

Specification of High-Resolution Microscope with Digital Imaging and Analysis

System in DST SERB project

1. **Microscope Body:** Inverted trinocular microscope with side camera port & Infinity corrected optical system with light distribution between eye piece and camera of 100:0 and vice a versa (suitable for BF, PH, FL IMC, Hoffman, DIC/inversion contrast, emboss etc. flexible/retroverted ensuring large space, transmitted/epi-fluorescent control knobs located on right side of body easy to operate).
2. **Body:** Rugged, ergonomic design, touch point treated, acid resistant texture painted, intensity controller & on/ off switch in front, rubber feet.
3. **Observation technique:** The inverted microscope should be capable for Bright field and Phase contrast observations upgradable to Hoffman (Slot to be available).
4. **Optical System:** Anti-fungal, antibacterial coated (multi layered hard coating), Color corrected, universal infinity corrected, colour coded objectives, parcentered.
5. **Stage :** Rectangular, fixed size 170(X)x250(Y)mm, attachable mechanical stage :130(X)x84(Y)mm, accepts different types of micro-test plate, glass slide holder & culture flask holder, clear acrylic/glass circular insert, universal holder for holding all types of plates.
6. **Eyepiece:** 10X with FOV 22mm and diopter adjustment facilities on both eyes and should be anti-fungus type, Paired, high eye-point WF 10X,FOV-22mm, multi-layered coated, high quality, good contrast abrasion free, aplanatic, centered, dioptre adjustment on both eyepiece(± 5 mm).
7. **Condenser:** Extra-long working condenser (NA 0.3, W.D. 80 mm) suitable for bright field and phase contrast up to 100X magnification.
8. **Phase Slider:** Phase slider having one slot for 4X and single-phase slot for 10X/20X/40X, empty position for bright field.
9. **Nosepiece:** Quintuple nosepiece to accommodate minimum 5 objectives at a time.
10. **Epi-Fluorescence Attachment (With Blue and Green Filters).**
 - Filter Turret:** Four position Turret, with capacity to accommodate 3 Fluorescence Filter Block. Instant Switching Between BF & FL.
 - Diaphragm:** Aperture & Field Diaphragm.
 - Filters:** Slots for ND Filters. Blue and Green Filters.
11. distributed (Fly eye lens or similar technology) scientific Grade 5W LED, cool white light, with lifetime of minimum 50,000 hours, Eco illumination/ auto cutoff when no user is present.
12. **Objectives:** Long working distance objectives with specialized phase contrast, bright field and fluorescence features. The system should be provided with following objectives
 - a) Achromat 4x (N.A.0.10, W.D 30.0 mm), for Bright Field
 - b) Achromat 10x (N.A.0.25, W.D 7.0 mm), for Bright Field and Phase contrast
 - c) Achromat 20x (N.A.0.40, W.D 7.66 mm), for Bright Field and Phase contrast
 - d) Achromat 40x (N.A. 0.65, W.D 6.5mm), for Bright Field and Phase contrast
13. **Zoom Stereo Microscope**
 - Trinocular tube with an inclination of 45° for greater ease of observation.
 - Magnification 8x to 50x.
 - Microscope Zooming ratio 6.3: 1
 - Rack-Pinion focusing stroke 50 mm.
 - Wide field eyepiece 10x (Paired).
 - Zoom Range 0.8x to 5.0x

Crisp, erect images with high resolution and excellent stereoscopic effect.

Standard Working distance 115 mm.

Standard Field of view 28.6 - 4.4mm.

Interpupillary distance from 54 to 75 mm.

Dioptic adjustment with a range of + 5 diopters is possible with both Oculars.

Binocular body can be rotated a full 360° and locked in any position desired.

Once brought in focus, image remains clear and sharp throughout the whole zoom range.

Dual LED Illumination system.

Packed in cardboard box with operation manual, vinyl cover etc.

14. Comprehensive Warranty (on-site): Minimum 1 years should be provided.

15. Certification: European CE, ISO 13485, TUV

16. Calibration Certificate from ISO 17025 Accredited Laboratory

17. 6 MP or more Digital Color CMOS Camera with Measurement Software and Calibration Slide 1/100mm

CMOS sensor

Resolution: 10.0MP (Color)

Sensor Model: MN34120 (C)

Sensor Size: ½.

Spectral Range: 380nm- 650nm (with infrared filter)

Shutter: Electronic Rolling Shutter

Scanning Mode: Progressive Scan

Exposure Control: Manual /Auto/Area

White Balance: One Push ROI White Balance /Manual Temperature-Tint Adjustment/NA for Monochrome Sensor.

Image Processing: GAMMA/Contrast /Sharpness / Saturation.

Picture Format: JPEG/BMP/PNG/TIFF

Optical interface: C-mount

Data Interface: USB 3.0

Power: 110 to 220V

18. Measurement Software: -

Image Capture, Time Lapse Imaging, Video Capture, Features:

* Multi-fluorescence mode

* Exposure control

* 2D Measurement capabilities

* Multi-Camera operation

* Image annotation

* Programmable resolution

* Individual user profiles

* Time-lapse

* Multi-focus (Z-stacking)

Measurements: Line, Rectangle, 2&3point Circle, polygon, Angle, point, Distance b/w two parallel lines, Dee Hand line area/Ellipses, 3point, Center to center distance, Measurement on live & Captured Images, Text Stamping, Annotations.

Tools: Exposure control(A/M), White balance (A/M), Counting, Annotations, Cross, & Angle dividing rulers on live & captured images Reference scale, time lapse imaging, Video Capturing, Edge detection, Image stitching, Z-stacking, Calibration , Reports in MS Word & MS Excel. Image Process & Enhancement, Image format (JPEG/BMP/RAW/PNG), Dead pixel Correction, ETC.

19. Image Capturing and Analysis support System with Environmental Control

All in One Computer system type with latest 8th Generation Intel i5 Processor 6M Cache, 3.90 Ghz
With Preinstalled operating system (Window 10)

Licensed Office Home 2019, student 2019 and Antivirus for 3 years

Integrated Dedicated Graphics

RAM Memory 8GB DDR4

Storage 1 TB with 256 SSD

Display 23.8" Inch Non-Touch

Air Conditioning Facility

