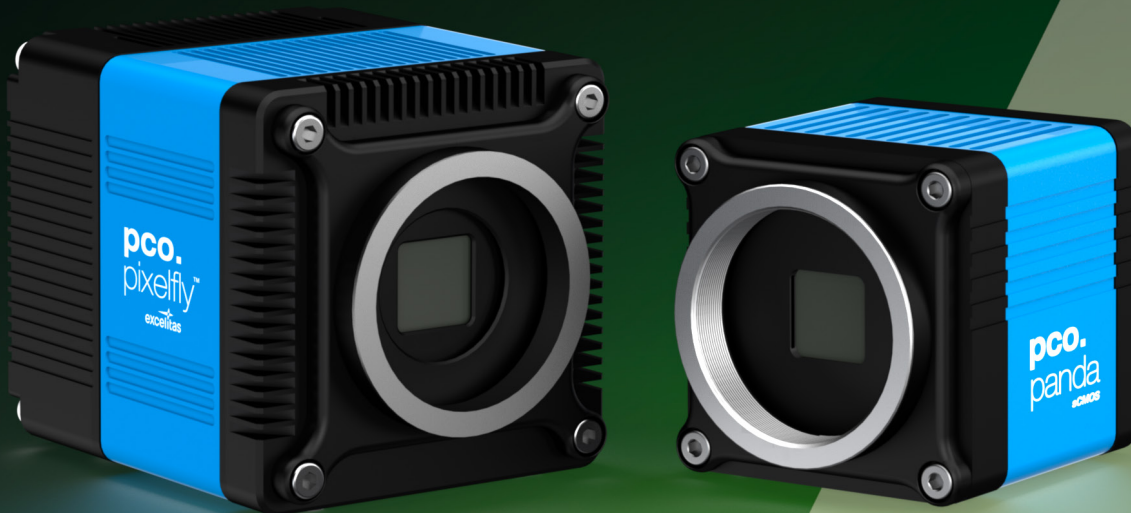


pco.[®]

pco.panda and pco.pixelfly™

Ultra-Compact sCMOS Cameras




excelitas[®]

pco.panda series

The pco.panda series represents the compact segment within PCO's scientific CMOS (sCMOS) camera portfolio. The camera housing features optimized passive thermal management, ensuring high performance of sCMOS image sensors within the smallest form factor. The pco.panda cameras offer an ideal and cost-effective solution for a wide range of scientific and industrial applications. Across the series, features such as low light mode, line scanning mode, and double shutter technology are available on selected models, providing enhanced functionality for specialized imaging applications.



Technical table	pco.panda 26	pco.panda 26 DS
Interface	USB 3.1 Gen 1	USB 3.1 Gen 1
Sensor technology	sCMOS	sCMOS
Color type	Monochrome or color	Monochrome
Resolution [pixels]	5120 × 5120	5120 × 5120
Sensor diagonal [mm]	18.1	18.1
Pixel size [μm]	2.5 × 2.5	2.5 × 2.5
Max. frame rate [fps] @ full resolution	6	6 (Single shutter mode) 1 (Double shutter mode)
Max. pixel rate [MPixel/s]	187	187
Peak quantum efficiency	65 % @ 500 nm ¹	65 % @ 500 nm
Typ. readout noise ² [e ⁻]	2.3	2.3
Max. dynamic range	2000 : 1	2000 : 1
Shutter mode	Global shutter	Global shutter
Cooling method	Passive	Passive
Features	-	Double shutter with 1 μs interframing time
Dimensions H × W × L [mm]	65 × 65 × 72	65 × 65 × 72
Camera housing		

¹ Monochrome version

² The readout noise values are given as median (med). All values are raw data without any filtering.

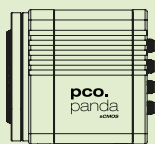


Top feature – Double shutter technology



The outstanding global shutter capabilities of the pco.panda 26 sCMOS sensor make it an ideal choice for effective double imaging – a critical requirement for performing all types of Particle Image Velocimetry (PIV) measurements in flow analysis. In PIV, light-scattering particles in the flow are illuminated twice within a short, defined time interval. This interval is limited by the camera's double shutter interframing time, which determines the minimum time between consecutive exposures. The camera captures the scattered light in two high-resolution frames, and thanks to its short interframing time, high flow speeds can be measured accurately.



Technical table	pco.panda 4.2	pco.panda 4.2 bi	pco.panda 4.2 bi UV
Interface	USB 3.1 Gen 1	USB 3.1 Gen 1	
Sensor technology	sCMOS	Back illuminated sCMOS	
Color type	Monochrome or color	Monochrome	
Resolution [pixels]	2048 × 2048	2048 × 2048	
Sensor diagonal [mm]	18.8	18.8	
Pixel size [μm]	6.5 × 6.5	6.5 × 6.5	
Max. frame rate [fps] @ full resolution	40	40	
Max. pixel rate [MPixel/s]	176	184	
Peak quantum efficiency	80 % @ 600 nm ¹	92 % @ 550 nm	90 % @ 550 nm 46 % @ 240 nm
Typ. readout noise ² [e ⁻]	2.1	1.8	
Max. dynamic range	21500 : 1	26500 : 1	
Shutter mode	Rolling shutter	Rolling shutter	
Cooling method	Passive	Passive	
Features	Line scanning mode	Line scanning mode, low light mode	
Dimensions H × W × L [mm]	65 × 65 × 66	65 × 65 × 66	
Camera housing			



pco.pixelfly series



The pco.pixelfly series comprises scientific CMOS (sCMOS) cameras for scientific and industrial imaging applications. The camera family combines high-resolution image acquisition with compact air-cooled housings and high-speed data interfaces for efficient image transfer. The series includes monochrome and color variants as well as models featuring either rolling or global shutter technology, providing the flexibility required for a wide range of scientific and industrial imaging tasks.



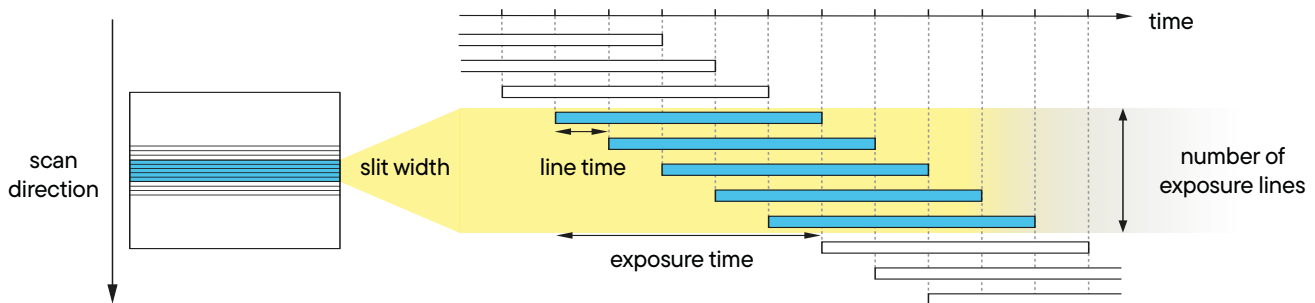
Technical table	pco.pixelfly 10 bi	pco.pixelfly 26
Interface	CLHS FOL	CLHS FOL
Sensor technology	Back illuminated sCMOS	sCMOS
Color type	Monochrome or color	Monochrome or color
Resolution [pixels]	4416 × 2368	5120 × 5120
Sensor diagonal [mm]	23.0	18.1
Pixel size [μm]	4.6 × 4.6	2.5 × 2.5
Max. frame rate [fps] @ full resolution	57	29
Max. pixel rate [MPixel/s]	596	760
Peak quantum efficiency	82 % @ 500 nm ¹	65 % @ 500 nm ¹
Typ. readout noise ² [e ⁻]	1.2	2.3
Max. dynamic range	12000 : 1	1100 : 1
Shutter mode	Rolling shutter	Global shutter
Cooling method	Forced air	Forced air
Features	-	-
Dimensions H × W × L [mm]	80 × 80 × 100	80 × 80 × 100
Camera housing		



Top feature – Line scanning mode

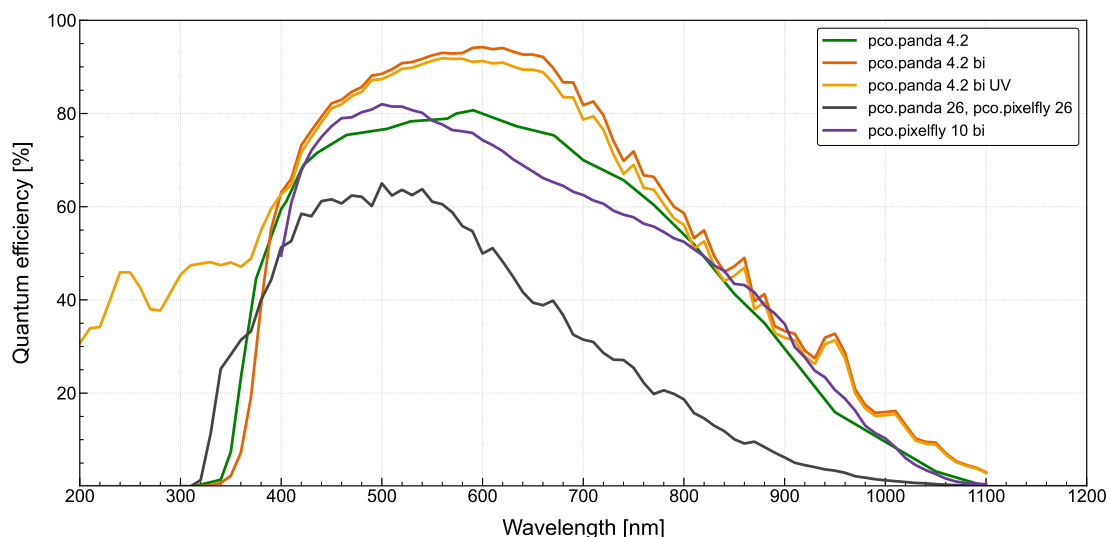
The PCO line scanning mode is a special readout mode dedicated to lightsheet fluorescence microscopy (LSFM), enabling optimized synchronization of the camera and the lightsheet microscope system. This feature is built on the rolling shutter mode. Compared to the standard rolling shutter, in line scanning mode parameters for the number of exposure lines and line time are adjustable. The number of exposure lines corresponds to the slit width, while the line time defines the slit speed.

The camera supports various trigger options for external synchronization.



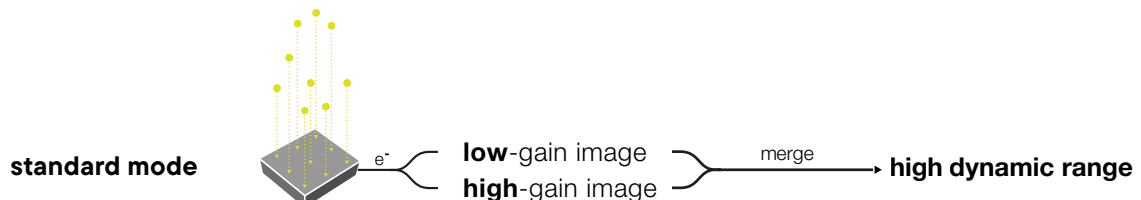
Exemplary illustration of the readout in line scanning mode with five exposure lines.

Quantum efficiency

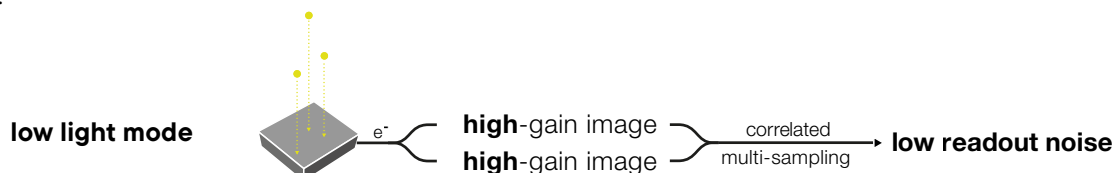


Top feature – Low light mode

In standard mode, two images with exactly the same exposure time but different gains are recorded. The low gain image is optimized for high fullwell capacity and the high gain image is optimized for low readout noise. Both images are merged into one high dynamic range image.



The low light mode benefits from two times correlated multi sampling of high gain images. This reduces the temporal noise by a factor of the square root of 2, which is ideal for applications demanding low noise and high sensitivity.



About Excelitas®

Excelitas is a leading provider of advanced, life-enriching technologies that make a difference, serving global market leaders in the life sciences, advanced industrial, next-generation semiconductor and avionics end markets. Headquartered in Pittsburgh, PA, USA, Excelitas is an essential partner in the design, development and manufacture of advanced technologies, offering leading-edge innovation in sensing, detection, imaging, optics and specialty illumination for customers worldwide.

Excelitas is at the forefront of addressing many of the relevant megatrends impacting the world today, including precision medicine, industrial automation, artificial intelligence, and connected devices (IoT).



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