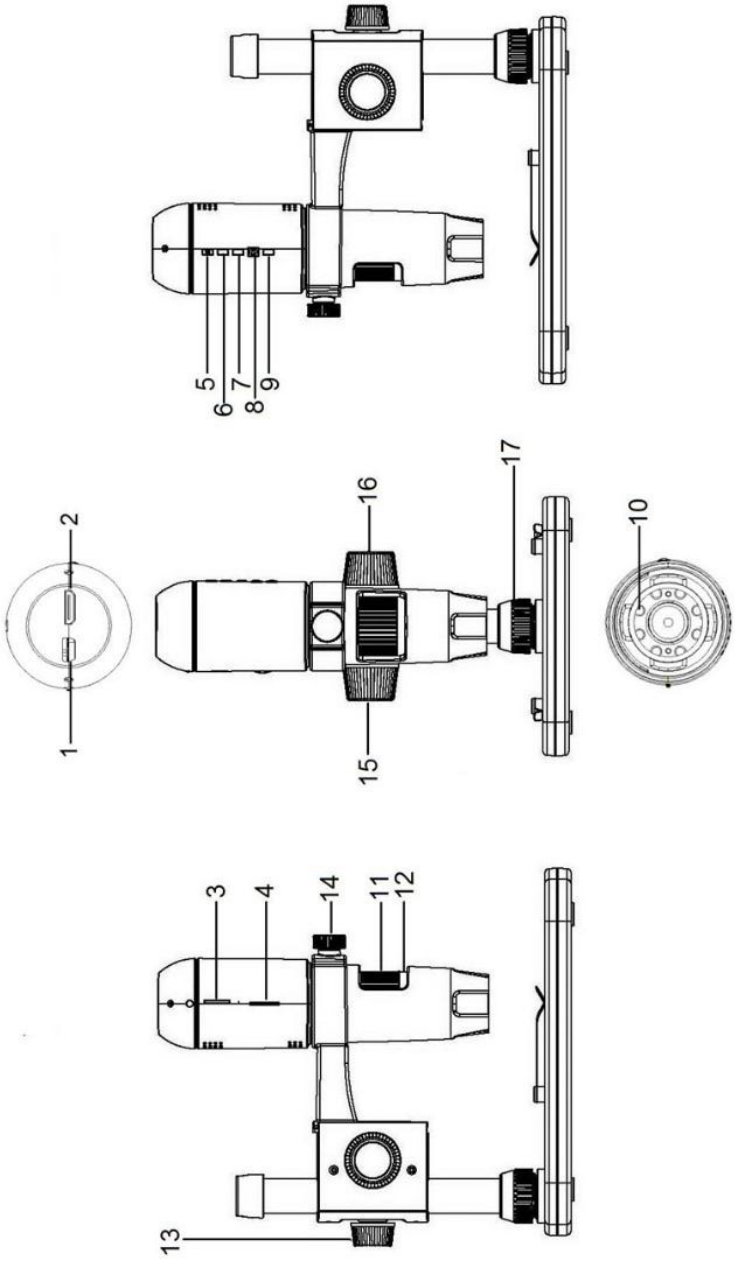
CAMCOLMS2

3 MP HDMI DIGITAL MICROSCOPE
3 MP DIGITALE MICROSCOOP HDMI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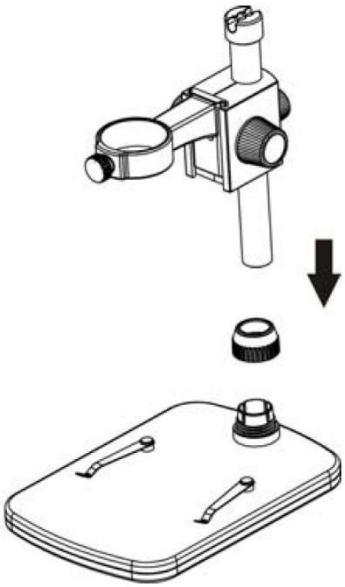
I1



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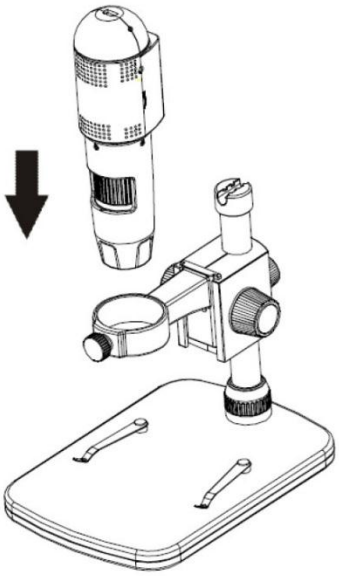

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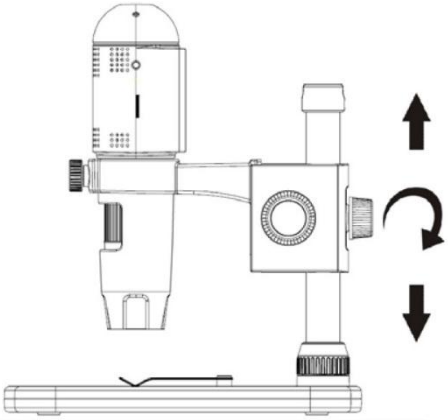
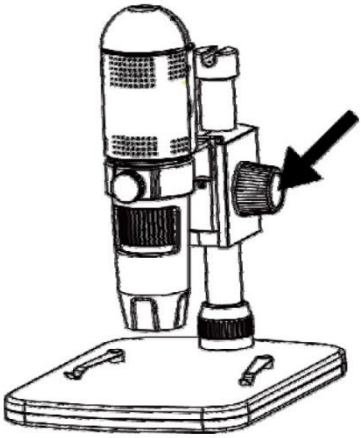
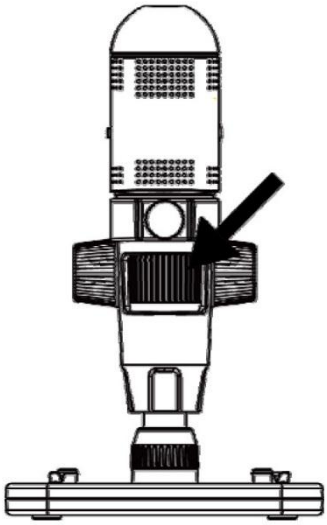


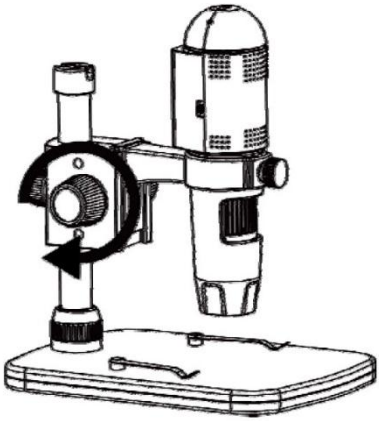
F1



F2



F3



USER MANUAL

1. Introduction

To all residents of the European Union

Important environmental information about this product

This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

If in doubt, contact your local waste disposal authorities.

Thank you for choosing Velleman! Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

2. Safety Instructions

	Keep this device away from children and unauthorized users.
	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children shall be supervised to ensure that they do not play with the appliance.
	The white LEDs, which illuminate the microscope target field, are very bright. Do not stare directly into these LEDs as it may damage your eyes.

3. General Guidelines

Refer to the **Velleman® Service and Quality Warranty** on the last pages of this manual.

	Keep this device away from dust and extreme temperatures.
	Protect this device from shocks and abuse. Avoid brute force when operating the device.

- Familiarise yourself with the functions of the device before actually using it.
- All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty.
- Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty.
- Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
- Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature.
- Keep this manual for future reference.

4. Features

- ideal for checking PCBs, plants, insects, rocks, minerals...
- adjustable focus and magnification
- white LEDs with adjustable intensity
- 2 operation modes
  - HDMI monitor: via HDMI output, video can be recorded on microSD card (up to 32GB)
  - computer: via USB connector, video can be recorded on the computer
- comes with PC software: Portable Capture HD

5. Overview

Refer to the illustrations on page 2 of this manual.

1	5 VDC + USB port
2	HDMI port
3	microSD slot
4	LED dimmer
5	on-off
6	mode
7	menu
8	capture/OK
9	down

10	LEDs
11	fine focus wheel
12	magnification ruler
13	locking screw
14	locking screw
15	coarse focus wheel
16	coarse focus wheel
17	locking screw

6. Installation

Refer to the illustrations on page 3 of this manual.

1. Put the base on a flat and stable non-slippery surface. Slide the frame into the base hole and tighten with the nut (see fig. I1).
2. Slide the microscope into the frame and tighten the screw (see fig. I2).
3. Adjust the height of the microscope to the desired height (see fig. I3).

7. Adjusting the Focus

Refer to the illustrations on page 4 of this manual.

1. Rotate the coarse focus wheel to get the first focus (see fig. F1).
2. Rotate the fine focus wheel to refine the focus (see fig. F2).
3. Fix the microscope with the locking wheel (see fig. F3).

8. Using the Microscope

8.1 Connection

1. Connect the microscope to a powered USB port.
2. Connect the microscope to the TV set or monitor using the HDMI cable.
3. Switch on the TV set or monitor and select the HDMI setting.
4. Switch on the microscope

8.2 Taking a Picture

1. Insert a microSD card (max. 32 GB SDHC) into the microscope.
2. Place an object under the lens. Turn the focus wheel to focus the image of the object to its best.
3. Press the capture button to take the picture and save it onto the microSD card.

8.3 Playback

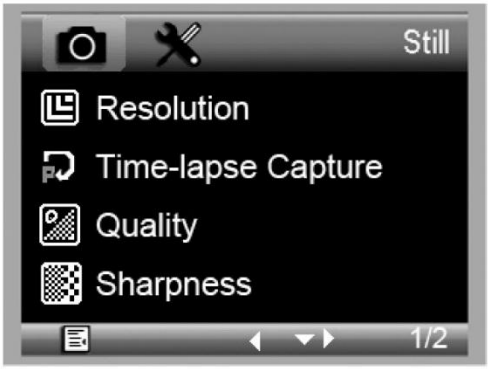
1. Make sure the microscope is loaded with a microSD card.
2. Press the mode button to switch to the playback mode.
3. Press the down button to view the previous picture; press the mode button to return to the preview mode.

8.4 Storing

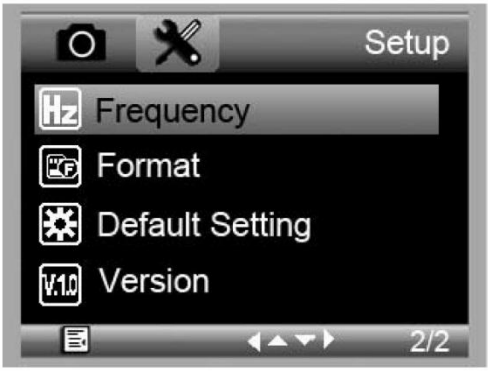
You can store all your pictures on a microSD card or on your computer. To do so, connect the microscope to the computer and transfer the pictures from the microSD card to the computer.

9. Menu

Press the menu button to enter main menu I.



Press the menu button once more to enter main menu II.



Select the menu item with the down button and confirm with the capture button.

9.1 Resolution

Select a resolution between WVGA, 2M, 3M, 5M, 8M and 14M.

9.2 Time-Lapse Capture

Lapse Num: Select the number of frames to be automatically captured during the set lapse time.
Lapse Time: Select the lapse time during which the microscope will automatically take a number of pictures.

1. Press the capture button to confirm your selection and press the menu button to return to the preview status.
2. Start the automatic capture with the capture button. When all pictures are taken, the microscope will return to normal preview.

9.3 Quality

Select a quality between Fine, Normal and Economy.

9.4 Sharpness

Select a value between Strong, Normal and Soft.

9.5 Exposure

Select a brightness value between +2/3, +0.0 and -1/3.

9.6 Date Stamp
Select whether to display the date or not.

9.7 Date/Time
Set the date and time in this window.

9.8 Auto Power-Off
Set the automatic power-off time between Off, 3M, 10M and 30M.

9.9 Language
Select your desired menu language.

9.10 TV Mode
Set the encoding mode between NTSC and PAL.

9.11 Frequency
Select the frequency between 50Hz and 60Hz.

9.12 Format
Choose this menu to format your microSD card.
Note that all the recorded files on the card will be permanently deleted.

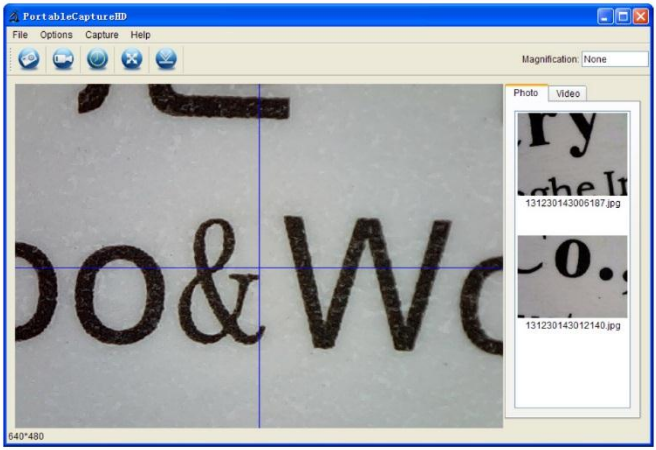
9.13 Default Setting
Choose this menu to go back to the default factory settings.

9.14 Version
Enter this menu to display the current software version.

10. Software

10.1 Installation
Insert the CD-ROM into the CD-ROM drive of your computer. Install the software and follow the instructions on your screen. Also, make sure the microscope is connected to your computer.

10.2 Starting the Software
Launch the software and connect the microscope to the computer. The main screen is displayed.

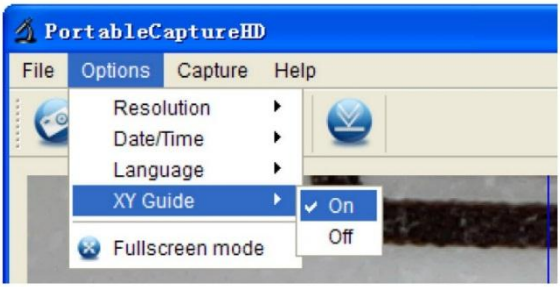


Note
Remove the SD card before connecting the microscope to the computer and insert only after connection. This will avoid that the computer will recognized the microscope as a mass storage device.

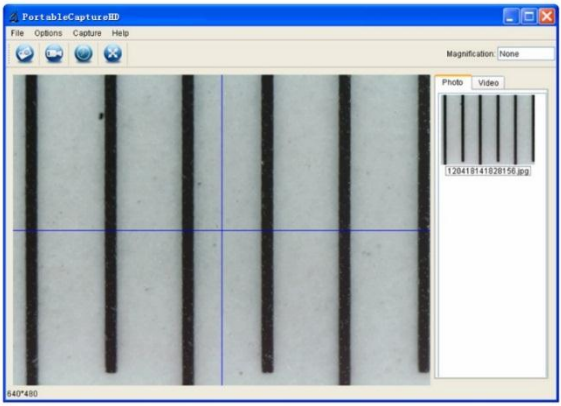
10.3 Functions

Calibration

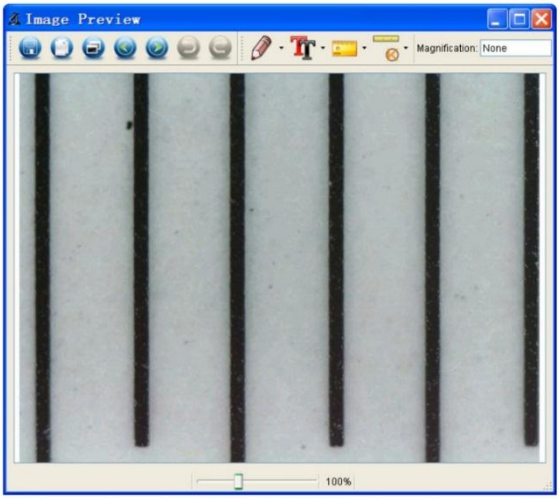
It is recommended to calibrate the microscope before use. First, load the XY guide onto the display.



Place the calibration ruler on the stage and fix with the stage clips. Focus the image until the picture is clear. Take a picture when the ruler lines are parallel to the XY guide.

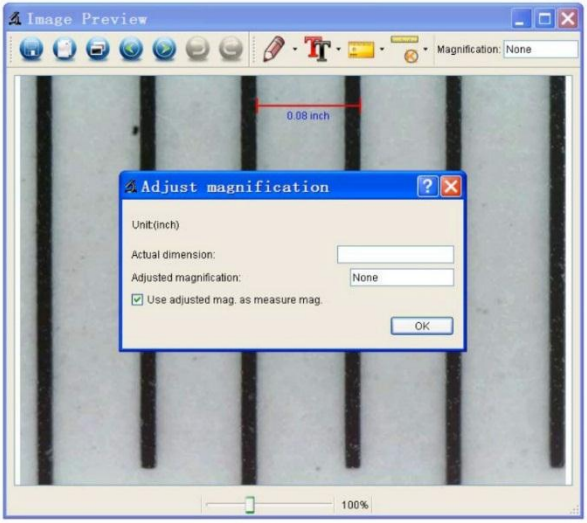


Double-click on the picture to enter the measurement interface.



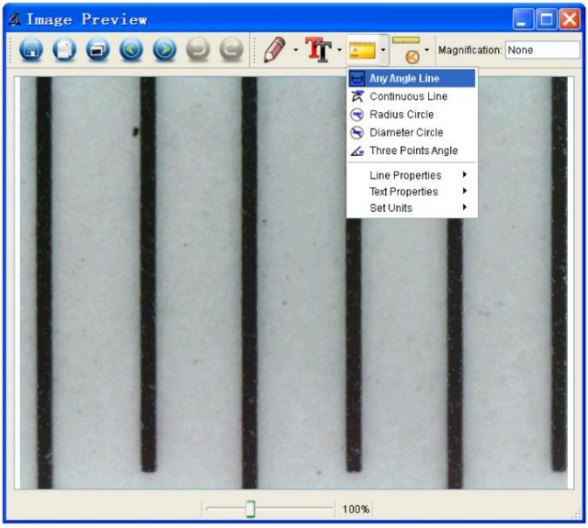
Click the calibration icon and move the cursor to the picture.

Click the start and end points across a known value. Enter the exact measurement values in the dialogue window.



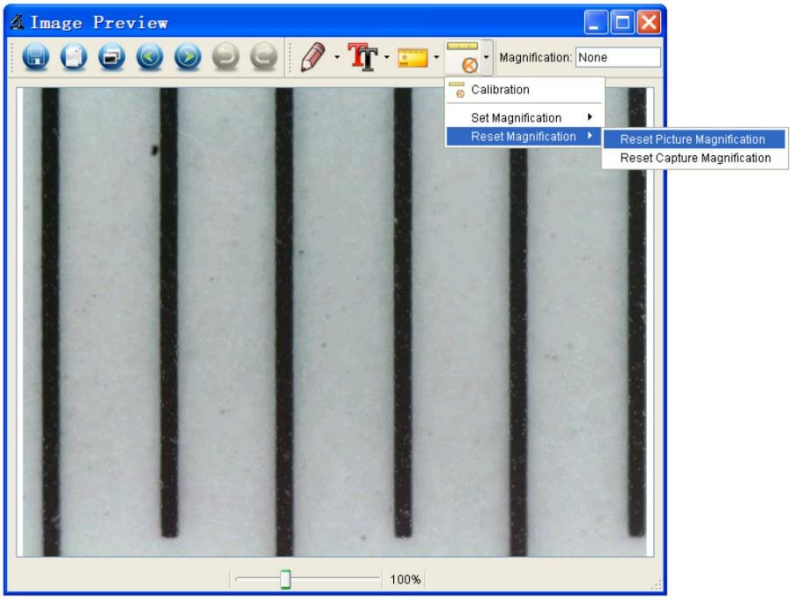
The software will automatically calibrate the magnification rate. Click OK; the adjusted magnification rate will show in the upper right corner.

Click on the angle line icon to measure the values again. The microscope is calibrated if these last values correspond (or differ slightly) to the values entered before.



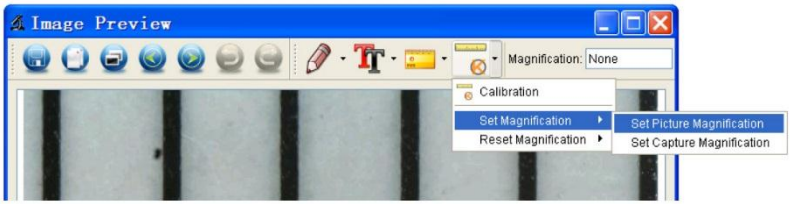
Modifying Calibration

Click the calibration icon and go to Reset Magnification > Reset Picture Magnification. Reset the calibration as described above.

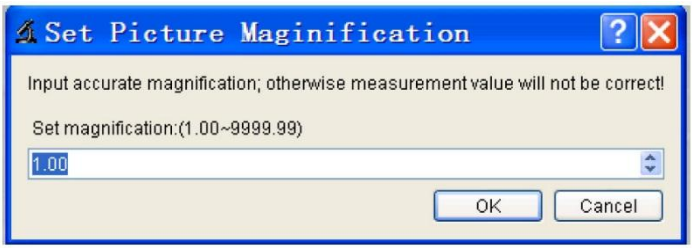


Change the magnification rate and capture several pictures. Double-click on the picture to enter the measurement interface.

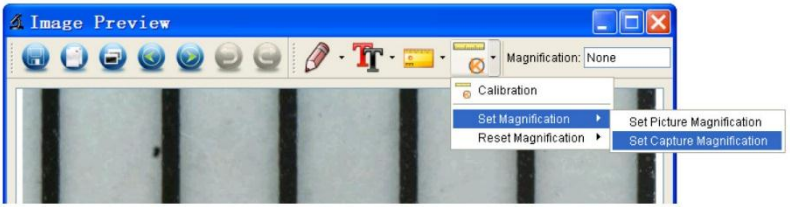
Click the calibration icon and go to Set Magnification > Set Picture Magnification.



Enter the magnification rate and confirm with OK.



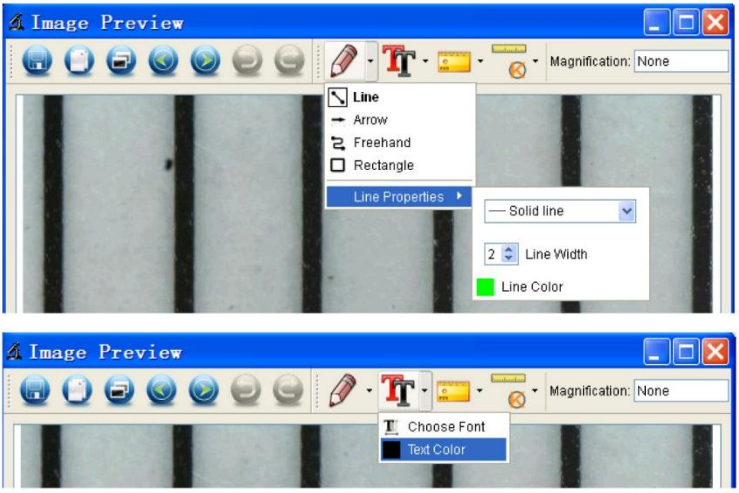
To use the same magnification rate to capture pictures, click the calibration icon and go to Set Magnification > Set Capture Magnification. Now, all pictures will use the same magnification rate and you can start measuring directly.



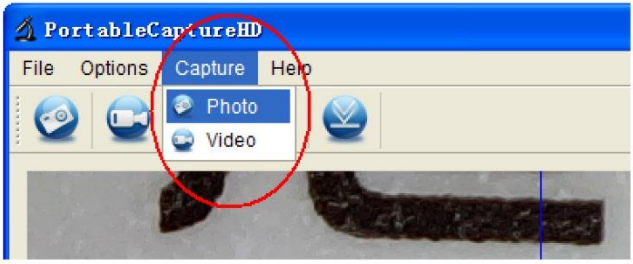
Measuring
Double-click on the picture to enter the measurement interface. Click the measurement icon and select the desired measurement option:

- Any Angle Line
- Continuous Line
- Radius Circle
- Diameter Circle
- Three-Points Angle

Drawing and Writing
Click the pen or text tool and choose your desired options.

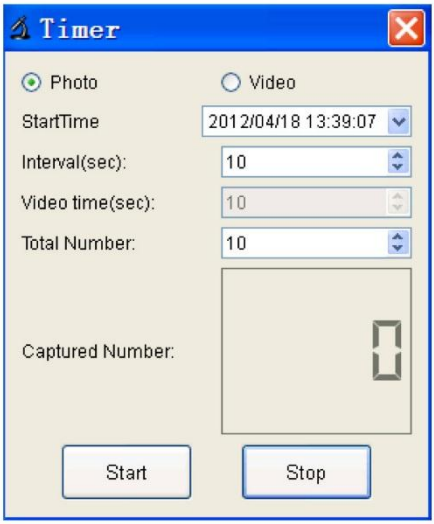


Taking a Picture
Click the picture shortcut icon or go to Capture > Photo.



Capturing Video
Click the video shortcut icon or go to Capture > Video. Click once more to stop recording.

Timer
Click the timer icon in the menu bar.



Set the picture and/or video options and confirm with Start.

Note
Video file size is quite large. Please consider the available memory space on your storage device.

10.4 Interface Icons

Take photo

Start/stop recorded video

Photo/video timer

Full screen mode

Save as

Previous/next

Undo

Redo

Draw

Text

Copy to clipboard

Copy file

Measurement

Calibration

11. Cleaning and Maintenance

Occasionally wipe with a damp cloth to keep it looking new. Do not use harsh chemicals, cleaning solvents or strong detergents.

12. Technical Specifications

image sensor.....3 megapixel (true resolution)
input interface ..... USB 2.0
magnification rate .....10 - 200 x
live video to monitor .....1920 x 1080
white balance .....automatic
focus range ..... manual focus from 0 to 35 mm
iris aperture .....AES
white LEDs .....6 LEDs (adjustable by control wheel)
picture format ..... JPEG/BMP
video format.....AVI
resolution
  still captures..... 14M, 8M, 5M, 3M, 2M, WVGA (on HDMI monitor only)
  video captures ..... 1280 x 720 (720P), 640 x 480 (VGA) / on PC
power supply.....5 VDC via USB
system requirements
  Windows® XP - Vista - 7 - 8 - 10
  Mac® OS 10.7 or higher
dimensions
  microscope..... 154 mm x Ø 42 mm
  stand .....170 x 120 x 12 mm
weight .....595 g

Use this device with original accessories only. Velleman nv cannot be held responsible in the event of damage or injury resulting from (incorrect) use of this device. For more info concerning this product and the latest version of this manual, please visit our website www.velleman.eu. The information in this manual is subject to change without prior notice.

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