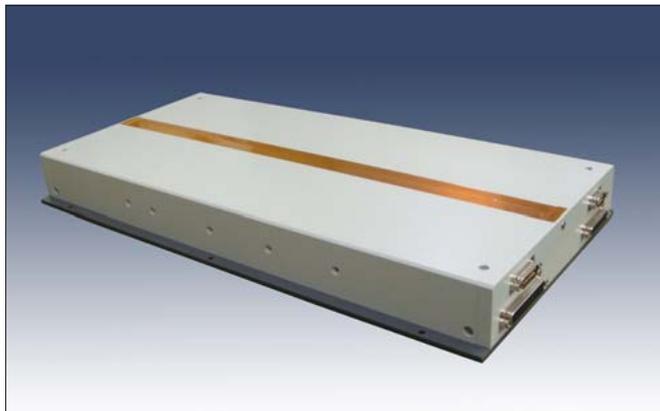


# Dual-Energy X-ray Line Scan Camera C10800 Series

## Dual-Energy X-ray Line Scan Camera



C10800 Series is a new high-speed and high-resolution dual-energy X-ray line scan camera that can be used to effectively differentiate materials in a variety of nondestructive testing applications.

Using the commercial frame grabber board, the 12-bit digital output enables easy connection to a computer or other external instrument. Acquired image processing, data processing and filing can be performed, allowing the configuration of any system. The 12-bit digital output provides high resolution and high contrast image with a wide dynamic range.

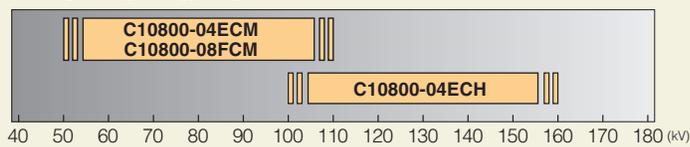
By using a variety of combinations of scintillator, filter and gain factor, it is possible to optimize for different object and X-ray conditions in order to cover a wide range of applications from high energy range applications such as mineral resources sorting to middle or low energy applications such as drug detection, meat inspection, foods inspection.

### FEATURES

- Extract a target material from multi-energy image data
- Optimized for middle X-ray energy range (50 kV to 110 kV) or high X-ray energy range (100 kV to 160 kV) ※
- 12-bit Digital output
- High resolution and a wide dynamic range
- Very good energy separation accuracy with well aligned dual energy images

#### ※ Effective X-ray tube voltage range

- Middle X-ray energy range : C10800-04ECM, -08FCM (50 kV to 110 kV)
- High X-ray energy range : C10800-04ECH (100 kV to 160 kV)



### APPLICATIONS

- Food inspection with high accuracy
- Composite material inspection or sorting
- Drug detection, Medicine quality control
- Security
- Mineral resources sorting - Rare metals detection
- Waste sorting for recycling

**Food inspection** (middle X-ray energy range)

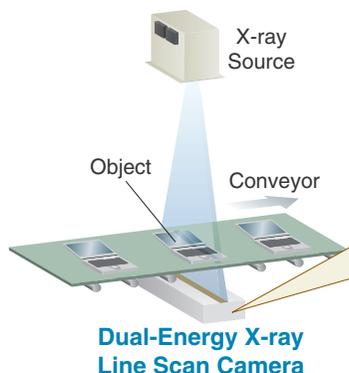
fat bone

▲ Example of separation of fat and bone in meat

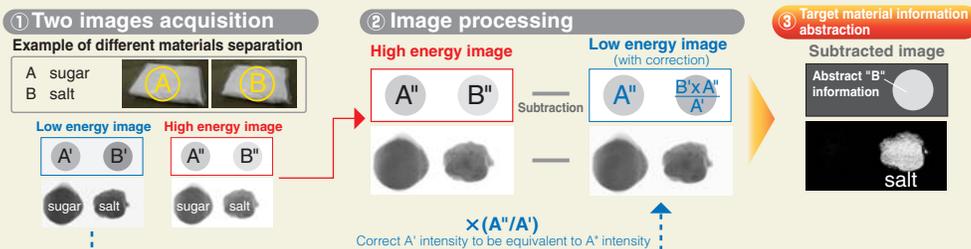
**Security** (high X-ray energy range)

▲ Example of model gun detection in briefcase

### OPERATING PRINCIPLE



Acquire high energy image and low energy image by a single scanning by Dual-Energy X-ray Line Scan Camera, and then extract a target material by applying image processing to two images.



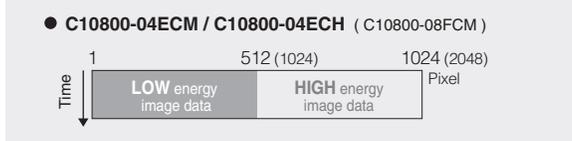
Intensity in high energy image and low energy image appears differently because every material has different X-ray transmittance efficiency. Depending on the ratio between them, adjust intensity level and then subtract unnecessary part to extract a target material information.

## SPECIFICATIONS

Type number	C10800-04ECM	C10800-04ECH	C10800-08FCM
Detection method	Scintillator method		
Effective X-ray tube voltage range	Approx. 50 kV to 110 kV	Approx. 100 kV to 160 kV	Approx. 50 kV to 110 kV
Sensor element pitch	0.8 mm		0.4 mm
Detection width	409.6 mm (Possible to change upon request)		
Resolution	1/512		1/1024
Effective number of pixels ①	1024 (Lower energy image: 1st to 512th, Higher energy image: 513th to 1024th)		2048 (Lower energy image: 1st to 1024th, Higher energy image: 1025th to 2048th)
Line speed	8 m/min to 200 m/min		4 m/min to 100 m/min
A/D conversion	12 bit		
Digital interface	RS-422 (Standard)		
External control	RS-232C		
Correction functions	Analog processing : dark correction (offset) Digital processing : dark correction (offset), sensitivity correction		
Multi analog gain control feature	Yes (option)		
Operating temperature	0 °C to +40 °C		
Storage temperature	-10 °C to +50 °C		
Operating and storage humidity	30 % to 80 % (no condensation)		
Power supply	DC + 5 V		

※ Please contact Hamamatsu for various options, other detection width, other Sensor element pitch, other Effective X-ray tube voltage range.

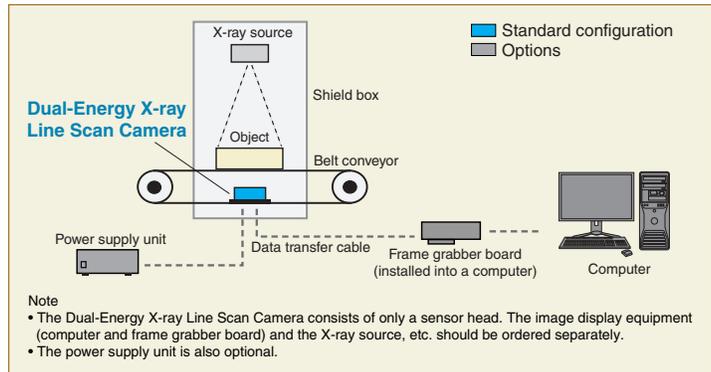
① Acquired image data is output with the following format.



## OPTIONS

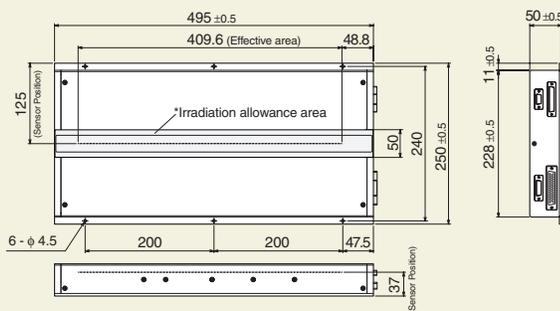
- Power supply unit: A8206-21
- Power cable: A9348-05
- Software API Support (Microsoft Windows)
  - DCAM-API (<http://www.dcamapi.com>)

## SYSTEM CONFIGURATION EXAMPLE



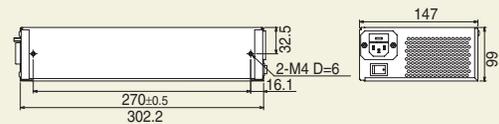
## DIMENSIONAL OUTLINES (Unit : mm)

### ● C10800-04ECM / C10800-04ECH / C10800-08FCM (approx. 13.5 kg)



\*Align the X-ray beam to avoid irradiation except to the irradiation allowance area.

### ● A8206-21 (option) (approx. 2.0 kg)



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  - Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions.
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### HAMAMATSU PHOTONICS K.K., Systems Division

812 Joko-cho, Higashi-ku, Hamamatsu City, 431-3196, Japan, Telephone: (81)53-431-0124, Fax: (81)53-435-1574, E-mail: [export@sys.hpk.co.jp](mailto:export@sys.hpk.co.jp)

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road Welwyn Garden City Hertfordshire AL7 1BW, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44-(0)1707-325777 E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)

North Europe: Hamamatsu Photonics Norden AB: Thorshamnsgatan 35 SE-164 40 Kista, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)

Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)

China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jianning Center, 27 Dongsanhuan Road North, Chaoyang District, Beijing 100020, China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: [hpc@hamamatsu.com.cn](mailto:hpc@hamamatsu.com.cn)

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