



Digital Cameras for Microscopes

Shedding New Light On **MICROSCOPY**

# DIGITAL SIGHT SERIES

Digital Cameras for Microscopes





# Introducing a new all-in-one, high-definition model in the Nikon Digital Sight series.

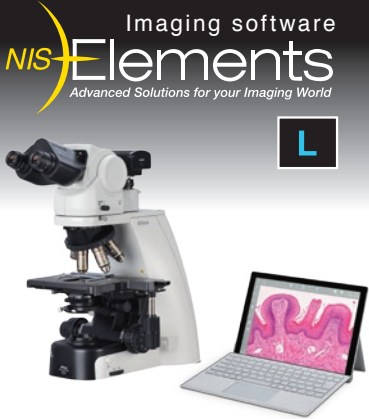
The new Digital Sight 10 makes possible the switching of color and monochrome images at the high image quality of 23.9-megapixel (6K). Choose the ideal microscope camera to suit every application, including the Digital Sight 1000, which directly displays microscope images on a full HD display without a PC, and the DS-Qi2, a monochrome high-sensitivity model suited to fluorescence photography.

Attention: All the examples in this page are images for research. We do not guarantee clinical use.

## Four camera options covering two computing platforms

<div>Microscope Camera</div> <div><b>Digital Sight 1000</b></div> <div></div> <div>➡ P.3</div> <div><div>2.0 megapixel</div><div>Color</div><div>Full HD</div></div> <div>Frame rate 30 fps (1920×1080)</div> <div>Max recordable pixels 1920×1080</div> <div>C-Mount</div>	<div>Microscope Camera</div> <div><b>DS-Fi3</b></div> <div></div> <div>➡ P.4</div> <div><div>5.9 megapixel</div><div>Color</div><div>High-resolution</div></div> <div>Frame rate 15 fps (2880×2048), 30 fps (1440×1024)</div> <div>Max recordable pixels 2880×2048</div> <div>C-Mount</div>	<div>Microscope Camera</div> <div><b>Digital Sight 10</b></div> <div></div> <div>➡ P.8</div> <div><div>23.9 megapixel</div><div>Color/Mono-chrome</div><div>High-resolution</div></div> <div>Frame rate 9 fps (6000×3984), 66 fps (1920×1080)</div> <div>Max recordable pixels 6000×3984</div> <div>F-Mount</div>	<div>Monochrome Microscope Camera</div> <div><b>DS-Qi2</b></div> <div></div> <div>➡ P.10</div> <div><div>16.25 megapixel</div><div>Mono-chrome</div><div>Cooled</div></div> <div>Frame rate 6 fps (4908×3264), 45 fps (1636×1088)</div> <div>Max recordable pixels 4908×3264</div> <div>F-Mount</div>
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Using a tablet PC



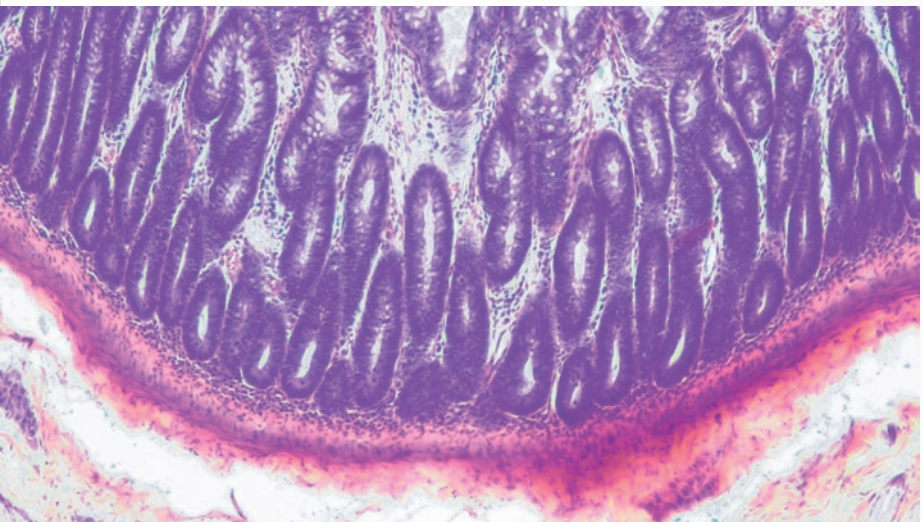
➡ P.17

Using a desktop PC



➡ P.14

## Microscope Camera Digital Sight 1000

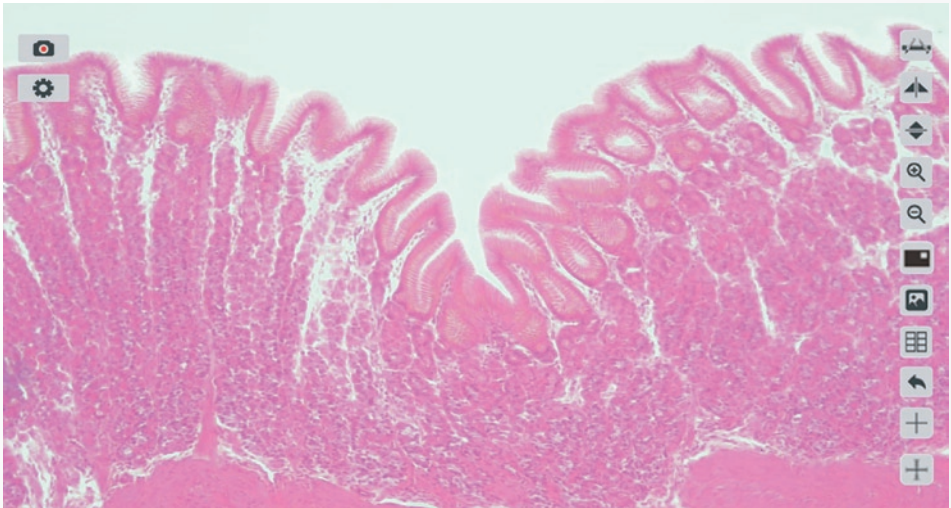


### Full HD images

Equipped with a 2 megapixel CMOS image sensor, the Digital Sight 1000 can display, capture and save full HD, 1920x1080 pixel images at 30 frames / second.

### Stand-alone mode

By connecting a Full HD display and a mouse, the Digital Sight 1000 can be used without a PC, conserving bench space. Captured images and videos can be saved directly to an SD card which is inserted into the camera. Users can easily display scale bars, measure areas and calculate distances between two points.





Microscope Camera

# DS-Fi3



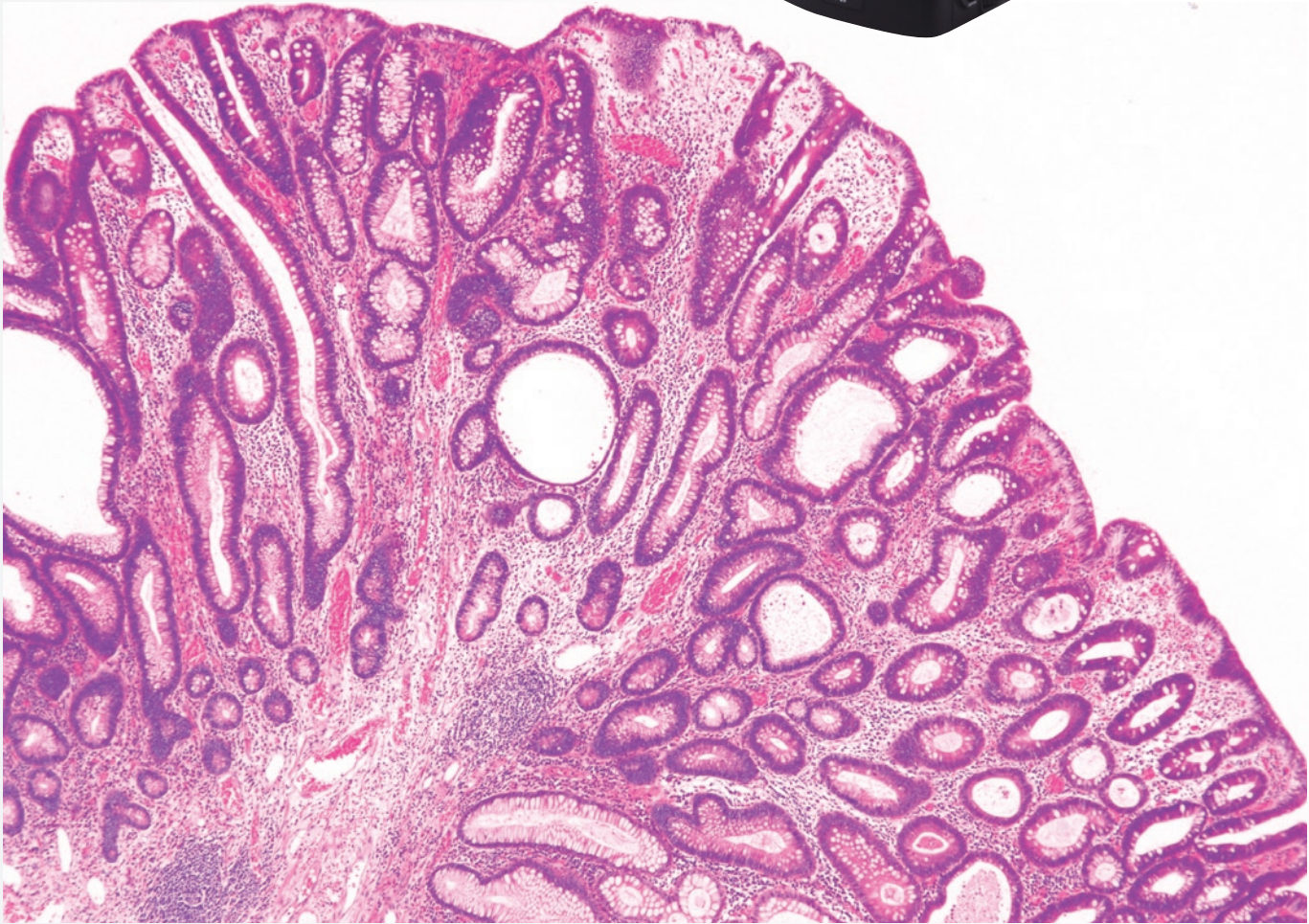
5.9 megapixel

Color

High-resolution

## High-resolution images

A CMOS high density 5.9 megapixel sensor produces high resolution images. USB3.0 data transfer allows fast focusing at high resolution, and easy capture images in all types of observation methods such as brightfield, differential interference contrast, and phase contrast.

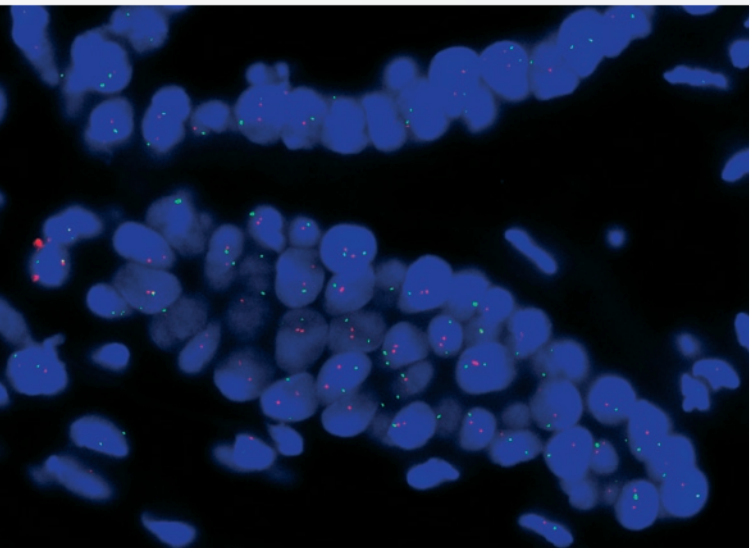
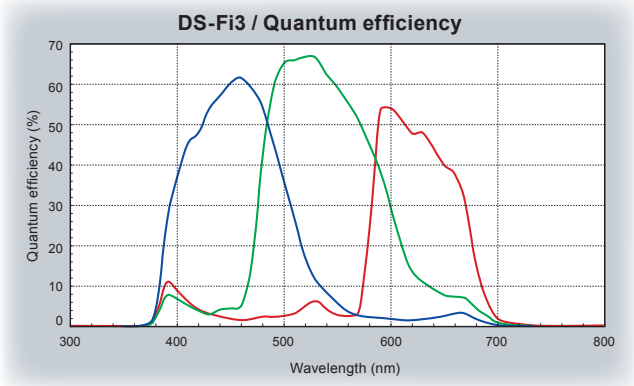


Tubular adenoma, HE staining (Objective: CFI Plan Apochromat Lambda 4X)  
Photos courtesy of:Dr. Yasunori Ohta, Department of Pathology, IMSUT Hospital, Institute of Medical Science, The University of Tokyo



## High sensitivity, low noise

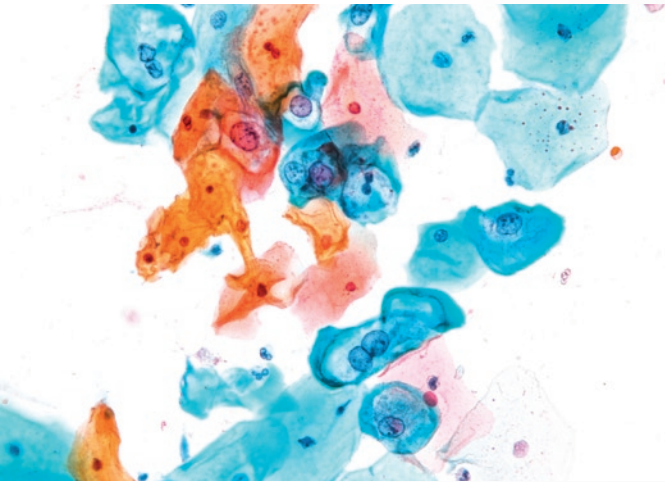
Quantum efficiency and read noise have been greatly improved, providing better capability for acquisition of fluorescent images with better signal-to-noise ratios than before.



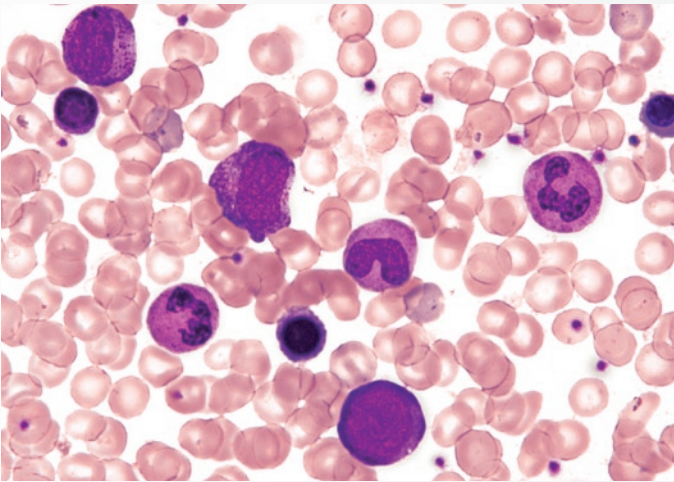
Breast cancer, FISH method (Objective: CFI Plan Apochromat Lambda 100X Oil)  
Photos courtesy of: Hironao Kusakari, Diagnostic Pathology, St. Marianna University Hospital

## Superior color reproduction

Nikon is well-known for outstanding and lifelike color reproduction, and developing superior algorithms for creating results that look like the actual samples. These algorithms are used in all of the color cameras in the digital sight lineup.



Uterine cervix Pap. Staining  
(Objective: CFI Plan Apochromat Lambda 40XC)  
Photos courtesy of: Kazuhiro Mita, Department of Pathology, Yokohama City University Hospital



Bone marrow  
(Objective: CFI Plan Achromat NCG 40X)  
Photos courtesy of: Clinical Laboratory Department, Yokohama City University Hospital

## High-speed live display

Fast USB3.0 data transfer means fast, smooth live updating of images for finding samples or focusing, even at full resolution.

## Camera Control

The DS-Fi3 interfaces with PC via a USB3.0 interface directly to the camera head, and uses NIS-Elements series software for image acquisition.

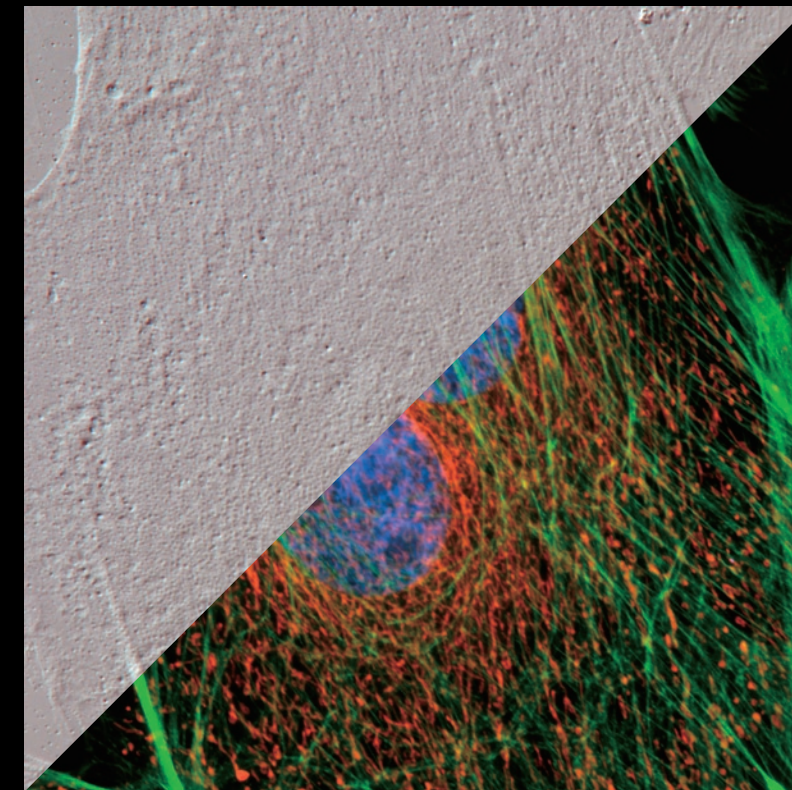


# Equipped with CMOS sensor technologies for Nikon's DSLR cameras. Digital Sight 10 / DS-Qi2 high-definition cameras

The Nikon FX format CMOS image sensor enables instantaneous capture of images in high definition.

Digital Sight 10 allows the unprecedented high resolution of 6K and switching color and monochrome capture with a single camera.

This high-performance model also features a high frame rate for fast focusing on high-definition images.



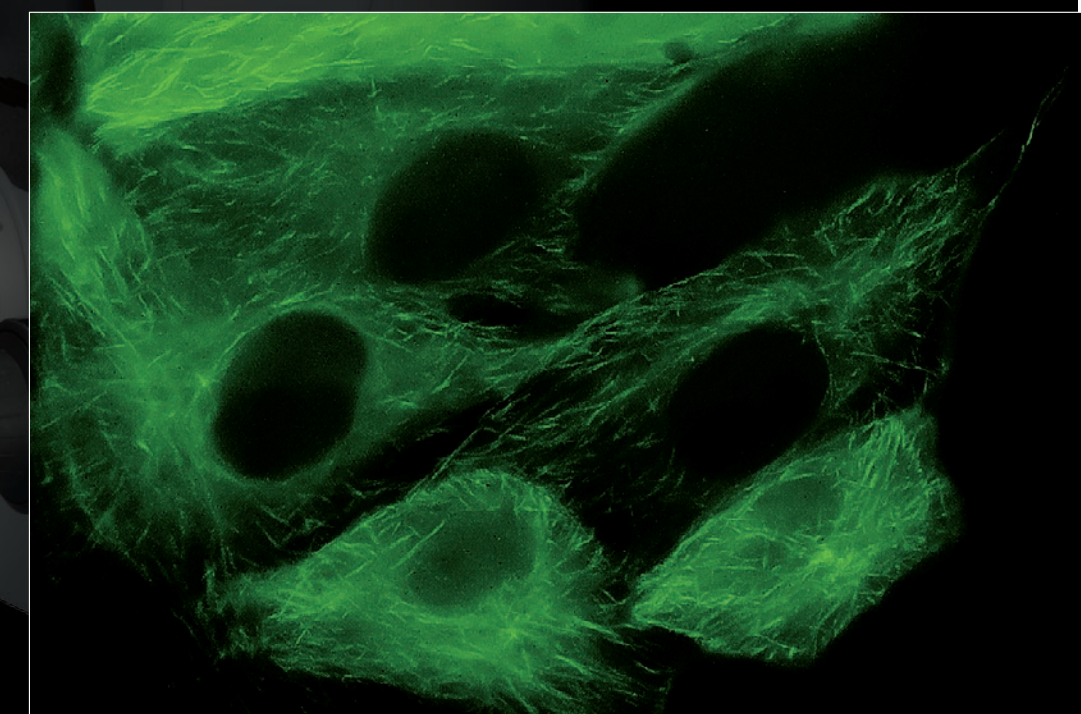
BPAAE Fluorescent Stain Specimen Nikon Standard  
Sample DIC (left) and fluorescence (right)  
Nucleus (DAPI), Actine (FITC),  
Mitochondria (MitoTracker RedFM)

## Digital Sight 10

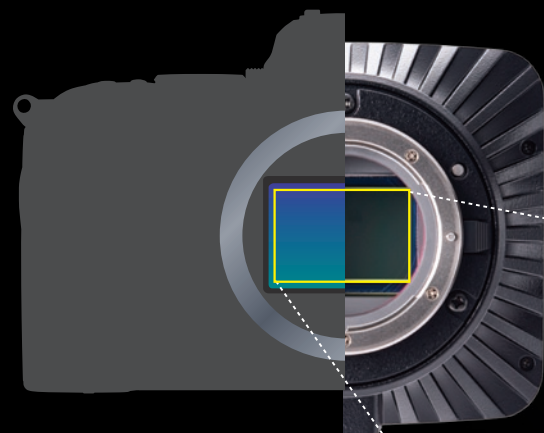
Freely switch between color and monochrome at 23.9 megapixels

## DS-Qi2

High pixel density, high sensitivity and low noise are key features of the DS-Qi2 monochrome camera.

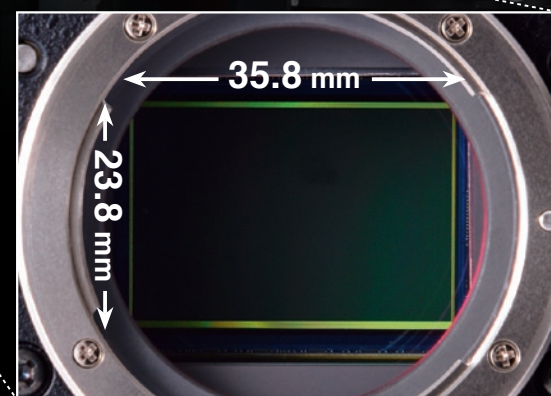


Pig kidney epithelial cells expressing GFP-EB3 tubulin  
Sample courtesy of: Michael Davidson, National High Magnetic Field Laboratory, Florida State University



## Large Format CMOS image sensors

Nikon manufactures CMOS image sensors and imaging technologies for professional DSLR cameras, and has optimized our sensors for microscopy.



\*The photo on the left is an image. It is different from the actual sensor



Covers a wide field of view with 6K ultra-high Definition. Achieves efficient, one-shot image capture.

Microscope Camera

# Digital Sight 10

NEW

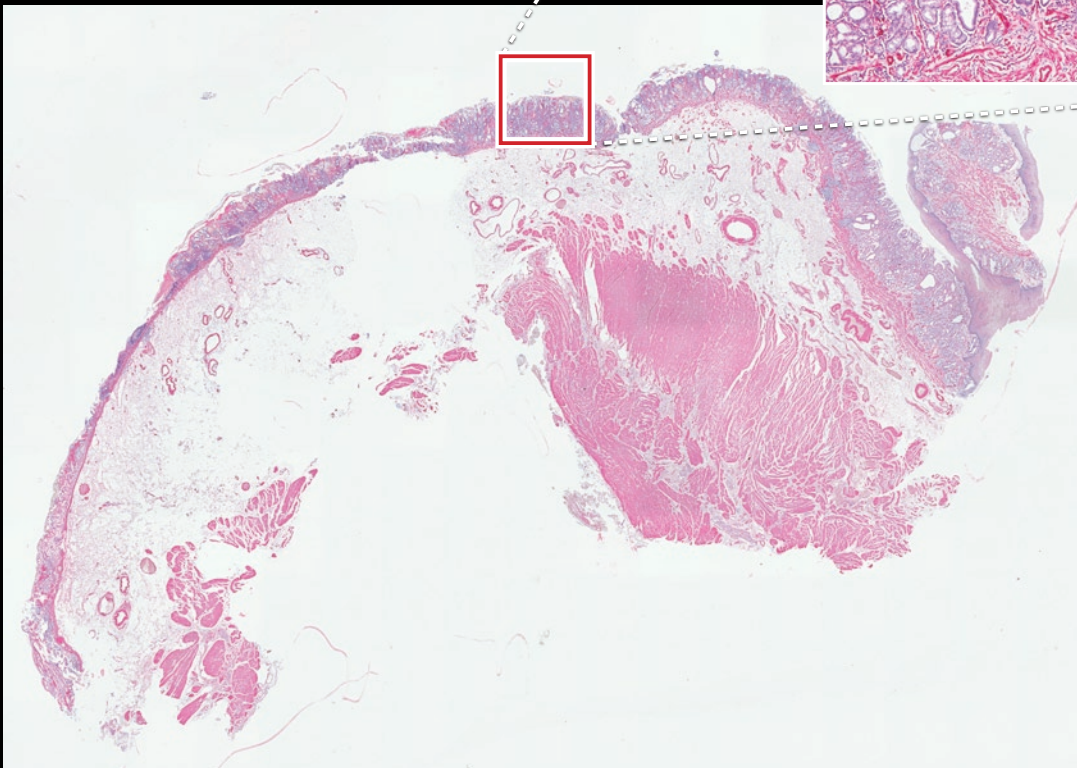
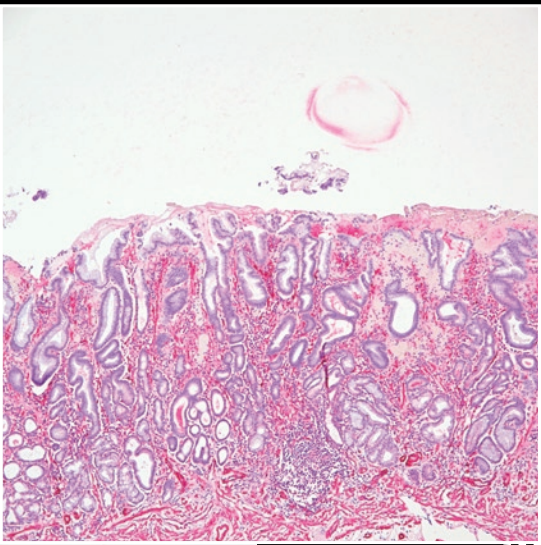


- 23.9 megapixel
- Color/Mono-chrome
- High-resolution

## Observation with a wide field of view

A full-frame CMOS image sensor for instantaneous one-shot image capture of wide areas

A 25 mm field of view (FOV), possible in combination with inverted microscopes, and upright microscopes, enabling the capture of images over a wider area in one shot. Tiled images can be created efficiently, cutting the time required for screening.  
\*Upright microscopes are supported only by the Ni series (brightfield).



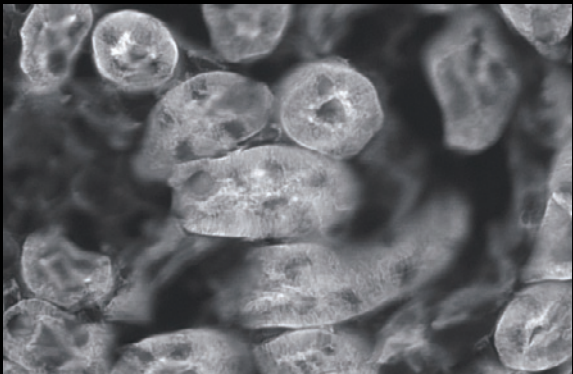
Stomach, SMA staining,  
17x12 Tiled images  
(Objective: CFI Plan  
Apochromat 40XC)  
Photo courtesy of :  
Nichirei Biosciences Inc.

## High-definition observation

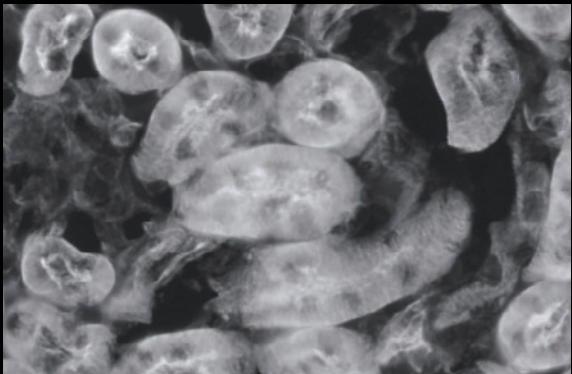
Easily capture fine details with 6K pixel resolution and high image quality

Microscopic images can be captured at up to 6000 x 3984 pixels (23.9 megapixels), ideal for image analysis and observation of fine structures.

### Digital Sight 10



### Conventional model (DS-Ri2)



Kidney tissue  
(WGA: 488)  
(Objective: CFI Plan  
Apochromat VC 20X)

## Fast live display

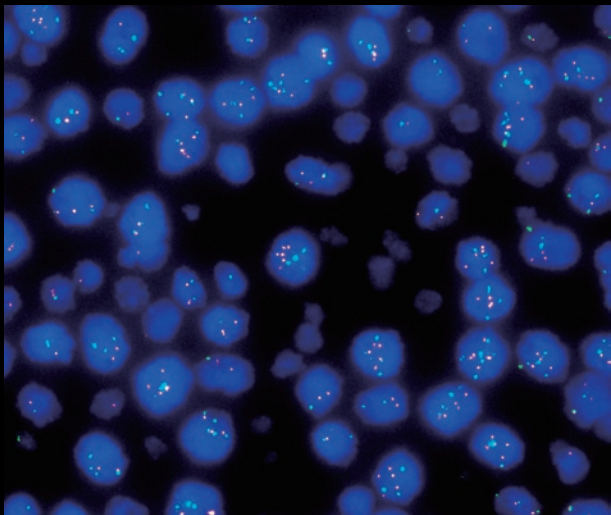
A frame rate that captures moving samples at the perfect instant

Digital Sight 10 is capable of live display of 6000 x 3984 pixel (23.9-megapixel) images at 9 frames/second or 1920 x 1080 pixel (2.1-megapixel) images at 66 frames/second. Fine focusing is easy and stress-free. By using the ROI mode, it is possible to shoot only any place at a higher speed.

## High sensitivity and low noise

Ideal for fluorescence observation requiring a wide field of view and high definition

Digital Sight 10 achieves high sensitivity equivalent to ISO 200 in color mode and ISO 800 in monochrome mode. Clear fluorescence observation with a high signal-to-noise ratio is possible in both monochrome and color image acquisition.



Breast cancer, FISH method (Objective: CFI Plan Apochromat Lambda D 100XOil)  
Photo courtesy of: St. Marianna University Hospital





High-definition capture in both color and monochrome. Ready for use in a wider range of observation scenarios.

Color shooting and Monochrome shooting are possible with one unit

During manual operation

Color mode

in



When inserting the color filter  
Can shoot 400 to 680 nm in color

Monochrome mode

out



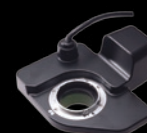
When detaching the color filter  
Capable of shooting 400 to 850 nm in Monochrome  
\*Replace with monochrome IR filter

Electric switching function

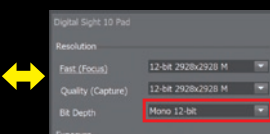
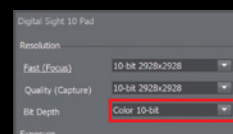
During electronic operation (using the 1x electronic adapter)

Easy color mode switching,  
either manually or electronically

Digital Sight 10 makes it possible to easily switch the color mode either electronically or manually by using specialized imaging software for electronic switching or attaching/detaching filters to the slot at the bottom of the microscope camera for manual switching.



1x electronic adapter



Switch with a single action in the imaging software

\*A 1x electronic adapter and a separate PC equipped with specialized imaging software, NIS-Elements, are required for electronic operation.

Achieves consistent shooting with a single sensor

A convenient all-in-one camera for multiple observation applications

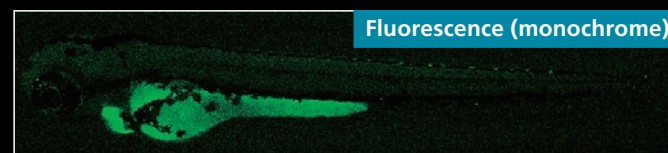
A single sensor captures both color and monochrome images, for consistent appearance even when switching color mode. Easy image acquisition is possible without the hassle of using different cameras.



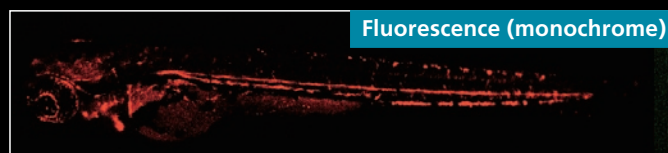
Brightfield (monochrome)



Brightfield (color)



Fluorescence (monochrome)



Fluorescence (monochrome)

Zebrafish (Objective: SHR Plan Apo 1X)

A monochrome mode that acquires even near infrared images

Fluorescence observation with little damage to biological samples

Digital Sight 10's monochrome mode supports near-infrared (700 nm–) fluorescence image capture, normally difficult to achieve with conventional color cameras. As fluorescence sensitivity extends to the NIR region, this camera is suited to fluorescence image capture of thick samples and samples with weak phototoxicity.

For discriminating  
fine structures

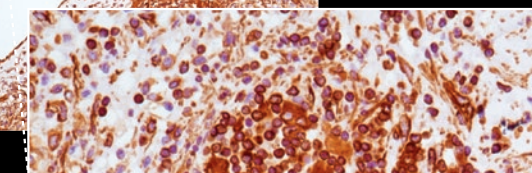
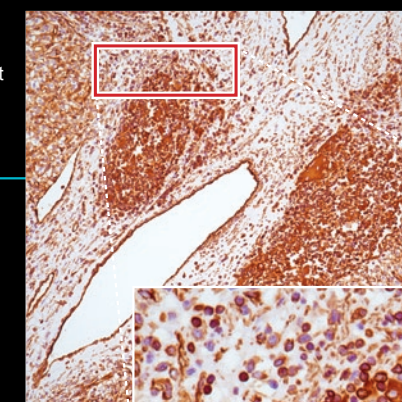


Kidney cancer, Vimentin staining  
(Objective: CFI Plan Apochromat  
Lambda D 20X)

Photo courtesy of:  
Nichirei Biosciences Inc.

Blurring and color bleeding  
are low even to the periphery,  
for images that are clear even  
when enlarged. ECLIPSE  
Ni supports everyday  
observation and inspection of  
samples with high resolution  
and high color fidelity.

» Upright microscope system **ECLIPSE Ni**  
Objective lens for biological microscopes Lambda D



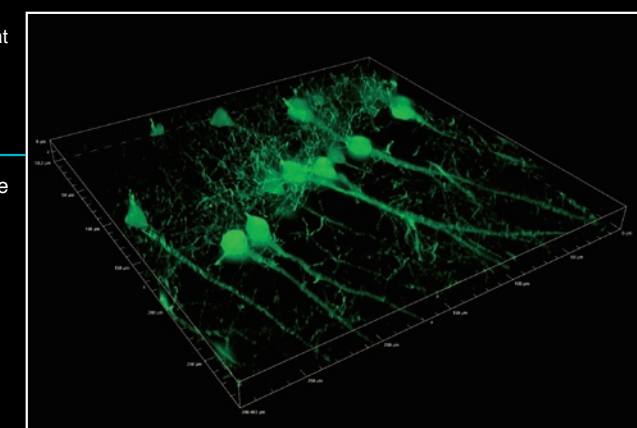
For 3D imaging



Mouse neuron  
(Objective: CFI Plan Apochromat  
Lambda D 40XC)  
From captured images of 18  $\mu\text{m}$   
thickness every 0.2  $\mu\text{m}$ .  
Image processed with Clarify.ai

ECLIPSE Ti2 takes advantage  
of a wide field of view (field  
number 25) to achieve  
high throughput even when  
capturing 3D or other large-  
size data. Combined with  
image processing, it enables  
the capture of clear images  
with a higher signal-to-noise  
ratio, even deep into subjects.

» Inverted microscope system **ECLIPSE Ti2**  
Objective lens for biological microscopes Lambda D



For model organisms



» Stereoscopic microscope system **SMZ25/18**

Zebrafish larva  
(brightfield/myocardium GFP)  
(Objective: SHR Plan Apo 2X)

Photo courtesy of:  
Dr. Hiroyuki Nakajima,  
National Cerebral and  
Cardiovascular Center

SMZ25/18 offers high  
definition at high frame  
rates. Capture perfect, bright  
images without missing high-  
speed biological reactions.  
Low noise makes this system  
ideal for time lapse imaging.





# Capture Low light fluorescence and Large Fields of View

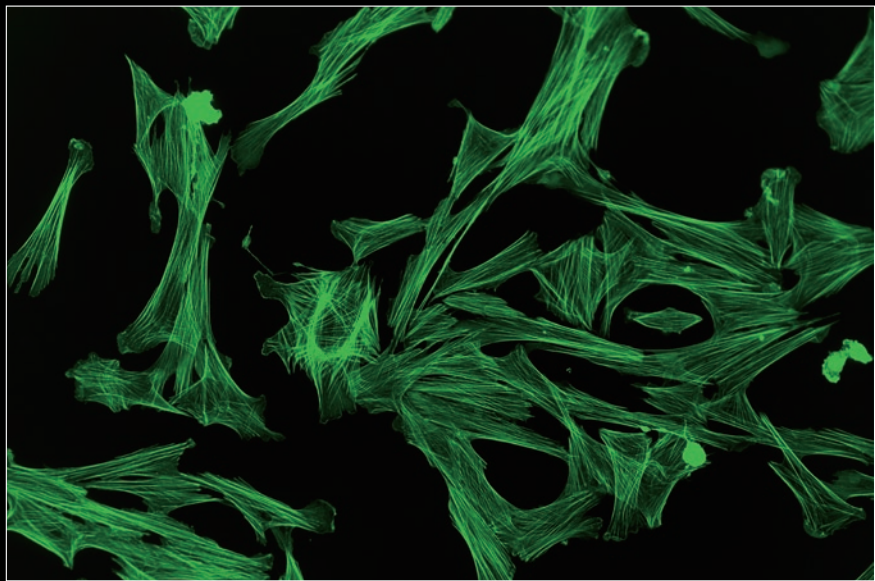
Monochrome Microscope Camera  
**DS-Qi2**



16.25 megapixel

Mono-chrome

Cooled

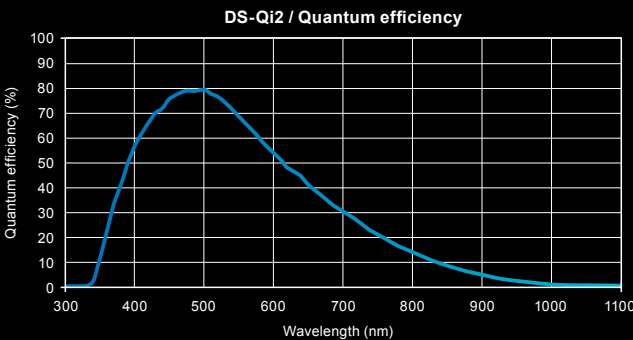


Indian Muntjac Deer Skin Fibroblast Cells, Cytoskeletal F-actin labeled with Alexa Fluor 488  
Sample courtesy of: Michael Davidson and Florida State University

## High sensitivity

Detects even faint fluorescent signals

7.3  $\mu\text{m}$  pixels, high quantum efficiency, and very low read noise allow the DS-Qi2 to read in even faint fluorescent signals.

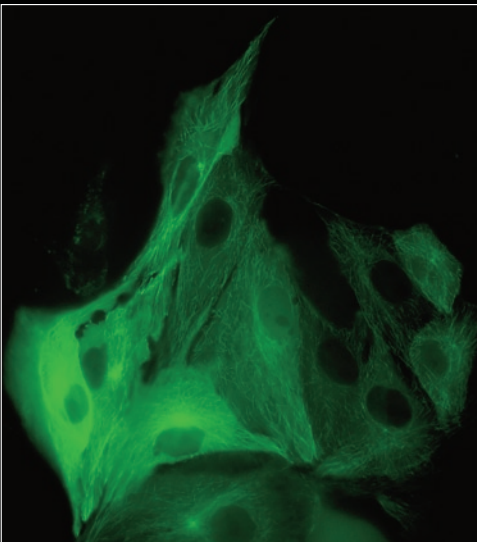
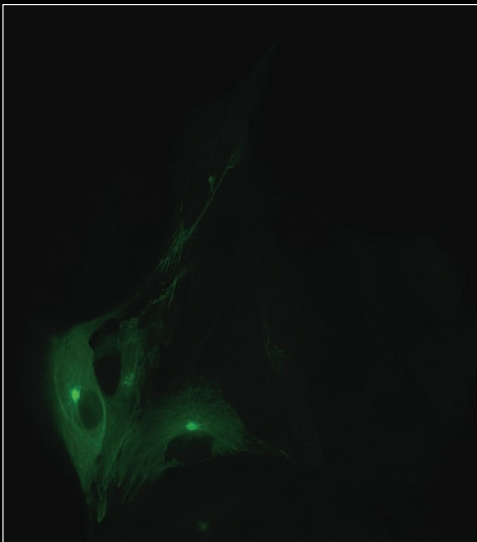


## Low noise

Acquires dim fluorescent signals with ultra-low noise

Both 2.2 electrons read noise coupled with a large full-well capacity and 0.6 electrons dark current allow the acquisition of 14bit fluorescence images with very little noise.

LLC-PK1 cells expressing GFP-EB3 tubulin with low noise. Large linear full well capacity allows acquiring both the brightest and dimmest areas in a single capture.  
Sample courtesy of: Michael Davidson, National High Magnetic Field Laboratory, Florida State University



## Excellent linearity

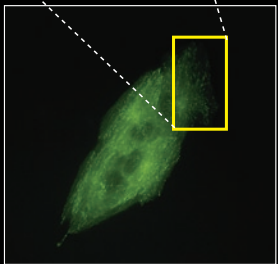
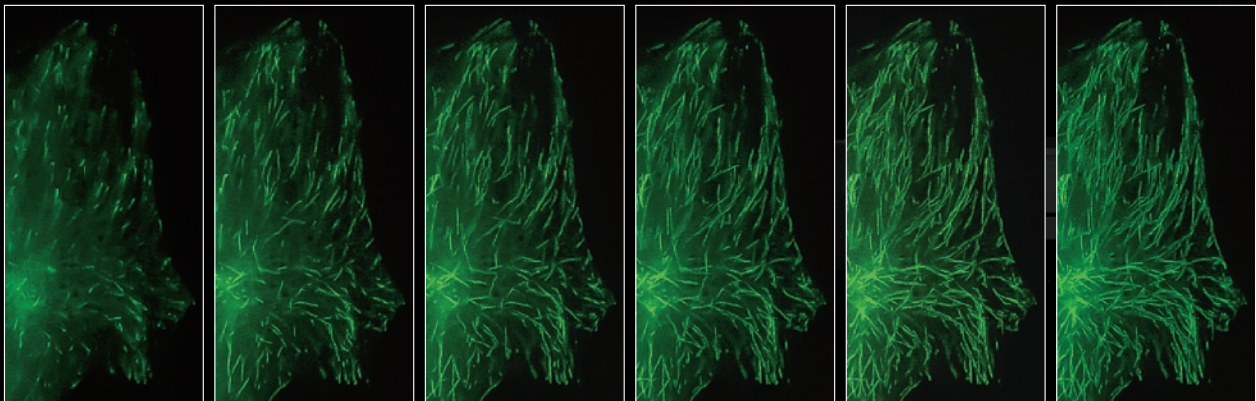
Reliable quantitative analysis made possible

With a linearity error of  $\pm 1\%$ , the DS-Qi2 is a superb tool for measuring intensities in fluorescence samples, including time-based intensity measurement and ratiometric measurement.

## High frame rate

Fast focusing, even with fluorescent images

With a high-sensitivity CMOS image sensor and USB 3.0-based data transfer, the DS-Qi2 enables high-speed live imaging and image capture at up to 45 fps (1636 $\times$ 1088 pixels).

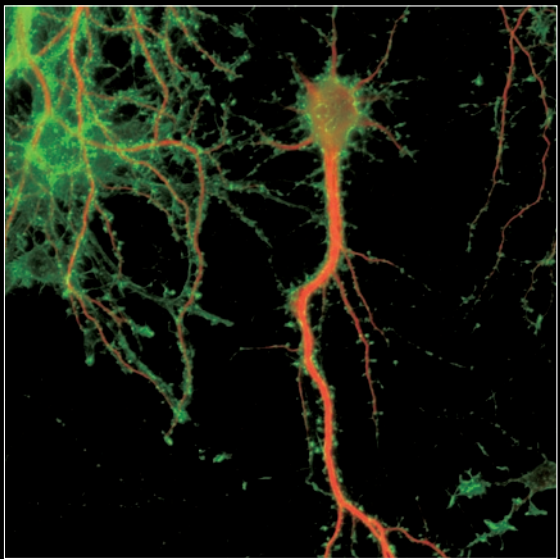


Time-lapse images (every 1 second) of LLC-PK1 cells with GFP-EB3 tubulin. Each image represents the maximum intensity projection of the timelapse, allowing visualization of the end-binding protein located on the microtubule plus-ends, and allowing tracing of the microtubule path.  
DS-Qi2 captures an extremely large field of view, but still represents very fine details as demonstrated in this cropped timelapse sequence from a large FOV image.  
Objective: CFI Plan Apochromat Lambda 60X Oil / NA: 1.4  
Sample courtesy of: Michael Davidson, National High Magnetic Field Laboratory, Florida State University

## Time-lapse photography

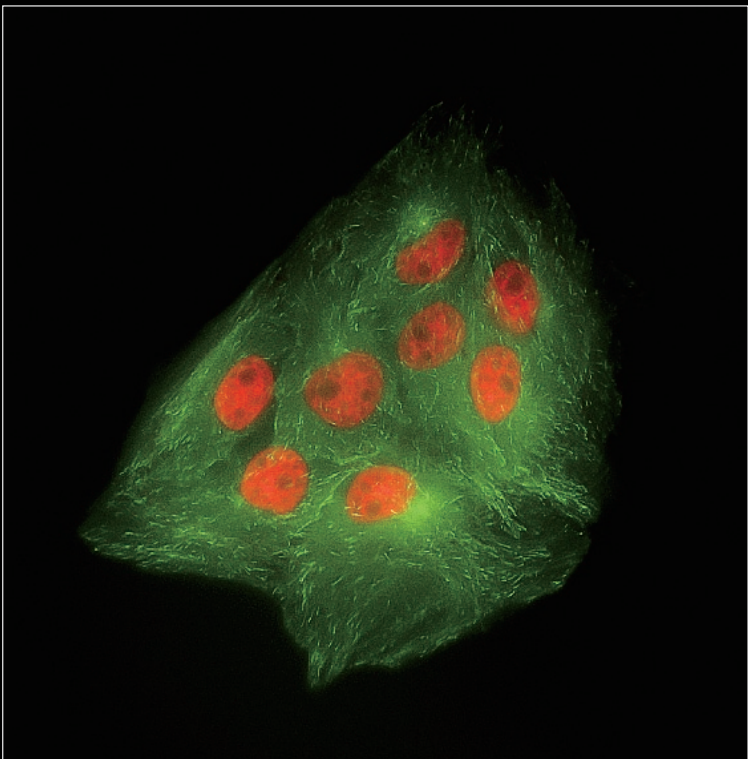
Fluorescent time-lapse imaging through integration with NIS-Elements software

With a large field of view and pixel density, and low noise, the DS-Qi2 is ideal for time-resolved imaging applications.



▲ Rat primary culture neuron  
Dendron labeled with MAP-2 (Red) and Actin (cytoskeleton) labeled with Phalloidin (Green)

► LLC-PK1 cells expressing GFP-EB3 tubulin (green) and H2B-labeled histones (red) illustrating the large field of view of the DS-Qi2 camera.  
Sample courtesy of: Michael Davidson, National High Magnetic Field Laboratory, Florida State University





## Integration with the comprehensive imaging software series

Nikon uses the NIS-Elements series as control software. NIS-Elements allows functions from basic imaging to control of the microscope and peripheral devices to be performed, as well as the measurement, analysis, and management of acquired images. Four basic packages and a variety of optional modules are available to suit every application and objective.

### F Free package

The bundled free package offers functions for the display of scale on live images, full-screen display, and more. The simple operation screen makes shooting easy.

### D Documentation package

The documentation package is equipped with measurement and report creation functions. It enables general microscopic image acquisition in fields from biomedical to industrial, and is expandable through optional added features such as EDF and databases.

### Br Ar Research package

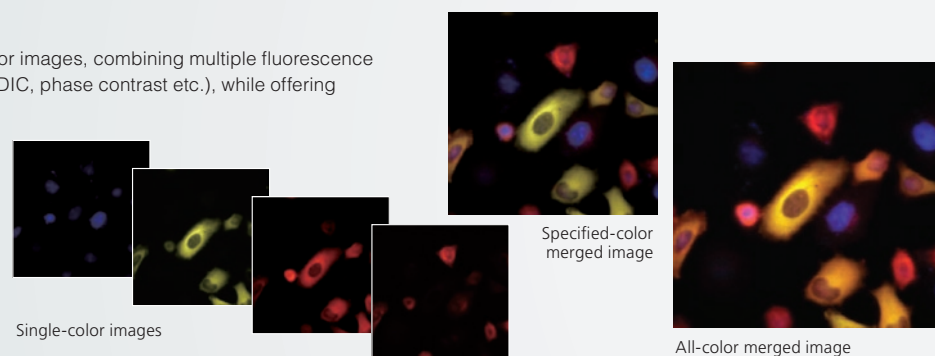
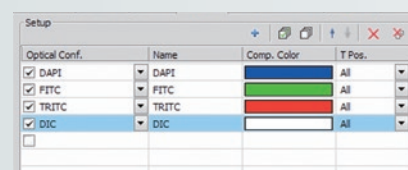
The research package enables the construction of advanced image acquisition systems, including multidimensional imaging (up to 4 dimensions for Br, 6 dimensions for Ar), through integration with systemized microscopes. Sets equipped with a rich range of image processing and analysis functions are available for every application.

Compatible OS: Windows® 10 Pro (32/64-bit version), NIS-Elements Ar is only compatible with the 64-bit version.

\* For information about compatible desktop PCs, contact Nikon.

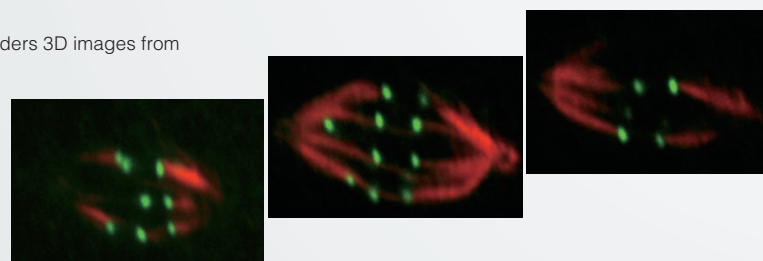
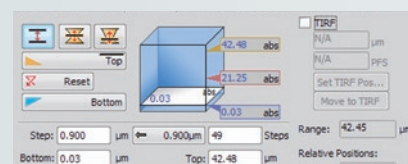
## Multichannel (Multi Color)

NIS-Elements can acquire full bit depth multi-color images, combining multiple fluorescence wavelengths and different illumination methods (DIC, phase contrast etc.), while offering independently scalable channels.



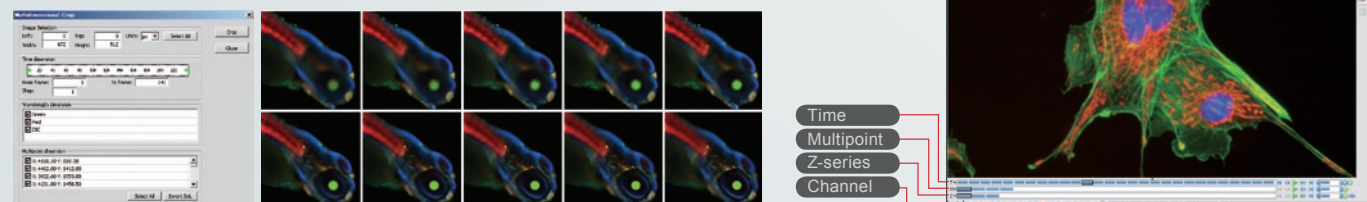
## Z-series

Through motorized focus control, NIS-Elements reconstructs and renders 3D images from multiple Z-axis planes.



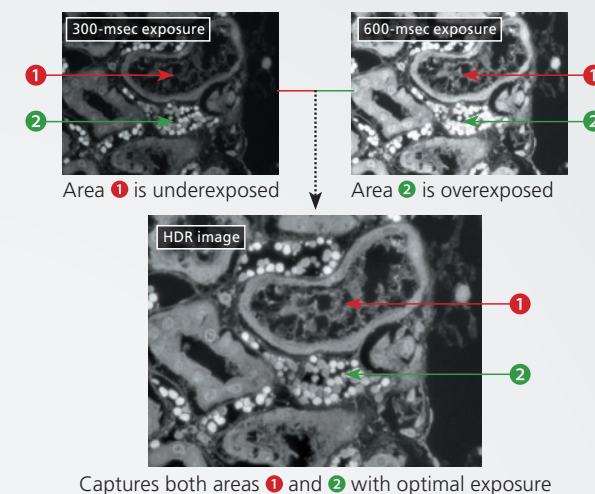
## Multi-dimensional Image Display

NIS-Elements displays time lapse, multi-channel, multiple X, Y, Z positions in an intuitive layout, which allows for automatic playback and the ability to select subsections of the data to be saved as a new file.



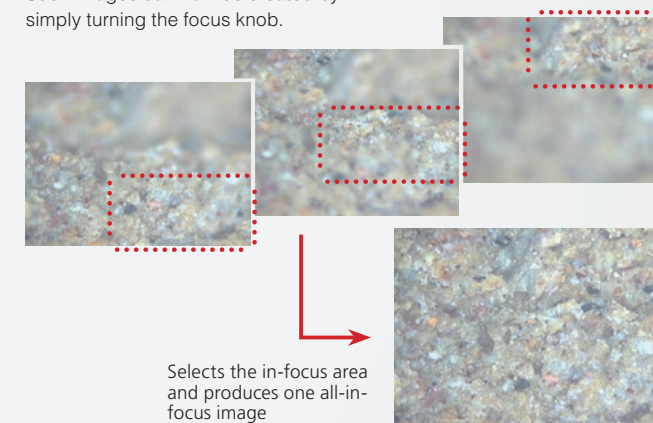
## HDR (High Dynamic Range) image acquisition

HDR creates an image with appropriate brightness in both the dark and bright regions in a sample by combining multiple images acquired with different exposure settings. It is also possible to create HDR image using multiple captured images.



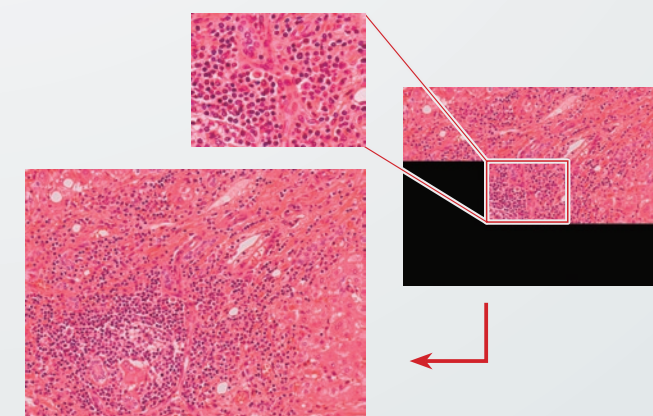
## EDF (Extended Depth of Focus)

Creates a single, all-in-focus image from images of differing focus. Such images can now be created by simply turning the focus knob.



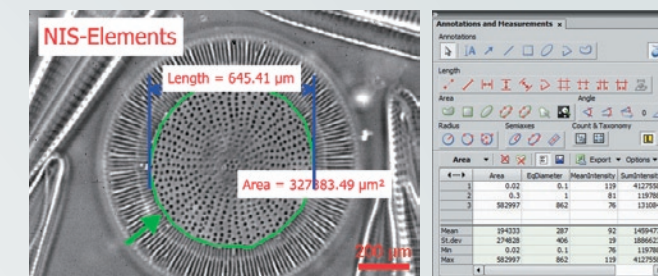
## Image stitching (Large Image)

Stitches together images from multiple fields of view during shooting to create an image with wide field of view. Images already acquired can also be stitched together.



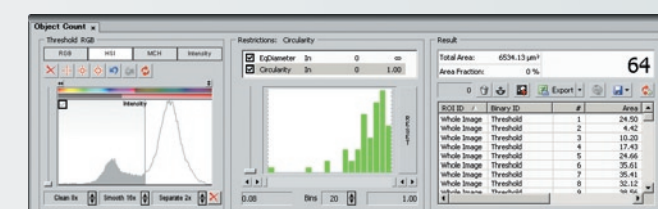
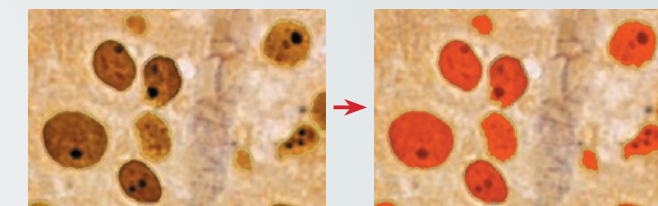
## Manual measurement and image annotation

Manual Measurement allows easy measurement of length and area by drawing lines or an object directly on the image. The results can be attached to the image, and also exported as text or to an Excel spreadsheet.



## Auto measurement (Object Counting)

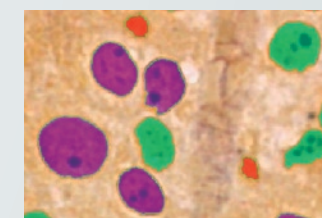
Performs binarization on images using previously set thresholds to measure the number, area, brightness, etc. of identified objects.



## Classifier

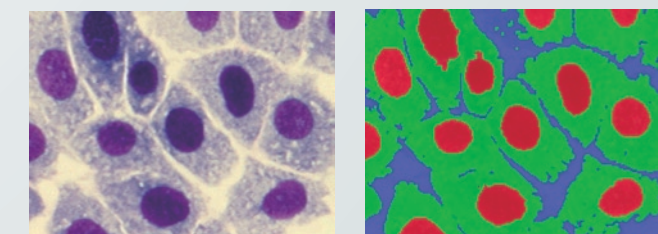
### Object Classifier

Object classifier uses objects identified by thresholding along with additional features such as shape factors, and other statistical methods including nearest neighbor and neural networks for classifying objects into multiple categories. It is also possible to teach the module based on interactive 'picking' of image pixels.



### Pixel Classifier

This function classifies each pixel in the image with RGB/HIS and intensity across the whole image. Results are reported in percentage and it is possible to save and reuse parameters across a large sample of images. Multiple binary layers are also displayed with multiple colors on the image and are available with other analysis tools within the software package.





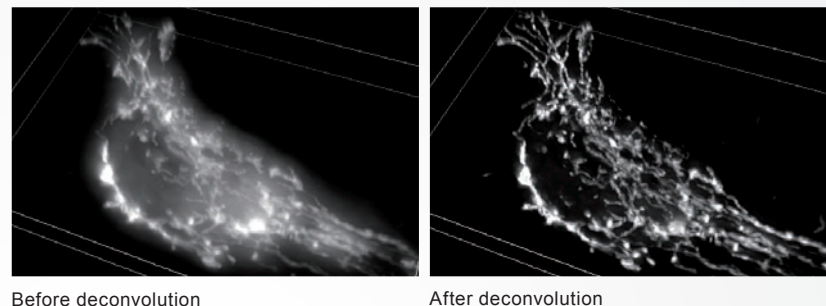
## Image processing software for even clearer 3D imaging

Nikon's image processing software is able to quickly and efficiently create vivid images from images rendered indistinct by light from other than the focal plane.

### Deconvolution

#### 3D deconvolution

3D deconvolution enhances image quality by removing blur from captured fluorescence images. It returns the blurred light component to its source location to prevent reduction in intensity caused by deconvolution, and can be applied to quantitative analysis. The algorithm can be selected to match the observation method, to handle fluorescence images, confocal images, and more.



#### 2D deconvolution

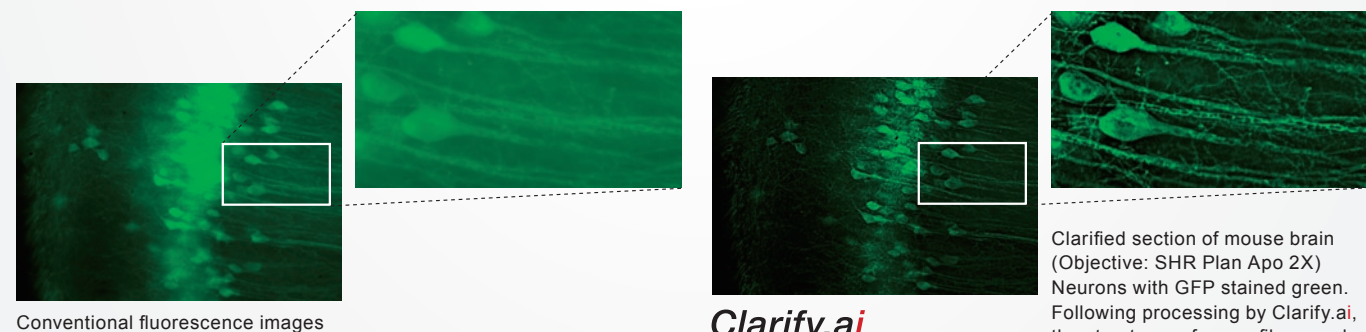
2D deconvolution is an algorithm capable of processing even live images. It can remove blurred light with high accuracy from live images and time-lapse images in the XY dimensions only.

## NIS.ai Consistently clear and high-contrast images through AI and microimaging

Clarify.ai (NIS.ai series) is a deep-learning-based AI module included with the 3D deconvolution function (optional). By removing blurred light contained in fluorescence images and automatically generating high-contrast, high-signal-to-noise images at high speed, NIS.ai lets anyone easily acquire fluorescence images free from blurring and with greater sharpness than in the past.

### Effective imaging of thick samples

Clear, blur-free images can be captured even during observation of thick samples such as model organisms, tissue sections, and three-dimensional cultures, in which fluorescent signals can become buried in blurred light.



Conventional fluorescence images

Clarify.ai

Clarified section of mouse brain (Objective: SHR Plan Apo 2X)  
Neurons with GFP stained green. Following processing by Clarify.ai, the structures of nerve fibers and cellular bodies can be observed in detail.

### Objective lenses that achieve even higher image quality

Use with the newly developed Plan Apochromat Lambda D series of objective lenses enables the acquisition of even higher quality images.



## Allows intuitive control of microscope cameras from tablet PCs

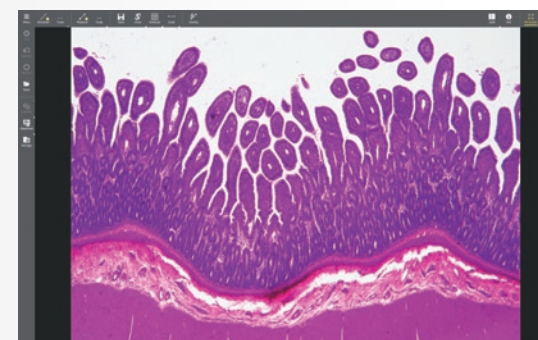
Simply installing NIS-Elements L on a tablet PC enables setting and control of DS-Fi3/Digital Sight 10 microscope cameras, live image display, and image acquisition.

(Compatible OS: Windows® 10 Pro) \* For information about compatible tablet PCs, contact Nikon.



### User Interface for naturally simple operation

NIS-Elements L displays various menus for image capture, saving, display, measurement and annotations using intuitive icons. It also supports touch screen operation.



### Scene mode

Ten camera setting patterns for optimal color reproduction and contrast for each microscope light source, observation method and type of sample, as well as custom settings, can be selected. (Available with DS-Fi3/Digital Sight 10 microscope cameras)

#### Biological Scene Mode

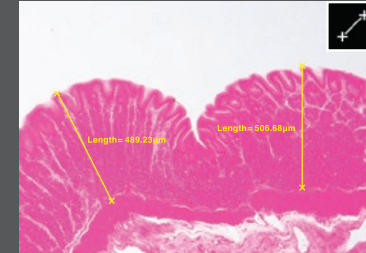
- Brightfield
- LED-Brightfield
- HE
- Asbestos
- ELISA

### A wide variety of tools

NIS-Elements L enables the conducting of simple measurements on images, with input of lines and comments. These can also be written onto and saved with the image, and measurement data can be output.

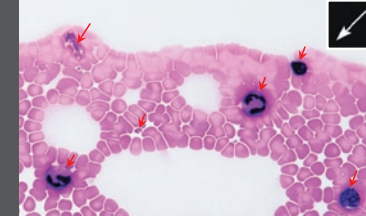
#### Measurement function

- Line distance
- Area
- Circle
- Circle distance
- Pitch distance
- Angle



#### Annotate function

- Line
- Arrow
- Text
- Marker
- Polyline

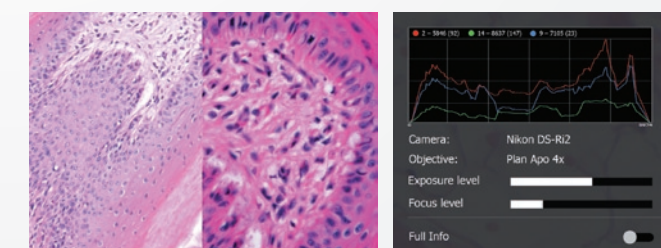


#### Graticule/scale function

- Crosshairs
- Simple crosshairs
- Circle
- Grid
- Horizontal scale
- Vertical scale

### Other functions

- Split screen display function:** A live image is displayed on the left side of the screen and the saved image is displayed on the right side. When synchronization is activated, synchronized magnification is applied to the both images.
- Camera information:** A histogram and metadata of the image are displayed.
- Full screen:** The image is displayed across the entire screen.
- Saving:** The displayed image is saved with a new file name.

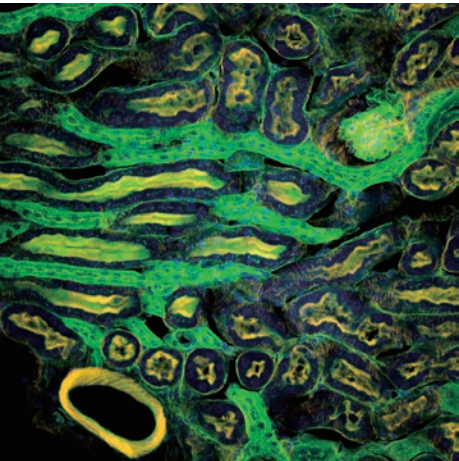


Split screen display function

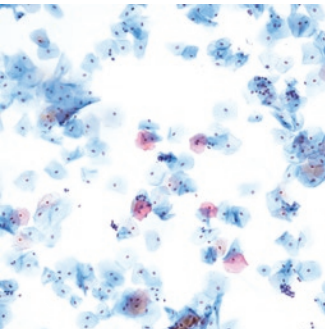
Camera information



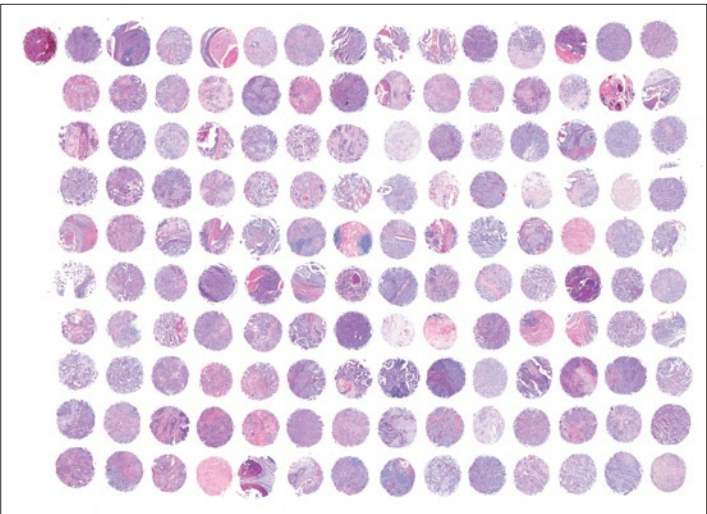
Collected examples



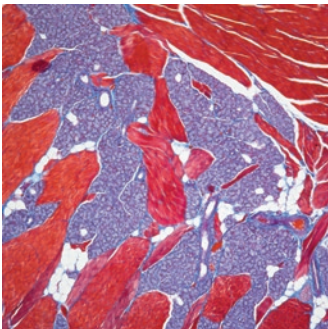
Mouse kidney slice: WGA (Alexa Fluor 488 staining), phalloidin (Alexa Fluor 568), nucleus (DAPI). Captured with DS-Qi2.



Lung cancer, Papanicolaou staining (Objective: CFI Plan Apochromat Lambda D 20X) Captured with Digital Sight 10

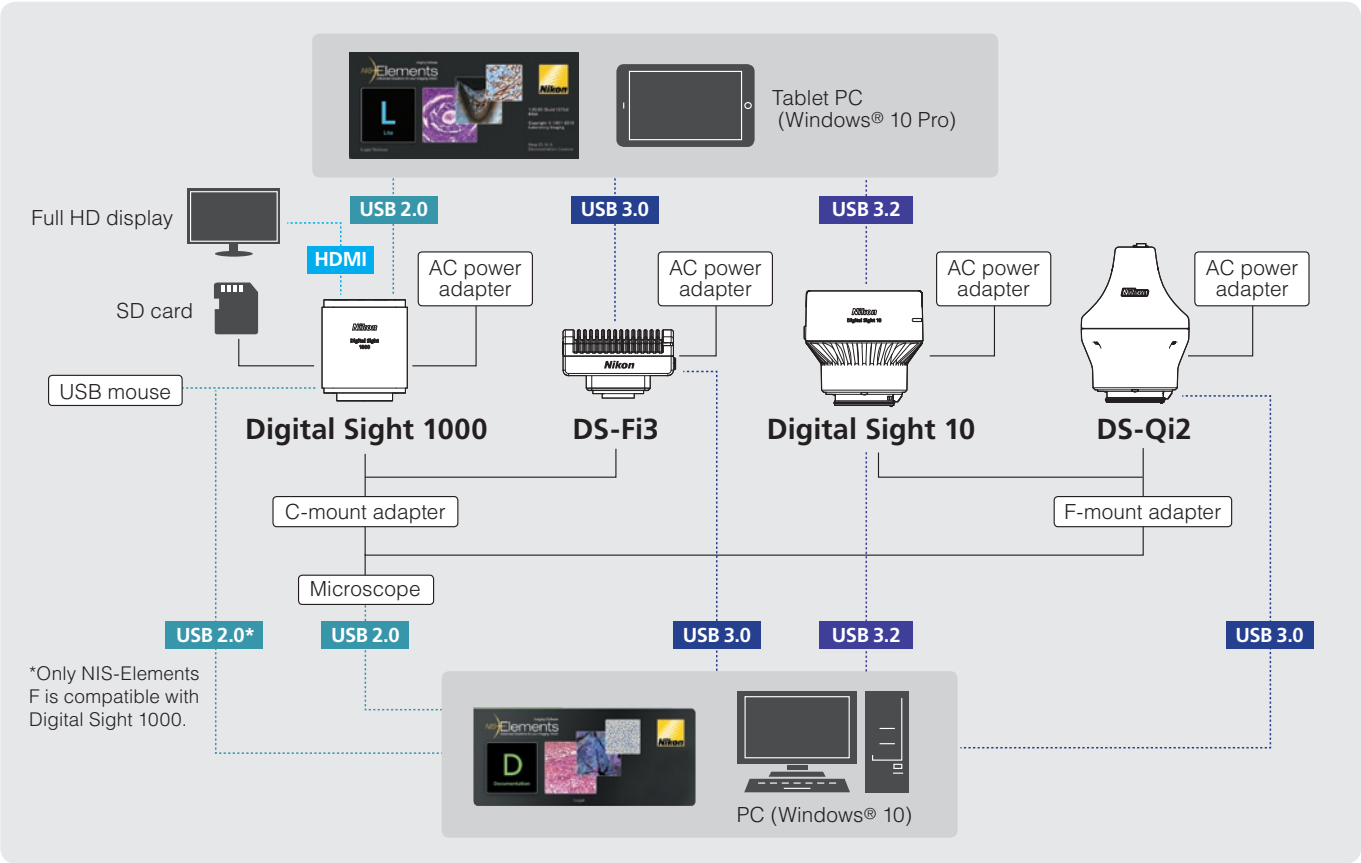


Breast Cancer TMA, HE staining (Objective: CFI Plan Apochromat Lambda D 4X) 6x5 tiled images / Captured with Digital Sight 10 Photo courtesy of : Nichirei Biosciences Inc.



Collagen fiber, Trichrome staining (Objective: CFI Plan Apochromat Lambda D 10X) Captured with Digital Sight 10

System Diagram



Dimensions

**Digital Sight 1000**

Weight: approx. 450 g

**DS-Fi3**

Weight: approx. 400 g

**Digital Sight 10**

Weight: approx. 1,100 g

**DS-Qi2**

Weight: approx. 1,200 g

**Digital Sight 10 Maintenance movie**

Specifications

Model name	Digital Sight1000	DS-Fi3	Digital Sight 10	DS-Qi2
Image sensor	1/2.8 inch Color CMOS image sensor Size: 5.57 × 3.13 mm	1/1.8 inch Color CMOS image sensor Size: 6.91 × 4.92 mm	Nikon FX-format Color CMOS image sensor Size: 35.8 × 23.8 mm	Nikon FX-format Monochrome CMOS image sensor Size: 36.0 × 23.9 mm
Recordable pixels	1920 × 1080 pixels	All pixels: 2880 × 2048 2 Vertical and 2 horizontal pixels average: 1440 × 1024	6000 × 3984 pixels	All pixels: 4908 × 3264 3 × 3 pixels average: 1636 × 1088
Lens mount	C-mount		F-mount	
Cooling method	—			Electronic cooling
ISO sensitivity (recommended exposure index)	Standard: equivalent to ISO 150	Standard: equivalent to ISO 50 (Selectable from ISO 50 to ISO 3200 equivalent)	Equivalent to ISO 200 (color mode) Equivalent to ISO 800 (monochrome mode) (Selectable from ISO 125 to 8000 :in color / ISO 500 to 32000 in mono)	Standard: equivalent to ISO 800 (Selectable from ISO 800 to ISO 51200 equivalent)
Quantum efficiency	—			77%
Full well Capacity	—			60000e (- typ.)
Readout noise	—			2.2e (- typ.)
Dark current	—			0.6e-/p/s (Ta=25°C)(typ.)
Live display mode* (maximum fps)	1920 × 1080 pixels: 30 fps	All pixels (2880 × 2048): 15 fps 2 Vertical and 2 horizontal pixels average (1440 × 1024): 30 fps	All pixels (6000 × 3984): 9 fps FullHD 3x3 pixels average (1920x1080): 66 fps	All pixels (4908 × 3264): 6 fps 3 × 3 pixels average (1636 × 1088): 45 fps
Exposure time	1 m sec ~ 10 sec	100 μsec ~ 30 sec	100 μsec ~ 120 sec	
Photometry mode	Average photometry 1920 × 1080 pixels (all area)	Average photometry: Average intensity within the photometry area Peak photometry: Maximum intensity within the photometry area		
Exposure control	Automatic exposure, Manual exposure	One-time automatic exposure: Exposure time is adjusted automatically for one-time within the optimum range for the camera Continuous automatic exposure: Automatic exposure adjustment is performed continuously to keep the exposure within the camera Manual exposure: Exposure time and gain settings are made manually		
Exposure correction	Available	Average metering: ±1EV Step:1/6EV (some restrictions according to tone) Peak hold metering: -1 EV ~ ±0 EV		Average metering: -1 EV ~ +1/2 EV Peak hold metering: -1 EV ~ ±0 EV
Interface	USB2.0 (connect with PC or USB mouse) × 1, HDMI × 1, SD card slot x1**	USB3.0 (connect with PC) × 1, External trigger × 1	USB3.2GEN1,2 (connect with PC) × 1, External trigger × 1	USB 3.0 (connect with PC) × 1, External trigger × 1
Power supply	AC100-240V 50Hz/60Hz			
Power consumption	3 W	4.8 W	18 W	24 W
Operating environment	0-40°C, 60% RH max. (without condensation)		0-30 °C, 80% RH max. 30-40°C, 60% RH max. (without condensation)	

\*Maximum frame rate depends on exposure time.

\*\*Both SD and SDHC memory cards are available.



The digital sight series is not for clinical diagnostic use.

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\*Products: Hardware and its technical information (including software)



#### WARNING

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



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