



SPECTROLAB

Spectrolab Science

Oxford House, 20 Oxford St Newbury, Berkshire. RG14 1JB UK.

sales@spectrolab.eu www.spectrolab.co.uk

Digital image analysis systems for Optical Microscopy

DCE-LX Series USB2.0 Digital CMOS Camera

9.1 DCE-LX (UCMOS) Basic Characteristics

- C-Mount camera has 25.4 mm or 1 inch diameter with 32 threads per inch;
- Scientific research grade camera with Aptina CMOS sensor;
- With hardware resolution among 0.35M to 14M;
- **Integrated zinc aluminum alloy housing;**
- **USB2.0 interface ensuring high speed data transmission;**
- Ultra-Fine™ color engine with perfect color reproduction capability;
- With advanced video & image processing application ToupView;
- Custom programmable with SDK provided;



9.2 DCE-LX (UCMOS) Datasheet

Model Name	Order Code	Sensor	Size(mm)	Pixel(μm)	FPS/Resolution	Binning	Exposure
DCE-LX1400	UCMOS14000KPA TP614000A	MT9F002(C)	1/2.3"(6.451x4.603)	1.4x1.4	1.8@4096x3288 10@2048x1644 27@1024x822	1x1, 2x2, 4x4	0.4ms~2000ms
DCE-LX1000	UCMOS100000KPA TP610000A	MT9J003(C)	1/2.3" (6.44x4.616)	1.67x1.67	1.9@3584x2748 8@1792x1374 27@896x684	1x1, 2x2, 4x4	0.4ms~2000ms
DCE-LX900	UCMOS09000KPB TP609000B	Special(C)	1/2.4"(5.825x4.369)	1.67x1.67	1.9@3488x2616 8@1744x1308 27@872x654	1x1, 2x2, 4x4	0.375ms~2000ms
DCE-LX800	UCMOS08000KPB TP608000B	Special(C)	1/2.5"(5.451x4.088)	1.67x1.67	1.9@3264x2448 8@1600x1200 27@800x600	1x1, 2x2, 4x4	0.427ms~2000ms
DCE-LX500	UCMOS05100KPA TP605100A	MT9P001(C)	1/2.5" (5.7x4.28)	2.2x2.2	5@2592x1944 18@1280x960 60@640x480	1x1, 2x2, 4x4	0.209ms~2000ms
DCE-LX300	UCMOS03100KPA TP603100A	MT9T001(C)	1/2" (6.55x4.92)	3.2x3.2	8@2048x1536 22@1024x768 43@680x510	1x1, 2x2, 3x3	0.256ms~2000ms
DCE-LX200	UCMOS02000KPB TP602000B	Special(C)	1/2.6"(5.12x3.84)	3.2x3.2	16@1600x1200 50@800x600	1x1, 2x2	0.128ms~2000ms
DCE-LX130	UCMOS01300KPA TP601300A	MT9M111(C)	1/3" (4.60x3.7),	3.6x3.6	15@1280x1024 26@640x512 50@320x256	1x1, 2x2, 4x4	0.07ms~2000ms
DCE-LX35	UCMOS00350KPA TP600350A	MT9V011(C)	1/4" (3.58x2.69)	5.6x5.6	30@640x480 80@320x240	1x1, 2x2	0.11ms~192.46ms

C: Color; M: Monochrome;

Other Specification for UCMOS Camera

Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine™ Color Engine/NA for Monochromatic Sensor
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
Recording System	Still Picture and Movie
Cooling System*	Natural

Operating Environment

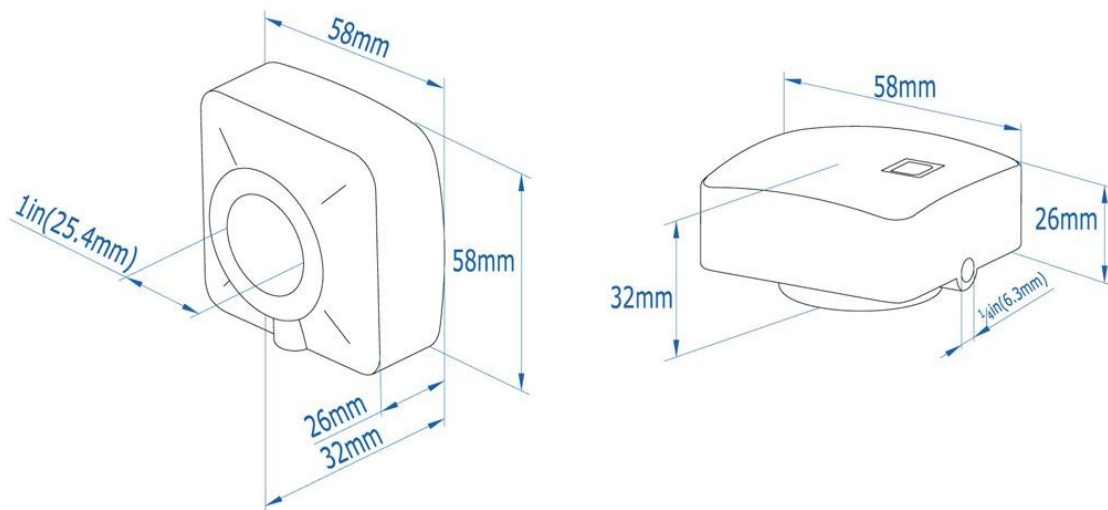
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port

Software Environment

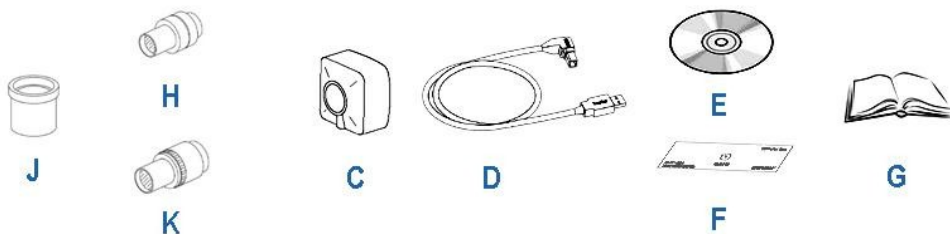
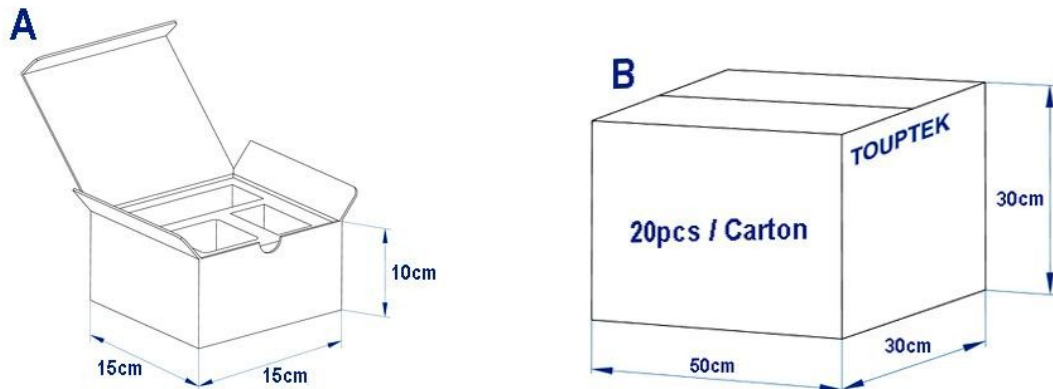
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory:2GB or More
	USB Port:USB2.0 High-speed Port
	Display:17" or Larger
	CD-ROM

Digital Camera Packaging Info.

Dimensions Info.



Packaging Info.



Standard Camera Packaging List

A: Gift box L:15cm W:15cm H:10cm (0.8~1.0Kg/ box)

B: Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton, 0.045m³)

C: Camera(C-Mount)

D: High-Speed USB2.0 A Male to B Male Gold-Plated Connectors cable /1.8m

E: CD (Driver & Utilities Software, Ø12cm)

G: Manual (For environmental protection, some models may use the PDF documents instead of printed papers)

Optional Accessories

F: Calibration kit: TS-M1(X=0.01mm/100Div.) ; TS-M2(X,Y=0.01mm/100Div.); TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

H: Fixed lens adaptor:FMA037(0.37X), FMA050(0.50X), FMA075(0.75X) for Dia.23.2mm eyepiece tube use



K: Adjustable lens adaptor:AMA037(0.37X), AMA050(0.50X), AMA075(0.75X) for Dia.23.2mm eyepiece tube use

J: Adaptor rings for stereo microscope : 108015(Dia.23.2mm to 30.0mm Ring), 108016(Dia.23.2mm to 30.5mm Ring)






Adaptor rings for telescope : 108017(Dia.23.2mm to 31.75mm Ring)

Digital Camera Components

Calibration Slide

Item	Article Code	Picture	Model	Description		Remark
N01	106011		TS-M1	Calibration Slide (Glass panel) X ruler 1mm/100 Div.x0.01mm Scale on Schott optical glass (B270)		
N02	106012		TS-M2	Calibration Slide(Glass panel) X&Y ruler 1mm/100 Div.x0.01mm Scale on Schott optical glass (B270)		

Cables & Software CD

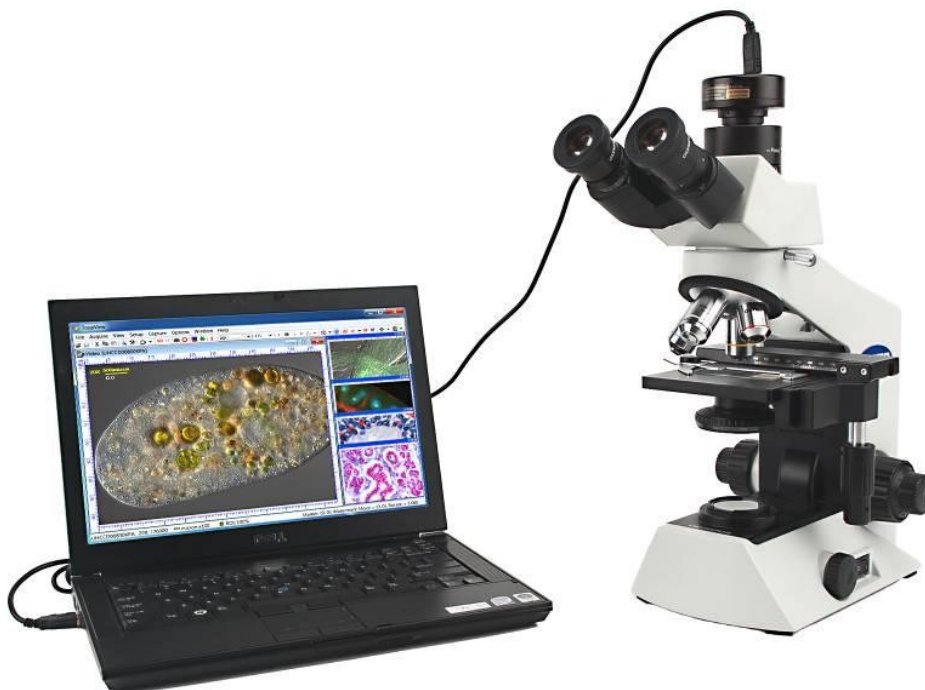
Item	Article Code	Picture	Model	Description		Remark
P01	107001			High-Speed USB 2.0 Cable A Male to B Male (90 Degree) Gold-Plated Connectors/1.8m		
P02	107002			High-Speed USB 2.0 Cable A Male to Mini B 5-pin Male Total length 1.5m		
P03	107003			High-Speed USB 2.0 Cable A Male to B Male Magnetic filter Connectors/2.0m		
P04	107005			High-Speed USB 3.0 Cable A Male to B Male Total length 1.5m		
P05	107006			High-Speed USB 3.0 Cable A Male to B Male Magnetic filter Connectors/1.8m		

USB Digital Camera Application

Camera Eyepiece with Biological Microscope



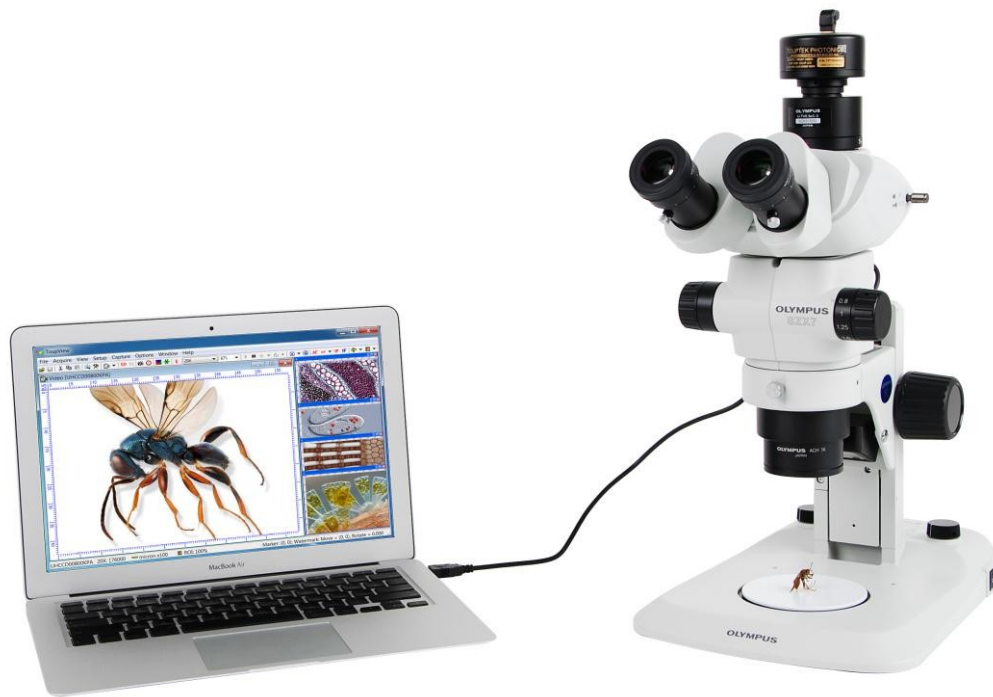
Olympus BX41



Cloned
Olympus CX21

USB Digital Camera Application

Camera Eyepiece with Biological Microscope



Olympus SZX7



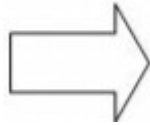
Basic Configuration of C-Mount Camera and Microscope

Trinocular Digital Microscope (1/2)

Attach the c-mount camera and adapter to the straight photo tube,

C-M mount

Camera adapter with
C-M mount thread

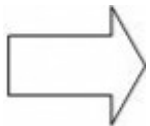
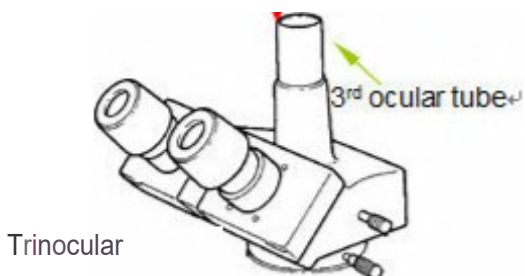


Trinocular Digital Microscope (2/2)

Attach the C-Mount camera and adapter to the 3rd ocular tube,

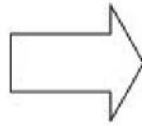
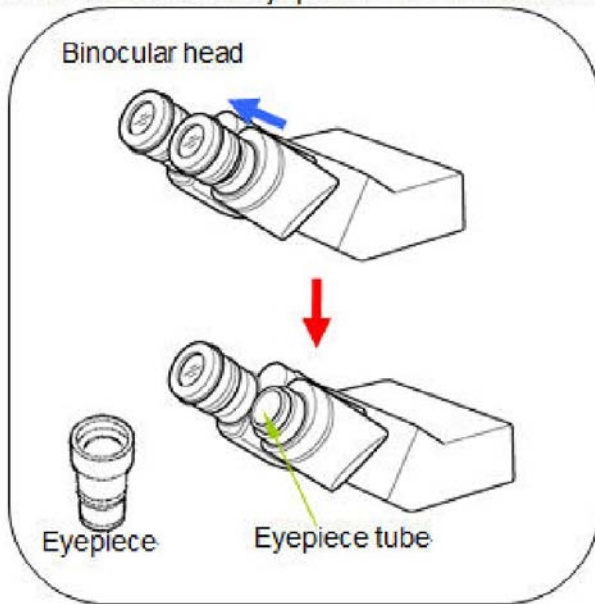
C-Mount camera

Tube adapter

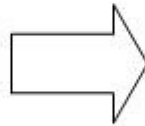
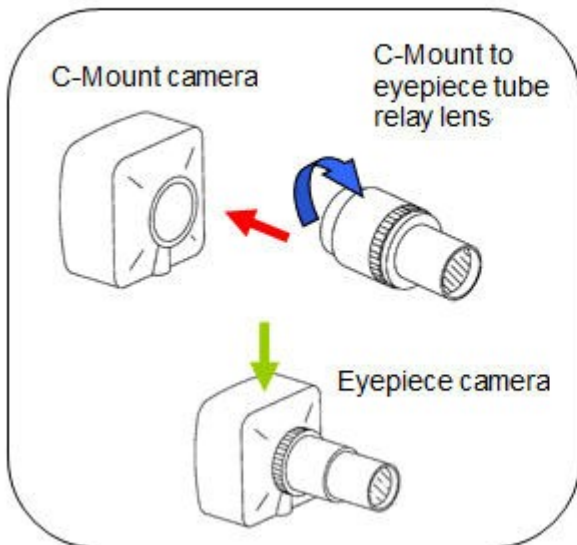


Binocular Digital Microscope

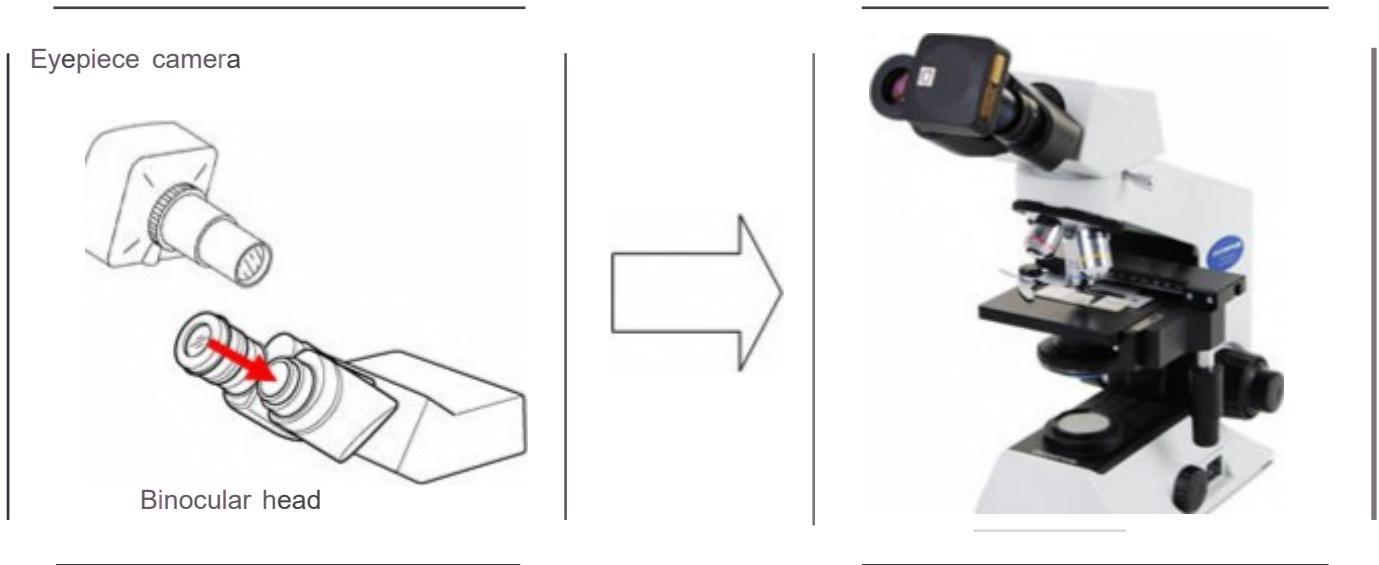
STEP 1: Remove the eyepiece from the ocular tube



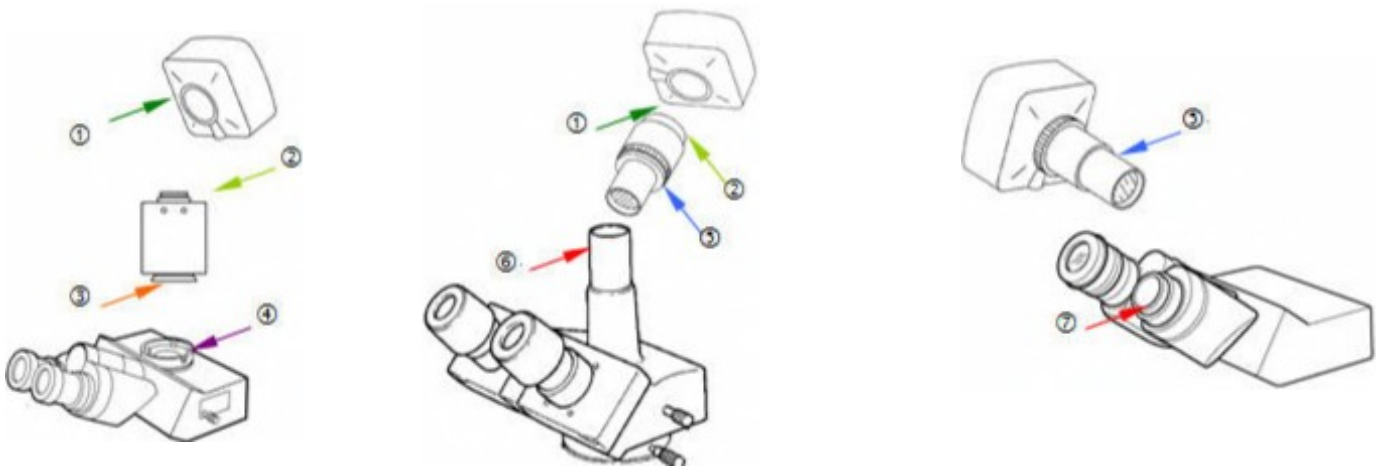
STEP 2: Attach (Screw) the camera adapter to the C-mount camera



STEP 3: Attach (Insert) the eyepiece camera into the ocular tube,



Size Description of the Connecting Parts



<D Standard C-Mount: Dia.1 inch (25.4mm) female thread

@ Standard C-Mount: Dia.1 inch (25.4mm) male thread

a> Camera adaptor connector: size varies between microscope brands

© Straight photo tube: size varies between microscope brands

<v Relay lens: standard eyepiece connector size, Dia.23.2mm (male}

@ 3rd ocular tube: standard eyepiece connector size, Dia.23.2mm (female}

(J) Ocular tube: standard eyepiece connector size, Dia.23.2mm (female)