

# Digital CCD Camera ORCA-03G,-05G

For Biomedical Systems, Industrial Inspection and Machine Vision



▲ ORCA-03G

The ORCA-03G,ORCA-05G is a high-resolution digital camera using a progressive scan interline CCD with no mechanical shutter. In addition to a high resolution of 1.37 million pixels, a wide dynamic range of 12 bit digital output and high sensitivity in the VIS-NIR region offers a wide application range down to low light level imaging.

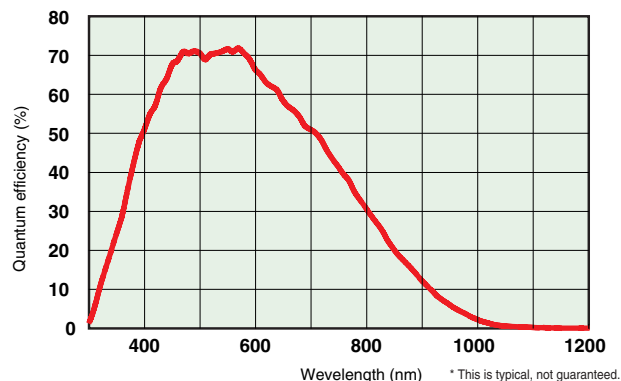
The ORCA-03G employs a hermetic vacuum-sealed head which can be cooled to  $-10^{\circ}\text{C}$ . The outputs data is transmitted via an IEEE 1394 interface.

## FEATURES

- High sensitivity in VIS-NIR region
- Progressive scan interline CCD chip with no mechanical shutter
- Anti-blooming function
- Wide dynamic range
- Small readout noise of 6 to 8 electrons (ORCA-03G)
- Low dark current with peltier cooling (0.1 electrons/s/pixel) (ORCA-03G)
- High frame rate of 43 frame/s ( $8 \times 8$  binning)



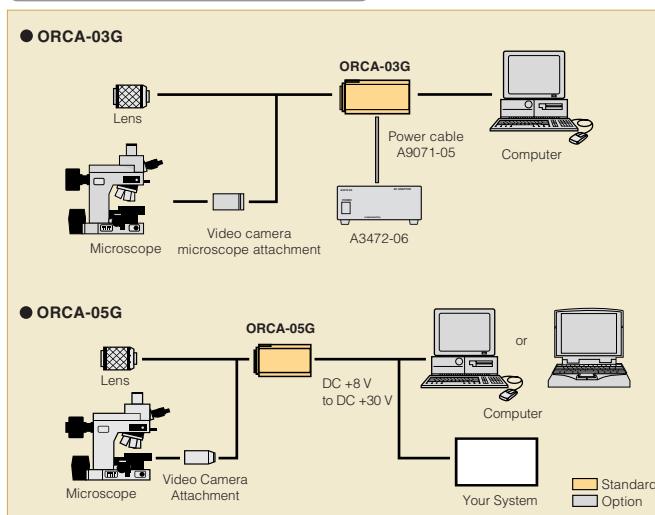
## SPECTRAL RESPONSE



## APPLICATIONS

- Routine fluorescence microscopy
- Green fluorescent protein applications
- DNA and ploidy analysis
- Red and near infrared fluorescent applications
- Fluorescence In-situ hybridization studies
- Motility and motion analysis
- Combined DIC / phase and fluorescence microscopy
- Histology, pathology and cytology
- Metallurgical microscopy
- Failure analysis
- Semiconductor inspection
- X-ray scintillator readout

## SYSTEM CONFIGURATION



**HAMAMATSU**

## SYSTEM SPECIFICATIONS

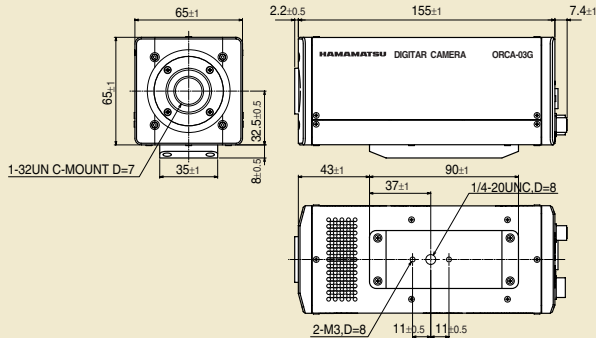
Model Name		ORCA-03G	ORCA-05G
Type number		C8484-03G02	C8484-05G02
Imaging device		Progressive scan interline CCD with micro-lens	
Pixels number		1344 (H) × 1024 (V)	
Cell size		6.45 μm (H) × 6.45 μm (V) (square format)	
Effective area		8.67 mm (H) × 6.60 mm (V) (2/3-inch format)	
Pixel clock rate		14.7 MHz/pixel	
Frame rate	1 × 1	8.9 frame/s	
	binning	2 × 2	16.3 frame/s
		4 × 4	27.8 frame/s
		8 × 8	43.0 frame/s
Readout noise(r.m.s.)		6 electrons r.m.s to 8 electrons r.m.s (typ.)	10 electrons r.m.s (typ.)
Full well capacity		15 000 electrons	
Dynamic range*		2142 : 1	1500 : 1
Dark current		0.1 electrons/s/pixel (typ.)	-
Cooling temperature		- 10 °C	-
A/D converter		12 bit	
Exposure time		10 μs to 10 s	10 μs to 1 s
Sub-array		Yes	
Analog gain		1 × , 5 ×	
External trigger		Edge trigger, Level trigger	
Lens mount		C-mount	
Digital output		IEEE 1394-1995	
External control		IIC1394-Based Digital Camera Specification Ver.1.30	
Power requirements		DC+12 V	DC+8 V or DC+30 V
Power consumption		24 V·A	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 the average readout noise.

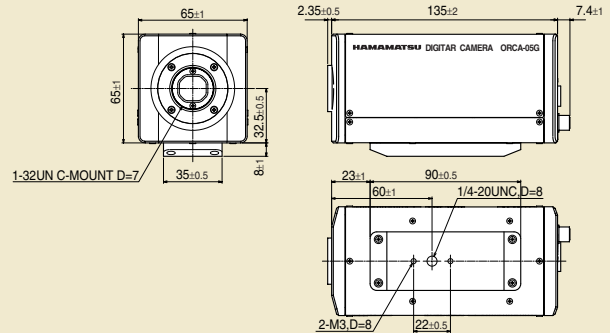
## DIMENSIONAL OUTLINES

(Unit : mm)

### ● ORCA-03G (Weight : approx. 0.85 kg)

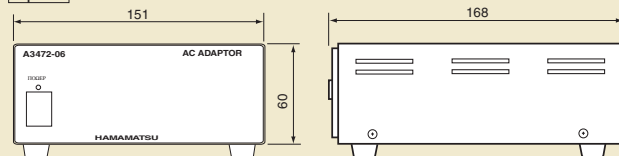


### ● ORCA-05G (Weight : approx. 0.6 kg)



### ● AC adaptor A3472-06 (Weight : approx. 0.8 kg)

[Option]



### OPTIONS (ORCA-03G)

- **AC adaptor : A3472-06**
  - Line voltage : AC 100 V to 240 V input
  - Output voltage : DC +12 V
- **Power cable : A9071-05**
  - Cable length : 5 m

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