EMVA 1288 Datasheet

This datasheet describes the specification according to the standard 1288 Standard for Characterization and Presentation of Specification Data for Image Sensors and Cameras of European Machine Vision Association (EMVA) (See www.standard1288.org).

Vendor: Simulation
Model: Simulated camera
Data type: Single
Sensor type: simulated sensor
Diagonal: -
Lens category: -
Resolution: 640x480 pixels
Pixel size: - μm
Maximum readout rate: -

Operation Point: OP1 (Page 2)

Camera setting:
- Gain: 0.1
- Black level: 29.4
- Bit depth: 12 bits

Operation point parameters:
- Illumination: Variable with constant exposure time
- Irradiation steps: 50

Example
Simulated camera

**Summary sheet for Operation Point: OP1 (@ wavelength)**

**Camera setting**
- **Gain**: 0.1
- **Black level**: 29.4
- **Bit depth**: 12 bits

**Operation point parameters**
- **Illumination**: Variable with constant exposure time
- **Irradiation steps**: 50

**Performance**

- **Quantum efficiency**: \( \eta = 50.37\% \)
- **System gain**: 
  - \( K = 0.098 \) DN/e⁻
  - \( 1/K = 10.219 \) e⁻/DN
- **Temporal dark noise**: 
  - \( \sigma_d = 30.647 \) e⁻
  - \( \sigma_y, \text{dark} = 3.013 \) DN
- **Signal-to-Noise Ratio**
  - \( SNR_{max} = 202 \) 46.12 dB
  - \( SNR_{max}^{-1} = 0.494 \) %

**Absolute sensitivity threshold**
- \( \mu, \text{min} = 62.120 \) p
- \( \mu, \text{min,area} = 62.120 \) p/μm²
- \( \mu, \text{min} = 31.289 \) e⁻
- \( \mu, \text{min,area} = 31.289 \) e⁻/μm²

**Saturation Capacity**
- \( \mu, \text{sat} = 81323.3 \) p
- \( \mu, \text{sat,area} = 81323.3 \) p/μm²
- \( \mu, \text{e,sat} = 40961 \) e⁻
- \( \mu, \text{e,sat,area} = 40961 \) e⁻/μm²

**Dynamic Range**
- \( DR = 1309 \) 62.3 dB
- **Spatial Nonuniformities**
  - \( DSNU_{1288} = 21.7 \) e⁻
  - \( PRNU_{1288} = 1.0 \) %

**Linearity error**
- \( LE_{min} = -0.966 \) %
- \( LE_{max} = 0.382 \) %

**Dark current**
- \( \mu, \text{I,mean} = - e^-/s \)
- \( \mu, \text{I,var} = - DN/s \)
  - **Operation Point: OP1** (8)
Simulated camera

**Sensitivity**

- **Data**
- **Fit**
- **Fit range**

**μp [mean number of photons/pixel]**

**μy, dark**

- **Data**

**Operation Point:** OP1 (Ø)

*Example*
Simulated camera

Linearity

\[ \mu_p - \mu_{p, \text{dark}} \text{ [DN]} \]

\[ \mu_p \text{ [mean number of photons/pixel]} \]

Deviation linearity

\[ \text{Linearity error LE [%]} \]

\[ \mu_p \text{ [mean number of photons/pixel]} \]
Operation Point: OP1 (©)
Logarithmic histogram DSNU

Logarithmic histogram PRNU

Operation Point: OP1 (©)