Inverted Advanced Research Biological Microscope
Type: ACUBL-I6

DESCRIPTION

ACUCAL Inverted Biological microscope is Interference Phase Contrast Microscope for highly translucent, low-contrast and challenging specimens (e.g. living mammal cells, biological sections, biological cells bacteria, tissues culture, living tissue, fluid precipitation, cell structure etc.). The phase contrast process makes low-contrast structures in specimens visible to the human eye.

INTELLIGENT

COMFORTABLE

ACCURATE

CULTURE MICROSCOPE

The ACUCAL ACUBL-I6 is particularly suitable for observing cell cultures and is very user-friendly and easy to handle. The microscope is prepared for use in sterile workbenches (Clean Bench, Laminar Flow). The UV-resistant coating ensures that the workstation can be sterilised with UV light without any problems.

Using an inverted microscope, the sample is illuminated from above and viewed from below through the bottom of the sample vessel. With such an inverted design, the device enables the microscopy of plankton, microalgae and cell cultures directly in the culture vessel without opening the vessel. For example, cell cultures can be observed in so-called 96-well (Terasaki) plates, Petri dishes or special slides with attached wells. The sample does not have to be covered, and the thickness of the layer is also insignificant.

Accordingly, this special microscope is used in scientific research institutes and universities, in veterinary medicine, medical treatment, agriculture and epidemic prevention, marine biology, limnology, aquaculture, etc.

TECHNICAL SPECIFICATION

Main Body

- Sturdy, durable Inverted metal body main frame, Compact, stable and suitable for clean bench, Highly rigid & rugged, Non Hinged type, vibration free Aluminium alloy casting, Robust mechanics combined with improved optical performance. Ergonomic design for comfortable handling, ruggedness and longevity.
- Touchpoint-treated, scratch resistant and acid & UV resistant texture paint.
- Spherical lens with field diaphragm & intensity controller and an on/off switch (in front) along with eco-illumination with ON/OFF & Delay Time feature and rubber feet for stability.
- The volume and weight of the body is reduced as much as possible by using High-grade materials that help avoid vibrations and the resulting image blur in principle of stability.
- Design supports all kinds of dishes, Flasks, Petri plates & Multi wells.
- ***LIM Option for Illumination Intensity auto adjustment with change of Objective*** *(Optional)*

- -

Optical System

- LWD Universal Plan Infinity corrected Phase Contrast Optical System providing chromatic-free and colour-corrected images.
- Anti Fungus & Anti-Bacterial coated optics for enhanced durability (multi-layered hard coated).
- ***Bright Field & Interference Phase Contrast (IPC) Observation Techniques.***
- ***Microscope Upgradable to Fluorescence, Dark field, Emboss contrast/DIC/IMC (pseudo 3-D), Hoffman observation technology, on-stage top incubator for live cell imaging.***

- -

Observation Head: Trinocular

- Sidentopf Binocular Observation tube 45° inclined .
- Left Side Camera Port & C/CS-Mount Adapter with Light distribution: 50:50 or 100: 0/0:100 (100% for eyepiece or 100% for camera).
- Inter-pupillary distance from 48mm to 75mm.

- -

Eyepiece

- Compensating Wide field 10X (paired) F.O.V. 22mm. Bright Field Br, Focusable Foc., Field of view number F.N. 22mm, Eyepiece outer mounting barrel diameter or Inner diameter of ocular sleeve 30mm. Oculars can be rotated by 360°.
- Anti-fungal & Anti-reflection multi-layered hard coated conforming to IS: 8275/1976 (latest) for enhanced image quality and abrasion resistance. 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.

- -

Nose Piece

- Quintuple Ball Bearing loaded, interchangeable, Precise, Positive click stops for centred alignment.
- Inbuilt DIC/Plastic DIC slot and relief contrast/equivalent contrast for improved imaging
- Nosepiece provided with rubber grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment.

- -

Display (Optional)

- The LCD screen on the front of the microscope displays the use status of the microscope, including magnification, light intensity, standby status, lock for lighting-adjustment, time sleeping etc.
- 5- element display on Front side of the stand and long-life blue LEDs.
- This intensity display is well readable from several meters distance.

- **CODED NOSEPIECE with LIGHT INTENSITY MANAGER**: Coded Intelligent Inward reverse Facing Quintuple can memorize the illumination brightness for each objective and automatically adjust the light intensity. This improves work efficiency and reduces visual fatigue with ECO function.

Objectives: Long Working Distance LD Infinity Plan Achromatic, Anti-fungus & Anti Reflection, Interchangeable & Par focal

- ∞ L PL 4X(N.A. 0.10), W.D. 30mm
- ∞L PL PHP 10X (N.A. 0.25), W.D. 10.2mm
- ∞L PL PHP 20X (N.A. 0.40), W.D. 5.8mm
- ∞L PL PHP 40X (N.A. 0.60), W.D. 2.7mm
- Objectives have Suitable prominent marking for easy identification : Color coded ring, magnification, NA and nature of objective mentioned
- Unbreakable containers for storing the objectives.

Condenser

- Long Working Distance 75mm or 80mm (with condenser), 187mm or 190mm (without condenser). Quickly detachable with a slot for sliders.
- Numerical Aperture 0.3 or 0.45.Suitable for Bright field, phase contrast and integrated modulation/Plas DIC/hoffman modulation contrast. Universal 4-position Phase Contrast Slider Annular Plate : 4x (BF), 10× (PH0)/ 20× (PH1)/ 40× (PH2)) or neutral-density filter, mounted d=43 mm.
- Pre –centered Phase contrast slider for phase observation. for the objectives from 10-40X for faster cell culture operations

---

Mechanical Stage:

- Fixed, Scratch resistant Rectangular Mechanical Stage with right-hand low drive control, Size 250*170mm or 240*200mm (Optional), Moving Range 130*85mm, Moving Stage Detachable.
- Stage accepts different types of micro-test plate, TC vessels lifting type mico plate holder
- emocytometer, counting chamber, petri dish holder, glass slide holder & culture flask holder, clear acrylic/glass circular insert, various stage inserts, holder for two side stages, mico-manipulator etc.
- Culture Petri Dish Holder/ Slide Holder Dia.54mm
- Culture Petri Dish Holder/ Slide Holder Dia.60mm (Optional)
- Culture Petri Dish Holder Dia.90mm (Optional)
- Universal Holder to accept all types of plates, multiwall plates, dishes, 6/12/24/38/96mm well plates, petri plate holder, glass slide holder, specimen holders (Optional)
- Terasaki microplate Holder (Optional)

Focusing Control:

- Coaxial Coarse & Fine knob Precise adjustment & for focusing system by the vertical movement of revolving nosepiece and fixed stage.
- Tension Adjustable and Limit Stopper, Minimum fine Division 0.001mm, Ergonomically designed for easy grip. Stroke:20mm (Focal point: up to 18.5 mm from from the plain stage top surface).
- Stroke per rotation: 37.5mm/45mm (coarse), 0.2mm/0.3mm (fine) Stage lift:15 mm

---

Diascopic Illumination: Koehler Transmitted Fly-Eye Lens Design Illumination, 3W/5W/10W Scientific Grade LED cool white light (color temp 4000K or better)for bright field (brightness equivalent to 50W Halogen bulb), phase contrast studies, Brightness Adjustable with lifetime < 65,000 hours.

- Provision to interchange LED with HAL Illumination (Optional).
- ECO MODE （No Operator, Turn off the Light Source Automatically in 15 Minutes and reactivation by push button) Optional.

Electronics: SMPS Based power supply with Universal Input Rated Voltage 90V-250 V AC, 50/60 Hz.

Inverted Advanced Research Biological Microscope
Type: ACUBL-I6

Standard Accessories : Operating & Instruction Manual, Vinyl Dust Cover, Guarantee Card, Styrofoam Molded pack, Electric Cable, Fuse, Blue Filter, Cleaning cloth, Allen keys

Optional Accessories

- Universal Emboss contrast slide, 10×、20×、40× Hoffman Condenser, Special objective.
- High Resolution Microscopy Camera
- ECO MODE (No Operator, Turn off the Light Source Automatically in 15 Minutes)
- Illumination Display with intensity memory function, auto off, LCD display-magnification, Timing sleep, upgradable to on-stage top incubator brightness indication & lock, modular design

Epi Fluorescence Attachment : (Optional)

- Epi-Fluorescence Attachment, Turret slider 4 position (3+1), 3 Holes to configure 3 different fluorescent Filter Cubes & 1 separate for brightfield, With Noise Terminator Mechanism & With Attachable UV contrast Shield
- The exciting light range is 330nm-700nm & the fluorescent light spectrum range is 420nm-650nm.
- Illumination is controlled through digital power supply with time display unit & trigger, easy to change (push & click), other filters on demand, 0 pixel shift technology.
- 3WLED fluorescence lamp house, life hrs. 30,000, built in flyeye (input voltage:100V～240V)
- Fluorescence LED light (B light- wavelength 485nm at 3W)
- Fluorescence LED light (G light- wavelength 520nm at 3W)
- Fluorescence LED light (U light- wavelength 360nm at 3W)
- Zero Pixel shift corrected DAPI/Hoechst, GFP/FITC (Band Pass), and TRITC/Rhodamine fluorescence filters can be chosen (Optional)

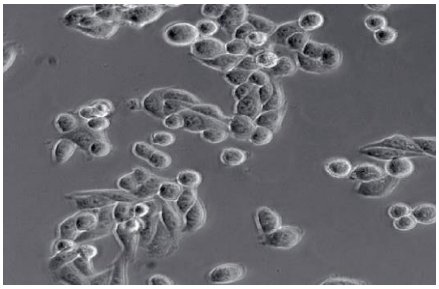
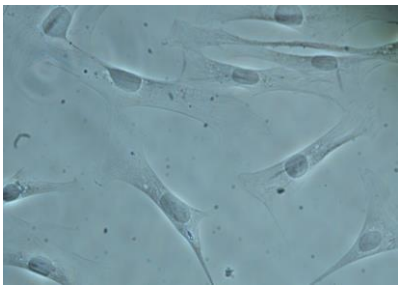
SEMI APOCHROMATIC Infinity Fluorescence Phase Objectives: (Optional)

- ∞N-iPLFN PH 4X Semi-APO
- ∞N-iPLFN PH 10X Semi-APO
- ∞N-iPLFN1 PH 20X Semi-APO
- ∞N-iPLFN1 PH 40X Semi-APO
- ∞N-iPLFN PH 20X Semi-APO with adjustable
- ∞N-iPLFNPH40XSemi-APOwith adjustable
- ∞N-iPLFN PH 60X Semi-APO with adjustable
- ∞N-iPLFN PH 100X, Oil Semi-APO with adjustable

PLAN ACHROMAT Infinity Bright Field Objectives: (Optional)

- ∞ L PL 10X(N.A. 0.25), W.D. 10.2mm
- ∞ L PL 20X(N.A. 0.40), W.D. 12mm
- ∞ L PL 40X(N.A. 0.60), W.D. 2.2mm
- ∞ L PL 100X(N.A. 1.25), W.D. 0.12mm

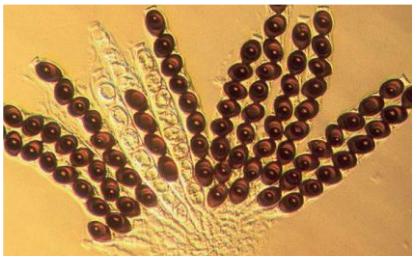
Transmission

Phase Contrast

By using changes in the refractive index, high contrast microscopic images of transparent samples can be obtained with phase contrast observation technique. The advantage is that the details of live cell imaging can be obtained without staining and fluorescent dyes.

Optional

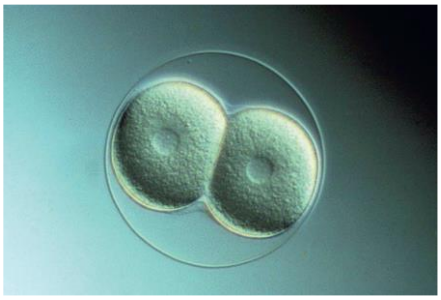


Hoffman Modulation Phase Contrast

With slant light, changing phase gradient into light intensity variety, it can be used to observe unstained cells and living cells.

Optional :10x,20x,40x Hoffman Condenser, Special Objective

3D Emboss Contrast (DIC)



Even without extra optical components, no glare 3D image can be obtained just through adding adjustment slider. Both glass and plastic Petri dishes are available.

Optional : Condenser and Eyepiece with Emboss Contrast 10x,20x,40x, Universal Emboss Contrast Slide

Features

- ***Can be sterilized in the clean bench:*** The compact body is with anti-UV coating and can be placed into the clean bench for sterilization under UV lamp.
- ***Cell sampling and operation can be performed in clean bench :*** The distance between the eye point to the operation button and the focusing knob is relatively short, and the distance from the stage is far away. It is available to make the viewing head and operating mechanism outside, and stage, objectives and sample inside. So realize cell sampling and operation inside and observing comfortably outside.
- ***Various Holders for Different Culture Containers:*** Various holders are available for different culture containers, such as Petri dishes, well plates, and culture flasks. As well as available for different size Petri dishes.
- ***Detachable Condenser :*** When culture flask is used, the condenser can be removed to increase working distance. It is also suitable for multilayer culture flask.
- ***The Microscope Control Mechanism is Reasonable in Layout and Easy to Operate :*** The frequently used control mechanisms are close to the user and in low-hand position. This kind of design makes operation more quickly and conveniently, and reduce the fatigue caused by the long observation. On the other hand, it reduces the airflow and dust caused by large amplitude operation, and it is very effective to reduce the probability of sample pollution. It is a strong guarantee for the accuracy and repeatability of the experimental results.
- ***Professional Cell Observation : Ergonomic design, comfortable operation***
- With standard camera port, Infinity camera and image processing software, providing low noise, high sensitivity and high resolution image.
- Integrated Carrying Handle for easy handling & placement of microscope.

ACUCAL SERVICES
901A/6 , Ashok Vihar
Ambala City-134003
Web: www.acucalservices.com