SMZ-140/143 SCHEMATIC DIAGRAMS

SMZ-140/143 SPECIFICATIONS

Microscope Body - Standard	
Optical System	Greenough Stereoscopic
Head Observations	Binocular 45^0 - (SMZ-140) Binocular 600 - (SMZ-140-60^0) Trinocular 450 - (SMZ-143) - light distribution 50/50 via right eye tube / trinocular part
Interpupillary Adjustment	54mm - 76mm
Diopter Adjustment (on eye tubes)	$\pm$ 5^0
Zoom Ratio	4:1
Magnification Range	10X - 40X
Objective	1X
Working Distance	80 mm
Eyepieces	WF 10X/F.N.20
Field of View Range	20.0mm - 5.0mm
Microscope Body - Optional	
Magnification Range	1.75X - 180X
Objectives	0.3%X, 0.5%, 0.63X, 0.75X, 1.5X
Working Distance	33.0mm - 200 mm
Eyepieces	WF 5X/F, N.22, WF 15X/F.N.13, WF 20X/F.N.10, WF 30X/F.N.8
Field of View Range	62.9 mm - 1.3mm
Documentation (SMZ-143 only)	
SLR Camera Adapter	2.0X SLR Projection Lens
C-mount camera adapters	0.4X, 0.5X

SMZ-140/143 OPTICAL DATA

Eyepiece	Mag. (X)	Standard Objectives		Auxiliary Objects									
				0.35X		0.5X		0.63X		0.75X		1.5X	
		WD 80mm		WD 200mm		WD 133mm		WD 110mm		WD 89mm		WD33mm	
		Mag.	FD(mm)	Mag.	FD(mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD(mm)
5X/22	1	5.0	22.0	1.8	62.9	2.5	44.0	3.2	34.9	3.8	29.3	7.5	14.7
	2	10.0	11.0	3.5	31.4	5.0	22.0	6.3	17.5	7.5	14.7	15.0	7.3
	3	15.0	7.3	5.3	21.0	7.5	14.7	9.5	11.6	11.3	9.8	22.5	4.9
	4	20.0	5.5	7.0	15.7	10.0	11.0	12.6	8.7	15.0	7.3	30.3	3.7
10X/20	1	10.0	20.0	3.5	57.1	5.0	40.0	6.3	31.7	7.5	26.7	15.0	13.3
	2	20.0	12.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.3	6.7
	3	30.0	6.7	10.5	19.0	15.0	13.3	18.9	10.6	22.5	8.9	45.0	4.4
	4	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	3.0	6.7	60.0	3.3
15X/13	1	15.0	13.0	5.3	37.1	7.5	26.0	9.5	20.6	11.3	17.3	22.5	8.7
	2	30.0	6.5	10.6	18.6	15.0	13.0	18.9	10.3	22.5	8.7	45.0	4.3
	3	45.0	4.3	15.8	12.4	22.5	8.7	28.4	6.9	33.8	5.8	67.5	2.9
	4	60.0	3.3	21.0	9.3	30.3	6.5	37.8	5.2	45.0	4.3	90.0	2.0
20X/10	1	20.0	10.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.3	6.7
	2	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	30.0	6.7	60.6	3.3
	3	60.0	3.3	21.0	9.5	30.3	6.7	37.8	5.3	45.0	4.4	90.0	2.2
	4	80.0	2.5	28.0	7.1	4.0	5.0	50.4	4.0	60.0	3.3	120.0	1.7
30x/8	1	30.0	8.0	10.5	22.9	15.0	16.0	18.9	12.7	22.5	10.7	45.0	5.3
	2	60.0	4.0	21.0	11.4	30.0	8.0	37.8	6.3	45.0	5.3	90.0	2.7
	3	90.0	2.7	31.5	7.6	45.0	5.3	56.7	4.2	67.5	3.6	135.0	1.8
	4	120.0	2.0	42.0	5.7	60.0	4.0	75.6	3.2	90.0	2.7	180.0	1.3

DM-B1

The popular B! series is also available as a Digital Microscope

Description

Choose between a high-resolution version or a microscope with simultaneous analog and digital outputs.

Models noted as “DM” contain a high-resolution 2.0MP live imaging chip, while models noted as “DMW” are able to provide USB, S-Video and rCA simultaneous outputs where the focus is on the high resolution analog signal at 500TV lines.

Models may vary according to geographical location.

Specifications

	MICROSCOPE
Eyepieces	WF10X/18mm or 20mm (depending on Objectives chosen) with diopter control
Objectives	4x, 10x 40x, 100x in “A” or “ASC” format
Condenser	1.25 NA Abbe Substage condenser
Focusing	Coaxial Coarse and Fine controls
Stage	Built-in mechanical stage with coaxial controls
Illumination	12V/20W Halogen with dimming control
Power Supply	Attachable Universal Voltage Power Supply 100V~240 V
	CAMERA
Chip Configuration	Built-in 1/2” live 2.0 Megapixel Imaging Chip (DM-Series)
	Built-in 1/3” Multiple-output Analog/Digital Imaging Chip (DMW-Series)
Data Output	Hi-Speed USB2.0 (DM-Series)
	Hi-Speed USB 2.0 640x480 pixels, S-Video & RCA 480 TV Lines (DMW-Series)
Power Supply	Through USB Cable from Computer (DM-Series)
	Through Microscope Power supply with separate switch for camera (DMW-Series)
Included Software	Motic Images Plus 2.0ML for Windows & Motic Images Plus 2.0 for Macintosh OSX
Included Accessories	Calibration slide for accurate measurements; dust cover; immersion Oil
Minimum Specifications	Windows: 2000/XP, 256MB RAM, P4; Built-in USB2.0
	Macintosh: OSX, 256MB RAM, G4; Built-in USB2.0

B1-SERIES

This full-sized microscope range provides users with a sturdy and solid base for professional microscopy.

The B1 Series is available with many accessories to suit most microscopy requirements in academic, veterinarian and simple lab tasks.

Specifications

Model B1-211A

- Monocular Head, inclined at 45 degrees and rotating
- Widefield WF10X/18mm Eyepiece
- Quadruple Nosepiece with parcentric click stops
- Plan Objective 4X
- Achromatic Objectives 10X, 40X(S), 100X(S, Oil)
- Coaxial coarse and fine focusing with tension adjustment
- Low position coaxial mechanical stage
- Rack & Pinion focusable 1.25NA condenser
- Iris diaphragm with filter holder
- Halogen Illumination 12V/20W with intensity control
- Main supply 200V

Model B1-220A

- Binocular Head, inclined at 45 degrees and rotating
- Widefield WF10X/18mm Eyepieces
- Quadruple nosepiece with parcentric click stops
- Plan objective 4X
- Achromatic Objectives 10X, 40X(S), 100X(S, Oil)
- Coaxial Coarse and fine focusing with tension adjustment
- Low position coaxial mechanical stage
- Rack & Pinion focusable 1.25NA condenser
- Iris Diaphragm with filter holder
- Halogen Illumination 12V/20W with intensity control
- Main Supply 220V

Model B1-223A

- Trinocular Head, inclined at 45 degrees and rotating
- Widefield WF10X/18mm Eyepieces
- Quadruple nosepiece with parcentric click stops
- Plan objective 4x
- Achromatic objectives 10X, 40X (S), 100X (S, Oil)
- Coaxial coarse and fine focusing with Tension adjustment
- Low position coaxial mechanical stage
- Rack & Pinion focusable 1.25NA condenser
- Iris Diaphragm with filter holder
- Halogen Illumination 12V/20W with intensity control
- Main supply 220V

Model B1-220ASC

- Binocular Head, inclined at 45 degrees and rotating
- Widefield WF10X/20mm Eyepieces
- Quadruple nosepiece with parcentric click stops
- Achromatic Super contrast optics
- ASC objectives 4X, 10X, 40X(S), 100X(S, Oil)
- Coaxial coarse and fine focusing with tension adjustment
- Low position coaxial mechanical stage
- Rack & Pinion focusable 1.25NA condenser
- Iris Diaphragm with filter holder
- Halogen illumination 12V/20W withe intensity control
- Main supply 220V

Model B1-223ASC

- Trinocular Head, inclined at 45 degrees and rotating
- Widefield WF10X/20mm Eyepieces
- Quadruple nosepiece with percentric click stops
- Achromatic super contrast optics
- ASC objectives 4X, 10X, 40X(S), 100X(S, Oil)
- Coaxial coarse and fine focusing with tension adjustment
- Low position coaxial mechanical stage
- Rack & Pinion focusable 1.25NA condenser
- Iris diaphragm with filter holder
- Halogen illumination 12V/20W with intensity control
- Main Supply 220V

CASSIA

MOTICAM 352

- Affordable entry to digital microscopy
- Live VGA resolution with brilliant colour representation
- One-Box Solution

MOTICAM 1000

- No pixilation when displaying on projector
- Crisp & Clear images, great for interactive whiteboards
- Used in schools, universities and laboratories

MOTICAM 2000

- Live 2 Megapixel solution in small metal casing
- Live Scale-Bar and Scale-Cross
- Includes additional eyetube adapter

MOTICAM 2300

- 3 Megapixel live resolution with advanced controls
- Can be used for most bright fluorescence applications
- Live Scale-Bar and Scale-Cross

MOTICAM 3000

- Live 3.3 Megapixel CCD Imaging camera
- Ideal for documentation purposes
- Optional Peltier cooled version available (3000C)

MOTICAM 5000

- Live 5.0 Megapixel CCD Imaging Camera
- Ideal for Documentation purposes
- Optional Peltier cooled version available (5000C)

MOTICAM 480

- 3 Cameras in 1 with USB, S-Video and RCA output
- Up to 550TV lines analog resolution
- Hardware white balance

MOTICAM 483/353

- Gooseneck Camera available in digital only (353) or multi-output (483)
- Carrying / Storage case included
- Adapters for most microscopes

MOTIC IMAGES PLUS 2.0

- Multi-Language Application software
- Turn images into knowledge through capture, Measurement, editing, amalgamation and reporting tools
- Software for Macintosh OSX included where available

MOTIC IMAGES ADVANCED 3.2

- Same tools as motic images plus 2.0 plus
- Manual and single point segmentation
- Multi Focus: Assembles a single focused image from a stack
- Assembly: Assembles series of x/y images
- Save images in DICOM standard

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STANDARD SPECIFICATIONS
FBGG LED FOR SMZ-168

Specifications

Light Sources	Lamebrain LED, 3W
Illumination	Individual lamebrain LED bulb for incident and transmitted illumination
Average LED Life	Approximately 30,000 hours
Average Colour Temperature	5500K
Maximum Colour Temperature	6568K for incident illumination
	6561K for transmitted illumination (with ground glass)
Illumination Control	Independent Power switch, mutual intensity control
Intensity setting	0% - 100%: Linear
Brightness (Lux)	7552 lux for incident illumination
	4532 lux for transmitted illumination (with ground glass)
Optimum incident field of view	50mm at a working distance of 108mm from sample
Power supply	100V - 240V; Universal power supply
Ambient Temperature	15^{0}C to 35^{0}C
Relative Humidity	>75%

SPECIFICATIONS
SMZ-168 STEREOMICROSCOPE

Specifications

Model	SMZ-168 B	SMZ - 168 600	SMZ - 168T
Optical System	Greenough		
Observation angle	35^0 65^0	35^0	
Magnification range (Standard)	0.75X -5.0X		
Zoom ratio	6.7 : 1		
Eyepieces (Standard)	WF10X		
Max. view (Standard)	23mm		
Interpupillary distance	54mm - 76mm		
Diopter adjustment	+ 5^0		
Working distance (Standard)	113mm		
Photo / Video tube	No No	Yes	
Phot / Video adapters	N/A N/A	2X SLR Projection Lens	
	0.35X Adapter (1/4” sensors)		
0.45X Adapter (1/3” sensors)			
0.65X Adapter (1/2” sensors)			
1.0X Adapter (no lens)			
Auxillary eyepieces 30X/F.N. 8, 32X/F.N.8	5X/F.N. 23, 6.25X/F.N.23, 15X/F.N. 17.6, 20X/F.N. 13.4,		
Auxillary Objectives	0.3X (WD = 324mm)		
	0.5X (WD = 192mm)		
	0.63X (WD = 156mm)		
	0.75X (WD = 127mm)		
	1.5X (WD = 50mm)		
	2.0X (WD = 34.5 mm)		
Max. System Marg.	320X		
Max. System working distance	324mm		
Max. System View	102.2mm		

COLOUR CORRECTED INFINITY OPTICAL SYSTEM

The CCIS optics allows new accessories and functions to be incorporated into the AE30/31 inverted microscope.

The CCIS infinity design has succeeded in achieving longer working distance objectives with higher numerical apertures. This represents a significant development in optical performance and versatility.

THE MICROSCOPE STAND

The design of the AE30/31 inverted microscopes optimally integrates all funcitons enabling effective ergonomics and maximum expandability.

The wide base provides strength and rigidity. In addition, the inverted “Y” support in the back of the microscope provides extra lateral stability.

The AE30/31 has been designed to meet the needs of demanding users. The size of the microscope is compact to minimize the footprint and conserve limited desk space available in modern laboratories.

The ergonomic design has made AE30/31 compatible with the manner in which you work. The coaxial coarse/fine focusing nobs, controls for the attachable mechanical stage and light intensity, are placed conveniently at your fingertips to minimize user fatigue. The ideally positioned focus knobs and stage controls make their manipulation stress free.

THE LIGHT SOURCE

The Koehler illumination system with a 6V-30W Quartz halogen lamp provides birhgt, even illumination at any magnification. The “only one in its class” centerable lamp is housed externally and has an externally operated mechanism for control of all facets of illumination. A segmented illumination intensity indicator is ideally located for easy viewing.

THE REVOLVING NOSEPIECE

The revolving side facing nosepiece accepts five objectives. It runs on ball bearings and has internal click stops so that the image remains centered after each change in magnification.

SPILL RESISTANT DESIGN

Internal components and optics are sealed against accidetnal fluid spills. This allows the user to concentrate fully on the specimen and not to worry about accidentally damaging the microscope.

The Motic AE30/31 ensures reliable and troule-free usage.

OBSERVATION TUBES

In order to maintain parfocality, the AE30/31 Siedentopf eyepiece tubes will not change their length when interpupillary distance adjustments are made. An inclination angle of 45^0 is chosen for comfort and posture management.

EYEPIECES

A field of view of 22mm has now been adopted as the standard for 10X eyepieces. This enlarged field provides for faster scanning and easier viewing.

Parfocality of focus is assured by independent diopter adjustment provided on each eyepiece.

Various graticules for measurement and counting can be used with the adjustable eyepieces.

STAGE AND ACCESSORIES

The standard stage is a fixed stage plate. The stage can be widened on both sides with auxiliary stage plates. A hard coating protects the stage surface from abrasion and wear. The temepred glass tage insert allows for checking the objective being used without removing the specimen form the stage.

An optional attachable mechanical stage with low positioned coaxial controls is available. The controls are ergonomically positioned so that your hands can rest on the desk while scanning the specimen.

The object guide accepts interchangeable speimen holders: 65mm Petri dish holder (optional 35mm Petri dish holde), 54mm Petri dish holder, standard glass slides.

CONDENSER AMOUNT

The centerable condenser mount is height adjustable with rack and pinion and is dovetail mounted on an illuminating pillar with a clamp screw.

The ELWD condenser with a numerical aperture of 0.30 and a working distance of 72mm is suitable for objectives of magnification form 4X to 40X with an aperture diaphragm int he brightfield koehler illumination and for phase contrast.

For easy and quick change of magnifiation, two annular rings on a stndard non-centerable phase slider (to be released) and a centerable verision, recommended for more demanding examinations, are available.

The phase annular ring Ph1 for 10X and 20X and Ph3 for 40X are centered by Allen Hex keys ont he centerable slider. The center position on each slider is designated for brightfield usage.

OBJECTIVES

The Motic CCIS objectives for inverted microscopes have long free working distances in comparison to normal ojectives of the same magnification. The objectives are optically corrected to compensate for different base thickness of specimen holders and provide easy routine operation.

Thee objectives also make it possible to turn the objective nosepiece, even at the highest magnifications, without fear of coming into contact with the object stage.

Choices of Objectives:

Description	Type	N.A.	W.D. (mm)	Phase Ring
Achromat Plan	PL 4Xα	0.1	23.5	-
	PL 10Xα	0.25	7.5	-
	LWD PL 20Xα	0.4	7	-
	LWD PL 40Xα	0.6	2.8	-
Phase Plan	PL Ph 10Xα	0.25	6.5	Ph1
Achromat	LWD PL Ph 20Xα	0.47	Ph1	
	LWD PL Ph 40Xα	0.6	2.8	Ph3

The newly designed 20X and 40X brightfield objectives and 20X and 40X phase objectives, which compensate for a 1.1mm thick cover glass, require no cover glass compensationa d provide routine operation.

PHASE CONTRAST MICROSCOPY

Phase contrast is the most popular optical contrast method for viewing the detailed structure of unstained or living specimens.

The Motic Phase Plan Achromat objectives, coupled with the easy to operate phase slide, provide outstanding contrast for the most demanding application.

For a quick and easy change of magnification, two annular rings are provided on the non-centered phase slider. The center position on the slider is designated for brightfield microscopy (to be released).

The annual rings on the centerable phase slider are centered with the provided Allen Hex keys.

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Specificaitons

	AE-30	AE-31
Optical System	CCIS (Colour corrected infinity optial system) Parfocal distance: 45 mm	
Observation Tubes	Siedentopf type Binocular tube	Siedentopf type Trinocular tube (light distribution. bino/photo: 100/0 or 0/100)
	Inclination	
	45 degrees	45 degrees
	Interpupillary distance	
	50-75mm	50-75mm
	Eyepoint height	
	380mm from table	400mm from table
Eyepieces	Widefield High Eyepoint WF PL10X (FN 22) with diopter adjustment	
Nosepiece	Quintuple nosepiece, side facing type	
Plain Stage	Stage size: 200 x 260mm Stage height: 207mm from table	
Focusing	Coaxial / via nosepiece up / down movement Coarse / fine movement - 42mm / 0.2mm Min. fine reading 2Mm, Adjustable coarse torque	
Illumination	6V-30W Quartz halogen centerable lamp is housed externally and has an externally operated device for all the lements of illimination with built-in-heat absorbing filter and removable diffuser.	
Condenser	ELWD N.A. 0.30 (W.D. 72mm) Focusable LWD N.A. 0.50 (W.d. 28mm) Focusable for objectives 4X to 40X	
Collector	Aspherical lens with field diaphragm	

STANDARD & OPTIONAL SET CONFIGURATION

Specificaitons			Order No.	AE30	AE31
Eyepieces	Widefield High Eyepoint	WF PL 10X/22 with diopter adjustment	SG02S0144	●	●
CCIS Infinity Objectives	LWD Phase	CCIS PL Ph10X	SG01S02291	●	●
		CCIS LWD PL Ph 20X	Sg01S03291	●	●
		CCIS LWD PL Ph40X	Sg01S04291		
	LWD Plan	CCIS PL4X	SG01S01241	●	●
		CCIS PL 10X	SG01S02241	○	○
		CCIS LWD PL20X	SG01S03241	○	○
		CCIS LWD PL40X	SG01S04241	○	○
		CCIS LWD PL60X	SG01S05241	●	●
Condenser	ELWD N.A. 0.30 (W.D. 72mm)		SG030401A	●	●
	LWD No.A. 0.5 (W.D. 28mm)		SG030701	○	○
Phase Slider	Centerable: Ph1, Ph3, One empty position		SW0123F8	●	●
	Non-centerable - Ph1, Brightfield, Ph3 (to be released)				
Phase Contrast Accessories	Phase Centering Telescope (30)		SG069993	●	●
Photo Adapters	Photo Adapter (requires one of the photo eyepieces below)		SP100294	/	○
	2.5X Photo eyepiece			/	○
	4X Photo eyepiece			/	○
Video Adapters	CCD adapter 0.65X		SP100384	/	○
	CCD adapter 1X		SP100350	/	○
Stage & Accessoreis	Glass stage insert		SP100301	●	●
	Metal stage insert		SW0199F9	●	●
	Auxillary stages (paired set)		SW0123G3	○	○
	Universal attachable mechanical stage with well plate holders		SW010392	○	○
	35mm Petri dish holder		SP100303	○	○
	54mm Petri dish holder		SP100304	○	○
	65mm Petri dish holder		Sp100302	○	○
Filters	Green interface (45mm diameter)		SG060747	●	●
	Flue filter (45mm diameter)		SG060727	●	●
	Ground glass (45mm diameter)		SG060729A	●	●
Allen Hex, Key	Two keys provided		SP070014	●	●

Notes: " ● " represents the standard accessories.
" ○ " represents the optional accessories
" / " to beused with phase objectives
" ● " represents the optional accessories for some markets.
Please check with your local Motic Agent.

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B1-SERIES BIOLOGICAL MICROSCOPE

The Motic 1-Series Biological Microscopes with its standard features are designed for school applications. This system is for use in laboratories, clinics, research facilities and medical schools. The modern and ergonomic design distinguish itself from the others. Its affordable price and excellent quality give you the best value for your money.

HEAD

There are five kinds of head for your choice, which are 360^0 rotating around its vertical axis. Two binocular heads are available, with standard 45^0 inclined and optional 30^0 inclined, providing adequate choices for your best viewing comfort. Also, diopter rings on both tubes are a standard feature to facilitate compensation for eye acuity. Graduated interpupillary distance adjustment is from 54mm to 76mm. Also there are monocular, dual teaching and binocular head available for selection

MECHANICAL STAGE

Built-in ball bearings mechanical stage provides a travel range of 76mm X 50mm in the X and Y direction respectively with graduations reading up to 0.1mm for accurate positioning of specimen.

COAXIAL COARSE AND FINE FOCUSING KNOBS

The precision Focusing mechanism is designed for frequent use and also provides a smooth adjustment of focus. The coarse focus is with adjustable tension device.

CONDENSE

The extremely efficient removable N.A. 1.25 abbe condensor for brighter illumination level, and on iris diaphragm for resolution and contrast control.

ILLUMINATOR

A standard halogen lamp 12V/20W with the intensity control system is used, providing an even and bright illumination for all magnifications. Kohler illumination can be ordered as option which is centerable for advanced and special applications.

ACCESSORIES FOR MICROSCOPY APPLICATIONS

Phase Contrast

Phase Contrast provides clear contrast of specimen without dying and therefore useful for observing alive or transparent specimens.

By simply rotating the turret, the condenser can be set for brightfield and phase contrast microscopy. It can be used with 10x, 20x, 40x and 100x phase objectives. Simple plug in phase and is also available for 10x, 20x and 40x phase objectives.

Polarizing

Polarizing - special polarizing equipment available with polarizer, analyzer and an optional specimen sage enable pol microscopy as Geology, Mineralogy etc.

Darkfield

Darkfield control stopenables darkfield observation at 4x through 40x when the attachment is mounted on the brightfield condenser bottom section

Kohler Illumination

Kohler illumination which is centerable and can be ordered as option.

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OBJECTIVES

A full range of achramatic (A-10X, A-40XR and A-100XR oil) and achramatic super contrast (ASC4X, ASC10X, ASC40XR, and ASC100XR oil) and plan PL-4X, PL-10X, PL-40XR and PL-100XR oil objectives in the B1 series provide you with superior optical quality. A new device for anti fungus is available. This effect can last for more than three years.

	Magnification	Item Code	N.A.
	PL4X	SG01 501211	0.1
	A10X	SG01 502211	0.25
High performance	A20X	SG01 503211	0.45
Achromatic	A40X	SG01 504211	0.65
	A60X	SG01 505211	0.85
	A100X	SG01 506211	1.25
	ASC4X	SG01 501217	0.1
Ultra High performance	ASC10X	SG01 502217	0.25
Automatic Super Contrast	ASC40X	SG01 504227	0.65
	ASC100X	SG01 506217	1.25
	PL4X	SG01 501222	0.1
	PL10X	SG01 502222	0.25
Plan with almost flar field	PL20X	SG01 503222	0.45
of view	PL40X	SG01 504222	0.65
	PL60X	SG01 505222	0.85
	PL100X	SG01 506222	1.25

EYEPIECES

Motic B1 series comes in with standard widefield WF10X (18mm) eyepieces, and options of huygens HSX eyepieces, widefield WF15X eyepiees, widefield WF10X (20mm) eyepiees and widefield WF20X eyepieces.

Item Code	**SG02 50103**	**SG02 50121**	**SG02 50204**	**SG02 50405**
Eyepieces	WF10X/18	WF10X/20	WF15X	WF20X
Field Number	18mm	20mm	12mm	11mm

DMB1-223ASC-B

- This professional microscope has a powerful 2.0 Megapixel camera built-in and features a high-speed USB2.0 data connection straight from the microscope
- Connect this microscope to a computer and display high-resolution live images on the screen or a data projector.
- Allowing the microscope to be shared by a lot of people by transmitting high-resolution, ture-colour images to the computer screen, this unit is a powerful teaching tool for any laboratory or classroom.
- Coaxial focusing and coaxial stage controls are comfortable and easy to use
- Motic's own Achromatic Super Contrast (ASC) objectives make this microscope useful in both laboratory or classroom conditions.

Microscope Specifications

Head	Sliding Trinocular Head 300 inclined with 3rd tube as a built-n Digital Camera
Eyepieces	Widefield WF10X/20mm with diopter control in both eyetubes
Nosepiece	Quadruple Nosepiece with positive click stops and rubber grip
Objectives	Motic ASC 4X, 10X, 40X (spring), 100X (spring, oil)
Stage	140mm x 135mm Mechanical Stage with Vernier Scale
Focusing	Tension Adjustable Coaxial Coarse and fine
Condenser	Rack & Pinion mounted focusable 1.25NA Abbe Condenser with filter holder
Illumination	12V/2W Halogen with stepless intensity control
Microscope Power Supply	110V-240V Variable voltage

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Digital Specifications

Imaing Device	2.0 Megapixels 1/2" CMOS
Effective Pixels	1600 x 1200
Max. Still Image Resolution	1600 x 1200
Scanning System	Progressive Scan
Max. Frame Rate	10fps@1600 x 1200, 40fps @ 800x600
Max. Data Transfer	480MB / Second through USB2 connection
Minimum Illumination	3 Lux
Camera Power Supply	5V self-power through USB connection
Minimum System Requirements	PIII, 1GB unused hard disk space, 256MB RAM, 32MB Diplay Memory, Windows XP or 200
Included Software	Motic Images Plus 2.0 Multi Lanugage
Calibration Slide	Motic Certified printed calibration slide

*For optional extras please consult the B1 series brochure.

THE MICROSCOPE STAND

New legal requirement 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 providers strength and rigidity for constant usage. Additionally, the inverted "Y" 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 tree and effortless.

OBSERVATION TUBES

Constructed at the comfortable angle of 30^0 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 charger 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 eyepiece risers may be incorporated for additional 20mm of height (up to 3 can be integrated for a total height adjustment of 60mm).

The ball bearing mechanism of the BA400's nosepiece with the internal click stop system ensures parcentration 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.	Diopter Adjustment	Reticule
Widefield Plan High Eye Point 10x	22	+ 50	Accepts 24mm
Widefield Plan 12.5x	16	-	-
Widefield Plan 15x	14.5	-	-
Widefield Plan High Point 10x w /Plain Cross Hair	2	+50	Plan Cross Hair

CCIS® OBJECTIVES

Crisp and distortion free with improved working distances, the CCIS® objectives of the BA 400 continue to expand the microscope platform into different application realms. All objectives integrate effortlessly into the quintuple nosepiece of the BA 400 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 Archromat 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 Fluar 4x	0.13	20.5	-
Plan Fluar 10x	0.3	10.5	-
Plan Fluar 20x	0.5	1.9	-
Plan Fluar 40x	0.75	0.58	-
Plan Fluar 50x	1.0	0.17	Oil
Plan Fluar 60x	1.0	0.17	Oil
Plan Fluar 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 photomicrogrpahy composition.

CONDENSER

The dovetail-mounted wing 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 centrable 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 filler slots in its upper stand. The analyser and reladation plat 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 Govt. screening method incorporated aroudn the BA400. Using the normal polarisation setup, the addition of the First Order Red Compensator (535nm) converts the BA400 into a rapid Cout 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 equipeed with four phase positions (10x, 20x, 40x and 100x) and a bright field position with an irits 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.

Available Fluorescence Cassette Filters

Filter Set	Exciter (nm)	Dichroic (nm)	Barrier (nm)
DAPI and Hoechst	D350/50x	400DCLP	D450/50m
FITC FITC/RSGFP/Fluo 3/DIO Acradine Orange (+RNA)	D480/30x	505DCLP	D535/40m
TRITC (Rhodamine)/Dil/Cy3	D540/40x	565DCLP	D605/55m
Texax Red / Cy3.5	D560/10x	595DCLP	D630/60m
Cy5, Alexa Fluor 633, Alexa Fluor 647	HQ620/60x	Q6601P	HQ700/75m
Cyan GFP	D436/20x	455DCLP	D480/75m
Endow GFP Bandpass Emission	HQ470/40x	Q495LP	HQ525/50mm
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.

GOUT SCREENING SYSTEM

The BA400 is equipped with a unique method of effectively and rapidly screening for Gout and psuedo-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 Moticam 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 Moticam 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: on 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.

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 reduciton, the DMBA400 head and standard software, Motic Images Plus, optimises the BA400 into a training, teching, 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

CASSIA

BA400 STANDARD SPECIFICATIONS

Model	BA400
Optical System	Colour Corrected Infinity Optical System (CCIS®)
Observation Tube	Widefield binocular30⁰ (F.N. 22)
	Widefield trinocular 30⁰ (F.N.22) - light distribution 20/80
	Widefield trinocular 30⁰ (F.N.22) - light distribution 0/100
Nosepiece	Reversed quintuple
Stage	174 x 145 mm surface; 76 x 50 mm movement;
	hard coaled with coaxial movement and left or right hand controls; lorque 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; 1Mm minimum increments:
	torque adjustment for coarse: silicon covered focus controls
Illumination	Externally mounted
	Transmtted 6V/30W Quartz halogen Kcehler illumination

DMBA400 STANDARD SPECIFICATIONS

Model		DMBA400
Optical System		Colour Corrected Infinity Optical System (CCIS®)
Observation Tube		Widefield binocular 30⁰ (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 Rolte	10fps @ 1600x1200, 40fps @ 800 x 500, 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