



Spellman's  $\mu$ XRB130P65 microfocus Monoblock® X-Ray sources are designed for high resolution imaging applications powering its internal microfocus X-Ray tube up to 130kV @ 65W. Features like 24Vdc input voltage, small package size and standard RS-232 digital interface simplify integrating the  $\mu$ XRB130P65 into your X-Ray system. The small, round focal spot size, optimized over the range of operating voltage, and high magnification, combined with stable high intensity output provides distortion free, superior quality 2D and 3D images.

### TYPICAL APPLICATIONS

#### Industrial X-Ray:

- Circuit board and electronic component inspection
- High resolution Non Destructive Testing of metal and plastic parts
- Micro CT for Industrial applications
- Battery inspection

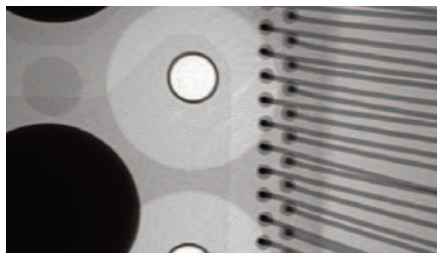
#### Medical X-Ray:

- Micro CT for life sciences applications

### OPTIONS

- WB** Wide Beam
- ET** Extended Tube (wide beam only)
- LW** Light Weight

The uXRB130P65 is ideal for applications such as printed circuit board inspection, battery inspection and industrial/medical micro CT.



Photos provided by ThermoFisher Scientific

- **Integrated X-Ray Tube and Control Electronics in One Compact Assembly**
- **Standard RS-232 Digital Interface Offers Access to Diagnostics and Operating Logs**
- **Standard Windows Test GUI**
- **7 Micron Focal Spot for Narrow Beam**
- **8 Micron Focal Spot for Wide Beam**
- **10mm/14mm Spot to Window Spacing Provides High Geometric Magnification**

### SPECIFICATIONS

#### Narrow Beam Benefits (Standard):

The small round spot is optimized over the range of kV and power to provide distortion free images. Operated at 4 watts yields a 6 micron spot for high resolution imaging. The 14mm spot to window spacing offers high geometric magnification.

#### Narrow Beam X-Ray Characteristics (Standard):

- Spot Ellipticity:  $\pm 20\%$  @ 16 watts, 130kV (either axis referred to average)
- Beam Geometry:  $\geq 53^\circ$ , round beam, uniform beam profile in any direction
- Spot to Window Spacing: 14mm  $\pm 0.5$ mm
- Window Diameter (uncollimated):  $\approx 19$ mm
- Window Material and Thickness: Beryllium, 0.25mm
- Target Material: Tungsten

#### Wide Beam Benefits (WB Option):

The 115 degree round beam is well suited for automated inspection where a large field of view is required for maximum throughput or off angled views. The 10mm spot to window spacing provides superior high geometric magnification.

#### Wide Beam X-Ray Characteristics (WB Option):

- Spot Ellipticity:  $\pm 20\%$  @ 16 watts, 130kV (either axis referred to average)
- Cone of Illumination:  $115^\circ$ , round beam, uniform beam profile in any direction
- Spot to Window Spacing: 10mm  $\pm 0.5$ mm
- Window Diameter (uncollimated):  $\approx 38$ mm
- Window Material and Thickness: Beryllium, 0.51mm
- Target Material: Tungsten
- X-Ray Leakage: Behind X-Ray tube is  $\leq 0.5$ mR/hr at 2.55cm

#### Input Voltage:

+24-27Vdc

#### Input Current:

<6 amps

**Anode Supply:**

Output Voltage:  
20kV to 130kV (referenced to Cathode Gun Supply)  
Output Current:  
up to 0.5mA, from 20kV to 130kV

**Environmental:**

Operating Temperature:  
0°C to +32°C  
Storage Temperature:  
-20°C to +70°C  
Humidity:  
0 to 95%, non-condensing  
Altitude:  
Up to 5,000 feet (1524 meters)

**Cooling:**

Internal fan is incorporated. Adequate air circulation around unit must be provided.

**Digital Interface:**

RS-232

**Mechanical:**

See drawings

**Weight:**

Standard: 30lbs. (13.60kg)  
Standard/Extended Tube: 34lbs. (15.40kg)  
Light Weight (LW option): 23lbs. (10.43kg)  
Light Weight/Extended Tube: 27lbs. (12.24kg)

**Regulatory Approvals:**

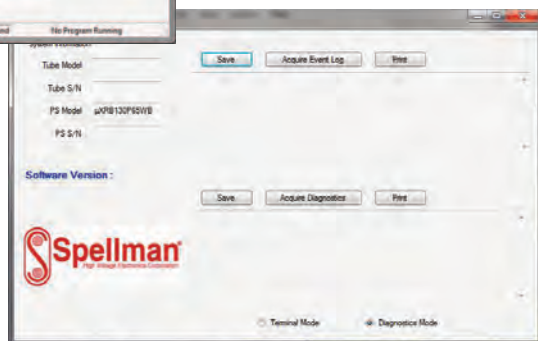
Compliant to EEC EMC Directive.  
Compliant to EEC Low Voltage Directive.

**Graphical User Interface**



Spellman provides an example of a Graphical User Interface (GUI) for the convenience of the user but most customers implement their own software.

<Main System Screen



Diagnostics Screen

**J1 INPUT/OUTPUT – 16 PIN AMP #206036-1 CONNECTOR**

PIN	SIGNAL	PARAMETERS
1	Chamber Interlock Out	To close Chamber Interlock connect pin 1 to pin 2, R<2Ω
2	Chamber Interlock In	To close Chamber Interlock connect pin 2 to pin 1, R<2Ω
3	X-Ray ON Lamp Out	120Vac @ 3A/250Vac @ 1.5A rated contacts. Close at X-Ray ON
4	X-Ray ON Lamp In	120Vac @ 3A/250Vac @ 1.5A rated contacts. Close at X-Ray ON
5	N/C	N/C
6	Prime Power Interlock Out	To close Power Interlock connect pin 6, 7 to pin 8, 10, R<2Ω
7	Prime Power Interlock Out	To close Power Interlock connect pin 6, 7 to pin 8, 10, R<2Ω
8	Prime Power Interlock In	To close Power Interlock connect pin 8, 10 to pin 6, 7, R<2Ω
9	N/C	N/C
10	Prime Power Interlock In	To close Power Interlock connect pin 8, 10 to pin 6, 7, R<2Ω
11	+24Vdc Input (+)	+24Vdc Input (+)
12	+24Vdc Input (+)	+24Vdc Input (+)
13	+24Vdc Return (-)	+24Vdc Return (-)
14	+24Vdc Return (-)	+24Vdc Return (-)
15	X-Ray On Indicator Out	24Vdc @ 3A rated contacts. Close at X-Ray On
16	X-Ray On Indicator In	24Vdc @ 3A rated contacts. Close at X-Ray On

**J2 RS-232 DIGITAL INTERFACE – 9 PIN AMP #788903-1 CONNECTOR**

PIN	SIGNAL	NAME
1	DCD	Data Carrier Detect
2	RD	Received Data
3	TD	Transmitted Data
4	DTR	Data Terminal Ready
5	SGNO	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to send
8	CTS	Clear to Send
9	RI	Ring Indicator

**SPOT TABLE**

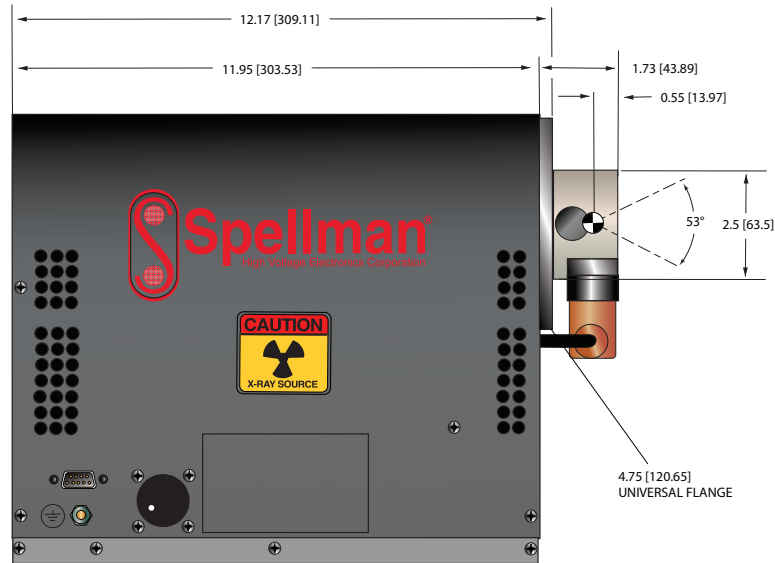
PARAMETER	NARROW BEAM	WIDE BEAM
Operating Voltage Range	45-130kV	50-130kV
Maximum Power	65W, 130kV	65W, 130kV
Maximum Beam Current	0.500mA	0.500mA
Spot Size	4 Watt	≤ 7μ, 45-130kV
	8 Watt	≤ 10μ, 45-130kV
	16 Watt	≤ 22μ, 45-130kV
	32 Watt	≤ 48μ, 70-130kV
	40 Watt	≤ 60μ, 80-130kV
65 Watt	≤ 100μ, 130kV	≤ 100μ, 130kV

**How to Order:**

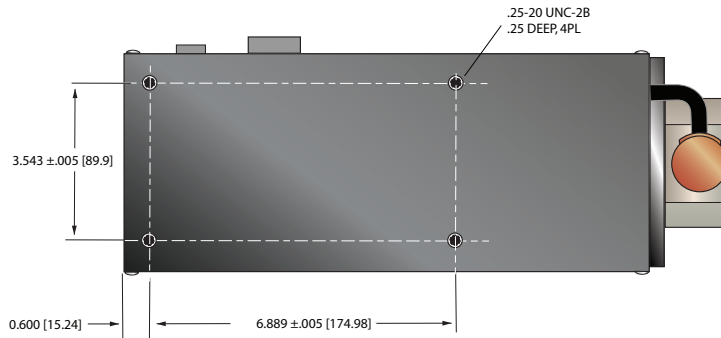
Standard (Narrow Beam)	PART NO.: μXRB130P65
Wide Beam Option	PART NO.: μXRB130P65WB
Wide Beam Option and Extension Tube	PART NO.: μXRB130P65WBET

DIMENSIONS: in.[mm]

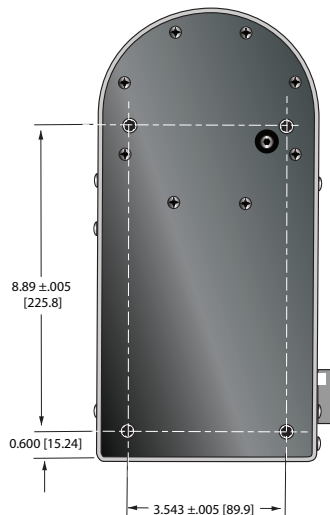
**NARROW BEAM (Standard)  
SIDE VIEW**



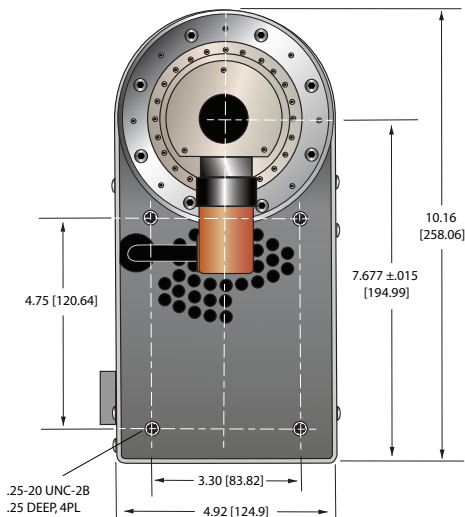
**BOTTOM VIEW**



**REAR VIEW**

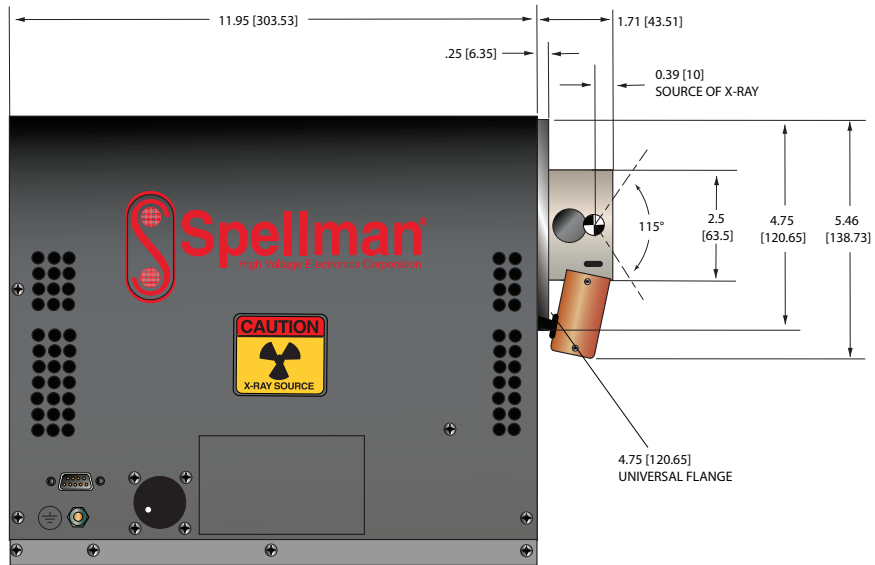


**FRONT VIEW**

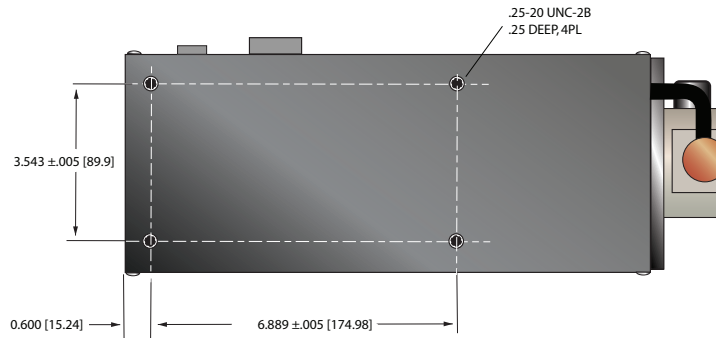


DIMENSIONS: in.[mm]

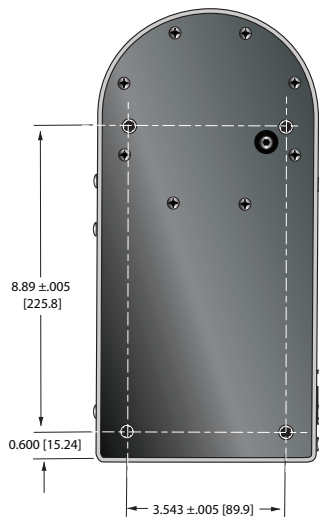
**WIDE BEAM (WB Option)  
SIDE VIEW**



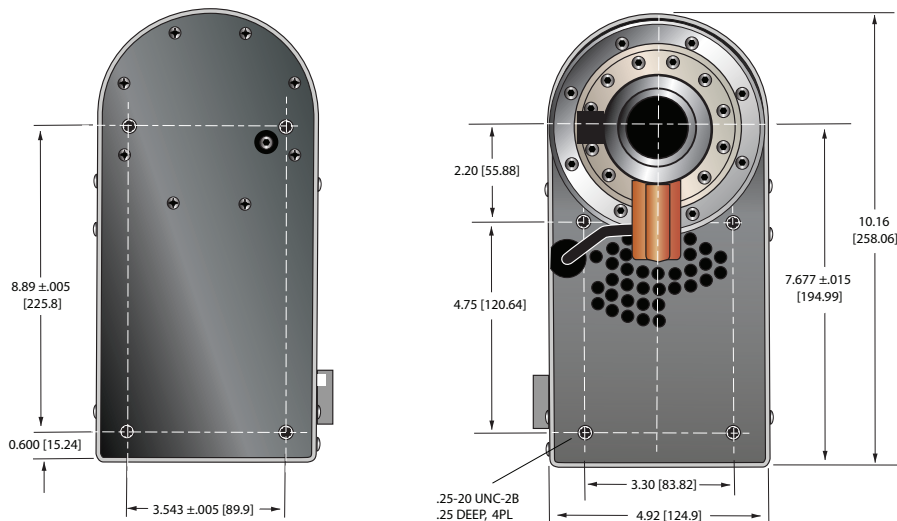
**BOTTOM VIEW**



**REAR VIEW**

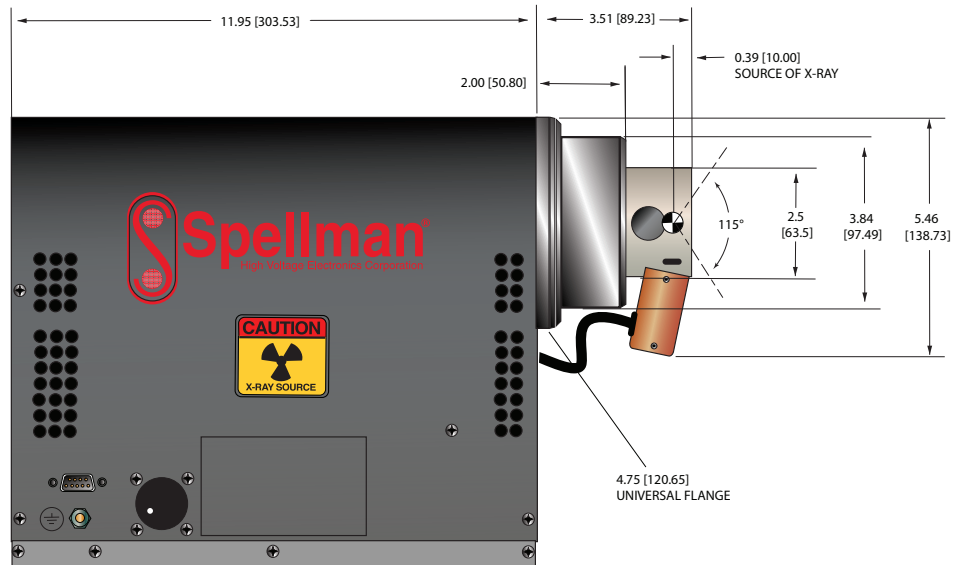


**FRONT VIEW**

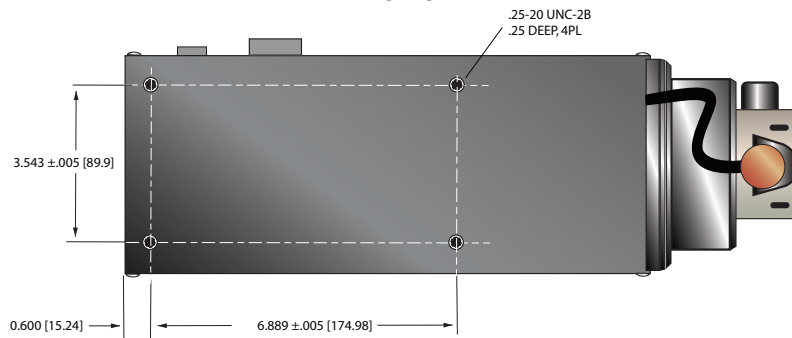


DIMENSIONS: in.[mm]

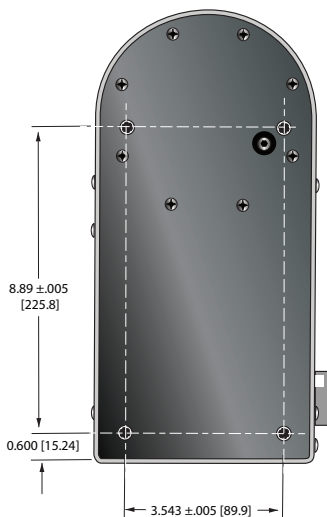
**WIDE BEAM (WB Option) and  
EXTENSION TUBE (ET Option)  
SIDE VIEW**



**BOTTOM VIEW**



**REAR VIEW**



**FRONT VIEW**

