

DE-20 Camera System

Detection electron energy range	Optimized for 80 keV – 1.25 MeV
Pixel pitch	6.4 μm
Pixel array dimensions	5120 × 3840 19.7 megapixels
Total active area	33 × 25 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 32 fps, unbinned full-frame Sub-arrays at 500+ fps (depending on size)
Binning	Flexible software binning
Sensor readout	Any arbitrary area
Sensor cooling	Peltier cooling, programmable and regulated to ±0.1 °C
Survey camera	Integrated off-axis 2048 × 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.