EMVA 1288 Data Sheet m0745

This datasheet describes the specification according to the standard 1288 release 3.1 for “Characterization and Presentation of Specification Data for Image Sensors and Cameras” issued on December 30, 2016 by the European Machine Vision Association (EMVA), published at [www.standard1288.org](http://www.standard1288.org) and the [zenodo EMVA community](https://zenodo.org) with proprietary extensions from AEON. The measurements were performed with the AEON ACC3 Release 6, 26.11.2016, SN 0005(MatrixVision).

Measurements performed by T.Renner, Matrix Vision GmbH

<table>
<thead>
<tr>
<th>Vendor</th>
<th>MATRIX VISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>mvBlueFOX3-2051pG</td>
</tr>
<tr>
<td>Serial number</td>
<td>FF002941</td>
</tr>
<tr>
<td>Sensor diagonal</td>
<td>11.07 mm</td>
</tr>
<tr>
<td>Lens category</td>
<td>C-Mount</td>
</tr>
<tr>
<td>Resolution</td>
<td>2464 × 2056, 12 bit</td>
</tr>
<tr>
<td>Pixel size (h×v)</td>
<td>3.45 µm × 3.45 µm</td>
</tr>
<tr>
<td>Sensor type</td>
<td>IMX250_POL</td>
</tr>
<tr>
<td>Shutter type</td>
<td>Global</td>
</tr>
<tr>
<td>Overlap cap.</td>
<td>Overlapping</td>
</tr>
<tr>
<td>Max. frame rate</td>
<td>37.5 Hz</td>
</tr>
<tr>
<td>Interface type</td>
<td>USB3 Vision</td>
</tr>
</tbody>
</table>

Type of data presented: Single

**Operation point 1 (page 3)**
- Wavelength centroid: 536.0 nm
- Wavelength FWHM: 31.0 nm
- Gain, black-level: 0dB, 0.1

Optional data measured: None
Summary Sheet for Operation Point 1 at a Wavelength of 536 nm

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure control</td>
<td>By irradiance</td>
</tr>
<tr>
<td>Exposure time</td>
<td>3.00 ms</td>
</tr>
<tr>
<td>Frame rate</td>
<td>37.5 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>Mono12</td>
</tr>
<tr>
<td>Gain, black-level</td>
<td>0dB, 0.1</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>24.8°C</td>
</tr>
<tr>
<td>Camera body temperature</td>
<td>43.0°C</td>
</tr>
<tr>
<td>Internal temperature(s)</td>
<td>—</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>536 nm, 31.0 nm</td>
</tr>
</tbody>
</table>

**Photon Transfer**

\[
\eta = 23.3\%
\]

\[
\frac{K}{\sigma_y \cdot \text{dark}} = 0.20 \ \text{e}^- \quad (\text{SNR}_\text{max} = 102)
\]

\[
\left( \frac{1}{1+\frac{1}{\text{SNR}_\text{max}}} \right)^{-1} = 0.98\%
\]

**Absolute sensitivity threshold**

\[
\mu_p, \text{min} = 12.36 \ \text{p}
\]

\[
\mu_p, \text{min.area} = 1.038 \ \text{p}/\mu\text{m}^2
\]

\[
\mu_e, \text{min} = 2.88 \ \text{e}^- 
\]

\[
\mu_e, \text{min.area} = 0.242 \ \text{e}^-/\mu\text{m}^2
\]

**Saturation capacity**

\[
\mu_p, \text{sat} = 44797 \ \text{p}
\]

\[
\mu_p, \text{sat.area} = 3764 \ \text{p}/\mu\text{m}^2
\]

\[
\mu_e, \text{sat} = 10447 \ \text{e}^- 
\]

\[
\mu_e, \text{sat.area} = 878 \ \text{e}^-/\mu\text{m}^2
\]

**Dynamic range**

\[
\text{DR} = 3625
\]

\[
\text{SNR} = 71.2 \ \text{dB}
\]

\[
\text{SNR} = 11.8 \ \text{bit}
\]

**Spatial nonuniformities**

\[
\text{DSNU}_{1288} = 1.27 \ \text{e}^- 
\]

\[
\text{PRNU}_{1288} = 0.47 \ \text{DN}
\]

**Linearity error**

\[
\text{LE}_{\text{min}} = -0.43\% 
\]

\[
\text{LE}_{\text{max}} = 0.47\%
\]

**Dark current**

\[
\mu_c, \text{mean} = 1 \pm 3 \ \text{e}^-/\text{s}
\]

\[
\mu_c, \text{var} = 14 \pm 0 \ \text{e}^-/\text{s}
\]

\[
T_d = -^\circ\text{C}
\]

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