# DM022D User Guide

2 Mega Pixels USB Digital Microscope with infrared light (infrared light wavelength is 850nm)





White light effect

850nm light effect



White light effect

850nm light effect

### Table of Contents

Table of Contents	1
Welcome	2
1.Precaution	2
2.Preparation	3
Package Contents	3
Parts Names & Functions	4
3.Specifications	5
4.Install the microscope into the stage	6
5.How to Use the Digital Microscope	8
Works on Computer by USB Connection	8
Adjust focus	9
LED Dimmer	
Part II DigiCapture Pro Software Introductions	11
1. Install the Software on PC (Win7/Win8/Win10)	12
2. Run Digital Microscope	13
3. Main Menu	14
3.1: File	14
3.2: Options	14
3.3: Language	15
3.4: Help	
4. Software Functions	17
4.1: Capture Photo	17
4.2:Capture Video	17
4.3:Timer (Photo / Video)	17
4.4: Fullscreen Mode	18
4.5: Screen Switch	18
4.6: Setup	20
4.7: Measurement	21
4.8: Measurement Interface Instructions	22
4.9: Browse file	23
5: Calibration	24
6. Measurement	
7. Install the Software on MacBook (10.14 and later)	30

### Welcome

Thank you for purchasing the USB Digital Microscope. This digital microscope is a special type microscope that can switch freely between infrared light and white light (the infrared light wavelength is 850nm). It is mainly used in the field of cultural relic identification and restoration, criminal investigation and so on. It has a very peculiar effect on the adhesion observation of transparent industrial glue. It is highly useful for students, teachers, collectors, hobbyists, and testers etc to explore the microscopic world.

Please take a moment to read through this user guide. It will help you to get the best use of the smart microscope.

# 1.Precaution

Before using the Digital Microscope, please ensure that you read and understand the safety precautions described below. Always ensure that the Digital Microscope is operated correctly.

- Do not attempt to disassemble any part of this product.
- The Microscope is not waterproof, so keep it dry.
- Do not use it in a humid place like bathrooms. A dry environment will maintain its life to maximum.
- If the lens is dirty, please use a kens brush on soft cloth to wipe clean. Avoid touching it with your fingers. Exercise care to avoid scratching the lens.
- Sudden temperature change may fog inside the microscope like entering a warm room in the cold Winter. Put it inside a handbag or plastic bag to slow down temperature changes.
- Need to read digital microscope user guide before using and storing it.
- Use the Microscope only at -5°C to 50°C.

#### Notice:

The Digital Microscope have been tested for CE/FCC/RoHS certification.

# 2.Preparation

Package Contents



Microscope







USB cable



Calibration ruler



#### Quick Start Guide

#### Parts Names & Functions



1	LED Dimmer	4	USB Output
2	Focus Wheel		
3	8pcs SMT LED		

# 3.Specifications

- Image sensor : 2 Mega Pixels (True resolution)
- Magnification Ratio: 10x-200x (Real magnification)
- Photo resolution: 640\*480/ 1280\*720/ 1920\*1080
- Video resolution: 640\*480/ 1280\*720/ 1920\*1080
- PC interface : USB2.0
- Power source : 5V DC from USB port
- Light source : 8 LED (adjustable by control wheel)
- Object Distance: Manual focus from 0mm to 55mm
- User Guide:user guide available <u>www.download-toproview.com</u>
- Software: DigiCapture Pro with measurement and Four display concurrently
  Software available <u>www.download-toproview.com</u>
- OSD language : Chinese, English, Traditional Chinese, French, Italian, Japanese, Korean, Russian, Deutsch, Spanish, Portuguese, Dutch, Polish, Ukrainian, Lithuanian, Hungarian
- Operation system: Windows 7/8/10

macOS 10.14 and later

The software support plug and play

- Size: 218mm (L) x 156mm (W) x 87mm (H)
- Weight: 530g

# 4.Install the microscope into the stage

a. Install the metal pole upright into the base by the two screws(included in the package)



b. Put the microscope into the ring of the stand.



- c. Rotate the two knobs clockwise to tighten scope into the scope holder.
- d. Rotate the two knobs to Up/Down microscope focus.
- e. Rotate the knob to lock the Up/Down adjustment.



# 5. How to Use the Digital Microscope

#### Works on Computer by USB Connection

- a. Connect the microscope to computer by USB cable.
- b. Start DigiCapture Pro software, Please refer to Part II on 'DigiCapture Pro Software Introductions'



#### Adjust focus

After putting object on the observation pad and under the lens tube, you can rotate the Focus wheel to get fine focus.



**Note:** The closest distance of microscope and the object is 0mm, and the distance is 55mm. The magnifying time is the maximum when distance is 0mm, the magnifying time will be smaller as the distance increasing. Please adjust the appropriate height before focus adjustment.

#### LED Dimmer

You can rotate the LED Dimmer to adjust the brightness of LED lights while observe the object.



# Part II DigiCapture Pro Software Introductions

# Software name: DigiCapture Pro



# 1. Install the Software on PC (Win7/Win8/Win10)

After download the software, double click it to install DigiCapture Pro in your computer.

#### Note:

Please download the software from <u>www.download-toproview.com</u> or QR code as below:



# 2. Run Digital Microscope

Connect your Digital Microscope to your PC USB port, and double click

4

to run the software and you will see the following





**Note:** When the Digital Microscope is disconnected from your PC USB port, the following message will shown up.

No device detectde, Please connect your microscope to your PC USB port directly!

# 3. Main Menu

#### 3.1: File



Import: Import photos or videos Photos Directory:set the store directory for the photo you taken Videos Directory: set the directory to store video taken Print: Print current image Exit: Exit the software

#### 3.2: Options



**Date/Time:** set the display system date/time on preview window **Crossing:** display cross on preview window **Language:** choose different OSD language

#### 3.3: Language



**a.** There are 16 languages built in the software.

#### 3.4: Help

<b>d</b> DigiCapture Pro	
File Options Help About us	
DigiCapture Pro	
File Options Help	
d DigiCapture Pro	x
Help	
DigiCapture Pro	
Version: V2.0 All rights reserved	
Email: <u>info@toproview.com</u> Website: <u>www.download-toproview.com</u>	
-	

**a.** Please contact us through the information in this page if there is any necessary.

# 4. Software Functions

4.1: Captur	e Photo			
Click 'Photo	' shortcut icon	O	in the main menu	ı bar.
4.2:Capture	e Video			
Click 'Video	' shortcut icon		in the main menu	ı bar.
4.3:Timer (I	Photo / Video)			
Click 'Timer	' shortcut icon	$\bigcirc$	in the main menu	bar.
Í	& DigiCapture	Pro		×
	Photo StartTime		Video 2019/10/13 15:41:09	-
	Interval		1s	* *
	Video times		10s	
	Total Number		þo	<u>A</u>
	Captured Numbe	r Start	Stop	Exit
L				

- **a.** Under Timer photo, you can set the start time, interval time and total number of picture.
- **b.** Under Timer video, you can set the start time, interval time,video times and total number of video.
- c. After setting, you can choose "Start", "Stop" or "Exit" to the next process.

#### 4.4: Fullscreen Mode



in the main menu bar to see the

Click 'Fullscreen Mode' shortcut icon observation object in full screen.



**Note:** press 'ESC' key or Double click the right mouse button to exit full screen mode.

#### 4.5: Screen Switch

The software support one display or four display concurrently.Click 'Screen Switch'

shortcut icon in the main menu bar to switch it from one display into four display.





**a.** Click the left mouse button to select window 1,window 2,window 3 or window 4,When selected, the window border will turn into blue.

**b.** Select different devices in different Windows through the 'Device' option on the right.

c. The software can work with up to four devices simultaneously to display images.

d. You can click 'Screen Switch' shortcut icon again to exit four image display.

**Note1:** Check if the 4USB port in your PC could support the enough power dissipation for the microscope, if the USB port power dissipation is not strong enough, then the 4 preview windows can not work at the same time.

**Note2:** One USB 2.0 port could offer 500MA output current normally, and the power dissipation for one microscope is less than 500MA normally, but it depends on the actual situation, different microscope should be with different power dissipation.

#### 4.6: Setup



in the main menu bar and you will see the Click 'Setup' shortcut icon following screen shown up.

Device:	Digital Microscope	
Resolution:	1920 x 1080	•
Format:	MJPG	•
Photo:	jpg	•
Video:	avi	-
Exposure and	l Gain	
Color Adjust	tment	
Flipping		

- a. Support different devices working by clicking the drop-down menu 'Device'.
- b. Choose different resolution working by clicking the drop-down menu 'Resolution'.
- c. Select different image parameter through 'Format', 'Photo format', 'Video format', 'Exposure and Gain', 'Color Adjustment', and 'Flipping'.

#### 4.7: Measurement

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+	×	$\ddagger$	5
C	=		
	Measu	rement	
Measure Color	Icon	Lines So	lid 1 🔻
Choose Color [	Font 👻	)Size 32	•
Calibra	tion		
Calibrati	on Value		i
		•	Edit

- **a.** Choose different measurement functions through the menu. Different measurement function can be operated in the preview window or the store photos.
- **b.** Click the 'Edit' button to set Calibration.

**Noted:** Remember to follow this step, or the measurement will be inaccurate. **(More on that later)**.

#### 4.8: Measurement Interface Instructions

+	Coordinate	Lines	1
٦	Continuous Line	Rectangle	
0	Polygon	Parallel Lines	11
~	Vertical Line	Grid Line	- -
∡	Angle	Arc	
٢	Circle	Two Points Circle	٥
٥	Three Points Circle	Concentric Circles	0
90	Double Circle	Text	Т
÷	Move	Delete	×
$\ddagger$	Crossing	U n d o	Ð
C	Redo	Delete	±

#### 4.9: Browse file

Click 'Browse file' shortcut icon in the main menu bar and you will see the following screen shown up.



- a .You can replay photo or video, and double click photo to measure.
- b. Photo taken by the software will be saved at: D:\DigiCapture Pro\save\image\Photo1 or \Photo2,\Photo3,\Photo4
- c. Video taken by the software will be saved at:D:\DigiCapture Pro\save\movie\Movie1 or \Movie2,\Movie3,\Movie4

Noted: Please note that do not install this software on the disk c of your computer, or may cause some computer permission issue.

If you have to install it on disck c, please change the save path for capture and video as below(due to Windows permission, can't take capture and video if the default location is disck c): File---Photos Directory---Add an new foler in disk C with whatever name---Choose this new folder as your capture save path; Same way for video recording.

# 5: Calibration

Please make calibration before measurement.

#### Calibration

Start Crossing from 'Options>Crossing>On'.



Noted: the usage of this crossing is checking the dial on the calibration ruler.

5.1: Focusing microscope by using the attached calibration ruler



until the picture is clear. Make the dial parallel to the crossing as below.



**5.2:** Click the 'Edit' button in the lower right and you will see the following screen shown up.



**5.3:** Select physical length unit same as the calibration ruler.

E.g., If the calibration unit is mm, then select mm in the drop down menu.

Physical Length	1	mm 🔻

5.4: Move the H-shaped ruler in the preview window to a reasonable position



\* Remark: The measured line should be parallel.

**5.5:** Select the length of H-shape, the length number of H-shape is same as the corresponding calibration ruler dial, then fill the length number as following figure, such as '1'.

Physical Length	1	mm 🔻

**5.6:** Click the 'Add' button and you will see the following screen shown up.

d DigiCapture Pro	
File Options Help	
	🖻 🛄 🙁
	Calibration List      Magnification      202.57X      Delete      Backups      Recover      Add Ner Calibration      Highification 202.57X      Physical Length 1      Add
Frame Rate:14.3fps Coordinate:827,-423 (R:187 G:189 B:189) 1920 * 1080	Return

**a.** You can see actual magnification under the 'Magnification' menu on the left of the window.e.g. '202.57X', means the image is magnified 202.57 times.

**5.7:** Click the 'Return' button in the lower right and you will see the following screen shown up.



**a.** If the above 7 points $(5.1 \sim 5.7)$  are completed in sequence, the correction is completed.

## 6. Measurement

Please make calibration before measurement.

**6.1:** Use the corrected magnification to test the target object, as shown below:



In order to ensure the accuracy of the measurement, please make sure he focal length and resolution are same as the correction value. Otherwise, the measured results will not be accurate.

Picture shown above is the result for the target object "PCB": PCB line width is 0.2513mm and distance of two PCB line is 0.1691mm.

**6.2:** Print images from 'File>Print', as shown below:



**6.3:** Choose other magnification to measure target object by clicking the drop-down menu 'Calibration Value'. Different magnification will lead to different measurement results.

alibration Value		
95. 16X	-	Edit
95.16X		

**6.4:** If you change the resolution or the focal length, please revise the calibration again and use the corrected magnification to go ahead the target object measurement, or the measurement result will not be accurate.

# 7. Install the Software on MacBook (10.14 and later)

7.1: Please download the software from www.download-toproview.com



**7.2:** After download, press 'control' and click the "pkg" file to install DigiCapture Pro in your MacBook



#### 7.3: Please click 'Open' to allow the installation, as follow



#### 7.4: Run the software as follow

