

# High Performance UV Digital Camera C8484-16C



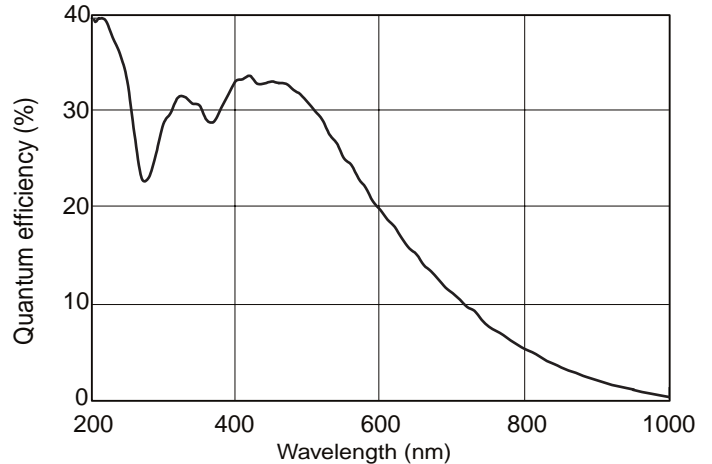
The C8484-16C is a new UV CCD digital camera using an advanced 1/2 inch progressive scan interline CCD chip with high sensitivity in the UV region while offering substantially better noise characteristics at high frame rates. The C8484-16C 1/2 inch format 1344 × 1024 resolution CCD with small (4.65 μm) pixels provides extremely high resolution.

A CameraLink digital output ensures compatibility with a large number of commercially available frame grabber boards. Standard C-mount lens coupling makes it easy to connect to optical microscopes and lenses. Fast electronic shuttering, fast readout and low noise integration all combine to make this camera a great choice for both high and low level UV imaging applications.

## APPLICATIONS

- Excimer KrF(248 nm), ArF(193 nm) laser beam diagnostics
- UV imaging with Excimer KrF, ArF laser
- Semiconductor mask alignment
- UV optics development
- General UV imaging
- UV Metrology
- Lithography

## SPECTRAL RESPONSE CHARACTERISTIC\*



\*This is typical, not guaranteed.

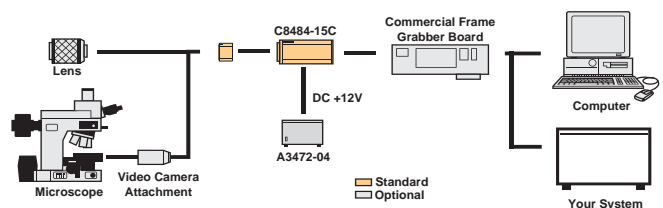
Ultraviolet light has higher energy than visible light, so it can easily damage the sensors forming the CCD, causing a drop in sensitivity and rise dark current according to the total incident light energy. (Example: When the CCD is exposed to ultraviolet light having a wavelength of 196 nm and total radiation energy of 15 J/cm<sup>2</sup> for 625 minutes with an irradiance of 0.4 mW/cm<sup>2</sup>, sensitivity will drop by approximately 15 % and dark current will increase by approximately 10 %.)

When using in the ultraviolet range, take steps not to apply excessive ultraviolet light. (If a part of the effective area of the CCD is exposed to excessive ultraviolet light, such as by direct incidence of the ultraviolet light laser, then sensitivity may drop accordingly) In addition, extended exposure may cause a drop in sensitivity, even if the intensity is not excessive. When not shot, take care to protect the CCD from ultraviolet light.

## FEATURES

- High sensitivity in UV region  
(Typically 20 to 25% at 250nm)
- Extremely high resolution  
with 1344 × 1024 pixels/small pixel size (4.65 μm)
- Progressive scan interline readout  
with no mechanical shutter
- Low readout noise design (14 electrons typ.)
- Anti-Blooming function  
with vertical overflow drain structure
- 12 bit digitizer
- Analog contrast enhancement

## SYSTEM CONFIGURATION



## SPECIFICATIONS

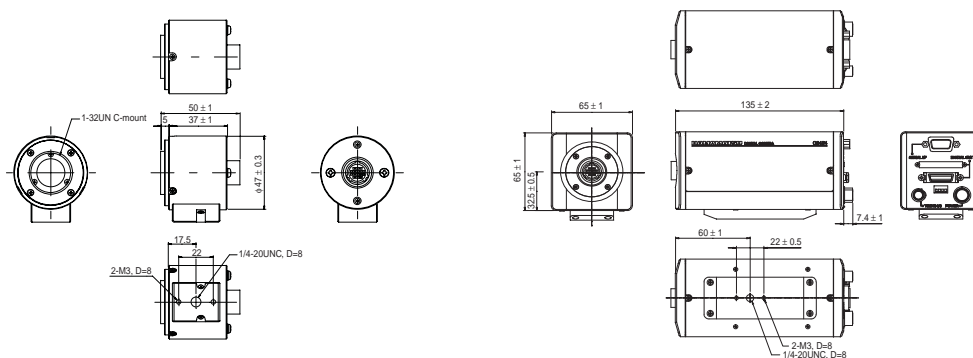
Type number	C8484-16C	
Camera head type	Passively cooled head	
Imaging device	Progressive scan interline CCD chip with micro-lenses	
Effective no. of pixels	1344 (H) × 1024 (V)	
Cell size	4.65 (H) μm × 4.65 (V) μm	
Effective area	6.25 (H) mm × 4.76(V) mm / 1/2 inch format	
Pixel clock rate	20 MHz/pixel	
Frame rate	1 × 1	11.9 frame/s
	Binning	2 × 2
		4 × 4
Readout noise(r.m.s.)	14 electrons (typ.)	
Full well capacity	10900 electrons	
Dynamic range*	778 : 1	
Cooling method / temperature	-	
Dark current	-	
A/D converter	12 bit	
Output signal (digital output)	Camera Link	
Exposure time	12.4 μs to 1 s	
External control	RS-232C	
Sub-array	1344 (H) × 8 to 1024 (V) (in 8 ine increments)**	
External trigger	Yes	
Analog gain	× 1, × 5, times gain	
Lens mount	C-mount	
Power requirements	DC +12 V	
Power consumption	approx. 8 V·A	
Ambient storage temperature	- 10 °C to + 50 °C	
Ambient operating temperature	0 °C to + 40 °C	
Ambient operating/storage humidity	70% max. (with no condensation)	

\* Calculated from the ratio of the full well capacity and average readout noise.

\*\* Image area



## DIMENSIONAL OUTLINES (Unit: mm)



★ 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.

© 2004 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)0 1707-294888, Fax: (44)0 1701-325777, 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. SICS1129E01  
DEC/2004 HPK  
Created in Japan (PDF)