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: mvBlueFOX3-2051C
Serial number: FF000169
Sensor diagonal: 11.07 mm
Lens category: C-Mount
Resolution: 2464 × 2056, 12 bit
Pixel size: 3.45 µm × 3.45 µm
Sensor type: CMOS
Shutter type: Global
Overlap capabilities: Overlapping
Maximum frame rate: 35.0 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 = 0.1

**Operation point 2, (page 17)**
Wavelength centroid: 534.2 nm
Wavelength FWHM: 30.9 nm
Gain, offset: Gain = 0 dB, Offset = 0.1

**Operation point 3, (page 29)**
Wavelength centroid: 629.5 nm
Wavelength FWHM: 13.1 nm
Gain, offset: Gain = 0 dB, Offset = 0.1

Optional data measured: None

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**Spectral sensitivity m0479, 02.11.2015**

![Spectral sensitivity graph](image-url)
EMVA 1288 Summary Sheet for Operating Point 1

Type of data  
Exposure time  
Frame rate  
Data transfer mode  
Gain, offset  
Environmental temperature  
Camera temperature  
Wavelength, centr., FWHM

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Quantum efficiency  
\( \eta = 0.459 \)

Gain  
\( K (\text{DN/e}) = 0.368 \)
\( 1/K (\text{e/DN}) = 2.715 \)

Dark noise & DSNU  
\( \sigma_d (\text{DN}) = 0.88 \)
\( \sigma_0 (\text{e}) = 2.3 \)
\( \text{DSNU}_{1288} (\text{DN}) = 0.48 \)
\( \text{DSNU}_{1288} (\text{e}) = 1.30 \)

Signal-to-noise ratio & PRNU  
\( \text{SNR}_{\text{max}} = 104 \)
\( \text{SNR}_{\text{max}} (\text{dB}) = 40.3 \)
\( \text{SNR}_{\text{max}} (\text{bits}) = 6.7 \)
\( 1/\text{SNR}_{\text{max}} (%) = 0.96 \)
\( \text{PRNU}_{1288} (%) = 0.549 \)

Nonlinearity  
\( \text{LE} (%) = 0.17 \)

Sensitivity & saturation  
\( \mu_{p,\text{min}} (\text{p}) = 6.4 \)
\( \mu_{e,\text{min}} (\text{e}) = 2.9 \)
\( \mu_{p,\text{sat}} (\text{p}) = 23457 \)
\( \mu_{e,\text{sat}} (\text{e}) = 10772 \)

Dynamic range  
\( \text{DR} = 3656 \)
\( \text{DR (dB)} = 71.3 \)
\( \text{DR (bit)} = 11.8 \)

Dark current  
\( \mu_{c,\text{mean}} (\text{DN/s}) = 4.50 \)
\( \mu_{c,\text{mean}} (\text{e/s}) = 12.23 \)
\( \mu_{c,\text{var}} (\text{e/s}) = 12.81 \)
EMVA 1288 Summary Sheet for Operating Point 2

Type of data: Single
Exposure time: 1.3 ms
Frame rate: 0.0 Hz
Data transfer mode: BayerRG12

Gain, offset
Gain = 0dB, Offset = 0.1

Environmental temperature
25.7°C

Camera temperature
37.4°C

Wavelength, centr., FWHM
534 nm, 30.9 nm

Photon transfer m0479, 534nm, 02.11.2015
green1 data
green2 data
green1 fit
green2 fit

vvariance gray - dark value (DN^2)
0 200 400 600 800

gray value - dark value (DN)
0 1.000 2.000 3.000 4.000

green1: var(dark) = 0.78 DN^2, K = 0.369 +-0.1%
green2: var(dark) = 0.77 DN^2, K = 0.369 +-0.1%

SNR m0479, 534nm, 02.11.2015
green1 data
green2 data
green1 fit
green2 fit
green1 fit total
green2 fit total

saturation
threshold SNR = 1

γ = 0.578

Gain
K (DN/e) 0.369
1/K (e/DN) 2.713

Dark noise & DSNU
σd (DN) 0.88
σ0 (e) 2.3
DSNU_{1288} (DN) 0.48
DSNU_{1288} (e) 1.29

Signal-to-noise ratio & PRNU
SNR_{max} 103
SNR_{max} (dB) 40.3
SNR_{max} (bits) 6.7
1/SNR_{max} (%) 0.97
PRNU_{1288} (%) 0.554

Nonlinearity
LE (%) 0.20

Sensitivity & saturation
μ_p, min (p) 5.1
μ_e, min (e) 2.9
μ_p, sat (p) 18478
μ_e, sat (e) 10680

Dynamic range
DR 3624
DR (dB) 71.2
DR (bit) 11.8

Dark current
μ_c, mean (DN/s) 4.45
μ_c, mean (e/s) 12.07
μ_c, var (e/s) 12.64
EMVA 1288 Summary Sheet for Operating Point 3

Type of data: Single
Exposure time: 1.3 ms
Frame rate: 0.0 Hz
Data transfer mode: BayerRG12

Gain, offset: Gain = 0dB, Offset = 0.1
Environmental temperature: 25.7°C
Camera temperature: 37.4°C
Wavelength, centr., FWHM: 630 nm, 13.1 nm

Quantum efficiency: \( \eta = 0.459 \)
Gain: \( K = 0.369 \pm 0.1\% \)

Dark noise & DSNU:
\( \sigma_d \) (DN): 0.88
\( \sigma_0 \) (e): 2.3
DSNU\(_{1288}\) (DN): 0.49
DSNU\(_{1288}\) (e): 1.32

Signal-to-noise ratio & PRNU:
SNR\(_{\max}\) (DN): 104
SNR\(_{\max}\) (dB): 40.3
SNR\(_{\max}\) (bits): 6.7
1/SNR\(_{\max}\) (%): 0.97
PRNU\(_{1288}\) (%): 0.578

Nonlinearity: LE (%): 0.28

Sensitivity & saturation:
\( \mu_{p,\min} \) (p): 6.4
\( \mu_{e,\min} \) (e): 2.9
\( \mu_{p,\sat} \) (p): 23387
\( \mu_{e,\sat} \) (e): 10725

Dynamic range:
DR: 3643
DR (dB): 71.2
DR (bit): 11.8

Dark current:
\( \mu_{c,\mean} \) (DN/s): 4.58
\( \mu_{c,\mean} \) (e/s): 12.40
\( \mu_{c,var} \) (e/s): 12.64