

High Resolution Digital B/W CCD Camera ORCA_{II}-ERG,-ER

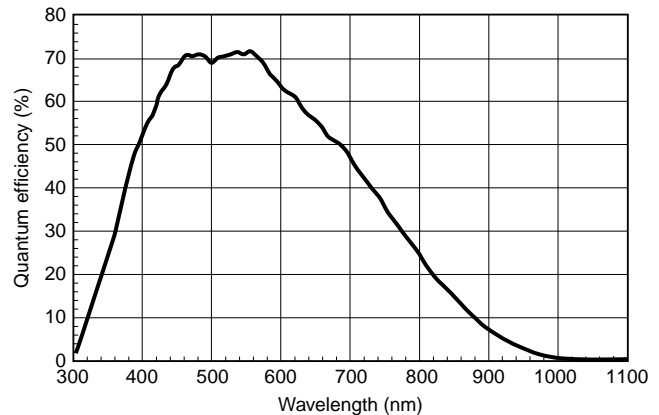


The ORCA_{II}-ERG and ORCA_{II}-ER features the unique ER-150 CCD chip packaged in a proprietary permanently sealed vacuum chamber evacuated to 10^{-7} Torr. This CCD offers very high quantum efficiency over the spectrum from 350 nm to 850 nm and very low noise. With selectable full well capacity, low read noise, cooling to -60°C to virtually eliminate dark current, this camera will produce rapid exposures and high dynamic range images. Dual mode digitization offers a software selectable choice of speed or very low noise readout methods with 12 and 14 bit precision. Special analog contrast enhancement circuits increase versatility for even the most difficult imaging conditions.

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



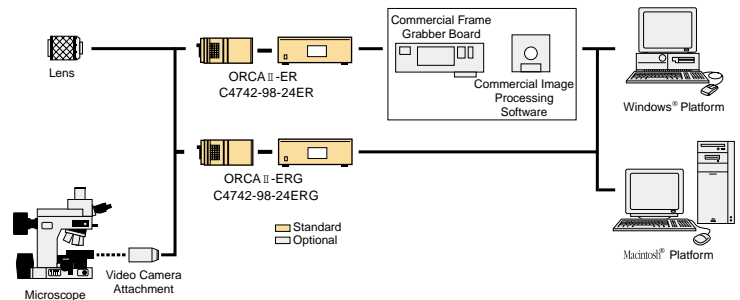
★ This is typical, not guaranteed

FEATURES


- Progressive scan interline readout with no mechanical shutter
- High resolution format (1344 × 1024 pixels)
- Software selectable quantum efficiency (High or Low light mode)
- Broad spectral range (300 nm to 950 nm)
- Software selectable full well capacity (18,500 or 40,500* electrons typ.)
- Low readout noise design (4 electrons (typ.) at 14 bit.)
- Software selectable dual digitizers (12 and 14 bit)
- Analog contrast enhancement

*2 x 2 binning mode offers 40,500 electron full well capacity

SYSTEM CONFIGURATION



TYPE NUMBER

- **C4742-98-24ERG (ORCA_{II}-ERG)**
A high performance serial bus IEEE 1394 is used as a computer interface.

Hamamatsu is a member of 1394 Trade Association
- **C4742-98-24ER (ORCA_{II}-ER)**
RS422A digital output ensures compatibility with a large number of commercially available frame grabber boards.

SPECIFICATIONS

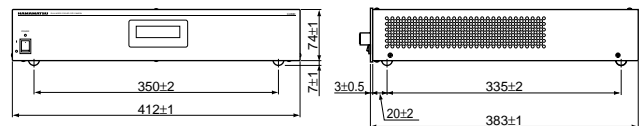
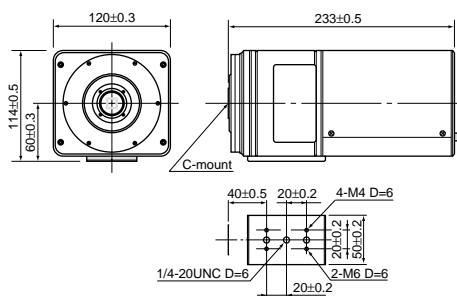
Model name		ORCA II-ERG	ORCA II-ER	
Type number		C4742-98-24ERG	C4742-98-24ER	
Camera head type		Hermetic vacuum-sealed air-cooled head		
Circulating water cooler		-		
Mechanical shutter		-		
Imaging device		ER-150 interline CCD chip with micro-lens		
Effective no. of pixels		1344 (H) × 1024 (V)		
Cell size (square format)		6.45 μm (H) × 6.45 μm (V)		
Effective area		8.67 mm (H) × 6.60 mm (V)		
Pixel clock rate	High speed readout	10 MHz/pixel		
	High-precision readout	1.25 MHz/pixel		
Frame rate	High speed readout	1 × 1	5.6 frame/s	6.0 frame/s
		2 × 2	9.8 frame/s	10.7 frame/s
		4 × 4	15.6 frame/s	18.0 frame/s
		8 × 8	22.2 frame/s	27.3 frame/s
	High-precision readout	1 × 1	0.83 frame/s	0.84 frame/s
		2 × 2	1.58 frame/s	1.63 frame/s
		4 × 4	2.90 frame/s	3.08 frame/s
		8 × 8	4.97 frame/s	5.51 frame/s
Readout noise(r.m.s.) typ.	High speed readout	8 electrons		
	High-precision readout	4 electrons		
Full well capacity typ.	1 × 1	18 500 electrons		
	binning	40 500 electrons (High-precision readout only)		
Dynamic range* typ.	High speed readout	2312 : 1		
	High-precision readout	1 × 1	4 625 : 1	
		binning	10 125 : 1	
Cooling method		Forced-air peltier cooling with hermetic sealing		
Cooling temperature		- 60 °C		
Dark current		0.0045 electrons/pixel/s		
A/D converter	High speed readout	12 bit		
	High-precision readout	14 bit		
Interface / Output signal (digital output)	High speed readout	IEEE 1394 / Non-compressed data (Mono16)	RS-422A 12 bit parallel output	
	High-precision readout		RS-422A 14 bit parallel output	
Exposure time		10 μs to 7200 s		
External control		IIDC 1394-Based Digital Camera Specification V1.30	RS-232C	
Sub-array		Yes		
External trigger		Yes		
Contrast enhancement	High speed readout	1 to 6 times		
	High-precision readout	1, 2, 10 times		
Lens mount		C-mount		
Line voltage		AC 100 V / AC 117 V / AC 220 V / AC 240 V, 50/60 Hz		
Power consumption		approx. 220 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 average readout noise.

DIMENSIONAL OUTLINES (Unit: mm)

● Camera head (approx. 2.5 kg)

● Camera controller (approx. 8.5 kg)



For more information call:
Go To Infrared -
801-393-6050



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