

LINCam

Single photon counting camera.

LINCam is a solution for scanning-free time correlated single photon counting implemented as a camera. This camera resolves x and y positions of individual photons as precise as a CCD with 1000×1000 pixels does together with 50 ps accuracy timing. Being paired with a pulsed light source LINCam turns any conventional fluorescence microscope into a powerful lifetime measuring instrument. LINCam with attached off-the-shelf optics is a solution for macroscopic applications like LIDAR.

In other words, LINCam is just a camera. As easy as an ordinal megapixel CCD camera but extended with the third timing dimension.

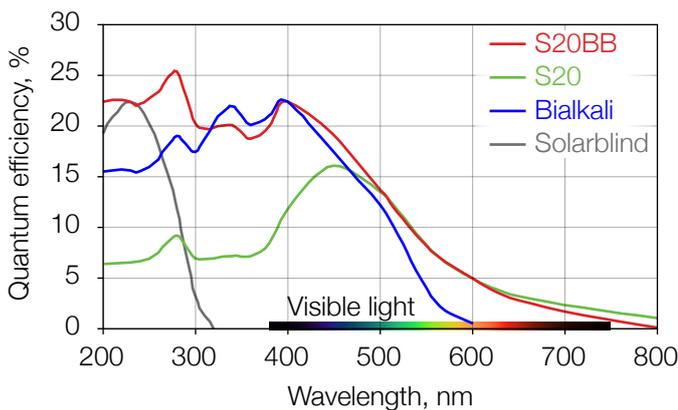


LINCam25 with C-mount



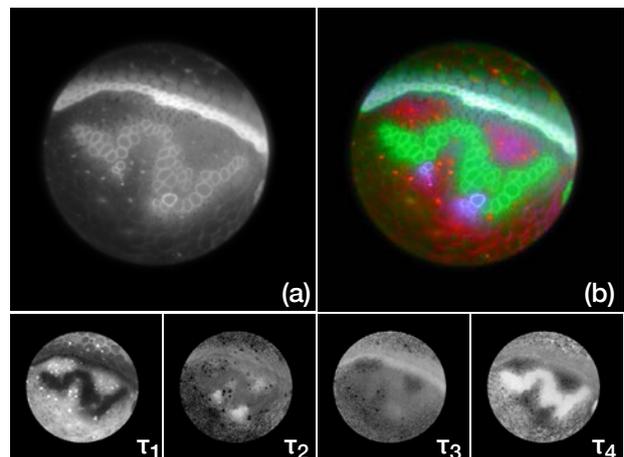
LINCam40 with T-mount lens

Spectral sensitivity



Example image

Fluorescence lifetime measurement of a lily of the valley slice sample. The intensity image **(a)** is a histogram of the positions of acquired photons. Lifetime analysis* reveals four lifetime components: $\tau_1 = 0,19$; $\tau_2 = 0,67$; $\tau_3 = 1,95$ and $\tau_4 = 3,75$ ns. The resulting overlay image **(b)** of the intensity image and average lifetime is shown.



* by maximum entropy method (MEM)

Applications

- Fluorescence lifetime imaging
- Time-of-Flight measurements
- Low-light observations
- XRay tomography

Acquisition system

Universal electronics and software for LINCcam25 and LINCcam40.



Detector

	LINCcam25	LINCcam40
Active area diameter, mm	25	40
Positional resolution, pixels	1000 × 1000	
Temporal resolution, ps FWHM	50	
Microscope mount	C-mount	T-mount
Housing dimensions, mm	145 × 78 × 50	145 × 100 × 53
Weight, g	500	600
Cooling	Air / Liquid	

Acquisition system

	Gen2	Gen3*
Maximal count rate, MHz	1	5
Dead time, ns	300	80
Timing		
Method	TAC + ADC	TDC
Minimum bin width, ps	1,5	1
Electrical resolution, ps	6	12
Number of bins	4096	Infinite
Reference input	Positive or negative NIM	
Time tagging resolution, ns	10	8
Computer interface	USB 2.0	Gigabit Ethernet
Operating system	Windows 7/10 64 Bit	

* preliminary data