

datasheet

pco.edge 1.3 SWIR CLHS

versatile low-noise VIS – SWIR camera

SWIR shortwave
infrared

resolution

1.3 MPixel

pixel size

10.0 μm x 10.0 μm

interface

CLHS FOL



high frame rate
148 fps

spectral range
300 nm - 1700 nm

TEC-cooled
down to -30 °C

high resolution
1280 x 1024 pixels

low-noise InGaAs camera
25 e⁻ (rms)

technical data

image sensor

	low-gain mode	high-gain mode
sensor technology	InGaAs	
color type	monochrome	
resolution (horizontal × vertical)	1280 px × 1024 px	
pixel size (horizontal × vertical)	10.0 μm × 10.0 μm	
sensor size (horizontal × vertical)	12.8 mm × 10.2 mm	
sensor diagonal	16.4 mm	
shutter mode	global shutter (GS)	
peak quantum efficiency	73 % @ 1250 nm	
spectral range	300 nm - 1700 nm	
dark current (typ.)	458 e ⁻ /pixel/s @ -20 °C sensor temperature	245 e ⁻ /pixel/s @ -20 °C sensor temperature
fullwell capacity	885 ke ⁻	9600 e ⁻
readout noise (typ.) ¹	217 e ⁻ rms 211 e ⁻ med	25 e ⁻ rms 23 e ⁻ med
dynamic range (intra-scene) ²	4200 : 1 (70 dB)	430 : 1 (50 dB)

¹ The readout noise values are given as median (med) and root mean square (rms) values, due to the different noise models which can be used for evaluation. All values are raw data without any filtering.

² The dynamic range value is calculated with the median value of the readout noise and rounded.

frame rate table

vertical resolution reduction

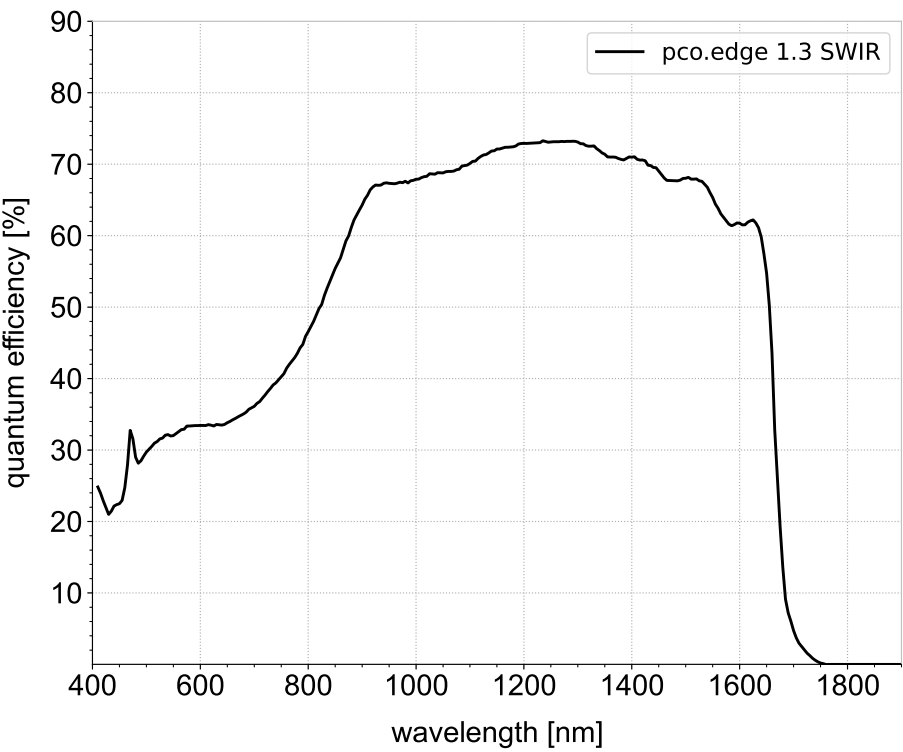
	low-gain mode	high-gain mode
1280 x 1024	148 fps	99 fps
1280 x 744	197 fps	133 fps
1280 x 512	269 fps	187 fps
1280 x 256	455 fps	338 fps
1280 x 128	695 fps	563 fps
1280 x 64	942 fps	844 fps
1280 x 32	1147 fps	1125 fps
1280 x 16	1286 fps	1349 fps

typical resolutions

	low-gain mode	high-gain mode
1280 x 1024	148 fps	99 fps
640 x 512	269 fps	187 fps
640 x 480	284 fps	198 fps
320 x 256	455 fps	338 fps
320 x 240	476 fps	355 fps

camera		
	low-gain mode	high-gain mode
max. frame rate @ full resolution	148 fps	99 fps
exposure time range	1 μ s - 1 s	10 μ s - 81 ms
dynamic range A/D	13 bit	
conversion factor	108 e ⁻ /DN	1.17 e ⁻ /DN
pixel rate	194 MPixel/s	130 MPixel/s
region of interest (ROI)	horizontal: steps of 4 rows (min. 8) vertical: steps of 32 columns (min. 64)	
non-linearity	< 0.03 %	< 0.97 %
dark signal non-uniformity (DSNU)	< 23.3 e ⁻ rms	< 1.33 e ⁻ rms
photo response non-uniformity (PRNU)	< 0.21 %	< 0.34 %
cooling temperature image sensor	adjustable: -30 °C to 5 °C calibration setpoint: -5 °C	
cooling method	forced air	
trigger input signals	external exposure start, sequence trigger, acquire enable	
status output signals	exposure, busy	
input / output signal connectors	SMA	
time stamp	in image (1 μ s resolution) and metadata	
data interface	Camera Link HS FOL	

quantum efficiency



general

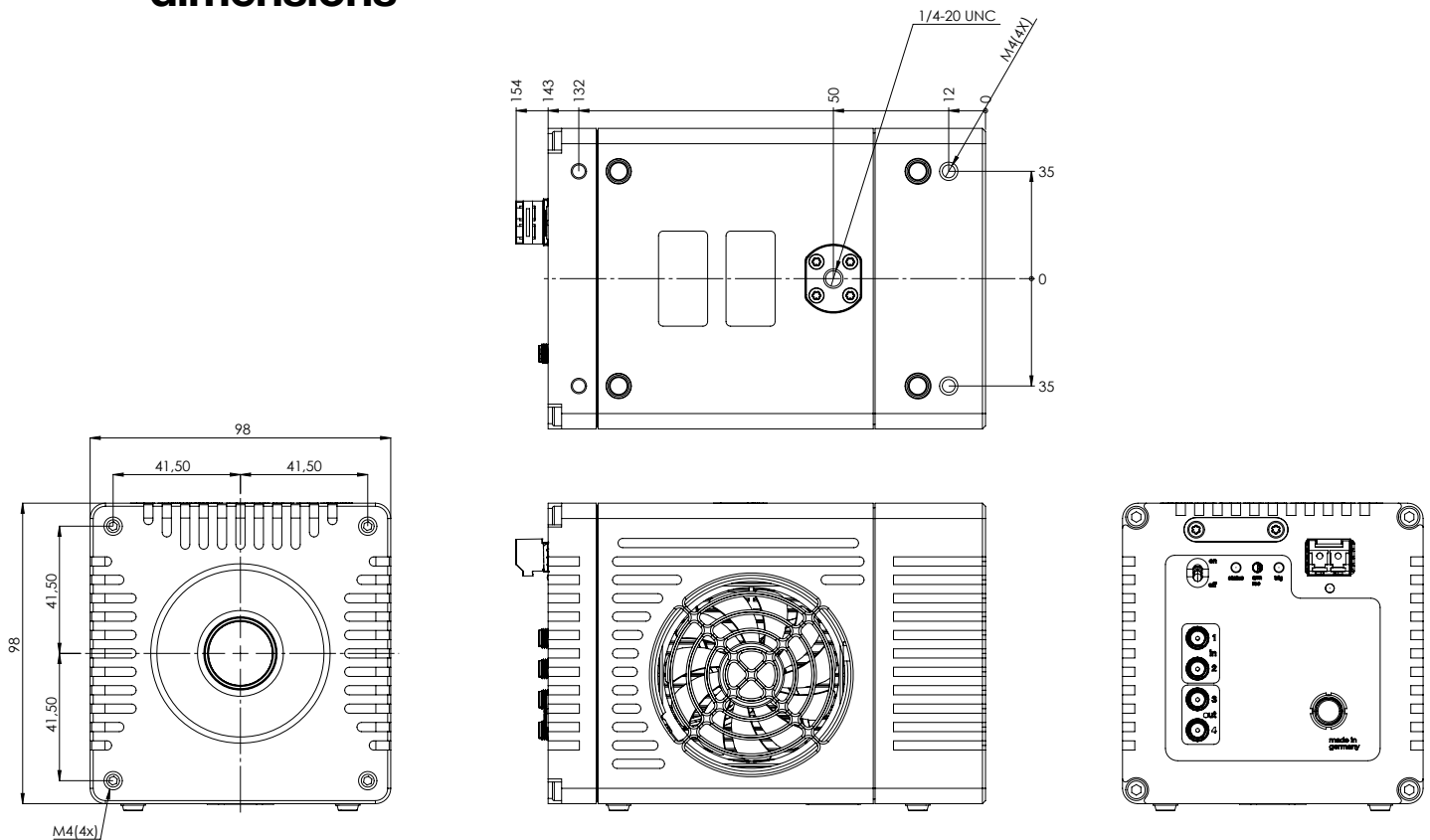
power supply	24 VDC ($\pm 10\%$)
power consumption	max. 65 W
weight	2.1 kg
dimensions (height × width × length¹)	98 mm × 98 mm × 161 mm
operating temperature range	+10 °C to +40 °C
storage temperature range	-10 °C to +60 °C
humidity range (non-condensing)	10 % to 80 % (recommended < 65 %)
certifications	CE, FCC, UKCA

¹ This value refers to the length including the camera flange.

optical interface

direct mounting distance (no camera flange)	9.5 mm $\pm 10\%$
lens mounting	C-mount
optional lens mounting	F-mount, TFL-mount

Configure your optical setup with our **MachVis™ System Configurator** online tool.

dimensions

outlines of pco.edge 1.3 SWIR CLHS without camera flange (all dimensions given in mm)

software

Your first choice is pco.camware:

Our main camera control software enables control of most camera settings and facilitates image acquisition and storage.

You can customize it exactly to your needs using different layouts, styles and features.

You prefer to use a different software:

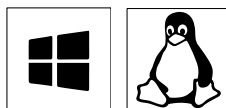
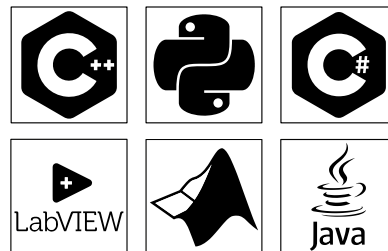
Our cameras integrate with a range of third-party software applications.

In microscopy we offer dedicated support for µManager, while ensuring compatibility with other software maintained by their providers.

You want to create your own application:

We feature a wide range of software development kits (SDK) for various programming languages, such as C++, Python, C#, LabVIEW, Matlab, and Java.

If you are looking for more general SDKs, we present pco.sdk and pco.recorder, our low-level SDKs with C interface.



Our software is available for Windows and Linux platforms.

Visit our **website** for detailed information, installation guidance, and Github projects.

areas of application

digital surgery microscopy systems | drone detection | fluorescence microscopy | hyperspectral imaging | intravital microscopy | in-vivo microscopy | light-sheet fluorescence microscopy (LSFM/SPIM) | packaging inspection | semiconductor inspection | structured illumination microscopy (SIM) | waste classification

ordering information

pco.edge 1.3 SWIR CLHS

camera system, monochrome, 1280×1024 pixel,
air cooling, CLHS

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