

The ZM0480U Series All-in-one Zoom Monocular USB Digital Microscope



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1 The ZM0480U Series All-in-one Zoom Monocular USB Digital Microscope

1.1 The ZM0480U Series' Basic Characteristic



Figure 1 The main body of ZM0480U series

ZM0480U series all-in-one zoom monocular USB digital microscope is shown in Figure 1. It has 20x continuous zoom lens [TZM0480-W3100-TV3050](#), USB2.0 camera and LED ring light source [TZM0756DRL-NPC](#).

The [USB](#) camera module can directly complete the video and image acquisition with a computer, and the LED ring light source module is directly connected to the [USB](#) camera module through the main body of the optical continuous zoom lens with no need of the external power supply.

ZM0480U series meets the digital imaging observation, inspection and measurement in the fields of modern electronic equipment, semiconductor, laser, led, LCD, industrial on-line detection and biology.

The current models of ZM0480U series all-in-one zoom monocular USB digital microscope are shown in the table below:

Order Code	The Main Zoom body	Camera Module	Illumination Module
ZM0480U830A	TZM0480-W3100-TV3050	U830A	LED Direct Ring Light with NPC (TZM0756DRL-NPC)
ZM0480U510A	TZM0480-W3100-TV3050	U510A	LED Direct Ring Polarization Light with NPC (TZM0756DRPL-NPC) Coaxial Light Module with NPC (TZM0756CL-NPC)

NPC: No Power Connection

Standard Packing List	
A	Gift box: L:17.5cm W:17.5cm H:8.5cm (1pcs, 0.85kg/ box)
B	ZM0480U series main body
C	LED Direct Ring Light with No Power Connection (TZM0756DRL-NPC)
D	Micro USB data cable 1.5m
E	Power Adapter: Input: AC 100~240V 50Hz/60Hz, Output: DC 12V 1A American standard: Model: POWER-U-12V1A(MSA-C10001C12.0-12W-US); UL/CE/FCC European standard: Model: POWER-E-12V1A(MSA-C10001C12.0-12W-DE); UL/CE/FCC EMI standard: FCC Part 15 Subpart B EMS standard: EN61000-4-2,3,4,5,6
F	CD (Driver & utilities software, Ø12cm)
Optional Accessory	
G	The LED Direct Ring Polarization Light with No Power Connection (TZM0756DRPL-NPC)
H	Coaxial Light Module with No Power Connection (TZM0756CL-NPC)
I	The other Auxiliary Lens(Not shown)

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1.2 The ZM0480U Series' Main Zoom Body TZM0480-W3100-TV3050's Characteristics

Optical Parameters	
Zoom Lens	TZM0480-W3100-TV3050 zoom lens, 0.4X-8.0X zoom range
Working Distance	86mm-174mm (Determined by the auxiliary objective)
NA	0.01-0.12 (With W3100, 1x auxiliary objective)
Resolution	27.5um-2.3um (With W3100, 1x auxiliary objective)
Field	1.6mm-63.9mm
Optional Objective	0.50x, 0.75x, 1.00x (Optional)
Other Optional Objective	Infinite microscope objective (Both biological microscope objective and metallographic microscope objective can be used)
Dimensions	213mm x 52mm
Bracket Interface	Standard 50mm

1.3 The Optional Objective W3xxx for TZM0480-W3xxx-TV3050

Auxiliary Objective	Specification	TV Lens TV3050 for 1/2.8" Sensor	
		Low	High
W3100, 1.0X(86mm WD)	PMAG	0.20x-4.00x	
	FOV	31.95mm	1.60mm
	NA	0.010	0.112
W3050, 0.5X(174mm WD)	PMAG	0.10x-2.00x	
	FOV	63.90mm	3.20mm
	NA	0.005	0.056
W3075, 0.75X(115mm WD)	PMAG	0.15x-3.00x	
	FOV	42.60mm	2.13mm
	NA	0.008	0.084
Remarks	When using coaxial lighting, low magnification may produce vignetting. When using infinity objectives as Auxiliary Lens Module (adapter available), the PMAG、FOV and NA of the TZM0480 depends on the parameters of the objectives.		

WD: Working Distance;

PMAG: Primary Magnification;

FOV: Field of View in the object side;

NA: Numerical Aperture;

1.4 The ZM0480U Series' USB2.0 CMOS Camera Module U830A

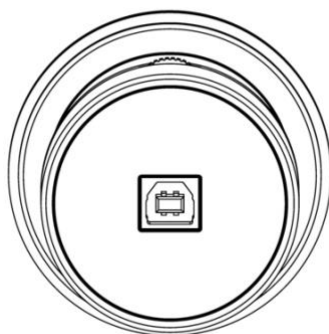


Figure 2 The top panel of ZM0480U series

Accessory Code	Sensor & Size(mm)	Pixel(um)	G Responsivity Dynamic range SNRmax	FPS/Resolution	Binning	Exposure
U830A (New)	8.3M/IMX415(C) 1/2.8" (5.57x3.13)	1.45x1.45	300mV 70dB 44dB	30@3840x2160 30@1920x1080 30@1280x720 30@960x540	1x1 1x1 1x1 1x1	0.1-2000 ms
U510A (New)	5.1M/IMX335(C) 1/2.8" (5.18x3.89)	2.0x2.0	505mV 70dB 43dB	26@2592x1944 26@1280x960 26@640x480	1x1 1x1 1x1	0.1-2000 ms

C: Color; M: Monochrome;

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Hardware Configurations	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	Auto/ROI/Manual White Balance (New Model), Auto (Products before 2020)
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
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
Lighting Module	
LED Ring Light	LED direct ring light with adjustable brightness(No power cable) (TZM0756DRL-NPC)
LED Ring Polarization Light	LED direct ring polarization light with adjustable brightness(No power cable), (TZM0756DRPL-NPC)
Coaxial Light Module	LED Coaxial Light Module with adjustable brightness(No power cable), (TZM0756CL_NPC)
Power Supply	Integrated power supply, no power cable winding trouble, sample observation more freely
Installation Method	Express second-level suction type installation, convenient and simple
Brightness Control	Through the 3-way multi-function adjusting wheel or software GUI, both the hardware and software can adjust the light intensity synchronously with no hassle

2 Connection of ZM0480U Series to Computer

Apart from the ZM0480U series, you only need an USB2.0 cable.



Figure 3 ZM0480U series connected to computer

3 ZM0480U Series' Packing Information



Figure 4 ZM0480U Series' Packing Information

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Figure 5 LED Direct Ring Light ZM0756DRL-NPC



Figure 6 LED Direct Ring Polarization Light ZM0756DRPL-NPC



Figure 7 LED Coaxial Light ZM0756CL-NPC

4 Sample Photos Captured with ZM0480U Series



Figure 8 Coin captured with ZM0480U510A

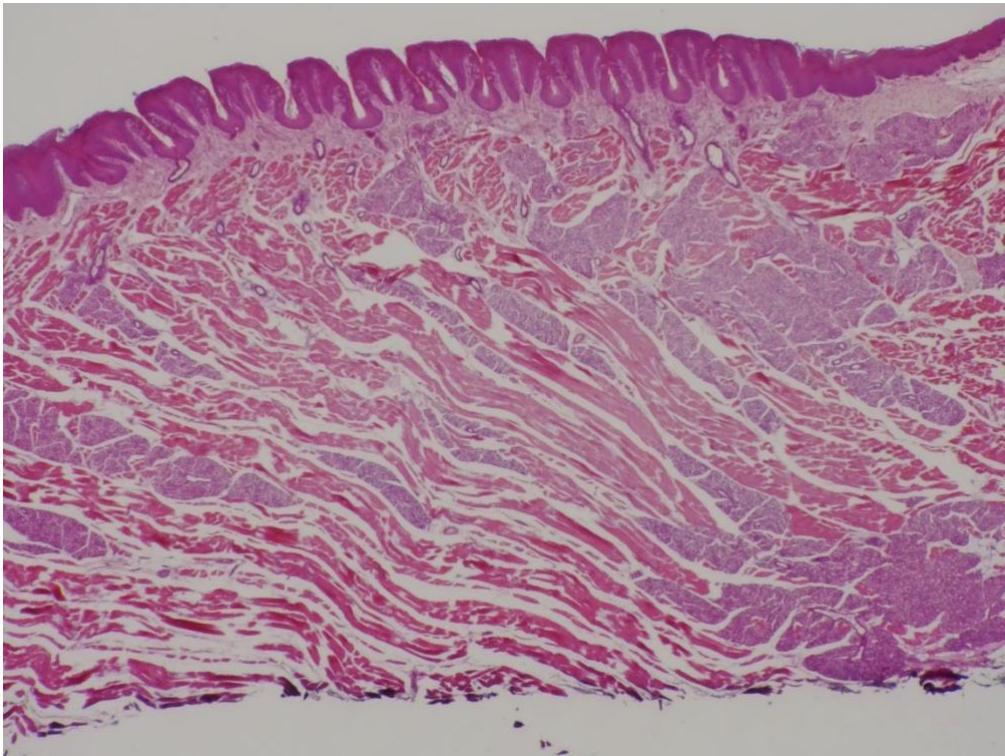


Figure 9 Taste bud Sec (Rabbit) captured with ZM0480U510A

5 Contacting Customer Service

Please contact your local distributor if you have any questions about the product.

Web: www.touptekphotonics.com