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WARNING TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING THE EQUIPMENT.
Single integrated microscope system for all your macro observation and digital imaging requirements

The MULTIZOOM AZ100 multi-purpose microscope combines superior wide field imaging and long working distance like a stereoscopic microscope but with high resolution bright-field and DIC (differential interference contrast) capability like a metallographic microscope.

- On-Axis coaxial optical zoom system that enables macro image capture.
- Wide-range of observation magnifications from 5x to 500x.*
- High-resolution/high-contrast observation in both the macro & micro regions.
- Support for a wide array of observation methods, including reflected/transmitted light brightfield, simple POL and differential interference contrast.
- Automatic detection of objective lens magnification with intelligent triple nosepiece (AZ100M).
- Electronic remote control of motorized optical zoom and vertical stage movement.
- Communication with a PC and the DS-L2 and DS-U2 digital camera control units (AZ100M).

* Includes coaxial illuminator (unit power 1.25x)
ON-AXIS VIEWING

The AZ100 series enables on-axis observation without the lateral distortion inherent in stereo microscopes. Optimal not only for visual observation, the AZ100/AZ100M is also ideal for capturing macro images with a digital camera or other devices. Telecentric optics, a technology with a strong reputation in the field of industrial measuring microscopes, is employed in this uniquely designed zoom microscope.

Macro observation by on-axis viewing
True on-axis observation and image capture is possible in the macro region by eliminating the traditional stereoscope’s angular view of the specimen in the AZ100/AZ100M.

Comparison of macro images
On-axis viewing with AZ100/AZ100M
Angular viewing with a stereoscopic microscope

Mono zoom mechanism
Stereoscopic microscopes always capture images in a diagonal direction due to the design of the microscope. The AZ100/AZ100M, however, captures high-resolution, high-contrast images with on-axis viewing.

Telecentric optics
The pupil position of the AZ100/AZ100M’s zoom optics remains fixed in relationship to the main objective regardless of the zoom setting. This positioning enables a wide array of illumination techniques, including diascopic/episcopic Nomarski DIC, and oblique illumination.

HIGH VERSATILITY

The AZ100/AZ100M enables a wide array of observation techniques suited for various 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/AZ100M brings the power of all these capabilities to a wide range of applications, ranging from quality control and inspection, to research analysis.
A wide range of magnifications

By combining built-in 8x zoom optics, which provides from 1x to its magnification, with a three-position objective nosepiece, the AZ100/AZ100M 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/AZ100M covers everything from macro to high magnification in the range of 5x to 500x (the latter includes a coaxial illuminator with 1.25x magnification). The zoom knob incorporates an engageable click-stop mechanism, for measuring and reproducible magnification settings (The click-stop mechanism is only available on the AZ100).

Comes standard with an aperture stop

The AZ100/AZ100M 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 easily control contrast and the depth of field based on your specimen requirements.

Superior flexibility

Tilting eyepiece tubes

The AZ100/AZ100M comes standard with eyepiece tubes that tilt from 0 to 30 degrees. This feature adjusts for an observer’s optimal eye level, regardless of their height or posture, as well as the sample height. Two different beamplit ratios for the binocular and photo port can be selected, 100:0/100, which is suitable for photo documentation, or 100/0/20/80, for simultaneous visual observation and image display on a monitor.

Stands

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

Double-coarse/line focusing system

Focusing can be done using either the A2 column or stage focus controls. Since the stand column offers an 85mm stroke and the stage focus 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 above the sample.

Dedicated stages

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.
A variety of control units that can interface with NIS-Elements software

NIS-Elements imaging software, combined with these control units, provides an integrated microscope and digital imaging system. Combining motorized Z axis control with the EDF function (optional) of NIS-Elements makes it possible to easily create all-in-focus 3D images by combining a series of images with different focal planes. Furthermore, communication between the intelligent nosepiece and motorized zoom automatically maintains measurement calibration and scale displays at all magnification settings.

Intelligent nosepiece capable of communicating with a PC

The AZ100M features an intelligent nosepiece (AZ-NPI Intelligent triple nosepiece) that can communicate with a PC. The intelligent nosepiece transmits information on objective magnification to a PC or the DS-L2 and DS-U2 digital camera control units, so that when the user changes the objective lens while measuring a component, the device will automatically switch to the appropriate calibration information. Accurate, efficient image capture, measurement, and scale display are all possible.

Control units for remote control of AZ100M

Variable power zoom and motorized Z focusing can be user controlled via the AZ-MC Controller. The AZ-HRC Hand Remote Controller puts variable power zoom and focusing at the user’s fingertips. The AZ-FSW Foot Switch enables variable power zoom and focusing via a foot control, which is especially handy when both hands are busy positioning a part under the microscope. The AZ-PCR Photo Release enables image capture via foot control.
Digital Camera System for Microscopy

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.

Digital Sight series of newly developed imaging software

The Digital Sight 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 optional plug-ins to upgrade basic packages to suit individual applications.

DS-U2

The DS-U2 controls everything from live image display and capture to advanced image processing and analysis on a computer. It supports a wide range of applications.

Simple connection via high-speed USB 2.0

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

Integration with microscope

Enables control (including variable power zoom and vertical movement) via the various control units. Detection of objective magnification information via the intelligent nosepiece.

Stand-alone Control Unit

DS-L2

The DS-L2 features a large high-definition LCD and a host of image processing and control features. There is no need for a PC and monitor, processing and control features.

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Integration with microscope

Enables control (including variable power zoom and vertical movement) via the various control units. Detection of objective magnification information via the intelligent nosepiece.

Stand-alone Control Unit

DS-L2

The DS-L2 features a large high-definition LCD and a host of image processing and control features. There is no need for a PC and monitor, processing and control features.

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 OSD for camera control, state confirmation, and various settings, which allows use of mouse and keyboard to manipulate buttons and menu displayed on the monitor.

Handy save/print features

The unit enables data to be saved on USB memory sticks, as well as on CF cards and micro-drives, as well as transferred through a network. In addition, it comes standard with direct printing to PictBridge printers. It also features Real 10 modes and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range color camera head.

Easy-to-use toolbar

Frequently used features are displayed as toolbar buttons. This enables control without cluttering the display of the image to be captured. It is also possible to customize the buttons.

Split-screen display perfect for comparative observation

The unit includes a split-screen feature for the simultaneous display of a raw image and a live image, for comparison purposes.

Utilizing advanced image processing technology

Users can measure captured images and enter line contrast and other settings using the overlays. Users can also save data in-image file and output measurement data.

Flexible measurement functions

Users can select the window layout according to the purpose at hand.

Scene mode: optimal image capture

The unit features three scene modes for industrial samples. These modes allow for fine-tuning of exposure settings for the given sample. Users can also register up to seven custom modes.

An extensive array of tool functions

Users can register up to seven custom modes.

Measurement and alignment functions

Measurement and alignment is possible by standard-length calibration (up to seven points can be registered).

Provides measurement accuracy of ±1 pixel in the x, y direction.

Superimposition

Detection of objective magnification information via the intelligent nosepiece.

Example of toolbar buttons (Left: Short/Right: Large)

Saved image, Live image

Superimposition

5-regulated high-definition color. The DS-F11 offers advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield, advanced performance, including a high dynamic range and superior red sensitivity, and is optimal for brightfield.
**Eyepiece tubes**

AZ-TE100 Ergonomic Trinocular Tube (100:0/0:100) and AZ-TE80 (beam split ratio 100:0/20:80), as well as the vertical monocular tube (AZ-TP 0.6x), which is ideal for system integration. The 0.6x reduction optics built into the eyepiece tubes and photo port enable capturing of images with a wider field of view.

*Accepts C type C-mount Direct CCTV Adapters.

**Objective lenses**

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

**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 AZ Focusing Mount Adapter with the AZ-STE Episcopic Stand and AZ-STD Diascopic Stand.

**Objective lens mounts**

Users can select either the AZ-NPF33 nosepiece, a three-position nosepiece that delivers a magnification ratio that is among the highest in the world, the AZ-NPS single position, a simple and compact single objective holder, or the AZ-NAPI intelligent 3-Hole nosepiece (AZ100M only), a nosepiece capable of transmitting objective information whichever best suits their requirements.

*Individual mounting of epifluorescence and diascopic DIC attachments requires the AZ-FD LED FL-DIC Filter Holder.

**List of objectives specs**

*Simultaneous mounting of epi-fluorescence and diascopic DIC attachments requires the AZ-FLDIC FL-DIC Prism Holder.*

*Accepts ISO type C-mount Direct CCTV Adapters.*

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**Image Gallery**

- Metal structure (coaxial illumination)
- Micro-bumps (coaxial illumination)
- K+ strip (LED illumination)
- Printed material (LED illumination)
- Minerals (diascopic polarizing observation)
- Cross section of an electronic part (LED illumination)
- Cross section of an electronic part (coaxial illumination)
- Glass etching pattern (diascopic DIC observation)
- Color filter (coaxial illumination)
- Color filter (LED illumination)
- Mounted circuit board (LED illumination)
- Cross section of an electronic part (LED illumination)
Accessories for diascopic observation

**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

**Coaxial illuminator**
- 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

**LED illuminator**
- AZ-LED LED Ring Illuminator

**Diascopic simple polarizing attachments**
- AZ-RP Rotatable Polarizer
- AZ-AN DIA DIC Prism Holder with Analyzer
- AZ-DL DIA DIC Lambda Plate

**Diascopic DIC attachments**
- 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
- AZ-FLDIC FL-DIC Prism Holder
- AZ-ND128 ND128 Filter for FLDIC

**Epi-fluorescence + diascopic DIC 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
- 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
- AZ-FLDIC FL-DIC Prism Holder
- AZ-ND128 ND128 Filter for FLDIC

**Controller accessories (AZ100M only)**
- AZ-MC Controller
- AZ-NRC Host Remote Controller
- AZ-FSW Foot Switch
- AZ-PCR Photo Release

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

**EPI stand/EPI stage**
- AZ-STE Episcopic Stand
- AZ-STGE EPI Stage

**DIA stand/DIA stage**
- AZ-STG DIA Focusing Diascopic Stand
- AZ-STG EPI Stage

*The AZ-STGW Motorized Focusing Diascopic Stand is for the AZ100M.

**Controller accessories (AZ100M only)**
- AZ-MC Controller
- AZ-NRC Host Remote Controller
- AZ-FSW Foot Switch
- AZ-PCR Photo Release

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

**Diascopic simple polarizing attachments**
- AZ-RP Rotatable Polarizer
- AZ-AN DIA DIC Prism Holder with Analyzer
- AZ-DL DIA DIC Lambda Plate

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

**Oblique illumination slider**
- AZ-OI Oblique Illumination Slider

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

*The center of the light beam is shielded by the sliding diaphragm placed at a conjugated position with the objective pupil, allowing coherent light to be projected obliquely onto the sample to produce high contrast.
**AZ100 Coaxial Illumination configuration**

- Coaxial illumination configuration
- When using AZ-STE Episcopic Stand: approx. 28kg
- Epi-fluorescence + diascopic DIC configuration (AZ-STDM Motorized Focusing Diascopic Stand): approx. 28kg

**AZ100M Coaxial Illumination configuration**

- Coaxial illumination configuration
- When using AZ-STE Episcopic Stand: approx. 28kg
- Epi-fluorescence + diascopic DIC configuration (AZ-STDM Motorized Focusing Diascopic Stand): approx. 28kg

**AZ100M System integration configuration**

- AZ-FSW Foot Switch
- AZ-MC Controller
- AZ-HRC Hand Remote Controller
- AZ-PCR Photo Release