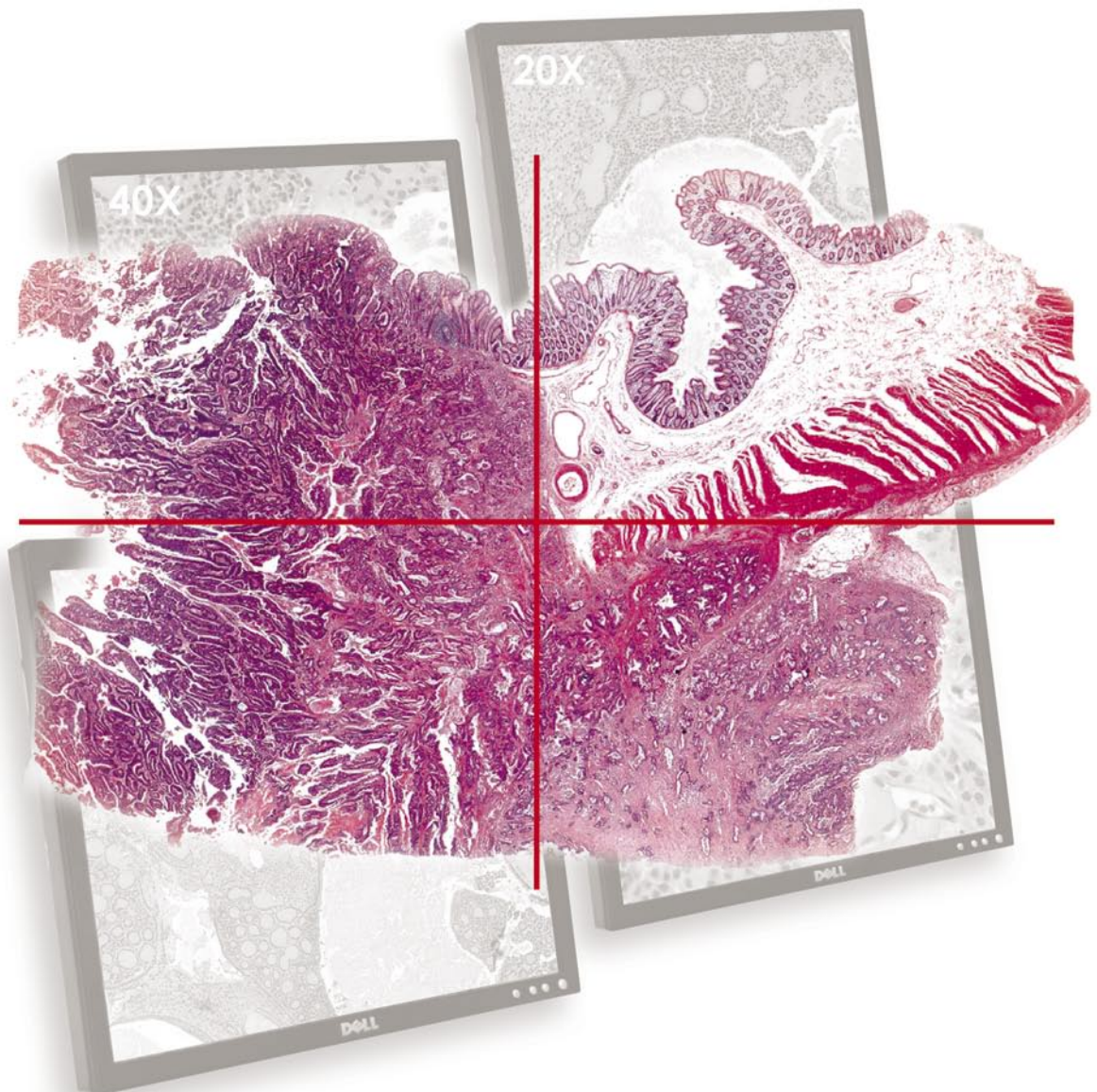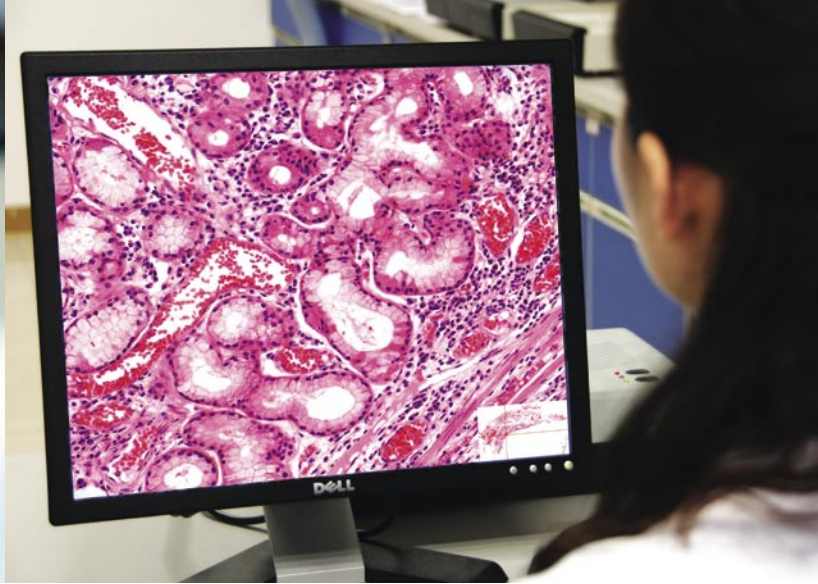![Motic - More Than Microscopy]

# Digital Slide Scanning System

Platform for Teaching, Diagnostics and Research

# Digital Slide Scanning and Application System

Motic's new Digital Slide Scanning solution combines a motorized microscope platform with slide scanning and control software enabling a traditional glass slide to be quickly scanned and assembled at various magnifications.

These digitally-scanned slides can be viewed on screen similar to the way a traditional slide can be viewed under a microscope. The user can select different fixed magnifications (2x, 4x, 10x, 20x, 40x, 100x) or can seamlessly zoom in and out of the image (1x to 100x). This allows closer inspection of any area of interest without losing image clarity and resolution.

Motic's Virtual Microscopy solution can be extended to multiple viewers when it is connected to a local network. Digital Slides can easily be archived, managed, annotated and diagnosed by a third party without time and geographical limitations. This flexible system can be applied in fields as diverse as Education, Diagnostics in Pathology, Clinical-Lab Remote Consultation and Scientific Research.

Integration with other Motic solutions is also possible. This Digital Slide system can be integrated into Motic's DigiLab II network platform to teach and lecture more efficiently; it can be used to establish a slide gallery for classroom reference and administration, quantitative analysis or comparison.

## Components

### Auto-Scanning Platform

Motic's auto-scanning microscope platform coordinates the four key automatic functions of the microscope: changing magnifications, scanning along x/y axis and focusing on the Z axis. A slide is usually scanned at higher magnifications (mostly 40x) to allow easy navigation and zooming without loss of details and guarantees repeatability when compared to simple viewing.

Motic has taken great care in ensuring accuracy, reliability and repeatability with this platform. The deviation of its micro-servos for finding repetitive locations is less than 1 micron for X, Y and Z. Coordination of all drives with the software is controlled by a modularized control box.

### Motic Pro Series True Color CCD

The Moticam Pro Series camera is modular, and is easily making the whole system upgradeable as time passes. The standard for this platform is Motic's MoticPro 285A camera with a 2/3" Sony CCD 12-bit sensor boasting 6.45µm x 6.45µm pixels.

Whatever Motic CCD camera is used, this system operates as an integrated platform swiftly converting traditional glass slides into high-resolution digital archives. A traditional glass slide can be digitized into a standard digital file sizes of approx. 1 Gig.

# Microscope-based Scanning System

Motic's Slide Scanning System is not based on the Black-Box concept of a completely enclosed scanner with single magnifications.  Being a microscope-based solution, with a live-viewing option at all times, any user is able to verify accuracy of colour, focal plane or illumination settings through the eyepieces providing total quality control. With high-resolution scans of delicate and important samples, users can feel reassured in knowing they can check and confirm that the digital result matches the true optical image.

Moticam Pro 285A

Auto-magnification changer

Motorized-Stage

Motorized-Focus

### 4 Axes Motorized Control

1 Change of magnification
2 X-Axis Stage Movement
3 Y-Axis Stage Movement
4 Z-Axis Stage movement
 - Coarse/ Fine Focus

# Repeatable and Efficient control for reliable results

At the core of Motic's Virtual Slide Scanning System, an easy-to-use software interface offers all controls to quickly scan, process and digitize a slide.

- A comprehensive setup and calibration program ensures that the system is able to repeatedly scan high-quality images by automatically calculating adjustments for minor illumination and optical differences. Alignments of the imaging sensor offset can be compensated to an accuracy of up to 0.1 degrees.

- Automatic control and execution of scanning, focusing and multi-field observation under variable magnifications

- Automatic compensation for uneven slides through multi-point auto-focusing algorithms

- High resolution whole-slide scanning with different models such as standard quick scanning, high-precision scanning and multi-focus scanning

- Encryption function for access control

- Annotation and Editing for easy archiving and retrieval

- Side-by-Side Viewing for immediate image comparisons



One-Click control of scanning and review process through powerful software interface
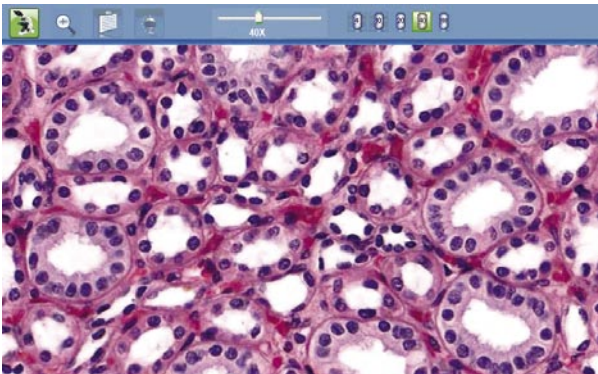


Whole-Slide high resolution scanning for maximum data retention
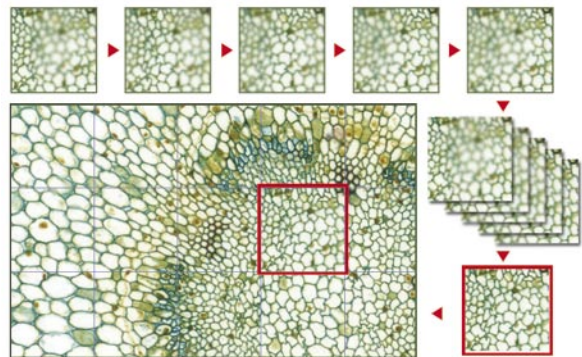


Whole Slide Image (WSI) Multi-Focus Scanning for special thick glass slide

# *Digital Slide and its applications*

## The Motic Digital Slide system revolutionizes teaching in embryology, pathology, microbiology, zoology, pharma or botany.

- The digitization of traditional slides eliminates any concerns about physical storage and eventual breakage, misplacement or fading. It reduces the need to perform repetitive slide preparation tasks for different clinical, lab, or educational applications by establishing a digital archive of high resolution images that can be accessed and retrieved anywhere and anytime.

- Falling back on a digital archive of high resolution images makes teaching more efficient and flexible by increasing class time spent on analysis. Specific slides for specific topics can be retrieved and viewed instantly through the simple click of the mouse thereby encouraging self-study and investigation.

- Making the archive available online through secure access allow more people to view, edit or comment.

- Integration with Motic's networked microscopy management system (DigiLab II) allows this system to be used in a classroom environment. Interactive teaching with an emphasis on the student will improve the efficiency of learning.

## Motic Digital Slide Server Platform (DSS)

Motic's New Digital Slide Server System can be set up under standard LANs, corporate lab or campus networks, and even over remote-Internet connections, to view slides for enhanced diagnosis, study and communication.

- Easily adopts Browser/ Server system structures, enabling customers to view slides through either LAN or browser configurations without limitations-- no software needs to be installed on customer end, to significantly save maintenance and management costs

- Digital slides can be categorized according to user-defined standards (e.g. teaching chapters ), to create digital slide galleries, perform text additions, insert illustrations and links in the syllabus, and curriculum

- Digital slides can be added, removed, displayed, hidden, or connected to description references to meet the requirements of lab techs or instructors

- Slides can be viewed at different magnification (2x, 4x, 10x, 20x, 40x, and 100x), through either a continuous zoom function or key-board operation through an easy-to-use interface

- Convenient learning, teaching and communication functions are available to support annotation-directed slide viewing functions to assist in developing independent slide reading skills.

Also, when necessary, administrators can adjust related network user settings to allow for lab techs, and instructors alike to add comments about digital slides to enhance work flow and learning. Higher user security settings can also be used by management with adjustable permission allocations.
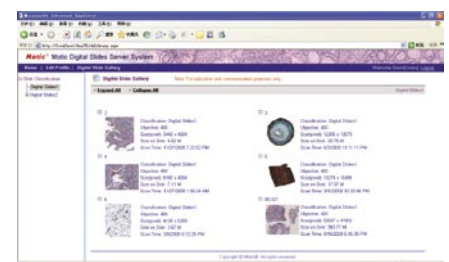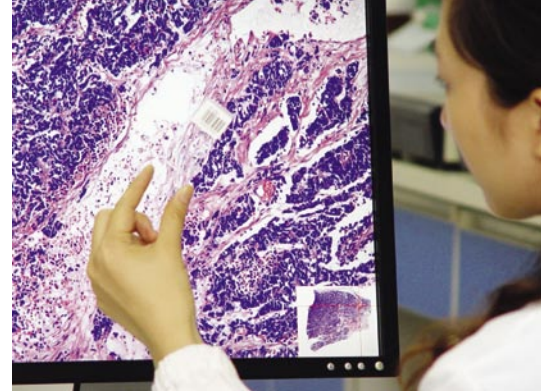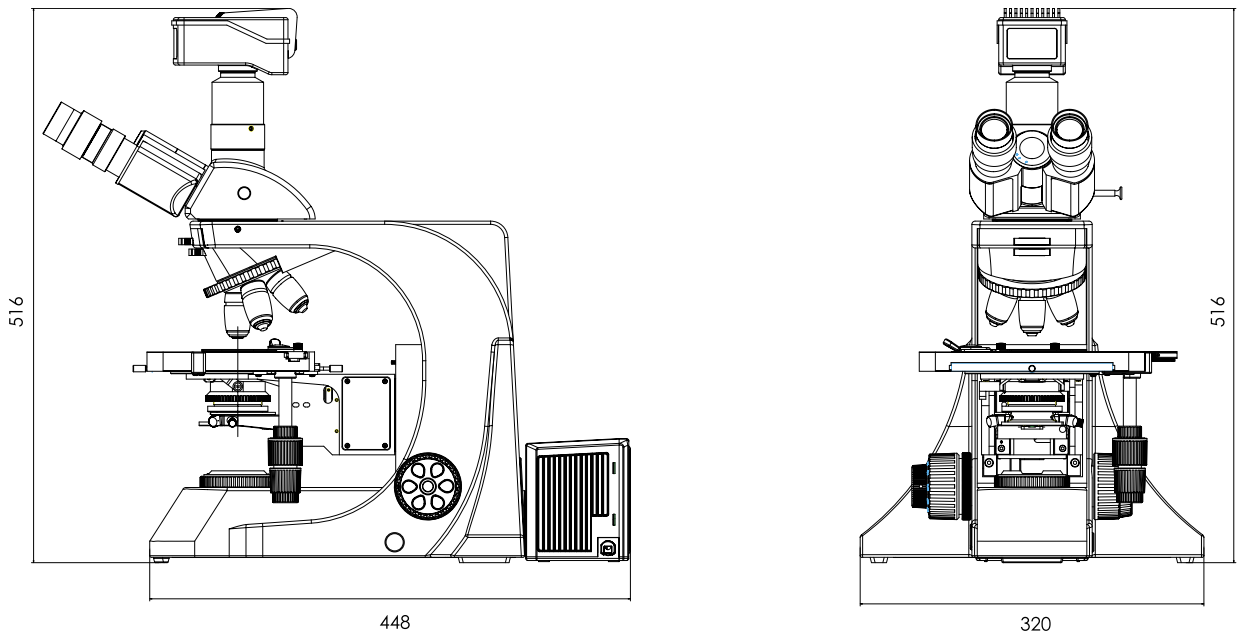


Motic Digital Slide Server System allows access to slides through intranet or internet.
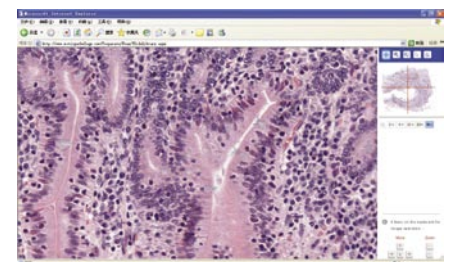


Scanned slides are configured for quick access from anywhere around the world.

# Schematic Diagrams:



516

448

516

320

Unit: mm

## Optical Specifications:

| | |
|---|---|
| **Microscope Body**: | Motic BA600 Trinocular with motorized X/Y/Z and Nosepiece Control |
| **Head**: | Siedentopf Trinocular Head with WF10X/22mm eyepieces |
| **Camera**: | MoticamPro Series CCD based |
| **Objectives**: | Motic CCIS Plan Achromatic 2x, 4x, 10x, 20x, 40x |
| **Condenser**: | Long Working Distance 0.65NA (10.7mm) |
| **Illumination**: | Precentered Quartz Halogen 30W Koehler illumination |

**For more information, contact us at www.motic.com**

# Motic Scanning System Package

| Main Body | |
|---|---|
| 4-axis Motorized System | BA600 Professional Stand |
| | BA600Mot-4C Virtual Microscopy System |
| | 4-axis PCI control module |

| Components | |
|---|---|
| Head | Siedentopf trinocular head |
| | 0.65x c-mount adapter |
| | Moticam Pro 285A CCD Camera |
| Eyepiece | CPL10X/22mm with diopter |
| Plan Achromat Objective | 2X  N.A. = 0.05  W.D. = 6.29mm |
| | 4X  N.A. = 0.10  W.D. = 7.0mm |
| | 10X  N.A. = 0.25  W.D. = 4.3mm |
| | 20X  N.A. = 0.40  W.D. = 1.3mm |
| | 40X  N.A. = 0.65  W.D. = 0.4mm |
| | 100X(optional)  N.A. = 1.25  W.D. = 0.13mm |
| Condenser | LWD 0.65NA WD10.7 Condenser |
| Blue filter | Ø45mm |

| Accessories |
|---|
| Joy Stick Controller (4-axis built-in)(optional) |
| High Speed USB-2 cable |
| Control Board Cable |
| Motic BA600Mot System Control Board |
| 37-pin signal cable |
| 25-pin control cable |
| 9-pin cable |
| Motic 4-point calibration slide |
| 3-pin dual head power cable |

| Software |
|---|
| Motic Virtual Microscope System |
| Motic Digtial Slide Server System |
| Motic Tele-Microscope System Server / Client  (optional) |

# www.motic.com

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Certified ISO 13485
Certified ISO 14001

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