

SK4k-U3DR7C

Color Line Scan Camera, USB 3.0



FEATURES

- Pixel number: 4096 x 2
- Pixel dimensions: 7 x 7 μm^2
- Max. line frequency: 43.4 kHz
- Spectral range: 400 - 800 nm
- Anti-blooming
- Shading correction
- Lookup table

DESCRIPTION

The color SK4k-U3DR7C line scan camera is equipped with a 4096 x 2 pixel CMOS sensor with Bayer filter matrix. The maximum line frequency is 43.4 kHz.

Features

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. The sensor has a blooming protection against over exposure. The integration control / electronic shutter function enables to control the exposure time independently from the line frequency.

Synchronization

Line scan cameras have to be externally synchronized in order to obtain distortion-free images. There are two different synchronization functions that can be applied together or individually:

1. Line Synchronization triggers each individual exposure of the sensor line by line. Several operating modes are available for this: Free run, Line Start, Exposure Active, Exposure Start.
2. Frame Synchronization is the recording of a set of lines (frame) representing a two dimensional image. The trigger is activated by an external control signal.

Lenses and Adapters

The lens or tube attachment is M45x0.75. Adapters are available for other dimensions, see Accessories.

Software and SDK

S+K provides software for Windows und Linux. SKLineScan is an operation program with a grafical user interface for system setup and simple scanning tasks. It is free for use and is applicable both for optimal adjustment of the optical system and for parameterization of the camera.

The software development kit (SDK) SK91USB3-WIN is based on C++ and includes examples for C/C++ with Visual Studio. Supported operating systems are Windows 10 (32- or 64-bit), Windows 11.

The Linux variant SK91USB3-LX requires at least kernel 3.13.

TECHNICAL DATA

SK4k-U3DR7C

Order Code	SK4k-U3DR7C
Sensor type	CMOS Bayer pattern color sensor
Pixels	4096 x 2 x 2
Pixel size	7 x 7 μm^2
Active sensor length	28.7 mm
Max. pixel frequency	200 MHz
Max. line frequency	43.4 kHz
Anti-blooming	x
Integration control	x
Shading correction	x
Spectral range	400 - 800 nm
Dynamic range	1:200 (rms)
Min. exposure time	0.023 ms
Max. exposure time	20 ms
Video signal	color 8 Bit
Interface	USB 3.0
Power supply	USB
Dimension	65 x 65 x 39.7 mm ³
Case type	NT3p
Weight	0.15 kg
Lens mount	M45x0.75
Flange diameter	47.5 x 12.7 mm
Flange focal length	18.7 mm

Operating temperature

+5 ... +45 °C

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