Research Stereo Microscope

SMZ25 SMZ18



Alker SV/218

Live zebrafish expressing GFP- and RFP-neurons, imaged with Nikon's latest research stereo microscope, the SMZ25 (fluorescence and OCC). Image courtesy of Joe Fetcho, Ph.D., Cornell University.

Discover a New Evolution Giant Step Forward in Stereo Microscopy

Traditional boundaries between scientific fields such as molecular biology and developmental biology are rapidly disappearing as researchers seek to connect findings at the molecular level to those derived from cellular, tissue, and organismal studies. Fields including molecular biology, cell biology, neurobiology, embryology, developmental biology and systems biology have increasing needs for imaging systems that span spatial scales from single cells to whole organisms.

With these demands in mind, Nikon has developed an all new stereo microscope that features a large zoom ratio of 25:1, high resolution and exceptional fluorescence transmission capability.

This latest edition to the SMZ series represents a landmark in stereo microscope evolution - one that guarantees your research will be elevated to the next level.

World's largest zoom range and highest resolution in the SMZ series

- 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 (Super High Resolution) Plan Apo 1x objective and SMZ25 zooming body

Bright and 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 result in significantly improved signal to noise ratio and crystal clear fluorescent images

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 the generation of EDF 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 accommodate a variety of observation methods



RIKEN Brain Science Institute

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

	Motorized zoom	Manual zoom
Zooming observation	BF/DF/FL/Simple polarizing	BF/DF/FL/Simple polarizing
Zoom ratio	25:1	18:1
Magnification range	0.63x ~ 15.75x	0.75x ~ 13.5x
Maximum magnification	315x* ¹	270x* ¹
Maximum FOV	ø70mm*2	ø59mm* ²
Maximum NA of objective	0.312* ³	0.3 ^{*3}

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*1: Using SHR Plan Apo 2x/C-W 10x *2: Using SHR Plan Apo 0.5x/C-W 10x *3: Using SHR Plan Apo 2x



Wide range of available accessories

Epi-fluorescence light set

Motorized epi-fluorescence light set

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





Combinations

with SMZ25

1 P2-EFLM Motorized Epi Fluorescence Attachment

2 Light shading Plate (comes with Fluorescence Attachment)

3 P2-EFL Filter Cube (GFP-B/GFP-L/RFP)

4 P2-EFLBF Filter Cube (Bright Field, with $\lambda/4$ plate)

6 P2-RC Remote Controller P2-CTLA Control Box

Manual epi-fluorescence light set

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





with SMZ18

 P2-EFLI Epi Fluorescence Attachment Combinations 2 Light shading Plate (comes with Fluorescence Attachment) 8 P2-EFL Filter Cube (GFP-B/GFP-L/RFP) **4** P2-EFLBF Filter Cube (Bright Field, with $\lambda/4$ plate) 6 P2-CTLB Control Box

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.

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



Combinations with SMZ18

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Coaxial illuminator

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

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

Darkfield observation accessory

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

P-DF LED Dark Field Unit 2 Shading cover



Ring Fiber Illumination Unit

Fiber Illuminator

2 C-FLED2 LED Light Source for

Ring fiber illumination set

illumination unit that effectively

captures images (can be used

with 1x and 0.5x objective

lenses).

1 P2-FIR

This ring fiber illumination

set features an episcopic



Ring LED illuminator is equipped with high-intensity and long-life LEDs. The illuminator's dial adjusts the intensity of the white LED.

1 P2-FIRL LED Ring Illumination Unit



Combinations

with SMZ18

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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

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
Aperture diaphragm	Zooming body built-in	Zooming body built-in
Objectives NA, WD (mm)		
• P2-SHR Plan Apo 2x	0.312, 20 (with a correction ring for water 0 to 3mm in depth)	0.3, 20 (with a correction ring for water 0 to 3mm in depth)
• P2-SHR Plan Apo 1.6×	0.25, 30	0.24, 30
• P2-SHR Plan Apo 1×	0.156, 60	0.15, 60
• P2-SHR Plan Apo 0.5×	0.078, 71	0.075, 71
Total Magnification (Using 10x eyepieces)	3.15-315x (Depending on objective used)	3.75-270x (Depending on objective used)
Eyepieces (F.O.V. mm)	• C-W 10x (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 : 0-15 degree	
Focus Unit (Stroke from Objective's parfocal point)	P2-MFU Motorized Focus Unit (Up 96mm/Down 4mm) P2-FU Focus Unit (Up 97mm/Down 5mm)	
Focus mount Adapter/Nosepiece	 P2-FM Focus Mount Adapter P2-RNI2 Intelligent Nosepiece (2 objectives can be attached) 	 P2-FM Focus Mount Adapter P2-RNI2 Intelligent Nosepiece (2 objectives can be attached) P2-FMDN Focus Mount (for P-PS32 Plan Stand)
Bases/Stand	• P2-PB Plain Base • P2-DBL LED Diascopic Illumination Base (OCC illuminator built-in) • P2-DBF Fiber Diascopic Illumination Base • P-PS32 Plain Stand (Only for SMZ18)	
Stages	• P-SXY64 Stage • C-SSL Dia-sliding Stage • C-TRS Tilting Stage	
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-HGFIE HG/C-HGFI HG (130W)	
Episcopic Illuminators	P2-FIRL LED Ring Illumination Unit	
	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 sources	C-FLED2 LED Light source for fiber illuminator	
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	
Weight (approx.)	32kg (Motorized Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Motorized Focus Unit, Intelligent Nosepiece, LED DIA base and Objectives 1x and 0.5x)	30kg (Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Focus Unit, Intelligent Nosepiece, LED DIA base and Objectives 1x and 0.5x)
Power consumption (approx.)	30W (Motorized Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Motorized Focus Unit, Intelligent Nosepiece and LED DIA base)	10W (Epi Fluorescence Attachment configuration with Trinocular Tilting Tube, Focus Unit, Intelligent Nosepiece and LED DIA base)

