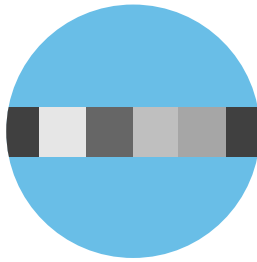


Monochrome Line Scan Cameras

GigE / GigE Vision / USB3.0 / Camera Link interface

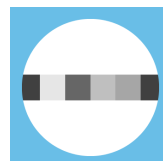


FEATURES

Line Scan Cameras starting at 512 pixels up to 8160 pixels

- Line frequency up to 52.6 kHz
- Shading correction with permanently stored profiles
- Programmeable Lookup Table
- Window Function (ROI)
- Line Trigger, Frame Trigger, Threshold Trigger
- Advanced Synchronization Control
- Thresholding
- Decoupling of line frequency
- Extra signals for diagnosis
- Data cable length up to 100m

- Monochrome sensor
- Interface: GigE
- Interface: GigE Vision
- Interface: USB 3.0
- Interface: Camera Link

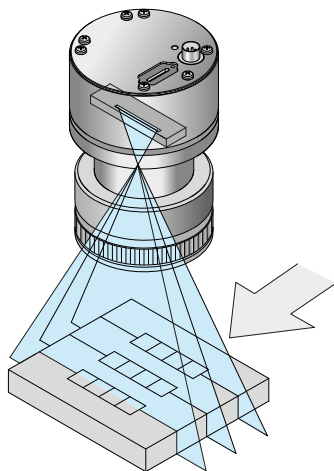


DESCRIPTION

Line scan cameras are semiconductor cameras used in many industrial environments e.g. in machine vision applications. The single photosensitive line sensor contains up to 8160 picture elements (pixels). Light energy incident on the sensor is transformed into an electric signal for digitization within the camera. At 8-bit resolution, the A/D converter transmits the output voltage of each pixel into one of 256 brightness levels, at 12-bit resolution into 4096 brightness levels. The digitized output signal is transferred to a computer.

The image produced by a line scan camera is one-dimensional and represents the brightness profile of an object, captured at the current position of the line sensor. A two-dimensional image is generated by performing a scanning movement of either the object or the camera, during which the individual line signals are transferred to the computer and assembled one by one into a 2D image.

All lenses show some vignetting as a function of the field angle. Hence, even with homogeneous object illumination, the signal intensity of the image decreases with increasing image height. Shading correction (or flat field compensation) is used to compensate for lens vignetting as well as for inhomogeneity in the illumination. Shading correction is achieved by performing a white balance calibration during illumination of a homogeneous white target.



TECHNOTES

- [Line Scan Camera Basics \(10\)](#)
[What are Line Scan Cameras? How do you create an image? etc.](#)
- [What are Line Scan Cameras?](#)
[Introduction and advantages of Line Scan Cameras](#)
- [Creating an image using Line Scan Cameras](#)
[How to create an image, definition of line frequency, and how to improve an image](#)
- [Optical resolution](#)
[Definition and comparison to conventional area cameras](#)
- [Synchronization](#)
[Reasons for synchronization and definition of different synchronization modes](#)

[Shading correction and white balance](#)

[Why do you need shading correction and how to use white balance](#)

▪ [Sensor alignment](#)

[How to properly align the line scan camera sensor](#)

▪ [Blooming and Anti-Blooming Correction](#)

[What is blooming and how to correct it](#)

▪ [Spectral sensitivity](#)

[Spectral sensitivity of different line sensors](#)

▪ [True color imaging technologies](#)

[Color Calibration of RGB cameras](#)

▪ [Bright and dark-field illumination](#)

[Details about the different illumination techniques.](#)

▪ [Choosing the appropriate camera interface](#)

[How to chose between GigE, GigEVision, USB3.0 and CameraLink.](#)

▪ [Setting up a Line Scan Camera](#)

[Evaluation of correct focus](#)

▪ [Machine Vision Applications of Line Scan Cameras](#)

[Applications of Line Scan Cameras](#)

RELATED PRODUCTS

**GIGE LINE SCAN
CAMERAS**

GigE interface

**GIGE VISION LINE
SCAN CAMERAS**

GigE Vision interface

**USB3.0 LINE SCAN
CAMERAS**

USB3.0 interface

**CAMERALINK LINE
SCAN CAMERAS**

Camera Link interface

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<https://sukhamburg.com/products/linescancamera/linescancamera/features/monochrome.html> from 5/3/2024

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