

# Digital CMOS board level camera C13949-50U



The core of the C13949-50U camera is the scientific image sensor, an advanced CMOS detector that simultaneously achieves high resolution, fast readout speeds and low noise. With its small size, board-level design and simple, low-cost integration using USB 3.0, the C13949-50U is the ideal camera for OEM scientific imaging.

It is available to offer customization following your request. Please contact us for details.

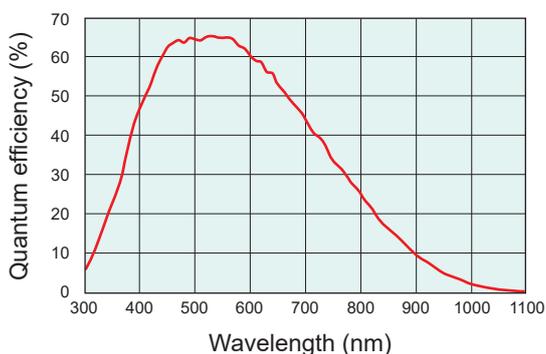
## FEATURES

- Resolution: 12 megapixels (4096 × 3008)
- Readout noise: 2.3 electrons (Typ.)
- Frame rate: 15 frames/s (Full resolution)
- Global shutter

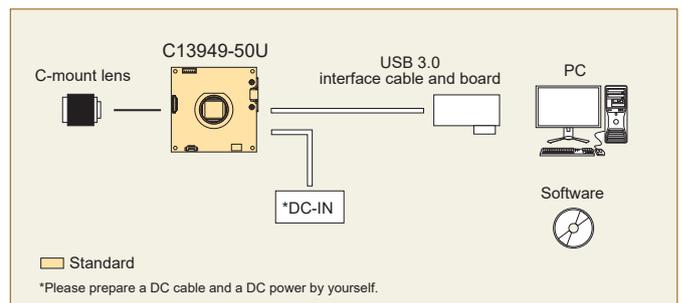
## APPLICATIONS

- Fluorescence imaging
- DNA sequencing
- CTC detection
- X-ray I.I. readout
- X-ray CT

## SPECTRAL RESPONSE



## SYSTEM CONFIGURATION



## SPECIFICATIONS

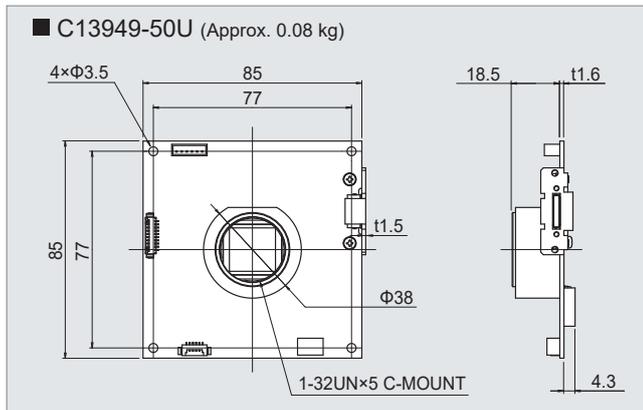
Type number	C13949-50U	
Imaging device	CMOS image sensor	
Effective number of pixels	4096 (H) × 3008 (V)	
Pixel size	3.45 μm (H) × 3.45 μm (V)	
Effective area	14.13 mm (H) × 10.37 mm (V)	
Full well capacity (Typ.)	10 500 electrons	
Analog gain	1× to 15.8× (240 steps)	
Dynamic range (Typ.) *1	4565 : 1	
Frame rate (Internal trigger mode)	Full resolution	15 frames/s
	2×2 Binning	57 frames/s
	2×2 Binning, 4 Line Sub-array	1540 frames/s
Readout noise (rms Typ.)	2.3 electrons (Analog gain 1×)	
Digital output	12 bit	
Exposure time	Internal trigger mode	25.45 μs to 1 s
	External trigger mode	25.45 μs to 1 s (Edge trigger, Start trigger) 1 ms to 1 s (Level trigger, Synchronous readout trigger)
External trigger input mode	Edge trigger, Level trigger Synchronous readout trigger, Start trigger	
Trigger delay function	0 s to 10 s in 1 μs steps	
Trigger output	Programmable timing outputs Trigger ready output Global exposure timing output Low output, High output	
Binning *2	2×2	
Sub-array	Yes	
Interface	USB 3.0	
Lens mount	C-mount	
Connector	USB 3.0 microB type	
Power supply	DC +12 V	
Power consumption	Approx. 6.5 W	
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	90 % max. (with no condensation)	

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

\*2: Vertical 2 pixels are added inside the CMOS image sensor, and horizontal 2 pixels are added digitally inside the camera.

## DIMENSIONAL OUTLINES

(Unit: mm)



## OPTIONS

- Board camera case A12599-03
- External trigger cable SMA-BNC 5 m A12106-05
- External trigger cable SMA-SMA 5 m A12107-05
- External trigger cable 5 m A11892-05

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