

**pco.panda 4.2**  
true **sCMOS** compact

**new**

**bi** back  
illuminated



up to **95%**  
quantum efficiency

**6.5 $\mu$ m pixel size**  
for a perfect fit in microscopy  
and life science optics



65 mm

**ultra  
compact  
design**

the pioneer in **sCMOS** image sensor technology

**pco.**

# pco.panda 4.2

## sCMOS camera system



65 mm

**ultra compact design**



### pco.panda 4.2

#### technical specifications

##### image sensor

|   |   |
|---|---|
| <b>type of sensor</b>                   | sCMOS (scientific CMOS)                 |
| <b>resolution</b>                       | 2048 x 2048 pixels                      |
| <b>pixel size</b>                       | 6.5 $\mu\text{m}$ x 6.5 $\mu\text{m}$   |
| <b>sensor format / diagonal</b>         | 13.3 mm x 13.3 mm / 18 mm               |
| <b>shutter mode</b>                     | rolling shutter                         |
| <b>MTF</b>                              | 76.9 lp/mm (theoretical)                |
| <b>fullwell capacity (typ.)</b>         | 45 000 $e^-$                            |
| <b>readout noise (typ.)<sup>1</sup></b> | 2.1 med $e^-$ / 2.3 rms $e^-$           |
| <b>dynamic range (typ.)</b>             | 87 dB                                   |
| <b>quantum efficiency</b>               | up to 80 %                              |
| <b>dark current (typ.)</b>              | 15 $e^-$ /pixel/s @ 21 °C ambient temp. |
| <b>DSNU</b>                             | 0.5 rms $e^-$ @ 21 °C ambient temp.     |
| <b>PRNU</b>                             | 0.6 %                                   |

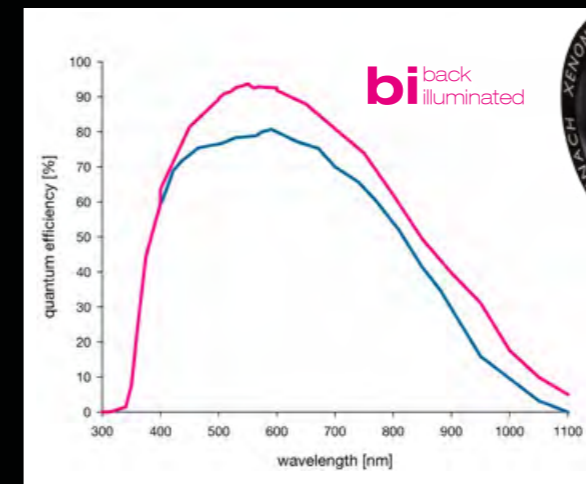
##### camera

|                                 |  |
|---------------------------------|--|
| <b>frame rate</b>               | 40 fps @ full resolution   |
| <b>exposure / shutter time</b>  | 100 $\mu\text{s}$ ... 5 s  |
| <b>dynamic range A/D</b>        | 16 bit   |
| <b>A/D conversion factor</b>    | 0.65 $e^-$ /count  |
| <b>region of interest (ROI)</b> | horizontal: steps of 4 pixels<br>vertical: steps of 1 pixel<br>minimum ROI: 4x4 pixels |
| <b>non linearity</b>            | < 0.6 %  |
| <b>cooling method</b>           | passive cooling  |
| <b>trigger input signals</b>    | frame trigger, acquire (SMA connectors)  |
| <b>trigger output signals</b>   | exposure, busy (SMA connectors)  |
| <b>data interface</b>           | USB 3.1 Gen 1  |
| <b>time stamp</b>               | in image (1 $\mu\text{s}$ resolution)  |

**new** »

**pco.panda 4.2 bi**

**quantum efficiency**  
pco.panda 4.2 vs pco.panda 4.2 bi



**up to 95% QE**



**bi** back illuminated

##### general

|                                  |                                |
|----------------------------------|--------------------------------|
| <b>power delivery</b>            | via USB Type-C                 |
| <b>power consumption</b>         | < 4.5 W                        |
| <b>weight</b>                    | 420 g                          |
| <b>operating temperature</b>     | +10 °C ... +40 °C              |
| <b>operating humidity range</b>  | 10 % ... 90 % (non-condensing) |
| <b>storage temperature range</b> | -10 °C ... +60 °C              |
| <b>optical interface</b>         | C-mount, F-mount (optional)    |
| <b>CE / FCC certified</b>        | yes                            |

##### frame rate table

|                    |        |
|--------------------|--------|
| 2048 x 2048 pixels | 40 fps |
| 2048 x 1024 pixels | 80 fps |

<sup>1</sup>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.

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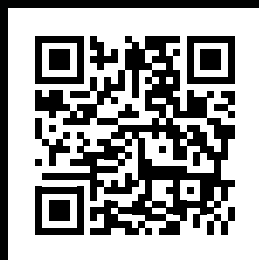
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For detailed data sheets please  
visit our website [www.pco.de](http://www.pco.de)



subject to changes without prior notice | lens is sold separately  
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