



**PR No. 1000031117 (Rfx No. 6100001330)**

**Detailed Technical Specifications for Phase Contrast Microscope**

***INVERTED RESEARCH FLUORESCENCE MICROSCOPE WITH PHOTOGRAPHY & IMAGE ANALYSIS SOFTWARE ATTACHMENT:***

Microscope stand with quadruple revolving nosepiece with LED transmitted light true Koehler illumination for bright field and phase contrast microscopy. Optical system must be infinity corrected for maximum S/N ratio and best optical performance from UV to near-infrared.

System should have provision of photography attachment along with analysis software.

- Observation Tube** : Fixed Trinocular observation tube with Interpupillary distance adjustment (F.N.22). It should have a trinocular port to attach camera. The eyepiece tube should have two eyepoints high and low for different height users.
- Mechanical Stage** : Mechanical Stage with flexible right hand low drive control along with glass slide holder and plate holder. Stage movement should have X=110mm, Y=74mm.
- Light Source** : LED Illuminator with life time of more than 20000 Hours.
- Condenser** : Long Working Distance Condenser with BF/Ph, N.A. 0.3 and W.D. 72 mm or better, and free working distance of more than 185mm for cell factories, Phase slider for phase contrast application with single position for 4X-40X and one position for 2X Objective
- Objectives** : Bright field Plan Semi Apochromat Phase Objectives 4x (NA. 0.13), 10x (N.A. 0.3), 20X N.A 0.45 and 40X NA 0.6.
- Eyepieces** : Wide-field paired eyepieces 10X (F. N. 22) or better.

**1. FLUORESCENCE ILLUMINATOR:**

*Reflected light fluorescence illuminator equipped with field stop, minimum 3-position fluorescence slider with Blue excitation filter set, Green excitation filter set and UV filter set for FITC, TRITC and DAPI fluorescence Dyes respectively.*

Fluorescence Light Source: Lamp House for 100W Mercury burner with power supply for Fluorescence application or better. A separate attachment to blocks out room light / stray light to enhance the contrast of fluorescence, and enable clear fluorescence observation even under bright conditions.

## **2. PHOTOGRAPHY ATTACHMENT & IMAGE ANALYSIS SOFTWARE:**

### **PHOTOGRAPHY ATTACHMENT:**

8MP color digital camera for microscope, 1 inch color CMOS, 4K resolution at 30FPS, Pixel Size more than 3.4 micron,

**IMAGE ANALYSIS SOFTWARE:** Should act as an interface between the digital camera and the computer system. It should have the following features

- Acquisition & device control
- Filters for Image enhancement
- Background & dark field correction
- Time lapse acquisition
- Manual object counting
- Region & Line measurements
- Auto calibrate for micrometer
- Image annotation
- Filters for image enhancement
- Report & share
- Multiple undo/redo options
- Time Lapse imaging
- Multi-channel imaging with merging and extraction of fluorescence channels
- Pseudo color.
- Gamma Correction
- Dye list for most commonly usable dyes.
- Live Histogram
- Filters for image enhancements
- Measurements for line, line profile, measurements on live images, auto calibrate, interactive measurements data tables, classify line and tag measurements.
- Documentation and collaboration.
- Region and line measurements
- Multiple Image Stitching
- Fully compatible for Bright field, Phase Contrast as well as immunofluorescence imaging and analysis
- Overlay multiple images, document groups for side by side image comparison.
- Touch count/Object Count Facility to count objects, make several classes and name them and export to excel files or workbooks.
- FI. Channel Merging and extraction
- Multiple Image Stitching,
- Geometry/combine/filter processing
- Manual Z axis imaging
- Manual Multiple image alignment, based on live image,

**3. System should come minimum warranty period of 3 years.**

#### **4. Computer Workstation:**

Branded computer compatible to existing microscope to be provided