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-X104bC  
Serial number: GX010581  
Sensor diagonal: 15.93 mm  
Lens category: C-Mount  
Resolution: 2048 × 2048, 10 bit  
Pixel size: 5.50 µm × 5.50 µm  
Sensor type: CMOS  
Shutter type: Global  
Overlap capabilities: Overlapping  
Maximum frame rate: 14.2 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 = 0dB, Offset = 0.25  
Operation point 2, (page 17)  
Wavelength centroid: 534.2 nm  
Wavelength FWHM: 30.9 nm  
Gain, offset: Gain = 0dB, Offset = 0.25  
Operation point 3, (page 29)  
Wavelength centroid: 629.5 nm  
Wavelength FWHM: 13.1 nm  
Gain, offset: Gain = 0dB, Offset = 0.25  
Optional data measured: None

Spectral sensitivity m0437, 24.07.2015

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EMVA 1288 Summary Sheet for Operating Point 1

<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>7.0 ms</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerGB10</td>
</tr>
<tr>
<td>Gain, offset</td>
<td>Gain = 0dB, Offset = 0.25</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>28.0°C</td>
</tr>
<tr>
<td>Camera temperature</td>
<td>40.0°C</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>467 nm, 20.5 nm</td>
</tr>
<tr>
<td>Gain</td>
<td>0.121</td>
</tr>
<tr>
<td>Offset</td>
<td>0.121</td>
</tr>
<tr>
<td>SNR max</td>
<td>89</td>
</tr>
<tr>
<td>SNR max (dB)</td>
<td>39.0</td>
</tr>
<tr>
<td>SNR max (bits)</td>
<td>6.5</td>
</tr>
<tr>
<td>1/SNR max (%)</td>
<td>1.12</td>
</tr>
<tr>
<td>PRNU1288 (%)</td>
<td>1.420</td>
</tr>
<tr>
<td>Quantum efficiency η</td>
<td>0.399</td>
</tr>
<tr>
<td>Dark current µc,mean (DN/s)</td>
<td>32.14</td>
</tr>
<tr>
<td>Dark current µc,mean (e/s)</td>
<td>265.89</td>
</tr>
<tr>
<td>Dark current µc,var (e/s)</td>
<td>977.90</td>
</tr>
<tr>
<td>SNR max (%)</td>
<td>1.12</td>
</tr>
<tr>
<td>Nonlinearity LE (%)</td>
<td>0.49</td>
</tr>
<tr>
<td>Photon transfer m0437, 467nm, 24.07.2015</td>
<td></td>
</tr>
<tr>
<td>SNR m0437, 467nm, 24.07.2015</td>
<td></td>
</tr>
</tbody>
</table>
EMVA 1288 Summary Sheet for Operating Point 2

Type of data: Single  
Exposure time: 7.0 ms  
Frame rate: 0.0 Hz  
Data transfer mode: BayerGB10

Gain, offset:  
Gain = 0dB, Offset = 0.25  

Environmental temperature:  
28.0°C  

Camera temperature:  
40.0°C  

Wavelength, centr., FWHM:  
534 nm, 30.9 nm

Quantum efficiency:  
\(\eta\) = 0.397

Gain:  
\(K\) (DN/e) = 0.119  
1/K (e/DN) = 8.384

Dark noise & DSNU:  
\(\sigma_d\) (DN) = 1.36  
\(\sigma_0\) (e) = 11.1  
DSNU1288 (DN) = 1.86  
DSNU1288 (e) = 15.59

Signal-to-noise ratio & PRNU:  
SNR\(_{\text{max}}\) = 90  
SNR\(_{\text{max}}\) (dB) = 39.1  
SNR\(_{\text{max}}\) (bits) = 6.5  
1/SNR\(_{\text{max}}\) (%) = 1.11  
PRNU1288 (%) = 1.162

Nonlinearity:  
LE (%) = 0.51

Sensitivity & saturation:  
\(\mu_p,\text{min}\) (p) = 30.0  
\(\mu_e,\text{min}\) (e) = 11.9  
\(\mu_p,\text{sat}\) (p) = 20589  
\(\mu_e,\text{sat}\) (e) = 8168

Dynamic range:  
DR = 686  
DR (dB) = 56.7  
DR (bit) = 9.4

Dark current:  
\(\mu_c,\text{mean}\) (DN/s) = 32.09  
\(\mu_c,\text{mean}\) (e/s) = 269.06  
\(\mu_c,\text{var}\) (e/s) = 1017.21
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>7.0 ms</td>
</tr>
<tr>
<td>Frame rate</td>
<td>0.0 Hz</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>BayerGB10</td>
</tr>
<tr>
<td>Gain, offset</td>
<td>Gain: 0 dB, Offset: 0.25</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>28.0°C</td>
</tr>
<tr>
<td>Camera temperature</td>
<td>40.0°C</td>
</tr>
<tr>
<td>Wavelength, centr., FWHM</td>
<td>630 nm, 13.1 nm</td>
</tr>
</tbody>
</table>

### Photon transfer m0437, 630nm, 24.07.2015

- **Red data**
  - Red fit: $\text{Var(dark)} = 1.99\,\text{DN}^2$, $K = 0.117 \pm 0.4\%$

### SNR m0437, 630nm, 24.07.2015

- **Red data**
  - Red fit: Theoretical limit
  - SNR max: 91 dB, 39.2 bits
  - 1/SNR max: 1.09\%
  - PRNU1288: 1.379\%
  - LE: 0.53\%
  - Dynamic range: 667
  - Dark current: $\mu_c, \text{mean (DN/s)} = 32.14$, $\mu_c, \text{mean (e/s)} = 274.05$, $\mu_c, \text{var (e/s)} = 1030.51$