



SCIENTIFIC CCD CAMERA

XDS 3011 Specification Notes

X-ray Imaging

Dispersed X-ray Spectroscopy

Photon-Counting Spectroscopy



- *Deep-depletion CCD* for high sensitivity to X-rays over extended energy range
- Vacuum compatible
- Cryogen-free thermoelectric cooling, with supplementary water-cooling
- 12, 14 or 16 bit digitisation
- <5 electrons rms noise, depending on CCD type
- Full Frame architecture
- Full software control of your system including, readout parameters, binning and windowing modes
- High-speed readout for rapid spectral acquisition or slow-speed readout for highest sensitivity and greatest dynamic range

CCD specifications

Architecture	Full Frame
Active pixels	1024 x 255
Pixel Size	26 x 26 μm
Image Area	26.6 x 6.7 mm
Full Well Capacity ^a	500,000 e ⁻
Dark Current @ 293K ^b	37090 e ⁻ /pixel/s
Dark Current @ 243K ^b	234 e ⁻ /pixel/s
Readout Noise @ 253K ^a	4 rms e ⁻ /pixel

Notes

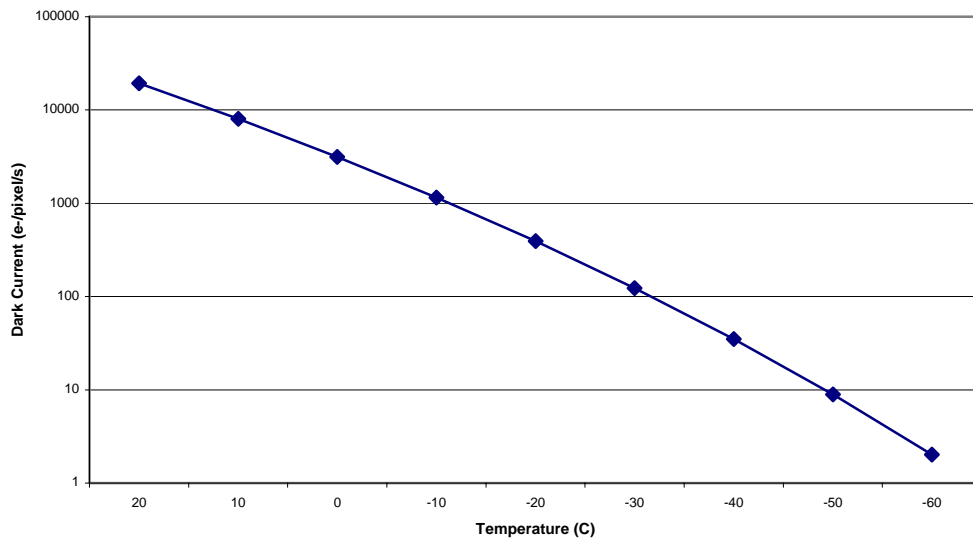
^a Manufacturer's data measured at 20KHz using correlated double sampling

^b Typical values

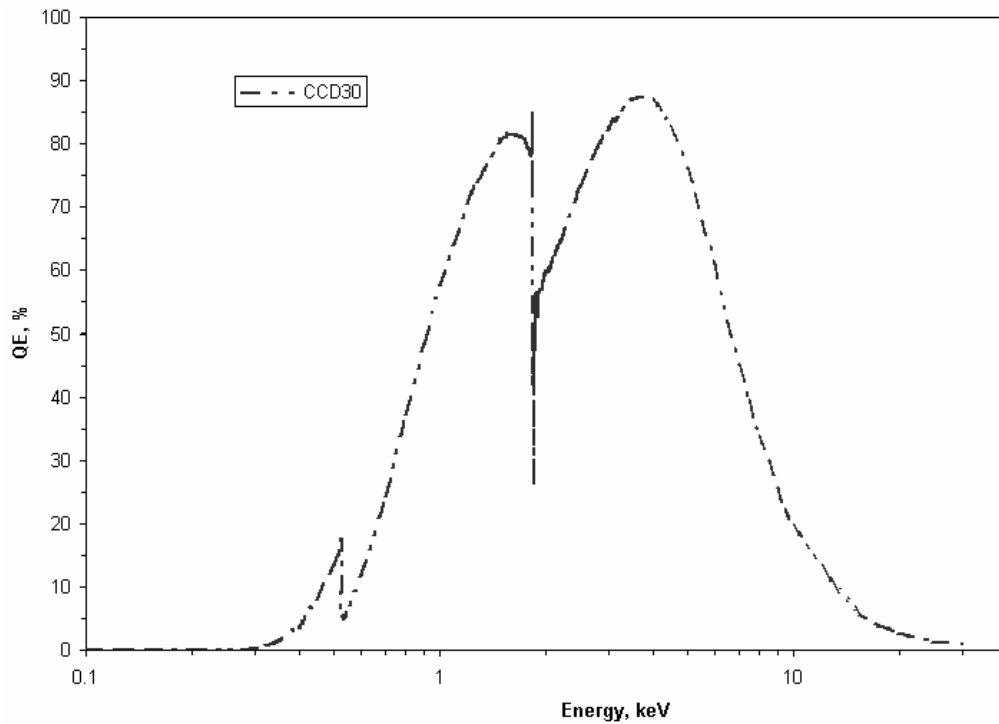
XDS 3011

Specification Notes

Typical Dark Current Characteristics



Typical X-ray Quantum Efficiency



XDS 3011

Specification Notes

System Specifications

System noise @ 200KHz ^b	8 e ⁻
System noise @ 800KHz ^b	15 e ⁻
Blank pixels (underscan)	Minimum 8 each side of 1024, but user programmable
Frame rate ^c	3 per second @ 800KHz

Computer and Power Requirements

Recommended PC Requirements	-
Minimum PC requirements	500 MHz, 256 Mb RAM
TE cooler power @ -20°C (vacuum) ²	3 W
TE cooler power @ -50°C (vacuum) ²	12 W

Accessories

The XDS 3011 requires the following components to function:

CCDREM2/USB or CCDREM2/HiP controller unit

Either (a) *vacuum interface details*, or
(b) *a vacuum feedthrough kit*

The XDS 3011 also requires software to enable image display:

Either (a) **Xcam** Image Display software, or
(b) **Xcam** Software Developers Kit, consisting of dll drivers and a manual, allowing you to write your own software to control the camera

Additionally, the following accessories are available:

Temperature controller
Water Chiller

Notes

^c Much faster frame rates can be achieved if reading out vertically binned, windowed spectra, as the unwanted rows can then be dumped fast, and the vertically binned spectra constitute few pixels. Please enquire with details of your application for more information

XDS 3011

Specification Notes

Mechanical Specifications

