

VISUAL PRESENTER

L-12S / TT-12S

INSTRUCTION MANUAL

■ IMPORTANT SAFEGUARDS

Make sure to read the “IMPORTANT SAFEGUARDS” in this guide before using this product. For details about specifications and instruction manual of the product, refer to the following official website.

<https://www.elmoussa.com>

<https://www.elmoeurope.com/en/>



Warning

Mishandling can result in death or serious injury to the user.

- **Read Instructions**
All the safety and operating instructions should be read before the appliance is operated.
- **Retain Instructions**
The safety and operating instructions should be retained for future reference.
- **Heed Warnings**
All warnings on the product and in the operating instructions should be adhered to.
- **Follow Instructions**
All operating and use instructions should be followed.
- **Cleaning**
Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a dry cloth for cleaning.
- **Attachments**
Do not use attachments not recommended by the product manufacturer as they may cause hazards.
- **Water and Moisture**
Do not use this product near water - for example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
- **Placement**
Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer’s instructions, and should use a mounting accessory recommended by the manufacturer.
- **Ventilation**
Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer’s instructions have been adhered to.
- **Power Sources**
This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home consult your appliance dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
- **Grounding or Polarization**
This product may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin. If the 2-Wire polarized plug will not fit in the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

■ **Power-Cord Protection**

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

■ **Lightning**

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

■ **Overloading**

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

■ **A product and cart combination should be removed with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.**



■ **Object and Liquid Entry**

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

■ **Servicing**

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

■ **Damage Requiring Service**

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance - this indicates a need for service.

■ **Replacement Parts**


When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

■ **Safety Check**

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

■ **Heat**

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

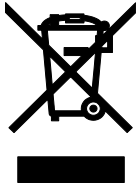
	CAUTION	
RISK OF ELECTRIC SHOCK DO NOT OPEN		
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		


SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.


SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



This symbol [crossed-out wheeled bin WEEE Annex IV] indicates separate collection of waste electrical and electronic equipment in the EU countries. Please do not throw the equipment into the domestic refuse. Please use the return and collection systems available in your country for the disposal of this product.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification or Declaration of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user’s authority to operate the equipment.

**FOR UNITED STATES USERS:
INFORMATION**

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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER

CAUTION:

Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part 15 of the FCC rules.

BEFORE USE

- Be sure to use the supplied power cord and the AC adapter.
- The power cord and AC adapter that come with this product are for this product only. Do not use them with another product.
- Be sure to use the power cord applicable to your local power specifications. If the product was sold in Japan, use the AC adapter sold with the product with 100 VAC and 50 or 60 Hz.
- When storing the product, do not leave it under direct sunlight or by heaters. It may be discolored, deformed, or damaged.
- Do not place this product in any humid, dusty, salt bearing wind, or vibrating locations.
Use it under the following environmental conditions:
 - Temperature : 0°C~ 40°C (32°F - 104°F)
 - Humidity : 30%~ 85% (No condensation)
- Use a soft, dry cloth for cleaning. Do not use any volatile solvent such as thinner or benzene.
- Luminescent and Black Spots
There may be some pixels that do not properly operate due to the use of CMOS Area Image Sensors made-up of many pixels.
Though luminescent or black spots may be found on the screen, it is a phenomenon peculiar to the CMOS Area Image Sensors and is not a malfunction.
- Follow the guidelines below to prevent the unit from dropping or overturning.
 - Use the product on a stable base, desk, or table. Do not place the product on an unstable base or slanted location.
 - Place or wire the product so as to prevent the cables from being pulled or drawn.
- Do not point the lens directly to the sun. It could degrade the imaging capability.
- Do not look directly into the LED light. If you look directly into it at pointblank range, your eyes may be injured.
- Be sure to handle cables and connectors carefully, inserting and removing them straight without applying excessive force. Repairs for any damage will be subject to a service charge.
- If chalk powder and other fine dust enter the device, they may cause malfunction. In the event of dust intrusion or any malfunction resulting from it, internal cleaning or repair will be subject to a service charge. We appreciate your understanding in advance.
- If this product is used for longer than the warranty period, its performance and quality may deteriorate due to the lifetime of its parts. For parts replacement (on chargeable basis), consult the dealer from whom you purchased this product or our branch/office near your location.
Our company specifies a retention period for replacement products required for product repair or exchange, which varies depending on each product. This retention period serves as the standard period during which repair services can be offered. Please note that the actual availability of service may vary depending on the situation at the time.
- Copyright
Unless used for personal use, it is prohibited strictly under copyright law to use any photo files without the prior consent of the copyright holder. Even if using for personal use, be careful that there could be a situation where video or audio recording is restricted or illegal.
- The contents of this document are subject to change without notice. The latest version is available from the following official website:
 - <https://www.elmoussa.com>
 - <https://www.elmoeurope.com/en/>
- It is prohibited under copyright law to use or copy any part or the whole of this document without our prior written consent.
- ELMO shall not be liable for any claim for damage or loss of earnings or any claim raised by a third person due to the use, malfunction or repair of this product.

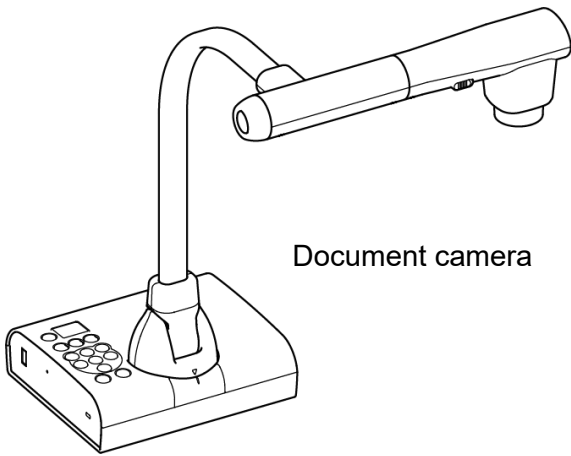
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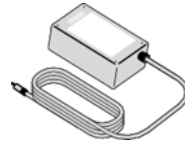
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1 BUNDLED ITEMS

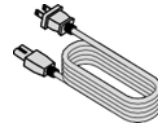
The items below are included with this product. If any item is missing, contact the dealer from whom you purchased this product.



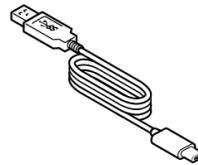
Document camera



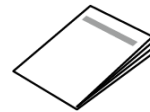
AC adapter



Power cord



USB-C to USB-A cable



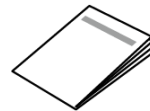
Quick Start Guide



HDMI cable fixture × 2



Cable tie × 2



IMPORTANT SAFEGUARDS



Warranty Card
(For Japan / North America only)



Operation guide sticker
(For Japan only)

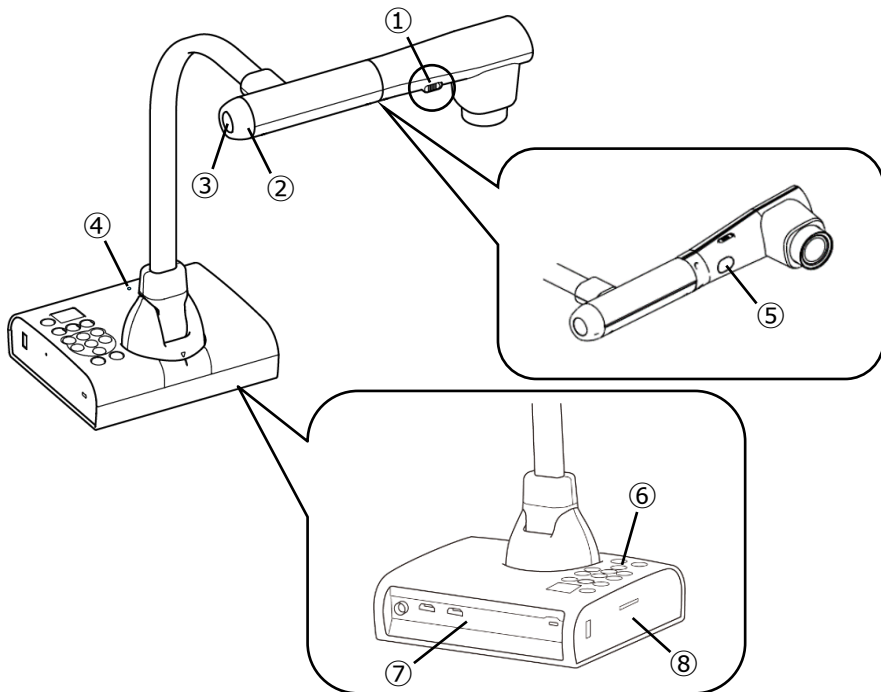


3S service manual
(For Japan only)

② BASIC OPERATIONS

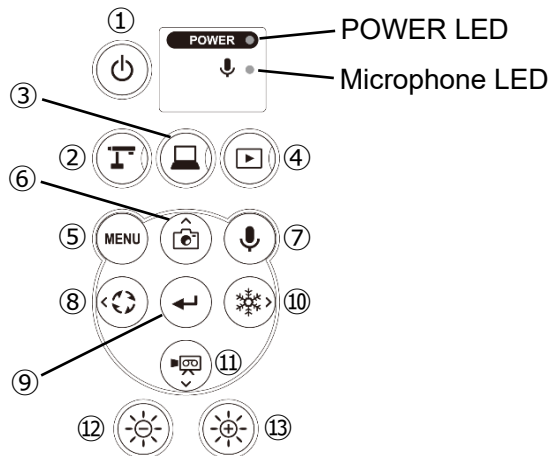
2-1 Document camera

◆Part names



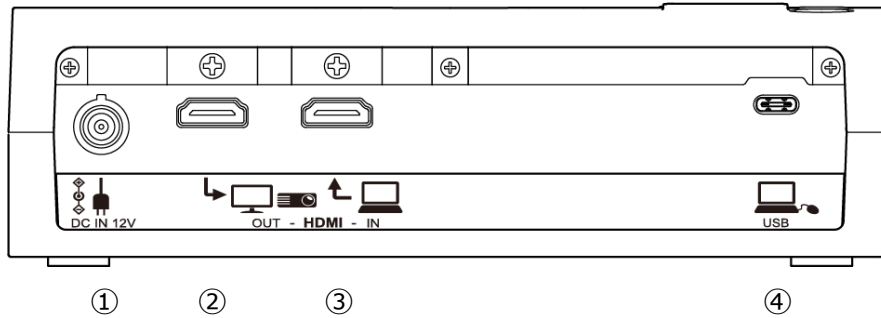
No.	Name	
①	LED lighting switch	P.20
②	Zoom dial	P.18
③	AF button/Freeze button	P.18 P.21
④	Built-in microphone	P.21
⑤	LED lighting	P.20
⑥	Operating panel	P.10
⑦	Rear panel	P.11
⑧	Side panel	P.12



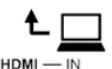

◆ Operating panel




No.	Mark	Function
①		To turn on / off the power Power ON: Power LED lights up blue Power OFF (standby status): Power LED lights up red
②		To switch to the Camera mode. The camera image is displayed. (HDMI/USB) Camera resolution can be changed in sequence by long pressing this button. (Auto → HD → UHD → FHD) The currently used support functions (PinP, etc.) will be terminated. P.20
③		To switch to the External input mode. Images being input to the external input ports are displayed. External input video is output via pass-through. P.20
④		To switch to the Playback mode. Images stored on a USB flash drive or internal memory are displayed. P.20
⑤		To show/hide the menu on the screen. P.22
⑥		To save a still image on a USB flash drive or internal memory. This button acts as a direction button (Top) for menu operations. P.39
⑦		To turn on / off the audio of microphone (built-in microphone). P.21
⑧		To rotate the image. The rotation angle can be switched between 90 and 180 degrees with the Rotate angle setting in the System Setting menu. This button acts as a direction button (Left) for menu operations. P.21
⑨		To confirm the selected OSD menu item or to switch images during Compare Picture/ PinP display. P.22
⑩		To pause the camera image. This button acts as a direction button (Right) for menu operations. P.21
⑪		To record the camera image as a video on a USB flash drive or internal memory. This button acts as a direction button (Down) for menu operations. P.39
⑫		To darken the camera image. This button acts as a manual focus button (Near) when the MF mode is set to ON. P.19
⑬		To brighten the camera image. This button acts as a manual focus button (Far) when the MF mode is set to ON. P.19

◆Rear panel and cable connection




No.	Mark	Function
①	 DC IN 12V	To connect the AC adapter. (AC cord is supplied with the product.) P.17
②	 OUT - HDMI	To output digital images. (HDMI cable is supplied with the product.) [TYPE-A]
③	 HDMI - IN	To input digital images. (HDMI cable is supplied with the product.) [TYPE-A] The video is output via pass-through.
④	 USB	To connect to a computer. (USB cable is supplied with the product.) [USB Type-C]


① Connecting the AC adapter

Before inserting the AC adapter in an outlet, connect the DC plug of the supplied AC adapter to the [] port on the rear panel.

② Connecting to a device with an HDMI input port

Connect a commercially available HDMI cable to the [] port on the rear panel.


③ Connecting to a device with an HDMI output port

Connect a commercially available HDMI cable to the [] port on the rear panel.


Note

- Use a monitor that supports video input resolution of 720P or higher.
- The product does not operate properly with the cable that does not conform to the HDMI standard.
- This product conforms to the HDMI standard. However, we do not guarantee proper operation for all HDMI-compatible monitors.

④ Connecting to a computer with the USB cable


Connect a commercially available USB cable to the [] port on the rear panel.

Note

- If the displayed image is off-center, adjustment of the horizontal and vertical position should be made from the connected device.
- In some cases, vertical stripes may appear on the display device such as a projector and a monitor.
- This can be reduced by adjusting the “clock phase” function of the connected device.
- When using a computer with an external output mode, set the computer to the external output mode after pressing the [] button on the operating panel.
- Please use the supplied USB cable (USB 2.0 compliant).
- If you plug into the USB cable with the power on, the computer may not recognize the product.
- Depending on the computer’s USB environment or the peripheral equipment, image transfer may be disrupted.

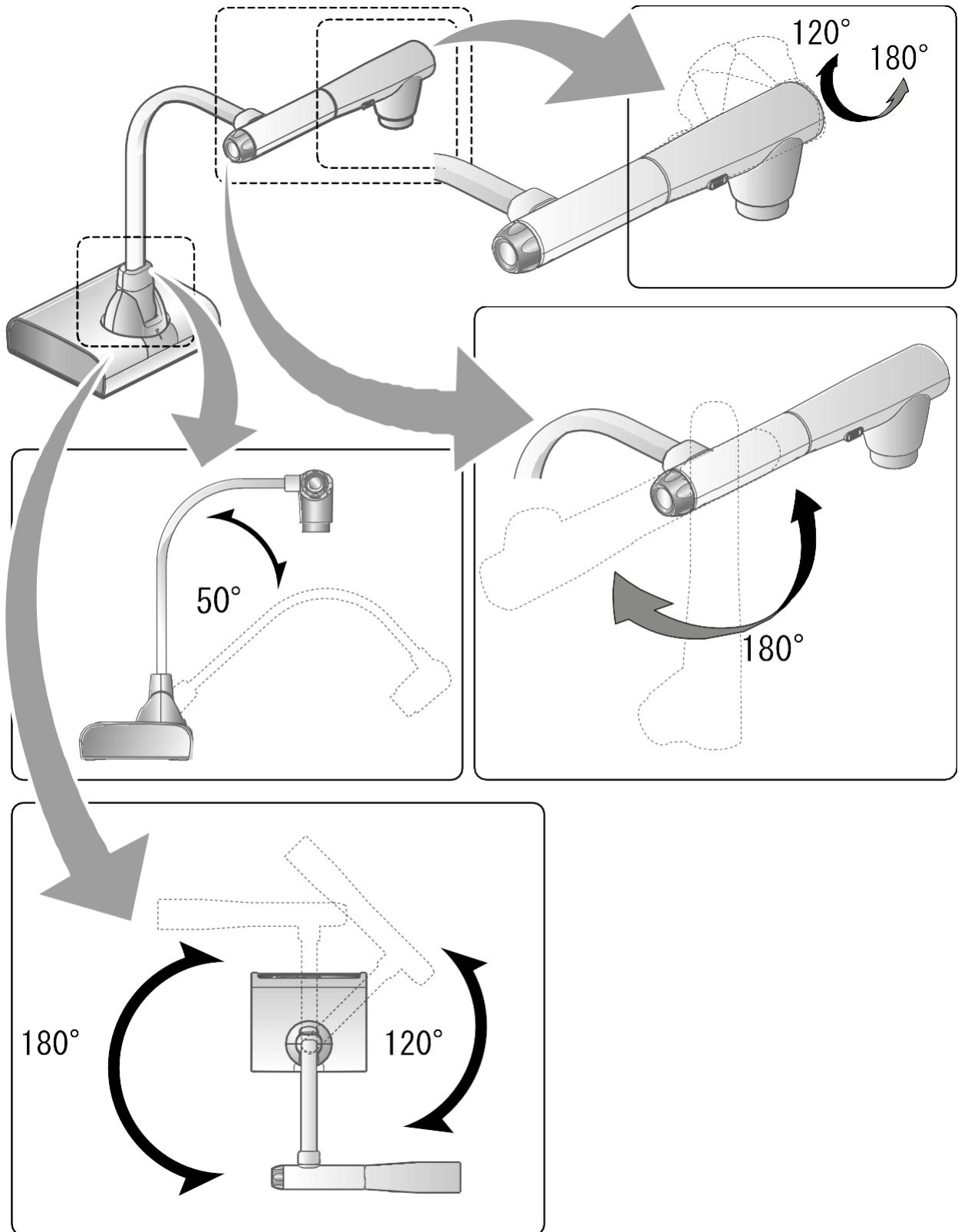
◆Side panel



No.	Mark	Function
①	USB	To connect a USB flash drive (commercially available) or mouse.
②		Security slot.

◆ Moving parts of the document camera

The product can be moved as shown below.



◆Output image size

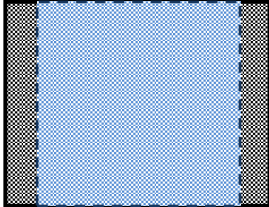
The output image differs depending on the resolution and output mode.

The following table shows the relation between viewing angle, resolution and output mode.

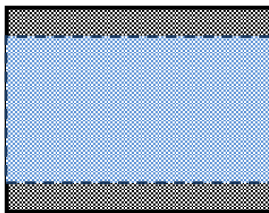
Note that there are shooting conditions.

Viewing angle

①FULL(4 : 3)



②NORMAL(16 : 9)



	Output image viewing angle	
	Normal (16:9) / 1080p	Full (4:3) / XGA
HDMI	②	①
HDMI+USB	②	

※Set the USB output resolution to 4K/30fps, 1080p/30fps, or 720p/30fps.
If the USB output resolution is set to any other setting, HDMI output will not be available.

Resolution / Frame rate (when outputting images to a computer via USB)

The following table shows the relation between output resolution and frame rate when outputting images to a computer via USB.

If the computer used has low specifications, the frame rate may be less than that shown in the table.

Resolution	USB	
	MJPEG [fps]	YUY2 [fps]
3840x2160	30	-
2048x1536	30	-
1920x1080	60/30/15 ※1	-
1280x960	30	-
1280x720	60/30/15 ※1	-
1024x768	30	-
640x480	30	30

※1 This frame rate is only available when connected to an electronic whiteboard in R1 mode.

2-2 Supplied accessories

◆ How to use the supplied fixture and cable tie

You can fix the HDMI cable to the HDMI port by using the supplied fixture and cable tie.

Items to use (supplied)

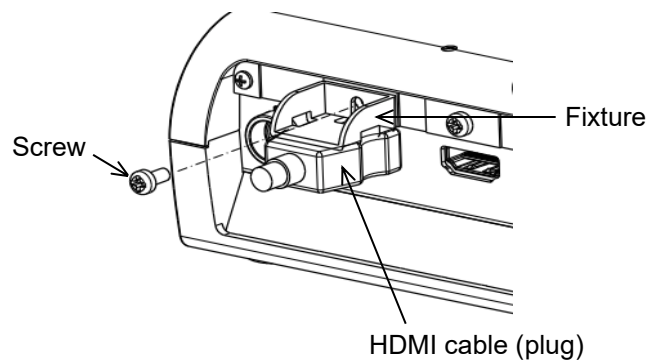


HDMI cable
fixture × 2

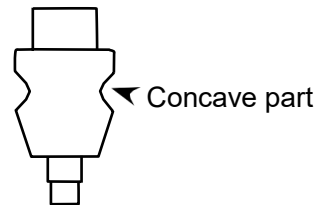
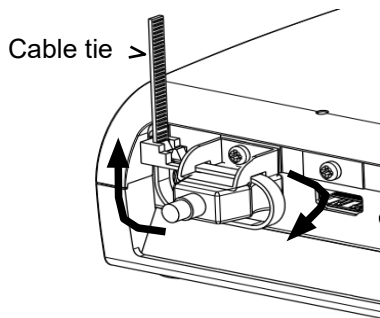


Cable tie × 2

- ① Before connecting the HDMI cable to the HDMI port, remove the screw above the HDMI port. Attach the fixture and tighten the screw.



- ② Pass the cable tie through the fixture and tie it around the plug of the HDMI cable.

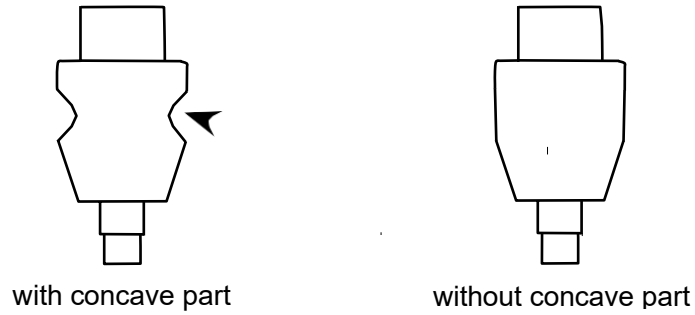


When the plug has a concave part,
tie the cable tie around the concave
part to get a firm hold.

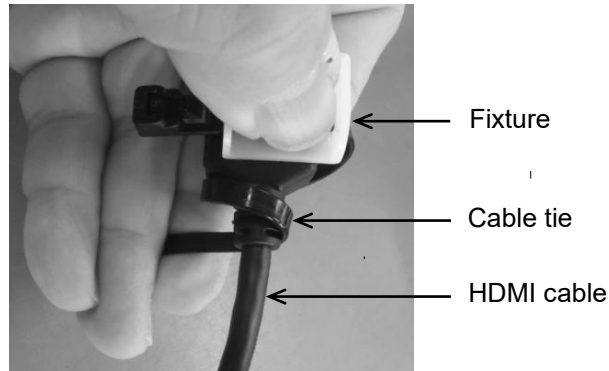
Note

- The supplied cable tie can be used repeatedly.

When the plug does not have a concave part, wrap the cable tie as shown below.



① Wrap the cable tie around the root of the cable and pull it tight.



② Remove the screw above the HDMI port and connect the HDMI cable. Attach the fixture and tighten the screw.



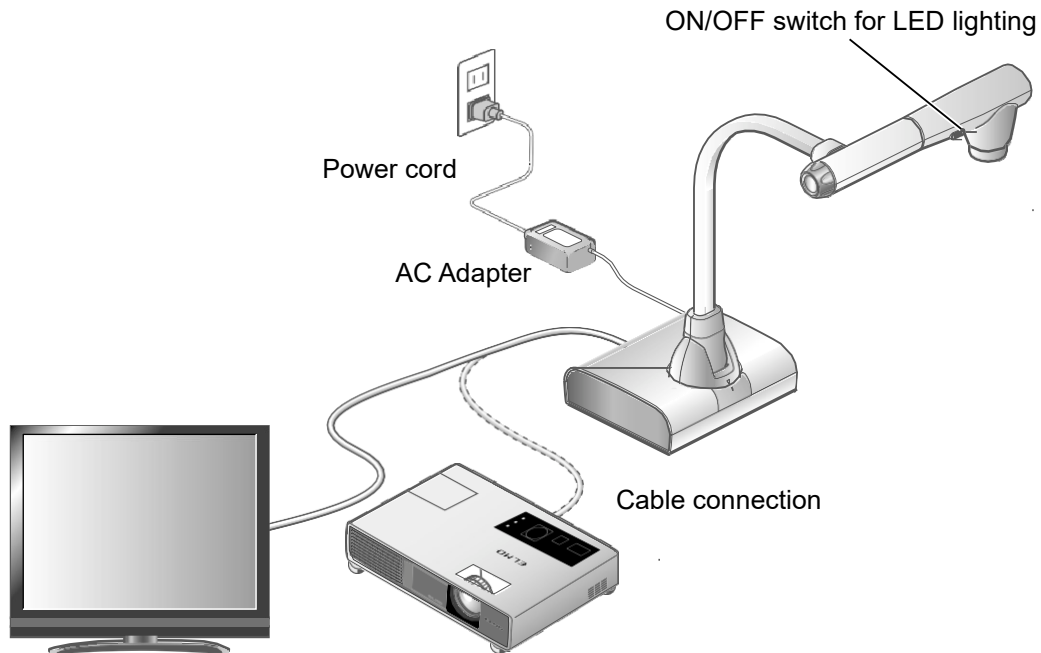
Caution

- Depending on the shape of the plug, the fixture may not be used.


2-3 Shooting images

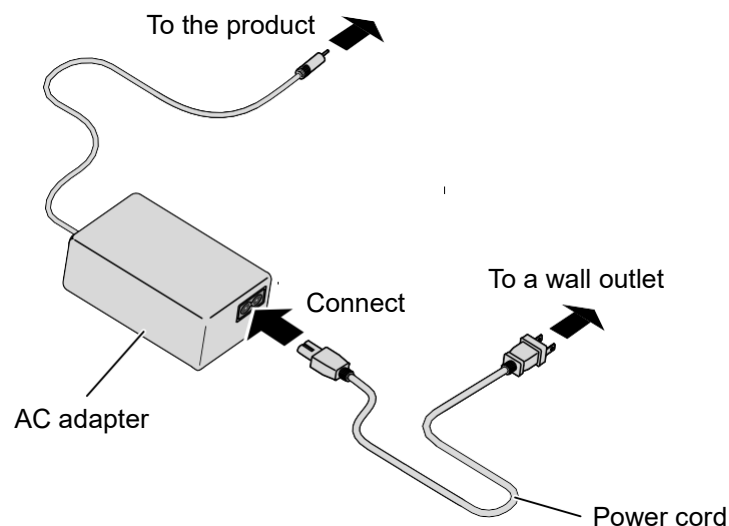
◆Setting up the product

Set up the product as shown in the figure below. Then connect the product to a projector or a monitor.



•Connecting the power cord

Connect the power cord and the AC adapter. Then connect the AC adapter to the [] port at the rear panel of the product, and insert the power cord into a wall outlet.



•Connecting the video cable


Connect the product to a display device using the cable corresponding to the specification of the display device.

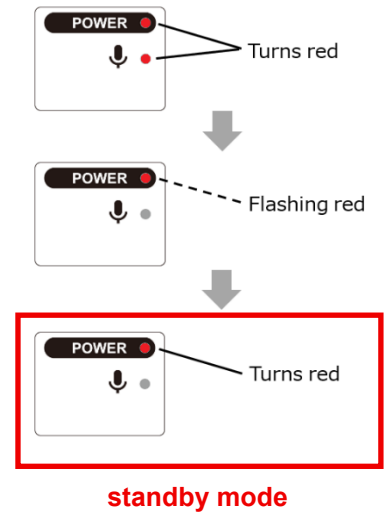
Caution

- Before connecting the product to other devices, be sure to turn off the power for all of the devices.


• Turn on / off the power

Turn on the power

- ① Connect the supplied AC adapter to the DC jack and plug it into an outlet.
- ② The LED changes as shown on the right and the product enters standby mode. (The LED lights up red).
- ③ Press the [] button on the Operating panel to turn on the power.
- ④ The Power LED lights up from red to blue.

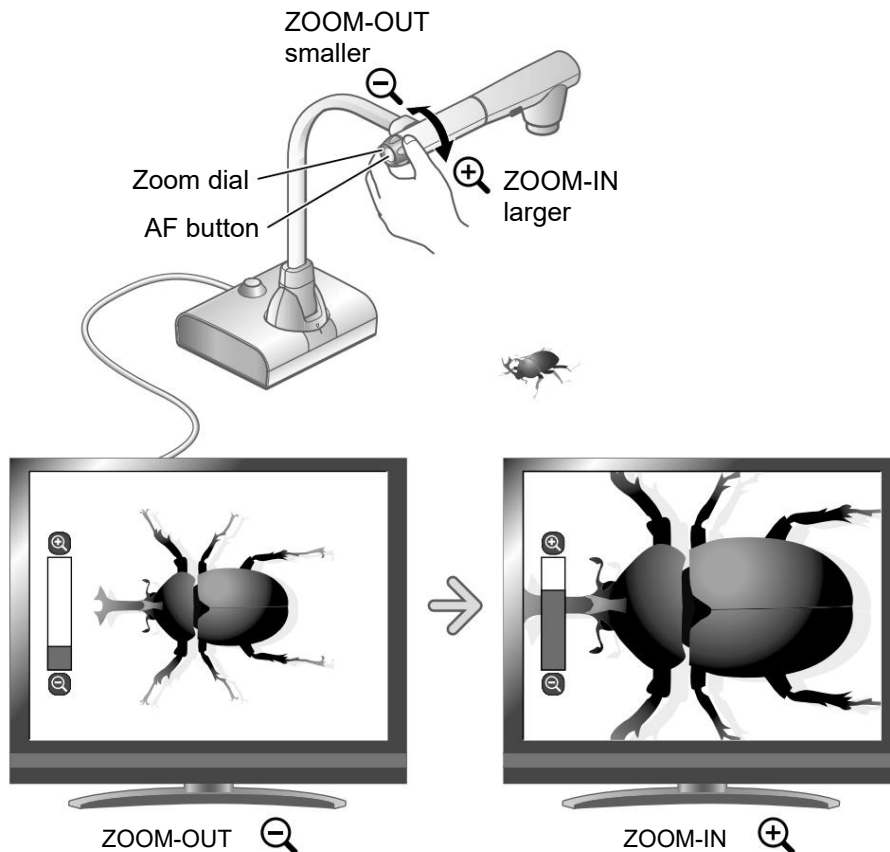


Turn off the power



- ① Press the [] button on the Operating panel to turn off the power.
- ② The Power LED lights up from blue to red.

◆ Adjusting the size



The display range of the document can be adjusted by rotating the zoom dial on the product. If you cannot get a focused image, use the AF button on the camera head.

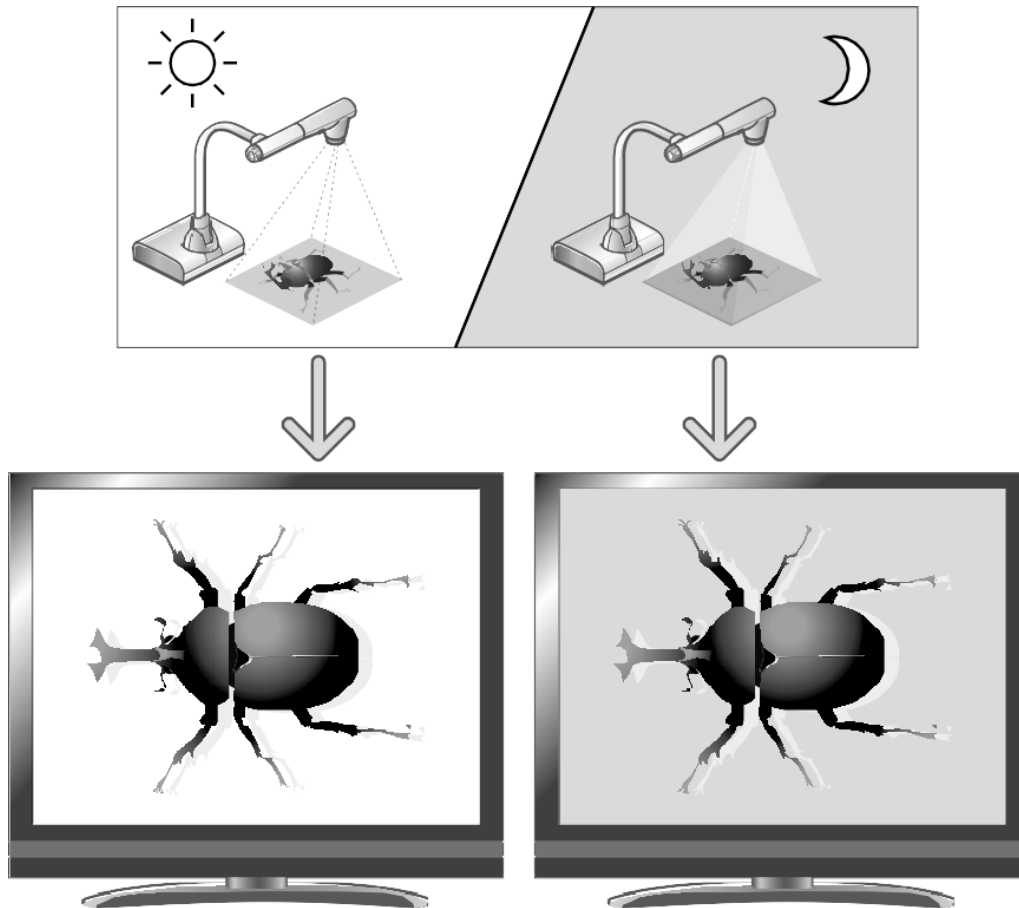


Note

- Zoom ratio: Optical zoom 12x + Digital zoom 16x (Total 192x zoom)
- When the optical zoom reaches 12x, it will automatically shift to the digital zoom.
- The digital zoom can be switched between ON and OFF from the System Setting menu. (System Setting: Digital zoom)
- When "MF mode" is turned on in the System Setting menu, the focus can be adjusted using the [ ] buttons on the Operating panel.






◆ Adjusting the brightness

Use the [ ] buttons on the Operating panel to change the level of brightness of the displayed image.

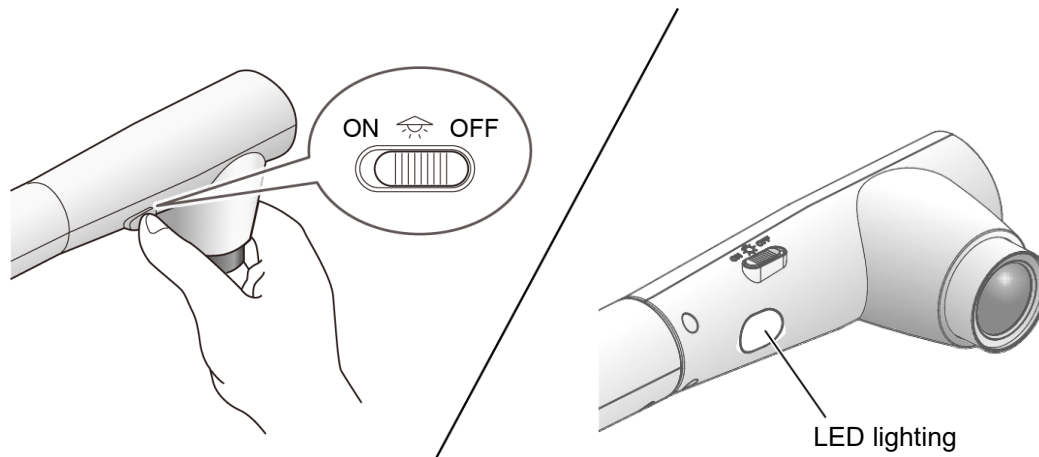


The brightness of the image can be changed.

Note

- To reset the brightness setting to factory default, press the [ ] buttons on the Operating panel at the same time.
- In places where the object is exposed to bright sunlight (e.g. near a window), or extremely, bright light, the brightness of the screen may not dim sufficiently, even if the [] button on the Operating panel is pressed. In such cases, to adjust the amount of light, close the curtains or move the object away from the light.
- When the "MF mode" in the System Setting menu is turned on, the [ ] buttons on the Operating panel work as the focus adjustment buttons. Make sure to turn off the MF mode before adjusting the brightness.

◆Turning on / off the LED lighting



The LED lighting can be turned on or off by sliding the LED lighting switch.

[ON] : The LED lighting turns on.

[OFF] : The LED lighting turns off.


Caution


- To take shots of people, set the LED lighting switch to off.
- Make sure that the light from the LED lighting does not shine directly into the eyes.
- This product is equipped with a high-brightness LED. You can safely use the LED lighting to light up objects, however its brightness will gradually diminish with long-term use. This is not a malfunction, but a normal characteristic of the LED.
- Do not touch the LED lighting while it is on as it may become very hot.


◆Selecting the image source

You can select the image source as described below.


① Camera image:

[] button on the Operating panel


② Image being input to the [] ports

[] button on the Operating panel


③ Image stored on a USB flash drive/internal memory

[] button on the Operating panel

Note

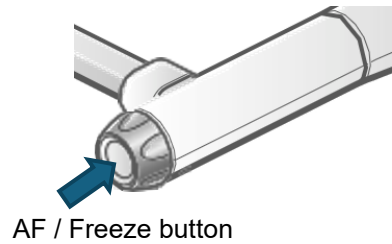
- When using a computer with an external output mode, set the computer to the external output mode after pressing the [] button on the Operating panel.

◆Pausing the image

Press the [] button on the Operating panel to pause the camera image. Press the button again to cancel the pause.

Note

- Click the AF/Freeze button twice to pause the screen.
(When the Freeze function for AF button is set to ON in the System Setting menu)
- Clicking the AF/Freeze button twice while the screen is paused will cancel the pause screen.




◆Rotating the image

Press the [] button on the Operating panel to rotate the camera image.

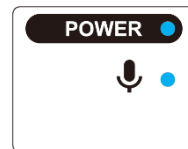
The rotation angle can be selected between 90° and 180° in the “Image rotation” in the System Setting menu.

◆Turning on / off the audio

Press the [] button on the Operating panel to turn on/off the audio when outputting the camera image to a computer (via USB), or when recording video.

When audio is on, the Microphone LED lights up blue.




- ※Default setting: ON
- ※No audio is available with HDMI output.

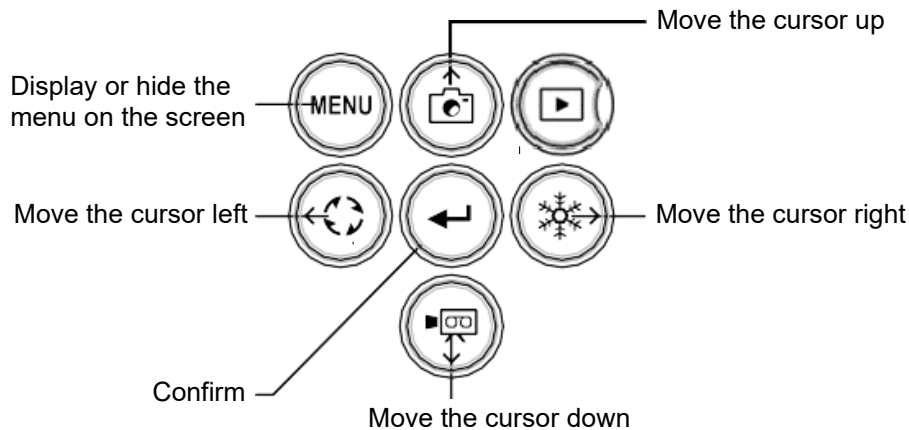


2-4 Configuring the settings

Each setting of the product can be configured from the menu (texts or icons) displayed on the screen.

◆How to configure the settings





- ① Press the MENU button [] on the Operating panel to display the menu on the screen.
- ② Use the [] buttons to move the cursor to the icon you want to operate or set.
Then press the [] button to confirm.



◆About Menus

There are three types of menus. Each of these menus can be switched by using the Menu item in the System Setting menu.



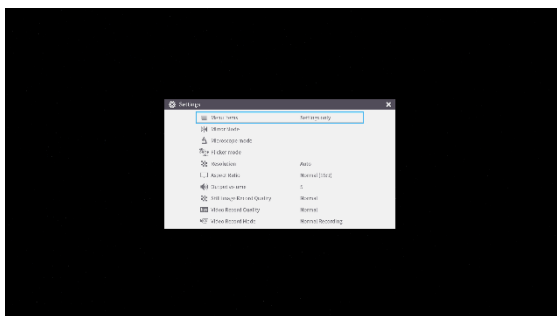
※To go back through the hierarchy or clear the menu, press the Freeze button [] to move the cursor to the [] or [] at the upper-right corner of the menu screen, and press the [] button to confirm.

Comparison of menus

	Draw	Freeze	Highlight	Mask	Split screen	PinP	Settings	ZOOM Slider	Brightness slider	AF/ Freeze
Settings (Default setting)	x	x	x	x	x	x	○	x	x	○
Full menu 1 (no mouse)	x	x	x	x	○	○	○	○	○	○
Full menu 2 (with mouse)	○	○	○	○	○	○	○	○	○	○

■ Settings

To configure system settings and camera quality settings.



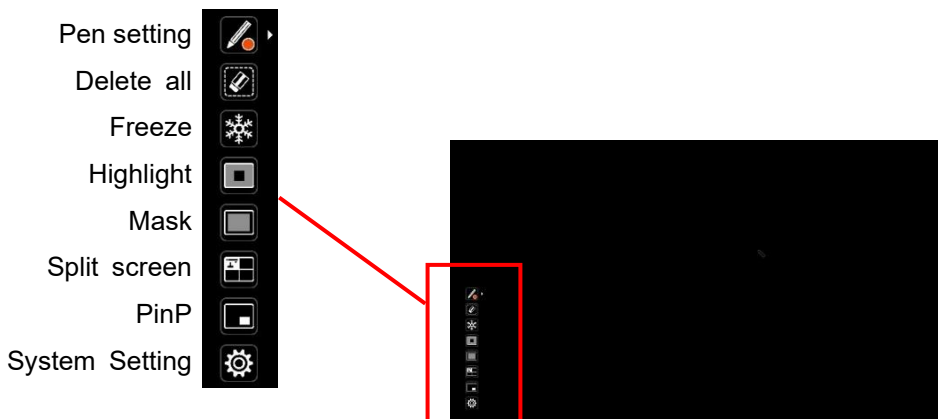
■ Full menu 1

In addition to the System Setting icon, Split screen icon and PinP icon are displayed.



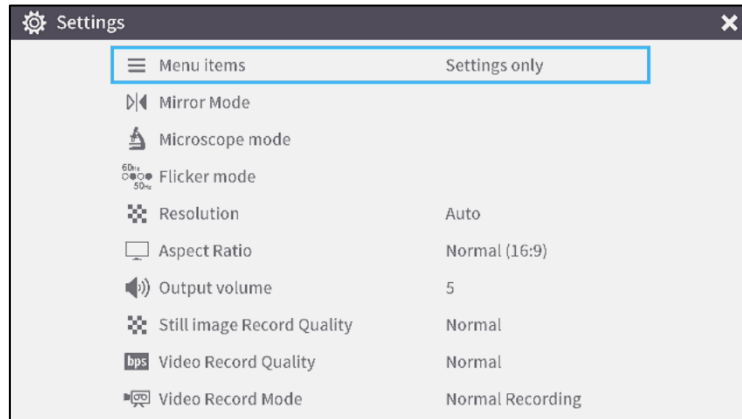
■ Full menu 2

In addition to the Full menu 1, icons for other functions such as Draw, Mask and Highlight are displayed when a mouse is connected.





◆ System Setting menu

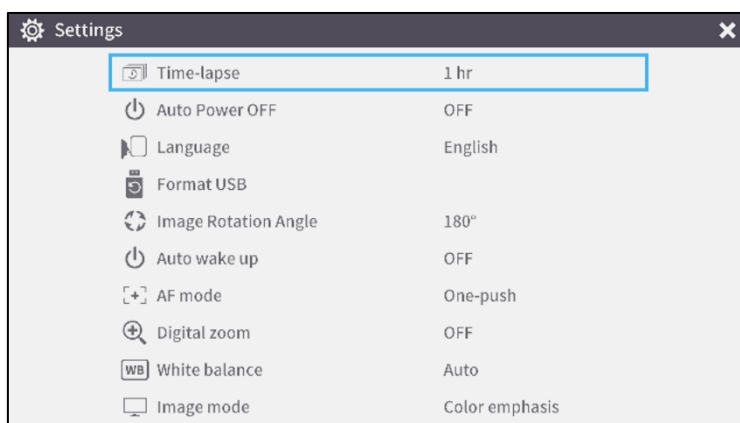
(1/3 page)





Icon	Name	Selection	Factory setting	Function
	Menu item	Settings only	✓	To configure system settings and camera quality settings.
		Full menu		To display support functions such as Highlight and Mask.
	Mirror Mode			To invert the screen horizontally.
	Microscope mode			To be used to display a microscopic image.
	Flicker mode	Frequency setting	50Hz	To reduce fluorescent light flickering due to the power supply frequency. Select the same value as used for the power supply frequency.
			60Hz	
	Resolution	Auto	✓	To set the resolution of the output image. ※1
		HD (1280x720)		
		UHD (3840x2160)		
		FHD (1920x1080)		
	Aspect Ratio	Normal (16:9)	✓	To set the viewing angle of the output image. ※The viewing angle cannot be changed in the USB mode.
		Full (4:3)		
	Output volume	▲		To set the HDMI sound volume and the external microphone volume.
		5	✓	
		▼		
	Still image Record Quality	Normal	✓	To set the image quality of the still image to be saved.
		High Quality		

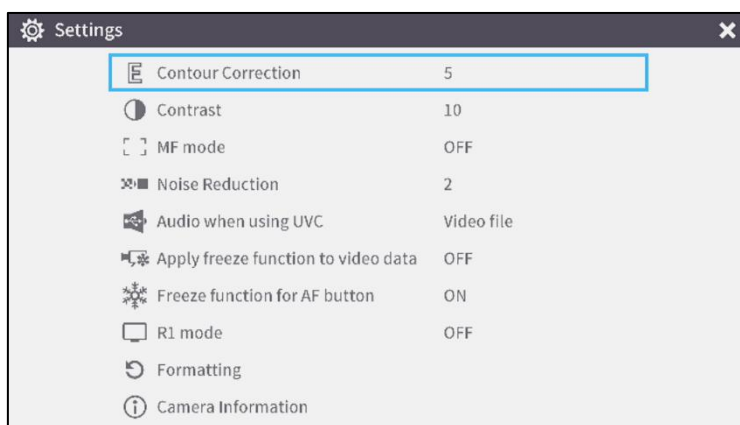
※1 If the image is not displayed on the connected display device due to the mismatch of resolution between the output image and the display device, press the Camera button [] for over 1 second to change the resolution setting. (The resolution setting changes in the following order “Auto” → “HD” → “UHD” → “FHD”.) This function is available in the Camera mode. It cannot be changed in the USB mode.

Icon	Name	Selection	Factory setting	Function
	Video Record Quality	Excellent Quality		To set the recording bitrate. ※When Excellent Quality or High Quality is selected, the recording time becomes shorter.
		High Quality		
		Normal	✓	
		Economy		
		Fast Economy		
	Video Record Mode	Normal Recording	✓	To continuously record the video.
		Time-Lapse Recording		To create a video by combining multiple still images at certain intervals. The recording interval can be set from "Time-lapse".



Icon	Name	Selection item	Factory setting	Function
	Time-lapse	1 min		The camera acquires still images one at a time at set time intervals and plays back the 30 images as a 1-second video by joining them together.
		10 min		
		30 min		
		1 hr	✓	
		3 hrs		
		6 hrs		
	Auto Power OFF	OFF	✓	To automatically turn off the power after no operation for a specific period of time.
		30 min		
		1 hr		
		2 hrs		
		3 hrs		
	Language	日本語		To select the language for the on screen display.
		English	✓	
		Deutsch		
		Francais		
		中文		
	Format USB			To perform a quick format of a USB flash drive. Select "YES" to format.
	Image Rotation Angle	90°		To set the angle of the image rotation.
		180°	✓	
	Auto wake up	OFF	✓	When this setting is set to ON, the product automatically starts up after the AC power is supplied.
		ON		
	AF mode	One-push	✓	To perform auto focus only once when the AF button on the camera head is pressed.
		Zoom sync		To perform auto focus only once after zooming.
	Digital zoom	OFF	✓	To enable or disable the digital zoom. If the digital zoom is enabled, the resolution of the following output image will be reduced: USB/video and still image resolution at 4K ※This setting is linked with "Apply freeze function to video data".
		ON		

Icon	Name	Selection item	Factory setting	Function
	White balance	Auto	✓	To always adjust the white balance automatically. The white balance is adjusted automatically to ensure a more natural color according to the characteristics of the object.
		Fluorescent		To adjust the white balance according to the environment under the fluorescent light.
		Indoor		To adjust the white balance according to indoor environment.
		Outdoor		To adjust the white balance according to outdoor environment.
	Image mode	Normal		Suitable for displaying documents.
		Black&White		Suitable for displaying black and white images.
		DLP projector		Suitable for projecting images with a projector.
		Color emphasis	✓	Suitable for displaying colorful objects.






Icon	Name	Selection item	Factory setting	Function
	Contour correction	▲		To adjust the level of edge enhancement.
		5	✓	
		▼		
	Contrast	▲		To adjust the contrast of the image.
		10	✓	
		▼		
	MF mode	OFF	✓	To set the MF mode. When the MF mode is turned on, you can adjust the focus using the brightness adjustment button on the Operating panel.
		ON		
	Noise Reduction	▲		To reduce the image noise when displaying the camera image via HDMI or USB.
		2	✓	
		▼		
	Audio when using UVC	Video file	✓	To record UVC video with sound. No sound is output from the USB port during recording.
		UVC output destination		To output sound from the USB port during recording UVC video. UVC video is recorded without sound. ※This setting is disabled when UVC streaming is off. (Video is recorded with sound.)
	Apply freeze function to video data	OFF	✓	When it is ON, the freeze function is applied to the recorded video, but when it is OFF, it is not applied. ※This setting is linked with "Digital zoom".
		ON		
	Freeze function for AF button	OFF		When ON, the freeze/freeze cancel operation is enabled by clicking the AF button twice.
		ON	✓	
	R1 mode	OFF	✓	To set the R1 mode. The product enters the most suitable mode for displaying on our electronic whiteboards (EL55R1, EL65R1, EL75R1, EL86R1) via USB.
		ON		
	Formatting			To reset to factory defaults. Select YES to reset all settings to factory defaults.
	Camera Information			To display the product information.

◆Full menu 1

This menu appears when no mouse is connected.



Icon	Name	Function
	Compare Picture (Split-screen)	To move to the Split-screen selection mode to select the content to be compared.
	PinP	To move to the Picture-in-Picture mode.
	Settings	To display the Settings menu.



Compare Picture function

•Feature


You can display the live camera image, HDMI input image and still images stored in USB flash drive or internal memory together in one screen.



(Max. 4 images can be displayed in one screen. It is not possible to display multiple live camera images.)


•Operations

Pressing the MENU button [] on the Operating panel while the camera image is displayed and selecting the Compare Picture icon [] from the Menu screen displays a split-screen consisting of the camera image and stored still image.

※By default, split screens are displayed in the following order of priority: Camera > USB flash drive > Internal memory.

Pressing the MENU button [] while the split-screen is displayed toggles between showing and hiding the menu.

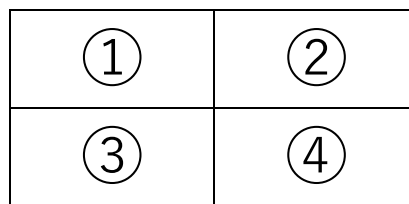
Selecting the Camera mode button [] on the Operating panel or the Camera icon [] in the menu cancels the Compare Picture function and the camera image is displayed.

Selecting the icon [] in the menu displays the Thumbnail screen, where you can select images to be displayed on the split-screen.


The selected images are numbered 1~4 and displayed in the arrangement shown below.



Two screens





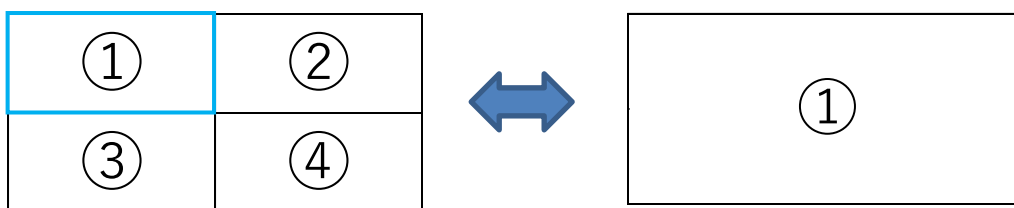
Three or four screens








Pressing the Camera icon [] at the top of the screen displays the live camera image in the split-screen.

Selecting the Confirm button [] displays the split-screen.

• Switching between Compare Picture screen and single screen

When one of the split-screens is selected by pressing the [] button on the Operating panel during operation of the Compare Picture function, a blue frame appears on the selected screen. The selected screen can be displayed in single screen by pressing [] on the Operating panel.



Icon	Name	Function
	Prev Page	To move to the previous thumbnail page.
	Next Page	To move to the next thumbnail page.
	Thumbnails	To display thumbnails.
	Camera image	To display the camera image.
	Internal memory	To display thumbnails of the images stored in the internal memory.
	USB flash drive	To display thumbnails of the images stored in the USB flash drive.
	Confirm	To display the selected thumbnail image on the screen.

Note

- The Compare Picture function cannot be used when the External input mode or Playback mode is selected.
- The Compare Picture function cannot be used (no image is displayed) during USB streaming. It can only be used during HDMI output.
- The following information is displayed during processing of the Compare Picture function.





Information

PinP function

•Feature


You can display still images stored on a USB flash drive or in the internal memory in a small window at the lower right of the screen while displaying the live camera image.



•Operations



Pressing the MENU button [] on the Operating panel while the camera image is displayed and selecting the PinP icon [] from the Menu screen displays a stored still image in the lower right corner of the screen.


※By default, PinP screen is displayed in the following order of priority:

Camera > USB flash drive > Internal memory

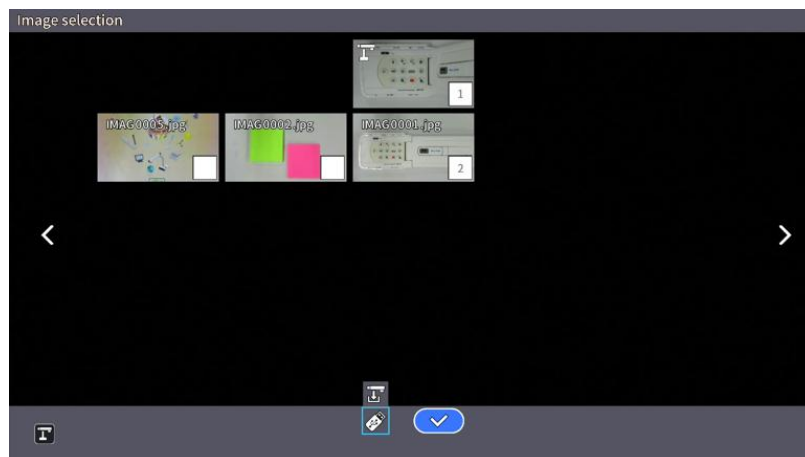
Pressing the MENU button [] while the PinP screen is displayed toggles between showing and hiding the menu.

Selecting the icon [] in the menu which can be displayed by pressing the MENU button [] displays the Thumbnail screen, where you can select images to be displayed on the PinP screen. (Max. 2 images)


Selecting the Camera mode button [] on the Operating panel or the Camera icon [] in the menu cancels the PinP function and the camera image is displayed.

Selecting the Camera icon [] in the upper corner displays the live camera image on the PinP screen.

Selecting the Confirm button [] displays the live camera image on the PinP screen.



• Switching between small screen and large screen

Pressing the [] button on the Operating panel during operation of the PinP function toggles between small screen and large screen.



Note

- The PinP images cannot be saved.
- The PinP function cannot be used when the External input mode or Playback mode is selected.
- The PinP function cannot be used (no image is displayed) during USB streaming. It can only be used during HDMI output.
- The following information is displayed during processing of the PinP function.



Information

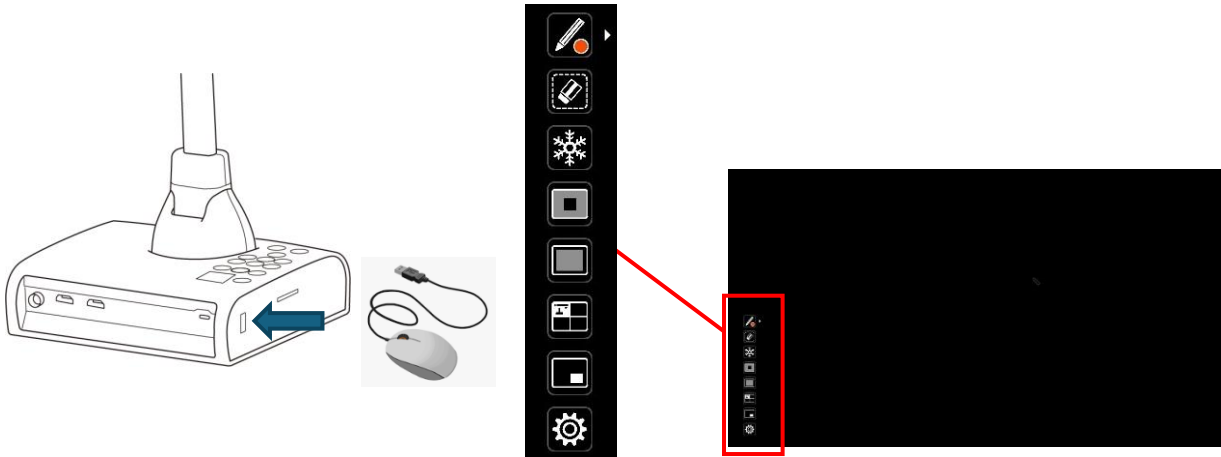
◆Full menu 2

This menu appears when a mouse is connected.

When a mouse is connected, the menu can be operated with the mouse.

When a mouse is connected while the "Full menu" is displayed, the Draw icon, the Freeze icon, Highlight icon, and Mask icon are added, allowing you to draw on the screen or operate these functions using the mouse.

※When a mouse is connected and the cursor is displayed, only the camera image is slightly darkened.



Icon	Name	Function
	Draw (Pen settings)	To change the color and thickness of the pen.
	Delete all	To delete all annotations.
	Freeze	To pause the camera image. This function can also be operated from the Operating panel.
	Highlight	To enhance the contrast for the specific area of the image to draw attention of the audience.
	Mask	To hide the specific area of the image with the mask.
	Compare Picture	To move to the Split-screen selection mode to select the content to be compared.
	PinP	To move to the Picture-in-Picture mode.
	Settings	To display the Settings menu.

Draw function

•Feature

This is a function to draw on the screen.



•Operations

Draw function can be used when the Pen icon [] is displayed in the Full menu 2.

Move the mouse while holding down the left mouse button to draw a line.

To delete the line, move the mouse while holding down the right mouse button.

The Pen icon changes to the Eraser icon [] and the areas on the line where the eraser comes in contact is erased.

Select [] next to the Pen icon [] to change the color and thickness of the pen.



Select the Delete all icon [] to delete all annotations.

Note



- Annotations cannot be recorded with the video.
- The Draw function cannot be used when the External input mode or Playback mode is selected.
- The Draw function cannot be used during UVC streaming.
It can only be used during HDMI output.
- When a mouse is connected and the cursor is displayed, the camera image is slightly darkened.
- The following operations will delete all annotations.
 - Switching the mode among Camera, External input and Playback.
 - Using following functions: Highlight/Mask/Compare Picture/PinP function
 - Selecting the System Settings.
 - Disconnecting a mouse.
 - Displaying images on a computer screen via USB.
- When using a mouse in combination with this product, proper operation is not guaranteed with all mouse models. Please verify compatibility and operation in advance.

Highlight function



•Feature

You can enhance the contrast for the specific area of the image to draw attention of the audience.

•operations

Pressing the MENU button [] on the Operating panel while the camera image is displayed and selecting the Highlight icon [] from the Menu screen the Highlight function works.

The mouse cursor can be used to move and zoom in and out of the highlighted area.

Selecting the [] icon or the Camera mode button [] on the Operating panel cancels the Highlight function and the camera image is displayed.



Note



- Highlighted image cannot be saved.
- The Highlight function cannot be used when the External input mode or Playback mode is selected.
- The Highlight function cannot be used (no image is displayed) during USB streaming. It can only be used during HDMI output.
- When a mouse is connected and the cursor is displayed, the camera image is slightly darkened.

Mask function



• Feature

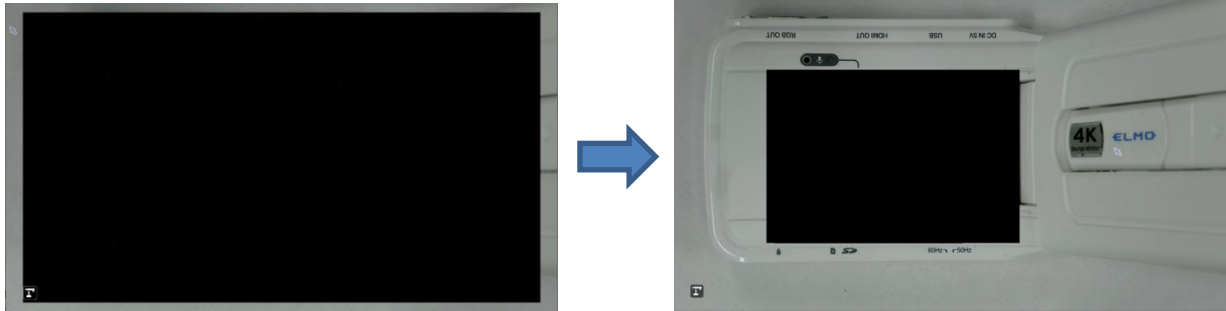
This is a function to hide a part of the image.

• Operations

Pressing the MENU button [] on the Operating panel while the camera image is displayed and selecting the Mask icon [] from the Menu screen to add a mask effect to the screen.

The mouse cursor can be used to move and zoom in and out of the masked area.

Selecting the [] icon or the Camera mode button [] on the Operating panel cancels the Mask function and the camera image is displayed.



Note

- Masked image cannot be saved.
- The Mask function cannot be used when the External input mode or Playback mode is selected.
- The Mask function cannot be used (no image is displayed) during USB streaming. It can only be used during HDMI output.
- When a mouse is connected and the cursor is displayed, the camera image is slightly darkened.

③ ADVANCED OPERATIONS

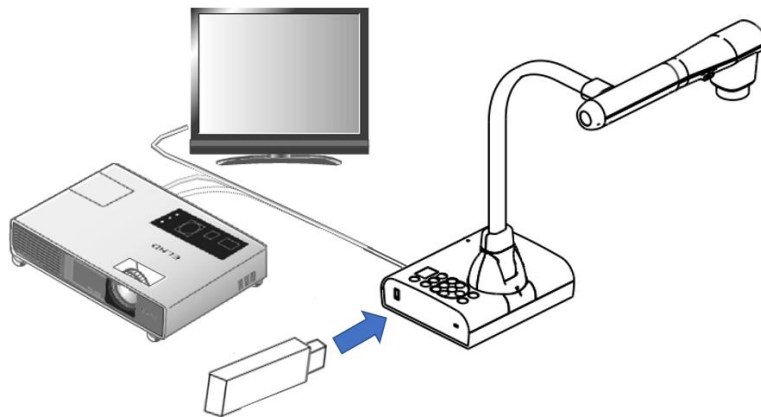
3-1 Using a USB flash drive

With the product, you can record the camera image as a still image or video to a USB flash drive, or internal memory.

The image data recorded on a USB flash drive, or internal memory can be displayed on the monitor.

Insert a USB flash drive (commercially available) into the slot on the side panel before starting the operation.

- Video recording (H.264) : USB flash drive / Internal memory
- Still image recording (JPEG) : USB flash drive / Internal memory
- Recording destination priority : USB flash drive > Internal memory
- The capacity of the internal memory is about 3 GB.




Note

■ About USB flash drive

- Use a USB flash drive up to 32 GB.
- We recommend that you format a USB flash drive with this product before you use it.
- It may take some time for the product to recognize a USB flash drive when it is inserted and when saving images to the USB flash drive.
- Do not remove the USB flash drive while the product is accessing it (during recording, playing or using the support function).

■ Formatting a USB flash drive

- When you need to format a USB flash drive, insert it into the product and execute formatting.








- ① Press the MENU button [] on the Operating panel to display the menu.
- ② Select "Format USB" from the "System Setting" menu.
- ③ A confirmation window is displayed. Select "Yes" to execute formatting.
If you do not want to execute formatting, select "No".

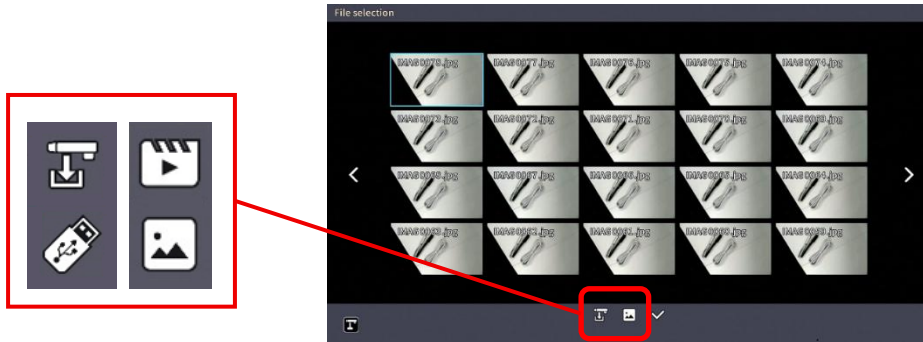
■ Recording destination

- If a USB flash drive is inserted, the data is recorded to a USB flash drive.
- If a USB flash drive is not inserted, the data is recorded in the internal memory.

◆Displaying the stored data

•Basic operations









- ① Press the [] button on the Operating panel to display thumbnails of still images and videos.
- ② Use the [] button on the Operating panel to move the cursor (blue frame), then press the [] button on the Operating panel to play the selected file.
- ③ From the Thumbnail screen, select the storage location (Internal memory [] / USB flash drive []) and file type (still image [] / video []) to change.








Storage location (USB flash drive / Internal memory) and file type (Video / still image)

◆ Descriptions of each menu

Thumbnail display menu

Icon	Name	Function
	Prev Page	To move to the previous thumbnail page.
	Next Page	To move to the next thumbnail page.
	Camera image	To displays the camera image.
	Internal memory	To display thumbnails of the images stored in the internal memory.
	USB flash drive	To display thumbnails of the images stored in the USB flash drive.
	Still image	To display thumbnails of still image files.
	Video	To display thumbnails of video files.
	File selection	To enter the mode in which multiple files can be selected.

File selection mode menu




Icon	Name	Function
	Return	To cancel the File selection mode and display the previous menu page.
	Select all files	To select all thumbnail files.
	Cancel selection of all files	To cancel the selection of all selected thumbnail files.
	Copy	To copy the selected file to the internal memory/USB flash drive. *This menu item appears when one or more files are selected.
	Delete	To delete all selected files at once. *This menu item appears when one or more files are selected.



◆Displaying a still image full screen

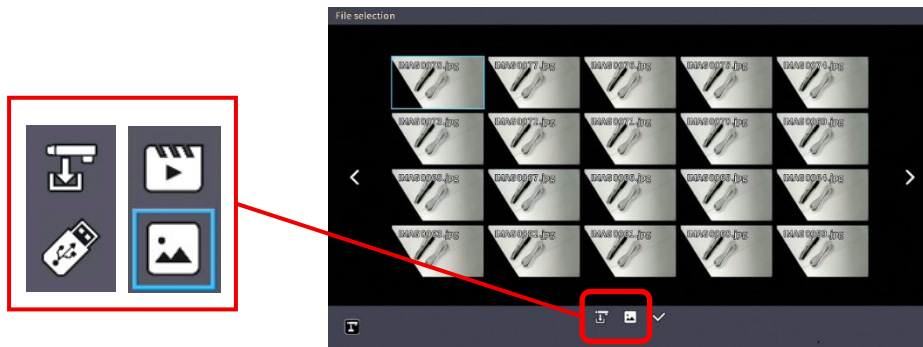
You can display a still image you selected from the thumbnails full screen

•Basic operations


- ① Display thumbnails of still images in the Thumbnail screen.


When “Still Image []” is selected in the Still Image [] / Video [] menu, thumbnails of still images stored on the selected recording media are displayed on the Thumbnail screen.



The storage location can be selected from Internal Memory [] / USB Flash Drive [].

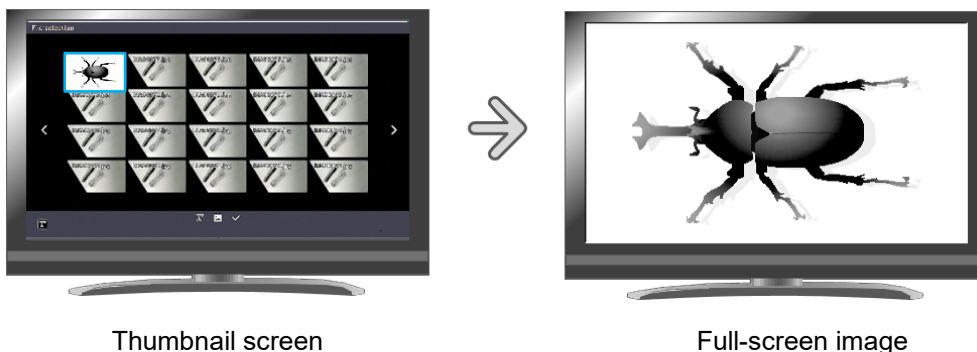


- ② Select the still image you want to display full screen.

Use the [] button on the operating panel to move the cursor (blue frame) to the still image you want to display.

Press the [] button to display the selected still image in full screen.




Press the [] button or [] button on the Operating panel to switch the currently displayed image to the previous or next still image.



Thumbnail screen

Full-screen image

- ③ Return to the Thumbnail screen.

After pressing the MENU button [] on the Operating panel to display the menu, press the [] icon, or press the [] button on the operating panel.

※The following information is displayed during the process of displaying thumbnails or still images.







◆Playing a video full screen

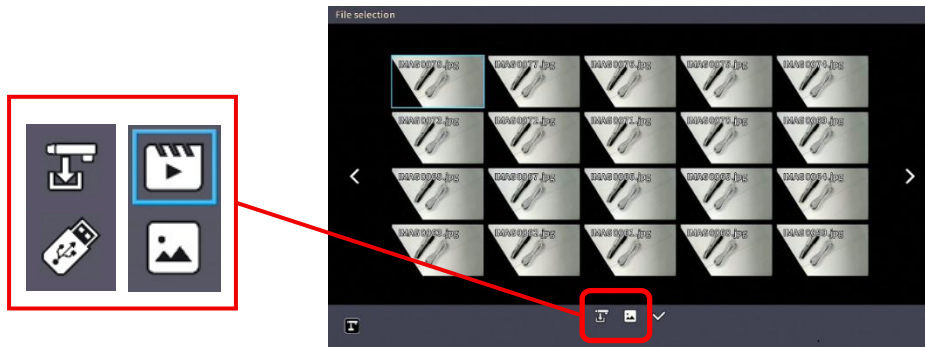
You can play a video you selected from the thumbnails full screen.

•Basic operations


- ① Display thumbnails of videos in the Thumbnail screen.

When “Video []” is selected in the Still Image [] / Video [] menu, thumbnails of video stored on the selected recording media are displayed on the Thumbnail screen.



The storage location can be selected from Internal Memory [] / USB Flash Drive [].

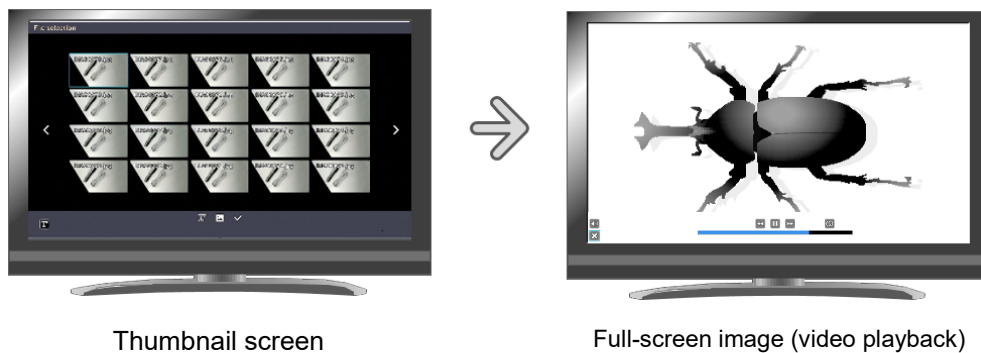


- ② Select the video you want to display full screen.

Use the [] button on the operating panel to move the cursor (blue frame) to the still image you want to display.

Press the [] button to display the selected video in full screen.



Press the [] button or [] button on the Operating panel to switch the currently displayed image to the previous or next still image.



Thumbnail screen

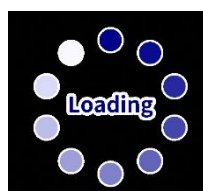
Full-screen image (video playback)

- ③ Return to the Thumbnail screen.


After pressing the MENU button [] on the Operating panel to display the menu, press the [] icon,

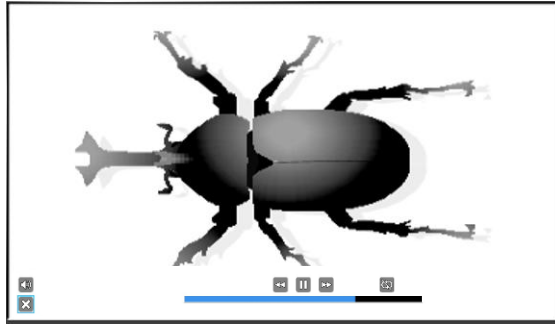
or press the [] button on the operating panel.



※The following information is displayed during the process of displaying thumbnails or playing videos.











◆ Operations of video playback menu

To display or hide the video playback menu, press the MENU button [] on the Operating panel while the video is displayed on full screen.



Use the [] button on the operating panel to move the cursor (blue frame). Then press the [] button to confirm.

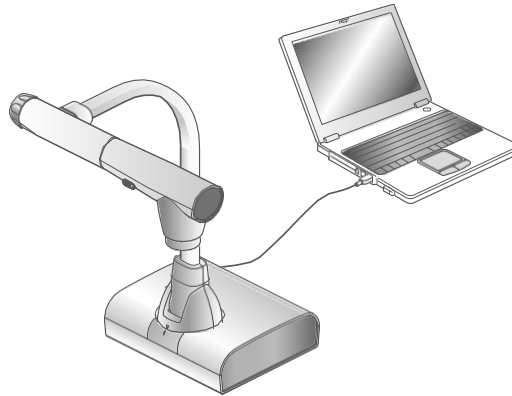
Descriptions of Video playback menu

Icon	Name	Function
	Play	To play/pause the video.
	Pause	
	Fast forward	To fast forward the video.
	Rewind	To rewind the video.
	Repeat On	To turn video loop playback on or off.
	Repeat Off	
	Volume	To set the output audio volume.
	Return	To return to the thumbnail display.

Note

- Videos and still images other than those recorded by this product cannot be played back.

3-2 Connecting to a computer via USB



This product is compliant with UVC and UAC and troublesome installation of a driver is not required.

You can use the product with a video conference system or other various application software by simply connecting the USB cable to the USB port of a computer.

(Operation is not guaranteed on all application software.)

Caution

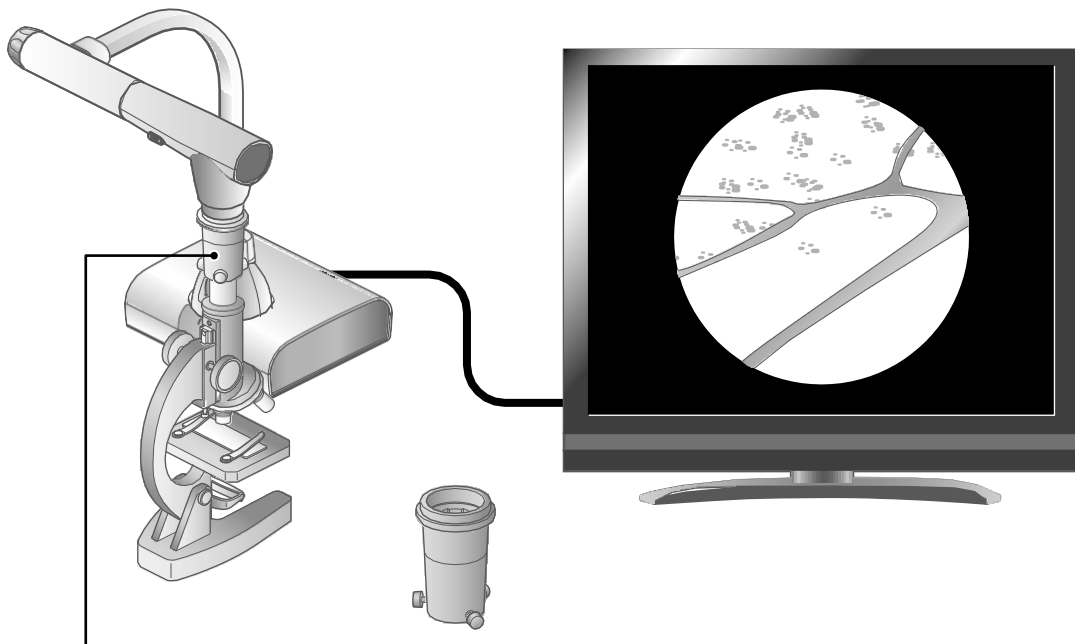
- Do not connect or disconnect the USB cable while operating the product from the Operating panel. Doing so may cause a malfunction.
- Please use the supplied USB cable (USB 2.0 compliant).
- When you display the UVC video stream, it may take a while before the image is displayed. Be sure not to turn off the power of the product or disconnect the USB cable until the image is displayed.
- The format of the UVC video is MJPEG/YUY2. Depending on the software you are using, you may not be able to display the image.

Note

- Image transfer may be affected by the USB environment used by the computer or the effects of peripheral devices.
- Operation is not guaranteed in all environments.
- Video recording function of the product cannot be used during UVC streaming.
- When external input mode is used, the external input video is output via HDMI (to a monitor, etc.), while the camera video is output via USB (to a computer, etc.).
- When using a Type C-C cable, use a USB2.0 cable. USB3.0 cables and Type C-C cables capable of HDMI output cannot be used.

3-3 Displaying enlarged images using a microscope

By attaching the separately sold microscope attachment lens to a microscope, you can display the enlarged image through the document camera lens.




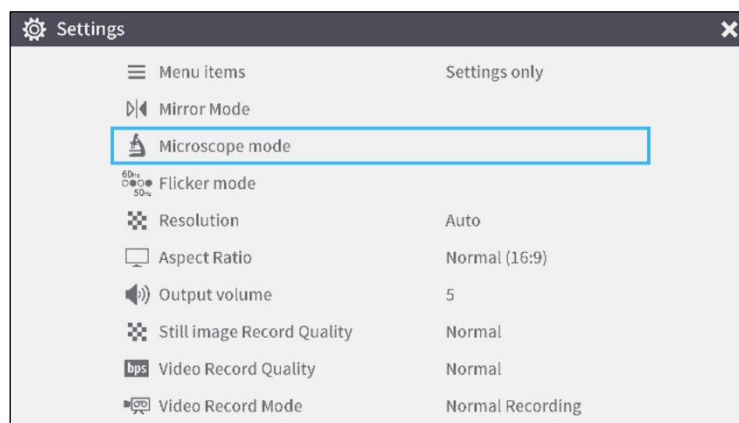
Microscope attachment lens (sold separately)

CODE : 1332

◆ Procedure

- ① Set the product to Microscope mode.

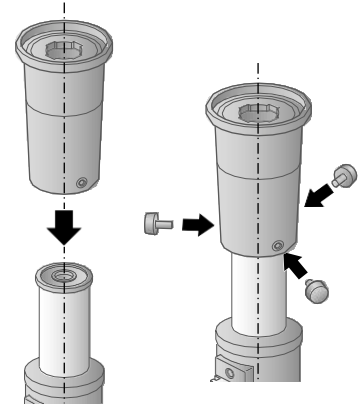
Display the System Setting menu by pressing the MENU button [] on the Operating panel while the camera image is displayed. Then select the Microscope mode.



- ② Set the microscope.

Place an object you want to view, such as a prepared slide, on the microscope and then look into the microscope to adjust the focus and brightness.

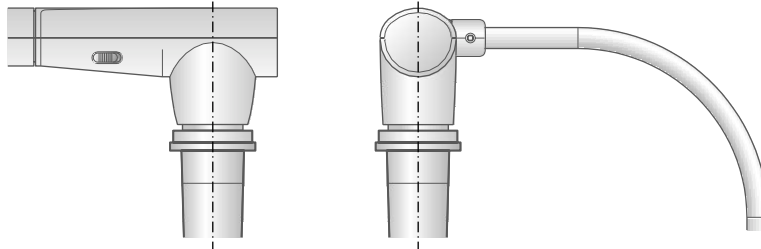
- ③ Attach the microscope attachment lens.
Attach the microscope attachment lens to the eyepiece.
After aligning the centers of both lenses, install the three screws and tighten them evenly to secure the attachment.



Caution

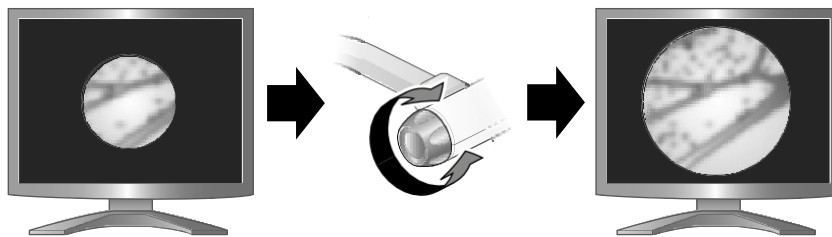
- If the screw is tightened too strongly, the microscope's eyepiece or optical tube may be damaged.
- The fixing screws may leave scratches on the parts of the microscope they come into contact with.
- Protecting the microscope with tape or other means may reduce the scars.

- ④ Adjust the microscope and the document camera.
Adjust the angle of the microscope and the product to fit each other.

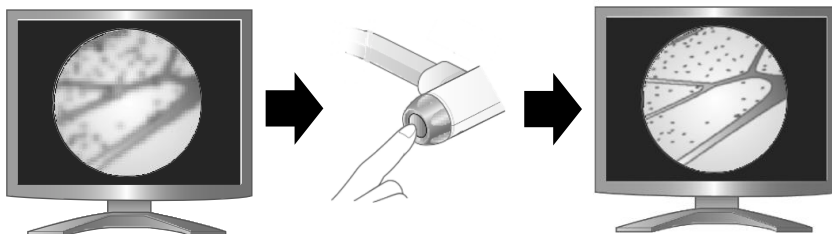


- ⑤ Adjust the brightness.
Adjust the brightness with the mirror or the light on the microscope.




- ⑥ Adjust the display range.
Rotate the zoom dial on the product to adjust the display range.



- ⑦ Adjust the focus.
Press the AF button on the camera head to perform auto focus.



⑧ Exit the Microscope mode.

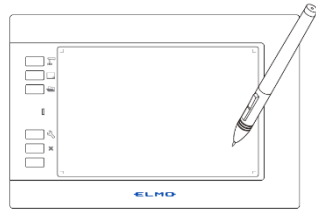
Select the [] icon displayed at the bottom left of the screen by pressing the MENU button [] on the Operating panel or press the Camera mode button [] on the Operating panel to exit the Microscope mode.

Note

- Depending on the type of eyepiece, you may not be able to view the object clearly even after adjusting the zoom.
- We recommend using a WF type eyepiece. If you do not use a WF type, we recommend using an eyepiece of 10x or less.
- You can use the microscope attachment lens when the external diameter of the eyepiece is 20 to 28mm.
- Use the thinner guide ring for Microscope lens attachment. There are two types of rings included in the package; the thicker one is not used here.

3-4 Using with a wireless pen tablet or a portable IWB (both sold separately)

ELMO's wireless pen tablet (CRA-1, CRA-2) or portable IWB (CRB-2, CRB-3) (sold separately) can be used instead of a mouse to operate this product.



Wireless pen tablet
CRA-2
(Sold separately)











Portable IWB
CRB-3
(Sold separately)

Connect the pen tablet or portable IWB to the USB port on the side panel of the product. Calibrate the pen tablet or portable IWB after installation according to the respective instruction manuals.

You can operate the product and use its drawing functions with the pen tablet or portable IWB, just like using a mouse.

For detailed operating instructions, refer to the respective instruction manuals.

By touching shortcut keys on the pen tablet, you can operate the product.

Shortcut key	Mode	Description
	Document camera mode	To enter the Document camera mode. This key works in the same way as the [] button on the operating panel.
	Whiteboard mode	No function is allocated.
	Playback mode	To enter the Playback mode. This key works in the same way as the [] button on the operating panel.
	Operation / Settings mode	To configure pen settings. (Only available when the Pen icon is displayed.)
	Close / Hide	To display or hide the MENU. This key works in the same way as the [] button on the operating panel.

3-5 Checking and updating the firmware version

■ How to check the firmware version

The firmware version can be checked in “Camera Information” in the System Settings menu.
The last three digits indicate the version.

(example) EM-CAN180-X009 ⇒ Version : 009

■ How to update the firmware

- ① Download the firmware from the following web site and save it (*fex and ulmage) to the root directly of the USB flash drive.

(Do not copy any other files to the USB flash drive.)

For North America:

<https://www.elmoussa.com/>

For Europe:

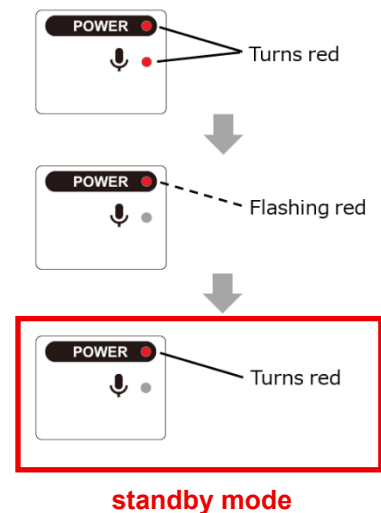
https://www.elmoeurope.com/en/download_software_en-gb/



- ② Insert the USB flash drive to the product.

Connect the AC adapter to the product.

Wait until the product is in standby mode.

(The Power LED changes as shown on the right).



- ③ Press the Enter button [] and Brightness + button [] on the Operating panel at the same time.
- ④ The Power LED starts to flash purple, and the firmware update begins.
- ⑤ Within one minute the product restarts and enters the standby mode.


Caution

- Still images and videos recorded in the internal memory will be retained after the firmware update.

4 TROUBLE SHOOTING

4-1 Symptoms and Confirmation

Check the following items. If any abnormality is found, consult the dealer from whom you purchased this product or our nearest branch/office.

Symptom	Possible cause/remedy
No image is displayed.	<ul style="list-style-type: none"> ▪ The cable is not correctly connected. ▪ The AC adapter is disconnected from the wall outlet. ▪ The AC adapter is disconnected from the power supply socket of the product. ▪ The power is off (the LED is not blue). ▪ Zoom is set at the TELE side, displaying only the white/black part of the document. ▪ The output resolution setting of the connected device does not match that of the product. <p>If the resolution setting of the product is set other than AUTO and does not match the resolution of the connected device, the image cannot be displayed.</p> <p>If the resolution is set to AUTO and the image is not displayed, try changing the setting to a fixed resolution and check whether the image is output.</p> <p>In Camera mode, pressing the Camera button [] for over one second to change the resolution setting. The resolution setting changes in the following order: "Auto" → "HD" → "UHD" → "FHD".</p> <ul style="list-style-type: none"> ▪ When outputting the camera image to both HDMI and USB simultaneously, set the USB output resolution to 4K/30fps, 1080p/30fps, or 720p/30fps. <p>If the USB output resolution is set to any other setting, HDMI output will not be available.</p> <ul style="list-style-type: none"> ▪ If you turn the power on immediately after turning it off, the product may not start. Wait for several seconds after turning the power off, and then turn it back on. ▪ Reconnect the AC adapter.
The output image (resolution) changes automatically.	<ul style="list-style-type: none"> ▪ When the HDMI monitor is connected, the output image (resolution) is automatically changed based on information from the connected monitor.
The image is out of focus.	<ul style="list-style-type: none"> ▪ The document (object) is too close to the lens. Move the document (object) slightly away from the lens.
The image is striped.	<ul style="list-style-type: none"> ▪ This may be interference fringes between dots of printed matter and TV scanning lines or CMOS pixels. Changing the shooting range may help the problem. ▪ If you shoot a monitor screen that is displaying a live video, the image may be distorted. ▪ Vertical stripes may appear when the shooting environment is dark. Brightening the environment may reduce vertical stripes.

Symptom	Possible cause/remedy
The image is too dark.	<ul style="list-style-type: none"> The intensity of the lighting is insufficient. Adjust the brightness by turning on the LED lighting on the camera head.
The image does not move.	<ul style="list-style-type: none"> The camera image is in pause mode. Press the Pause button on the Operating panel again to cancel the pause.
No image is output from the USB port.	<ul style="list-style-type: none"> No image is output from the USB port when the product is in the Playback mode. Check whether the product is in the Playback mode. If the product is in the Playback mode, change the output image to the camera image.
Images on the USB flash drive are not displayed.	<ul style="list-style-type: none"> Remove the USB flash drive, wait a few seconds and reinsert.
After inserting the USB flash drive, operations cannot be performed.	<ul style="list-style-type: none"> The USB flash drive is not being read correctly. Use the USB flash drive after formatting it twice as described below. First, format the card using a computer. Second, format the card using the product.
The UVC image is upside down.	<ul style="list-style-type: none"> Check that the graphics driver and other device drivers on your computer are updated. The latest device drivers are available from the computer manufacturer.
The displayed UVC image contains images other than the camera image.	<ul style="list-style-type: none"> The software and OS you are using or the connection status may be causing images other than the camera image to break through while displaying the camera image. This problem can be solved by reconnecting the device or restarting the software.
A software error message appears and the UVC image is not displayed.	<ul style="list-style-type: none"> If it is taking too much time for the preparation of the image output, the software may determine this to be an error. Restart the product, reconnect it to the computer, and then start the software.
The UVC image fails to be output.	<ul style="list-style-type: none"> Disconnect the USB cable, restart the software, and then connect the USB cable again. If the UVC image still fails to be output after restarting the software, contact the software vendor and ask if the software you are using supports MJPEG. When you stop the USB camera app during live streaming via UVC, wait at least 5 seconds before restarting the app. When you disconnect the USB cable during live streaming via UVC, wait at least 5 seconds before reconnecting the cable.
The UVC video is distorted.	<ul style="list-style-type: none"> This product is intended for indoor use only. Using it outdoors may cause image distortion. If the UVC video becomes distorted when connected to a computer, use a high-spec computer. Also, reducing the resolution or frame rate may help alleviate the distortion.
No sound is input.	<ul style="list-style-type: none"> Make sure that the microphone input setting on the connected device is correct. Switch to the appropriate microphone input. The method for changing the microphone input setting varies depending on the connected device. Refer to the device's manual or support page for details.

About the light (LED lighting)

The brightness of the light will diminish with long-term use. If its brightness has significantly diminished, we will replace the parts for a charge. Consult the dealer from whom you purchased the product or our nearest branch/office.

About long-term usage of this product

Due to the lifetime of its parts, if the product is used for longer than the warranty period, its performance and quality may deteriorate. In this case, we will replace the parts for a charge. Consult the dealer from whom you purchased the product or our nearest branch/office.

About USB connection with an electronic whiteboard

- Electronic zooming during live streaming via UVC

The electronic zoom function is not available when the video resolution is set to either 1920x1080 (60fps) or 1280x720 (60fps).

- Live streaming via UVC with an electronic whiteboard

If live streaming via UVC does not begin after the USB camera app of an electronic whiteboard is started, disconnect the AC adapter or USB cable and then reconnect it.

4-2 When you have a problem

- Depending on the USB flash drive you are using, writing or reading may fail.
- After starting up the product, the lens may move automatically. This operation is an adjustment that makes it easier to focus.
- Depending on the type and length of the cable used, there may be distortion of the image. Check the performance in advance.
- We do not guarantee that the still images and videos recorded by the product will be compatible with all playback devices or software.
- We do not guarantee that the product can playback all still images and videos recorded by third-party devices.
- Some operations and functions are restricted in order to stabilize operation during live streaming via UVC and video recording. Check the performance in advance.
- We do not guarantee proper operation with all possible combinations of other products and PC software (including ELMO' s products). Check the performance in advance.

5 SPECIFICATIONS

5-1 General

Item	Specifications
Power source	DC12V (AC adapter AC100 ~ 240V)
Power consumption	12W
Outside dimensions	W 349 x D 377 x H 436 [mm] (when setup)
	W 195 x D 294 x H 475 [mm] (when folded)
Weight	Approx. 3kg (main body only)
Input selection	Main / External (x2)
Output port	HDMI output x1
Input port	HDMI input x1
USB	USB2.0 host type A USB flash drive / mouse
	USB2.0 device type C image output
Audio Input	Internal Microphone

5-2 Main Camera

Item	Specifications
Lens	f=3.57mm ~ 40.39mm (12x zoom lens) F3.20 ~ F3.64
Frame rate	30fps, 60fps (only 1080P and 720P supported)
Limit of focus adjustment	From lens surface WIDE 50mm ~ ∞ TELE 200mm ~ ∞
Optical zoom	12 x
Digital zoom	16 x
Focus	Auto (One-push / Zoom sync), Manual
Exposure Compensation	Auto
Image pick-up element	1/3.2" CMOS
Imaging area	Max. 470mm x 260mm / Min. 55.2mm x 31.0mm (16:9) Max. 430mm x 320mm / Min. 50.7mm x 38.0mm (4:3)
Effective pixels	Horizontal 4128, Vertical 2322 (16:9) Horizontal 3808, Vertical 2856 (4:3)
Resolution	HDMI : 3840 x 2160 / 1920 x 1080 / 1280 x 720 USB : 3840 x 2160 / 2840 x 1536 / 1920 x 1080 / 1280 x 960 / 1280 x 720 / 1024 x 768 / 640 x 480 Horizontal : 1200 TV lines or more Vertical : 1200 TV lines or more
White balance	Auto / Fluorescent / Indoor / Outdoor
Brightness adjustment	Manual
Color/B&W selection	Provided
Image rotation	90° / 180°
Image mode	Normal / Color emphasis / Black&White / DLP projector
Contour correct	Provided
Pause (Freeze)	Provided
Still image recording	Provided
Video recording	Provided
Flicker correction	60Hz / 50Hz

5-3 Illumination Device

Item	Specifications
Illumination	White LED

■ TRADEMARKS AND LICENSES

ELMO is a trademark or registered trademark of TECHNO HORIZON Co., Ltd.

HDMI and High-Definition Multimedia interface are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

All other company/product names described in this manual are trademarks or registered trademarks of their respective companies.

This product is licensed under the AVC Visual Patent Portfolio License (AVC Video) for the personal and non-commercial use of a consumer to

- Play AVC Video that was recorded by a consumer engaged in a personal and a non-commercial activity and/or,
- Play AVC Video that was obtained from a video provider licensed from MPEGLA,LLC.
- Additional information including that relating to promotional and commercial uses may be obtained from MPEG-LA, LLC.

ATTENTION

- Unless used for personal use, it is prohibited by copyright law to record slides, books and photos without the prior consent of copyright holder.
- This product is designed to be used in industrial environment. If it is used in a residential area or in an adjacent area thereto, harmful interference to radio or television reception may occur.
- Any image, which is obtained by this product, and which can be identified, is considered to be private information. Be forewarned that the person who makes use of such images shall be liable for disclosing of such images.

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