

LANOPTIK

HDMI Digital Microscope

HD52H

User Manual



Content

CHAPTER 1 NOTES AND SAFETY REQUIREMENTS -----	1
- 1.1 Cautions and Notes -----	- 1
CHAPTER 2 PACKING LIST -----	2
CHAPTER 3 FUNCTION INTRODUCTION OF EACH PART-----	--3
3.1 Name and Function for Each Part of Microscope -----	3
3.2Accessory Introduction -----	- 5
CHAPTER 4 INSTALLATION GUIDE -----	--6
4.1 Methods of application of electron microscope -----	-6
CHAPTER 5 DIGITAL CAMERA INSTRUCTIONS -----	8
5.1 Instruction of manual focusing knob on the top of the digital camera -----	-- 8
5.2 Introduction of buttons functions -----	-8
1) Picture -----	-8
2) Record -----	-9
3) Playback -----	-9
4) Freeze -----	-10
5) Menu Setup-----	-10
6) Exposure Setup -----	-10
7) White Balance Adjustment -----	-11
5.3 Read TF card -----	-12

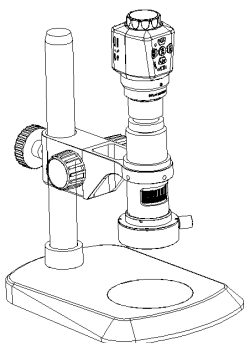
Chapter 1 Notes and Safety Requirements

1.1 Cautions and Notes

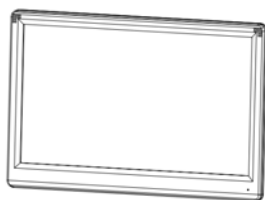
- (1) To avoid danger or damage incurred to the lens, do not touch the lens or sensor directly with your fingers.
- (2) To avoid failure or electric shock hazard and so on, do not disassemble or modify the internal structure of the device.
- (3) Do not plug in or unplug the Power connection port when 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 line 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 display or equipment.
- (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 Packing List

1. Main body



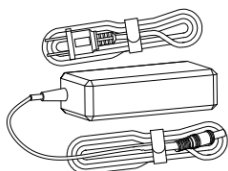
2. Monitor



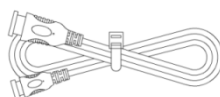
3. Monitor bracket



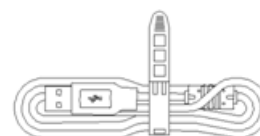
4. AC/DC adapter



5. HDMI cable



6. USB cable



7. Reset pin



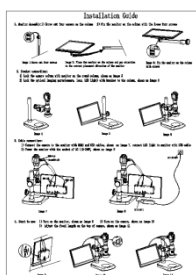
8. Installation disk



9. Screwdriver



10. Installation Guide

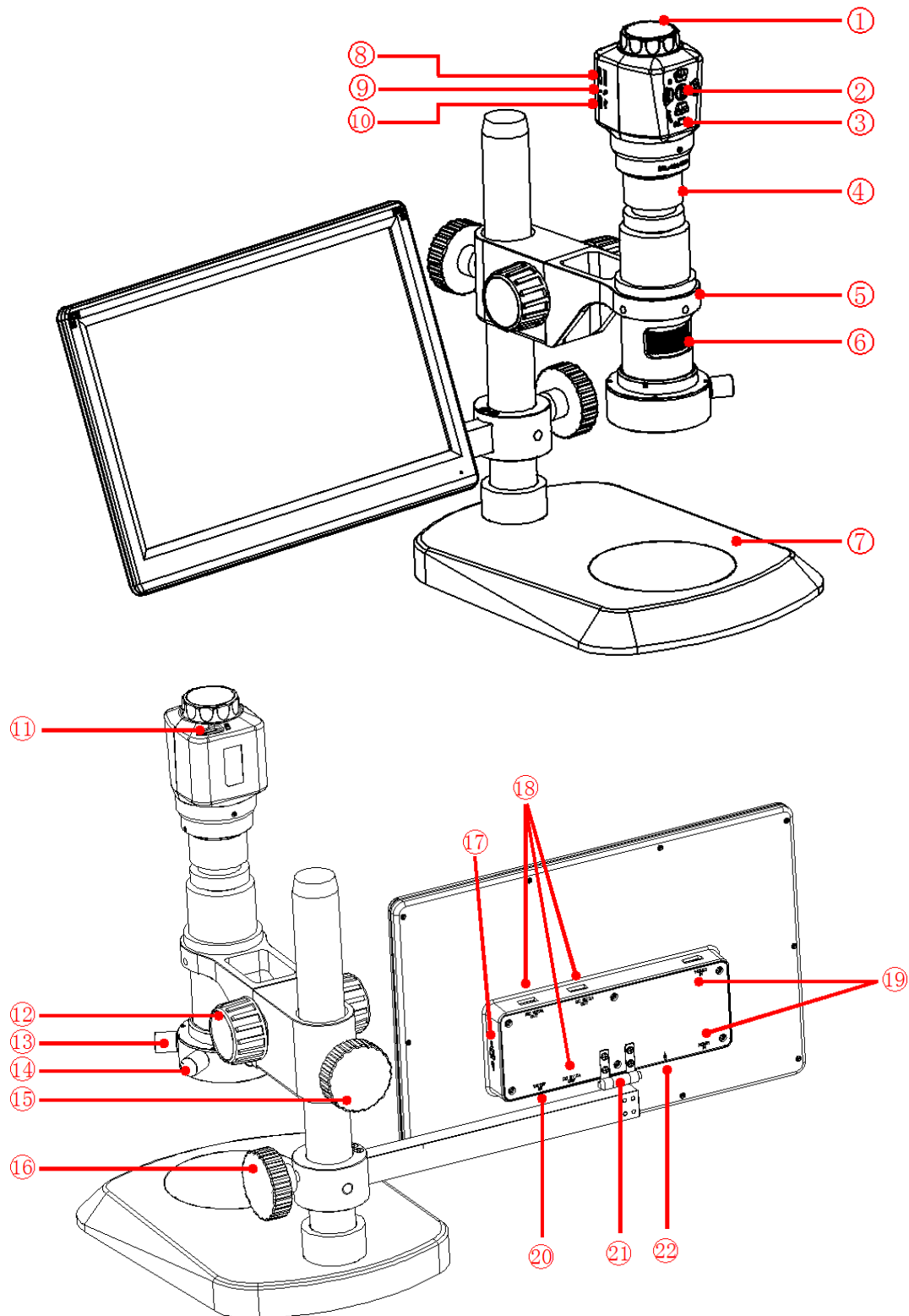


11. Wired controller (optional accessories)



Chapter 3 Function Introduction of Each Part

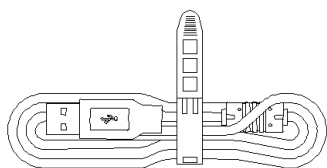
3.1 Name and Function for Each Part of Microscope



1. Focus knob	Rotate the knob to implement the focus function; Rotate clockwise: back focal length decreases and object distance increases; Rotate anticlockwise: back focal length increases and object distance decreases.
2. Buttons	In HDMI mode, 5 buttons can match to each other to achieve different functions.
3. Switch	Put the switch to right: turn on the digital camera; put the switch to left: turn off the digital camera.
4. Monocular microscope	Electronic eyepiece adopts standard C port. You can adjust the magnification ratio of the microscope according to requirements to realize object observation under different magnification ratio.
5. Manual screw	For fixing the monocular microscope.
6. Magnification adjustment ring	Adjustment range 0.7-5 times.
7. Base	Aluminum alloy base with scratch-resistant film on the surface.
8. HDMI port	Connect to the monitor with HDMI cable for signal transmission.
9. Reset	Press and hold for more than 3 seconds to restore factory settings.
10. USB interface	Connect to the adapter with USB cable to supply power for digital camera.
11. TF card slot	The location of TF card, photos and videos will be stored in TF card.
12. Bracket handwheel	Twist the bracket hand-wheel to adjust the height accurately and realize the fine adjustment of the object distance to make the image clearer.
13. Adjustment button of the diffuse reflectance light	Clockwise twist: turn on the diffuse reflectance light/strengthen the diffuse reflectance lightness. Anticlockwise twist: weaken the diffuse reflectance lightness/turn off the diffuse reflectance light.
14. Adjustment button of the coaxial light	Clockwise twist: turn on the coaxial light/strengthen coaxial lightness. Anticlockwise twist: weaken the coaxial lightness/turn off the coaxial light.
15. Fixed bolt	Through adjusting the tightness of the fastening screws to move the bracket quickly on the column and fix the bracket on the column.
16. Fixed bolt	Lock the height of the Monitor.

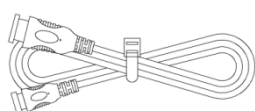
17. Monitor switch	When the switch is turned up, the monitor is turned on; when the switch is turned down, the monitor is turned off (the digital camera stops working after the monitor is turned off)
18. USB power supply interface	It is a 5V 2A power output interface, provide power to digital camera through USB cable.
19. HDMI interface	Connect to the digital camera through HDMI cable to receive the signal from digital camera.
20. Power interface	Power supply to the monitor.
21. Shaft	Support rotation and tilt of the monitor
22. Wired controller interface	Connect to the wired controller which is an optional accessory to adjust parameters of the monitor.

3.2 Accessory Introduction



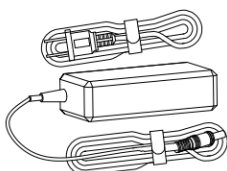
USB cable

The digital microscope can be powered by connecting to the adapter.



HDMI cable

Connecting the digital microscope to and monitor to achieve signal transmission between digital microscope and monitor.



Power adapter

Connect and supply power to the monitor.



Wired
controller
(optional
accessories)

Connect to the monitor and adjust its parameters.

Chapter 4 Installation Guide

4.1 Methods of application of electron microscope

1. Monitor Assembly:

- 1)Screw out four screws on the column.
- 2)Fix the monitor on the column with the loose four screws.

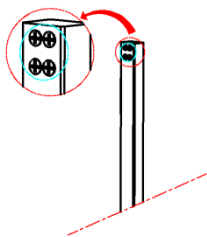


Image 1:
Screw out four screws



Image 2:
Place the monitor on the column
and pay attention to the correct
placement direction of the monitor.

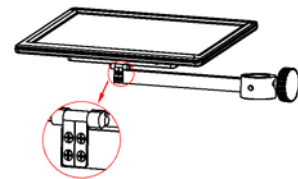


Image 3:
Fix the monitor

2. Bracket connections:

- 1) Lock the square column with monitor on the round column, shown as image 5
- 2) Lock the optical imaging parts (camera, lens, LED light) with bracket to the column, shown as image 6

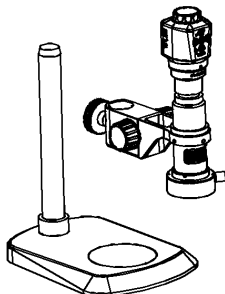


Image 4

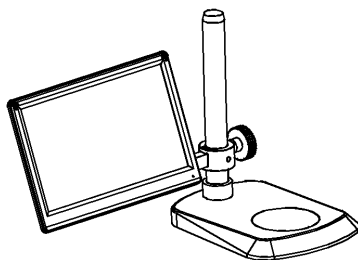


Image 5

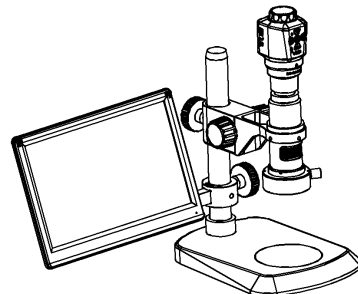


Image 6

3. Cable connections:

- 1) Connect the camera to the monitor with HDMI and USB cables, shown as image 7, connect LED light to monitor with USB cable.
- 2) Power the monitor with the socket of AC 110-240V, shown as image 8.

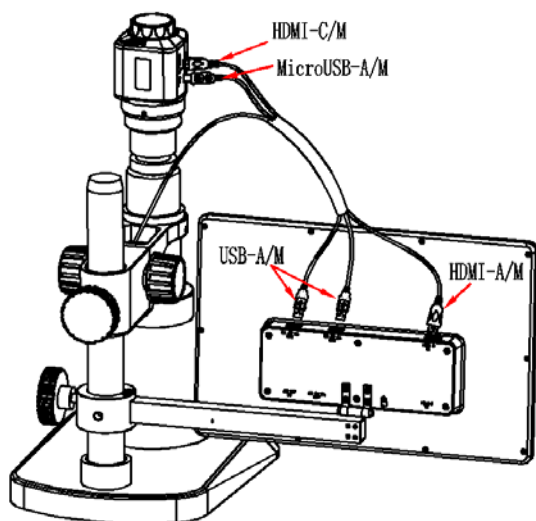


Image 7

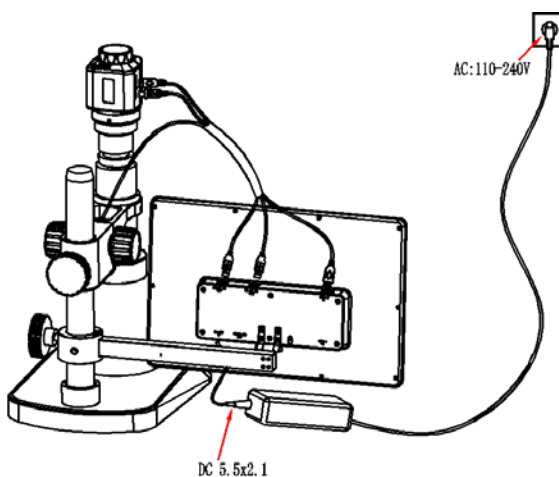


Image 8

4. Start to use:

- 1) Turn on the monitor, shown as image 9
- 2) Turn on the camera, shown as image 10
- 3) Adjust the focal length on the top of camera, shown as image 11

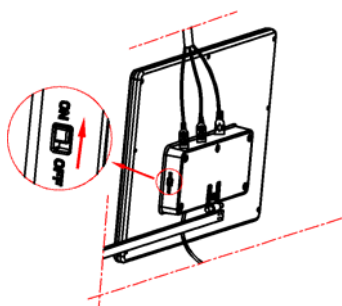


Image 9

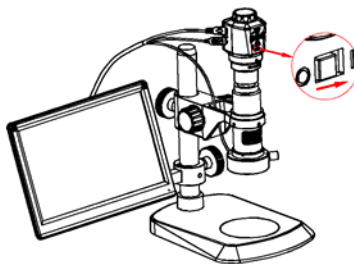


Image 10



Image 11

Chapter 5 Digital camera Instructions




5.1 Instruction of manual focusing knob on the top of the digital camera

1. Connect the relevant accessories such as digital microscope and monitor, etc. (For detailed operation, please refer to Chapter 4)
2. Switch the toggle key to status of power on.
3. Rotate the manual focusing knob clockwise or anti-clockwise to adjust the eye height until the image is clearly displayed.
 - (1) Clockwise: BFL gets shorter, object distance increases, magnification decreases.
 - (2) Anti-clockwise: BFL gets longer, object distance decreases, magnification increases.





5.2 Introduction of buttons functions

- a) 5 buttons are set on the machine body.
- 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 desktop on the screen for users to watch the video more conveniently. Users can press any button to wake up the desktop icon. (The following operations are performed after waking up the desktop icon)
- d) Zoom in button, the maximum magnification ratio: x4. Zoom out button can only be available when being zoomed in first.
- e) The highest resolution picture is 2304x1536.
- f) Record: when connect with HDMI cable, the highest resolution of recording is 1280x720.







1) Picture

The top right corner icon  displays for photo mode(Press  button, and switch to Photo Mode). Please ensure insert the TF card before operation, press button  for picture capture. Pictures will be automatically saved into the Photo folder under TF card of Microscope folder.





2) Record

The icon  on the top right corner of the screen displays for recording mode to record sound and video files (Press  button, and switch to REC Mode). Please ensure insert the TF card before operation, press button  for recording and press  again to exit recording. Records will be automatically saved into the Video folder under TF card of Microscope folder.




3) Playback

Press  button, and switch to Playback Mode (the top right shows  or  Flip over for observation by pressing button  or . Pressing button  can enter the file property interface, which includes three operation functions such as delete, protect and slide show.






The icon  on the top right corner means the picture is a photo.

The icon  on the top right corner means the picture is a video. Press  to play/pause recording. Press  or  can fast forward or rewind during playing.

4) Freeze







Under photo or recording mode, long press  to freeze the picture and press  to unfreeze it. When the picture is frozen, press  to save the frozen on screen as picture.




5) Menu Setup



Pressing  to enter the menu bar interface. Through button  and  to move the cursor up and down for selecting the required function. Press  to enter into setup. After setup, press button  to exit menu bar.



Note: Parameter settings including exposure, white balance, resolution, Sequence, image quality, sharpness, Capture mode, color, ISO, quick review, beep sound and language and other common function. .

6) Exposure Setup




Long press  to enter the exposure setup interface. The icon displayed on the screen is    0. When the icon flashes, the moving cursor is at current position. Press  for Top-down cycle selection. Press  to exit the exposure setup interface.



(1) With the cursor pointed to  , through button  or  to start up or close the real-time automatic exposure function. Red icon AE stands for starting real-time automatic exposure and black AE for closing real-time automatic exposure.



(2) With the cursor pointed to **TE** , through button  or  to process single automatic exposure. Red icon TE stands for ongoing real-time automatic exposure and black TE for none automatic exposure or completed single automatic exposure.



(3) With the cursor pointed to **EV** , through button  or  to change the current value. The valuable adjustment range is -6~+6 with default value 0.



7) White Balance Adjustment



Long press  to enter AWB mode interface. The screen displays icon **AWB** **TWB** **R** 128 **G** 128 **B** 128 . When the icon flashes, the cursor is at current position. Press  for Top-down cycle selection. Press  to exit AWB mode.

(1) With the cursor pointed to **AWB** , through button  or  to start up or close the real-time white balance. Red icon AWB stands for starting real-time white balance and black AWB for closing real-time white balance.


(2) With the cursor pointed to **TWB** , through button  or  to process TWB. Red icon TWB stands for processing single white balance and black AWB for none single white balance or completed single white balance. Note: since the time of processing automatic white balance is very short, the icon TWB will not display red sign.

(3) With the cursor pointed to **R** , through button  or  to change current value. The effective adjustment range is 0~255 with default value 128.

(4) With the cursor pointed to **G** , through button  or  to change current value. The effective adjustment range is 0~255 with default value 128.

(5) With the cursor pointed to **B** , through button  or  to change current value. The effective adjustment range is 0~255 with default value 128.

5.3 Read TF card

After connected the digital camera to the USB port of the PC, press  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 digital camera can be read through computer.

Note: The maximum support of digital camera is 64G and do not support hot plug, that is, the TF card cannot be inserted or pulled out during the operation of the digital camera. Otherwise, the camera eyepiece will work improperly unless you restart it.