### EMVA 1288 Data Sheet m0721

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 1288 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>mvBlueCOUGAR-X102kG</td>
</tr>
<tr>
<td>Serial number</td>
<td>GX024083</td>
</tr>
<tr>
<td>Sensor diagonal</td>
<td>17.55 mm</td>
</tr>
<tr>
<td>Lens category</td>
<td>C-Mount</td>
</tr>
<tr>
<td>Resolution</td>
<td>1608 x 1104, 12 bit</td>
</tr>
<tr>
<td>Pixel size (h x v)</td>
<td>9.00 µm x 9.00 µm</td>
</tr>
<tr>
<td>Sensor type</td>
<td>IMX432</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>33.4 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: 536.0 nm
- Wavelength FWHM: 31.0 nm
- Gain, black-level: 0dB, 0.1

**Optional data measured**: None

![Quantum Efficiency Graph](graph.png)
Summary Sheet for Operation Point 1 at a Wavelength of 536 nm

Type of data | Single
---|---
Exposure control | By irradiance
Exposure time | 18.00 ms
Frame rate | 32.0 Hz
Data transfer mode | Mono12

Gain, black-level | 0dB, 0.1
Environmental temperature | 27.8°C
Camera body temperature | 51.2°C
Internal temperature(s) | —
Wavelength, centr., FWHM | 536 nm, 31.0 nm

Photon Transfer

Photon transfer m0721, 536 nm, 08.08.2018

Signal-to-Noise Ratio

SNR m0721, 536 nm, 08.08.2018

Quantum efficiency
\[ \eta = 69.6\% \]

Overall system gain
\[ K = 0.044 \text{DN/e}^- \]
\[ 1/K = 22.474 \text{e}^-/\text{DN} \]

Temporal dark noise
\[ \sigma_d = 20.67 \text{e}^- \]
\[ \sigma_y.d = 0.96 \text{DN} \]

Signal-to-noise ratio
\[ \text{SNR}_{\text{max}} = 297 \]
49.5 dB
8.2 bit
1/SNR\text{max} = 0.34 %

Absolute sensitivity threshold
\[ \mu_p.\text{min} = 31.8 \text{p} \]
\[ \mu_p.\text{min.area} = 0.39 \text{p}/\mu\text{m}^2 \]
\[ \mu_e.\text{min} = 22.2 \text{e}^- \]
\[ \mu_e.\text{min.area} = 0.27 \text{e}^-/\mu\text{m}^2 \]

Saturation capacity
\[ \mu_p.\text{sat} = 127026 \text{p} \]
\[ \mu_p.\text{sat.area} = 1568 \text{p}/\mu\text{m}^2 \]
\[ \mu_e.\text{sat} = 88422 \text{e}^- \]
\[ \mu_e.\text{sat.area} = 1092 \text{e}^-/\mu\text{m}^2 \]

Dynamic range
\[ \text{DR} = 3989 \]
72.0 dB
12.0 bit

Spatial nonuniformities
\[ \text{DSNU}_{1288} = 3.04 \text{e}^- \]
0.14 DN
\[ \text{PRNU}_{1288} = 1.71 \% \]

Linearity error
\[ \text{LE}_{\text{min}} = -0.37\% \]
\[ \text{LE}_{\text{max}} = 0.64\% \]

Dark current
\[ \mu_c.\text{mean} = -105 \pm 22 \text{e}^-/\text{s} \]
\[ -4.7 \text{DN/s} \]
\[ \mu_c.\text{var} = -24 \pm 37 \text{e}^-/\text{s} \]
\[ T_d = \text{°C} \]