

Inverted Research Fluorescent Microscope Type: ACUBL-I4 FL

DESCRIPTION

ACUCAL inverted fluorescent microscope uses fluorescence to study specimens, such as living cells at the bottom of a petri dish or tissue culture. The Inverted Fluorescent Microscope has similar components to those of other microscopes, and the only difference is the arrangement of the parts, which are placed in inverted positions.

The specimen is lit using a halogen lamp or LED as a light source. When light enters the microscope, it strikes a dichroic mirror, reflecting one range of wavelengths while allowing another to pass through. The ultraviolet light is reflected up to the specimen by the dichroic mirror. The UV light causes fluorescence in the specimen's molecules and the fluorescent-wavelength light generated is collected by the objective lens.



*ACUBL-I4 FL is equipped with excellent Universal Infinity System (UIS) optical system, wide field eyepieces, long working distance plan achromatic objectives and very long working distance condenser. Compact & steady main frame body is embodiment for shock resistance. The ideal ergonomics design is adopted in this unit and have easier operation & wide space. It can observe transparent and unfinished living specimen in culture bottle or culture utensil. It is used to identify *Phytophthora* spp, nematology extraction specimens such as vermiform, and to see *Mycobacterium tuberculosis*. Moreover, micromanipulation is also possible with this microscope. It can be used in scientific research institutes, universities, medical treatment, agriculture and epidemic prevention, etc.*

TECHNICAL SPECIFICATION**Main Body**

- Compact & sturdy Inverted main frame Ergonomic Design, Highly rigid, Non Hinged type, vibration free Aluminium alloy casting, Robust mechanics combined with improved optical performance.
 - Design supports all kinds of dishes, Flasks, Petri plates & Multi wells.
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Optical System & Observation Techniques

- LWD Universal Plan Infinity corrected Phase Contrast Optical System having Anti Fungus coated optics, anti-bacterial coated (multi-layered hard coated).
 - Infinity corrected Optical system provides maximum S/N ratio and best optical performance from UV to near infrared.
 - LWD Plan Infinity Bright Field, Phase Contrast & Fluorescence Observation.
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Observation Head: Trinocular

- Sidentopf Observation tube 45° inclined with built in Camera Port & C-Mount Adapter.
 - Light distribution: 100: 0 (100% for eyepiece) & 80 :20 (100% for trinocular head & 20% for eyepiece).
 - Light distribution: 100: 0 (100% for eyepiece) & 0 :100 (100% for trinocular head). Optional
 - Inter-pupillary distance from 48mm to 76mm.
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Eyepiece

- Compensating High eye point DIN Wide field 10X (paired) F.O.V. 22mm. Bright Field Br, Focusable Foc., Field of view number F.N. 22mm with rubber eyeguards, Eyepiece outer mounting barrel diameter or Inner diameter of ocular sleeve 30mm.
 - Anti-fungal & Anti-reflection hard coated conforming to IS: 8275/1976 (latest)
 - Diopter adjustment facility (+5) on both eyepiece.
 - High Quality & Anti mould eyepieces to get the Image of object well defined over the entire field with good contrast rendition and practically free from spurious color effects.
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Nose Piece

- Quintuple, Ball Bearing loaded, interchangeable, Precise, Positive click stops for centred alignment.
 - Nosepiece provided with rubber grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment.
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Objectives: Long Working Distance Infinity Plan Achromatic objective, Anti-fungus, Interchangeable & Par focal. For Bright Field, Phase Contrast & Fluorescence applications

- ∞L PLAN FL PHASE 10X, N.A. 0.3, W.D.=14.0mm
 - ∞L PLAN FL PHASE 20X, N.A. 0.45, W.D.=6.6mm
 - ∞L PLAN FL PHASE 40X, N.A. 0.65, W.D.=3.8mm
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Condenser

- Long Working Distance 72mm/75mm (with condenser),195mm (without condenser).
- Quickly detachable , Numerical Aperture 0.3
- Suitable for Bright field , Phase Contrast & Fluorescence.
- Pre –centered Phase contrast slider for phase observation having phase rings. for the objectives from 4-40X for faster cell culture operations.

Mechanical Stage

- Hard coated surface, support multiple stage inserts, detachable travelling stage with right/left hand control, low position coaxial movement
- Mechanical Stage 210*240mm or 230*252mm, Glass Round Stage Dia. 110mm, Moving Range 128*80mm, Moving Stage Detachable.
- Culture Dish Holder Dia.54mm
- Circular Culture Dish Dia. 65mm & 35mm(Optional)
- Blood Cell Counter, Glass Holder. (Optional)
- The lifting type micro plate Universal holder allow flexibility in using different containers, all types of plates, multiwall plates, dishes, 6/12/24/38/96mm well plates, 65mm/90mm petri plate holder, T25, T75 flasks, multi-well plate holders, Terasaki plate holder 72-well/60-well, glass slide holder, 35-65 petri dish haemocytometer, specimen holders. (Optional)

Focusing Control

- Coaxial Coarse & Fine knob for focusing system by the vertical movement of revolving nosepiece and fixed stage.
- Tension Adjustable and Limit Stopper, Minimum Division 0.002mm, Ergonomically designed for easy grip.
- Stroke:20mm (Focal point: up to 18.5 mm, down 1.5mm from the plain stage top surface).
- Stroke per rotation: 37.5mm/45mm (coarse), 0.2mm/0.3mm (fine), and a scale mark of 2.5µm per mark. Stage lift:15 mm

Diascopic Illumination

- Koehler Transmitted Illumination, 6V30W Halogen Lamp or 5W LED (4000K)for bright field, phase contrast studies, Brightness Adjustable, Life more than 25000 hours
- **Filter** : 45mm diameter interference green contrast filter - Frosted & Green

Electronics : Universal Input 100V-240 V AC, 50/60 Hz, Fuse holder 3.15 A/250 V .

Epi Fluorescence Attachment : Epi (Reflected) fluorescence Media unit -03 Position (02 fluorescence filters +01 Bright Field) or 05 Position (04 fluorescence filters +01 Bright Field), field diaphragm,
100W Mercury lamp or 5WLED , ND slider , UV contrast Shield & Power Cord

Fluorescence Filters (Standard) : 25mm diameter excitation and barrier/emission filters,
26x38x1mm thick dichroic mirror

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|-------------------------------|------------------------------|
| • B (EX450/60,DM505,EM520LP) | G (EX540/30,DM565,EM590LP) |
| • V (EX405/30,DM430,EM470LP) | UV (EX375/28,DM415,EM435LP) |

Standard Accessories : Operating Manual, Dust Cover (L300mmxW 440mm x H 440mm), Power Cord, Guarantee Card & Styrofoam Molded Pack.

Optional Accessories : High Resolution Microscopy Camera

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PLAN ACHROMAT Infinity Objective (Both for Bright Field & Phase Contrast)

- ∞ L PLAN PHP 4X (N.A. 0.10), W.D. 18mm
- **Annular Phase Contrast Slider** : 4x,

PLAN ACHROMAT Infinity Bright Field Objectives:

- ∞ PLAN 2X, N.A.0.06, WD 7.2mm
- ∞ L PLAN 4X, N.A. 0.10, W.D. 18.5mm

FEATURES

Same Objective for Both Bright Field & Phase Contrast Observation
Not Necessary to Change Different Objective

- Offers high resolution images of the cells, tissue & other biological specimens.
- It is widely used in observation and cultivation for tissue culture & other life science industry for research & quality purpose.

Condenser



Culture Dish Holder (Optional)

Ø65mm μ m	Ø54mm	Ø35mm	blood cell counter
Universal Holder		Glass Holder	

Filters for Fluorescence Attachment (Optional)

Name of part	Exciter	Dichroic	Emitter	Light
UV	EX375/28	DM415	EM435LP	halogen or 5WLED
V	EX405/30	DM430	EM470LP	halogen or 5WLED
B	EX450/60	DM505	EM520LP	halogen or 5WLED
G	EX540/30	DM565	EM590LP	halogen or 5WLED
FITC	EX480/30	DM505	EM535/40	5W LED
DAPI	EX375/28	DM415	EM460/50	halogen or 5WLED
TRITC	EX540/25	DM565	EM605/55	halogen or 5WLED
Cy5	EX620/50	DM655	EM690/60	5W LED
R (Texared)	EX560/40	DM595	EM635/60	halogen or 5WLED
Fish Aqua	EX440/20	DM460	EM480/30	Halogen
Fish Green	EX490/20	DM510	EM530/25	5W LED
Fish Orange	EX540/20	DM565	EM590/25	halogen or 5WLED
Fish Red	EX580/20	DM605	EM630/25	halogen or 5WLED
Chroma39000 (UV)	EX390/40	DM415	EM460/50	halogen or 5WLED
DAPI/Hoechst/Alexa Fluor 350				
Chroma39002 (B)	EX470/40	DM505	EM535/40	halogen or 5WLED
EGFP/FITC/Cy2/Alexa Fluor 488				
Chroma39004 (G)	EX530/40	DM565	EM605/55	halogen or 5WLED
TRITC/Cy3/TagRFP/Alexa Fluor 546				
Chroma19008	EX450/50	DM485	EM495LP	5WLED
Auramine Longpass				