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 | mvBlueCOUGAR-X120bC
Serial number | GX007986
Sensor diagonal | 7.92 mm
Lens category | C-Mount
Resolution | $640 \times 480$, 12 bit
Pixel size | $9.90 \mu m \times 9.90 \mu m$
Sensor type | CCD
Readout type | Progressive
Transfer type | Interline
Maximum frame rate | 65.0 Hz
Interface type | GigE Vision

Type of data presented | Single

**Operation point 1, (page 5)**
- Wavelength centroid: 467.3 nm
- Wavelength FWHM: 20.5 nm
- Gain, offset: Gain = -6dB, Offset = 0.2

**Operation point 2, (page 10)**
- Wavelength centroid: 534.2 nm
- Wavelength FWHM: 30.9 nm
- Gain, offset: Gain = -6dB, Offset = 0.2

**Operation point 3, (page 15)**
- Wavelength centroid: 629.5 nm
- Wavelength FWHM: 13.1 nm
- Gain, offset: Gain = -6dB, Offset = 0.2

**Optional data measured**
None

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Spectral sensitivity $m0150$, 23.10.2014

- **blue data**
- **green1 data**
- **red data**
- **green2 data**
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>600.0 µs</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerRG12</td>
</tr>
<tr>
<td>Gain, offset</td>
<td>Gain = -6dB, Offset = 0.2</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>25.3°C</td>
</tr>
<tr>
<td>Camera temperature</td>
<td>38.9°C</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>467 nm, 20.5 nm</td>
</tr>
</tbody>
</table>

Quantum efficiency

\[
\eta = 0.335
\]

Gain

\[
K (\text{DN/e}) = 0.103 \\
1/K (e/DN) = 9.707
\]

Dark noise & DSNU

\[
\sigma_d (\text{DN}) = 2.11 \\
\sigma_0 (\text{e}) = 20.2 \\
\text{DSNU}_{1288} (\text{DN}) = — \\
\text{DSNU}_{1288} (\text{e}) = —
\]

Signal-to-noise ratio & PRNU

\[
\text{SNR}_{\text{max}} = 195 \\
\text{SNR}_{\text{max}} (\text{dB}) = 45.8 \\
\text{SNR}_{\text{max}} (\text{bits}) = 7.6 \\
1/\text{SNR}_{\text{max}} (%) = 0.51 \\
\text{PRNU}_{1288} (%) = —
\]

Nonlinearity

\[
\text{LE} (%) = 0.08
\]

Sensitivity & saturation

\[
\mu_{p,\text{min}} (\text{p}) = 62.6 \\
\mu_{e,\text{min}} (\text{e}) = 20.9 \\
\mu_{p,\text{sat}} (\text{p}) = 113822 \\
\mu_{e,\text{sat}} (\text{e}) = 38098
\]

Dynamic range

\[
\text{DR} = 1819 \\
\text{DR (dB)} = 65.2 \\
\text{DR (bit)} = 10.8
\]

Dark current

\[
\mu_{c,\text{mean}} (\text{DN/s}) = — \\
\mu_{c,\text{mean}} (\text{e/s}) = — \\
\mu_{c,\text{var}} (\text{e/s}) = —
\]
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 = -6dB, Offset = 0.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>600.0 μs</td>
<td>Environmental temperature</td>
<td>25.3°C</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
<td>Camera temperature</td>
<td>38.9°C</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerRG12</td>
<td>Wavelength, centr., FWHM</td>
<td>534 nm, 30.9 nm</td>
</tr>
</tbody>
</table>

**Quantum efficiency**

\[ \eta = 0.305 \]

**Gain**

\[ K (DN/e) = 0.102 \]
\[ 1/K (e/DN) = 9.804 \]

**Dark noise & DSNU**

\[ \sigma_d (DN) = 2.13 \]
\[ \sigma_0 (e) = 20.7 \]

DSNU1288 (DN) —

DSNU1288 (e) —

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

\[ SNR_{max} = 197 \]
\[ SNR_{max} (dB) = 45.9 \]
\[ SNR_{max} (bits) = 7.6 \]
\[ 1/SNR_{max} (%) = 0.51 \]

PRNU1288 (%) —

**Nonlinearity**

\[ LE (\%) = 0.26 \]

**Sensitivity & saturation**

\[ \mu_{p, min} (p) = 70.2 \]
\[ \mu_{e, min} (e) = 21.4 \]
\[ \mu_{p, sat} (p) = 127061 \]
\[ \mu_{e, sat} (e) = 38730 \]

**Dynamic range**

\[ DR = 1811 \]
\[ DR (dB) = 65.2 \]
\[ DR (bit) = 10.8 \]

**Dark current**

\[ \mu_{c, mean} (DN/s) — \]
\[ \mu_{c, mean} (e/s) — \]
\[ \mu_{c, var} (e/s) — \]
EMVA 1288 Summary Sheet for Operating Point 3

Type of data  Single
Exposure time  600.0 µs
Frame rate  0.0 Hz
Data transfer mode  BayerRG12

Gain, offset  Gain = -6dB, Offset = 0.2
Environmental temperature  25.3°C
Camera temperature  38.9°C
Wavelength, centr., FWHM  630 nm, 13.1 nm

Quantum efficiency
η  0.258

Gain
K (DN/e)  0.101
1/K (e/DN)  9.873

Dark noise & DSNU
σ_d (DN)  2.12
σ_0 (e)  20.7
DSNU1288 (DN) —
DSNU1288 (e) —

Signal-to-noise ratio & PRNU
SNR_max  199
SNR_max (dB)  46.0
SNR_max (bits)  7.6
1/SNR_max (%)  0.50
PRNU1288 (%) —

Nonlinearity
LE (%)  0.36

Sensitivity & saturation
μ_p, min (p)  82.9
μ_e, min (e)  21.4
μ_p, sat (p)  152854
μ_e, sat (e)  39462

Dynamic range
DR  1843
DR (dB)  65.3
DR (bit)  10.8

Dark current
μ_c, mean (DN/s) —
μ_c, mean (e/s) —
μ_c, var (e/s) —