

# X-RAY SOURCE

# 110 kV MICROFOCUS X-RAY SOURCE L10951



## FEATURES

- High power: Maximum output 50 W
- High stability
- External control via RS-232C interface
- No high voltage cable connection required  
High voltage power supply is integrated.

## APPLICATIONS

- In-line X-ray inspection
- Non-destructive inspection
- X-ray CT

### [Applicable objects]

- Electronic component
- Printed circuit board
- Plastic component
- Metal component
- Food
- Beverage
- Medicine & drug
- Bioproduct
- Small animal, insect

# SPECIFICATIONS

## GENERAL

Parameter	Description / Value	Unit
X-ray tube voltage setting range	0 to 110	kV
X-ray tube current setting range	0 to 800	μA
X-ray tube voltage operational range <sup>①</sup>	40 to 110	kV
X-ray tube current operational range <sup>①</sup>	10 to 800	μA
Maximum output	50	W
X-ray focal spot size (Nominal value) <sup>②</sup>	15 to 80	μm
X-ray beam angle <sup>③</sup>	Approx. 62	degree
Focus to object distance (FOD)	Approx. 16.8	mm
Rated output	Continuous rating	—
Communication method	Interface: RS-232C (9-pin D-sub connector)	—

## X-RAY TUBE UNIT

Parameter	Description / Value	Unit
X-ray output window material / Thickness	Beryllium / 0.5	mm
Target material	Tungsten	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight	Approx. 8.5	kg

## X-RAY CONTROL UNIT

Parameter	Description	Unit
Input voltage (DC)	+24 (+2.4, -0)	V
Power consumption	Less than 120	W
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight <sup>④</sup>	Approx. 5.5	kg

## REGULATION AND STANDARD

Parameter	Description	Unit
RoHS directive	EN 50581 Category 9	—
EMC	IEC/EN 61326-1 Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—

## CONTROL SOFTWARE<sup>⑤</sup>

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® XP, 7	—
Interface	RS-232C interface	—

**NOTE:** ① See the graph of the X-ray tube Voltage / Current operation range.

② This focal spot size changes depending on the output.

③ Reference value: With 50 % of maximum X-ray emission.

④ This weight includes the accessories of approx. 2 kg.

⑤ The control software is provided as a sample software for the purpose of MFX operation.

The performance of the software is not guaranteed.



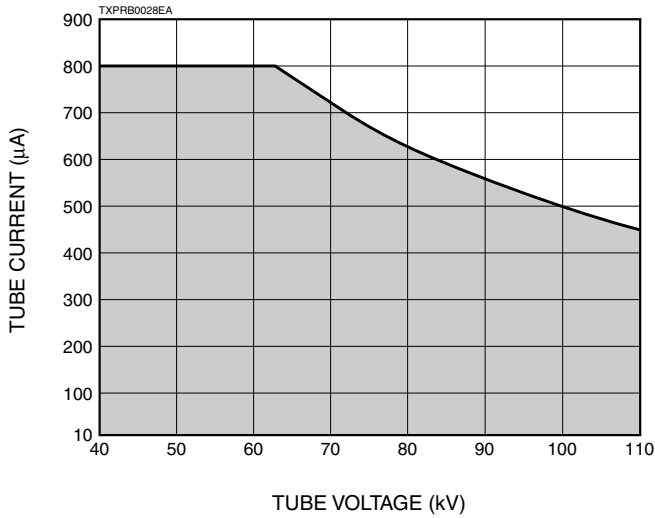
### PRECAUTIONS TO USE

- This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.  
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

### OPERATIONAL CAUTION

- This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
- This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

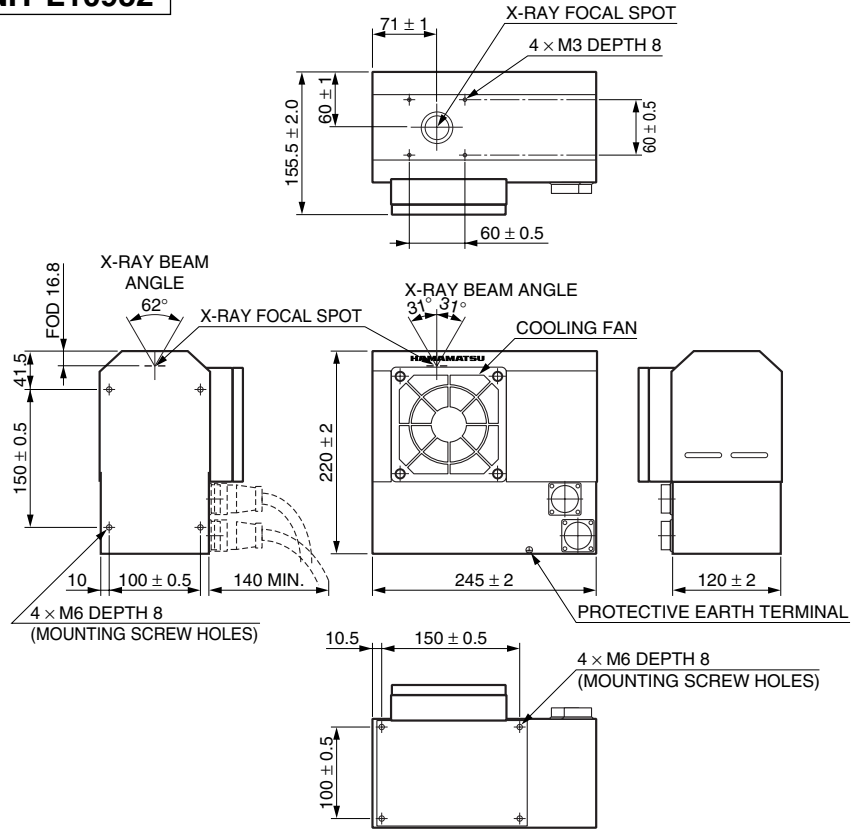
# X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



\* The X-ray tube voltage guaranteed range is 40 kV to 110 kV.  
 \* Operation is not guaranteed when the tube current is below 10 µA.

# DIMENSIONAL OUTLINE (Unit: mm)

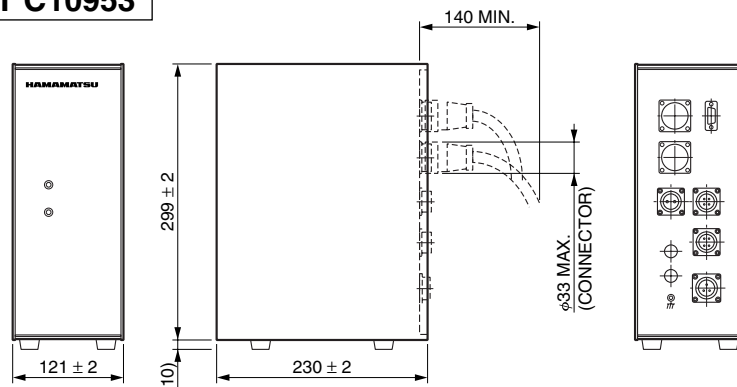
## X-RAY TUBE UNIT L10952



CONNECTION CABLE LENGTH: 5 m

TXPRA0003EB

## X-RAY CONTROL UNIT C10953



TXPRA0004EA

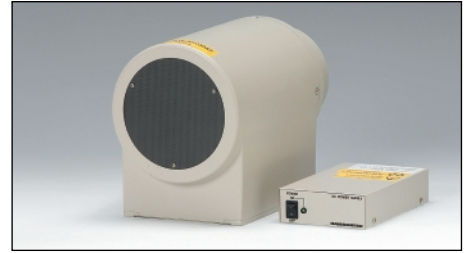
# RELATED PRODUCTS

## X-RAY IMAGE INTENSIFIER DIGITAL CAMERA UNIT C7336-05/-52

The C7336 series consist of a high resolution, high contrast 4-inch X-ray image intensifier (X-ray I.I.) and a 2.8 megapixel CMOS image sensor.

The X-ray I.I. used has a fixed field-of-view of 100 mm diameter or a 4 inches/2 inches adjustable field-of-view and an input window made of thin aluminum which is excellent in X-ray transmission and causes less scattering of X-rays. These features allow real-time detection at X-ray energy levels from about 20 keV.

The captured images can be transferred to PC directly by interface of IEEE1394b.



## X-CUBE™ (COMPACT X-RAY CCD CAMERA) H8480, H8481, H8953

X-CUBEs are compact X-ray CCD camera designed for non-destructive inspection, which make X-ray imaging as easy as an ordinary CCD camera in handling. The H8480 and H8953 use a 2/3 type CCD coupled to large-diameter tapered FOPs which are coated with CsI. The H8481 uses a straight type FOP instead of the large FOP, achieving a high resolution of 20 Lp/mm.



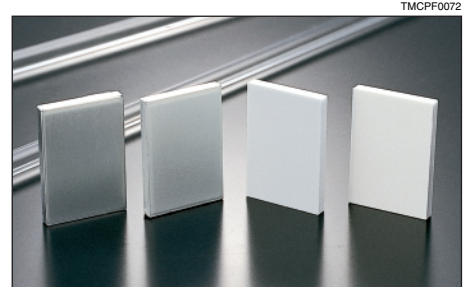
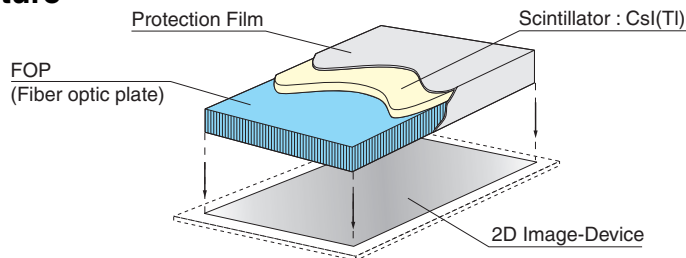
Left: H8480 Center: H8953 Right: H8481

## FOS (Fiber optic plate coated with X-ray scintillator)

The FOS is an optical device for X-ray imaging, fabricated by coating an X-ray scintillator material over a fiber optic plate consisting of more than tens of million glass fibers each a few micrometers in diameter. The FOS provides higher sensitivity and resolution than currently used sensitized paper films and also allows real-time digital radiography when directly coupled to a commercially available CCD. The fiber optic plate used in the FOS has excellent X-ray absorption characteristics, so that X-rays penetrating the X-ray scintillator and directly entering the CCD are minimized to less than 1%. This protects the CCD from the deterioration and increased noise caused by X-ray irradiation, assuring a long service life and maintaining high image quality.

Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

### Structure



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