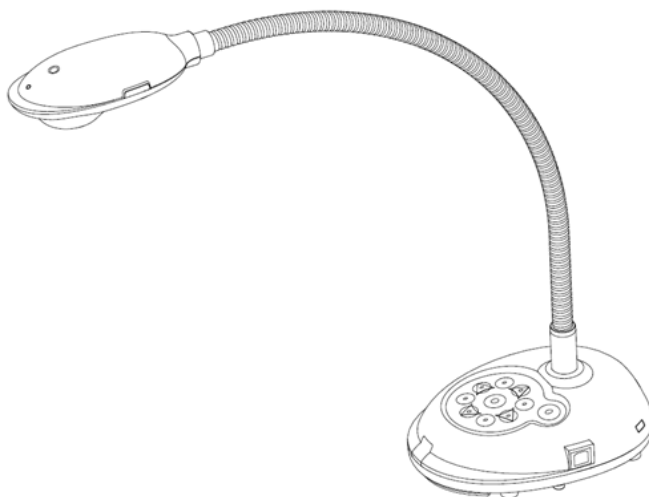


DC172

4K Document Camera

User Manual - English



[Important]

To download the latest version of Quick Start Guide, multilingual user manual, software, or driver, etc., please visit Lumens

<https://www.MyLumens.com/support>

Table of Contents

Copyright Information.....	2
Chapter 1 Safety Instructions	3
Chapter 2 Package Contents.....	5
Chapter 3 Product Overview	6
3.1 Diagram of the relative position between a user and device.....	7
Chapter 4 Installation and Connections.....	8
4.1 System diagram.....	8
4.2 Installing Application Software.....	9
Chapter 5 Start Using.....	10
Chapter 6 Introduction of Panel, Remote Control and Setting Menu	11
6.1 Functions of control panel and remote control	11
6.2 Setting Menu	13
Chapter 7 Descriptions of Major Functions.....	18
7.1 I would like to automatically adjust the image to have the best brightness and focusing performance	18
7.2 I would like to switch image sources	18
7.3 I would like to freeze images	18
7.4 I would like to rotate the image.....	18
7.5 I would like to record images.....	19
7.6 I would like to use the MASK and Spotlight function	19
7.7 I would like to compare images (compare live images with stored image files (PIP))	20
7.8 I would like to change the power on image.	20
Chapter 8 Connecting to Microscope	21
Chapter 9 DIP Switch Setting	22
Chapter 10 Troubleshooting.....	23
Supplier's Declaration of Conformity 47 CFR § 2.1077 Compliance Information	25

Copyright Information

Copyrights © Lumens Digital Optics Inc. All rights reserved. Lumens is a trademark that is currently being registered by Lumens Digital Optics Inc.

Copying, reproducing or transmitting this file is not allowed if a license is not provided by Lumens Digital Optics Inc. unless copying this file is for the purpose of backup after purchasing this product. In order to keep improving the product, Lumens Digital Optics Inc. hereby reserves the right to make changes to product specifications without prior notice. The information in this file is subject to change without prior notice. To fully explain or describe how this product should be used, this manual may refer to names of other products or companies without any intention of infringement.

Disclaimer of warranties: Lumens Digital Optics Inc. is neither responsible for any possible technological, editorial errors or omissions, nor responsible for any incidental or related damages arising from providing this file, using, or operating this product.

Chapter 1 Safety Instructions

Always follow these safety instructions when setting up and using the Document Camera:

1 Operation

- 1.1 Please use the product in the recommended operating environment, away from water or source of heat
- 1.2 Do not place the product on a tilted position or unstable trolley, stand or table.
- 1.3 Please clean the dust on the power plug prior to usage. Do not insert the product's power plug into a multiplug to prevent sparks or a fire.
- 1.4 Do not block the slots and openings in the case of the product. They provide ventilation and prevent the product from overheating.
- 1.5 Do not open or remove covers, otherwise it may expose you to dangerous voltages and other hazards. Refer all servicing to licensed service personnel.
- 1.6 Unplug the product from the wall outlet and refer servicing to licensed service personnel when the following situations happen:
 - If the power cords are damaged or frayed.
 - If liquid is spilled into the product or the product has been exposed to rain or water.

2 Installation

- 2.1 For security considerations, please make sure the standard hanging rack you bought is in line with UL or CE safety approbations and installed by technician personnel approved by agents.

3 Storage

- 3.1 Do not place the product where the cord can be stepped on as this may result in fraying or damage to the lead or the plug.
- 3.2 Unplug the product during thunderstorms or if it is not going to be used for an extended period.
- 3.3 Do not place the product or accessories on top of vibrating equipment or heated objects.

4 Cleaning

- 4.1 Disconnect all the cables prior to cleaning and wipe the surface with a dry cloth. Do not use alcohol or volatile solvents for cleaning.

■ Precautions

	This symbol indicates that this equipment may contain dangerous voltage which could cause electric shock. Do not remove the cover (or back). No user-serviceable parts inside. Refer servicing to licensed service personnel.		WARNING
			This symbol indicates that there are important operating and maintenance instructions in this User Manual with this unit.

■ Battery Warning (for products or accessories with batteries)

General Safety Warnings:

- Do not heat or dispose of the battery in fire, as it may explode or leak.
- Avoid short-circuiting: Do not connect the positive and negative terminals directly or use metallic objects to connect them.
- Do not disassemble, crush, puncture, or modify the battery.
- Do not immerse the battery in water or any other liquids.

Usage and Storage Warnings:

- Do not store the battery in high-temperature environments (above 60°C) or in areas with high humidity.
- Keep away from direct sunlight and heat sources.
- If not in use for a long period, remove the battery and store it in a cool, dry place.

Disposal and Recycling Warnings:

- Do not dispose of the battery in household waste; follow local regulations for proper disposal and recycling.
- If leakage occurs, avoid contact with the leaked substance and clean the affected area immediately.

Child Safety Warnings:

- This product contains a button battery. Ingestion of a button battery can cause severe internal burns within 2 hours and may result in death.
- If a battery is swallowed or if internal battery material is contacted, seek medical attention immediately.
- Store batteries (whether new or used) in a place that is out of reach of children.
- If the battery compartment does not close securely, stop using the product and keep it away from children.

■ **FCC Warning**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Notice :

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

■ **IC Warning**

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par l'Industrie.

■ **EN55032 CE Warning**

Operation of this equipment in a residential environment could cause radio interference.

Chapter 2 Package Contents

DC172



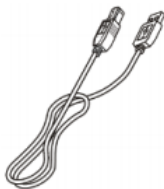
Remote Control



HDMI cable



USB cable

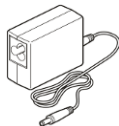


Power Cord



Appearance may vary
depending on
country/region

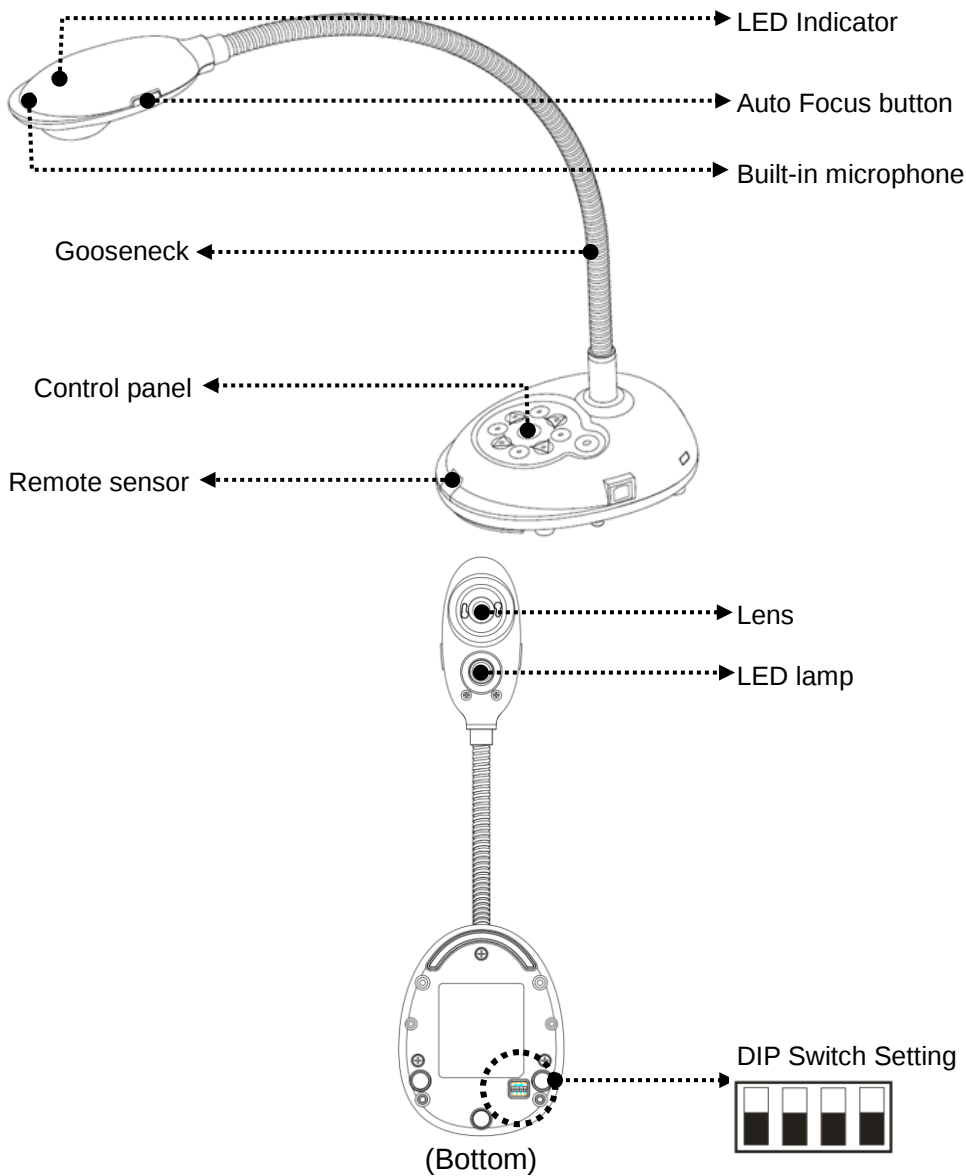
Power Adapter



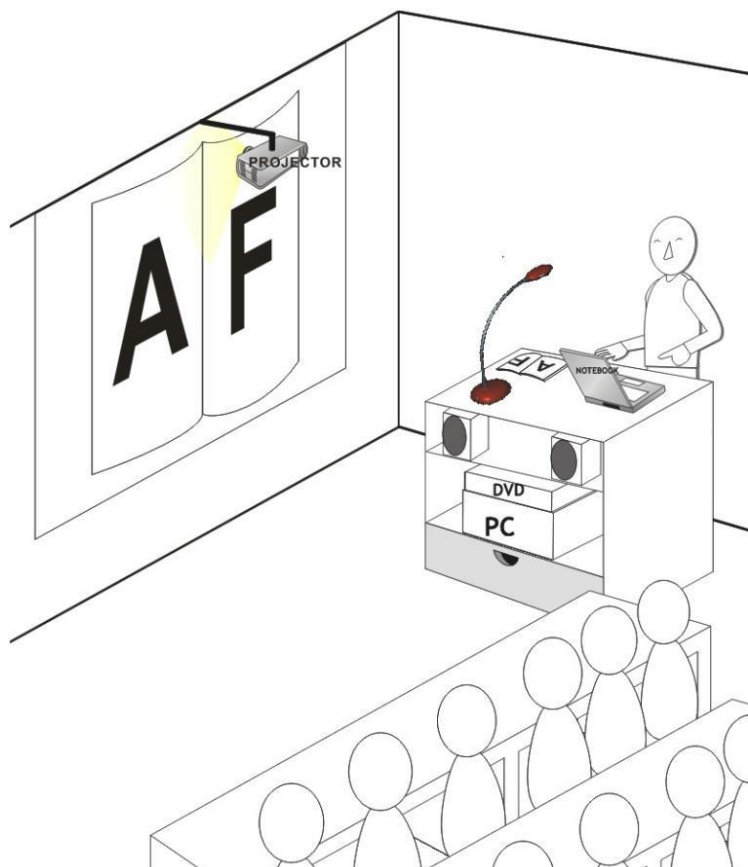
Microscope Adapter



Chapter 3 Product Overview

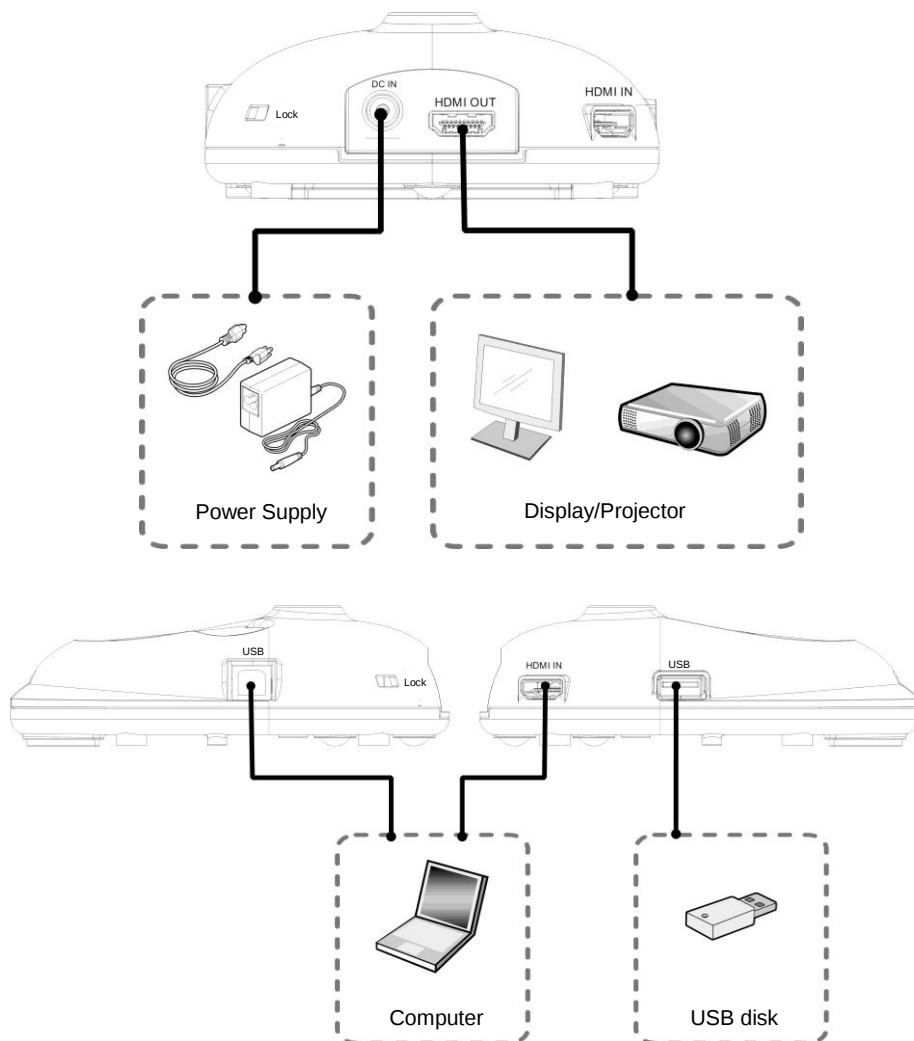


3.1 Diagram of the relative position between a user and device



Chapter 4 Installation and Connections

4.1 System diagram



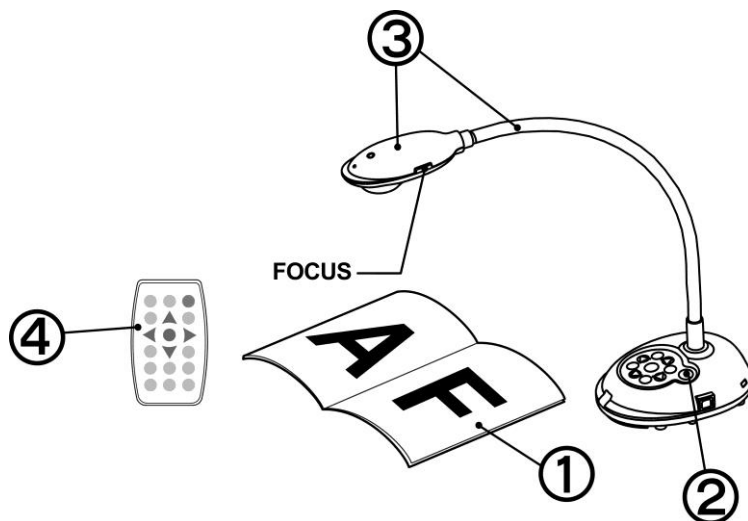
4.2 Installing Application Software

The application software installed on the computer enables you to:

- Control the DC172.
- Capture and record images.
- Annotate the image, highlight important details and save it.
- Support the full screen function.

[Remark] Please refer to [Ladibug™ 4K software user manual](#) for installation steps and software operation.

Chapter 5 Start Using



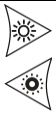
1. Place an object to be displayed under the camera.
2. Turn on Power .
3. Adjust the gooseneck and lens to the appropriate positions.
4. Press [AUTO TUNE]  button to optimize the image.

You are ready to teach/present.

[Remark] Each time the camera head is moved, press the [FOCUS] button to refocus the lens.

Chapter 6 Introduction of Panel, Remote Control and Setting Menu

6.1 Functions of control panel and remote control

Icon	Name	Function Descriptions	Operation
	Power	Turn on and off. * Press and hold for 5 ~ 10 seconds to turn off.	Remote control/Control panel
	Arrow Key	Move up, down, left or right to select the needed function.	Remote control/Control panel
N	FOCUS	Auto focus.	Either sides of the lens
	AUTO TUNE	Automatically adjust the image to have the best brightness and focusing performance.	Remote control/Control panel
	BRT+/-	Adjust the brightness of the image.	Remote control/Control panel
	CAPTURE	Capture images to USB disk (priority) or internal memory.	Control panel
	CAPTURE /DEL	Capture and save images to USB disk (priority) or internal memory while displaying live images. Delete files from the USB disk (priority) or internal memory while reading the stored files (in Playback mode).	Remote Control
	ENTER	Activate/Enter functions.	Remote Control
	ENTER/FREEZE	Live image: Freeze the image. OSD mode: Activate/Enter functions.	Control panel

	FREEZE	Freeze the current image to remain temporarily on the screen. Press again to defreeze.	Remote Control
	LAMP	Lamp mode toggle switch.	Remote control/Control panel
	MASK	Activate Mask/Spotlight mode.	Remote Control
	MENU	Activate the setting menu/exit the menu.	Remote control/Control panel
	PAN	Enable/Disable the partial enlarged mode.	Remote Control
	PIP	Image comparison (to compare live images with stored image files).	Remote Control
	PLAYBACK	Read files in the USB disk (priority) or internal memory.	Remote control/Control panel
	RECORD	Record motion images.	Remote Control
	ROTATE	Screen rotation 0° / 180° / Vertical flip / Horizontal flip / 90° / 270°.	Remote Control
	SOURCE	Switch the input source between live image (default) or HDMI image.	Remote control/Control panel
	ZOOM +/-	Increase or decrease the image size.	Remote control/Control panel

6.2 Setting Menu

6.2.1 Main menu

[Remark] Press [MENU] on the remote control or control panel to display the setting menu.



	Auto Tune Automatically adjust the image to have the best brightness and focusing performance.		Slide Show Show the photos or videos stored in the USB disk (priority) or internal memory in slide mode.
	PAN Enable/Disable the partial enlarged mode.		Manual Focus Manual Focus.
	LAMP Lamp mode toggle switch.		Rotate Set the rotation angle of the screen.
	PIP Compare live images with stored images.		Settings Set up various functions.

	Brightness Adjust the brightness of the image.		Photo/Text Select Photo/Text/Gray Mode.
	Mask Activate the mask mode.		Annotation Annotate or mark the image
	Zoom Increase or decrease the image size.		Mode Select image mode.
	Spotlight Activate the spotlight mode.		Exit Exit the setting menu

6.2.2 Setting menu

1 st Level Major Items	2 nd Level Minor Items	Function Descriptions
Capture	Capture Mode	Use the left and right arrow keys to select the capture mode.
	Capture Time	Use the left and right arrow keys to select the capture time. The setting range is 1 ~ 72 hours. <Note> This will be active only when capture mode is set to time lapse.
	Capture Interval	Use the left and right arrow keys to select the capture interval. The setting range is 3 seconds ~ 5 minutes. <Note> This will be active only when capture mode is set to time lapse.
	Image Quality	Use the left and right arrow keys to select the image quality for the captured images and recorded videos.
Storage	Slide Show	Show the photos or videos stored in the USB disk (priority) or internal memory in slide mode. <Note> Upper limit: The maximum size of single photo is 7 MB.
	Delay	Use the left or right arrow keys to select the delay before changing to the next slide with setting for 0.5 ~ 10 seconds or Manual.
	Copy To USB Disk	Copy files from internal memory to the USB disk.

1 st Level Major Items	2 nd Level Minor Items	Function Descriptions
	Delete All	Delete all images in the USB disk (priority) or internal memory.
	Format	Format the USB disk (priority) or internal memory.
Control	Auto Exposure	Regardless of outside environment, the machine will adjust the brightness to the optimal condition.
	Auto White Balance	Regardless of outside light or color, the machine will adjust the color to the optimal condition.
	Audio Out Volume	Use the left and right arrow keys to adjust the volume.
	Mic Levels	Use the left and right arrow keys to adjust the volume.
	Digital Zoom	Use the left and right arrow keys to turn on/off digital zoom .
Advanced	Language	Switch to different languages. There are a total of 20 languages available for selection.
	Lock Down	Set the lock down when the power is On.
	Auto Erase	Set the stored images to be automatically deleted when Off is selected.
	Preset Load	Read the value of the current image mode.
	Preset Save	Store the value of the current image mode.
	Splash Screen Settings	Launch [Splash Screen Settings] window.
	Factory Reset	Resume the factory default setting to operate.
	Firmware Version	Display FW version.

6.2.3 Mask mode setting menu

Function Items	Function Descriptions
Live image	Press [ENTER] to return to live image.
Transparency	Use the left and right arrow keys to adjust the transparency of the mask.
Step	Use the left and right arrow keys to select the step of the mask.
V Size	Use the left and right arrow keys to select the vertical height of the mask.
H Size	Use the left and right arrow keys to select the horizontal length of the mask.
Exit	Press [ENTER] to confirm your selection and exit the mask mode setting menu.

6.2.4 Spotlight mode setting menu

Function Items	Function Descriptions
Live image	Press [ENTER] to return to live image.
Shape	Use the left and right arrow keys to select the shape of the spotlight zone.
Transparency	Use the left and right arrow keys to adjust the transparency of the border in the spotlight mode.
Step	Use the left and right arrow keys to select the step of the spotlight zone.
V Size	Use the left and right arrow keys to adjust the height of the spotlight zone.
H Size	Use the left and right arrow keys to adjust the width of the spotlight zone.
Exit	Press [ENTER] to confirm your selection and exit the spotlight mode setting menu.

6.2.5 Splash Setting Windows

Function Items	Function Descriptions
Power On Image Setting	Select to use default/custom power on image.
Power On Logo Show Time	Set the duration of displaying the power on logo that can be adjusted between 4 ~ 30 seconds.
Power On Image Select	Power On Image Select. ※ Only pictures in JPEG format are supported.
Exit	Press [ENTER] to confirm your selection and exit splash screen setting window.

6.2.6 Annotation Tools

After connecting the mouse via USB, right-click to activate the  drawing function of the setting menu

When the mouse stays at the right side of the screen, the mouse annotation menu can be activated

<Remark> You can only choose either USB screen or mouse annotation

- When the mouse annotation function is selected, then remove the USB cable
- To access the USB screen, please make sure that the mouse annotation function is not in use

Icon	Description	Icon	Description
	Custom tool 1		Clear all
	Custom tool 2		Open setting menu of the annotation tool
	Eraser		Exit the annotation tool

Chapter 7 Descriptions of Major Functions

7.1 I would like to automatically adjust the image to have the best brightness and focusing performance

Use the Remote Control or Control Panel:

1. Press [AUTO TUNE] for the best brightness and focusing performance.

7.2 I would like to switch image sources

Live image is the default image source. Press [SOURCE]  on the **remote control or control panel** to have DC172 switch among the following images sources:

1. Live image (default).
2. HDMI IN.

[Remark] This image switch applies to HDMI OUT simultaneously.

7.3 I would like to freeze images

1. Press [FREEZE] on the **remote control** or **control panel** to freeze the current image on the screen. Press again to defreeze.

7.4 I would like to rotate the image

Remote control:

1. Press [ROTATE] key to rotate the screen. (The sequence is: 0°/180°/Vertical flip/Horizontal flip/90°/270°).

Control panel:

1. Click [MENU] to access the setting menu and then select the [ROTATE] function. Adjust the rotation by pressing [▶] or [◀].

[Note] When the HDMI output is in 90°/270° mode, the USB screen displays as 0°, and PAN, PIP, recording function are not available.

7.5 I would like to record images

[Note] Connect USB disk to DC172 4K to start recording images.

7.5.1 Recording motion images

[Remark] You may not be able to capture or record images when [Capture Image] mode is set to [Disable].

Remote control:

1. Press [RECORD] on the **remote control** to start recording images.
Press [RECORD] again to stop.
2. Record sounds with the built-in microphone of the control panel

Control panel:

1. Press and hold [Capture] button for about 2 seconds to start recording. Press [Capture] again to stop.

7.5.2 Playing images

- To play images, please refer to [7.13 I would like to view captured/recorded images.](#)

7.6 I would like to use the MASK and Spotlight function

Remote control:

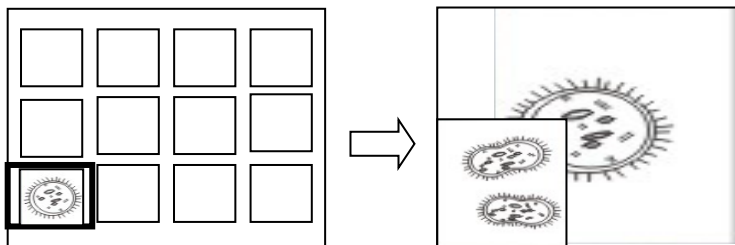
1. Press [MASK] to activate the mask/spotlight mode menu in order to adjust function settings for Live, Transparency, Step, V Size, H Size

Control panel:

1. Press [MENU] to access the setting menu and then select the [Mask] function in order to adjust function settings for Live, Transparency, Step, V Size, H Size

7.7 I would like to compare images (compare live images with stored image files (PIP))

This function will compare and contrast a live image with a stored image.



Remote control:

1. Press [Playback] to access the Playback image thumbnails, and select the files to be compared
2. Press [PIP] to execute image comparison. Press the direction keys to move the live image
3. Repeat Steps 1 - 2 to change other image files

7.8 I would like to change the power on image.

[Note] The power on image file must be less than 5 MB and in JPEG format

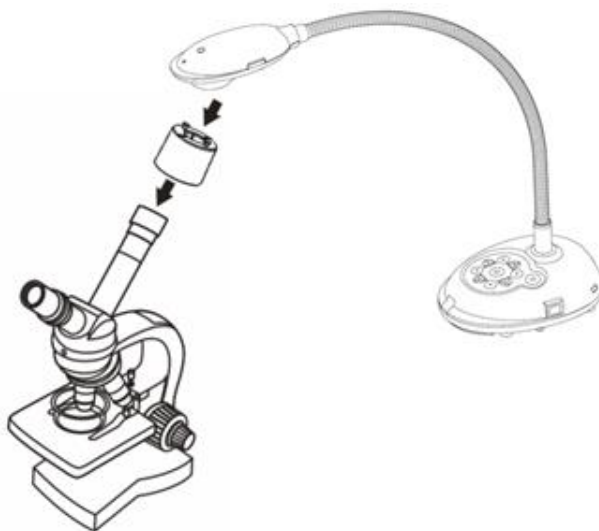
[Note] To save the file, please follow the instruction below:

File path: \DCIM\100MEDIA, for example: J:\DCIM\100MEDIA
File name: four English letters+ four numbers, for example:
LUMN0001.JPG

1. Press [MENU] on the remote control or control panel to access the setting menu. To adjust settings, select [Settings] → [Advanced Settings] → [Splash Setting Windows]

Chapter 8 Connecting to Microscope

- 1 Mount the microscope adapter accessories onto the microscope
[Note] Please choose an appropriate microscope adapter. Microscope adapter accessories are applicable to eyepieces of Ø28 mm.
- 2 The lens of DC172 connects with the **microscope adapter**



- 3 If the image is not clear
 - 3.1. Please adjust the focus of microscope.
 - 3.2. Please press the [FOCUS] button on either side of the DC172 lens to execute the auto focus.

Chapter 9 DIP Switch Setting

1. Description of DIP

DIP	Function Descriptions
DIP 1 & DIP 2	Output Resolution
DIP3	OFF (Normal mode): 30 fps, applicable to general scene . ON (High-speed mode): 60 fps, applicable to support rapidly changing scene . [Note] In 4K mode, setting DIP3 to ON supports HDMI output at 60/50Hz.
DIP4	OFF : 60Hz ON : 50Hz

2. Resolution Switch

Resolution	60Hz	50Hz
1920 x 1080	On Off (Default Values)	On Off
3840 x 2160	On Off	On Off
1280 x 720	On Off	On Off
1024 x 768	On Off	On Off

Chapter 10 Troubleshooting

This chapter describes problems you may encounter while using DC172. If you have questions, please refer to related chapters and follow all the suggested solutions. If the problem still occurred, please contact our distributors or service center.

No.	Problems	Solutions
1	Boot without power signal	Make sure you have plugged in the power cord.
2	There is no image output from DC172	1. Check the power. 2. Check all cable connections. Refer to Chapter 4 Installation and Connections in this manual. 3. Check the [Source], refer to 7.2 I would like to switch image sources of Chapter 7 Descriptions of Major Functions. 4. Check the settings for the source of the projector. Please refer to the user manual of the projector. 5. Check if DIP switch is properly set. Please refer to Chapter 9 DIP Switch Setting for related settings.
3	Unable to focus	Probably the document is too close. Press [ZOOM -] on the remote control or control panel . Or pull away the lens from the document to increase the distance, and then press the [FOCUS] button on the right side of the lens for auto focus.
4	The image is incomplete	Check the Auto Image setting of your projector. Please refer to the user manual of the projector or check for the DIP switch setting.
5	Lumens Document Camera, Ladibug™ and other applications cannot be used simultaneously	Lumens Document Camera, Ladibug™ and other applications cannot be used simultaneously. Only one application can be executed at a time. Please close the currently running applications and then execute the application to be used.
6	When DC172 is turned on, the auxiliary floodlight do not light	Please make sure the head lamp is set to [Off].

7	The data in the USB disk cannot be read	1. The supported format of the disk is exFAT. It is recommended to use DC172 to format the disk before it is used. 2. The USB disk with the capacity of 4 G and above is recommended (up to 256 G supported) 3. Please make sure the file was saved at the specified path: \DCIM\100MEDIA. (E.g.: J:\DCIM\100MEDIA) 4. Please make sure the file is named appropriately, e.g. four English letters + four numbers. (E.g.: LUMN0001.JPG)
8	Fail to store images or react	1. Check to see if the stored data have reached the maximum size of the USB disk (priority) or internal memory. 2. Please make sure if the capture function is set to continuous mode or the time for capture is set to be long.
9	The output image is too bright, too dark, or vague	Press [AUTO TUNE] button to automatically adjust the image to have the best brightness and focusing performance.
10	Unable to record images	1. Check to see if the stored data have reached the maximum size of the USB disk. 2. The recording function is not supported in the internal memory. Please make sure that USB disk is inserted for image recording.
11	The operating steps in the manual are not applicable to the machine	The operating steps in the manual may be not applicable to the machine due to improvement in functions. Check to see if the Firmware version of your machine is up-to-date. Please go to Lumens official website to check whether the latest version is available for update. https://www.mylumens.com/support
12	How to unlock the locked device	Press [MENU] to access the setting menu → [Settings] → [Advanced Settings] → [Lock Down] → select [OFF] to disable the lock down function when the power is On.

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Manufacturer : Lumens Digital Optics Inc.

Product Name : DC172

Model Number : 4K Document Camera

Responsible Party – U.S. Contact Information

Supplier : Lumens Integration, Inc.

4116 Clipper Court, Fremont, CA 94538, United States

e-mail : support@mylumens.com

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.