



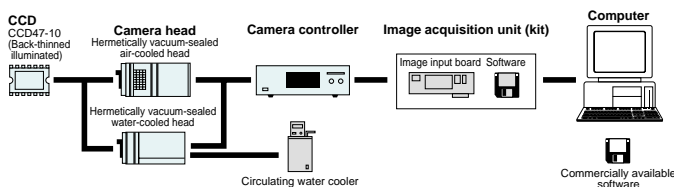
▲ Hermetic vacuum sealed air-cooled head type

This camera system employs a back thinned CCD chip which realizes high resolution and high sensitivity characteristics. 1024 x 1024 pixels with 13 μ m square format realize very high resolution images. And its high quantum efficiency greater than 80% and a MPP (Multi-Pinned Phase) low dark current drive realize high sensitivity, proving clear images for low light imaging applications.

APPLICATIONS

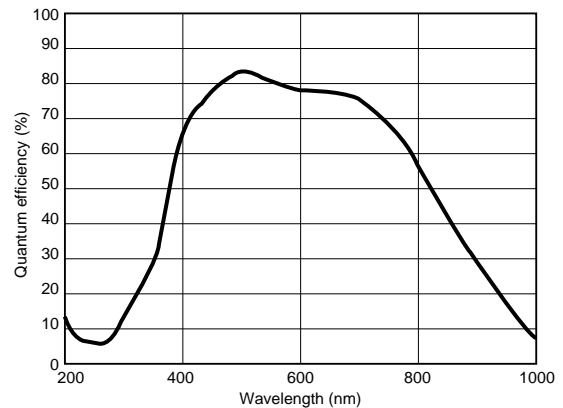
- Faint light observation with microscope (biological, semiconductor studies)
- X-ray scintillator readout
- Readout of various fluorescence
- X-ray direct image acquisition

SYSTEM CONFIGURATION



▲ Hermetic vacuum sealed water-cooled head type

SPECTRAL RESPONSE CHARACTERISTICS



FEATURES

- High resolution of 1024 (H) × 1024 (V) pixels
- Low readout noise of 6 electrons r.m.s. (typ.)
- Wide dynamic range of 13,300 : 1 (typ.)
- Large full well capacity of 80,000 electrons

TYPE NO.

C4880-50-□□□

Bit number on A/D converter

- 22: Fast scan mode 12-bit
High precision scan mode 12-bit
- 24: Fast scan mode 12-bit
High precision scan mode 14-bit
- 26: Fast scan mode 12-bit
High precision scan mode 16-bit

Cooling method

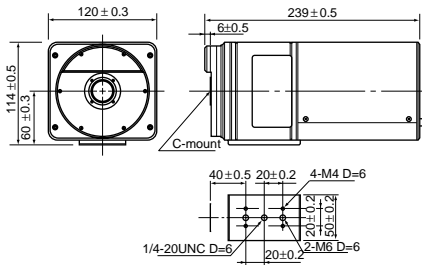
- A: Air-cooling
- W: Water-cooling

SPECIFICATIONS

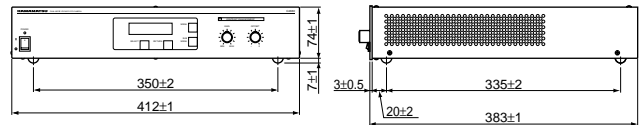
Model name	C4880-50-□□-A-□		C4880-50-□□-W-□	
Camera head type	Hermetically vacuum-sealed air-cooled head		Hermetically vacuum-sealed water-cooled head	
Circulating water cooler (sold separately)	-		Required	
Vacuum pump (sold separately)	-		-	
Imaging device	CCD47-10 Model 1 full-frame transfer back-thinned illuminated CCD			
Effective no. of pixels	1024 (H) × 1024 (V)			
Cell size	13 (H) × 13 (V) μm			
Effective area	13.3 (H) × 13.3 (V) mm			
Readout noise (High-precision scan mode)	Min.	4 electrons r.m.s.		
	Typ.	6 electrons r.m.s.		
Full well capacity	80,000 electrons			
Dynamic range (High-precision scan mode)	Typ.	13,300 : 1		
	Max.	20,000 : 1		
Frame rate	High-precision scan mode	0.25 frames/sec (315 kHz/pixel)		
	Fast scan mode	2.7 frames/sec (5 MHz/pixel)		
Cooling method	Peltier cooling / forced-air cooling + hermetic sealing		Peltier cooling / water cooling + hermetic sealing	
Cooling temperature	-45 °C to -55 °C		-60 °C to -70 °C	
CCD cooling control	Cooling ON/OFF control, cooling temperature setting function			
Dark current	0.03 electrons/pixel/sec		0.01 electrons/pixel/sec	
Exposure time	20 ms or more			
A/D converter	12 / 14 / 16 bits			
Lens mount	C-mount			
Mechanical shutter	Built-in (Control: OPEN / CLOSE / AUTO)			
Variable analog gain	Front panel dial / software-controlled switching, 1 - 6 times (high-speed scan)			
Variable offset	Front panel dial / software-controlled switching (fast scan)			
Amp gain	2 steps (fast scan), 3 steps (precision scan)			
Binning scan	Yes			
Sub-array scan	1/1, 1/2, 1/4, 1/8 (H) × any desired number (V)			
Super-pixel scan	2 × 2, 4 × 4, 8 × 8			
External trigger input	Yes			
Output signal (digital output)	Parallel digital output (conforms to RS-422)			
External control	RS-232C			
Ambient storage temperature	-10 to +50 °C			
Ambient operating temperature	0 °C to +40 °C			
Ambient operating/storage humidity	70% max. (with no condensation)			
Line voltage	100 / 117 / 220 / 240 VAC, 50/60 Hz			
Power consumption	Approx. 220 VA			

DIMENSIONAL OUTLINES

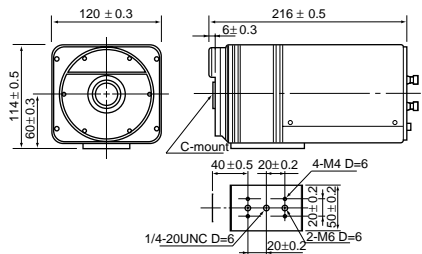
- Hermetic vacuum sealed air-cooled head (approx. 2.5 kg)



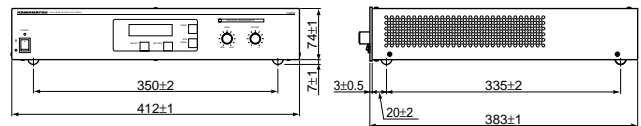
- Camera controller (approx. 8.5 kg)



- Hermetic vacuum sealed water-cooled head (approx. 2.5kg)



- Camera controller (approx. 8.5 kg)



- ★ Product and software package names noted in this documentation are trademarks or registered trademarks of their respective manufacturers.
- Subject to local technical requirements and regulations, availability of products included in this promotional material may vary. Please consult with our sales office.
- Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions.

Specifications and external appearance are subject to change without notice.

© 2001 Hamamatsu Photonics K.K.

HAMAMATSU

Homepage Address <http://www.hamamatsu.com>

HAMAMATSU PHOTONICS K.K., Systems Division

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

U.S.A. and Canada: Hamamatsu Photonic Systems: 360 Foothill Road, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1)908-231-1116, Fax: (1)908-231-0852, E-mail: 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

France: Hamamatsu Photonics France S.A.R.L.: 8, 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

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

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171-41 Solna, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01, E-mail: 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

Cat. No. SICS1077E03
NOV/2002 HPK
Created in Japan (PDF)