

# HAMAMATSU

DATA SHEET

## IEEE 1394-Based Digital Camera (Deep cooling version) ORCA-AG



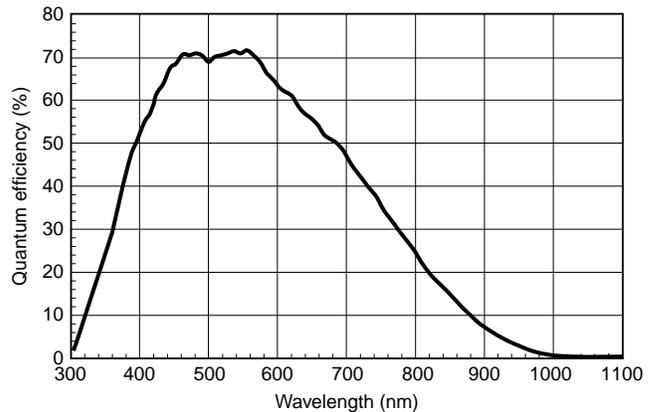
The ORCA-AG is a high resolution digital camera with a progressive scan interline CCD chip with no mechanical shutter. Features include 1.37 million pixels, wide dynamic range, 12 bit digital output. With very high quantum efficiency and low noise, this camera is designed for a wide range of applications including low light level imaging. Peltier cooling with hermetic vacuum sealing drastically reduces dark noise and minimizes thermal drift, which makes the camera an ideal choice for demanding scientific and industrial applications.

A high performance serial bus IEEE 1394 is used as a computer interface. Furthermore, a standard C-mount lens coupling makes it easy to connect to optics such as optical microscopes.

### 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
- Histology, Pathology and Cytology
- Metallurgical microscopy
- Failure analysis
- Semiconductor inspection
- X-ray scintillator readout

### SPECTRAL RESPONSE CHARACTERISTIC

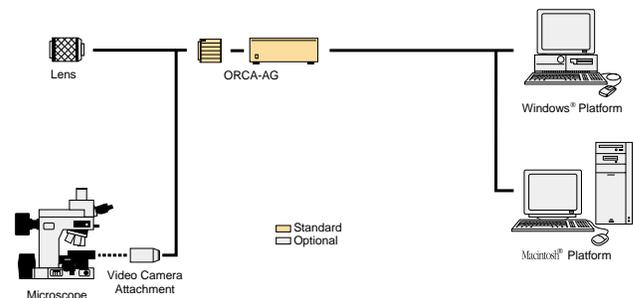


★ This is typical, not guaranteed

### FEATURES

- High sensitivity in VIS-NIR region
- Hermetic vacuum sealed head
- High resolution of 1.37 million pixels
- Exposure time up to 4 200 sec
- Low dark noise with peltier cooling for a dynamic range of 3 000 : 1
- Progressive scan interline CCD chip with no mechanical shutter
- Compatible with IIDC 1394-based digital camera specification
- Full remote control from PC via IEEE 1394 bus

### SYSTEM CONFIGURATION



Hamamatsu is a member of 1394 Trade Association

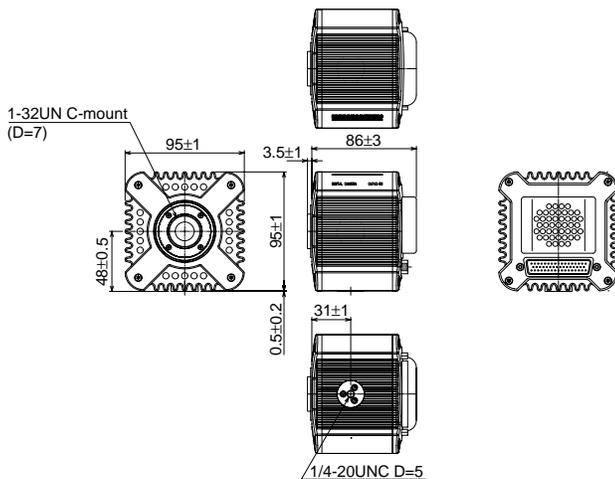
## SPECIFICATIONS

Type number	C4742-80-12AG		
Camera head type	Hermetic vacuum-sealed air-cooled head		
Imaging device	ER-150 progressive scan interline CCD		
Effective number of pixels	1344 (H) X 1024 (V)		
Cell size	6.45 μm (H) X 6.45 μm (V)		
Effective area	8.67 mm (H) X 6.60 mm (V)		
Pixel clock rate	14.75 MHz/pixel		
Frame rate	binning	1 X 1	8.8 frame/s
		2 X 2	16 frame/s
		4 X 4	27 frame/s
		8 X 8	41 frame/s
Readout noise (r.m.s.) typ.	6 electrons		
Full well capacity typ.	18000 electrons		
Dynamic range* typ.	3000 : 1		
Cooling method	Forced air peltier cooling, with hermetic sealing		
Cooling temperature	- 30 °C		
Dark current	0.03 electrons/pixel/s		
A/D converter	12 bit		
Exposure time	10 μs to 4200 s		
Sub-array	yes		
Contrast enhancement	Analog gain (10times max.) and offset function		
External trigger	yes		
Lens mount	C-mount		
Interface / Output signal (digital output)	IEEE1394-1995 / Non-compressed data (Mono 16)		
External control	IIDC 1394-Based Digital Camera Specification Ver.1.30		
Line voltage	AC 100 V / AC 117 V / AC 220 V / AC 240 V, 50/60 Hz		
Power consumption	approx. 90VA		
Ambient storage temperature	- 10 °C to + 50 °C		
Ambient operating temperature	0 °C to + 40 °C		
Ambient storage/operating humidity	70 % max. ( no condensation)		

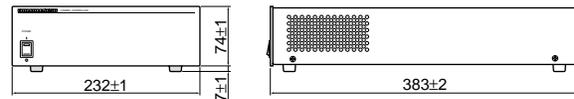
\*Calculated from the ratio of the full well capacity and the readout noise

## DIMENSIONAL OUTLINES (Unit: mm)

### • Camera head (approx. 1.5 kg)



### • Camera controller (approx. 6.2 kg)



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