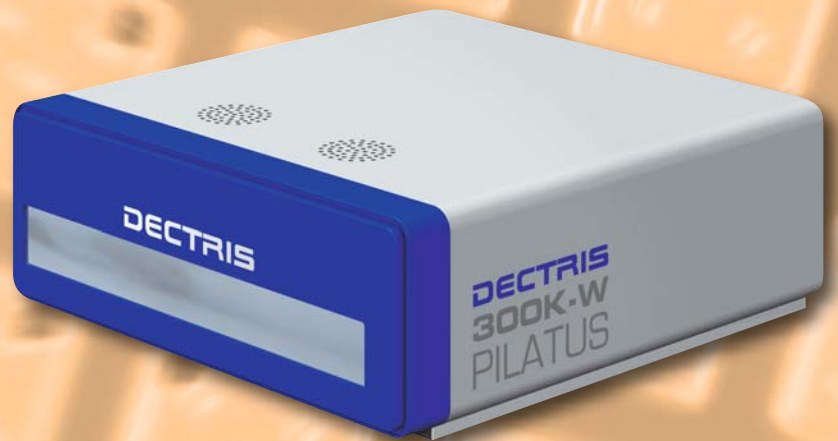


PILATUS **300K-W**

**A revolutionary
detector for small
and wide-angle X-ray
scattering**



PILATUS 300K-W

The PILATUS 300K-W detector system with its wide rectangular area is a revolutionary detector for small and wide-angle X-ray scattering, 2-D texture analysis and powder diffraction. The asymmetric design of the housing allows to position the detector very close to the direct beam.

It is based on the newly developed CMOS hybrid-pixel technology and operates in single-photon counting mode. It excels with its high frame rate and the outstanding capabilities which are common to all DECTRIS detector systems.

The PILATUS 300K-W detector system is air-cooled and therefore very simple in its operation and handling. It is ready to use and comes as a complete system with detector, PC with Linux OS and the data acquisition and analysis software TVX. Two different configurations are available: standard and fast. It can be also equipped with only 2 modules.

Applications

- Material science (MS)
- X-ray diffraction (XRD)
- Surface diffraction (SD)
- Small-angle scattering (SAXS)
- Wide-angle scattering (WAXS)
- Time-resolved experiments
- Powder diffraction

Key features

- Direct detection of X-rays in single-photon-counting mode
- Radiation-tolerant design
- High dynamic range
- Short readout time
- High frame rates
- High counting rates
- No dark current or readout noise
- Adjustable threshold to suppress fluorescence
- Excellent point-spread function
- Electronically gateable
- Shutterless operation

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Technical specifications

Number of modules	3 x 1
Sensor	Reverse-biased silicon diode array
Sensor thickness	320 μm
Pixel size	172 x 172 μm^2
Format	1475 x 195 = 287,625 pixels
Area	254 x 33.5 mm ²
Intermodule gap	x: 7 pixels, 1 % of total range
Dynamic range	20 bits (1:1,048,576)
Counting rate per pixel	> 2 x 10 ⁶ X-ray/s
Energy range	3 – 30 keV
Quantum efficiency (calculated)	3 keV: 80% 8 keV: 99% 15 keV: 55%
Energy resolution	500 eV
Adjustable threshold range	2 – 20 keV
Threshold dispersion	50 eV
Readout time	Standard: 3.6 ms Fast: 2.7 ms
Framing rate	Standard: 100 Hz Fast: 200 Hz
Point-spread function	1 pixel
Data formats	Raw data, TIF, EDF, CBF
External trigger/gate	5V TTL, 3 different modes
Software interface	Through socket connection; clients for EPICS, SPEC and stand-alone operation are available
Cooling	Air-cooled
Power consumption	50 W
Dimensions (WHD)	Approx. 384 x 100 x 458 mm
Weight	Approx. 12 kg