

MYTHEN **1K**

**High speed and excellent
data quality for all X-ray
diffraction applications**



MYTHEN 1K

The MYTHEN 1K is a one-dimensional silicon strip detector operating in single-photon counting mode and the ultimate detector for all demanding applications, where a high dynamic range and an excellent data quality are required.

It excels with its very compact size, high capture angle, high frame rate and the outstanding capabilities which are common to all DECTRIS detector systems.

The MYTHEN 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 and detector control system.

Three different detector control systems are available in which up to 24 MYTHEN 1K detectors can be combined to form a large multi-detector system to cover large angles.



Complete MYTHEN 1K detector system

Applications

- Powder diffraction
- X-ray diffraction (XRD)
- Phase analysis
- Texture and thin film analysis
- Time-resolved experiments
- Non-destructive testing

Key features

- Direct detection of X-rays in single-photon-counting mode
- High dynamic range
- Short readout time
- High frame rate
- High counting rate
- No dark current or readout noise
- Adjustable threshold to suppress fluorescence
- Excellent point-spread function
- Electronically gateable
- Shutterless operation
- Radiation-tolerant design
- Compact and robust design
- No cooling
- Maintenance free
- CE certification
- RoHS compliant

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Technical specifications

Sensor	Reverse-biased silicon diode array
Sensor thickness	320 μm
Strip size	50 $\mu\text{m} \pm 3 \mu\text{m}$
Format	1280 strips
Active area	8 x 64 mm^2
Dynamic range	24 bits (1:16,777,216)
Counting rate per pixel	> 2 x 10 ⁵ per strip (for 8 keV; standard gain settings)
Energy range	5 - 30 keV
Quantum efficiency (calculated)	5 keV: ~ 90% 8 keV: ~ 96% 15 keV: ~ 49% 30 keV: ~ 8%
Adjustable threshold range	5 - 20 keV
Readout time	0.3 ms
Framing rate	25 Hz (24 bit) 300 Hz (16/8 bit) 600 Hz (4 bit)
Cooling	Air cooled
Power consumption	5 W
Dimensions Detector (WHD)	~ 72 x 100 x 25 mm
Dimensions DCS1 (WHD)	~ 200 x 180 x 50 mm
Weight	~ 400 g