

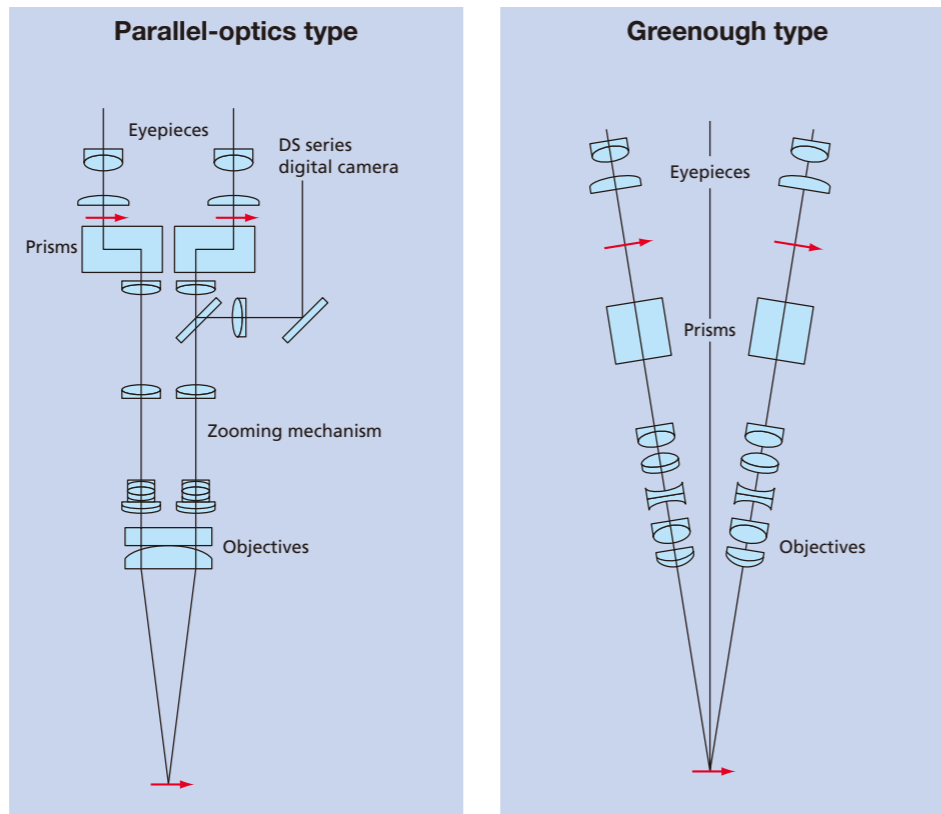
Optical Systems

Parallel-optics type (zooming type)

This system has a parallel optical path into which diverse intermediate equipment, including a DS series digital camera, coaxial episcopic illuminator, teaching head, drawing tube and eye-level riser can be inserted.

Greenough type (zooming type)

Allows a compact body that is suited for incorporation into other devices.



Stereoscopic Microscopes



Image used in page 2 composite image courtesy of Julie C. Canman, Ph.D., Columbia University

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*Products: Hardware and its technical information (including software)

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. June 2013.

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	WARNING	TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.
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The Next Revolution in Microscopy

A Giant Step Forward in Stereo Microscopy

Nikon offers a broad range of stereoscopic microscopes and accessories, including a research stereoscopic microscope system with the world's highest zoom ratio, superb resolution and bright fluorescence imaging. Also features ergonomic, user-friendly and affordable models.

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	SMZ25	SMZ18	SMZ1000	SMZ800		SMZ745/ SMZ745T	SMZ660	SMZ445/SMZ460	SMZ-2	SM-5
Optical system	Parallel-optics type				Greenough type					
										
Zoom ratio	25:1	18:1	10:1	6.3:1		7.5:1	6.3:1	4.4:1/4.3:1	5:1	—
Zooming range	0.63-15.75x	0.75-13.5x	0.8-8x	1-6.3x		0.67-5x	0.8-5x	0.8-3.5x/0.7-3x	0.8-4x	—
Total magnification*1 (with standard set*2)	3.15-945x (6.3-157.5x)	3.75-810x (7.5-135x)	4-480x (8-80x)	5-378x (10-63x)		3.35-300 (6.7-50x)	4-300x (8-50x)	4-70x/3.5-60x (8-35x)/(7-30x)	4-120x (8-40x)	10-60x (20x)
Working distance*3	60mm	60mm	70mm	78mm		115mm	115mm	100mm	77.5mm	100mm
Image capture	○	○	○	○		○ (SMZ745T)	—	—	—	—
System expandability	○	○	○	○		—	—	—	—	—
Embedded use	—	—	○	○		○	○	○	○	○

*1 Depends on the combination of eyepiece and objective lens *2 With a 10x eyepiece and a 1x objective

*3 With a 1x magnification without auxiliary objective

Parallel-optics type

Research Stereo Microscope

SMZ25/SMZ18

Evolutionary stereoscopic microscope

Nikon has developed an all-new stereoscopic microscope that features a large zoom ratio of 25:1, high resolution and exceptional fluorescence transmission capability. The new stereoscopic microscope meets the increasing needs for imaging systems that span spatial scales from single cells to whole organisms.

World's widest zoom range and highest resolution for a stereoscopic microscope

- First stereoscopic microscope to offer a 25:1 zoom range (SMZ25)
- Both eye paths boast numerical apertures (NA) of up to 0.156, using the SHR Plan Apo 1x objective and SMZ25

Automation and digital imaging

- Motorized focus and zoom operation (SMZ25)
- Imaging Software NIS-Elements enables the use of multiple imaging, processing and analysis modalities, including z-stack capture, time-lapse imaging and EDF image generation



SMZ25 Motorized zoom model with the highest zoom ratio and resolution in the SMZ series

Bright, high-contrast fluorescent images

- Fly-eye lens ensures uniform brightness over the entire field of view even at the lowest magnifications
- Breakthroughs in optical design mean significantly improved signal to noise ratio and crystal clear fluorescent images

Easy to use

- User-friendly remote control (SMZ25)
- Easy-to-operate slim LED DIA base with OCC illumination
- Wide range of illuminators and accessories that accommodate a variety of observation methods



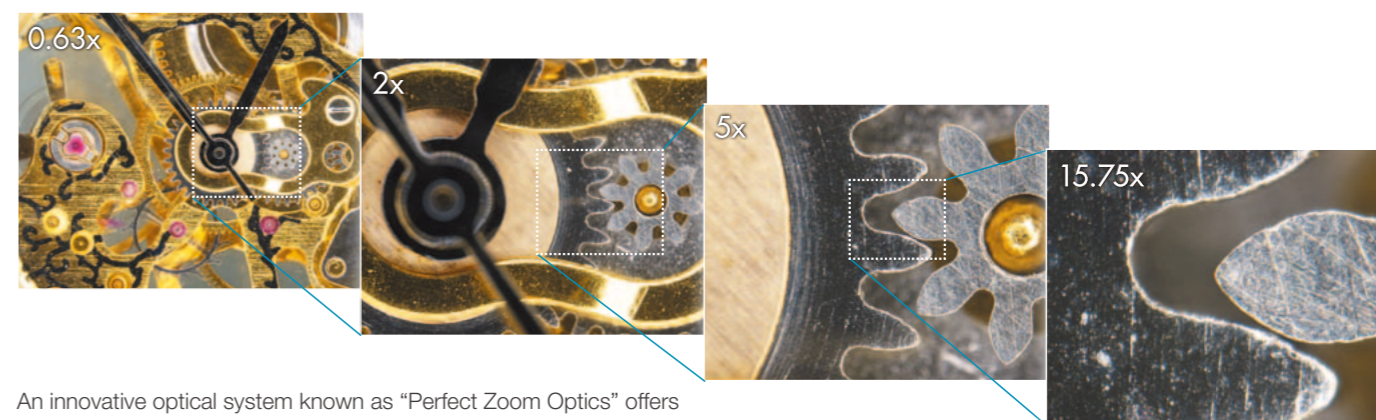
SMZ18 Manual zoom model providing advanced optical performance and incredibly bright fluorescence at an attractive price

Model	SMZ25	SMZ18
Type	Motorized zoom	Manual zoom
Observation	Brightfield/Darkfield/Fluorescence/Simple polarizing	
Zoom ratio	25:1	18:1
Magnification range	0.63x - 15.75x	0.75x - 13.5x (with 0.75/1/2/3/4/5/6/8/10/12/13.5x click stops)
Maximum magnification	315x ^{*1}	270x ^{*1}
Maximum FOV	ø70mm ^{*2}	ø59mm ^{*2}
Maximum NA of	0.312 ^{*3}	0.3 ^{*3}

*1: Using SHR Plan Apo 2x/ C-W10xB *2: Using SHR Plan Apo 0.5x/ C-W10xB *3: Using SHR Plan Apo 2x

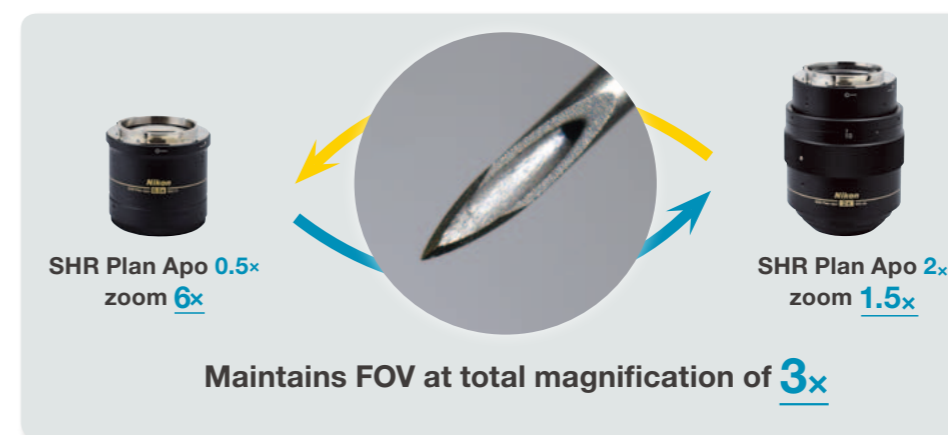
Remarkable resolution and the world's widest zoom range

Dynamic zoom ratio of 25:1 **SMZ25**



An innovative optical system known as "Perfect Zoom Optics" offers the world's first zoom ratio of 25:1 (zoom range: 0.63x - 15.75x*; *as of May 2013). The SMZ25 can seamlessly capture the entire dish while simultaneously delivering microscopic details.

Auto Link Zoom (ALZ) supports seamless viewing at different scales **SMZ25**



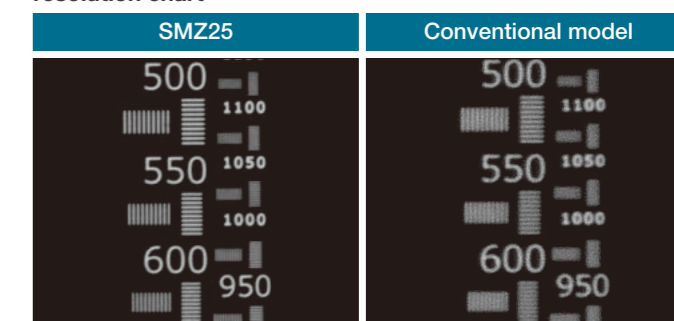
ALZ automatically adjusts the zoom factor to maintain the same field of view when switching objective lenses. This function enables seamless switching between whole organism imaging at low magnifications and detailed imaging at high magnifications.

Superior resolution never before seen on a stereoscopic microscope **SMZ25** **SMZ18**

Newly developed SHR (Super High Resolution) Plan Apo series objective offers a resolution of 1100LP/mm (observed value, using SHR Plan Apo 2x at maximum zoom). The 0.5x, 1x, or 1.6x lower magnification objectives deliver a bright field of view and brilliant images with true-to-life colors.



Comparison of resolution and color aberration by resolution chart



Parallel-optics type

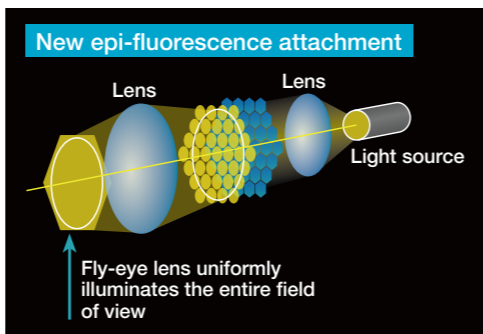
Bright, high-contrast fluorescent images SMZ25 SMZ18

Enhanced brightness and uniform illumination in a low magnification range

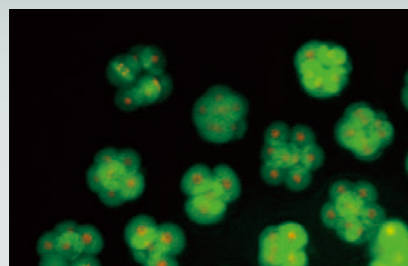
The SMZ25 series is the first stereoscopic microscope in the world to use a fly-eye lens on an epi-fluorescence attachment. This ensures bright, uniform illumination even at low magnifications across a large field of view.

Improved S/N ratio and crystal clear fluorescent images thanks to an improved optical system

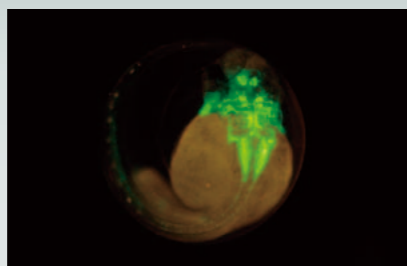
Nikon has succeeded in improving the signal and reducing noise in fluorescent images by using a short-wavelength, high-transmission Fluor lens. This enables observations of cell division and samples with weak fluorescence, both of which are difficult using conventional stereoscopic microscopes.



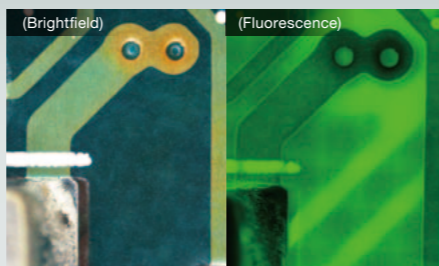
Sample images



Fertilized mouse egg
Image courtesy of Kazuo Yamagata, Ph.D., Center for Genetic Analysis of Biological Responses, Research Institute for Microbial Diseases, Osaka University



2 days old Transgenic Zebrafish embryo, Tg (isl1-GFP)
(using SHR Plan Apo 1x at zoom magnification of 6x with SMZ25)
Image courtesy of Hisaya Kakinuma, Ph.D., Laboratory for Developmental Gene Regulation, Developmental Brain Science Group, RIKEN Brain Science Institute



Board

Automation and digital imaging SMZ25 SMZ18

A wide range of digital imaging capabilities with the Digital Sight series and NIS-Elements imaging software

Easily obtain the information required, such as Z drive position, zoom factor, objective lens, filter cube and LED DIA brightness, by using the Digital Sight series and NIS-Elements or Digital Sight series DS-L3 together with the microscope.



Detected observation condition/available control	SMZ25		SMZ18	
	DS-L3	NIS-Elements	DS-L3	NIS-Elements
	<ul style="list-style-type: none"> Motorized focus unit Motorized epi-fluorescence set (control box A) 		<ul style="list-style-type: none"> Manual focus unit Manual epi-fluorescence set (relay box and control box B) 	
Zoom magnification	○	◎	○	○
Focusing	○	◎	—	—
Objective (with nosepiece)	○	○	○	○
Diascopic LED illumination stand (ON/OFF, light intensity control)	○	◎	○	◎
Fluorescence illuminator (light intensity control)	○	◎	○	◎
Filter cube	○	◎	○	○

For other combinations, please confirm with Nikon.
* With NIS-Elements F (Free package), functions above are not available. Use NIS-Elements D/Br/Ar.

Improved observation efficiency

Easy-to-use OCC illumination SMZ25 SMZ18

The new LED DIA Base with built-in OCC illuminator generates minimal heat, consumes little power and has a long life. The illuminator also enhances the contrast of uneven surfaces, such as those of film.



The OCC illuminator can be controlled using a slide lever. Thanks to scales on the slide lever, the user can save and reproduce desired illumination levels. In addition, an OCC plate can be inserted into the illumination unit from the front and rear sides, so images with different shadow direction can be observed.

Comparison images (film)



Conventional diascopic illumination OCC illumination

What is OCC illumination?

OCC stands for oblique coherent contrast, a form of oblique lighting method developed by Nikon. Compared to conventional diascopic illumination that illuminates directly from below, OCC illumination applies coherent light to samples in a diagonal direction, adding contrast to colorless and transparent sample structures.

User-friendly remote control SMZ25

The all-new remote control provides easy access to zoom and focus controls and is designed for both right- and left-hand use. The remote control contains an LCD monitor with an adjustable backlight that provides at-a-glance information about zoom factor, objective lens, filter cube and LED DIA brightness.



The brightness of the LCD monitor and LED indicators is adjustable.

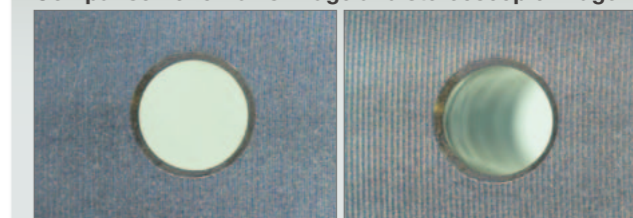
LCD monitor with adjustable backlight provides observation information.



On-axis imaging for digital images SMZ25 SMZ18

Easily switch between stereo position (stereoscopic view) and mono position (on-axis view) when using the P2-RNI2 Intelligent Nosepiece by simply moving the objective lens.

Comparison of on-axis image and stereoscopic image



On-axis image Stereoscopic image

Parallel-optics type

Stereoscopic Microscope

SMZ1000/ SMZ800

Pursuing ergonomic design, image clarity and low cost



SMZ1000

SMZ800

Optical performance

Large 10x zoom ratio, extending from 0.8x to 8x SMZ1000

Total magnification of 4x to 480x* and the 10x zoom lens eliminates the need to change lenses, allowing users to concentrate on observation.

* Depending on the combination of eyepiece and objective used



0.8x

4.5x

8x

High NA and high resolution SMZ1000

Nikon has developed an objective featuring a high NA of 0.1 and a high resolving power of 300 lines/mm.



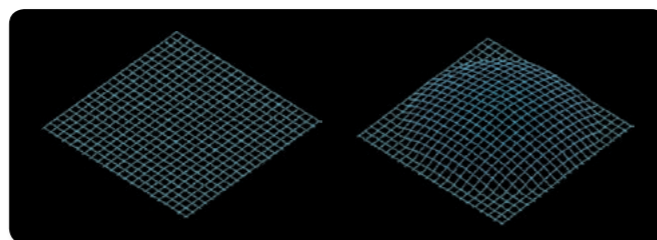
SMZ1000

Conventional model

Comparison of resolving power and chromatic aberration factors

Stereoscopic image SMZ1000 SMZ800

Chromatic aberration and distortion in the lens that cause surface irregularities in the image are offset to a high degree. Now you can view stereoscopic images that appear undistorted in all their brilliant, true-to-life colors.

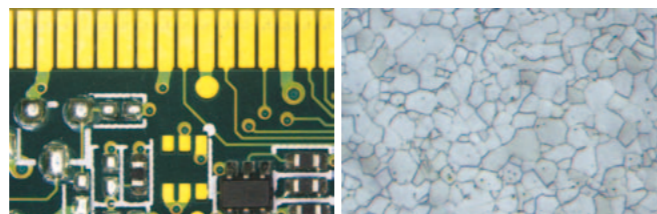


Distortion causes a globular effect even on a flat object.

Expandability

Illuminators can be chosen depending on specimen SMZ1000 SMZ800

Various illuminators, such as ring illuminator, coaxial illuminator and diascopic stand, are available to accommodate a wide range of specimens.



Ring LED illuminator: SMZ800 + LMS100 x 60-15W LED illuminator

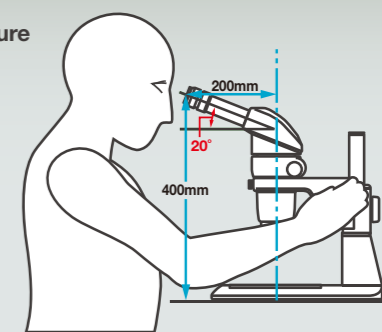
Coaxial illuminator: SMZ800 + P-IC12 Coaxial Episcopic Illuminator

Operability

Optimum eyepoint SMZ1000 SMZ800

In addition to the standard binocular eyepiece tube (P-BT) with 20° eyepiece inclination, Nikon offers a low eye-level binocular eyepiece tube (P-BTL), a tilting binocular eyepiece tube (P-BERG) that allows continuous adjustment of the eyepiece inclination from 0° to 30°, and an eyelevel riser (P-IER) to help you achieve the optimum eyepoint.

Observation posture



Specifications

SMZ1000					
Objectives	Working distance	Zoom magnification	NA	Actual FOV*1	
P-Plan Apo	0.5x	123.6	0.8x	0.012	55
			8x	0.050	5.5
P-ED Plan	1x	70	0.8x	0.024	27.5
			8x	0.100	2.75
	1.5x	44.5	0.8x	0.036	18.3
			8x	0.150	1.83
2x	32.5	0.8x	0.048	13.75	
		8x	0.200	1.38	

*1 With C-W10xB eyepiece

SMZ800					
Objectives	Working distance	Zoom magnification	NA	Actual FOV*1	
P-Achro	0.5x	123.6	1x	0.015	44
			6.3x	0.045	6.98
P-Plan	1x	44.5	1x	0.03	22
			6.3x	0.090	3.49

*1 With C-W10xB eyepiece

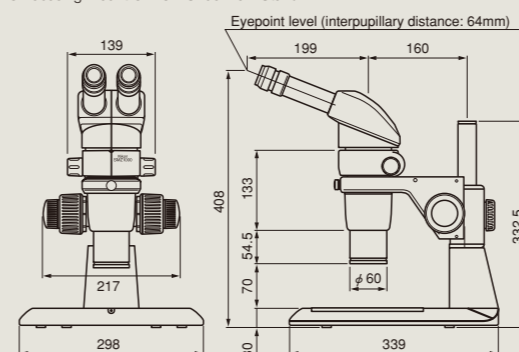
	SMZ1000	SMZ800
Optical system	Parallel-optics zoom system	
Zoom ratio	10 : 1	6.3 : 1
Zoom range	0.8-8.0x (with 0.8/1/2/3/4/6/8x stops)	1-6.30x (with 1/2/3/4/5/6.3x stops)
Total magnification	4-480x (Depending on eyepiece and objective used.), 30-540x (When coaxial episcopic illuminator is attached.)	5-378x (Depending on eyepiece and objective used.), 45-425x (When coaxial episcopic illuminator is attached.)
Tubes	Eyepiece inclination: 20° (Standard Binocular and Low Eye-level Binocular), 0°-30° (Tilting Binocular) Interpupillary distance adjustment: 48-75 mm	
Eyepieces (with diopter adjustment)	C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7)	
Objectives	P-Plan Apo 0.5x, 1x, P-ED Plan 1.5x, 2x, P-Plan 1x*, P-Achro 0.5x, P-ERG Plan 1x ERGO* *Compatible with zoom magnifications higher than 1x.	P-Plan Apo 0.5x, 1x, P-ED Plan 1.5x, 2x, P-Plan 1x, P-Achro 0.5x, P-ERG Plan 1x ERGO
Working distance	70 mm (with Plan Apo 1x objective)	78 mm (with Plan 1x objective)
Weight (approx.)	6.5 kg (with P-BT Standard Eyepiece Tube and C-PS160 Plain Stand)	5 kg (with P-BT Standard Eyepiece Tube and C-PS Plain Stand)

For possible combinations of accessories, please refer to the system diagram.

Dimensions

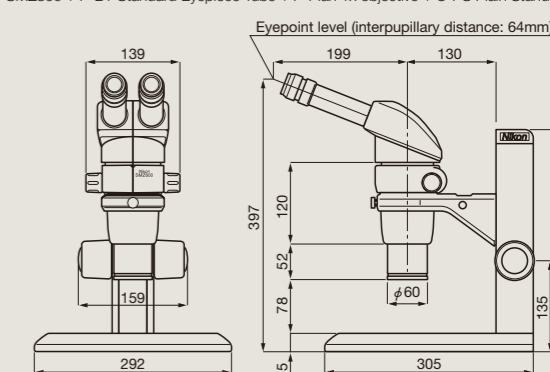
SMZ1000 set

SMZ1000 + P-BT Standard Eyepiece Tube + P-Plan Apo 1x objective + C-FMC Focusing Mount C + C-PS160 Plain Stand



SMZ800 set

SMZ800 + P-BT Standard Eyepiece Tube + P-Plan 1x objective + C-PS Plain Stand



Unit: mm

Greenough Type Stereoscopic Microscope

SMZ745/745T

Superior 7.5x zoom and 115 mm working distance
Trinocular optical head type is also available

- The SMZ745/745T boasts a 7.5x zoom that incorporates the Greenough optical system. The zoom range of 0.67x to 5x provides a broad observation range.
- As well as high zoom ratio and magnification, the SMZ745/745T offers an unrivaled 115 mm working distance.
- The SMZ745T incorporates an optical path switching lever that enables easy switchover between eyepiece and camera. A DS series digital camera can be attached.



Three "A" design

- Air-tight** SMZ745 SMZ660

By making joints airtight, contamination from dust, oil, water and other contaminants is prevented.

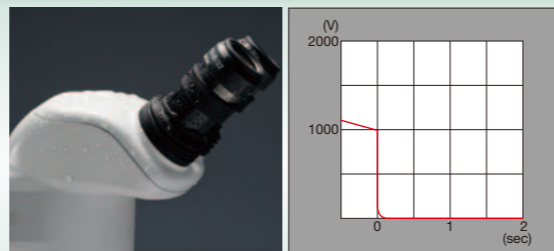
Airtight construction: JIS Degrees of protection provided by enclosures IPX1
Antistatic function: 1000–10V, discharge within 0.2 sec.

- Anti-mold** SMZ745 SMZ745T SMZ660

Anti-mold design developed exclusively by Nikon ensures peace of mind when the microscope is used in environments subject to high heat or humidity.

- Anti-electrostatic** SMZ745 SMZ745T SMZ660

Static electricity built up within the microscope is discharged almost instantly, ensuring higher yields.

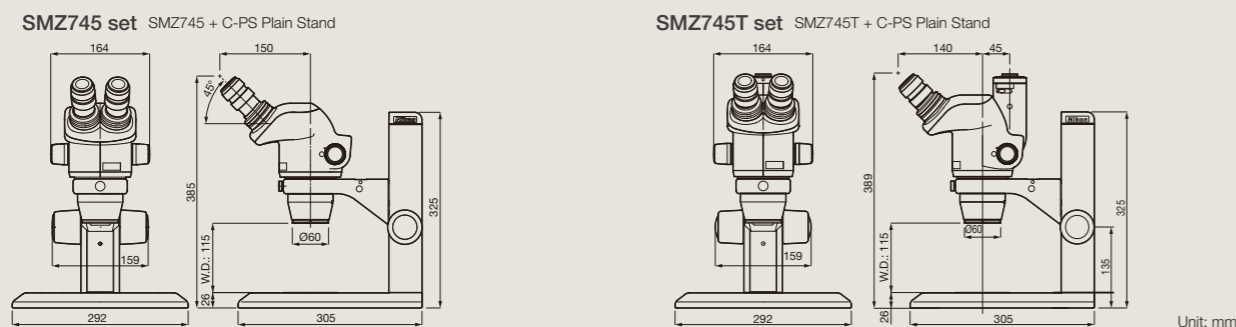


Specifications

	SMZ745	SMZ745T
Optical system	Greenough type (zooming type)	Greenough type (zooming type), trinocular tube
Zoom ratio	7.5 : 1	
Zoom range	0.67-5x (with 0.67/1/2/3/4/5x stops)	
Total magnification	3.35-300x (depending on eyepiece and auxiliary objective used)	
Straight tube	—	Built-in C-mount 0.55x magnification lens (F.N. 11), compatible with 2/3 in. or smaller CCD
Tubes	Fixed type Eyepiece inclination: 45° Interpupillary distance adjustment: 52-75 mm	
Eyepieces (with diopter adjustment)	C-W 10xB (F.N. 22), C-W 15x (F.N. 16), C-W 20x (F.N. 12.5), C-W 30x (F.N. 7)	
Auxiliary objectives	G-AL 0.5x (W.D. 211 mm), G-AL 0.7x (W.D. 150 mm), G-AL 1.5x (W.D. 61 mm), G-AL 2x (W.D. 43.5 mm)	
Working distance	115 mm (standard)	
Airtight construction	JIS Degrees of protection provided by enclosures IPX1	
Weight (approx.)	1.4 kg (body)	1.8 kg (body)

F.N.: Field Number

Dimensions



Greenough Type Stereoscopic Microscope

SMZ660

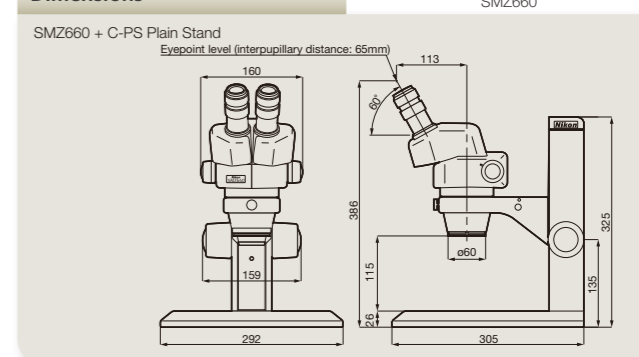
Dramatically improved optical performance and handling comfort

- 6.3x zoom ratio offers magnifications of 0.8x to 5x. The zooming knob features click-stops that allow changes in magnification of 1x increments.
- Even at high magnification, a working distance of 115mm, the longest in this microscope class, is realized.
- Three "A" design

Specifications

	SMZ660
Optical system	Greenough type (zooming type)
Zoom ratio	6.3 : 1
Zoom range	0.8-5x (with 0.8/1/2/3/4/5x stops)
Total magnification	4-300x (Depending on eyepiece and auxiliary objective used.)
Tube	Eyepiece inclination: 60° Interpupillary distance adjustment: 52-75 mm
Eyepieces (with diopter adjustment)	C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7)
Auxiliary objectives	G-AL 0.5x (W.D. 211mm), 0.7x (W.D. 150mm), 1.5x (W.D. 61mm), 2x (W.D. 43.5mm) G-AL ERG 0.77-1.06x (W.D. 102-48mm)
Working distance	115mm (with standard configuration)
Airtight construction	JIS Degrees of protection provided by enclosures IPX1
Weight (approx.)	1.7 kg (body)

Dimensions



Greenough Type Stereoscopic Microscope

SMZ445/460

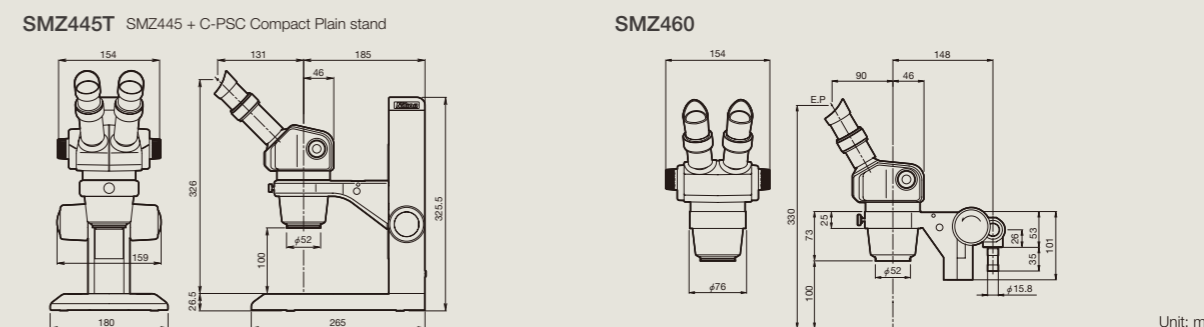
Designed for excellent cost performance

- The SMZ445 has a 45° eyepiece tube inclination, and the SMZ460 has a 60° eyepiece tube inclination, which is ideal for embedded use.
- Compact design with ease-of-use and high optical performance.
- ESD protection guards against electrostatic damage to samples.

Specifications

	SMZ445	SMZ460
Optical system	Greenough type (zooming type)	
Zooming ratio	4.4 : 1	4.3 : 1
Zooming range	0.8-3.5x	0.7-3x
Total magnification	4-70x	3.5-60x
Tube	Eyepiece inclination: 45° Interpupillary distance adjustment: 54-75 mm Eyepiece diopter adjustable for both eyes	
Eyepieces	SM 10xB (F.N. 21), SM 15xB (F.N. 14), SM 20xB (F.N. 12)	
Auxiliary objectives (option)	AL5 (0.5x), AL7 (0.7x)	
Working distance	100mm (standard)	
Weight (approx.)	1.0 kg (body)	

Dimensions



Greenough Type Stereoscopic Microscope

SMZ-2

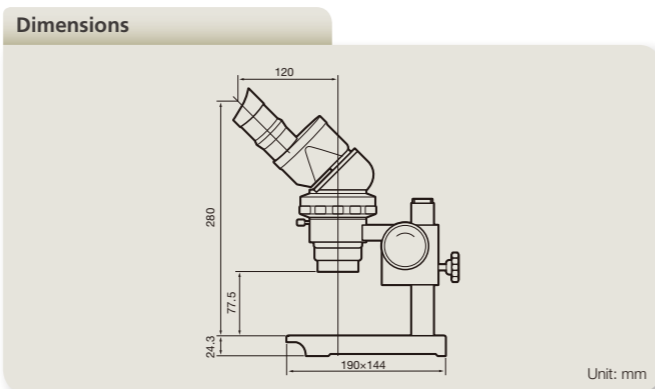
High-resolution optics ideal for inspection, assembly, and measurement

- Diopter of both eyes can be adjusted individually, providing a clear image when zooming.
- Twin zooming objective optical system maintains focus when magnification is changed. Focus point movement and magnification difference between eyes are minimal.
- Compact design with horizontally positioned zooming ring (rotation: 90°)
- Eyepiece inclination of 45° for comfortable observation



SMZ-2 (Clemmer is optional)

Specifications	
	SMZ
Optical system	Greenough type (zooming type)
Zooming ratio	5 : 1
Zooming range	0.8–4x
Total magnification	4–120x (Depending on eyepiece and auxiliary objective used.)
Tube	Eyepiece inclination: 45° Interpupillary distance adjustment: 56–75 mm
Eyepieces (with diopter adjustment)	SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM E20xA (F.N. 12), C-W30x (F.N. 7)
Working distance	77.5mm (with standard configuration)
Weight (approx.)	2.1 kg (body), 1.9 kg (stand)



Greenough Type Stereoscopic Microscope

SM-5

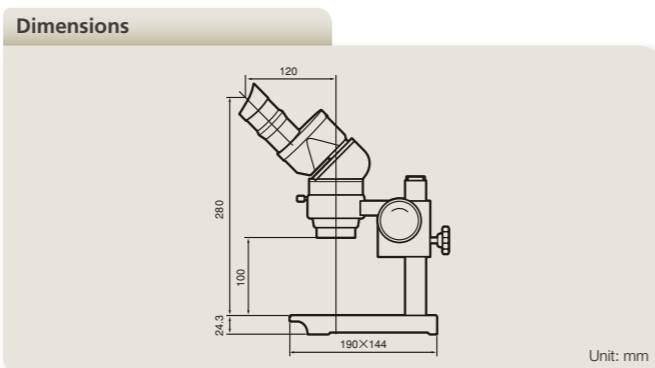
Standard stereoscopic microscope with fixed objective magnification

- Optical axis passes through the middle of the lens, eliminating chromatic aberration and providing sharp images.
- Objective has fixed magnification of 2x. Total magnification ranges from 10x to 60x depending on eyepiece and auxiliary objective used.
- Focal plane is positioned on distinct vision, eliminating eye fatigue during lengthy use.



SM-5 (Clemmer is optional)

Specifications	
	SM-5
Optical system	Greenough type (fixed type)
Objectives	2x
Total magnification	10x–60x (Depending on the eyepiece and auxiliary objective used.)
Tube	Eyepiece inclination: 45° Interpupillary distance adjustment: 56–75 mm
Eyepieces	SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM E20xA (F.N. 12), C-W30x (F.N. 7)
Auxiliary objectives (option)	AL5 (0.5x), AL7 (0.7x)
Working distance	100mm (standard)
Weight (approx.)	1.5 kg (body), 1.9 kg (stand)



Wide range of dedicated accessories for SMZ25/SMZ18 for all types of observation

Base Unit, Focus Unit, Stand/Focus Mount

Base Unit

Nikon has improved ease of use by moving the controls to the front of the base, including the brightness adjustment dial and the on/off switch.

Fiber DIA base

The Fiber DIA base features condenser lenses that can be switched between low and high magnifications. Furthermore, the OCC illumination system allows high-contrast illumination.



1 P2-DBF Fiber Diascopic Illumination Base

Slim Bases

The slimmer LED DIA Base and Plain Base help increase efficiency of sample manipulation by bringing the level of the sample closer to the table.



2 P2-DBL LED Diascopic Illumination Base

3 P2-PB Plain Base

Focus Unit

The focus unit is combined with the base unit. Choose from either a manual or motorized focus unit.



1 P2-MFU Motorized Focus Unit

2 P2-FU Focus Unit

Stand/Focus Mount SMZ18

Combine the stand with a focus mount for viewing and capturing images with reflected illumination.



1 P2-FMDN Focus Mount
2 P-PS32 Plain Stand

SHR Plan Apo Objective Series

The SHR Plan Apo series features higher NA, wider field of view and superior flatness and color aberration correction. These objective lenses can be seamlessly switched because all magnifications have the same parfocal distance. The new bayonet mount design allows lenses to be safely and easily removed.



1 P2-SHR Plan Apo 0.5x
2 P2-SHR Plan Apo 1x
3 P2-SHR Plan Apo 1.6x
4 P2-SHR Plan Apo 2x

		SHR Plan Apo 0.5x	SHR Plan Apo 1x	SHR Plan Apo 1.6x	SHR Plan Apo 2x
Maximum NA	SMZ25	0.078	0.156	0.25	0.321
	SMZ18	0.075	0.15	0.24	0.3
Working distance		71mm	60mm	30mm	20mm
Correction ring		—	—	—	3mm water depth
Wavelength		380-700nm			

Tubes

Choose from two types of tilting trinocular tube and one type of low eyelevel trinocular tube. All tubes have a camera port for seamless integration with the Digital Sight series.



- 1 P2-TERG100 Trinocular Tilting Tube (eyepiece: port 100:0 / 0:100)
- 2 P2-TERG50 Trinocular Tilting Tube (eyepiece: port 100:0/50:50)
- 3 P2-TL100 Trinocular Tube L (eyepiece: port 100:0 / 0:100)

Nosepiece/Focus Mount Adapter

Both single and double nosepieces are available.

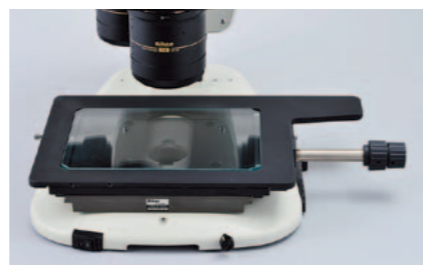


- 1 P2-FNI2 Intelligent Nosepiece
- 2 P2-FM Focus Mount Adapter

Stage

The stage features an XY stroke of 6x4 inches (150 mm x 100 mm) and can be attached to any of the bases, making it effective for capturing large images when used in combination with imaging software NIS-Elements. A sliding stage and tilting stage are also available.

*Limited Y travel with 32 mm column bases



P-SXY64 XY Stage

Remote Control

Nikon offers a remote control unit that can be used to operate the microscope and capture images by hand. A footswitch is also available, allowing the user to operate the microscope and capture images by foot, freeing the hands for sample manipulation.

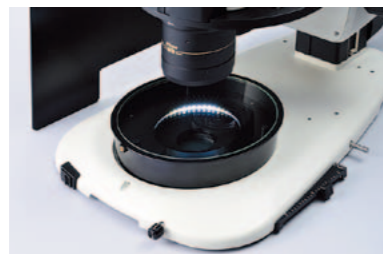


P2-RC Remote Controller

- 1 AZ-PCR Photo Release
- 2 AZ-FSW Foot Switch

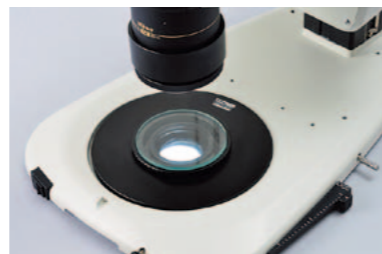
Darkfield Observation Accessory

Darkfield viewing is possible simply by attaching the darkfield unit to the base.



Polarizing Observation Accessory

The analyzer is attached to the objective and the polarizer to the base or stand to enable polarized viewing.



Epi-fluorescence Set

Motorized Epi-fluorescence Set

The fluorescent turret can be operated using the remote control or imaging software NIS-Elements.



- 1 P2-EFLM Motorized Epi Fluorescence Attachment
- 2 Light shading Plate (comes with Fluorescence Attachment)
- 3 P2-EFL Filter Cube (GFP-B/GFP-L/RFP)
- 4 P2-EFLBF Filter Cube (Bright Field, with $\lambda/4$ plate)
- 5 P2-CTLA Control Box P2-RC Remote Controller
- 6 P2-RC Remote Controller



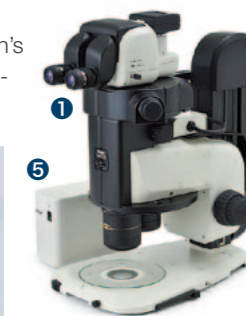
Combinations with SMZ25

Manual Epi-fluorescence Set

An easy-to-use manual model for Nikon's newly developed high-performance epi-fluorescence attachment.



- 1 P2-EFLI Epi Fluorescence Attachment
- 2 Light shading Plate (comes with Fluorescence Attachment)
- 3 P2-EFL Filter Cube (GFP-B/GFP-L/RFP)
- 4 P2-EFLBF Filter Cube (Bright Field, with $\lambda/4$ plate)
- 5 P2-CTLB Control Box



Combinations with SMZ18

Fiber Illuminator Set

Flexible Double Arm Fiber Illumination Set

The direction and angle of illumination can be changed to suit the sample by making adjustments with these double arms. The fiber holder position can also be changed to obtain the optimal position for illuminating samples.

- 1 C-FDF Flexible Double Arm Fiber Illumination Unit
- 2 C-FIDH Fiber Holder
- 3 C-FLED2 LED Light Source for Fiber Illuminator



Combinations with SMZ18

Ring Fiber Illumination Set

This ring fiber illumination set features an episcopic illumination unit that effectively captures images (can be used with 1x and 0.5x objective lenses).

- 1 P2-FIR Ring Fiber Illumination Unit
- 2 C-FLED2 LED Light Source for Fiber Illuminator



Combinations with SMZ18

Coaxial Illuminator

The coaxial light illuminator makes it possible to view light reflected from the surface of a sample. It is ideal for shooting shadow-less images of thick samples.

- 1 P2-CI Coaxial Epi Illuminator
- 2 C-FLED2 LED Light Source for Fiber Illuminator



Combinations with SMZ18

Ring LED Illuminator

Ring LED illuminator is equipped with high-intensity, long-life (20,000 hours) LEDs. The illuminator's dial adjusts the intensity of the white LED.

- 1 P2-FIRL LED Ring Illumination Unit



Combinations with SMZ25

A variety of accessories are available for stereoscopic observations

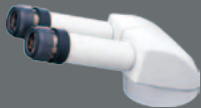



Objectives SMZ1000 SMZ800

	Type	Features
P-Plan Apo Series	P-Plan Apo 0.5x P-Plan Apo 1x	High NA and resolving power provides excellent image flatness. Chromatic aberration has been corrected.
P-ED Plan/P-Plan/ P-Achro Objectives	P-ED Plan 1.5x P-ED Plan 2x P-Plan 1x P-Achro 0.5x	Various magnifications and working distances are available.
Ergonomic Objective	P-ERG Plan 1x	Eye level can be adjusted precisely without changing magnification or working distance.

Auxiliary Objectives

Microscopes	Auxiliary objectives	Working distance (mm)
SMZ745/745T SMZ660	G-AL ERG 0.77-1.06x	102-48
	G-AL 0.5x	211
	G-AL 0.7x	150
	G-AL 1.5x	61
	G-AL 2x	43.5
SMZ445/460	AL0.5x	181
	AL0.7x	127.5
SMZ-2	AL5 (0.5x)	100
	AL7 (0.7x)	95
SM-5	AL5 (0.5x)	175
	AL7 (0.7x)	128

Tubes/Eye-level Riser SMZ1000 SMZ800

	Inclination angle	Features
P-BT Standard Eyepiece Tube 	20°	Allows observation of samples without having to lean forward. This reduces fatigue during long hours of operation by reducing strain on the neck, shoulders and back.
P-BTL Low-eye-level Eyepiece Tube 	20°	Enables comfortable observation even when using a diascopic stand or when an intermediate tube is inserted.
P-BERG Tilting Eyepiece Tube 	0 - 30°	Allows continuous adjustment of the eyepiece inclination from 0° to 30°. The eye level can also be adjusted by a maximum of 157 mm by swinging the eyepieces up 180° and then tilting them.
P-IER Eye-level Riser 	—	Increases the eyepoint height 25 mm per riser for a total of 50 mm.

Beam Splitters/Teaching Head/Drawing Tube SMZ1000 SMZ800

Beam Splitters (P-IBSS2, P-IBSD2)

Using a beam splitter and adapter, a CCTV camera or a DS series digital camera can be attached. The P-IBSD2 Beam Splitter D2 has two ports.

Beam-split ratios

Beam splitter	Observation		Photomicrography	
	Left	Right	Rear port	Side port
P-IBSD2	100%	100%	0%	0%
	0%	100%	100%	0%
	50%	50%	50%	50%
P-IBSS2	100%	100%	—	0%
	100%	50%	—	50%

P-IDT Drawing Tube

The drawing tube, mounted between the microscope body and eyepiece tube, enables the drawing of images while viewing. Within the visual field, the drawing is overlaid on top of the image, allowing the user to draw the image simply by tracing it. The drawing can be removed from view by using the knob to block the light path.

P-THSS Teaching Head

This teaching head enables the simultaneous observation of the same sample by two persons, making it ideal for teaching and educational purposes. The side-by-side configuration places less restriction on installation space and allows comfortable operation.

Stages

C-SSL Dia-sliding Stage

Used for diascopic observation, this sliding stage can be easily moved in the desired direction simply with a light push. Travel range is within ø38mm.


SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460

Sliding Stage 2

Loaded with a sample, the stage can be easily moved in the desired direction simply with a light push to its edges. Travel range is within ø40mm.


SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460
SMZ-2 SM-5

C-TRS Tilting Stage

This stage has a nonslip sheet and can be tilted 30° from its horizontal position.


SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460

SM-S4L 4 x 4 Stage

Used in combination with an optional extension pillar, the 4 x 4 Stage allows precise movement in the XY direction, facilitating fine alignment during high-magnification observations under episcopic illumination. (Although mountable on a diascopic stand, it is not suitable for observation as it blocks illumination.)


SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460

Illumination Systems/Polarizing Attachment

Ring Illuminator

Purpose	Provides conical-shaped light through an optical fiber from above the sample to its center, minimizing unwanted shadow. Suitable for observation of electronic substrates.			
Model	C-FIR Fiber-optics Ring Illuminator	LMS100 x 60-15W LED Illuminator	SM-LW61Ji3 LED Illuminator	C-FPS Fluorescent Ring Illuminator
Features	Illuminator is located away from microscope. It enables bright observation with high-intensity light without damaging sample with its heat.	Color temperature is adjusted to 6500K ± 500K to provide stable illumination. Two types of covers are available. Anti-electrostatic type	Three types of covers are available (clear, diffuser and opaque white). Anti-electrostatic type	Ring illuminator provides uniform illumination to the entire view field.
Microscopes	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460 SMZ-2 SM-5	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460 SMZ-2 SM-5	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460 SMZ-2 SM-5	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460 SMZ-2 SM-5

* G-OBA60 Adapter is required.

Episcopic Arm Illuminator

Purpose	The direction and angle of the illumination can be changed with simple adjustments of the flexible arm.			
Model	C-FID Fiber-optics Bifurcated Illuminator	G-LS Episcopic Illuminator (6V-10W halogen)	SMZ-U Episcopic Arm	G-EIA Flexible Arm
Features	Illuminator is located away from microscope. It enables bright observation with high-intensity light without damaging sample with its heat. The direction and angle of illumination can be changed using the flexible arms.	Illumination angle flexibility is possible when used in combination with C-PS Plain stand.	Allows attachment of G-LS Episcopic Illuminator to the stand. Flexible change of direction and angle of illumination is possible.	Allows G-LS Episcopic Illuminator to be set to an appropriate position. Flexible change of direction and angle of illumination is possible.
Microscopes	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460 SMZ-2 SM-5	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460

Coaxial Illuminator

Purpose	Suitable for brightfield observation for high-reflectance flat surface samples such as polished metals and wafers.	
Model	P-IC12 Coaxial Episcopic Illuminator	G-ICIL LED Coaxial Episcopic Illuminator
Features	Coaxial illuminator for Greenough type stereoscopic microscopes; provides high-intensity illumination for the entire view field.	Coaxial illuminator for parallel optics type stereoscopic microscopes. Equipped with both coaxial episcopic and oblique illumination which illuminates from behind the microscope.
Microscopes	SMZ1000 SMZ800	SMZ745/745T SMZ660

Polarizing Attachment

Purpose	Enables simple polarizing observation, making it possible to observe flakes of rocks, mined ore, or double refraction images of samples.
Model	C-POL Polarizing Attachment
Features	The polarizer is on the stage while the analyzer is on the objective lens cover.
Microscopes	SMZ1000 SMZ800 SMZ745/745T SMZ660

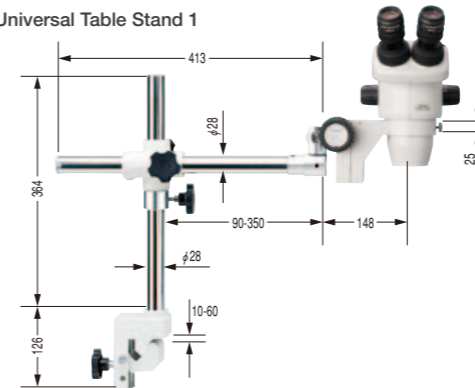
Universal Table Stands/Focusing Mounts

Universal Table Stands G-US1/G-US2

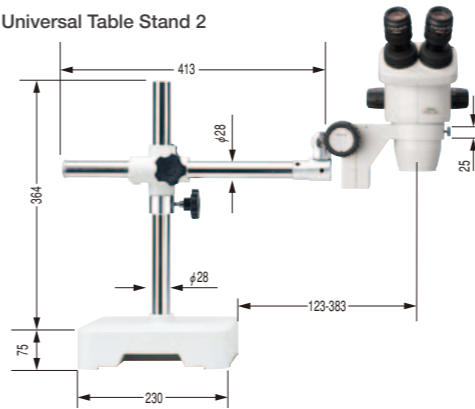
These stands are handy in microscopy with large samples not loaded onto the standard stand. The microscope unit is mounted to the stand arm via a focusing mount. The G-US1 is a table clamp type (table top thickness: 10 to 60 mm).

- Used in conjunction with the C-FMB Focusing Mount B on the SMZ745/745T/660/445/460.
- Used in conjunction with the SM Focusing Mount and the G-USA SM US Adapter on the SM-5.
- Can not be used with the SMZ1000/800 when photomicrographic equipment is mounted on these models.

G-US1 Universal Table Stand 1



G-US2 Universal Table Stand 2



Unit: mm

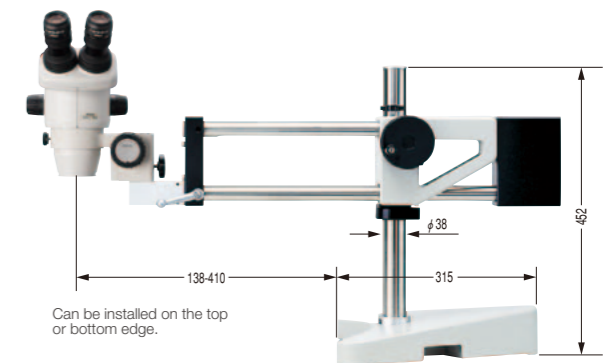
The image is a configuration sample with the SMZ745.

Universal Table Stand P

Not only can it be used for a large sample, but this extremely stable stand also easily accommodates a DS series digital camera.

- Used in conjunction with the C-FMAN Focusing Mount AN on the SMZ1000/800/745/745T/660/445/460.
- Used in conjunction with the SM Focusing Mount on the SM-5.

Universal Stand P



Can be installed on the top or bottom edge.

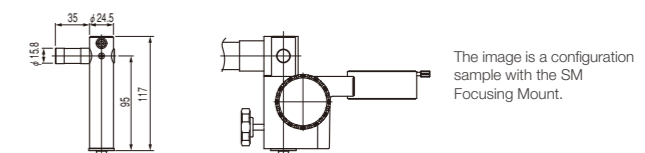
The image is a configuration sample with the SMZ745. Unit: mm

Specifications

Model	Universal Table Stand		
	G-US1	G-US2	P
Vertical cross travel	245mm	229mm	229mm
Horizontal cross travel	260mm	272mm	272mm
Weight (approx.)	4.4kg	23.0kg	30.5kg
C-FMAN Focusing Mount AN	○	○	○
C-FMB Focusing Mount B	○	○	○
C-FMC Focusing Mount C	○	○	○
SM Focusing Mount	○*	○	○
Use of photomicrographic equipment	○	○	○

○: Possible * G-USA Adapter is required

G-USA Adapter

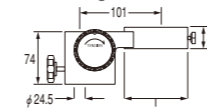


The image is a configuration sample with the SM Focusing Mount.

Focusing Mounts

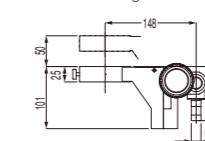
Various types of focusing mounts are available depending on use. They are used to incorporate stereoscopic microscope bodies into IC bonders or other devices (SM Focusing Mount is for SMZ-2 and SM-5). These mounts can also be used when attaching microscopes to Universal Table Stands.

C-FMAN Focusing Mount AN
SM Focusing Mount

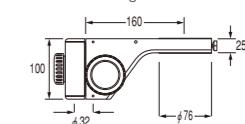


ø76mm: C-FMAN Focusing Mount AN
ø62mm: SM Focusing Mount

C-FMB Focusing Mount B






C-FMC Focusing Mount C







Unit: mm

	C-FMAN Focusing Mount AN	C-FMB Focusing Mount B	C-FMC Focusing Mount C	SM Focusing Mount
Focusing area	40mm	50mm	50mm	40mm
Weight (approx.)	0.6kg	0.8kg	1.6kg	0.6kg
Antistatic function	○	○	○	○
Compatible microscopes	SMZ1000/800/745/745T/660/445/460			SMZ-2/SM-5

Stands

Model	C-PS/C-PSC Plain Stands	C-PS160 Plain Stand	C-LEDS Hybrid LED Stand	C-DS Diascopic Stand
				
Type	Episcopic	Episcopic	Episcopic/Diascopic	Diascopic
Diascopic illumination method	—	—	Brightfield	Brightfield
Features	Offers a comfortable work area and allows easy handling of samples. It has a small base that saves desk space.	Features a slim design with a large ø180mm stage plate and 160mm width between the pillar and optical axis to boost working efficiency.	Both episcopic and diascopic observations are possible and can be conducted simultaneously. The space-saving built-in illuminator can be switched and adjusted with ease.	Features a hand rest for comfortable operation. Used in conjunction with 6V-20W halogen lamp.
Built-in filter	—	—	—	—
Fine focus knob	—	—	—	—
Observation magnification	With all objectives, at all zoom ranges	With all objectives, at all zoom ranges	With all objectives, at all zoom ranges	With all objectives, at all zoom ranges
Microscopes	SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ800 SMZ745/745T SMZ660 SMZ445/460

Model	C-DSS Diascopic Stand	C-DSD Diascopic Stand	C-BD Diascopic Bright/ Darkfield Stand	C-DSDF Diascopic Stand with Fiber Light Guide
				
Type	Diascopic	Diascopic	Diascopic	Diascopic
Diascopic illumination method	Brightfield, Oblique	Brightfield, OCC	Brightfield, Darkfield	Brightfield
Features	Accommodates a light source and power supply within a simple design. The angle of the built-in mirror can be easily adjusted with the knob.	The OCC illumination system allows colorless and transparent samples to be observed in high relief.	The seven-sided toroidal mirror reduces stray light that causes a reduction in contrast when using short-working distance objectives under darkfield diascope illumination. It enables high S/B ratio darkfield images.	In addition to adopting the C-DSD Diascopic Stand's many features, the C-DSDF enables sample temperature control and the brightest episcopic illumination.
Built-in filter	Not required (*ø45 mm filter slot provided)	NCB11, ND4/16	NCB11 (brightfield only, insertion/detachment impossible) (ø45mm filter slot provided)	NCB11, ND4/16
Fine focus knob	Included	Included	Included	Included
Observation magnification	With all objectives, at all zoom ranges (0.5x objective is compatible with zoom magnifications higher than 1.5x.)	With all objectives, at all zoom ranges (0.5x objective is compatible with zoom magnifications higher than 1.5x.)	With all objectives, at all zoom ranges (0.5x objective is compatible with zoom magnifications higher than 1.5x.)	With all objectives, at all zoom ranges (0.5x objective is compatible with zoom magnifications higher than 1.5x.)
Microscopes	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460	SMZ1000 SMZ800 SMZ745/745T SMZ660 SMZ445/460

Digital Cameras for Microscopes

PC-use Control Unit

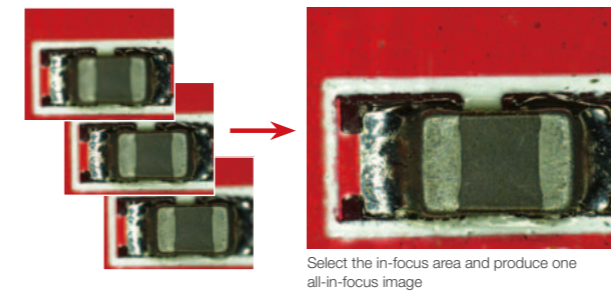
DS-U3 + NIS-Elements

Enables a wide range of advanced digital imaging capabilities using a PC

EDF (Extended Depth of Focus)

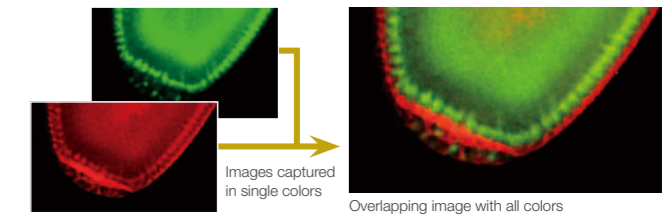
option: Ar Br D

Captures multiple high-resolution images at different focal depths to create a single extended depth of focus image or quasi-3D image.



Multichannel (multicolor)

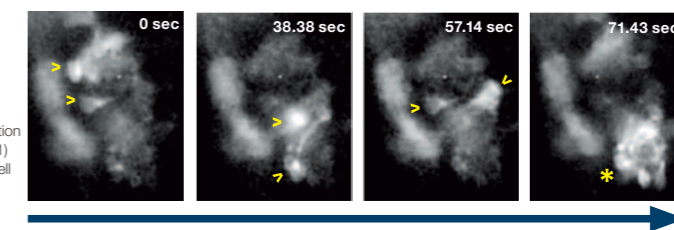
Multiple fluorescent channels can be captured in conjunction with other imaging methods, such as OCC or brightfield.



Individual cells resolved in a live drosophila embryo expressing GFP and mCherry
(Using SHR Plan Apo 2x at zoom magnification of 8x with SMZ25)
Image courtesy of Max V. Staller, Ph.D., Clarissa Scholes, and Angela DePace, Ph.D., Harvard Medical School

Time lapse

NIS-Elements makes it easy to set up a time-lapse imaging experiment.



Calcium-imaging: Time-lapse imaging of GCaMP expressing neurons inside a live zebrafish shows individual neurons firing at different times (arrowheads). The last time-frame shows a whole cluster of neurons firing (asterisk).

(Using SHR Plan Apo 2x at zoom magnification of 9x with SMZ25 and camera head DS-Qi1)
Image courtesy of Joe Fetcho, Ph.D., Cornell University

Standalone control unit

DS-L3



Offers an easy-to-use high-definition, large-touch-panel monitor that can be used to quickly capture images without the use of a PC or monitor.

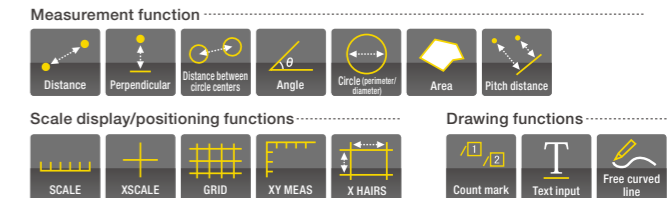
Scene mode

Optimal imaging parameters for each sample type and observation method can easily be set using the icons.

Scene mode (bioscience)	Scene mode (industrial)
Darkfield/fluorescence	Wafer/IC-chip
Differential interference/phase contrast	Metal/ceramic
Brightfield	Board
HE staining	FPD
Enzyme labeled antibody method	

Various tools

Simple measurements of acquired image are possible, allowing lines and comments to be added to image data. In addition, data storage and output functions for a wide range of applications are available.



Camera Heads

Ultra high-definition cooled color camera head

DS-Ri1

12.7 mega-pixels Color Cooled High-resolution



High-definition Color Camera Head

DS-Fi2

5.0 mega-pixels Color High-resolution



High-sensitivity cooled monochrome camera head

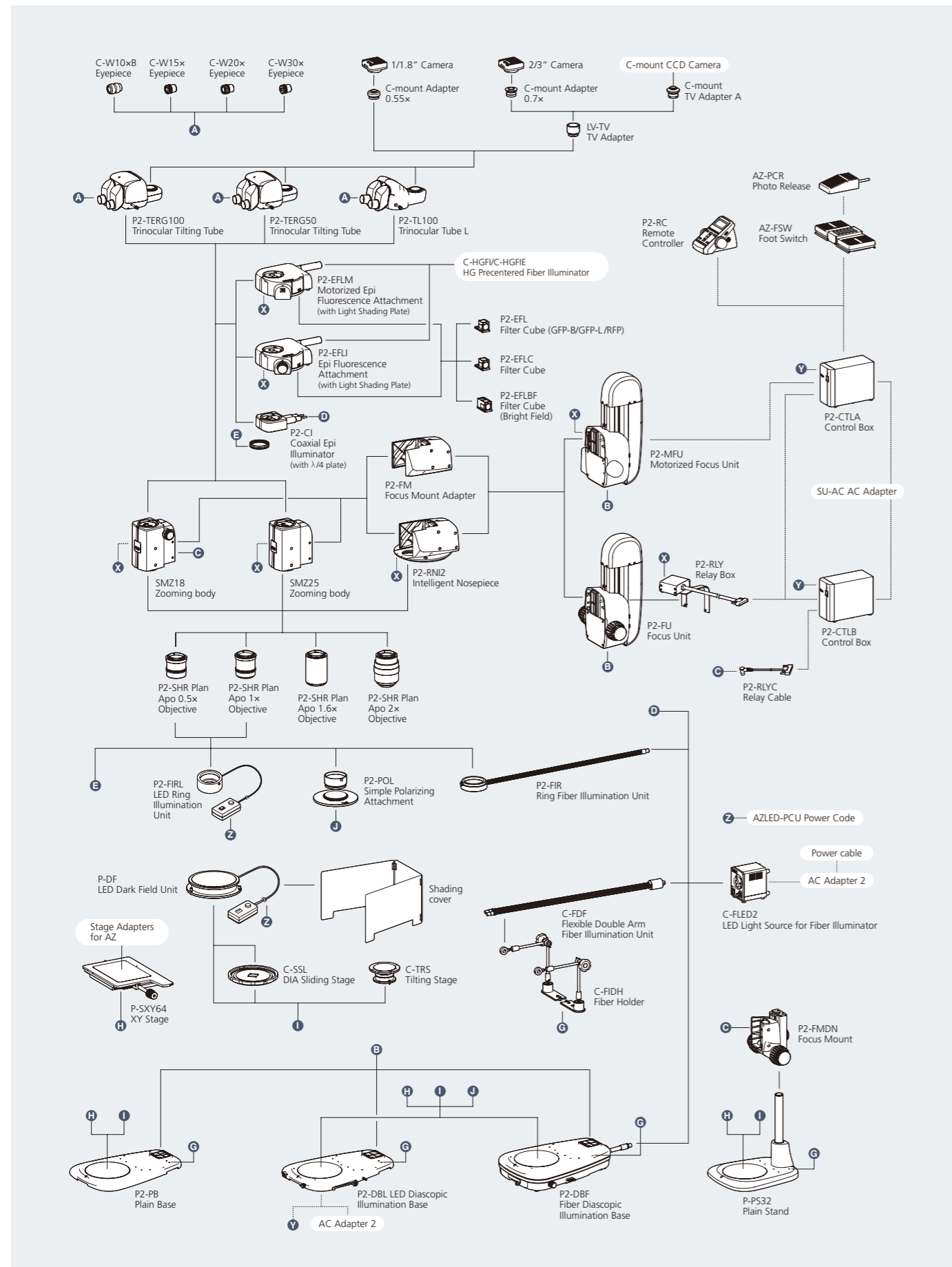
DS-Qi1

1.5 mega-pixels Cooled



* For more information, see the Digital Sight Series and NIS-Elements brochures.

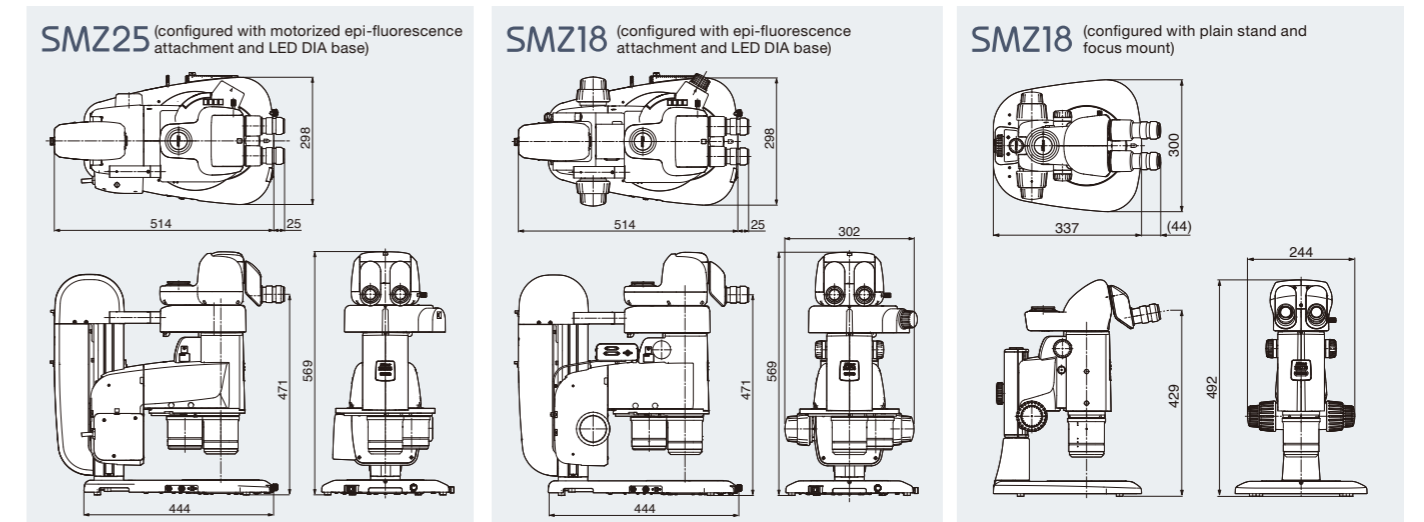
System Diagrams (SMZ25/SMZ18)



Specifications/Dimensions (SMZ25/SMZ18)

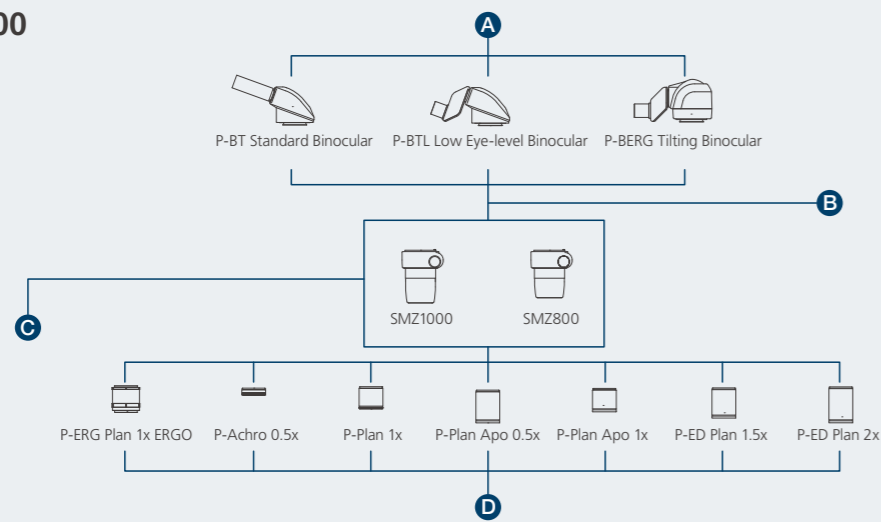
Specifications	SMZ25	SMZ18
Zooming body		
Optical system	Parallel-optics type (zooming type), apochromatic optical system	
Zoom	Motorized	Manual
Zoom ratio	25:1	18:1
Zoom range	0.63-15.75x	0.75-13.5x (with 0.75/1/2/3/4/5/6/8/10/12/13.5x click stops)
Aperture diaphragm	Zooming body built-in	
Objectives NA, WD (mm)		
P2-SHR Plan Apo 2x	0.312, 20 (with a correction ring for water 0 to 3 mm in depth)	0.3, 20 (with a correction ring for water 0 to 3 mm in depth)
P2-SHR Plan Apo 1.6x	0.25, 30	0.24, 30
P2-SHR Plan Apo 1x	0.156, 60	0.15, 60
P2-SHR Plan Apo 0.5x	0.078, 71	0.075, 71
Total Magnification (using C-W10xB eyepieces)	3.15-315x (depending on objective used)	3.75-270x (depending on objective used)
Eyepieces (F.O.V. mm)	<ul style="list-style-type: none"> C-W10xB (22) C-W 15x (16) C-W 20x (12.5) C-W 30x (7) 	
Tubes (eyepiece/port)	<ul style="list-style-type: none"> P2-TERG 100 Trinocular Tilting Tube (100/0 : 0/100) P2-TERG 50 Trinocular Tilting Tube (100/0 : 50/50) Inclination angle : 0-30 degree P2-TL100 Trinocular Tube L (100/0 : 0/100) Inclination angle : 15 degree 	
Focusing Unit (stroke from objective's parfocal point)	<ul style="list-style-type: none"> P2-MFU Motorized Focus Unit (up 96 mm/down 4 mm) P2-FU Focus Unit (up 97 mm/down 5 mm) 	
Focus mount adapter/nosepiece	<ul style="list-style-type: none"> P2-FM Focus Mount Adapter P2-RN12 Intelligent Nosepiece (2 objectives can be attached) P2-FMDN Focus Mount (for P-PS32 Plain Stand) 	
Bases/stand	<ul style="list-style-type: none"> P2-PB Plain Base P2-DBL LED Diascopic Illumination Base (OCC illuminator built-in) P2-DBF Fiber Diascopic Illumination Base P-PS32 Plain Stand (only for SMZ18) 	
Stages	<ul style="list-style-type: none"> P-SXY64 Stage C-SSL Dia-sliding Stage C-TRS Tilting Stage 	
Observation methods	Bright Field, Epi Fluorescence, Simple Polarizing (with P2-POL Simple Polarizing Attachment), Dark Field (with P-DF LED Dark Field Unit), Oblique Lighting	
Epi-fluorescence attachments	<ul style="list-style-type: none"> 4 filter cubes mountable, fly-eye lens built-in P2-EFLM Motorized Epi Fluorescence Attachment P2-EFLI Epi Fluorescence Attachment 	
Epi-fluorescence light sources	<ul style="list-style-type: none"> HG Precentered Fiber Illuminator Intensilight C-HGFIE HG/C-HGFI HG (130W) P2-FIRL LED Ring Illumination Unit 	
Episcopic illuminators	<ul style="list-style-type: none"> Use with fiber light source P2-CI Coaxial Epi Illuminator P2-FIR Ring Fiber Illumination Unit C-FDF Flexible Double Arm Fiber Illumination Unit 	
Episcopic light source	<ul style="list-style-type: none"> C-FLED2 LED Light Source for fiber illuminator 	
Weight (approx.)	32 kg (Motorized Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Motorized Focus Unit, Intelligent Nosepiece, LED DIA Base and Objectives 1x and 0.5x)	30 kg (Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Focus Unit, Intelligent Nosepiece, LED DIA Base and Objectives 1x and 0.5x)
Power consumption (approx.)	30W (Motorized Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Motorized Focus Unit, Intelligent Nosepiece and LED DIA Base)	10W (Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Focus Unit, Intelligent Nosepiece and LED DIA Base)

Dimensions

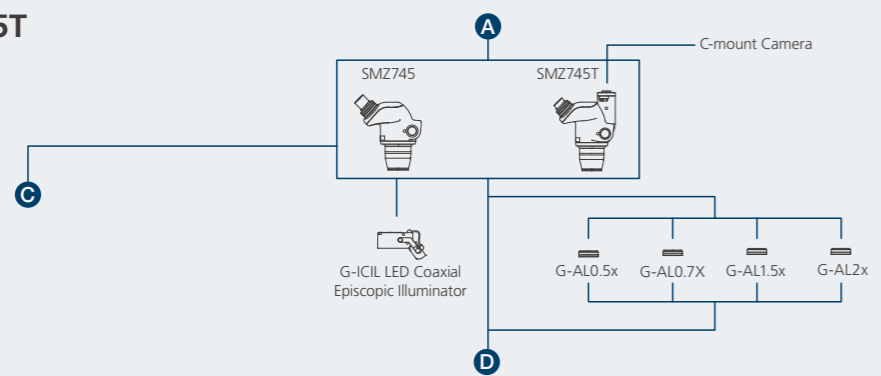


System Diagrams (SMZ1000/800, SMZ745/745T)

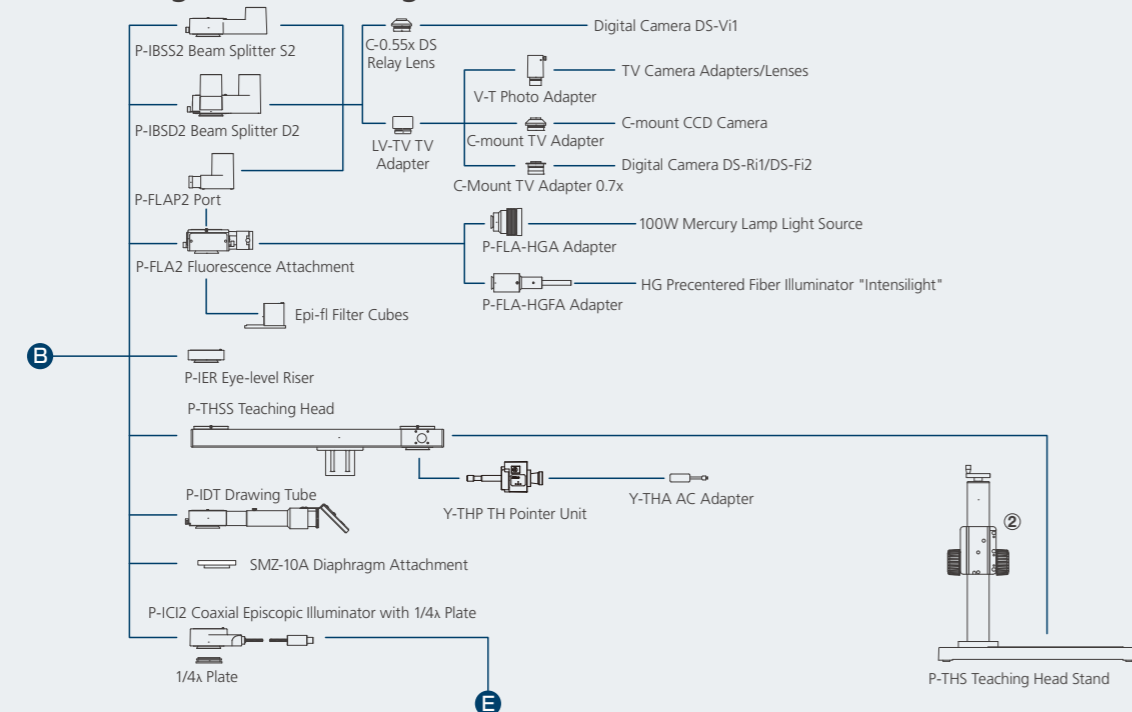
SMZ1000/800



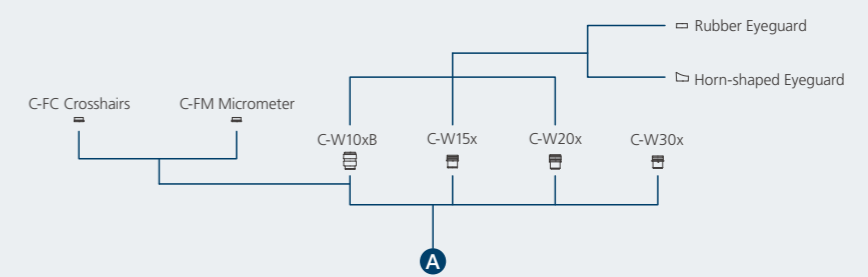
SMZ745/745T



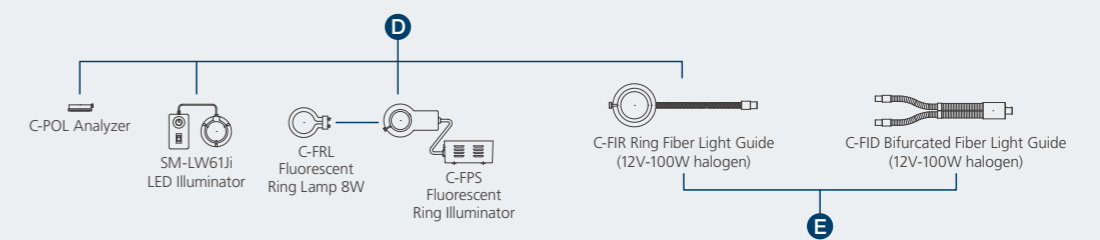
Beam Splitters/Teaching Head/Drawing Tube



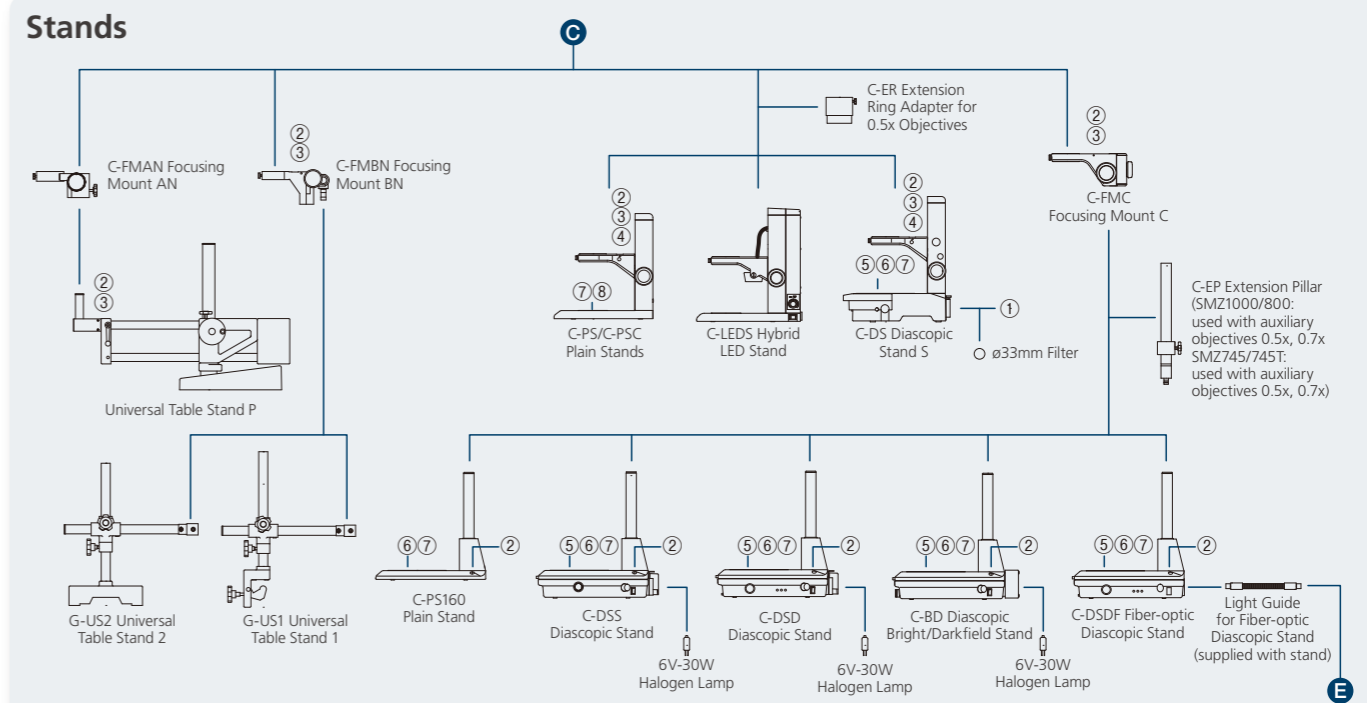
Eyepieces



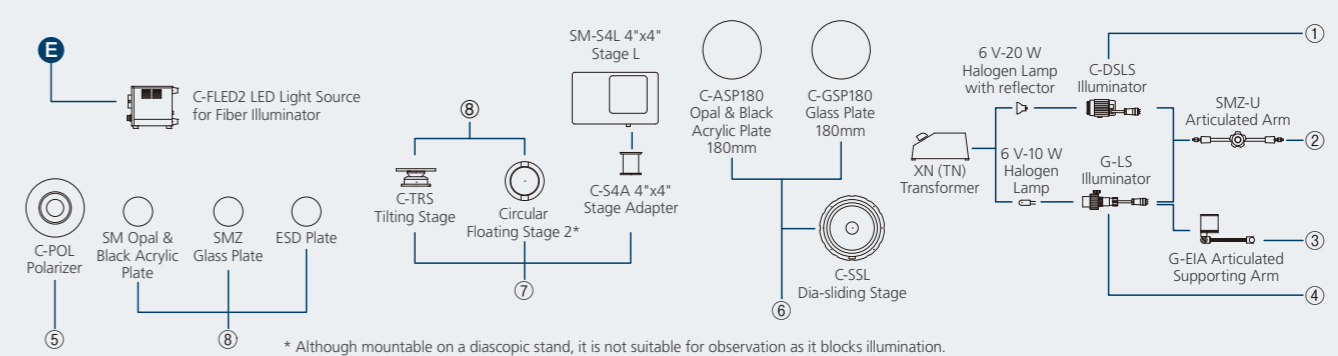
Illuminators



Stands



Accessories



* Although mountable on a diascopic stand, it is not suitable for observation as it blocks illumination.

Specifications

Parallel-optics type				
Model	SMZ25	SMZ18	SMZ1000	SMZ800
Optical system	Parallel-optics type (zooming type)			
Zoom range	25:1	18:1	10:1	6.3:1
Zoom ratio	0.63–15.75x	0.75–13.5x	0.8–8.0x	1–6.3x
Total magnification* (When coaxial episcopic illuminator is attached)	3.15–945x (12.5–472x)	3.75–810x (19–405x)	4–480x (30–540x)	5–378x (45–425x)
Tubes	P2-TERG 100 Trinocular Tilting Tube, P2-TERG 50 Trinocular Tilting Tube, P2-TL100 Trinocular Tube L		P-BT Standard Binocular, P-BTL Low Eye-level Binocular, P-BERG Tilting Binocular	
Eyepiece inclination	P2-TERG 100/50: 0°–30°, P2-TL100: 15°		20° (Standard Binocular and Low Eye-level Binocular), 0°–30° (Tilting Binocular)	
Interpupillary distance adjustment	50–75mm		48–75mm	
Eyepieces	C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) (with diopter adjustment)			
Objectives	P2-SHR Plan Apo 0.5x (NA 0.078), P2-SHR Plan Apo 1x (NA 0.156), P2-SHR Plan Apo 1.6x (NA 0.25), P2-SHR Plan Apo 2x (NA 0.312)	P2-SHR Plan Apo 0.5x (NA 0.075), P2-SHR Plan Apo 1x (NA 0.15), P2-SHR Plan Apo 1.6x (NA 0.24), P2-SHR Plan Apo 2x (NA 0.3)	P-Plan Apo 0.5x (NA 0.050), P-Plan Apo 1x (NA 0.100), P-ED Plan 1.5x (NA 0.150), P-ED Plan 2x (NA 0.200), P-Plan 1x* (NA 0.100), P-Achro 0.5x (NA 0.050), P-ERG Plan 1x ERGO* (NA 0.100) *Compatible with zoom magnifications higher than 1x.	P-Plan Apo 0.5x (NA 0.045), P-Plan Apo 1x (NA 0.090), P-ED Plan 1.5x (NA 0.135), P-ED Plan 2x (NA 0.180), P-Plan 1x (NA 0.090), P-Achro 0.5x (NA 0.045), P-ERG Plan 1x ERGO (NA 0.090)
Working distance (with standard configuration or 1x objective)	60mm		70mm	78mm
Weight (approx.)	32 kg (motorized Epi Fluorescence Attachment configuration)	10 kg (with Plain Stand and Ring LED set)	6.5kg (with P-BT Standard Binocular and C-PS160 Plain Stand)	5kg (with P-BT Standard Binocular and C-PS Plain Stand)

* Depending on eyepiece and objective used

Greenough type						
Model	SMZ745/745T	SMZ660	SMZ445	SMZ460	SMZ-2	SM-5
Optical system	Greenough type (zooming type) Trinocular Tube (SMZ745T)	Greenough type (zooming type)				Fixed type
Zoom range	7.5:1	6.3:1	4.4:1	4.3:1	5:1	—
Zoom ratio	0.67–5x	0.8–5x	0.8–3.5x	0.7–3x	0.8–4x	—
Total magnification*	3.35–300x	4–300x	4–70x	3.5–60x	4–120x	10–60x
Tubes	Fixed (binocular tube: SMZ745, trinocular tube: SMZ745T)	Fixed				
Eyepiece inclination	45°	60°	45°	60°	45°	45°
Interpupillary distance adjustment	52–75mm		54–75mm		56–75mm	—
Eyepieces	C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) (with diopter adjustment)		SM 10xB (F.N. 21), SM 15xB (F.N. 14), SM 20xB (F.N. 12)		SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM E20xA (F.N. 12), C-W30x (F.N. 7)	
Objectives	—	—	—	—	0.8–4x	2x (fixed)
Auxiliary objectives	G-AL 0.5x (W.D. 211mm), 0.7x (W.D. 150mm), 1.5x (W.D. 61mm), 2x (W.D. 43.5mm)	G-AL ERG 0.77–1.06x (W.D. 102–48mm)	SM-AL 0.5x, 0.7x		AL5 (0.5x, W.D. 100mm), AL7 (0.7x, W.D. 95mm)	AL5 (0.5x, W.D. 175mm), AL7 (0.7x, W.D. 128mm)
Working distance (with standard configuration or 1x objective)	115mm		100mm		77.5mm	100mm
Weight (approx.)	1.4kg (SMZ745 body), 1.8kg (SMZ745T body)	1.7kg (body)	1.0kg (body)		2.1kg (body), 1.9kg (Stand)	1.5kg (body), 1.9kg (Stand)

* Depending on eyepiece and objective used

Related Products

Digital Microscope

ShuttlePix

ShuttlePix provides 20x optical zoom. Its magnification information is also linked to ShuttlePix's scale and simple measurement functions.

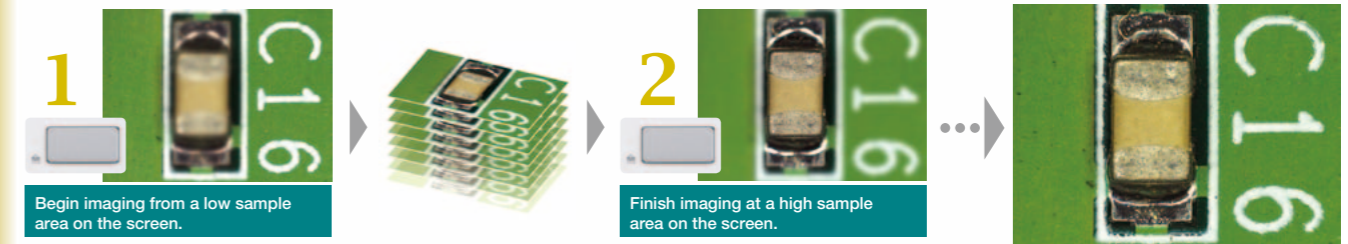


Easy imaging

- Step. 1** Turn on the power.
- Step. 2** Adjust magnifications and focusing while observing the monitor.
- Step. 3** Press the image capture button.



One touch EDF imaging



Others

Handy set

- A cordless body (built-in illuminator, compatible with SD card, battery-powered)
- Easy operation



Simple stand set

- Simple reflection stand that requires no battery
- Diascopic LED stand enables diascopic imaging
- Automatically uploads images to a PC



AZ100 AZ100M

- Wide magnification range
- Various observation methods in the macro region are possible depending on samples and purpose.

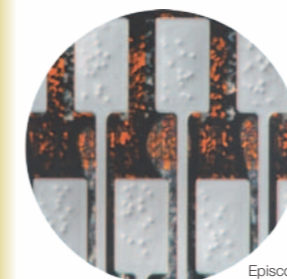


Wide magnification range

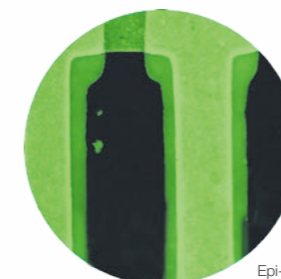
0.5x, 1x, 2x, 4x and 5x objectives are available. Used in combination with the AZ-W10x eyepiece and a coaxial episcopic illuminator, the AZ100 series covers the full range of 5x to 500x magnifications.

Various observation methods

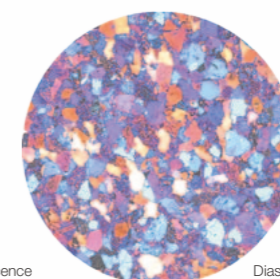
The AZ series mono-zoom mechanism enables true on-axis image capture in the macro region. The AZ series supports a wide array of observation methods, including epi-fluorescence, reflected/transmitted light brightfield, simple POL and differential interference contrast



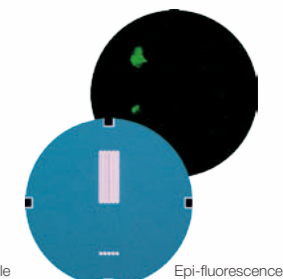
Episcopic DIC



Epi-fluorescence



Diascopic simple polarizing



Epi-fluorescence and diascopic DIC