The Next Revolution in Microscopy
A Giant Step Forward in Stereo Microscopy

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

### Specifications/System Diagrams

**SMZ25/18**

- **Zoom ratio**: 25:1, 18:1
- **Zooming range**: 0.63-15.75x, 0.75-13.5x
- **Total magnification**: 3.15-84.5x (6.3-157.5x)
- **Working distance**: 60mm
- **Image capture**: ○
- **System expandability**: ○
- **Embedded use**: –

**SMZ1000**

- **Zoom ratio**: 10:1
- **Zooming range**: 0.8-8x
- **Total magnification**: 4-80x (8-80x)
- **Working distance**: 70mm
- **Image capture**: ○
- **System expandability**: ○
- **Embedded use**: ○

**SMZ800**

- **Zoom ratio**: 6.3:1
- **Zooming range**: 0.8-5x
- **Total magnification**: 4-30x (8-30x)
- **Working distance**: 78mm
- **Image capture**: ○ (SMZ745T)
- **System expandability**: ○
- **Embedded use**: ○

**SMZ745/745T**

- **Zoom ratio**: 7.5:1
- **Zooming range**: 0.67-5x
- **Total magnification**: 3.35-300x (6.7-50x)
- **Working distance**: 115mm
- **Image capture**: ○
- **System expandability**: ○
- **Embedded use**: ○

**SMZ660**

- **Zoom ratio**: 4.4:1/4.3:1
- **Zooming range**: 0.8-3.5x/0.7-3x
- **Total magnification**: 4-70x/3.5-60x (8-35x)/(7-30x)
- **Working distance**: 100mm
- **Image capture**: ○
- **System expandability**: ○
- **Embedded use**: ○

**SMZ445/SMZ460**

- **Zoom ratio**: 5:1
- **Zooming range**: 0.8-4x
- **Total magnification**: 4-120x (8-40x)
- **Working distance**: 77.5mm
- **Image capture**: ○
- **System expandability**: ○
- **Embedded use**: ○

**SMZ-2, SM-5**

- **Zoom ratio**: –
- **Zooming range**: –
- **Total magnification**: 10-60x (20x)
- **Working distance**: 100mm
- **Image capture**: –
- **System expandability**: –
- **Embedded use**: –

**Others**

- **Digital Microscope ShuttlePix P-420R**: 27
- **Multi-purpose Zoom Microscopes MULTIZOOM AZ100/100M**: 27

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*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
Research Stereo Microscope

SMZ25/SMZ18

Evolutionary stereoscopic microscope

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

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

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

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

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

Parallel-optics type

Remarkable resolution and the world’s widest zoom range

Dynamic zoom ratio of 25:1

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

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

 Superior resolution never before seen on a stereoscopic microscope

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

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

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

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

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

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

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.

User-friendly remote control

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.

Enhanced brightness and uniform illumination in a low magnification range

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

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

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

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.

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

For other combinations, please confirm with Nikon.

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

EZ-Tracking: Easy-to-use OCC illumination

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

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.

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

Comparison images (film)

OCC illuminator for oblique coherent contrast, a type 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.

On-axis imaging for digital images

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

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

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

* Depending on the combination of eyepiece and objective used

High NA and high resolution

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

**Steroscopic image**

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

Distortion causes a globular effect even on a flat object.

**Expandability**

Illuminators can be chosen depending on specimen

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

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**Operability**

Optimum eyepoint

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

**Specifications**

**SMZ1000**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Working distance</th>
<th>Zoom magnification</th>
<th>NA</th>
<th>Actual FOV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-Plan Apo 0.5x</td>
<td>70</td>
<td>0.012</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>P-Plan Apo 1x</td>
<td>70</td>
<td>0.024</td>
<td>27.5</td>
<td></td>
</tr>
<tr>
<td>P-Plan Apo 2x</td>
<td>70</td>
<td>0.100</td>
<td>2.75</td>
<td></td>
</tr>
</tbody>
</table>

*1 With C-W10xB eyepiece

<table>
<thead>
<tr>
<th>Objective</th>
<th>Working distance</th>
<th>Zoom magnification</th>
<th>NA</th>
<th>Actual FOV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-Achro 0.5x</td>
<td>70</td>
<td>0.015</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>P-Achro 1x</td>
<td>70</td>
<td>0.03</td>
<td>22</td>
<td></td>
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</tbody>
</table>

*1 With C-W10xB eyepiece

**SMZ800**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Working distance</th>
<th>Zoom magnification</th>
<th>NA</th>
<th>Actual FOV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-Plan 1.5x</td>
<td>44.5</td>
<td>0.036</td>
<td>18.3</td>
<td></td>
</tr>
<tr>
<td>P-Plan 2x</td>
<td>32.5</td>
<td>0.048</td>
<td>13.75</td>
<td></td>
</tr>
</tbody>
</table>

*1 With C-W10xB eyepiece

**Dimensions**

**SMZ1000 set**

<table>
<thead>
<tr>
<th>520</th>
<th>350</th>
<th>220</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>110</td>
<td>80</td>
</tr>
</tbody>
</table>

**SMZ800 set**

<table>
<thead>
<tr>
<th>520</th>
<th>350</th>
<th>220</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>110</td>
<td>80</td>
</tr>
</tbody>
</table>

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**Parallel-optics type**

**Stereoscopic Microscope**

**SMZ1000/SMZ800**

Pursuing ergonomic design, image clarity and low cost

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**Observation posture**

**SMZ1000**

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

**SMZ745/745T**

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

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

### Three “A” design

**Air-tight** (SMZ745, SMZ745T)

By making joints air-tight, contamination from dust, oil, water and other contaminants is prevented.

Air-tight construction: JIS Degrees of protection provided by enclosures IPX1

- Anti-electrostaic

Anti-electrostatic function: 1000–10V, discharge within 0.2 sec.

Airtight construction: JIS Degrees of protection provided by enclosures IPX1

- Anti-mold

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

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

### Specifications

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>SMZ745</th>
<th>SMZ745T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>8.5 kg (body)</td>
<td>8.5 kg (body)</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>SMZ660</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>1.7 kg (body)</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>SMZ445</th>
<th>SMZ460</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>1.0 kg (body)</td>
<td>1.0 kg (body)</td>
</tr>
</tbody>
</table>

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**Greenough Type Stereoscopic Microscope**

**SMZ660**

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

- The SMZ660 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 SMZ660 offers an unrivaled 115 mm working distance.
- The SMZ660 incorporates an optical path switching lever that enables easy switchover between eyepiece and camera. A DG series digital camera can be attached.

### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>SMZ660</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>1.7 kg (body)</td>
</tr>
</tbody>
</table>

---

**SMZ445/460**

- 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

<table>
<thead>
<tr>
<th>Specifications</th>
<th>SMZ445</th>
<th>SMZ460</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>1.0 kg (body)</td>
<td>1.0 kg (body)</td>
</tr>
</tbody>
</table>
Greenough Type Stereoscopic Microscope

**SMZ-2**

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

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

**Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>SMZ-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical system</td>
<td>Greenough type (fixed type)</td>
</tr>
<tr>
<td>Zooming ratio</td>
<td>5:1</td>
</tr>
<tr>
<td>Total magnification range</td>
<td>0.8x–4x (depending on eyepiece and auxiliary objective used)</td>
</tr>
<tr>
<td>Tube</td>
<td>Eyepiece inclination: 45°</td>
</tr>
<tr>
<td></td>
<td>Interpupillary distance adjustment: 56–75 mm</td>
</tr>
<tr>
<td>Eyepieces</td>
<td>SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM E20xA (F.N. 12), C-W30x (F.N. 7)</td>
</tr>
<tr>
<td>Auxiliary objectives</td>
<td>(option)</td>
</tr>
<tr>
<td></td>
<td>AL5 (0.5x), AL7 (0.7x)</td>
</tr>
<tr>
<td>Working distance</td>
<td>77.5mm (with standard configuration)</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>2.1 kg (body), 1.9 kg (stand)</td>
</tr>
</tbody>
</table>

**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.

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.

**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.

**Focus Unit**

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

**Stand/Focus Mount**

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

**SM-5**

Standard stereoscopic microscope with fixed objective magnification

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

**Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>SM-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical system</td>
<td>Greenough type (fixed type)</td>
</tr>
<tr>
<td>Zooming ratio</td>
<td>5:1</td>
</tr>
<tr>
<td>Total magnification range</td>
<td>0.8x–4x (depending on eyepiece and auxiliary objective used)</td>
</tr>
<tr>
<td>Tube</td>
<td>Eyepiece inclination: 45°</td>
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<tr>
<td></td>
<td>Interpupillary distance adjustment: 56–75 mm</td>
</tr>
<tr>
<td>Eyepieces</td>
<td>SM E10xA (F.N. 23, standard), SM E15xA (F.N. 14), SM E20xA (F.N. 12), C-W30x (F.N. 7)</td>
</tr>
<tr>
<td>Working distance</td>
<td>71mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>1.5 kg (body), 1.9 kg (stand)</td>
</tr>
</tbody>
</table>
Both single and double nosepieces are available.

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

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.

Darkfield Observation Accessory

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

Polarizing Observation Accessory

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

Motorized Epi-fluorescence Set

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

Manual Epi-fluorescence Set

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

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.

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

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

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

### Auxiliary Objectives

<table>
<thead>
<tr>
<th>Microscope</th>
<th>Auxiliary objective</th>
<th>Working distance (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMZ745/745T</td>
<td>G-AL 0.5×</td>
<td>102-48</td>
</tr>
<tr>
<td>SMZ445/460</td>
<td>G-AL 1×</td>
<td>480</td>
</tr>
<tr>
<td>SMZ660</td>
<td>G-AL 2×</td>
<td>81</td>
</tr>
<tr>
<td>SMZ445/460</td>
<td>AL 0.7×</td>
<td>175</td>
</tr>
<tr>
<td>SMZ5</td>
<td>AL 2×</td>
<td>96</td>
</tr>
<tr>
<td>SMZ5</td>
<td>AL 0.5×</td>
<td>96</td>
</tr>
</tbody>
</table>

### Stages

#### C-SSL Dia-sliding Stage

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

#### C-TRS Tilting Stage

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

### Sliding Stage 2

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

### SM-S4L 4 x 4 Stage

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

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**P-IDT Drawing Tube**

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

**P-THSS Teaching Head**

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

### Ring Illuminator

**Purpose**
Provides conical-shaped light through an optical fiber from above the sample to its center, simulating unwarped shadow. Suitable for observation of electronic substrates.

**Model**
- C-PLP Fiber-optics Ring Illuminator (60-100W LED Ring Illuminator)
- C-PLL Fiber-optics Ring Illuminator
- C-PLL Flexible Arm

**Features**
- Color temperature is adjustable up to 5000K to provide stable illumination. Two types of covers are available. Anti-electrostatic type.
- Three types of covers are available. (Clear, diffuser and opaque white).
- Anti-electrostatic type.
- Ring illuminator provides uniform illumination to the entire view field.

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

---

### Episcopic Arm Illuminator

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

**Model**
- C-PLL Fiber-optics Illuminator (60-100W LED Illuminator)
- C-PLL Fiber-optics Illuminator
- C-PLL Flexible Arm

**Features**
- Illuminator is located away from the microscope. It enables bright observation with high-intensity light without damaging sample with the heat. The direction and angle of illumination can be changed using the flexible arm.
- Illumination angle flexibility is possible.
- Absence of attachment of G-LS Episcopic Illuminator to the stand. Possible change of direction and angle of illumination is possible.

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

---

### Coaxial Illuminator

**Purpose**
Suitable for brightfield observation for high-referenc-face flat surface samples such as polished metals and wafer samples to observe flaws of focus, mineral, or double refraction image of samples. Coaxial illuminator for parallel optical type, stereoscopic microscope provides high-intensity illumination for the entire view field.

**Model**
- C-PLP Coaxial Episcopic Illuminator

**Features**
- Coaxial illuminator for parallel optical type, stereoscopic microscope, equipped with both coaxial episcopic and oblique illumination which is capable of high illumination.

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

---

**Polarizing Attachment**

**Purpose**
Enable simple polarizing observation, making observation possible to observe flaws of focus, mineral, or double refraction image of samples. Coaxial illuminator for parallel optical type, stereoscopic microscope, equipped with both coaxial episcopic and oblique illumination which is capable of high illumination.

**Model**
- C-PLP Coaxial Episcopic Illuminator

**Features**
The polarizer is on the stage while the analyzer is mounted to the stage arm via a focusing mount. The G-USA Adapter is required.

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

---

**Universal Table Stands/Focusing Mounts**

**Universal Table Stands G-US1/G-US2**
These stands are handy in microscopy with large samples not loaded onto the standard stand. The microscope unit is mounted to the stand arm via a focusing mount. The G-US1 is a table clamp type (table top thickness: 10 to 60 mm).
- Used in conjunction with the SM Focusing Mount on the SMZ1000/800 when photomicrographic equipment is mounted on these stands.
- Can not be used with the SM1000/900 when photomicrographic equipment is mounted on them.

**Universal Table Stand P**
Not only can it be used for a large sample, but this extremely stable stand also easily accommodates a DS series digital camera.
- Used in conjunction with the C-PANF Focusing Mount AN on the SM7247/745/745/800/445/460.
- Used in conjunction with the SM Focusing Mount on the SM-5.

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

**Universal Table Stands Focusing Mounts**

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**Digital Cameras for Microscopes**

**Cooled Digital Cameras for Microscopes**

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

**Digital Sight Series and NIS-Elements brochures.**

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

---

**Stands**

<table>
<thead>
<tr>
<th>Model</th>
<th>C-PS/C-PS4 Plain Stands</th>
<th>C-PS40 Plain Stand</th>
<th>C-LEDS Hybrid LED Stand</th>
<th>C-DSS Diascopic Stand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Episcopic</td>
<td>Episcopic</td>
<td>Episcopic/Diascopic</td>
<td>Diascopic</td>
</tr>
<tr>
<td><strong>Diascopic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Illumination method</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built-in filter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine-focus knob</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective magnification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microscopes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Microscopes**

<table>
<thead>
<tr>
<th>Model</th>
<th>C-DS Diascopic Stand</th>
<th>C-DS Diascopic Stand with Fiber/Light Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Brightfield, Oblique</td>
<td>Brightfield, Oblique</td>
</tr>
<tr>
<td><strong>Illumination method</strong></td>
<td></td>
<td>Brightfield, Darkfield</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td></td>
<td>Brightfield</td>
</tr>
<tr>
<td><strong>Built-in filter</strong></td>
<td>Not required</td>
<td>NCB11, NA4/10</td>
</tr>
<tr>
<td><strong>Fine-focus knob</strong></td>
<td>Included</td>
<td>NCB11, brightness only, insertable</td>
</tr>
<tr>
<td><strong>Objective magnification</strong></td>
<td></td>
<td>NCB11, brightness only, insertable</td>
</tr>
<tr>
<td><strong>Microscopes</strong></td>
<td>SMZ1000</td>
<td>NCB11, NA4/10</td>
</tr>
<tr>
<td></td>
<td>SMZ800</td>
<td>NCB11, NA4/10</td>
</tr>
</tbody>
</table>

---

**Scene mode**

**Scene mode (science):**
- Measurement function
- Scale display/positioning function
- Drawing function

**Scene mode (industrial):**
- Simple measurements of acquired image are possible, allowing lines and comments to be added to image data. In addition, data storage and output functions for a wide range of applications are available.

---

**Camera Heads**

**Ultra high-definition Camera Head DS-Ri1**

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

**High-definition Camera Head DS-Fi2**

Multichannel (multicolor)

Individual cells resolved in a live zebrafish larva expressing GFP and mCherry.

**Cooled color camera head**

Ultra high-definition camera head DS-G1

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**PC-use Control Unit DS-U3**

**NIS-Elements**

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

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**Time lapse**

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

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**Digital Imaging Capabilities:**

- Extended Depth of Focus
- Multichannel (multicolor)
- Scene mode
- Various tools

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**Ultra high-definition Camera Head DS-Ri1**

*High-definition Camera Head DS-Fi2*

**Cooled color camera head**

**Ultra high-definition camera head DS-G1**

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For more information, see the Digital Sight Series and NIS-Elements brochures.
System Diagrams (SMZ25/SMZ18)

Specifications/Dimensions (SMZ25/SMZ18)

Specifications

<table>
<thead>
<tr>
<th>SMZ25</th>
<th>SMZ18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom</strong></td>
<td><strong>Zoom</strong></td>
</tr>
<tr>
<td>Parallel-optic type (zooming type), apochromatic optical system</td>
<td>Parallel-optic type (zooming type), apochromatic optical system</td>
</tr>
<tr>
<td><strong>Zoom</strong></td>
<td><strong>Zoom</strong></td>
</tr>
<tr>
<td><strong>Zoom ratio</strong></td>
<td><strong>Zoom ratio</strong></td>
</tr>
<tr>
<td>0.63-15.75x 0.75-13.5x</td>
<td>0.63-15.75x 0.75-13.5x</td>
</tr>
<tr>
<td><strong>Zoom range</strong></td>
<td><strong>Zoom range</strong></td>
</tr>
<tr>
<td>Aperture diaphragm</td>
<td>Aperture diaphragm</td>
</tr>
<tr>
<td>0.312, 20 (with a correction ring for water 0 to 3 mm in depth)</td>
<td>0.3, 20 (with a correction ring for water 0 to 3 mm in depth)</td>
</tr>
<tr>
<td><strong>Magnification</strong></td>
<td><strong>Magnification</strong></td>
</tr>
<tr>
<td>514 25</td>
<td>569 25</td>
</tr>
<tr>
<td><strong>Total Magnification</strong></td>
<td><strong>Total Magnification</strong></td>
</tr>
<tr>
<td>514 25 (using C-W10xB eyepieces)</td>
<td>569 25 (using C-W10xB eyepieces)</td>
</tr>
<tr>
<td><strong>Observation methods</strong></td>
<td><strong>Observation methods</strong></td>
</tr>
<tr>
<td>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</td>
<td>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</td>
</tr>
<tr>
<td><strong>Epi-Fluorescence attachments</strong></td>
<td><strong>Epi-Fluorescence attachments</strong></td>
</tr>
<tr>
<td>• P-PS32 Plain Stand (only for SMZ18)</td>
<td>• P-PS32 Plain Stand (only for SMZ18)</td>
</tr>
<tr>
<td><strong>Epi-Fluorescence light sources</strong></td>
<td><strong>Epi-Fluorescence light sources</strong></td>
</tr>
<tr>
<td>• HG (Duochrome Fiber Illumination)</td>
<td>• HG (Duochrome Fiber Illumination)</td>
</tr>
<tr>
<td>• HC (C-NADIC Fiber Illumination)</td>
<td>• HC (C-NADIC Fiber Illumination)</td>
</tr>
<tr>
<td>• C-PCM Flexible Double Arm Fiber Illumination Unit</td>
<td>• C-PCM Flexible Double Arm Fiber Illumination Unit</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td><strong>Dimensions</strong></td>
</tr>
<tr>
<td>Width (approx.)</td>
<td>Width (approx.)</td>
</tr>
<tr>
<td>302</td>
<td>302</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td><strong>Weight (approx.)</strong></td>
</tr>
<tr>
<td>337</td>
<td>337</td>
</tr>
<tr>
<td><strong>Power consumption (approx.)</strong></td>
<td><strong>Power consumption (approx.)</strong></td>
</tr>
<tr>
<td>51W</td>
<td>51W</td>
</tr>
</tbody>
</table>

Dimensions

- Configured with motorized epi-fluorescence attachment and LED DIA base
- Configured with epi-fluorescence attachment and LED DIA base
- Configured with plain stand and focus mount
System Diagrams (SMZ1000/800, SMZ745/745T)

SMZ1000/800

SMZ745/745T

Beam Splitters/Teaching Head/Drawing Tube

Eyepieces

Illuminators

Stands

Accessories

* Although mountable on a diascopic stand, it is not suitable for observation with auxiliary objectives (0.5x, 0.7x).
Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>SMZ15</th>
<th>SMZ10</th>
<th>SMZ50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>3.35–300x</td>
<td>4–300x</td>
<td>4–70x</td>
</tr>
<tr>
<td>Zoom ratio</td>
<td>0.67–5x</td>
<td>0.8–5x</td>
<td>0.8–3.5x</td>
</tr>
<tr>
<td>Zoom range</td>
<td>7.5:1</td>
<td>6.3:1</td>
<td>4.4:1</td>
</tr>
<tr>
<td>Working distance (with standard configuration or 1x objective)</td>
<td>25:1</td>
<td>18:1</td>
<td>10:1</td>
</tr>
<tr>
<td>Field type</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Fixed</td>
</tr>
<tr>
<td>Objective</td>
<td>0.8–4x (W.D. 43.5mm)</td>
<td>0.7x (W.D. 150mm), 0.77–1.8x (W.D. 100–400mm)</td>
<td>0.63–15.75x</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>1.9kg</td>
<td>1.7kg</td>
<td>1.5kg</td>
</tr>
<tr>
<td>Interpupillary distance</td>
<td>52–75mm</td>
<td>54–75mm</td>
<td>56–75mm</td>
</tr>
<tr>
<td>Eyepiece inclination</td>
<td>0°–30°</td>
<td>15°–20°</td>
<td>0°–30°</td>
</tr>
<tr>
<td>Total magnification* (When coaxial episcopic illuminator is attached)</td>
<td>3.75–945x (12.5-472x)</td>
<td>3.75–810x (19–405x)</td>
<td>4–480x (30–540x)</td>
</tr>
</tbody>
</table>

Related Products

Digital Microscope

**ShuttlePix**

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

**Easy imaging**

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

**One touch EDF imaging**

Begin imaging from a low sample area on the screen.

Finish imaging at a high sample area on the screen.

**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

**Wide magnification range**

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

**Various observation methods**

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