Data sheet
EVK HELIOS EQ32

V02-22-EN

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EVK HELIOS EQ32

320-Pixel Hyperspectral Imaging Camera with an integrated Classification System

- Real-time hyperspectral imaging system
- Operates in the wavelength band from 930 nm to 1700 nm
- Optically distortion corrected, spectrally calibrated, intensity calibrated
- Delivers a classified data stream

Description

The EVK HELIOS EQ32 hyperspectral imaging system is a powerful analysis tool, based on non-contact and non-destructive real-time infrared imaging spectroscopy. The EVK HELIOS system analyses chemical properties of objects and makes distinction of material types not visible to colour cameras. The internal processing engine delivers qualitative and quantitative information of material streams e.g. analyte concentrations or material compositions.
The camera is delivered with a full internal calibration as a plug and play component. HELIOS EQ32 comes in a compact, rugged stainless-steel housing with stress decoupled optomechanics. The system is optimized for real industrial environments and delivers stable calibrated data over the full specified temperature range.

Key features

- Operates in Near Infrared (NIR) wavelength range from 0.93 to 1.7 µm
- Scan rate of 446 Hz at full spectra (248 spectral bands) up to 3.8 kHz using ROI
- Excellent SNR of 3.500 at a nominal spatial resolution of 320 pixels
- GigE Vision GenICam interface
- Rugged industrial design. Protection rating IP54
- Temperature Range 0°C to 50°C with full optical stability
- Seamless integration with EVK SQALAR software suite

Client benefits

- Internal camera calibration No on-site calibration necessary
- Embedded data analysis - no need for external PC
- Real-time imaging system for in-line operation
- Compact and rugged industrial design for use in harsh environments

Typical applications

- In-line monitoring and control of production streams
- In-line measurement of material composition
- In-line quantitative analysis of analyte concentrations

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Technical Data

Spectral range	(929 ± 2 to 1702 ± 2) nm
Line scan rate	446 Hz at full spectra (see frame-rate information)
Spectral resolution	2.5 nm
Spectral sampling	3.1 nm
Spatial sensor resolution	320 pixels
Spatial output resolution	312 pixels
Pixel size	30 x 30 µm
Optical coupling	C-mount lens
Slit	60 µm
Interfaces	GigE Vision (GV)[1]
Trigger input	RS-485
Dimensions without lens (w x h x d)	141 x 141 x 326 mm
Weight	approx. 7.8 kg
Power supply	18 to 36 V DC
Power consumption	max. 24W, typical 8W
Protection rating	IP54
Operating temperature	0 to +50 °C
Storage temperature	-25 to +75 °C
Humidity	8 to 80 %
Data output	1. High quality calibrated spectral data (12bit GigE-Vision) 2. Mono8 classified data “EVK Class32” 3. 3x 8Bit RGB classified data “EVK EC3”/”EVK QCI”

[1] GigE Vision supports configuration & data streaming

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Frame-rate information

Achievable frame rate and exemplary spectral ROIs				
Spectral ROI width	**Spectral band-width**	**Spectral range min**	**Spectral range max**	**Max. frame rate**
248 pixels	773 nm	929 nm to 1702 nm	929 nm to 1702 nm	446 Hz
220 pixels	685 nm	929 nm to 1615 nm	1017 nm to 1702 nm	500 Hz
200 pixels	623 nm	929 nm to 1552 nm	1079 nm to 1702 nm	547 Hz
160 pixels	498 nm	929 nm to 1427 nm	1205 nm to 1702 nm	674 Hz
120 pixels	372 nm	929 nm to 1302 nm	1330 nm to 1702 nm	878 Hz
100 pixels	310 nm	929 nm to 1239 nm	1392 nm to 1702 nm	1034 Hz
80 pixels	247 nm	929 nm to 1176 nm	1455 nm to 1702 nm	1295 Hz
60 pixels	185 nm	929 nm to 1114 nm	1518 nm to 1702 nm	1607 Hz
40 pixels	122 nm	929 nm to 1051 nm	1580 nm to 1702 nm	2221 Hz
30 pixels	91 nm	929 nm to 1020 nm	1611 nm to 1702 nm	2745 Hz
20 pixels	59 nm	929 nm to 989 nm	1643 nm to 1702 nm	3594 Hz
18 pixels	53 nm	929 nm to 982 nm	1649 nm to 1702 nm	3831 Hz

Spectral ROI width is selectable in 2-pixel steps from 18 pixels to 248 pixels,
spectral position is selectable in two-pixel steps over the full possible range.

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Order information

Product	Order Number
EVK HELIOS EQ32	AGX-22002

Supported Standard Optics

Product	Order Number	Focal Length (mm)	Lense Aperture	Camera Mount
NIR Lens 6 mm/1.4	BKO-20063	6	1.8	C-Mount
NIR Lens 8 mm/1.4	BKO-20001	8	1.4	C-Mount
NIR Lens 12 mm/1.4	BKO-20002	12	1.4	C-Mount
NIR Lens 16 mm/1.4	BKO-20003	16	1.4	C-Mount
NIR Lens 25 mm/1.4	BKO-20004	25	1.4	C-Mount
NIR Lens 35 mm/1.4	BKO-20005	35	1.4	C-Mount

EVK Products in combination with EVK HELIOS EC32

Product	Order Number	Description
EVK ALPHA G100	AGX-22033	Real-Time Processing Platform for Spectral Imaging
EVK SQALAR	LIZ-004x_xxx	Demo / Annual / Perpetual License for Classification Modeling Software

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