

DE-16 Camera System

Detection electron energy range	Optimized for 80 keV – 1.25 MeV
Pixel pitch	6.5 μm
Pixel array dimensions	4096 \times 4096 16.8 megapixels
Total active area	27 \times 27 mm
Backthinned	Yes
Radiation hardened	Yes
Sensor protection	Integrated protection shutter to prevent unintended sensor exposure
Sensor replacement	Field-replaceable sensor module to maximize longevity and instrument up-time, while minimizing total cost of ownership
Single-electron SNR (incident energy dependent)	~50:1 @ 300 keV
Continuous frame-rate	Up to 60 fps, unbinned full-frame Up to 120 fps, 2 \times binned full-frame Sub-arrays at 1000+ fps (depending on size)
Binning	Flexible software binning
Sensor readout	Any arbitrary area
Sensor cooling	Peltier cooling, programmable and regulated to ± 0.1 $^{\circ}\text{C}$
Survey camera	Integrated off-axis 2048 \times 2048 (4.2 megapixel) scintillator-coupled camera
Retractable	Fully-retractable design, with no moving O-rings
Microscope compatibility	TEM microscopes including FEI, JEOL, Zeiss, Hitachi, etc.
Mounting position	On-axis TEM bottom port, pre- or post-GIF, or JEOL film drawer
Exposure measurement	Integrated Faraday plate for beam current density (exposure) measurement
Computer system	Certified high-performance computer with SSD RAID array for data streaming
Included software	DEServer with unified TCP/IP interface for remote clients Software development kit (SDK) for integration with custom software Stand-alone GUI based on ImageJ / Micro-Manager (cross-platform) DE image processing software (open-source, Python-based)
Optional software	DE-IM (full-featured, user-friendly, data collection software) DE-StreamPix (acquisition of long movies for <i>in situ</i> TEM)
Automated data acquisition	Fully integrated with Leginon and SerialEM SDK enables straight-forward integration with other automation software
Warranty	One year warranty from defects in non-consumable components Service contracts also available

Note: specifications are typical and are subject to change.