EMVA 1288 Summary Sheet

This datasheet describes the specification according to the standard 1288 for Characterization and Presentation of Specification Data for Image Sensors and Cameras of the European Machine Vision Association (EMVA) (see www.standard1288.org). The measurements were performed with an AEON ACC3 RGB Release 3, 20.01.2104, SN 0005(). The performance parameters and estimated accuracy of the measurements are described in the technical report for the instrument, its calibration in the corresponding calibration report.

<table>
<thead>
<tr>
<th>Vendor</th>
<th>MATRIX VISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>mvBlueCOUGAR-X1010G</td>
</tr>
<tr>
<td>Serial number</td>
<td>GX005366</td>
</tr>
<tr>
<td>Sensor diagonal</td>
<td>7.92 mm</td>
</tr>
<tr>
<td>Lens category</td>
<td>C-Mount</td>
</tr>
<tr>
<td>Resolution</td>
<td>$3856 \times 2764$, 12 bit</td>
</tr>
<tr>
<td>Pixel size</td>
<td>$1.67 \mu m \times 1.67 \mu m$</td>
</tr>
<tr>
<td>Sensor type</td>
<td>CMOS</td>
</tr>
<tr>
<td>Shutter type</td>
<td>Rolling</td>
</tr>
<tr>
<td>Overlap capabilities</td>
<td>Overlapping</td>
</tr>
<tr>
<td>Maximum frame rate</td>
<td>5.6 Hz</td>
</tr>
<tr>
<td>Interface type</td>
<td>GigE Vision</td>
</tr>
</tbody>
</table>

Type of data presented: Single

**Operation point 1, (page 3)**

- Wavelength centroid: 534.2 nm
- Wavelength FWHM: 30.9 nm
- Gain, offset: Gain = 0dB, Offset = 0.8

Optional data measured: None

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Spectral sensitivity m0177, 15.12.2014

![Spectral Sensitivity Graph](image-url)
EMVA 1288 Summary Sheet for Operating Point 1

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Single</th>
<th>Gain, offset</th>
<th>Gain = 0dB, Offset = 0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>4.0 ms</td>
<td>Environmental temperature</td>
<td>25.2°C</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
<td>Camera temperature</td>
<td>35.2°C</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>Mono12</td>
<td>Wavelength, centr., FWHM</td>
<td>534 nm, 30.9 nm</td>
</tr>
</tbody>
</table>

**Photon transfer m0177, 534nm, 15.12.2014**

- **Gray value - dark value (DN)**
  - Minimum: 0
  - Maximum: 4000

- **Gray value - dark value (DN)^2**
  - Minimum: 0
  - Maximum: 25.52

- **Gain (DN/e) = 0.669 ± 0.4%**
- **Saturation threshold SNR = 1**

**SNR m0177, 534nm, 15.12.2014**

- **Irradiation (photons/pixel)**
  - Minimum: 10
  - Maximum: 1e+07

- **SNR**
  - Maximum: 73
  - Maximum (dB): 37.2
  - Maximum (bits): 6.2
  - 1/SNR\text{max} (%) = 1.38
  - PRNU\text{1288} (%) = 3.786

- **Dark current (DN/s)**: -13.48
  - **Dark current (e/s)**: -20.14
  - **Dark current (e/s) variance**: 7.21

**Quantum efficiency**

- \(\eta = 0.413\)

**Gain**

- \(K (DN/e) = 0.669\)
- \(1/K (e/DN) = 1.494\)

**Dark noise & DSNU**

- \(\sigma_d (DN) = 5.05\)
- \(\sigma_0 (e) = 7.5\)
- \(DSNU\text{1288} (DN) = 1.54\)
- \(DSNU\text{1288} (e) = 2.30\)

**Signal-to-noise ratio & PRNU**

- \(SNR\text{max} = 73\)
- \(SNR\text{max} (dB) = 37.2\)
- \(SNR\text{max} (bits) = 6.2\)
- \(1/SNR\text{max} (%) = 1.38\)
- \(PRNU\text{1288} (%) = 3.786\)

**Nonlinearity**

- \(LE (%) = 0.26\)

**Sensitivity & saturation**

- \(\mu_{p,\text{min}} (p) = 19.5\)
- \(\mu_{e,\text{min}} (e) = 8.1\)
- \(\mu_{p,\text{sat}} (p) = 12795\)
- \(\mu_{e,\text{sat}} (e) = 5283\)

**Dynamic range**

- \(DR = 655\)
- \(DR (dB) = 56.3\)
- \(DR (bit) = 9.4\)

**Gains, offset**

- \(Gain = 0dB, Offset = 0.8\)

**Environmental temperature**

- \(25.2°C\)

**Camera temperature**

- \(35.2°C\)

**Wavelength, centr., FWHM**

- \(534 \pm 30.9 nm\)