



Spellman's XRB101 Series of Monoblock® X-Ray sources are designed for OEM applications powering its internal X-Ray tube up to 150kV at 160W. Features like power factor correction, small package size and a standard analog and RS-232 digital interface simplify integrating the XRB101 into your X-Ray system. Standard models are available either with fan shaped or cone shaped beam geometries. Proprietary emission control circuitry provides excellent regulation of X-Ray tube current, along with outstanding stability performance.

### TYPICAL APPLICATIONS

X-Ray Scanning: Bone Densitometry,  
Food Inspection, Security

### SPECIFICATIONS

#### X-Ray Characteristics:

Tube Type: Glass tube, Tungsten target, Be filter  
Focal Spot: 0.8mm x 0.8mm, 0.5mm x 0.5mm  
(IEC 336)  
Beam Filter: 0.06" Ultem, 0.016-0.08" Al  
Beam Geometry: Asymmetrical fan up to 40° x 10°,  
cone up to 18°

#### Input Voltage:

180-264Vac, 50/60Hz, 6.5A maximum

#### X-Ray Tube Voltage:

Nominal X-Ray tube voltage is adjustable between  
40kV to 150kV

#### X-Ray Tube Current:

1.0mA to 4.0mA over specified tube voltage range

#### X-Ray Tube Power:

160W continuous, 600W peak  
Duty Cycle: 30 seconds on, 300 seconds off  
@ 600W peak

#### Voltage Regulation:

Line: ±0.1% for a ±10% input line change of  
180 to 264Vac  
Load: ±0.1% for a 1.0mA to 4.0mA load change.  
600W maximum

#### Voltage Accuracy:

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

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

#### Voltage Risetime:

±1% in less than 300ms

#### Voltage Overshoot:

±10% during 300ms risetime

#### Voltage Ripple:

1% rms of rated voltage @ 10Hz to 1MHz

#### Current Regulation:

Line: ±0.1% from 180-264Vac  
Load: ±0.5% @ 40-150kV, 1.0mA to 4.0mA

#### Current Accuracy:

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

#### Current Risetime:

±1% in less than 300ms

#### Arc Intervention:

4 arcs in 10 seconds with a 200ms quench = Shutdown

#### Filament Configuration:

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

#### Analog Interface:

0 to 5Vdc 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:

-40°C to +70°C

#### Humidity:

10% to 95% relative humidity, non-condensing

#### Cooling:

External fan required. 250cfm minimum

**Input Line Connector:**

3 pin Phoenix Contact P/N 1829167

**Analog Interface Connector:**

10 pin Phoenix Contact P/N 1755503

**Digital Interface Connector:**

9 pin D connector, female

**Grounding Point:**

8-32 ground stud provided on chassis

**Dimensions:**

13.46" X 13.38" X 6.24"  
(341.89mm X 339.85mm X 158.50mm)

**Weight:**

66lbs (30kg)

**Orientation:**

Can be mounted in any orientation.

**X-Ray Leakage:**

Less than 100mR/hr at 1m distance, measured at 140kV, 3mA, with a 100 sq. cm probe or equivalent, per FDA 21 CFR 1020.30

**AC INPUT POWER  
JB1 3 PIN PHOENIX CONTACT**

PIN	SIGNAL	PARAMETERS
1	Line	180-264Vac
2	GND	Chassis Ground
3	Neutral	Neutral

**RS-232 DIGITAL INTERFACE –  
JB16 9 PIN FEMALE D CONNECTOR**

PIN	SIGNAL	PARAMETERS
1	Spare	N/C
2	Transmit	RS-232
3	Receive	RS-232
4	Spare	N/C
5	Signal Ground	Ground
6	Spare	N/C
7	Spare	N/C
8	Spare	N/C
9	Spare	N/C

**ANALOG INTERFACE –  
JB15 10 PIN PHOENIX CONTACT**

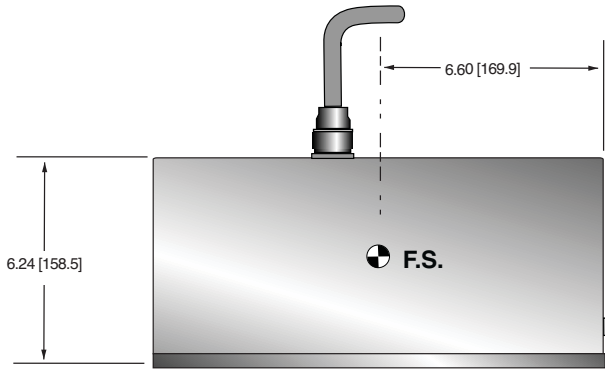
PIN	SIGNAL	PARAMETERS
1	X-Ray Signal	+12Vdc =Enable X-Ray, 0Vdc/open = Disable X-Ray, Zin=1kΩ
2	X-Ray Signal Return	Signal Return
3	N/C	N/C
4	kV Monitor	0 to 5Vdc = 0 to 175kV, Zout= 10kΩ
5	Signal Ground	Signal Ground
6	mA Monitor	0 to 5Vdc = 0 to 4.5mA, Zout= 10kΩ
7	Fault Signal	Open collector, High (Open) = No Fault, 35Vdc @10mA maximum
8	HV ON Lamp Relay n/o	Relay Normally Open, 50Vdc @ 1A maximum
9	HV ON Lamp Relay common	Relay Common, 50Vdc @ 1A maximum
10	HV ON Lamp Relay n/c	Relay Normally Closed, 50Vdc @ 1A maximum

**LED INDICATORS**

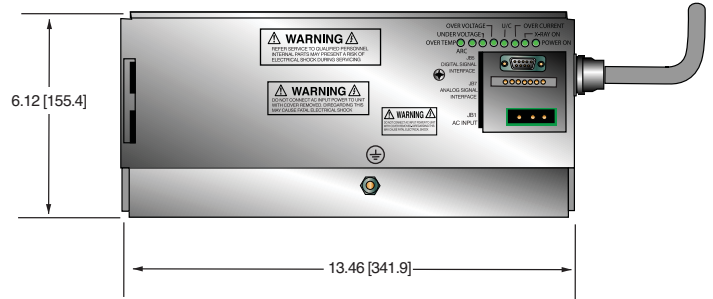
INDICATOR	SIGNAL NAME	CONDITION Illuminated When...
LED 1	OT	Over temperature occurs
LED 2	ARC FLT	Arc fault occurs
LED 3	UV	Low kV occurs
LED 4	OV	High kV occurs
LED 5	UC	Low mA occurs
LED 6	OC	High mA occurs
LED 7	X-RAY ON	X-Rays are enabled
LED 8	PWR	Power is ON

DIMENSIONS: in.[mm]

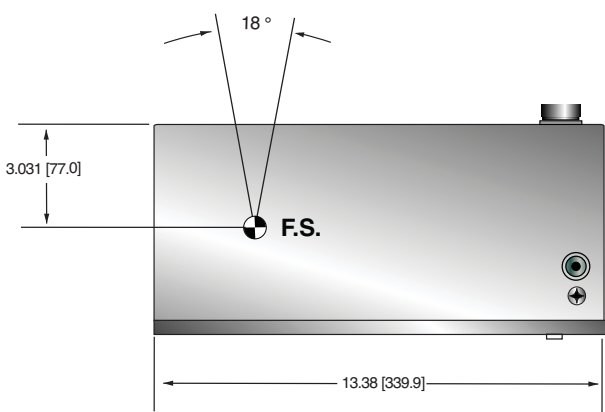
#### FRONT VIEW TANK



#### FRONT VIEW CONTROL ASSEMBLY

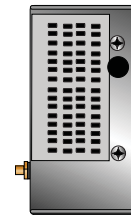


#### SIDE VIEW TANK

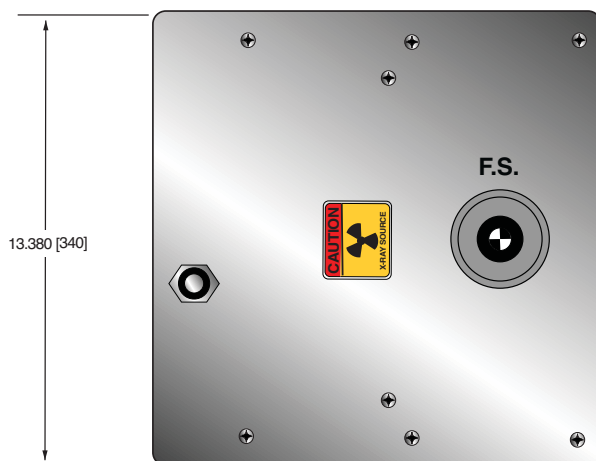


#### SIDE VIEW CONTROL ASSEMBLY

#### AIR EXHAUST



#### TOP VIEW TANK



#### SIDE VIEW CONTROL ASSEMBLY

#### AIR INTAKE

