



Spellman's XRB160PN480/1 Monoblock® X-Ray source is designed for OEM applications powering its internal X-Ray tube up to 160kV at 480W. Features like power factor correction, small package size, standard analog monitoring and RS-232 digital interface simplify integrating this Monoblock® into your X-Ray system. Standard models are available with fan shaped beam geometry. Proprietary emission control circuitry provides excellent regulation of X-Ray tube current, along with outstanding stability performance.

### TYPICAL APPLICATIONS

X-Ray Scanning: Food Inspection, Fill Level Confirmation and Security Applications

### SPECIFICATIONS

#### X-Ray Characteristics:

Tube Type: Glass tube, Tungsten target, Be filter  
Focal Spot: 0.8mm x 0.8mm (IEC336)  
Beam Filter: Curved 1mm Al  
Beam Geometry: Asymmetrical fan 80° x 10° ±2°

#### Input Voltage:

220Vac, ±10%, 50/60Hz, 6.5A max

#### X-Ray Tube Voltage:

Nominal X-Ray tube voltage is adjustable between 80kV to 160kV

#### X-Ray Tube Current:

0.25mA to 3mA over specified tube voltage range

#### X-Ray Tube Power:

480W maximum continuous

#### Voltage Regulation:

Line: ±0.1% for a ±10% input line change of nominal input line voltage  
Load: ±0.1% for a 0.25mA to 3mA load change

#### Voltage Accuracy:

Voltage measured across the X-Ray tube is within ±2% plus 1.785kV of the programmed value

- **Integrated HV Supply, Filament Supply, X-Ray Tube, Beam Port and Control Electronics**
- **Compact & Lightweight**
- **Power Factor Corrected with Internal EMI Filter**
- **Can be Mounted in Any Physical Orientation**
- **Analog Monitoring and Standard RS-232 Digital Interface**

#### Voltage Risetime:

Ramp time shall be ≤2 seconds from 10% to 90% of rated output

#### Voltage Overshoot:

±1% switching between 90kV to 160kV @ 0.25mA

#### Voltage Ripple:

≤0.1% of rated voltage from 10Hz to 1kHz

#### Current Regulation:

Line: ±0.5% @ 80-160kV, 0.25mA to 3mA  
Load: ±0.5%, 0.25mA to 3mA

#### Current Accuracy:

Current measured through the X-Ray tube is within 2% of the programmed value

#### Current Risetime:

≤2 seconds from 10% to 90% of rated output

#### Arc Intervention:

4 arcs in 10 seconds = shutdown

#### Filament Configuration:

Internal high frequency AC filament drive with closed loop filament emission control

#### Analog Interface:

0 to 10Vdc ground referenced signals

#### Digital Interface:

RS-232 interface

#### Control Software:

A demo GUI for engineering evaluations will be provided for the RS-232 digital interface upon request.

#### Interlock Signals:

A hardware interlock function is provided

#### Operating Temperature:

0°C to +40°C

#### Storage Temperature:

-20°C to +70°C

#### Humidity:

5% to 95% relative humidity, non-condensing

**Cooling:**

Heat exchanger w/fan and oil pump,  
powered from AC

**Input Line Connector:**

6 position terminal block

**Analog Interface Connector:**

7 pin Molex 26-60-5070

**Digital Interface Connector:**

9 pin D connector, female

**Grounding Point:**

8-32 ground stud provided on chassis

**Dimensions:**

20" x 22.5" x 10.75" (508mm x 572mm x 273mm)

**Weight:**

125lbs (56.7kg)

**Orientation:**

Can be mounted in any orientation.

**X-Ray Leakage:**

Not to be greater than 0.5mR/hr at 5cm  
outside the external surface

**AC INPUT POWER  
J1 6 POSITION TERMINAL BLOCK**

PIN	SIGNAL	PARAMETERS
1	Line	Line
2	Removed	N/C
3	Neutral	Neutral
4	Removed	N/C
5	Spare	N/C
6	Spare	N/C

**ANALOG INTERFACE CONNECTOR –  
7 PIN MOLEX, 0.156 CENTER**

PIN	SIGNAL	PARAMETERS
1	X-Ray	+12Vdc @16mA = enable X-Ray
2	X-Ray Return	X-Ray Return
3	N/C	N/C
4	kV Monitor Output	0 to 1.6Vdc = 0 to 160kV
5	SGND	Signal Ground
6	mA Monitor Output	0 to 3Vdc = 0 to 3mA
7	Fault	Open Collector, Open = No Fault

**RS-232 DIGITAL INTERFACE –  
9 PIN FEMALE D CONNECTOR**

PIN	SIGNAL	PARAMETERS
1	N/C	No Connection
2	TX	Transmit Data
3	RX	Receive Data
4	N/C	No Connection
5	SGND	Signal Ground
6	N/C	No Connection
7	N/C	No Connection
8	X-Ray Enable	+12Vdc @ 16mA = Enable
9	N/C	No Connection

DIMENSIONS: in.[mm]

TOP VIEW

SIDE VIEW

