

# Miniature X-Ray Tube

# Mini-X-OEM

## Miniature X-ray Tube for OEM Applications

### Features

- High Voltage Supply
- Low Power (4 W)
- Small Size (340 g)



### Applications

- Hand-held XRF
- Table-top XRF
- Experimental

The Mini-X-OEM is a precision x-ray generator designed for applications that require small size and low power consumption. The source includes a miniature sealed x-ray tube with a transmission-type end window and a high voltage power supply encapsulated in a single radiation-shielded unit. The source is designed specifically to be used as component of a bench-top or hand-held x-ray spectrometer for the detection of trace elements using x-ray fluorescence spectrometry.

The Mini-X-OEM differs from the Amptek Mini-X. The Mini-X has a USB interface to control the voltage and current through PC software and makes it easy to set up XRF experiments. The Mini-X-OEM version is controlled by the end user, by supplying analog voltages to control the voltage and current of the tube. This is the preferred method in table-top and hand-held OEM applications where all the functions of the instrument are controlled by a single internal computer.

### Technical Specifications

<b>X-Ray Tube</b>		Operating temp	-10 °C min, 60 °C max case temp
Tube type	Metal-ceramic	Ambient humidity	30 to 90% (non-condensing)
Tube voltage	5 kV – 50 kV	Dimensions	Please see mechanical drawing
Tube current	0 - 200 µA, See Figure 2	Weight	340 g
Tube power	4 Watts maximum	Mounting orientation	Any
Cathode type	Tungsten filament	<b>PIN Configuration</b>	
X-ray window	Be, 125 µm	PIN 1	V+, (6-12 VDC)
Target material	Standard: Au, Ag or Rh Optional: W	PIN 2	V+, (6-12 VDC Nom.)
Focal spot size	Approximately 2 mm	PIN 3	Ground
Output cone angle	120°, See Figures 3 and 4	PIN 4	Ground
<b>Power Supply</b>		PIN 5	Tube I Control Input (0-4 V = 0-200 UA)
Input voltage	6 - 12 VDC range	PIN 6	Tube HV Control Input (0-4 V = 0-50 KV)
Input current	@ 6 VDC: 1.35 A typical, 1.5 A max @12 VDC: 0.70 A typical, 0.75 A max	PIN 7	Filament Ready (0-5V, Low = Not Ready, High = Ready)
HV stability	< 0.1%	PIN 8	Tube Enable Input (0-5 V, Low = Off, High = Enable)
<b>Physical Parameters</b>		PIN 9	Tube HV Monitor Output (0-4 V = 0-50 KV)
Radiation shielding	Self-shielded (except output window). Shielding of output window is the responsibility of the customer.	PIN 10	Tube I Monitor Output (0-4 V = 0-200 UA)
Cooling	Conduction, Heat sink to be supplied by customer.		

# Miniature X-ray Tube for OEM Applications Mechanical Dimensions

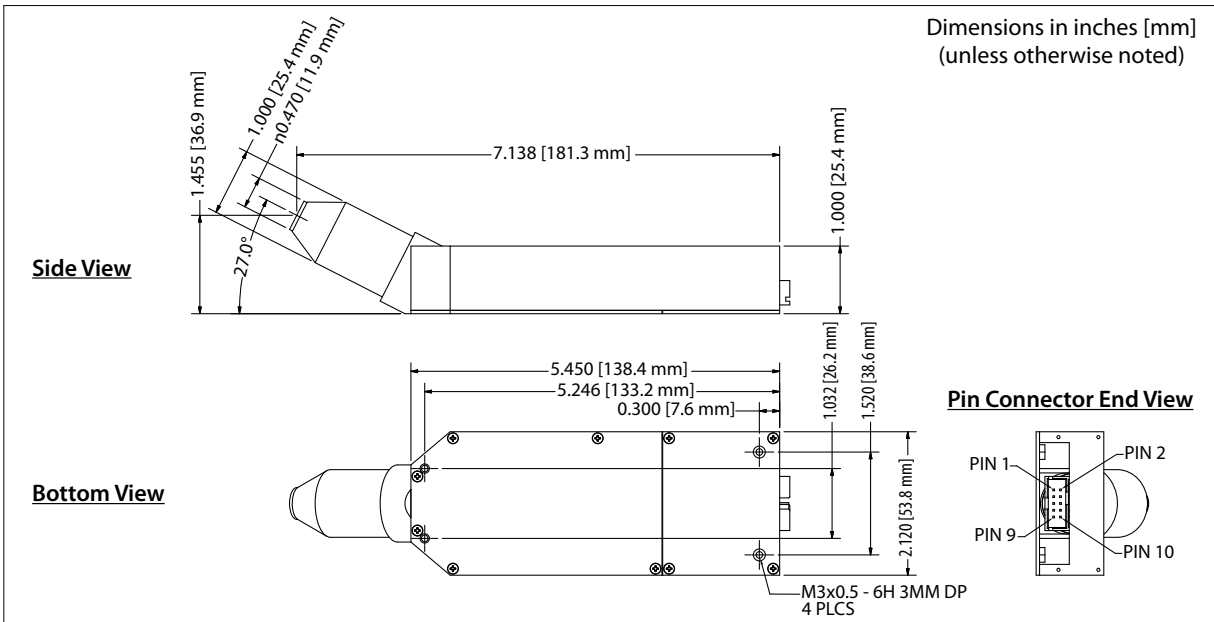


Figure 1

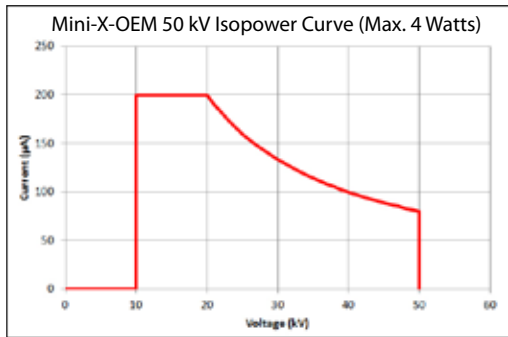


Figure 2

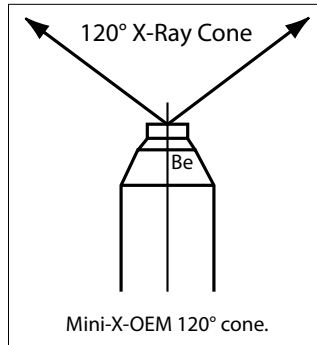


Figure 3

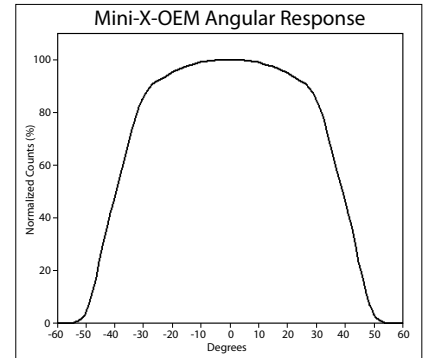


Figure 4

## Caution

The Mini-X-OEM is only one component of an X-ray instrument. It is the responsibility of the OEM to provide a fail safe metal enclosure to prevent escaping radiation while their customers use this product. The OEM final instrument (turn-key system) must comply with local government regulations to protect personnel from exposure to radiation. Amptek Inc., bears no responsibility for the incorrect use of this product.

The Mini-X-OEM is manufactured and warranted (one year or 2000 hours, whichever comes first) by Newton Scientific Inc.

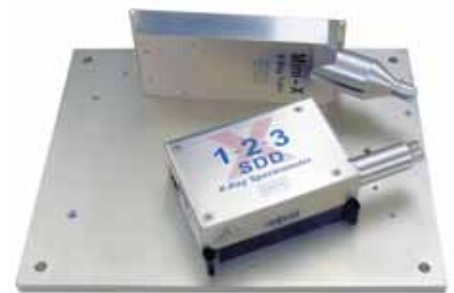
[Amptek Inc. manufactures and sells a complete line of X-ray detectors and related electronics for OEMs.](#)



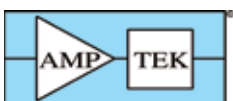
OEM Components



Complete X-Ray Spectrometer



Experimenter's Kit



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