



## EoSens® 4CL HS High-Speed CMOS Camera

### 4 Megapixel and Full HD - for detailed images

- **Extremely flexible in resolution and speed:**  
4 Megapixel resolution up to 500 frames per second at 2,336 (H) x 1,728 (V) pixel resolution
- **Full HD: 1,920 (H) x 1,080 (V) at 1,000 fps**
- **Camera Link HS® interface with 2.1 GByte/second, single, flexible 10 GigE cable up to 15 m long negligible trigger latency and jitter, Gen-I+cam compliant**
- **Stepless adjustable frame rate up to more than 200,000 frames per second at reduced resolution**
- **Maximum photo sensitivity:**  
1,600 ASA monochrome, 1,200 ASA RGB
- **Extended dynamic range up to 80 dB**
- **Monochrome or color with Bayer-filter**
- **Small and compact design**
- **C-Mount or F-Mount lens adapter**



#### Camera Link HS® - next generation of high-speed standards

Camera Link HS® is the answer to the ever increasing speed of modern Machine Vision cameras. Designed by the inventors of the most successful Camera Link® international standard, Camera Link HS® provides up to 2.1 GB/s bandwidth on a single, highly flexible CX4 cable that is readily available as an industry standard cable for 10 GigE applications. All eight lanes from the CX4 cables are used, one upstream to the camera and seven downstream to the frame grabber. Using of one separate lane for camera control (trigger, GPIO and commands) and seven video data lanes guarantees 2.1 GB/s bandwidth for video data and negligible jitter and latency for image exposure and control.

#### Full HD at 1,000 frames per second

With 1,000 frames per second at Full HD resolution, the camera is ideal for a wide range of applications, especially where images have to be presented to the public. High-speed images of the highest quality make the camera an excellent analysis tool for recording fast motion in sports (for example, analysis of driving technique in golf or tennis). But also for many broadcast applications, for example commercials or wildlife documentaries, the camera will find its use.

#### Extremely flexible in resolution and speed

The EoSens® 4CL HS meets the requirements for most varied applications, because resolution and speed are variable adjustable. A resolution of 2,336 (H) x 1,728 (V) pixels ensures superb image quality with extremely sharp images. With the proven Mikrottron high-speed technology the camera takes up to more than 150,000 frames per second.

#### Dynamic Range Adjustment

The camera's Dynamic Range Adjustment feature allows to change the CMOS sensor's linear transfer characteristic into a non-linear one. Thus, the camera provides clear details even at extreme dark/light contrasts.

#### "Freeze Frame" full frame shutter

The EoSens® 4CL HS features a "Freeze Frame" shutter that is able to process and store a complete frame while exposing the next image. At exposure times down to 2 µs, this enables even capturing fast moving objects at high definition in synchronous, free run and asynchronous triggered mode.

# PRELIMINARY



# EoSens® 4CL HS

## High-Speed CMOS Camera

Technical Data		
Sensor	- CMOS with built in FPN correction - active resolution 2,336 (H) x 1,728 (V) - active area 20.34 mm (diagonal) - 16.35 (H) x 12.10 (V) mm - 10 bit monochrome or RGB-color with Bayer-filter	
Pixel size	7 x 7 µm	
Light sensitivity	1,600 ASA monochrome 1,200 ASA RGB-color	
Image speed	Resolution	Frame Rate
	2,336 (H) x 1,728 (V)	500 fps*
	1,920 (H) x 1,080 (V)	1,000 fps
	1,920 (H) x 200 (V)	5,000 fps
	1,920 (H) x 4 (V)	210,000 fps
Pixel depth	8 Bit, 10 Bit	
Shutter	global electronic shutter from 2 µs to 1 s, in 2 µs steps	
Internal dynamics	up to 80 dB using Dynamic Range Adjustment	
Spectral bandwidth	400–900 nm	
Amplification	1x–4x Digital Gain in 8 bit mode	
Video output	Camera Link HS, single CX4 cable, up to 2.1 Gbyte/s	
Camera configuration	Gen< >Cam compliant	
Lens mount	C-Mount or F-Mount	
Camera body temperature	+5 ... 50 °C	
Shock/vibration	70 g, 7 grms	
Power supply	8–24 V DC external power supply	
Power consumption	7 W max.	

\* fps = frames per second

PRELIMINARY

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