

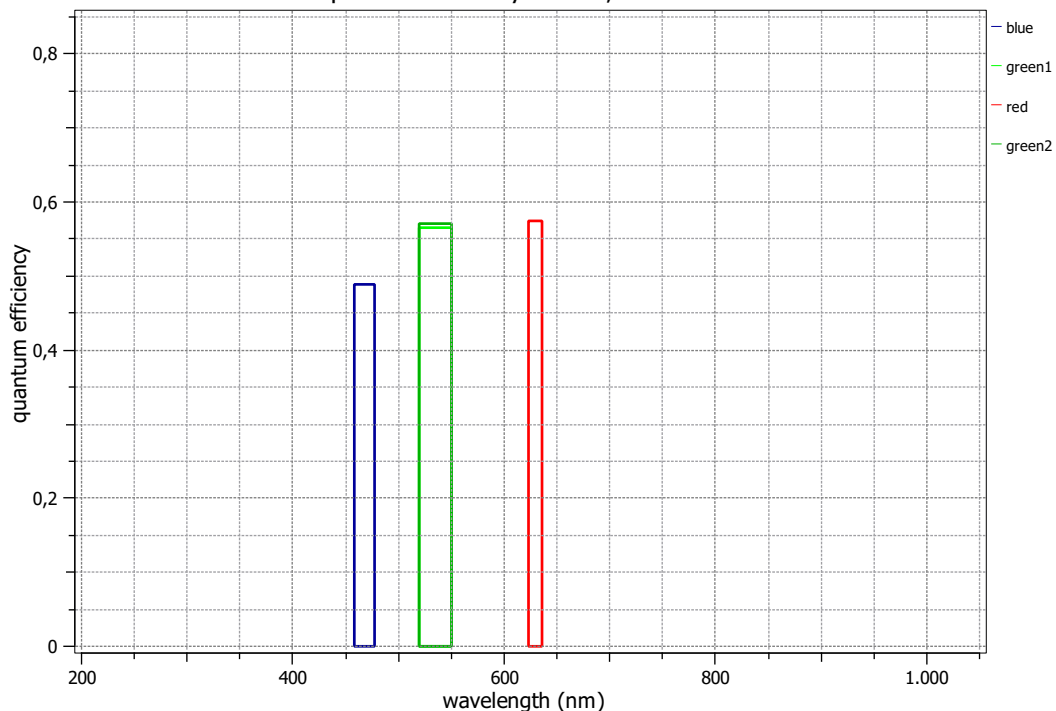
## EMVA 1288 Data Sheet m0931

This datasheet describes the specification according to the standard 1288 release 3.1 for "Characterization and Presentation of Specification Data for Image Sensors and Cameras" issued on December 30, 2016 by the European Machine Vision Association (EMVA), published at [www.standard1288.org](http://www.standard1288.org) and the *zenodo EMVA 1288 community* with proprietary extensions from AEON. The measurements were performed with the AEON ACC3 Release 6, 26.11.2016, SN 0005(MatrixVision).

Measurements performed by T.Renner, Matrix Vision GmbH

Vendor	MATRIX VISION	VI-	Type of data presented	Single
Model	mvBlueFOX-IGC202vC		<b>Operation point 1 (page 5)</b>	
Serial number	58700016		Wavelength centroid	468.0 nm
Sensor diagonal	6.00 mm		Wavelength FWHM	20.0 nm
Lens category	C-Mount		Gain, black-level	0dB, 22
Resolution	1280 × 960, 10 bit		<b>Operation point 2 (page 19)</b>	
Pixel size (h×v)	3.75 μm × 3.75 μm		Wavelength centroid	535.0 nm
Sensor	AR0135		Wavelength FWHM	31.0 nm
Sensor type	CMOS		Gain, black-level	0dB, 22
Shutter type	Global		<b>Operation point 3 (page 33)</b>	
Overlap cap.	Overlapping		Wavelength centroid	630.0 nm
Max. frame rate	18.0 Hz		Wavelength FWHM	13.0 nm
Interface type	mvIMPACT acquire	ac-	Gain, black-level	0dB, 22
			<b>Optional data measured</b>	
			None	

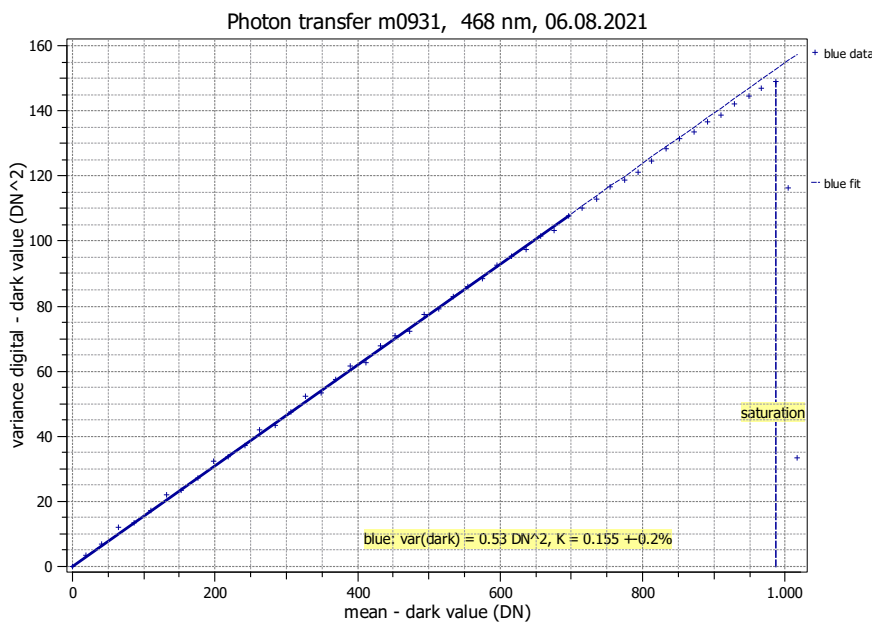
Spectral sensitivity m0930, 06.08.2021



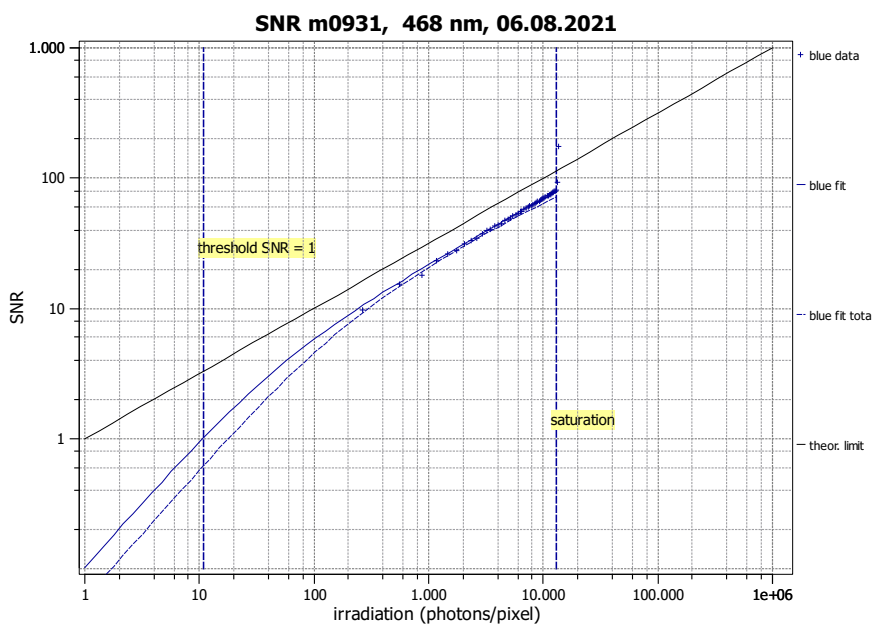
## Summary Sheet for Operation Point 1 at a Wavelength of 468 nm

Type of data	Single	Gain, black-level	0dB, 22
Exposure control	By irradiance	Environmental temperature	22.9°C
Exposure time	10.00 ms	Camera body temperature	24.2°C
Frame rate	18.0 Hz	Internal temperature(s)	—
Data transfer mode	Mono10	Wavelength, centr., FWHM	468 nm, 20.0 nm

### Photon Transfer



### Signal-to-Noise Ratio



#### Quantum efficiency

$\eta$  48.8%

#### Overall system gain

$K$  0.155 DN/e<sup>-</sup>

$1/K$  6.462 e<sup>-</sup>/DN

#### Temporal dark noise

$\sigma_d$  4.34 e<sup>-</sup>

$\sigma_{y,\text{dark}}$  0.73 DN

#### Signal-to-noise ratio

SNR<sub>max</sub> 80

38.0 dB

6.3 bit

$1/\text{SNR}_{\text{max}}$  1.25 %

#### Absolute sensitivity threshold

$\mu_{p,\text{min}}$  10.76 p

$\mu_{p,\text{min,area}}$  0.765 p/μm<sup>2</sup>

$\mu_{e,\text{min}}$  5.25 e<sup>-</sup>

$\mu_{e,\text{min,area}}$  0.373 e<sup>-</sup>/μm<sup>2</sup>

#### Saturation capacity

$\mu_{p,\text{sat}}$  13040 p

$\mu_{p,\text{sat,area}}$  927 p/μm<sup>2</sup>

$\mu_{e,\text{sat}}$  6367 e<sup>-</sup>

$\mu_{e,\text{sat,area}}$  453 e<sup>-</sup>/μm<sup>2</sup>

#### Dynamic range

DR 1212

61.7 dB

10.2 bit

#### Spatial nonuniformities

DSNU<sub>1288</sub> 6.78 e<sup>-</sup>

1.05 DN

PRNU<sub>1288</sub> 0.62 %

#### Linearity error

LE<sub>min</sub> -0.50%

LE<sub>max</sub> 0.71%

#### Dark current

$\mu_{c,\text{mean}}$  9 ± 1 e<sup>-</sup>/s

1.4 DN/s

$\mu_{c,\text{var}}$  29 ± 2 e<sup>-</sup>/s

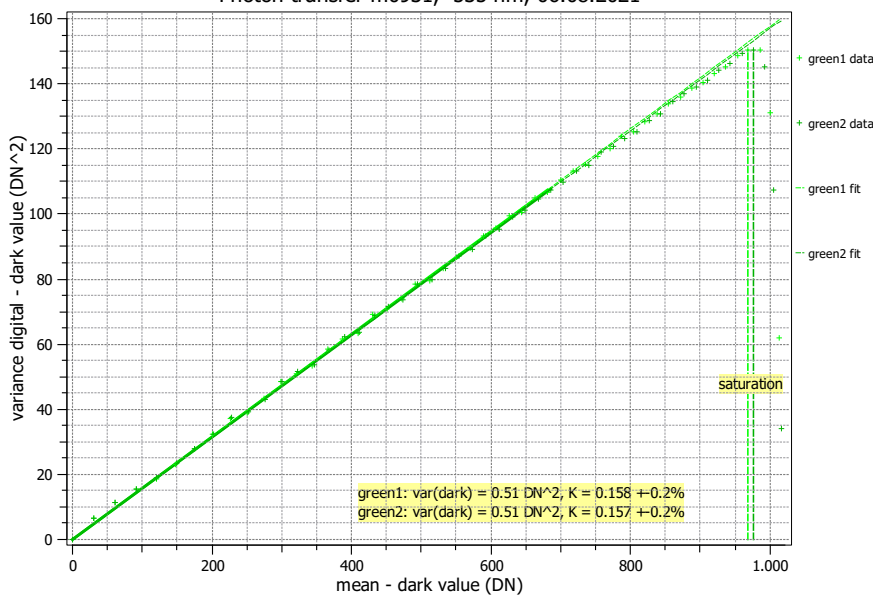
$T_d$  — °C

## Summary Sheet for Operation Point 2 at a Wavelength of 535 nm

Type of data	Single	Gain, black-level	0dB, 22
Exposure control	By irradiance	Environmental temperature	23.0°C
Exposure time	10.00 ms	Camera body temperature	24.0°C
Frame rate	18.0 Hz	Internal temperature(s)	—
Data transfer mode	Mono10	Wavelength, centr., FWHM	535 nm, 31.0 nm

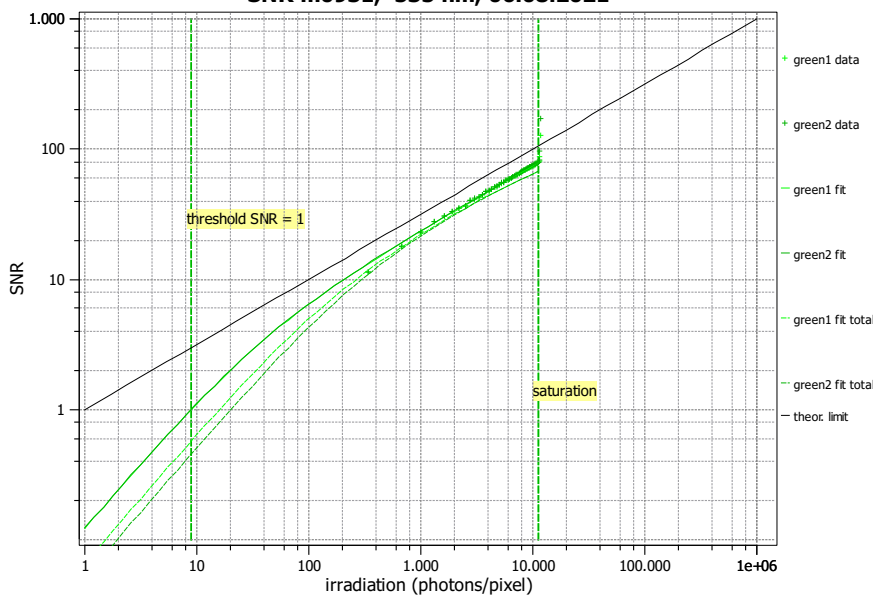
### Photon Transfer

Photon transfer m0931, 535 nm, 06.08.2021



### Signal-to-Noise Ratio

SNR m0931, 535 nm, 06.08.2021



#### Quantum efficiency

$\eta$  56.5%

#### Overall system gain

$K$  0.158 DN/e<sup>-</sup>

$1/K$  6.341 e<sup>-</sup>/DN

#### Temporal dark noise

$\sigma_d$  4.15 e<sup>-</sup>

$\sigma_{y,\text{dark}}$  0.71 DN

#### Signal-to-noise ratio

$\text{SNR}_{\text{max}}$  79

38.0 dB

6.3 bit

$1/\text{SNR}_{\text{max}}$  1.26 %

#### Absolute sensitivity threshold

$\mu_{p,\text{min}}$  8.96 p

$\mu_{p,\text{min},\text{area}}$  0.637 p/ $\mu\text{m}^2$

$\mu_{e,\text{min}}$  5.06 e<sup>-</sup>

$\mu_{e,\text{min},\text{area}}$  0.360 e<sup>-</sup>/ $\mu\text{m}^2$

#### Saturation capacity

$\mu_{p,\text{sat}}$  11175 p

$\mu_{p,\text{sat},\text{area}}$  795 p/ $\mu\text{m}^2$

$\mu_{e,\text{sat}}$  6309 e<sup>-</sup>

$\mu_{e,\text{sat},\text{area}}$  449 e<sup>-</sup>/ $\mu\text{m}^2$

#### Dynamic range

DR 1247

61.9 dB

10.3 bit

#### Spatial nonuniformities

$\text{DSNU}_{1288}$  7.21 e<sup>-</sup>

1.14 DN

$\text{PRNU}_{1288}$  0.78 %

#### Linearity error

$\text{LE}_{\text{min}}$  -2.89%

$\text{LE}_{\text{max}}$  1.87%

#### Dark current

$\mu_{c,\text{mean}}$  10 ± 1 e<sup>-</sup>/s

1.6 DN/s

$\mu_{c,\text{var}}$  29 ± 2 e<sup>-</sup>/s

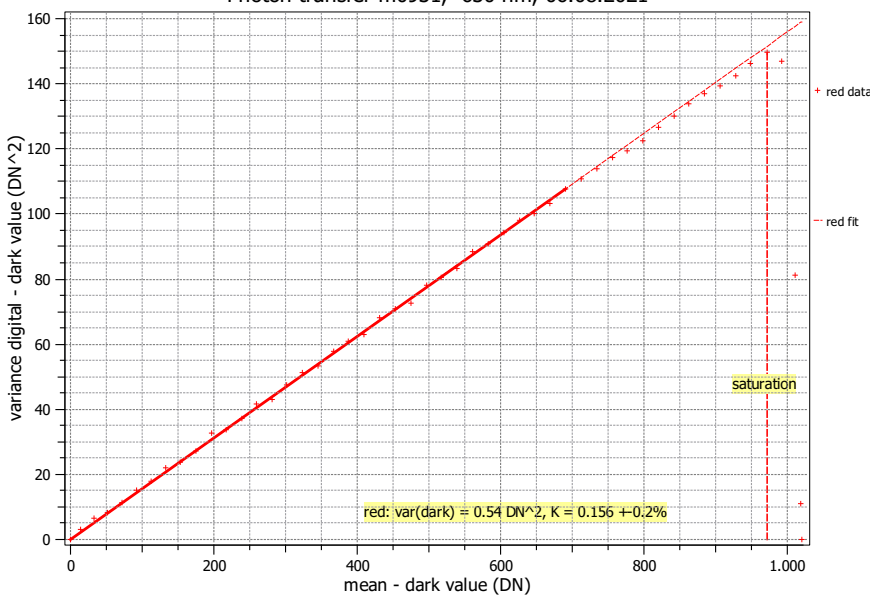
$T_d$  — °C

## Summary Sheet for Operation Point 3 at a Wavelength of 630 nm

Type of data	Single	Gain, black-level	0dB, 22
Exposure control	By irradiance	Environmental temperature	23.0°C
Exposure time	10.00 ms	Camera body temperature	23.9°C
Frame rate	18.0 Hz	Internal temperature(s)	—
Data transfer mode	Mono10	Wavelength, centr., FWHM	630 nm, 13.0 nm

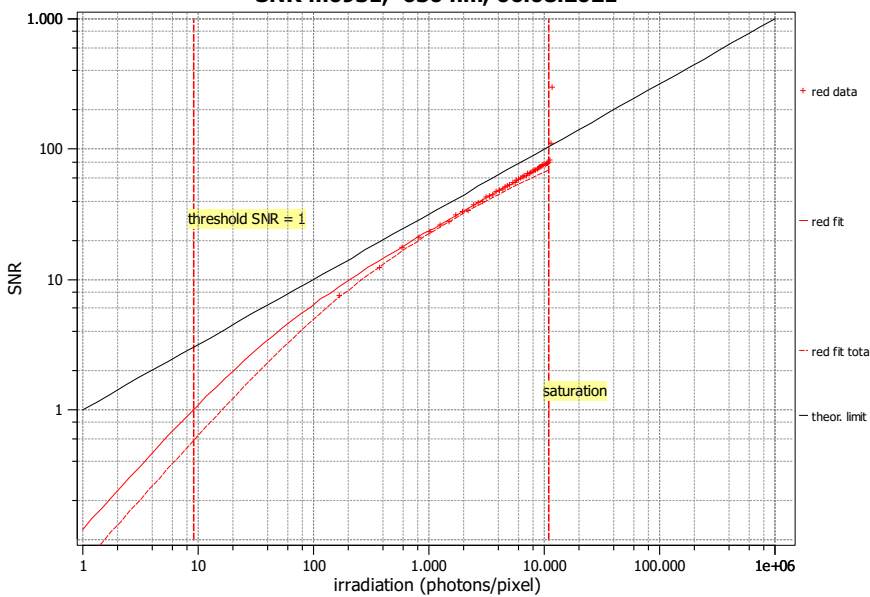
### Photon Transfer

Photon transfer m0931, 630 nm, 06.08.2021



### Signal-to-Noise Ratio

SNR m0931, 630 nm, 06.08.2021



#### Quantum efficiency

$\eta$  57.4%

#### Overall system gain

$K$  0.156 DN/e<sup>-</sup>

$1/K$  6.408 e<sup>-</sup>/DN

#### Temporal dark noise

$\sigma_d$  4.35 e<sup>-</sup>

$\sigma_{y,\text{dark}}$  0.74 DN

#### Signal-to-noise ratio

$\text{SNR}_{\text{max}}$  79

37.9 dB

6.3 bit

$1/\text{SNR}_{\text{max}}$  1.27 %

#### Absolute sensitivity threshold

$\mu_{p,\text{min}}$  9.15 p

$\mu_{p,\text{min},\text{area}}$  0.651 p/ $\mu\text{m}^2$

$\mu_{e,\text{min}}$  5.25 e<sup>-</sup>

$\mu_{e,\text{min},\text{area}}$  0.374 e<sup>-</sup>/ $\mu\text{m}^2$

#### Saturation capacity

$\mu_{p,\text{sat}}$  10852 p

$\mu_{p,\text{sat},\text{area}}$  772 p/ $\mu\text{m}^2$

$\mu_{e,\text{sat}}$  6230 e<sup>-</sup>

$\mu_{e,\text{sat},\text{area}}$  443 e<sup>-</sup>/ $\mu\text{m}^2$

#### Dynamic range

DR 1186

61.5 dB

10.2 bit

#### Spatial nonuniformities

$\text{DSNU}_{1288}$  7.40 e<sup>-</sup>

1.15 DN

$\text{PRNU}_{1288}$  0.70 %

#### Linearity error

$\text{LE}_{\text{min}}$  -0.50%

$\text{LE}_{\text{max}}$  0.51%

#### Dark current

$\mu_{c,\text{mean}}$  10 ± 1 e<sup>-</sup>/s

1.6 DN/s

$\mu_{c,\text{var}}$  29 ± 3 e<sup>-</sup>/s

$T_d$  — °C