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>mvBlueFOX3-1013C</td>
</tr>
<tr>
<td>Serial number</td>
<td>F0700031</td>
</tr>
<tr>
<td>Sensor diagonal</td>
<td>8.69 mm</td>
</tr>
<tr>
<td>Lens category</td>
<td>C-Mount</td>
</tr>
<tr>
<td>Resolution</td>
<td>1280 × 1024, 10 bit</td>
</tr>
<tr>
<td>Pixel size</td>
<td>5.30 μm × 5.30 μm</td>
</tr>
<tr>
<td>Sensor type</td>
<td>CMOS</td>
</tr>
<tr>
<td>Shutter type</td>
<td>global</td>
</tr>
<tr>
<td>Overlap capabilities</td>
<td>pipelined</td>
</tr>
<tr>
<td>Maximum frame rate</td>
<td>60.6 Hz</td>
</tr>
<tr>
<td>Interface type</td>
<td>USB3 Vision</td>
</tr>
</tbody>
</table>

Type of data presented | Single

**Operation point 1, (page 5)**
- Wavelength centroid: 467.3 nm
- Wavelength FWHM: 20.5 nm
- Gain, offset: Gain = 0 dB, Offset = 17.0

**Operation point 2, (page 17)**
- Wavelength centroid: 534.2 nm
- Wavelength FWHM: 30.9 nm
- Gain, offset: Gain = 0 dB, Offset = 17.0

**Operation point 3, (page 29)**
- Wavelength centroid: 629.5 nm
- Wavelength FWHM: 13.1 nm
- Gain, offset: Gain = 0 dB, Offset = 17.0

Optional data measured: None

[Graph showing spectral sensitivity]
EMVA 1288 Summary Sheet for Operating Point 1

Type of data: Single
Exposure time: 9.0 ms
Frame rate: 0.0 Hz
Data transfer mode: BayerGR10

Gain, offset
Gain = 0 dB, Offset = 17.0
Environmental temperature
Temperature: 26.0°C
Camera temperature
Temperature: 33.5°C
Wavelength, centr., FWHM
Wavelength: 467 nm, 20.5 nm

Quantum efficiency
\( \eta = 0.428 \)

Gain
\( K \) (DN/e) = 0.092
\( 1/K \) (e/DN) = 10.812

Dark noise & DSNU
\( \sigma_d \) (DN) = 2.44
\( \sigma_0 \) (e) = 26.2
DSNU_{1288} (DN) = 6.27
DSNU_{1288} (e) = 67.83

Signal-to-noise ratio & PRNU
SNR_{max} = 102
SNR_{max} (dB) = 40.2
SNR_{max} (bits) = 6.7
1/SNR_{max} (%) = 0.98
PRNU_{1288} (%) = 1.228

Nonlinearity
LE (%) = 0.50

Sensitivity & saturation
\( \mu_{p,\text{min}} \) (p) = 63.0
\( \mu_{e,\text{min}} \) (e) = 26.9
\( \mu_{p,\text{sat}} \) (p) = 24416
\( \mu_{e,\text{sat}} \) (e) = 10443

Dynamic range
DR = 388
DR (dB) = 51.8
DR (bit) = 8.6

Dark current
\( \mu_{c,\text{mean}} \) (DN/s) = 205.48
\( \mu_{c,\text{mean}} \) (e/s) = 2221.75
\( \mu_{c,\text{var}} \) (e/s) = 172.30

Photon transfer
m0408, 467nm, 23.06.2015

SNR m0408, 467nm, 23.06.2015
# EMVA 1288 Summary Sheet for Operating Point 2

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Single</th>
<th>Gain, offset</th>
<th>Gain = 0dB, Offset = 17.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>9.0 ms</td>
<td>Environmental temperature</td>
<td>26.0°C</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
<td>Camera temperature</td>
<td>33.5°C</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerGR10</td>
<td>Wavelength, centr., FWHM</td>
<td>534 nm, 30.9 nm</td>
</tr>
</tbody>
</table>

## Photon transfer

![Phonon transfer](image)

**Photon transfer m0408, 534nm, 23.06.2015**

- **green1 data**
- **green2 data**
- **green1 fit**
- **green2 fit**

**Data Analysis**

**Gain**

- $K$ (DN/e) = 0.092
- $1/K$ (e/DN) = 10.890

**Dark noise & DSNU**

- $\sigma_d$ (DN) = 2.43
- $\sigma_0$ (e) = 26.2
- $DSNU_{1288}$ (DN) = 6.27
- $DSNU_{1288}$ (e) = 68.33

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

- $SNR_{max}$ = 103
- $SNR_{max}$ (dB) = 40.3
- $SNR_{max}$ (bits) = 6.7
- $1/SNR_{max}$ (%) = 0.97
- PRNU1288 (%) = 2.033

**Nonlinearity**

- LE (%) = 0.59

**Sensitivity & saturation**

- $\mu_p,\text{min}$ (p) = 61.8
- $\mu_e,\text{min}$ (e) = 26.9
- $\mu_p,\text{sat}$ (p) = 24456
- $\mu_e,\text{sat}$ (e) = 10652

**Dynamic range**

- DR = 396
- DR (dB) = 51.9
- DR (bit) = 8.6

**Dark current**

- $\mu_c,\text{mean}$ (DN/s) = 205.82
- $\mu_c,\text{mean}$ (e/s) = 2241.37
- $\mu_c,\text{var}$ (e/s) = 181.97

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**Quantum efficiency**

- $\eta$ = 0.436
EMVA 1288 Summary Sheet for Operating Point 3

<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 time</td>
<td>9.0 ms</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerGR10</td>
</tr>
<tr>
<td>Gain, Offset</td>
<td>Gain = 0dB, Offset = 17.0</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>26.0°C</td>
</tr>
<tr>
<td>Camera temperature</td>
<td>33.5°C</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>630 nm, 13.1 nm</td>
</tr>
</tbody>
</table>

**Photon transfer**

\[
\eta = 0.410
\]

\[
K (\text{DN/e}) = 0.091
\]

\[
1/K (\text{e/DN}) = 10.971
\]

**Dark noise & DSNU**

\[
\sigma_d (\text{DN}) = 2.44
\]

\[
\sigma_0 (\text{e}) = 26.6
\]

\[
\text{DSNU}_{1288} (\text{DN}) = 6.30
\]

\[
\text{DSNU}_{1288} (\text{e}) = 69.06
\]

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

\[
\text{SNR}_{\text{max}} = 103
\]

\[
\text{SNR}_{\text{max}} (\text{dB}) = 40.3
\]

\[
\text{SNR}_{\text{max}} (\text{bits}) = 6.7
\]

\[
1/\text{SNR}_{\text{max}} (%) = 0.97
\]

\[
\text{PRNU}_{1288} (%) = 2.528
\]

**Nonlinearity**

\[
\text{LE} (%) = 0.62
\]

**Sensitivity & saturation**

\[
\mu_{p,\text{min}} (\text{p}) = 66.5
\]

\[
\mu_{e,\text{min}} (\text{e}) = 27.3
\]

\[
\mu_{p,\text{sat}} (\text{p}) = 25857
\]

\[
\mu_{e,\text{sat}} (\text{e}) = 10608
\]

**Dynamic range**

\[
\text{DR} = 389
\]

\[
\text{DR} (\text{dB}) = 51.8
\]

\[
\text{DR} (\text{bit}) = 8.6
\]

**Dark current**

\[
\mu_{c,\text{mean}} (\text{DN/s}) = 206.79
\]

\[
\mu_{c,\text{mean}} (\text{e/s}) = 2268.62
\]

\[
\mu_{c,\text{var}} (\text{e/s}) = 256.67
\]