

# HAMAMATSU

DATA SHEET

## High frame rate Digital Camera C9300-201 (640 × 480)

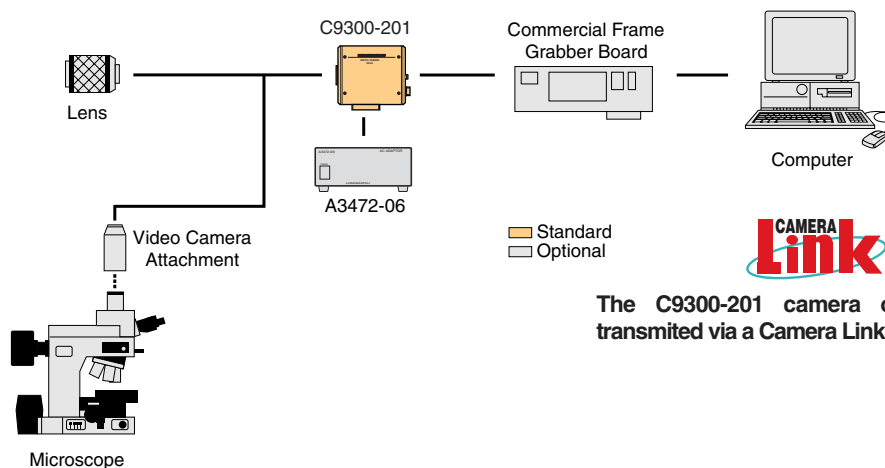


The C9300-201 is the digital camera which realized improvement in the speed, having the low noise characteristics of the conventional digital CCD camera. The high frame rate output which adopts progressive-scan interline CCD, and exceeds 5 times of TV rate in a VGA format (640 × 480 pixels) is possible. Moreover, the further high-speed read-out is possible by using binning and sub-array function.

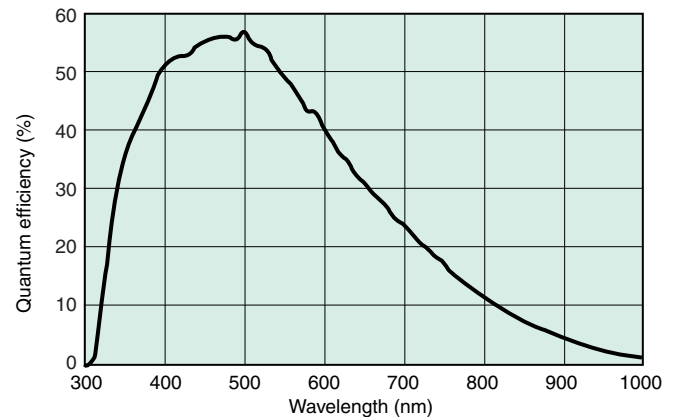
### APPLICATIONS

- Continuous imaging of high-speed moving objects
- Kinetic changes in light intensity
- Faint light observation under a microscope

### SYSTEM CONFIGURATION



### SPECTRAL RESPONSE CHARACTERISTIC



★ This is typical, not guaranteed

### FEATURES

- High-speed readout
  - 150 frame/s (1 × 1 binning, dual readout)
  - 694 frame/s (8 × 8 binning, dual readout)
- Low read-out noise
  - 20 electrons
- 12 bit output
- Fast repetition readout mode for PIV

### OPTIONAL

- A3472-06: Power supply unit
  - Line voltage: 100 V AC to 240 V AC input
  - Output voltage: DC +12 V
- A3194-01: Power cable



The C9300-201 camera outputs data is transmitted via a Camera Link interface.

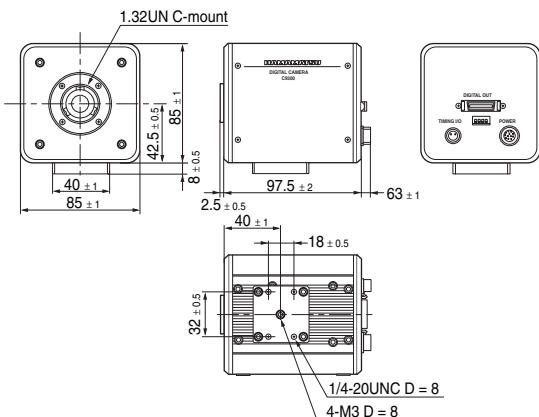
# SPECIFICATIONS

Type number	<b>C9300-201</b>		
Camera head type	Passive air-cooled head		
Imaging device	Progressive interline transfer CCD		
Effective no. of pixels	640 (H) × 480 (V)		
Cell size	7.4 μm (H) × 7.4 μm (V)		
Effective area	4.74 mm (H) × 3.55 mm (V)		
Pixel clock rate	30 MHz/pixel		
Frame rate**	binning	1 × 1	Single readout : 82 frame/s, Dual readout : 150.6 frame/s
		2 × 2	Single readout : 155.5 frame/s, Dual readout : 274.2 frame/s
		4 × 4	Single readout : 280.7 frame/s, Dual readout : 461.7 frame/s
		8 × 8	Single readout : 465.0 frame/s, Dual readout : 694.2 frame/s
Readout noise(r.m.s.) typ.	20 electrons		
Full well capacity typ.	20000 electrons		
Dynamic range* typ.	1000 : 1		
Dark current typ.	2 electrons/pixel/s		
A/D converter	12 bit		
Output signal / External control	Camera Link		
Exposure time	33 μs to 1 s		
Sub-array	A setup in an eight-line unit (vertical, perpendicular) is possible in size and a position.		
External trigger	Yes		
Contrast enhancement	1 to 5 times(16 step)		
Lens mount	C-mount		
Power requirements	DC +12 V		
Power consumption	approx. 5 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)		

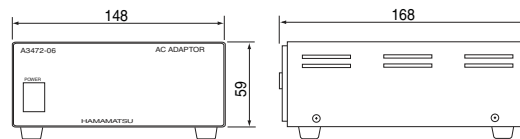
\*.Calculated from the ratio of the full well capacity and the readout noise

# DIMENSIONAL OUTLINES (Unit: mm)

## ● C9300-210 (approx. 1.2 kg)



## ● A3472-06 (approx. 0.8 kg) - Optional -



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