4.13" H x 9.85" W x 7.48" D (105mm x 250mm x 190mm) excluding any mounting brackets

##### Weight:

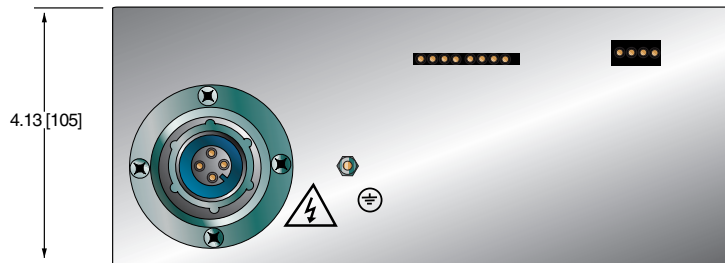
<22 lbs. (10kg)

#### Regulatory Approvals:

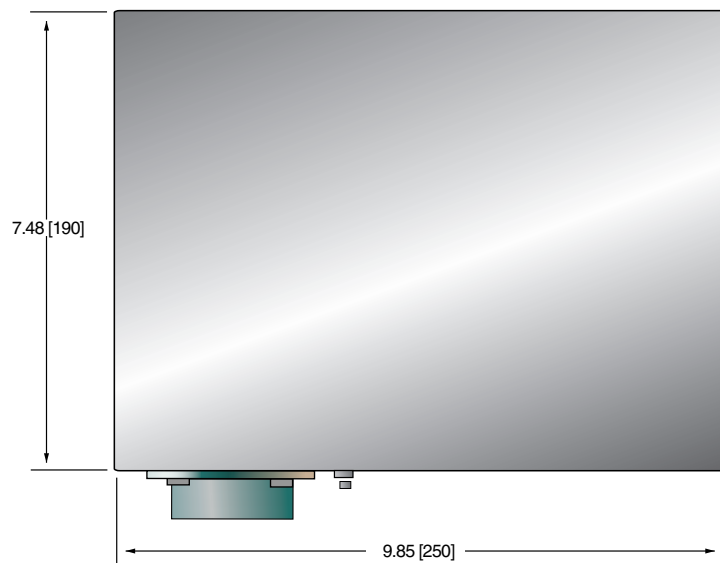
Compliant to 2004/108/EC, the EMC Directive and 2006/95/EC, the Low Voltage Directive. UL/CUL recognized, File E227588. Compliant to 2002/95/EC, RoHS.

DIMENSIONS: in.[mm]

#### FRONT VIEW



#### TOP VIEW



#### SIDE VIEW

