ECLIPSE Ji

SMART IMAGING SYSTEM

ECLIPSE Ji

The Open Architecture Digital Inverted Microscope

The ECLIPSE Ji (Ji) is Nikon's first all-digital research grade inverted microscope. With no eyepieces, this microscope is designed to be easy to learn and use, while maintaining the optimum optical quality and large field of view (FOV) Nikon microscopes are well-known for.

Additionally, Nikon's 4th generation perfect focus system (PFS) is integrated into Ji for reliable long-term observation of specimens.

Ji's integrated enclosure means users can navigate their samples in brightly-lit environments or even remotely, using the embedded scientific grade CMOS detector, or use any number of other possible detector options, depending on the research application.

ECLIPSE Ji configured with AX-NSPARC confocal system

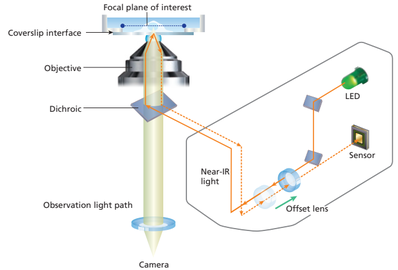
Digital Microscope / Wide Choice of Optics

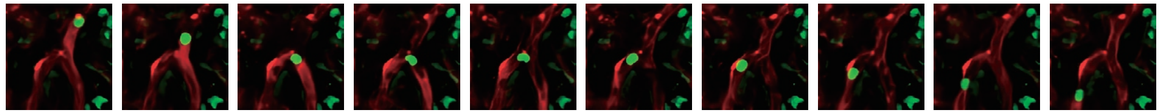
Ji is compatible with a wide variety of Nikon research objective lenses, including immersion objective lenses (water, silicon, and oil), making the microscope flexibly configurable for a variety of research applications.

Real time focus correction with Perfect Focus System

The Perfect Focus System (PFS) automatically corrects focus drift caused by temperature changes and mechanical vibrations, which can be generated by a variety of factors including the addition of reagents to the sample or multi-position imaging.

The PFS maintains focus by detecting and tracking the position of the cover slip surface in real time. Unique optical offset technology allows users to maintain focus at a desired position offset from the cover slip surface. The PFS automatically and continuously maintains focus by means of a built-in linear encoder and high speed feedback mechanism, providing highly reliable images even during long-term, complex imaging tasks.

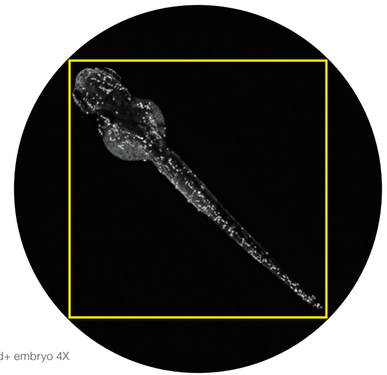




Neutrophil flowing in blood vessel (time-lapse)
Images courtesy of: Professor Masaru Ishii, Department of Immunology and Cell Biology, Graduate School of Medicine, Osaka University

25mm imaging port enabling Large View of the sample

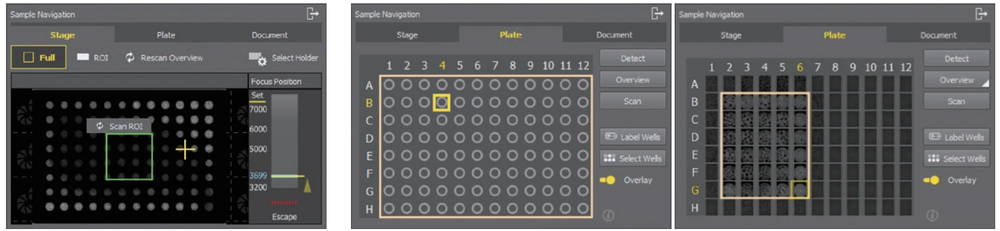
Ji offers a 25mm field of view (FOV) capturing 2X more data in a single image compared to previous technology. The large FOV provides incredibly flat images from edge-to-edge, even with large formats sCMOS cameras, enabling users to extract quantitative data from the entire image.



Danio sp. 2d+ embryo 4X

Enhanced Navigation and Detection Using AI Tools

Innovative AI-driven tools for sample navigation make it simple to find samples, set the appropriate wavelengths, exposure time and illumination power, and locate areas of interest without the need for eyepieces. Time on the microscope should be spent running experiments, not struggling with finding the sample, adjusting parameters, and navigation.



Automatic detection of plate type and virtual display for navigation

Experiment setups quickly optimize the illumination and filter settings, while simplifying the user interface to focus on the experiment

According to the sample holder and objective lens, finds the sample focus plane quickly and effectively

Quickly finds the optimal illumination and detector settings for the sample type, avoiding unnecessary photobleaching

Ideal for Automated Imaging and Analysis

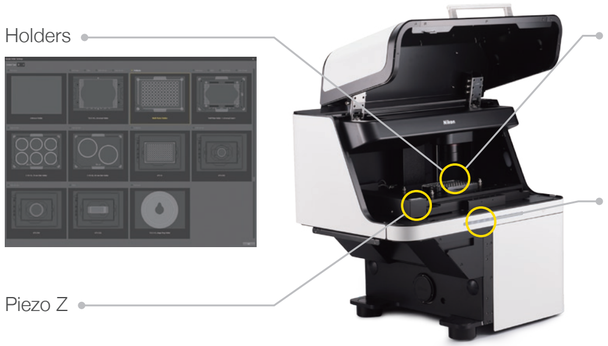
Ji is designed to be more simple to operate: tools to assist in focus, wavelength selection, as well as imaging tools such as shading correction, and focus offsets are built-in. Optional tools such as deconvolution are easily integrated.

Because Ji can be the platform for a large number of possible detectors, there is an extensive toolbox of analysis and processing tools available.

ECLIPSE Ji configured with Yokogawa CSU-W1 Spinning Disk

Built-In Expandability

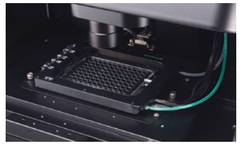
Ji is designed to easily integrate additional imaging tools as research needs develop over time, including environmental chambers, automatic objective immersion devices, piezo-electric fast focus drives, and more.



Stage top incubator

The STX series precisely maintains temperature at 37.0 °C and humidity at more than 95%, and controls CO_2 to enable culturing of cells for more than 1 week.

Manufactured by Tokai Hit Co., Ltd.

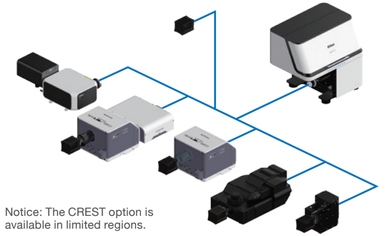


Water Immersion Dispenser (WID)

The Water Immersion Dispenser automatically applies the appropriate amount of water to the tip of an objective, eliminating evaporation and overflow during an experiment

The Base for a Variety of Detector Options

Ji includes an embedded monochrome CMOS detector by default, and additional detectors can be easily integrated into the stand depending on the application needs. Point and field scanning confocal systems, super-resolution systems, and other scientific grade detectors can easily be fitted to a 25 mm FOV optical port.



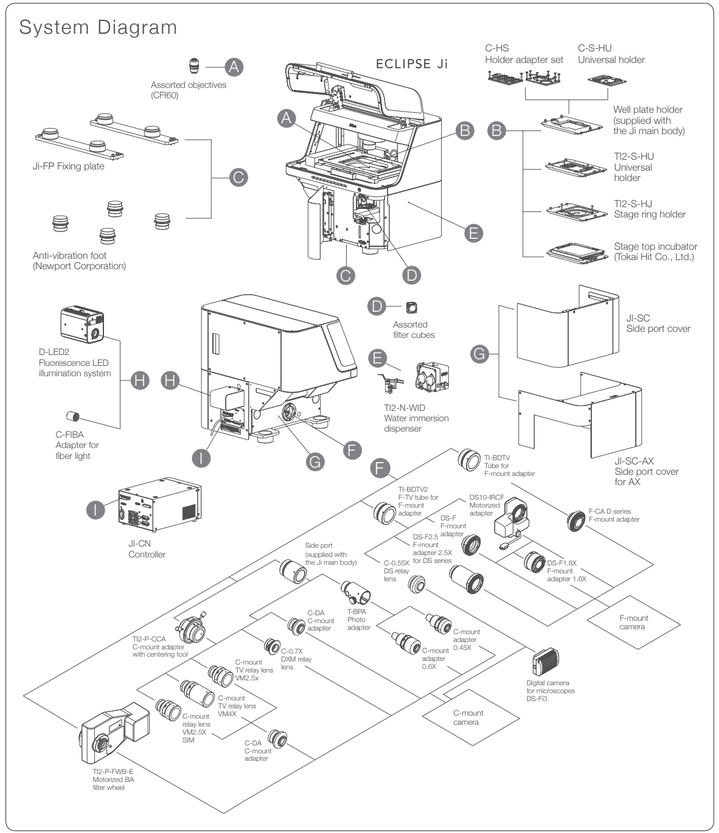
Notice: The CREST option is available in limited regions.

ECLIPSE Ji Assay Microscope

Ji base architecture is also available as a turnkey assay benchtop microscope, with predefined user-friendly automated plate scanning assays and data-rich output.

▲ Ji Assay info

System Diagram



Specifications

Model name	ECLIPSE Ji
Observation methods	Brightfield, Epi-fluorescence
Optical system	CFI Infinity Optical System Observation Optical System: Inverted image observation, FOV 25 Optical path switching: Switching between the built-in camera optical system and the left side port
Built-in camera	Imaging device: 7.8 megapixels monochrome CMOS sensor Output signal Tone: Monochrome 12 bits/8 bits Frame rate: Maximum 18 fps Output pixel number: 2800×2800 pixels (when assay used)
Focusing	Drive system: Motorized (Via PFS nosepiece objective lens up/down movement) Focusing stroke: About 10 mm Focusing speed: Maximum driving speed 2.5 mm/sec
PFS*	Focal point maintenance control: Infrared light projecting method Applicable observation methods: Brightfield, Fluorescence observation
Transmission illumination section	Koehler illumination Light source: LED
Stage	Stroke: X: ±59 mm, Y: ±39.5 mm Maximum drive speed About 25 mm/sec

Nosepiece	Objective lens mounting holes: 6 Nosepiece drive method: Motorized
Fluorescence cube turret	Number of filter cubes that can be mounted: 6 (Compatible with wide-field filter cubes) Turret drive method: Motorized
Light distribution section	Light source used: D-LEDI2 fluoresce LED light source
PC interface	USB interface: Device interface (for built-in camera) B connector USB3.0 (SuperSpeed)
Input rating	100V-240VAC±10%, 3.0 A, 50/60 Hz
Power consumption	320 W
Power source cord	- 100 to 120 V: Power source cord of 3 conductor grounding Type SVT, NO.18 AWG, 3 m long maximum, rated at 125VAC minimum with detachable receptacles conforming to UL specifications
	- 220 to 240 V: Power source cord of 3 conductor grounding Type H05VV-F 1 mm^2, 3 m long maximum, rated at 250VAC minimum with detachable receptacles conforming to EU/EN specifications

*PFS: a function that automatically corrects focal point displacement due to the passage of time and/or stage movement.

The design and specifications may differ from the actual product.

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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.