Biological Microscopes

Shedding New Light On **MICROSCOPY**

For Research

Contents

*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.

Confocal Microscopes

Multiphoton Confocal Microscope

AX R MP with NSPARC

Provides ultrafast imaging in deeper areas, and is equipped with a super-resolution function

- The AX R MP features a field of view with a field number (FN) of 22 for both resonant and galvano scanners
- The galvano scanner is capable of high-resolution imaging of up to 8192 x 8192 pixels, and the resonant scanner is capable of high-resolution fast imaging of up to 2048 x 2048 pixels
- Resonant scanning allows extremely high-speed imaging (up to 720 fps at 2048 x 16 pixels)
- The NSPARC detector provides super resolution while improving the S/N ratio with an SPPC detector array that collects a two-dimensional image at each scanned point
- Dedicated motorized upright microscope provides clearance of 40 cm under the objective. A tilting nosepiece is available, allowing the sample to be observed in its natural posture
- Two types of motorized stand, a gate stand and a single stand, are selectable to accommodate different types of samples
- The new CFI75 Apochromat LWD 20XC W objective with 1.00 numerical aperture and 2.80 mm working distance provides bright images over the entire field of view

Configured with a gate stand

Configured with a single stand

Confocal based Super Resolution Microscope

AX/AX R with NSPARC

Advanced resolution, speed, sensitivity and field of view, with additional super-resolution capabilities

- Both the galvano scanner on the AX/AX R and the resonant scanner on the AX R have a large field of view (FN 25). This field of view is also realized with both inverted and upright microscope stands
- The AX/AX R is capable of high-resolution imaging of up to 8192 x 8192 pixels with the galvano scanner, and fast high-resolution imaging of up to 2048 x 2048 pixels with the resonant scanner
- The AX R's high speed resonant scanning allows extremely high-speed imaging (up to 720 fps at 2048 x 16 pixels)
- The NSPARC detector improves resolution and S/N ratio with an SPPC detector array that collects a two-dimensional image at each scanned point, achieving not only super resolution of 100 nm on the X and Y axes, but also super resolution of 300 nm on the Z axis
- The DUX-VB detector can custom-tune the emission bandwidth to a library of labels and probes. The DUX-ST detector allows up to 12 emission band passes, upgradable to 18. Both detectors can be customized with high sensitivity and low noise GaAsP or Multi-alkali PMT
- AI-based software tools are available, including Denoise.ai that removes noise from resonant scan images and enables fast, high-quality imaging

Configured with Ti2-E

Inverted Research Microscopes

ECLIPSE Ti2-E/Ti2-A/Ti2-U

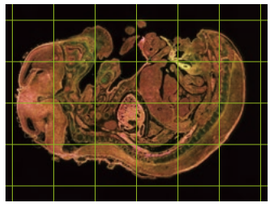
Leading platform for advanced imaging

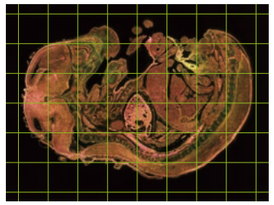
- Bright and uniform illumination is provided across a large field of view with an FN of 25 that maximizes the performance of cameras equipped with large-format sensors, and significantly improves data throughput
- Ti2-E is a motorized and intelligent model for advanced imaging applications, and Ti2-A and Ti2-U are manual models with imaging capability for laser applications. Ti2-A has unique, intelligent features
- Ti2-E is compatible with the real-time focus maintenance Perfect Focus System (PFS), auto correction collar, external phase contrast system, and water immersion dispenser
- For its stable and drift-free platform, Ti2-E is perfect for super-resolution and confocal imaging
- The hardware-triggering capabilities of Ti2-E enhance even the most challenging, high-speed imaging applications
- The Perfect Focus System (PFS) of the Ti2-E automatically corrects focus drift during image acquisition and maintains focus at the set Z position, providing highly reliable images even during long-term, complex imaging tasks
- Ti2-E/Ti2-A's intelligent functions provide interactive guidance for microscope operation by integrating data from internal sensors, thus eliminating the possibility of user errors. The status of each sensor is automatically recorded during image acquisition
- The Water Immersion Dispenser automatically applies the appropriate amount of water to the tip of an objective, eliminating evaporation and overflow during experiments
- Nikon original stratum structure allows multiple fluorescence filter cube turrets to be mounted, enabling simultaneous acquisition at different wavelengths with two cameras

Ti2-E

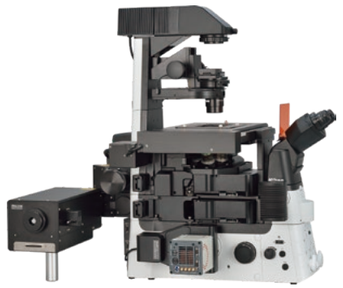
Ti2-A

Ti2-U

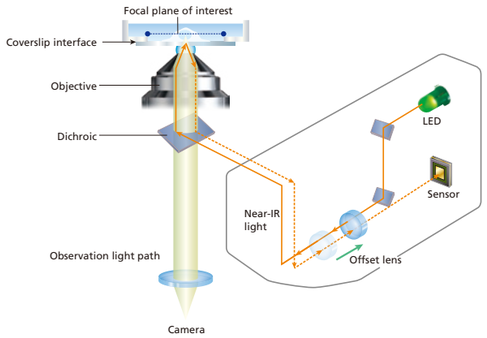




Large FOV imaging enables the creation of tiled images using fewer images than with previous models.



By utilizing the stratum structure of the Ti2 series, infinity space can be expanded to incorporate additional devices such as a second filter cube turret, a barrier filter wheel, a back port unit, or LAPP modules.



The PFS maintains focus by detecting and tracking the position of the coverslip interface in real time.

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 sources are used for both diascopic and epi-fluorescence illumination (Ts2R-FL)
- 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)
- The spindle observation system allows accurate locating of spindle bodies, which is important for ICSI, and also makes switching to NAMC and emboss contrast observation easy

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 sources are used for both diascopic and epi-fluorescence illumination (Ts2-FL)
- 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)

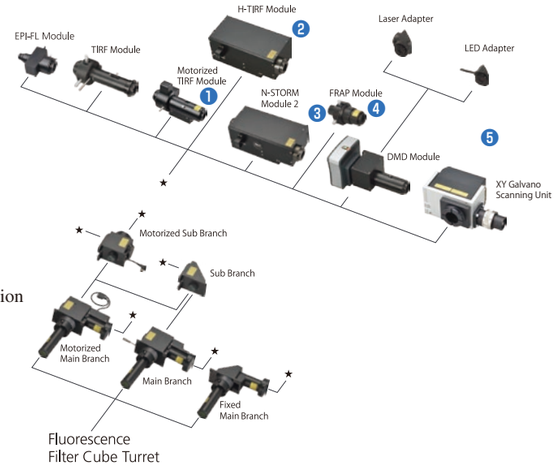
Accessories for inverted microscopes

Modular Illumination System

Ti2-LAPP (for Ti2-E/A/U)

A wide range of illumination modules can be flexibly combined or added to create an imaging system tailored for individual research. Utilizing the Ti2'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. Motorized TIRF Module: The incident angle of the laser and corresponding penetration depth of the evanescent field can be controlled via NIS-Elements software
2. H-TIRF Module: Enables automatic laser focus adjustment and incident angle adjustment for TIRF observations
3. N-STORM Module2: Equipped with motorized switching of illumination field for N-STORM microscopy
4. DMD Module: Allows for simultaneous multi-point photoactivation with customizable illumination ROIs
5. XY Galvano Scanning Unit: Allows for simultaneous photostimulation and confocal imaging with AX/AX R



Combination of two motorized TIRF modules and the EPI-FL module

Combination of the H-TIRF module, DMD module, and EPI-FL module

LED Illumination System for Fluorescence Microscopy

D-LEDI

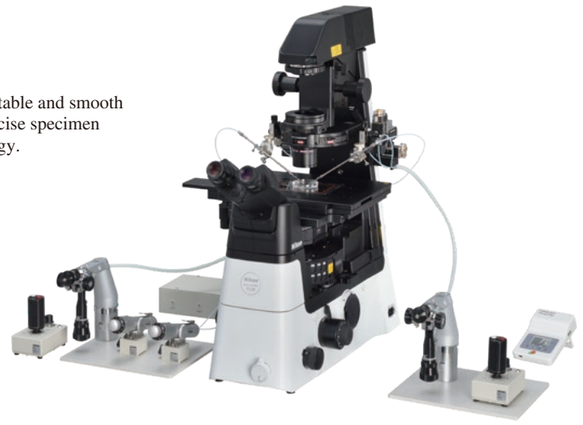
(for Ti2-E/A/U, Ts2R-FL, Ni-E/L, Ci-E/Ci-L plus/Ci-S, FN1)

A long-life, alignment-free light source that can be attached directly to an epi-fluorescent attachment. Equipped with 385 nm, 475 nm, 550 nm and 621 nm LEDs, multiple wavelengths can be turned on or off at the same time. Excitation and image acquisition can be synchronized using NIS-Elements imaging software.

Micromanipulator System

NTX (for Ti2-E/A/U, Ts2R/Ts2R-FL)

The NTX with compact and easy-to-assemble design ensures stable and smooth operation without needle drift. It provides microscopic and precise specimen micromanipulation in the fields such as transgenic biotechnology.
(Manufactured by NARISHIGE LIFEMED CO.,LTD.)



Stage Top Incubator® STX series

(for Ti2-E/A/U, Ts2R/Ts2R-FL)

It sustains the internal temperature at 37ºC with humidity of 90% and CO_2 of 5% to keep the specimen in a stable and precise condition for over 1 week.
(Manufactured by Tokai Hit Co., Ltd.)

ThermoPlate® TPi series

(for Ti2-E/A/U, Ts2R/Ts2R-FL,Ts2/Ts2-FL)

Automatic thermocontrol system with a glass heating plate keeps the specimen at a set temperature. Temperature is adjustable from room temperature to 60ºC in 0.1ºC increments.
(Manufactured by Tokai Hit Co., Ltd.)

Digital Microscope

Smart Imaging System

ECLIPSE Ji

Research microscope power in a benchtop assay instrument

- Utilizing Nikon's precision optical hardware, all of the advantages of high sensitivity and resolution from a research-level microscope are retained by an AI-driven, easy-to-operate benchtop laboratory instrument
- ECLIPSE Ji's Smart Experiment software interface uses newly developed artificial intelligence (AI), implemented to minimize errors and maximize data collection
- AI based on Deep Learning defines acquisition settings and image analysis parameters, saving researchers valuable time at the microscope
- Images and corresponding analysis data for the plate, well, and each cell is contained in an interactive and linked interface. Users can navigate and quickly visualize trends and results
- Outside of plate assays, ECLIPSE Ji can also serve as a digital research microscope, and can be integrated with a variety of peripherals including filter wheels, othe detectors such as "AX", or high sensitive cameras

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 laser photoactivation device and an epi-fluorescence attachment to enable simultaneous photoactivation and imaging
- Focusing stage or focusing nosepiece is selectable as the focusing mechanism
- 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 and the Digital Sight 100 camera

Ni-E (Focusing nosepiece) configured with motorized stage, motorized epi-fluorescence illuminator, back port unit, motorized quadrocular tilting tube and two cameras

Advanced Research Microscope

ECLIPSE Ni-L

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
- Incorporates a high color rendering LED light source that achieves high color reproducibility equivalent to a halogen light source

Ni-L configured with ergonomic binocular tube

Clinical and Laboratory Microscopes

ECLIPSE Ci-E/Ci-L plus/Ci-S

Exceptional comfort for clinical and laboratory observation

- High-luminescent eco-friendly LED (Eco-illumination) for Ci-E/Ci-L plus and halogen illumination for Ci-S
- Ci-E offers motorized magnification switching and automatic light intensity reproduction, enabling use of motorized condenser
- Ci-L plus has a Light Intensity Management (LIM) feature for automatic light intensity reproduction, and an ECO mode that automatically turns the lighting off. It is also equipped with an LCD screen that displays the magnification, illumination, etc.
- By connecting the Ci-E and Ci-L plus to an optional camera recommended by Nikon, the scale bar display is automatically adjusted to match the magnification when the nosepiece is rotated
- 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 Digital Sight 100/Digital Sight 10 camera

Ci-E configured with ergonomic binocular tube

Ci-L plus configure with ergonomic binocular tube and DSC port

Ci-S configured with ergonomic binocular tube

Clinical & Educational Microscope

ECLIPSE Si

Ergonomically designed to reduce strain on eyes and body during long-term observation

- The intelligent Light Intensity Management (LIM) feature automatically remembers and reproduces the light intensity level for each objective, maintaining the appropriate brightness when switching magnifications
- The low stage design reduces arm and shoulder fatigue when changing specimen slides
- The stopper, which sets the upper limit of the stage height, eliminates the risk of damage to the slide and objective when changing samples and focusing
- Equipped with an LCD screen that displays the magnification, illumination, etc.
- Supports various observation methods, including phase contrast and simple polarizing. The unique diascopic fluorescence illumination method enables fluorescence imaging without mounting an epi-fluorescence attachment
- Online Guide, a web-based operation manual accessible on smartphones, is also available
- Features a lightweight, easy-to-carry design, and the backward-rotatable tube saves storage space

Si confogured with binocular tube

Upright Microscope

Educational Microscope

ECLIPSE Ei

Stimulates intellectual curiosity and interest in science

- The dedicated CFI BE2 Plan Achromat series objective and 10X eyepiece achieve a large field of view with an FN of 20
- Simple and intuitive markings, such as illustrations and color-coding, enable quick understanding of the microscope operations
- Online Guide, a web-based operation manual accessible on smartphones, is also available
- A camera can be mounted on the Ei trinocular tube set. The optional Digital Sight 1000 microscope camera enables specimen images to be easily captured and shared in real time on a monitor or network
- Features a lightweight, easy-to-carry design, and the backward-rotatable tube saves storage space

Ei binocular set

Polarizing Microscopes

ECLIPSE LV100N POL LED/Ci-POL

- CFI60 optics deliver world-class optical performance
- High-level basic performance, operability, durability and, above all, outstanding image sharpness
- The LV100N POL LED is equipped with a bright, long-life LED light source, reducing focus drift caused by heat from the light source. It also features a highly accurate and stable stage and a centering quintuple nosepiece with DIN standard compensator slots. The built-in Fly-Eye optics ensures uniform illumination up to the edge of the field of view
- Ci-POL is a compact yet highly functional model equipped with a centering quintuple nosepiece with DIN standard compensator slots and a built-in 6V-30W halogen light source. Built-in capture button allows easy imaging with the Digital Sight 100/Digital Sight 10 camera

LV100N POL LED (diascopic illumination type)

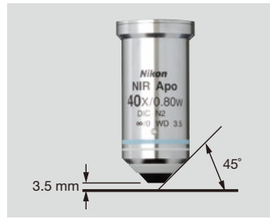
Ci-POL (diascopic illumination type)

Fixed Stage Microscope for Electrophysiological Research

ECLIPSE FN1

Dedicated microscope for electrophysiological research with I-shaped body design—more room for smooth electrode manipulation

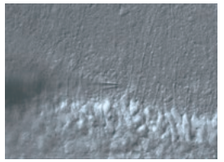
- The 40X and 60X objectives allow crisp high resolution IR-DIC imaging by correcting axial chromatic aberration up to near-IR light (850 nm)
- The 100X objective with 1.1 NA and 2.5 mm working distance comes with a correction function for depth- and thermally-induced aberrations
- The vertical motion nosepiece enables magnification changes without moving Petri dish (15 mm 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



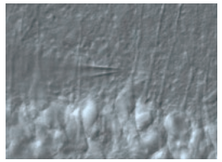
All objectives have wide approach angles and long working distances (45° and 3.5 mm with 40X objective).

Configuration with Narishige micromanipulators and epi-fluorescence attachment

5.6X (magnification 0.35X)

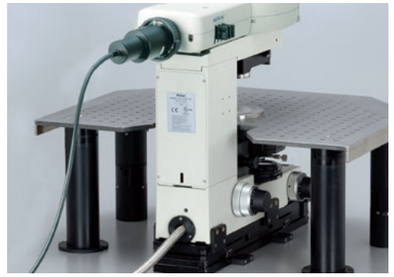


32X (magnification 2X)



64X (magnification 4X)

Using a variable magnification double port enables the user to capture images from low magnification, wide field images up to high magnification, high resolution images using a single 16X objective. A wide field of view of up to 2.0 mm can be achieved at 0.35X magnification, making it easy to observe entire specimens.



Electrical noise from light sources can be reduced by placing the lamphouses for diascopic and epi-fluorescence illumination outside the cage and connecting them via optical fiber. Furthermore, critical measurement and simulation analysis of the body structure of the FN1 microscope have improved its rigidity and vibration resistance, suppressing vibration generated when switching nosepieces, etc.

Combining the AX/AX R confocal microscope with the FN1 fixed stage microscope enables high-speed acquisition of highly sensitive confocal images deep within a specimen.

SMZ25/SMZ18

- Both the SMZ25 motorized zoom model and the SMZ18 manual zoom model achieve very large zoom ratios of 25:1 and 18:1 respectively
- 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

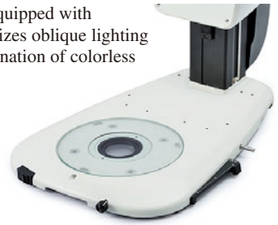
SMZ25 configured with motorized epi-fluorescence attachment and LED diascopec illumination base

SMZ18 configured with LED diascopic illumination stand

Accessories for SMZ25/SMZ18

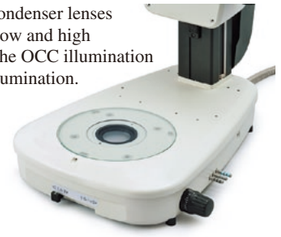
LED Diascopic Illumination Base

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.

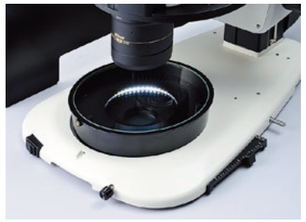


LED Ring Illumination Unit

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.

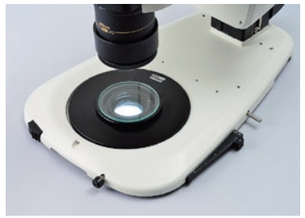
LED Dark Field Unit

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.

SMZ1270/1270i, SMZ800N

- The SMZ1270/1270i and SMZ800N both offer large zoom ratios of 12.7:1 and 8:1 respectively
- 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 NIS-Elements software. 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 diascopic 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 diascopic illumination stand

SMZ1270i configured with trinocular tilting tube, intelligent nosepiece and LED diascopic 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

SMZ-2

- Total magnification 4.8-120X
- Zoom ratio 5:1
- Eyepiece inclination 45°

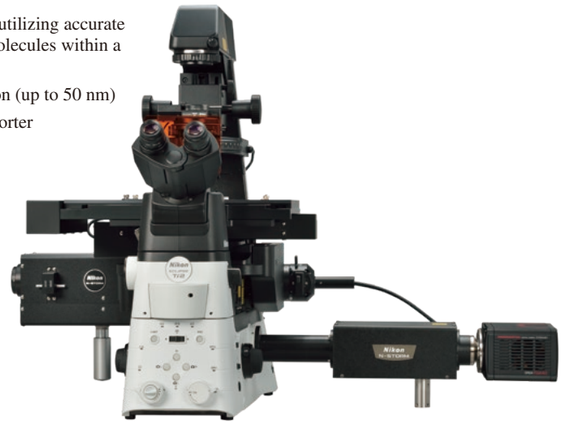
SMZ-2 (Stage clips are optional)

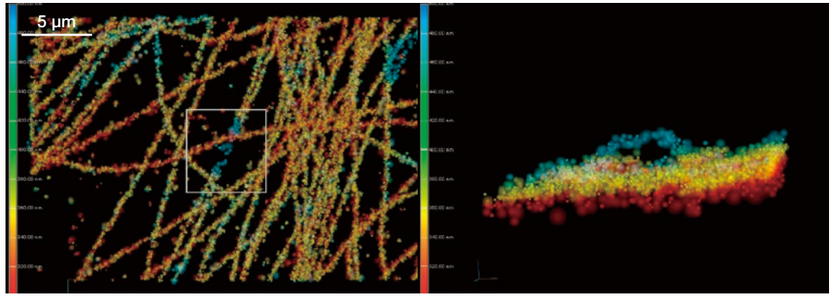
Super Resolution Microscope

N-STORM

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

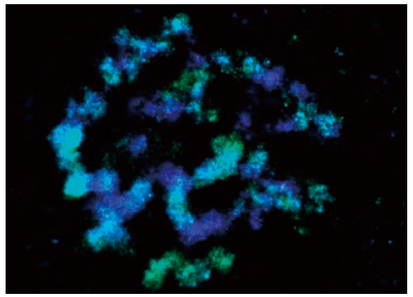
- Ultra-high spatial resolution (up to 20 nm in xy) is achieved by utilizing accurate localization information of thousands of discrete fluorophore molecules within a specimen
- A tenfold enhancement has also been achieved in axial resolution (up to 50 nm)
- Multicolor super-resolution imaging utilizing both activator-reporter pairs and activator-free labels affords a critical insight into the localization and interaction of proteins at the molecular level
- The N-STORM is capable of flexible sequential imaging thanks to improved JOBS function





Tubulin of BSC-1 cell labeled with Alexa Fluor® 647

A human fibroblast labeled with EdU-Alexa Fluor® 647 to visualize DNA with 3D-STORM.
Photo courtesy of: Jason Otterstrom, Ph.D., Melike Lakadamyali, Ph.D., The Institute of Photonic Sciences (ICFO), Castelldefels, Spain



Primary cell culture of Drosophila brain
3D-STORM image of EdU-labeled DNA in Drosophila melanogaster neuroblast
Photo courtesy of: Anna Oddone, Ph.D., Melike Lakadamyali, Ph.D. group, The Institute of Photonic Sciences (ICFO), Castelldefels, Spain

Digital Cameras for Microscopes

Digital Sight Series

Nikon provides digital cameras that are optimized for microscopic imaging. Users can select the most suitable camera for their samples and observation techniques.

F-mount CMOS cameras

Microscope Camera **Digital Sight 10**

- Equipped with a 23.90-megapixel CMOS sensor for digital SLR cameras that has been optimized for microscopes
- Fast acquisition of high-resolution images up to 6000 x 3984 pixels
- Accurate color reproduction of microscopy images with Nikon's proprietary image processing engine
- High frame rate of up to 55 fps (2000 x 1328 pixels) enables fast focusing
- Color/monochrome capture modes can be optically switched by attaching and detaching a filter

Monochrome Microscope Camera **Digital Sight 50M**

- Equipped with a large format 60 megapixel monochrome CMOS sensor
- Its high sensitivity, equal to a quantum efficiency of 85%, makes it ideal for quantitative analysis of fluorescence intensity changes
- Cooling mechanism allows low noise imaging with high S/N ratio
- Reliable quantitative analysis with excellent linearity
- High frame rate of up to 225.9 fps (640 x 480 pixels) enables fast focusing
- Time-lapse imaging with high temporal resolution

C-mount CMOS cameras

Microscope Camera **Digital Sight 100**

- Equipped with a 1-inch 17.7 megapixel CMOS sensor
- Fast acquisition of high-resolution images of up to 4864 x 3648 pixels
- High frame rate of up to 60 fps (2688 x 1512 pixels) enables fast focusing
- Supports large field of view imaging with an FN of 25
- Observation without the need for a PC is possible via HDMI connection to a monitor
- Enables remote acquisition via Wi-Fi, enhancing workflow efficiency

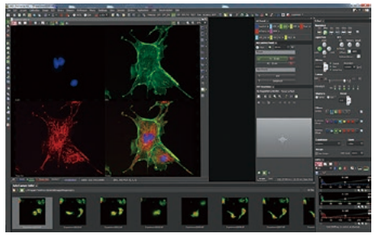
Microscope Camera **Digital Sight 1000**

- Equipped with a 2.0-megapixel CMOS sensor
- Can display, capture and save1920 x 1080 pixel full HD images at 30 fps
- Can be used standalone without a PC, by simply connecting it to a full HD display and mouse
- Save the acquired images to the SD card inserted in the camera
- Simple measurement of area and distance is possible, and scale bar can be displayed

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.

Ar *Nikon's flagship NIS-Elements package*

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.

Br *Standard research application package*

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.

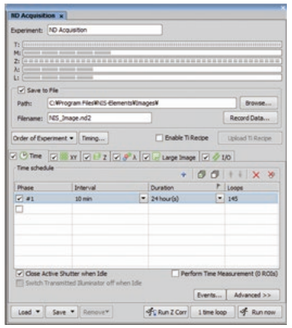
D *Photodocumentation/clinical application package*

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

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

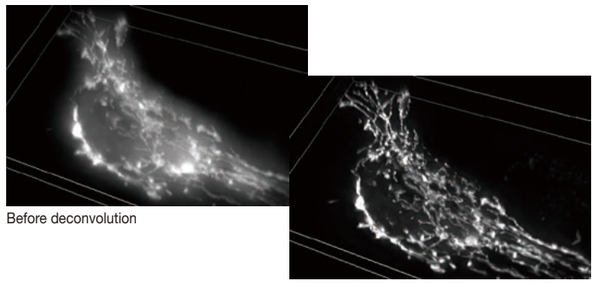
Multidimensional Capturing

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)

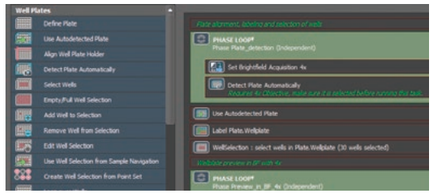


Before deconvolution

After deconvolution

Graphical Programming for Custom Tasks

The JOBS tool provides an easy-to-use graphical interface for creating custom workflows using drag-and-drop features.



Custom Analysis Routines

The General Analysis (GA) module provides an easy method for creating custom analysis routines that combine image processing and measurement.

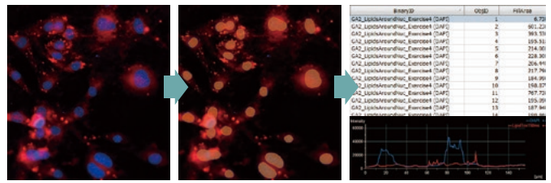


Image Measurements Data

LE *NIS-Elements LE*
Free imaging software package

NIS-Elements LE, a free software application for easy control of cameras from desktop and tablet PCs, includes useful features such as annotation and measurement. When combined with Digital Sight 100, it supports remote acquisition via Wi-Fi, ensuring efficient and comfortable observation and image analysis.
* For information about compatible tablet PCs, contact Nikon.

Artificial Intelligence for microscopy

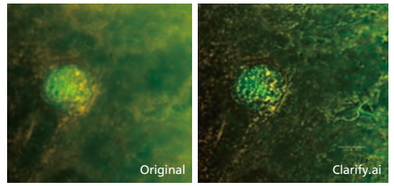
NIS.ai

Powerful image analysis and processing module for NIS-Elements that leverages Deep Learning and Artificial Intelligence

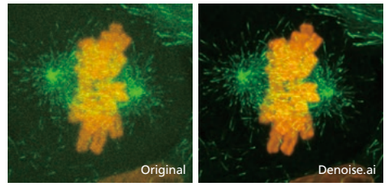
NIS.ai is an AI-based processing tool suite that utilizes convolutional neural networks to learn from small training datasets supplied by the user. NIS.ai includes a suite of applications for predictive imaging, image segmentation and processing.

Pre-trained AI

Clarify.ai is pre-trained to recognize fluorescence signals emitted from out-of-focus planes, and can remove the resulting haze component from fluorescence images.

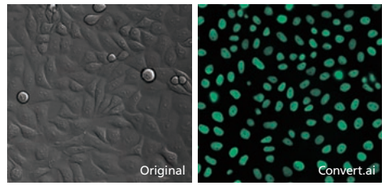


Denoise.ai can recognize and remove shot noise from confocal images acquired using high-speed resonant scanners, increasing clarity.

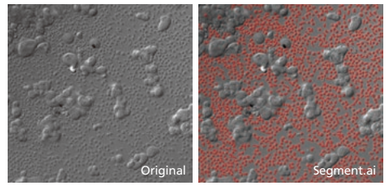


User-trainable AI

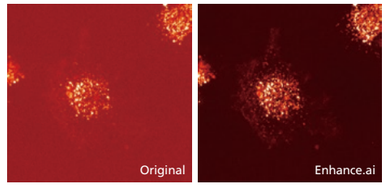
Convert.ai can be trained to predict where the DAPI label would be, based on unstained images, enabling nuclear-based image analysis without staining the sample.



Segment.ai can be trained to identify and segment complex structures that are difficult to define by means of classic thresholding.



Enhance.ai can learn what a high signal-to-noise image looks like, and restore details in under-exposed or dim fluorescent images.



Objectives

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Ti2-E PFS
														UV	Visible light	
Achromat	Brightfield (CFI)	4X		0.10	30.00	–			◎				●		○	
		10X		0.25	7.00	–			◎	△			●		○	
		LWD 20X		0.40	3.90	0.17			◎	○●			●		○	
		40X		0.65	0.65	0.17		✓	◎	○●			●		○	
		LWD 40XC		0.55	2.70-1.70	0-2.00	✓		◎	○●			●		○	
		60X		0.80	0.30	0.17		✓	◎	●			●		○	
		100X Oil	Oil	1.25	0.23	0.17		✓	◎				●		○	
	No cover glass (CFI)	NCG 60X		0.80	0.3	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	1.20			○			◎ PH1	●		●	
		DL 40X		0.65	0.65	0.17		✓	○	○●		◎ PH2	●		●	
		LWD DL 40XC		0.55	2.70-1.70	0-2.00	✓		○	○●		◎ PH2	●		●	
		DL 100X Oil	Oil	1.25	0.23	0.17		✓	○			◎ PH3	●		●	
		BM 10X		0.25	7.00	0.70			○			◎ PH1	●		●	
	Apodized phase contrast (CFI)	ADL 10XF		0.25	6.20	1.20			○			◎ PH1	●		●	
		LWD ADL 20XF		0.40	3.10	1.20			○			◎ PH1	●		●	
		LWD ADL 40XF		0.55	2.10	1.20			○			◎ PH1	●		●	
		LWD ADL 40XC		0.55	2.70-1.70	0-2.00	✓		○	○●		◎ PH2	●		●	
	Advanced modulation contrast (CFI)	NAMC 10XF		0.25	6.20	1.20			○						●	
		LWD NAMC 20XF		0.40	3.10	1.20			○						●	
		LWD NAMC 40XC		0.55	2.70-1.70	0-2.00	✓		○						●	
Plan Achromat	Brightfield (CFI Plan)	1X		0.04	3.20	–			◎				●		●	
		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	0.35/0.18	–/0.17		✓	◎	●			●		○	
		100X Oil	Oil	1.25	0.20	0.17		✓	◎				●		○	
	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	1.00	0		✓	◎	●			●		○	
	Brightfield (CFI BE2 Plan) for Ei	4X		0.10	25.00	–/0.17			◎							
		10X		0.25	6.70	0.17			◎							
		20X		0.40	3.70	0.17			◎							
		40X		0.65	0.60	0.17		✓	◎							
		60X		0.80	0.25	0.17		✓	◎				●		◎	
		100X Oil	Oil	1.25	0.14	0.17		✓	◎							
	Brighfield (CFI E Plan) for Si	4X		0.10	30.00	0			◎				●		○	
		10X		0.25	7.00	0			◎	▲			●		○	
		40X		0.65	0.65	0.17		✓	◎	▲			●		○	
		60X		0.8	0.3	0.17		✓	◎				●		○	
		100X Oil	Oil	1.25	0.23	0.17		✓	◎				●		○	
	IMSI (CFI Plan)	LWD IMSI 100XC		0.85	1.30-0.95	0.60-1.30	✓		○	●	○		○		○	
S Plan Fluor	Brightfield (CFI S Plan Fluor)	LWD 20XC		0.70	2.30-1.30	0-1.80	✓		◎	○●	○		○	◎	◎	●
		ELWD 20XC		0.45	8.20-6.90	0-2.00	✓		◎	○●	○		○	◎	◎	●
		ELWD 40XC		0.60	3.60-2.80	0-2.00	✓		◎	○●	○		○	◎	◎	●
		ELWD 60XC		0.70	2.60-1.80	0.10-1.30	✓		◎	○●	○		○	◎	◎	
	Apodized phase contrast (CFI S Plan Fluor)	LWD ADM 20XC		0.70	2.30-1.30	0-1.80	✓		○	○●		◎ PH2		○	○	●
		ELWD ADM 20XC		0.45	8.20-6.90	0-2.00	✓		○	○●		◎ PH1		○	○	●
		ELWD ADM 40XC		0.60	3.60-2.80	0-2.00	✓		○	○●		◎ PH2		○	○	●
		ELWD ADL 60XC		0.70	2.60-1.80	0.10-1.30	✓		○	○●		◎ PH2		○	○	
	Advanced modulation contrast (CFI S Plan Fluor)	ELWD NAMC 20XC		0.45	8.20-6.90	0-2.00	✓		○					○	○	
		ELWD NAMC 40XC		0.60	3.60-2.80	0-2.00	✓		○					○	○	
Super Fluor	Brightfield (CFI Super Fluor)	4X		0.20	15.50	–			◎					◎ 340	◎	●
		10X		0.50	1.10	0.17		✓	◎	○●	○		●	◎ 340	◎	●
		20X		0.75	1.00	0.17		✓	◎	○●	○		●	◎ 340	◎	●
		40X Oil	Oil	1.30	0.19	0.17		✓w/stopper	◎		○	EXT PH3-40X	●	◎ 340	◎	●
Universal Plan Fluor	No cover glass polarizing (TU Plan Fluor EPI)	P 5X		0.15	23.50	0			◎				◎	◎	◎	
		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		✓	◎				◎	◎	◎	

Note 1. Model name
The below letters, when included in the model names, indicate the respective features.
F: for use with 1.2mm-thick cover glass
C: with correction ring
AC: with correction ring compatible with Auto Correction Collar
NCG: for use without cover glass
S: with iris
WI: water immersion type
W: water dipping type

Oil: oil immersion type
Glyc: glycerin immersion type
Sil: silicone oil immersion type
MI: multi immersion (oil, water, glycerin) type
IMSI: for IMSI
DS: compatible with dispersion staining microscopy

Note 2. Cover glass thickness
– : can be used without cover glass
0: use without cover glass

Note 3. Darkfield microscopy
Possible with the following
△ : universal condenser (dry) and darkfield ring
○ : above and darkfield condenser (dry)
▲ : darkfield slider
● : darkfield condenser (oil)

Note 4. Phase rings are classified by objective NA
PHL, PH1, PH2, PH3: condenser cassette modules.
EXT PH3, EXT PH4: external phase contrast modules for Ti2-E.

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
340: high transmittance with an ultraviolet wavelength range of up to 340 nm
CF: confocal imaging is possible from 488 nm upward

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
														UV	Visible light	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			◎	○●	○		○	◎	◎		
		20XC 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 Oil	Oil	1.30	0.24	0.17		✓w/stopper	◎		○	EXT PH3-40X	○	◎	◎		●
		60XC		0.85	0.40-0.31	0.11-0.23	✓	✓	◎	●	○		○	◎	◎		
		60XS Oil	Oil	0.50-1.25	0.22	0.17		✓	◎	○●	○	EXT PH3-60X	○	◎	◎		
		100X Oil	Oil	1.30	0.16	0.17		✓w/stopper	◎		○		○	◎	◎		●
		100XS Oil	Oil	0.50-1.30	0.16	0.17		✓	◎	○●	○		○	◎	◎		
	Phase contrast (CFI Plan Fluor)	DL 4XF		0.13	16.50	1.20			○			◎ PHL		○	○		●
		DL 10XF		0.30	15.20	1.20			○	△		◎ PH1		○	○		●
		DLL 10X		0.30	16.00	0.17			○	△		◎ PH1		○	○		●
		DLL 20X		0.50	2.10	0.17			○	○●		◎ PH1		○	○		●
		DLL 40X		0.75	0.66	0.17		✓	○	○●		◎ PH2		○	○		●
		DLL 100X Oil	Oil	1.30	0.16	0.17		✓w/stopper	○			◎ PH3		○	○		●
		BM 40X		0.75	0.66	0.17		✓	○	○●		◎ PH2		○	○		
Plan Apochromat	Brightfield (CFI Plan Apo)	Lambda D 2X		0.10	8.50	0/0.17			◎					◎ CF	◎	◎	
		Lambda D 4X		0.20	20.00	0/0.17			◎					◎	◎	◎	●
		Lambda D 10X		0.45	4.00	0.17			◎	△	◎		●	◎	◎	◎	●
		Lambda D 20X		0.80	0.80	0.17		✓	◎	●	◎		●	◎	◎	◎	●
		Lambda D 40XC		0.95	0.21	0.11-0.23	✓	✓	◎	●	◎		●	◎ CF	◎	◎	●
		Lambda D 60X Oil	Oil	1.42	0.15	0.17		✓	◎		◎	EXT PH3-60X	●	◎	◎	◎	●
		Lambda D 100X Oil	Oil	1.45	0.13	0.17		✓	◎		◎	EXT PH3-100X	●	◎	◎	◎	●
		Lambda S 25XC Sil	Silicone Oil	1.05	0.55	0.11-0.23	✓		◎	●	○		○	●	◎		●
		Lambda S 40XC Sil	Silicone Oil	1.25	0.30	0.13-0.21 (23°C) 0.15-0.23(37°C)	✓		◎	●	○		○	●	◎		●
		Lambda S 60XC Sil	Silicone Oil	1.30	0.30	0.15-0.19	✓		◎		◎		○	●	◎	○	●
		LWD Lambda S 20XC WI	Water	0.95	0.93	0.11-0.23	✓		◎	●	○		○		○	○	●
		LWD Lambda S 40XC WI	Water	1.15	0.63	0.15-0.19	✓		◎	●	○	EXT PH3-40X	○	◎	◎		●
		VC 60XC WI	Water	1.20	0.31-0.28	0.15-0.18	✓	✓	◎		○	EXT PH3-60X	○	◎	◎		●
		IR 60XC WI	Water	1.27	0.18-0.16	0.15-0.19	✓	✓	◎		○	EXT PH3-60x	○	●	○	◎	●
		NCG 100X Oil	Oil	1.40	0.16	0		✓	◎		○		○	●	◎		
	Super-resolution (CFI SR Plan Apo)	IR 60XC WI	Water	1.27	0.18-0.16	0.15-0.19	✓		◎		○	EXT PH3-60X	○	○	◎	◎	●
	Super-resolution (CFI SR HP Plan Apo)	Lambda S 100XC Sil	Silicone Oil	1.35	0.31-0.29 (23°C) 0.30-0.28 (37°C)	0.15-0.19	✓		◎		○		○	◎	◎		●
Apochromat	Confocal (CFI Apo)	LWD Lambda S 20XC WI	Water	0.95	0.99-0.90	0.11-0.23	✓		◎	●	○		○		○	○	●
		LWD Lambda S 40XC WI	Water	1.15	0.61-0.59	0.15-0.19	✓		◎	●	○	EXT PH3-40X	○	◎	◎		●
		Lambda S 40XC WI	Water	1.25	0.20-0.16	0.15-0.19	✓	✓	◎		○	EXT PH3-40X	○	◎	◎		●
	Evanescent (CFI Apo)	TIRF 60XC Oil	Oil	1.49	0.16-0.10 (23°C) 0.13-0.07 (37°C)	0.13-0.19 (23°C) 0.15-0.21(37°C)	✓		◎		○	EXT PH4-60X	○	●	◎		●
		TIRF 100XC Oil	Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20(37°C)	✓		◎		○	EXT PH4-100X	○	●	◎		●
	Super-resolution (CFI SR HP Apo)	TIRF 100XC Oil	Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20(37°C)	✓		◎		○	EXT PH4-100X	○	●	◎		●
		TIRF 100XAC Oil	Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20(37°C)	✓		◎		○	EXT PH4-100X	○	●	◎		●

Use: Clearing	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
													UV	Visible light	NIR	
Multiphoton Confocal (CFI Plan Apo)	10XC Glyc	Water, Oil, Glycerin	0.50	Upright: 5.50 Inverted: 2.00	0-0.17	✓*1		◎	●					◎	◎	
Multiphoton (CFI 90)	20XC Glyc *3	Glycerin	1.00	8.20	–	✓*2		● *4							◎	

Use: Asbestos	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
													UV	Visible light	NIR	
Dispersion Staining (CFI)	R-DS 10X		0.25	7.00	0.17						◎ PH1					
Dispersion Staining (CFI Plan Fluor)	R-DS 40X		0.75	0.66	0.17		✓				◎ PH2					

Use: Water dipping	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Near-infrared DIC
													UV	Visible light	
Multiphoton Confocal (CFI75 Apo)	LWD 20XC W *5	Water	1.00	2.80	0-0.17	✓		◎					●	◎	○
	25XC W *3	Water	1.10	2.00	0	✓		◎	●	○		○	○	◎	○
	25XC W 1300 *3	Water	1.10	2.00	0	✓		◎	●	○		○	○	◎	○
DIC (CFI Plan Fluor)	10X W	Water	0.30	3.50	0			◎	△	○		○	◎	◎	○
IR-DIC (CFI Apo)	NIR 40X W	Water	0.80	3.50	0			◎	●	○		○	●	◎	◎
	NIR 60X W	Water	1.00	2.80	0			◎	●	○		○		◎	◎
DIC (CFI Plan)	100XC W	Water	1.10	2.50	0	✓		◎	●	○		○		◎	○
DIC (CFI75)	LWD 16X W *3	Water	0.80	3.00	0			◎	●	○		○	○	◎	○

Note 6.
Brightfield/DIC/Fluorescence (visible light, NIR) 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. Ti2-E PFS
● : compatible with PFS

*1 With correction for refractive index of immersion medium (1.33–1.51)
*2 With correction for refractive index of immersion medium (1.44-1.50)
*3 Dedicated for FN1 and Ni-E focusing nosepiece type
*4 Can only be used as a finder (chromatic aberration is corrected above 588 nm)
*5 Dedicated for AX R MP multiphoton confocal system

Combinations of DIC Prisms and Objectives

For Ti2 and Ts2R*1 series inverted microscopes

		LWD Condenser Lens						CLWD Condenser Lens				HNA Oil Lens			
		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 Slide	Condenser Module	DIC Slider	Condenser Module	DIC Slider
10X	Super Fluor 10X Plan Fluor 10X Plan Apo Lambda D 10X	LWD N1 Dry	10X	—				—				—			
20X	S Plan Fluor LWD 20XC S Plan Fluor ELWD 20XC	LWD N1 Dry	20X II												
	Super Fluor 20X Plan Fluor 20X Plan Fluor 20XC MI	LWD N2 Dry	20X	LWD N1 Dry	20X-C			HNA N2 Dry	20X			HNA N2 Oil	20X		
	Plan Apo Lambda D 20X Apo LWD Lambda S 20XC WI		20X III	—					20X III				20X III		
	Plan Apo LWD Lambda S 20XC WI		20X IV						20X IV				20X IV		
25X	Plan Apo Lambda S 25XC Sil		25X II			—		—	25X II	—			25X II	—	
40X	S Plan Fluor ELWD 40XC	LWD N1 Dry	40X IV					-				—			
	Plan Apo Lambda S 40XC Sil	LWD N2 Dry	40X I					HNA N2 Dry	40X I			HNA N2 Oil	40X I		
	Plan Fluor 40X Apo LWD Lambda S 40XC WI Plan Apo Lambda D 40XC Plan Apo LWD Lambda S 40XC WI			LWD N1 Dry	40X I-C										
	Super Fluor 40X Oil Plan Fluor 40X Oil Apo Lambda S 40XC WI		40X II	—					40X II				40X II		
60X	S Plan Fluor ELWD 60XC	LWD N1 Dry	60X III					—				—			
	Apo TIRF 60XC 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 60XC Plan Fluor 60XS Oil		60X II				60X II-R		60X II		60X II-R		60X II		60X II-R
	Plan Apo VC 60XC WI Plan Apo IR 60XC WI SR Plan Apo IR 60XC WI Plan Apo Lambda D 60X Oil		60X IV	—			60X IV-R		60X IV		60X IV-R		60X IV		60X IV-R
	Plan Apo Lambda S 60XC Sil					—		—		—		—		—	
100X	SR HP Plan Apo Lambda S 100XC Sil Apo TIRF 100XC Oil SR HP Apo TIRF 100XC Oil SR HP Apo TIRF 100XAC 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 100XS Oil Plan Apo Lambda D 100X Oil		100X II				100X II-R		100X II		100X II-R		100X II		100X II-R
	Plan LWD IMSI 100XC	IMSI N2 Dry	100X III			—		—		—		—		—	

*1 Compatible with the LWD condenser lens only. Contact Nikon for information about compatible objectives.

For Ni-E (focusing stage)/Ni-L 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	Super Fluor 10X Plan Fluor 10X Plan Apo Lambda D 10X Plan Fluor 10X W	N1 Dry	10X	—				—			
20X	Super Fluor 20X Plan Fluor 20X Plan Fluor 20XC MI	N2 Dry	20X	N1 Dry	20X-C			N2 Oil	20X		
	Plan Apo Lambda D 20X Plan Apo LWD Lambda S 20XC WI Apo LWD Lambda S 20XC WI		20X III	—					20X III		
40X	Plan Fluor 40X Plan Apo Lambda D 40XC Plan Apo LWD Lambda S 40XC WI Apo LWD Lambda S 40XC WI	N2 Dry	40X I	N1 Dry	40X I-C			N2 Oil	40X I		
	Super Fluor 40X Oil Plan Fluor 40X Oil Apo Lambda S 40XC WI		40X II	—					40X II		
	Apo NIR 40X W		40X III						40X III		
60X	Apo TIRF 60XC Oil Apo NIR 60X W	N2 Dry	60X I	—		NR Dry	60X I-R	N2 Oil	60X I-R	NR Oil	60X I-R
	Plan Fluor 60XC Plan Fluor 60XS Oil		60X II				60X II-R		60X II		60X II-R
	Plan Apo Lambda D 60X Oil Plan Apo VC 60XC WI Plan Apo IR 60XC WI		60X IV				60X IV-R		60X IV		60X IV-R
100X	Plan Apo NCG 100X Oil Apo TIRF 100XC Oil	N2 Dry	100X I			NR Dry	100X I-R	N2 Oil	100X I	NR Oil	100X I-R
	Plan Fluor 100X Oil Plan Fluor 100XS Oil Plan Apo Lambda D 100X Oil		100X II				100X II-R		100X II		100X II-R
	Plan 100XC W		100X III			—			100X III	—	

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

		FN-C LWD Condenser	
		Condenser Module	DIC Slider
10X	Plan Fluor 10X W	N1 Dry	10X
16X	LWD 16XW (CFI75)	N2 Dry	16X I
25X	Apo 25XC W Apo 25XC W 1300		25X I

		FN-C LWD Condenser	
		Condenser Module	DIC Slider
40X	Apo NIR 40X W	N2 Dry	40X III
60X	Apo NIR 60X W		60X I
100X	Plan 100XC W		100X III

Epi-fluorescence Filter Cubes

Filter Cubes for Ni-E/L, Ci-E/Ci-L plus/Ci-S, Ti2-E/A/U, Ts2R-FL*1

Excitation	Filter Cubes	Wavelengths	Characteristics
UV	UV-1A	EX 365/10 DM 400 BA 390	•Narrow band pass—only 365 nm (i line) of Mercury spectrum used •Narrow band pass minimizes auto-fluorescence and photo-bleaching
	UV-2A	EX 355/50 DM 400 BA 410	•Standard filter cube for UV
	DAPI	EX 375/28 DM 415 BA 460/60	•For DAPI, cutting off FITC (green) and TRITC (red) •Soft-coated type for high signal/noise •Band-pass Barrier Filter used to cut off green and red
V	V-2A	EX 400/40 DM 430 BA 440	•Standard filter cube for V
BV	BV-2A	EX 420/40 DM 455 BA 460	•Standard filter cube for BV
B	B-2A	EX 470/40 DM 505 BA 510	•Standard filter cube for B •For FITC + Counter-stain (TRITC, PI)
	FITC	EX 480/30 DM 505 BA 535/45	•Soft coated type for high signal/noise •For FITC (green), cutting off Rhodamine red •Band-pass Barrier Filter used to cut off red
	GFP-B	EX 470/40 DM 500 BA 535/50	•Bandpass filter cube for GFP
G	G-2A	EX 535/50 DM 575 BA 580	•Standard filter cube for G
	TRITC	EX 540/25 DM 565 BA 605/55	•For TRITC (Rhodamine) •Soft coated type for high signal/noise •Band-pass Barrier Filter used to cut off reds above 643 nm
	Texas Red	EX 560/40 DM 595 BA 630/60	•For Texas Red® •Soft coated type for high signal/noise •Band-pass Barrier Filter used to cut off reds above 660 nm

*1 Only when the Ts2R-FL is used in combination with the external fiber light source.

High Quality Filter Cubes for Fluorescent Protein/ Fluorophore

The HQ series causes minimal image shifts when superimposing multi-color images by adopting high-dimension accuracy glass. 32 mm diameter filter cubes for large FOV imaging are also available for the Ti2 series inverted microscope.

Filter Cubes	Wavelengths
DAPI-U HQ	EX 395/25, DM 425, BA 460/50
CFP HQ	EX 436/20, DM 455, BA 480/40
GFP HQ	EX 470/40, DM 495, BA 525/50
FITC HQ	EX 480/40, DM 510, BA 535/50
YFP HQ	EX 500/20, DM 515, BA 535/30
Cy3 HQ	EX 535/40, DM 565, BA 590/40
mCherry HQ	EX 570/40, DM 600, BA 645/75
Cy5 HQ	EX 620/60, DM 660, BA 700/75

Multi-Band Filter Cubes

Filter Cubes	Applications
Dual	DAPI/FITC
	CFP/YFP
	GFP/DsRed
	FITC/Texas Red
Triple	DAPI/FITC/TRITC
	DAPI/FITC/Texas Red

Filter Cubes for Ts2-FL/Ts2R-FL (LED illumination)

Filter Cubes	Wavelengths
C-LED385	EX 390/38, DM 420, BA 475/90
C-LED455	EX 448/23, DM 465, BA 472
C-LED470	EX 470/40, DM 500, BA 534/55
C-LED505	EX 496/29, DM 518, BA 543/37
C-LED525	EX 525/50, DM 560, BA 597/58
C-LED560	EX 550/50, DM 600, BA 630/75
C-LED590	EX 561/75, DM 610, BA 652/65
C-LED625	EX 621/58, DM 660, BA 706/73

Filter Cubes for SMZ25/18

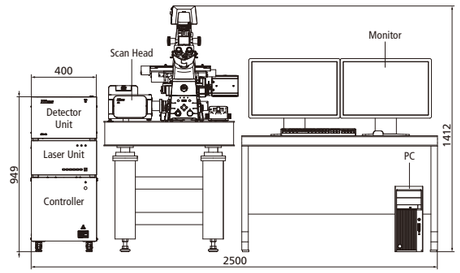
Filters	Wavelengths
DAPI	EX395/25, DM425, BA460/50
CFP	EX436/20, DM455, BA480/40
GFP-B	EX460-500, DM505, BA510-560
GFP-L	EX460-500, DM505, BA510
YFP	EX500/20, DM515, BA535/30
RFP	EX530-560, DM570, BA590
mCherry	EX560/40, DM585, BA630/75

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.

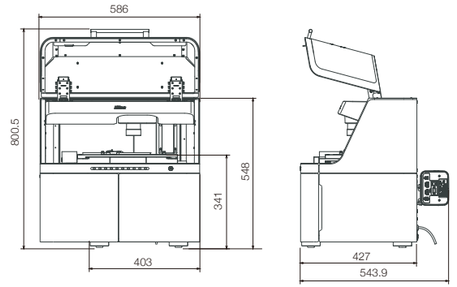
Dimensional Diagrams

AX/AX R with NSPARC

Configured with Ti2-E

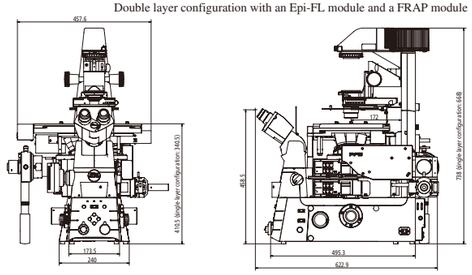


Ji (with the front door open)



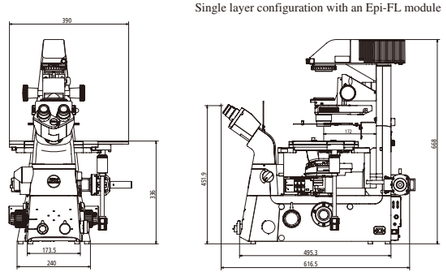
Ti2-E

Double layer configuration with an Epi-FL module and a FRAP module

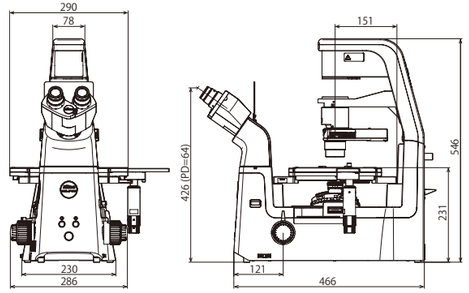


Ti2-A/U (Illustration is of Ti2-A)

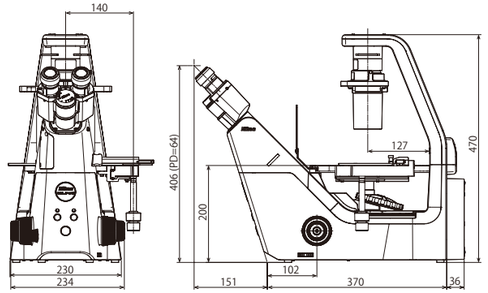
Single layer configuration with an Epi-FL module



Ts2R/Ts2R-FL (Illustration is of Ts2R-FL)

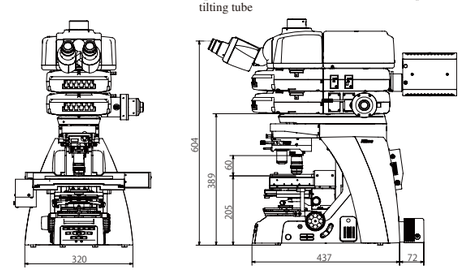


Ts2/Ts2-FL (Illustration is of Ts2-FL)



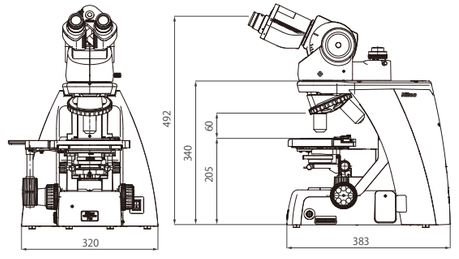
Ni-E (focusing nosepiece)

Configured with a back port unit, two-tiered motorized epi-fluorescence cube turret and motorized quadrocular tilting tube



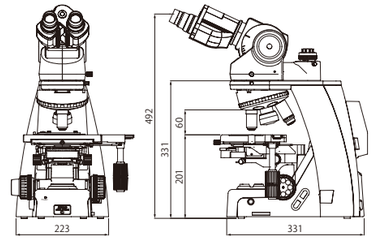
Ni-L

Configured with ergonomic binocular tube



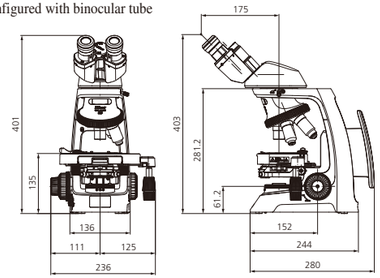
Ci-E/Ci-L plus/Ci-S (Illustration is of Ci-E)

Configured with ergonomic binocular tube



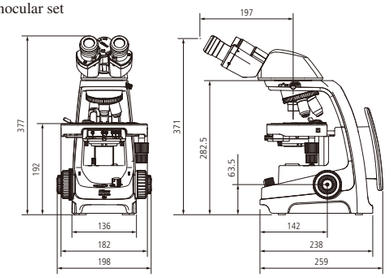
Si

Configured with binocular tube



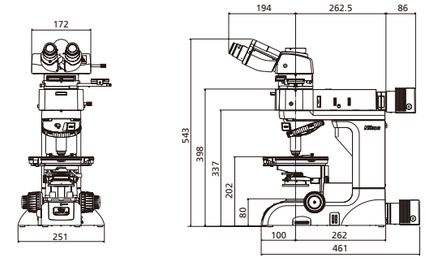
Ei

Binocular set



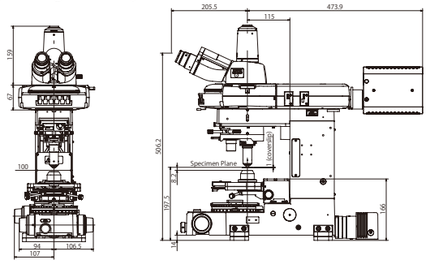
LV100N POL LED

Configured with Universal Epi-illuminator



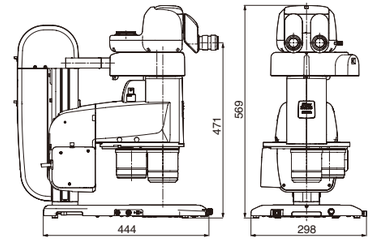
FN1

Configured with epi-fluorescence attachment



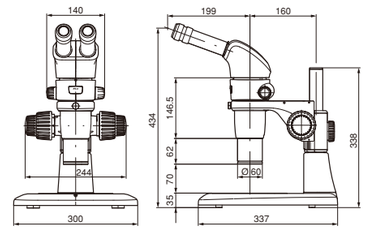
SMZ25/SMZ18 (Illustration is of SMZ25)

Configured with motorized epi-fluorescence attachment and LED DIA base



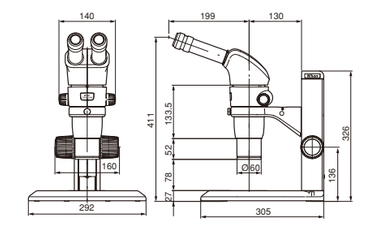
SMZ1270/SMZ1270i

Configured with binocular tube and P-PS32 plain stand



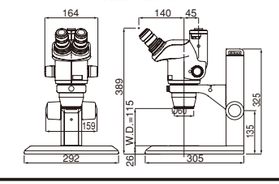
SMZ800N

Configured with binocular tube and C-PSN Plain Stand/CN



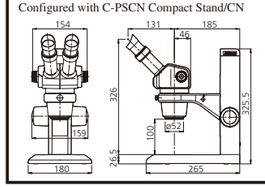
SMZ745T

Configured with C-PSN Plain Stand/CN



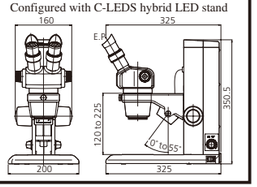
SMZ445

Configured with C-PSCN Compact Stand/CN

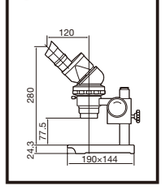


SMZ460

Configured with C-LEDS hybrid LED stand



SMZ-2



Eyepoint height: when pupillary distance is 64 mm Unit: mm

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