

OEM Solution

Scientific CMOS board level camera C11440-52U



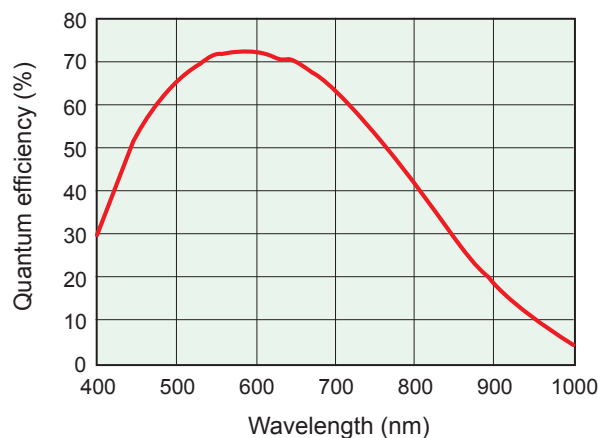
The C11440-52U is a compact and highly sensitive board level camera with the Gen II scientific CMOS sensor. The camera has over 70 % quantum efficiency at 600 nm. The camera runs at 30 frames/s at full resolution and it can reach up to 25 655 frames/s (512 × 8 ROI).

The C11440-52U has low camera noise of 2.3 electrons (rms) at 30 frames/s. The compact (90 mm × 90 mm) and light weight design is idea for integration into various measurement and analytical instruments. In addition to that the camera employs a USB 3.0 digital interface for convenience and compatibility.

FEATURES

- Resolution: 4.0 megapixels
- Readout noise: 2.3 electrons (rms)
: 1.6 electrons (median)
- Frame rate: 30 frames/s (2048 × 2048)
- Quantum efficiency: over 70 % at peak (at 600 nm)

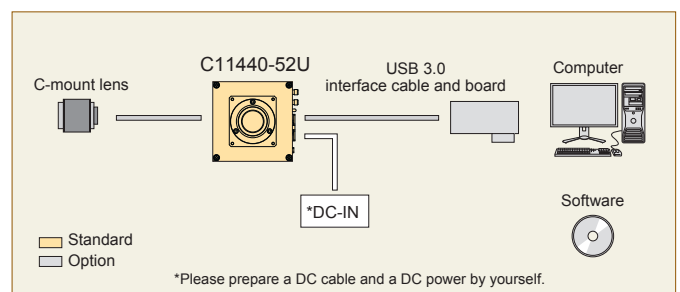
SPECTRAL RESPONSE



APPLICATIONS

- DNA sequence
- Gene expression
- Imaging cytometry
- High content screening
- Live cell imaging
- Genomic and proteomic analysis and diagnostics
- X-ray I.I., X-ray scintillator readout

SYSTEM CONFIGURATION



SPECIFICATIONS

Type number	C11440-52U
Imaging device	Scientific CMOS image sensor FL-400
Effective number of pixels	2048 (H) × 2048 (V)
Cell size	6.5 μm (H) × 6.5 μm (V)
Effective area	13.312 mm (H) × 13.312 mm (V)
Full well capacity typ.	30 000 electrons
Dynamic range typ.*1	18 000 : 1
Frame rate	30 frames/s to 25 655 frames/s
Readout noise *2	2.3 electrons (rms), 1.6 electrons (median)
Digital output	16 bit
Exposure time *3	1 ms to 30 s (Internal trigger mode, Full resolution)
External trigger input mode	Edge trigger, Level trigger, Synchronous readout trigger, Start trigger, Global reset edge trigger, Global reset level trigger
Trigger output	3 programmable timing outputs, Low output, High output, Trigger ready output, Global exposure timing output
Interface	USB 3.0
Lens mount	C-mount
Power supply	DC+12 V
Power consumption	Approx. 9 VA
Ambient operating temperature	0 °C to + 40 °C *4
Ambient operating humidity	30 % to 70 % (with no condensation)
Ambient storage temperature	- 10 °C to + 50 °C
Ambient storage humidity	30 % to 90 % (with no condensation)

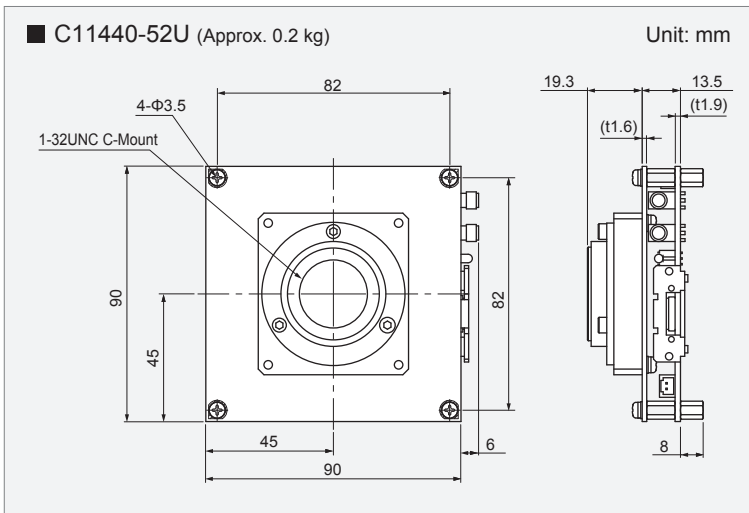
*1: Calculated from the ratio of the full well capacity and the average readout noise.

*2: Sum of readout noise and dark current at 33 ms exposure.

*3: When exposure time is longer than 100 ms, white spots would be visible and image quality would be degraded.

*4: When ambient operating temperature is higher than + 35 °C, white spots would be visible and image quality would be degraded.

DIMENSIONAL OUTLINES



OPTIONS

- External trigger cable SMA-BNC 5 m: A12106-05
- External trigger cable SMA-SMA 5 m: A12107-05
- Board camera case: A12456-01

- 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 your local sales representative.
 - 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.

© 2017 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

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

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 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)8152-265-8 E-mail: 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

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

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, 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 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-935-81-733, Fax: (39)02-935-81-741 E-mail: info@hamamatsu.it

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

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)03-659-0080, Fax: (886)07-811-7238 E-mail: info@tw.hpk.co.jp

Cat. No. SCAS0090E05
FEB/2017 HPK
Created in Japan