Digital GigE Vision Camera
Zelos – 415 GV PoE

47 mm

40 mm

40 mm

WVGA resolution 782 x 582 pixel
IP 54 protection
III Color | **II** Monochrome
Progressive Scan
14-bit digitization
Up to 156 fps
High transfer rate (1 Gbit/s)
GigE Vision | PoE
Up to 100 m (300 feet) CAT5e cabling
Numerous real-time signal processing functions
III Kappa-made first-class color processing
Binning | Partial Scan
Reset | Restart, Frame on Demand, Ext. Sync.
SDK Zelos
Control software KCC Zelos
One cable connection Power over Ethernet (PoE)
Option: Real-Time Recording (KCC Zelos Recording

GigE Vision Camera Zelos-415,
a compact WVGA camera with IP54 protection!

Kappa expands the GigE Vision Zelos camera series. One of the new models is the Zelos-415, a cost-efficient WVGA camera with IP 54 protection. Based on the complex Kappa high-performance camera platform with 14-bit digitization depth this model comes in compact design (40 x 40 x 47 mm/ 1,57" x 1,57"x 1,85"). It is fitted with the Sony IXC415 CCD sensor, monochrome or color, and provides WVGA resolution at a frame rate of 50 fps (up to 156 fps with binning and partial scan). The GigE Vision interface (1 Gbit/s) with a stable waterproof connector assures safe data transfer. The camera is powered via PoE, Power-over-Ethernet.

The Zelos-415 features protection class IP54 and is thus protected against dust and splash. The typical Kappa quality characteristics regarding hardiness and durability make this camera one of the most rugged models in its class.

The brilliant visualization of the smallest low-contrast details is the result of the extensive real-time signal processing functions based on14-bit digitization. Some of the functions are: adjustments for exposure modes, read-out modes (e.g. binning, partial scan), frame rate, gain settings, measurement window, contrast and edge enhancement (e.g., histogram equalization), reticle and circle generator, and dynamic look-up table. The Kappa-made color processing offers adjustments for the RGB Bayer interpolation, color space transformation and color saturation.

A trigger input and a strobe output enable the synchronization with external devices. Polarities and delays are adjustable.

The software KCC Zelos and the software development kit SDK Zelos assure fast putting into operation and easy system integration. The Zelos-415 is ideally suited for monitoring tasks or as an optical aid for positioning and aligning tasks in machine tools. .

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realize visions

kappa

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Technical Data

Sensor-specific data

CCD sensor	1/2" interline transfer CCD progressive scan with micro lenses (Sony ICX 415)
Pixel size (H x V)	8.3 µm x 8.3 µm
Light-sensitive area (H x V)	7.48 mm x 6.15 mm
Number of pixels (H x V)	782 x 582 active, 823 x 592 total
Spectral sensitivity (without IR –filter)	400 nm – 1000 nm
Full well capacity	25 000 e$^-$
A/D-conversion factor	1,5 e$^-$ / increment
Filter	RGB Bayer Filter
Dynamic range	63 dB (measured in dark image, at 33 ms exposure time at 0 dB gain)

Interface-specific data

Interface	Gigabit Ethernet
Coding	III color YUV 4:2:2, RGB 24, mono 14 (RAW data) II Mono 14, Mono 12, Mono 8
Camera output format	full frame: 782 x 582 pixel, 50 fps
	binning: 2 fold 4 fold II image size (pixel): 340 x 290 170 x 140 II frame rate: 93 fps 156 fps
	partial scan: image size freely adjustable
Exposure	manual: 1 µs up to 120 s automatic (AE): 1 µs up to 15 ms at 782 x 582 pixel

Signal Processing

System	14 bit digital
Gain	manual/automatic (AGC): 0 up to 18 dB
Enhancement	edge enhancement adjustable, histogram stretching, histogram equalizations
Color processing	III light source, color setting (RGB), automatic white balance, color saturation
Gamma	0.3 up to 2.2, loadable
Diagnostics	e.g. , image size, refresh rate, test pattern …
Line generator	2 reticles: position, color and style adjustable, circular line
Measuring window	Position and dimensions adjustable
Synchronization	internal/external, reset/restart (delay <10 µs), frame on demand
Trigger	Hardware Trigger: Variable adjustable, fixe trigger delay < 10 µs; frame on demand Software Trigger: via Software Development Kit (SDK Zelos)

System Integration

System requirements	separate data sheet
Software | Zelos Tools	separate data sheet (SDK Zelos Software Development Kit and KCC Zelos - Control Software)
Interface protocol	GigE Vision

General

Interfaces	12-pin system connector (Gigabit Ethernet, PoE, control and trigger signals)
Lens mount	C-mount, focal plane adjustable, CS-mount on request
Filter	IR-filter
Temperature	Operating temperature -20°C to +65°C, storage temperature -30°C to +70°C
Power Supply	PoE 48 V,external 9 up to 48 V, ~ 3 W
Protection rating	IP 54
Dimensions / Weight	40 x 40 x 47 mm (1,57" x 1,57" x 1,85") / approx. 170 g (6 oz.)
Cable length	Ethernet (minimum CAT5e) up to 100 m
Order-no.	III color: Zelos-415C GV PoE 961-2156 II monochrome: Zelos-415M GV PoE 951-2156
Standard equipment	Camera, CD Zelos Tools (KCC Zelos, SDK Zelos)