

**Motic**<sup>®</sup>

MORE THAN MICROSCOPY



LS

**BA310E**

ADVANCED BIOLOGICAL MICROSCOPE



## CONTENTS BA310E CATALOGUE

INTRODUCTION	02
THE MECHANICS	04
THE OPTICS	06
THE ILLUMINATION	08
THE ACCESSORIES	10
DOCUMENTATION	14
SPECIFICATIONS	16

Motic's new BA310E is a professional transmitted light microscope, designed for intense use in universities, clinics and laboratories.

Displaying the advanced quality level of Motic's CCIS® Infinity Optics, the new EC-Plan Achromat objectives are basis of a fully corrected intermediate image for professional digital documentation.

The rackless stage without prominent gear rack allows a safe x/y scanning movement also by unexperienced users. A fast throughput of samples is enabled by an expansive travel range in combination with a new specimen holder for better grip to the glass slides. A slide holder for 2 slides is also available.

The BA310E performs the Full-Koehler illumination, while implementing an easy interchangeability of its Halogen light source with LED modules of different color temperatures. Sufficient power resources allow easy performance of phase contrast, polarization and darkfield.

The complete BA310E microscope is manufactured in accordance with current RoHS standards and thus prohibits contact to lead-containing materials. To protect the system from fungus growth in high-humidity environments, an anti-fungus treatment is applied to all parts of the microscope.

*Your Motic Europe Team*



# BA310E

ADVANCED BIOLOGICAL MICROSCOPE



# THE MECHANICS

RACKLESS STAGE | EYEPIECE TUBES



INTRODUCTION  
**THE MECHANICS**  
 THE OPTICS  
 THE ILLUMINATION  
 THE ACCESSORIES  
 DOCUMENTATION  
 SPECIFICATIONS



## AN ERGONOMIC SETUP DESIGNED FOR A LONG LIFETIME

Motic's BA310E incorporates maximum ergonomic functionality in any aspect of its mechanical setup. Elegant and sturdy, the microscope stand follows all needs for a prolonged effortless operation.

The hard-coated stage with an extended travel range allows a safe and fast throughput of samples. The rackless concept is especially dedicated to teaching environments, where a safe x/y movement without prominent gear rack is appreciated.

The BA310E eyepiece tubes guarantee fatigue-free viewing for hours. The ergonomic viewing angle and the extended interpupillary distance enhance user friendliness significantly.

All standard eyepiece tubes offer an extended "butterfly" adjustment to increase the viewing height for individual positioning.

EYEPIECE TUBES | Extended "Butterfly" adjustment



# THE OPTICS

OBJECTIVES | EYEPIECES



INTRODUCTION  
 THE MECHANICS  
**THE OPTICS**  
 THE ILLUMINATION  
 THE ACCESSORIES  
 DOCUMENTATION  
 SPECIFICATIONS



## A MODERN INFINITY CONCEPT FOR BEST IMAGE RESULTS

Motic's superb CCIS® Infinity concept delivers aberration-free images by perfect co-operation of significant optical components.

The new EC Plan Achromat objectives set a remarkable performance standard in optical quality. With excellent field flatness and resolution, the EC optics offer superior color fidelity and contrast through multi-layer coated glass lenses. In cooperation with the tube lens, a fully corrected intermediate image without any colored fringes is delivered for professional digital results. Significantly increased working distances of objectives greatly reduce contamination when changing from oil lenses to dry lenses, while protecting lenses in rough usage.

Besides the standard lenses, a series of Non-Cover-Glass (NCG) objectives is also available. These lenses are designed for sample preparation without placing a final cover slip on top.

The standard eyepieces N-WF 10X/20 with high eyepoint for eyeglass wearers, made of high quality optical glasses with multi-layer coating, provide consistent diopter adjustment for both eyes. Countersunk screws may prevent inadmissible removal and confirm Motic's dedication to real-life requests.

### NON-COVER-GLASS (NCG) OBJECTIVES



# THE ILLUMINATION

ILLUMINATION SOURCES | CONDENSER





INTRODUCTION  
 THE MECHANICS  
 THE OPTICS  
**THE ILLUMINATION**  
 THE ACCESSORIES  
 DOCUMENTATION  
 SPECIFICATIONS



## PLENTY OF POWER RESOURCES WITH A HIGH FLEXIBILITY

To utilize the potentials of Motic's CCIS® Infinity optics, a quality illumination concept is essential. Motic has implemented a full interchangeability between halogen light source and LED modules in BA310E. The importance of LEDs as safe and long-term illumination sources has become increasingly the norm in clinical microscopy environments. Nevertheless, experienced users may still prefer the "warm" halogen illumination with a large portion of long wavelengths. In BA310E, the user can choose his illumination source freely.

For best possible illumination quality, a high quality condenser with NA 0.9/1.25 is implemented in a full Koehler setup with field diaphragm. Visualisation of delicate sample structures is thus possible.

HALOGEN BULB



LED MODULE



# THE ACCESSORIES

CONTRAST METHODS | MULTI-VIEWING DEVICES



- INTRODUCTION
- THE MECHANICS
- THE OPTICS
- THE ILLUMINATION
- THE ACCESSORIES**
- DOCUMENTATION
- SPECIFICATIONS



## HIGH MODULARITY MEETS DIVERSE USER DEMANDS

Besides the standard packages, the BA310E series offers a variety of optional accessories. For additional contrast methods, the standard condenser comes with a slot for phase contrast and darkfield sliders. For single phase contrast lenses, the condenser may carry a phase slider, while the darkfield slider can be used up to 40X objective magnification. Maximum flexibility is given by a turret condenser with all necessary illumination rings.

Convenient and easy, the BA310E polarization system consists of a polarizer, placed on top of the collector lens, and the analyzer, placed between the eyepiece tube and the microscope body.

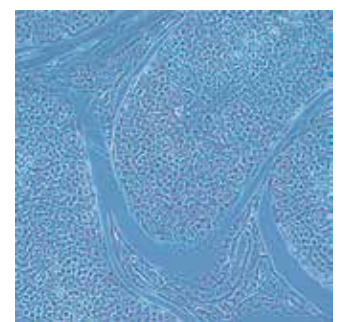
To share the complete visual information, the BA310E Series offers multi-viewing devices. Depending on the teaching situation, a face-to-face setup is possible as well as a side-by-side installation. Maximum information can be transferred from teacher to student. A built-in LED pointer helps to emphasize regions of interest.



MULTI-VIEWING DEVICE - SIDE-BY-SIDE



TURRET CONDENSER



# THE ACCESSORIES

CONTRAST METHODS | FLUORESCENCE





## LED FLUORESCENCE MODULE

LEDs as a light source for fluorescence display a number of advantages. No adjustment is needed to achieve maximum efficiency in fluorescence excitation. Plug-and-Play is the principle. Observation of the sample can be started immediately as there is no warm-up period. A convenient intensity adjustment protects the sample from bleaching.

From an environmental perspective, no mercury disposal has to be considered. Motic's fluorescence illuminators contain an LED light source as well as a selected filter combination with excitation, dichroic and barrier filter. The modules are placed as an add-on between stand and eyepiece tube.

For user safety reasons, the LED light source cannot be activated unless mounting of the fluorescence illuminator is done properly. Additionally an IR-sensor detects the user in front of the microscope and turns off the fluorescence automatically when the microscope is left. The power is reactivated after returning to the instrument. By adding the fluorescence module, a fast change from brightfield to fluorescence and vice versa is possible as well as a simultaneous use of both illuminations.



Simple switching from brightfield to fluorescence

Sleep mode

Intensity control

BA310E

# DOCUMENTATION

STANDARD PHOTOMICROGRAPHY | DIGITAL DOCUMENTATION





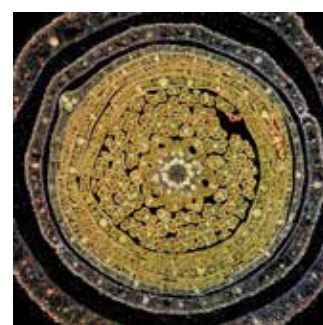
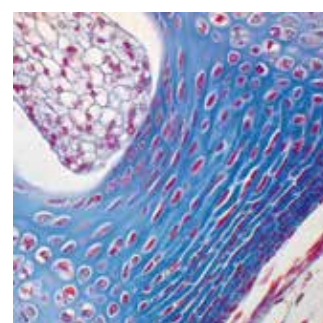
## A FLEXIBLE UPGRADE FOR DIGITAL RESULTS

The importance of documentation has expanded into every aspect of microscopy. The BA310E is accessible by the traditional method (photomicrography) and the more flexible C-mount camera approach.

Standard photomicrography requires the trinocular version of the BA310E. This setup delivers high resolution images of small fields. Live images can be supplied in most cases by the camera manufacturer's software.

A more convenient setup is provided through Motic's philosophy of easy image digitization. The combination of the BA310E with a member of the Moticam series of digital C-mount cameras delivers excellent live images which can easily be stored for future usage. All new CCD adapters follow the ISO standard of 38mm diameter. The appropriate adapter has to be chosen in relation to the chip size of the digital camera that is being used. All Motic cameras come equipped with software to transform the BA310E into an analysis and documentation station.

For limited bench-top space, Moticam 580 and 580INT are the ideal solutions. Both cameras deliver High Resolution images without computer.



# SPECIFICATIONS

## BA310E STANDARD CONFIGURATION & OPTIONAL ACCESSORIES



General Specifications



Optional Configuration

Optical system	CCIS®	
Observation system	Siedentopf 30°	
Interpupillary distance (mm)	48-75	
Eyepieces	N-WF 10X/20	N-WF 12.5X/18; N-WF 15X/16
Eyepieces diopter adjustment	+/- 5 dpt	
Reticles (Ø25mm)		Crosshair 10mm/100 divisions Crossed double scale 10mm/100 divisions Pointer
Trino light split	20/80	0/100
Nosepiece	Reversed quintuple	
Objectives (EC-Plan Achromat)	4X/0.10; 10X/0.25; 40X/0.65; 100X/1.25 Oil	20X/0.45; 60X/0.80;
Objectives (EC-Plan Achromat Non-cover glass)		10X/0.25; 20X/0.45; 40X/0.65; 100X/1.25 Oil
Objectives (EC-H Plan Positive and Negative Phase)		10X/0.25; 20X/0.45; 40X/0.65; 100X/1.25 Oil
Objective mounting thread RMS standard (W 4/5" x 1/36")	Yes	
Built-in coaxial mechanical stage with sample holder	Yes	2-Slide sample holder
Stage size (mm)	180 x 170	
Travel range (mm)	80 x 55; rackless	
Upper limit stop	Preset; adjustable	
Condenser	Abbe focusable type N.A.0.9/1.25; with slot for Phase/DF sliders	Phase contrast 5 position turret condenser (BF, DF, PH1, PH2, PH3)
Focus mechanism	Coaxial; tension adjustment	
Fine focus precision (µm)	2	
Z-axis movement (mm)	20	
Filter holder with fixing cap	Yes	
Illumination	30W Halogen	3W LED
Halogen / LED interchangeability	Yes	
Illumination position	Built-in	
Koehler	Yes	
Multi-Viewing devices		Dual/3-head/5-head
Transformer	Built-in	
Power supply	110-240V (CE)	
Filters	Blue	Green, yellow, green interference, neutral density, didymium
Dimensions (mm)	400 x 220 x 400	
Weight (Kg)	8,6	
<b>Contrast techniques</b>		
Brightfield	Yes	
Phase contrast and Darkfield		Slider & Turret
Simple Polarization		Yes
LED Fluorescence		Yes



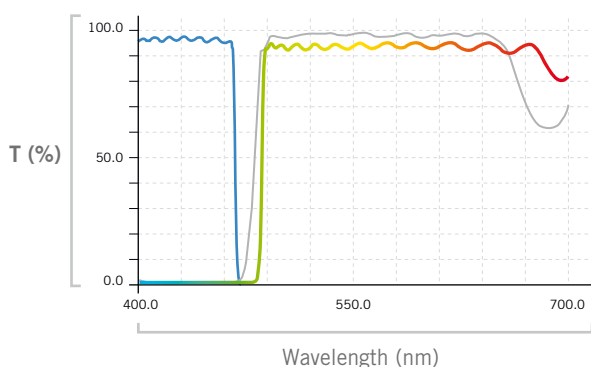
# SPECIFICATIONS

## BA310E EPI-LED FL MODULE FILTER COMBINATIONS

The following LED/Filter combinations are available:

### Auramine O

### 455nm LED module

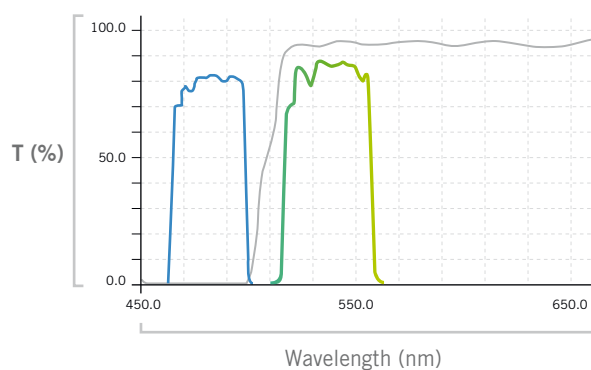


Tuberculosis diagnosis with Auramine O staining

- Exciter 470Sp
- Dichroic 480DRLP
- Barrier 485LP

### FITC

### 470nm LED module

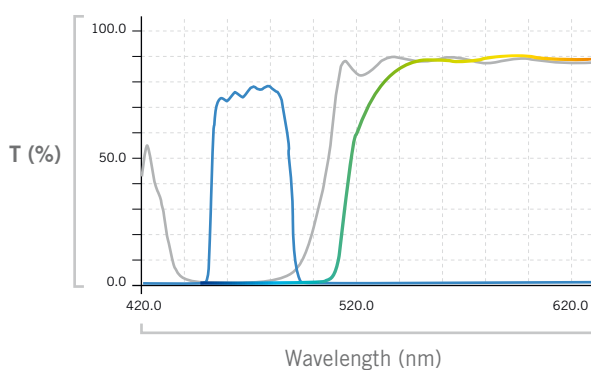


This module offers a FITC detection

- Exciter 480/30x
- Dichroic 505DCLP
- Barrier D535/40m

### Blue Excitation

### 470nm LED module



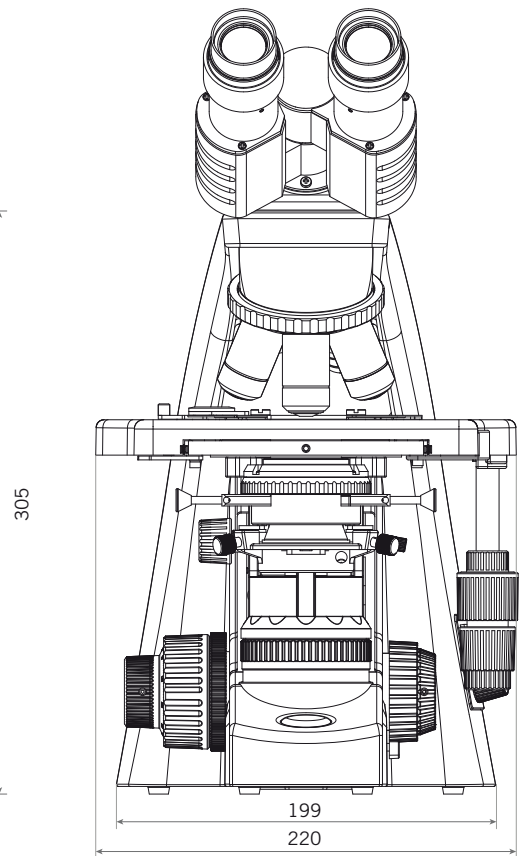
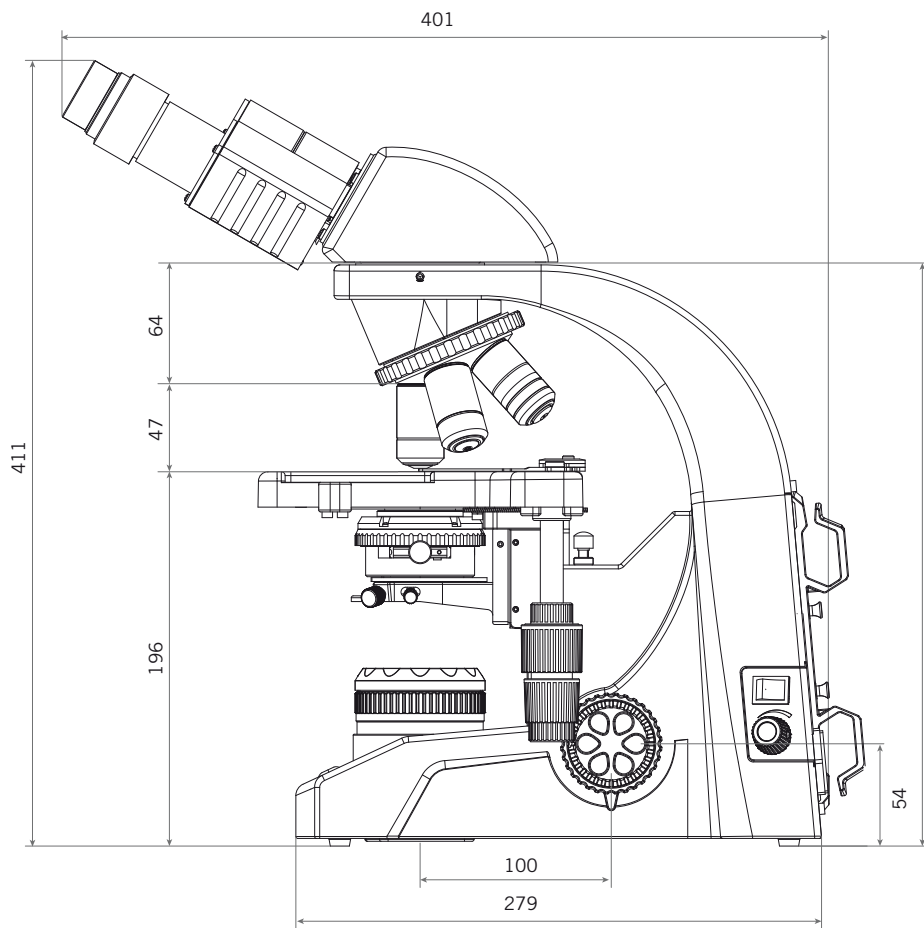
This module offers a blue excitation combined with a long pass barrier filter

- Exciter 470/37
- Dichroic 505LP
- Barrier 515LP

# SPECIFICATIONS

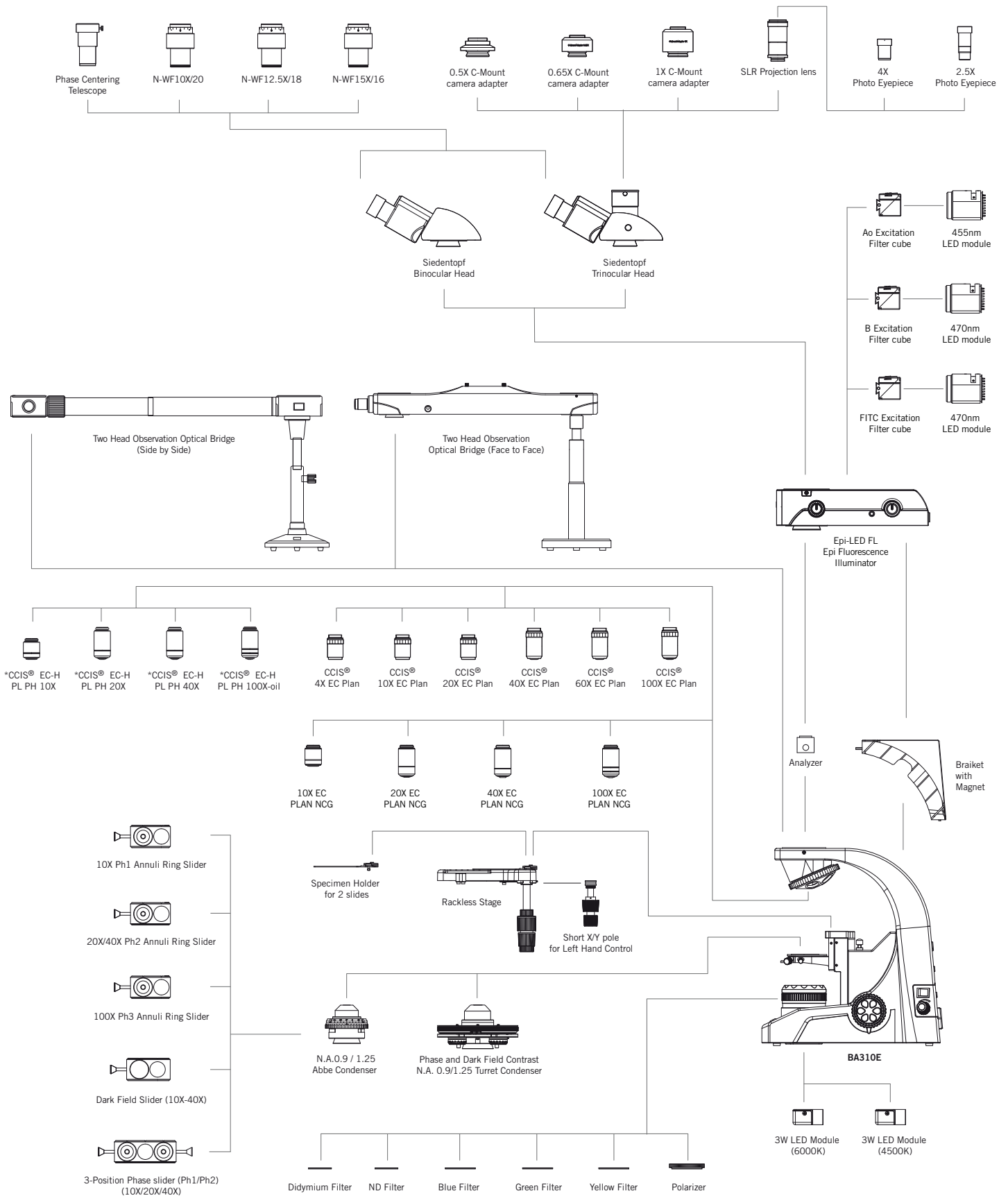
**BA310E**

SCHEMATIC DIAGRAMS (units: mm)



# SPECIFICATIONS

## BA310E SYSTEM DIAGRAM



\* Standard: positive phase; negative phase available on request



Canada | USA | Europe | China



[www.moticmicroscopes.com](http://www.moticmicroscopes.com)

**Motic Instruments, Inc. (Canada)**

130-4611 Viking Way, Richmond, BC V6V 2K9 Canada  
Tel: 1-877-977-4717 | Fax: 1-604-303 9043  
info@motic-america.com

**Motic Instruments USA Inc.**

6508 Tri-County Parkway Schertz, TX 78154 USA  
Tel: 1-800-275-3716

**Motic Europe (Spain)**

C. Les Corts 12, Pol. Ind. Les Corts. 08349 Cabrera de Mar, Barcelona, Spain  
Tel: 34-93-756 6286 | Fax: 34-93-756 6287

**Motic Incorporation Ltd. (Hong Kong)**

Unit 2002, L20, Tower 2, Enterprise Sq. 5, 38 Wang Chiu Rd, Kowloon Bay, Kowloon  
Tel: 852-2837 0888 | Fax: 852-2882 2792

Design Change: The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.

Motic Incorporation Limited Copyright © 2002-2019. All Rights Reserved.

Updated: October 2019

