

# data sheet

## pco. edge 4.2 bi XU

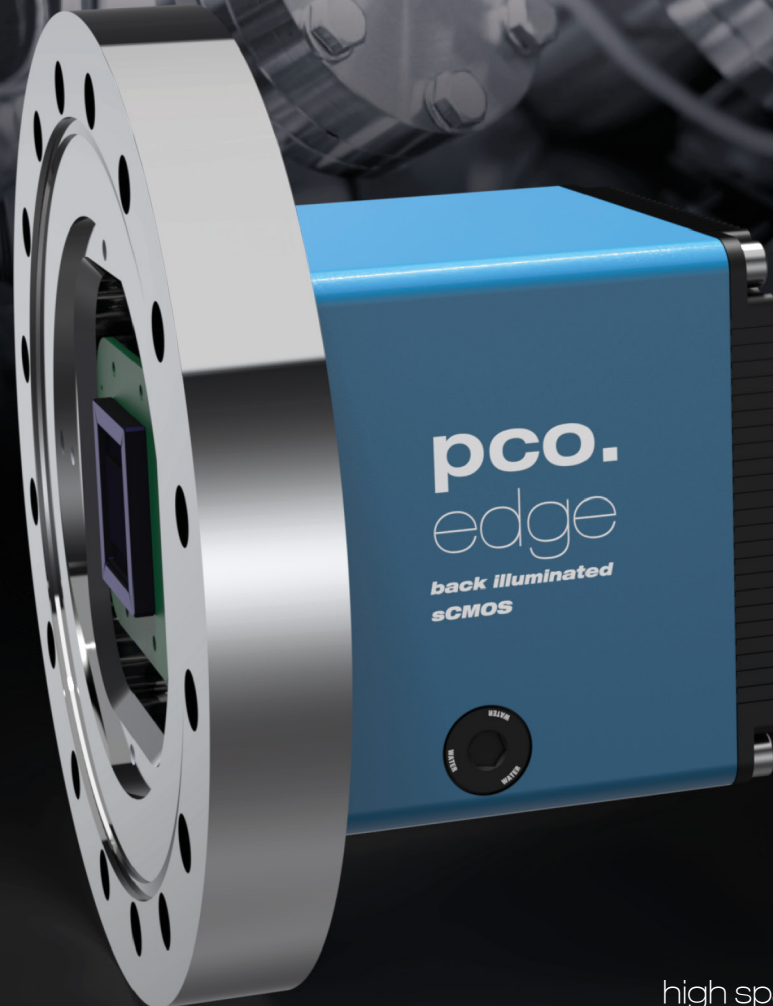
at the cutting edge with the cooled **back illuminated** sCMOS

**XU** X-ray  
ultraviolet

resolution  
**4.2 MPixel**

pixel size  
**6.5  $\mu\text{m}$  x 6.5  $\mu\text{m}$**

interface  
**USB 3.1 Gen 1**



low readout noise  
1.9 e<sup>-</sup> (median)

sCMOS PulSar  
technology

usable with vacuum  
down to 1x10<sup>-7</sup> mbar

high spatial resolution  
2048 x 2048 pixel

spectral range 1 nm to  
1100 nm (1.2 keV to 1.1 eV)

up to 95 % quantum efficiency  
@ 2.28 nm



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# pcO.

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## technical data

### image sensor

sensor technology	scientific CMOS (sCMOS)
color type	monochrome
resolution (horizontal x vertical)	2048 pixel x 2048 pixel
pixel size (horizontal x vertical)	6.5 $\mu\text{m}$ x 6.5 $\mu\text{m}$
sensor size (horizontal x vertical)	13.3 mm x 13.3 mm
sensor diagonal	18.8 mm
shutter type	rolling shutter, global reset
modulation transfer function (theoretical max.)	76.9 lp/mm
fullwell capacity	48.000 $e^-$
readout noise (typ.)	2.5 $e^-$ rms
dynamic range (intra-scene)	88 dB
peak quantum efficiency	95 % @ 2.28 nm
spectral range	1 nm - 1100 nm
dark current (typ.)	0.4 $e^-$ /pixel/s @ -18 °C sensor temperature

### frame rate table

vertical resolution reduction	frame rate
2048 x 2048	40 fps
2048 x 1024	80 fps
2048 x 512	159 fps
2048 x 256	302 fps
2048 x 128	527 fps
1920 x 1080	76 fps
1600 x 1200	68 fps
1280 x 1024	80 fps
640 x 480	171 fps
320 x 240	320 fps



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camera	
max. frame rate @ full resolution	40 fps
exposure time range	10 $\mu$ s - 20 s
dynamic range A/D	16 bit
conversion factor <sup>1</sup>	0.8 e <sup>-</sup> /DN
pixel rate	184 MPixel/s
region of interest (ROI)	horizontal: steps of 32 pixels vertical: steps of 8 pixels
non-linearity	< 0.6 %
dark signal non-uniformity (DSNU)	< 0.6 e <sup>-</sup> rms
photo response non-uniformity (PRNU)	< 1.2 %
cooling temperature image sensor	air cooled: -5 °C (ambient temperature +25 °C) air + water cooled: -18 °C (water temperature +18 °C)
cooling method	peltier with forced air and water cooling
trigger input signals	frame trigger, acquire
trigger output signals	exposure, busy
input / output signal interface	SMA connectors
time stamp	in image (1 $\mu$ s resolution)
data interface	USB 3.1 Gen 1

<sup>1</sup> According to EMVA1288 the conversion factor equals the inverse of the system gain and can be operational mode dependent.



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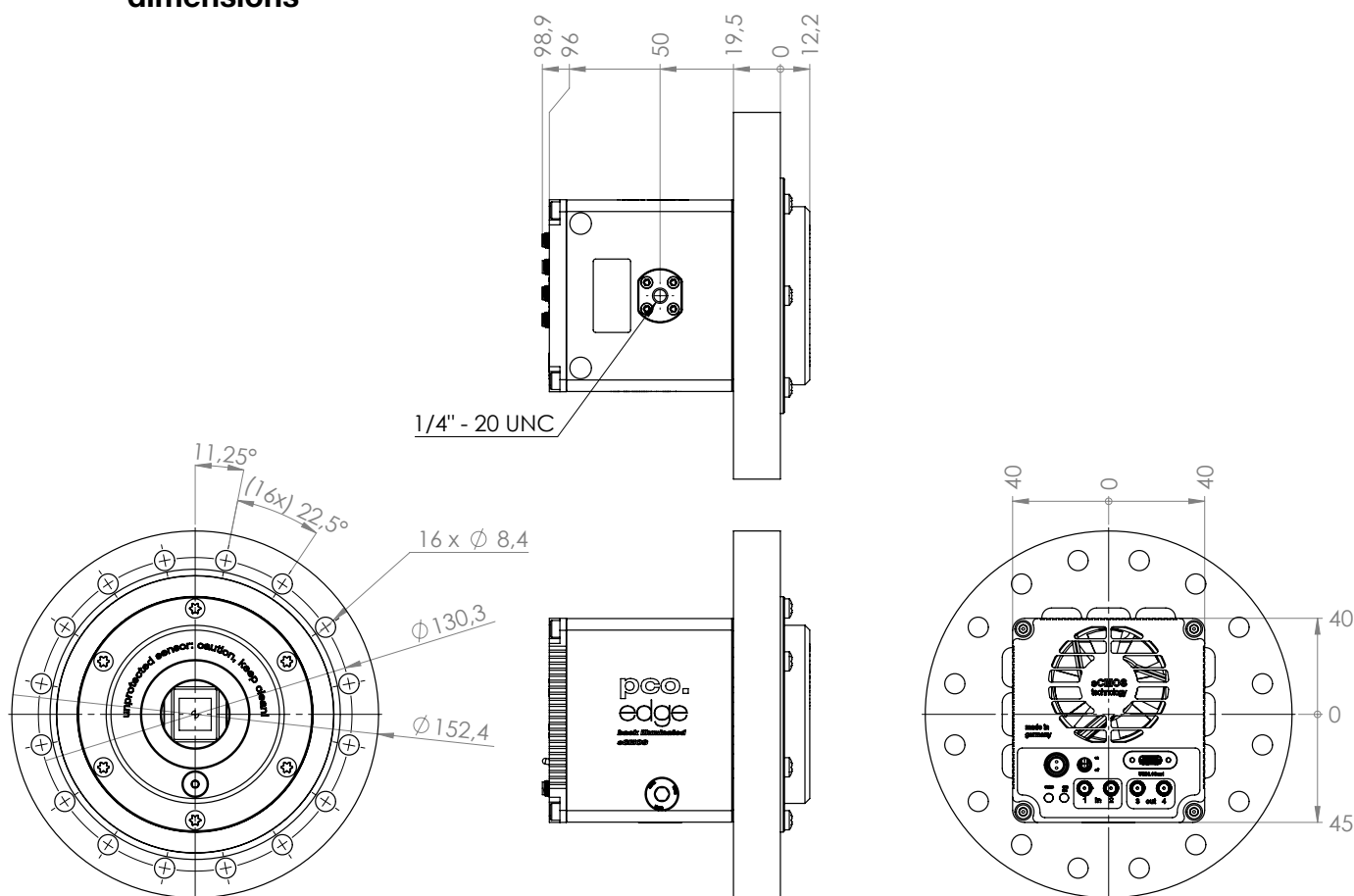
### general

<b>power supply</b>	power over USB 3.1 Gen 1 and power supply
<b>power consumption</b>	typ. 4.5 W over USB 3.1 Gen1 and typ 10 W (max. 22.0 W) over power connector
<b>weight</b>	3.1 kg
<b>dimensions (height x width x length)</b>	152 mm x 152 mm x 99 mm
<b>operating temperature range</b>	+10 °C to +40 °C
<b>operating humidity range (non-condensing)</b>	10 % to 80 % (non-condensing)
<b>storage temperature range</b>	-10 °C to +60 °C
<b>CE / FCC certified</b>	yes

### optical interface

<b>opto-mechanical interface</b>	CF 100-flange
<b>bolt circle</b>	available with a starting angle of 0 ° or 11,25 °
<b>protective cover</b>	for transportation, storage and quick usage without vacuum setup

### dimensions



Outlines of pco.edge 4.2 bi XU (all dimensions given in mm).

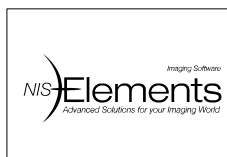
## software

Our main camera control software pco.camware is the first choice to get started with your camera. It enables full control of all camera settings and makes image acquisition and storage very easy. Using different layouts, styles and features you can customize it exactly to your needs.



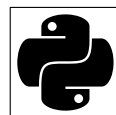
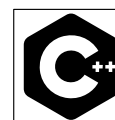
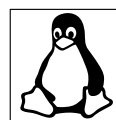
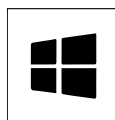
### You are using a different software:

PCO cameras are also integrated in a variety of software applications. Check our homepage to find a list of all applications that support PCO cameras.



### You want to create your own application for the camera:

We offer a wide range of Software Development Kits (SDK) for different programming languages, both for windows and linux. Our pco.sdk, pco.recorder and high-level SDK are designed for C/C++ apps. With pco.python, pco.matlab, pco.labview and pco.java you can control the camera in your C#, python, matlab, labview and java applications, respectively.



### Your use case is in the field of microscopy:

PCO cameras are also integrated in µManager.



## ordering information

pco.edge 4.2 bi XU

85108075023

camera system, monochrome, 2048x2048 pixel, air and water cooled, USB 3.1



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