Broad application range, from high to lower power, in a single microscope

The AZ100 represents an all-new concept in zoom microscopes. It covers a wide range of magnifications, from 5x to 400x, all in a single microscope. Thanks to a smooth zooming mechanism combined with the triple nosepiece, the AZ100 can continuously switch magnifications extending from macro to micro observation of the same specimen. Enjoy the combined advantages of a stereoscopic microscope with a wide field of view and a long working distance, and a biological microscope boasting high-resolution images — AZ100 is Nikon's latest groundbreaking microscope solution.

On-axis images capturing capability

Since stereoscopic microscopes produce three-dimensional images using binocular viewing, the image from each eyepiece tube has some degree of inclination. Consequently, images captured by cameras will also have such inclination. To counteract this, the AZ100 employs a vertical optical system, which allows the user to capture images from directly above while zooming, without any inclination whatsoever.
By combining 8x zoom optics (1 to 8x magnification) with a three-position objective nosepiece, the AZ100 enables observation at a magnification ratio of 80:1, the highest level of any such device in the world. The objective lens lineup consists of 0.5x, 1x, 2x, 4x, and 5x lenses. When combined with 10x eyepiece lenses, the AZ100 covers a wide range of magnifications, from 5x to 400x. And since the zooming knob features click-stops, it is easy to set magnification without removing your eyes from the eyepiece tube.

**A wide range of magnifications**

![Zooming knob with click-stops](image)

Three objective lenses can be simultaneously mounted to provide large zooming ratio.

**Comes standard with an aperture stop**

The AZ100 ships complete with an aperture stop that is effective not only for visual observation, but also for the capture of digital images. This aperture stop allows you to freely change contrast and the depth of field based on your specimen requirements.

![Aperture stop dial](image)

**Comparative examples**

**Sample: Rat jaw** (*Using Plan Apo 0.5x objective lens*)

![Aperture stop open](image)

![Aperture stop closed](image)

The AZ100 comes standard with tilting trinocular eyepiece tubes that tilt from 0° to 30° to allow the optimal eye level for the observer’s height and posture. Two different beamsplit ratios for the binocular and photo port can be selected: the 100:0/0:100 type, which is optimal for photo documentation, or the 100:0/20:80 type, which enables visual observation while displaying an image on a monitor.

**Ergonomic tilting eyepiece tubes**

![30°](image)

**Double-coarse/fine focusing system**

Focusing can be done using the focus knob either on focus mount or stage with the dedicated stand (AZ-STD/STE). The 85mm stroke on the focus mount and the 10mm stroke on the stage enable the observation of tall samples. The focus knob on the stage allows the user to focus the microscope in a comfortable position, without having to reach over the sample.

![Max. sample height 85.5mm](image)

*Differs depending on the objective lens and stand combination.*
In addition to brightfield observation, a wide range of observation methods are possible, including epi-fluorescence, Nomarski DIC, simple polarizing, and oblique illumination. AZ100 enables simultaneously mounting of epi-fluorescence and diascopic DIC attachments which allows for switching between each observation mode easily.

### Epi-fluorescence observation

Seamless observation, from a full view of the cerebellum, to the cerebellar cortex, for a sagittal plane slice of a double-immunofluorescence-stained mouse cerebellum (Using Plan Apo 4x objective lens)

### Nomarski DIC observation

Zebra fish embryo (Using Plan Fluor 5x objective lens)

### Epi-fluorescence Accessories

Since the excitation light path of AZ100 is separated from the observation optics, fluorescence images with high S/N ratio can be obtained, without being affected by zooming lenses. The newly developed HG precentered fiber illuminator minimizes thermal effects on the microscope itself, and there is no need for troublesome lamp-centering adjustment.

*Note: For UV excitation, the lamp-housing type mercury lamp (6) is recommended.*

### Nomarski DIC Accessories

Thanks to the newly developed DIC prisms, high-contrast DIC images with uniform coloration are possible at any magnification. (The objective lenses capable of DIC observation are the Plan Apo 1x, Plan Apo 4x, and Plan Fluor 5x.)

*Note: The AZ-FLDIC FL-DIC Prism Holder is required to simultaneously mount this accessory along with the AZ-FL Epi-Fluorescence Attachment.*
Objective Lenses

Nikon has developed new dedicated objective lenses with a high NA and low distortion. There are five lens types, each of which suit different illumination techniques.

<table>
<thead>
<tr>
<th>List of objectives specs</th>
<th>Plan Apo 0.5x</th>
<th>Plan Apo 1x</th>
<th>Plan Fluor 2x</th>
<th>Plan Apo 4x</th>
<th>Plan Fluor 5x (include correction ring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD</td>
<td>54mm</td>
<td>36mm</td>
<td>45mm</td>
<td>20mm</td>
<td>15mm</td>
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<tr>
<td>NA</td>
<td>0.05</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
<td>0.5</td>
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<td>DIC</td>
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<td>Sign-fluorescence</td>
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<tr>
<td>LED illumination</td>
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<tr>
<td>Coaxial illumination</td>
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</tbody>
</table>

Oblique Illumination Slider

By inserting the sliding diaphragm at a conjugated position with the objective pupil, the center of the light beam is shielded allowing coherent light to be projected obliquely onto the sample. This allows observation of transparent colorless samples by applying relief-like contrast with a shadow.

LED Ring Illuminator

This high-intensity reflected illuminator features a long-life white LED. It includes a intensity control function that provides stable and even illumination.

Diascopic Illumination Stand/Stage

By combining a variety of holders with a diascopic illumination stand and a stage, various observation methods are possible including brightfield, Nomarski DIC, simple polarizing for everything from large samples to Petri dishes and glass slides.
A flexible system that enables various configurations consisting of a camera head and a control unit to suit the needs of any sample or application.

**Camera Head**

**High-definition color camera head**

**DS-Fi2**

5-megapixel high-definition color. The DS-Fi2 offers advanced performance, including a wide dynamic range and superior red sensitivity, and is optimal for brightfield, darkfield, phase contrast, and DIC image capture.

**Cooled camera head for high-definition color images**

**DS-Fi1c**

5-megapixel high-definition color. The DS-Fi1c uses the Peltier cooling mechanism to cool the CCD to 20°C below the ambient temperature. When capturing fluorescence images where long exposures are required, thermal background noise is suppressed, enabling you to obtain high-contrast images.

**Stand-alone Control Unit**

**DS-L3**

Equipped with a large touch panel monitor and a rich feature set, the DS-L3's ease of operation enables quick image acquisition even without a PC or computer monitor.

**High-definition touch panel monitor**

Built-in 8.4" 1024 x 768 monitor. Easy to see and easy to use, the large touch-panel monitor allows simple setting and operation of the camera head with a touch of a finger or stylus.

**GUI for intuitive operation**

The DS-L3's icon-based menu screens offer excellent recognizability. From image acquisition to setting of shooting parameters, measurement, and export of image data, all operations can be performed easily by touching the screen.

See the Digital Sight series catalog for more information.
A flexible system that enables various configurations consisting of a camera head and a control unit to suit the needs of any sample or application. Equipped with a large touch panel monitor and a rich feature set, the DS-L3’s ease of operation enables quick image acquisition even without a PC. The DS-L3’s icon-based GUI for intuitive operation can be easily understood by anyone, even those without a computer monitor.

The DS-L3’s high-definition touch panel monitor allows for simple setting and operation of parameters, measurement, and data export of image data, among other features. The camera head is cooled to 20°C below the ambient temperature using the Peltier cooling mechanism to cool the CCD. The DS-Fi1C offers advanced performance, including a wide dynamic range and superior red sensitivity, and is optimal for brightfield, darkfield, phase contrast, and DIC image capture. When capturing fluorescence images where long exposures are required, thermal stage glass is used for heating. The DS-Fi2C, with a 5-megapixel high-definition color, can be used for imaging applications ranging from simple microscopes to high-end research microscopes.

**Software Features**

- Prism Slider 5x
- EPI DIC
- AZ-EPS5
- DIA DIC
- AZ-DPS5
- Prism Holder
- EPI DIC
- AZ-PH
- DIA DIC Prism Holder
- AZ-AN
- Objective Lenses
- Azplan Apo 4x
- Azplan Apo 1x
- Azplan Apo 0.5x
- Azplan Apo
- Azplan Apo
- Lambda Plate 0.5x
- Lambda Plate
- Objective
- Objective
- Prism Holder
- EPI DIC
- AZ-PH

**Accessories**

- Digital Cameras for Microscopy
- Nosepiece
- Single
- Triple
- Stage Glass
- Eyepiece 10X
- AZ-W10X
- Ergonomic
- AZ-TE80
- Lambda Plate 0.5x
- ICI 1/4
- AZ-QLM
- ICI 1/4
- AZ-QLH
- Azplan Fluor 5x
- AZ-FL
- Epi-Fluorescence Attachment
- Fluorescence Filter Cubes
- Prism Sliders
- Prism Sliders
- 4x
- 1x
- 0.5x

**Third-party Accessories**

- Digital Sight Series
- Stage Top Incubator
- (TOKAI HIT Co., Ltd.)
- Thermo Plate
- (TOKAI HIT Co., Ltd.)
- MATS-U505S
- Stage Top Incubator
- INULG2A/E-ZILG
- Stage Adapter AZS-2A

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*1 See page 5 regarding combinations with illuminators. *2 Use when simultaneously mounting epi-fluorescence and diascopic DIC attachments. *3 Combination with coaxial illuminator is not possible.
**Specifications**

- **Observation method:** Transmitted light: brightfield, Nomarski DIC, simple polarizing, and oblique illumination observation
  Reflective light: fluorescence, Nomarski DIC, coaxial illumination, and LED illumination observation

- **Total magnification:** 5x to 40x (depends on the combination of eyepiece lenses and objective lenses), 6.25x to 50x when a coaxial illuminator is mounted

- **Zoom range:** 1 to 8 (zoom ratio: 8:1)

- **Eyepiece tubes:** 0.6x reduction optics built into photo port: AZ-TE100 Ergonomic Trinocular Tube 100 (bino: photo 100:0/100), AZ-TE80 Ergonomic Trinocular Tube 80 (bino: photo 100:0/20:80), and AZ-TF DSC Tube 0.6x (direct tube type)

- **Inclination angle:** 0 to 30 (with AZ-TE100/AZ-TE80 eyepiece tube)

- **Interpupillary adjustment range:** 50 to 75mm (with AZ-TE100/AZ-TE80 eyepiece tube)

- **Eyepiece lens:** AZ-W10x (FOV: 22mm)

- **Focus mount adapters:** AZ-EMF Focusing Mount Adapter (for AZ-STE/STD stand), AZ-SMZ Focusing Mount Adapter (for SMZ plain stand/BD stand), and AZ-LV LV Focusing Mount Adapter (for LV-IMA/LV-IM).

- **Stands:**
  - AZ-STD Diascopic Stand/AZ-STE Episcopic Stand (focus mount section: focusing stroke, 85mm; coarse, 18.5mm/rotation; fine, 3.7mm/rotation)
  - Stage focus section: focusing stroke, 10mm; coarse, 37.7mm/rotation; fine, 0.27mm/rotation)

- **Objective lens mounts:**
  - AZ-NPS Triple Nosepiece, AZ-NPS Single Nosepiece
  - AZ-FLD6C FL-DIC Prism Holder (used when simultaneously mounting epi-fluorescence and diascopic DIC attachments)

- **Objective lenses:**
  - AZ-Plan Apo 0.5x (NA: 0.05/WD: 54mm), AZ-Plan Fluor 0.5x (NA: 0.5/WD: 20mm)
  - AZ-Plan Apo 4x (NA: 0.4/WD: 20mm), AZ-Plan Fluor 5x (NA: 0.5/WD: 15mm)

- **Illuminators:**
  - Diascopic Illuminator: AZ-STD Diascopic Stand (100W halogen), Episcopic Illuminator: AZ-ICI Coaxial Illuminator (device magnification: 1.25x, 100W halogen),
  - C-FI115/230 Fiber Illuminator: 2.3A, HG Precentered Fiber Illuminator: 2A

- **Epi-fluorescence attachment:**
  - AZ-FL Epi-fluorescence Attachment (up to four filter cubes mountable)

- **power consumption:**
  - C-FI115/230 Fiber Illuminator: 2.3A, HG Precentered Fiber Illuminator: 2A

- **Weight:** Diascopic + epi-fluorescence diascopic configuration: 28kg

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**Examples on cover:** (First and second images from the left) Primary culture cells from the cerebellum of an 18-day-old mouse embryo. Fixed and double immunofluorescence stained on seventh day of cultivation.

**Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. June 2012 ©2007/2008/2009/2012 NIKON CORPORATION**

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