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Content

CHAPTER 1 NOTES AND SAFETY REQUIREMENTS	- 1 -
1.1 Cautions and Notes	- 1 -
CHAPTER 2 SOFTWARE SYSTEM REQUIREMENTS	- 2 -
2.1 System Requirements for HDMI Work Mode	- 2 -
2.2 System Requirements under USB Work Mode	- 2 -
CHAPTER 3 PACKING LIST	- 3 -
CHAPTER 4 FUNCTION INTRODUCTION OF EACH PART	- 4 -
4.1 Name and Function for Each Part of the Electronic Eyepiece	- 4 -
4.2 Accessory Introduction	- 5 -
4.3 Introduction of Optional Accessories	- 6 -
CHAPTER 5 PRODUCT ASSEMBLY GUIDE	- 7 -
5.1 Electronic Eyepiece Assembly	- 7 -
5.1.1. Electronic Eyepiece and Other Microscope Assembly	- 7 -
5.1.2. Electronic Eyepiece Detachment	- 9 -
CHAPTER 6 INSTRUCTIONS	- 10 -
6.1 HDMI Mode	- 10 -
6.1.1 Introduction of Various Functions	- 10 -
1)、Photography	- 10 -
2)、Record	- 11 -
3)、Playback	- 11 -
4)、Frozen	- 11 -
5)、Menu Setup	- 12 -
6)、Exposure setup	- 12 -
7)、White balance adjustment	- 13 -
8)、Crosshair mark	- 14 -
6.2 USB Mode	- 14 -
6.2.1 Install Micro Capture Software	- 14 -
6.2.2 Connect the Device	- 14 -
6.2.3 Open the Software	- 14 -
6.2.4 Read TF card	- 15 -
6.2.5 Instruction of card 64G/128G TF	- 15 -

Chapter 1 Notes and Safety Requirements

1.1 Cautions and Notes

- (1) To avoid danger or damage incurred to the lens, do not touch the lens or sensor directly with your fingers.
- (2) To avoid failure or electric shock hazard and so on, do not disassemble or modify the internal structure of the device.
- (3) Do not plug in or unplug the Power connection port when hands are wet.
- (4) Do not use alcohol and other organic solvents to clean.
- (5) If the lens or sensor is dirty or damp, you should better use dry and non-linen fabric or professional lens tissue to wipe them. To avoid scratches on the surface, do not touch the lens with your fingers. Wipe the lens or sensor lightly.
- (6) The products are not specifically designed for an outdoor use. Do not expose it to outdoor environment without any protection. Excessive temperature and humidity will damage the lens. Please avoid using the product under the following environment: high temperature or high humidity environment, places with direct sunlight, dirt or vibration and places near heat source.
- (7) Please use and store in the following environment:
Operating temperature : 0°C~ 40°C
Storage temperature: -20°C~ 60°C
Operating Humidity: 30~60%RH
Storage Humidity: 10~80%RH
- (8) If any foreign matter, water or liquid enter into the device by accident, disconnect the Power cable immediately. Please send it to the maintenance center and do not use the hair dryer to dry it by yourself.
- (9) To prevent microscope from being tripped over or dropped, please put away the device's connect cable in use or standby.
- (10) To avoid electric shock by accident, please power off microscope before you move your computer or laptop.
- (11) The cleanliness of the device lens will directly affect clarity degree of contents from the computer screen during preview. Problems like various circles or spots on the screen may mostly be incurred by dirt on the lens. When cleaning, please use professional lens tissue or other professional detergent to clear the dirt on the lens.

Chapter 2 Software System Requirements

2.1 System Requirements for HDMI Work Mode

- Displayer: for best observation effects, 1080P or higher resolution with HDMI A interface, screen of 19 or higher inches with size proportion 16:9 should be used.

2.2 System Requirements under USB Work Mode

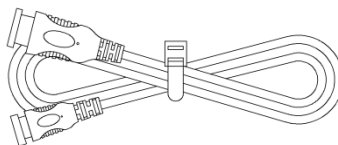
- Windows XP SP3、Windows 7（32 or 64 bits）、Windows 8（32 or 64 bits）、Windows8.1（32 or 64 bits）、Windows10（32 or 64 bits）。
- Dual core **1.6** GHz or higher CPU
- USB **2.0** high-speed interface or USB2.0 compatible interface
- At least 4 GB available hard-disk space
- 2G or more memory
- DVD-ROM driver (only needed when installing software)

Chapter 3 Packing List

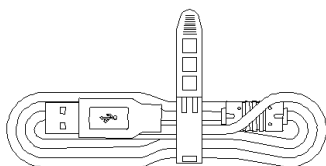
1. Main body



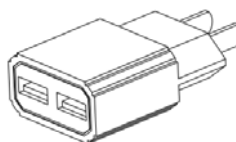
2. HDMI Cable



2. USB Cable



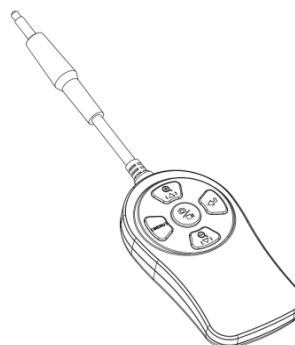
4. Adapter



5. Installation disk

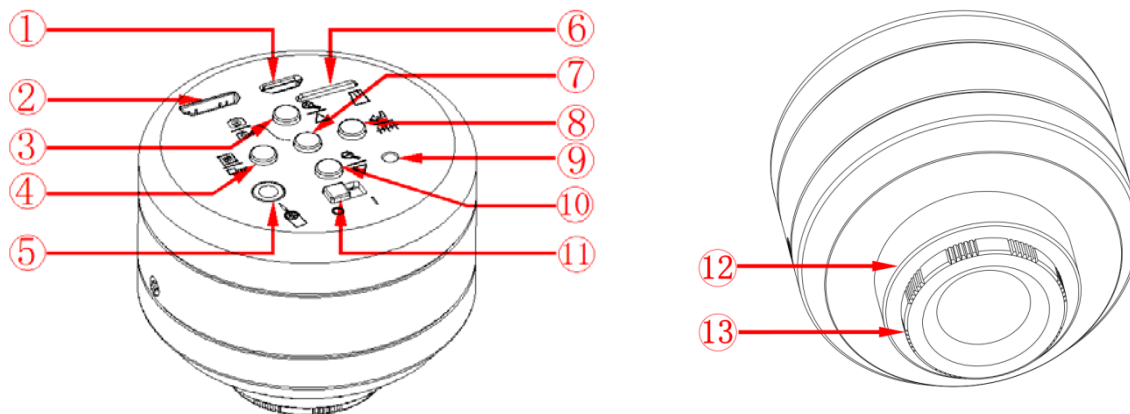


6. Wired controller (optional accessories)



Chapter 4 Function Introduction of Each Part

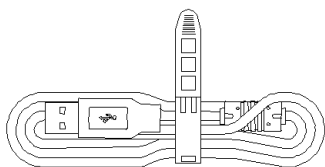
4.1 Name and Function for Each Part of the Electronic Eyepiece



- | | | | |
|---|---|---|--|
| ① | Micro USB port | : | The connection port of the Micro USB cable. |
| ② | Mini HDMI port | : | The connection port of the Mini port HDMI Cable. |
| ③ | Top button | : | Zoom in/upward/speed retreat function. “Magnification” function will be activated in the mode of photographing and recording. “Upward” function be activated after entering the menu or during browsing. Video playing will be changed into “fast rewind” function in the mode of playing back. |
| ④ | Left button | : | Menu/return/frozen (hot key) function. “Menu” function will be activated in the mode of photographing, playing back and recording. In the mode of photographing and recording, long press (2 seconds) will trigger “frozen” function. After entering the menu, “return” function will be on. |
| ⑤ | Insertion hole of wired controller | : | Port for connecting the wired controller. |
| ⑥ | TF card slot | : | TF card slot: TF card slot supports the maximum capacity of 128G. TF card support hot swap. If the recording files or photos are required to be stored, TF card needs to be inserted before recording or photography.
Before photography and recording, if the TF card isn't been detected, the machine will remind users to insert TF card. If the TF card reaches its maximum storage capacity, the recording will automatically stop and process saving, and also reminds users to replace new TF card at the same time. |
| ⑦ | Middle button | : | Record/camera/play back function. “Recording” function is for the mode of recording. “photographing” function is for the mode of photographing. In the mode of playing back, the recording file carries the function of “playing back”. |

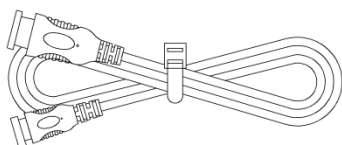
- ⑧ **Right button** : Mode/sure/crosshair (hot key) function. Mode includes “camera”, “play back” and “record”. Without entering the menu, “Mode switch” function will be activated and can be switched successively among three modes, namely photographing, playing back and recording. “Confirm” function will be on after entering the menu. Long press in the mode of photographing and recording activates the mode of “cross line” shortcut key.
- ⑨ **Work indicator** : (1) Electrify but not start the machine, then the red LED light keeps on;
(2) Start the machine, the green light keeps on and red light is off;
(3) When recording, the green light flashes and the red light is off.
- ⑩ **Bottom button** : Zoom out/downward/video fast forward function. “Reduction” function is on in the mode of photographing and recording. “Downward” function is on after entering the menu or in the mode of playing back. Video playing will be changed into “fast rewind” function in the mode of playing back.
- ⑪ **Toggle switch for machine on/off** : Machine on, machine off.
- ⑫ **Port C thread** : CPort thread can be directly connected with Cport microscope and telescope. Connected with eyepiece (accessories), the Cport thread can realize the connection with microscope with different ports.
- ⑬ **Dust cover** : Dust cover is for covering dust and protecting chips.

4.2 Accessory Introduction



USB Cable

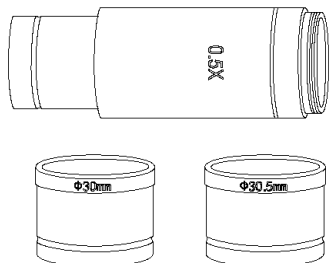
- : Two functions:
1. Under the state of HDMI: USB can be used as the power Cable.
 2. When connected with PC port: USB can be used as the connection line between electronic eyepiece and computer data.



HDMI Cable

- : Data connection line between machine body and displayer.

4.3 Introduction of Optional Accessories



Adaption ring and eyepiece (Optional Accessories)

: Through adaption ring and eyepiece, electronic eyepiece can be adapted to microscope with different calibers. The electronic eyepiece itself can be adapted to port C or CS. Under different magnification ratio, the caliber of eyepiece 0.5X is 23.2mm, adaption ring 23.2/30mm and 23.2/30.5mm. According to different assembly ways, the adaption ring and eyepiece can realize the connection between the device and eyepiece with different port size.



Wired controller

: Connect the wired controller port with the electronic eyepiece to realize the function of controlling. The function of press button conforms with that of the body machine.

Note:

1. When using the wired controller, please connect it to the camera eyepiece before using.
2. Plug and pull the wired controller while using the camera eyepiece may result in modes switching.

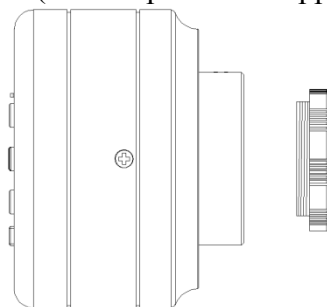
Chapter 5 Product Assembly Guide

5.1 Electronic Eyepiece Assembly

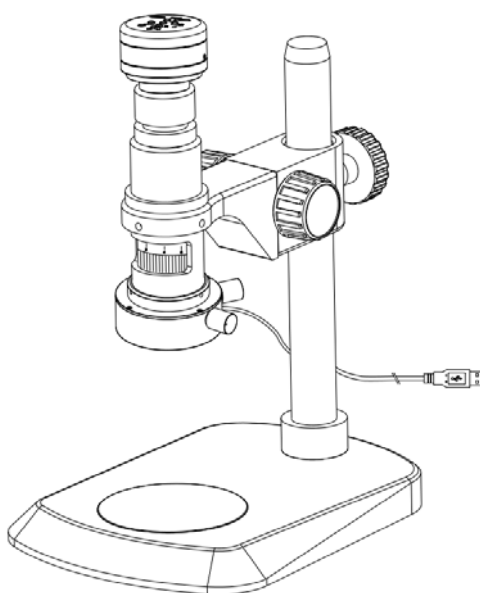
5.1.1. Electronic Eyepiece and Other Microscope Assembly

1. Connect to Microscope with standard port C

- (1) Twist off the dust cover plastic cap under the electronic eyepiece(see picture 5-1).
- (2) Twist the electronic eyepiece onto other microscope (standard port C)(see picture 5-2).
- (3) Connect the Micro USB port of USB cable with electronic eyepiece. Under HDMI mode, connect the other port to power adapter. Under USB mode, connect the other port with USB output port of the computer.
- (4) Connect the Mini HDMI port of the HDMI to electronic eyepiece, and the other port to displayer with HDMI port.(This step can be skipped under USB work mode.)



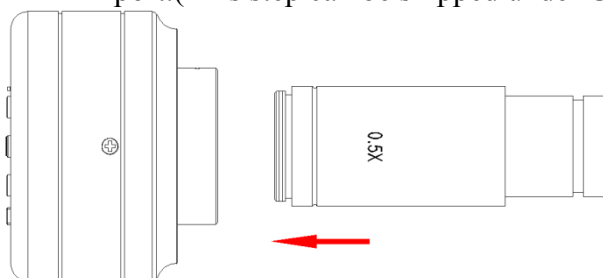
picture 5-1



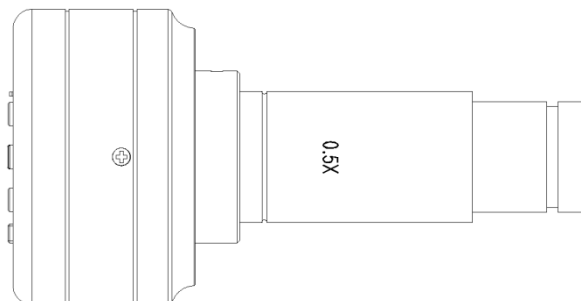
picture 5-2

2. Connect the stereoscopic microscope

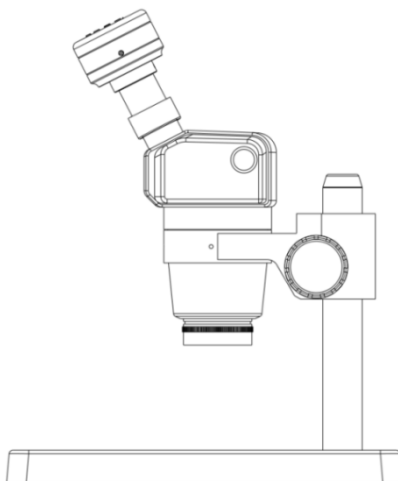
- (1) Twist off the dust cover cap of the electronic eyepiece.
- (2) Connect the electronic eyepiece with appending eyepiece (see picture 5-3 and 5-4).
- (3) Embed the minifier (or hollow cylinder) into adapter ring 23.2/30mm (or 23.2/30.5mm).
- (4) Embed the adapter ring with electronic eyepiece to stereoscopic microscope(see picture 5-5).
- (5) Connect the Micro USB port of USB cable with electronic eyepiece. Under HDMI mode, connect the other port to power adapter. Under USB mode, connect the other port with USB output port of the computer.
- (6) Connect the Mini HDMI port of the HDMI to electronic eyepiece, and the other port to displayer with HDMI port.(This step can be skipped under USB work mode.)



Picture 5-3



Picture 5-4



Picture 5-5

5.1.2. Electronic Eyepiece Detachment

1. Detach with eyepiece of standard C port

- (1) The machine is under shutdown condition.
- (2) Pull out USB cable and HDMI cable.
- (3) Twist off the electronic eyepiece from the microscope.
- (4) Screw on the dust cover plastic cap.
- (5) Place the electronic eyepiece to avoid being dropped.

2. Detach with Stereoscopic Microscope

- (1) The machine is under shutdown condition.
- (2) Pull out USB cable and HDMI cable.
- (3) Take out the product with the adapter ring from the stereoscopic microscope.
- (4) Detach the adapter ring and eyepiece from the product.
- (5) Screw on the dust cover plastic cap.
- (6) Place the electronic eyepiece to avoid being dropped.

Chapter 6 Instructions

Use under different modes:

1. HDMI Mode
2. USB Mode

Note: when connection with computer and HDMI is simultaneously detected, USB port output of the PC will be first processed.

6.1 HDMI Mode

6.1.1 Introduction of Various Functions

- a) The machine contains altogether 5 press buttons. For press button instruction, please refer to chapter 4-1. Besides, the machine can also connect a wired controller with 5 press buttons via a connection device.
- b) Short press refers to press time 0.2s~1s. Long press refers to press time more than 2s or above. (Without special reference, press below all means short press).
- c) For 10 seconds without operation, the system will automatically hide the icon on the screen desk for users to watch the video more conveniently. The icon on the desk can be awakened by pressing the left button and the other 4 buttons will execute the command of the current press button while been awakened. (Users can press arbitrary button to awake the desk icon).
- d) The maximum magnification ratio of the zoom in function button: x4. Zoom out function button can only be available when being zoomed in first.
- e) The highest resolution pixel of photography is:1920x1080;
- f) Shutdown save parameter: Each time the camera eyepiece is started, the current parameter is the parameter of the last shutdown. When you initialize the parameter, you can restore the factory settings by using the"Restore defaults" in the menu.

1)、Photography

The top right corner icon “” displays for photography mode. Please ensure the TF card insertion, press “middle button” for picture shooting. Pictures will be automatically saved into the Photo file under TF card file Microscope. File name format: "Photo_00001.jpg", "Photo_00002.jpg", ...

2)、Record

The icon “” on the top right corner of the screen displays for recording mode to record sound and video files. Please ensure the TF card insertion, press “middle button” for recording and press “middle button” again to exit recording. Records will be automatically saved into the Video file under TF card file Microscope. File name format "Video_0001.mov", "Video_0002. Mov "...

Note: The maximum capacity of recording file is 4G. When 4G capacity is reached, a new recording file will be started.

3)、Playback

The top right corner icon “” displays for Playback mode.

Flip over for observation by pressing “Top Button” or “Bottom button”. Pressing button “Left button” can enter the file attributes interface, which includes three operation functions such as delete, protect and slide show.

- “Photo_XXXX.JPG” on the top right corner means the picture is an photo.
- “Video_XXX.MOV” on the top right corner means the picture is a video. Press “Middle button” to play/pause recording. Press “Top Button” or “Bottom button” can fast forward or fast backward during playing. pressing "Right button" exit playing

4)、Frozen

Under the mode of camera or recording, long press “left button” and the right side of the desk will display the icon , which is the frozen screen. You can long press “the left button” or short press any button to defrost the screen and the icon  disappears. Each button's function is performed after unfreeze.

5)、 Menu Setup

Pressing “Left Button” to enter the menu bar interface. Through button “ Top Button” and “Bottom Button” to move the cursor up and down for selecting the required function. Press “Right Button” to enter into setup. After setup, press “Left Button” to exit menu bar.

Note: common functions are set up on the menu bar, namely exposure compensation, white balancing, 3 sequence, image quality, HDR, resolution ,sharpness, shooting ways, color, quick preview, button press sound ,auto power off, language ,frequency ,image rotation ,frozen and date/time.

6)、 Exposure setup

Under the mode of camera or recording, press the “left button” to enter the menu bar. Press the “top button” or the “bottom button” to select the menu bar “exposure EV” and then press the “right button” to enter the exposure setup interface.

A
S

Then the screen shows the icon M. (Note: font flashes: stands for the cursor is located in current position. Red font: stands for the status of been selected.)

Press the “top button” or “bottom button” to move the cursor. Press the “right button” to select the current status and the font color will turn red. Press the “left button” to exit the exposure setup interface.

- (1) The cursor points to A, the real-time automatic exposure function will be started by pressing the “right button” and the color of the letter A will turn red.
- (2) The cursor points to S, the single real-time automatic exposure function will be started by pressing the “right button” and the color of the letter S will turn red.
- (3) The cursor points to M, the manual exposure can be started by pressing the “right button” and the color of the letter M will turn red and a flashing red number 0 will also appear on the right side. Press the “top button” or “bottom button” to change the current number value (the valid adjustment range is -10~+10 and the default value is 0). Press the “right button” to save the number value and the number value will be covered simultaneously.

7)、 White balance adjustment

Under the mode of camera or recording, press the “left button” to enter the menu bar. Press the “top button” or the “bottom button” to select the menu bar “white balance WB” and then press the “right button” to enter the interface of the white balance setup.

A
S

Now the screen will display the icon M. (Note: font flashes: stands for the cursor is located in current position. Red font: stands for the status of been selected.)

Press the “top button” or the “bottom button” to move the cursor. Press the “right button” to select the current status and the font color will turn red. Press the “left button” to exit the White balance setup interface.

- (1) The cursor points to A, the real-time automatic white balance function will be started by pressing the “right button” and the color of the letter A will turn red.
- (2) The cursor points to S, the single automatic white balance function will be started by pressing the “right button” and the color of the letter S will turn red.
- (3) The cursor points to M, the manual white balance can be started by pressing the “right button” and the color of the letter M will turn red and a group of value

R 128
G 128
B 128

 will also appear on the right side. The flashing red number is the value currently been selected. Press the “top button” or “bottom button” to change the current number value (the valid adjustment range is 1-255). Press the “right button” to switch the value R, G and B consequently.

Whichever value letter (R / G / B) is selected, as long as the “left button” is pressed, RGB current number value will be saved and altogether RGB and the number value will be covered.

Note: From automatic white balance to manual white balance: the value of manual white balance is the white balance under the current background. From single automatic white balance to manual white balance: the value of manual white balance is the previous single automatic white balance.

8)、Crosshair mark

Under the mode of camera or recording, long press the “right button” to recall the crosshair mark and then long press the “right button” to cancel the crosshair mark. The default cross line invoked by shortcut key is the first kind. If either of the other two shortcut keys of the cross line is needed, other cross lines will be firstly invoked via menu and current cross line is controlled by shortcut key.

There are three kinds of crosshair marks (“crosshair mark” menu can be found in the menu bar):

1. Cross (default)
2. Grid
3. Concentric circles

6.2 USB Mode

6.2.1 Install Micro Capture Software

Put the accessory disk into the DVD of the computer, click the file Micro Capture Install and complete the installation of the application software according to the software prompts. For detailed installation methods, please refer to User Manual of Micro Capture English.

6.2.2 Connect the Device

- (1) Connect the electronic eyepiece to the microscope or telescope.
- (2) Connect the USB port of the electronic eyepiece to the USB port of the computer.
- (3) For detailed operation methods, please refer to Chapter 5.

6.2.3 Open the Software

- (1) Place the eyepiece and focus the camera on the observed object.
- (2) Pull the toggle keys on.
- (3) Execute the software Micro Capture in computer. Through adjusting the eye height or operation distance to observe the object.

6.2.4 Read TF card

After connected the electronic eyepiece to the USB port of the PC, Long press (press time more than 6s or above) “ Right button ” to switch the USB mode to TF card mode. Meanwhile a disk icon will be created on the computer and the file in TF card of the electronic eyepiece can be read through computer. Long press “Right button” again to exit the TF card mode.

6.2.5 Instruction of card 64G/128G TF

If card 64G/128G TF is not available, you can change the format of the TF card into FAT32 by electronic eyepiece and other devices for normal use.

Operation steps for format transformation of electronic eyepiece:

- 1) For the circumstance of no card, invoke the format menu in the menu bar in the mode of photographing or recording.
- 2) Insert the TF card into the card slot.
- 3) Via the press button on the electronic eyepiece, select “confirm” in the format menu and then press the right button to confirm.