



MICROSCOPES

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MICROSCOPES

Holmarc manufactures microscopes in standard and custom designs. There are products like telemicroscopes which are unique and proprietary. Our travelling microscopes are a way apart from the conventional instruments that the stages are precise and micrometer driven. As in many other holmarc products, our strength in microscopy is our ability to customize these instruments cost effectively. In many cases, we offer custom microscopes at the price of standard instruments. We make this possible by manufacturing optics, mechanics and electronics required for microscopes in house.



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Digital Holography Microscope

- **Live-cell imaging and label-free biological studies**
- **Surface profiling, microstructure characterization, and materials science**
- **Microfluidics and real-time dynamic process analysis**
- **Quantitative study of cellular dynamics.**



Digital Holography Microscopes (DHM) enable non-contact, label-free, quantitative phase imaging for biological, industrial, and scientific applications. Using interferometric holography, DHM captures amplitude and phase in a single shot, enabling precise 3D reconstruction with high resolution. DHM is an emerging modality that offers capability of quantitative phase imaging (QPI) of transparent unstained cells in their most natural state. While phase sensitive imaging methodologies such as dark-field, phase contrast and differential interference contrast are known for several decades, they cannot provide quantitative phase information. DHM can achieve this by use of interferometric imaging concept. A schematic DHM system is shown in Fig. 1:

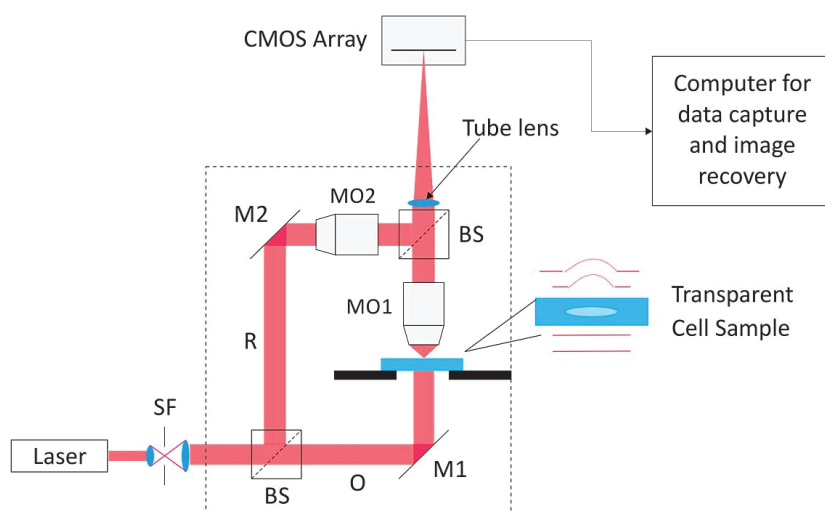


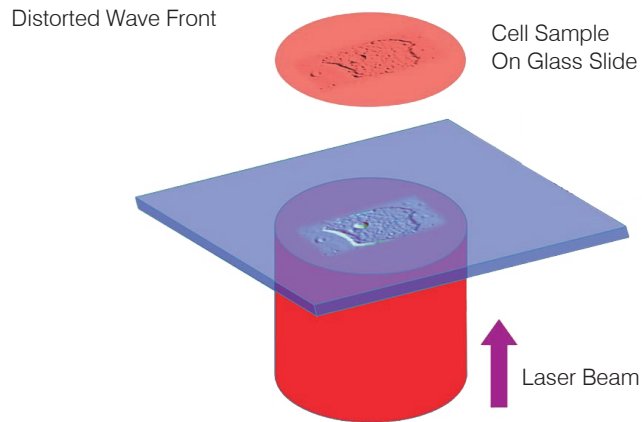
Fig.1: Schematic of a balanced DHM system that works on the interferometric imaging principle. The phase image is obtained by digital processing of the interference signal recorded using an array sensor.

SF: Spatial filter, BS: Beamsplitter, O: Object beam, R: Reference beam, MO1 / MO2: Microscope Objectives

When a collimated laser beam passes through a transparent cell sample, typically very little light is absorbed. The laser wavefront however gets distorted due to the phase delay seen by the beam at each (x, y) location (see Fig. 2). The phase $\Phi(x, y)$ of the beam after passing through the sample may be described as:

$$\Phi(x, y) = (2\pi / \lambda) \int dz n(x, y, z)$$

Here λ is the wavelength of laser used and $n(x, y, z)$ stands for the relative refractive index of the cell at location (x, y, z) relative to the surrounding medium. Clearly a strong phase signal is detected if there is large index difference between the cell and the surrounding medium. If the index of the cell is uniform over a region, the phase function can be approximately associated with the height map profile of the cell, thus giving a 3D perspective of the cell. Instead of employing external contrast agents, the DHM thus uses the natural refractive index contrast of the cells for imaging purpose. Refractive index is a property related to chemical composition and therefore a sensitive phase imaging system can have several applications in basic Bio-sciences and diagnostics.



The Fourier Transform Method is a popular choice for processing of single shot interferometric imaging data. However, this method is known to have poor spatial resolution which is well below the diffraction limited resolution that the microscopic system can achieve. The IIT Delhi technology used in this product uses a novel constrained optimization approach to recovery of full-resolution phase images as illustrated in where bright-field and phase images of a cervical Fig. 3 cell are shown.

Fig.2: Illustration of phase delay of a collimated laser beam wavefront as it passes through a transparent cell sample. The phase delay is due to differential optical path difference through different parts of the cell sample.

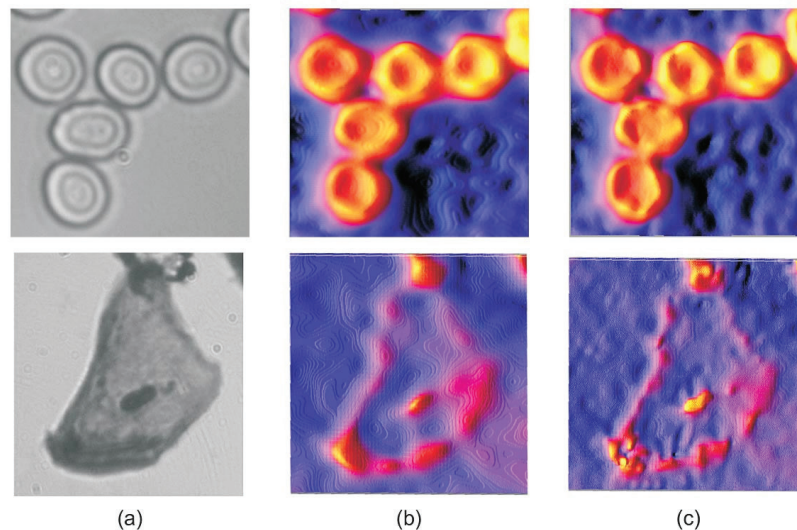


Fig.3: Illustration of phase images of red blood cells and patient cervical cells using Digital Holographic Microscopy system (a) Brightfield images, (b) phase images reconstructed using the traditional Fourier transform method, (c) high resolution phase images obtained using novel single shot phase imaging technology developed at IIT Delhi. The color coding in (b) and (c) indicates the phase map (approximately height map) of the cell.

Applications:

- Live-cell imaging and label-free biological studies
- Surface profiling, microstructure characterization, and materials science
- Microfluidics and real-time dynamic process analysis
- Quantitative study of cellular dynamics.
- Plant seed viability assessment
- Monitoring cell growth, morphology, and dynamics
- Quantitative cell dry-mass and thickness measurements
- Observation of cell motility, mitosis, apoptosis

Technology by



IIT Delhi
Indian Institute of Technology

Digital Holography Microscope - Motorized - Single-Shot Full Resolution

Model : HO-DHM-UT01-FA

Holmarc's Motorized Digital Holography Microscope (Model HO-DHM-UT01-FA) is a fully automatic, high-precision imaging system designed for quantitative phase imaging (QPI) of transparent and low-contrast specimens. Utilizing an advanced off-axis, balanced afocal holographic configuration with infinity-corrected plan objectives, the system captures both amplitude and phase information in a single shot—enabling detailed 3D reconstruction and label-free imaging without the need for staining or special sample preparation.

Equipped with a stable 650 nm diode laser as the coherent light source and a high-performance CMOS sensor for hologram acquisition, the microscope delivers diffraction-limited resolution with excellent phase stability. The motorized XY sample stage and motorized Z focusing with autofocus provide smooth, computer-controlled sample handling and fast, repeatable imaging. A joystick console is also included for convenient manual control of the motorized XY stage and Z-focus.

In addition to QPI, the microscope supports Brightfield observation using a high-brightness LED illumination system, and a binocular viewing head is included to quickly locate the region of interest (ROI) prior to holographic imaging. The system features a motorized quadruple nosepiece with full software control. A motorized substage condenser is provided to ensure high-quality Brightfield imaging. A powerful software provided for phase reconstruction, 3D visualization, quantitative measurement, and efficient image acquisition, enabling high productivity in modern research workflows. Holmarc's Motorized DHM seamlessly integrates optical precision, mechanical stability, and advanced digital automation—making it a versatile and reliable solution for cutting-edge research laboratories.

Features: -

1. Fully automated operation
2. Unique single shot high resolution and accurate quantitative imaging capability
3. No phase shifting required thus removing the need for piezo stages.
4. Quantitative phase imaging without staining of cells.
5. Full diffraction limited resolution performance.
6. QPI as well as transmitted LED Brightfield observation.



Model	HO-DHM-UT01-FA
	
Quantitative Phase Imaging	
DHM type	Transmission, Upright
DHM configuration	Balanced, afocal
Measurement mode	Single wavelength
Light source	650nm diode laser, 5mW output power
Laser Intensity control	Motorized polarizer rotator, controls via software
Microscope objectives (object beam)	1. Plan FL 10X , NA = 0.30, WD = 16.0mm, FOVeyepiece= 2mm, FOVcamera = 0.709mm x 0.532mm 2. Plan FL 20X , NA = 0.50, WD = 2.1mm, FOVeyepiece= 1mm, FOVcamera = 0.354mm x 0.266mm 3.. Plan FL 40X , NA = 0.75, WD = 0.66mm, FOVeyepiece= 0.5mm, FOVcamera = 0.177mm x 0.133mm
Object beam objective selection	Motorized , controls via software
Microscope objectives (reference beam)	1. Plan FL 20X , NA = 0.50. WD = 2.1mm 2. Plan FL 40X , NA = 0.75, WD = 0.66mm
Reference beam objective selection	Motorized , controls via software
Camera Specifications	
Sensor type	1/1.8" CMOS Color USB3.0 windowless
Shutter	Global shutter
Readout mode	Progressive scan
Pixel class	3 MP
Resolution	2056 x 1542 Pixels
Pixel size	3.45um x 3.45um
Sensor size	7.093 mm x 5.320mm
Sensor make	Sony
Pixel depth	12 bit
Frame rate (free run)	114 fps
Exposure time	36us – 2s
Interface connector	USB 3.0 Micro-B, screwable
Lens mount	C-mount
Dimensions	29mm x 29mm x 29mm
Software	Digital HM-V01 Single shot high resolution method for phase reconstruction.
Bright field observation mode	
Optical system	Infinity corrected
Illumination	Transmitted
Illumination system	High bright white LED, Intensity adjustable
Viewing head	Sidentopf Trinocular head, 30o inclination, 50-75mm IP
Eyepiece	10X wide field (FN20), diopter adjustable, High eye relief
Nosepiece	Quadruple, motorized rotating turret , controls via software
Microscope objectives	For Brightfield observation, the same 10X, 20X and 40X objectives used in the object beam path will be used
Substage Condenser	Swing out condenser, Motorized , controls via software
Focusing	Motorized focusing , controls via software, autofocusing
Sample stage	Motorized high precision sample XY stage , XY travel = 75mmx75mm, automatic scanning, controls via software.
Power	230V 50Hz
QPI/Brightfield selection	Software

Digital Holography Microscope (DHM)

Model : HO-DHM-UT01

HO-DHM-UT01 is a transmission-type upright digital holography microscope designed with a balanced afocal configuration that uses infinity-corrected plan achromatic objectives in both the reference and object beam paths. A common tube lens is incorporated to achieve an afocal imaging arrangement with minimal optical aberrations. Holographic images are recorded using a high-performance Sony CMOS sensor. A 650 nm diode laser is employed for Quantitative Phase Imaging (QPI), while a high-brightness LED provides illumination for brightfield observation through both the camera and binocular eyepiece. Since many users may be unfamiliar with phase images, the LED brightfield mode can first be used to focus the cell or specimen. Once the sample is brought into focus, the phase image can be recorded under laser illumination.

In addition to the two high-power objectives for the object beam, the system includes two additional low-power objectives for FOV brightfield observations. The quadruple nosepiece allows easy manual switching between objectives. The large FOV of the low-power objectives helps users quickly locate the desired sample region. A manually operated XY sample stage is provided for sample scanning. After locating the target area, the user can switch back to a high-power objective to obtain a magnified view of the selected region.

A manually operated shutter with a source-selector switch is positioned near the eyepiece to ensure eye safety by blocking laser light from reaching the binoculars.

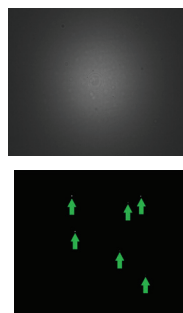
Once the desired region is selected in brightfield mode, the user can close the manual shutter, and the system will be ready for QPI acquisition.

A complete user-friendly software package (Digital HM_V01), is supplied with the system for hologram recording and reconstruction. The software uses a unique single-shot high-resolution method for phase image reconstruction.

Digital holographic microscopes can also be configured with user-specified high-end objectives—such as plan apochromatic, plan fluorite, or extra-long-working-distance types—upon special request.

Features: -

1. Fully automated operation
2. Unique single shot high resolution and accurate quantitative imaging capability
3. No phase shifting required thus removing the need for piezo stages.
4. Quantitative phase imaging without staining of cells.
5. Full diffraction limited resolution performance.
6. QPI as well as transmitted LED Brightfield observation.



Specifications



Quantitative Phase Imaging	
DHM type	Transmission, Upright
DHM configuration	Balanced, afocal
Measurement mode	Single wavelength
Light source	650nm diode laser, 5mW output power
Laser Intensity control	Manual polarizer rotator
Microscope objectives (object beam)	1. Plan Achromatic 10X , NA = 0.25, WD = 20.2mm, FOVeyepiece= 2mm, FOVcamera = 0.709mm x 0.532mm 2. Plan Achromatic 20X , NA = 0.40, WD = 8.8mm, FOVeyepiece= 1mm, FOVcamera = 0.354mm x 0.266mm 3. Plan Achromatic 40X , NA = 0.60, WD = 3.98mm, FOVeyepiece= 0.5mm, FOVcamera = 0.177mm x 0.133mm
Object beam objective selection	Manual
Microscope objectives (reference beam)	1. Plan FL 20X , NA = 0.50, WD = 2.1mm 2. Plan FL 40X , NA = 0.75, WD = 0.66mm
Reference beam objective selection	Manual
Reference beam tilt control	Manual through externally accessible screw

Camera Specifications

Sensor type	1/1.8" CMOS Color USB3.0 windowless
Shutter	Global shutter
Readout mode	Progressive scan
Pixel class	3 MP
Resolution	2056 x 1542 Pixels
Pixel size	3.45um x 3.45um
Sensor size	.093 mm x 5.320mm
Sensor make	Sony
Pixel depth	12 bit
Frame rate (free run)	114 fps
Exposure time	36us – 2s
Interface connector	USB 3.0 Micro-B, screwable
Lens mount	C-mount
Dimensions	29mm x 29mm x 29mm
Software	Digital HM-V01 Single shot high resolution method for phase reconstruction.

Bright field observation mode

Optical system	Infinity corrected
Illumination	Transmitted
Illumination system	High bright white LED, Intensity adjustable
Viewing head	Sidentopf Trinocular head, 30o inclination, 50-75mm IP
Eyepiece	10X wide field (FN20), diopter adjustable, High eye relief
Nosepiece	Quadruple, manual rotating turret
Microscope objectives	For brightfield observation, the same 10X, 20X, and 40X objectives used in the object beam path will be employed
Substage Condenser	Swing out condenser - Manual
Focusing	Coaxial coarse/fine movement, Manual
Sample stage	Manual drive rectangular stage with slide holder, XY travel – 78mm x 54mm. Co-axial drop-down knob
Power	Manual selector switch
QPI/Brightfield selection	

Digital Holography Microscope - Inverted

Model : HO-DHM-IT01

HO-DHM-IT01 is an Inverted type Digital Holography Microscope which can be used for the quantitative phase imaging for live cells. It is a transmission type inverted digital holography microscope with balanced afocal configuration that uses infinity corrected Plan achromatic objectives in both reference and object beams. A common tube lens is provided for achieving afocal imaging configuration with minimal aberrations. A single shot high resolution method is used for the phase image reconstruction. A 650nm diode laser is used for the construction of holographic image. A high bright white LED illuminated brightfield observation with binocular viewing is also integrated in the system. Since users may not be familiar with phase images, the brightfield observation can be used first to focus the cell sample as desired, followed by recording the phase image using laser illumination. A manually operated quadruple turret is provided in the object beam path and a linear sliding mechanism is provided in the reference beam path for selecting the microscope objectives.

A manually operated mechanical stage with 126 * 78 mm travel is equipped with different types of holders for holding different types of sample slides / dishes. A manually operated shutter with source selector switch is provided near the eyepiece for the safety of eyes by blocking the laser light to the eyepiece. Another automatic shutter is positioned in front of the laser to block the laser beam when the system is used for brightfield observation. Once the desired area for phase imaging is selected in brightfield mode the user can close the manual shutter and the system will be ready for QPI. A complete user-friendly software (Digital HM_V02) with laptop is provided with the system for the recording and reconstruction of the images. Digital holographic microscope with user specified high end microscope objectives (Plan apochromatic, Plan fluorite, Extra-long WD etc.) may also be made available upon special requests.

Features: -

- 1. Inverted configuration, Manual operation
- 2. Unique single shot high resolution and accurate quantitative imaging capability
- 3. No phase shifting required thus removing the need for piezo stages.
- 4. Quantitative phase imaging without staining of cells.
- 5. Full diffraction limited resolution performance.
- 6. QPI as well as transmitted LED Brightfield observation.



Specifications



Quantitative Phase Imaging	
DHM type	Transmission, Inverted
DHM configuration	Balanced, afocal
Measurement mode	Single wavelength
Light source	650nm diode laser, 5mW output power
Laser Intensity control	Manual polarizer rotator
Microscope objectives (object beam)	1. Plan Achromatic 10X , NA = 0.25, WD = 20.2mm, FOVeyepiece= 2mm, FOVcamera = 0.709mm x 0.532mm 2. Plan Achromatic 20X , NA = 0.40, WD = 8.8mm, FOVeyepiece= 1mm, FOVcamera = 0.354mm x 0.266mm 3. Plan Achromatic 40X , NA = 0.60, WD = 3.98mm, FOVeyepiece= 0.5mm, FOVcamera = 0.177mm x 0.133mm
Object beam objective selection	Manual
Microscope objectives (reference beam)	1. Plan Achromatic 20X NA = 0.40 2. Plan Achromatic 40X NA = 0.60
Reference beam objective selection	Manual
Reference beam tilt control	Manual through externally accessible screw

Camera Specifications

Sensor type	1/1.8" CMOS Color USB3.0 windowless
Shutter	Global shutter
Readout mode	Progressive scan
Pixel class	3 MP
Resolution	2056 x 1542 Pixels
Pixel size	3.45um x 3.45um
Sensor size	7.093 mm x 5.320mm
Sensor make	Sony
Pixel depth	12 bit
Frame rate	114 fps
Exposure time	36us -2S
Interface connector	USB 3.0 Micro-B, screwable
Lens mount	C-mount
Software	Digital HM_V01 Single shot high resolution method for phase reconstruction

Brightfield Observation

Optical system	Infinity corrected
Illumination	Transmitted
Illumination system	High bright white LED, Intensity adjustable
Viewing head	Sidentopf Brinocular head, 30o inclination, 50-75mm IP
Eyepiece	10X wide field (FN20), diopter adjustable, High eye relief
Camera port	side
Nosepiece	Quadruple, manual rotating turret
Microscope objectives	For brightfield observation, the same 10X, 20X, and 40X objectives used in the object beam path will be employed.
Substage Condenser	Swing out condenser - Manual
Focusing	Coaxial coarse/fine movement, Manual
Sample stage	Manual drive rectangular stage with slide holder, XY travel – 78mmx54mm. Co-axial drop down knob
QPI/Brightfield selection	Manual selector switch.

Motorized Microscope

- **Microfluidic**
- **Particle analysing**
- **Measurement**
- **Inspection**
- **Cell counting**



Motorized Microscope – Trinocular - Long Working Distance

Model : HO-RMM-TM01

HO-RMM-TM01 is an upright, motorized brightfield trinocular microscope designed for both routine and advanced research applications. The system incorporates four infinity-corrected, long working distance Plan Apochromatic objectives, ensuring high-resolution imaging with excellent color correction and minimal aberrations.

A ball-bearing mounted quadruple nosepiece allows smooth and precise objective switching. The microscope supports both high-bright white LED transmitted Köhler illumination and epi-scope illumination, enabling optimal imaging of a wide range of specimen types.

For automated imaging workflows, the system features a motorized XY sample stage and a motorized Z-axis focusing stage with autofocus capability, making it ideal for high-precision scanning and large-area image acquisition. A 1/2.5" USB 2.0, 5 MP color CMOS C-mount camera, along with user-friendly software, is provided for image acquisition as well as automated control of the motorized stages. Additionally, a handheld controller with a joystick for XY movement and dedicated Z-focus buttons enables convenient manual operation of the stages.

To optimize the field of view, a 0.37X camera reduction lens is included. A removable filter holder at the base allows users to easily swap filters based on experimental requirements.

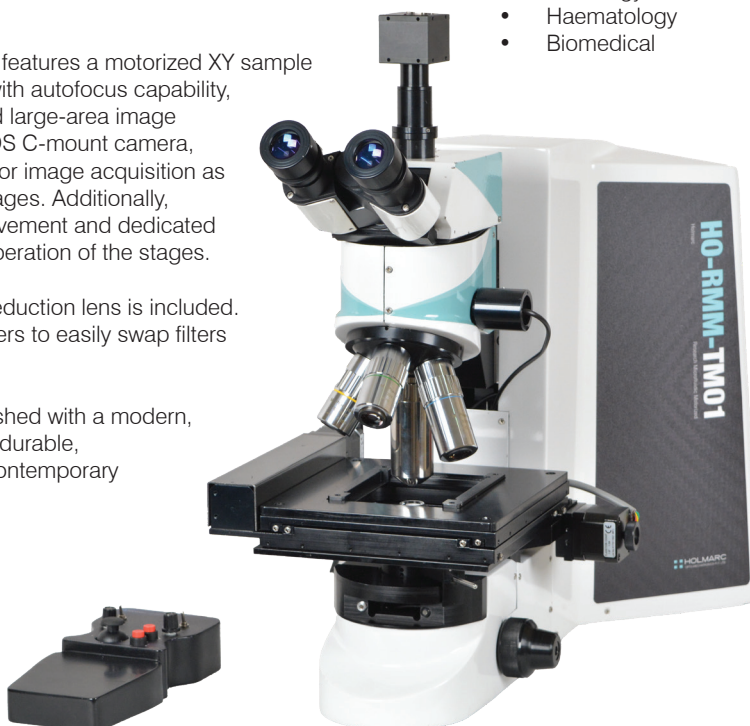
Built with corrosion-resistant materials and finished with a modern, aesthetic design, the HO-RMM-TM01 ensures durable, maintenance-free operation suitable for any contemporary laboratory environment.

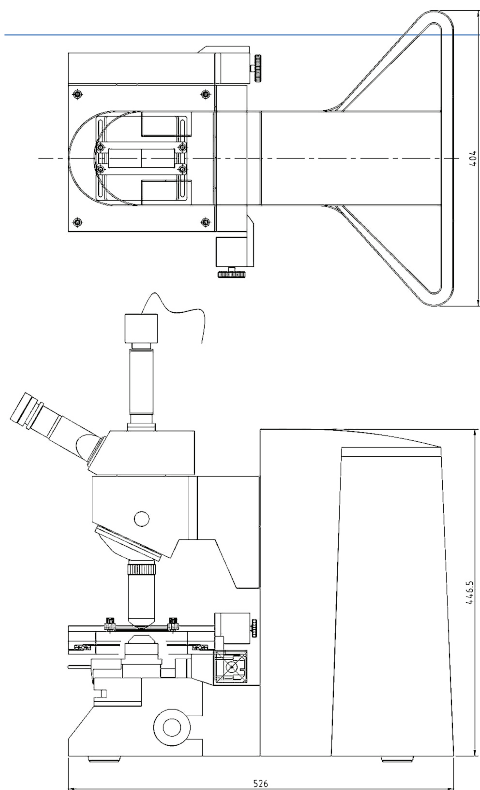
Features

- Motorized stages
- Automatic scanning
- Autofocusing
- Image stitching
- Particle counting and measurement software

Applications

- Microfluidic
- Particle analysing
- Measurement
- Inspection
- Cell counting
- Pathology
- Haematology
- Biomedical

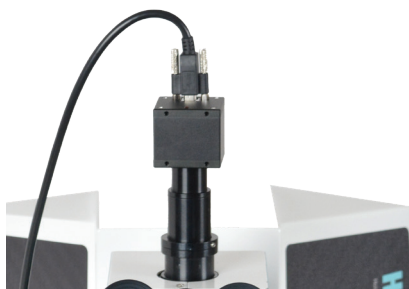


Model
HO-RMM-TM01


Microscope type	Upright, Infinity corrected Optical System
Observation method	Brightfield
Total Magnification	100x - 600X
Illumination	Transmitted and Reflected light
Illumination system	High bright white LED, Intensity adjustable
Nosepiece	Quadruple, Manual rotating turret
Viewing head	Sidentopf Trinocular head, 30° inclination, 48 - 75mm IP adjustment
Eyepiece	10X wide field (FN20), diopter adjustable, High eye relief
Camera adapter	C-mount adapter with 0.37 X reduction lens
Microscope Objectives	1. Long WD Plan Apo 10X , NA =0.30, WD = 40mm
	2. Long WD Plan Apo 20X , NA =0.35, WD = 17mm
	3. Long WD Plan Apo 40X , NA =0.50, WD = 8mm
	4. Plan Achromatic 60X , NA =0.75, WD = 1.22mm
Z Focusing	Motorized with Autofocusing
Sample Stage	Precision Motorized stage, Travel = 75mm x 75mm
Image grabbing software	RMM V_01, Image Analyzer V_01 for Particle measuring


Camera Specifications

Sensor	: 1/2.5" CMOS Color camera
Sensor size	: 5.7mm x 4.28mm
Resolution	: 2592 x 1944 (5MP)
FPS	: 7fps @ 2592 x 1944 resolution
Pixel size	: 2.2um x 2.2um
Scan type	: Progressive scan
Shutter type	: Electronic rolling shutter
Exposure time	: 109us ~ 3000ms
Data format	: 8 bit RAW, 12 bit BMP
Sensitivity	: 1.76 V / lux - sec
Spectral range	: 380 - 650 nm
SNR	: 38.5 dB
Wide dynamic range	: 67.7 dB
Interface	: USB 2.0
Lens mount	: C-mount



Motorized Microscope - Trinocular

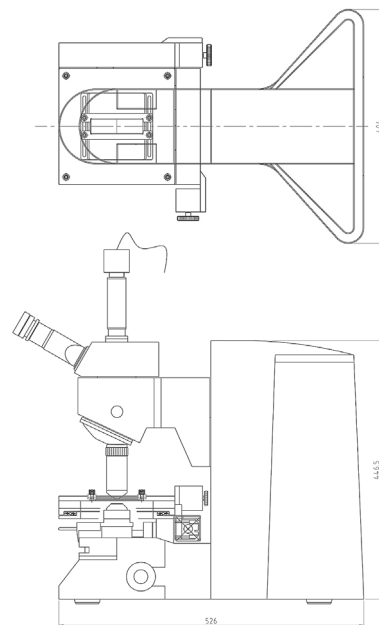
Model : HO-RMM-TM02

HO-RMM-TM02 is an upright, motorized brightfield trinocular microscope designed for both routine laboratory work and advanced research applications. The system is equipped with four infinity-corrected Plan Achromatic objectives, delivering high-resolution imaging with excellent optical performance.

A motorized quadruple nosepiece, fully controllable through software, allows seamless and automated objective switching. The microscope features high-bright white LED transmitted illumination, enabling optimal imaging across a wide range of transparent and reflective samples.

For automated imaging workflows, the instrument integrates a motorized XY sample stage and a motorized Z-axis focusing stage with autofocus capability, making it ideal for precise scanning and large-area image acquisition. A linear encoder is fitted to the XYZ stages to ensure highly accurate positioning and measurement tasks.

A 1/2.5" USB 2.0, 5MP color CMOS C-mount camera is supplied along with user-friendly software that supports image acquisition, automated stage control, and scanning operations. For manual operation, a handheld controller with an XY joystick and dedicated Z-focus buttons provides intuitive stage movement. A built-in 5" LCD touchscreen display allows quick access to objective selection, illumination intensity adjustment, enhancing the user experience and workflow efficiency.



Features

- Motorized stages
- Automatic scanning
- Autofocusing
- Particle counting and measurement software

Applications

- Microfluidic
- Particle analysing
- Measurement
- Inspection
- Cell counting
- Pathology
- Haematology
- Biomedical



Model	HO-RMM-TM02
	
Microscope type	Upright
Optical System	Infinity corrected
Observation method	Brightfield
Total Magnification	50X - 1000X
Illumination	Köhler illumination Transmitted light
Illumination system	High bright white LED, Intensity adjustable
Nosepiece	Quadruple, rotating turret, Motorized
Viewing head	Sidentopf Trinocular head, 30° inclination, 48 - 75mm IP adjustment
Eyepiece	10X wide field (FN20), diopter adjustable, High eye relief
Camera adapter	C-mount adapter with 0.37 X reduction lens
Microscope Objectives	1. Plan Achromatic 5X , NA = 0.1, WD = 19.37 2. Plan Achromatic 10X , NA = 0.25, WD = 6.851 mm 3. Plan Achromatic 20X , NA = 0.40, WD = 1.041 mm 4. Plan Achromatic 40X , NA = 0.60, WD = 0.67 mm 5. Plan Achromatic 60X , NA = 0.75, WD = 0.496 mm 6. Plan Achromatic 100X , NA = 0.85, WD = 0.4 mm
Z Focusing	Motorized with Autofocusing
Sample Stage	Precision Motorized stage, Travel = 75mm x 75mm
Stage Encoder	Linear stage encoder on XYZ stages
Condensor	Manual, Abbe continous condenser with iris diaphragm suited for 5x plan achromatic to 60x achromatic objectives
Software	RMM V_01 = Image grabbing, scanning, autofocusing, stitching operation, Illumination Intensity controls
Provision for manual operation	Using hand held unit with a joystick control for XY sample stage and two push buttons for Z focusing stage
5" LCD touch screen	Objective selection, Illumination intensity controls
Power Input	230V 50Hz

Camera Specifications

Sensor	: 1/2.5" CMOS Color camera
Sensor size	: 5.7mm x 4.28mm
Resolution	: 2592 x 1944 (5MP)
FPS	: 7 fps @ 2592 x 1944 resolution
Pixel size	: 2.2um x 2.2um
Scan type	: Progressive scan
Shutter type	: Electronic rolling shutter
Exposure time	: 109us ~ 3000ms
Data format	: 8 bit RAW, 12 bit BMP
Sensitivity	: 1.76 V / lux - sec
Spectral range	: 380 - 650 nm
SNR	: 38.5 dB
Wide dynamic range	: 67.7 dB
Interface	: USB 2.0
Lens mount	: C-mount

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Automicroscope & Slide Scanners

- Pathology & Histopathology
- Clinal diagnostics
- Cell biology research
- Microbiology
- Haematology



Auto Microscope (Small Scanning Area)

Model No. HO-BM-AM01

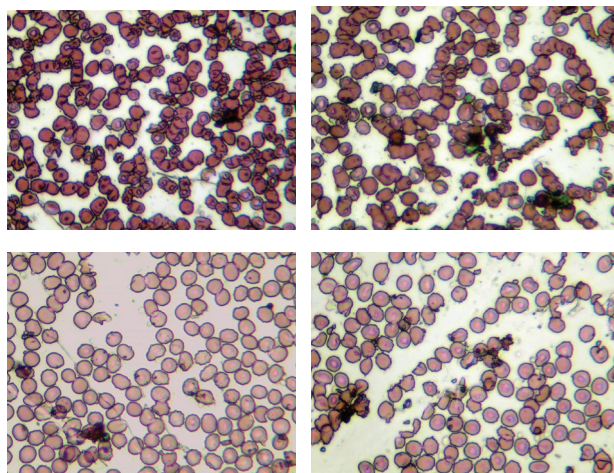
Holmarc's auto-microscope model : HO-BM-AM01 is an automated digital microscopy system developed for the acquisition of high resolution images in brightfield observation. The motorized XY sample stage helps the user to scan a particular sample area automatically and the autofocus system will find the best focused image in each frame before saving it to the pc for further analysis.

Transmitted warm white LED illumination along with high quality Plan achromatic microscope objective provides uniform illumination of the entire field of view. The system is equipped with 5MP USB3.0 CMOS camera for the fast acquisition of the images and a 60X Plan objective with 0.85 NA for high resolution images. System with user specified microscope objective is also available.

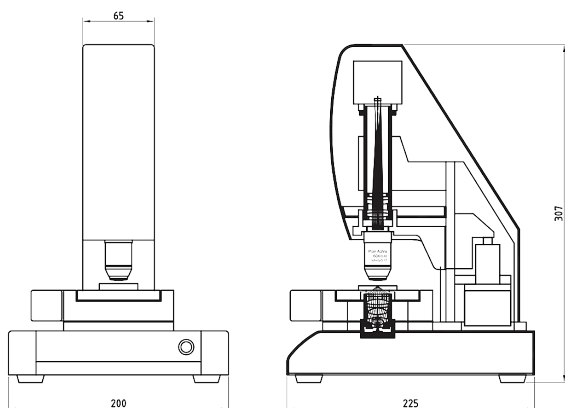
A complete user friendly image acquisition software is provided along with the system. The user can easily control the scanning operation and the camera properties through this software.

Applications

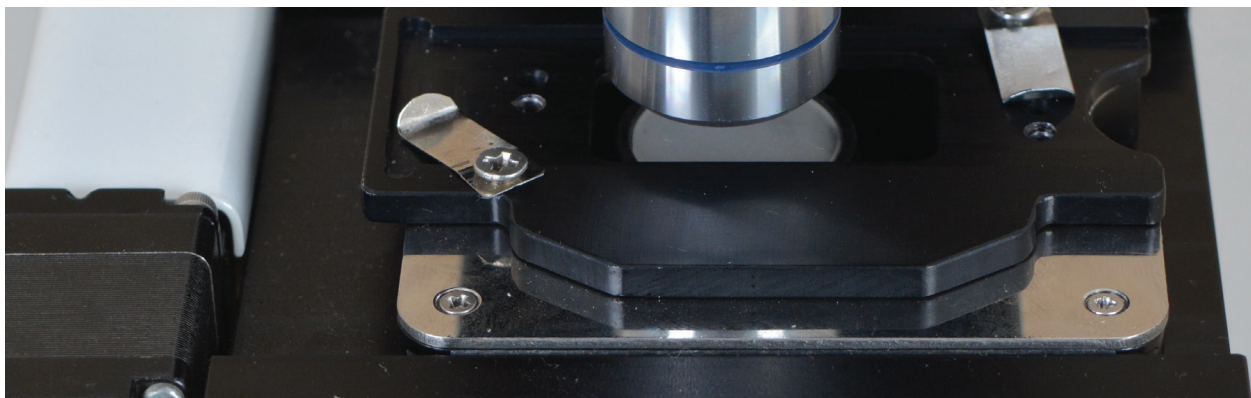
- Pathology & Histopathology
- Clinal diagnostics
- Cell biology research
- Microbiology
- Haematology
- Cytology
- Drug discovery and Toxicology
- Live cell & time-lapse studies
- Biotechnology & life science R&D



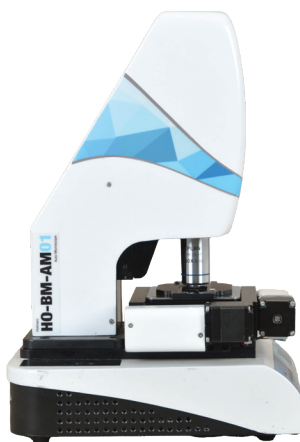
Model
HO-BM-AM01



Optical system	Infinity corrected
Observation method	Digital Brightfield
Illumination	Transmitted
Illumination source	High Bright warm White LED, Intensity Adjustable
Microscope objective	Plan Achromatic 60X , 0.85 NA
Focusing	Motorized with Autofocusing
Image acquisition	8 minutes / 100 images
Software	AM_V01
XY sample stage - Motorized	
Travel	18mm x 18mm
Drive	Stepper Motor
Resolution	5 micron
Accuracy	5 micron



Camera



Sensor	CMOS, Color, 5 MP
Optical format	1 / 2.5"
Active imaging size	5.70 mm x 4.28 mm (7.13 mm diagonal)
Active pixels	2592 H x 1944 V
Pixel size	2.2um x 2.2um
Frame rate	10 fps @ full resolution, 45 fps @ 1024 x 768
Sensitivity	1.76V / Lux-sec
Exposure time	109 us ~ 3000 ms
Spectral range	380 - 650 nm
SNR	38.5 dB
Dynamic range	67.7 dB
Shutter	Electronic rolling shutter
Data interface	USB 2.0
Software interface	TWAIN / Direct Show
Operating mode	Continuous output
Data format	8 Bit / 12 Bit RAW
Picture format	JPEG / BMP / PNG / RAW

Auto Microscope (Large Scanning Area)

MODEL NO. HO-BM-AM02

Holmarc Auto Microscope Model HO-BM-AM02 is a high-performance automated upright brightfield microscope engineered for research, pathology, and advanced microscopy applications. Designed and manufactured by Holmarc Opto-Mechatronics Ltd., the system integrates precision motorized motion, intelligent autofocus, and advanced digital imaging to deliver reliable and reproducible results in a compact, ergonomic design. ISO 9001-certified and Made in India, the HO-BM-AM02 is ideally suited for applications requiring high-resolution imaging and automated sample scanning.

The system is equipped with a high-precision motorized XY sample stage for automated scanning and image acquisition, along with a motorized Z-axis focusing mechanism incorporating autofocus technology to ensure consistently sharp imaging across the entire sample surface. The HO-BM-AM02 features a single nosepiece with manually replaceable objectives, offering flexibility for different magnification requirements.

High-quality imaging is enabled by a high-brightness white LED Köhler transmitted illumination system with adjustable intensity, ensuring uniform and stable illumination. A 3 MP color CMOS camera is integrated for capturing high-resolution, high-contrast images suitable for documentation and analysis.

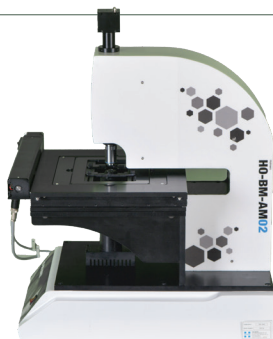
The microscope is supplied with AM_V02 advanced imaging software, which supports automated scanning, image stitching, and autofocus operations, enabling efficient workflow and comprehensive sample analysis.

Applications

1. Pathology & Histopathology
2. Clinical diagnostics
3. Cell biology research
4. Microbiology
5. Haematology
6. Cytology
7. Drug discovery and Toxicology
8. Live cell & time-lapse studies
9. Biotechnology & life science R&D

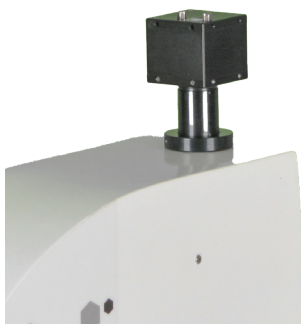


Model HO-BM-AM02



Microscope type	Upright
Observation method	Digital Brightfield
Illuminations	Transmitted Illumination
Illumination system	3W White LED, Intensity adjustable
Nosepiece	Single (objectives are manually replaceable)
Z Focusing	Motorized with autofocusing
Sample XY Stage	Precision Motorized XY Stage
Carriage size	325mm x 295mm
Travel	200mm x 170mm
Straight line accuracy	0.010mm
Repeatability	0.002mm
Drive	Stepper motor
Condenser	Abbe condenser
Microscope Objectives	1. Plan Achromatic 20X , NA = 0.4, WD = 8.8mm, Optical resolution = 0.68 μ m Resolution = 0.16 μ m / pixel 2. Plan Achromatic 40X , NA = 0.65, WD = 0.66 mm, Optical resolution = 0.41 μ m Resolution = 0.08 μ m / pixel
Software	AM_V01 Scanning, Stitching, Autofocusing
Power Input	230V, 50Hz

Camera Specification



Camera Details	3MP CMOS, Color
Optical format	1/2"
Sensor size	6.55 mm x 4.92 mm
Active pixels	2048 H x 1536 V
Pixel size	3.2 μ m x 3.2 μ m
Frame rate	10 fps @ full resolution
Sensitivity	> 1.0V / Lux - sec
Exposure time	0.047 ~ 3000 ms
Spectral range	380 - 650 nm
SNR	43 dB
Dynamic range	61 dB
Shutter	Electronic rolling shutter
Data interface	USB2.0
Image format	RAW / BMP / JPG / PNG
Data format	8 Bit / 12 Bit RAW

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Slide Scanner

Model : HO-SSC-01

HO-SSC-01 is an automated slide scanning microscope designed for single slide applications. It is a cost effective motorized microscope for general purpose laboratory applications including biomedical and pathology. A 7" touch screen display with built-in pc and software is provided with the system for data acquisition. A precision motorized XY stage is provided for automated sample scanning and a motorized Z focusing stage with an autofocus algorithm helps to capture the best focused image of each frame. A white LED with intensity adjustable is provided for the transmitted illumination. A built-in software is included with the system for automated operation.



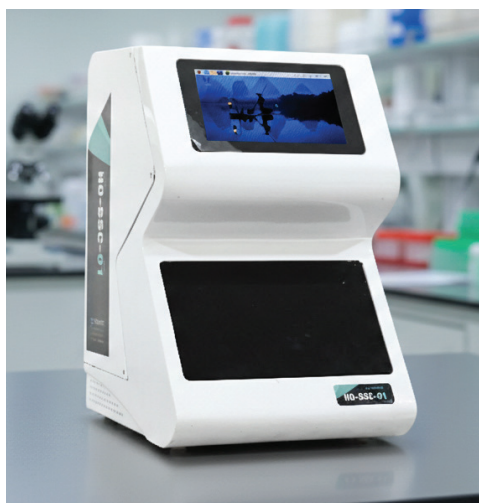
Features

- Single Slide Scanner
- Brightfield
- 7" touch screen
- Automatic scanning
- Autofocusing
- Transmitted Illumination

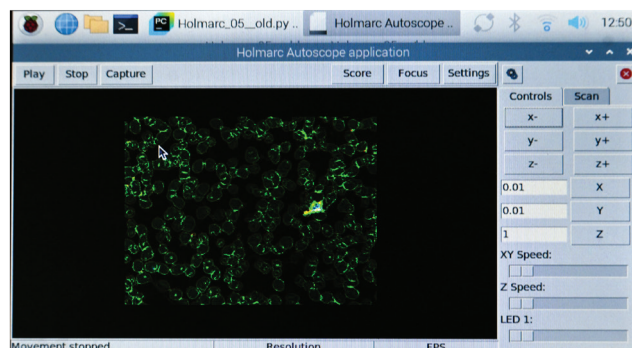
Applications

1. Pathology & Histopathology
2. Clinical diagnostics
3. Cell biology research
4. Microbiology
5. Haematology
6. Cytology
7. Drug discovery and Toxicology
8. Live cell & time-lapse studies
9. Biotechnology & life science R&D

Model HO-SSC-01



Configuration	Upright
Optical system	Infinity corrected
Observation method	Brightfield
Nosepiece	Single, Manually replaceable objective
Sample stage	Motorized XY stage, Travel = 75mm x 50mm
Focusing	Motorized with Autofocusing
Condenser	Inbuilt condenser with diffuser
Transmitted Illumination	3W white LED, Adjustable intensity from display
Objectives	1. Plan Achromatic 20X / 0.40 WD = 8.8 mm, resolution = 0.11 um / pixel
	2. Plan Achromatic 40X / 0.60 WD = 3.98 mm, resolution = 0.055 um / pixel
Display	7" Touchscreen, Raspberry
Built-in PC	Raspberry Pi 5, 8GB RAM, 128 GB microSD
Connectivity	WiFi, USB Port
Software	Micro Analyser (Image grabbing, Scanning, Autofocusing, documentation)



Camera Specification

Sensor	5MP CMOS, Color
Active pixels	2592 x 1944 (5MP)
Active imager size	5.70 mm x 4.28 mm
Pixel size	2.2 x 2.2 um
Shutter type	Electronic rolling shutter (ERS)
Frame rate	Full resolution – 7 fps
Spectral response	380 - 650 nm
Exposure time	0.072 ms – 3000 ms
Image format	RAW, BMP, JPG, PNG
Operating temperature	-30°C to +70°C
Sensitivity	1.76V / lux - sec (550nm)
Interface	USB 2.0
Lens mount	C-mount

Trinocular Microscope- Motorized

(Brightfield, Transmitted Illumination, Slide scanning)

Model : BLRM3-TS-M

HO-BLRM3-TS-M microscopes are cost-effective yet state-of-the-art upright brightfield systems designed for both general-purpose and advanced laboratory applications, including biomedical research, pathology, and life-science analysis. This motorized trinocular microscope integrates precision engineering, automation, and high-quality optics to deliver reliable performance and highly reproducible results in modern laboratory environments.

The microscope features an upright, infinity-corrected optical system optimized for brightfield observation. A trinocular observation head, inclined at 30° with 55–75 mm interpupillary adjustment, ensures ergonomic viewing and seamless camera integration. WF 10X eyepieces with FN 20, along with dioptic adjustment on both eyepieces, provide comfortable and strain-free observation during prolonged use.

The optical configuration includes a quadruple, manually rotatable revolving nosepiece fitted with a set of high-quality infinity-corrected plan achromatic objectives, delivering excellent contrast and high-resolution images across multiple magnifications. Sample positioning is fully automated using a motorized XY stage with software control, enabling precise and repeatable specimen movement. Accurate focusing is achieved through a motorized Z focusing stage with integrated autofocus, providing fast, repeatable, and sub-micron-level focus control—ideal for automated scanning and documentation workflows. The microscope is equipped with an Abbe condenser with iris diaphragm, ensuring optimal illumination alignment and contrast control. A 3 W high-intensity white LED illumination system with adjustable intensity delivers uniform, stable brightfield illumination while offering long operational life and low maintenance. For digital imaging, the HO-BLRM3-TS-M is supplied with a 2/3" color CMOS camera with 5 MP resolution and global shutter, delivering sharp and high-quality images. The software, Micro Analyser software, supports live viewing, image capture, motorized auto-scanning, and autofocus. Its intuitive user interface enhances productivity and enables efficient image documentation.

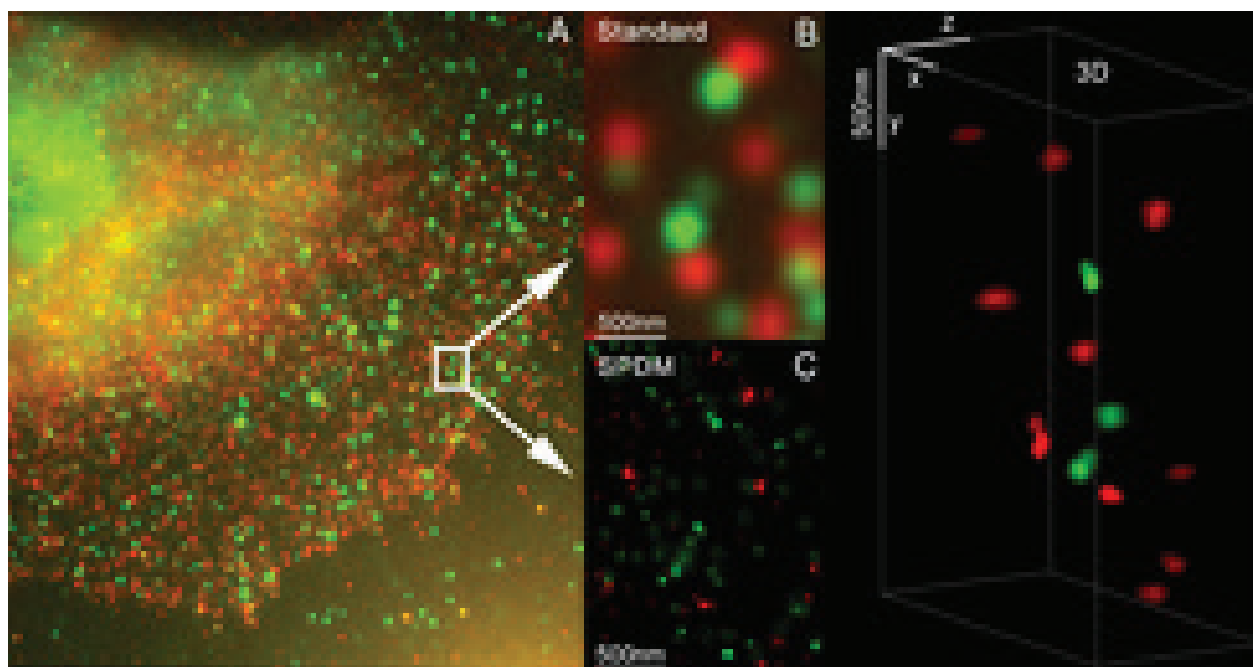


1. **Biomedical & Life Science**
 - Routine histopathology slide examination
 - Tissue section analysis and morphology studies
 - Cell culture observation and documentation
 - Hematology and cytology sample analysis
2. **Pathology & Clinical Laboratories**
 - Automated slide scanning for diagnostic documentation
 - High-throughput screening of stained tissue sections
 - Archival imaging and reporting of clinical samples
 - Teaching and reference slide digitization
3. **Research & Academic Laboratories**
 - Quantitative brightfield imaging and analysis
 - Automated multi-field image acquisition
 - Time-efficient sample scanning with autofocus
 - Reproducible imaging for publications and reports
4. **Pharmaceutical & Biotechnology**
 - Drug response and toxicity screening
 - Cell and tissue-based assay imaging
 - Quality assessment of biological samples
 - Documentation for regulatory and QA workflows
5. **Education & Training**
6. **Quality Control & Documentation**
 - Standardized inspection of biological samples
 - Image-based record keeping and audit trails
 - Long-term sample comparison and validation

Model
BLRM3-TS-M



Configuration	Upright
Optical system	Infinity corrected
Observation methods	Brightfield
Observation head	Trinocular (fixed -50/50), 30o, 55-75mm IP adjustment
Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
Nosepiece	Quadruple, manually rotatable , positive precision click stops, RMS threads
Microscope Objectives	1. Plan Achromatic 4X /0.10, WD = 21mm
	2. Plan Achromatic 10X /0.25, WD = 5mm
	3. Plan Achromatic 40X /0.65, WD = 0.66mm
	4. Plan Achromatic 100X /1.25 Oil, WD = 0.36mm
Sample stage	Motorized XY stage , Travel = 75mmx75mm , slide holder
Focusing	Motorized Z focusing with Autofocusing
Condenser	Abbe NA 1.25, Manual IRIS diaphragm
Illuminations	3W white LED, transmitted, adjustable Intensity
Camera	2/3" Color CMOS, 5MP, USB3.0, 85fps, Global shutter, 3.4um x3.4um pixel size
Software	Micro Analyser_Pro (Live/Capture, Auto scanning and saving, Autofocusing,)
Power Input	230V, 50Hz



Fluorescence Microscope

- **Live-cell and tissue fluorescence imaging**
- **Sub-cellular structure visualization**
- **Fluorescence-based material science characterization**
- **Live-cell and time-lapse studies**



Fluorescence Microscope Inverted Motorized

Model : FIM5000S

Holmarc Fluorescence Imaging Microscope (FIM5000S) is a cutting-edge, research-grade imaging platform designed for advanced fluorescence microscopy applications. Engineered for precision, reliability, and operational flexibility, the system enables high-resolution fluorescence imaging across a broad spectrum of life-science and materials research applications.

The FIM5000S combines refined optical performance with motorized control and powerful imaging capabilities, allowing researchers to visualize and document fluorescent signals with exceptional clarity, sensitivity, and reproducibility.

The system is equipped with a set of infinity-corrected Plan Apochromat long-working-distance objectives, delivering excellent resolution, high contrast, and superior color correction across the entire field of view. A high-precision motorized XY sample stage enables automated scanning and large-area image acquisition, while the motorized Z-axis focusing mechanism ensures sharp, repeatable imaging across the full sample surface.

An integrated cooled scientific imaging camera with 20MP resolution and 12-bit digitization captures high-fidelity fluorescence images with enhanced dynamic range. The illumination system includes a 50 W halogen light source for transmitted brightfield observation and a low-noise 405 nm, 100 mW laser for epi-fluorescence applications, supporting sensitive and reliable fluorescence excitation.

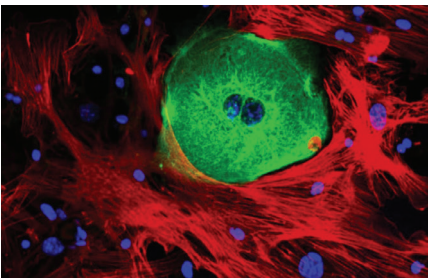
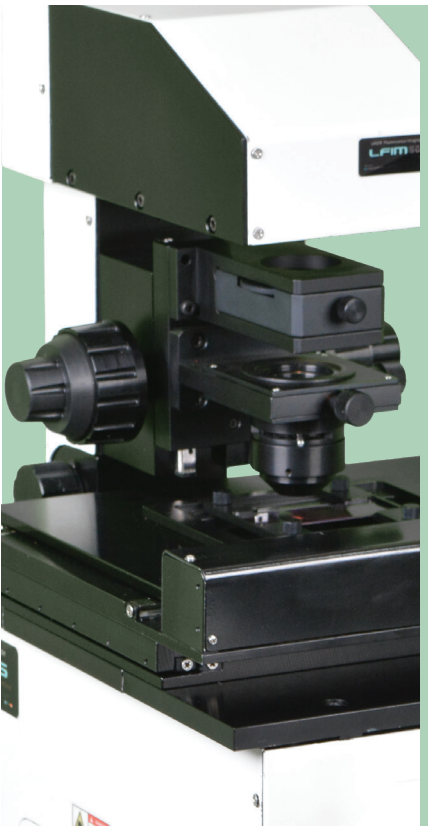
The system is complemented by intuitive, user-friendly imaging software that provides comprehensive control over image acquisition, motorized stage movement, focus, and camera parameters, making it well suited for routine imaging as well as advanced research workflows.

Applications

- Live-cell and tissue fluorescence imaging
- Sub-cellular structure visualization
- Fluorescence-based material science characterization
- Live-cell and time-lapse studies
- Biotechnology and life-science research & development



Model	FIM5000S
	
Microscope type	Inverted
Optical system	Infinity corrected
Eyepiece	10X wide field (FN20), Dioptre adjustable
Nosepiece	Quadruple, Motorized rotating turret, software controls
Microscope Objectives	Plan Apo Long working distance 5X, 10X, 20X, & 50X)
Condenser	Abbe, 1.25NA condenser
Camera	20MP Cooled, 1" CMOS, USB3.0
Sample stage	Motorized , Software controls
Focus	Motorized , software controls
Transmitted Illumination	50W Halogen, intensity adjustable
Epi-scopic illumination	405nm, 100mW laser
Fluorescence filters	(Optional)



Inverted Digital Fluorescence Microscope – Motorized

Model No. HO-AMS-FL5000

The Holmarc Inverted Fluorescence Microscope (HO-AMS-FL5000) is a high-performance, research-grade imaging instrument designed to deliver reliable, high-resolution fluorescence imaging for demanding laboratory applications. Built with precision optics, motorized automation, and a robust imaging system, this inverted microscope platform supports multichannel fluorescence studies, laser-scanning microscopy, and quantitative imaging workflows.

The system is equipped with a set of infinity-corrected Plan Achromatic objectives, delivering excellent resolution, high contrast, and superior color correction across the entire field of view. A high-precision motorized XY sample stage enables automated scanning and large-area image acquisition, while the motorized Z-axis focusing mechanism ensures sharp, repeatable imaging across the full sample surface. A dedicated joystick console is provided for convenient manual operation of the X, Y, and Z axes. A universal sample holder allows the use of a wide range of sample formats, including well plates, glass slides, and petri dishes.

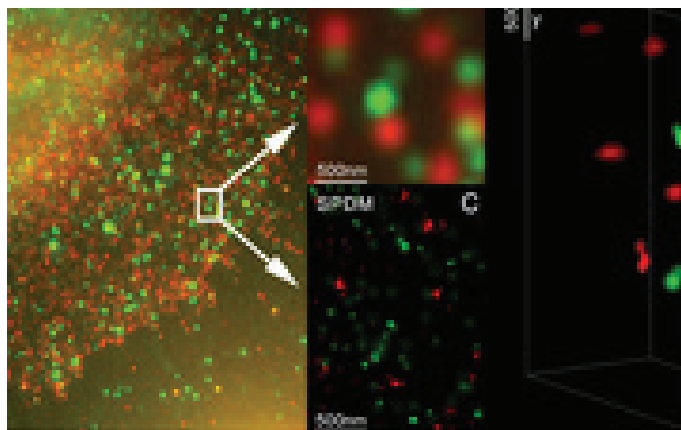
For multichannel fluorescence applications, the system incorporates two decks of motorized fluorescence filter-cube mounts, with each deck providing slots for up to eight fluorescence filter cubes. (Fluorescence filter cubes are not included as standard and must be ordered separately.)

An integrated cooled scientific imaging camera with 20-megapixel resolution captures high-quality fluorescence images with enhanced dynamic range and sensitivity. The illumination system includes a 50 W halogen light source for transmitted Brightfield observation and dual high-brightness white LED sources for epi-fluorescence applications. An additional optical port is provided to support external laser excitation for advanced fluorescence techniques.

The system is complemented by intuitive, user-friendly imaging software that offers comprehensive control over image acquisition, motorized stage movement, focus, and camera parameters, making it well suited for both routine fluorescence imaging and advanced research workflows.

Applications

- Live-cell and tissue fluorescence imaging
- Sub-cellular structure visualization
- Fluorescence-based material science characterization
- Live-cell and time-lapse studies
- Biotechnology and life-science research & development
- Multichannel fluorescence



Model		HO-AMS-FL5000
		
	Equipment Type	Inverted
	Optical System	Colour Corrected Infinity Optical System
	Observation Tube	Siedentopf Binocular 45°
	Eyepieces	10X extra wide field eyepieces
	Viewing Height	423 mm
	Sample Stage	Sample stage = Motorized XY stage, Universal sample holder, Joystick control.
	Objectives	4 Nos. (5x, 10x, 20x and 50x)
	Turret	Motorized Quadruple
	Fluorescence filter wheel unit	2 deck (8 Slot each), Motorized
Condenser	Abbe condenser	
Focus	Motorized	
Illumination	50 W Quartz halogen (150W Xe Arc Lamp Optional)	
Ports	Two standard ports are available for camera and fiber coupling / galvano attachment	



Camera Specifications

		Sensor type	Cooled 20MP CMOS for Imaging
		Sensor model	Sony
		Quantum efficiency	84% @ 535 nm
		Resolution	5472(H) x 3648(V)
		Pixel size	2.40μm x 2.40μm
		Sensor size	15.86 mm; 1inch
		Shutter mode	Rolling
		Read noise	< 1e-
		Cooling	Forced air (Ambient at +25°) : -15°C
		Frame rate	14fps @ 5472 x 3648, 53fps @ 2736 x 1824, 67fps @ 1824 x 1216
		Binning	2 x 2, 3 x 3, 4 x 4
		Exposure settings	Auto / Manual
		Exposure time	18us - 1hour
		Picture format	JPG / PNG / TIFF / DICOM
		Data interface	USB 3.0
		Bit depth	16bit / 8bit
		Camera size	85 mm x 85 mm x 109mm
		Power supply	12 V

Inverted Digital Fluorescence Microscope - Motorized

Model No. HO-AMS-FL5000CX

Holmarc's Digital Inverted Fluorescence Microscope model. HO-AMS-FL5000CX is a high-performance, research-grade imaging system engineered for demanding laboratory applications. Featuring precision optics, fully motorized control, and a high-sensitivity imaging platform, this microscope enables reliable fluorescence imaging, laser-scanning studies, and multichannel fluorescence workflows with superior accuracy and operational ease.

The system is equipped with an LCD touch-screen display in place of a conventional binocular eyepiece, making it ideally suited for prolonged observation without operator fatigue. A quadruple motorized nosepiece fitted with infinity-corrected Plan Achromatic objectives delivers excellent resolution, high contrast, and superior color correction across the entire field of view. A high-precision motorized XY sample stage supports automated scanning and large-area image acquisition, while the motorized Z-axis focusing mechanism ensures sharp, repeatable imaging across the full sample surface. A dedicated joystick console is provided for convenient manual control of the X, Y, and Z axes. A universal sample holder accommodates a wide range of sample formats, including well plates, glass slides, and petri dishes.

For multichannel fluorescence applications, the system incorporates two decks of motorized fluorescence filter-cube mounts, with each deck providing slots for up to eight fluorescence filter cubes. (Fluorescence filter cubes are not included as standard and must be ordered separately.)

An integrated cooled scientific imaging camera with 20-megapixel resolution captures high-quality fluorescence images with enhanced dynamic range and sensitivity. The illumination system includes a 50 W halogen light source for transmitted brightfield observation and dual high-brightness white LED sources for epi-fluorescence applications. An additional optical port is provided to support external laser excitation for advanced fluorescence techniques.

A sample heating stage is also provided with the system for temperature based studies. The temperature can be controlled from the software.

A comprehensive, user-friendly software suite is supplied with the system, offering full control over image acquisition, motorized stage movement, focus, and camera parameters, making the HO-AMS-FL5000CX well suited for both routine fluorescence imaging and advanced research workflows.

Applications

- Multichannel fluorescence microscopy
- Live-cell and fixed-sample imaging
- Laser-based fluorescence studies
- Cell biology and biotechnology research
- Material science fluorescence characterization
- Academic, industrial, and research laboratories

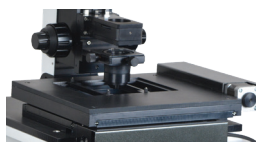


Model	HO-AMS-FL5000CX
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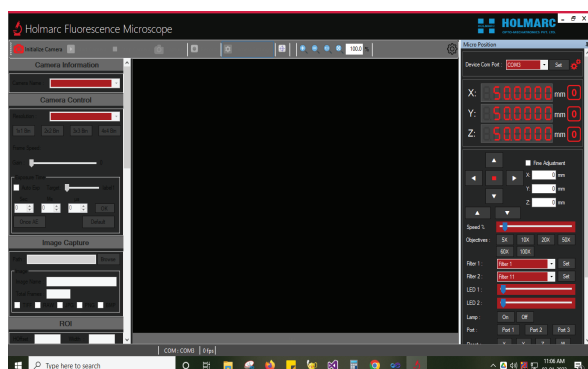
Equipment Type	Inverted
Optical System	Colour Corrected Infinity Optical System
Observation	LCD touch display
Sample Stage	Stepper motor controlled 120 x 120 mm with provision to hold well plate, Ø35 mm, Ø54 mm, and Ø65 mm petri dish, 4 glass slide etc., Joystick control
Objectives	4 Nos. 5x, 10x, 20x, 50x, 100x oil immersion
Turret	Motorized Quadruple
Fluorescence filter wheel unit	2 deck (8 Slot each)
Condenser	Abbe condenser
Focus	Motorized
Illumination	50 W Quartz halogen (150W Xe Arc Lamp Optional)

HEATING STAGE for the glass slide



Temperature range	- 5 degree to 100 degree
Temperature readout	Thermocouple
Temperature control Accuracy	+/- 1°C
Ports	Two standard ports are available for camera and fiber coupling / galvano attachment

Camera Specifications



Sensor type	Cooled 20MP CMOS for Imaging
Sensor model	Sony
Quantum efficiency	84% @ 535 nm
Resolution	5472(H) x 3648(V)
Pixel size	2.40 μm x 2.40 μm
Sensor size	15.86 mm; 1 inch
Shutter mode	Rolling
Read noise	< 1e-
Cooling	Forced air (Ambient at +25°C) : -15°C
Frame rate	14fps @ 5472 x 3648, 53fps @ 2736 x 1824, 67fps @ 1824 x 1216
Binning	2 x 2, 3 x 3, 4 x 4
Exposure settings	Auto / Manual
Exposure time	18us - 1hour
Picture format	JPG / PNG / TIFF / DICOM
Data interface	USB 3.0
Bit depth	16bit / 8bit
Camera size	85 mm x 85 mm x 109 mm
Power supply	12 V

Inverted microscope – Fluorescence (Brightfield, Phase contrast, Epi-fluorescence)

Model : IM-PH-EPI

IM-PH-EPI is a versatile inverted fluorescence microscope designed for Brightfield, Phase Contrast, and Fluorescence observations, making it well suited for routine laboratory inspection as well as live-cell and biological research applications. The system combines reliable optical performance with flexible illumination options to support a wide range of imaging needs.

The fluorescence illuminator is equipped with a manually rotatable 4-position fluorescence filter mount and a high-brightness white LED light source with adjustable intensity. Fluorescence filter sets are supplied separately, allowing users to configure the system based on specific fluorophores. Custom LED excitation wavelengths can also be provided on special request. The microscope includes provisions for mounting various well plates, culture flasks, and petri dishes, enabling convenient observation of living cells and organisms.

The IM-PH-EPI is available in a binocular configuration, complemented by a 20 MP CMOS camera mounted on the side port for high-resolution digital image acquisition. The binocular viewing head is inclined at 45° for ergonomic operation, and both eyepieces feature individual dioptre adjustment for user comfort.

A smooth-operating, ball-bearing mounted quadruple nosepiece allows effortless objective switching. The microscope is fitted with a mechanical sample stage featuring co-axial drop-down control knobs for precise sample positioning. Focusing is achieved through a co-axial coarse and fine focus mechanism with adjustable tension, ensuring stable and accurate focus control.

Kohler LED transmitted illumination with Phase contrast objective is provided for uniform Brightfield and Phase contrast imaging and a high bright white LED illumination with a set of fluorescence objective is provided for Epi-fluorescence imaging.

A user-friendly imaging software is provided for live viewing, image capture, and on-screen measurements. Measurement data can be conveniently exported in PDF format, supporting documentation and reporting requirements.

Applications: -

1. Cell and tissue culture studies in life science and forensics
2. Living cell imaging
3. Flow cytometry
4. Sub-cellular imaging
5. Neuroscience
6. Microbiology
7. Cell biology and biotechnology research
8. Material science fluorescence characterization
9. Academic, industrial, and research laboratories



Model No.
IM-PH-EPI


Configuration	Inverted
Optical system	Infinity corrected
Observation method	Brightfield, Phase Contrast, Epi-fluorescence
Observation Head	Sidentopf Binocular head, 45°, 55-75mm
Eyepieces	WF10X, FN20, Dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual. RMS thread
Microscope Objectives	1. Plan Achro Phase Contrast 5X /0.10, WD=9mm, CG=1.2mm
	2. Plan Achro Phase Contrast 10X /0.25, WD = 4.3mm, CG=1.2mm
	3. Plan Achro Phase Contrast 20X /0.40, WD = 8mm, CG=1.2mm
	4. Plan Achro Phase Contrast 40X /0.60, WD = 3.5mm, CG=1.2mm
	5. Plan Achromatic 10X /0.25, WD = 20.2mm
	6. Plan Achromatic 20X /0.40, WD = 8.8mm
	7. Plan Achromatic 40X /0.60, WD = 3.98mm
	8. Plan Achromatic 100X /0.85 dry, WD = 0.40mm
Sample stage	Double layer Mechanical stage, Travel = 126mm x 78mm
Sample holders	T-flask, 96 well plate, 6 well plate, Glass slide, 54mm Petridish
Focusing	Coaxial coarse and fine focusing mechanism.
Condenser	Long working distance, NA = 0.30, WD = 70mm
Condenser accessories	Pre-centered Phase slider, Manual
Camera Port	Side
Transmitted Illumination	3W white LED, Adjustable intensity

Camera

Optical format	1/2.5" CMOS
Sensor size	5.70mm x 4.28mm
Active pixels	2592 x 1944 (5MP)
Pixel size	2.2 x 2.2 μ m
Shutter type	Full resolution – 7 fps
Frame rate	380-650nm
Exposure time	0.072ms – 3000ms
Image format	RAW, BMP, JPG, PNG
Operating temperature	-30°C to +70°C
Sensitivity	1.76V/lux-sec(550nm)
Interface	USB2.0
USB2.0	C-mount
Software	Micro Analyser (Image grabbing, Live measurements, Reports etc)
Epi-fluorescence attachment	White LED illumination, intensity adjustable
	4 position fluorescence filter cube mount
	Manually rotatable
	(Filter sets are sold separately)
	(Custom wavelength LED is available as optional)

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Trinocular Microscope-Fluorescence

(Brightfield, Epi-fluorescence)

Model : HO-BLRM3-F

BLRM3-FL is an upright research microscope designed for epi-fluorescence and transmitted brightfield observations, developed for life science, histopathology, and biotechnology applications. The system is available in a trinocular configuration with a 20 MP CMOS camera, and integrated image acquisition and analysis software providing real-time viewing, on-screen measurements, image capture, and annotation. Comprehensive reports can be generated with images and measurement results exported in PDF format, making the microscope well suited for documentation, reporting, and quality-assurance workflows.

The binocular viewing head, inclined at 30°, is ergonomically designed with dioptre adjustment on both eyepieces to ensure user comfort during prolonged observation. A smooth-operating, ball-bearing mounted quadruple nosepiece enables precise and effortless objective changes. Accurate and repeatable specimen positioning is achieved using a mechanical XY stage with a co-axial drop-down control knob, while a tension-adjustable coaxial coarse and fine focusing mechanism ensures precise focusing control.

For transmitted-light observations, the system is equipped with Köhler-configured white LED illumination and infinity-corrected plan achromatic objectives, delivering high contrast, uniform illumination, and excellent image quality. The microscope also features an LED-based epi-fluorescence illuminator with provision for mounting one fluorescence filter cube. The fluorescence illumination module is optimally aligned to provide uniform excitation across the entire field of view. Fluorescence filter sets are sold separately, and custom-wavelength LED illumination can be provided on special request.



Applications

1. Life Sciences & Biology

- Cell biology and molecular biology studies
- Visualization of cellular structures (nucleus, cytoskeleton, organelles)
- Protein localization and expression analysis
- Live-cell imaging using fluorescent dyes and reporters
- Immunofluorescence assays

2. Clinical & Pathology

- Histopathology and tissue analysis
- Disease marker identification using fluorescent probes
- Cancer diagnostics and biomarker studies
- Cytology and haematology investigations
- Infectious disease detection

3. Microbiology

- Bacterial and fungal identification
- Viability and metabolic activity studies
- Biofilm analysis
- Fluorescent staining of microorganisms

4. Biotechnology & Pharmaceutical Research

- Drug discovery and screening assays
- Cell-based toxicity and efficacy studies
- High-content screening applications
- Fluorescence-labelled assay development

5. Neuroscience

- Neuronal structure and connectivity studies
- Fluorescent tracer and reporter-based imaging
- Synaptic and signaling pathway investigations

6. Plant Science & Agriculture

- Plant tissue and cell imaging
- Chlorophyll fluorescence studies
- Gene expression and localization in plants
- Seed viability and stress response studies

7. Material Science & Nanotechnology

- Fluorescent characterization of polymers and composites
- Nanoparticle and quantum dot visualization
- Defect and contamination analysis

8. Education & Research Laboratories

Model
BLRM3-FL


Configuration	Upright
Optical system	Infinity corrected
Observation method	Brightfield, Epi-Fluorescence
Observation head	Trinocular (fixed -50/50), 30o, 55-75mm IP adjustment
Eyepieces	WF10X, FN20 , dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual, RMS threads
Microscope Objectives	1. Plan Achromatic 10X/0.25 , WD – 20.2mm
	2. Plan Achromatic 20X/0.40 , WD – 8.8mm
	3. Plan Achromatic 40X/0.60 , WD – 3.98mm
	4. Plan Achromatic 100X/0.85 dry , WD – 0.40mm
Sample stage	Double layer mechanical stage, Travel – 78mm x54mm , drop down knob
Focusing	Coaxial coarse and fine focusing mechanism
Condenser	Abbe NA 1.25, Manual IRIS diaphragm

Transmitted Illumination

3W white LED, adjustable Intensity



Camera	1/2.5" Color CMOS, 5MP , USB2.0, C-mount. 2.2umx2.2um pixel size
Software	Micro Analyser (Live/Capture image, measurements, reports)
Power Input	230V, 50Hz
Epi-fluorescence attachment	Source = high bright white LED, adjustable intensity
	Provision for one filter cube
	filter cubes are sold separately custom light sources are available

Inverted Microscope

- **Live cell imaging and observation**
- **Cell culture monitoring in well plates and flasks**
- **Phase contrast imaging of transparent biological samples**
- **Routine inspection of adherent and suspension cells**

Inverted Microscope - Routine

Phase Contrast Microscope Model No. HO-MG-IMR

HO-MG-IMR is an inverted microscope designed for Brightfield and Phase Contrast observations, making it well suited for imaging living cells and organisms. The system provides dedicated provisions for mounting a wide range of well plates and culture flasks, enabling convenient long-term and live-cell imaging.

The microscope is available in a binocular configuration with a 5 MP CMOS camera integrated on the side port for digital image acquisition. The binocular head is inclined at 45°, and both eyepieces are dioptre adjustable for user comfort. A smooth, ball-bearing mounted quadruple nosepiece allows effortless and precise objective changes.

A mechanical stage with co-axial drop-down control knobs is provided for accurate sample positioning. Focusing is achieved through a tension-adjustable coaxial coarse and fine focus mechanism, ensuring smooth and precise control. The system is equipped with powerful Köhler LED illumination and infinity-corrected plan achromatic phase contrast objectives, delivering high-contrast, high-resolution images for routine inspection and research applications.

A user-friendly imaging software is included, offering live measurement tools, with measured data easily exportable in PDF format.

Applications: -

- Live cell imaging and observation
- Cell culture monitoring in well plates and flasks
- Phase contrast imaging of transparent biological samples
- Routine inspection of adherent and suspension cells
- Stem cell and primary cell research
- Microbiology and cellular biology studies
- Drug screening and cytotoxicity analysis
- Education, teaching laboratories, and research training



Model. HO-MG-IMR



Optical system	Infinity corrected
Configuration	Inverted
Observation methods	Brightfield, Phase Contrast
Nosepiece	Manual, Reversed - type Quadruple
Viewing head	Sidentopf Binocular head, 45-degree inclination, 55-75mm IP adjustment
Camera port	Side port
Eyepiece	10X wide field (FN20), diopter adjustable
Microscope Objectives	1. Plan Achro Phase Contrast 5X / 0.10, WD=9mm, CG=1.2mm
	2. Plan Achro Phase Contrast 10X / 0.25, WD=4.3mm, CG=1.2mm
	3. Plan Achro Phase Contrast 20X / 0.40, WD=8mm, CG=1.2mm
	4. Plan Achro Phase Contrast 40X / 0.60, WD=3.5mm, CG=1.2mm
Focusing	Nosepiece up / down , Coaxial coarse / fine focusing, fine stroke 0.2mm / rotation
Stage	Plain stage (size = 170 x 247mm), Mechanical stage - Optional (Travel = 126 x 78mm)
Sample Holders	1) Microscopic slides
	2) Haemocytometers
	3) T-25, T-75, T-175 flasks
	4) 6, 12, 24, 48, 96 well plates
	5) 35, 50, 60, 100mm petri dishes
Condenser	Long working distance NA=03.0, WD=70mm
Condenser accessories	Precentered PH slider (phase annulus)
Illuminations	High bright white LED transmitted illumination, Intensity adjustable

Camera Specifications



Sensor	CMOS Color
Resolution	2592 x 1944 pixels (5MP)
Sensor size	21 / 2.5"
Pixel size	2.2 um x 2.2um
Frame rate	7 fps @ full resolution
Dynamic range	67.7 dB
Signal noise ratio	38.5 dB
Exposure time	109 us to 3000 ms
Sensitivity	1.76 V / Lux - sec
Spectral range	380 nm - 650 nm
Data interface	USB 2.0
Shutter	Electronic Rolling Shutter
Picture format	JPEG / BMP / PNG / RAW
Software	Micro Analyser (Live/Capture image, measurements, reports

Digital Inverted Microscope

Model : DIM-PH

DIM-PH is a digital inverted microscope designed for cell culture, live-cell imaging, research, and routine laboratory applications. The system is optimized for long-term observation of living cells and organisms, with dedicated provisions for mounting well plates and culture flasks.

A 12.1" high-resolution LCD touch screen display replaces conventional eyepieces and is integrated with an in-built PC and imaging software, enabling fully standalone operation. A 5 MP CMOS camera mounted on the side port delivers high-quality digital images, which are displayed in real time on the screen. Since there are no eyepieces, the system is especially well suited for continuous and extended monitoring of samples with improved user comfort.

The microscope supports Brightfield and Phase Contrast observations and is equipped with powerful Köhler LED transmitted illumination along with infinity-corrected plan achromatic phase contrast objectives, providing high-contrast, high-resolution images for routine inspection and research. A smooth, ball-bearing mounted quadruple nosepiece allows effortless objective changes.

A mechanical stage with co-axial drop-down control knobs enables precise sample positioning, while a tension-adjustable coaxial coarse and fine focusing mechanism ensures smooth and accurate focusing control.

An epi-fluorescence illuminator is included in the system, allowing users to upgrade the microscope for fluorescence imaging by simply adding appropriate fluorescence filter cubes. The integrated software includes automatic measurement tools, such as cell confluency analysis for live-cell imaging, along with live measurements, annotation, and data export in PDF format.

Applications

- Live cell imaging and observation
- Cell culture monitoring in well plates and flasks
- Phase contrast imaging of transparent biological samples
- Routine inspection of adherent and suspension cells
- Stem cell and primary cell research
- Microbiology and cellular biology studies
- Drug screening and cytotoxicity analysis
- Education, teaching laboratories, and research training

Sample Holders

Flasks, wellplates,
Petri dishes, Slides



Specifications



Imaging methods	Brightfield, Phase Contrast (Ei-fluorescence upgradable)
Configuration	Inverted
Optical system	Infinity corrected; RMS threaded objectives with 45mm parfocal distance
Illumination	Transmitted light (for Brightfield and Phase contrast), Epi-fluorescence(Upgradable)
Nosepiece	Quadruple revolving, positive precision click stops
Microscope Objectives	1. Plan Achro Phase Contrast 5X/0.10, WD = 9mm, CG=1.2mm
	2. Plan Achro Phase Contrast 10X/0.25, WD = 4.3mm, CG=1.2mm
	3. Plan Achro Phase Contrast 20X/0.40, WD = 8mm, CG=1.2mm
	4. Plan Achro Phase Contrast 40X/0.60, WD = 3.5mm, CG=1.2mm
Focusing	Manual, Coaxial coarse and fine focusing mechanism.
Condenser	Long working distance, NA = 0.30, WD = 70mm
Condenser accessories	Pre-centered Phase slider, Manual.
Condenser height	Adjustable for Brightfield observation
Transmitted Illumination	3W white LED, Adjustable intensity
LCD Display	
	12.1" LCD touch screen , high resolution LCD touch screen (1280 x 800p x)
Display interface	HDMI
Software	Built-in Mini PC (i3, 8GB RAM, 256 SSD)
Features	live / capture image, Confluence measurement
	Password protection
Epi-fluorescence attachment	White LED illumination, intensity adjustable 4 position fluorescence filter cube mount Manually rotatable # (Filter sets are sold separately) # (Custom wavelength LED is available as optional)
Sample stage	Attachable Double layer Mechanical manual stage
	Travel = 126mm x 78mm
	Drop down knob
Sample holders	Microscopic slides
	Haemocytometers
	T-25, T-75, T-175 flasks
	6 -, 12-, 24-, 48- , 96 well plates
	35, 50, 60, 100mm Petri dishes
Camera specifications	
Sensor	1/2.5" CMOS Color
Resolution	5MP
Mount	C-mount
Camera Interface	USB2.0
Image format	BMP, JPG, PNG
Driver compatibility	Windows10 or higher

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Upright Microscope

- **General Laboratory & Clinical Use**
- **Biomedical & Research applications**
- **Industrial and Material inspection**
- **Documentation & Analysis**



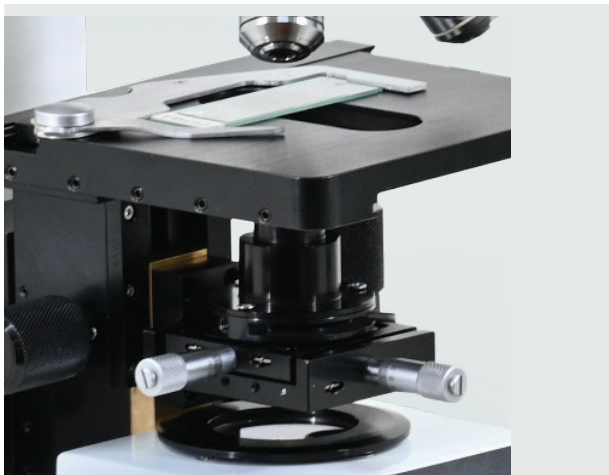
Trinocular Microscope

(Brightfield, Transmitted & Epi-scope Illuminations)

Model : BLRM3-EPI

Portability and ease of use have been taken care of in the design along with stability and robustness. All materials used in the microscope are corrosion resistant to make sure of maintenance free operation. The body is esthetically finished to suit the ambience of any modern laboratory. Extreme fine focusing movements are assured by the use of precision machined and lapped mechanics.

The binocular is inclined at 30 degrees and both eyepieces are dioptre adjustable. The smooth-operating, ball bearing mounted, quadruple nosepiece provides effortless objective changes. A co-axial drop down knob is provided for the operation the sample XY stage. Powerful Koehler LED illumination with infinity corrected plan achromatic objectives provide enhanced image quality and brightness for the observation of specimens. A user friendly software provides live measurement features and the measured data can be exported as pdf.



Model :

BLRM3-TS

Configuration	Upright
Optical system	Infinity corrected
Observation method	Brightfield
Observation head	Trinocular (fixed -50/50), 30o, 55-75mm IP adjustment
Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual, RMS threads
Microscope Objectives	1. Plan Achromatic 4X /0.10, WD – 21mm
	2. Plan Achromatic 10X /0.25, WD – 5mm
	3. Plan Achromatic 40X /0.65, WD – 0.66mm
	4. Plan Achromatic 100X /1.25 Oil, WD – 0.36mm



Sample stage	Double layer mechanical stage, Travel – 78mm x54mm, drop down knob
Focusing	Coaxial coarse and fine focusing mechanism
Condenser	Abbe NA 1.25, manual IRIS diaphragm
Illumination	3W white LED, transmitted, adjustable Intensity
Power Input	230V, 50Hz
Camera	1/2.5" Color CMOS , 5MP, USB2.0, C-mount. 2.2umx2.2um pixel size
Software	Micro Analyser (Live/Capture image, measurements, reports)
Power Input	230V, 50Hz

Applications: -

1. General Laboratory & Clinical Use



- Routine biological and medical laboratory examinations
- Analysis of cells, tissues, and microorganisms in brightfield mode for pathology and diagnostics
- Education, teaching laboratories, and research training

2. Biomedical & Research applications

- Observation of stained tissue sections and general histology
- Research on cell morphology and basic cell biology

3. Industrial and Material inspection

4. Documentation & Analysis



Trinocular Microscope

(Brightfield, Transmitted & Epi-scope Illuminations)

Model No. BLRM3-EPI

BLRM3-EPI is an upright Brightfield microscope with integrated epi-illumination, developed for routine laboratory, pathology, and industrial inspection applications. Designed to support both transmitted and reflected light observations, the system is well suited for examining biological specimens as well as semi-transparent and opaque samples. The microscope is available in a trinocular configuration with a 5 MP CMOS camera and dedicated image analysis software featuring live measurement capabilities.

The BLRM3-EPI is built on a rigid and stable optical-mechanical platform to ensure reliable performance in routine laboratory and industrial environments. The microscope body is fabricated using durable, corrosion-resistant materials for long-term operation with minimal maintenance. Its compact and well-balanced design supports comfortable day-to-day use, while high-precision mechanical assemblies ensure smooth operation and consistent focusing accuracy during extended observation sessions.

The binocular viewing head is inclined at 30°, with both eyepieces dioptre adjustable for enhanced user comfort. A smooth, ball-bearing mounted quadruple nosepiece allows effortless and precise objective changes. The mechanical XY sample stage is operated using a co-axial drop-down control knob for accurate specimen positioning.

The microscope is equipped with powerful Köhler LED transmitted illumination and infinity-corrected plan achromatic objectives, delivering high image quality, contrast, and brightness for transmitted-light observations. The LED epi-scope illumination module is optimally aligned for uniform reflected-light illumination, enabling clear visualization of surface features and structural details in challenging samples.

The integrated image acquisition and analysis software provides intuitive tools for real-time viewing, measurement, and documentation of observed samples. Users can perform on-screen measurements, capture and annotate images, and generate comprehensive reports, with results and images easily exported in PDF format for documentation, reporting, and quality records.

Applications

- **General Laboratory, Clinical & Education**
 - Routine biological and medical laboratory examinations
 - Brightfield analysis of cells, tissues, and microorganisms for pathology and diagnostics
 - Teaching and training in academic and research laboratories
- **Biomedical & Research**
 - Observation of stained tissue sections and general histology
 - Cell morphology studies and basic cell biology research
- **Industrial & Materials Inspection**
 - Inspection of semi-transparent and opaque samples
 - Surface and structural examination of materials and coatings
 - Quality control and failure analysis in industrial environments
- **Documentation & Image Analysis**
 - Digital image capture, measurement, and annotation
 - Report generation and data export for research, diagnostics, and quality records



Model		BLRM3-EPI
		
	Configuration	Upright
	Optical system	Infinity corrected
	Observation method	Brightfield (transmitted and reflected)
	Observation head	Trinocular (fixed -50/50), 30o, 55-75mm IP adjustment
	Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
	Nosepiece	Quadruple revolving, positive precision click stops, Manual, RMS threads
	Microscope Objectives	1. Plan Achromatic 10X/0.25 , WD – 20.2mm
		2. Plan Achromatic 20X/0.40 , WD – 8.8mm
		3. Plan Achromatic 40X/0.60 , WD – 3.98mm
		4. Plan Achromatic 100X/0.85 dry, WD – 0.40mm
	Sample stage	Double layer mechanical stage, Travel – 78mm x54mm, drop down knob
	Focusing	Coaxial coarse and fine focusing mechanism
	Condenser	Abbe NA 1.25, Manual IRIS diaphragm
	Illuminations	1. 3W white LED, transmitted, adjustable Intensity
		2. 3W white LED, epi-scope, adjustable Intensity
	Camera	1/2.5" Color CMOS, 5MP , USB2.0, C-mount. 2.2umx2.2um pixel size
	Software	Micro Analyser (Live/Capture image, measurements, reports)
	Power Input	230V, 50Hz



Trinocular Digital Microscope

(BRIGHTFIELD, TRANSMITTED ILLUMINATION)

Model No. BLRM3-TS-D

BLRM3 TS-D is a cost-effective upright Brightfield microscope designed for general-purpose laboratory applications, including biomedical and pathology use. The system is offered in a trinocular configuration with a 5 MP CMOS camera and a 7" touch screen display with built-in Raspberry Pi, enabling standalone operation. Integrated imaging software provides live measurements, image documentation, and easy export of measured data in PDF format, with a USB port available for data backup.

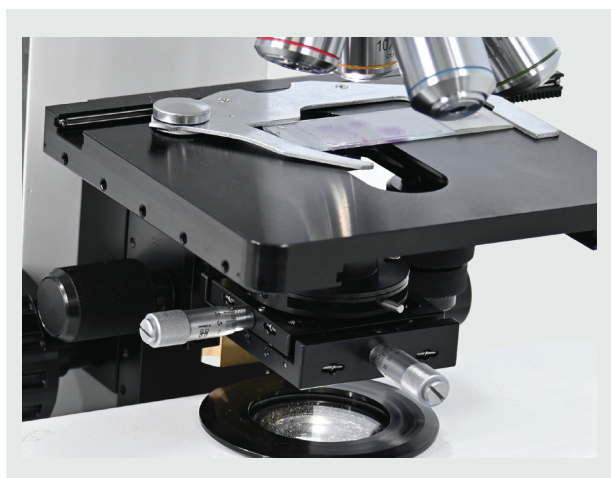
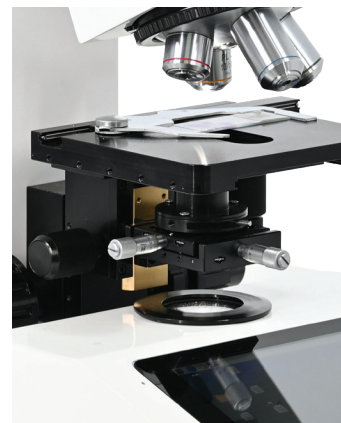
The microscope is built on a rigid and stable optical-mechanical platform to ensure reliable performance. Corrosion-resistant materials provide long-term, maintenance-free operation. Its compact, ergonomically designed body supports comfortable daily use, while precision-engineered mechanical assemblies ensure smooth, ultra-fine focusing and consistent, repeatable operation.

The binocular head is inclined at 30°, with dioptre-adjustable eyepieces for user comfort. A ball-bearing mounted quadruple nosepiece allows effortless objective changes, and the mechanical XY sample stage is controlled via a co-axial drop-down knob for accurate specimen positioning. A coaxial coarse and fine focusing knob allow precise focusing of the sample plane without disturbing the stage position.

Optical performance is enhanced by Köhler LED transmitted illumination with infinity-corrected plan achromatic objectives, delivering excellent image quality, contrast, and brightness for a wide range of samples.

Applications: -

1. General Laboratory & Clinical Use
 - Routine biological and medical laboratory examinations
 - Analysis of cells, tissues, and microorganisms in brightfield mode for pathology and diagnostics
 - Education, teaching laboratories, and research training
2. Biomedical & Research applications
 - Observation of stained tissue sections and general histology
 - Research on cell morphology and basic cell biology
3. Industrial and Material inspection
4. Documentation & Analysis





Model :

BLRM3-TS-D



Configuration	Upright
Optical system	Infinity corrected
Observation method	Brightfield
Observation head	Trinocular with digital display (fixed -50/50), 30o, 55-75mm IP adjustment
Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual, RMS threads
Microscope Objectives	1. Plan Achromatic 4X/0.10, WD – 21mm 2. Plan Achromatic 10X/0.25, WD – 5mm 3. Plan Achromatic 40X/0.65, WD – 0.66mm 4. Plan Achromatic 100X/1.25 Oil, WD – 0.36mm
Sample stage	Double layer mechanical stage
Travel	78mm x54mm, drop down knob
Focusing	Coaxial coarse and fine focusing mechanism
Condenser	Abbe NA 1.25, Manual IRIS diaphragm
Illumination	3W white LED, transmitted, adjustable Intensity
Power Input	230V, 50Hz
Camera	1/2.5" Color CMOS, 5MP, USB2.0, C-mount. 2.2umx2.2um pixel size
Display	7" touchscreenX
Built-in PC	Raspberry Pi5, 8GB RAM, 128GB SSD
Connectivity	Wi-Fi, USB port
Software	Micro Analyser (Live/Capture image, measurements, reports)
Power Input	230V, 50Hz

Trinocular Microscope- Fiber Coupled Detection

(Brightfield, Transmitted & Epi-scope Illumination, Fiber port)

Model No. BLRM-LWD-F

The BLRM-TS-LWD-F is an upright long-working-distance brightfield microscope designed for combined microscopic imaging and spectroscopic analysis. Equipped with a dedicated fiber-coupled detection port, the system enables seamless integration with external spectrometers for spectral characterization alongside visual observation. (spectrometer needs to be ordered separately)

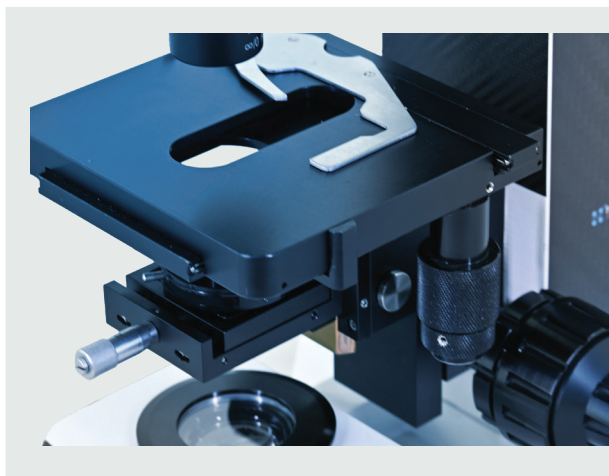
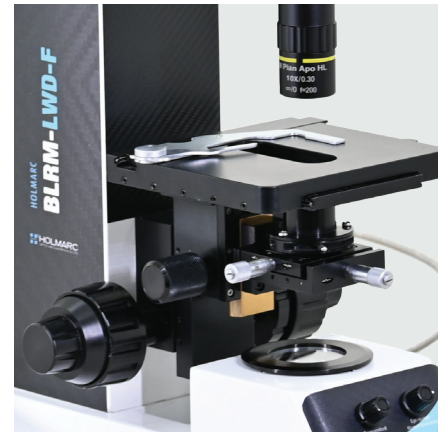
Supporting both transmitted and reflected light imaging, the microscope is well suited for biological specimens as well as semi-transparent and opaque samples. The system is offered in a trinocular configuration with a 5 MP CMOS camera and integrated image analysis software providing real-time measurement and documentation tools.

Built on a rigid, high-stability opto-mechanical platform, the BLRM-TS-LWD-F ensures reliable performance in routine laboratory and research environments. The microscope body is fabricated from corrosion-resistant materials for long service life with minimal maintenance. Its compact, well-balanced design and precision-engineered mechanical assemblies ensure smooth operation and consistent focusing accuracy during prolonged use.

The binocular viewing head is inclined at 30° and features dioptre adjustment on both eyepieces for user comfort. A smooth, ball-bearing-mounted quadruple nosepiece allows quick and precise objective changes. The mechanical XY stage, operated via a co-axial drop-down control knob, enables accurate and repeatable specimen positioning.

A dedicated SMA905 fiber-coupled detection port allows efficient coupling of microscope output to an external spectrometer for spectral measurements. The fiber attachment includes a manual light-selection mechanism, enabling either: 50:50 split between camera and fiber or 100% light to fiber.

The microscope is equipped with high-intensity Köhler LED transmitted illumination and infinity-corrected plan achromatic objectives, delivering high contrast, brightness, and image clarity. An LED epi-illumination module, precisely aligned for uniform reflected-light illumination, enables clear visualization of surface features and fine structural details in challenging samples.



Model :**BLRM-LWD-F**

Configuration	Upright
Optical system	Infinity corrected
Observation method	Brightfield (transmitted and reflected)
Observation head	Trinocular, 30°, 55-75mm IP adjustment
Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual, M26 threads
Microscope Objectives	1. LWD Plan Apochromatic 10X/0.30 , WD – 34mm
Sample stage	Double layer mechanical stage, Travel – 78mm x54mm, drop down knob
Focusing	Coaxial coarse and fine focusing mechanism
Condenser	Abbe NA 1.25, Manual IRIS diaphragm
Illuminations	1. 3W white LED, transmitted, adjustable Intensity 2. 3W white LED, epi-scopic, adjustable Intensity
Fiber attachment	
Selection provision	50:50 or 100:0 towards fiber
Fiber Connector	SMA
Fiber	NA = 0.22, Core diameter = 1000um, length = 2meter (spectrometer is not in the scope of supply. Need to order it separately)
Camera	1/2.5" Color CMOS, 5MP, USB2.0, C-mount. 2.2umx2.2um pixel size
Software	Micro Analyser (Live/Capture image, measurements, reports)
Power Input	230V, 50Hz
Optional Accessories	1. LWD Plan Apochromatic 5X/0.15, WD – 44mm 2. LWD Plan Apochromatic 20X/0.35, WD – 29mm 3. LWD Plan Apochromatic 50X/0.45, WD – 17mm 4. Spectrometer, wavelength range = 400-1000nm, resolution = 1nm, type = Concave grating, Fiber connection= SMA905, Sensor = Linear CCD array

Applications

- Materials Science & Surface Analysis**

- Reflectance spectroscopy of thin films, coatings, and layered materials
- Microscopic inspection and spectral characterization of polymers, ceramics, and composites
- Surface defect analysis with spectral signature identification
- Characterization of semi-transparent and opaque materials



- Chemical & Pharmaceutical Analysis**

- Identification and verification of micro-scale chemical compounds
- Spectral analysis of pharmaceutical formulations and coatings
- Quality control inspection of tablets, powders, and micro-structured samples

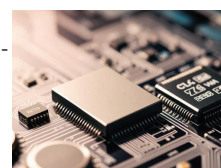


- Optical & Photonic Research**

- Spectral response measurement of micro-optical components
- Characterization of filters, coatings, and photonic materials
- Wavelength-dependent reflectance and transmission studies at microscopic regions

- Semiconductor & Microelectronics**

- Inspection and spectral analysis of wafers, micro-patterns, and thin-film structures
- Reflectance-based material contrast studies
- Failure analysis and contamination inspection



- Education & Research Laboratories**

- Demonstration of microscopy-spectroscopy integration
- Teaching spectral analysis at the micro-scale
- Research projects involving combined imaging and optical characterization

Trinocular Microscope- 940nm Illumination

(Brightfield, Transmitted & Epi-scopeic Illumination, Fiber output port)

Model No. BLRM3-DL940

The BLRM3-DL940 is an upright brightfield microscope with integrated 940 nm LED bottom illumination, developed for applications in semiconductor and microelectronics inspection, materials science, and agricultural research. The system supports the observation of transparent, semi-transparent, and opaque samples using both transmitted and reflected light modes.

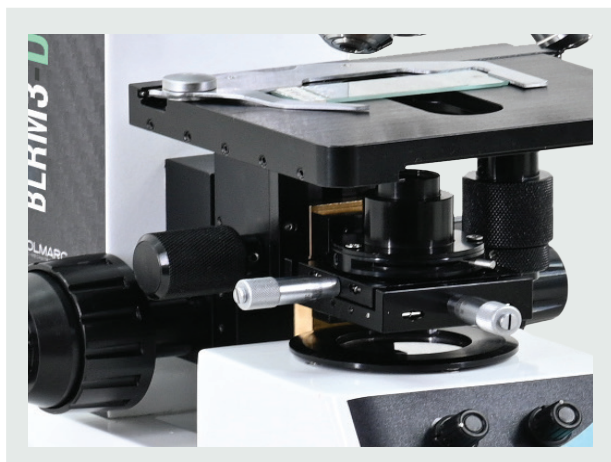
The microscope is available in a trinocular configuration with a 5 MP CMOS camera and integrated image acquisition and analysis software for real-time visualization, measurement, and documentation.

The binocular viewing head is inclined at 30° and features dioptre adjustment on both eyepieces for comfortable extended use. A smooth, ball-bearing-mounted quadruple nosepiece enables effortless and precise objective changes. The mechanical XY sample stage, operated via a co-axial drop-down control knob, provides accurate and repeatable specimen positioning.

The microscope is equipped with high-intensity white LED transmitted illumination and infinity-corrected plan achromatic objectives, delivering excellent image quality, contrast, and brightness for routine brightfield observations. In addition to white LED illumination, a 940 nm LED transmitted illumination is provided for near-infrared brightfield imaging of specific samples such as silicon-based and thick or scattering materials. A manual selection knob allows easy switching between white LED and 940 nm LED illumination.

A white LED epi-scopeic illumination module is included for uniform reflected-light illumination, enabling clear visualization of surface features and fine structural details in opaque samples.

The user-friendly software supports the complete imaging workflow, including live viewing, on-screen measurement, image capture, and annotation. Users can generate comprehensive PDF reports with embedded images and measurement data, ensuring efficient documentation for research, inspection, and quality-control applications.



Model **BLRM3-DL940**

Configuration	Upright
Optical system	Infinity corrected
Observation methods	Brightfield (transmitted and reflected), 940nm Brightfield(transmitted)
Observation head	Trinocular (fixed -50/50), 30o, 55-75mm IP adjustment
Eyepieces	WF10X, FN20, dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual, RMS threads
Microscope Objectives	1. Plan Achromatic 10X /0.25, WD – 20.2mm
	2. Plan Achromatic 20X /0.40, WD – 8.8mm
	3. Plan Achromatic 40X /0.60, WD – 3.98mm
	4. Plan Achromatic 100X /0.85 dry, WD – 0.40mm
Sample stage	Double layer mechanical stage, Travel – 78mm x54mm, drop down knob
Focusing	Coaxial coarse and fine focusing mechanism
Condenser	Abbe NA 1.25, Manual IRIS diaphragm
Illuminations	1. 940nm LED, transmitted, adjustable Intensity
	2. 3W white LED, transmitted, adjustable Intensity
	3. 3W white LED, epi-scopic, adjustable Intensity
Camera	1/2.5" Color CMOS , 5MP, USB2.0, C-mount. 2.2umx2.2um pixel size
Software	Micro Analyser (Live/Capture image, measurements, reports)
Power Input	230V, 50Hz

Applications**1. Semiconductor & Microelectronics**

- Backside inspection of silicon wafers using near-infrared (940 nm) transmitted illumination
- Detection of subsurface defects such as cracks, voids, inclusions, and dislocations
- Inspection of bonded wafers, stacked dies, and MEMS structures
- Failure analysis and process monitoring in microfabrication workflows

2. Materials Science

- Transmission imaging of polymers, plastics, and organic materials with improved penetration at 940 nm
- Inspection of thin films, coatings, and layered materials
- Detection of internal defects and thickness non-uniformities
- Surface inspection of opaque materials using white-light epi-illumination

3. Agriculture & Seed Science

- Non-destructive inspection of seeds and grains using near-infrared transmission
- Assessment of seed viability, maturity, and internal structure
- Detection of internal damage, cracks, or insect infestation
- Moisture-related contrast studies in agricultural samples

4. Electronics & Photonics

- Inspection of NIR optical components, filters, and substrates
- Evaluation of wavelength-dependent transmission

characteristics

- Alignment and inspection of components designed for near-infrared operation

5. Education & Research**6. Biological & Life Science Applications**

- Imaging of thick or highly scattering biological samples where visible light penetration is limited
- Observation of unstained or weakly absorbing specimens with reduced phototoxicity
- Near-infrared transmission studies of plant tissues, seeds, and roots



Designed @ HOLMARC Design LAB
Cochin, May 2025



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