**SPECIFICATIONS**

**Total magnification**

65 to 200x

**Eye piece tube**

19mm (Nikon 30° eyepiece tube)

**Objective lenses**

AZ-Plan Apo 0.5x (NA: 0.05/WD: 54mm), AZ-Plan Apo 1x (NA: 0.1/WD: 35mm), AZ-Plan Fluor 2x (NA: 0.2/WD: 45mm)

**Objective lens mount**

AZ-NP3 Triple Nosepiece, AZ-NPS Single Nosepiece

**Stage focus section**

365x (coarse), 810x/3.27mm (fine)

**Stage**

AZ-STA EPI Stage (150 x 150mm stroke), AZ-STGD DIA Stage (150 x 100mm stroke)

**Light source for epi-fluorescence observation**

C-PS160 Plain Stand, C-BD Diascopic Bright/Darkfield Stand

**Light source for reflected light observation**

Lamphouse HMX-4B (100W mercury lamp)

**Observer's position**

0°

**Interpupillary adjustment range**

0 to 30°

**Inclination angle**

0°

**Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. October 2006 ©2006 NIKON CORPORATION**

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Everything you need for macro observation, all in a single microscope.

Enjoy the combined advantages of a stereoscopic microscope with a wide field of view and a long working distance, and an industrial microscope boasting high-resolution images — Multi-purpose Zoom Microscope MULTIZOOM AZ100 is Nikon’s latest groundbreaking microscope solution.

- The mono-zoom optical system enables on-axis observation and documentation.
- The large magnification range is from 5x to 500x.*
- High-resolution, high-contrast images can be viewed in the macro region.
- Various illumination techniques are possible, including DIC observation.

*500x includes 1.25x device magnification of coaxial illuminator.
The AZ100 enables on-axis observation with no oblique distortion. Optimal not only for visual observation, the AZ100 is also excellent for capturing macro images with a digital camera or other devices. Telecentric optics, a technology with a strong reputation in the field of industrial microscopes, is employed with this newly designed zoom microscope.

**Telecentric optics**

The pupil position of the AZ100’s zoom optics matches that of the objective lens. This positioning enables a wide array of illumination techniques, including diascopic/episcopic Nomarski DIC, and oblique illumination.

**Macro observation by on-axis viewing**

True on-axis observation and image capture is possible in the macro region due to the AZ100’s elimination of the traditional stereoscope’s angular view of the specimen.

**Comparison of macro images**

On-axis viewing with AZ100

Angular viewing with a stereoscopic microscope

**Mono zoom mechanism**

Stereoscopic microscopes always capture images in a diagonal direction due to the structure of the device. The AZ100, however, captures high-resolution, high-contrast images with on-axis viewing.

**Telecentric optics**

The pupil position of the AZ100’s zoom optics matches that of the objective lens. This positioning enables a wide array of illumination techniques, including diascopic/episcopic Nomarski DIC, and oblique illumination.

**On-axis viewing with AZ100**

Telecentric optics

**Diascopic simple polarizing configuration**

Note: Excludes epi-fluorescence illumination.

**Epi-fluorescence + diascopic DIC configuration**

**Telecentric optics configuration**

**Episcopic DIC configuration**

**Diascopic DIC configuration**

**Epi-fluorescence configuration**

The AZ100 enables a wide array of observation methods suited to specific samples and applications in the macro region. This system offers Nomarski DIC and fluorescence observation with episcopic illumination, oblique illumination, and simple polarizing observation with diascopic illumination. In addition, it also provides for simultaneous mounting of diascopic DIC and epi-fluorescence attachments. Nikon’s AZ100 brings the power of all these capabilities to a wide range of fields, from quality control and inspection, to research analysis.
By combining built-in 8x zoom optics, which provides from 1x to 8x magnification, with a three-position objective nosepiece, the AZ100 enables observation at the highest magnification ratio of any such device in the world. The objective lens lineup consists of 0.5x, 1x, 2x, 4x, and 5x lenses. When combined with AZ-W 10x eyepiece lenses, the AZ100 covers everything from low, medium, and high magnification, in the range of 5x to 500x (the latter of which includes the 1.25x device magnification of the coaxial illuminator). The zoom knob incorporates an engageable click-stop mechanism, for measuring and reproducible magnification settings.

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.

Double-coarse/fine focusing system
Focusing can be done using either the AZ stand or stage controls. Since the stand section offers an 85mm stroke and the stage section a 10mm stroke, even tall samples can easily be observed. Focusing the stage can be performed easily with up-front table-level controls, without having to reach your hands above the sample.

The product lineup consists of a reflected-only and a dual-purpose reflected/transmitted illumination stage. The stages’ three-plate structure enables stable operation even when observing at high magnification. They provide superior durability even when supporting heavy industrial samples.

The AZ100 comes standard with eyepiece tubes that tilt from 0° to 30°. This feature enables the optimal eye level for the observer’s height and posture as well as the sample height. Two different beam-split ratios for the binocular and photo port can be selected, 100:0/100, which is suitable for photo documentation, or 100:0/20:80, which enables visual observation while displaying an image on a monitor.

Nikon has developed two new extremely stable dedicated stands: a reflected-only and a dual-purpose reflected/transmitted illumination stand. Even during observation at high magnifications, these stands enable stable, blur-free observation.

Stands
The product lineup consists of a reflected-only and a dual-purpose reflected/transmitted illumination stage. The stages’ three-plate structure enables stable operation even when observing at high magnification. They provide superior durability even when supporting heavy industrial samples.
**Digital SIGHT series**

A flexible system that enables various configurations consisting of a camera head and a control unit to suit the needs of each sample or application.

### Camera Heads

**DS-Fi1**
- A 5-megapixel high-definition color camera providing optimal image capture with a single button.
- The DS-Fi1 offers advanced performance, including high dynamic range and superior red sensitivity, and is optimal for brightfield, darkfield, phase contrast, and DIC image capture.

**DS-2Mv**
- A 2-megapixel color CCD with a high-frame rate. This camera head enables the smooth display of live images and high-quality still images.
- *See the Digital Sight series catalog for more information.*

### Stand-alone Control Unit

**DS-L2**

The DS-L2 features a large high-definition LCD and a host of features. There is no need for a PC and monitor, which allows the system to be used with a flick of a switch.

- **Large, high-definition monitor**
  - The unit has a built-in 8.4-inch TFT LCD monitor with 1,024 x 786 pixels.
- **On-screen display (OSD) for easy control**
  - The unit employs an OSG for camera control, state confirmation, and various settings, which allows users to maneuver the monitor without hampering the display of the image to be captured. It is also possible to customize the buttons.
- **Easy-to-use toolbar**
  - The unit includes a split-screen feature for the simultaneous display of a captured image and a screen pattern, which is handy for comparative observation.
- **An extensive array of tool functions**
  - Users can measure captured images and other parameters using the overlay. Users can also save data in image files and output measurement data.
- **Measurement and alignment function**
  - Measurement and alignment is possible by standard-length calibration (up to seven points can be registered).
- **Scale display/alignment function**

**Scene mode: optimal image capture with a single button**

The unit features three basic modes for industrial samples. These modes offer capture conditions optimized for the particular sample type. Users can also register up to seven freely configurable custom modes.

**Mode for the following purposes:**
- Mode for optical and DIC images
- Mode for metal, ceramics, and plastics
- Mode for circuit boards

### PC-based Control Unit

**DS-U2**

The DS-U2 controls everything from live image display and capture to advanced image processing and analysis on a computer.

**Simple connection via high-speed USB 2.0**

The unit employs a USB 2.0 interface for easy connection with a PC.

### System Diagram

**NIS-Elements series of newly developed imaging software**

The NIS-Elements series is used for the control software. This software allows the user to perform everything from basic image capture to the measurement, analysis, and management of captured images. Users can add a wide array of the plug-ins to basic packages according to their intended use.

**Application window**

- Freely select the window layout according to the purpose at hand.

**Report generator**

- Create reports containing images, database descriptions, and measured data. PDF files can be created directly from NIS-Elements.

**EDF (Extended Depth of Focus):**

Create an all-in-focus image and a 3D surface image from images that have been captured in a different Z-axis.

### Operating environment

#### NIS-Elements Basic Research

In addition to the measurement function and report-generating function of NIS-Elements Documentation, this package enables automatic object measurement by creating a binary image. Expandability is also possible by adding plug-ins, such as EDF and databases.

#### NIS-Elements Documention

This package enables display of a scale over a live image, switching to full-screen display, and other functions. It allows the user to easily capture images with a simple intuitive control screen.

**Measurement**

- Measure quantity, length, radius, angle, area, and diameters.

**Operating environment**

- **Operating environment**
  - **Application window**
    - Full-screen window
    - Organizer window
    - Docked controls window
  - **User interface**
    - Application window
    - Measurement window
    - Report window
  - **Plug-in function**
    - NIS-Elements series
    - EDF (Extended Depth of Focus)
  - **Operating system**
    - Windows 7

**Display**

- USB (H)
- USB (D)
- Universal-type camera cable (3m)
- Dedicated remote controller/microdrive
- Compact flash card, memory stick, USB keyboard, USB mouse

**Hardware environment**

- **Operating environment**
  - **Hardware environment**
    - **Display**
      - Frame buffer: 1GB
    - **Hard disk**
      - 20GB
    - **OS**
      - Windows 7
    - **RAM**
      - 1GB or more
    - **CPU**
      - 1.8GHz Intel Core 2 Duo

**Digital Camera System for Microscopy**

A flexible system that enables various configurations consisting of a camera head and a control unit to suit the needs of each sample or application.
Eyepiece tubes

The lineup includes the ergonomic fitting trinocular eyepiece tube AZ-TE100 (beamsplit ratio 100/0/00) and AZ-TE80 (beamsplit ratio 100/0/20), as well as the direct tube AZ-TP 0.6x Vertical Monocular Tube, which is suited to system integration. The 0.6x reduction optics* built into the photo port enable capturing of images with a wider field of view.

Objective lens mounts

Users can select either the AZ-NP3 Triple Nosepiece or the AZ-NPS Single Nosepiece, according to their requirements.

Focus mount adapters

There are three types of focus mount adapters to suit various needs: AZ-FM AZ Focusing Mount Adapter, AZ-SMZ SMZ Focusing Mount Adapter, and AZ-LV LV Focusing Mount Adapter. When using a 4x or 5x objective lens, Nikon recommends combining the AZ-FM Focusing Mount Adapter with the AZ-STE Episcopic Stand and AZ-STD Diascopic Stand.

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.

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*Simultaneous mounting of epifluorescence and diascopic DIC attachments requires the AZ-FLDIC FL-DIC Prism Holder.
Accessories for episcopic observation

Coaxial illumination, Nomarski DIC, fluorescence, and LED ring illumination observation methods are possible with episcopic illumination.

**EPI stand/EPI stage**

AZ-STSE Episcopic Stand; AZ-STGE EPI Stage

**Coaxial illumination**

AZ-ICI Coaxial Episcopic Illuminator, AZ-NCB NCB Filter for Coaxial Epi Illuminator, AZ-QLL ICI 1/4 Lambda Plate 0.5x, AZ-QLM ICI 1/4 Lambda Plate 1x, AZ-QLH ICI 1/4 Lambda Plate 4-5x, C-FI115/230 Fiber Illuminator, YM-ND25 ND4/ND16

**Episcopic DIC attachments**

AZ-ICI Coaxial Episcopic Illuminator, AZ-NCB NCB Filter for Coaxial Epi Illuminator, AZ-EL EPI DIC Lambda Plate, AZ-EPS1 EPI DIC Prism Slider 1-4x, AZ-EPI5 EPI DIC Prism Slider 5x, AZ-PH EPI DIC Prism Holder, C-FI115/230 Fiber Illuminator, YM-ND25 ND4/ND16

**Epi-fluorescence attachments**

AZ-FL Epi-Fluorescence Attachment, AZ-HGFA Fiber Adapter, C-HGFIF15/C-HGFIF30 HG Fiber, C-HGFI/HGFIE HG Precentered Fiber Illuminator, Fluorescence Filter Cubes

**LED illuminator**

AZ-LED LED Ring Illuminator

*In the case of UV excitation, use a Hg lamphouse. See the system diagram for more information.

Accessories for diascopic observation

Brightfield, simple polarizing, Nomarski DIC, and oblique illumination observation methods are possible with diascopic illumination. Epi-fluorescence and diascopic DIC attachments are simultaneously mountable.

**DIA stand/DIA stage**

AZ-STD Diascopic Stand; AZ-STGD DIA Stage; AZ-SG Stage Glass

**Brightfield**

**Simple polarizing**

AZ-RP Rotatable Polarizer, AZ-AN DIA DIC Prism Holder with Analyzer, AZ-EL DIA DIC Lambda Plate

**Nomarski DIC**

AZ-RP Rotatable Polarizer, AZ-AN DIA DIC Prism Holder with Analyzer, AZ-DL DIA DIC Lambda Plate, AZ-DP1 DIA DIC Prism 1x, AZ-DP4 DIA DIC Prism 4x, AZ-DP5 DIA DIC Prism 5x, AZ-DPS1 DIA DIC Prism Slider 1-4x, AZ-DPS5 DIA DIC Prism Slider 5x

**Epi-fluorescence + diascopic DIC attachments**

AZ-FL Epi-Fluorescence Attachment, AZ-HGFA Fiber Adapter, C-HGFIF15/C-HGFIF30 Fiber, C-HGFI/HGFIE HG Precentered Fiber Illuminator, Fluorescence Filter Cubes, AZ-FLDIC FL-DIC Prism Holder, AZ-ND128 ND128 Filter for FLDIC

**Oblique illumination slider**

AZ-OI Oblique Illumination Slider

*In the case of UV excitation, use a Hg lamphouse. See the system diagram for more information.

*See “Objective lenses” on page 11 regarding compatible objective lenses.

*In the case of UV excitation, use a Hg lamphouse. See the system diagram for more information.