University of Calcutta

SPECIFICATION OF TRINOCULAR RESEARCH MICROSCOPE WITH DRAWING TUBE AND USB CAMERA ATTACHMENT.

DEWINTER-'FLUOREX' TRANSMITTED LIGHT TRINOCULAR RESEARCH MICROSCOPE
WITH DRAWING ATTACHMENT AND USB CAMERA ATTACHMENT FOR DIRECT CONNECTIVITY TO YOUR EXISTING CPU UPGRADABLE TO FLUORESCENCE MICROSCOPY (INCIDENT LIGHT-OPTIONAL).

MECHANICAL BODY:

a) Co-axial focussing system provided with rubber feets for excellent grip. Pre-focussing lever and tension adjustment rings are available on right and left side respectively.

b) The Mechanical stage is 135mm x 142mm and has co-axial low positioned controls.

c) The Built in base illumination system incorporates 6V-30W halogen tungsten bulb, SMPS and intensity control knob. The system is based on Koehler's Principle.

TRINOCUALR SIDENTOPF HEAD;

Trinocular inclined at 30^0 and 360^0 rotatable. Diopter adjustment ring on Ocular tube.
The light path selector lever directs either 100% to Binocular or 80% to the vertical photo tube & 20% to Binocular Head.

SUB STAGE CONDENSER :
Achromatic condenser N.A. 1.3.

EYEPIECES :

1. WF-10X (Paired) FOV 18mm.

MAGNIFICATION :

40X – 1000X.

REVOLVING NOSEPIECE : Reverse angle quadruple nosepiece revolves on ball bearing with positive indexing. Soft rubber knurled grip on nosepiece.

OBJECTIVES ;

Plan Achromat 4x /0.10 , Plan Achromat 10x/0.25, Plan Achromat 40x/0.65 (SL) and Plan Achromat 100x /1.25 (SL) oil immersion.

FILTER:

Glass filter Green, Blue
LIGHT SOURCE:

1. Transmitted 6V-30W Tungsten Halogen Bulb.

Illuminated DRAWING ATTACHMENT FOR Site Viewing

STANDARD ACCESSORIES:

6V-30W Halogen Bulb.	: 1 No.
Fuse Tube	: 3 Nos.
Power Cord	: 1 No.
Instruction Manual	: 1 No.
Dust Cover	: 1 No.

Fluor Objective (PLAN) : High grade FLUOR Plan objectives designed for Fluorescence microscopy PLF-10X, PLF-25X, PLF-40X & PLF-100X Oil Immersion.

DIGIEYE 330 CMOS BASED USB CAMERA FOR DIRECT CONNECTI-VITY TO COMPUTER WITH REQUIRED REDUCING LENS (ADAPTER).

SPECIFICATION:

- Resolution : 1280 x 1024 (SXGA)
- Colour Format : Colour
- Colour : Bayer Pattern
- Chip Size : ½ inch CMOS
- Windowing : Yes
- Shutter : Rolling
- Scanning system : Progressive Scan
- Sync System : Internal Pixel
- Frames per Secons : 18
- Hardware Gain : RGB, 0-16B each
- Lens Mount : C-mount
- IR cut filter : Yes.
- Power Supply : Via USB.
- Regulations : CE, FCC Class B

BIOWIZARD 'DEWINTER' BIOLOGICAL NEW GENERATION IMAGE ANALYSIS SOFTWARE FOR SCIENTIFICA ANALYSIS IN THE SIMPLEST WAY.

SPECIFICATIONS OF BIOWIZARD

IMAGE EDITING
Cut, Copy and Paste, Selected copy by free hand AOL controlled by Four arrow keys available on keyboard or mouse with zoom preview. Crop, duplicate, restore, Resize, Compression, Conversion to other Format BMP, JPG, TIF, PNG, GIF & PSD, Flood fill or spray with Selected colour at selected portion, Grid creation; 5x5, 10x10 & 100 x 100 lines. Drawing tool curve, line, square, and circle with node control and provision to change colour & thickness of the line. Write text in any colour or font.
Pointer to place on an object in four directions with provision to Change its colour & thickness. Eraser works only on line, arrow or

On any drawing tool. (not on original image). Camera Lucida, Montage feature to merge stored image together. Useful to Merge Different focuses of same image. Image stitching, Highlighter, pixel By pixel Correction by key board, Multiple image folder with Search Facility, Filter application on selected area.

VIEW

Zoom in/out, Zoomed preview, Rotation at $90^{0,}$ 180^{0}, 270^{0}, or custom Image flipping; horizontal or vertical axis, Intensity histogram, Image Information, Redo/Undo on all operations, Ruler in Various units, Slide show.

IMAGE PROCESSING

Background subtraction and contrast enhancement of colour or Monochrome images, Arithmetic image functions (Boolean Math; Add, AND, OR, XOR, DIFF, MIN, MAX, + , - , / , x , And Simple)

ROUTINE FILTERS

Invert, Brightness, Contrast, Hue, Saturation, Blur, Noise, Remove, Emboss, Engrave, Gamma R, Gamma G, Gamma B, Yellow, Magenta, Cyan, Mosaic, Smooth, Desaturation, Pseudo Colour, Colourize, Oilify, Despeckle, Postarize,

SPECIAL FILTERS & KARNELS

High Boost, High Spatial, Low Pass Spatial, Ranking (Max, Med, Min) Point detection, Line detection, Homogeneity.

EDGE DETECTION
Laplacing, Sobel, Kirsch, Prewitt Gradient, Shift & Difference, Combine Contrast Base, Quick, Range and Variance.

MORPHOMETERY

Skeletonizing, Pruning, SKIZ, Histograme Equalization, Hitogram Smoothing, Histogram Peak, Histogram Valley, Segmentation by Over Under and Quantized, Contouring, Dilation / Erosion on Binary, Gray & coloured images, Opening / Closing on Gray & Binary Images. Special Opening / Closing, Split / Combine of RGB, YUV, YIQ, XYZ & HSL, Changing any images to 1, 4 8 & 24 Bits, Medial Axis. Transformation, Hofttone, Image Addition, Image Average, Image Subtraction, Image Multiplecation.

MEASUREMENT

a) Spartial calibration.
b) Line measurements for Distance, Length, Width, Perimeter, Angle, Three point Radius.
c) Area by enclosed line controlled by four arrow keys available on Keyborard arrows with zoomed preview.

COUNT AND CLASSIFICATION

Identification of objects in an image, count them, obtain several Features measurements. Objects identification by user or auto-Matically. User defined classification on basis of size or intensity. Manual, Auto bright and Auto dark methods to identify intensity range Defined object to be measured. Various calculation & measurements Available for selected Particle are: Dimensions, Area, Perimeter, Ferrite Length, Min / Max Radius, Thread Length, Thread width, Fibre

Length, Fibre width.

MORPHOMETERY

Roundness, Shape, Orientation, elongation, Equal Circular Diameter, Equal Sphere Volume.

LOCATIONAL

Centroid X, Centroid Y, Major X1, Major Y1, Minor X1, Minor Y1, Major X2, Major Y, Minor Y2, Box X1, Box X2, Box Y, Box Y2 & Box Area.

SEGMENTATION

Measure area fraction & volume fraction, identify multiple Phases Within Microstructure. Also delineate phases from the histogram.

REPORT

a) Three options : Direct printout with original iamge processed Image processed Image & Tabular results.
b) Export to MS Office or Excel for further modification.

For : Prof. Goutam Kumar Saha
Professor of Zoology
Department of Zoology
University of Calcutta
35, Ballygunge Circular Road
Email ; gkszoo@gmail.com
Phone No : 09433182500