X-RAY SOURCE

SOFT X-RAY SOURCE
L11754-01W

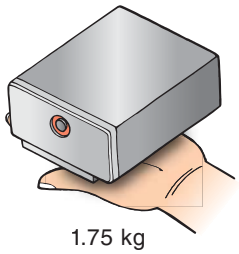
OVERVIEW

The L11754-01W emits soft X-rays (15 kV) that allow inspection of light-element foreign matter and impurities, which have been difficult up to now. Its compact and lightweight design with a wide beam angle enables easier installation and use in compact inspection equipment.
A plastic plate can be used for shielding instead of lead, which helps reduce the cost of shielding.

Left: controller, right: head

FEATURES

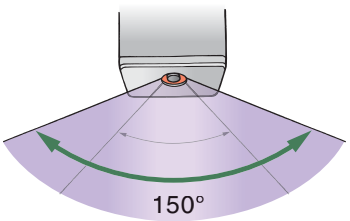
Compact and lightweight head


1.75 kg

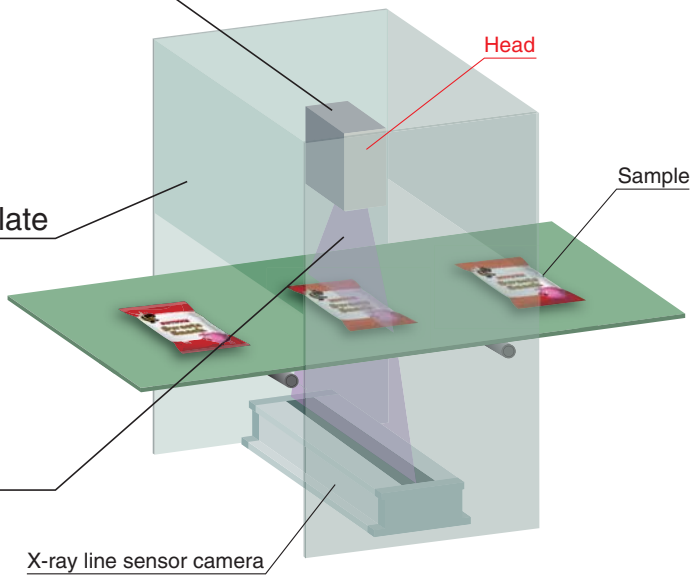
Can be shielded with a plastic plate

No lead required

Wide beam angle



Reduces the irradiation distance to objects, allowing more compact equipment design.

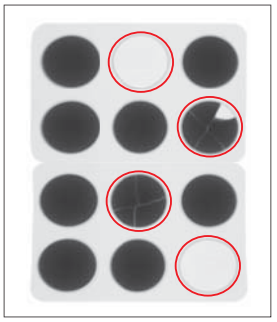


APPLICATIONS

●Food and pharmaceutical packaging inspection

· Biting
· Contents (chips, contaminant, etc.)

■X-ray imaging example (tablet)



Cracks, chips and the number of tablets can be detected.

X-ray tube voltage: 15 kV
X-ray tube current: 1 mA
Detector: X-ray TDI camera C12300-321B

SPECIFICATIONS

Parameter	Description / Value	Unit
X-ray tube voltage	15	kV
X-ray tube current	1	mA
Maximum output	15	W
X-ray focal spot size	0.8	mm
X-ray beam angle ①	150	degree
Focus to object distance (FOD) ②	3.2	mm
Operating ambient temperature	0 to +40	°C
Storage ambient temperature	-10 to +60	°C
Operating ambiet humidity	Less than 60 % (no condensation)	—
Storage ambiet humidity	Less than 85 % (no condensation)	—

HEAD

Parameter	Description / Value	Unit
X-ray output window material/Thickness	Beryllium/0.3	mm
Target material	Tungsten	—
Weight	1750	g

CONTROLLER

Parameter	Description / Value	Unit
Input voltage (AC)	100 V to 240 V, single phase 50 Hz / 60 Hz	—
Power consumption	Less than 50 W	—
Weight ③	1620	g

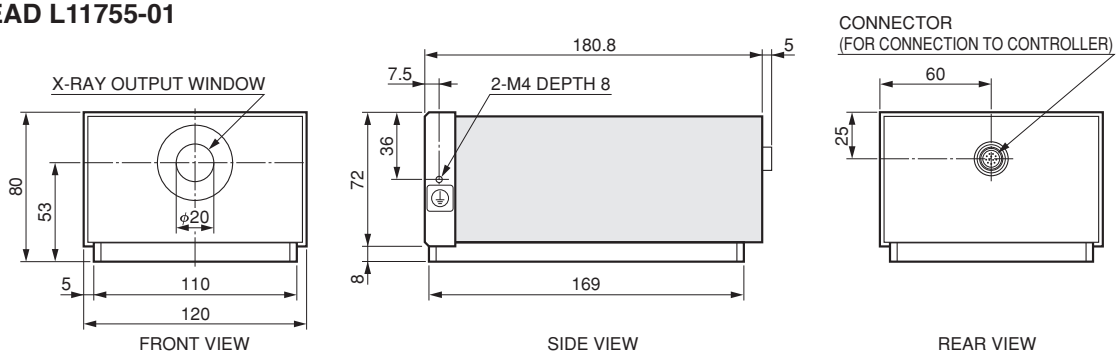
REGULATION AND STANDARD

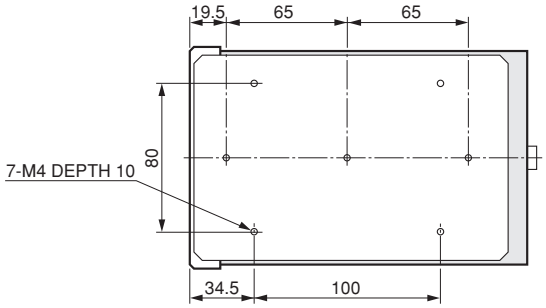
Parameter	Description / Value		Unit
RoHS directive	IEC/EN 63000 Category 9		—
EMC	IEC/EN 61326-1	Emission Limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—
LVD	IEC/EN 61010-1		—

NOTE: ① Angle at which X-ray output falls to 50% of the maximum output.
② Distance from the irradiation window to the focal point.
③ Including accessories (220 g).

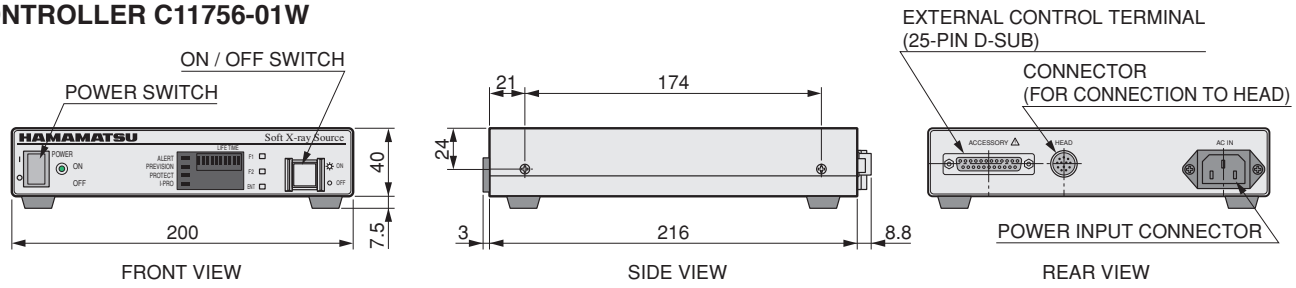
DIMENSIONAL OUTLINES (Unit: mm)

●HEAD L11755-01

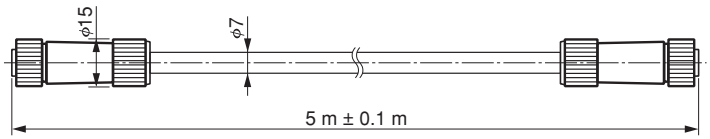




●CONTROLLER C11756-01W



●CONTROL CABLE A10885-05



PREVENTIVE MEASURES FOR X-RAY EXPOSURE

Install the irradiation head in X-ray shielding equipment to prevent exposure to workers.
When there is an opening in the shielding equipment, use an X-ray protective curtain or similar device so that no X-rays leak out of the shieling equipment.
To prevent inadvertent exposure to workers, be sure to install a safety interlock mechanism so that X-ray irradiation immediately stops when the shielding equipment is opened.

Shielding material	Stainless steel (SUS304)	Aluminum (A5052)	Polyvinyl chloride (PVC)	Unit
Thickness	0.4	7	10	mm

⚠ Safety precautions

· X-rays emitted from this product are harmful to human health. Handle carefully and never allow yourself get exposed to X-rays.
· When using this product, place the head unit inside an X-ray shielded area and always install a safety interlock.

Legal regulations involving this product

This product must be used in compliance with health and safety regulations enforced to prevent bodily harm caused by ionizing radiation. Users of this product must be familiar with applicable laws that regulate use of X-ray emission devices. To obtain more information, refer to international or domestic laws and regulations on ionizing radiation and comply with the required procedures listed there.

Warranty period

This product is guaranteed for one year from the date of delivery. The warranty is limited to replacement of the product. Even if within the warranty period, the warranty does not cover damage caused by misuse or accidents such as natural disasters.

RELATED PRODUCTS

Hamamatsu also provides high sensitivity cameras designed to capture low energy X-ray images in combination with a soft X-ray source.

X-ray line scan camera C14300-05UL

The C14300-05UL is an X-ray line scan camera with high sensitivity and high speed optimized for capturing X-ray images of inspection objects being transported on a belt conveyor. It is ideal for a wide range of X-ray non-destructive inspection applications including detection of foreign matter mixed in food and electronic components. Hamamatsu also provides the C14300-XXUL series with a modified X-ray detection unit that detects even lower energy X-rays with higher sensitivity than the standard series.

■FEATURES

- **●High-speed readout**
- **●Wide field of view**
- **●High dynamic range**
- **●High sensitivity and low noise**

Type no.	Detection width *	Pixel pitch	Corresponding line speed	Digital output
C14300-05UL	256 mm	0.4 mm	4 m/min to 200 m/min	14 bit

* Different detection widths will be available. Please consult us with your needs.

X-ray TDI camera C12300-321B

The C12300-321B X-ray TDI camera uses TDI (time delay integration) technology to deliver a wide field of view, high speed, high sensitivity and high resolution readout, making it ideal for in-line X-ray non-destructive inspection requiring high accuracy. Hamamatsu also provides the C12300-XXXB series with a modified X-ray detection unit that detects even lower energy X-rays with higher sensitivity than the standard series.

■FEATURES

- **●High-speed readout**
- **●High resolution**
- **●High sensitivity and low noise**
- **●Bidirectional readout**

Type no.	Detection width *	Pixel pitch	Corresponding line speed	Digital output
C12300-321B	221.1 mm	48 µm	0.576 m/min to 57.6 m/min	12 bit

* Different detection widths will be available. Please consult us with your needs.

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