4008 x 2672 Imaging Array

9 µm Pixel Size

At 3.7 x 3.7 x 4.8 inches the MicroLine is a small camera with big camera capabilities. Each component of the MicroLine camera is designed and manufactured for a long life in the most demanding conditions. MicroLine download speeds are fast yet maintain the 16-bit resolution necessary to produce high quality images. MicroLine cameras can achieve up to 60°C below ambient cooling without water assist. Simply set the MicroLine cooling where you want it and the camera will do the rest, quickly and without worries.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 MHz and 12 MHz digitization</td>
<td>Fast Image capture with full 16-bit resolution</td>
</tr>
<tr>
<td>4008 x 2672 Array with 9 µm pixels</td>
<td>Resolves fine detail</td>
</tr>
<tr>
<td>Flexible binning and readout</td>
<td>Increases frame rate</td>
</tr>
<tr>
<td>Thermoelectric Cooling to 55°C Below Ambient</td>
<td>Excellent low-noise imaging</td>
</tr>
<tr>
<td>Excellent quantum efficiency</td>
<td>High sensitivity for fast image acquisition</td>
</tr>
<tr>
<td>Optional Nikon F-mount and Canon EOS Mount</td>
<td>Wide variety of optical choices</td>
</tr>
<tr>
<td>Acquisition software included</td>
<td>Ease of integration with open source SDK</td>
</tr>
<tr>
<td>USB 2.0 interface</td>
<td>Industry standard connectivity; fast data transfer</td>
</tr>
</tbody>
</table>

*Due to continuous development, all specifications subject to change without notice.
**MicroLine ML11002**

**Sensor Specifications (from manufacturer)**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>On Semi KAI-11002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pixels</td>
<td>4008 x 2672</td>
</tr>
<tr>
<td>Pixel Size</td>
<td>9 µm</td>
</tr>
<tr>
<td>Full Well Capacity</td>
<td>60,000 electrons</td>
</tr>
<tr>
<td>Color Options</td>
<td>Mono or Color</td>
</tr>
<tr>
<td>CCD Type</td>
<td>Interline transfer</td>
</tr>
</tbody>
</table>

| Sensor Size             | 36 X 24 mm        |
| Sensor Diagonal         | 43.2 mm           |
| CCD Grades              | 0, 1, 2           |
| Anti-Blooming           | 1000X             |
| Megapixels              | 10.7              |
| Video Size (inch)       | 2.7               |

**Sensor Quantum Efficiency (Absolute)**

![Sensor Quantum Efficiency Graph](image)

**Camera Performance**

- **Typical Maximum Cooling**: 55°C below ambient
- **Dark Current (typical)**: 0.004 electrons/pixel/sec at -35°C
- **Temperature Stability**: 0.1°C
- **Digitization Speed**: 2 MHz and 12 MHz
- **Typical System Noise**: 9 e- at 2 MHz; 14 e- at 12 MHz
- **Housing Dimensions**: 3.7 X 3.7 X 4.77 inches (9.3 X 9.3 X 12.1 cm)
- **Focal Plane to Face Plate**: 15.7mm (21mm with optional shutter)
- **Lens Mounts**: Optional Nikon F-mount or Canon EOS Mount
- **Interface**: USB 2.0
- **Camera Channels**: 1 (optional 2)
- **Available Shutters**: Optional 65 mm
- **External Triggering**: Standard
- **Environment**: -30°C to 45°C | 10% - 90% Relative Humidity
- **Power**: 12V (100-240V AC to 12V DC power supply included). With TEC off: <1A. TEC at 100%: 4.4A. Shutter open: 4A pulse for 100msec. Shutter held open, add 0.22A.

**Engineering Excellence**

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