

FEI CorrSight

The only microscope built to simplify correlative experiments

Multi-scale and multimodal imaging are the most effective ways to retrieve the most information from one sample.

Light and electron microscopy complement each other perfectly. Light microscopy, (especially fluorescence microscopy) allows observation of dynamic events as well as specific labelling in living cells; while electron microscopy offers high-resolution structural information. As FEI's mission is to advance biological research, it was essential to bring these two modalities together.

Purpose-built to support correlative experiments

FEI CorrSight provides automation on the first steps in a correlative experiment. Considering how different the sample preparation protocols are, FEI CorrSight offers a variety of imaging modes and ensures compatibility with a variety of samples (from living cells to frozen hydrated).

Experience the benefits of an immobile sample stage

One of the specific design features of FEI CorrSight is a truly static sample stage. This allows uncompromised compatibility with different sample environments and peripherals in correlative experiments as well as optimal support for a multitude of applications. A high-end fluorescence microscope is moved precisely to scan the complete sample, allowing for high-speed image acquisition and a broad choice of applications, including the following:

- Automated large area scanning for automated screening of many samples
- Live cell imaging of dynamic events in intact cells or organisms with environmental control
- On-stage chemical fixation, staining and embedding with automated microfluidics
- Light microscopy of vitrified specimens under cryo conditions

Choose from various modules

Depending on imaging needs, FEI CorrSight can be complemented by numerous modules.

- Widefield: provides ultimate sensitivity and speed in image acquisition
- Structured illumination: provides optical sectioning and increases contrast in thick samples
- Andromeda spinning disk: offers fast optical sectioning in high-speed, living specimen imaging

KEY BENEFITS

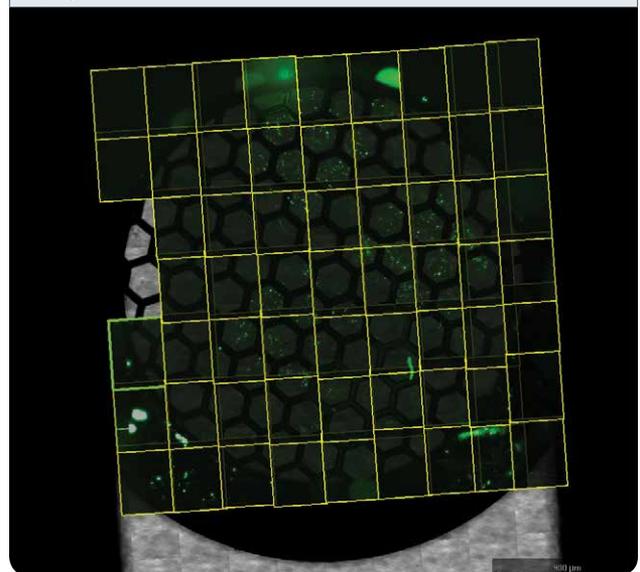
Highest level of automation in imaging and processing

Common software interface with all platforms used for data collection

Optimal support of various samples types as well as correlative experiments

Improved data quality and throughput by in situ chemical fixation, staining and embedding

Entails full imaging support for vitrified samples under cryogenic conditions





Optimize Workflow Automation

In all configurations, FEI CorrSight offers a high degree of automation and its integration with the software MAPS 2 provides seamless data integration between platforms.

- Bring advanced light microscopy and electron microscopy closer together
- Conduct timely correlative experiments
- Minimal manual intervention
- Reduce time to data
- Boost data quantity and quality
- Enjoy easier correlative experiments

Key Specifications

Imaging modes:

- Widefield
 - Xe-lamp light source
 - 8mW end of fibre output
 - 3ms colour switching speed
 - Up to 3 dichroic filters mounted at the same time
- Structured Illumination
 - Xe-lamp light source
 - 2 motorized Grids for optimal performance at all magnifications
 - Sectioning with $63\times/1.4NA < 1\mu\text{m}$

- SpinningDisk confocal
 - 4 laser line combiner (405/488/561/640nm) 65mW end of fibre output
 - Adjustable disk speed
 - Reflective optics for a minimized chromatic aberration
 - Sectioning with $63\times/1.4NA < 1\mu\text{m}$

XY-stage

- Travel range: $80 \times 120\text{mm}$
- Repeatability $< 1.5\mu\text{m}$

Focus drive

- Travel range 22mm
- Repeatability $< 25\text{nm}$
- Speed 10ms/1 μm

Sample environment

- Immobile sample holder exchangeable by user to host samples that can span from living cells to frozen hydrated
- Relocation precision $< 50 \mu\text{m}$
- Screen
 - Room temperature imaging
 - Supports standard glass slides
 - Supports dedicated correlative sample holders for fully automated sample
- Live
 - Temperature and environmental controlled sample holder for live cell imaging. Temperature stability $\pm 1^\circ\text{C}$.
 - It includes microfluidic setup for constant medium supply, *in situ* sample fixation, staining and embedding
- Cryo
 - Cryo chamber for imaging of vitrified samples
 - Liquid nitrogen supply and cold nitrogen gas purging assembly.
 - Minimized vibrations and drift $< 500\text{nm}/XYZ/60\text{sec}$

Software

- FEI LiveAcquisition: for flexible setup of pure light microscopy experiments, including time-lapses over multiple location
- FEI MAPS 2.0 for light microscopy: for automated acquisition of large areas multi-channel images on CorrSight, image and stage alignment for precise correlation and support of correlative workflow to FEI SEM /SDB electron microscopes
- RAPID: remote diagnostic support

Warranty and Training

- 1 year warranty
- Choice of service and maintenance contracts
- Choice of operation and application contracts

Installation requirements

- Instrument size: $1.46 \times 1.20 \times 1.70\text{m}$
- Instrument weight: 400Kg
- Room size: recommended total footprint of installed system $2.9 \text{ m} \times 2.8 \text{ m}$
- Ambient temperature range for operation within specifications: $20^\circ\text{C} \pm 3^\circ\text{C}$
- Relative humidity at 20°C :
 - Screen and Live $< 80\%$ without condensation
 - Cryo $< 60\%$
- Floor vibrations
 - Normal laboratory conditions
 - If floor vibrations are to be expected, the system should be ordered with passive vibration dampening
- Electrical requirements
 - CorrSight needs one standard outlet 110 - 230 V AC / 50 - 60 Hz / 16A and fuse type C
 - Power consumption is $< 2 \text{ kW}$

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