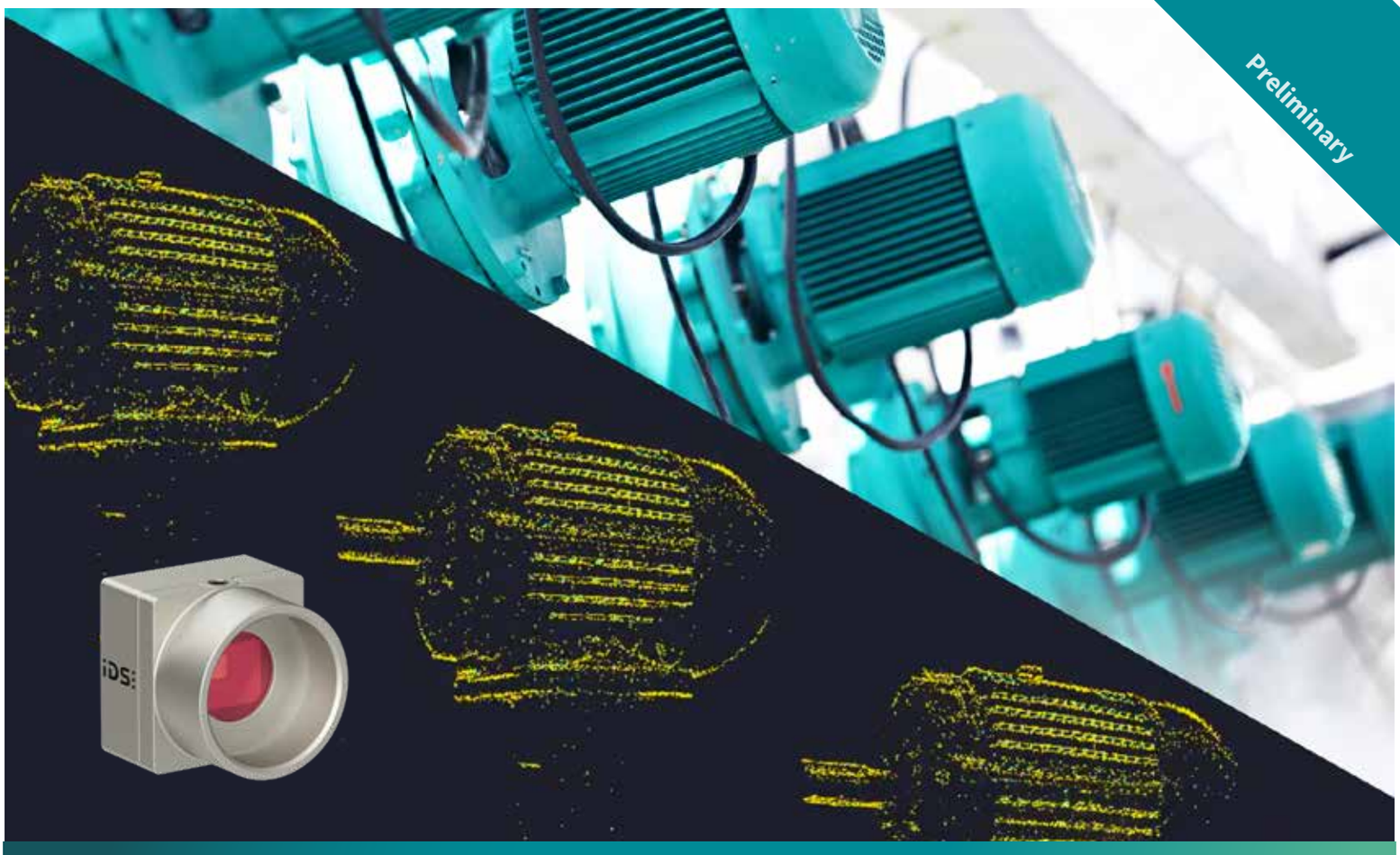


Event-based USB3 camera

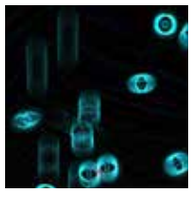
Capturing hyperfast and fleeting scene dynamics

#idshasvision

What is an Event-based Vision Sensor (EVS)? With a conventional frame-based image sensor the entire image of the ball and the background is output at certain intervals determined by the frame rate. By contrast an Event-based Vision Sensor only takes the differential data, which means the trajectory of a moving ball is captured at a very high temporal resolution.

Standard Vision Sensor

- Generates sequential static pictures
- Clock-driven (pre-defined frame rate)
- Needs exposure times
- Fix amounts of data
- Beautiful pictures for human consumption (High-resolution, color...)



Event-based Vision Sensor

- Generates continuous events (asynchronous intelligent pixels)
- Scene-driven (1µs time resolution - 10,000 fps equivalent)
- No exposure time (120dB HDR / 40mlux low light sensitivity)
- Amounts of data vary with scene dynamics (10x to 1000x less)
- Efficient data for machine vision (pre-sorted at pixel level, fast, high robustness to challenging lighting conditions, motion-understanding capabilities by design).

www.ids-imaging.com

The IMX636 is realized in collaboration between Sony and Prophesee and used in the IDS uEye XCP in cooperation with Prophesee Metavision SDK software.

An Event-based Vision Sensor (EVS) realizes high-speed, low latency data output by detecting luminance changes, which each pixel senses asynchronously, and only outputting the differential data after combining with the coordinate and time information. This functionality can be leveraged in recognition processing systems to enhance the efficiency of data provision, ideal for various applications in the industrial field such as detection of fast-moving objects, equipment monitoring, movement detection analysis, and image recognition.

Use cases

- Motion Monitoring, Vibration Monitoring, Frequency Analysis for Predictive Maintenance
- High Speed Counting, Batch
- Homogeneity & Gauging
- High Speed Location, Guiding and Fitting for Pick & Place
- Fluid Dynamics Monitoring, Continous Process Monitoring of Liquid Flow
- Yarn Quality Control, Cable Manufacturing Monitoring
- Dispensing Uniformity & Coverage Control, Quality & Efficiency of Dispersion, Fluid Dynamics Analysis for Inline Process Monitoring

Specifications

General	
Name	UE-39B0XCP-E-GL
Interface	USB3 5 Gbps
Lens mount	C-Mount
IP code	IP30
Mass (g)	~62 g
Dimensions H/W/L	29.0 x 29.0 x 17.0 mm
Power supply	USB

Software	
General	Metavision SDK from Prophesee has to be used

Sensor	
Manufacturer	Sony/Prophesee
Sensor model	IMX636
Sensor variant	Event based
Resolution (h x v)	1280 x 720 px
Sensor size	1/2,5''
Frame per second	>10k fps time resolution equivalent
Pixel size (µm)	4,86 µm
Dynamic range	>120 dB