

# ADVANCED RESEARCH MICROSCOPE

EXL

**Innovative design.  
Quality, Comfort  
and Ease of Use**



**Innovative,  
efficient, and  
versatile – delivering  
exceptional imaging  
and a seamless user  
experience.**

Equipped with an ECO energy-saving mode, the EXL features a front LCD display showing brightness, color temperature, and magnification— helping users monitor status and boost efficiency.

The ECO function offers customizable hibernation (5–60 mins) with manual override for enhanced control and energy savings.

Super endurance with Type-C support use portable batteries for power anytime, anywhere.

Built-in USB port also lets you charge your phone or tablet on the go.

Highly stable, low-radiation, and ultra-long-life LED fluorescence modules with flexible control : simplifying microscopy for safer, more efficient, and professional diagnostics.

Super-large rackless ceramic stage with a smooth, arc shaped design. Features a double-layer mechanical build, high-hardness ceramic coating for corrosion resistance, and damping clips for holding two slides—ideal for inspection and comparison.

User-friendly design for comfort and safety—EXL features a secure handle, concealed locks, and an ergonomic low-position focus system. Rear storage keeps accessories clean and enhances portability.

Multifunctional digital camera module with USB 3.0 and Wi-Fi output for high-quality, progressive scanning. Supports remote full-resolution capture, multi-device viewing, and features a contact-type power supply for added convenience.

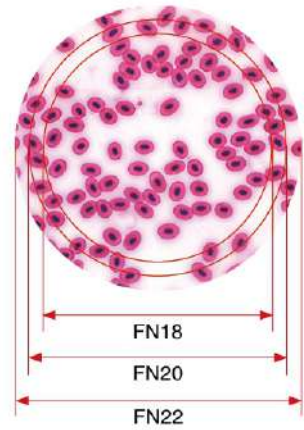


## Excellent Optical performance and practical design



### Outstanding Infinity color corrected optical system

Infinity color corrected system, professional plan achromatic objectives and cutting-edge microscopy technology, provide microscopic images with high resolution, high definition and high contrast.



### 22mm wide-field

- The EXL biological microscope can achieve a wide field of view range of 22mm under 10X eyepiece, which is more efficient and perfect for observation.
- Professional high eye point and wide field plan eyepiece can effectively correct edge distortion and chromatic aberration.



### Rotatable viewing tube

EXL viewing tube with gemel group 360° rotation function, adjustable pupil distance, eye point height, for different height of the operator to provide a more flexible and comfortable experience.

### Rotatable viewing tube

Double-layer mechanical stage, large arc shape, no angular design; the stage surface adopts ceramic paint process, high hardness, corrosion resistance; Damping-type double clips can be placed two slices at the same time, for inspection and comparative analysis.



### Super endurance function

The body is equipped with a Type-c interface, which allows the microscope to use a portable battery as a power source. The microscope thus frees itself from dependence on power outlets, enabling easy use outdoors or in power outages. The body comes with a standard USB port, that allows the microscope to charge a phone or tablet.



## Intelligent management of light intensity and ergonomic design

### With ECO energy-saving working mode

Build-in ECO function, no operation for 30 minutes, the system will automatically turn off and into the standby mode. Users can automatically wake up the light source by touching the dimming knob.



The EXL has a front LCD display, which displays the current lighting brightness, color temperature and magnification, so that the user can intuitively judge the working status and improve working efficiency.

At the same time, the EXL has ECO function which gives a prompt whether to hibernate. Users can manually cancel, saving energy and improving user experience.

The hibernation waiting time is 5-60 minutes.



ECO duration, lighting brightness, objective magnification, and color temperature are displayed on the working screen.



Long press the dimming hand wheel to adjust the color temperature interface 3000K-7000K.



Short press the dimmer hand wheel to enter ECO mode. You can set the ECO duration.



In standby mode, "Coffee cup" will appear one minute ahead of time to remind you of standby state.



### Brightness memory function

EXL can be equipped with code nosepiece, able to remember the illumination brightness of each objective. Users can freely adjust the light source brightness of each objective and the system automatically remembers, not only to improve efficiency, but also to reduce visual fatigue.

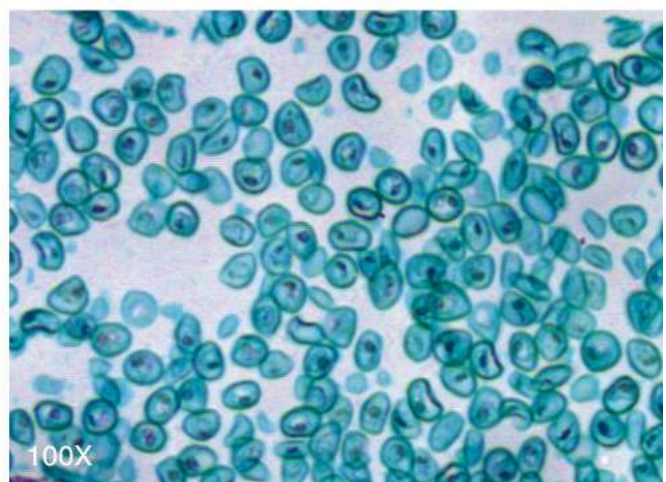
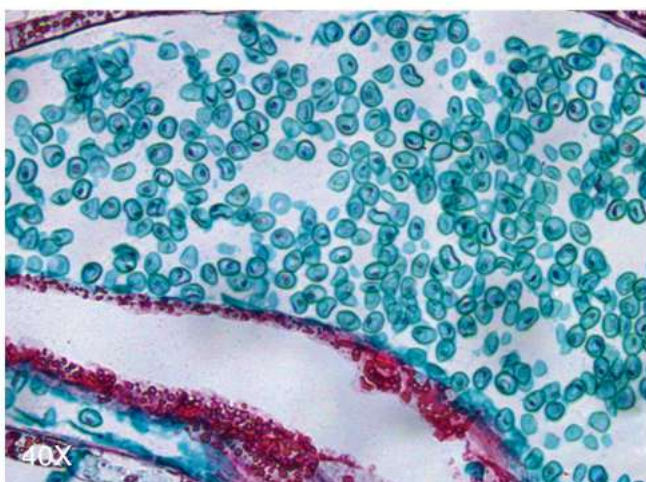
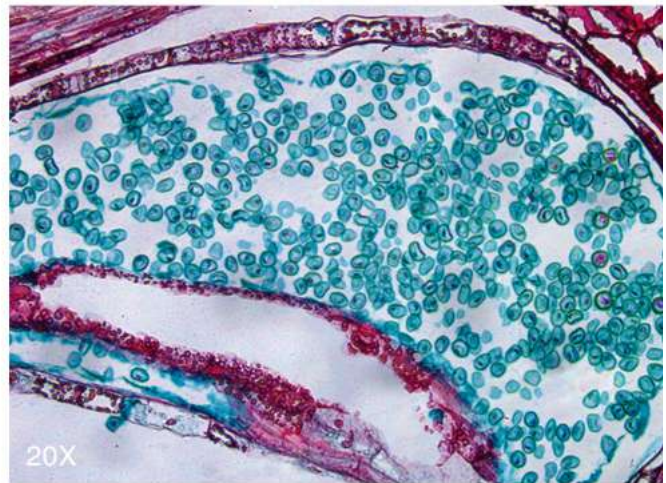
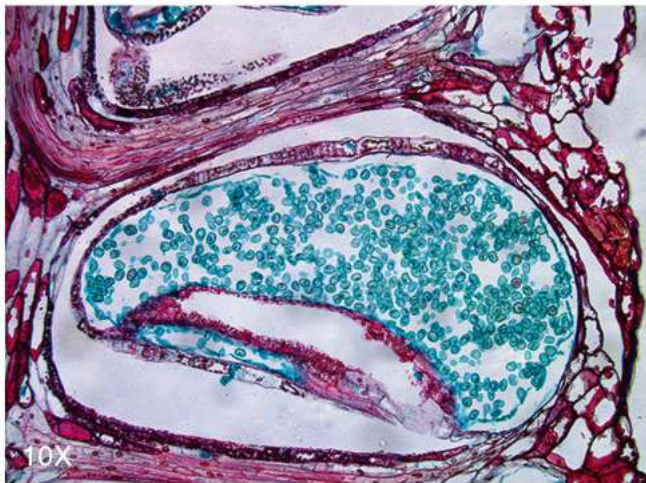
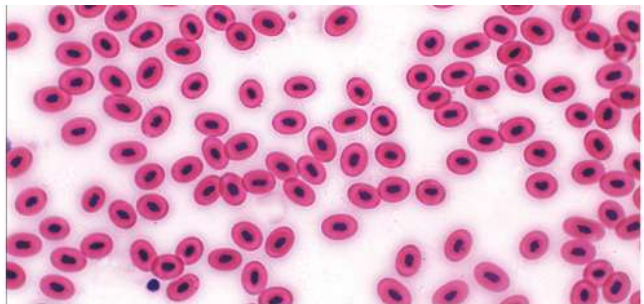
## User-friendly design increases comfort and safety

- The EXL is equipped with a secure handle for moving.
- Fully concealed locking design eliminates all sharp edges.
- Low hand coarse and fine coaxial focus system is ergonomically designed to give the user maximum comfort.
- There is a storage device at the back of the body to ensure the cleanliness, , saving storage space and improving portability.



## BRIGHT FIELD OBSERVATION

The professional plan achromatic objective, with the use of the Kohler illumination system, adjusts the image to the best condition by adjusting the aperture diaphragm and the field diaphragm. High-resolution, high-contrast microscopic images can be obtained whether at low or high magnification.



## Advanced Upright Microscope System

### Main Body:

The upright microscope stand features a precision-engineered design that integrates both LED transmitted and reflected illumination for versatile imaging applications.

Z-drive focusing mechanism with fine drive knob on the left and fine drive disk on the right.

Built-in power unit for stable and compact performance.

15 mm Z-focus range for accurate focusing control.

Ergonomic one-hand specimen holder with spring lever on the left side.

Built-in snap button on both sides of the stand for convenient image capture.

Light manager for both TL and RL light paths ensuring optimal illumination.

Compatible with both LED and Halogen light sources in one stand.

Independent and memory-based intensity control for each FL-LED channel.

### Binocular Phototube:

Binocular phototube with 30° inclination and 23 mm field number (50:50 splitting ratio).

Microscope stand includes provision to attach a camera without replacing the binocular tube.

### Eyepieces:

Widefield 10X eyepieces, 23 mm field of view.

±5 diopter adjustment with comfortable rubber eyecups for extended observation.

### Nosepiece:

Revolving 5-position encoded nosepiece for smooth and accurate objective change.

Equipped with anti-collision mechanism to protect objectives and samples.

### Transmitted Illumination:

10W LED illumination with built-in shutter for transmitted light.

LED lifetime exceeds 100,000 hours, providing maintenance-free operation.

## Light Management & ECO Mode:

Automatic brightness control ensures uniform illumination at all magnifications.

ECO Mode automatically switches off illumination after 15 minutes of inactivity, saving energy and extending LED life.

## Smart Documentation:

Built-in Snap Buttons on both sides for direct image and video capture without a computer.

Integrated memory card slot allows easy saving and transfer of captured images and recordings.

## Mechanical Stage:

Precision mechanical stage, size 75 × 30 mm, with hard-coated anodized surface.

Right-hand drive with adjustable torque setting.

Single specimen holder designed for one-hand operation.

## Objectives:

High-quality Plan Achromat Objectives provide clear, high-contrast imaging across the full field of view:

5x / 0.12

10x / 0.25

20x / 0.45

40x / 0.65 (Phase)

100x / 1.25 Oil (Phase)

## Condenser:

5-position turret condenser accommodating Brightfield, Phase Contrast, and Darkfield techniques.

# 12MP Autofocus 4K HDMI Camera

## Specifications:

- Camera with Adaptor
- High-resolution colour CMOS microscopy camera designed for direct imaging and wireless sharing.
- 12 Megapixel resolution (4032 × 3044); sensor diagonal 9.3 mm.
- Frame rate: ≥30 FPS at full resolution (3840 × 2160).
- Pixel size: 1.85 μm × 1.85 μm.
- Multiple interfaces: Type-C, LAN, HDMI, USB 3.0, and M8.
- Capable of direct display and capture without PC.
- Intuitive on-screen display with adjustable image parameters.
- Built-in Wi-Fi connectivity supporting 20 or more simultaneous users.
- Multi-user annotation and capture possible via mobile devices, laptops, or PCs.
- Operating system: Windows XP 32bit, Windows 7/8/10 32/64bit
- Camera adapter: C-mount
- Accessories: IR remote control
- Power supply: 12V 2A



Software : Imaging software, image capturing, image enhancement, brightness adjustment & contrast, annotations & linear measurement.

## HP/Dell/Lenovo Desktop PC



### High-performance Computer System

- Intel i7 Processor
- 16 GB RAM
- 1 TB SSD Storage
- 2 GB NVIDIA Graphics Card
- 27-inch Monitor
- Genuine Licensed Operating System
- 4 kVA UPS with 4-hour backup included.

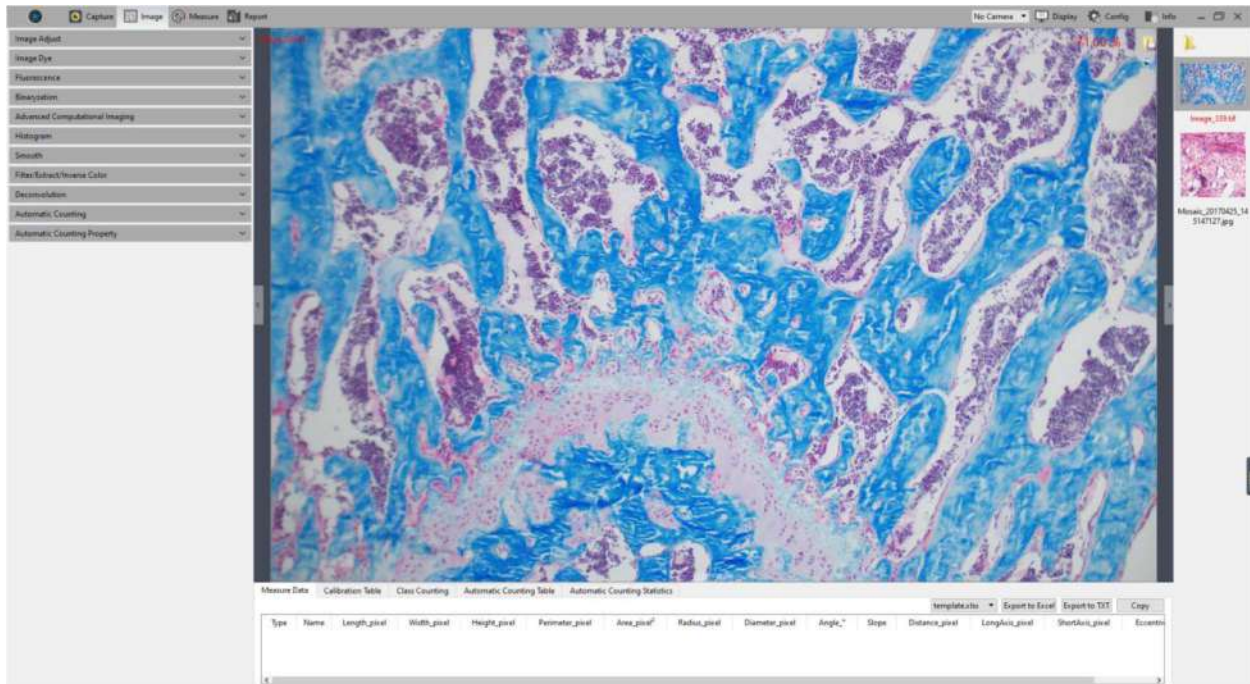


## **Microscope Imaging Software Specification**

### **Key Features and Functionalities**

#### **1. Capture**

- **High-Resolution Image Capture:** Supports detailed and accurate imaging with a variety of resolution settings.
- **Binning Capability:** Allows pixel binning to enhance signal-to-noise ratio.
- **Exposure Control:** Adjustable exposure settings for precise imaging under various lighting conditions.
- **White Balance Adjustment:** Ensures accurate color reproduction.
- **Bit Depth (Monochrome Cooling Camera):** High bit-depth support for enhanced grayscale imaging.



## 2. Image Processing

- **Image Adjustment Tools:** Comprehensive tools for brightness, contrast, and color adjustments.
- **Histogram Analysis:** Real-time histogram display for detailed image analysis.
- **Temperature Control (Cooling Cameras):** Maintains consistent sensor performance.
- **Region of Interest (ROI):** Selectable areas for focused image processing.
- **Masking Options:** Apply masks for isolating specific regions during analysis.
- **Imaging Stitching (Live):** Seamlessly combine multiple images for high-resolution composite views.
- **Extended Depth of Field (EDF, Live):** Create images with extended focus depth.
- **Real-Time Dye Adjustment:** Adjust dye parameters in live imaging mode.
- **Video Recording:** Capture and save high-quality videos.
- **Delay Capture:** Scheduled or delayed imaging for specific requirements.
- **Trigger Functionality (Monochrome Cooling Cameras):** External triggering for synchronized imaging.
- **Advanced Image Processing:** Features like deconvolution and advanced filters.

### 3. Measurement and Analysis

- **Measurement Tools:** Tools for length, area, and angle measurements.
- **Calibration Options:** Ensure accurate measurements with user-defined calibration.
- **Layer Management:** Organize and analyze data on multiple layers.
- **Metrics Flow:** Streamlined data collection and analysis.
- **Graphics Properties:** Customize graphical overlays for better visualization.
- **Fluorescence Intensity Analysis:** Quantify and analyze fluorescence signals.
- **Manual Class Counting:** Interactive counting tools for classification tasks.
- **Scale and Ruler Properties:** Adjustable scales and rulers for detailed measurements.
- **Grid Settings:** Overlay grids for precise alignment and analysis.

### 4. Reporting

- **Template Reports:** Predefined templates for generating professional reports.
- **Customizable Reports:** Flexibility to create tailored reports with imaging and analysis data.

### 5. Image Display and Configuration

- **Real-Time Display:** High-quality, real-time image rendering.
- **Advanced Display Features:** Fluorescence visualization and computational imaging capabilities.
- **Configuration Options:** Fine-tune capture, image, and measurement settings.

### 6. Additional Features

- **Automatic Counting:** Automate object counting with customizable properties.
- **Auto Focus (Auto Focus Cameras):** Real-time auto-focusing for precise imaging.
- **File Saving Options:** Multiple formats supported, including JPEG and RAW.
- **Light Frequency Adjustment:** Minimize flicker and ensure stable lighting.
- **User Settings:** Save and load user preferences for a consistent workflow.

### 7. Advanced Computational Imaging

- **Binaryzation Tools:** Convert images to binary for enhanced analysis.
- **Smoothing Filters:** Reduce noise while preserving critical details.
- **Color Filters:** Extract or invert colors for enhanced visualization.

## **8. System Information**

- **Detailed Info Panel:** Access detailed system and software information.
- **Customizable Settings:** Tailor the software to meet specific imaging requirements.

## **9. Supported Applications**

- **Biological Imaging:** Ideal for fluorescence, brightfield, and phase contrast imaging.
- **Industrial Applications:** Precision imaging for quality control and analysis.
- **Educational Use:** Interactive and user-friendly interface for teaching and demonstrations.

## **Technical Compatibility**

- Compatible with a wide range of camera models, including monochrome cooling and auto-focus cameras.
- Supports integration with microscopes from various manufacturers.
- Operates on Windows and MacOS platforms.

## **Powerful, intuitive software designed for comprehensive image acquisition, measurement, and documentation.**

- Full camera control and live image recording.
- Interactive tools for measuring distance, perimeter, area, etc.
- Movie Recorder for easy film capture via Start/Stop control.
- Step-less scaling and zooming for optimal viewing.
- Integrated 2D CAD overlay and topography viewer for 2.5D visualization of EDF images.

## **Grain Size Analysis Application supporting:**

- **Planimetric method:** Automatic grain border reconstruction and distribution analysis.
- **Intercept method:** Semi-automatic chord pattern measurement.
- **Compare method:** Manual comparative analysis using standard diagrams.

**Complies with industry standards:**

- DIN EN ISO 643:2024
- ASTM E112 - 24 Plate I - IV
- ASTM E1382 - 97(2015)
- GB/T 6394 - 2017
  
- Panorama stitching and manual Extended Depth Focus (EDF) capability.
- Metadata management, visualization, and printing.
- Wireless control from tablet, PC, or laptop.

Config				
Capture	Name	Visible	Up	Down
Image	Resolution	<input checked="" type="checkbox"/>	↑	↓
Measure	Binning	<input checked="" type="checkbox"/>	↑	↓
Jpeg	Exposure Control	<input checked="" type="checkbox"/>	↑	↓
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	White Balance	<input checked="" type="checkbox"/>	↑	↓
	Image Adjust	<input checked="" type="checkbox"/>	↑	↓
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	Temperature Control	<input type="checkbox"/>	↑	↓
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	Image Stitching(Live)	<input checked="" type="checkbox"/>	↑	↓
	EDF(Live)	<input checked="" type="checkbox"/>	↑	↓
	Realtime Dye	<input type="checkbox"/>	↑	↓
	Dark Field/Fluorescence Imaging	<input checked="" type="checkbox"/>	↑	↓
	Video Record	<input checked="" type="checkbox"/>	↑	↓

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