#### **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.

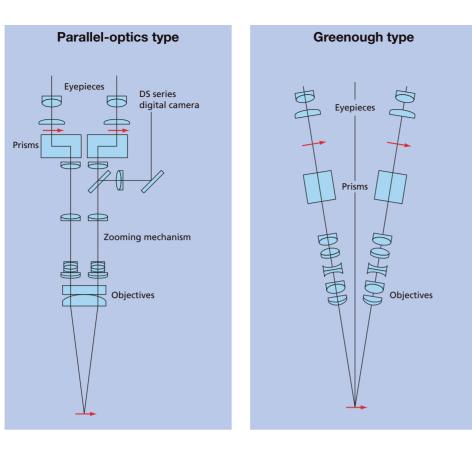
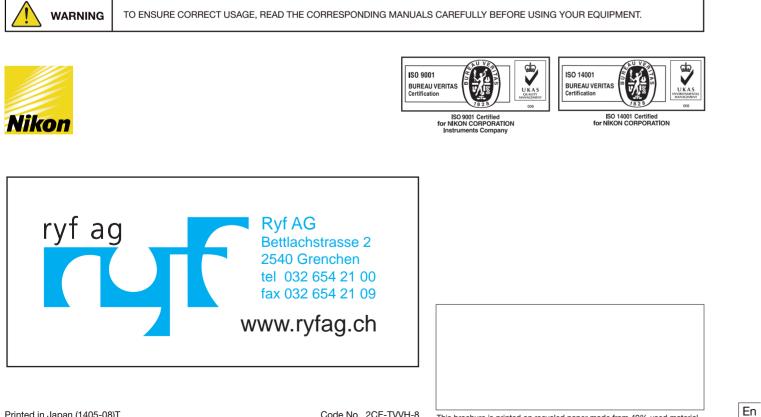


Image used in page 2 composite image courtesy of Julie C. Canman, Ph.D., Columbia University

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. May 2014. ©2007-14 NIKON CORPORATION







# Stereo Microscopes

# 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.

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#### 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

	SMZ25	SMZ18	SMZ1270/ 1270i	SMZ800N		
Optical system	Parallel-optics type					
Zoom ratio	25:1	18:1	12.7:1	8:1		
Zooming range	0.63-15.75×	0.75-13.5×	0.63-8×	1-8×		
Total magnification <sup>*1</sup> (with standard set <sup>*2</sup> )	3.15-945× (6.3-157.5X)	3.75-810× (7.5-135X)	3.15-480× (6.3-80X)	5-480× (10-80X)		
Working distance*3	60mm	60mm	70mm	78mm		
Image capture	0	0	0	0		
System expandability	0	0	0	0		
Embedded use	_	_	0	0		

SMZ745/ SMZ745T	2745/ 2745T SMZ660 SMZ445/ SMZ460 SMZ		SMZ-2	SM-5			
	Greenough type						
7.5:1	6.3:1	4.4:1 / 4.3:1	5:1	-			
0.67-5×	0.8-5×	0.8-3.5× / 0.7-3×	0.8-4×	—			
3.35-300× (6.7-50X)	4-300× (8-50X)	4-70× (8-35X)/ 3.5-60× (7-30X)	4-120× (8-40X)	10-60× (20X)			
115mm	115mm	100mm	77.5mm	100mm			
○ (SMZ745T)	_	_	_	_			
_	_	_	_	_			
0	0	0	0	0			

\*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

Accessories (for SMZ1270/1270i, SMZ800N, SMZ745/745T, SMZ660, SMZ445/460, SMZ-2, SM-5	5)
<ul><li>Objectives, Auxiliary Objectives</li><li>Nosepieces, Tubes, Eye-level Riser,</li></ul>	18
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## 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

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



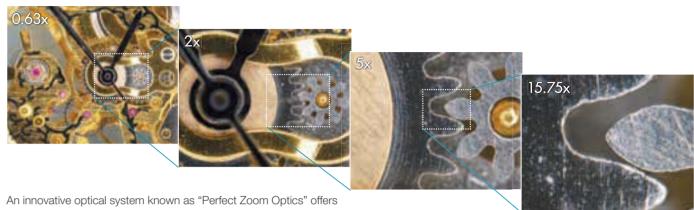
SMZ18 Manual zoom model providing advanced optical performance and incredibly bright fluorescence at an attractive price

	the SMZ series	fluorescence at an attractive price	
Model	SMZ25	SMZ18	
Туре	Motorized zoom	Manual zoom	
Observation	Brightfield/Darkfield/Fluor	escence/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	270×*1	
Maximum FOV	ø70 mm*2	ø59 mm*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

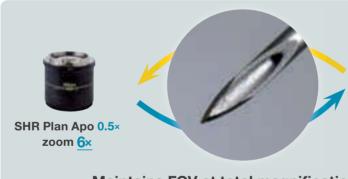
### Remarkable resolution and the world's widest zoom range

#### 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



Maintains FOV at total magnification of  $3_{\times}$ 

#### Superior resolution never before seen on a stereo microscope SMZ25 SMZ18

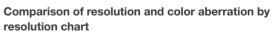
Newly developed SHR (Super High Resolution) Plan Apo series objective offers a resolution of 1100LP/mm (observed value, using SHR Plan Apo 2x at maximum zoom). The 0.5x, 1x, or 1.6x lower magnification objectives deliver a bright field of view and brilliant images with true-to-life colors.

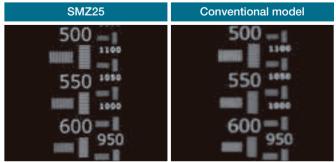






ALZ automatically adjusts the zoom factor to maintain the same field of view when switching objective lenses. This function enables seamless switching between whole organism imaging at low magnifications and detailed imaging at high magnifications.





# Parallel-optics type

### Bright, high-contrast fluorescent images (SMZ25) (SMZ18)

#### Enhanced brightness and uniform illumination in a low magnification range

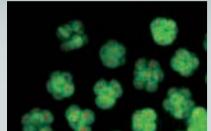
The SMZ25 series is the first stereo microscope in the world to use a fly-eye lens on an epi-fluorescence attachment. This ensures bright, uniform illumination even at low magnifications across a large field of view.

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

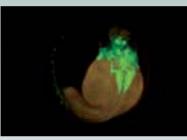
Nikon has succeeded in improving the signal and reducing noise in fluorescent images by using a short-wavelength, high-transmission Fluor lens. This enables observations of cell division and samples with weak fluorescence, both of which are difficult using conventional stereo microscopes.

### New epi-fluorescence attachment Lens lens aht source Fly-eye lens uniformly illuminates the entire field of view

#### 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)



Board

(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



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 $\bigcirc$ 

### 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 Manual focus unit • Motorized epi-fluorescence set (control box A) • Manual epi-fluorescence set (relay box and control box B) DS-L3 NIS-Flements DS-1.3 NIS-Flements Zoom magnification  $\bigcirc$  $\bigcirc$ Focusing \_ \_

 $\bigcirc$ 

 $\bigcirc$ 

 $\bigcirc$ 

## Improved observation efficiency

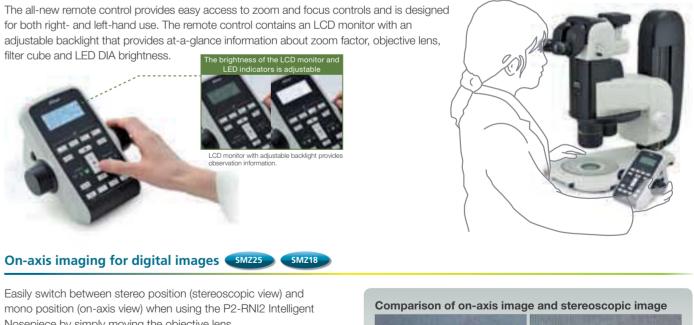
#### Easy-to-use OCC illumination SMZ25 SMZ18

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.

#### User-friendly remote control SMZ25



mono position (on-axis view) when using the P2-RNI2 Intelligent Nosepiece by simply moving the objective lens.

For other combinations, please confirm with Nikon.

Fluorescence illuminator (light intensity control)

Objective (with nosepiece) Diascopic LED illumination stand

(ON/OFF, light intensity control)

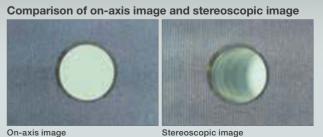
\* With NIS-Elements F (Free package), functions above are not available. Use NIS-Elements D/Br/Ar

Filter cube



#### 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.



## Parallel-optics type

#### Stereo Microscope

# 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.

SMZ1270i

The same as the SMZ1270 but equipped with

intelligent functions found in superior models

(SMZ1270i with a trinocular tilting tube and nosepiece)

### 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.



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

### 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 onaxis 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



**SMZ800N** Affordable model with improved operability and basic performance

### **Highest-in-class zoom ratio**

#### Wide zoom range

The SMZ1270/1270i offers the highestin-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.

#### Wide viewfield of SMZ1270/1270i



0.63x zoom

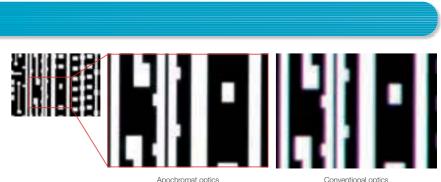
8x zoon

#### Newly developed objectives

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

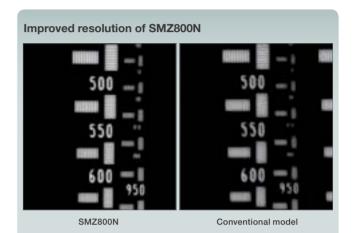
### **High-quality images**

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.





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





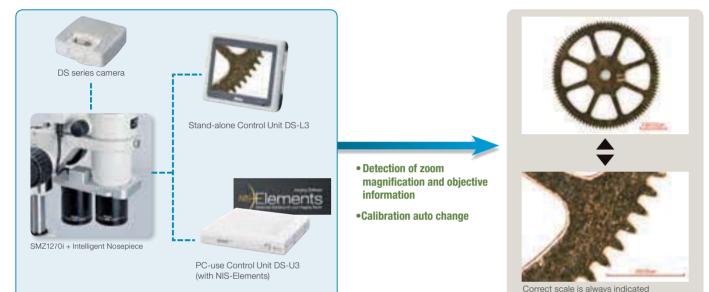
(captured with SMZ1270+Plan Apo 1x/WF)

Conventional ontice

### Easy to get results

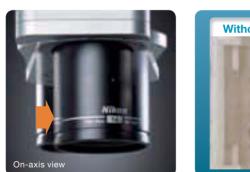
#### Intelligent function for status readout SMZ12701

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-RNI2 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

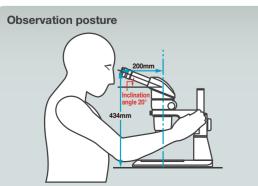
The double nosepiece offers easy onaxis imaging, enabling observation of the bottom of holes, accurate simple measurement and extended depth of focus (EDF) imaging without distortion.





#### **Ergonomic design**

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





With the LED Diascopic Illumination Stand and Fiber Diascopic Illumination Stand, focus control during observation is possible using the dial in front of the base.

### 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 Fibers to suit numerous routine inspections and a range of research and development applications.

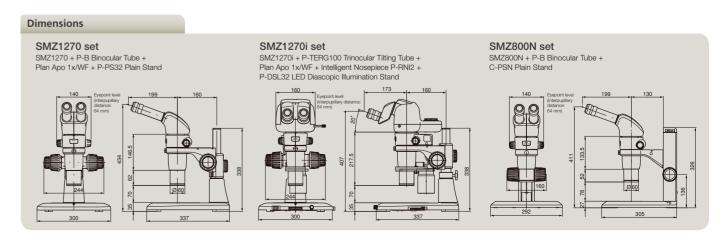




OCC illumination boosts the contrast of transparent sample structures. Hemicentrotus pulcherrimus in two-cell stage

	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 objec (with coaxial episcopic illuminator: 15 – 540x)	tives)	5 – 480x (depending on eyepiece and objectives) (coaxial episcopic illuminator: 22.5 – 540x)	
Tubes	Eyepiece inclination: 20° (P-B Binocular Tube) / 15° (P-TL100 Trinocular Tube) / 0°-30° (P-TERG100 Trinocular Tilting Tube, P-TERG50 Trinocular Tilting Tube)			
Eyepieces	C-W10xB (F.N. 22), C-W15x (F.N. 16), 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, Achro 0.5x	
Working distance	70 mm (with Plan Apo 1x/WF)		78mm (with Plan 1x)	
Weight (approx.)		11.9 kg (with P-TERG100 Trinocular Tilting Tube + P-DSL32 LED Diascopic Illumination Stand)	6.8 kg (with P-B Binocular Tube + C-PSN Plain Stand)	

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



Semiconductor

Brain of adult drosophila excited with GEP Image courtesy of Hokto Kazama, Ph.D., Circuit Mechanisms of Sensory Perception, Brain Science Institute, RIKEN



With the LED Diascopic Illumination Stand and Fiber Diascopic Illumination Stand, image contrast under OCC illumination can be easily adjusted.

# 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.



SMZ745T (with a DS series digital camera)

#### 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

#### 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.

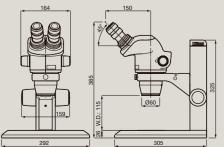
Anti-electrostaic SMZ745 SMZ745T SMZ660

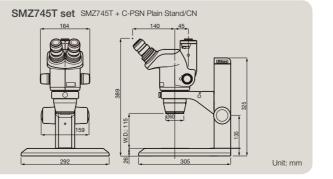
Static electricity built up within the microscope is discharged almost instantly, ensuring higher yields. Antistatic function: 1000–10V, discharge within 0.2 sec.

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 (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), G-AL ERG 0.77–1.06x (W.D. 102–48mm)		
Working distance	115 mm (standard)		
Airtight construction	JIS Degrees of protection provided by enclosures IPX1	-	
Weight (approx.)	1.6 kg (body)	1.8 kg (body)	
F.N.: Field Number			

#### Dimensions

SMZ745 set SMZ745 + C-PSN Plain Stand/CN





#### Greenough Type Stereo Microscope

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. 211 mm), 0.7x (W.D. 150 mm), 1.5x (W.D. 61 mm), 2x (W.D. 43.5 mm) G-AL ERG 0.77–1.06x (W.D. 102–48 mm)
Working distance	115 mm (with standard configuration)
Airtight construction	JIS Degrees of protection provided by enclosures IPX1
Weight (approx.)	1.6 kg (body)

#### Greenough Type Stereo Microscope

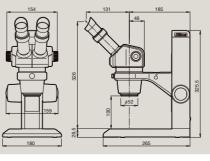
performance

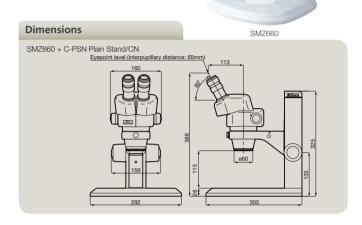
- The SMZ445 has a 45° eyepiece tube inclination, and the SMZ460 has a 60° eyepiece tube inclination, which is ideal for embedded use.
- Compact design with ease-of-use and high optical performance.
- ESD protection guards against electrostatic damage to samples.

Specifications		C-PSN Plain Stand/CN
	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	4-70×	3.5-60×
Tube	Eyepiece inclination: 45° Interpupillary distance adjustment: 54–75 mm Eyepiece diopter adjustable for both eyes	Eyepiece inclination: 60° 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	100 mm (standard)	
Weight (approx.)	1.0 kg (body)	1.1 kg (body)

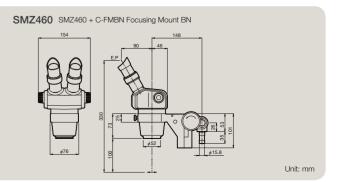
#### Dimensions

SMZ445 SMZ445 + C-PSCN Compact Stand/CN









# Greenough type

#### Greenough Type Stereo Microscope

# SMZ-2

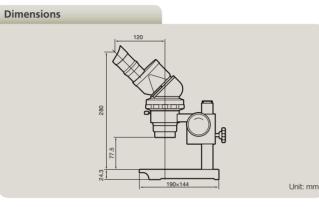
High-resolution optics ideal for inspection, assembly, and measurement

• Compact design with horizontally positioned zooming ring (rotation: 90°) • Eyepiece inclination of 45° for comfortable observation



SMZ-2 Optical system Greenough type (zooming type) Zooming ratio 0.8-4x Zooming range Total magnification 4-120x (Depending on eyepiece and auxiliary objective used.) Tube Evepiece inclination: 45° Interpupillary distance adjustment: 56-75 mm SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM 20xB (F.N. 12), Eyepieces (with C-W30x (F.N. 7) diopter adjustment) Auxiliary objectives AL5 (0.5x), AL7 (0.7x) Working distance 77.5 mm (with standard configuration) 1.6 kg (body), 1.9 kg (stand) Weight (approx.)

**Specifications** 



#### Greenough Type Stereo Microscope

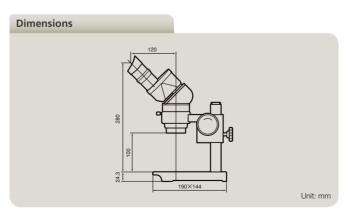
## SM-5

#### Standard stereo microscope with fixed objective magnification

 Objective has fixed magnification of 2x. Total magnification ranges from 10x to 60x depending on evepiece and auxiliary objective used.



Specifications			
	SM-5		
Optical system	Greenough type (fixed type)		
Objectives	2×		
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 20xB (F.N. 12), C-W30x (F.N. 7)		
Auxiliary objectives	AL5 (0.5x), AL7 (0.7x)		
Working distance	100 mm (standard)		
Weight (approx.)	0.9 kg (body), 1.9 kg (stand)		



## 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 Diascopic Illumination Base

#### Focus Unit

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



#### **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 3 P2-SHR Plan Apo 1.6x

P2-SHR Plan Apo 1x P2-SHR Plan Apo 2x

#### 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.



### Stand/Focus Mount SMZ18

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



		SHR Plan Apo 0.5×	SHR Plan Apo 1×	SHR Plan Apo 1.6×	SHR Plan Apo 2×
Maximum	SMZ25	0.078	0.156	0.25	0.321
NA	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 eyelevel trinocular tube. All tubes have a camera port for seamless integration with the Digital Sight series.





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

#### **Nosepiece/Focus Mount Adapter**

Both single and double nosepieces are available.



P2-BNI2 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-SXY XY Stage



### **Remote Control**

Darkfield viewing is

possible simply by

to the base.

2 Shading cover

attaching the darkfield unit

P-DF LED Dark Field Unit

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.

**Darkfield Observation Accessory** 



P2-RC Remote Controller



**Polarizing Observation Accessory** 

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





P2-EFLM Motorized Epi Fluorescence Attachment Combinations with SMZ25 2 Light shading Plate (comes with Fluorescence Attachment) 3 P2-EFL Filter Cube (GFP-B/GFP-L/RFP) P2-EFLBF Filter Cube (Bright Field) 6 P2-CTLA Control Box 6 P2-RC Remote Controller

7 P2-CIA QL1x/0.5x 1/4λ Plate

#### **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.

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

#### **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.

P2-CI Coaxial Epi Illuminator C-FLED2 LED Light Source for Fiber Illuminator 3 P2-CIA QL1x/0.5x 1/4 λ Plate



Combinations with SMZ18

## Manual Epi-fluorescence Set An easy-to-use manual model for Nikon's newly developed high-performance epifluorescence attachment.



 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) P2-CTLB Control Box 6 P2-CIA QL1x/0.5x 1/4 λ Plate

#### Combinations with SM718

#### **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).

- P2-FIR Ring Fiber Illumination Unit
- 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.

P2-FIRL LED Ring 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 flatness and chromatic aberration correction.



Plan Apo 0.5x/WF 2 Plan Apo 0.75x/WF 3 Plan Apo 1x/WF





Objectives		Working distance (mm)	Zoom magnification	NA	Actual FOV*1
	0.5x/WF	82	0.63x	0.0095	69.8
	0.5X/ WF	02	8x	0.0525	5.5
Plan	0.75×////E	0.75x/WF 107 -		0.0143	46.6
Аро	0.75X/WF			0.0788	3.7
	1x/WF 70		0.63x	0.0190	2.6
		70	8x	0.1050	2.75
	1.5x/WF	44	0.63x	0.0285	23.3
ED	1.5X/WF 44		8x	0.1575	1.8
Plan		0.63x	0.0380	17.5	
	2x/WF 35		8x	0.2100	1.4

\*1 With C-W10xB eveniece

Obje	ectives Working distance (mm)		Zoom magnification	NA	Actual FOV*1
Achro	0.5x	189	1x	0.0145	44
ACIIIO	0.5x	109	8x	0.0525	5.5
ED Plan	0.75x	117	1x	0.0218	29.3
ED Plan	0.75X	117	8x	0.0788	3.7
Plan	1x	70	1x	0.0290	22
Plan	IX	78	8x	0.1050	2.75

\*1 With C-W10xB eyepiece

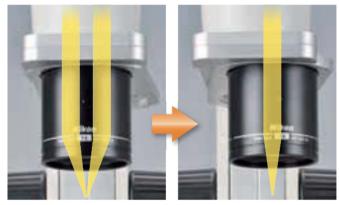
#### **Auxiliary Objectives**

Microscopes	Auxiliary objectives	Working distance (mm)
	G-AL ERG 0.77–1.06x	102–48
	G-AL 0.5x	211
SMZ745/745T SMZ660	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
31012443/400	AL7 (0.7x)	127.5
SMZ-2	AL5 (0.5x)	103
51112-2	AL7 (0.7x)	95
SM-5	AL5 (0.5x)	175
0-1410	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.



Stereoscopic view

On-axis view

#### **Tubes/Eye-level Riser** SMZ1270/1270i SMZ800N

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.



#### Intermediate Tubes

SMZ1270/1270i SMZ800N

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

#### P-IBSS2 Beam Splitter S2

#### P-THSS Teaching Head

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.

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-RN2 Nosepiece SMZ1270/1270i SMZ800N

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

#### P-RNI2 Intelligent Nosepiece SMZ12701

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



#### 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-TERG100 Trinocular Tilting Tube

#### **P-IER Eye-level Riser**

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



Simultaneous observation of the same

#### **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**

SM7445/460

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

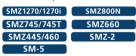
#### C-SSL Dia-sliding Stage

Used for diascopic observation, this sliding stage can be easily moved in the desired direction simply with a light push. Travel range is within ø38mm. SMZ1270/1270i SMZ800N SMZ745/745T SMZ660

Can be used with the SMZ25 and SMZ18

#### **C-TRS Tilting Stage**

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



Can be used with the SMZ25 and SMZ18

#### **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 flyeye lens provides bright illumination up to the viewfield periphery.

#### SMZ1270/1270i SMZ800N



#### **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



#### **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 ø40mm.



Can be used with the SMZ25 and SMZ18

#### P-SXY XY Stage

The stage features an XY stroke of 150 mm x 65 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 SM7445/460

#### P-DF LED Darkfield Unit

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

SMZ1270/1270i SMZ800N SMZ745/745T SMZ660



#### **Illumination Systems**

#### **Ring Illuminator**

observation of electronic substrates.



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

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

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

SM-5

electrostatic type

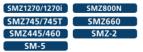
#### Arm Illuminator/Episcopic Illuminator

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.





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







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



\* G-OBA60 Adapter is required



It enables bright observation with high-intensity light without damaging sample with its heat. The direction and angle of illumination can be

In combination with C-PSN Plain Stand/CN and C-PSCN 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

#### **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-LEDS 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.

Туре	Episcopic	Episcopic	Episcopic/Diascopic
Illumination method	_	-	Epi-oblique*, brightfield
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

SMZ1270/1270i SMZ800N SMZ745/745T SMZ660 SMZ445/460 Microscopes P-PS32 can be used with the SMZ25 and SMZ18.

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



**C-DS Diascopic Stand S** 

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 slimtype 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.

Туре	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	0.5x objective is compatible with zoom magnifications higher than 1.5x.	0.5x objective is compatible with zoom magnifications higher than 1.5x.
Microscopes	SMZ1270/1270i SMZ800N SMZ745/745T	SMZ660 SMZ445/460	

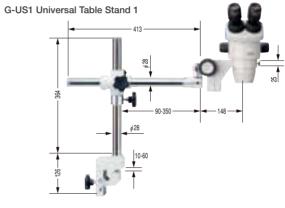
\*\* Conditions of use vary depending on objective in use.

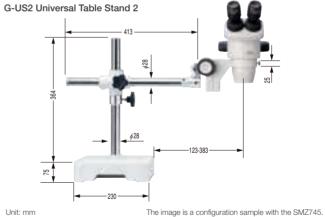
#### **Universal Table Stands/Focusing Mounts**

#### 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).

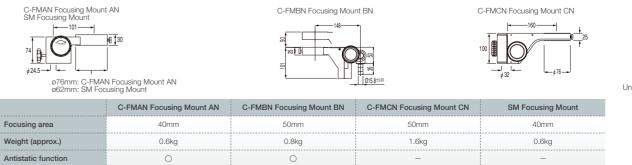
- Used in conjunction with the C-FMBN Focusing Mount BN on the SMZ1270/1270i/800N/SMZ745/745T/660/445/460.
- Used in conjunction with the SM Focusing Mount and the G-USA SM US Adapter on the SMZ-2 and SM-5.
- Cannot be used with the SMZ1270/1270i/800N when intermediate tube is mounted on these models





#### **Focusing Mounts**

Various types of focusing mounts are available depending on use. They are used to incorporate stereo 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.



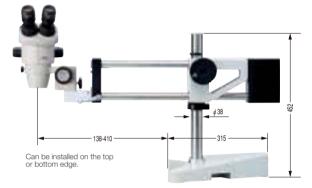
	C-FMAN Focusing Mount AN	C-FMBN Focusing Mount BN	C-
ocusing area	40mm	50mm	
Veight (approx.)	0.6kg	0.8kg	
Intistatic function	0	0	
Compatible microscopes	SMZ	1270/1270i/800N/745/745T/660/445/	460

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

Universal Stand P



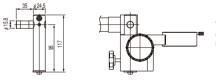
The image is a configuration sample with the SMZ745. Unit: mm

Specifications			
	Universal Table Stand		
Model	G-US1	G-US2	Р
Vertical cross travel	245	imm	229mm
Horizontal cross travel	260mm		272mm
Weight (approx.)	4.4kg	23.0kg	30.5kg
C-FMAN Focusing Mount AN	-	_	0
C-FMBN Focusing Mount BN	(	C	-
C-FMCN Focusing Mount CN	-	_	—
SM Focusing Mount	(	)*	0

SMZ-2/SM-5

○: Possible \* G-USA Adapter is required

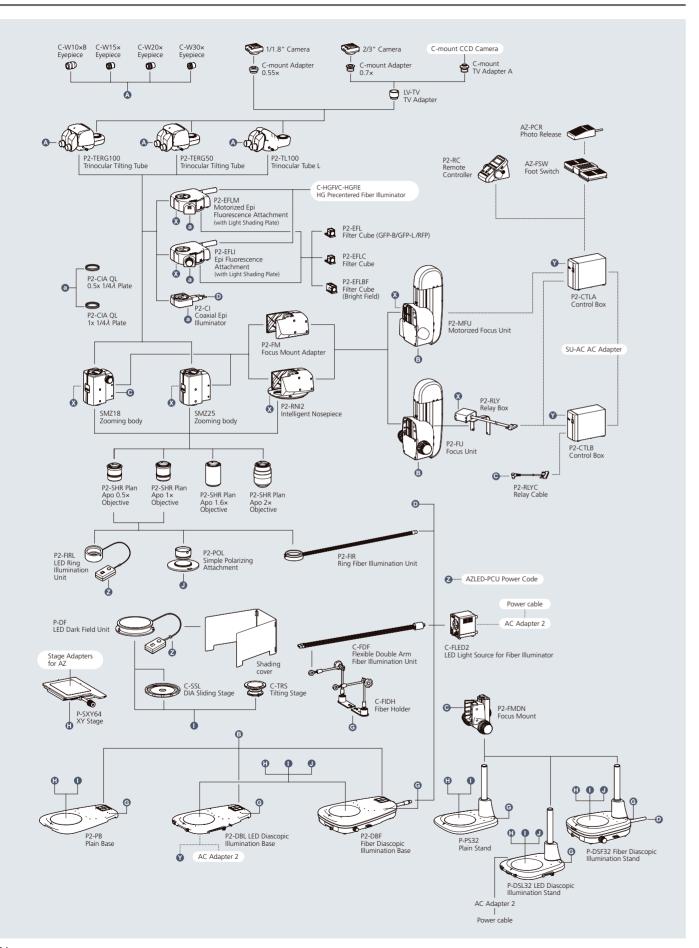
#### G-USA Adapter



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

Unit: mm

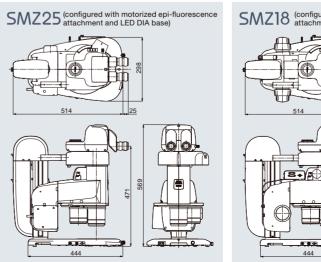
## System Diagrams (SMZ25/SMZ18)

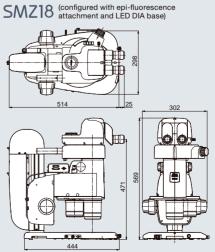


## **Specifications/Dimensions** (SMZ25/SMZ18)

	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)	• C-W10xB (22) • C-W 15x (16) • C-W 20x (12.5) • C-W 30x (7)			
Tubes (eyepiece/port)	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)	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> <li>P2-FM Focus Mount Adapter</li> <li>P2-RNI2 Intelligent Nosepiece (2 objectives can be attached)</li> </ul>	<ul> <li>P2-FM Focus Mount Adapter</li> <li>P2-RNI2 Intelligent Nosepiece (2 objectives can be attached)</li> <li>P2-FMDN Focus Mount (for P-PS32/P-DSL32/P-DSF32 stand)</li> </ul>		
Bases/stand	P2-PB Plain Base • P2-DBL LED Diascopic Illumination Base (OC     P-PS32 Plain Stand (only for SMZ18) • P-DSL32 LED Diascopic Ill     P-DSF32 Fiber Diascopic Illumination Stand (only for SMZ18)			
Stages	P-SXY64 Stage     C-SSL DIA Sliding Stage     C-TRS Tilting Stage			
Observation methods	Bright Field, Epi Fluorescence, Simple Polarizing (with P2-POL Simp Oblique Lighting	le Polarizing Attachment), Dark Field (with P-DF LED Dark Field Unit		
Epi-fluorescence attachments	4 filter cubes mountable, fly-eye lens built-in			
	P2-EFLM Motorized Epi Fluorescence Attachment     P2-EFLI Ep	i Fluorescence Attachment		
Epi-fluorescence light sources	HG Precentered Fiber Illuminator Intensilight C-HGFIE HG/C-HGFI	HG (130W)		
	P2-FIRL LED Ring Illumination Unit	P2-FIRL LED Ring Illumination Unit		
Episcopic illuminators	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	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 an Objectives 1x and 0.5x)		
Power consumption (approx.)	30W (Motorized Epi Fluorescence Attachment configuration with Trinocula Tilting Tube, Motorized Focus Unit, Intelligent Nosepiece and LED DIA Base)	ar (Epi Fluorescence Attachment configuration with Trinocular Tiltin Tube, Focus Unit, Intelligent Nosepiece and LED DIA Base)		

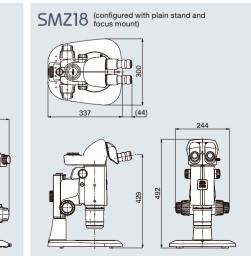
### Dimensions



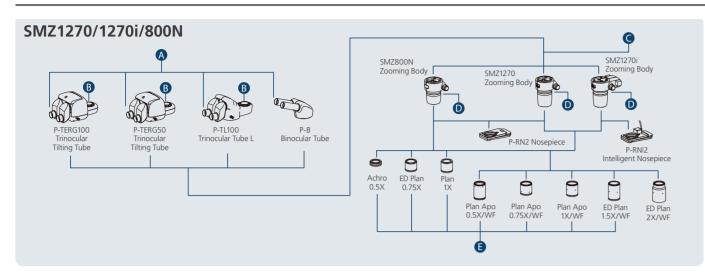


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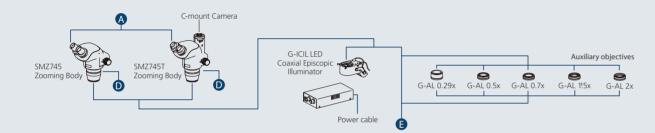
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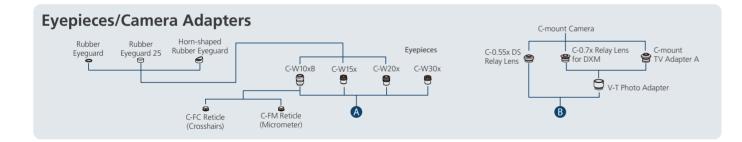


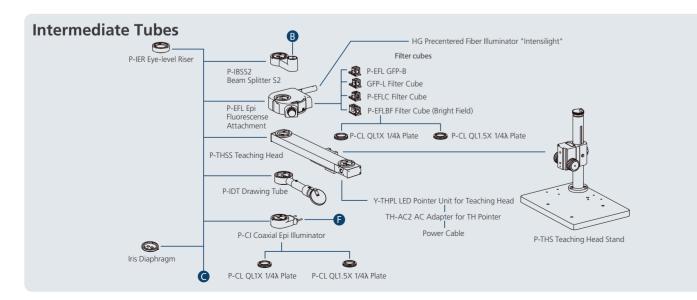
### System Diagrams (SMZ1270/1270i, SMZ800N, SMZ745/745T)

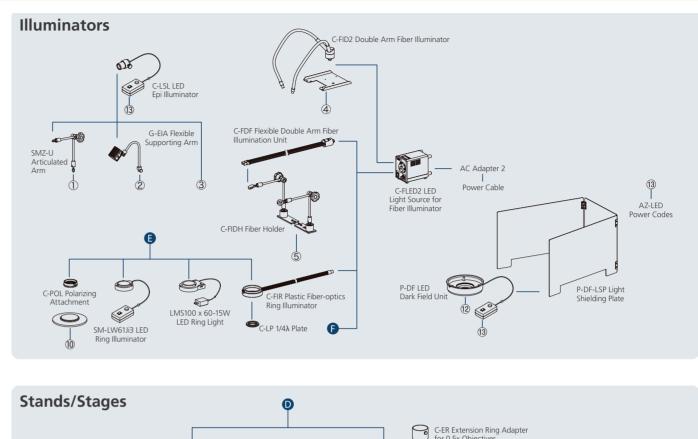


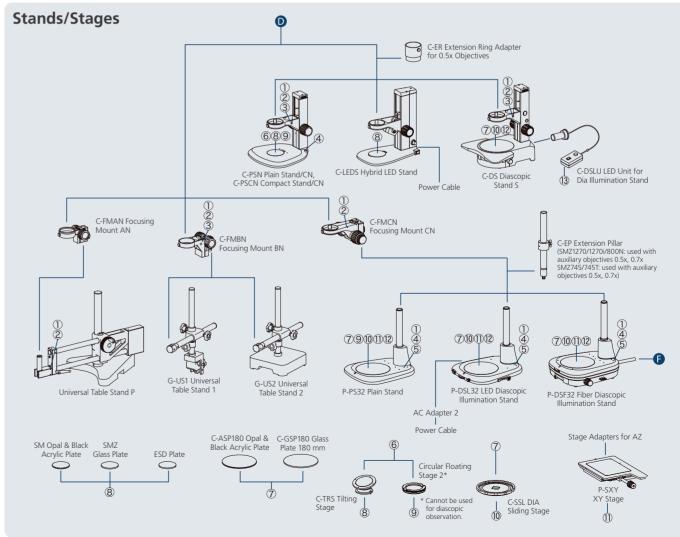
SMZ745/745T











## 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 (with coaxial episcopic illuminator: 15		5 – 480x (depending on eyepiece and objective (coaxial episcopic illuminator: 22.5 – 540x)
Tubes	P2-TERG 100 Trinocular Tilting Tube, P2-TERG 50 Trinocular Tilting Tube, P2-TL	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-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) (with diopter adjustment)		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	ives 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 Ap ED Plan 1.5x/WF, ED Plan 2x/WF, Plan 1x, ED F
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 Diascopic Illumination Stand)	11.9 kg (with Trinocular Tilting Tube + LED Diascopic Illumination Stand)	6.8 kg (with Binocular Tube + Plain Stand)

\* Depending on eyepiece and objective used

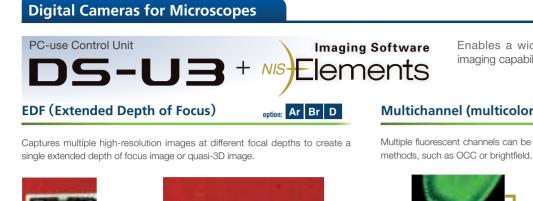
#### Greenough type

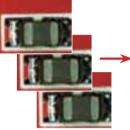
Model	SMZ745/745T	SMZ660	SMZ445	SMZ460	SMZ-2	SM-5
Optical system	Greenough type (zooming type) Trinocular Tube (SMZ745T)	Greenough type (zooming type)		Greenough type (zooming type)		Fixed type
coom ratio	7.5 : 1	6.3 : 1	4.4 : 1	4.3 : 1	5 : 1	_
oom range	0.67–5x	0.8–5x	0.8–3.5x	0.7–3x	0.8–4x	-
otal magnification*	3.35–300x	4–300x	4–70x	3.5–60x	4–120x	10–60x
ubes	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	-
yepieces	C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. (with diopter adjustment)	12.5), C-W30x (F.N. 7)	SM 10xB (F.N. 21), SM 15xB (F.N. 14), SM 20xB (F.N. 12)	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), S	M 20xB (F.N. 12), C-W30x (F.N. 7)
bjectives	-	_	-	-	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	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)
Vorking distance (with standard configuration or 1x objective)	115mm		100mm	100mm	77.5mm	100mm
Veight (approx.)	1.6kg (SMZ745 body) 1.8kg (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

SMZ800N
epiece and objectives) pr: 22.5 – 540x)
ilting Tube
o 0.75x/WF, Plan Apo 1x/WF,
2x/WF, Plan 1x, ED Plan 0.75x, Achro 0.5x

## **Related Products**





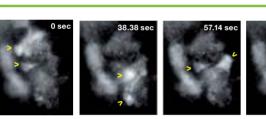


Select the in-focus area and produce one all-in-focus image

Time lapse

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

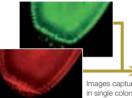
> (Using SHR Plan Apo 2x at zoom magnificatio of 9x with SMZ25 and camera head DS-Qi1) Image courtesy of Joe Fetcho, Ph.D., Cornel University



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

#### Multichannel (multicolor)

Multiple fluorescent channels can be captured in conjunction with other imaging



Overlapping image with all colors

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



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

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

#### Various tools

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

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

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.





#### **Digital Microscope**

# ShuttlePix

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



#### One touch EDF imaging



#### Others

Handy set

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

#### Multi-purpose Zoom Microscope



• Wide magnification range 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.



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

12.7

DS-Ri1

#### 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.



#### Simple stand set

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



· Various observation methods in the macro region are possible

#### 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

