RESEARCH TRINOCULAR MICROSCOPE FXL-Trino

Professional LED Binocular Microscope System

Designed for Precision | Built for Longevity | Engineered for Versatility

This advanced binocular microscope combines high-quality optics, ergonomic design, and modern functionality to deliver exceptional performance in clinical, academic, and laboratory settings. Built to last and easy to operate, it features long-life LED illumination, a rugged mechanical stage, and seamless upgradeability for phase contrast and fluorescence applications.

Key Features & Optical Configuration

- **LED Illumination**
  Energy-efficient **LED light source** with **continuous intensity adjustment** ensures consistent brightness and low maintenance. Rated for a **lifespan of over 20 years**, it offers dependable illumination for daily use.
- **Optical System**
  Equipped with an **inward-inclined 4-position nosepiece**, the microscope comes with a full set of precision **achromatic objectives**:
  - 4x / 0.10
  - 10x / 0.25
  - 40x / 0.65
  - 100x / 1.25 (Oil immersion)
    These deliver sharp, high-contrast images across all magnifications.
- **Viewing Head**
  Ergonomic **30° inclined binocular tube**, adjustable for interpupillary distances between **52–75 mm**, ensuring comfort for extended viewing sessions.
- **Eyepieces**
  Widefield **10x / 20 mm eyepiece pair** with **locking screws** and **foldable eyeguards**, offering a clear, secure, and customizable viewing experience.

Stage & Focus System

- **Mechanical Stage**
  Durable, **rackless stage design** with **hard-anodized surface** ensures smooth operation and easy maintenance. Features **point counting and non-point counting options** with a **brake mechanism** to lock the rotation position.
  - **Travel Range**: 26 mm x 76 mm
  - **One-hand slide loading** for efficient workflow
- **Focusing Mechanism**
  Low-position, **self-adjusting coaxial focus knobs** calibrated for fine precision:
  - **300 µm per full fine-focus rotation**
  - **3 µm per increment**, ideal for high-resolution imaging and delicate focusing

Condenser & Illumination Control

- **Condenser**: Abbe condenser (NA 1.25 oil) with a slot to accommodate **phase contrast (PH)** and **dark field (DF)** accessories for future upgradeability.
- **Auto Shut-Off**: Intelligent power-saving feature automatically switches off illumination after **2 hours of inactivity**, extending LED lifespan and reducing energy use.

Build & Convenience

- **Antimicrobial Protection**: Microscope body is **treated with antimicrobial coating** for enhanced safety in clinical environments, supplied with proper certification.
- **Integrated Handle & Cord Wrap**:
  Designed for portability and neat storage, featuring an **integrated vertical handle** and **cord management system** to keep workspace tidy.
- **Power Options**:
  Universal AC power compatibility with **integrated USB power connector**, ensuring flexible usage in different environments.

Upgrade-Ready for Advanced Applications

- **Phase Contrast & Fluorescence**:
  The system is fully **upgradable for phase contrast and fluorescence microscopy**, with support for **a minimum of 3 fluorescence filter sets**, enabling advanced imaging techniques.

TRINO
360°
LED
TL
ABBE
230 V
2 DAY

ALMICRO®
since 1978

IMAGING CAMERAS

Seamless Design & Mounting

- **Integrated & Detachable**: The camera is mounted between the **binocular head and the objective turret**, offering a streamlined profile with the **flexibility to detach** when needed.
- Designed for **non-intrusive integration**, maintaining optical alignment and balance during use.

Imaging Capabilities

- **High-Definition Live Imaging**: Stream live images in stunning **4K resolution at 60 frames per second**, with **HDR** for enhanced contrast and clarity—ideal for dynamic sample analysis and presentations.
- **Image Capture**:
  - Still images up to **12 MP (JPG format)**
  - **Full HD video recording** at **30 fps (MJPG format)**
- **Sensor Technology**: Equipped with a high-performance **CMOS color sensor** for vivid and accurate color rendering.

Connectivity & Control

- **Multimode Operation** – Use the camera in three distinct modes:
  1. **Standalone Mode**: Connect directly to a 4K HDMI monitor—no computer required
  2. **PC/Desktop Mode**: Operate via included imaging software on Windows/Mac
  3. **Mobile App Mode**: Wireless control and live viewing through a compatible mobile app
- **Direct Interaction**:
  - **HDMI output** for high-resolution monitor connection
  - **2 USB ports** to support a wireless mouse and USB storage (e.g., pen drives)
  - **USB-C power connection** for reliable and modern energy delivery
  - **Dedicated ON/OFF switch** with **LED status indicator** for operational visibility
- **Standalone Image Capture**: Save images **directly to a USB drive** and even **send via email** (if supported by network configuration)—ideal for quick documentation and sharing.

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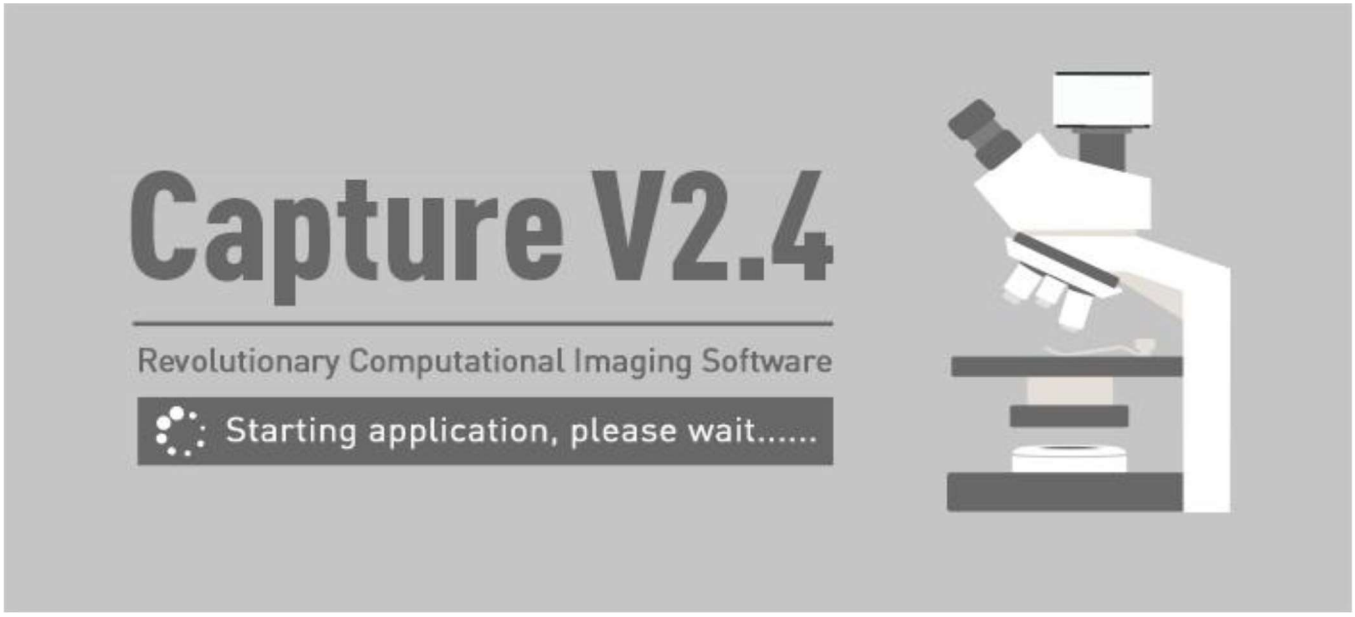
MODEL : CAPTURE 2.4

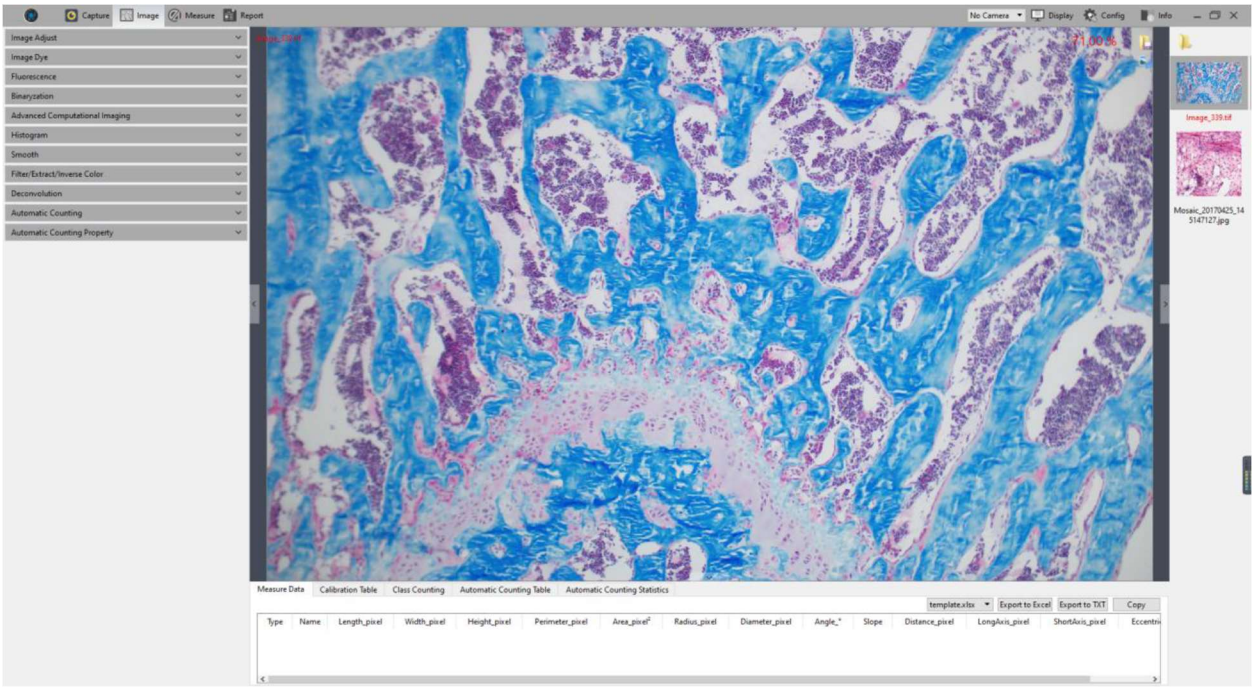


Microscope Imaging Software Specification

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.