



# Biological Microscopes

# Contents

	Motorized Focusing	Macro	Brightfield	Darkfield	DIC	Phase Contrast	Polarizing	Epi-fluorescence	Additional Features	Page
<b>Super Resolution Microscopes</b>										3
<b>Inverted Microscopes</b>										
Ti-E	✓		100W/30W	✓	✓	✓		130W/100W	NAMC*1	4
Ti-U			100W/30W	✓	✓	✓		130W/100W	NAMC	4
Ti-S			100W/30W	✓	✓	✓		130W/100W	NAMC	4
Ts2R-FL			LED		✓	✓		LED/130W	Emboss*2 NAMC	5
Ts2R			LED		✓	✓			Emboss NAMC	5
Ts2-FL			LED			✓		LED	Emboss	5
Ts2			LED			✓			Emboss	5
<b>Cell Incubator Observation</b>										
BioStation CT	✓	✓				LED		LED		7
BioStation IM-Q	✓	✓	LED			✓		130W		7
<b>Upright Microscopes</b>										
Ni-E (focusing stage)	✓		100W	✓	✓	✓	Simple	130W/100W		8
Ni-E (focusing nosepiece)	✓		100W		✓			130W/100W		8
Ni-U			100W	✓	✓	✓	Simple	130W/100W		8
Ci-E			LED	✓		✓	Simple	130W/100W		9
Ci-L			LED	✓		✓	Simple	130W/100W		9
Ci-S			30W	✓		✓	Simple	130W/100W		9
E200			LED/30W	✓		✓	Simple	LED		9
E100			LED/20W	✓		✓				10
<b>Polarizing Microscopes</b>										
LV100N POL			50W*3				✓			10
Ci-POL			30W				✓			10
E200POL			30W				✓			10
<b>Microscope for Asbestos Identification</b>										
LV100ND POL/DS			50W*3			Dispersion Staining				11
<b>Microscope for Patch Clamp Experiments</b>										
FN1		✓	100W		✓			130W/100W		11
<b>Stereo Microscopes</b>										12
<b>Multi-purpose Zoom Microscopes</b>										
AZ100, AZ-C2+		✓	100W		✓		Simple	130W/100W		14
AZ100M	✓	✓	100W		✓		Simple	130W/100W		14
<b>Laser Units</b>										14
<b>Confocal Microscope Systems</b>										15
<b>Cameras</b>										16
<b>Software</b>										17
<b>CFI60 Objectives</b>										18
<b>Combinations of DIC Prisms and Objectives</b>										20
<b>Epi-fluorescence Filter Cubes</b>										21
<b>Dimensional Diagrams</b>										22

\*1 NAMC (Nikon Advanced Modulation Contrast) is Nikon's unique modulation contrast observation method, which provides stereoscopic images similar to DIC observation, even with samples on plastic dishes.

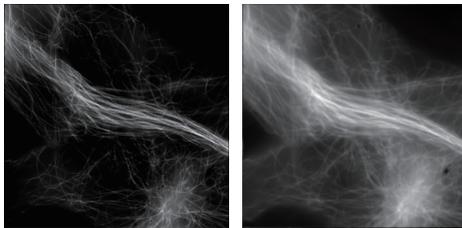
\*2 Emboss contrast is Nikon's unique contrast observation method. It provides pseudo-three-dimensional images using focal illumination, which gives high contrast to samples. \*3 Brighter than 100W

## Super Resolution Microscope

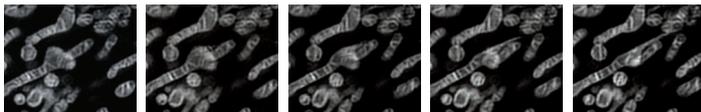
### N-SIM

#### Temporal resolution of 0.6 sec./frame enables super resolution time-lapse imaging of dynamic live cell events with double the resolution of conventional optical microscopes

- Offering nearly twice (up to approx. 115nm\*) the resolution of conventional optical microscopes, N-SIM enables detailed visualization of minute intracellular structures and their interactive functions by utilizing “Structured Illumination Microscopy” technology (\* excited with 488nm laser, in 3D-SIM mode)
- Ultra-high temporal resolution of up to 0.6 sec/frame\* enables super-resolution time-lapse imaging of dynamic molecular interactions in living cells (\* with TIRF-SIM/2D-SIM mode)
- Various observation modes
  - TIRF-SIM/2D-SIM mode allows high-speed super resolution 2D image capture with incredible contrast; TIRF-SIM doubles the resolution of conventional TIRF microscopes, facilitating a greater understanding of molecular interactions at the cell surface
  - Two reconstruction methods are available with 3D-SIM mode: Slice 3D-SIM allows axial super-resolution imaging with optical sectioning at 300nm resolution in specimens; Stack 3D-SIM can image thicker specimens than Slice 3D-SIM
- The optional two-camera imaging adapter allows simultaneous two-wavelength super-resolution imaging with excitation of 488nm and 561nm
- 5-laser multi-spectral super resolution imaging facilitates the study of dynamic interactions of multiple proteins at the molecular level
- The personal super-resolution microscope N-SIM E, which provides a streamlined, affordable super-resolution system supporting only essential, commonly used excitation wavelengths and imaging modes, is also available



Left: with N-SIM, Right: with conventional microscope  
Microtubules in B16 melanoma cell



Dynamics of mitochondria (approx. 1 sec. image capturing intervals)

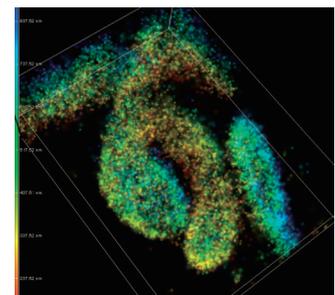


## Super Resolution Microscope

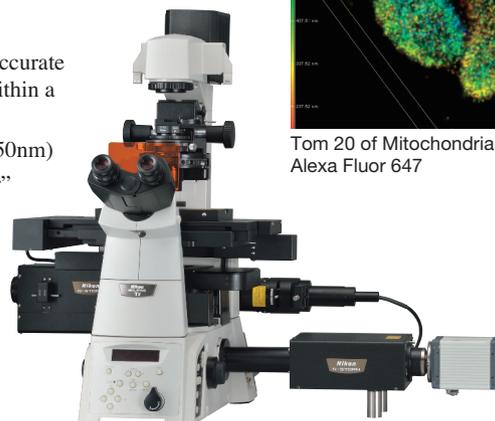
### N-STORM

#### Resolution 10 times that of conventional optical microscopes enables a greater understanding at the molecular level

- Ultra-high spatial resolution (up to 20nm in xy) is achieved by utilizing accurate localization information of thousands of discrete fluorophore molecules within a specimen
- A tenfold enhancement has also been achieved in axial resolution (up to 50nm)
- Multicolor super-resolution imaging utilizing a combination of “activator” and “reporter” probes affords a critical insight into the co-localization and interaction of proteins at the molecular level
- N-STORM 4.0, a fully improved version of N-STORM, provides faster image acquisition, clearer images with high molecule counts, and a wider imaging area than before



Tom 20 of Mitochondria labeled with Alexa Fluor 647



Inverted Research Microscopes

# ECLIPSE Ti Series

## Ultimate solution for advanced imaging methods in live cell research

- Ti-E with motorized focusing and motorized three-port (four-port with Ti-E/B model) changeover, Ti-U with manual three-port (four-port with Ti-U/B model) changeover and Ti-S with manual two-port changeover
- High-speed multi-channel screening is possible by fast motorized control (Ti-E)
- The latest version of Perfect Focus System (PFS), which maintains focus in real-time during long-term observations, comes in two models: a UV-visible imaging model and a multiphoton imaging model. Both can maintain focus at greater depths than the previous model
- Imaging software NIS-Elements provides total system control for 6D time-lapse imaging (Ti-E)
- “Full intensity” external phase contrast unit allows use of specialized objectives without a phase ring and acquisition of high-quality images with high NA objectives
- Nikon original stratum structure allows simultaneous mounting of multiple fluorescence turrets and simultaneous acquisition of multiple wavelengths with two cameras including optional back port
- The Ti-LAPP modular illumination system allows for flexible combination of a wide range of illumination modules to create an imaging system tailored for individual research (Ti-E/U)
- By attaching a HUB controller, desired components such as a filter cube turret and filter wheel, in addition to the stage and nosepiece, can be motorized



Ti-E configuration with motorized accessories



Ti-U configuration with epi-fluorescence illuminator



Ti-S

### Illumination modules

## Ti-LAPP Modular Illumination System (for Ti-E/U)

A wide range of illumination modules can be flexibly combined or added to create an imaging system tailored for individual research. Utilizing the Ti's stratum structure, up to five modules can be simultaneously mounted and rapidly switched. Dual layer configuration of filter cube turrets enables optimal filter configuration for illumination modules on each layer.

- 1 DMD module: Allows for simultaneous multi-point photoactivation with customizable illumination ROIs
- 2 N-STORM module: Equipped with motorized switching of illumination field for N-STORM microscopy
- 3 H-TIRF module: Enables automatic laser focus adjustment and incident angle adjustment for TIRF observations



## Inverted Microscopes

### Inverted Research Microscopes

# ECLIPSE Ts2R/Ts2R-FL

A compact inverted research microscope configurable with a wide variety of observation methods

- Space-saving compact body allows these models to be easily fit inside a laminar flow hood
- Low stage design helps reduce fatigue during repetitive sample exchange
- Mechanical stage with long travel stroke enables observation of entire 96-well plates
- High-intensity LED light source is used for both diascopic and epi-fluorescence illumination
- In addition to DIC and NAMC, the Emboss Contrast method is possible, enabling observation of thick samples with high contrast and relief images using standard condenser lenses and objectives, supporting both plastic and glass dishes
- The Ts2R-FL features built-in fluorescence light source and filter turret, accommodating up to four sets of LED units and filter cubes
- Illumination can be switched to epi-fluorescence with one button; the fluorescence illumination brightness adjuster is located on the same side of the microscope for intuitive operation (Ts2R-FL)
- Optional Contrast Shield blocks room light, making high S/N fluorescence observation possible even in brightly-lit rooms (Ts2R-FL)



ECLIPSE Ts2R  
(Diascopic illumination model)



ECLIPSE Ts2R-FL  
(Diascopic and epi-fluorescence illumination model)

### Inverted Routine Microscopes

# ECLIPSE Ts2/Ts2-FL

Fits in every laboratory — Simple to use and compact

- Space-saving compact bodies allow these models to be easily located next to incubators; camera port located on the side enables confirmation of what is on the stage from the observation position
- Mechanical stage with long travel stroke enables observation of entire 96-well plates
- High-intensity LED light source is used for both diascopic and epi-fluorescence illumination
- The Emboss Contrast method allows observation of thick samples with high contrast and relief images using standard condenser lenses and objectives, supporting both plastic and glass dishes
- The Ts2-FL features built-in fluorescence light source and filter turret, accommodating up to three sets of LED units and filter cubes
- Illumination can be switched to epi-fluorescence with one button; the fluorescence illumination brightness adjuster is located on the same side of the microscope for intuitive operation (Ts2-FL)
- Optional Contrast Shield blocks room light, making high S/N fluorescence observation possible even in brightly-lit rooms (Ts2-FL)



ECLIPSE Ts2  
(Diascopic illumination model)



ECLIPSE Ts2-FL  
(Diascopic and epi-fluorescence illumination model)

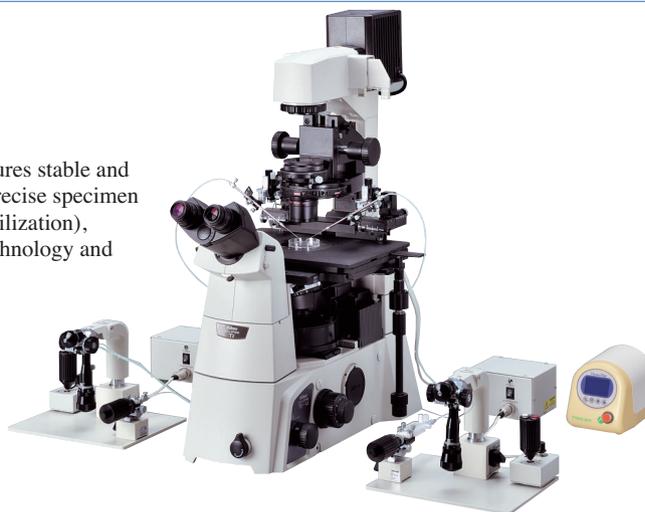
## Accessories for Inverted Microscopes

### Oil Hydraulic Micromanipulation Systems

#### **NT-88-V3 Series** (for Ti-E/U/S, Ts2R/Ts2R-FL)

The NT-88-V3 series with compact and easy-to-assemble design ensures stable and smooth operation without needle drift. It provides microscopic and precise specimen micromanipulation for experiments in the fields of IVF (In Vitro Fertilization), especially ICSI (Intracytoplasmic Sperm Injection), transgenic biotechnology and electrophysiology.

(Manufactured by Narishige Co., Ltd.)



### Water Hydraulic Micromanipulation System

#### **MHW-3** (for Ti-E/U/S, Ts2R/Ts2R-FL)

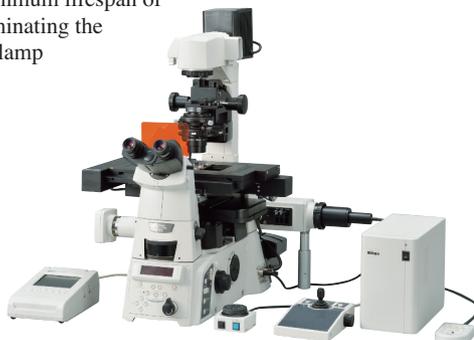
Needle drift caused by changes in room temperature has been decreased to the lowest possible level. Optimized for long hours of micromanipulation, such as in electrophysiologic patch-clamp experiments.

(Manufactured by Narishige Co., Ltd.)



#### **Epi-FI LED Illuminator** (for Ti-E/U/S, Ni-E/U, FN1)

Equipped with an LED light, this epi-fluorescence illuminator requires zero warm-up time and ensures stable and quantitative brightness of illumination, thus is particularly suited to long periods of time-lapse imaging. It allows simultaneous lighting with multiple wavelengths and the intensity of each wavelength can be controlled. An LED has a minimum lifespan of 10,000 hours, eliminating the need for frequent lamp replacement.



### HG Precentered Fiber Illuminator

#### **Intensilight**

(for Ti-E/U/S, Ts2R-FL, Ni-E/U, Ci-E/L/S, FN1, AZ100/100M)

It comes equipped with a precentered, easy-to-replace mercury lamp that has a lifespan of up to 2,000 hours and is suitable for fluorescence observation. Motorized and manual models are both available.

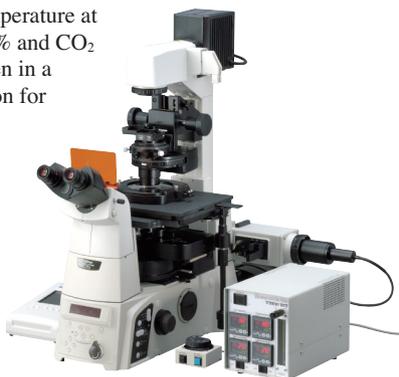


### Stage Incubation System

#### **INU Series** (for Ti-E/U/S, Ts2R/Ts2R-FL)

It sustains the internal temperature at 37°C with humidity of 90% and CO<sub>2</sub> of 5% to keep the specimen in a stable and precise condition for about three days.

(Manufactured by Tokai Hit Co., Ltd.)



### Thermal Plate Warmer

#### **ThermoPlate TPX Series**

(for Ti-E/U/S, Ts2/Ts2-FL, Ts2R/Ts2R-FL)

A temperature controllable stage ring with a glass heating plate keeps the specimen at a set temperature. Temperature is adjustable from room temperature +5°C to 50°C in 0.1°C increments.

(Manufactured by Tokai Hit Co., Ltd.)



Cell Culture Observation System

# BioStation CT

## Automated stem cell screening in culture environment

- Operations from culture to observation of cells run automatically under optimal conditions in the same incubator
- Culture vessels are transferred from the rack to the microscope stage and cell image is captured according to a user-configured schedule
- Remote observation and setting from outside the laboratory via a network is possible
- Captures micro images from 2x to 40x with phase contrast observation using apodized phase contrast (APC) optics and fluorescence observation using three-color LED illumination. A bird's eye macro view allows the entire vessel to be viewed from above
- High resolution whole vessel images can be acquired with Full Well Scan Observation. This mode allows automatic processing and stitching of images to reconstruct the entire image of the culture vessel, and quick and easy discovery of developing iPS colonies. Images are zoomed so that colonies can be seen without loss of resolution
- Optional image analysis software CL-Quant allows automatic cell detection from a phase contrast image, and enables identification and counting of iPS colonies



Time Lapse Imaging System

# BioStation IM-Q

## The perfect and simple solution for reliable time-lapse imaging

- A totally integrated cell incubation and time-lapse imaging system
- High-sensitivity cooled monochrome CCD camera captures bright, high-contrast images
- Accurate, reliable data acquisition provided by precision XYZ control and by eliminating the focus drift caused by the stage movement and temperature change
- Powerful and intuitive software. Effortless operations with ergo controller and mouse
- Stable, consistent control of temperature, humidity and CO<sub>2</sub> gas concentration maintains cell activity for long periods
- Exceptional phase contrast and fluorescence imaging quality
- Instant set-up. Space-saving design. No need for darkroom
- Convenient accessories include a vessel and chamber for multi-sample observation and built-in perfusion components



## Upright Microscopes

Motorized Advanced Research Microscope

### **ECLIPSE Ni-E** (focusing stage model and focusing nosepiece model)

#### Automated imaging capability for most advanced observations

- High-precision motorized focusing supports automated Z-series acquisition
- Observation method can be changed using buttons on the microscope body. Microscope settings are automatically set to optimal positions according to selected magnification
- Various motorized accessories can be attached
- Stratum structure allows double layer mounting of a photoactivation unit and an epi-fluorescence attachment to enable simultaneous photoactivation and imaging
- High-speed motorized excitation/barrier filter wheel for multicolor imaging
- Exchangeable focusing mechanism from focusing stage to focusing nosepiece
- High optical performance: uniform and bright illumination using fly-eye optics
- Built-in, easy-to-reach image capture button. Angled operation buttons allow touch-type operations during observation



Ni-E (Focusing stage) configured with motorized epi-fluorescence illuminator, motorized condenser and motorized quadrocular tilting tube



Ni-E (Focusing nosepiece) configured with motorized stage, motorized epi-fluorescence illuminator, photoactivation unit, motorized quadrocular tilting tube and camera

Advanced Research Microscope

### **ECLIPSE Ni-U**

#### Manual microscope with flexible selection of motorized options

- Motorized nosepiece, motorized epi-fluorescence cube turret and motorized shutter can be utilized
- Stratum structure allows double layer mounting of a back port unit and an epi-fluorescence attachment to enable simultaneous multichannel imaging with two cameras.
- High optical performance: uniform and bright illumination using fly-eye optics
- Built-in, easy-to-reach image capture button



Ni-U configured with ergonomic binocular tube

## Upright Microscopes

Clinical and Laboratory Microscopes

# ECLIPSE Ci-E/Ci-L/Ci-S

### Exceptional comfort for clinical and laboratory observation

- High-luminescent eco-friendly LED (Eco-illumination) for Ci-E/Ci-L and halogen illumination for Ci-S
- Ci-E offers motorized magnification switching and automatic light intensity reproduction, enabling use of motorized condenser
- Angle and extension adjustable ergonomic binocular tube ensures observation with natural posture. Eye-point height can be lifted using an eyelevel riser
- Stage height can be lowered by adding a nosepiece spacer, and locked for easy refocusing. Height-adjustable stage handle. Durable, scratch-resistant ceramic-coated stage
- Built-in capture button allows easy imaging with the DS series camera



Ci-E configured with ergonomic binocular tube



Ci-L configured with ergonomic binocular tube and DS series camera



Ci-S configured with ergonomic binocular tube

Clinical & Educational Microscope

# ECLIPSE E200

### Outstanding cost performance—striking image sharpness, operability and durability

- Both high-luminescent LED (Eco-illumination) model and halogen lamp model are available
- Adopts CFI60 infinity optics for this class of microscope. Plan objectives that excel in image flatness come standard
- One-touch refocusing stage for easier specimen handling
- Focusing knob and stage handle are low-positioned and equidistant from operator, permitting one-handed operation in natural posture
- Ergonomic binocular tube and eye-level risers are available for adjusting the eyepoint
- Anti-mold treated
- E200-F (model with field diaphragm) is also available
- Various accessories are available, such as dedicated epi-fluorescence attachment
- Halogen lamp model is compliant with 100V-240V (multi-voltage)
- The E200-dedicated epi-fluorescence attachment is equipped with an LED light source with a minimum lifespan of 10,000 hours.



E200 (model without field diaphragm)

## Upright Microscope

Educational Microscope

# ECLIPSE E100

### High optical quality, simple operation and rigid design

- High-luminescence LED (Eco-illumination) and halogen lamp models are both available
- CFI optical system and dedicated objectives for flat images
- Siedentopf-type eyepiece tube and eye level adjustments; digital camera attachable to trinocular eyepiece tube
- Adjustable condenser position (Simplified Kohler's Illumination System)
- Phase contrast observation for high-contrast viewing of transparent and colorless specimens
- Anti-mold treatment for objectives, eyepieces, and eyepiece tube



E100 configured with binocular tube

## Polarizing Microscopes

# ECLIPSE LV100N POL/Ci-POL/E200POL

- CFI60 optics deliver world-class optical performance
- Excellent basic performance, operability, durability and, above all, outstanding image sharpness
- LV100N POL is a research polarizing microscope that boasts twice the rigidity of conventional models and a brightness exceeding 100W (12V-50W model with centering quintuple nosepiece). The built-in Fly-Eye optics ensures uniform illumination, making it ideal for digital imaging
- ECLIPSE Ci-POL is compact yet offers high functionality, such as a nosepiece with DIN standard compensator slot (6V-30W model with centering quintuple nosepiece). Built-in capture button allows easy imaging with DS series cameras
- E200POL is a cost-efficient and extremely compact model (6V-30W multi-voltage model with quadruple nosepiece)



LV100N POL (diascopic illumination type)



Ci-POL (diascopic illumination type)



E200 POL (diascopic illumination type)

## Microscope for Asbestos Identification

Polarizing/Dispersion Microscope

# ECLIPSE LV100ND POL/DS

Dispersion staining microscopy that aids in the identification of asbestos

- Characteristic dispersion colors of each asbestos type corresponding to the refraction index of the immersion liquid can be observed using the phase contrast condenser and objectives (10x and 40x) for dispersion staining microscopy
- Qualitative asbestos analysis is possible by determination of birefringence and elongation (positive/negative); measurement of extinction angle, refractive index, and birefringence magnitude (retardation); observation of pleochroism



## Microscope for Patch Clamp Experiments

# ECLIPSE FN1

Dedicated patch-clamp microscope with I-shaped body design—more room for smooth electrode manipulation

- Corrects axial chromatic aberration up to IR light (to 850nm). New 40x and 60x objectives for crisp high resolution IR-DIC imaging
- 100x objective with NA 1.1 and working distance 2.5mm comes with a correction function for depth- and thermally-induced aberrations
- Vertical motion nosepieces enables magnification changes without moving Petri dish (15mm or less in height)
- Easy switching between IR light and reflected illumination
- With an optional variable magnification double port (0.35x, 2x, 4x), both wide field and high magnification observations can be carried out with a 16x objective alone
- Deep imaging of living specimens is possible in configuration with multiphoton confocal system A1 MP+/A1R MP+



All objectives have wide approach angles and long working distances (45° and 3.5mm with 40x objective).



Configuration with Narishige micromanipulators and epi-fluorescence attachment

## Stereo Microscopes

### SMZ25/SMZ18

- Motorized zoom model SMZ25 is the first stereo microscope to offer a large 25:1 zoom ratio. Zoom ratio of manual zoom model SMZ18 is 18:1
- Optical path of both eyes boast high NA of up to 0.156 with the SHR Plan Apo 1x objective and SMZ25 zooming body
- Fly eye lens employed in the epi-fluorescence attachment ensures uniform brightness over the entire field of view even at the lowest magnifications
- Motorized focus and zoom operation (SMZ25)
- User-friendly remote control (SMZ25)
- Total magnification 3.15-315x (SMZ25), 3.75-270x (SMZ18), depending on objective used
- Compatible with various accessories including trinocular tubes



SMZ25 configured with motorized epi-fluorescence attachment and LED diascope illumination base



SMZ18 configured with plain stand

#### Accessories for SMZ25/SMZ18

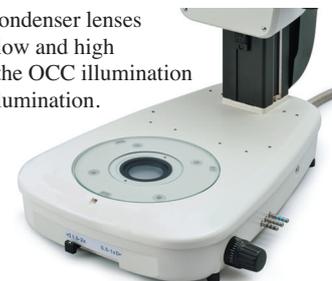
#### LED Diascopic Illumination Base

The slim LED DIA Base is equipped with OCC illumination, which utilizes oblique lighting to enable high-contrast illumination of colorless and transparent specimens.



#### Fiber Diascopic Illumination 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.



#### LED Ring Illumination Unit

LED Ring Illumination Unit is equipped with high-intensity, long-life (20,000 hours) LEDs. The illuminator's dial adjusts the intensity of the white LED.



#### LED Dark Field Unit

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



#### Simple Polarizing Attachment

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



#### Epi Fluorescence Attachment

A fly eye lens ensures bright high-contrast images over the entire field of view. A motorized model with control via a remote control unit or imaging software is also available.



## Stereo Microscopes

### SMZ1270/1270i, SMZ800N

- SMZ1270/1270i provides highest-in-class zoom ratio of 12.7:1. Zoom ratio of SMZ800N is 8:1
- Total magnification 3.15-480x (SMZ1270/1270i), 5-480x (SMZ800N), depending on eyepieces and objectives used
- High-level chromatic aberration correction provides sharp images
- Automatic detection of zoom magnification in combination with the digital camera control unit. Objective information is also detected with the intelligent nosepiece. (SMZ1270i)
- Compatible with various accessories, including trinocular tubes, epi-fluorescence attachment and teaching head. The slim-type LED diascope stand is equipped with OCC illumination. The nosepiece offers both a widened magnification range and on-axis imaging



SMZ1270 configured with binocular tube and LED diascope illumination stand



SMZ1270i configured with trinocular tilting tube, intelligent nosepiece and LED diascope illumination stand



SMZ800N configured with binocular tube and plain stand

### SMZ745/SMZ745T

- Total magnification 3.35-300x
- Zoom ratio 7.5:1
- Compatible with a camera (SMZ745T)
- Eyepiece inclination 45°



SMZ745T configured with C-PS plain stand



SMZ745 configured with C-PS plain stand

### SMZ445

- Total magnification 4-70x
- Zoom ratio 4.4:1
- Eyepiece inclination 45°



SMZ445 configured with hybrid LED stand

### SMZ460

- Total magnification 3.5-60x
- Zoom ratio 4.3:1
- Eyepiece inclination 60°



SMZ460 configured with hybrid LED stand

## Multi-purpose Zoom Microscope

# Multizoom AZ100/AZ100M/AZ-C2<sup>+</sup>

Continuously switchable magnifications, extending from macro to micro observation of the same specimen

- Covers a magnification range of 5x to 400x, thanks to 8x zooming optics and a unique triple nosepiece
- True on-axis observation and image capture are possible in the macro region
- Comes standard with an aperture stop
- Tilting trinocular eyepiece tubes can accommodate a digital camera
- The dedicated stands combine two focuses, one with an 85-mm stroke on the column side and one with a 10-mm stroke on the front stage, enabling observation of tall samples
- AZ100M with motorized focusing and motorized zooming makes it easy to capture Extended Depth of Focus (EDF) images
- AZ-C2<sup>+</sup> offers high-definition macro confocal image capture in a single shot. Deep imaging of in-vivo whole specimens is also possible



AZ100M configured with Epi-FI attachment



AZ100 configured with Epi-FI attachment



AZ-C2<sup>+</sup>

## Laser Units

### LU-NV laser units

(for Ti-E/U, Ni-E/U, FN1, AZ100)

Up to 8 wavelengths and 7 fiber outputs are available to choose from. Switching fiber output allows a single laser unit to simultaneously support multiple laser applications, such as TIRF and photoactivation modules, Confocal Microscope A1<sup>+</sup> and C2<sup>+</sup>, and Super Resolution Microscope N-SIM and N-STORM.



LU-NV laser unit with LU controller box B (top)

### LU-N4/N4S 4-laser unit, LU-N3 3-laser unit

(for Ti-E/U, Ni-E/U, FN1, AZ100)

A compact and easy-to-use laser unit that can support laser application systems such as TIRF and photoactivation modules, Confocal Microscope A1<sup>+</sup> and C2<sup>+</sup>. LU-N4/LU-N4S\* is equipped with four lasers (405nm, 488nm, 561nm, and 640nm), while LU-N3 has three lasers (405nm, 488nm, and 561nm).

\*LU-N4S is compatible with spectral imaging but not with the Ti-LAPP system.



LU-N4/N4S/N3 laser unit

Multiphoton Confocal Microscope

### A1 MP<sup>+</sup>/A1R MP<sup>+</sup>

**High-speed and high-resolution imaging of deep area in a living specimens**

- A1 MP<sup>+</sup> is equipped with a galvano (non-resonant) scanner that enables high-resolution imaging of up to 4096 x 4096 pixels
- A1R MP<sup>+</sup> is equipped with both a galvano scanner and a resonant scanner, allowing high-resolution imaging and ultrafast imaging of up to 420 fps (512 x 32 pixels).
- A1R MP<sup>+</sup> includes a model that is compatible with simultaneous excitation imaging using a dual-wavelength IR laser
- Deep imaging with ultrasensitive GaAsP (gallium arsenide phosphide) NDD
- 1300nm wavelength-compatible episcopic GaAsP NDDs are available for Ni-E/FN1, enabling deep imaging up to 1.4mm
- Multiphoton laser beam can be automatically aligned with a single click
- Acquisition of 32 channels (512 x 32 pixels) at 24 fps in a single scan is possible when configured with a spectral detector, enabling accurate, real-time spectral imaging



Configured with Ni-E

Confocal Microscope

### A1<sup>+</sup>/A1R<sup>+</sup>

**A1<sup>+</sup> for high-resolution imaging, A1R<sup>+</sup> for ultrafast and high-resolution imaging**

- A1<sup>+</sup> is equipped with a galvano scanner that enables high-resolution imaging of up to 4096 x 4096 pixels, and high-speed imaging of 10 fps (512 x 512 pixels)
- A1R<sup>+</sup> is equipped with both a galvano scanner and a resonant scanner, allowing ultrafast imaging of up to 420 fps (512 x 32 pixels) as well as simultaneous photoactivation and imaging
- The high-sensitivity GaAsP detector enables much brighter imaging with minimal noise than conventional detectors
- Dichroic mirror with 30% increased fluorescence efficiency provides high image quality
- Acquisition of 32 channels (512 x 32 pixels) at 24 fps in a single scan is possible when configured with a spectral detector, enabling accurate, real-time spectral imaging



Configured with TI-E

Confocal Microscope

### C2<sup>+</sup>/C2si<sup>+</sup>

**Powerful personal confocal microscope, essential for laboratories**

- Highly efficient scanning head and detector provide noiseless, high contrast images
- High-speed imaging of 8 fps (512 x 512 pixels) and 100 fps (512 x 32 pixels) is possible
- With a host of functions, such as image stitching (large images) and broad analytical capabilities
- 4-channel simultaneous acquisition, such as 3-channel confocal plus DIC
- Spectral detector for C2si<sup>+</sup> acquires 32-channels of spectra with a single scan, enabling unmixing of overlapped spectra



C2<sup>+</sup> configured with Ni-E

Digital Cameras for Microscopes

## Digital Sight Series

A wide range of digital cameras for microscopes is available, including high-definition cameras equipped with the Nikon FX-format CMOS sensor and compact camera heads with a choice of control units.

### F-mount CMOS cameras

#### Microscope Camera DS-Ri2



- Equipped with a 16.25-megapixel CMOS sensor for digital SLR cameras that has been optimized for microscopes
- Fast acquisition of high-resolution images up to 4908 x 3264 pixels
- Accurate color reproduction of microscopy images with Nikon's proprietary image processing engine
- High frame rate of up to 45 fps (1636 x 1088 pixels) enables fast focusing
- High-sensitivity low-noise color fluorescent imaging is possible

#### Monochrome Microscope Camera DS-Qi2



- Equipped with a large format 16.25-megapixel monochrome CMOS sensor
- High-sensitivity imaging of weak fluorescent signals
- Cooling mechanism allows low noise imaging with high S/N ratio
- Reliable quantitative analysis with excellent linearity
- High frame rate of up to 45 fps (1636 x 1088 pixels) enables fast focusing
- Time-lapse imaging with high temporal resolution

### C-mount CCD camera heads and control units

#### High-definition Color Camera Head DS-Fi2



- High-definition 5.0-megapixel CCD. High resolution of up to 2560 x 1920 pixels
- High frame rate of up to 21 fps
- High dynamic range and accurate color reproduction

#### High-definition Cooled Color Camera Head DS-Fi1c



- Cooling mechanism enables it to capture fluorescence and darkfield images clearly
- High-definition 5.0-megapixel CCD. High resolution of up to 2560 x 1920 pixels

#### High-speed Color Camera Head DS-Vi1



- High-frame-rate, 2.0-megapixel CCD. High-speed display at 15 fps (29 fps max.)
- Suitable for monitoring of microscopy images

#### PC-use Control Unit DS-U3



Configured with ECLIPSE Ni-U

- Versatile image capture, processing, measurement, analysis and data management when coupled with imaging software NIS-Elements
- High-speed image transfer for PC via IEEE 1394b connection
- Compact, space-saving design
- Allows integrated control of Nikon motorized microscopes and peripheral devices

#### Stand-alone Control Unit DS-L3



Configured with ECLIPSE Ci-L

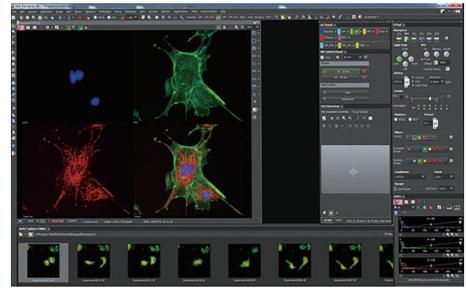
- Built-in high-definition 8.4-in. large display monitor
- Camera can be controlled with mouse operation or touch panel operation, eliminating the necessity of a PC connection
- Various digital interfaces including USB 2.0 connection
- Pre-programmed imaging modes for different observation methods
- Allows control of motorized devices on ECLIPSE Ni-E/U and Ci-E

## Imaging Software

# NIS-Elements

NIS-Elements is an integrated platform of imaging software developed by Nikon to achieve comprehensive control of microscope image capture and document data management.

NIS-Elements handles multidimensional imaging tasks flawlessly with support for capture, display, peripheral device control, and data management & analysis of images (up to six-dimensional images).



**Nikon offers a number of microscope software packages to control and optimize the performance of its products.**



*NIS-Elements Advanced Research*

NIS-Elements AR is optimized for advanced research applications. It features fully automated acquisition and device control through full 6D (X, Y, Z, Lambda (Wavelength), Time, Multipoint) image acquisition and analysis.



*NIS-Elements Basic Research*

NIS-Elements BR is suited for standard research applications. It features acquisition and device control through 4D (up to four dimensions can be selected from X, Y, Z, Lambda (Wavelength), Time, Multipoint) acquisition.



*NIS-Elements Documentation*

NIS-Elements D supports color documentation requirements in bio-research, clinical and industrial applications, with basic measuring and reporting capabilities.



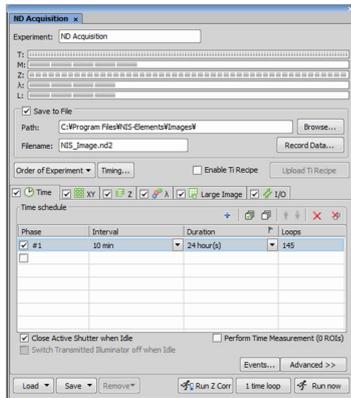
*NIS-Elements HC (High Content Analysis)*

NIS-Elements HC supports total operation of high-content analysis, from integrated control of Ti-E motorized inverted microscope and peripheral devices such as well plate loaders and CCD cameras, to image data management.

**Various convenient plug-ins are available for advanced imaging and analysis capabilities.**

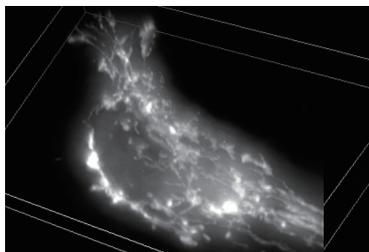
### Multidimensional Capturing

Up to 6D image acquisition combining dimensions such as X, Y, Z, time, wavelength and multipoint is easily set using the intuitive GUI.

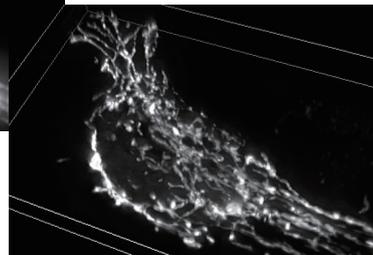


### 3D/2D Deconvolution

Haze and blur of the fluorescence image can be eliminated from the captured 3D image or from the 2D live preview image. (Separate plug-in for 3D and 2D)



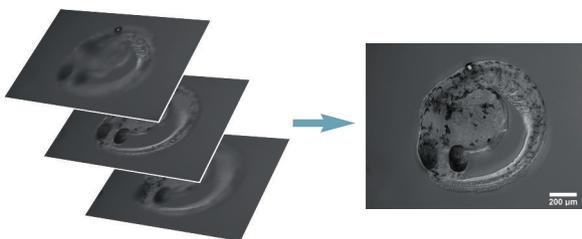
Before deconvolution



After deconvolution

### Extended Depth of Focus

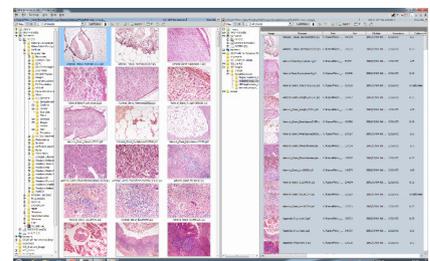
With the Extended Depth of Focus (EDF) plug-in, images that have been captured in a different Z-axis using a motorized stage can be used to create an all-in-focus image. Also, it is possible to create stereovision images & 3D surface images to achieve virtual 3D imaging.



All-in-focus image created from a sequence of Z-stack images

### Database

NIS-Elements has a powerful image database module that supports image and meta data. Various databases & tables can easily be created and images can be saved to the database via one simple mouse-click. Filtering, sorting and multiple grouping are also available according to the database field given for each image.



# CFI60 Objectives

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC*1	Phase contrast	Polarizing	Fluorescence		Ti-E PFS	
														Visible light	UV		
Achromat	Brightfield (CFI)	4x		0.10	30.00	—			⊙				△	⊙			
		10x		0.25	7.00	—			⊙	△			△	⊙			
		10x DS		0.25	7.00	—			⊙				△	⊙			
		LWD 20x		0.40	3.90	0.17			⊙	⊙●			△	⊙			
		40x		0.65	0.65	0.17		✓	⊙	⊙●			△	⊙			
		LWD 40xC		0.55	2.7-1.7	0-2.0	✓		⊙	⊙●			△	⊙			
		60x		0.80	0.30	0.17		✓	⊙	●			△	⊙			
		100x Oil	Oil	1.25	0.23	0.17		✓	⊙				△	⊙			
	100xSH (with iris)	Oil	0.5-1.25	0.23	0.17		✓	⊙	⊙●			△	⊙				
	Polarizing (CFI)	P 4x		0.10	30.00	—			⊙				⊙	⊙			
		P 10x		0.25	7.00	—			⊙	△			⊙	⊙			
		LWD P 20x		0.40	3.90	0.17			⊙	⊙●			⊙	⊙			
		P 40x		0.65	0.65	0.17		✓	⊙	⊙●			⊙	⊙			
		P 100x Oil	Oil	1.25	0.23	0.17		✓	⊙				⊙	⊙			
	Phase contrast (CFI)	DL 10x		0.25	7.00	—			⊙	△			⊙ PH1	△	△		
		LWD DL 20x		0.40	3.90	0.17			⊙	⊙●			⊙ PH1	△	△		
		LWD DL 20xF		0.40	3.10	1.2			⊙				⊙ PH1	△	△		
		DL 40x		0.65	0.65	0.17		✓	⊙	⊙●			⊙ PH2	△	△		
		LWD DL 40x		0.55	2.7-1.7	0-2.0	✓		⊙	⊙●			⊙ PH2	△	△		
		DL 100x Oil	Oil	1.25	0.23	0.17		✓	⊙				⊙ PH3	△	△		
	BM 10x			0.25	7.00	0.7			⊙				⊙ PH1	△	△		
		ADL 10x		0.25	6.20	1.2			⊙				⊙ PH1	△	△		
		LWD ADL 20xF		0.40	3.10	1.2			⊙				⊙ PH1	△	△		
		LWD ADL 40xF		0.55	2.10	1.2			⊙				⊙ PH1	△	△		
	LWD ADL 40xC			0.55	2.7-1.7	0-2.0	✓		⊙	⊙●			⊙ PH2	△	△		
		Advanced modulation contrast (CFI)	NAMC 10x		0.25	6.20	1.2			⊙					△		
		LWD NAMC 20xF		0.40	3.10	1.2			⊙						△		
	LWD NAMC 40xC		0.55	2.7-1.7	0-2.0	✓		⊙						△			
	Plan Achromat	Brightfield (CFI Plan)	UW 1x		0.04	3.20	—			⊙				△	△		
			UW 2x		0.06	7.50	—			⊙				△	△		
4x				0.10	30.00	—			⊙				△	⊙			
10x				0.25	10.50	—			⊙	△			△	⊙			
20x				0.40	1.20	0.17			⊙	⊙●			△	⊙			
40x				0.65	0.56	0.17		✓	⊙	⊙●			△	⊙			
50x Oil			Oil	0.90	NCG0.35	—		✓	⊙	●			△	⊙			
100x Oil			Oil	1.25	0.20	0.17		✓	⊙				△	⊙			
LWD IMSI 100xC			0.85	1.3-0.95	0.6-1.3	✓		⊙			⊙		⊙				
Phase contrast (CFI Plan)		DL 10x		0.25	10.50	—			⊙	△			⊙ PH1	△	△		
		DL 20x		0.40	1.20	0.17			⊙	⊙●			⊙ PH1	△	△		
		DL 40x		0.65	0.56	0.17		✓	⊙	⊙●			⊙ PH2	△	△		
		DL 100x Oil	Oil	1.25	0.20	0.17		✓	⊙				⊙ PH3	△	△		
		No cover glass (CFI Plan)	NCG 40x		0.65	0.48	0		✓	⊙	⊙●			△	⊙		
NCG 100x			0.90	0.26	0		✓	⊙	●			△	⊙				
Super long WD (CFI L Plan EPI)		SLWD 20x		0.35	24.00	0			⊙	⊙●			△	⊙			
		SLWD 50x		0.45	17.00	0			⊙	⊙●			△	⊙			
	SLWD 100x		0.70	6.50	0			⊙	⊙●			△	⊙				
S Plan Fluor	Brightfield (CFI S Plan Fluor)	ELWD 20xC		0.45	8.2-6.9	0-2.0	✓		⊙	⊙●	⊙		⊙	⊙	⊙	●	
		ELWD 40xC		0.60	3.6-2.8	0-2.0	✓		⊙	⊙●	⊙		⊙	⊙	⊙	●	
		ELWD 60xC		0.70	2.6-1.8	0.1-1.3	✓		⊙	⊙●	⊙		⊙	⊙	⊙	●	
	Apodized phase contrast (CFI S Plan Fluor)	ELWD ADM 20xC		0.45	8.2-6.9	0-2.0	✓		⊙	⊙●			⊙ PH1	⊙	⊙	●	
		ELWD ADM 40xC		0.60	3.6-2.8	0-2.0	✓		⊙	⊙●			⊙ PH2	⊙	⊙	●	
		ELWD ADL 60xC		0.70	2.6-1.8	0.1-1.3	✓		⊙	⊙●			⊙ PH2	⊙	⊙	●	
Advanced modulation contrast (CFI S Plan Fluor)	ELWD NAMC 20xC		0.45	7.40	0-2.0	✓		⊙					⊙				
	ELWD NAMC 40xC		0.60	3.10	0-2.0	✓		⊙					⊙				
S Fluor	Brightfield (CFI S Fluor)	4x		0.20	15.50	—			⊙				△	⊙	⊙ Wide	●	
		10x		0.50	1.20	0.17		✓	⊙	⊙●	⊙		△	⊙	⊙ Wide	●	
		20x		0.75	1.00	0.17		✓	⊙	⊙●	⊙		△	⊙	⊙ Wide	●	
		40x		0.90	0.30	0.11-0.23	✓	✓	⊙	●	⊙		△	⊙	⊙ Wide	●	
		40x Oil	Oil	1.30	0.22	0.17		✓	⊙	●	⊙		△	⊙	⊙ Wide	●	
		100xSH (with iris)	Oil	0.5-1.3	0.20	0.17		✓	⊙	⊙●			△	⊙	⊙ Wide	●	
Universal Plan Fluor	No cover glass polarizing (CFI LU Plan Fluor EPI)	P 5x		0.15	23.50	—			⊙				⊙	⊙	⊙		
		P 10x		0.30	17.50	0			⊙	△			⊙	⊙	⊙		
		P 20x		0.45	4.50	0			⊙	⊙●			⊙	⊙	⊙		
		P 50x		0.80	1.00	0		✓	⊙	●			⊙	⊙	⊙		
		P 100x		0.90	1.00	0		✓	⊙	●			⊙	⊙	⊙		

\*1 See page 20 for compatible prisms \*2 Dedicated for FN1 (CFI75 objective)

### Note 1. Model numbers

The below letters, when attached to the end of model numbers, indicate the respective features.

F: for use with 1.2mm-thick cover glass  
 C: with correction ring  
 NCG: for use without cover glass

SH: with iris  
 WI: water immersion type  
 W: water dipping type

Mi: multi immersion (oil, water, glycerin) type  
 IMSI: compatible with IMSI only  
 DS: compatible with dispersion staining microscopy

### Note 2. Cover glass thickness

— : can be used without cover glass  
 ○ : use without cover glass

### Note 3. Darkfield microscopy

Possible with the following  
 △ : universal condenser (dry) and darkfield ring  
 ○ : above and darkfield condenser (dry)  
 ● : darkfield condenser (oil)

### Note 4. Phase rings are classified by objective NA

PHL and PH1 - 3 are condenser cassette modules. EXT PH3 and EXT PH4 indicate external phase contrast modules for Ti.

### Note 5. Fluorescence microscopy (UV)

△ : possible with visible light that has a longer wavelength than the excitation light used for DAPI  
 ○ : suitable

⊙ : recommended for best results

⊙ Wide: high transmittance with an ultraviolet wavelength range of up to 340nm

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC*1	Phase contrast	Polarizing	Fluorescence			Ti-E PFS	
														Visible light	UV	NIR		
Plan Fluor	Brightfield (CFI Plan Fluor)	4x		0.13	17.20	—			⊙				△	⊙	⊙			
		10x		0.30	16.00	0.17			⊙	△	○		○	⊙	⊙		●	
		20x		0.50	2.10	0.17			⊙	○●	○		○	⊙	⊙			
		20xA MI	Oil, water glycerin,	0.75	0.51-0.35 0.51-0.34 0.49-0.33	0-0.17	✓	✓	⊙	○●	○		○	⊙	⊙			
		40x		0.75	0.66	0.17		✓	⊙	○●	○		○	⊙	⊙		●	
		40x DS2		0.75	0.66	0.17		✓	⊙					○	⊙			
		40x Oil	Oil	1.30	0.20	0.17		✓w/stopper	⊙				EXT PH3-40x	○	⊙	⊙	●	
		60x		0.85	0.40-0.31	0.11-0.23	✓	✓	⊙	●	○			○	⊙	⊙		
		60xSH (with iris)	Oil	0.50-1.25	0.22	0.17		✓	⊙	○●	○			○	⊙	⊙		
	100x Oil	Oil	1.30	0.16	0.17		✓w/stopper	⊙					○	⊙	⊙	●		
	100xSH (with iris)	Oil	0.50-1.30	0.20	0.17		✓	⊙	○●	○			○	⊙	⊙			
	Phase contrast (CFI Plan Fluor)	DL 4x		0.13	16.40	1.2			○				⊙ PHL		○	○		
		DLL 10x		0.30	16.00	0.17			○	△			⊙ PH1		○	○	●	
		DL 10x		0.30	15.20	1.2			○	△			⊙ PH1		○	○		
		DLL 20x		0.50	2.10	0.17			○	○●			⊙ PH1		○	○		
		DLL 40x		0.75	0.66	0.17		✓	○	○●			⊙ PH2		○	○	●	
		DM 40xDS		0.75	0.66	0.17		✓	○	○●			⊙ PH2		○	○		
		DLL 100x Oil	Oil	1.30	0.16	0.17		✓w/stopper	○				⊙ PH3		○	○	●	
BM 40x AS			0.75	0.66	0.17		✓	○				⊙ PH2		○	○			
Apoized phase contrast (CFI Plan Fluor)	ADH 100x Oil	Oil	1.30	0.16	0.17		✓w/stopper	○				⊙ PH3		○	○	●		
Plan Apochromat	Brightfield (CFI Plan Apo)	λ 2x		0.10	8.50	—			⊙				○	⊙	△	⊙		
		λ 4x		0.20	20.00	—			⊙				○	⊙	△	⊙	●	
		λ 10x		0.45	4.00	0.17			⊙	△	○			○	⊙	△	⊙	●
		λ 20x		0.75	1.00	0.17		✓	⊙	○●	○		○	⊙	⊙	△	⊙	●
		VC 20x		0.75	1.00	0.17		✓	⊙	○●	○		○	⊙	⊙	△	⊙	●
		λ 40x		0.95	0.21 (0.25-0.16)	0.11-0.23	✓	✓	⊙	●	○			○	⊙	△	⊙	●
		λ 60x		0.95	0.15 (0.21-0.11)	0.11-0.23	✓	✓	⊙	●	○			○	⊙	△	⊙	
		λ 60x Oil	Oil	1.40	0.13	0.17		✓	⊙				EXT PH3-60x	○	⊙	△	⊙	●
		VC 60xA WI	Water	1.20	0.31-0.28	0.15-0.18	✓	✓	⊙	●	○		EXT PH3-60x	○	⊙	⊙		●
		IR 60xWI	Water	1.27	0.17 (0.18-0.16)	0.15-0.19	✓	✓	⊙		○		EXT PH3-60x	○	○	△	⊙	●
		λ 100x Oil	Oil	1.45	0.13	0.17		✓	⊙				EXT PH3-100x	○	⊙	△	⊙	●
		VC 100x Oil	Oil	1.40	0.13	0.17		✓	⊙				EXT PH3-100x	○	⊙	△		●
		HP VC 100x Oil	Oil	1.40	0.13	0.17		✓	⊙				EXT PH3-100x	○	⊙	△		●
	NCG 100x Oil	Oil	1.40	0.16	0		✓	⊙					○	⊙	△			
	SR (CFI SR Plan Apo)	IR 60xWI	Water	1.27	0.17 (0.18-0.16)	0.15-0.19	✓	✓	⊙		○	EXT PH3-60x	○	○	△	⊙	●	
	Phase contrast (CFI Plan Apo)	λ DM 20x		0.75	1.00	0.17		✓	○	○●			⊙PH2		○	△	○	●
		λ DM 40x		0.95	0.21 (0.25-0.16)	0.11-0.23	✓	✓	○	●			⊙PH2		○	△	○	●
		λ DM 60x		0.95	0.15 (0.21-0.11)	0.11-0.23	✓	✓	○	●			⊙PH2		○	△	○	
λ DM 60x Oil		Oil	1.40	0.13	0.17		✓	○				⊙PH3		○	△	○	●	
λ DM 100x Oil		Oil	1.45	0.13	0.17		✓	○				⊙PH3		○	△	○	●	
Apochromat	Confocal (CFI Apo)	LWD 20xWI λS	Water	0.95	0.95	0.11-0.23	✓	✓	⊙	●	○		○	○	○	○	●	
		40xWI λS	Water	1.25	0.18	0.15-0.19	✓	✓	⊙				EXT PH3-40x	○	⊙	⊙	●	
		LWD 40xWI λS	Water	1.15	0.60	0.15-0.19	✓	✓	⊙	●	○		EXT PH3-40x	○	⊙	○	●	
		60x Oil λS	Oil	1.40	0.14	0.17		✓	⊙				EXT PH3-60x	○	⊙	⊙	●	
	Evanescent (CFI Apo)	TIRF 60x Oil	Oil	1.49	0.12	0.13-0.19 (23°C) 0.15-0.21 (37°C)	✓	✓	⊙				○	○	⊙	△	○	●
		TIRF 100x Oil	Oil	1.49	0.12	0.13-0.19 (23°C) 0.14-0.20 (37°C)	✓	✓	⊙				○	○	⊙	△	○	●
		HP TIRF 100x Oil	Oil	1.49	0.12	0.13-0.19 (23°C) 0.14-0.20 (37°C)	✓	✓	⊙				○	○	⊙	△	○	●
SR (CFI SR Apo)	TIRF 100x Oil	Oil	1.49	0.12	0.13-0.19 (23°C) 0.14-0.20 (37°C)	✓	✓	⊙				○	○	⊙	△	○	●	

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC*1	Phase contrast	Polarizing	Fluorescence		Near-infrared DIC	
														Visible light	UV		
Water Dipping	Confocal (CFI Apo)	25xW MP	Water	1.10	2.00	0	✓		⊙	●	○		○	⊙	○	○	
		25xW MP1300	Water	1.10	2.00	0	✓		⊙	●	○		○	⊙	○	○	
	Brightfield (CFI Plan Fluor)	10xW	Water	0.30	3.50	0			⊙	△	○		○	⊙	⊙	○	
		Brightfield (CFI Fluor)	20xW	Water	0.50	2.00	0			⊙	○●	○		○	⊙	⊙	○
			40xW	Water	0.80	2.00	0			⊙	●	○		○	⊙	⊙	○
	Brightfield (CFI Apo)	60xW	Water	1.00	2.00	0			⊙	●	○		○	⊙	⊙	○	
		40xW NIR	Water	0.80	3.50	0			⊙	●	○		○	⊙	⊙	△	○
		60xW NIR	Water	1.00	2.80	0			⊙	●	○		○	⊙	⊙	○	
	Brightfield (CFI Plan)	100xW	Water	1.10	2.50	0	✓		⊙	●	○		○	⊙	⊙	○	
	Phase contrast (CFI Fluor)	DLL 40xW	Water	0.80	2.00	0			○	●			⊙ PH2		○	○	○
Brightfield (CFI75)	LWD 16xW*2	Water	0.80	3.00	0			⊙	●	○		○	⊙	○	○		

Note 6. Brightfield/DIC/Fluorescence (visible light) microscopy  
 △ : possible but not recommended  
 ○ : suitable  
 ⊙ : recommended for best results

Note 7. Polarizing  
 △ : possible but not recommended  
 ○ : suitable  
 ⊙ : retardation measurement is possible with a polarizing microscope

Note 8. Ti-E PFS  
 ● : compatible with PFS

# Combinations of DIC Prisms and Objectives

For Ti series inverted microscopes

		System Condenser LWD Dry, Motorized System Condenser LWD Dry						HNA Condenser Lens Dry				HNA Condenser Lens Oil			
		Standard		High Contrast		High Resolution		Standard		High Resolution		Standard		High Resolution	
		Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider
10x	Plan Fluor 10x S Fluor 10x Plan Apo λ 10x	LWD N1 Dry	10x	—		—		—		—		—		—	
	Plan Fluor 20x S Fluor 20x Plan Fluor 20xA MI Plan Apo λ 20x Plan Apo VC 20x	LWD N2 Dry	20x	LWD N1 Dry	20x-C	—		HNA N2 Dry	20x	—		HNA N2 Oil	20x	—	
20x	S Plan Fluor ELWD 20xC	LWD N1 Dry	20x II	—		—		—		—		—		—	
	Apo LWD 20xWI λS	LWD N2 Dry	20x III	—		—		—		—		—		—	
40x	Plan Fluor 40x S Fluor 40x Plan Apo λ 40x Apo LWD 40xWI λS	LWD N2 Dry	40x I	LWD N1 Dry	40x I-C	—		HNA N2 Dry	40x I	—		HNA N2 Oil	40x I	—	
	Plan Fluor 40x Oil S Fluor 40x Oil Apo 40xWI λS		40x II	—		40x II	—		40x II	—			40x II	—	
	S Plan Fluor ELWD 40xC	LWD N1 Dry	40x IV	—		—		—		—		—		—	
60x	Plan Apo λ 60x Apo TIRF 60x Oil	LWD N2 Dry	60x I	—	—	LWD NR Dry	60x I-R	HNA N2 Dry	60x I	HNA NR Dry	60x I-R	HNA N2 Oil	60x I	HNA NR Oil	60x I-R
	Plan Fluor 60x Oil Plan Fluor 60x Plan Apo λ 60x Oil Apo 60xH λS		60x II				60x II-R		60x II		60x II-R		60x II		60x II-R
	Plan Apo VC 60xA WI Plan Apo IR 60xWI SR Plan Apo IR 60xWI		60x IV				60x IV-R		60x IV		60x IV-R		60x IV		60x IV-R
	S Plan Fluor ELWD 60xC	LWD N1 Dry	60x III				—		—		—		—		—
100x	Plan Apo λ 100x Oil Plan Apo VC 100x Oil HP Plan Apo VC 100x Oil Apo TIRF 100x Oil HP Apo TIRF 100x Oil SR Apo TIRF 100x Oil	LWD N2 Dry	100x I	—	—	LWD NR Dry	100x I-R	HNA N2 Dry	100x I	HNA NR Dry	100x I-R	HNA N2 Oil	100x I	HNA NR Oil	100x I-R
	Plan Fluor 100x Oil Plan Fluor 100x Oil Iris		100x II				100x II-R		100x II		100x II-R		100x II		100x II-R
	Plan LWD IMSI 100xC	100x III	—				—		—		—		—		—

For Ni-E (focusing stage)/Ni-U upright microscopes

		Universal Condenser Dry/Motorized Universal Condenser Dry						DIC Condenser Oil				
		Standard		High Contrast		High Resolution		Standard		High Resolution		
		Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	Condenser Module	DIC Slider	
10x	Plan Fluor 10x S Fluor 10x Plan Apo λ 10x	N1 Dry	10x	—		—		—		—		
	Plan Fluor 20x Plan Fluor 20xA MI S Fluor 20x Plan Apo λ 20x Plan Apo VC 20x	N2 Dry	20x	N1 Dry	20x-C	—		N2 Oil	20x	—		
20x	S Plan Fluor ELWD 20xC	N1 Dry	20x II	—		—		—		—		
	Plan Fluor 40x S Fluor 40x Plan Apo λ 40x Apo LWD 40xWI λS	N2 Dry	40x I	N1 Dry	40x I-C	—		N2 Oil	40x I	—		
Plan Fluor 40x Oil S Fluor 40x Oil Apo 40xWI λS	40x II		—		40x II	—			40x II	—		
40x	S Plan Fluor ELWD 40xC	N1 Dry	40x IV	—		—		—		—		
	Plan Apo λ 60x Apo TIRF 60x Oil	N2 Dry	60x I	—	—	NR Dry	60x I-R	N2 Oil	60x I	NR Oil	60x I-R	
Plan Fluor 60x Oil Plan Fluor 60x Plan Apo λ 60x Oil Apo 60xH λS	60x II		60x II-R				60x II		60x II-R			
S Plan Fluor ELWD 60xC	N1 Dry		60x III				—		—		—	
60x	Plan Apo λ 100x Oil Plan Apo VC 100x Oil Plan Apo 100x NCG Oil Apo TIRF 100x Oil	N2 Dry	100x I			—	—	NR Dry	100x I-R	N2 Oil	100x I	NR Oil
	Plan Fluor 100x Oil Plan Fluor 100x Oil Iris		100x II	100x II-R	100x II				100x II-R			

For Ni-E (focusing nosepiece)/FN1 fixed stage microscopes

		FN-C LWD Condenser	
		Condenser Module	DIC Slider
10x	Plan Fluor 10xW	N1 Dry	10x
16x	LWD 16xW (CF175)	N2 Dry	16x I
20x	Fluor 20xW		20x
25x	Apo 25xW MP Apo 25xW MP1300		25x I
	Apo 40xW NIR Fluor 40xW		40x III
60x	Apo 60xW NIR Fluor 60xW		60x I
100x	Plan 100xW		100x-III

# Epi-fluorescence Filter Cubes

## Filter Cube Characteristics

	Filter Cubes	Wavelengths	Characteristics	i series, Ti series	E series, TS100
U V	UV-1A	EX 365/10 DM 400 BA 400	<ul style="list-style-type: none"> <li>Narrow band pass—only 365nm (i line) of Mercury spectrum used</li> <li>Narrow band pass minimizes auto-fluorescence and photo-bleaching</li> </ul>	✓	✓
	UV-2A	EX 330-380 DM 400 BA 420	<ul style="list-style-type: none"> <li>Standard filter block for UV</li> </ul>	✓	✓
	UV-2B	EX 330-380 DM 400 BA 435	<ul style="list-style-type: none"> <li>Darker background than UV-2A</li> </ul>	✓	✓
	UV-2E/C (DAPI)	EX 361-389 DM 415 BA 430-490	<ul style="list-style-type: none"> <li>For DAPI, cutting off FITC (green) and TRITC (red)</li> <li>Soft-coated type for high signal/noise</li> <li>Band-Pass Barrier Filter used to cut off green and red</li> </ul>	✓	✓
V	V-2A	EX 380-420 DM 430 BA 450	<ul style="list-style-type: none"> <li>Standard filter block for V</li> </ul>	✓	✓
B V	BV-1A	EX 435/10 EM 455 BA 470	<ul style="list-style-type: none"> <li>Narrow band pass—only 435nm (g line) of Mercury spectrum used</li> <li>Narrow band pass minimizes auto-fluorescence and photo-bleaching</li> </ul>	✓	
	BV-2A	EX 400-440 DM 455 BA 470	<ul style="list-style-type: none"> <li>Standard filter block for BV</li> </ul>	✓	✓
B	B-1A	EX 470-490 DM 505 BA 520	<ul style="list-style-type: none"> <li>Narrower excitation range than B-2A</li> <li>FITC+Counter-stain (TRITC, PI)</li> </ul>	✓	
	B-1E	EX 470-490 DM 505 BA 520-560	<ul style="list-style-type: none"> <li>For FITC (green), cutting off Rhodamine red</li> <li>Band-Pass Barrier Filter used to cut off red</li> </ul>	✓	
	B-2A	EX 450-490 DM 505 BA 520	<ul style="list-style-type: none"> <li>Standard filter block for B</li> <li>For FITC + Counter-stain (TRITC, PI)</li> </ul>	✓	✓
	B-2E	EX 450-490 DM 505 BA 520-560	<ul style="list-style-type: none"> <li>Similar to FITC</li> <li>For FITC (green), cutting off Rhodamine red</li> <li>Band-Pass Barrier Filter used to cut off red</li> </ul>		✓
	B-2E/C (FITC)	EX 465-495 DM 505 BA 512-558	<ul style="list-style-type: none"> <li>Soft coated type for high signal/noise</li> <li>For FITC (green), cutting off Rhodamine red</li> <li>Band-pass Barrier Filter used to cut off red</li> </ul>	✓	✓
	B-3A	EX 420-490 DM 505 BA 520	<ul style="list-style-type: none"> <li>Wide band pass—recommended for halogen illumination only</li> </ul>	✓	✓
G	G-1B	EX 546/10 DM 575 BA 590	<ul style="list-style-type: none"> <li>Narrow band pass—only 546nm (e line) of Mercury spectrum used</li> <li>Narrow band pass minimizes auto-fluorescence and photo-bleaching</li> </ul>	✓	✓
	G-2A	EX 510-560 DM 575 BA 590	<ul style="list-style-type: none"> <li>Standard filter block for G</li> </ul>	✓	✓
	G-2B	EX 510-560 DM 575 BA 610	<ul style="list-style-type: none"> <li>610nm barrier provides darker background and deep red emission</li> </ul>	✓	
	G-2E/C (TRITC)	EX 540/25 DM 565 BA 605/55	<ul style="list-style-type: none"> <li>For TRITC (Rhodamine)</li> <li>Soft coated type for high signal/noise</li> <li>Band-Pass Barrier Filter used to cut off reds above 643nm</li> </ul>	✓	✓
Y	Y-2E/C (Texas Red)	EX 540-580 DM 595 BA 600-660	<ul style="list-style-type: none"> <li>For Texas Red<sup>®</sup></li> <li>Soft coated type for high signal/noise</li> <li>Band-Pass Barrier Filter used to cut off reds above 660nm</li> </ul>	✓	✓

## Filter Cubes for Fluorescent Protein

Filter Cubes	Wavelengths	i series, Ti series	E series, TS100
BFP	EX380/30, DM420, BA460/50	✓	
CFP	EX436/20, DM455, BA480/40	✓	
CFP HQ*	EX420-445, DM450, BA460-510	✓	
GFP-B	EX470/40, DM505, BA535/50	✓	✓
GFP HQ*	EX455-485, DM495, BA500-545	✓	
YFP	EX500/20, DM515, BA535/30	✓	
YFP HQ*	EX490-500, DM510, BA520-560	✓	

\*Each filter/mirror has a very sharp rising edge at the corresponding wavelength, minimizing signal crossover.

## Other Filter Cubes

Filter Cubes	Wavelengths	i series, Ti series	E series, TS100
Cy3	EX535/50, DM565, BA610/75	✓	
Cy5	EX620/60, DM660, BA700/75	✓	
Cy7	EX710/75, DM750, BA810/90	✓	

## Multi-Band Filter Cubes

Filter Cubes	Abbreviations	Applications	i series, Ti series	E series, TS100
Dual	F-R	FITC, Rhodamine	✓	
	F-T	FITC, Texas Red	✓	✓
	D-F	DAPI, FITC	✓	✓
Triple	D-F-R	DAPI, FITC, Rhodamine	✓	
	D-F-T	DAPI, FITC, Texas Red	✓	

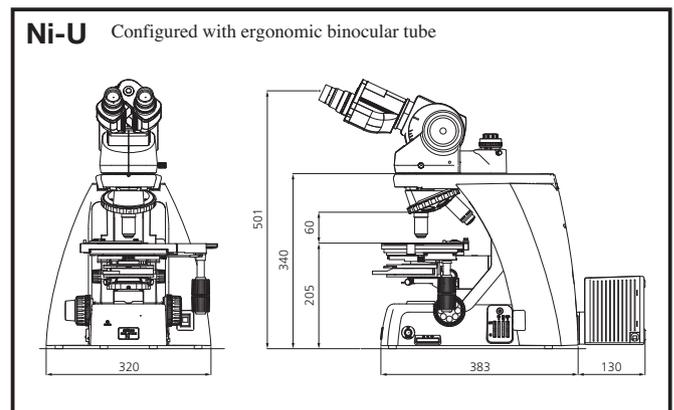
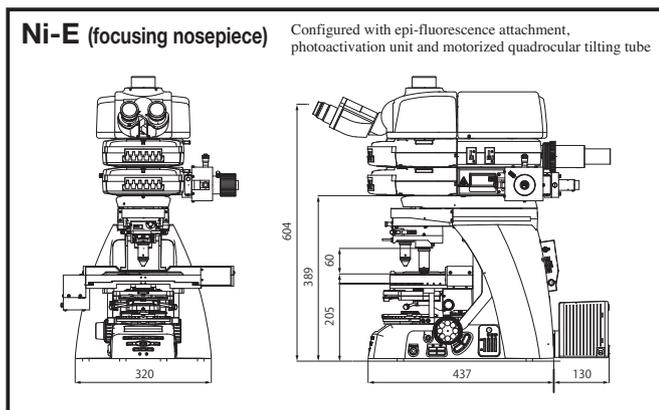
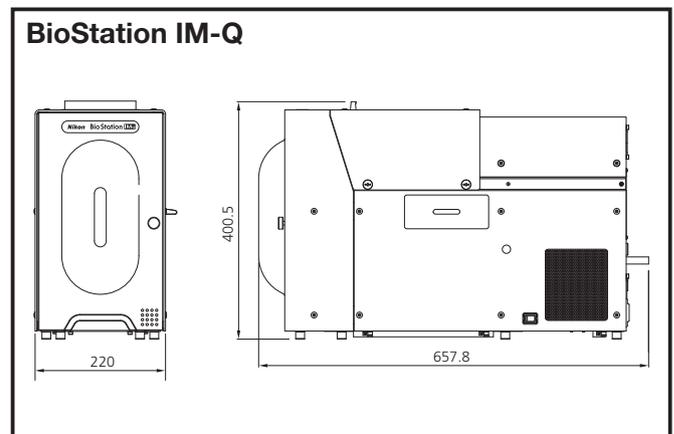
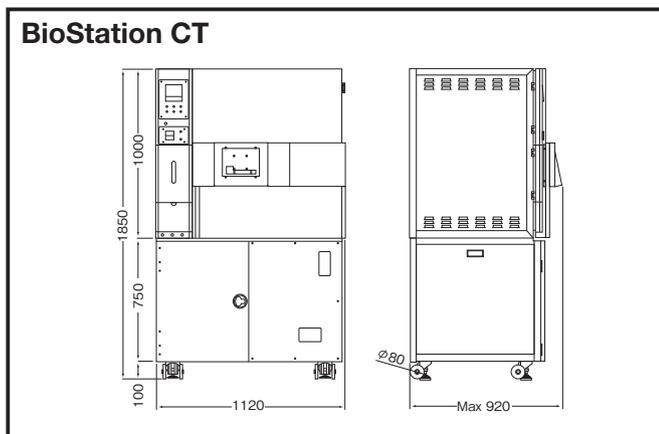
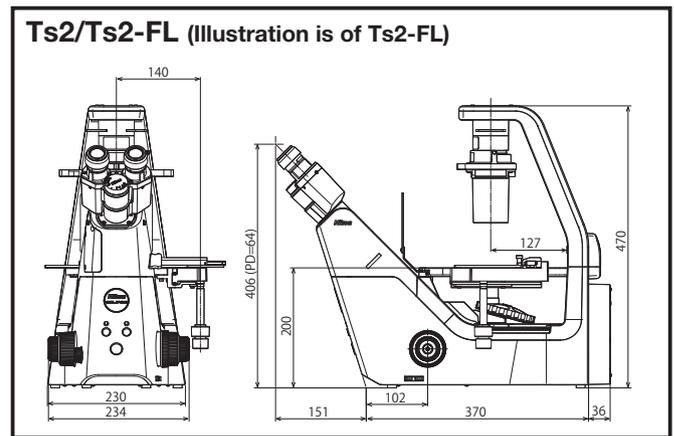
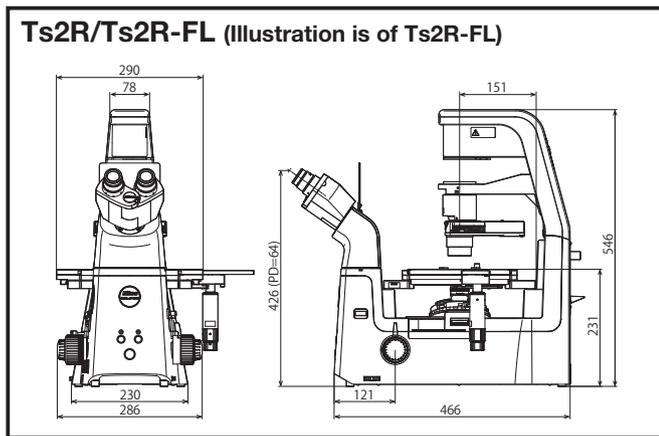
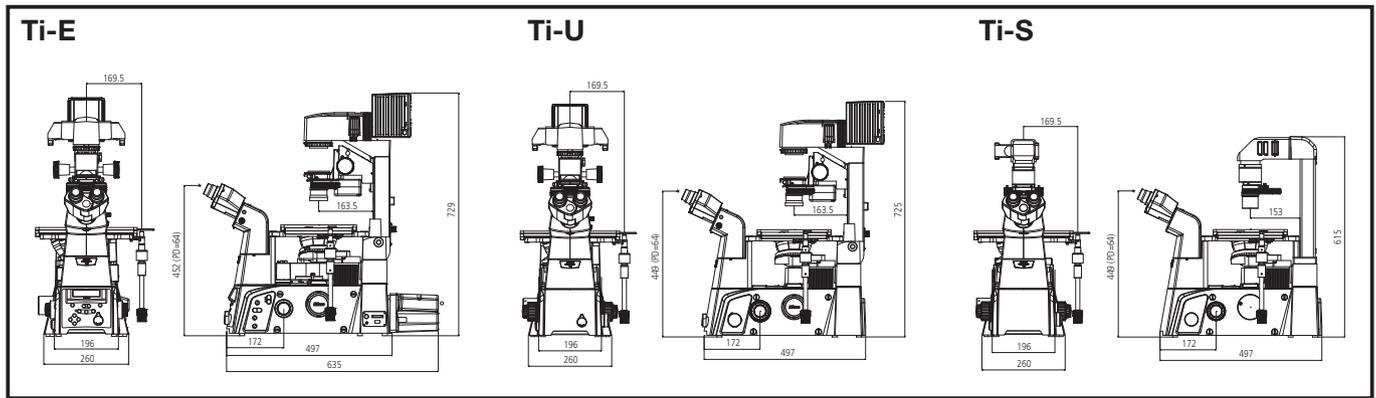
## Filter Cubes for SMZ25/18

Filters	Wavelengths
DAPI	EX395/25, DM425, BA460/50
CFP	EX436/20, DM455, BA480/40
GFP-B	EX460-500, DM505, BA510-560
GFP-L	EX460-500, DM505, BA510
YFP	EX500/20, DM515, BA535/30
RFP	EX530-560, DM570, BA590
mCherry	EX560/40, DM585, BA630/75

Note:

The lineup is constantly updated. For the latest information, please contact your local Nikon representative. The excitation filters or barrier filters in each filter cube are interchangeable. For custom setup, blank cubes without filters are also available. Please consult with your local Nikon distributor for a complete list of filters locally available or inquire about special custom filter combinations.

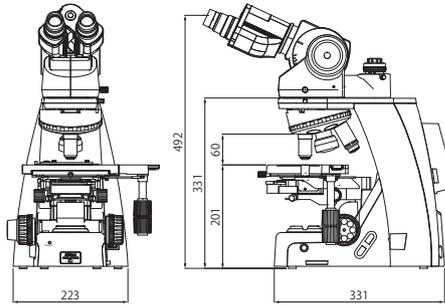
# Dimensional Diagrams



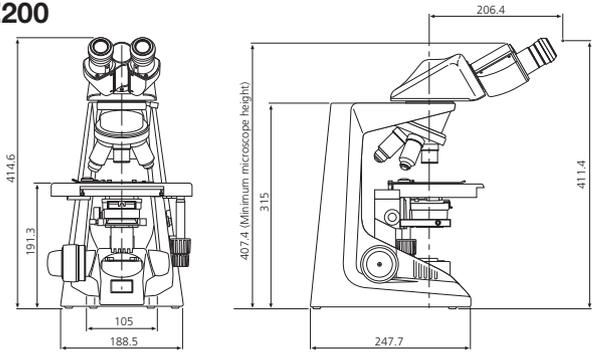
Eyepoint height: when pupillary distance is 64mm

Unit: mm

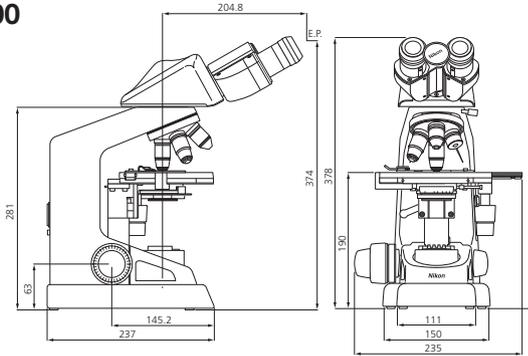
**Ci-E/L/S (Illustration is of Ci-E)** Configured with ergonomic binocular tube



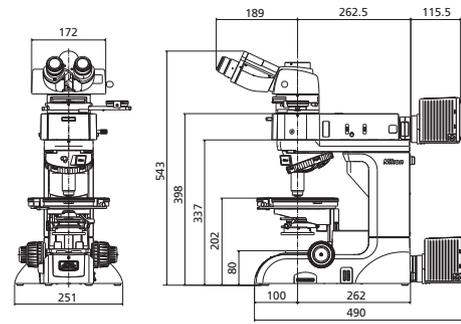
**E200**



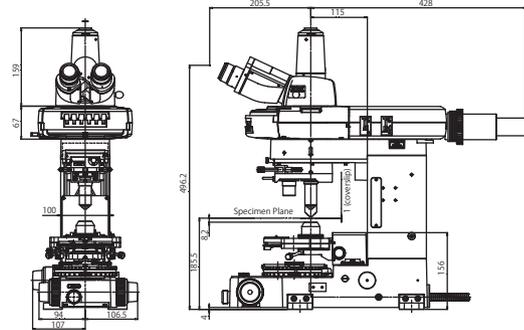
**E100**



**LV100N POL** Configured with Universal Epi-illuminator

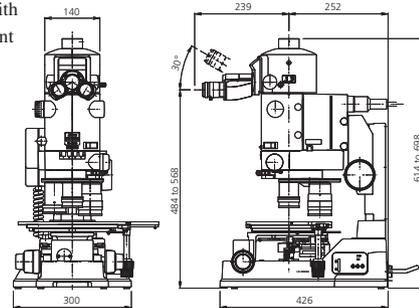


**FN1** Configured with epi-fluorescence attachment



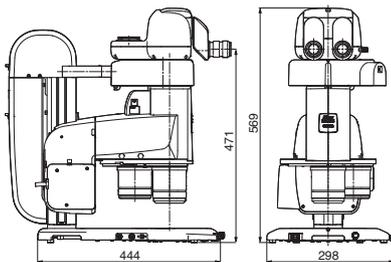
**AZ100/AZ100M (Illustration is of AZ100M)**

Configured with DIC attachment

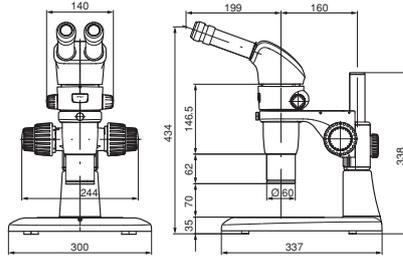


**SMZ25/SMZ18 (Illustration is of SMZ25)**

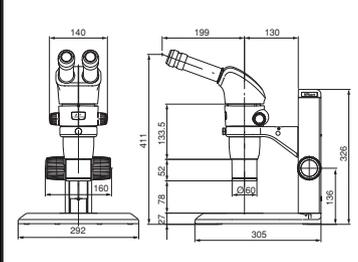
Configured with motorized epi-fluorescence attachment and LED DIA base



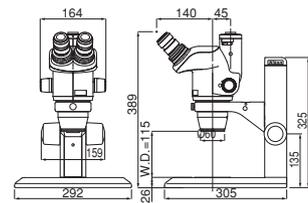
**SMZ1270/SMZ1270i** Configured with binocular tube and P-PS32 plain stand



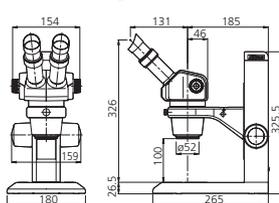
**SMZ800N** Configured with binocular tube and C-PSN plain stand



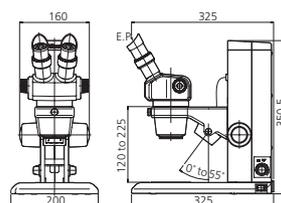
**SMZ745T** Configured with C-PSN Plain Stand/CN



**SMZ445** Configured with C-PSN plain stand



**SMZ460** Configured with C-LEDS hybrid LED stand



Eyepoint height: when pupillary distance is 64mm

Unit: mm

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