

Spellman's XRB180PN200 is an integrated X-Ray source operating up to 180kV and 200W, providing OEM users a compact plug-and-play Monoblock for critical inspection and screening applications. The unit incorporates a 25° angle stationary anode X-Ray tube offering a fan beam of 80°x 4°. Proprietary emission control circuitry provides excellent regulation of X-Ray tube current, with industry leading dose stability and image quality. This compact model comes with standard analog and RS-232 digital control. Spellman can provide customized versions of this platform for specific OEM system requirements.

TYPICAL APPLICATIONS

Aviation Security Screening: Checked Baggage/EDS, Checkpoint. Vehicle Inspection, General NDT, Food Inspection

SPECIFICATIONS

X-Ray Characteristics:

Tube Type:	Stationary Anode, tungsten target
Focal Spot:	0.8 x 0.8mm nominal (IEC60336)
Beam Filter:	Consists of oil and the curved Ultem 0.079" +/-0.01". Inherent filtration in the X-Ray Tube is 1mm Be, 1.5mm +/-10% glass.
Beam Geometry:	Fan of 80° X 4°, ±1%
Anode Angle:	25°

Input Voltage:

Power factor corrected input to 0.98. 100Vac to 240Vac, ±10%, 50/60 Hertz. 5A, maximum

X-Ray Tube Voltage:

Nominal X-Ray tube voltage is adjustable between 90kV to 180kV.

Voltage Accuracy:

The high voltage measured at the X-ray tube will be within ±1% of the selected value.

Voltage Ripple:

Ripple will be ≤0.2% of maximum rated voltage for frequencies ≤1kHz.

Voltage Regulation:

< ±0.1% for ±10% of nominal input line change
< ±0.1% for 0.5mA to 1.1mA load change

- **180kV and 200W**
- **X-Ray Tube Current: 0.5mA to 1.1mA**
- **Focal Spot 0.8 x 0.8mm nominal (IEC60336)**
- **Fan Beam of 80° X 4°, maximum**
- **Power factor corrected input to 0.98**
- **100Vac to 240Vac, ±10%**

Voltage Overshoot:

kV overshoot will return within 5% of full voltage in less than 10ms.

Risetime:

The voltage and current risetime is controlled by a ramping circuit. Ramp time is less than 0.5 second from 10% to 90% of output voltage and current.

X-Ray Tube Current:

0.5mA to 1.1mA @ 180kV, 200 Watts maximum

Current Accuracy:

<±1% of the selected value.

Current Regulation:

<0.5% at 90-180kV, 0.5mA to 1.1mA

Arc Intervention:

Unit will detect a single arc but HV will not shut down. If multiple arcs occur (4 in 10 seconds) then the unit will shut down.

Filament Configuration:

Internal high frequency AC filament drive operated in current mode with closed loop filament emission control.

Analog Interface:

Ground referenced 0 to 10Vdc for all monitoring signals. Relay contacts and open collector outputs for other signals.

Digital Interface:

The RS-232 interface allows for programming of the voltage, current, and X-Ray Enable. Provides monitoring for voltage, current and oil temperature. Tolerance is 3% (with additional 5uA offset at ≤10%mA programming).

Control Software:

A demo GUI is available for engineering evaluation.

Operating Temperature:

0°C to +40°C

Storage Temperature:

-40°C to +70°C

Humidity:

10% to 95% relative humidity, non-condensing.

Cooling:

Via natural convection/external cooling fans of 100CFM minimum or maintaining tank/oil temperature below 55°C.

Input Line Connector:

3 pin Phoenix Contact, p/n 1829167.
Mating connector provided with unit.

Analog Interface Connector:

10 pin Phoenix Contact, p/n 1755503.
Mating connector provided with unit.

Digital Interface Connector:

9 pin female D connector.
Mating connector provided with unit.

Grounding Point:

M4 grounding stud provided on chassis.

Dimensions:

See outline drawing.

Weight:

132 pounds (60kg).

Orientation:

Can be mounted in any orientation.

X-Ray Leakage:

Not to be greater than .5mR/hr at 5cm from any surface of the Monoblock® when measured at 180kV @ 1.1mA.

Regulatory Approvals:

Compliant to EEC EMC Directive. Compliant to EEC Low Voltage Directive.

**AC INPUT POWER
3 PIN PHOENIX CONTACT P/N 1829167**

PIN	SIGNAL	PARAMETERS
1	Line	100-240Vac, ±10%, 50/60 Hertz @ 6 amps
2	GND	Ground
3	Neutral	100-240Vac, ±10%, 50/60 Hertz @ 6 amps

**ANALOG INTERFACE—
10 PIN PHOENIX CONTACT P/N 1755503**

PIN	SIGNAL	PARAMETERS
1	X-Ray On	+24Vdc = Enable X-Ray, Low or open = Disable X-Ray
2	X-Ray On Return	X-Ray on Return
3	N/C	No Connection
4	kV Monitor	0 to 10Vdc = 0 to 200kV, Zout = 10kΩ
5	SGND	Signal Ground
6	mA Monitor	0 to 10Vdc = 0 to 1.5mA, Zout = 10kΩ
7	Fault	Open Collector, High (Open) = No Fault, 35Vdc @ 10mA, maximum
8	HV On Lamp N/O	Relay dry contact, normally open, 30Vdc @ <1A, nominal 50mA DC load
9	HV On Lamp Common	Relay dry contact, common, 30Vdc @ <1A, nominal 50mA DC load
10	HV On Lamp N/C	Relay dry contact, normally closed, 30Vdc @ <1A, nominal 50mA DC load

**RS-232 DIGITAL INTERFACE—
9 PIN MALE D CONNECTOR**

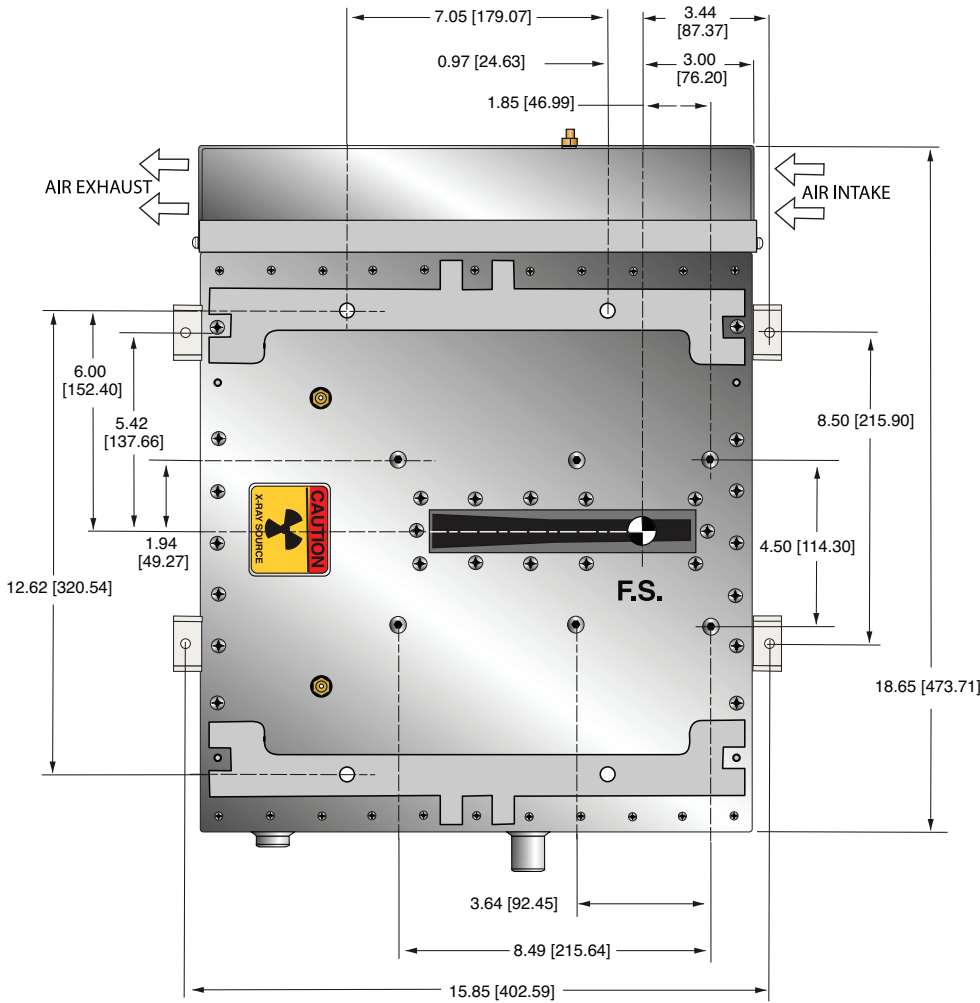
PIN	SIGNAL	PARAMETERS
1	N/C	No Connection
2	Transmit Data	Conforms to EAI RS-232-C
3	Receive Data	Conforms to EAI RS-232-C
4	N/C	No Connection
5	SGND	Signal Ground
6	N/C	No Connection
7	N/C	No Connection
8	N/C	No Connection
9	N/C	No Connection

FRONT PANEL LED INDICATORS

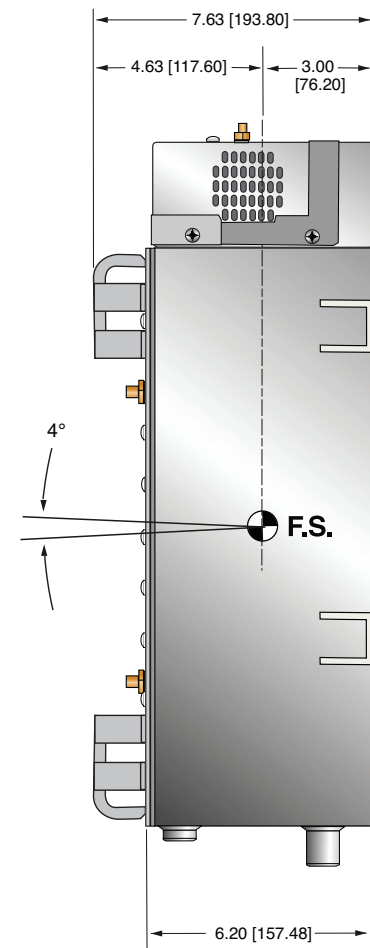
INDICATOR	SIGNAL NAME	CONDITION Illuminated When...	LED COLOR
LED 1	OT	OverTemperature occurs	Red
LED 2	ARC	Arc fault occurs	Red
LED 3	UV	Low kV occurs	Red
LED 4	OV	High kV occurs	Red
LED 5	UC	Low mA occurs	Red
LED 6	OC	High mA occurs	Red
LED 7	X-RAY ON	X-Rays are enabled	Green
LED 8	PWR ON	Power is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

DIMENSIONS: in.[mm]

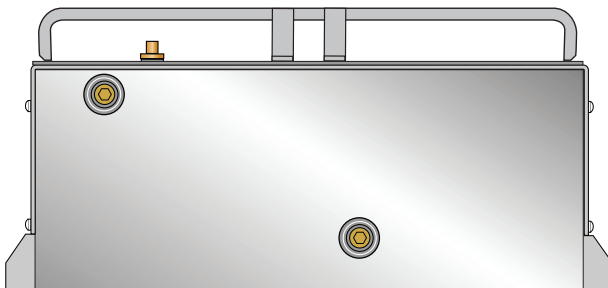
TOP VIEW



SIDE VIEW



BACK VIEW



FRONT VIEW

