

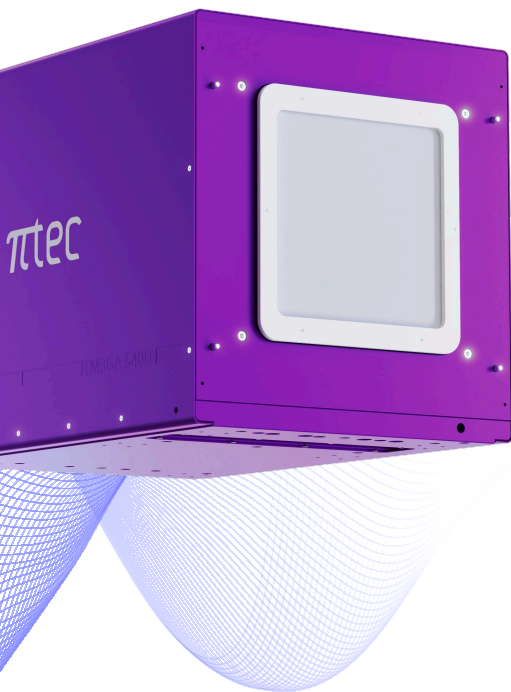
# Introducing PIMEGA

## A large-area detector for big discoveries

A family of large-area hybrid pixel detectors based on Medipix3RX technology, delivering noise-free, direct X-Ray detection with single-photon-counting capability and high detection efficiency.

### Key features

|                                                                                   |                                                 |                                                                                   |                                   |
|-----------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------|
|  | Medipix3RX Asic (CERN technology)               |  | High frame rate: up to 20,000 fps |
|  | Pixel size: 55 µm x 55 µm                       |  | No dead time                      |
|  | Energy thresholds                               |  | Sensors options: Si or CdTe       |
|  | High dynamic range:<br>1-bit, 12-bit, or 24-bit |  | Vacumm compatible                 |



| Tech specifications |                                                                                                                              |
|---------------------|------------------------------------------------------------------------------------------------------------------------------|
| Frame rate          | <ul style="list-style-type: none"><li>• 20,000 fps @ 1-bit</li><li>• 2,000 fps @12-bit</li><li>• 1,000 fps @24-bit</li></ul> |
| Acquisition modes   | Sequential or continuous                                                                                                     |
| Readout time        | 0 @ 1, 12-bit mode<br>1 ms @ 24-bit mode                                                                                     |
| Acquisition modes   | Dual energy, charge summing mode                                                                                             |
| Count rate (at 10%) | 3.5 × 10 <sup>5</sup> ph/s/pixel<br>1.2 × 10 <sup>8</sup> ph/s/mm <sup>2</sup>                                               |
| Software interface  | PITEC User Interface<br>EPICS Drivers<br>API for Phyton and C++                                                              |



# Detector model comparison

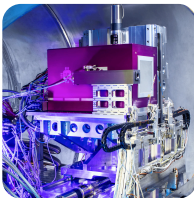
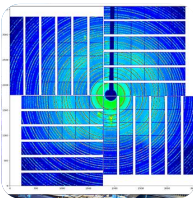
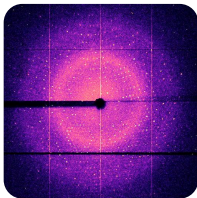
| Product                       | PIMEGA 135D                                                                       | PIMEGA 540D                                                                       | PIMEGA 450D                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                               |  |  |  |
| Number of Medipix3RX          | 6 x 6                                                                             | 12 x 12                                                                           | 1 x 120                                                                           |
| Pixels arrangement            | 1.536 x 1.536                                                                     | 3.072 x 3.072                                                                     | 256 x 30.720                                                                      |
| Area ≥ [mm²]                  | 84 x 84                                                                           | 170 x 170                                                                         | 14 x 1.680                                                                        |
| Resolution [MP]               | ~2.4                                                                              | ~9.4                                                                              | ~7.9                                                                              |
| Weight [kg]                   | 22                                                                                | 90                                                                                | 90                                                                                |
| Dimension [mm]<br>(w x h x d) | 180 x 152 x 594                                                                   | 394 x 414 x 594                                                                   | 1.690 x 287 x 1.002                                                               |

## Sensor material

|                            | Si               | CdTe        |
|----------------------------|------------------|-------------|
| Thickness                  | 500 µm<br>675 µm | 1000 µm     |
| Energy range               | 6 – 25 keV       | 8 – 150 keV |
| Adjustable threshold range | 4 – 25 keV       | 5 – 75 keV  |

## Synchrotrons applications

- Macromolecular Crystallography
- X-ray Diffraction
- Coherent and Time-resolved Scattering
- X-ray Scattering (SAXS/WAXS)



Talk to an X-ray specialist →

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