Technical specification for proposed

Advanced upright fluorescence microscope

Sr. No.	Specification
1.	**Microscope frame:** • Motorized advanced fluorescence microscope for BF and Fluorescence imaging capabilities upgradable to DIC in future on site. System should be well equipped to study Bio aerosols and microorganisms. • Fully automated transmitted light axis with perfectly integrated LED illumination for a constant colour temperature. The integrated Illumination Manager automatically sets the optimal settings for best image quality as well as for fast and reproducible results. • Motorized frame and motorized fine/coarse focus with minimum 4 nm z-step size or better. • Minimum light distribution: 100% camera port, 100% eye port having 19 mm or better Camera path Field of view • Water-proof and static-proof microscope cover • All the motorised function of the microscope including compensation device should be controlled by integrated touch panel & software control
2.	**Eye Piece Unit:** • Eye piece tube with base unit • Focusable 10X eye piece with eye guard having minimum 25 mm field of view
3.	**Motorized Stage:** • Ceramic coated Mechanical XY stage with 110^{o} rotation with minimum travel range of 76 x 50 mm or more and 2 slide holder
4.	**Transmitted Light Illumination System:** • Pre-centred ultra-bright LED white light for BF proving constant color temperature at all intensity levels with minimum 20,000 hours life or more • Fully automated transmitted light axis
5.	**Nosepiece:** • Motorized 7 position objective turret
6.	**Condenser:** • Motorized Condenser with motorized top lens and automatic Kohler Illumination with automated contrast method change capability
7.	**Objectives for Fluorescence and DIC Applications:** • 5X Semi Apochromatic objective with N.A. 0.15 or above • 10X Semi Apochromatic objective with N.A. 0.30 or above • 20X Semi Apochromatic objective with N.A. 0.55 or above, • 40X Semi Apochromatic objective with correction collar N.A. 0.60 or above • 100X Semi Apochromatic objective with N.A. 0.90 or above
8.	**Filter Turret Assembly:** • Motorized Epi Filter Turret with fast, smooth switching with **8 positions** and built-in shutter • Should have in integrated disc-based **Fluorescence Intensity Manager** with 6 or more intensity positions.

9.	**Fluorescence Light Source:** • 120W metal halide lamp • Minimum working life 2000 hrs. • Controllable intensity adjustment • Liquid light guide/fiber guide with adaptor
10.	**Fluorescence Filters:** • Zero Pixel shift filter cube sets for perfect image alignment • 1) UV Excitation, 2) UV + Violet Excitation, 3) Blue excitation, 4) Green excitation
11.	**Camera:** • sCMOS monochrome camera • Quantum efficiency: minimum 80% • Effective number of pixels: 2048 (H) x 2048 (V) • Pixel size: 6.5 micron • Sensor size: 13.3mm x 13.3mm • Frame rate: 40 fps or above at full resolution • Spectral range: 370 nm … 1100 nm • Digital output: 16 bit support with binning provision • Lens mount: C mount
12.	**Image Analysis Software:** • Standard Research imaging software for fully automated acquisition, device control and experimental manager • Full four-dimensional image acquisition (XYZ, Time) including Software autofocus; multi-channel acquisition, Combination mode if upgraded to DIC in future • interactive measurement to generate measurement parameters, 3D visualization creating brilliant 3D image which we can zoom, rotate and move with mouse, create movie with defined motions and preview, • Intensity measurement over time and over depth, background subtraction, Z-projection over time and Z, intensity measurement, parallax correction • Advanced modules to perform complicated workflow of different permutations and combinations through Journals, Experimental manager or through jobs or equivalent modules
13.	**System Integration:** All the components including microscope, camera and software should be from the same manufacturer for better integration and seamless execution.
14.	**Computer System:** • Windows 10 64-bit • Intel i7 Processor 10th generation • 16GB or more RAM • 2X 1TB HDD • 4GB Graphics Card • 32” or higher LED Monitor
15.	**Optional:** Semi Apochromatic 100x Oil objective with 1.32 NA or better
16.	**Warranty Period:** 5 Yrs
17.	**Training & Installation:** To be provided by supplier**.**