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.

Vendor: MATRIX VISION
Model: mvBlueFOX3-1012bC
Serial number: F0300057
Sensor diagonal: 6.00 mm
Lens category: C-Mount
Resolution: 1280 × 960, 10 bit
Pixel size: 3.75 µm × 3.75 µm
Sensor type: CMOS
Shutter type: Global
Overlap capabilities: Overlapping
Maximum frame rate: 40.6 Hz
Interface type: USB3 Vision

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 = 0.8

Operation point 2, (page 17)
Wavelength centroid: 534.2 nm
Wavelength FWHM: 30.9 nm
Gain, offset: Gain = 0 dB, Offset = 0.8

Operation point 3, (page 29)
Wavelength centroid: 629.5 nm
Wavelength FWHM: 13.1 nm
Gain, offset: Gain = 0 dB, Offset = 0.8

Optional data measured: None

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Spectral sensitivity m0442, 31.07.2015
EMVA 1288 Summary Sheet for Operating Point 1

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>8.0 ms</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerGR10</td>
</tr>
</tbody>
</table>

Gain, offset
Gain = 0 dB, Offset = 0.8

Environmental temperature
26.8°C

Camera temperature
35.0°C

Wavelength, centr., FWHM
467 nm, 20.5 nm

Quantum efficiency
η = 0.515

Gain
K (DN/e) = 0.176
1/K (e/DN) = 5.693

Dark noise & DSNU
σ_d (DN) = 1.36
σ_0 (e) = 7.6
DSNU1288 (DN) = 5.10
DSNU1288 (e) = 29.03

Signal-to-noise ratio & PRNU
SNR_max (dB) = 37.4
SNR_max (bits) = 6.2
1/SNR_max (%) = 1.34
PRNU1288 (%) = 0.828

Nonlinearity
LE (%) = 0.28

Sensitivity & saturation
µ_p,min (p) = 16.1
µ_e,min (e) = 8.3
µ_p,sat (p) = 10768
µ_e,sat (e) = 5545

Dynamic range
DR = 671
DR (dB) = 56.5
DR (bit) = 9.4

Dark current
µ_c,mean (DN/s) = 35.10
µ_c,mean (e/s) = 199.82
µ_c,var (e/s) = 420.00
**EMVA 1288 Summary Sheet for Operating Point 2**

- **Type of data**: Single
- **Exposure time**: 8.0 ms
- **Frame rate**: 0.0 Hz
- **Data transfer mode**: BayerGR10

- **Gain, offset**
  - Gain = 0 dB, Offset = 0.8

- **Environmental temperature**
  - 26.8°C

- **Camera temperature**
  - 35.0°C

- **Wavelength, centr., FWHM**
  - 534 nm, 30.9 nm

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### Photon transfer

**Photon transfer m0442, 534nm, 31.07.2015**

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

- **variance gray - dark value (DN^2)**
  - green1: var(dark) = 1.89 DN^2, K = 0.174 ± 0.1%
  - green2: var(dark) = 1.88 DN^2, K = 0.174 ± 0.1%

- **SNR m0442, 534nm, 31.07.2015**
  - **green1 data**
  - **green2 data**
  - **green1 fit**
  - **green2 fit**
  - **green1 fit total**
  - **green2 fit total**
  - **theor. limit**

- **SNR max**
  - 76

- **SNR max (dB)**
  - 37.6

- **SNR max (bits)**
  - 6.2

- **1/SNR max (%)**
  - 1.32

- **PRNU1288 (%)**
  - 0.967

- **Quantum efficiency**
  - η = 0.571

- **Gain**
  - K (DN/e) = 0.174
  - 1/K (e/DN) = 5.759

- **Dark noise & DSNU**
  - σ_d (DN) = 1.38
  - σ_0 (e) = 7.8
  - DSNU_{1288} (DN) = 5.20
  - DSNU_{1288} (e) = 29.95

- **Signal-to-noise ratio & PRNU**
  - SNR_{max}

- **Nonlinearity**
  - LE (%) = 0.95

- **Sensitivity & saturation**
  - \( \mu_{p,\text{min}} \) (p) = 14.8
  - \( \mu_{e,\text{min}} \) (e) = 8.4
  - \( \mu_{p,\text{sat}} \) (p) = 10030
  - \( \mu_{e,\text{sat}} \) (e) = 5724

- **Dynamic range**
  - DR = 678
  - DR (dB) = 56.6
  - DR (bit) = 9.4

- **Dark current**
  - \( \mu_{c,\text{mean}} \) (DN/s) = 32.10
  - \( \mu_{c,\text{mean}} \) (e/s) = 184.86
  - \( \mu_{c,\text{var}} \) (e/s) = 426.60
EMVA 1288 Summary Sheet for Operating Point 3

Type of data Single
Exposure time 8.0 ms
Frame rate 0.0 Hz
Data transfer mode BayerGR10

Gain, offset
Gain = 0dB, Offset = 0.8

Environmental temperature
26.8°C

Camera temperature
35.0°C

Wavelength, centr., FWHM
630 nm, 13.1 nm

Quantum efficiency
η = 0.493

Gain
K (DN/e) = 0.176
1/K (e/DN) = 5.675

Dark noise & DSNU
σ_d (DN) = 1.39
σ_0 (e) = 7.7
DSNU1288 (DN) = 5.38
DSNU1288 (e) = 30.52

Signal-to-noise ratio & PRNU
SNR_{max} = 74
SNR_{max} (dB) = 37.4
SNR_{max} (bits) = 6.2
1/SNR_{max} (%) = 1.34
PRNU_{1288} (%) = 1.325

Nonlinearity
LE (%) = 0.36

Sensitivity & saturation
μ_{p,min} (p) = 17.1
μ_{e,min} (e) = 8.4
μ_{p,sat} (p) = 11249
μ_{e,sat} (e) = 5550

Dynamic range
DR = 658
DR (dB) = 56.4
DR (bit) = 9.4

Dark current
μ_{c,mean} (DN/s) = 29.19
μ_{c,mean} (e/s) = 165.64
μ_{c,var} (e/s) = 378.47