

X-ray line scan camera

C14300 / C14960 series

Covering from
thin samples to
thick samples
by single unit



▲ Package seal inspection
(Left: Visible image, Right: X-ray image)



▲ Bottle contaminant inspection
(Left: X-ray image, Right: Visible image)



C14300 series

NEW
C14960 series

High dynamic range

Enable to detect from low to high X-ray dose

Size variation

Detection width (housing size) can be selected according to the inspection items and space needed

Low noise

High S/N imaging with a low X-ray dose

High speed

Compatible with high speed inspection up to 200 m/min

Water proof / Dust proof

Enable to wash the system with camera on, protected from water and dust

* Only for C14300 series

Supporting in-line nondestructive inspection of various types from thin samples to thick samples by single unit.

Inspection of thin samples

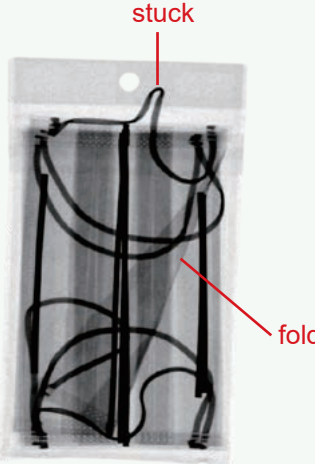
Readout noise decreased to **approx. 1/9** of the conventional model (at maximum gain)

Low readout noise made it possible to inspect with low X-ray dose

Application examples

[Detergent refill]

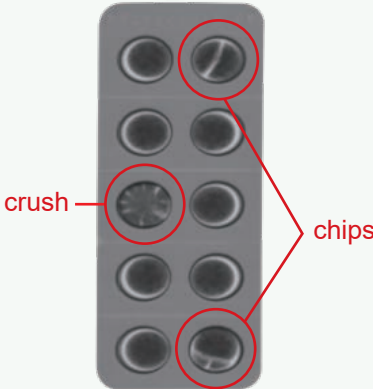
It is possible to detect stuck and folded masks in the package.



Imaging conditions:
Tube voltage: 20 kV, Tube current: 6.0 mA

[Tablet]

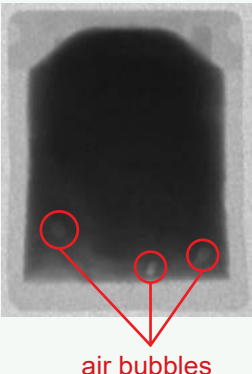
It can detect cracks, chips, and crushed tablets in the blister pack.



Imaging conditions:
Tube voltage: 20 kV, Tube current: 6.0 mA

[Pasta sauce]

It can detect contaminants and air bubbles inside retort food products.



Imaging conditions:
Tube voltage: 30 kV, Tube current: 0.5 mA

Full well capacity increased to **approx. 8 times** of the conventional model (at minimum gain)

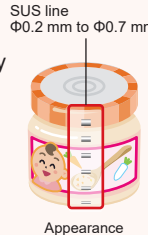
Inspection of thick samples

High full well capacity made it possible to inspect with high X-ray dose

Application examples

[Baby food]

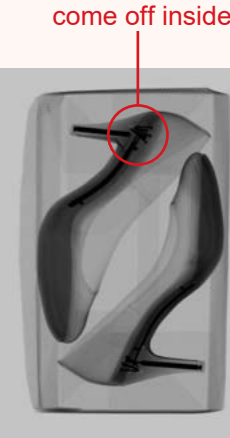
Under detection of metallic objects in baby food, it can detect them which metal lid overlapped.



Imaging conditions:
Tube voltage: 110 kV, Tube current: 8.0 mA

[Pin heel]

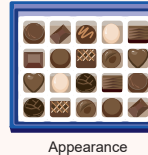
It is possible to inspect bolts/nails that have come off inside the pin heel.



Imaging conditions:
Tube voltage: 60 kV, Tube current: 4.0 mA

[Chocolate]

In addition to shape inspection on complex shaped objects such as assorted chocolates, It can measure individual weights from the shade of the image.



Imaging conditions:
Tube voltage: 110 kV, Tube current: 6.0 mA

Verification S/N comparison with the conventional model at low X-ray dose

With the aluminum disk positioned on top of 60 mm thickness cube made of PET, we compared the detection accuracy between the conventional model and C14300 series. As a result, C14300 series found to achieve the same S/N imaging with the conventional model by 1/5 dose of X-ray.

Conventional model

C14300 series

S/N equivalent to that of the conventional device is achieved with one-fifth of the X-ray dose

Imaging conditions:
Tube voltage: 30 kV, Tube current: 0.1 mA to 2.0 mA

* Verification is done with C14300. Similar results can be obtained with the C14960.

Specifications

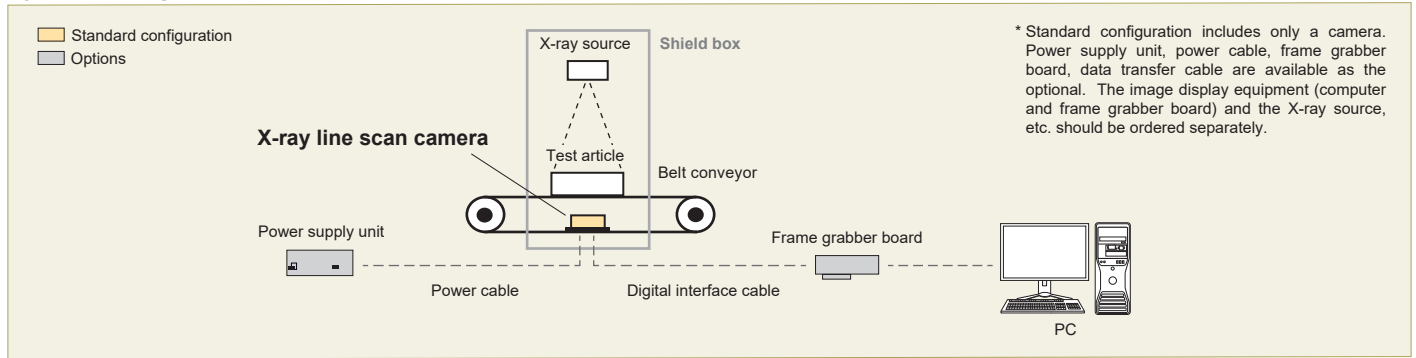
Type number	C14300 series	C14960-16C NEW
Detection method	Scintillator method	
Scintillator	Gd type scintillator	
Recommended use range (X-ray sensitivity) *1	Approx. 25 kV to 160 kV	
Pitch of detected element	0.4 mm	
Detection width *2	153.6 mm to 614.4 mm 384 pixels to 1536 pixels	819.2 mm 2048 pixels
Line speed	4 m/min to 200 m/min	4 m/min to 100 m/min
A/D conversion	14 bit	
Output signal (image data)	14 bit digital output	
Control interface	USB 3.0	Camera Link
Power supply	DC +24 V	DC +15 V
Power consumption	Approx. 6.5 VA	Approx. 10 VA
Ambient operating temperature	0 °C to +40 °C	
Ambient operating humidity	30 % to 70 % (With no condensation)	30 % to 80 % (With no condensation)
Ambient storage temperature	-10 °C to +50 °C	
Ambient storage humidity	30 % to 90 % (With no condensation)	

*1 Low energy models (C14300-05UL, -08UL, -12UL) are also available. For the details, please contact our sales.

*2 For detection widths other than the above specifications, please contact our sales.

*3 Please see the next page for details.

System configuration

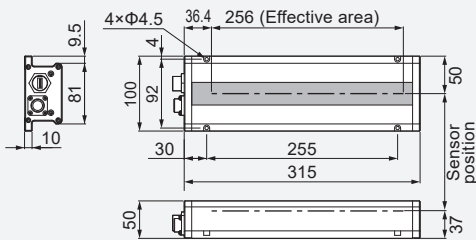


Options

X-ray line scan camera	C14300 series	C14960-16C
Power supply unit	A8206-70	A8206-22
Power cable	3 m with external trigger function : A14228-03E 3 m without external trigger function : A14228-03	5 m : A9348-05
Digital interface cable	3 m : A14715-03	Camera Link cable SDR-MDR(for FL4.0) 5 m : A11255-05
Frame grabber board	USB 3.0 : M9982-32	Camera Link : M9982-36

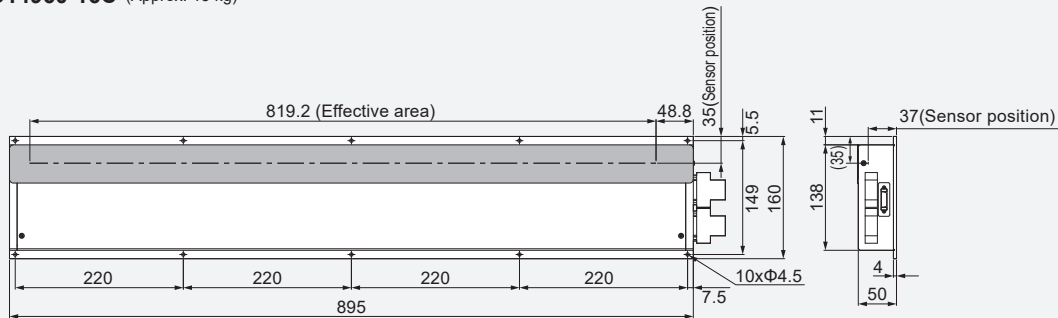
Dimensional outlines (Unit: mm)

● C14300-05U (Approx. 3.4 kg)



Type Number	Derection Width	Number of pixels
C14300-03U	153.6 mm	384 pixels
C14300-04U	204.8 mm	512 pixels
C14300-05U	256 mm	640 pixels
C14300-06U	307.2 mm	768 pixels
C14300-07U	358.4 mm	896 pixels
C14300-08U	409.6 mm	1024 pixels
C14300-09U	460.8 mm	1152 pixels
C14300-10U	512 mm	1280 pixels
C14300-11U	563.2 mm	1408 pixels
C14300-12U	614.4 mm	1536 pixels

● C14960-16C (Approx. 15 kg)



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