Motic®

MORE THAN MICROSCOPY

BA210E

BASIC BIOLOGICAL MICROSCOPE

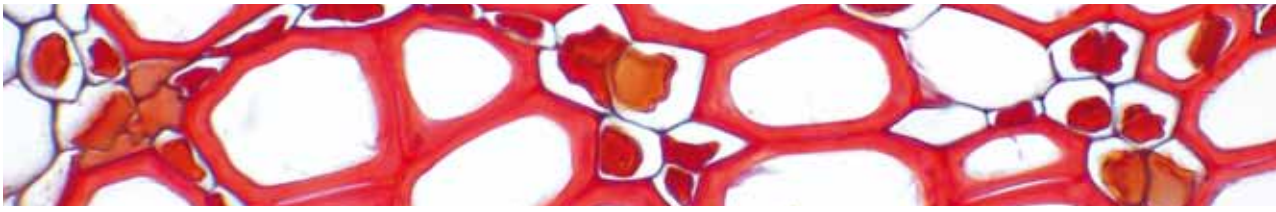
BA210E BASIC BIOLOGICAL MICROSCOPE

Motic is committed to the concept of continuously improving its models, listening to the demands of both Educational as well as Professional markets. The successfully established BA210 model was no exception. With the newly developed BA210E model, once again Motic has challenged itself to stride ahead of the competition. Meant to be used in Educational life sciences, Medical and a variety of Biological applications, the BA210E is designed for ease of use and longevity due to Motic's complete understanding of the educational market.

The BA210E model introduces student-proof features both in optical and mechanical aspects. The **new rackless stage** concept **without prominent gear rack** allows even more convenient use of the x/y movement, while increasing user safety in teaching situations.

For full freedom of illumination options, the new model BA210E has an easy **interchangeability** of its **6V/30W Halogen bulb with LED modules** of different colour temperatures (4500K, 6000K). Extended life-time of LEDs here is combined with cost saving aspects. Light consuming contrast methods like **Phase contrast, Polarization or Dark field** can easily performed.

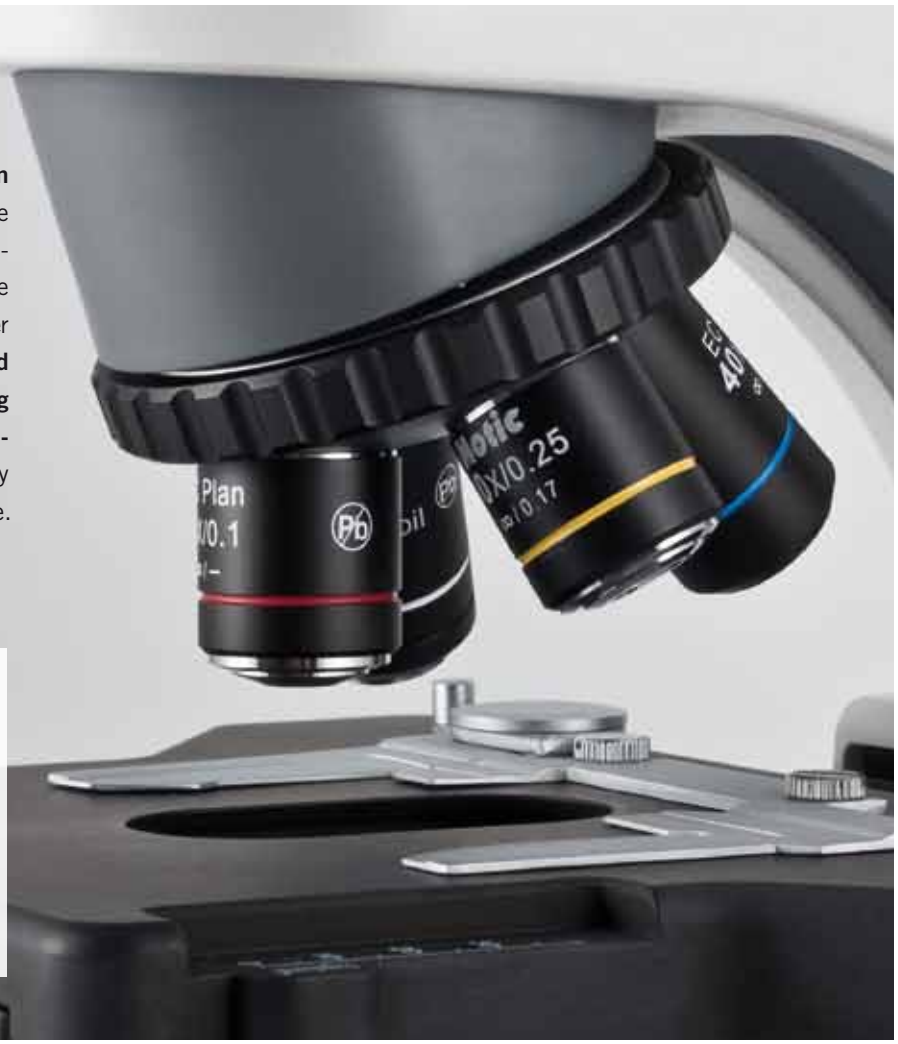
A series of **new EC-Plan Achromat objectives** with **extended working distances** for sample protection has been derived from the flagship model BA410. Motic's CCIS® Infinity concept incorporates a **fully corrected intermediate image** for digital access, delivering professional optical performance also in education and training situations. The complete BA210E microscope is manufactured in **accordance with** current **RoHS** standards and thus avoids lead-containing materials in student environments.




MOTIC
Motic

New EC Objectives

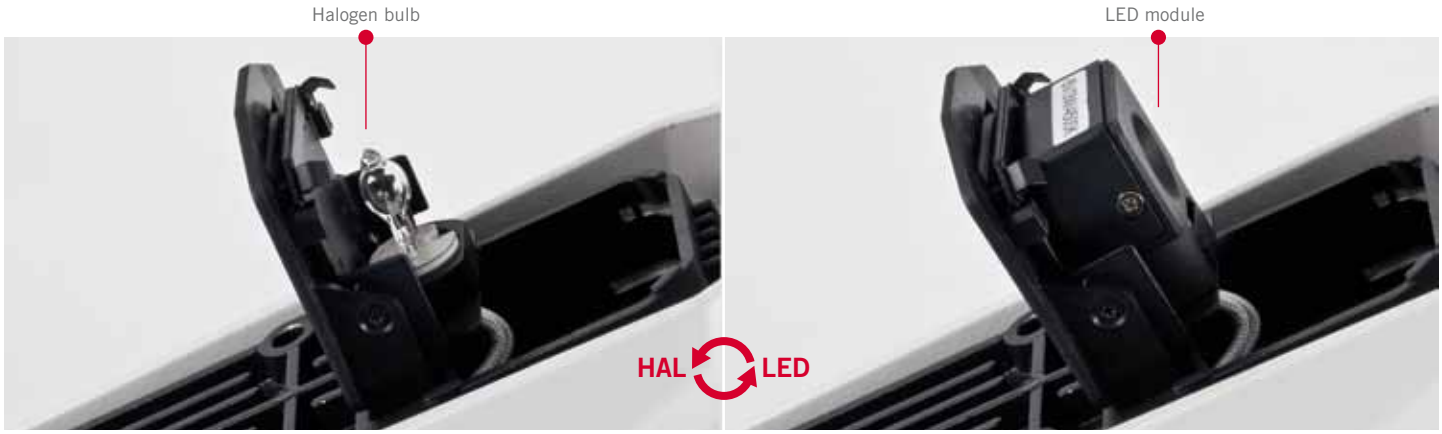
Motic's Elite model's **new** generation of **EC Plan Achromat objectives** set a new price-performance standard of optical quality. With excellent spherical aberration correction to significantly improve **field flatness** and **resolution**, the EC optics offer **superior colour fidelity** through **multi-layer coated glass lenses.** Significantly **increased working distances** of objectives greatly **reduce contamination** when changing from oil lenses to dry lenses, while avoiding contact with the sample.



Magnification	N.A.	W.D.(mm)
EC Plan 4X	0.10	15.90
EC Plan 10X	0.25	17.40
EC Plan 20X	0.45	0.90
EC Plan 40X	0.65	0.50
EC Plan 60X	0.80	0.35
EC Plan 100X-oil	1.25	0.15

Illumination

The importance of **LED**s as **safe** and **long-term illumination** devices has become increasingly the norm in the educational and clinical microscopy environments. Nevertheless, experienced teachers may still prefer the "warm" Halogen illumination with a large portion of long wavelengths for their students. To cover this situation, Motic has implemented a **full interchangeability between its Halogen and LED** light sources. Coming with a standard **6V/30W Halogen** bulb, the Halogen lamp socket of the BA210E also accepts a new **LED** module, which can be inserted instead of the Halogen bulb. The choice of (2) different color temperatures (**4500K, 6000K**) enhances illumination options in a user-friendly way. For usage of the microscope in rural environments **without power network**, a **mirror device** can be offered as an option.



Eyepiece Tubes

Designed with an **ergonomic viewing angle of 30°** and incorporating an **interpupillary distance of 55-75mm**, the BA210E observation tubes guarantee **fatigue-free viewing for hours**. A large field of view (20mm) enables fast and comfortable screening. The Trinocular tube allows digital documentation by using a wide variety of digital cameras, with a **20/80 light split for the Trinocular exit**. On **special request**, an eyepiece tube with **48-75mm interpupillary distance** is available.

Eyepieces

The standard eyepieces, made of **high quality optical glass**, N-WF 10X/20 with **high-eyepoint** for eyeglass wearers, provide consistent **diopter adjustment** for both eyes.

This enables perfect usage of reticles for measuring and counting. Countersunk screws prevent inadmissible removal in teaching environments and confirm Motic's dedication to **student proof quality**.

Graduated linear hair point
0.1mm/10mm

Graduated cross hair point
0.1mm/10mm

Plain cross hair

Magnification	F.N.(mm)
Widefield N-WF 10X	20
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

Condenser

To ensure the perfect height adjustment of the condenser, a condenser lock is integrated. While using Phase/ Dark field sliders, the teacher can pre-set the condenser position to prevent potential student misadjustment.

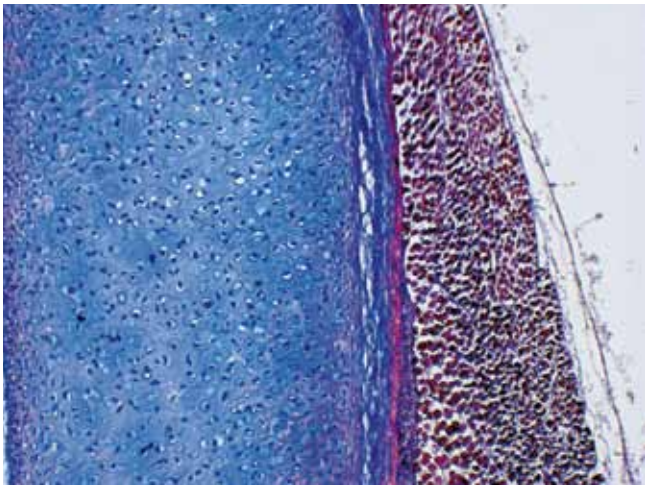
Rackless Stage

A **new rackless stage** enables a convenient movement of the x/y stage **without prominent gear rack** interference; while a **new specimen holder** design gives a soft but solid grip to the glass slides. These new mechanical improvements greatly **enhance user safety** in educational environments of schools and Universities.

The BA210E comes with a **right or left hand control stage** which enables consistent **sample movement across an 80x30mm range**. The model also bears a hard **coated stage surface**, resistant against routine usage abrasion.

Polarization

Convenient and easy, the **BA210E 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. The polarizer can be rotated freely on top of the light exit for best possible extinction.



Phase Contrast and Dark field

Due to the full integration of the BA210E model into Motic's BA Series of Upright microscopes, **Phase contrast** is available for objective magnifications from 10X up to 100X by using **EC-H Plan Phase lenses** together with the respective Phase Contrast slider. Dark field is possible with a **separate DF slider up to an objective NA of 0.65**.

	Magnification	N.A.	W.D.(mm)
Positive Phase	EC-H Plan 10X Phase +	0.25	17.40
	EC-H Plan 20X Phase +	0.45	0.90
	EC-H Plan 40X Phase +	0.65	0.50
	EC-H Plan 100X (Oil) Phase +	1.25	0.15
Negative Phase	EC-H Plan 10X Phase -	0.25	17.40
	EC-H Plan 20X Phase -	0.45	0.90
	EC-H Plan 40X Phase -	0.65	0.50
	EC-H Plan 100X (Oil) Phase -	1.25	0.15


Moticam
5.0
MOTIC
Motic
10X/0.25

Documentation

The importance of documentation has expanded into every aspect of microscopy. The BA210E is accessible by the traditional method (photomicrography) and the C-mount camera approach.

Standard Photomicrography

The traditional use of a **single lens reflex camera** (today mostly digital) requires the Trinocular version of the BA210E. The adaptation of the camera consists of a **mechanical adapter** combined with a **photo eyepiece** (2.5X or 4X).

The necessary **T2 adapter** referring to the camera model's bayonet is supplied by the **camera manufacturer. This setup delivers high resolution images of small fields.**

Digital Documentation

A more convenient setup is provided through Motic's philosophy of easy image digitization. The combination of the BA210E 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 Motic cameras come** equipped **with software** to transform the BA210E into an analysis and documentation station.

Motic offers a complete range of digital cameras starting with a basic resolution of 1.3MP up to 10MP (CMOS). The Research grade Moticam Pro Line (CCD), with a maximum of 5MP, including Monochrome and Cooled versions, is dedicated to professional demands for sensitivity and colour fidelity. All Moticam cameras deliver sharp live images with easy post-capture handling. Motic provides the necessary **range of C-mount adapters** to cover all demands of the antagonism displayed field versus resolution.

For further details on our range of cameras, as well as the different adapters, please contact your nearest Motic office or your local authorized Motic reseller.

Anti-Fungus Design

To protect the system from fungus growth in high-humidity environments, an **anti-fungus treatment** is applied to prolong the life of both mechanical parts as well as optics.

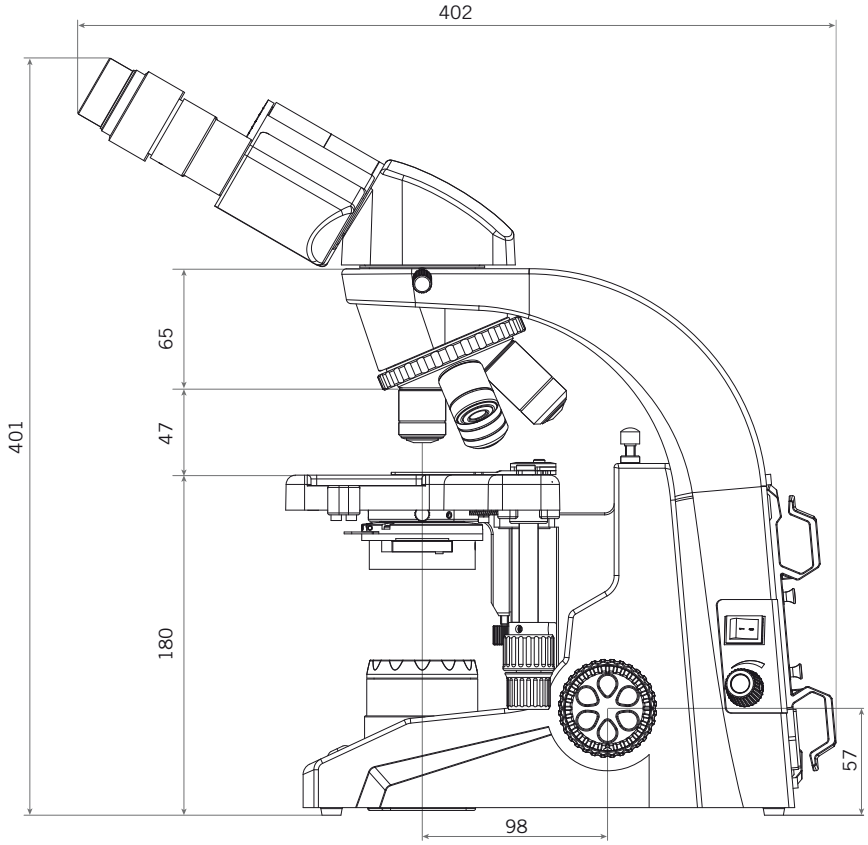
CCD Adapter

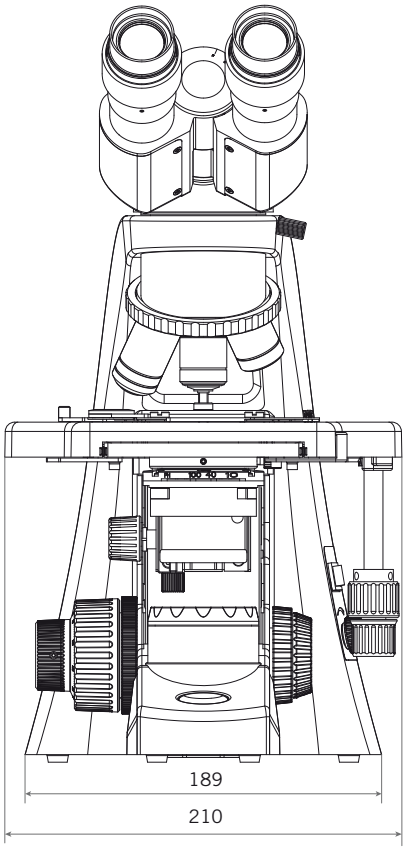
The CCD C-mount adapters follow the **ISO standard** of 38mm diameter and have been improved to enhance image reproduction quality. The appropriate adapter has to be chosen in relation to the chip size of the used digital camera. The following "magnifications" are available: 1X, 0.65X, 0.5X and 0.35X.

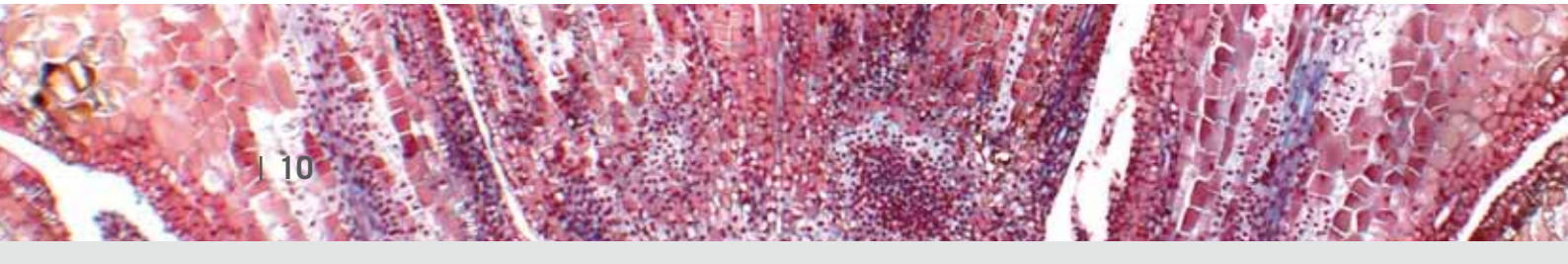
BA210E Standard Specifications

Model	BA210E
Optical System	Color Corrected Infinity Optical System [CCIS®]
Observation Tube	Widefield binocular 30° [F.N.20] Widefield trinocular 30° [F.N.20] - light distribution 100:0/20:80
Interpupillary distance	55-75mm (48-75mm optional)
Nosepiece	Reversed quadruple
Objectives	CCIS® EC Plan 4X, 10X, 20X (optional), 40X, 60X (optional) and 100X-Oil
Rackless Stage	150 x 150 mm surface, 80 x 30mm movement, coaxial controls
Condenser	N.A.1.25 Abbe condenser with slider slot
Focusing Block	Brass gears Z-Axis movement with 20mm stroke Fine focus with 2µm minimum increments, coarse focus with torque adjustment
Illumination	Built-in transmitted 6V/30W Halogen Fixed Koehler Illumination or 3W LED Fixed Koehler Illumination (6000K & 4500K)

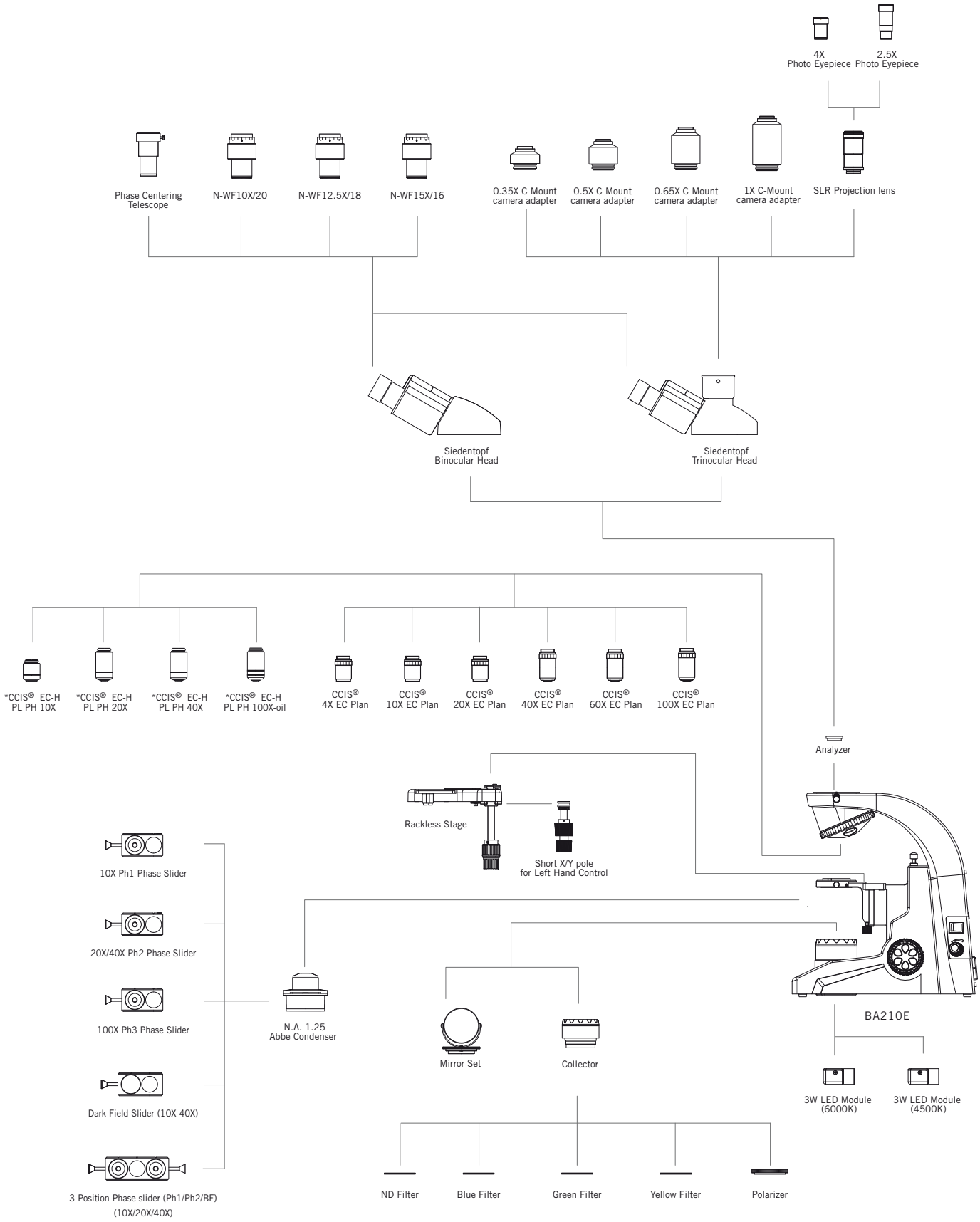
BA210E Schematic Diagrams (units: mm)







BA210E / System Diagram



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

Motic®

www.moticeurope.com

Motic Instruments (CANADA)
130 - 4611 Viking Way. Richmond, BC V6V 2K9 Canada
Tel: 1-877-977 4717 Fax: 1-604-303 9043

Motic Deutschland GmbH (GERMANY)
Christian-Kremp-Strasse 11, D-35578 Wetzlar, Germany
Tel: 49-6441-210 010 Fax: 49-6441-210 0122

Motic Incorporation Ltd. (HONG KONG)
Rm 2907-8, Windsor House, 311 Gloucester Road,
Causeway Bay, Hong Kong
Tel: 852-2837 0888 Fax: 852-2882 2792

Motic Spain, S.L. (SPAIN)
Polígon Industrial Les Corts, Camí del Mig, 112
08349 Cabrera de Mar, Barcelona, Spain
Tel: 34-93-756 6286 Fax: 34-93-756 6287

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.

March 2013
Designed in Barcelona (Spain)