

HAMAMATSU

DATA SHEET

IEEE1394-Based Digital Camera ORCA-ER-1394 (Deep cooling version: C4742-80-12AG)



The ORCA-ER-1394 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.



Hamamatsu is a member of 1394 Trade Association

FEATURES

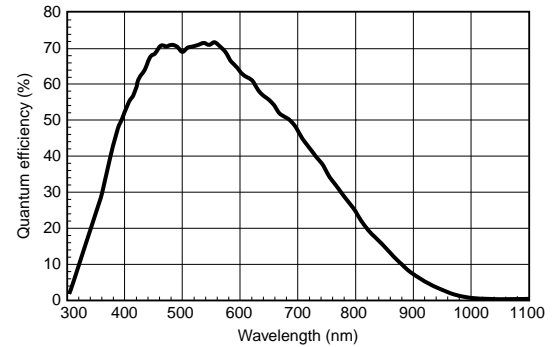
- High sensitivity in VIS-NIR region
- Hermetic vacuum sealed head
- High resolution of 1.37 million pixels
- Exposure time up to 4,200 sec
- Low dark noise with peltier cooling for a dynamic range of more than 2000 : 1
- Progressive scan interline CCD chip with no mechanical shutter
- Compatible with 1394-based digital camera specification
- Full remote control from PC via IEEE 1394 Bus

SPECIFICATIONS

Type number	C4742-80-12AG
Imaging device	Progressive scan interline CCD with micro-lens
Effective no.of pixels	1344 (H) X 1024 (V)
Cell size	6.45 μm X 6.45 μm (square format)
Effective area	8.67 mm X 6.60mm (2/3-inch format)
Pixel clock rate	14.75M Hz/pixel
Frame rate	8.8 frame/sec
2 X 2 binning	16 frame/sec
4 X 4 binning	27 frame/sec
8 X 8 binning	41 frame/sec
Readout noise (r.m.s.)	8 electrons
Full well capacity	18,000 electrons
Dynamic range*	2,250 : 1
Cooling method	Forced air peltier cooling, with hermetic vacuum sealing
Cooling temperature	-30°C at 20 °C ambient temperature
Dark current	0.03 electron/pixel /sec
A/D converter	12 bit
Exposure time	10 μsec to 4,200 sec
Sub array	yes
Contrast enhancement	Analog Gain (10times max.) and Offset function
External trigger	yes
Lens mount	C-mount
Interface	IEEE1394-1995
External control	1394-Based Digital Camera Specification Ver.1.30
Line voltage	100V/117V/220V/240V AC, 50/60Hz
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)

- Image data format : Non-compressed data (Mono 16, Mono 8)
- Connector format : 6 pin IEEE1394 connector

• Spectral response characteristics



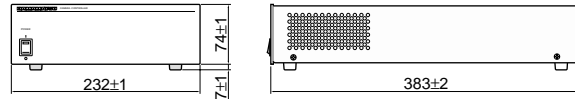
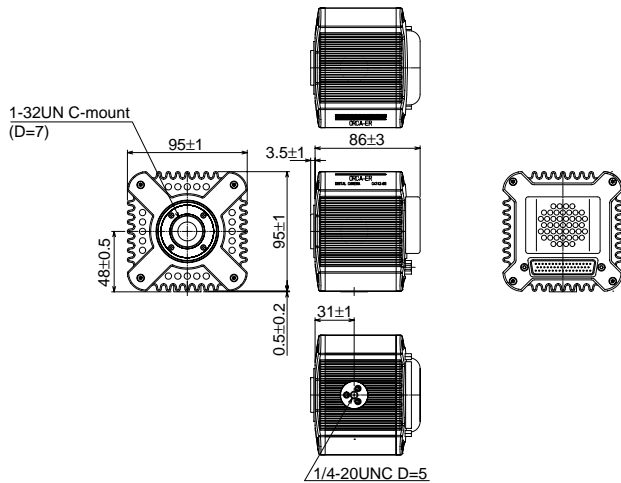
★ This is typical, not guaranteed

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

DIMENSIONAL OUTLINE (Unit : mm)

- Camera head (approx. 1.5kg)

- Control unit (approx. 6.2kg)



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