

# Kestrel

Digital Scientific Frame Transfer EMCCD

128 x 128 • 24µm x 24µm pixels • Cooled to -20°C • 500 fps •



## Key Features and Benefits

*Ultra low noise readout with FAST speeds*

- **Up to 500 frame per second**  
High speed and super sensitivity
- **128 x 128 Back-thinned EMCCD sensor**  
Enables optimum image resolution in low light imaging applications
- **16 bit Camera Link output**  
Realtime imaging for low latency photon to digital image
- **Up to 95% QE from back-illuminated sensor**  
Optimum Photon collection
- **Strong VIS and NIR reponse and ultrawide bandwidth**  
From 350nm through to 1100nm

|               |                     |
|---------------|---------------------|
| Resolution    | <b>128 x 128</b>    |
| Pixel Size    | <b>24µm x 24µm</b>  |
| Readout Noise | <b>&lt;1e</b>       |
| Frame Rate    | <b>Up to 500fps</b> |
| Camera Link   | <b>16bit</b>        |

## Specification for Kestrel

|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| Sensor Type                             | 1/8" Back Thinned Frame Transfer EMCCD  |
| Active Pixel                            | 128 x 128                               |
| Pixel Size                              | 24µm x 24µm                             |
| Active Area                             | 3.1mm x 3.1mm                           |
| Full Well Capacity                      | 100ke-                                  |
| Non-linearity                           | <1%                                     |
| Readout Noise (RMS)                     | EM Gain ON: <1e-<br>EM Gain OFF: <290e- |
| Full Resolution Frame Rate              | 500fps                                  |
| Dark Current (e/p/s)                    | <1 @ -20°C                              |
| Digital Output Format                   | 16 bit Camera Link (base configuration) |
| Peak Quantum Efficiency                 | 95%                                     |
| Spectral Response                       | 350 - 1100nm                            |
| TE Cooling                              | -20°C                                   |
| Binning                                 | 1x1 up to 2x2                           |
| Lens Mount                              | C-Mount                                 |
| Synchronisation                         | Trigger IN and OUT - TTL compatible     |
| Power Supply                            | 12V DC ±10%                             |
| Total Power Consumption                 | <80W                                    |
| Operating Case Temperature <sup>1</sup> | -20°C to +55°C                          |
| Storage Temperature                     | -30°C to +60°C                          |
| Dimensions (L*W*H) <sup>2</sup>         | 121mm x 140mm x 113mm                   |
| Weight (no lens)                        | < 1.5kg                                 |

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## Ordering Information

### Camera

|                              |             |
|------------------------------|-------------|
| Kestrel EMCCD digital camera | KE60V-BV-CL |
| Power Supply Unit            | RPL-HR4-K   |

### Optional Accessories

|                                            |                 |
|--------------------------------------------|-----------------|
| Mini PC with Xcap STD and frame grabber    | RPL-PC-EL1      |
| EPIX® EB1 base CL card                     | RPL-EPIX-EB1    |
| EPIX® XCAP STD software                    | RPL-XCAP-STD    |
| MDR-SDR Camera Link Cable, 2m <sup>3</sup> | RPL-MCL-CBL-2M  |
| Thermoelectric Water Chiller Unit          | RPL-CHILLER     |
| Chiller Tubing                             | RPL-WTUBE-NINOX |
| Optical Lenses <sup>4</sup>                | RPL-xx-xxxx     |

Note 1: Extended operating temperature range on request.

Note 2: Dimensions include all connector parts on camera interface

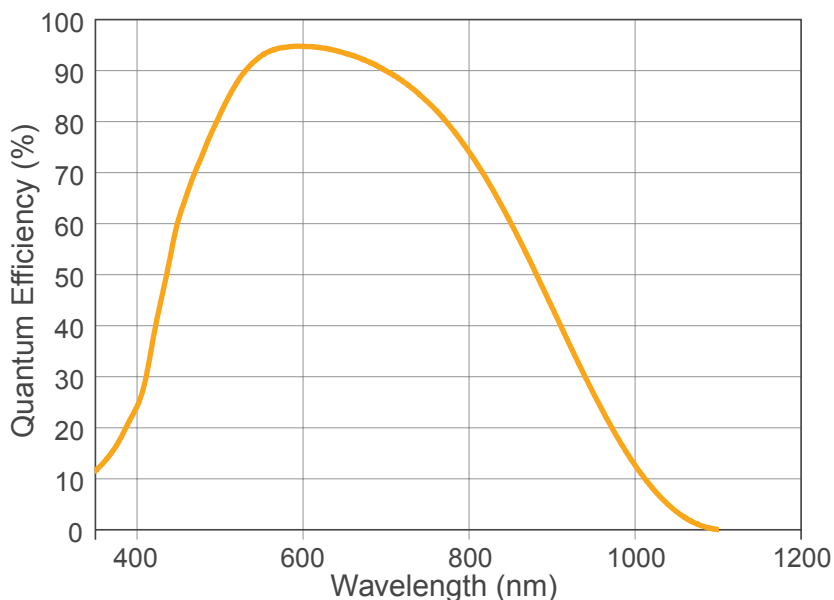
Note 3: Longer CL cable available up to 25M

Note 4: Please consult us to check our range of lenses

Demo is available on request.  
Pricing AOR subject to volumes.

Detailed technical drawings  
can be downloaded at  
[www.raptorphotonics.com](http://www.raptorphotonics.com)

## Quantum Efficiency



\*Data supplied by sensor manufacturer

## Applications

- Adaptive Optics and Astronomy
- Calcium signaling
- High resolution fluorescence imaging
- Hyperspectral imaging
- X-ray & High energy
- Particle Image Velocimetry
- High speed object tracking

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