

# Kepler CMOS Camera

## KL4040 FI

### 4K x 4K at 23 fps

The KL4040 scientific CMOS camera has the same pixel size and imaging area as the popular KAF-16803 CCD, but with 1/3 the noise and 40% higher quantum efficiency. Kepler cooled sCMOS cameras provide ultra-high sensitivity, ultra-low noise, and high frame rates, all at game-changing price to performance ratio.

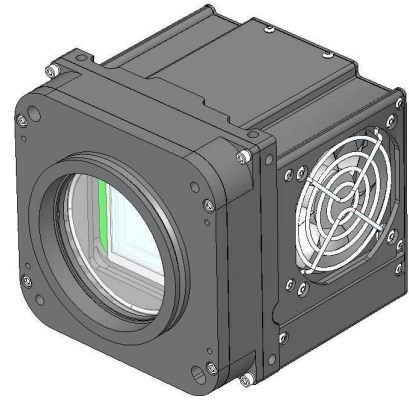
### Technical Data

|  |                                       |
|--|---------------------------------------|
| <b>Sensor Type</b>                           | Front Illuminated CMOS                |
| <b>Sensor</b>                                | GPixel GSense4040                     |
| <b>Shutter Type</b>                          | Rolling; Rolling with Global Reset    |
| <b>Active Pixels</b>                         | 4096 x 4096                           |
| <b>Pixel Size (microns)</b>                  | 9 x 9 $\mu\text{m}$                   |
| <b>Imaging Area (Diagonal)</b>               | 36.8 X 36.8 mm (52 mm)                |
| <b>Full Well Capacity</b>                    | 70000 electrons                       |
| <b>(e<sup>-</sup>) Typical Readout Noise</b> | 3.7 e <sup>-</sup>                    |
| <b>Dynamic Range</b>                         | 85.2 dB                               |
| <b>Frame Rate</b>                            | 23 fps (QSFP V2)                      |
| <b>Cooling Method<sup>1</sup></b>            | Air and Liquid                        |
| <b>Max. Cooling (Air)</b>                    | 40°C below ambient                    |
| <b>Temperature Stability</b>                 | 0.1°C                                 |
| <b>Dark Current (typical)</b>                | 0.08 eps at -10C                      |
| <b>Interface</b>                             | USB 3.0 (Optional QSFP <sup>2</sup> ) |
| <b>Data Bit Depth</b>                        | 16 bit <sup>3</sup>                   |
| <b>Optional Shutter</b>                      | 65mm                                  |
| <b>Optional Mounts</b>                       | Medium Format Recommended (6x7)       |
| <b>Subarray Readout</b>                      | Standard                              |
| <b>External Trigger In/Out</b>               | Standard                              |
| <b>SDK / Software</b>                        | Kepler SDK / FLI Pilot                |
| <b>Weight</b>                                | 4 lbs (1.8 kg)                        |

<sup>1</sup> Liquid circulation connectors sold separately

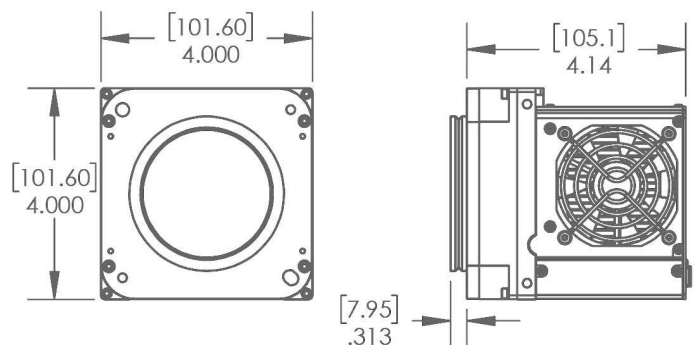
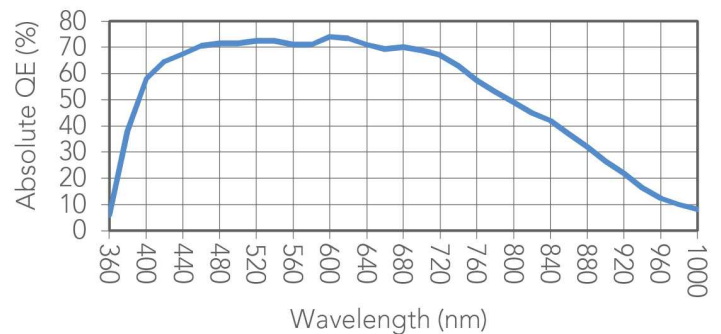
<sup>2</sup> QSFP = Quad Small Form factor Pluggable: high speed fiber optic interface

<sup>3</sup> 16-bit data merged from two 12 bit converters



KL4040 without shutter

### Absolute Quantum Efficiency



See [www.flicamera.com](http://www.flicamera.com) for alternate configurations



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