The Sydor X-ray Strip Detector is a one-dimensional array detector with excellent dynamic range that delivers high resolution, low noise measurements for time resolved low energy experiments. The detector utilizes a TEC cooled, fully depleted silicon sensor to reduce noise and increase sensitivity. It operates in the 3-30keV range with a resolution down to 350eV. The detector has an integrated dead-time calibration module and supports three channels per pixel with independent thresholds enabling highly accurate acquisition of signals within different energy ranges simultaneously.

### Key Performance Parameters

#### Sensor
- **Type**: Reverse-biased silicon diode array
- **Operating Temperature**: Cooled to -30°C
- **Active area**: 4 x 80 mm²
- **Sensor thickness**: 400 µm
- **Format**: Single row of 640 pixels
- **Pixel size**: 75 x 4000 µm² – (125 µm pitch)

#### Electronics
- **Detection Method**: Single Photon Counting
- **Maximum Counting Rate Per Pixel**: 1x10⁵ cps
- **Energy range**: 3-30 keV
- **Energy Resolution**: ~ 350 eV at 5.9 keV
- **Noise (dark count)**: < 1 count per minute at 9 keV
- **Dynamic range**: 3 Separate 24 bit counters per pixel with 5 independent thresholds (2 windows +1 threshold)
- **Readout time**: ~ 1 ms
- **Framing rate**: >500 Hz (24bit)

#### Mechanical
- **Cooling**: TEC cooled in sealed chamber with heat removal fan
- **Dimensions Detector (WHD)**: 150 mm x 118 mm x 188 mm
- **Weight**: 6 kg

#### Software / Control
- **Software interface**: Embedded EPICS IOC
- **User Controls**: MEDM GUI with full detector control
- **Computer interface**: Ethernet (10BASE-T)

Specifications subject to change at any time