

FastScan-F114

Fast scan CCD camera (1k, 14 μ m, 12bit)

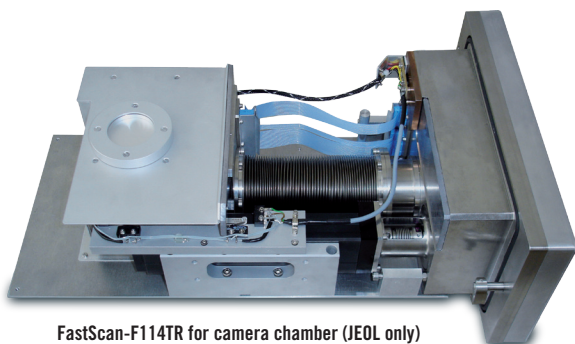
FastScan-F114 represents a new generation of CCD cameras, combining the superior quality of a slow scan CCD camera with the fast frame rate of a video camera. Various mechanical designs make it suitable for almost all TEMs, even when using various accessories, e.g., PEELS, post-column filters, STEM detectors or wide-angle cameras. The frame transfer CCD chip allows the FastScan to operate without a beam shutter.

Live image functions

The video recorder option of EM-Menu 4 provides real-time (up to 25 fps) displaying of images and power spectra, and storing video sequences as movie or single frames, enabling high-end video microscopy for in-situ applications.



FastScan-F114FX for off-axis port (Philips/FEI only)



FastScan-F114TR for camera chamber (JEOL only)



FastScan-F114T for on-axis position

TVIPS

The essential benefits of the FastScan-F114

Multiple designs

TVIPS offers FastScan-F114 for almost all possible configurations of TEM accessories:

FastScan-F114 on-axis, 1:1 fiber-optics, available for all TEMs with adaptors in the bottom plate

FastScan-F114T on-axis, 2:1 taper, available for all TEMs with an opening of at least 45 mm diameter in the bottom plate

FastScan-F114TR is a retractable camera with a 2:1 tapered fiber optics – located in the camera chamber (available for JEOL microscopes only)

FastScan-F114SX on-axis, 1:1 fiber-optics, available for special adaptors

FastScan-F114NX near-axis, compatible with post-column filters, PEELS, or other TVIPS on-axis cameras

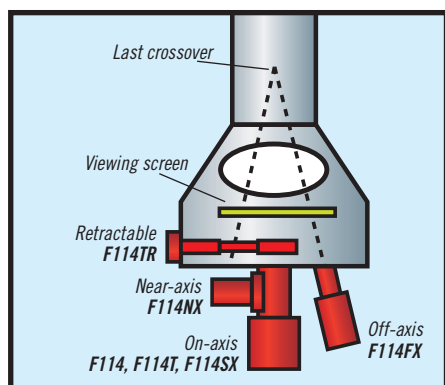
FastScan-F114FX off-axis, compatible with post-column filters, PEELS, or on-axis cameras (FEI/Philips only)

Ask TVIPS which type is compatible with your TEM system.

Fiber optical coupling of the electron-sensitive layer (scintillator) with the CCD sensor increases the amount of light collected in comparison with lens-optical coupling and, as a result, the sensitivity of the camera. The tapered fiber optics enlarges the field of view to 29 x 29 mm² and increases the resolution.

Optimized scintillators

TVIPS optimizes the scintillator for individual demands. Resolution and sensitivity can be customized for high tensions up to 400 kV.



	FastScan-F114 FastScan-F114SX	F114NX F114FX	F114T F114TR
CCD type (architecture)	Frame transfer		
CCD format	1024 x 1024		
CCD pixel size (µm ²)	14 x 14		
Field of view (mm ²)	14.3 x 14.3	14.3 x 14.3	28.6 x 28.6
Readout rate @ digitization	20 MPixel/sec @ 12 bit (10 MPixel/sec with binning)		
Frame rate @ full resolution	12 fps		
Frame rate @ 2x binning	26 fps (image size 512 x 512 pixels)		
Post-magnification	1.1x - 1.5x		
Electron-optical coupling	1:1 fiber-optics	1:1 fiber-optics	2:1 taper
Scintillator type	Polycrystalline phosphor		
CCD cooling	< -10° C (regulated)		
CCD binnig factors	1x, 2x		
Gain factors (analog)	1x		
Full well capacity (CCD electrons)	230 000		
Dynamic range (maximum/noise)	2 500:1		
Non-linearity	< 2 %		
Sensitivity for primary electrons (120 kV scintillator)	3.0 counts	3.0 counts	1.5 counts
SNR (for a single 120 keV electrons)	3:1	3:1	1.5:1
Resolution (NTF at Nyquist freq.)	> 10 %	> 10 %	> 13 %
Anti-blooming	yes		
Bottom mounted	on-axis, rotatable	near-axis (NX) off-axis (FX)	on-axis, rotatable
System requirements	Windows XP, PCI interface or Firewire		
Options	EM-Menu 4 Tomography Video recording to harddisk		

Data in this brochure are typical and not binding.

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