

Optical Systems

Parallel-optics type (zooming type)

This system has a parallel optical path into which various intermediate tubes, including a beam splitter, coaxial episcopic illuminator, epi-fluorescence attachment, 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.

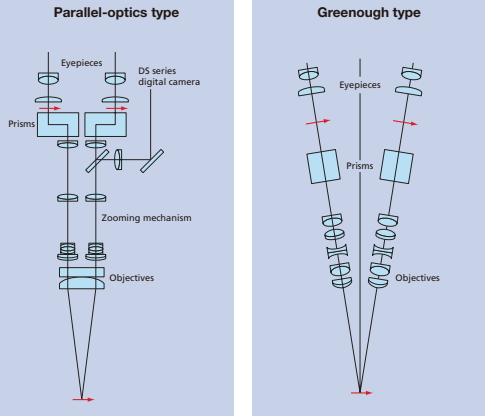


Image used in page 2 composite image courtesy of Julie C. Canman, Ph.D., Columbia University

N.B. Export of the products\* in this catalog is controlled under the Japanese Foreign Exchange and Foreign Trade Law. Appropriate export procedure shall be required in case of export from Japan.  
\*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. April 2014.  
©2007-14 NIKON CORPORATION

**WARNING** TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.

**NIKON CORPORATION**  
Shin-Yurakucho Bldg., 12-1, Yurakucho 1-chome, Chiyoda-ku, Tokyo 100-8331, Japan  
phone +81-3-5474-8000 • +1-800-52-NIKON (within the U.S.A. only)  
fax +1-431-547-0306  
<http://www.nikoninstruments.com/>

**NIKON INSTRUMENTS INC.**  
1300 Watt Whitman Road, Melville, NY 11747-3064, U.S.A.  
phone +1-631-547-8000 • +1-800-52-NIKON (within the U.S.A. only)  
fax +1-431-547-0306  
<http://www.nikoninstruments.com/>

**NIKON METROLOGY, INC.**  
12701 Grand River Avenue, Brighton, MI 48116 U.S.A.  
phone +1-810-220-4300 fax +1-810-220-4300  
E-mail: [Sales.US.NMI@nikon.com](mailto:Sales.US.NMI@nikon.com)  
<http://us.nikonmetrology.com/>

**NIKON INSTRUMENTS EUROPE B.V.**  
Tropis 100, Burgemeesterplant 101, 1076 ER Amsterdam, The Netherlands  
phone +31-20-7099-000 fax +31-20-7099-208  
<http://www.nikoninstruments.eu/>

**NIKON METROLOGY EUROPE NV**  
Geddesakade 123, 3001 Leuven, Belgium  
phone +32-16-7401-00 fax +32-16-7401-03  
E-mail: [Sales.Europe.NMI@nikon.com](mailto:Sales.Europe.NMI@nikon.com)  
<http://www.nikonmetrology.com/>

**NIKON INSTRUMENTS (SHANGHAI) CO., LTD.**  
CHINA phone +86-21-6841-2050 fax +86-21-6841-2060  
(Beijing branch) phone +86-10-9831-2028 fax +86-10-9831-2026  
(Guangzhou branch) phone +86-20-3882-0552 fax +86-20-3882-0580

**NIKON SINGAPORE PTE LTD**  
SINGAPORE phone +65-6559-3618 fax +65-6559-3668

**NIKON MALAYSIA SDN BHD**  
MALAYSIA phone +60-3-7809-3688 fax +60-3-7809-3633

**NIKON INSTRUMENTS KOREA CO., LTD.**  
KOREA phone +82-2-186-6400 fax +82-2-555-4415

**NIKON INDIA PRIVATE LIMITED**  
INDIA phone +91-124-488550 fax +91-124-4688527

**NIKON GMBH AUSTRIA**  
AUSTRIA phone +43-1-972-6111-00 fax +43-1-972-6111-40

**NIKON UK LTD.**  
UNITED KINGDOM phone +44-208-247-1717 fax +44-208-541-4584

**NIKON METROLOGY UK LTD.**  
UNITED KINGDOM phone +44-1332-811-349 fax +44-1332-639-881  
E-mail: [Sales.UK.NMI@nikon.com](mailto:Sales.UK.NMI@nikon.com)

**NIKON FRANCE S.A.S.**  
FRANCE phone +33-1-4516-4516 fax +33-1-4516-4555

**NIKON METROLOGY SARL**  
FRANCE phone +33-1-60-86-57-79 fax +33-1-60-86-57-35  
E-mail: [Sales.France.NMI@nikon.com](mailto:Sales.France.NMI@nikon.com)

**NIKON GMBH**  
GERMANY phone +49-211-941-42-20 fax +49-211-941-43-22

**NIKON METROLOGY GMBH**  
GERMANY phone +49-6023-91733-0 fax +49-6023-91733-229  
E-mail: [Sales.Germany.NMI@nikon.com](mailto:Sales.Germany.NMI@nikon.com)



# The Next Revolution in Microscopy

## A Giant Step Forward in Stereo Microscopy

Nikon offers a broad range of stereo microscopes and accessories, including a research stereo microscope system with the world's highest zoom ratio, superb resolution and bright fluorescence imaging. Also features other versatile parallel-optics type models suitable for various applications and Greenough-type models that are user-friendly and affordable.

	SMZ25	SMZ18	SMZ1270/ 1270i	SMZ800N
Optical system	Parallel-optics type			
			 NEW	 NEW
Zoom ratio	25:1	18:1	12.7:1	8:1
Zooming range	0.63-15.75x	0.75-13.5x	0.63-8x	1-8x
Total magnification*1 (with standard set*2)	3.15-945x (6.3-157.5X)	3.75-810x (7.5-135X)	3.15-480x (6.3-80X)	5-480x (10-80X)
Working distance*3	60mm	60mm	70mm	78mm
Image capture	○	○	○	○
System expandability	○	○	○	○
Embedded use	—	—	○	○

### Index

#### Stereo Microscopes

• SMZ25, SMZ18	4
• SMZ1270/1270i, SMZ800N	8
• SMZ745/745T	12
• SMZ660, SMZ445/460	13
• SMZ-2, SM-5	14

#### Accessories (for SMZ25, SMZ18)

• Base Unit, Focus Unit, Stand/Focus Mount, Objective	15
• Tubes, Nosepiece/Focus Mount Adapter, Stage, Controller, Epi-fluorescence Set	16
• Fiber Illuminator Set, Coaxial Illuminator, Ring LED Illuminator, Darkfield Observation Accessory, Polarizing Observation Accessory	17

#### Accessories (for SMZ1270/1270i, SMZ800N, SMZ745/745T, SMZ660, SMZ445/460, SMZ-2, SM-5)

• Objectives, Auxiliary Objectives	18
• Nosepieces, Tubes, Eye-level Riser, Intermediate Tubes	19
• Stages, Observation Attachments	20
• Illumination Systems	21
• Stands	22
• Universal Table Stands/Focusing Mounts	23

#### Specifications/System Diagrams

• System Diagrams (SMZ25/18)	24
• Specifications (SMZ25/18)	25
• System Diagrams (SMZ1270/800N, SMZ745/745T)	26
• Specifications	28

#### Related Products

• Digital Cameras for Microscopes	30
• Digital Microscope ShuttlePix	31
• Multi-purpose Zoom Microscopes MULTIZOOM AZ100/100M	31

SMZ745/ SMZ745T	SMZ660	SMZ445/ SMZ460	SMZ	SM-5/6
Greenough type				
				
7.5:1	6.3:1	4.4:1 / 4.3:1	5:1	—
0.67-5x	0.8-5x	0.8-3.5x / 0.7-3x	0.8-4x	—
3.35-300x (6.7-50X)	4-300x (8-50X)	4-70x (8-35X)/ 3.5-60x (7-30X)	4-120x (8-40X)	10-60x (20X)
115mm	115mm	100mm	77.5mm	100mm
○ (SMZ745T)	—	—	—	—
—	—	—	—	—
○	○	○	○	○

\*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 stereo microscope

Nikon has developed an all-new stereo microscope that features a large zoom ratio of 25:1, high resolution and exceptional fluorescence transmission capability. The new stereo 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 stereo microscope

- First stereo 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



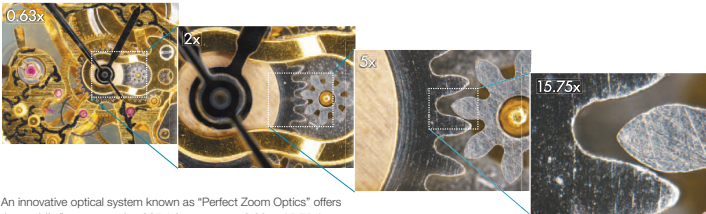
SMZ25 Motorized zoom model with the highest zoom ratio and resolution in the SMZ series

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 <sup>*1</sup>	270x <sup>*1</sup>
Maximum FOV	ø70 mm <sup>*2</sup>	ø59 mm <sup>*3</sup>
Maximum NA of	0.312 <sup>3</sup>	0.3 <sup>3</sup>

<sup>\*1</sup>: Using SHR Plan Apo 2x/ C-W10xB <sup>\*2</sup>: Using SHR Plan Apo 0.5x/ C-W10xB <sup>\*3</sup>: Using SHR Plan Apo 2x

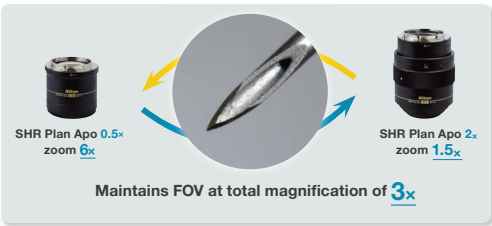
Remarkable resolution and the world's widest zoom range

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



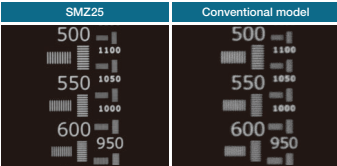
ALZ automatically adjusts the zoom factor to maintain the same field of view when switching objective lenses. This function enables seamless imaging at low magnifications and detailed imaging at high magnifications.

Superior resolution never before seen on a stereo 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

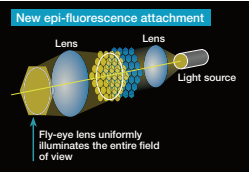
Bright, high-contrast fluorescent images SMZ25 SMZ18

Enhanced brightness and uniform illumination in a low magnification range

The SMZ25 series is the first stereo 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 stereo 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 (slf1-GFP)  
(Using SHR Plan Apo 1x at zoom magnification of 6x with SMZ25)  
Image courtesy of Hisaya Kakeiura, Ph.D., Laboratory for Developmental Gene Regulation, Developmental Brain Science Group, RIKEN Brain Science Institute



Brightfield Fluorescence  
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.



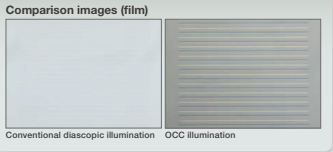
Detected observation condition/available control	SMZ25		SMZ18	
	Motorized focus unit Motorized epi-fluorescence set (control box A)		Manual focus unit Manual epi-fluorescence set (relay box and control box B)	
	DS-L3	NIS-Elements	DS-L3	NIS-Elements
Zoom magnification	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focusing	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Objective (with nosepiece)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Diascopic LED illumination stand (ON/OFF, light intensity control)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Fluorescence illuminator (light intensity control)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Filter cube	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

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



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.

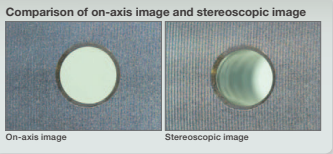
User-friendly remote control SMZ25

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.



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-RN2 Intelligent Nosepiece by simply moving the objective lens.





Parallel-optics type

Parallel-optics Type

SMZ1270/1270i  
SMZ800N



Incredible sharpness throughout a wide magnification range

These versatile stereo microscopes provide both excellent optical performance, such as high-magnification, high-zoom ratio and high-resolution images, and advanced operability. The expandability of parallel optics makes these models suitable for a wide range of applications.

Highest-in-class zoom ratio

- Highest-in-class zoom ratio of 12.7:1 (0.63 – 8x) with SMZ1270/1270i
- New WF series objectives optimized for wide viewfield observation at low magnification

High-quality images

- High-level chromatic aberration correction provides sharp images throughout the viewfield.

Easy to get results

- Automatically detects magnification data in combination with the digital camera control unit (SMZ1270i only)
- Nosepiece offers both widened magnification range and on-axis imaging
- Eyepiece tubes with various inclination angles and slim-type stands minimize user fatigue during observation

Expandable with a wide range of accessories

- A wide range of accessories are available, including eyepiece tubes and stands that are equal to superior specification stereo microscope models



SMZ1270  
Versatile stereo microscope with the highest-in-class zoom ratio



SMZ1270i  
The same as the SMZ1270 but equipped with intelligent functions found in superior models (SMZ1270i with a trinocular tilting tube and nosepiece)



SMZ800N  
Affordable model with improved operability and basic performance

Highest-in-class zoom ratio

Wide zoom range

The SMZ1270/1270i offers the highest-in-class zoom ratio of 12.7x (0.63 – 8x). It offers both low-magnification wide viewfield observation of the whole of a 35 mm petri dish\* during screening and high-magnification observation of minute cell structures

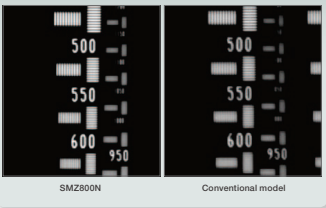
\* with 1x objective at the lowest magnification.



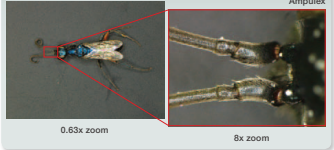
SMZ1270/1270i enables observation of the whole of a 35 mm petri dish.

The SMZ800N comes with a 1 – 8x zoom range, with higher magnification than conventional models and enables high-resolution observation of 640LP/mm (using ED Plan Apo 2x-WF at maximum zoom).

Improved resolution of SMZ800N



Wide viewfield of SMZ1270/1270i



Newly developed objectives

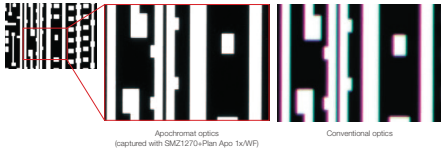
The newly developed WF series objectives offer a wide and uniformly bright viewfield when used with SMZ1270/1270i, even with low magnification observation. In addition, a 0.75x objective is now available, expanding the lineup of low magnification objectives.

This sentence will be changed to "The newly developed WF series objectives offer uniformly bright images even at low magnification wide viewfield observation with SMZ1270/1270i."



High-quality images

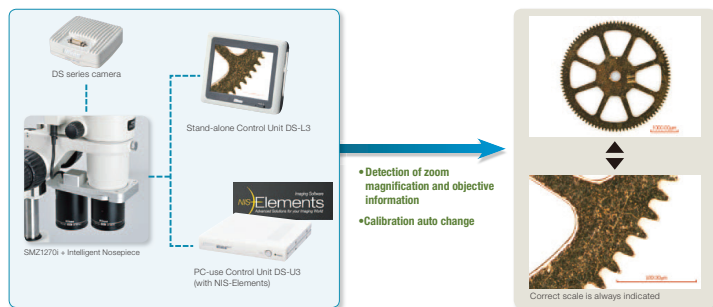
Apochromat optics have been adopted for the lenses in the SMZ1270/1270i zoom body and semi-apochromat optics in the SMZ800N to achieve high-level chromatic aberration correction. They provide sharp images without blur or color fringe.



## Easy to get results

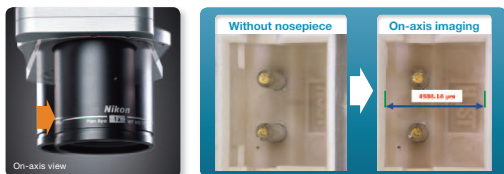
### Intelligent function for status readout (SMZ1270i)

In combination with the Camera Control Unit DS-L3 and imaging software NIS-Elements, the SMZ1270i can detect zoom magnification data. In addition, with the Intelligent Nosepiece P-RN2 attached, data related to the objective in use is also detected. Calibration data is automatically altered, following changes of magnification, to display the appropriate scale and measurement results on the images.



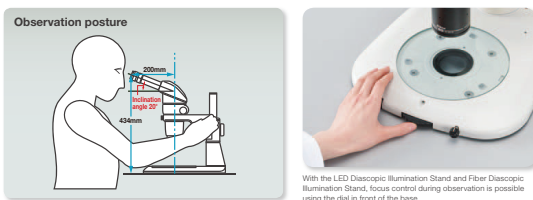
### On-axis observation with the nosepiece

The double nosepiece offers easy on-axis imaging, enabling observation of the bottom of holes, accurate simple measurement and extended depth of focus (EDF) imaging without distortion.



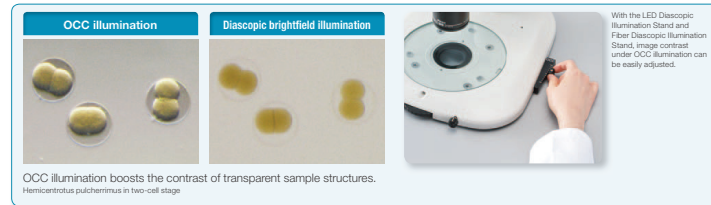
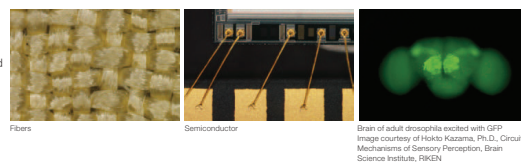
### Ergonomic design

Eye-piece tubes with a range of inclination angles are available for comfortable observation. They offer the optimum eyepiece level to suit each user. In addition, slim-type plain stands and the LED Diascopic Illumination Stand easily facilitate the presentation and removal of specimens.



## Expandable with a wide range of accessories

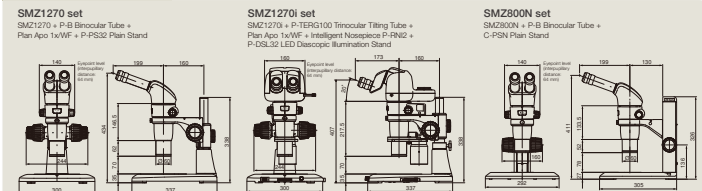
In addition to conventional accessories, the level of accessories used with superior models is also available for the SMZ1270/1270i and SMZ800N. These include trinocular tubes and slim-type LED diascopic illumination stands. These allow various microscope configurations to suit numerous routine inspections and a range of research and development applications.



	SMZ1270	SMZ1270i	SMZ800N
Optical system	Parallel-optics type (zooming type)		
Zoom ratio	12.7 : 1		8 : 1
Zoom range	0.63 – 8x (0.63/1/2/3/4/6/8x stops)		1 – 8x (1/2/3/4/6/8x stops)
Total magnification	3.15 – 480x (depending on eyepiece and objectives) (with coaxial episcopic illuminator: 15 – 540x)		5 – 480x (depending on eyepiece and objectives) (coaxial episcopic illuminator: 22.5 – 540x)
Tubes	Eyepiece inclination: 20° (P-B Binoocular Tube) / 15° (P-TL100 Trinocular Tube) / 0°–30° (P-TERG100 Trinocular Tilting Tube, P-TERG50 Trinocular Tilting Tube)		
Eyepieces	C-W10x8 (F.N. 22), C-W15x (F.N. 18), C-W20x (F.N. 12.5), C-W30x (F.N. 7)		
Objectives	Plan Apo 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF		Plan Apo 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF, Plan 1x, ED Plan 0.75x, Achrom 0.5x
Working distance	70 mm (with Plan Apo 1x/WF)		78 mm (with Plan 1x)
Weight (approx.)	9.8 kg (with P-B Binoocular Tube + P-DSL32 LED Diascopic Illumination Stand)	11.9 kg (with P-TERG100 Trinocular Tilting Tube + P-DSL32 LED Diascopic Illumination Stand)	6.8 kg (with P-B Binoocular Tube + C-PSN Plain Stand)

Please refer to the system diagram (P.26-27) for accessory combinations.

### Dimensions



Greenough type

Greenough Type Stereo 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.

- **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.

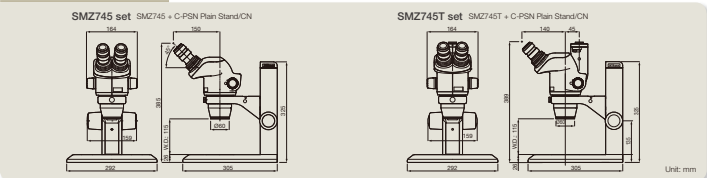
Antistatic function: 1000–10V, discharge within 0.2 sec.



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 (FN. 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 10x (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), G-AL ERG 0.77–1.06x (W.D. 102–48 mm)	
Working distance	115 mm (standard)	
Airtight construction	JS Degrees of protection provided by enclosures IPX1	—
Weight (approx.)	1.6 kg (body)	1.8 kg (body)

FN: Field Number

Dimensions



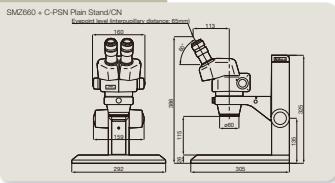
Greenough Type Stereo Microscope

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-W10x (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. 211 mm), 0.7x (W.D. 150 mm), 1.5x (W.D. 61 mm), 2x (W.D. 43.5 mm)
Working distance	G-AL ERG 0.77–1.06x (W.D. 102–48 mm)
Airtight construction	JS Degrees of protection provided by enclosures IPX1
Weight (approx.)	1.6 kg (body)

Dimensions



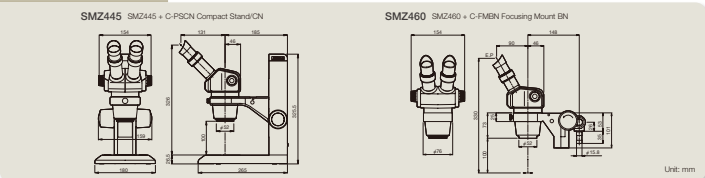
Greenough Type Stereo Microscope

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	4.3 : 1	4.3 : 1
Zooming range	0.8–3x	0.7–3x
Total magnification	4–75x	3.5–60x
Tube	Eyepiece inclination: 45° Interpupillary distance adjustment: 54–75 mm	Eyepiece inclination: 60° Interpupillary distance adjustment: 54–75 mm
Eyepieces	Eyepiece diopter adjustable for both eyes	Eyepiece diopter adjustable for both eyes
Auxiliary objectives (option)	SM 10x (F.N. 21), SM 15x (F.N. 14), SM 20x (F.N. 10)	
Working distance	100 mm (standard)	
Weight (approx.)	1.0 kg (body)	1.1 kg (body)

Dimensions



Greenough type

Greenough Type Stereo Microscope

SMZ-2

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

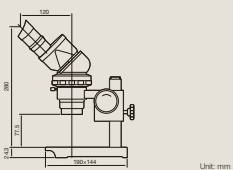
- Diopter of both eyes can be adjusted individually, providing a clear image when zooming.
- Twin zooming objective optical system maintains focus when magnification is changed.
- Focus point movement and magnification difference between eyes are minimal.
- Compact design with horizontally positioned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



SMZ-2 (Clemmer is optional)

Specifications	SMZ-2
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 diaphrag adjustment)	SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM 20xB (F.N. 12), C-W20x (F.N. 7)
Auxiliary objectives	AL5 (D.5x), AL7 (D.7x)
Working distance	77.5 mm (with standard configuration)
Weight (approx.)	1.6 kg (body), 1.9 kg (stand)

Dimensions



Unit: mm

Greenough Type Stereo Microscope

SM-5

Standard stereo microscope with fixed objective magnification

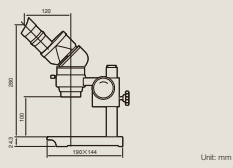
- Optical axis passes through the middle of the lens, eliminating chromatic aberration and providing sharp images.
- Objective has fixed magnification of 2x. Total magnification ranges from 10x to 60x depending on eyepiece and auxiliary objective used.
- Focal plane is positioned on distinct vision,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



SM-5 (Clemmer is optional)

Specifications	SM-5
Optical system	Greenough type (fixed type)
Objectives	2x
Total magnification	10–60x (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 20xB (F.N. 12), C-W20x (F.N. 7)
Auxiliary objectives	AL5 (D.5x), AL7 (D.7x)
Working distance	100 mm (standard)
Weight (approx.)	0.9 kg (body), 1.9 kg (stand)

Dimensions



Unit: mm

Accessories

SMZ25 SMZ18

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.



P2-DBF Fiber Dioscopic 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.



P2-DLB LED Dioscopic Illumination Base  
P2-PB Plain Base

Focus Unit

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



P2-MFU Motorized Focus Unit  
P2-FU Focus Unit

Stand/Focus Mount SMZ18

SMZ18 can be mounted on various compact stands using a focus mount.



P2-FMDN Focus Mount  
P-PS32 Plain Stand  
P-DSF36 Fiber Dioscopic Illumination Stand  
P-DSL32 LED Dioscopic Illumination 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.



P2-SHR Plan Apo 0.5x  
P2-SHR Plan Apo 1.6x  
P2-SHR Plan Apo 1x  
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		71 mm	60 mm	30 mm	20 mm
Correction ring		—	—	—	3 mm water depth
Wavelength		380–700 nm			

## Accessories

SMZ25 SMZ18

### Tubes

Choose from two types of tilting trinocular tube and one type of low eyepiece 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.

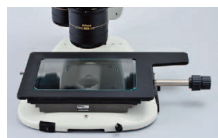


- 1 P2-FM2 Intelligent Nosepiece
- 2 P2-FM Focus Mount Adapter

### 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-SKY 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.

- 1 P-DF LED Dark Field Unit
- 2 Shading cover



### Polarizing Observation Accessory

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

- 1 P2-POL Simple Polarizing Attachment



### 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-U/RFP)
- 4 P2-EFLBF Filter Cube (Bright Field)
- 5 P2-CTLB Control Box
- 6 P2-RC Remote Controller
- 7 P2-CIA QL1x/0.5x 1/4 λ Plate

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-U/RFP)
- 4 P2-EFLBF Filter Cube (Bright Field)
- 5 P2-CTLB Control Box
- 6 P2-CIA QL1x/0.5x 1/4 λ Plate

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-PDF 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
- 3 P2-CIA QL1x/0.5x 1/4 λ Plate



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 Ring LED Illumination Unit



Combinations with SMZ25



## Accessories

A variety of accessories are available for stereoscopic observations



Plan Apo WF series

### Objectives

A wide selection with various magnifications and working distances is available, including high-NA, high-resolution and wide-viewfield Plan Apo WF series objectives with superior image fitness and chromatic aberration correction.



- 1 Plan Apo 0.5x/WF
- 2 Plan Apo 0.75x/WF
- 3 Plan Apo 1x/WF
- 4 ED Plan 1.5x/WF
- 5 ED Plan 2x/WF



- 1 Achrom 0.5x
- 2 ED Plan 0.75x
- 3 Plan 1x

Objectives	Working distance (mm)	Zoom magnification	NA	Actual FOV <sup>1</sup>
Plan Apo	0.5x/WF	82	0.03x 8x	0.0095 5.5
	0.75x/WF	107	0.03x 8x	0.0143 3.7
	1x/WF	70	0.03x 8x	0.0190 2.6
ED Plan	1.5x/WF	44	0.03x 8x	0.0285 23.3
	2x/WF	35	0.03x 8x	0.0390 17.5
				0.2100 1.4

<sup>1</sup> With C-W10x eyepiece

Objectives	Working distance (mm)	Zoom magnification	NA	Actual FOV <sup>1</sup>
Achro	0.5x	189	1x 8x	0.0145 5.5
ED Plan	0.75x	117	1x 8x	0.0218 29.3
Plan	1x	78	1x 8x	0.0290 22
				0.1050 2.75

<sup>1</sup> With C-W10x eyepiece

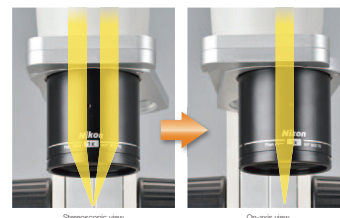
### Auxiliary Objectives

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

Microscopes	Auxiliary objectives	Working distance (mm)
SMZ445/460	AL5 (0.5x)	181
	AL7 (0.7x)	127.5
SMZ-2	AL5 (0.5x)	103
	AL7 (0.7x)	95
SM-5	AL5 (0.5x)	175
	AL7 (0.7x)	128

### Nosepieces

Double nosepiece with two-objective switchover. Easy changeover from stereo position (stereoscopic view) to mono position (on-axis view) is possible by simply moving the objective lens to the right.



### P-RN2 Nosepiece

Observations with wider zoom ranges are possible by simply switching between two objectives.



### P-RN12 Intelligent Nosepiece

Enables easy switchover between two objectives. In combination with the Digital Sight series digital camera, it automatically detects the data of objective in use.



### Tubes/Eye-level Riser

Various ergonomic tubes with different inclination angles enable suitable eye levels to be selected for observation, even when an intermediate tube or illuminator is attached. Trinocular tubes are also equipped with camera ports.

#### P-B Binocular Tube

20° inclination angle allows observation without having to lean forward and reduces fatigue during long-time operations.



#### P-TL100 Trinocular Tube

15° of inclination angle allows observation with comfortable posture even when using a thick stand or intermediate tube. Optical path switching ratio of eyepiece:camera port is 100:0/0:100.



#### P-TERG100/P-TERG50 Trinocular Tilting Tube

Allows continuous adjustment of the eyepiece inclination from 0° to 30°. Optical path switching ratio of eyepiece:camera port is 100:0/0:100 with P-TERG100 and 100:0/50:50 with P-TERG50.



#### P-IER Eye-level Riser

Increases the eyepoint height 25 mm per riser for a total of 50 mm.



### Intermediate Tubes

Various intermediate accessories are available that can be inserted between the microscope zooming body and tube.

#### P-IBSS2 Beam Splitter S2

Using a beam splitter and camera adapter, a digital camera can be attached to the binocular eyepiece tube for imaging. Optical path switching ratio of left eyepiece:right eyepiece:camera port is 100:100:0/100:50:50.

#### P-THSS Teaching Head

Simultaneous observation of the same viewfield is possible between the eyepiece lenses of both teaching head and microscope, making it ideal for educational purposes. The pointer can indicate target points in the viewfield during observation.

#### P-IDT Drawing Tube

Drawing sample images is possible by simply tracing observed images that are overlaid on top of drawings within the viewfield. The drawings can be removed from view by using the knob to block the light path.

# Accessories

## Stages

Stages allow smooth sample movement in order to change viewfield during observation.

### 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  $\phi 38\text{mm}$ .

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460

Can be used with the SMZ25 and SMZ18



### Circular Floating Stage 2

Used for episcopic observation. 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  $\phi 40\text{mm}$ .

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460 SMZ-2  
SM-5

Can be used with the SMZ25 and SMZ18



### C-TRS Tilting Stage

This stage has a nonslip sheet and can be tilted  $30^\circ$  from its horizontal position.

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460 SMZ-2  
SM-5

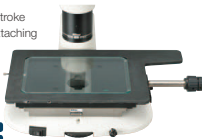
Can be used with the SMZ25 and SMZ18



### P-SXY XY Stage

The stage features an XY stroke of  $150\text{ mm} \times 65\text{ mm}$ . By attaching AZ100 stage adapters, it can be used for various applications. It can be used with both diascopic and episcopic illuminators.

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460



## Observation Attachments

Various observation accessories are available that utilize diascopic and episcopic illuminations. They can be used for samples that are difficult to observe using standard illumination.

### P-EFL Epi-fluorescence Attachment

Up to four epi-fluorescence filter cubes can be mounted. The fly-eye lens provides bright illumination up to the viewfield periphery.

SMZ1270/1270i  
SMZ800N



### P-DF LED Darkfield Unit

Equipped with the white light LED as the light source. Simply placing the unit on the stage enables darkfield observation.

SMZ1270/1270i  
SMZ800N  
SMZ745/745T  
SMZ660



### C-POL Polarizing Attachment

Simple polarizing observation is possible by placing the polarizer on the stage while the analyzer is attached to the tip of the objective lens.

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660



## Illumination Systems

### Ring Illuminator

Provides a cone of light from above the sample to the center, minimizing unwanted shadow. Suitable for observation of electronic substrates.



### C-FIR Plastic Fiber-optics Ring Illuminator

Illuminator is located away from microscope. It enables bright observation with high-intensity light without damaging sample with its heat.

SMZ1270/1270i SMZ800N SMZ745/745T  
SMZ660 SMZ445/460 SMZ-2  
SM-5



### LMS100 x 60-15W LED Ring Light

Color temperature is adjusted to  $6500\text{K} \pm 500\text{K}$  to provide stable illumination. Two types of covers are available. Anti-electrostatic type

SMZ1270/1270i SMZ800N SMZ745/745T  
SMZ660 SMZ445/460 SMZ-2  
SM-5



### SM-LW61Ji3 LED Ring Illuminator

Three types of covers are available (clear, diffuser and opaque white). Anti-electrostatic type

SMZ1270/1270i SMZ800N SMZ745/745T  
SMZ660 SMZ445/460 SMZ-2  
SM-5

\* G-08A60 Adapter is required.

### Arm Illuminator/Episcopic Illuminator

The direction and angle of the illumination can be changed with simple adjustments of the flexible arm.



### C-FID2 Double Arm Fiber Illuminator

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.

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460 SMZ-2  
SM-5



### C-FDF Flexible Double Arm Fiber Illumination Unit

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 fiber holder.

SMZ1270/1270i SMZ800N  
SMZ745/745T SMZ660  
SMZ445/460



### C-LSL LED Episcopic Illuminator

In combination with C-PSN Plain Stand/CN and C-PCSN Compact Stand/CN, illumination angle flexibility is possible from the back of the microscope. By attaching arms, flexible change of direction and angle of illumination is possible.

SMZ1270/1270i SMZ800N SMZ745/745T SMZ660  
SMZ445/460



### Coaxial Illuminator

Suitable for brightfield observation for high-reflectance flat surface samples such as polished metals and wafers.

### P-CI Coaxial Episcopic Illuminator

Coaxial illuminator for parallel optics-type stereo microscopes. Provides high-intensity illumination for the entire view field.

\*1/4"  $\lambda$  plate is required

SMZ1270/1270i SMZ800N



### G-ICIL LED Coaxial Episcopic Illuminator

Coaxial illuminator for Greenough-type stereo microscopes. Equipped with both coaxial episcopic and oblique illumination, which illuminates from behind the microscope.

SMZ745/745T SMZ660



Accessories

Stands



C-PSN Plain Stand/CN, C-PSCN Compact Stand/CN

Offers a comfortable work area and allows easy handling of samples. C-PSCN has a small base that saves desk space.



P-PS32 Plain Stand

Features a slim design with a ø180 mm stage plate and 160 mm width between the pillar and optical axis to boost working efficiency.



C-LED5 Hybrid LED Stand

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.

Type	Episcopic	Episcopic	Episcopic/Diascopic
Illumination method	—	—	Epi-oblique*, brightfield
Built-in filter	—	—	—
Fine focus knob	—	—	—
Observation magnification	With all objectives, at all zoom ranges		
Microscopes	SMZ1270/1270L, SMZ800N, SMZ745/745T, SMZ660, SMZ445/460	With all objectives, at all zoom ranges	

\* The illumination area is limited by conditions of use.



C-DS Diascopic Stand 5

Features a hand rest for comfortable operation. Used in conjunction with C-DSLU LED Unit for Dia Illumination Stand.



P-DSL32 LED Diascopic Illumination Stand

The OCC illumination system allows colorless and transparent samples to be observed in high relief. Compact slim-type base enhances operation efficiency.



P-DSF32 Fiber Diascopic Illumination Stand

Light source is located away from microscope, enabling bright observation with high-intensity light without damaging sample with its heat.

Type	Diascopic	Diascopic	Diascopic
Illumination method	Brightfield	Brightfield, OCC**	Brightfield, OCC**
Built-in filter	—	Not required (ø45 mm filter slot provided)	NCB11, ND4/16
Fine focus knob	—	Included	Included
Observation magnification	With all objectives, at all zoom ranges		
Microscopes	SMZ1270/1270L, SMZ800N, SMZ745/745T, SMZ660, SMZ445/460	0.5x objective is compatible with zoom magnifications higher than 1.5x.	

\*\* Conditions of use vary depending on objective in use.

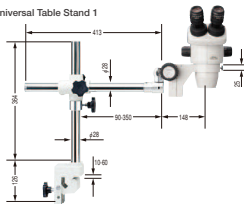
Universal Table Stands/Focusing Mounts

Universal Table Stands G-US1/G-US2

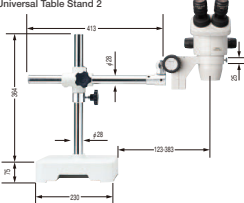
These stands are handy in microscopy with large samples not loaded onto the standard stand. The microscope zooming body is mounted to the stand arm via a focusing mount. The G-US1 is a table clamp type (table top thickness: 10 to 60 mm).

- Used in conjunction with the C-FMBN Focusing Mount BN on the SMZ1270/1270/800N/SMZ745/745T/660/445/460.
- Used in conjunction with the SM Focusing Mount and the G-USA SM US Adapter on the SMZ-2 and SM-5.
- Cannot be used with the SMZ1270/1270/800N when intermediate tube is mounted on these models.

G-US1 Universal Table Stand 1



G-US2 Universal Table Stand 2



Unit: mm

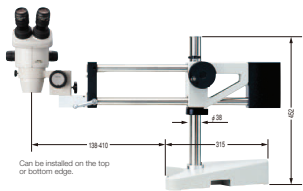
The image is a configuration sample with the SMZ745.

Universal Table Stand P

Not only can it be used for a large sample, but this extremely stable stand also easily accommodates intermediate tubes.

- Used in conjunction with the C-FMBN Focusing Mount AN on the SMZ1270/1270/800N/745/745T/660/445/460.
- Used in conjunction with the SM Focusing Mount on the SMZ-2 and SM-5.

Universal Stand P



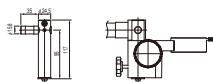
The image is a configuration sample with the SMZ745. Unit: mm

Specifications

	Universal Table Stand		
Model	G-US1	G-US2	P
Vertical cross travel	—	245mm	225mm
Horizontal cross travel	—	260mm	272mm
Weight (approx.)	4.4kg	23.0kg	30.0kg
C-FMBN Focusing Mount AN	—	○	—
C-FMBN Focusing Mount BN	—	—	○
C-FMBN Focusing Mount CN	—	—	—
SM Focusing Mount	○*	—	○

○: Possible \* G-USA Adapter is required

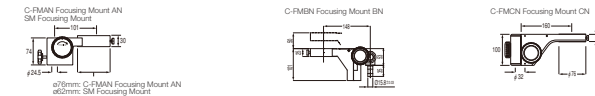
G-USA Adapter



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

Focusing Mounts

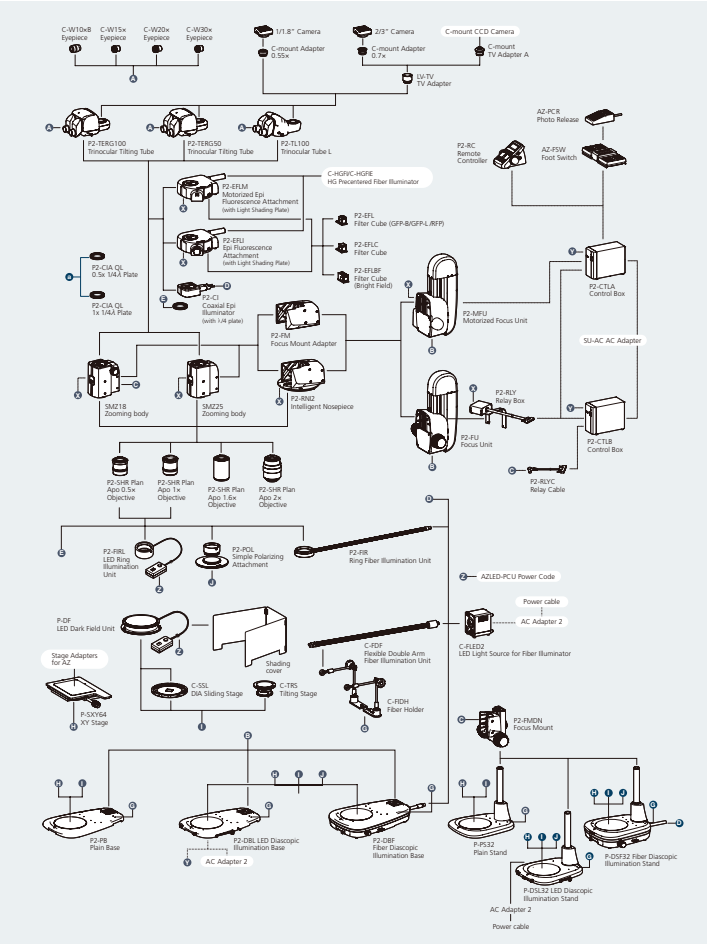
Various types of focusing mounts are available depending on use. They are used to incorporate stereo microscope bodies into IC borders or other devices (SM Focusing Mount is for SMZ-2 and SM-5). These mounts can also be used when attaching microscopes to Universal Table Stands.



Unit: mm

	C-FMBN Focusing Mount AN	C-FMBN Focusing Mount BN	C-FMBN Focusing Mount CN	SM Focusing Mount
Focusing area	40mm	50mm	50mm	40mm
Weight (approx.)	—	0.8kg	1.0kg	0.8kg
Antistatic function	○	○	—	—
Compatible microscopes	SMZ1270/1270/800N/745/745T/660/445/460			SMZ-2/SM-5

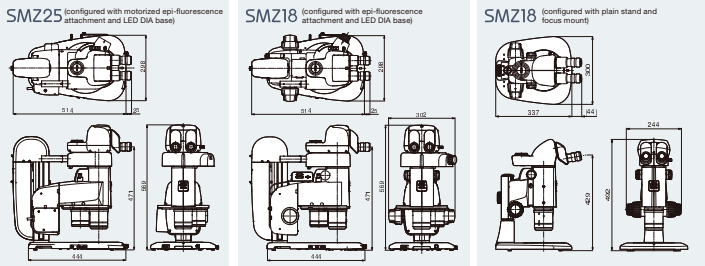
System Diagrams (SMZ25/SMZ18)



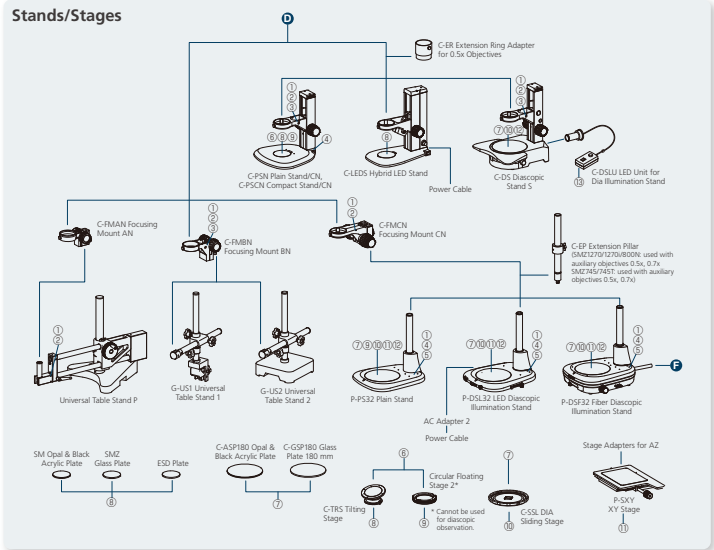
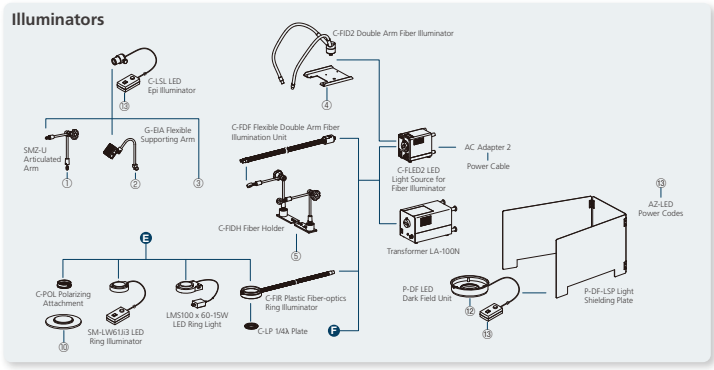
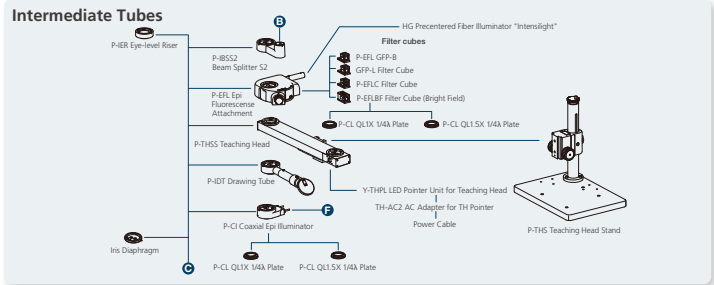
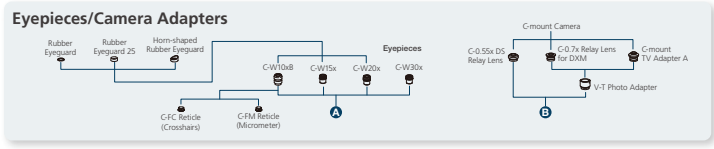
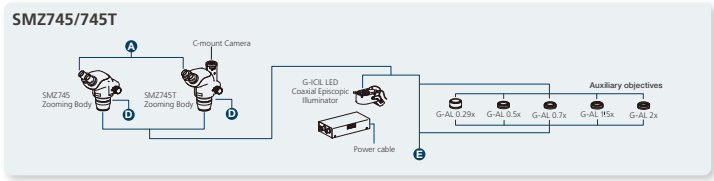
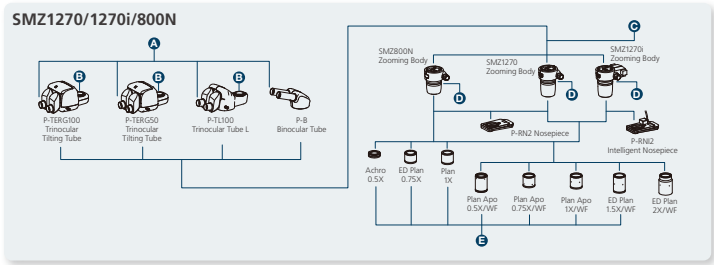
Specifications/Dimensions (SMZ25/SMZ18)

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	0.196, 60	0.15, 60	
P2-SHR Plan Apo 0.5x	0.078, 71	0.075, 71	
Total Magnification (using C-W100B eyepieces)	3.15-315x (depending on objective used)		
Eyepieces (F.O.V. mm)	3.15-270x (depending on objective used)		
Tubes (eyepiece/port)			
• C-W100B (22) • C-W 15x (16) • C-W 20x (12.5) • C-W 30x (7)			
• P2-TERG 100 Trinocular Tiling Tube (100/0 : 0/100)			
• P2-TERG 50 Trinocular Tiling 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 parafocal point)			
• P2-MFU Motorized Focus Unit (up 96 mm/down 4 mm)			
• P2-FU Focus Unit (up 37 mm/down 5 mm)			
Focus mount adapter/nosepiece			
• P2-FM Focus Mount Adapter			
• P2-RN2 Intelligent Nosepiece (2 objectives can be attached)			
Bases/stand			
• P2-PB Plain Base • P2-DRL LED Diascopic Illumination Base (OCC Illuminator built-in) • P2-DSF32 Fiber Diascopic Illumination Base			
• P2-PS32 Plain Stand (only for SMZ18) • P-DL32 LED Diascopic Illumination Stand (OCC Illuminator built in) (only for SMZ18)			
• P2-DSF32 Fiber Diascopic Illumination Stand (only for SMZ18)			
Stages			
• P2-SX164 Stage • C-SBL DIA Sliding Stage • C-TRS Tiling 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			
4 filter cubes mountable, fly-eye lens built-in			
• P2-EFLM Motorized Epi Fluorescence Attachment • P2-EFLI Epi Fluorescence Attachment			
Epi-fluorescence light sources			
• HG Precentered Fiber Illuminator Intensilight C-HQIE HG-C-HQFI HG (130W)			
Episcopic illuminators			
• P2-FRL LED Ring Illumination Unit			
Use with fiber light source			
• P2-CI Coaxial Epi Illuminator • P2-FIR Ring Fiber Illumination Unit			
• C-PDF Flexible Double Arm Fiber Illumination Unit			
Episcopic light source			
• C-FLED2 LED Light Source for fiber illuminator			
Weight (approx.)			
32 kg		30 kg	
(Motorized Epi Fluorescence Attachment configuration with Trinocular Tiling Tube, Motorized Focus Unit, Intelligent Nosepiece, LED DIA Base and Objectives 1x and 0.5x)		(Epi Fluorescence Attachment configuration with Trinocular Tiling Tube, Focus Unit, Intelligent Nosepiece, LED DIA Base and Objectives 1x and 0.5x)	
Power consumption (approx.)			
30W		10W	
(Motorized Epi Fluorescence Attachment configuration with Trinocular Tiling Tube, Motorized Focus Unit, Intelligent Nosepiece and LED DIA Base)		(Epi Fluorescence Attachment configuration with Trinocular Tiling Tube, Focus Unit, Intelligent Nosepiece and LED DIA Base)	

Dimensions



System Diagrams (SMZ1270/1270i, SMZ800N, SMZ745/745T)





Specifications

Parallel-optics type						
Model	SMZ25		SMZ18	SMZ1270	SMZ1270i	SMZ800N
Optical system	Parallel-optics type (zooming type)			Parallel-optics type (zooming type)		
Zoom ratio	25:1		18:1	12.7:1		8:1
Zoom range	0.63-15.75x		0.75-13.5x	0.63 – 8x		1 – 8x
Total magnification* (When coaxial episcopic illuminator is attached)	3.15-945x (12.5-472x)		3.75-810x (19-405x)	3.15 – 480x (depending on eyepiece and objectives) (with coaxial episcopic illuminator: 15 – 540x)		5 – 480x (depending on eyepiece and objectives) (coaxial episcopic illuminator: 22.5 – 540x)
Tubes	P2-TERG 100 Trinocular Tilting Tube, P2-TERG 50 Trinocular Tilting Tube, P2-TL100 Trinocular Tube L			P-B Binocular Tube, P-TL100 Trinocular Tube, P-TERG 100 Trinocular Tilting Tube, P-TERG 50 Trinocular Tilting Tube		
Eyepiece inclination	P2-TERG 100/50: 0°-30°, P2-TL100: 15°			P-B: 20° P-TL100: 15° P-TERG100/50: 0°-30°		
Interpupillary distance adjustment	P2-TERG 100/50: 50 mm or wider P2-TL100: 50-75mm			P-B: 48-75mm P-TL100: 50-75mm P-TERG100/50: 50 mm or wider		
Eyepieces	C-W10x8 (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) (with diopter adjustment)			C-W10x8 (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, P2-SHR Plan Apo 1x, P2-SHR Plan Apo 1.6x, P2-SHR Plan Apo 2x			Plan Apo 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF		ED Plan 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF, Plan 1x, ED Plan 0.75x, Achrom 0.5x
Working distance (with standard configuration or 1x objective)	60 mm			70 mm		78 mm
Weight (approx.)	32 kg (motorized Epi Fluorescence Attachment configuration)		10 kg (with Plain Stand and Ring LED set)	9.8 kg (with Binocular Tube + LED Discoptic Illumination Stand)	11.9 kg (with Trinocular Tilting Tube + LED Discoptic Illumination Stand)	6.8 kg (with Binocular Tube + 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)		Greenough type (zooming type)		Fixed type
Zoom ratio	7.5 : 1	6.3 : 1	4.4 : 1	4.3 : 1	5 : 1	—
Zoom range	0.67-6x	0.8-6x	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		Fixed		
Eyepiece inclination	45°	60°	45°	60°	45°	45°
Interpupillary distance adjustment	52-75mm		54-75mm	54-75mm	56-75mm	—
Eyepieces	C-W10x8 (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) (with diopter adjustment)	SM 10x8 (F.N. 21), SM 15x8 (F.N. 14), SM 20x8 (F.N. 12)		SM 10x8 (F.N. 21), SM 15x8 (F.N. 14), SM 20x8 (F.N. 12)	SM E10x8 (F.N. 23, standard), SM E15x8 (F.N. 14), SM 20x8 (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 0.77-1.05x (W.D. 102-88mm)	SM-AL 0.5x, 0.7x	SM-AL 0.5x (W.D. 181mm), 0.7x (W.D. 127.5mm)	AL5 (0.5x, W.D. 103mm), 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	100mm	77.5mm	100mm
Weight (approx.)	1.6kg (SMZ745 body) 1.6kg (SMZ745T body)	1.6kg (body)	1.0kg (body)	1.1kg (body)	1.6kg (body), 1.9kg (Stand)	0.9kg (body), 1.9kg (Stand)

\* Depending on eyepiece and objective used

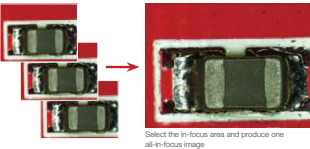
Related Products

Digital Cameras for Microscopes

PC-use Control Unit  
**DS-U3** + **NIS-Elements** Imaging Software

EDF (Extended Depth of Focus)

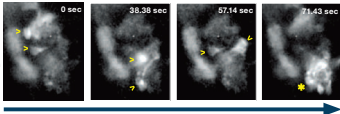
Captures multiple high-resolution images at different focal depths to create a single extended depth of focus or quasi-3D image.



Time lapse

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

(Using SHR Plan Apo 2x at zoom magnification of 6x with SM225 and camera head DS-Q1)  
Image courtesy of Joe Fetcho, Ph.D., Cornell University



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).

Standalone Control Unit  
**DS-L3**

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)
<input type="checkbox"/> Darkfield fluorescence	<input type="checkbox"/> Water/IC-chip
<input type="checkbox"/> Differential interference/phase contrast	<input type="checkbox"/> Metal/ceramic
<input type="checkbox"/> Brightfield	<input type="checkbox"/> Board
<input type="checkbox"/> HE staining	<input type="checkbox"/> FPD
<input type="checkbox"/> Enzyme labeled antibody method	

Camera Heads



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

Digital Microscope

**ShuttlePix**

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

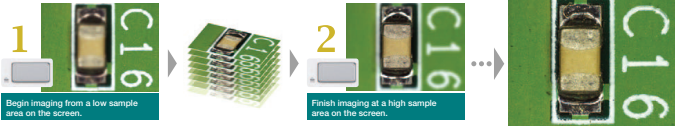


Easy imaging

- 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



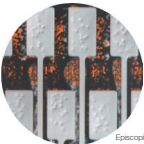
Multi-purpose Zoom Microscope

**AZ100**  
**AZ100M**

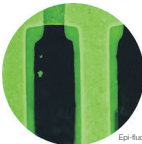
- Wide magnification range
- Various observation methods in the macro region are possible depending on samples and purpose.

Wide magnification range

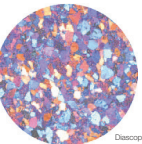
0.5x, 1x, 2x, 4x and 6x objectives are available. Used in combination with the AZ-W10x eyepiece and a coaxial episcopic illuminator, the AZ100 series covers the full range of 5x to 500x magnifications.



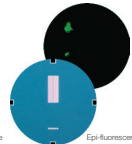
Episcopic DIC



Epi-fluorescence



Diascopic simple polarizing



Epi-fluorescence and diascopic DIC

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

