

# 14 ZOPE Series Continuous Zoom Digital Microscope

## 14.1 Basic Characteristic of ZOPE

- The ZOPE stays in focus when magnification/focal length is changed;
- True continuous zoom that most of the handheld USB microscopes do not have;
- Digital microscope with USB2.0 to computer or HDMI interface to HDMI display;
- Compact and professional optical performance;
- With compact inner 8 high power LEDS for the reflective illumination and uniform LED transmission illumination with battery as the power;
- Long and fixed working distance up to 70mm for all zoom positions;
- CNC mechanical body ensure smooth zooming operation;
- Wide range of resolutions from 1.2M~5M;
- Ultra-Fine™ color engine with perfect color reproduction capability;
- With advanced video & image processing application ToupView;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.NET, DirectShow, Twain Control API;
- USB Power, no extra source required;



With transmission illumination



With EPI illumination On

## 14.2 ZOPE Series Digital Microscope Module List

The ZOPE series digital microscope is a combination of Zoom Lens and USB Camera. Customers can choose their interested parts and ToupTek engineers will install them into a ZOPE digital microscope.

Order Code	Zoom Lens	Camera Module
ZOPEA05100KPA ZPA605100A	ZL <b>A</b> 0.25X~1.6X (continues and parfocal)	X05100KPA(5M pixels CMOS camera)
ZOPEA01200KPA ZPA601200A	ZL <b>A</b> 0.25X~1.6X (continues and parfocal)	X01200KPA(1.2M pixels CMOS camera)
ZOPEB05100KPA ZPB605100A	ZL <b>B</b> 0.7X~5.6X(continues and parfocal)	X05100KPA(5M pixels CMOS camera)
ZOPEB01200KPA ZPB601200A	ZL <b>B</b> 0.7X~5.6X(continues and parfocal)	X01200KPA(1.2M pixels CMOS camera)

ZL**A**: **A** type zoom lens with 0.25X~1.6X magnification;

ZL**B**: **B** type zoom lens with 0.7X~5.6X magnification;

## 14.3 Zoom Lens for ZOPE Series Digital Microscope

Currently ToupTek has 2 kinds of zoom lens for option, they are ZLA and ZLB. Customer can choose the right one according to their applications.

Specification	Model	ZLA	ZLB
<b>Zoom Lens</b>		0.25X~1.6X (continues and parfocal)	0.7X~5.6X(continues and parfocal)
<b>Working Distance</b>		67.85mm(From lens to object surface)	31.73(from lens to object surface)
<b>MTF</b>		Diffraction limited	Diffraction limited
<b>Field</b>		Φ 28.8~4.5mm	Φ 10.85~1.36mm
<b>Reflection illumination(USB power supply)</b>		8 LEDs embedded illumination(adjustable)	8 LEDs embedded illumination(adjustable)
<b>Transmission Illumination (Battery power, Optional)</b>		Uniform illumination(3 levels switchable)	Uniform illumination(3 levels switchable)

## 14.4 Camera Modules for ZOPE Series Digital Microscope

Currently Touptek has 2 kinds of camera modules for the Zoom Lens, they are X05100KPA and X01200KPA. Touptek will continue to enrich the camera modules according to the requirements.

Order Code	Sensor & Size(mm)	Pixel(μm)	G Responsivity Dynamic range SNRmax	FPS/Resolution	Binning	Exposure(ms)
<b>X05100KPA</b>	5.1M/MT9P001(C) 1/2.5" (5.7x4.28)	2.2x2.2	0.53 V/lux-sec 66.5dB 40.5dB	5@2592x1944 18@1280x960 60@640x480	1x1, 2x2, 4x4	0.294ms~2000ms
<b>X01200KPA</b>	1.2M/AR0130(M) 1/3" (4.8x3.6)	3.75 x3.75	6.5v/lux-sec 85.3dB 44dB	28@1280x960 30@640x480	1x1, 2x2	0.4ms~2000ms

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 SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc)
Recording System	Still Picture and Movie
Cooling System*	Natural

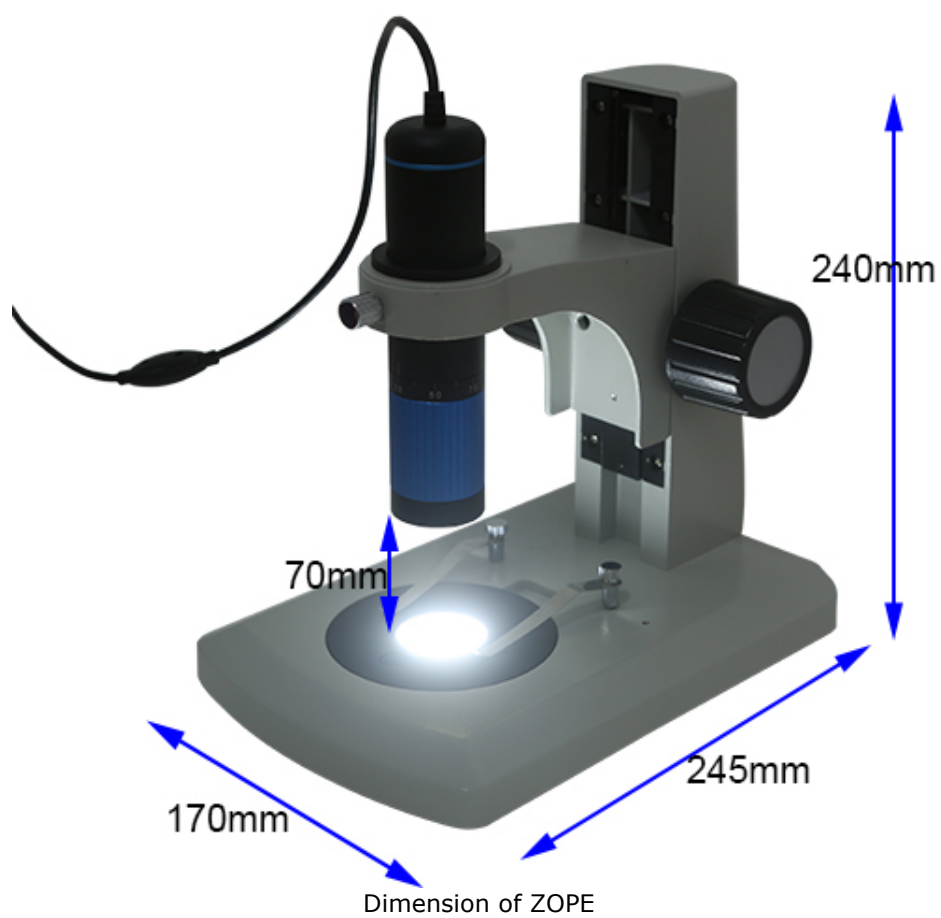
### Operating Environment

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 / 10 (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

## 14.5 Dimension of ZOPE



## 14.6 Packing Information for ZOPE Series Digital Microscope

### Standard Packing List

A	Carton L:51cm W:31.5cm H:18cm (1pcs, 2.8Kg/ carton, 0.029m <sup>3</sup> ), not shown in the photo
B	ZOPE series digital microscope
C	Solid stand
D	Hexwrench to install the stand
E	CD (Driver & utilities software, Ø12cm)

### Optional Accessory

F	Uniform transmissive illumination kit(3 Battery power supply, 3 levels switchable)
G	Calibration kit 106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)