

Optronis

Make time visible

STREAK READOUT UNIT

SRU-BC

Universal Readout Camera



- High-Resolution mode 2 464 x 1 864 pixel
- High-Sensitivity mode 1 232 x 932 pixel
- Gigabit Ethernet interface
- AD conversion 12 bit
- For SC-10 systems

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Streak Readout Unit SRU-BC

DESCRIPTION

The SRU-BC is a universal readout camera designed to be used with OP-TOSCOPE SC-10 streak cameras. The readout unit uses a sensitive 12 bit CMOS sensor combined with a high efficiency coupling optics. The CMOS camera allows two operation modes, either for best spatial resolution or highest sensitivity. Variable integration time and moderate frame rates qualifies the camera also for demanding streak camera application. A standard Gigabit Ethernet interface simplifies handling and allows to use notebook type PCs.

ACQUISITION MODES

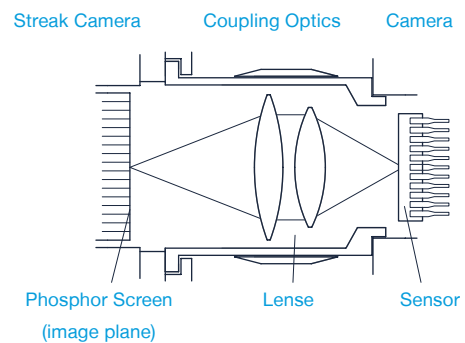
Integration time of the CCD sensor can be adjusted to adapt for particular streak camera applications. Together with the acquisition software of Optronis image accumulation allows to extend this time to further improve dynamic range beyond the camera performance. For perfect synchronisation with single-shot acquisition, the readout unit can be externally triggered.

COUPLING OPTICS

The camera is coupled to the streak camera phosphor screen by using high aperture coupling lenses. This allows sensitive image capture and data acquisition in photon counting mode. A manual focal adjustment is provided.

SPECIFICATIONS

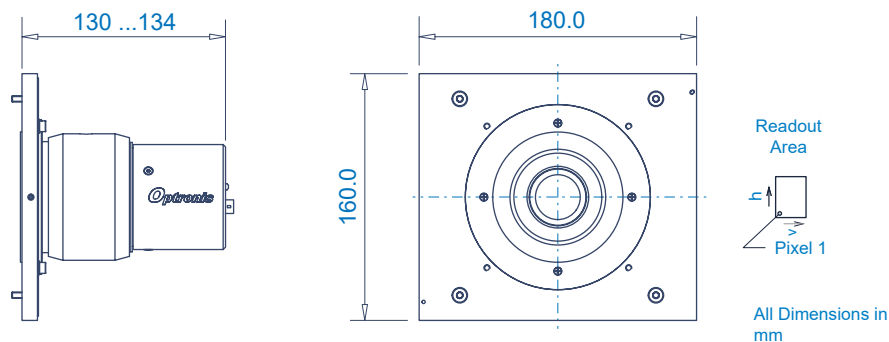
Mode	High-Resolution	High-Sensitivity
Resolution (h × v)	2 464 × 1 864 pixel	1 232 × 932 pixel
Frame Rate (PC dependent)	15 fps	24 fps
Pixel size (typ. ref. to screen)	7.9 μm × 7.9 μm	15.8 μm × 15.8 μm
Readout area (typ.)	19.46 mm (h) × 14.73 mm (v)	
Readout noise (typ.)	2.3 e ⁻	
Full well (typ.)	10 400 e ⁻	
AD conversion	12 bit	
Sensitivity (typ.)	4 photon/count (550 nm, coll. light)	
Integration time	1 ms .. 4 s	
Trigger operation	Continuous / External Trigger	
Interface	Gigabit Ethernet	
Trigger input	TTL level, positive edge, BNC	
Power supply	100 V .. 240 V / 12 V by separate AC/DC converter	
Temperature (operation)	0°C .. +35°C	
Humidity	20% .. 80% rel. humidity, non condensing	
Dimensions	180 mm × 160 mm × 130 .. 134 mm	
Weight (typ.)	1.8 kg	
Scope of Delivery	Camera, PCI GigE interface board, power supply, GigE cable 5m	



PHOTON COUNTING

The SRU-BC can be used for photon counting applications. This applies for high sensitivity mode but also for operating in high resolution mode. Tiny scintillations related to a single photon are detected with signal intensity above noise level. Scintillation positions are defined by calculating their center of gravity. Photon counting mode provides increased spatial and temporal system resolution. Additionally, the noise of the readout camera and partly the intensifier noise is removed.

TECHNICAL DRAWING



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