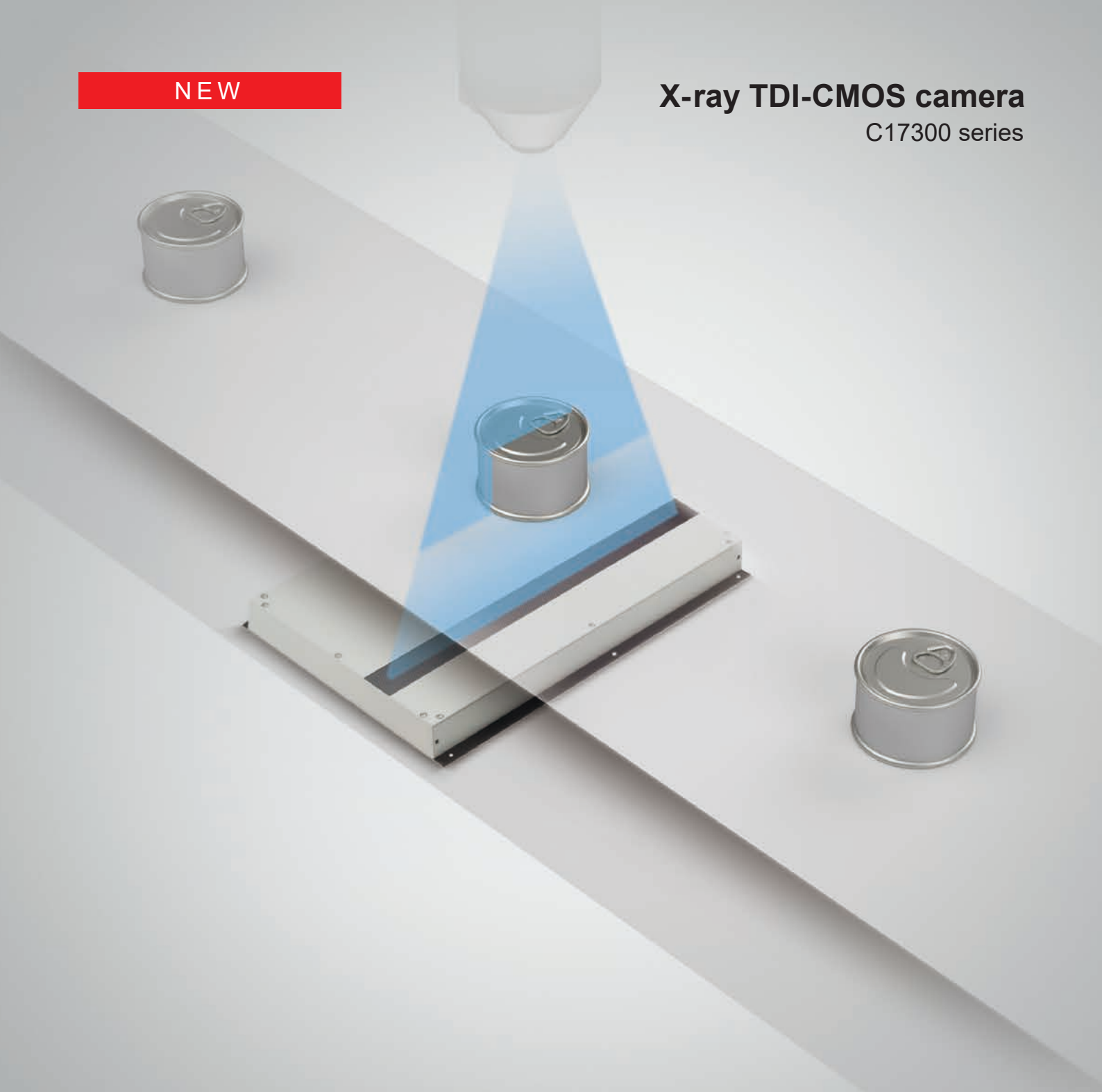


NEW

X-ray TDI-CMOS camera

C17300 series



TDI-CMOS technology opens
new standard for X-ray inspection

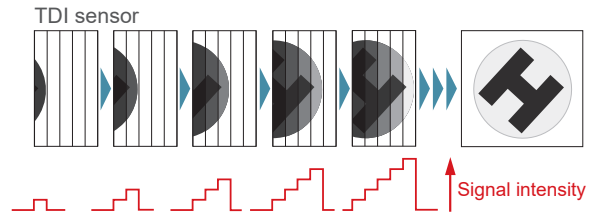
HAMAMATSU
PHOTON IS OUR BUSINESS

TDI-CMOS technology

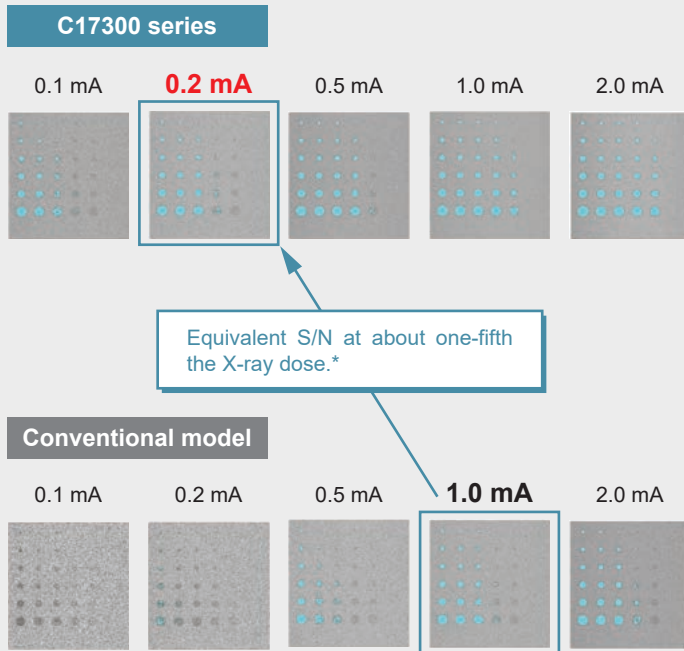
TDI is a technology for achieving high-speed, high-resolution and high-sensitivity scanning over a wide area.

The TDI*-CMOS technology uses a CMOS area sensor to capture images of moving objects by adding/averaging the sensor output from several lines. By synchronizing the timing of data acquisition at each line of the sensor with the object's movement to be imaged as it impinges on the sensor's surface, the sensor can be exposed to the number of vertical steps of the sensor. This makes it possible to image moving objects at higher speeds and with higher sensitivity than conventional linear sensors.

*Abbreviation for time delay integration.



S/N comparison

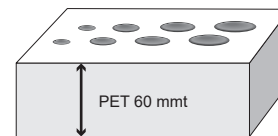


* Comparing simulation results.

Test conditions

Conveyer speed: 20 m/min
 Tube voltage: 60 kV
 Tube current: 0.1 mA to 2.0 mA

Sample information



Aluminum disk chart

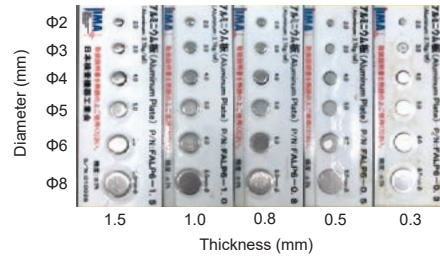
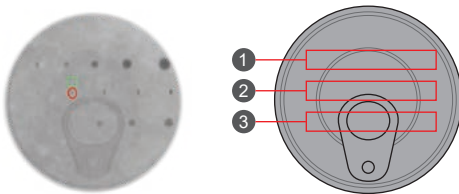


Image quality comparison

Image example (canned tuna)

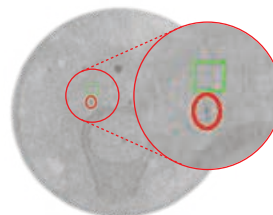


- ① Aluminum ball (Φ1.5 mm, Φ2.0 mm, Φ4.0 mm, Φ5.0 mm)
- ② SUS304 wire (Φ0.2 mm, Φ0.3 mm, Φ0.4 mm, Φ0.5 mm, Φ0.6 mm)
- ③ Grass ball (Φ1.0 mm, Φ1.5 mm, Φ2.0 mm, Φ3.0 mm, Φ4.0 mm)

Comparison of CNR* in actual images SUS304 wire (Φ0.3 mm)

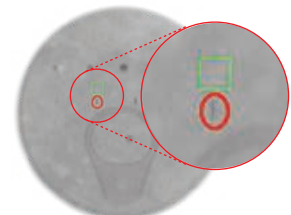
Conventional model

CNR= 2.7129



C17300 series

CNR= 8.4306



$$*CNR = \frac{(\text{Green's digital count}) - (\text{Red's digital count})}{\text{Green's standard deviation}}$$

Image examples

Marshmallow (box)

Test conditions

Conveyer speed: 40 m/min

Tube voltage: 50 kV

Tube current: 2 mA

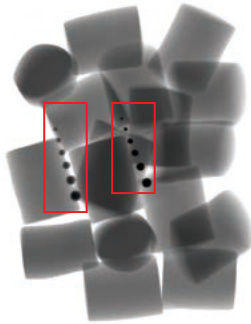
Foreign maters

Quartz ball (diameter)

2 mm, 3 mm, 4 mm, 5 mm, 6 mm,
7 mm

PTFE ball (diameter)

3.2 mm, 4.0 mm, 5.0 mm, 6.0 mm,
7.2 mm, 8.0 mm



Pasta sauce (pouch)

Test conditions

Conveyer speed: 40 m/min

Tube voltage: 50 kV

Tube current: 2 mA

Foreign maters

Quartz ball (diameter)

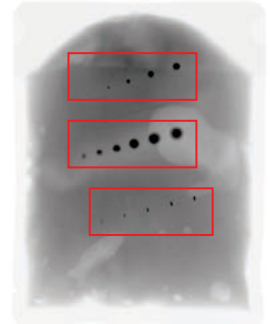
1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm,
4.0 mm

PTFE ball (diameter)

3.2 mm, 4.0 mm, 5.0 mm, 6.0 mm,
7.2 mm, 8.0 mm

SUS 304 wire (diameter)

0.2 mm, 0.3 mm, 0.4 mm, 0.5 mm,
0.6 mm



Tomato sauce (bottle)

Test conditions

Conveyer speed: 40 m/min

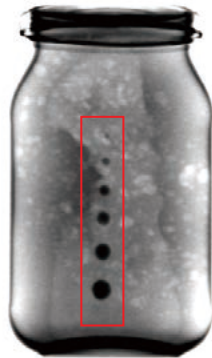
Tube voltage: 120 kV

Tube current: 2.5 mA

Foreign mater

Quartz ball (diameter)

2 mm, 3 mm, 4 mm, 5 mm, 6 mm,
7 mm



Olive (bottle)

Test conditions

Conveyer speed: 40 m/min

Tube voltage: 120 kV

Tube current: 2.5 mA

Foreign mater

Quartz ball (diameter)

1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm,
4.0 mm



Prosciutto (pack)

Test conditions

Conveyer speed: 40 m/min

Tube voltage: 30 kV

Tube current: 3 mA

- Bite-in of contents to the sealing part



Almond (bulk)

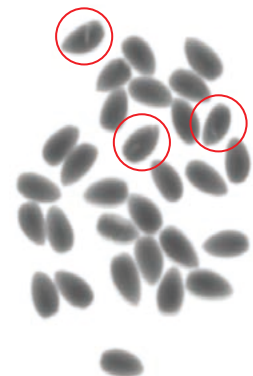
Test conditions

Conveyer speed: 100 m/min

Tube voltage: 50 kV

Tube current: 6 mA

- Insect damage



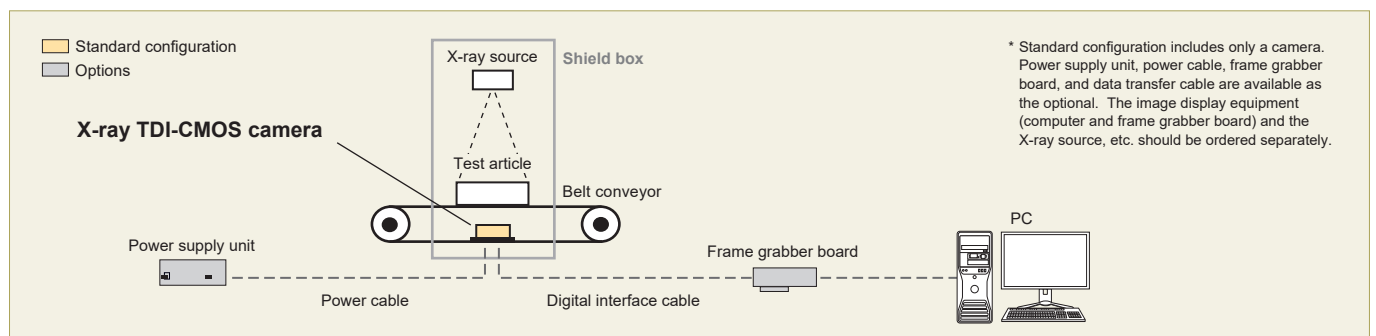
Specifications

Type number	C17300-30UP	C17300-40UP	C17300-60UP
Pixel pitch	0.4 mm		
Pixel number	768 (H) × 8 (V)	1024 (H) × 8 (V)	1536 (H) × 8 (V)
Detection width	307.5 mm	410 mm	615 mm
Line speed	4.0 m/min to 200 m/min (0.167 kHz to 8.333 kHz)		
Effective X-ray tube voltage range	10 kV to 160 kV		
Scintillator	Gd-scintillator		
Digital output	14 bit		
Interface	USB 3.0		
Power supply	DC +24 V		
Ambient operating temperature	0 °C to +40 °C		
Ambient operating humidity	30 % to 80 % (with no condensation)		
Ambient storage temperature	-10 °C to +50 °C		
Ambient storage humidity	Less than 90 % (with no condensation)		

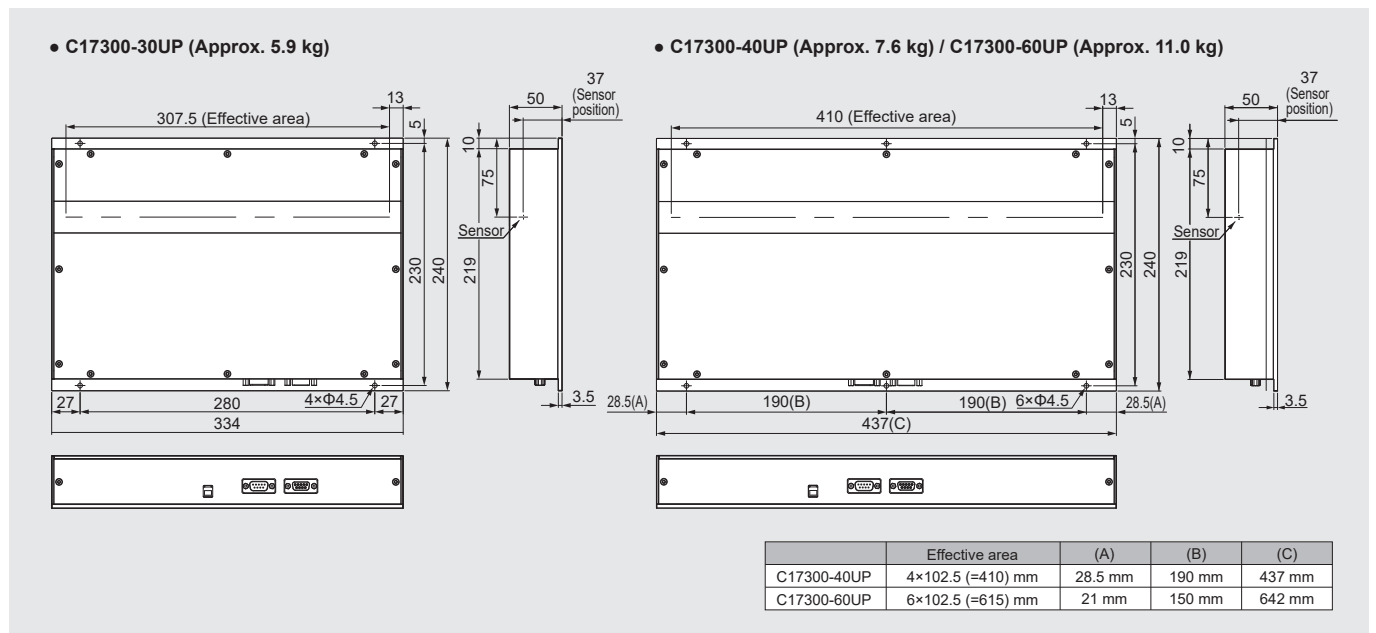
Options

Type number	Product name
A8206-70	Power supply unit
A14941-05	Power cable 5 m
A12467-03	USB 3.0 cable A-B 3 m
Software API	DCAM-API® https://www.hamamatsu.com/all/en/product/cameras/software/driver-software/dcam-api-for-windows.html
Software SDK	DCAM-SDK https://www.hamamatsu.com/all/en/product/cameras/software/driver-software/dcam-sdk4.html

System configuration



Dimensional outlines (Unit: mm)



- DCAM-API is a registered trademark of Hamamatsu Photonics K.K. (EU, Japan, UK, USA).
 - The product and software package names noted in this brochure are trademarks or registered trademarks of their respective manufacturers.
 - 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.
 - 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.
- © 2026 Hamamatsu Photonics K.K.