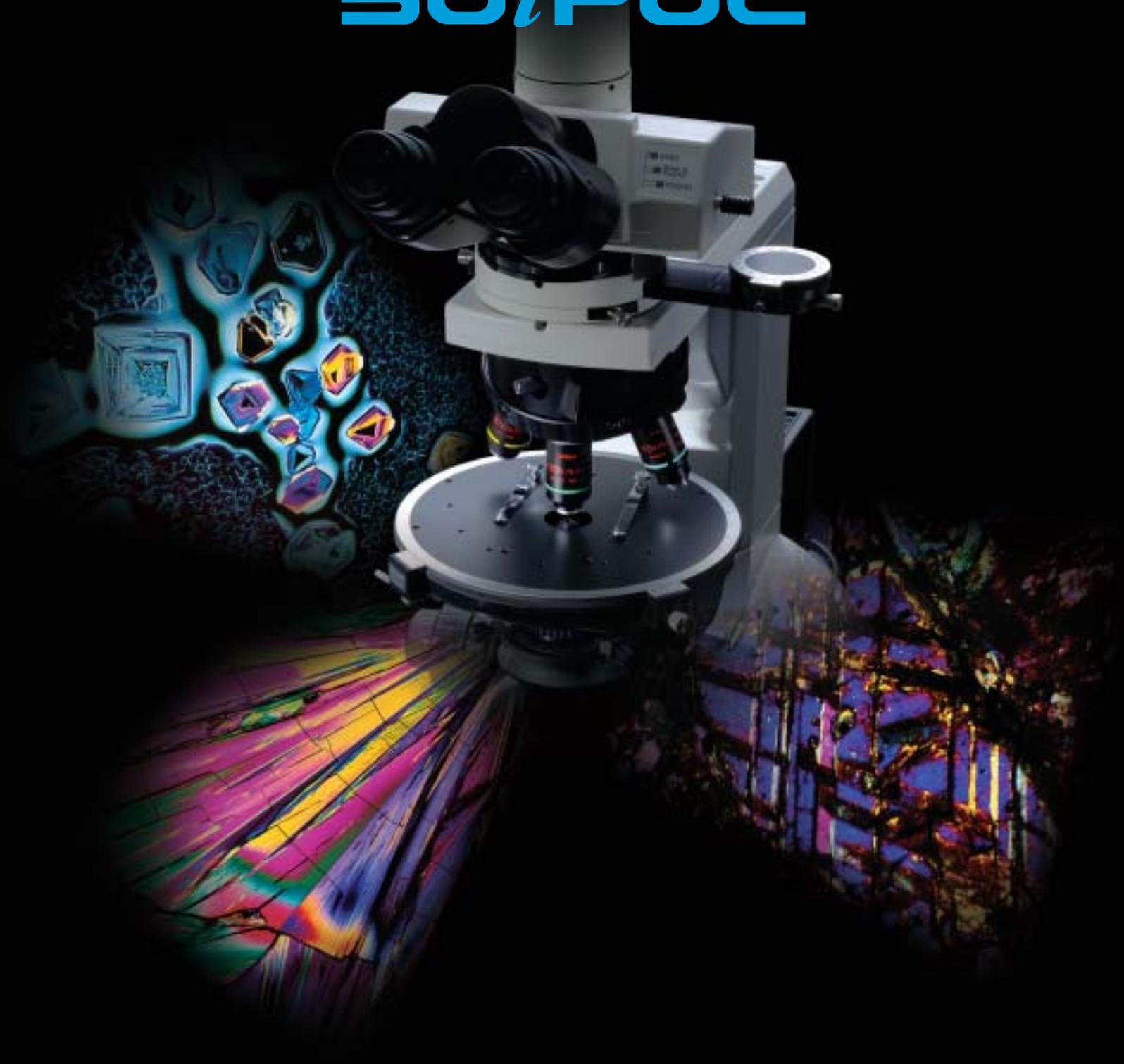




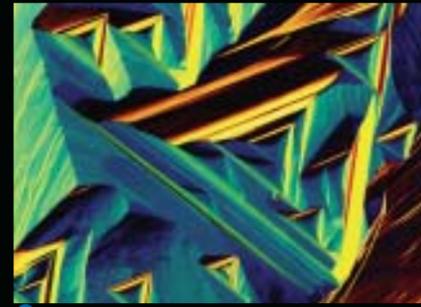
Polarizing Microscopes ECLIPSE LV100POL/50iPOL

Polarizing Microscopes
ECLIPSE
LV100POL
50*i*POL



Improved optics and operability for ever more demanding applications

- New 50W light source is brighter than a 100W lamp. Low power consumption means less heat generation, thereby reducing the chance of heat-induced focus drift.
- Robust, vibration-resistant stage is twice as stable and durable as conventional models (LV100POL).
- Focus stroke is improved to 30mm, facilitating observation of tall samples.
- Newly developed episcopic objectives use eco-glass that is totally free of environmentally harmful substances and produce the highest strain-free images possible.



Reversed centering quintuple nosepiece

Up to five objectives from 4x to 100x can be mounted. Provided with a DIN-compliant compensator slot, this nosepiece accepts various compensators for advanced quantitative measurements.



High-precision rotating stage (LV100POL)

The circular stage is large sized, pre-adjusted, and click-stops are provided in 45° increments. The stage is extremely accurate, centerable to the optical axis, and easy to rotate because of the smooth ball bearing movement. Moreover, it is supported near the optical axis and incorporates steel cross roller guides; so it is twice as stable and durable as recent conventional polarizing stages.



Intermediate tube

The intermediate tube incorporates a Bertrand lens, enabling both the observation and capture of conoscopic and orthoscopic images. The Bertrand lens is focusable and centerable. The high precision slider-type analyzer is rotatable for a full 360°.



ECLIPSE 50i POL
(Diascopic/Episcopic illumination)



ECLIPSE 50i POL
(Diascopic illumination)



Conoscopic image of mica / CFI P Achromat 40X



ECLIPSE LV100 POL
(Diascopic/Episcopic illumination)



ECLIPSE LV100 POL
(Diascopic illumination)

ECLIPSE LV100 POL Diascopic illumination type

Outstanding optical performance, perfect for a wide variety of imaging applications and polarizing techniques

Nikon has developed a new high-intensity 50W halogen light source that provides greater brightness than a conventional 100W halogen light source. Brightness is increased by approximately 20 to 40% with objective magnifications of 50x and higher. This new light source consumes lower electrical power and generates very little heat, greatly reducing focus drift resulting from light source heat.

- Improved body shape realizes higher robustness. Due to newly designed stage mount, the LV100V POL achieves double rigidity compared to the conventional model.
- Nosepiece comes with a DIN standard compensator slot.
- All five objectives on the nosepiece are centerable.
- Uses CFI60 optics, realizing both high N.A. and long working distance.
- Clamp-type focusing mechanism makes for easy, safe sample exchange.

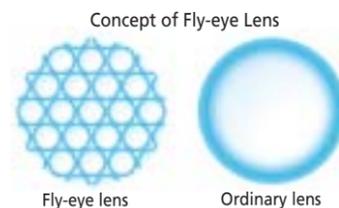
Why is 50W brighter than 100W?

Brightness is not determined by wattage. Nikon's new light source achieves greater brightness by optimizing the lamp filament size and improving pupil illumination fulfillment by optically expanding the size of the light source. This has resulted in a 50W light source that is brighter than a 100W lamp—about 40% brighter with diascopic illumination*.

*With 100x objectives.

Uniform brightness with diascopic illumination

Nikon's unique fly-eye lens has been employed in the diascopic illumination optics. This enables high quality digital imaging with no variations in luminescence throughout the view field.



Concept of Fly-eye Lens

Fly-eye lens

Ordinary lens



ECLIPSE LV100 POL Diascopic/Episcopic illumination type ECLIPSE 50i POL Diascopic/Episcopic illumination type

Accomplishes advanced polarizing microscopy under both diascopic and episcopic illumination

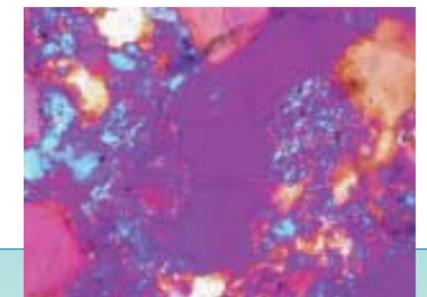
Both diascopic and episcopic polarizing observations are possible by mounting the LV-UEPI universal epi-illuminator. Switching the illumination technique is a simple operation. The epi-illuminator uses the same lamphouse as the diascopic illuminator, with the 12V-50W lamp as standard, which provides brighter illumination than a conventional 100W lamp. With an optional universal-type nosepiece and DIC accessories including objectives, episcopic differential interference contrast (DIC) microscopy is also possible.



ECLIPSE 50i POL
(Diascopic/Episcopic illumination type)



ECLIPSE LV100 POL
(Diascopic/Episcopic illumination type)



ECLIPSE 50i POL Diascopic illumination type

A compact polarizing microscope that balances optical performance and ease of use

- Slim and compact, so it doesn't occupy your entire desk
- Nosepiece uses the same DIN standard compensator slot design as LV100 POL
- All five objectives on the nosepiece are centerable
- Uses CFI60 optics, realizing both high NA and long working distance
- Clamp-type upper limit focusing mechanism makes for easy, safe sample exchange
- Excellent cost effective and precision manufacturing is balanced with superb basic performance in a standard level polarizing microscope



Industry-acclaimed CFI60 optics objectives

Nikon's proprietary infinity optics—the CFI60 system—successfully deliver long working distances and high numerical apertures and produce tack-sharp aberration-free images regardless of magnification. The new CFI LU Plan Fluor EPI P objective series uses eco-glass that is manufactured with no harmful substances such as lead and arsenic, enabling an environmentally conscious design.



CFI P Achromat objective series (for diascopic illumination)



CFI LU Plan Fluor EPI P objective series (for episcopic illumination)

Optional Accessories for Polarizing Observations

Attachable mechanical stage

To improve microscopy efficiency, an attachable mechanical stage can be mounted on the rotating stage to rigidly hold the sample.

Cross travel: 35 x 25 mm
Min. increment: 0.1mm on the vernier



Senarmont compensator

Inserted into the intermediate tube. In addition to the standard use $1/4\lambda$ plate and a 546nm (1λ) tint plate (1st order red plate), a Senarmont compensator is also available as an option, for retardation measurements from 0 to 1λ .



Quartz wedge compensator

Inserted into the intermediate tube, this compensator permits retardation measurements from 1 to 6λ orders.



Berek compensator

Inserted into the nosepiece slot, this compensator permits retardation measurements from 0 to 1800nm . Manufactured by Nichika Corporation.



IF 546/12 retardation filter

High-precision interference filter with a 546nm central wavelength and 12nm FWHM (full-width at half maximum). Used to increase the precision of retardation measurements.

Digital camera systems—Digital Sight series

You can select the most appropriate camera head and control unit to meet your specific documentation needs.

High frame rate color camera head—DS-2Mv

Features a high frame rate, 2.0-megapixel color CCD. Displays SXGA live images (1600×1200 pixels max.) at 15fps (30fps max.). The DS-2Mv balances smooth live image movement and excellent image quality.



High frame rate cooled monochrome camera head—DS-2MBWc

Incorporates a cooling mechanism. Even faint darkfield and fluorescence images can be clearly captured without heat-induced noise. With sensitivity five times greater than conventional models and the high frame rate (30fps max. at 1MP) of the 2.0-megapixel monochrome CCD, this camera provides clear noise-free images with minimal photobleaching.



High frame rate live display monochrome camera head—DS-2MBW

Incorporating a 2.0-megapixel monochrome CCD with sensitivity five times greater than conventional models, it has an excellent cost-to-performance ratio, with both high frame rates and high sensitivity.



High-definition color camera head—DS-5M

Ideal for brightfield, darkfield, phase contrast, and DIC applications. Its 5.0-megapixel color CCD delivers high-definition images.



High-definition cooled color camera head—DS-5Mc

Suited to weak-light applications requiring long term exposure such as epifluorescence and darkfield. A built-in cooling mechanism in the 5.0-megapixel color CCD contributes to clear images with minimal heat-induced noise.



Standalone control unit—DS-L1

A standalone type with a 6.3-in. TFT monitor and excellent extensibility thanks to analog RGB outputs and network connectivity. Measurement and overlay capabilities are provided.

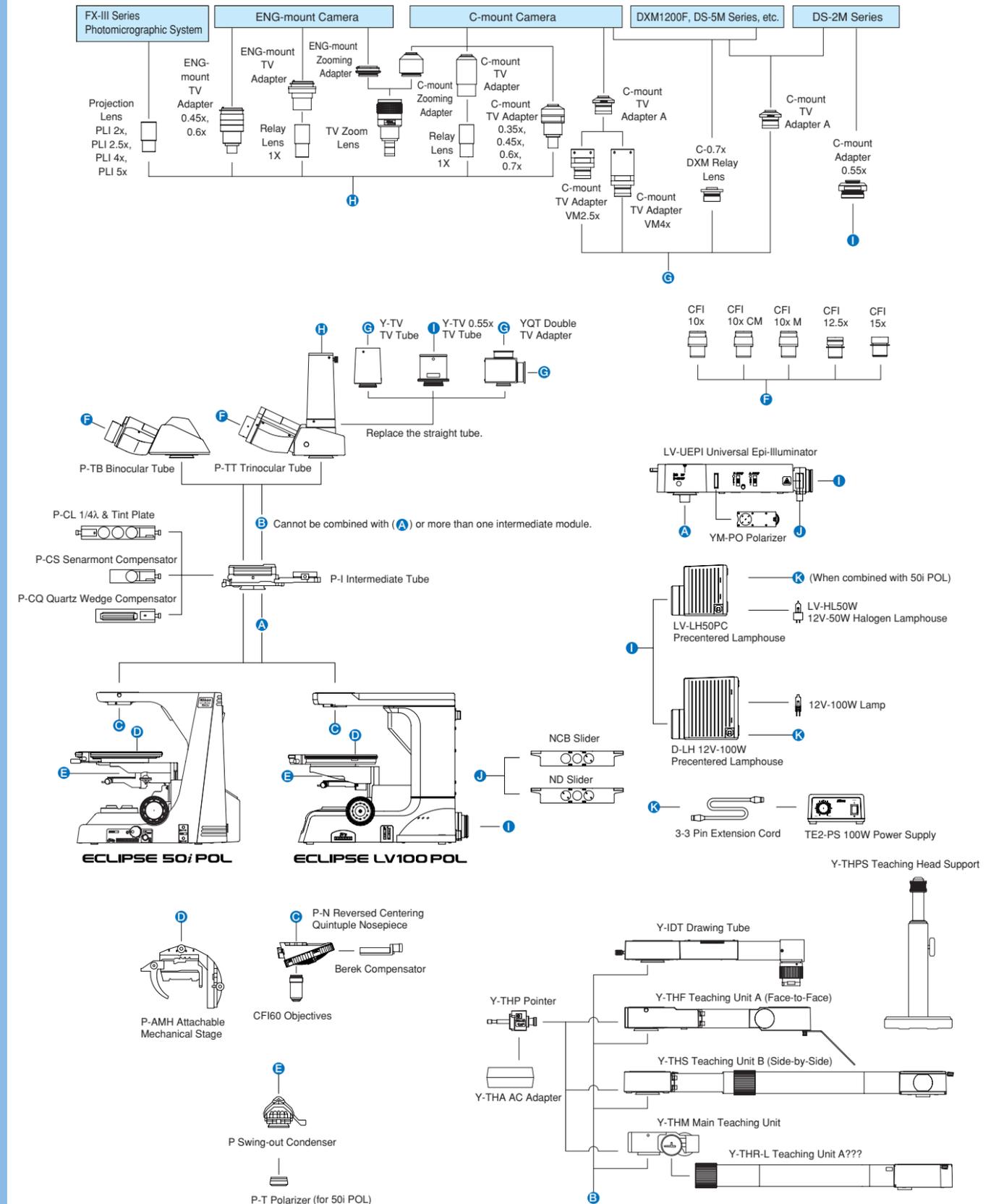


PC-use control unit—DS-U1

Allows observation, image capture, measurement and analysis on a PC monitor using camera control software ACT-2U. High-speed image transfer to a PC is possible via an easily-connectable USB interface.



System Diagram

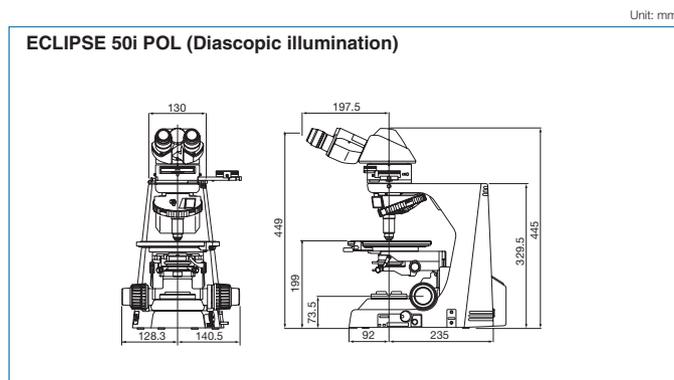
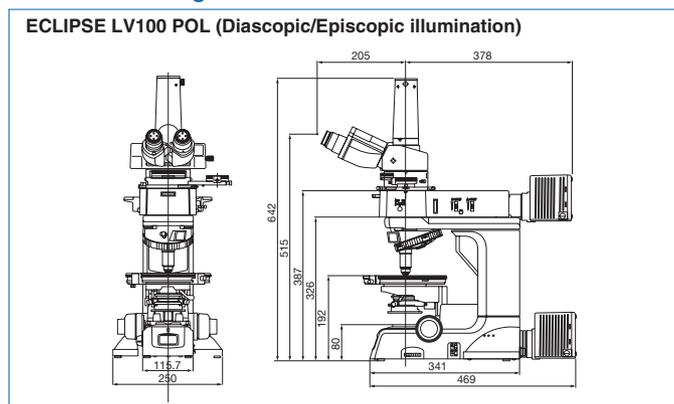


Specifications

		ECLIPSE LV100 POL	ECLIPSE 50i POL
Main body	Optical system	CFI60 infinity	
	Illumination	12V-50W halogen lamp; 12V-50W DC transformer built-in; Diascopic/episcopic illumination changeover switch; Fly-eye lens; NCB11, ND8 filters built-in; 12V-100W type optional	6V-30W halogen lamp; 6V-30W transformer built-in; ND8 filter built-in
	Focusing	Coaxial coarse/fine focus knob; Focus stroke: 30mm; Coarse: 14mm per rotation; Fine: 0.1mm; Minimum reading: in 1µm increments	Coaxial coarse/fine focus knob; Focus stroke: 30mm; Coarse: 13.8mm per rotation; Fine: 0.1mm; Minimum reading: in 1µm increments
Eyepiece		10x (F.O.V. 22mm), CM type with crosshair and micrometer scale	
Eyepiece tube		P-TT Trinocular Tube for polarizing microscopy; P-TB Binocular Tube for polarizing microscopy	
Intermediate tube		Built-in focusable Bertrand lens removable from optical path; Conoscopic/Orthoscopic observations switchable; Analyzer built-in; Plate/compensator slot	
Analyzer		360° rotary dial; Minimum reading angle 0.1°	
Nosepiece		Reversed centering quintuple nosepiece (detachable); DIN slot	
Stage		Top-grade dedicated circular graduated stage Rotatable 360° horizontally; can be fixed at a specific position; Graduated 360° (in 1° increments); Click stops each 45°; Attachable mechanical stage: 35 x 25 mm travel; vernier 0.1 mm	Ball bearing rotary stage; Rotatable 360° horizontally; can be fixed at a specific position; Graduated 360° (in 1° increments); Attachable mechanical stage: 35 x 25 mm travel; vernier 0.1 mm
Condenser		Dedicated strain-free swing-out type; P Achromat N.A. 0.9	
Polarizer		Fixed to the bottom of the condenser holder; Scale	No scale
Objectives		CFI P Achromat 4x, 10x, 20x, 40x, 100x CFI LU Plan Fluor Epi P 5x, 10x, 20x, 50x, 100x	
Episcopic illuminator		LV-UEPI Universal Epi-illuminator*	
Compensators		Standard 1/4λ & tint plate, quartz wedge or Senarmont compensator can be inserted into intermediate tube slot	
Power consumption		1.2A/75W	0.9A/48W
Weight		Approx. 17kg (standard trinocular set)	Approx. 14kg (standard binocular set)

* The ECLIPSE LV100 POL accommodates a 12V-50W illumination transformer, while the 50i POL requires an external power supply.

Dimensional Diagram



Unit: mm

Images courtesy of:
Ron Sturm, Construction Technology Laboratories, Inc., U.S.A. (Front cover left and image 1)
Mike Davidson, Florida State University, U.S.A. (Front cover center and right and images 2, 3, 4)

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

* Monitor images are simulated.
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