

**DECTRIS®**

*detecting the future*

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EIGERR



*Maximum resolution with  
minimal dimensions*

*laboratory and industry*



# EIGER R

The EIGER R series features DECTRIS' latest generation of Hybrid Photon Counting detectors for the laboratory. They combine renowned single-photon sensitivity with high resolution. A pixel size of only 75  $\mu\text{m}$  and a megapixel sensor turn the EIGER R 1M into a versatile yet highly affordable detector for a variety of laboratory applications. The EIGER R 4M rivals CCD and image plate detectors in size but far outperforms them in collection efficiency, background noise and resolving power. This makes it the ultimate detector in cutting-edge instruments for the most demanding

experiments. Take advantage of the single-pixel point-spread-function to resolve spots from protein crystals with large unit cells or to record high-resolution powder diffraction patterns from textured samples. Further improve the signal-to-noise ratio of your most challenging samples thanks to the continuous energy threshold and an image depth of 32 bit. Strongest Bragg spots from small molecule crystals are accurately measured with count rate capabilities of up to  $5 \cdot 10^8$  phts/s/mm<sup>2</sup>. Unlock the potential of your laboratory instrument with a state-of-the-art HPC detector.

## Key advantages

- Hybrid Photon Counting: Direct detection of X-rays in single-photon-counting mode
- No readout noise or dark current for best signal-to-noise ratio
- Small pixels and narrow point-spread function for highest spatial resolution
- Continuous readout with global shutter
- Frame rates up to 10 Hz with duty cycle > 99.6%
- Count rates up to  $5 \cdot 10^8$  phts/s/mm<sup>2</sup>
- Continuous threshold for fluorescence suppression
- Room temperature operation of all detector components
- Optional vacuum compatibility
- Service-free with minimal maintenance

## Applications

- Macromolecular crystallography (MX)
- Single crystal diffraction (SCD)
- Powder diffraction (PD)
- Small- and wide-angle X-ray scattering (SAXS/WAXS)
- X-ray imaging
- Surface diffraction
- Diffuse scattering

## Technical specifications

	EIGER R 1M	EIGER R 4M
<b>Number of detector modules</b>	1 x 2	2 x 4
<b>Sensitive area: width x height [mm<sup>2</sup>]</b>	77.2 x 79.9	155.2 x 162.5
<b>Pixel size [<math>\mu\text{m}^2</math>]</b>	75 x 75	
<b>Total number of pixels</b>	1030 x 1065 = 1,096,950	2070 x 2167 = 4,485,690
<b>Gap width, vertical [pixel]</b>	-/37	10/37
<b>Inactive area [%]</b>	3.5	5.6
<b>Defective pixels [%]</b>	< 0.03	
<b>Maximum frame rate [Hz]</b>	10	5
<b>Readout time</b>	continuous readout, 4 $\mu\text{s}$ dead time, duty cycle > 99.6 %	
<b>Point-spread function</b>	1 pixel	
<b>Sensor thickness [<math>\mu\text{m}</math>]</b>	450	
<b>Threshold energy [keV]</b>	2.7 - 18	
<b>Maximum count rate [phts/s/mm<sup>2</sup>]</b>	$5 \cdot 10^8$	
<b>Image bit depth [bit]</b>	32	
<b>Dimensions (WHD) [mm<sup>3</sup>]</b>	114 x 133 x 240	235 x 235 x 372
<b>Weight [kg]</b>	3.9	15
<b>Power consumption [W]</b>	75	300

Specifications are subject to change without notice