









Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. March 2010 ©2006/2007/2010 NIKON CORPORATION

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WARNING

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



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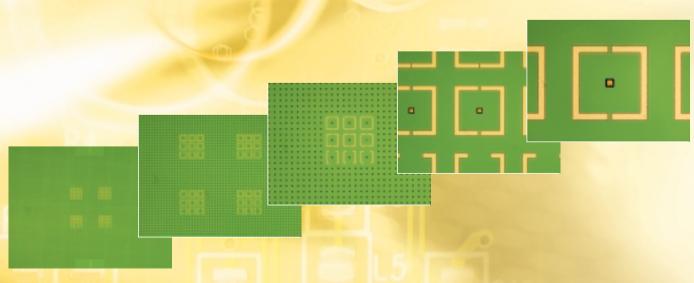
AZIOOMA AZIONAMICROSCOPE POR LA TIZO O MICROSCOPE POR LA TIZO DE LA TIZ

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)



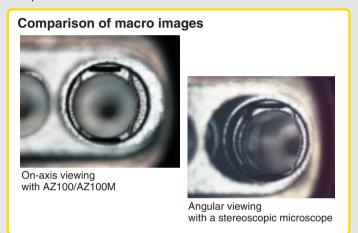


On-AXIS VIEWING

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

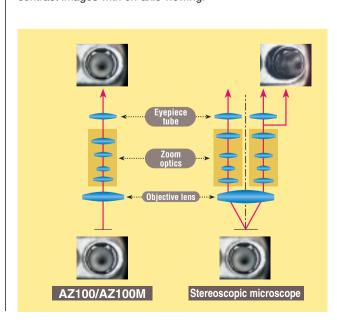
True on-axis observation and image capture is possible in the macro region by eliminating the traditional stereoscope's angular view of the specimen in the AZ100/AZ100M.





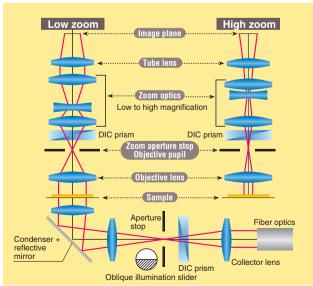
Mono zoom mechanism

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



Telecentric optics

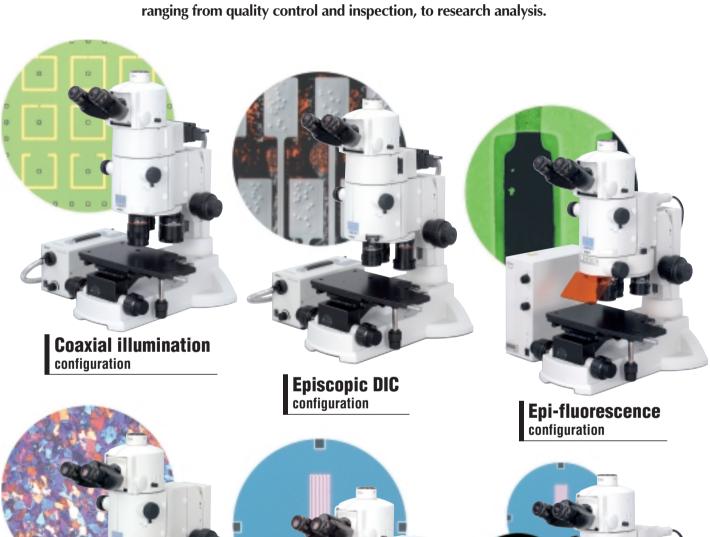
The pupil position of the AZ100/AZ100M's zoom optics remains fixed in relationship to the main objective regardless of the zoom setting. This positioning enables a wide array of illumination techniques, including diascopic/episcopic Nomarski DIC, and oblique illumination.



Note: Excludes epi-fluorescence 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.









Epi-fluorescence + diascopic DIC configuration

configuration

FUNCTIONAL DESIGN

Zoom click mechanism on knob

A wide range of magnifications

By combining built-in 8x zoom optics, which provides from 1x to 8x 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).



Triple Nosepiece

Comes standard with an aperture stop

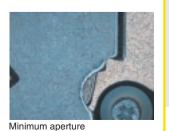
The AZ100/AZ100M ships complete with an aperture stop that is effective not only for visual observation, but also for the capture of digital images. This aperture stop allows you to easily control contrast and the depth of field based on your specimen requirements.



Aperture stop

Comparative example



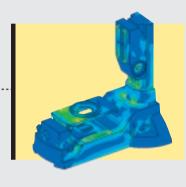






Tilting eyepiece tubes

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 beamsplit ratios for the binocular and photo port can be selected, 100:0/0:100, 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 dualpurpose reflected/transmitted illumination stand. Even during observation at high magnifications, these stands enable stable, blur-free observation.

Double-coarse/fine focusing system

Focusing can be done using either the AZ 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.

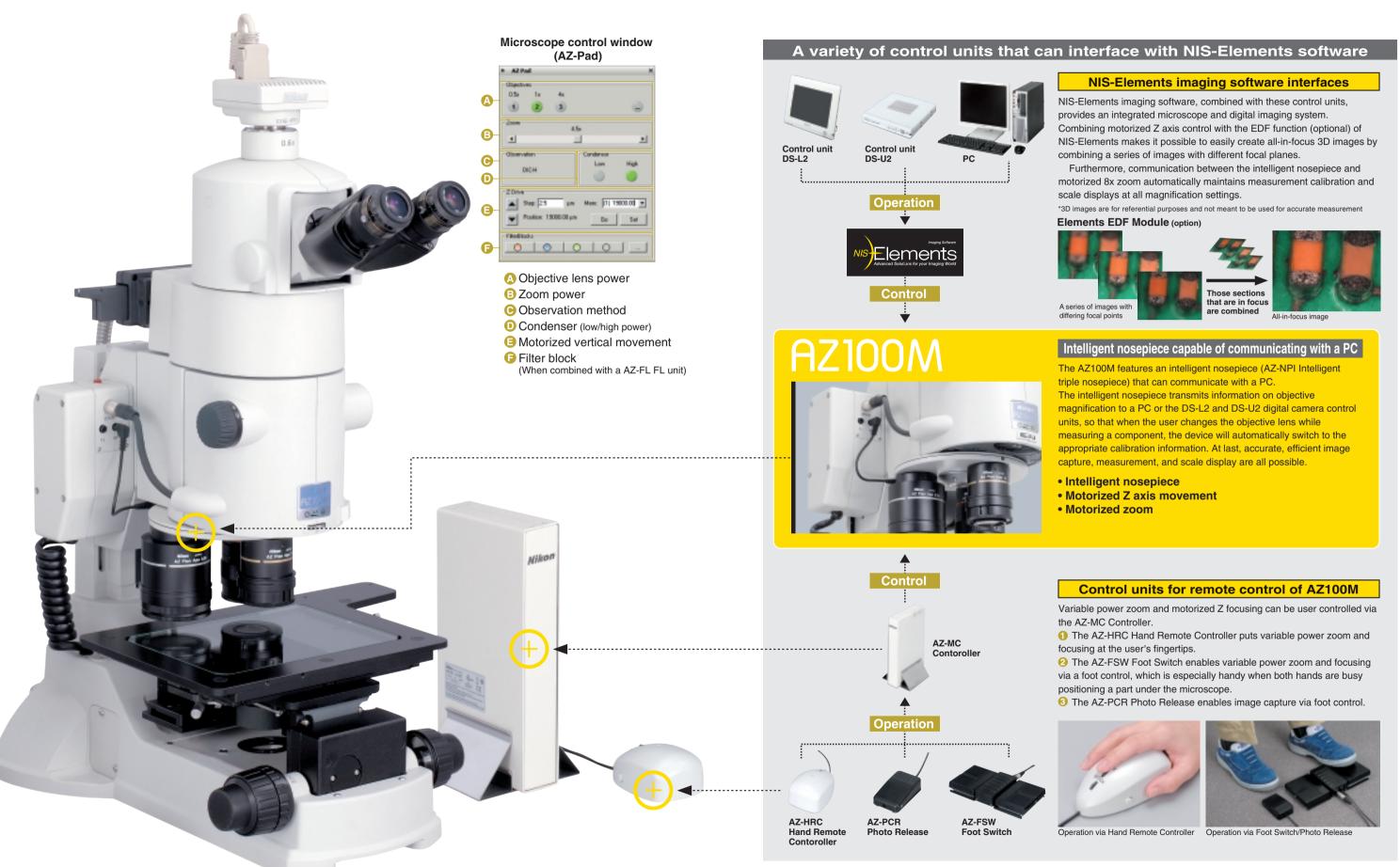


*Differs depending on the objectives and stand combination.

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.

AZ100M FUNCTION



DOCUMENTATION SYSTEMS

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.



Camera Heads



High-definition color camera head



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



High-speed color camera head

DS-Vi1 The DS-Vi1 features 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



processing and control features. There is no need for a PC and monitor, which allows images to be acquired with the touch of a single button.

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 menus 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 that make it possible to set and adjust print scaling.

Easy-to-use toolbar

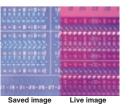
Frequently used features are displayed as toolbar buttons. This enables control without cluttering the display of the image to be captured. It is also possible to customize the buttons





Split-screen display perfect for comparative observation

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



Scene mode: optimal image capture with a single button

The unit features three scene modes for industrial samples. These modes all offer pre-set capture conditions optimized for each of the sample types shown below. Users can also register up to seven custom modes







An extensive array of tool functions







Users can measure captured images and enter line contrast and other settings using the overlays. 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 types can be registered).









Users can input and display lines, comments, and other useful elements

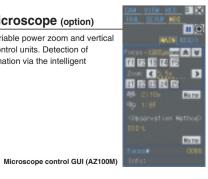
·Straight lines (Arrows can be set.) ·Curves ·Count markers ·Text entry

·Superimposition (semi-transparent image overlay for comparative purposes)



Integration with microscope (option)

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



PC-based Control Unit



DS-U2

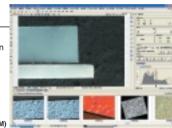
The DS-U2 controls everything from live image display and capture to advanced image processing and analysis on a computer. It supports a wide range of applications.

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





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



NIS-Elements F Package

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.



NIS-Elements Documentation

This package provides functions for performing measurements and creating reports. It can be used for general image capture in the industrial field. Expandability is also possible by adding plugins, such as EDF and databases.

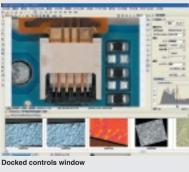


NIS-Elements Basic Research

In addition to the measurement function and reportgenerating 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.

Application window

(There is no organizer window.) Freely select the window layout according to the purpose at hand.





Measurement

Measure quantity, length, radius, angle, area, and pixel intensity profile.

See the NIS-Elements series catalog for more information.

Report generator

created directly from NIS-Elements.

Create reports containing images, database descriptions, and measured data. PDF files can be



EDF (Extended Depth of Focus):

Plug-in D Br

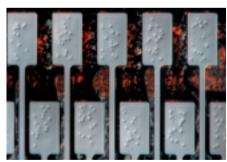
Create an all-in-focus image and a 3D surface image from images that have been captured in a different 7-axis



3D images are for referential purposes and not meant to be

IMAGE GALLERY





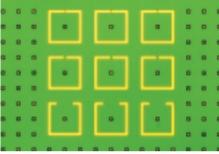
LCD (conductive particles) (episcopic DIC observation) Color filter (LED illumination)



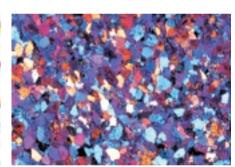
Glass etching pattern (diascopic DIC observation)

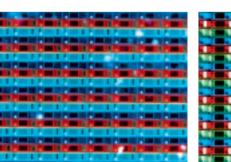


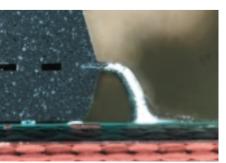
Metal structure (coaxial illumination)



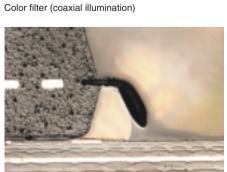
Micro-bumps (coaxial illumination)







Cross section of an electronic part (LED illumination) Cross section of an electronic part (coaxial illumination)



ACCESSORIES

Eyepiece tubes EYEPI DIA

AZ-TE100 Ergonomic Trinocular Tube 100, AZ-TE80 Ergonomic Trinocular Tube 80, AZ-TP DSC Tube 0.6x

The lineup includes the ergonomic tilting trinocular eyepiece tube AZ-TE100 (beamsplit ratio 100:0/0:100) and AZ-TE80 (beamsplit 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 ISO type C-mount Direct CCTV Adapters.



Objective lens mounts PD DIA

AZ-NPI Triple Nosepiece I, AZ-NP3 Triple Nosepiece, AZ-NPS Single Nosepiece

Users can select either the AZ-NP3 3 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-NPI intelligent 3-Hole nosepiece (AZ100M only), a nosepiece capable of transmitting objective information whichever best suits their requirements. *Simultaneous mounting of epi-fluorescence and diascopic DIC attachments requires the AZ-FLDIC FL-DIC Prism Holder.



Focus mount adapters EPD DIA

AZ-FM AZ Focusing Mount Adapter, AZ-SMZ SMZ Focusing Mount Adapter, AZ-LV LV Focusing Mount Adapter

There are three types of focus mount adapters to suit various needs: AZ-FM AZ Focusing Mount Adapter for AZ-dedicated stands, AZ-SMZ SMZ Focusing Mount Adapter* for stereoscopic microscope stands, 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



Objective lenses EPP DIA

AZ-Plan Apo 0.5x, AZ-Plan Apo 1x, AZ-Plan Fluor 2x, AZ-Plan Apo 4x, AZ-Plan Fluor 5x

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.

List of objectives specs

	Plan Apo 0.5x	Plan Apo 1x	Plan Fluor 2x	Plan Apo 4x	Plan Fluor 5x (include correction ring)
		Parfocal			
NA	0.05	0.1	0.2	0.4	0.5
WD	54mm	35mm	45mm	20mm	15mm
Coaxial illumination	(with lambda plate)	(with lambda plate)	_	(with lambda plate)	(with lambda plate)
Diascopic illumination	0	0	0	0	0
DIC	_	EPI/DIA	_	EPI/DIA	EPI/DIA
Epi- fluorescence	0	0	(UV excitation possible)	0	(UV excitation possible)
LED illumination	0	0		_	_



ACCESSORIES

















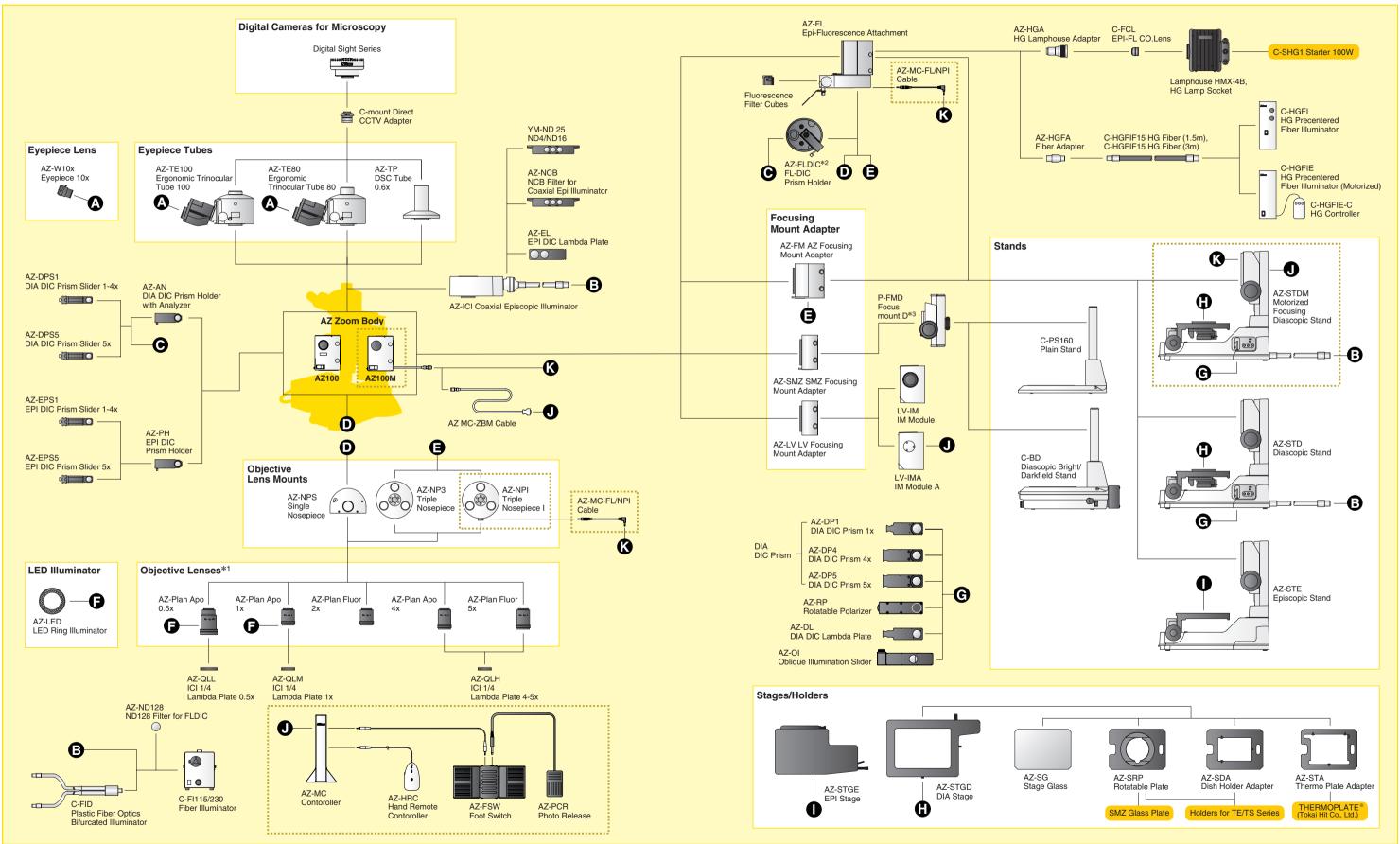






SYSTEM DIAGRAM

AZ100M only



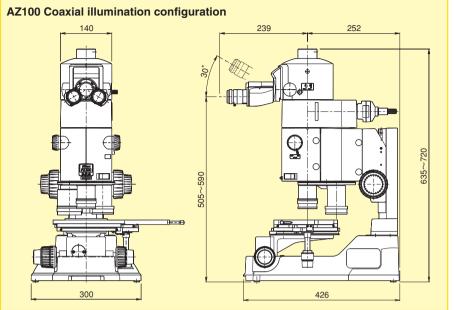
^{*1} See page 11 regarding combinations with illuminators. *2 Use when simultaneously mounting epi-fluorescence and diascopic DIC attachments. *3 Combination with coaxial illuminator is not possible.

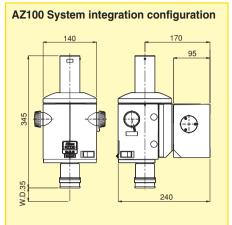
SPECIFICATIONS

	AZ100	AZ100M		
Total magnification	5x to 400x (6.25x to 500x when coaxial illuminator is mounted) Depends on the combination of eyepiece lenses and objective lenses			
Zoom range	1 to 8 (zoom ratio: 8:1)	1 to 8 (zoom ratio: 8:1, motorized variable power zoom)		
Eyepiece tubes	AZ-TE100 Ergonomic Trinocular Tube 100 (beamsplit ratio 100:0/0:100, 0.6x reduction optics built into photo port) AZ-TE80 Ergonomic Trinocular Tube 80 (beamsplit ratio 100:0/20:80, 0.6x reduction optics built into photo port) AZ-TP DSC Tube 0.6x (direct tube type, 0.6x reduction optics built in)			
Inclination angle	0 to 30 degrees (eyepiece tube AZ-TE100/AZ-TE80)			
Interpupillary adjustment range	50 to 75mm (eyepiece tube AZ-TE100/AZ-TE80)			
Eyepiece lens	AZ-W10x eyepiece 10x (FOV: 22mm)			
Focus mount adapters	AZ-FM AZ Focusing Mount Adapter (for AZ stand), AZ-SMZ SMZ Focusing Mount Adapter (for SMZ stand) AZ-LV LV Focusing Mount Adapter (for LV-IMA/LV-IM)			
Stands	AZ-STE Episcopic Stand/AZ-STD Diascopic Stand: (focus mount section: focusing stroke, 85mm; coarse, 18.5mm/rotation; fine, 3.27mm/rotation Stage focus section: focusing stroke, 10mm; coarse, 37.7mm/rotation; fine, 0.27mm/rotation) C-PS160 Plain Stand, C-BD Diascopic Bright/Darkfield Stand	AZ-STDM Motorized Focusing Diascopic Stand (Focus mount section: 85mm stroke, motorized vertical movement, Note: Manual operation is not possible while power is on.)		
Stages	AZ-STGE EPI Stage (150 x 150mm stroke only with AZ100), AZ-STGD DIA Stage (150 x 100mm stroke)			
Objective lens mounts	AZ-NP3 Triple Nosepiece I, AZ-NPS Single Nosepiece AZ-FLDIC FL-DIC Prism Holder (when simultaneously mounting epi-fluorescence and diascopic DIC attachments)	AZ-NPI Triple Nosepiece I, AZ-FLDIC FL-DIC Prism Holder (when simultaneously mounting epi-fluorescence and diascopic DIC attachments)		
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), AZ-Plan Apo 4x (NA: 0.4/WD: 20mm) AZ-Plan Fluor 5x (NA: 0.5/WD: 15mm)			
Illuminators	AZ-ICI Coaxial Episcopic Illuminator (C-FI115/230 Fiber Illuminator: 12V 100W halogen lamp); device magnification: 1.25x AZ-LED LED Ring Illuminator, C-FID Plastic Fiber Optics Bifurcated Illuminator (C-FI115/230 Fiber Illuminator: 12V 100W halogen lamp)			
Light source for epi-fluorescence observation	C-HGFI HG Precentered Fiber Illuminator (130W mercury lamp), C-HGFIE HG Precentered Fiber Illuminator			
Observation methods	Reflected light: coaxial illumination, Nomarski DIC, fluorescence (up to four filter cubes are mountable), and LED illumination observation Transmitted light: brightfield, Nomarski DIC, simple polarizing, and oblique illumination observation			
Weight	Coaxial illumination configuration (when using AZ-STE Episcopic Stand): approx.26kg epi-fluorescence + diascopic DIC configuration (when using AZ-STD Diascopic Stand): approx.28kg	Coaxial illumination configuration: (when using AZ-STDM Motorized Focusing Diascopic Stand): approx.29kg, epi-fluorescence + diascopic DIC configuration: (when using AZ-STDM Motorized Focusing Diascopic Stand): approx.29kg		

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DIMENSIONS





AZ100M System integration configuration

