

Motic®
More Than Microscopy

BA400

MODULAR MICROSCOPY PLATFORM

Motic® Microscopes



Motic

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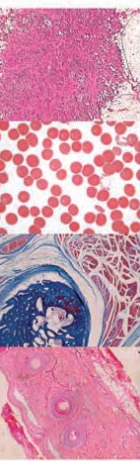
Design Change: The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.

Motic Certified ISO 9001
Certified ISO 14001

Code: SP010685EC

Motic BA400 Modular Microscopy Platform

Designed with Motic's Colour Corrected Infinity Optical System [CCIS™] and CCIS® series of objectives, the Motic BA400 is your platform for research, observation, or discovery. With new accessories [i.e. reflected light fluorescence attachment] and advances to expand the application scope of the BA400, the versatility of the microscope provides More Microscopy for you.



BA400 (Trinocular)

BA400

The Microscope Stand

New legal requirements and renewed emphasis on the ergonomics of the microscope have catapulted the importance of the stand to the forefront. The BA400's overall design was conceived from the user's point of view for a necessary layout suited for continuous and expandable usage.



The wide arm design provides strength and rigidity for constant usage. Additionally, the inverted "T" support in the back of the microscope assists the extra lateral stability of the BA400. Furthermore, the BA400's 1:1.6 body distribution ratio is ideal for those work stations constrained by the ever-increasing premium on space.



Engineered to feel like a personal microscope, the BA400's ergonomic layout is compatible with the manner in which you work. Low position focus controls and stage movement mechanisms and the location of the illumination intensity controls were designed to minimise fatigue. The ideal location guarantees manipulation is stress free and effortless.

Observation Tubes



Constructed at the comfortable angle of 30° and incorporating the Siedentopf interpupillary adjustment system [55-75mm], the BA400's observation tubes guarantee hours of fatigue free usage with field flatness up to F.N. 22. Opting for the trinocular tube expands the platform functionality of the BA400 to include documentation. Furthermore, the selection of the magnification changer equips the BA400 with a method of extending magnifications [1x, 1.6x, 2.5x, and Bertrand lens options] beyond the value of the objectives.



Posture Management



For those environments where user and bench height are completely opposite, a series of eye-piece risers may be incorporated for additional 20mm of height [up to 3 can be integrated for a total height adjustment of 60mm].

Nosepiece



The ball bearing mechanism of the BA400's nosepiece with the internal click stop system ensures concentration with every magnification turn. Reversed for rapid specimen changes without objective contamination, the nosepiece assimilates up to five separate objectives.

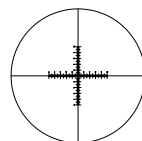
Eyepieces



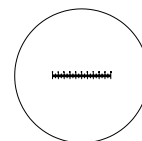
Integrating the Motic CCIS® system with field flatness up to F.N. 22 and the high eye point principle, the BA400's eyepieces transfer true colour and sharp images to minimise fatigue and eye strain. Various other magnifications are available for application specific tasks. A selection of reticules are also available.

Eyepiece Description	F/N	Diapiter Adjustment	Reticule
Widefield Plan High Eye Point 10x	22	+5°	Accepts Ø24mm
Widefield Plan 12.5x	16	-	-
Widefield Plan 15x	14.5	-	-
Widefield Plan High Point 10x w/ Plain Cross Hair	22	+5°	Plain Cross Hair

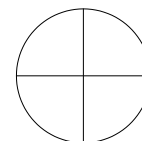
Reticules



Graduated cross hair
point = 0.1mm/10mm



Graduated linear line
point = 0.1mm/10mm



Plain cross hair

CCIS® Objectives



Crisp and distortion free with improved working distances, the CCIS® objectives of the BA400 continue to expand the microscope platform into different application realms. All objectives integrate effortlessly into the quintuple nosepiece of the BA400 to keep the focus on the specimen and task. Developed with the worse environments envisioned, all CCIS objectives are anti-fungus treated to prolong the life of both the microscope and objectives.

Type	N.A.	W.D. (mm)	Immersion
Plan Achromat 4x	0.10	7.0	-
Plan Achromat 10x	0.25	4.3	-
Plan Achromat 20x	0.40	1.3	-
Plan Achromat 40x	0.65	0.4	-
Plan Achromat 100x	1.25	0.13	Oil
Plan Achromat Phase 10x	0.25	4.3	-
Plan Achromat Phase 20x	0.40	1.3	-
Plan Achromat Phase 40x	0.65	0.4	-
Plan Achromat Phase 100x	1.25	0.13	Oil
Plan Fluor 4x	0.13	20.5	-
Plan Fluor 10x	0.3	10.5	-
Plan Fluor 20x	0.5	1.9	-
Plan Fluor 40x	0.75	0.58	-
Plan Fluor 50x	1.0	0.17	Oil
Plan Fluor 60x	1.0	0.17	Oil
Plan Fluor 100x	1.3	0.2	Oil

Mechanical Stage



Hard coated for longevity through the prevention of abrasion and wear, the mechanical stage offers a working surface of 174 x 145mm with cross movement, via ball bearing mechanism, of 76 x 50mm. Adjustable torque adjustment is available for both X and Y axes controls to provide the tension you are comfortable with. Available as either a left or right-handed control coaxial mechanical stage, the BA400's stage has a vernier scale readability of 0.1mm and a Z-axis focus stop to prevent unnecessary damage. The stage is also rotary for photomicrography composition.

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Condenser



The dovetail-mounted swing out Achromat condenser with a N.A. 0.90 showcases homogeneous illumination for observation and photomicrography for magnifications 2x to 100x. Condenser height is adjustable through the rack and pinion mechanism and the overall condenser is easily centred with a pair of adjustment screws.

Illumination



Integrating an externally mounted lamphouse with 30W/6V halogen Koehler illumination, the BA400 assures bright, even illumination for all specimens through the various contrast methods. Removal of hotspots is achievable through utilisation of a series of internal filters.

Simple Polarisation

Designed for simple polarisation, the BA400 is equipped standard with filter slots in its upper stand. The analyser and retardation plate slide in with the polarising filters mounting into the condenser and over the collector lens. Transition between bright field and polarisation is as simple as removing the analyser slider.



Motic offers a unique Gout screening method incorporated around the BA400. Using the normal polarisation setup, the addition of the First Order Red Compensator [535nm] converts the BA400 into a rapid Gout screening station.

Phase and Dark field Contrast



High contrast imaging via phase employment is offered in two formats with the BA400. Combining the N.A 1.25 Phase Contrast Turret Condenser with Motic's CCIS® Plan Phase objectives offers both the benefits of bright field with the details of the phase contrast. The condenser is equipped with four phase positions [10x, 20x, 40x, and 100x] and a bright field position with an iris diaphragm.

For applications requiring both phase and dark field contrast, BA400's Phase Dark field Turret Condenser is the ideal solution. Incorporating three phase positions [10x, 40x, and 100x] with a dark field position [for 10x - 40x observation] and an iris diaphragm, the condenser switches rapidly between techniques.

Fluorescence Microscopy*

Optionally available with three-filter block [excluding dummy cassette] slider axis for reflected light fluorescence, the BA400 transforms into a fluorescence microscopy platform covering routine FITC to GFP markers. The BA400's fluorescence versatility allows for one microscope to be used for simply fluorescence screening diagnosis to research analysis, saving both space and budget expenses.

Filter Set	Exciter (nm)	Dichroic (nm)	Barrier (nm)
DAPI and Hoechst	D350/50x	400DCLP	D460/50m
FITC FITC/RSFGP/Fluo 3/DIO Acridine Orange [-rRNA]	D480/30x	505DCLP	D535/40m
TRITC [Rhodamine]/DII/Cy3	D540/40x	565DCLP	D605/55m
Texax Red / Cy2.5	D560/40x	595DCLP	D630/60m
Cy5, Alexa Fluor 633, Alexa Fluor 647	HQ620/60x	Q660LP	HQ700/75m
Cyan GFP	D436/20x	455DCLP	D480/75m
Endow GFP Bandpass Emission	HQ470/40x	Q495LP	HQ525/50m
Yellow GFP BP [10C/Topaz]	HQ500/20x	Q515LP	HQ535/30m

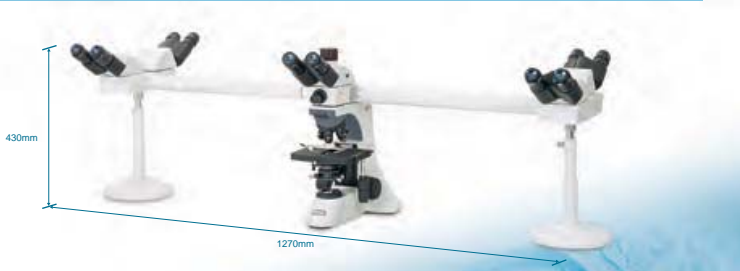
* Please check with your local Motic supplier for availability.



TH-5/TH-3/TH-2S Multi-Head Observation

The Multi-head observation apparatus is ideal for teaching, training, and research applications. Combining perfect illumination, and image consistency with a dual-coloured (red/green) indicator makes the BA400 extraordinary.

TH-5 Five-Head Configuration



TH-3 Three-Head Configuration



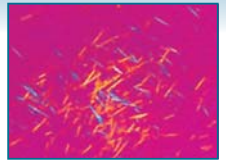
TH-2S Two-Head Observation



Gout Screening System



The BA400 is equipped with a unique method of effectively and rapidly screening for Gout and pseudo-Gout. Utilising the simple polariser kit with the first order red compensator [535nm], rapid diagnoses are achieved in order to concentrate on relieving the patient of Gout or the fear of Gout.



Documentation and Analysis Station



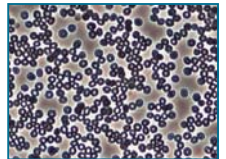
The option of retrofitting the BA400 with the 2 megapixel built-in digital camera head, as well as the provided software, the BA400 evolves from an observation station into an analysis platform to process specimens from screening, identification, manipulation, documentation, and diagnosis stages. Another option is the selection of the trinocular head version with your preferred Moticom digital camera.



Tissue Culture and Blood Smear Screening



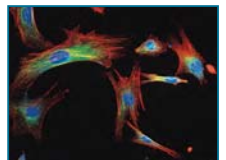
The BA400's Phase / Dark field condenser equips the operator with a simplified method of identifying and re-analysing tissue culture and blood smears in both phase and dark field contrast. The combination establishes a platform for first and second analyses in one area to maximise laboratory efficiency.



Fluorescence Analysis Platform



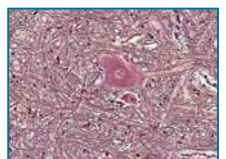
Expanding the function of fluorescence excitation beyond simple observation, the BA400 EPI's adaptation of the Moticom 3000C and fluorescence software offers a platform for documentation, observation, file-sharing, and diagnosis in one ideal station. Better image management, better work efficiency, and better space utilisation are the hallmarks of this platform.



Pathology Platform



With a uniform and intense 30W external Koehler illumination source, the BA400 ensures effective illumination for accurate and proper diagnosis of pathological specimens. Furthermore, modularity of the BA400 represents a multi function microscopy platform for the condensed space associated with today's laboratories.



Documentation

Documentation, a standard requirement for all applications in today's society, is available for the BA400 in three options: one photomicrography and two versions of digital photomicrography.

Standard Photomicrography



Utilising the trinocular head format of the BA400, the addition of the 2.5X SLR Projection lens plus your choice of the 2.5x and 4x photo eyepiece. The desired image clarity and quality is easily captured.

2.5X SLR Projection lens - requires combination with one of the below photo eyepieces



*Final adapter must be provided by camera manufacturer

Digital Documentation



Convenient to mount, the DMBA400 digital 2-megapixel camera head digitalises your observation for sharing amongst colleagues, analysis, and documentation. Streaming live images, via the USB2.0 cable, at 1600 x 1200 and with integrated real-time filtering and noise reduction, the DMBA400 head and standard software, Motic Images Plus, optimises the BA400 into a training, teaching, and analysis station without the extra space associated with these activities.

Another option for digitalisation is the selection of Motic's line of digital cameras to deliver crisp images even from weak fluorescence images. The Moticam 3000C utilises a Peltier cooling system with image transfer via FireWire to transform the BA400 into a fluorescence analysis platform when combined with a fluorescence software.

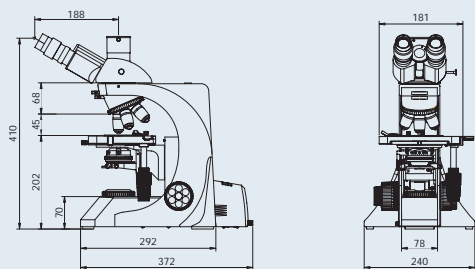
Digitalisation of microscopy is Motic's philosophy and to the right is the available camera adapters for the BA400 to assist your digitalisation.



Adapter	Chip Sensor Size
0.5x	1/2" chip sensor
0.65x	2/3" chip sensor
1.0x	1/3" - 2/3" chip sensor

Schematic Diagrams

BA400(Trinocular)



Unit: mm

BA400 Standard Specifications

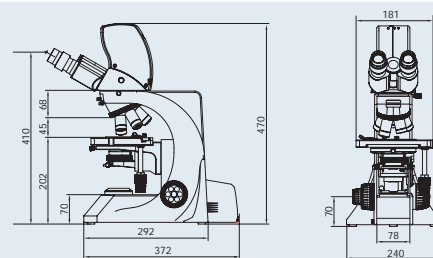
Model	BA400
Optical System	Colour Corrected Infinity Optical System (CCIS*)
Observation Tube	Widefield binocular 30° [F.N. 22] Widefield trinocular 30° [F.N. 22]- light distribution 20/80 Widefield trinocular 30° [F.N. 22]- light distribution 0/100
Nosepiece	Reversed quintuple
Stage	174 x 145mm surface- 76 x 50mm movement: hard coated with coaxial movement and left or right hand controls; torque adjustment of X and Y axis controls
Condenser	Swing-out Achromat (N.A. 0.9/0.13) Abbe condenser 4-position N.A. 1.25 Phase Contrast turret condenser [10x, 20x, 40x, 100x, and BF] Phase and Dark field Contrast N.A. 1.25 Phase Contrast turret condenser [10x, 40x, 100x, and DF (10x-40x)]
Focus	Z-axis movement: 27mm with stop; 42mm stroke: 1µm minimum increments; torque adjustment for coarse; silicon covered focus controls
Illumination	Externally mounted Transmitted 6V/30W Quartz halogen Koehler illumination

DMBA400 Standard Specifications

Model	DMBA400
Optical System	Colour Corrected Infinity Optical System (CCIS*)
Observation Tube	Widefield binocular 30° [F.N. 22] with built-in 2 megapixel digital camera- light distribution 0/100
Camera Specifications	Effective Pixels 2 megapixels Still Image Resolution 1600 x 1200 Sensitivity 3 lux Scanning Mode Progressive scan method Frame Rate 10fps @ 1600 x 1200, 40fps @ 800 x 600, 40fps @ 400 x 300 Data Transfer 480 MB/Second Shutter Automatic / Manual Video Output Transmission via USB 2.0 across Motic software direct into memory of PC White Balance Automatic / Manual adjusted using software Recommended System Requirements Pentium 4, 1GHz or higher, 1 GB unused Hard Disk Memory, 256MB RAM, 32MB Display Memory, Windows 2000 & XP

Schematic Diagrams

DM-BA400-B



Unit: mm

SYSTEM DIAGRAM BA 400

BA400 System Diagram

