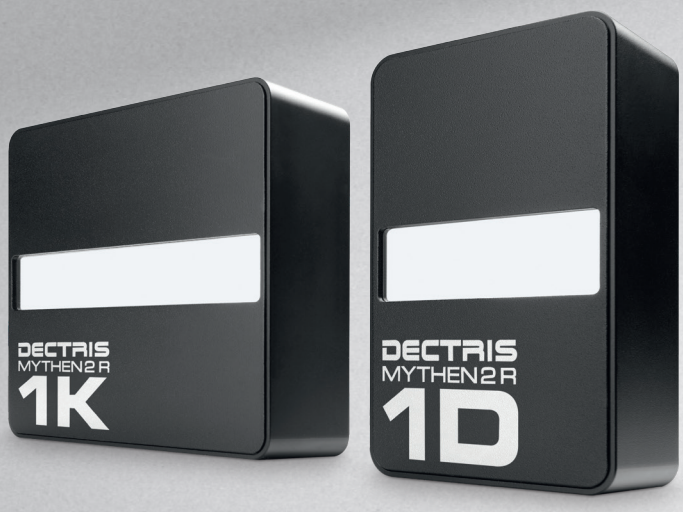
DECTRIS®

detecting the future

MYTHEN2 R



Microstrip X-ray Detector Series

From Ti to Ag: top performance
in all high-throughput applications

laboratory and industry

MYTHEN microstrip detectors take full advantage of the benefits of Hybrid Photon Counting (HPC) technology: noise-free performance, fast data acquisition and radiation-hardness bring out the best of laboratory and synchrotron sources. The new MYTHEN2 R series expands the possibilities in laboratory X-ray analysis even further. The redesigned module is available in two sizes: MYTHEN2 R 1K with 1280 strips and MYTHEN2 R 1D with 640 strips. The compact size and symmetrical sensor position of MYTHEN2 R detectors is suitable for any diffractometer geometry, from portable instruments to large systems. Multi-modular systems for a wide angular coverage are supported by the new Detector Control System DCS4, which allows up to four detectors to be simultaneously operated.

MYTHEN2 sensors with a 50 micron strip width are now available in three thicknesses and two lengths. The new 4 mm strip length ensures optimal signal-to-noise ratios at low X-ray energies combined with supreme readout time. These improvements enable measurements using Ti-radiation and pave the way for *in situ* residual stress analysis. The standard 8 mm length provides the maximal sensitive area and resolution for all X-ray analyses: combined with a 1000 micron sensor, it brings PDF analysis from the synchrotron source to your laboratory.

Key advantages

- Short strips for high-throughput measurements with Ti- and Cr-radiation
- Thick sensor for PDF measurements with Ag-radiation
- Compact size that fits in any diffractometer and budget
- Multi-modular systems for a wide angular coverage
- Maintenance- and media-free

Applications

- X-ray powder diffraction and scattering techniques
- Residual stress measurements
- Thin film and texture analysis
- PDF analysis
- SAXS, WAXS, GISAXS
- Dispersive fluorescence spectroscopy

Reaching low energies with 4 mm strip length

MYTHEN2 systems with a sensor thickness of 320 µm and 4 mm strip length are optimized for residual stress measurements. High quantum efficiency, maximal signal-to-noise ratio and absence of dark current enable accurate measurements using Ti- and Cr-radiation to be performed within seconds[1]. Featuring two 640-channel modules, MYTHEN2 R 2D is the ideal solution for measurements using the $\sin^2\Psi$-method.

Compact size with symmetric geometry

MYTHEN2 R 1K

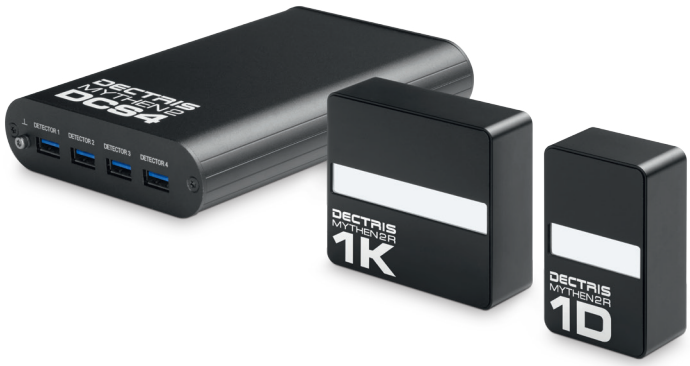
The original 1280 strip module was redesigned for more compact size and symmetrical shape: the integration of MYTHEN2 R 1K detectors in laboratory diffractometers is easier than ever.

MYTHEN2 R 1D

With its 640 strips, this detector offers an extremely compact profile. Its symmetric geometry and media-free operation make it the perfect choice for portable diffractometers and robots for stress measurements.

Multi-modular systems: Now for your laboratory

The new Detector Control System (DCS4) can operate up to four modules, allowing for multi-modular solutions in laboratory diffractometers. These systems provide a wide angular coverage with a gap of only 6 mm between the sensitive areas of the modules. Standard industrial cables connecting the modules and the DCS4 further enhance the flexibility and simplicity of the setup.



MYTHEN2 R	1K	1D
Sensor thickness [µm]	320, 450, 1000	
Strip width [µm]	50	
Strip length [mm]	8 and 4 (320 µm only)	
Dynamic range [bit]	24	
Energy range [keV]	4-40*	
Readout time [µs]	89	
Frame rate [Hz]	25	
Point-spread function [strip]	1	
Energy resolution[2] (rms) [eV]	687 ± 5	
Cooling	Air	
Module dimensions (WHD) [mm³]	70x62x22	38x62x22
Module weight [g]	180	100
DCS4 dimensions (WHD) [mm³]	110x30x160	
DCS4 weight [g]	400	

* X-ray energies down to 4 keV are available only with the 320 µm x 4 mm sensors.
Specifications are subject to change without notice

[1] Šišak Jung, D. *et. al.* (2014) *Adv. Mat. Res.* **996,** 203-208

[2] Bergamaschi, A. *et al.* (2008) *Nucl. Instr. Meth. Phys.* Res. **A591**, 163-166

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