EMVA 1288 Data Sheet m0805

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 and the zenodo EMVA 1288 community 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
### Summary Sheet for Operation Point 1 at a Wavelength of 468 nm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of data</td>
<td>Single</td>
</tr>
<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>10.0 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>25.3°C</td>
</tr>
<tr>
<td>Camera body temperature</td>
<td>26.9°C</td>
</tr>
<tr>
<td>Internal temperature(s)</td>
<td>—</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>468 nm, 20.0 nm</td>
</tr>
</tbody>
</table>

### Photon Transfer

#### Photon transfer m0805, 468 nm, 03.05.2019

- **Blue data**
- **Blue fit**
- **Variance digital - dark value (DN^2)**
  - **Mean - dark value (DN)**
  - **Blue: variance dark = 0.72 DN^2, K = 0.374 ± 0.0%**
- **Saturation**

### Signal-to-Noise Ratio

#### SNR m0805, 468 nm, 03.05.2019

- **SNR**
- **Mean - dark value (DN)**
- **Blue fit total**
- **Saturation**
- **Threshold SNR = 1**

### Quantum efficiency

- **η** = 15.0%

### Overall system gain

- **K** = 0.374 DN/e^-
- **1/K** = 2.675 e^-/DN

### Temporal dark noise

- **σ_d** = 2.13 e^-
- **σ_y.dark** = 0.85 DN

### Signal-to-noise ratio

- **SNR_{max}** = 103
- **SNR_{max}** = 40.2 dB
- **SNR_{max}** = 6.7 bit
- **1/SNR_{max}** = 0.98%

### Absolute sensitivity threshold

- **μp.min** = 18.79 p
- **μp.min.area** = 1.579 p/μm^2
- **μe.min** = 2.82 e^-/μm^2
- **μe.min.area** = 0.237 e^-/μm^2

### Saturation capacity

- **μp.sat** = 7009 p
- **μp.sat.area** = 5682 p/μm^2
- **μe.sat** = 10515 e^-/μm^2
- **μe.sat.area** = 883 e^-/μm^2

### Dynamic range

- **DR** = 3725
- **DR** = 71.4 dB
- **DR** = 11.9 bit

### Spatial nonuniformities

- **DSNU_{1288}** = 0.68 e^-/DN
- **PRNU_{1288}** = 0.86%

### Linearity error

- **LE_{min}** = -0.47%
- **LE_{max}** = 1.26%

### Dark current

- **μc.mean** = 1 ± 2 e^-/s
- **μc.mean** = 0.5 DN/s
- **μc.var** = 10 ± 0 e^-/s
- **T_d** = — °C
Summary Sheet for Operation Point 2 at a Wavelength of 535 nm

Type of data: Single
Exposure control: By irradiance
Exposure time: 3.00 ms
Frame rate: 10.0 Hz
Data transfer mode: Mono12

Gain, black-level: 0dB, 0.1
Environmental temperature: 25.4°C
Camera body temperature: 26.9°C
Internal temperature(s): —
Wavelength, centr., FWHM: 535 nm, 31.0 nm

Photon Transfer

Signal-to-Noise Ratio

Quantum efficiency
η = 19.8%

Overall system gain
K = 0.374 DN/e-
1/K = 2.673 e-/DN

Temporal dark noise
σ_d = 2.13 e-
σ_y,dark = 0.85 DN

Signal-to-noise ratio
SNR_max = 102
40.2 dB
6.7 bit
1/SNR_max = 0.98%

Absolute sensitivity threshold
μ_p.min = 14.20 p
μ_p.min.area = 1.193 p/μm²
μ_e.min = 2.82 e-
μ_e.min.area = 0.237 e-/μm²

Saturation capacity
μ_p.sat = 52685 p
μ_p.sat.area = 4426 p/μm²
μ_e.sat = 10456 e-
μ_e.sat.area = 878 e-/μm²

Dynamic range
DR = 3711
71.4 dB
11.9 bit

Spatial nonuniformities
DSNU_1288 = 0.76 e-
PRNU_1288 = 0.28 DN

Linearity error
LE_min = -0.47%
LE_max = 0.79%

Dark current
μ_c.mean = 1 ± 2 e-/s
μ_c.var = 10 ± 0 e-/s
T_d = — °C
Summary Sheet for Operation Point 3 at a Wavelength of 630 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>10.0 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>25.4°C</td>
</tr>
<tr>
<td>Camera body temperature</td>
<td>26.9°C</td>
</tr>
<tr>
<td>Internal temperature(s)</td>
<td>—</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>630 nm, 13.0 nm</td>
</tr>
</tbody>
</table>

### Photon Transfer

#### Photon Transfer m0805, 630 nm, 03.05.2019

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>red data</td>
<td></td>
</tr>
<tr>
<td>red fit</td>
<td></td>
</tr>
<tr>
<td>saturation</td>
<td></td>
</tr>
</tbody>
</table>

### Signal-to-Noise Ratio

#### SNR m0805, 630 nm, 03.05.2019

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>threshold SNR = 1</td>
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</tr>
<tr>
<td>red fit total</td>
<td></td>
</tr>
<tr>
<td>saturation</td>
<td></td>
</tr>
</tbody>
</table>

### Quantum efficiency

- **η** 18.8%

### Overall system gain

- **K** 0.374 DN/e⁻
- **1/K** 2.672 e⁻/DN

### Temporal dark noise

- **σ_d** 2.13 e⁻
- **σ_y,dark** 0.85 DN

### Signal-to-noise ratio

- **SNR_{max}** 103
- **1/SNR_{max}** 0.98%

### Absolute sensitivity threshold

- **µ_p.min** 14.99 p
- **µ_p.min.area** 1.259 p/µm²
- **µ_e.min** 2.82 e⁻
- **µ_e.min.area** 0.237 e⁻/µm²

### Saturation capacity

- **µ_p.sat** 55865 p
- **µ_p.sat.area** 4694 p/µm²
- **µ_e.sat** 10507 e⁻
- **µ_e.sat.area** 883 e⁻/µm²

### Dynamic range

- **DR** 3727
- 71.4 dB
- 11.9 bit

### Spatial nonuniformities

- **DSNU_{1288}** 0.86 e⁻
- 0.32 DN
- **PRNU_{1288}** 0.92%

### Linearity error

- **LE_{min}** -0.24%
- **LE_{max}** 0.50%

### Dark current

- **µ_c.mean** 1 ± 2 e⁻/s
- 0.5 DN/s
- **µ_c.var** 10 ± 0 e⁻/s
- **T_d** — °C