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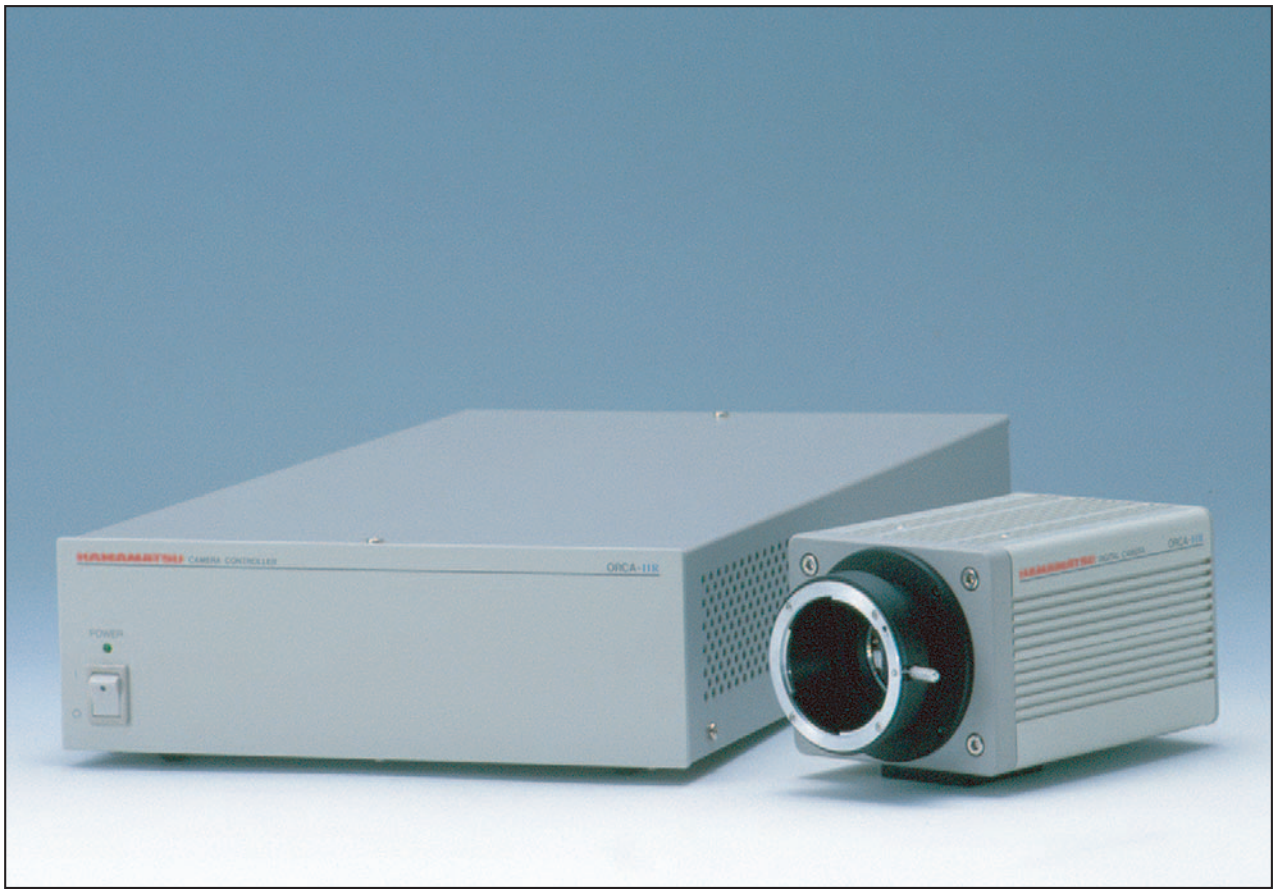
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HAMAMATSU

DATA SHEET

# High Resolution Digital Camera ORCA-HR

## C4742-95-12HR



The ORCA-HR is a high resolution digital camera using a large format interline CCD chip with no mechanical shutter. In addition to a high resolution of 10 million pixels, a wide dynamic range of 12 bit digital output and high sensitivity offers a wide application range down to low light level imaging.

Peltier cooling drastically reduces dark noise and minimizes thermal drift, which makes the camera an ideal choice for demanding scientific and industrial applications.

## FEATURES

- **High resolution of 10 million pixels**
- **Large format interline CCD chip with no mechanical shutter**
- **Vertical overflow drain structure**
- **Anti-blooming function**
- **Low dark noise with peltier cooling**
- **Binning (2 × 2, 4 × 4) function to improve sensitivity**
- **Shortest exposure time : 330 μs capture fast events**
- **Lens coupling : F-mount, ENG (optional)**
- **Full remote control from PC via RS-232C**

# SPECIFICATIONS

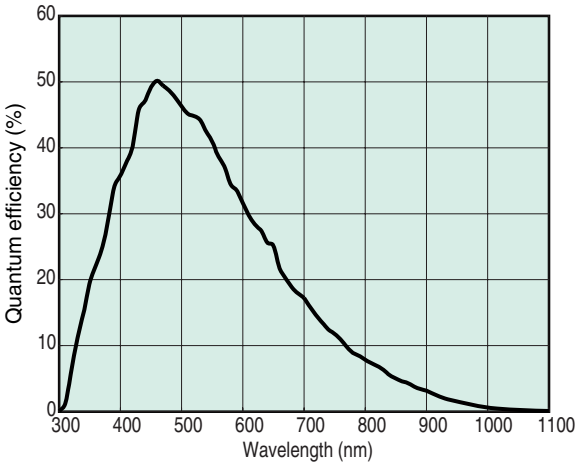
| | | | |
|---|---|---|---|
| Imaging device | | | Large format Interline CCD (HR-1000) |
| Effective no.of pixels | | | 4000 (H) × 2624 (V) |
| Cell size | | | 5.9μm × 5.9μm (square format) |
| Effective area | | | 23.6mm × 15.5mm |
| Pixel clock rate | | | 20.0M Hz/pixel |
| Frame rate (No.of pixels) | Interlace scan | | 1.7 frame/sec (4000 (H) × 2624 (V) ) |
| | Binning scan | 2 × 2 | 3.4 frame/sec (2000 (H) × 1312 (V) ) |
| | | 4 × 4 | 6.4 frame/sec (1000 (H) × 656 (V) ) |
| | Outline scan | | 8.9 frame/sec (664 (H) × 422 (V)) |
| Readout noise | | | 13 electrons r.m.s. typ. |
| Full well capacity | | | 13,300 electrons |
| Dynamic range① | | | 1000 : 1 |
| Cooling method | | | Peltier cooling, Air radiation system |
| Cooling temperature | | | +5˚C to +7 ˚C |
| Dark current | | | 0.5 electron/pixel/sec typ. |
| A/D converter | | | 12 bit |
| Output signal (digital output) | | | TIA/EIA-644(LVDS) parallel output 12 bit |
| Exposure time | | | 330 μs to 10s |
| External control | | | RS-232C (full remote for all camera functions) |
| Sub array② | | | yes |
| External trigger | | | Level or Edge trigger (available only at binning mode) |
| Contrast enhancement | | | Analog gain (10 times max.) and Offset functions |
| Lens mount | | | F-mount |
| 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) |

①Calculated from the ratio of the full well capacity and average readout noise

②The sub-array setting is available only with binning mode.

| | Horizontal width | Horizontal offset | Vertical width | Vertical offset |
|---|---|---|---|---|
| 2 × 2 binning | 8 × n | 8 × n | 8 × n | 8 × n |
| 4 × 4 binning | 8 × n | 8 × n | 8 × n | 8 × n |
| n | 0 ≦ n ≦ 500 | 0 ≦ n ≦ 499 | 0 ≦ n ≦ 328 | 0 ≦ n ≦ 327 |

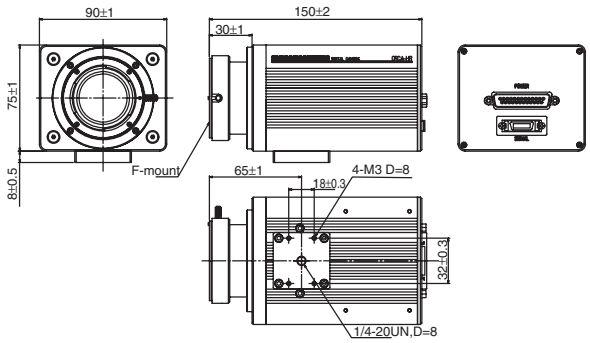
## • Spectral response characteristics



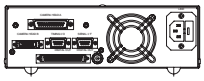

★ This is typical, not guaranteed

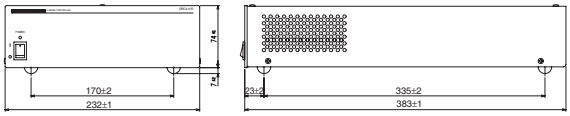
# DIMENSIONAL OUTLINE (Unit : mm)

## • Camera head (approx. 1.2kg)




## • Control unit (approx. 5.9kg)






## • Software development kit

- Platform ---------- Windows95 / 98 / NT
- Language ---------- Visual C++
- Frame grabber board ----- Coreco PC-DIG
- Functions ---------- Image data capture
  ORCA-HR camera control


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