

X-ray line scan camera

C14300 / C14960 series



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



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

**Covering from
thin samples to
thick samples
by single unit**



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.

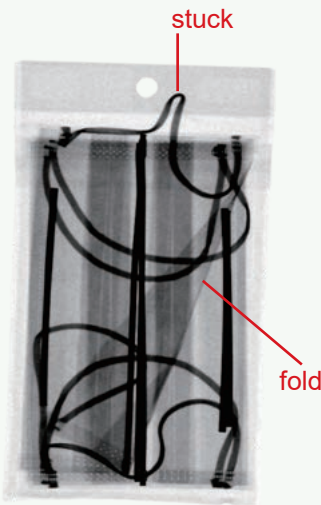
Inspection of thin samples

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

[Mask]

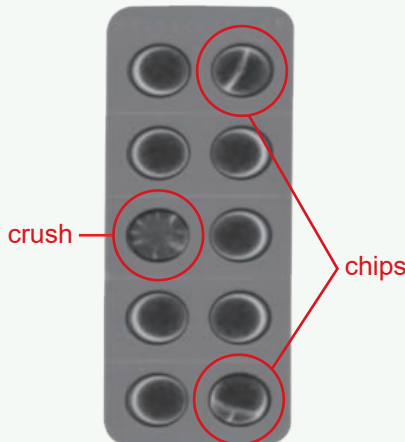
It is possible to detect stuck and folded masks in the package.



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

[Tablet]

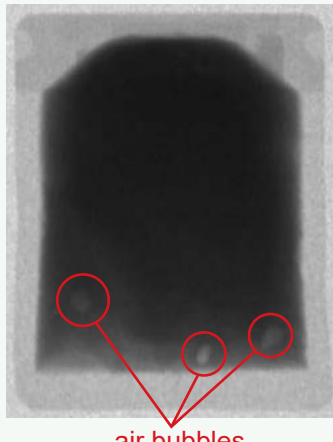
It can detect cracks, chips, and crushed tablets in the blister pack.



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

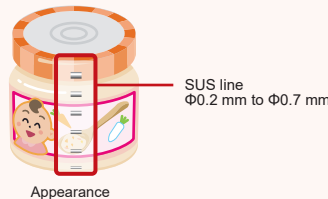
Full well capacity increased to **approx. 8 times** of the conventional model (at minimum gain)

Inspection of thick samples

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

[Baby food]

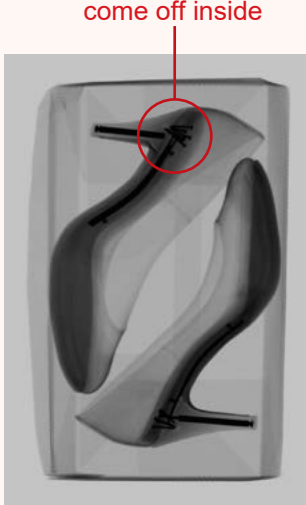
Under detection of metallic objects in baby food, it can detect them which metal lid overlapped.



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

[Pin heel]

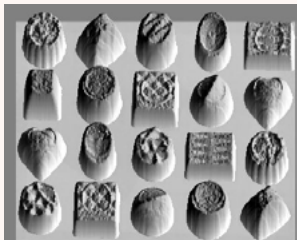
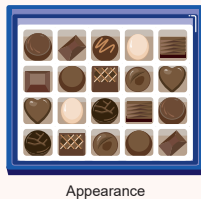
It is possible to inspect bolts/nails that have come off inside the pin heel.



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

[Chocolate]

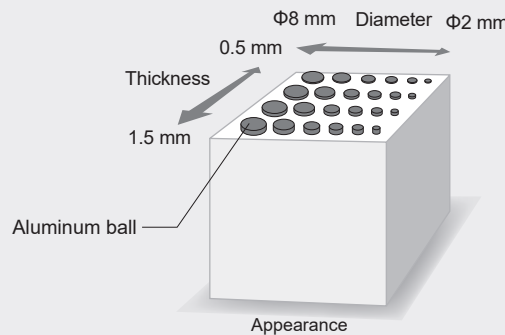
In addition to shape inspection on complex shaped objects such as assorted chocolates, it can measure individual weights from the shade of the image.



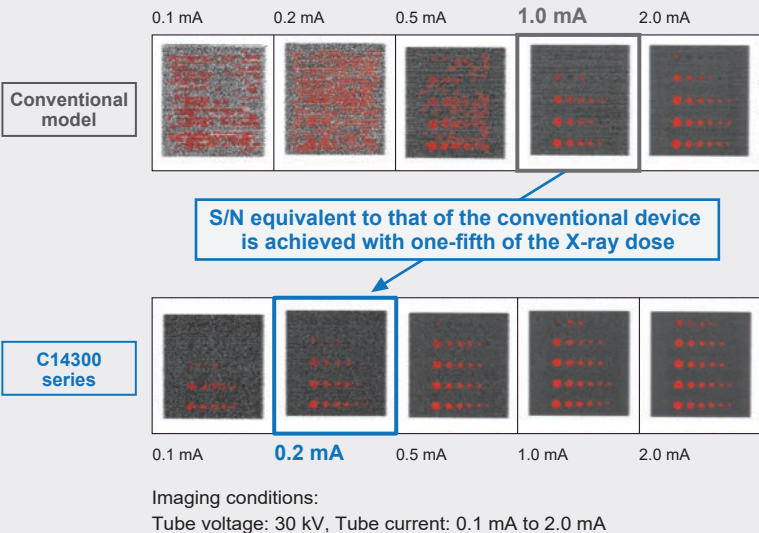
Imaging conditions:
Tube voltage: 110 kV, Tube current: 6.0 mA

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.



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



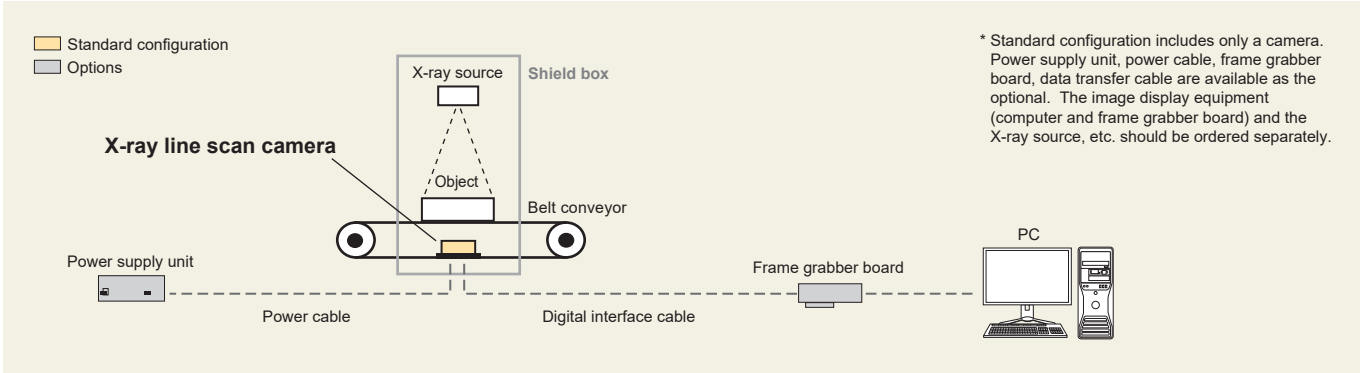
Specifications

Type number	C14300-05U	C14300-08U	C14300-12U	C14960-14C	C14960-16C	C14960-18C
Scintillator	Gd-scintillator					
Effective X-ray tube voltage range *1	Approx. 25 kV to 160 kV					
Sensor element pitch	0.4 mm					
Detection width *2	256 mm 640 pixels	409.6 mm 1024 pixels	614.4 mm 1536 pixels	716.8 mm 1792 pixels	819.2 mm 2048 pixels	921.6 mm 2304 pixels
Line speed	4 m/min to 200 m/min			4 m/min to 100 m/min		
Digital interface	USB 3.0			Camera Link		
Digital output	14 bit					
Power supply	DC +24 V			DC +15 V to +24 V		
Power consumption	Approx. 6.5 VA	Approx. 8.0 VA	Approx. 9.5 VA	Approx. 9.5 VA	Approx.10 VA	Approx.11 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.

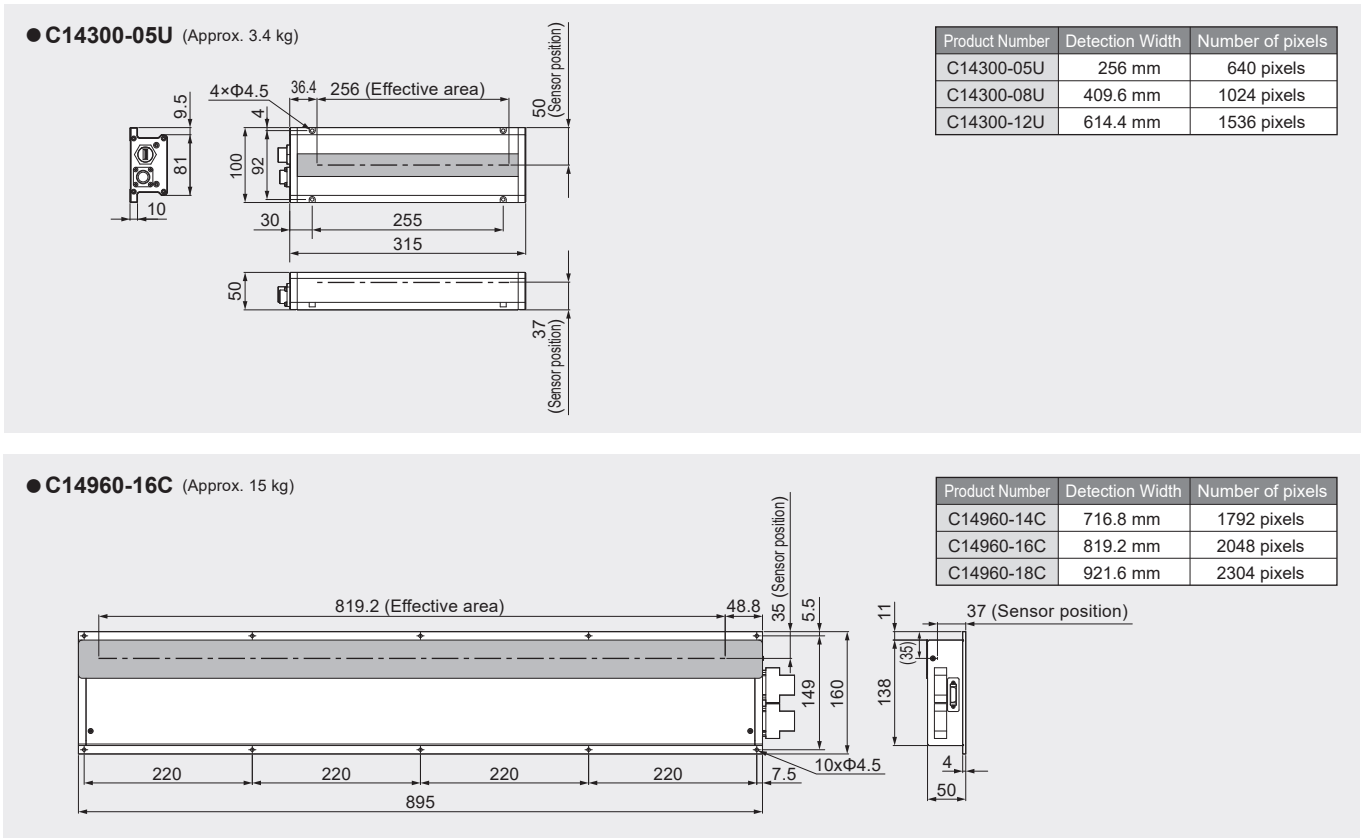
*2 For detection widths other than the above specifications, please contact our sales.

System configuration / Options



	C14300 series		C14960 series	
	Product number	Product name	Product number	Product name
Power supply unit	A8206-70	Power supply unit	A8206-60	Power supply unit
Power cable	A14228-03E	Power cable 3 m with external trigger function	A17277-05	Power cable 5 m
	A14228-03	Power cable 3 m without external trigger function		
Digital interface cable	A14715-03	Digital interface cable 3 m	A11255-05	Camera Link cable SDR-MDR 5 m
Frame grabber board	M9982-32	Frame grabber board USB 3.0	M9982-36	Frame grabber board Camera Link

Dimensional outlines (Unit: mm)



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 - Subject to local technical requirements and regulations, availability of products included in this brochure may vary. Please consult your local sales representative.
 - The products described in this brochure are designed to meet the written specifications, when used strictly in accordance with all instructions.
 - The measurement examples in this brochure are not guaranteed.
 - Please note the X-ray images in this brochure are taken for test purpose; the images do not reflect actual qualities of the products on the market.
 - These products are used by customers in combination with belt conveyors, etc., and the inspection details may be affected by the installation location, installation environment, inspection speed, type of inspection target, etc. When building a system, it is necessary for the customer to pay close attention, and we do not guarantee that these products will meet the specific intended use of the customer.
 - Specifications and external appearance are subject to change without notice.
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