



UM30A-CSZ064

User's Guide

4K DiGi Microscope



Version 1.1A

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1. Product Introduction

1.1 Packing Contents

The box contains microscope and accessories.

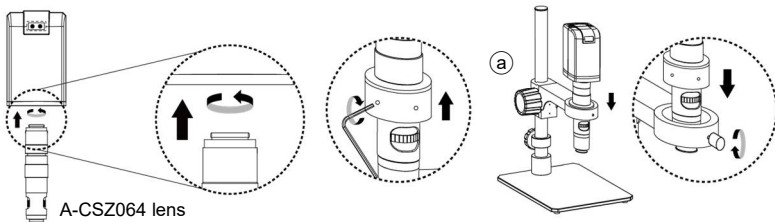
Item	Q'ty	Item	Q'ty
DiGi Microscope	1	S114 Stand (Instruction Guide included)	1
A-CSZ064 Lens (Hex Key included)	1	White Balance Card	1
LED Ring Light GN03	1	IR Remote Control	1
HDMI mini Cable	1	User's Guide	1
USB mini Cable	1	Calibrator	1
AC Adaptor	1	MicroSD Card	Option
Adaptor Cable	1		

Software download: <https://www.vitiny.com/en/download.html>

1.2 Assemble microscope with stand

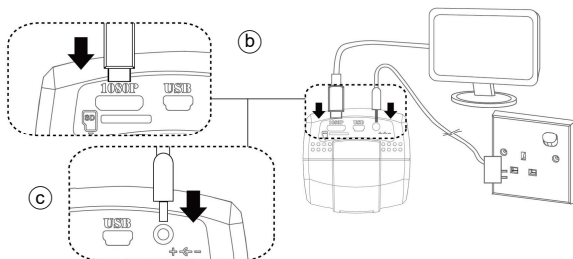
1.2.1 Fix microscope

Each A-CSZ064 lens has reach its parfocal distance when goods ship out; simply screw the A-CSZ064 lens under the microscope camera and tighten up with standⒶ, refer to 1.5.3 section for assembling.



1.2.2 Start to use microscope

Connect the HDMI cable ③ and adaptor ④ to HDMI monitor and power. See below:



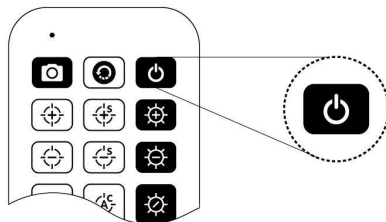
1.2.3 Power On/Off

Press Power  to turn on microscope. Choose HDMI mode or Auto on HDMI monitor to output image. *Long press

means press and hold the button for 2 seconds.

1.3 IR Remote controller

The microscope operation and functions is controlled by the IR remote controller.



- (1) Power  : Turn on/off.
- (2) HDMI  : When in HDMI mode, the HDMI cable must connect with the screen and microscope.
- (3) PC CAM  : The USB cable must connect to a PC and microscope in PC CAM mode. Please disconnect software before switching to HDMI mode or powering off. If SD card is loaded, a USB Disk will also show up.

(4) Snapshot  : In HDMI mode, press button to save an 8MP .jpg file into SD card. Per snapshot takes 9 Seconds to complete. In PCCAM mode, press snapshot to take an 8MP image, select photo type when saving the image on the software.

(5) LED Adjustment: No Function.

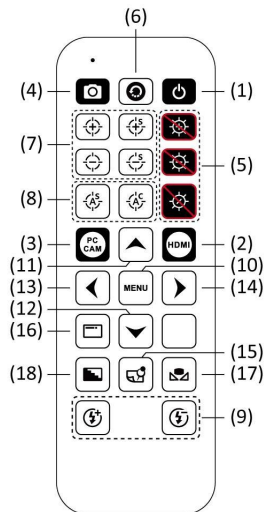
(6) Motor Reset  (Recalibrates entire operation) : Returns to the lens position. If a loss of electricity occurred during operation, please reset the operation.

(7) Manual focus

(7-1) Zoom in  : Zooms in; speed increases when held.

(7-2) Zoom out  : Zooms out; speed increases when held.

(7-3) Step zoom in  : Zoom in by steps.



- (7-4) Step zoom out  : Zoom out by steps.
- (8) Autofocus: Press one time to search focus in current area, long press for 2 seconds to search focus in whole area.
- (8-1) Single Autofocus  : Focuses one time.
- (8-2) Continuous Autofocus  : Re-focuses when image blurred.
- (9) Exposure Value: 14 levels of exposure value are selectable, from -7 ~ Auto ~ +6.
- (9-1) Increase  : Use to increase exposure when the image is too dark.
- (9-2) Decrease  : Use to decrease exposure when the image is too bright.
- (10) Menu on Screen  : Open/close menu for setting. Refer to Section 1.4.
- (11) Up  : Choose the previous item, if Crosshair is ON, select other color.
- (12) Down  : Choose the next item, if Crosshair is ON, select other color.
- (13) Left  : Choose the next value, if Crosshair is ON, select Line Size.

- (14) Right  : Choose the last value. When MENU function is off, press to turn on/off Crosshair.
- (15) Image Freeze  : ON/Off to freeze or unfreeze the image.
- (16) Status Bar  : There are 8 fixed information on Status bar and one is operating information which only display 3 sec. If see different lens mode, such as [FL, FLC, TL], it's for free lens such as 4x long focus lens or -CSZ064 series. It will disable the LED light, WD, FOV and show only OZ (sensor position), and EV (Exposure). Longer press 6 secs on the Status Button to switch to standard 4X/10X lens mode.



(16-1) Fixed information :

(16-1-1) 4X ④ : Object Lens (4X/10X) or other Lens type.
(FL/FLC/TL)

(16-1-2) FOV ⑤ : Field of View (FOV) display image on the effective horizontal size of screen.

(16-1-3) MAG ⑥ : (Magnification) The magnification size will change depending on the lens position, screen size, and image ratio.

(16-1-4) WD ⑦ : Working Distance.

(16-1-5) EV ⑧ : Exposure Value levels.

(16-1-6) LED ⑨ : LED levels

(16-1-7) POS ⑩ : Focus Position

(16-1-8) SD ⑪ : SD card status. If SD card is loaded, it will show SD on the status bar.

(16-2) Operating Information ⑫ :

(16-2-1) OZ : Optical Zoom. Ex: OZ: IN. Optical zoom in.

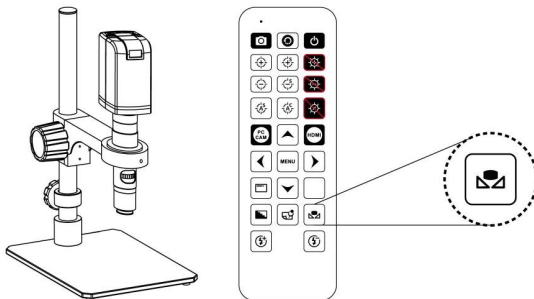
(16-2-2) SZ : Step Zoom. Ex: SZ: OUT. Zoom by steps.

(16-2-3) AFS : Single Autofocus. Ex: AFS▶ AREA, "A" means search focus in "current area". AFS▶ WIDE, "W" means search focus in "whole area".

(16-2-4) AFC : Continuous autofocus, "A" and "W" are same function as AFS.

- (16-2-5) MR : Motor Reset. MOTOR▶RST.
- (16-2-6) SHA : Sharpness. Ex: SHA▶MAX: 31, means maximum. The current level set at 4. SHA▶SET:4
- (16-2-7) FRZ : Image Freeze. Ex: FRZ▶ON, means freeze image, FRZ▶OFF means unfreeze image.
- (16-2-8) AWC : White Balance Calibration. Ex: AWC▶SET means calibrate white balance.
- (16-2-9) DISP : Turn on the Status Bar. EX: AWC▶ON °
- (16-2-10) SNAPSHOT : Photo Taking.
- (16-2-11) WAITING : Picture Saving. (about 9 sec)
- (16-2-12) SAVED : Save the Menu Setting.
- (16-2-13) NO SD : No SD Card loaded. Unable to take picture.
- (16-2-14) SD FULL : SD Card Storage is full. Unable to take picture.
- (16-2-15) LOAD DEF : Loading the Default Setting.
- (16-2-16) FINISHED : Photo saved or Default setting completed.
- (16-2-17) FAILED : Failed to save image. Please format the SD card in FAT32, or SD card is damaged.
- (16-2-18) None: Function not supported.

- (17) Auto White Balance Calibration : To calibrate the white balance, place the white balance card (included in box) under the lens, focus until clear, and choose on. Because the white balance is sometimes influenced by external light sources, it is recommended to calibrate the white balance if the color seems off or incorrect.



- (18) Sharpness : On/Off to set sharpness at Minimum and Maximum level.

1.4 Microscope menu functions

There are 2 pages in Menu, total 16 items. Press  button to enter MENU, press Up  and Down  to choose item, Left  and Right  to turn on/off or adjust parameter. Enter  means more functions, press Menu  to enter next function or confirm. Return to return last page, or press Left  or Right  to choose "SAVED" to return preview window.

[MAIN MENU]		1/2
IMG ADJUST		
IMG EFFECT		
EXPOSURE		AUTO
GAIN CTRL		LVLO
BACKLIGHT		QTR
AWB MODE		AWB

[MAIN MENU]	2/2
-------------	-----

2D NR	ON↵
POWER FREQ	60HZ
MENU COLOR	WHT
FACTORY	NO
ABOUT	↵
EXIT	END↵

1.4.1 IMG ADJUST

To adjust Image parameters. See below:

[IMAGE ADJUST]

CONTRAST	20
BRIGHTNESS	128
SATURATION	30
SHARPNESS	4
DEFAULT	NO
RETURN	↵

- (1) CONTRAST : Adjust Image's Contrast. Range from 0~63.
- (2) BRIGHTNESS : Adjust Image's Brightness, range from 0~255
- (3) SATURATION : Adjust Image's Saturation. Range from 0~63.
- (4) SHARPNESS : Adjust Sharpness, higher value increases the higher contrast along/near edges of the image. Higher edges might show image noise.
- (5) DEFAULT : Return to Default Setting.
- (6) RETURN : Return to last page.

1.4.2 IMG EFFECT

To adjust Image effect, please see below.

[IMAGE EFFECT]	
COLOR MODE	COLOR
VIDEO FLIP	NONE
FREEZE	OFF
DEFAULT	NO
RETURN	↩

- (2-1) COLOR MODE : Output image can be Color mode or Black/White (MONO).
- (2-2) VIDEO FLIP : Image flip function. HORI: Horizontal Flip,

Mirror: VERT: Vertical and Diagonal (BOTH: Flip Horizontal and vertical)

(2-3) FREEZE : (ON/OFF), Image Freeze function.

(2-4) DEFAULT : Return to Default Setting.

(2-5) RETURN : Return to last page.

1.4.3 EXPOSURE

Digitally control amount of light, the amount is smaller the image is darker and the frame rate is also slower. The range: 1/10K, 1/5K, 1/2K, 1/1K, 1/480, 1/240, 1/120, AUTO, 1/60, 1/30, X2, X4, X6, X8.

1.4.4 GAIN CTRL

Set gain Control level to raise up brightness of image. When the observing, LED turn maximum, but the image is still dark, increase the Gain control level. Gain level does not affect frame rate speed. Range: LVL0~ LVL7 °

1.4.5 BACKLIGHT

To choose the backlight mode. Press Left/Right to select mode.

(1) WHOLE : Compensate the darker area of the image.

(2) QTR : To calculate the backlight compensation from 1/4 area of the central

- (3) QTR+ : Again, weighting 1/4 area backlight compensation

1.4.6 AWB MODE

Calibrate the white color when change different light. Press Left/Right to choose correct mode.

- (1) AWB : Auto white balance.
- (2) AWC : Semi-auto white balance. Use to trace the white color from current image. See item (17) in Section 1.3.
- (3) MWB  : Manually adjust blue and red values to find correct white color. Refer to below fig.

[MANUAL WB]	
RED	47
GREEN	24
BLUE	56
DEFAULT	NO
RETURN	

- (3-1) RED : RED, adjust Red percentage, range 0~255.
- (3-2) GREEN : Green, adjust Green percentage, range 0~255.
- (3-3) BLUE : Blue, adjust Blue percentage, range 0~255.
- (3-4) DEFAULT : Return to default setting.
- (3-5) RETURN : Return to last page.

1.4.7 2D NR

Two Dimensional Noise Reduction: 2DNR. To obtain high quality output image.

- (1) ON  : Turn on 2D. Press  to enter Menu function.

[2D NR]	
NR LEVEL	8
DEFAULT	ON
RETURN	

(1-1) NR LEVEL : Noise Reduction level. Higher level will decrease the image noise, cause the edge sharpness downgrade.

(1-2) DEFAULT : Return to Default Setting.

(1-3) RETURN : Return to last page.

- (2) OFF : OFF.

1.4.8 POWER FREQ

Power line frequency. Based on the power line to choose 60Hz or 50Hz. Or when see horizontal lines show up (flicker situation), can try to set another frequency.

1.4.9 MENU COLOR

Menu color, choose menu color.

- (1) WHT : White text, black background.

- (2) RED : Red text, black background.
- (3) YEL : Yellow text, black background.
- (4) FUS : Fuchsia text, black background.

1.4.10 FACTORY

Factory Default. Press Left ◀ or Right ▶ to select “NO” or “Yes⏴” to return to factory setting.

1.4.11 ABOUT

Press MENU , read output and firmware version in ABOUT.

[ABOUT]

HDMI: 1080P/60FPS
USB: YUV/1080P
MJPEG/4K2K
PSN: UM30TW0100
IFW: 02.01
MFW: 01.00.00

1.4.12 EXIT

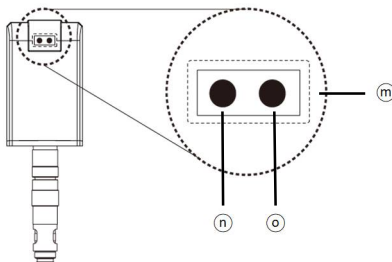
Exit menu, press Left ◀ or Right ▶ to choose “END⏴” or “SAVE⏴” current setting.

1.5 Microscope introduction:

1.5.1 IR Remote Area/Indicator

When both (n) and (o) LED indicator blinks, the microscope is in standby mode.

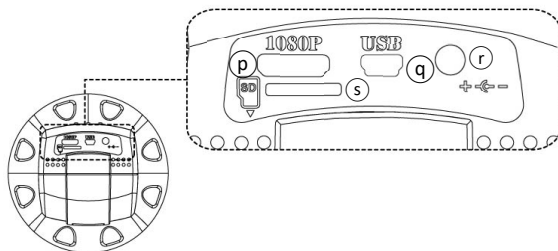
Caution: Please remove the transparent protection sheet on the IR receiver area.



- (1) IR remote control aiming area (m) : The indicator will blink whenever buttons are pressed. If the indicator did not blink means the signal was not delivered and please repress again.
- (2) HDMI indicator (n) : When lit up, the microscope is in HDMI mode. If light blinks, means microscope does not connect with monitor.
- (3) PCCAM Indicator (o) : When lit up, the device is in USB mode. If light blinks, means microscope is not connected to a PC.

1.5.2 Power/USB/HDMI port

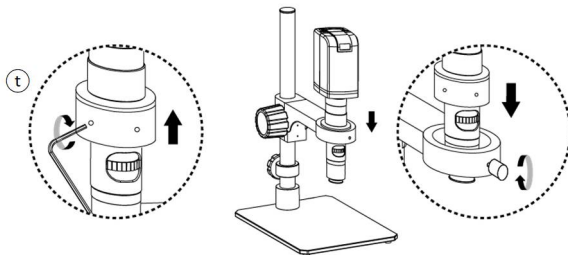
Caution: Please hold the cable when remove from microscope and do not disassemble cables forcefully.



- (1) Power (p) : Power adaptor is only compatible with the cord in the box. Please do not use other adaptor.
- (2) USB (q) : USB port for PC connection, SD card reading and Firmware update.
- (3) HDMI (r) : The HDMI port is used to connect the microscope to a screen. When the device is in HDMI mode, connect the microscope to the screen using the HDMI cable from the box.
* For TV screen connections, make sure to choose the homologous image ratio and format.
- (4) Miro SD (s) : SD card slot. Snapshot in HDMI mode.

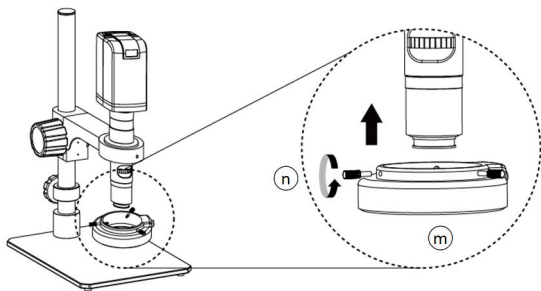
1.5.3 Ring Adaptor Assembling

Assemble the stand and then insert A-CSZ064 lens into Ring Adaptor (t) and screw tight with Hex Key. Insert the lens with Ring adaptor into Universal Adaptor then screw tight.



1.5.4 Illuminance

LED Ring Light (m) : Insert LED Ring Light from bottom and tighten the 3 screws (n) on bottom position.



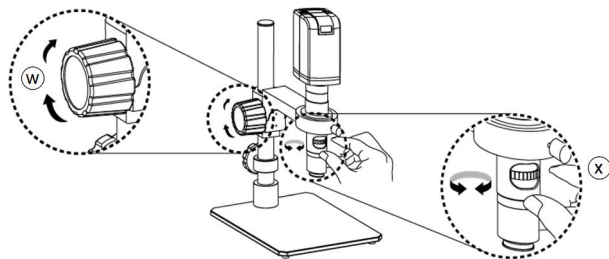
1.6 Microscope Focus

Step 1: Press Zoom out  button to move the sensor to end position (i.e. OZ:18XX).

Step 2: Turn A-CSZ064 lens optical zoom  to 4X.

Step 3: Adjust the knob  to find clear image, and the working distance will be exactly 82mm to the object.

When the image is clear, turn the optical zoom from 4x to 0.6x to see if image is clear at each magnification. If clear at each stage, the focus is done. If the image is not clear at each magnification, please re-try from beginning.



1.6.1 Magnification chart

The below chart is measured on 24" screen, it's only a reference data, might not be accurate enough. Based on the image ratio (preview window size), field of view and magnification size will change.

A-CSZ064 lens working distance: 82mm (3.228")

A-CSZ064 Lens on 24" monitor (Reference data)					
Optical Zoom	0.6x	1x	2x	3x	4x
Fixed WD	82mm				
FOV(mm)	9	5.3	2.7	1.8	1.4
Mag.(X)	59x	97x	190x	280x	380x

1.7 Microscope accessory

1.7.1 White balance card

The white side is used to calibrate the white balance. If the object is tiny, place it onto the white balance card and move the card instead of the object.

2. Printed Notice

Please read the following information before operating.

2.1 Maintenance

Please abide by the following rules while storing or using this product:

- 2.1.1 Keep dry: do not place the product in a humid environment. Dry surroundings help extend the life of the product.
- 2.1.2 Avoid temperature shock: temperature shock (for example, taking the product into a warm room from a cold environment) will cause internal condensation inside the machine. Please put the device inside the protection bag or handbag to prevent temperature shock, and avoid using the device in an environment with extreme temperatures.
- 2.1.3 Avoid dropping: the device may malfunction if it encounters strong collision, vibration, or distortion.
- 2.1.4 Turn the microscope off before cutting off the power supply: do not forced cut off the power supply.
- 2.1.5 Do not face the lens against strong light or sunshine for extended periods of time: Strong light rays may degrade sensitive elements and generate white stains on images.
- 2.1.6 Handle the device carefully: do not disassemble cables forcefully and avoid contact with the lens since they are subjected to damage.
- 2.1.7 Make sure to switch the power supply off and unplug the power cable if the device is not in operation for an extended period of time. Store the device in a dry environment with excellent ventilation. Do not expose the machine in an environment lower than -5°C or higher than 50°C.
- 2.1.8 While carrying, put the device inside the box to prevent from being damaged.

2.2 Product Specification

CMOS Sensor	8 million pixels CMOS sensor
Lens	A-CSZ064 Zoom Lens
Magnification	Optical Zoom from 0.6x-4x
Auxiliary source	Standard LED Ring Light
DC Port	Adaptor DC Input
HDMI Port	Mini HDMI Output 1080P(1920*1080 Pixel) image
USB 2.0 Port	Mini USB, UVC and USB disk
SD Port	Micro SD; Support 2G~128G, FAT32 format
Focus control	IR remote control
Power Supplier	Adaptor (Output : DC 5.0V/2.0A Input : AC 100-240V 50/60Hz)
Power Consumption (A/C)	1.8A(Max) /9W
Size	270(L)×66(W)×68(T) mm
Weight	Host weight around 560 grams
Operation Environment	Temperature -5℃ ~ 35℃; Humidity-lower than 85% (No Condensation)
For any changes, please visit https://www.vitiny.com	

2.3 Safety Instructions

- As an electronic product, please do not use the device in any place in which electronic products are prohibited.
- Keep the device away from water sources to avoid electric shock as it is not waterproof.
- Keep the device away from chemicals or substances with explosive or fire hazards. Switch the device off near gas stations.
- In the case that there are foreign substances or water inside the device, or the device is dropped or damaged, please switch off and remove the power supply to avoid fire and electric shock.
- Do not look steadily into Light sources after switching on the host as it is harmful to your eyes.
- Please use only the product accessories provided in the box for connections. Do not use any outside products without approval of original factory.
- Please remove the power supply from the microscope when not in use.
- Do not disassemble the machine for inspection. For any problems occurring in the machine itself, please power off the device and contact us through e-mail: mltc@vitiny.com

ViTiny Warranty

Product	
Model no	UM30A-CSZ064
S/L nos.	
Purchase date	DD/MM/YYYY
Purchaser	
Tel no:	
Address	
Email	
Distributor Seal for Confirmation	
(Stamp is necessary for validation of the Warranty) ※Distributor's seal shall include name of the shop, telephone and address※	

Please ask the distributor to fill in the name of the shop, address, purchase date, and other contents to protect your rights and validate your one-year warranty since upon the purchase date.

Contents of Warranty: The warranty is provided free of charge for faults caused by manufacturing within one year from the purchase date.

Non-warranty:

1. Product appearance parts, such as the outer casing, knobs and LED cover, etc. (charged spare parts are limited to one year after completing the product manufacturing).
2. Consumption goods of the host itself, such as LED lights and lens.
3. Product accessories and fittings, such as the power supplier, HDMI cable, white balance card, remote controller...etc.

Services caused by any of the following situations in the period of the warranty shall not be provided free of charge:

1. Improper use or disassembly, repair or refitting.
2. Any damages to the device caused by external or environmental factors.
3. Discrepancy of product serial number, unfilled or unidentified warranty. Any inspection or repair service after the period of warranty will be charged as follows:
 - (1) Service fees (including transportation fees) of product inspection.
 - (2) Repair fees.
 - (3) Fees of replaced parts

ViTiny Service Center Tel: 886-7-657-9551 Fax: 886-7-657-9561

Address: 10 F., No.1, Section 1, Syuecheng Road, Dashu District, Kaohsiung City 840, Taiwan (R.O.C.)

Website: <https://www.vitiny.com>



[HTTPS://WWW.VITINY.COM](https://www.vitiny.com)

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