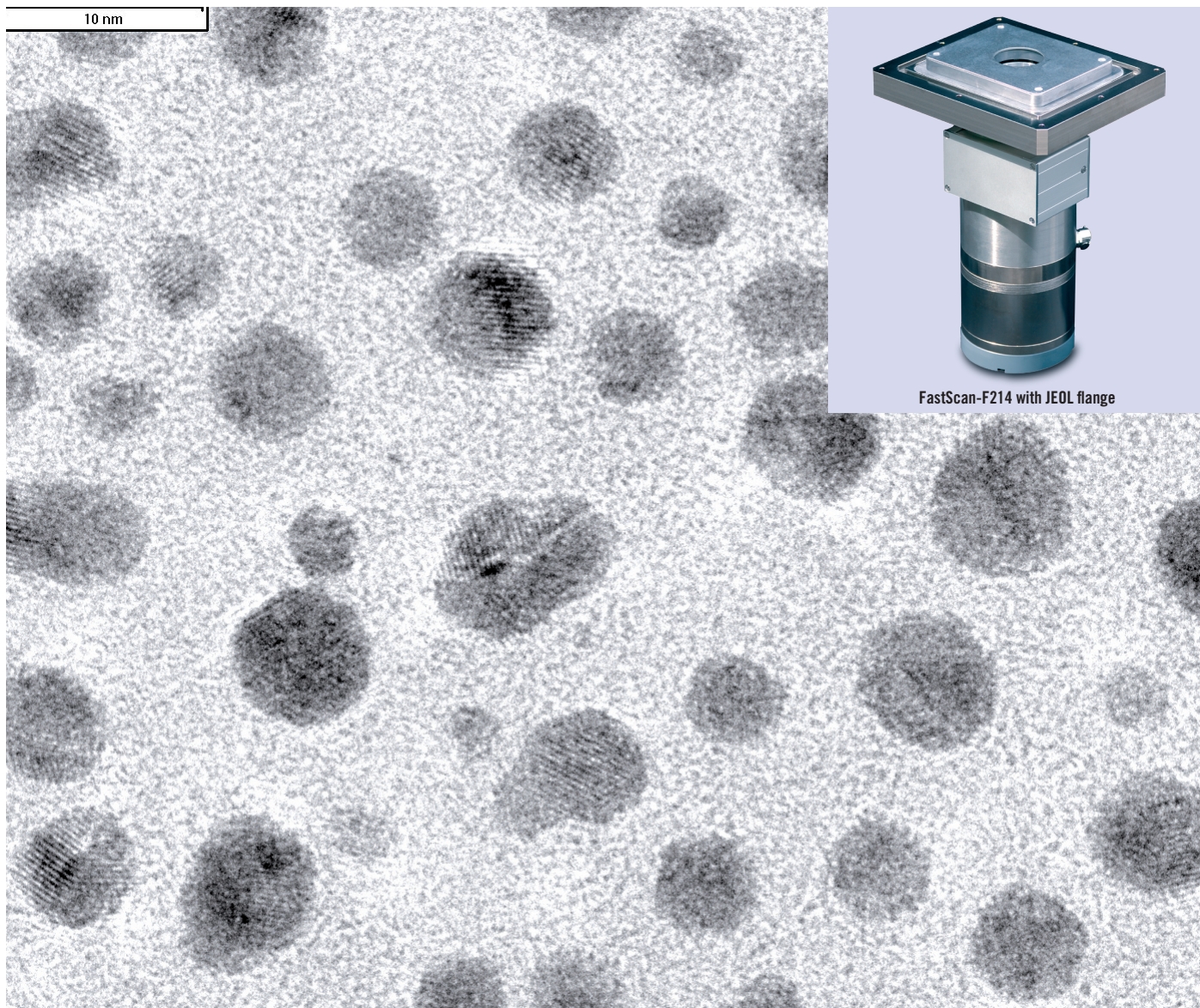


FastScan-F214

Fast scan CCD camera (2k, 14 μ m, 14bit)

FastScan-F214 is a 2k x 2k TVIPS bottom mounted, on-axis camera with an active area of 28 x 28 mm². It is the perfect solution for demanding applications in materials and life science. With its built-in mechanical shutter, the full frame CCD can be operated in a 2k x 1k, 2x binning frame transfer mode to facilitate a frame rate of up to 7 frames/sec. Using the optional 2.1:1 taper optics, FastScan-F214 offers an outstanding active area of 60 x 60 mm². A high quality 14 bit analog-to-digital converter makes this camera an excellent solution for all types of applications, requiring high dynamic range.



Gold islands

The essential benefits of FastScan-F214

CCD cooling

For optimum performance, the Peltier-cooled CCD chip (regulated at -10°C) is located in a vacuum housing separated from the microscope vacuum. The scintillator surface is kept close to room temperature. This design avoids contamination and allows venting the camera chamber without turning off the CCD camera.

Fiber optical coupling

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 60.2 x 60.2 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. Two standard types are available: optimized for high resolution (HR) or for high sensitivity (HS).

Camera rotation

The camera can be freely rotated in order to align it to the specimen feature or the tilt axis of the goniometer.

| | FastScan-F214 | F214T |
|---|--|-------------|
| CCD type (architecture) | Full frame | |
| CCD format | 2048 x 2048 | |
| CCD pixel size (µm ²) | 14 x 14 | |
| Field of view (mm ²) | 28.6 x 28.6 | 60.2 x 60.2 |
| Readout rate @ digitization | 10 MPixel/sec @ 14 bit | |
| Frame rate @ full resolution | 2-3 fps | |
| Frame rate @ 2x binning | 7-8 fps (image size 1024 x 512 pixels) | |
| Post-magnification | 1.1x - 1.5x | |
| Electron-optical coupling | 1:1 fiber-optics | 2.1:1 taper |
| Scintillator type | Polycrystalline phosphor | |
| CCD cooling | < - 10°C (regulated) | |
| CCD binning factors | 1x, 2x | |
| Gain factors (analog) | 1 x | |
| Full well capacity (CCD electrons) | 230 000 | |
| Dynamic range (maximum/noise) | 7 500:1 | |
| Non-linearity | < 1 % | |
| Sensitivity for primary electrons (120 kV scintillator) | 8 counts | 4 counts |
| SNR (for a single 120 keV electrons) | 3:1 | 1.5:1 |
| Resolution (NTF at Nyquist freq.) | > 10 % | > 14 % |
| Anti-blooming | yes | |
| Bottom mounted | on-axis, rotatable | |
| System requirements | Windows XP, Firewire | |
| Options | EM-Menu 4 Tomography Motorized beamstop Stream recording to hard disk | |

Data in this brochure are typical and not binding.

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