

**Motic®**

MORE THAN MICROSCOPY



# AE2000 DIGITAL

DIGITAL TRANSMITTED LIGHT INVERTED  
MICROSCOPE FOR CELL CULTURE



## INTRODUCTION

The AE2000 Digital Transmitted Light Microscope is Motic's new model of inverted microscope equipped with Moticam BMH4000X, providing a flexible optical concept to meet best image quality and robust design for a long lifetime under rough lab conditions. This is the perfect microscope solution for routine cell culture in clinical and pharmaceutical laboratories, also offering best options for university teaching.

In full accordance with Motic's CCIS® Infinity System, the AE2000 Digital Transmitted Light Microscope offers a completely upgraded class of Plan Achromatic lenses within the CCIS Infinity Optical concept. This upgrade covers a complete range of the following magnifications for bright field and phase contrast: 4X, 10X, 20X and 40X. New in this level of microscopy is the special designed 4X Phase objective for fast overview and screening examinations.

The AE2000 Digital stand carries a quadruple nosepiece with a precise detent stop for objective positions. Rich illumination is provided by the 3W LED light source in a Fixed-Koehler setup. If desired you may simply interchange with a 30 Watt Halogen module.

The Auto ON/OFF function, based on a built-in IR-sensor, deactivates the microscope in case it is left by the user: no need for a final instrument check when work is finished.

The complete AE2000 Digital Transmitted Light Microscope is manufactured in compliance with European RoHS standards to avoid contact with lead-containing materials. An anti-fungus treatment is applied to all parts of the microscope to protect the system in humid environments.





## IMPROVED ERGONOMY FOR EFFICIENT WORK

Motic's AE2000 Digital Transmitted Light Microscope with smart functionality and ergonomic design in all aspects is elegant and robust. The microscope's stand design allows for intense daily use. The fixed stage plate with optional lateral extensions carries a glass or metal insert for quick overview and comfortable change of objectives.

An optional mechanical stage for convenient sample examination under high magnifications is available. Focusing is done by movement of the 4 position nosepiece. With a fine focus step size of 2 microns, it provides for a smooth transition through cell cultures and water samples, using the Long-Working-Distance objectives.

The AE2000 Digital Transmitted Light eyepiece tubes allow an individual seating position as the "butterfly" mode may increase the viewing height by 60mm. Fatigue-free work is guaranteed by a comfortable viewing angle of 45° and an improved interpupillary distance of 48-75mm.

MECHANICAL STAGE



GLASS STAGE INSERT





## SMART PHASE CONTRAST FOR DAILY ROUTINE WORK

With the release of the new AE2000 Digital Transmitted Light Microscope, Motic has achieved a new standard in optical design and development. The AE2000 Digital Transmitted Light Microscope offers a completely upgraded class of Plan Achromatic lenses within the CCIS Infinity Optical concept. This upgrade covers a complete range of the following magnifications for bright field and phase contrast: 4X, 10X, 20X and 40X. New in this level of microscopy is the special designed 4X Phase objective for fast overview and screening examinations.

An optimized multi-layer coating for improved contrast as well as carefully selected glass quality for better transmission lead to significantly brighter and sharper images. Motic is pleased to offer these newly developed optics with the RoHS standard for lead-free manufacturing, ensuring all of its new products meets the highest standards possible for both environment and user safety.





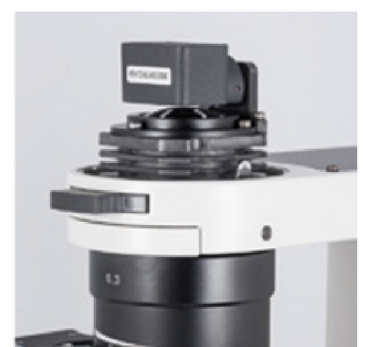
## A POWERFUL AND FLEXIBLE ILLUMINATION CONCEPT

To take advantage of Motic's improved optics, the illumination concept is designed with both power and quality. All versions of the AE2000 Digital Transmitted Light Microscope carry a Fixed-Koehler setup. The 3 Watt LED modules (6000K) light source is standard and is fully interchangeable with the optional 30 Watt halogen module. For higher illumination apertures, an LWD condenser with NA 0.5 can be implemented.

The built-in IR-sensor activates an Auto ON/OFF function in case the microscope is left and reactivates the microscope by return of the user. From an environmental perspective, this feature saves energy and increases lab safety.



HAL / LED INTERCHANGEABILITY

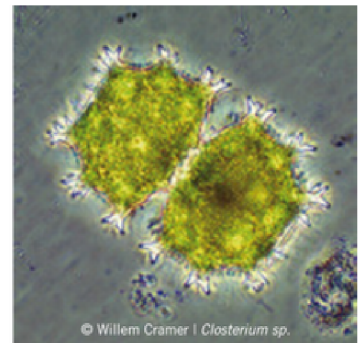


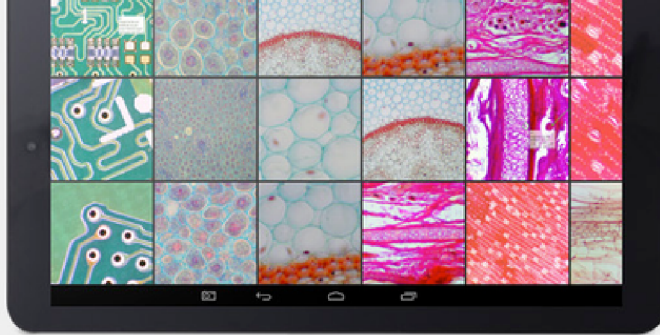
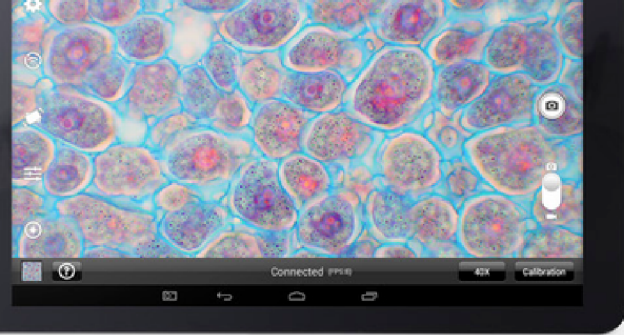


## PHASE CONTRAST FOR UNSTAINED SAMPLES

The standard configurations of the AE2000 Digital Transmitted Light Microscope already offer the full functionality of a routine cell culture workstation. Cell cultures in a petri dish or flask, but also other living (unstained) material like water samples from a pond require Phase Contrast to visualize internal structures from fungi, protozoans or algae, structures which are hardly visible by the Bright Field illumination, even if the condenser diaphragm is used perfectly.

In Phase Contrast, differences in refractive index are translated into a black/white contrast image. Cell organelles, cell compartments and boundaries can be seen by an easy-to-handle technique. The switch from Bright Field (BF) to Phase Contrast is done by a simple push of the Phase ring slider from BF position to a Phase ring position. As Ph1 corresponds to the objectives 10X/20X/40X, no need to change the slider position when changing these respective objectives.





## REPRODUCIBLE DOCUMENTATION RESULTS WITH HIGH RELIABILITY

Documentation is a key issue in every aspect of microscopy, with special importance in routine cell culture. The AE2000 Digital Transmitted Light Microscope equipped with a member of Motic's camera series -- the Moticam BMH4000X, delivers excellent live images which can easily be shared and saved for future analysis.

For limited bench-top space, Moticam BMH4000X is ideal for the presentation of High Resolution images on an HDMI screen without a computer. The Moticam BMH4000X is a C-mount multitasking microscopy camera, that delivers an impressive 1080p Full HD live image with maximum color fidelity on an integrated LCD screen. It does not require a computer for standard operation, as it comes with an on-board software that will allow you to use it through its 11.6" Full HD integrated screen, with a mouse connected to the USB port of the camera.

All Moticams come equipped with a proprietary software package -- Motic Image Plus 3.1, to transform the AE2000 Digital Transmitted Light Microscope into an analysis and documentation station. By connecting your Moticam, you will be able to work with our well-known software: view, capture, edit, measure, make report ... all its standard features and the new ones packed in a new user-friendly interface.



# SPECIFICATIONS

## AE2000 Digital Transmitted Light Microscope

Optical system	Color Corrected Infinity Optical System (CCIS®)
Observation tube	Trinocular head, Siedentopf type, Swivelling 360° with 45° inclination
Trinocular light split	100:0/20:80
Interpupillary distance	48-75mm
Eyepieces	Widefield N-WF 10X/22mm with +/-5 diopter adjustment
Nosepiece	Quadruple, side orientated
Plan Achromatic Objectives	4X/0.10 (WD 12.6mm), Ph 10X/0.25 (WD 4.1mm), LWD Ph 20X/0.30 (WD 4.7mm)
Objective mounting thread	W 4/5" X 1/36" (RMS standard)
Phase ring	Ph1 - universal phase ring from 10X up to 40X
Stage	Plain stage with metal and glass stage inserts (200x239mm)
Attachable x/y stage with inserts	Universal attachable mechanical stage with well plate holders (128x86mm)
Condenser	ELWD condenser N.A. 0.30 (WD 72mm) with filter holder
Diaphragm	Iris diaphragm
Focus mechanism	Coaxial coarse and fine focusing system with tension adjustment
Fine focus precision	2µm
Focusing stroke	8mm
Contrast method	Transmitted light (brightfield and phase contrast)
Transmitted illumination	LED 3W 6000K standard with Halogen
Illumination interchangeability	Quartz Halogen 6V/30W or LED 3W
Illumination features	Auto on/off
Transformer	External
Power supply	100-240V (CE)
Filters	Blue, green and neutral density filters
Petri dish holder	35mm, 54mm and 65mm
Camera	Moticam BMH 4000X
Sensor size	1/2.8"
Image output	HDMI, UXC, WIFI 5
Capture resolution	8MP
Scan mode	Progressive
Shutter mode	Rolling Shutter
Lens mount	C-Mount
Max. frames per second (fps*)	HDMI & USB: (4K) 30fps @ 3840x2160 WIFI: 25fps @ 1920x1080, 12fps @ 3840x2160
Image capture	JPEG/TIFF format with 4K (3840x2160) resolution in SD card
Video record	4K (30fps @ 3840x2160) H264/H265 encoded MP4 file in SD card
Screen	LCD 11.6" native 1920x1080 pixels Full HD screen
Software	Motic Image Plus 3.1 for Windows/ Mac OS

\*frames per second under optimal illumination conditions

# **Motic<sup>®</sup>**

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