



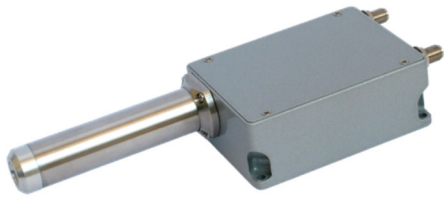
RaySpec XRF Silicon Drift Detectors

A range of SDDs designed for customer and OEM XRF applications

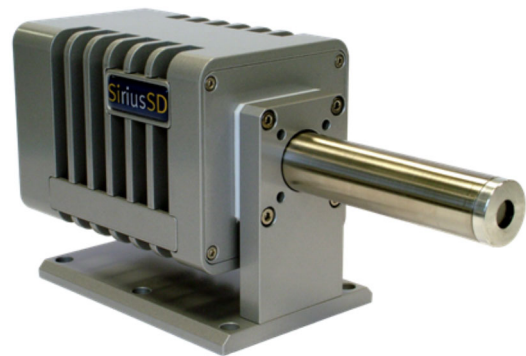
With active sensor areas from 10mm² to 170mm², the SiriusSD XRF Silicon Drift Detectors are designed for laboratory and OEM bench-top XRF applications.

RaySpec offer two detector models for XRF applications, the compact XRF200i and the larger XRF400i. Both detector types utilise sensors that are hermetically sealed and cooled by thermo-electric devices, with temperature control circuits which maintain the guaranteed energy resolution over a +10°C to +40°C ambient temperature range. Excellent peak to background performance is achieved over a wide range of x-ray acceptance angles by means of 'on-chip' internal collimators.

The compact XRF200i detector is available with sensors sizes up to 65mm² active area, while the XRF400i is available with all sensor sizes from 10mm² to 170mm² active area.



XRF200i Compact SDD Detector



XRF400i SDD Detector

Sirius XRF SDD available with active areas from 10mm² to 170mm²

Active Area (mm ²)	10	40	65	100	170
Collimated Area (mm ²)	7	30	50	80	150
Resolution (eV)	133	133	133	136	139
XRF200i	✓	✓	✓		
XRF400i	✓	✓	✓	✓	✓

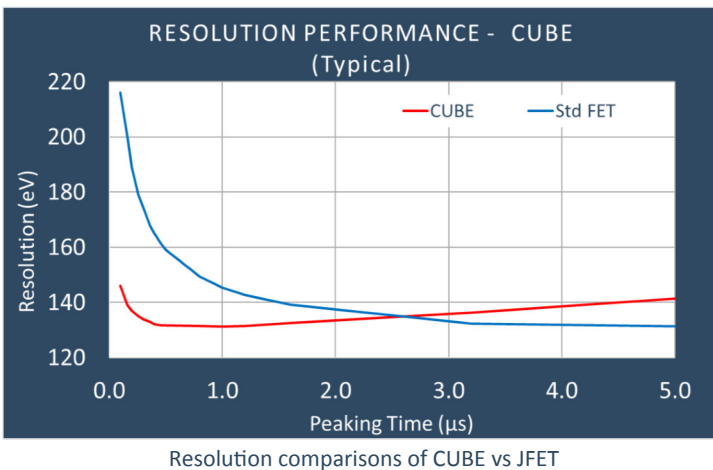
Available sensor areas for XRF SDD detectors

Note: Active area is the total active area of the SDD sensor defined by the front contact. Collimated area is the usable area of the sensor defined by an 'on-chip' collimator

Performance

- Typical resolution <133 (<136 100mm² and 170mm²)
- Typical peak to background > 15000:1

RaySpec utilizes an ASIC as a direct replacement for the traditional FET (the primary amplification stage). The 'CUBE' device is essentially a very low capacitance integrated preamplification stage offering a high signal/noise ratio. Optimum resolution is achieved at short processing times (<1μs) and resolution remains excellent even at very short PT's as may be used in high rate applications. The energy resolution obtained with the CUBE readout compared to a traditional FET is shown below. In resolution critical applications, lower dead times are achieved (and hence higher throughput) at all count rates.



Features

- Sensor collimated areas from 80mm² to 150mm²
- Sensor thickness 0.45mm
- Multi-Z (low fluorescence) on chip collimation
- Be or UTW (AP3.3) windows available
- ASIC CUBE available for improved resolution at short peaking times
- Active temperature control
- Dedicated low voltage and bias power supply

Physical Size

- Compact body:
 - ◊ 77 x 58 x 30mm excluding probe and connectors
 - ◊ 4 mounting holes for heat sinking
- Detector body:
 - ◊ 130 x 90 x 130mm excluding probe and connectors
- Tube length: Standard tube lengths from 50 to 300mm

Outputs

- Energy Output: Positive ramp, ±1V Range, gain 5mV/keV, SMA connector
- TTL Inhibit: Active high, 10μsecs width (adjustable on request), SMA connector

Power Input

- 15 way HD Type plug, ±15V, +4V max cooling voltage, -200V sensor bias (powered by proprietary power supply, supplied with the detector)

Digital Pulse Processor for Sirius XRF SDD Detectors

RaySpec XRF SDD Detectors may be paired with our DX200 Digital Pulse Processor. DX200 parameters are USB controlled, with spectrum transfer available via USB or real time event by event data via 20 way parallel port. The DX200 utilizes a fast 16bit 40Mhz ADC and has fast recognition circuits for excellent pile-up rejection. It is bundled with Data transfer software.



DX200 Digital Pulse Processor

