Nikon

ECLIPSE LV-N

Industrial Microscopes

LV150N / LV150NL / LV150NA
LV100ND / LV100DA-U

CFI60-2

Together with new optics, ECLIPSE is evolving to the next stage.

The ECLIPSE microscope body has been modularized to meet industrial microscope applications in diverse fields of industry, including semiconductor devices, packaging, FPDs, electronic components, materials, and precision molds.
The ECLIPSE LV Series, with stand units and illumination units selectable according to observation method and purpose to meet a variety of observation methods, has gained a new optical system and new features in its continued evolution.
Four types – motorized and manual types plus dedicated reflected illumination and combined reflected/transmitted illumination types – are available to meet any application.

CFI60-2

Evolved optical performance

Nikon's CFI60 optical system, highly evaluated for its unique concept of high NA combined with long working distance has further evolved to achieve the apex in long working distance, chromatic aberration correction, and light weight.

Easy Operation

Integration with digital camera

Detection of microscope information, including objective lens information, and motorized unit microscope operation are now possible using the digital control unit, for more efficient observation and image capture.

Observation Methods

Diverse observation methods

Combinations of a full range of accessories expand the observation methods available when using transmitted illumination, allowing adaptability to a greater diversity of samples.
All models enable brightfield, darkfield, differential interference, fluorescence, polarizing, and two-beam interferometry observation, while the LV100DA and LV100DA-U also allow transmission-type differential interference, darkfield, polarizing, and phase contrast observation.

LV-N Series

Model features

LV150N

NEW LV150NL

(*Dedicated LED illumination models)

LV150NA NEW

LV100ND NEW

LV100DA-U

Dedicated reflected illumination models

Microscope type	Manual type	Motorized type (Nosepiece)

Compatible observation methods

		Brightfield	Darkfield	DIC	Fluorescence	Polarizing	Phase-contrast	Two-beam Interferometry
LV150/ LV150NA	Episcopic	○	○	○	○	○	—	○
LV150NL		○	—	○	—	○	—	○

* Use an objective lens appropriate to the observation method.

Compatible stages

- LV-S32 3x2 stage (Stroke: 75 x 50 mm with glass plate)
  *Can be fitted with LV-S32SPL ESD plate
- LV-S6 6x6 stage (Stroke: 150 x 150 mm)
  *Can be fitted with LV-S6WH wafer holder / LV-S6PL ESD plate
- LV-SRP P revolving stage
- P-GS2 G stage 2 (Used with stage adapter LV-SAD)

Integration with Digital Sight microscopic digital camera

DS-L3 (Stand alone control unit)

- Objective lens information detection
  (when used with combination of Intelligent Nosepiece LV-NU5I and LV-INAD)

- Objective lens information detection and control

DS-U3 + NIS-Elements (PC control-based control unit + imaging software)

- Objective lens information detection
  (when used with combination of Intelligent Nosepiece LV-NU5I and LV-INAD)

- Objective lens information detection and control

Combined reflected/transmitted illumination models

Microscope type	Manual type	Motorized type (Nosepiece / light intensity / aperture stop / observation method selector)

Compatible observation methods

		Brightfield	Darkfield	DIC	Fluorescence	Polarizing	Phase-contrast	Two-beam Interferometry
LV100ND/ LV100DA-U	Episcopic	○	○	○	○	○	—	○
	Diascopic	○	○	○	—	○	○	—

* Use an objective lens appropriate to the observation method.

Compatible stages

- LV-S32 3x2 stage (Stroke: 75 x 50 mm with glass plate)
  *Can be fitted with LV-S32SGH slide glass holder
- LV-S64 6x4 stage (Stroke: 150 x 100 mm with glass plate)
- LV-SRP P revolving stage
- P-GS2 G stage 2 (Used with stage adapter LV-SAD)
- NIU-CSRR2 Ni-U right handle rotatable ceramic stage (Stroke: 78 x 54 mm)
- C-SR2S right handle stage (Stroke: 78 x 54 mm: Used with stage adapter LV-SAD)

Integration with Digital Sight microscopic digital camera

DS-L3 (Stand alone control unit)

- Objective lens information detection
  (when used with combination of Intelligent Nosepiece LV-NU5I and LV-INAD)

- Information detection of objective lens, light intensity, aperture stop, and observation method
  (brightfield / darkfield / fluorescence)

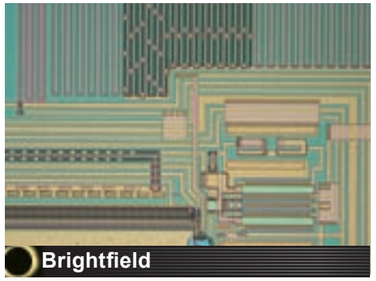
DS-U3 + NIS-Elements (PC control-based control unit + imaging software)

- Objective lens information detection
  (when used with combination of Intelligent Nosepiece LV-NU5I and LV-INAD)

- Information detection and control of objective lens, light intensity, aperture stop, and observation method
  (brightfield / darkfield / fluorescence)

Observation Methods

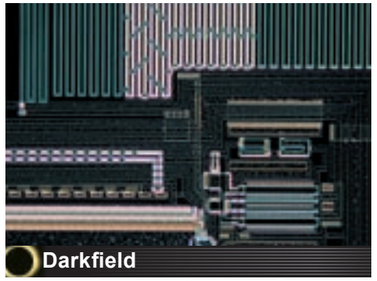
Compatible with a wide range of observation methods: brightfield, darkfield, polarizing, differential interference, epi-fluorescence, and two-beam interferometry.



LV150N LV150NA LV100ND LV100DA-U

Semiconductors (IC wafers)

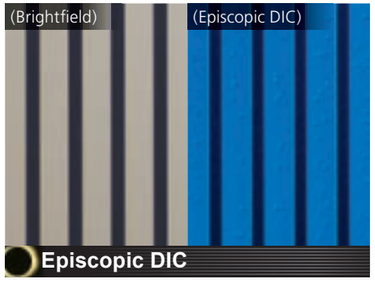
From its objective lenses to its illumination systems, the LV-N Series offers thorough measures against flare and provides bright, high-contrast images.



LV150N LV150NA LV100ND LV100DA-U

Semiconductors (IC wafers)

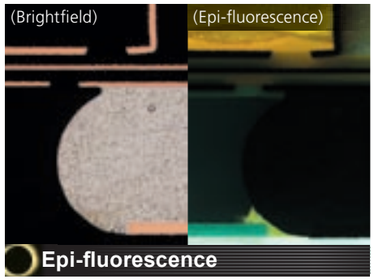
The use of Nikon's unique concepts in the objective lens darkfield illumination system enables bright darkfield observation and provides high-sensitivity detection of level differences and defects in samples.



LV150N LV150NA LV100ND LV100DA-U

Substrate

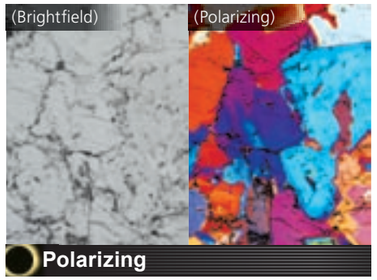
Standard-type and high-contrast-type DIC sliders are available to match samples. The LV-N Series is effective for applications such as observation of minute level differences in devices and precision molds.



LV150N LV150NA LV100ND LV100DA-U

Substrate (solder)

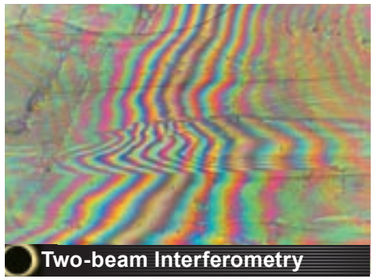
The LV-N Series demonstrates superiority in the observation of samples with fluorescent properties, such as organic ELs or mounted substrates.



LV150N LV150NA LV100ND LV100DA-U

Minerals

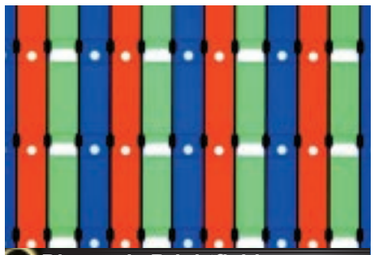
The LV-N Series is effective in the observation of samples with birefringent properties, such as liquid crystals or plastics/glass containing distortion.



LV150N LV150NA LV100ND LV100DA-U

Mica

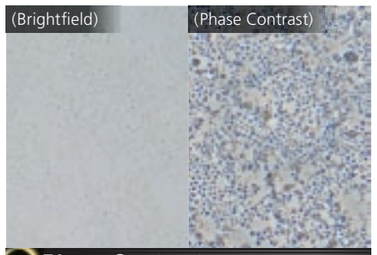
Michelson (TI) and Mirau (DI) reflection-type two-beam interferometry is possible with the LV-N Series. When used with micrometer eyepieces, minute level differences can be detected and measured without contact with the sample.



LV150N LV150NA LV100ND LV100DA-U

LCD (color filter)

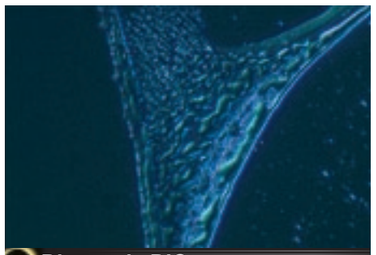
The LV-N Series is effective in the observation of samples with transparency, such as optical components, FPDs, and slide glass samples. When used in conjunction with the C-SP Simple Polarizer and analyzers, transmitted simple polarized observation is possible.



LV150N LV150NA LV100ND LV100DA-U

Emulsion

Colorless, transparent samples can be made visible through bright/dark contrast and the use of diffraction and interference, two properties of light.



LV150N LV150NA LV100ND LV100DA-U

Nanoparticle (silver)

Colorless, transparent samples can be observed in three dimensions by using polarization to create interference between two beams of light.

Specifications

	LV150N	LV150NA	LV150NL
Base unit	Maximum sample height: 38 mm (when used with LVNU5AI U5AI nosepiece and LV-S32 3x2 stage / LV-S64 6x4 stage) * 73 mm when used with one column riser 12V50W internal power source for dimmer, coarse and fine adjustment knobs Left: coarse and fine adjustment / Right: fine adjustment, 40 mm stroke Coarse adjustment: 14 mm/turn (with torque adjustment, refocusing mechanism) Fine adjustment: 0.1 mm/turn (1 µm/graduation) Stage mounting hole intervals: 70 x 94 (fixed by 4-M4 screw)		Maximum sample height: 38 mm (when used with LV-S32 3x2 stage) * 73 mm when used with one column riser Internal LED illumination power source, coarse and fine adjustment knobs Left: coarse and fine adjustment / Right: fine adjustment, 40mm stroke Coarse adjustment: 14 mm/turn (with torque adjustment, refocusing mechanism) Fine adjustment: 0.1 mm/turn (1 µm/graduation) Stage mounting hole intervals: 70 x 94 (fixed by 4-M4 screw)
Nosepieces	C-N6 ESD Sextuple Nosepiece ESD LV-NU5 Universal Quintuple Nosepiece ESD LV-NBD5 BD Quintuple Nosepiece ESD LV-NU5I Intelligent Universal Quintuple Nosepiece ESD	LV-NU5A Motorized Universal Quintuple Nosepiece ESD LV-NU5AC Motorized Universal Quintuple Nosepiece ESD	C-N6 ESD Sextuple Nosepiece ESD LV-NU5 Universal Quintuple Nosepiece ESD
Episcopic Illuminator	**LV-UEPI-N** LV-LH50PC 12V50W Precentered Lamphouse Bright/darkfield switch and linked aperture stop (centerable), field diaphragm (centerable) Accepts ø 25 mm filter (NCB11, ND16, ND4), polarizer/analyzer, λ plate, excitation light balancer; equipped with noise terminator **LV-UEPI2** LV-LH50PC 12V50W Precentered Lamphouse HG precentered fiber illuminator: C-HGFIE (with light adjustment) *option Bright/darkfield switch and linked aperture stop (centerable), field diaphragm (centerable), automated optical element switching feature matched to brightfield, darkfield, and epi-fluorescence switch Accepts ø 25 mm filter (NCB11, ND16, ND4), polarizer/analyzer, λ plate, excitation light balancer; equipped with noise terminator		1.1W white LED Accepts polarizer/analyzer
Eyepiece tubes	LV-TI3 trinocular eyepiece tube ESD (Erected image, FOV: 22/25) LV-TT2 TT2 tilting trinocular eyepiece tube (Erected image, FOV: 22/25) C-TB binocular tube (Inverted image, FOV: 22) P-TB Binocular Tube (Inverted image, FOV: 22) P-TT2 Trinocular Tube (Inverted image, FOV: 22)		LV-TI3 trinocular eyepiece tube ESD (Erected image, FOV: 22/25) C-TB binocular tube (Inverted image, FOV: 22) P-TB Binocular Tube (Inverted image, FOV: 22) P-TT2 Trinocular Tube (Inverted image, FOV: 22)
Stages	LV-S32 3x2 stage (Stroke: 75 x 50 mm with glass plate) ESD compatible LV-S64 6x4 stage (Stroke: 150 x 100 mm with glass plate) ESD compatible LV-S6 6x6 stage (Stroke: 150 x 150 mm) ESD compatible		LV-S32 3x2 stage (Stroke: 75 x 50 mm with glass plate) ESD compatible LV-S6 6x6 stage (Stroke: 150 x 150 mm) ESD compatible
Eyepieces	CFI eyepiece series		
Objective lenses	Industrial Microscope CFI_{60}-2/CFI_{60} optical system Objective lens series: Combinations in accordance with the method		
ESD performance	1,000 to 10V, within 0.2 sec. (excluding certain accessories)		
Power consumption	1.2 A / 90 W		0.1A / 3W
Weight	Approx. 8.6 kg	Approx. 8.7 kg	Approx. 8.6 kg

	LV100ND	LV100DA-U
Base unit	Maximum sample height: 38 mm (when used with LVNU5AI U5AI nosepiece and LV-S32 3x2 stage / LV-S64 6x4 stage) 12V50W internal power source for dimmer, coarse and fine adjustment knobs Left: coarse and fine adjustment / Right: fine adjustment, 40 mm stroke Coarse adjustment: 14 mm/turn (with torque adjustment, refocusing mechanism) Fine adjustment: 0.1 mm/turn (1 µm/graduation)	Maximum sample height: 33 mm (when used with LVNU5AI U5AI nosepiece and LV-S32 3x2 stage / LV-S64 6x4 stage) 12V50W internal power source for dimmer, coarse and fine adjustment knobs Left: coarse and fine adjustment / Right: fine adjustment, 40 mm stroke Coarse adjustment: 14 mm/turn (with torque adjustment, refocusing mechanism) Fine adjustment: 0.1 mm/turn (1 µm/graduation)
Nosepieces	C-N6 ESD Sextuple Nosepiece ESD, LV-NU5 Universal Quintuple Nosepiece ESD LV-NBD5 BD Quintuple Nosepiece ESD, LV-NU5I Intelligent Universal Quintuple Nosepiece ESD D-ND6 Sextuple DIC Nosepiece	LV-NU5AI Motorized Universal Quintuple Nosepiece (High-durability motorized 5-hole universal nosepiece)
Episcopic Illuminators	**LV-UEPI-N** LV-LH50PC 12V50W Precentered Lamphouse Bright/darkfield switch and linked aperture stop (centerable), field diaphragm (centerable), accepts ø 25 mm filter (NCB11, ND16, ND4), polarizer/analyzer; equipped with noise terminator **LV-UEPI2** LV-LH50PC 12V50W Precentered Lamphouse HG precentered fiber illuminator: C-HGFIE (with light adjustment) *option Bright/darkfield switch and linked aperture stop (centerable), field diaphragm (centerable), automated optical element switching feature matched to brightfield, darkfield, and epi-fluorescence switch Accepts ø 25 mm filter (NCB11, ND16, ND4), polarizer/analyzer, λ plate, excitation light balancer; equipped with noise terminator	**LV-UEPI2A** LV-LH50PC 12V50W Precentered Lamphouse HG precentered fiber illuminator: C-HGFIE (with light adjustment: PC controlled) *option Motorized operation and control of illumination selector turret Motorized aperture stop linked to bright/darkfield selector (automatic optimization matched to objective lens), field diaphragm (centerable) Accepts ø 25 mm filter (NCB11, ND16, ND4), polarizer/analyzer, λ plate, excitation light balancer; equipped with noise terminator
Diascopic Illuminator	LV-LH50PC 12V50W Precentered Lamphouse (Fly Eye optical system) Internal aperture, field diaphragm, filter (ND8, NCB11); transmitted/reflected selector switch; 12V100W also available (option)	
Eyepiece tubes	LV-TI3 trinocular eyepiece tube ESD (Erected image, FOV: 22/25), LV-TT2 TT2 tilting trinocular eyepiece tube (Erected image, FOV: 22/25), P-TB Binocular Tube (Inverted image, FOV: 22), P-TT2 Trinocular Tube (Inverted image, FOV: 22)	
Stages	LV-S32 3x2 stage (Stroke: 75 x 50 mm with glass plate) / LV-S32SGH slide glass holder LV-S64 6x4 stage (Stroke: 150 x 100 mm with glass plate), LV-SRP P revolving stage / P-GS2 revolving stage: Used with stage adapter LV-SAD NIU-CSRR2 Ni-U right handle rotatable ceramic stage (Stroke: 78 x 54 mm), C-SR2S right handle stage (Stroke: 78 x 54 mm: Used with stage adapter LV-SAD)	
Condensers	LWD achromat condenser (brightfield), LV-CUD U condenser dry (phase contrast, diascopic DIC, darkfield), Achromat 2x-100x slide condenser (brightfield), DF dry condenser (darkfield), and others	
Eyepieces	CFI eyepiece series	
Objective lenses	Industrial Microscope CFI_{60}-2/CFI_{60} optical system Objective lens series: Combinations in accordance with the method	
ESD performance	1,000 to 10V, within 0.2 sec. (excluding certain accessories)	
Power consumption	1.2 A / 75 W	1.2 A / 90 W
Weight	Approx. 9.5 kg	Approx. 10 kg