ELMO

L-12

Document Camera

INSTRUCTION MANUAL

Please read this instruction manual carefully before using this product and keep it for future reference.

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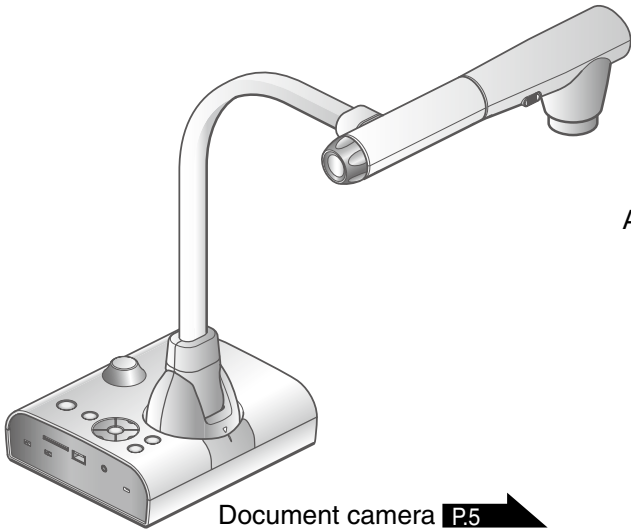
ADVANCED OPERATIONS

TROUBLE SHOOTING

SPECIFICA-TIONS

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.
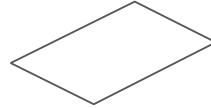
Anti-glare sheet P.13
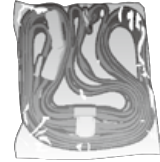
Strap P.13
(for Remote control)

Document camera P.5
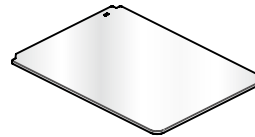
Stage P.13

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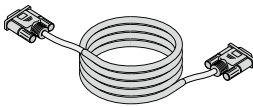
RGB cable P.8
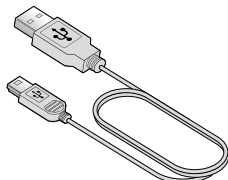
USB cable P.8
(for Connecting to PC)
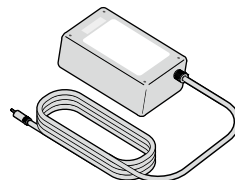
AC adapter P.7
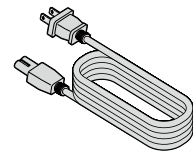
AC cord P.14

Dust cover P.13
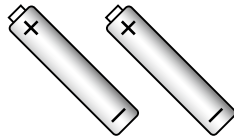
AAA batteries P.12
(for Remote control)
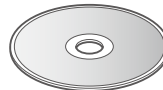
Image Mate CD-ROM
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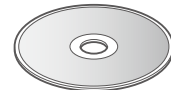
Instruction manual
CD-ROM
P.13
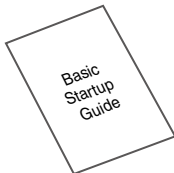
Basic Startup Guide

Operation Assistance
Label ※1
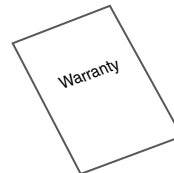
Warranty ※1, ※2
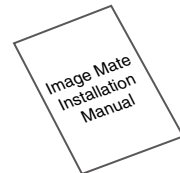
Image Mate
Installation Manual

3S Service Registration
Form ※1

3S Service Registration
Statement ※1

3S Assurance Guarantee
Label ※1

※ 1 Japan only
※ 2 N. America only

2 BASIC OPERATIONS

2-1 Document Camera

■ Part Names
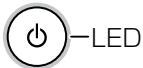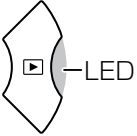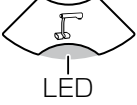
Operation of the main unit:
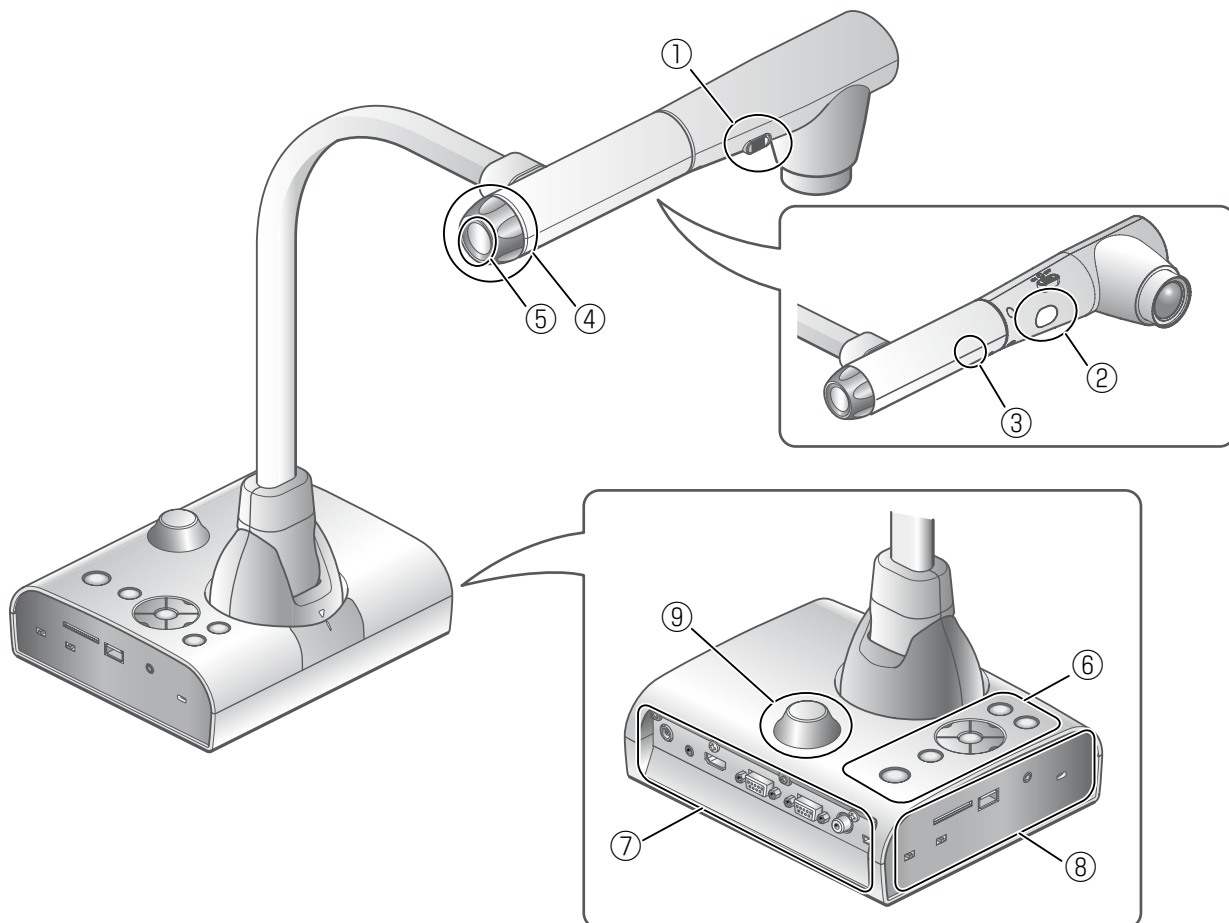
No	Name	
①	Illumination switch	P.19
②	Illumination	P.19
③	Built-in mic	
④	Zoom dial	P.16
⑤	AF button	
⑥	Operating panel	P.6
⑦	Rear panel	P.7
⑧	Side panel	P.10
⑨	Remote control sensor	P.12

■ Operating panel

		Mark	Function
①		⏻ —LED	To turn the power ON/OFF. 　Power ON: Blue light 　Power OFF (standby status): Red light	**Note** • Press and hold for more than 2 seconds to turn the power OFF.
②		MENU	To show/hide the menu on screen. P.21
③		📷	To save the still image on the SD card/USB flash drive. P.38
④		⧗	To pause the camera image. Press this button again to restart.
⑤	Image select	▶ —LED	To switch the screen to images stored on the SD card/USB flash drive. The LED is lit when the [▶] button is selected. P.20
⑥		⬡ LED	To switch the screen to camera image. The LED is lit when the [⬡] button is selected. P.20
⑦		LED— 🖳	To switch the screen to the image input to RGB IN. The LED is lit when the [🖳] button is selected. P.20
⑧	Brightness Adjust	☀	To brighten the camera image. P.17
⑨		●	To darken the camera image. P.17

■ Rear panel and cable connection

| | DC IN 12V ① | AUDIO OUT ② | HDMI OUT ③ | RGB OUT ④ | RGB IN ⑤ | VIDEO ⑥ | USB ⑦ |

	Mark	Function
①	DC IN 12V	Plug-in for the AC adapter. (A cable is supplied with this product.)
②	AUDIO OUT	To output audio line . (An audio cable is not supplied with this product.)
③	HDMI OUT	To output digital images. (HDMI cable is not supplied with this product.)
④	RGB OUT	To output analog RGB images. (Analog RGB cable is supplied with this product.)
⑤	RGB IN	When the [🖼] button is selected in Image Select, the image input to [🖥RGB IN] terminal can be output from the [📽RGB OUT] terminal. (A cable is supplied with this product.)
⑥	VIDEO	To output video images. (RCA cable is not supplied with this product.)
⑦	USB	To connect to a PC. (USB cable is supplied with this product.)

① **To connect the AC adapter.**

Before inserting the AC adapter in an outlet, connect the DC plug of the supplied AC adapter to the

[DC IN 12V] terminal on the rear panel.

② **To connect the unit to a device (speaker with amplifire etc) with an audio line input terminal.**

Connect a commercially available audio cable to the [AUDIO OUT] terminal on the rear panel.

③ To connect the unit to a device with an HDMI input terminal.

Connect a commercially available HDMI cable to the [$\overset{\longmapsto}{\text{HDMI OUT}}$] terminal on the rear panel.

> **N o t e**
>
> • Please use the monitor corresponding to the input of the image (resolution) or 720p or more.
>
>   It doesn't operate with the cable that doesn't conform to the HDMI standard.

④ To connect the unit to a device with an analog RGB input terminal.

Connect the RGB cable to the [$\overset{\longleftarrow}{\text{RGB OUT}}$] terminal on the rear panel.

Only 1 RGB cable is supplied with the product.

⑤ To connect the unit to a device with an analog RGB output terminal.

Connect the RGB cable to the [$\overset{\uparrow}{\text{RGB IN}}$] terminal on the rear panel.

Only 1 RGB cable is supplied with the product.

■ **Specifications of the [$\overset{\uparrow}{\text{RGB IN}}$] terminal**

Signal allocation

Video signal	Analog 0.7V (p-p) 75Ω terminated
Horizontal synchronized signal	TTL level (Positive/negative polarity)
Vertical synchronized signal	TTL level (Positive/negative polarity)
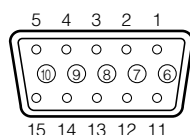
DSUB 15P shrink terminal (Female)

Pin assignment

Pin No.	Name	Pin No.	Name	Pin No.	Name
1	Video signal (Red)	6	GND (Red)	11	GND
2	Video signal (Green)	7	GND (Green)	12	N.C
3	Video signal (Blue)	8	GND (Blue)	13	Horizontal synchronized signal
4	N.C	9	N.C	14	Vertical synchronized signal
5	GND	10	GND	15	N.C

⑥ To connect the unit to a device with a composite video input terminal.

Connect a commercially available RCA pin plug video cable to the [$\overset{\downarrow}{\text{VIDEO}}$] terminal on the rear panel.

⑦ To connect a PC with the USB cable.

Connect the supplied USB cable to the [$\overset{\downarrow}{\text{USB}}$] terminal on the rear panel.

N o t e

- 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. This can be reduced by adjusting the "clock phase" function of the connected device.
- When using a PC with an external output mode, set the PC to the external output mode after pressing the [ ] button on the operating panel.
- We recommend using a USB 2.0 compliant USB cable.
- If you plug into the USB cable with the power on, the PC may not recognize the device.
- Depending on the PC's USB environment or the peripheral equipment using the USB 2.0 compliant cable, image transfer may be disrupted.
- Operation is not guaranteed for all environments.

BASIC OPERATIONS

■ Side panel

Note

- Move the switch in ① according to the specification of the display device.

	Mark	Function
①		To switch the output image type. Left switch : To switch the output terminal. Right switch : To switch the resolution. *See table below*
②	SD	To insert an SD card (commercially available). Push the card again to remove the SD card.
③	⟵⟶ USB	To connect a wireless pen Tablet (commercially available) P.56 or a USB flash drive (commercially available) P.37 .
④	MIC	Plug-in for an mic and line input. (A mic cable is not supplied with this product.) (The mic is only for the electret capactor mic.)
⑤	🔒	Security slot.

Resolution	Left switch	Right switch	Output image
1080 P（1920 × 1080）	▮▮	▮	HDMI OUT
720P（1280 × 720）	▯▮	▮	
SXGA（1280 × 1024）	▮▯	▮▯	RGB OUT
WXGA（1280 × 800）	▮▯	▯▮	
XGA（1024 × 768）	▯▮	▮▯	
NTSC/PAL	▮▮▮	▯▮	VIDEO OUT

(NTSC/PAL is changed in the menu setting.)

Note

- The same image is output to [RGB OUT] and [HDMI OUT].
- When [VIDEO OUT] is output [RGB OUT], [HDMI OUT] is not output.
  When [RGB OUT], [HDMI OUT] is output [VIDEO OUT] is not output.
- When the HDMI monitor is connected, the output image (resolution) is automatically changed based on information form the connected monitor. Even if [RGB OUT] is selected, it is not reflected.
- We recommend that you change the output image (resolution) with the power supply turned off (standby status).
  In case you wish to change the output image (resolution) by looking at the output image with the power supply turned on, make sure to set the output image to camera image and hide all menus beforehand.
  We do not guarantee proper operation when the output image (resolution) was changed in any other condition than specified above.

■ Moving Parts of the Document Camera

This unit can be moved as shown below.

120° 180°

180°

45°

180° 120°

ELMO
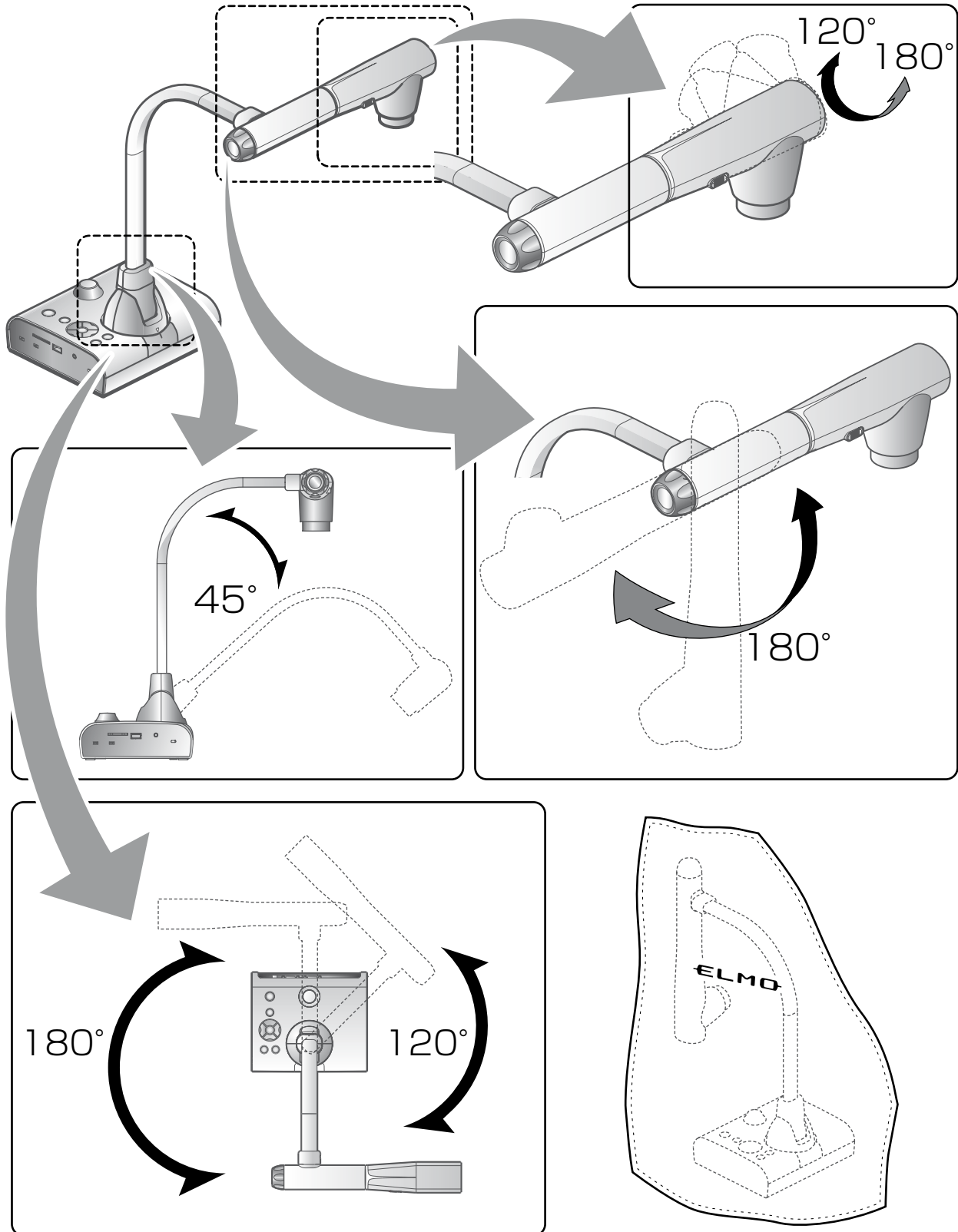
2-2   Supplied Accessories

■ Remote Control

Preparation of Remote Control

Remove the battery case cover at the back of the remote control and install 2 batteries. (TYPE AAA)
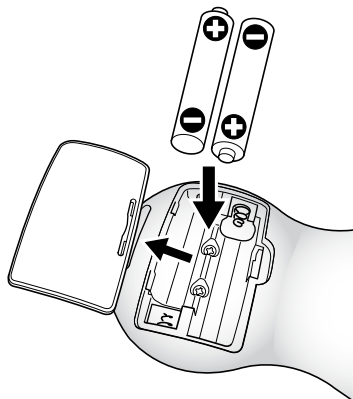
⚠ **WARNING**

Children may ingest small batteries; always keep batteries safe and out of reach.
If a battery is swallowed, consult a doctor immediately as this could result in asphyxiation or be an obstacle to digestion, etc.

Operation of the remote control

When a camera image is displayed   P.14

When data in an SD card/USB flash drive is displayed   P.37

Receiving signal from the remote control

Point the infrared light lens of the remote control at the infrared sensor, and press the button of the desired function.

Receivable range

Distance: Within approx. 7m from the front of the infrared sensor

Angle: Within 30° up, down, left, and right of the infrared sensor

☞ **N o t e**

• The receivable range may be reduced when the main unit is placed in direct sunlight, near an inverter fluorescent light or in any other unfavorable conditions. Depending on the light source conditions, the sensor may fail to receive any infrared light. In such cases, relocate the main unit or shield the light source.
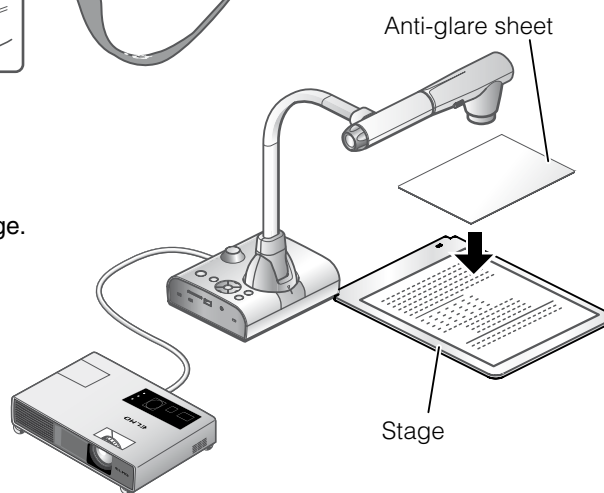
Within 7m
30°
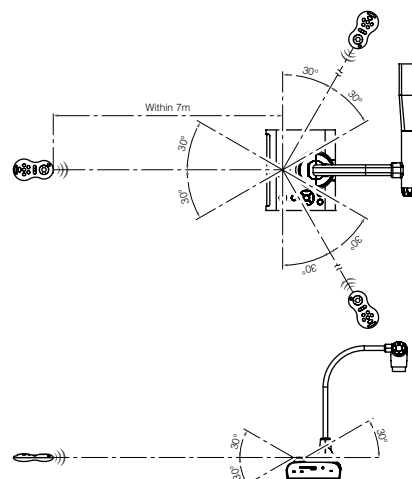
■ Remote Control Strap

The strap can be fastened to the remote control as shown below.
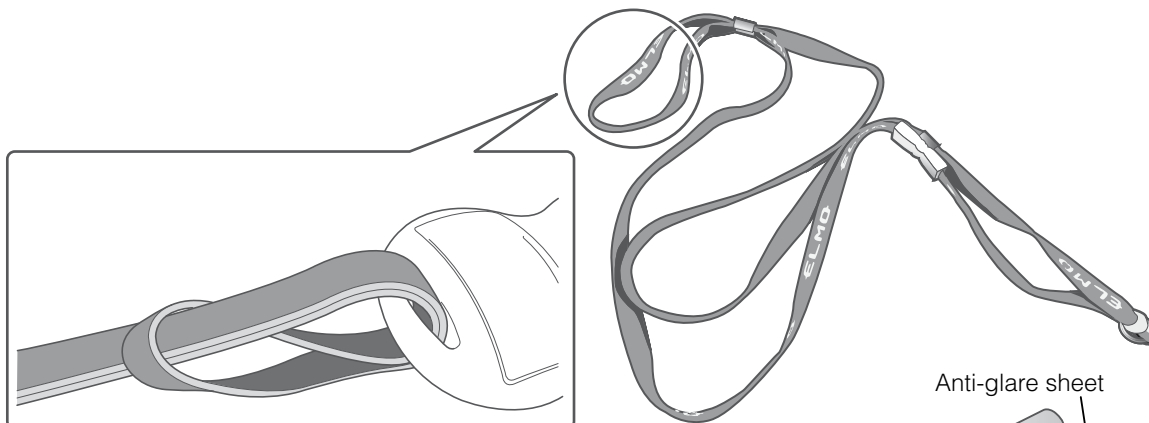
Anti-glare sheet

■ Stage

Use with the main unit to indicate the shooting range.

Stage

■ Anti-glare sheet

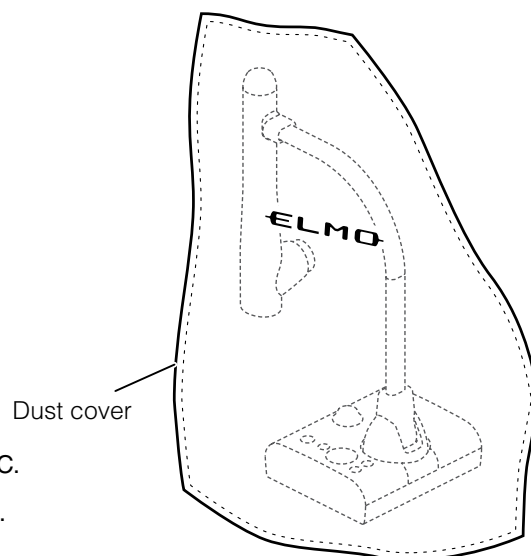Place it on the document to reduce the amount of reflection.

■ Dust cover

Cover the main unit when storing to keep it clean.

How to fold the main unit

Dust cover

■ Image Mate CD-ROM

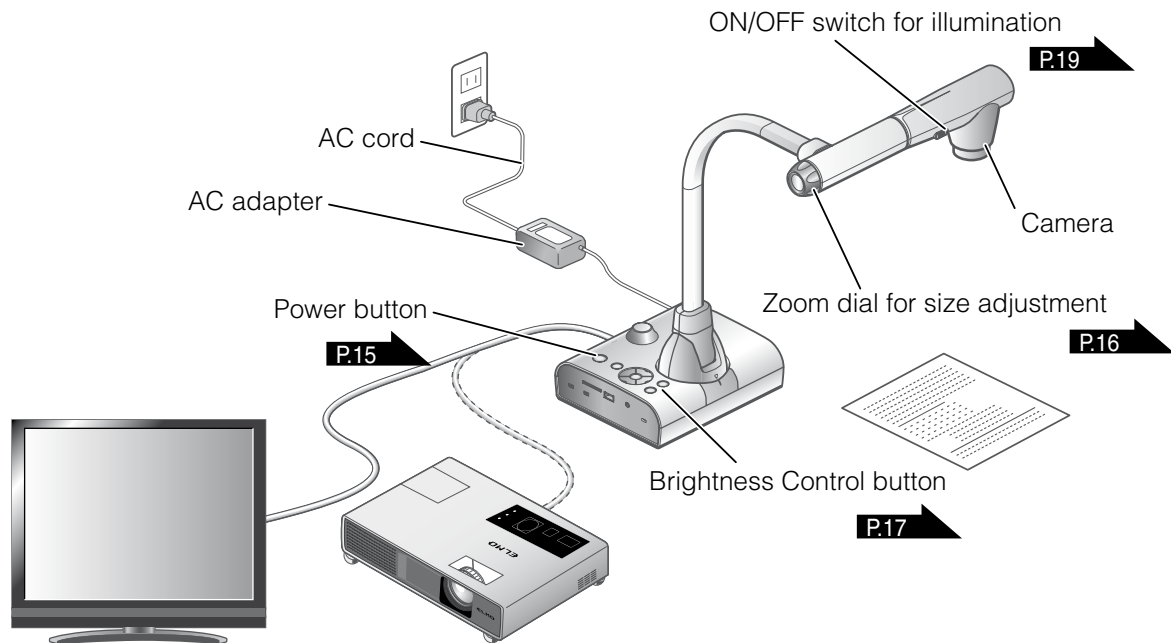The CD-ROM contains the software for connecting to a PC.

Follow the instructions in the separate Installation Manual.

■ Instruction manual CD-ROM

The CD-ROM contains the Instruction manual.

2-3　Shooting Images

ON/OFF switch for illumination

P.19

AC cord

AC adapter

Camera

Power button

Zoom dial for size adjustment

P.15

P.16

Brightness Control button

P.17

■ Setting up the main unit

Set up the main unit as shown in the figure above. Then connect the main unit to a projector or a PC monitor, and turn on the power of the main unit. P.15
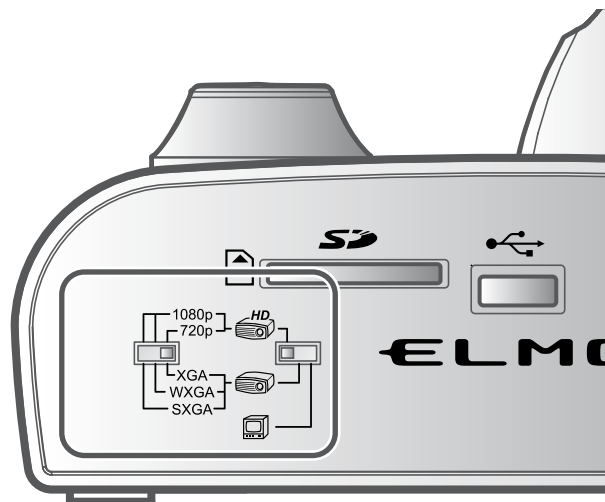
Connecting the AC cord

Connect the AC cord and the AC adapter. Then connect the AC adapter to the [DC IN 12V] terminal at the rear panel of the document camera, and insert the AC cord into an outlet.

To main unit

To wall outlet

Connect

AC adapter
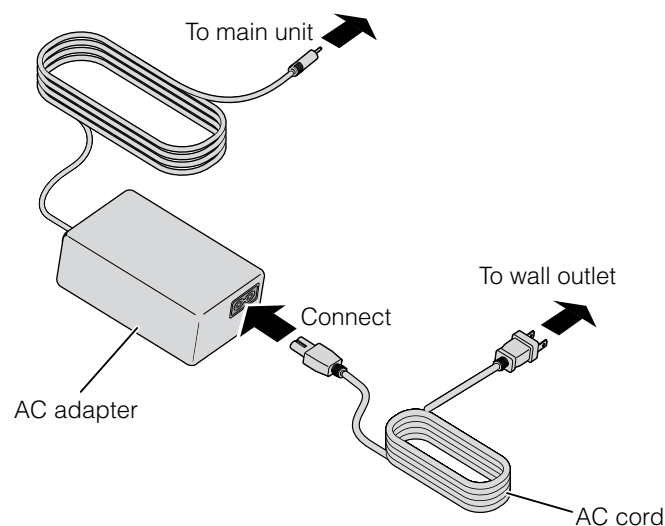
AC cord

Connecting the video cable

① Move the switch on the side panel according to the specification of the display device.   P.10

② Use the cable corresponding to the switch position specified in   ① to connect the document camera to the display device.


CAUTION

Before connecting the main unit to other devices, be sure to turn OFF the power for all of the devices.

■ Turning the power ON/OFF

• Press the [⏻] on the operating panel or the [⏻] button on the remote control to turn the power ON.
(After the [⏻] Button flashes blue, it is illuminated a few seconds later.)

• Hold down the [⏻] button on the operating panel or the [⏻] button on the remote control for two seconds or more to turn the power OFF.
(The LED around the [⏻] button is illuminated in red.)

LED
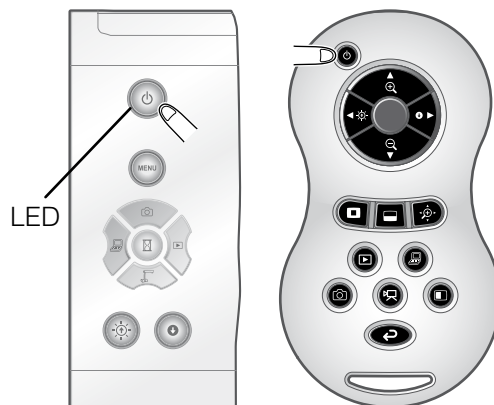
N o t e

• Do not operate this device while it is flashing.

■ Adjusting the size

The display range of the document can be adjusted by rotating the zoom dial on the main unit or by
pressing the [🔍 / 🔍] buttons on the remote control.

- ZOOM-IN ⊕ : The object can be shown in large size.
- ZOOM-OUT ⊖ : The object can be shown in small size.

ZOOM-OUT
(smaller)

ZOOM-IN
(larger)

Zoom dial
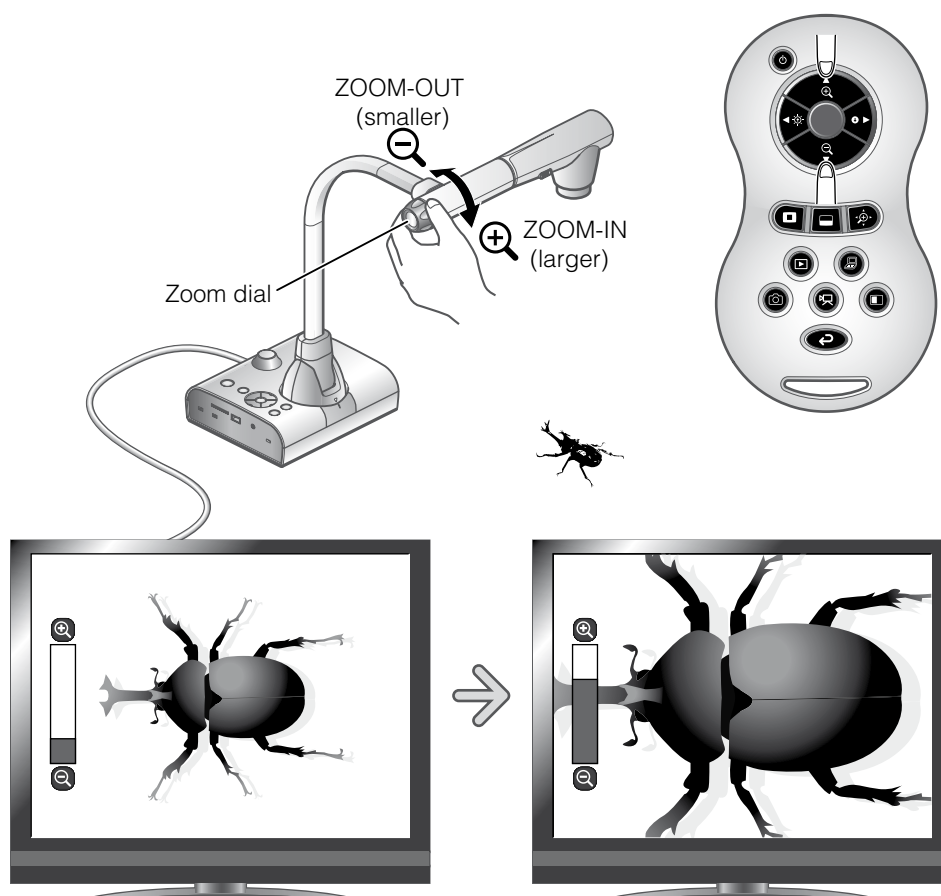
Note

- Zoom ratio: Optical 12x, Digital 8x
- When the optical zoom reaches 12x, it automatically shifts to digital zoom.
- Within the digital zoom range, the image quality is degraded.
- ON/OFF of the digital zoom can be set from the setting menu.

■ Adjusting the brightness

Press the [⊕ / ◐] button on the operating panel or the [◀⊕ / ◐▶] buttons on the remote control to adjust the image brightness.

The following two adjustment modes can be set by selecting [Brightness] from the menu on the screen.
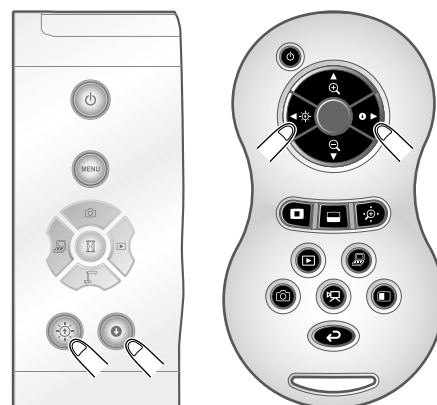
Automatic brightness adjustment

([MENU] →[⊡] →[☼] →[Auto])

To ensure a constant degree of brightness, the brightness of the image changes automatically according to the brightness of the shooting environment. Use the [⊕ / ◐] button on the operating panel or the [◀⊕ / ◐▶] buttons on the remote control to change the automatic brightness adjustment.
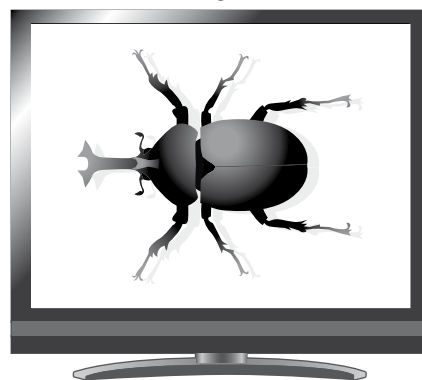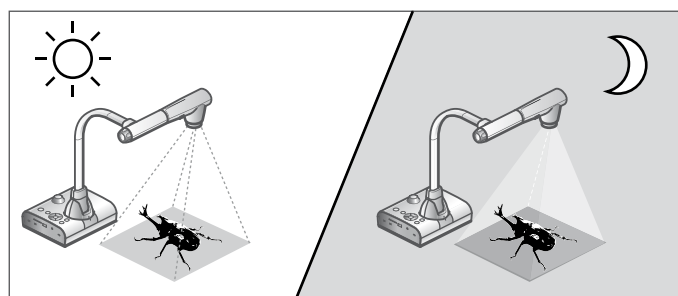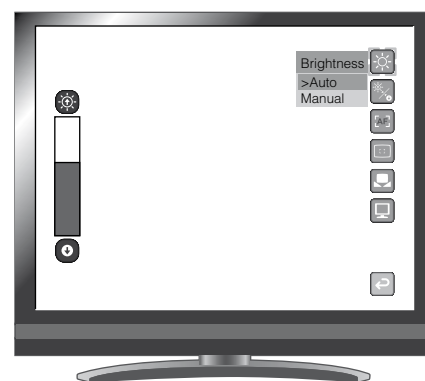
Brightness of the screen is the same

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Manual brightness adjustment

([(MENU)] → [🔲] → [🔆] → [Manual])

Use the [⊕ / ⊙] buttons on the operating panel or the

[◀⊕ / ⊙▶] buttons on the remote control to change the level

of brightness. The brightness of the image will not change

automatically in response to the brightness of the shooting

environment.

Brightness of the screen is different

☞ **N o t e**

• Factory setting is set to [Auto].

• By setting [(MENU)] →[ℹ] →[On], the setting details are displayed on the screen.

• To return to the factory settings, press the [⊕ / ⊙] buttons on the
  operating panel at the same time, or select [Reset Brightness] from the
  menu.

• In places where the object is exposed to bright sunlight (e.g. near a
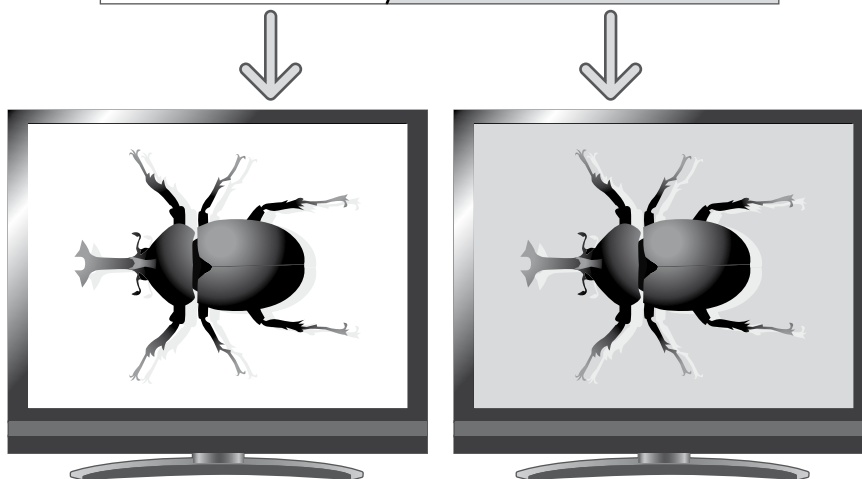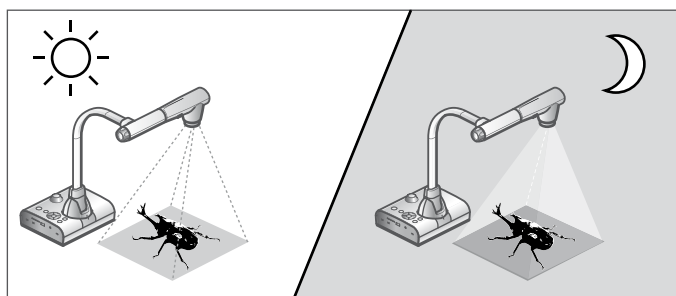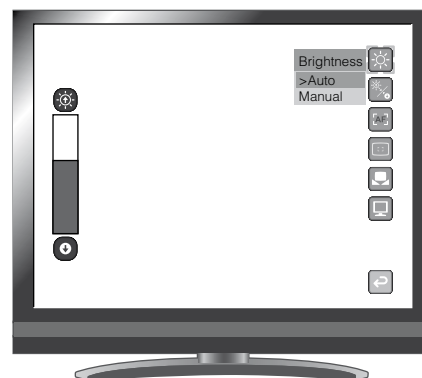 window), or extremely bright lights, the brightness of the screen may not
  dim sufficiently, even when the [⊙] button on the operating panel or
  the [⊙▶] button on the remote control is pressed.
  In such cases, to adjust the amount of light, close the curtains or move
  the object away from the light.
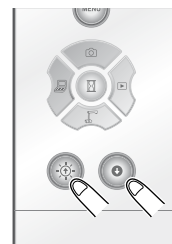
■ Turning the illumination ON/OFF
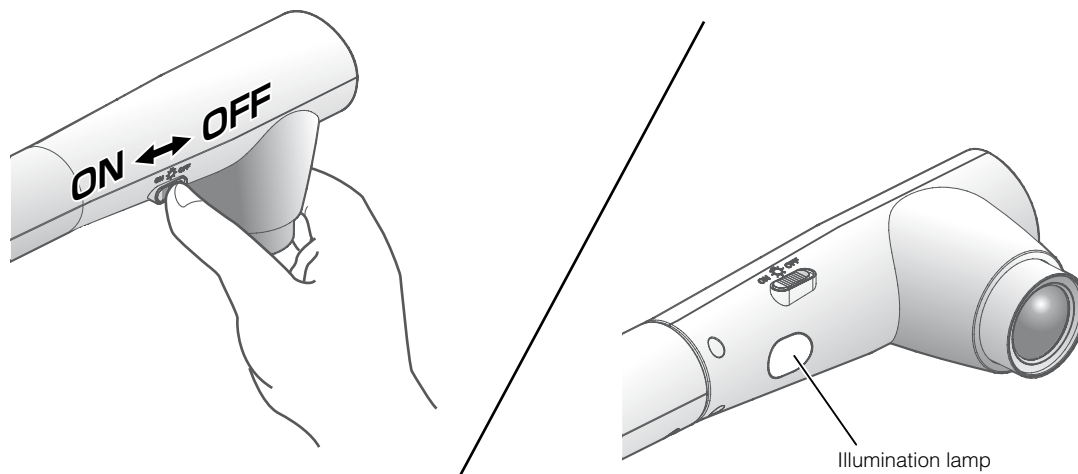
Illumination lamp

The illumination light can be turned ON/OFF by sliding the illumination light switch.

・ [ON]　 : The illumination light turns on.

・ [OFF] : The illumination light turns off.

CAUTION

• To take shots of people, turn the illumination light switch to OFF.

• Make sure that the light from the illumination light does not shine directly into your eyes.

• This product is equipped with a high-brightness LED light. You can safely use the light to light up objects, however its brightness will gradually diminish with long-term use. This is not a malfunction of the light, but a feature of LED performance.

• Do not touch the illumination light while it is on as it may become very hot.

■ Image selection

Select the image as described below.
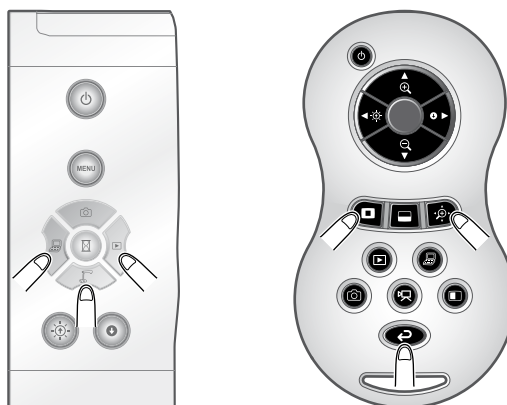
Camera image:

[⟨ ⌂ ⟩] button on the operating panel or

[⟳] button on the remote control.

**Image input to the [🖳] terminal:**

[🖳] button on the operating panel or

[🖳] button on the remote control.

Image stored on the SD card/USB flash drive:

[▶] button on the operating panel or

[▶] button on the remote control.

Note

• When using a PC with an external output mode, set the PC to the external output mode

after pressing the [🖳] button on the operating panel or the [🖳] button on the remote

control.

• Image of the [🖳] terminal is output from the [🖳] terminal only. As to [🖳]

terminal and [🖳] terminal, press the [🖳] button on the operating panel or the [🖳]

button on the remote control to display the camera image on the screen.

■ Pausing the image

Press the [⏸] button on the operating panel to pause the camera image. Press the button again to

cancel the pause.

2-4　Setting Changes

Various settings for this unit are changed through the menu (characters and icons) displayed on the screen.

■ Changing a Setting

① Press the [MENU] button on the operating panel to display the menu on the screen, and then use the

[ ] buttons to move the cursor to the icon you want to operate or set.

② Press the [ ] button to select the function to be changed.

MENU — Display/hide the menu on the screen

Move the cursor up

Move the cursor left — — Move the cursor right

Select

Move the cursor down

Front operating panel

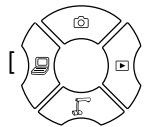Camera Controls

■ List of the Menus

MENU
Press

Press [Select]

Support Function

Main unit settings

P.25 P.25 P.25 P.25

P.25 P.25 P.25 P.25

P.25 P.25 P.25

P.22 P.22 P.22 P.22 P.23

Red Blue

P.23 P.23 P.23 P.23 P.23

P.23

50Hz/60Hz NTSC/PAL

P.24 P.24 P.24

Mbps

P.24 P.24 P.24 P.24 P.24

P.24 P.24 P.25 P.25
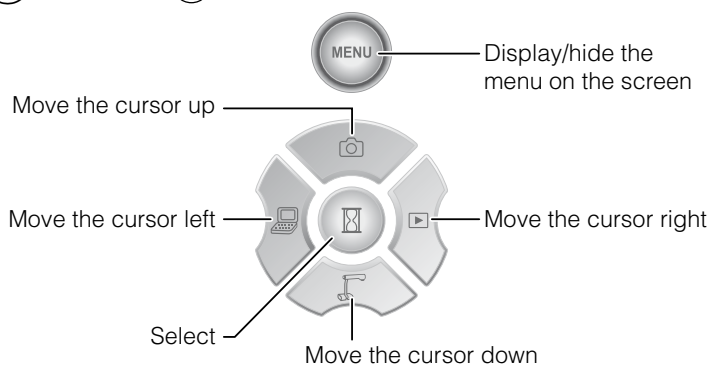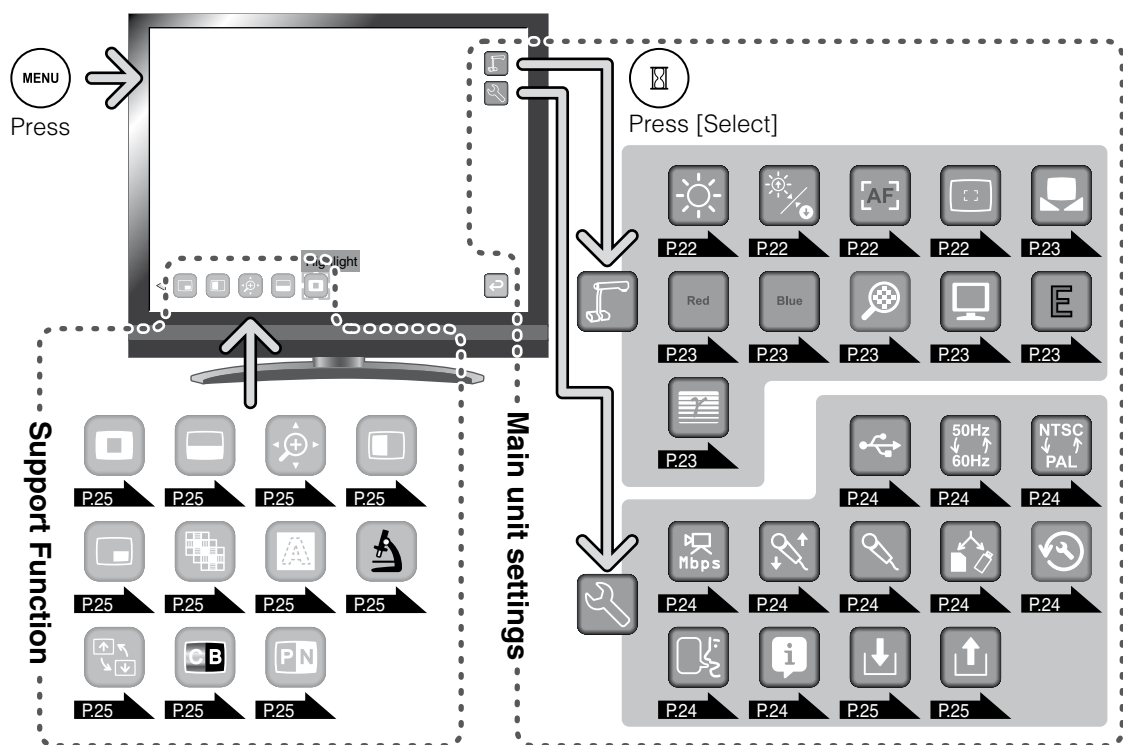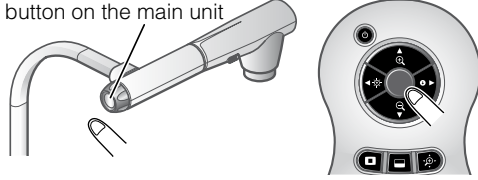
※ To go back a layer or to hide the menu, select [ ] and press the [ ] button.

■ Descriptions of Each Menu

Main Unit

Icon	Name	Function
	Camera Controls	To display the setting menu for camera image.
	Preferences	To display the preference menu for various functions.
	Exit	To hide the menu.

Camera Controls [Second Layer]

| Icon	Name	Selection Item	Factory Setting	Function
	Brightness	Auto	✔	To maintain constant brightness of the image, the brightness of the image changes automatically according to the brightness of the shooting environment. Press the [⊛ / ⊙] buttons on the operating panel or the [⊛ / ⊙] buttons on the remote control to change the brightness. **P.17**
		Manual		Press the [⊛ / ⊙] buttons on the operating panel or the [⊛ / ⊙] buttons on the remote control to change the level of brightness. The brightness of the image will not change automatically in response to the brightness of the shooting environment.
	Reset Brightness	Reset		To reset the brightness setting.
		Exit		To go back one layer in the menu.
	AF Mode ★What is AF? A function to automatically focus the camera.	Auto		To constantly auto focus. You do not need to press the AF button on the main unit or the [●] button on the remote control. The focus changes automatically as the object changes.
		Manual	✔	To auto focus only once when the AF button on the main unit or the [●] button on the remote control is pressed. AF button on the main unit
		Zoom Sync		To auto focus only once after zooming.
	Focus	Near		To focus manually.
		Far		
		Exit		To go back one layer in the menu.

BASIC OPERATIONS

Icon	Name	Selection Item	Factory Setting	Function
	White Balance ★What is White Balance? A function to adjust any area of white color and ensure it is projected accurately as white. This allows colors to be seen naturally according to the characteristics of the object.	Auto	✔	To constantly adjust the white balance. The white balance is adjusted automatically to ensure a more natural color according to the characteristics of the object.
		One-Push		To automatically adjust the white balance only once when this setting is selected.
		Manual		To manually adjust the [R-Gain] and the [B-Gain].
Red	R-Gain	Up		To adjust the R-Gain of the camera image when the white balance is set to Manual. Use [Up] or [Down] to increase or decrease the red color.
		Down		
		Exit		To go back one layer in the menu.
Blue	B-Gain	Up		To adjust the B-Gain of the camera image when the white balance is set to Manual. Use [Up] or [Down] to increase or decrease the blue color.
		Down		
		Exit		To go back one layer in the menu.
	Digital Zoom	Valid	✔	To set the digital zoom to Valid/Invalid.
		Invalid		
	Image Mode ★What is Image Mode? A special effect to project a clear image.	Text 1	✔	To clearly reproduce black & white documents including such features as characters and lines. The effect intensifies as the number increases.
		Text 2		
		Text 3		
		Graphic 1		To clearly reproduce photographs and color documents.
		Graphic 2		The image could be improved if used with a DLP projector. (The effect depends on the projector used.)
E	Edge Effect	Low	✔	To emphasizes the outline of images. Enabled only when [Graphic1] is selected for the Image Mode (▣).
		Medium		
		High		
	Gamma ★What is Gamma? An image characteristic unique to image I/O devices.	Low		To change the characteristics of the image. Enabled only when [Graphic1] is selected for the Image Mode (▣). The setting can be changed according to user preference.
		Medium	✔	
		High		
	Exit			To go back one layer in the menu.

🔧 Preferences [Second Layer]

Icon	Name	Selection Item	Factory Setting	Function
	USB Mode ★What is USB Mode? Functions described on the right can be used by connecting the document camera to a PC with the USB cable.	Mass Storage		To send the data on the SD card loaded in the device to the PC.
		Application	✔	To control this device from a PC using special software.
50Hz↓↑60Hz	Flicker Rate	60Hz	Japan/U.S.	To reduce fluorescent light flickering due to the power supply frequency. Select the same value as used for the power supply frequency.
		50Hz	Others	
NTSC↓↑PAL	Video Format ★What is Video Format? A radio wave system used for analog TV broadcasting. Countries use different systems, and analog TVs are sold according to the system.	NTSC	Japan/U.S.	Video output NTSC from the [📺VIDEO] terminal on the rear panel.
		PAL	Others	Video output PAL from the [📺VIDEO] terminal on the rear panel.
Mbps	Movie Quality	Low		To set the quality of the movie to record.
		Medium		
		High	✔	
	Volume	Up		To set the volume of the audio line output and the HDMI output.
		Down		
		Exit		
	Audio Selector	Built-in mic	✔	To select the source of the audio input.
		Mic-in		
		Line-in		
	Select Memory	SD Card	✔	To select where to save still images/movies, when both SD card and USB flash drive are inserted.
		USB Flash Drive		
	Reset All	Yes		To reset various settings to factory settings.
		No		
	Language	Japanese	Japanese	To display the menu in Japanese.
		English	Others	To display the menu in English.
i	Guide	ON	✔	The device's operating status and an explanation of the icons is displayed on the screen.
		OFF		The device's operating status and an explanation of the icons is not displayed on the screen.

Icon	Name	Selection Item	Factory Setting	Function
	Save Presets	1		
	★Saved Items Zoom Brightness Mode Brightness Level White Balance R-Gain B-Gain Image Mode Edge Effect Gamma	2		To save the current setting as the preset setting of the selected number.
		3		
		Exit		To go back one layer in the menu.
	Load Presets	1		To call the setting saved for the selected number.
		2		
		3		
		Exit		To go back one layer in the menu.
	Exit			To go back one layer in the menu.

BASIC OPERATIONS

Support Function

Icon	Name	Function	
	Highlight	To highlight and draw attention to a particular section of the image.	P.28
	Mask	To mask a section of the image.	P.30
	Scroll	To expand to a set size and allow scrolling of the enlarged section.	P.31
	Compare Picture	To display a still image and live image together. The still image is displayed on the left side of the screen, and the camera image on the right.	P.32
	PIP	To display either a still image or a Camera image while displaying the other. The image is displayed at the bottom right of the Screen.	P.33
	Mosaic	To apply a mosaic effect to the image.	P.35
	Marker Mask	A filter to blacken a color section of the image. For instance, this can be used to temporarily hide colored text, so students can be questioned about the hidden text.	P.36
	Microscope	For use with a microscope.	P.70
	Image Rotation	To rotate the image by 180°.	
	Color/B&W	To display an image in color.	
		To display an image in black & white.	
	Posi/Nega	To output a positive image.	
		To output a negative image.	

Suppport Function Setting

Highlight

Icon	Name	Selection Item	Function
	Darkness	Darken	To set the darkness of a dark section. The dark section becomes darker when [+] is selected, and becomes more visible when [−] is selected.
		Lighten	
		Exit	
	Size	Lengthen Height (stretch)	To change the size of the highlighted display area.
		Shorten Height	
		Lengthen Width (stretch)	
		Shorten Width	
		Exit	
	Exit		

Mask

Icon	Name	Function
	Exit	

Scroll

Icon	Name	Function
	x2	To set the digital zoom magnification to 2x when the Scroll icon is selected.
	x3	To set the digital zoom magnification to 3x when the Scroll icon is selected.
	x4	To set the digital zoom magnification to 4x when the Scroll icon is selected.
	Exit	

Compare Picture

Icon	Name	Function
◁	Prev Picture	To show the previous picture.
▷	Next Picture	To show the next picture.
	Exit	

PIP

Icon	Name	Function
◁	Prev Picture	To show the previous picture.
▷	Next Picture	To show the next picture.
	Change Window	To switch the sub screen and the main screen.
	Exit	

Mosaic

Icon	Name	Function
+	Coarse	To make the mosaic pattern coarser.
−	Fine	To make the mosaic pattern finer.
	Exit	

Marker Mask

Icon	Name	Function
	Exit	

Microscope

Icon	Name	Function
	Exit	

■ Details of Each Function

Highlight Function

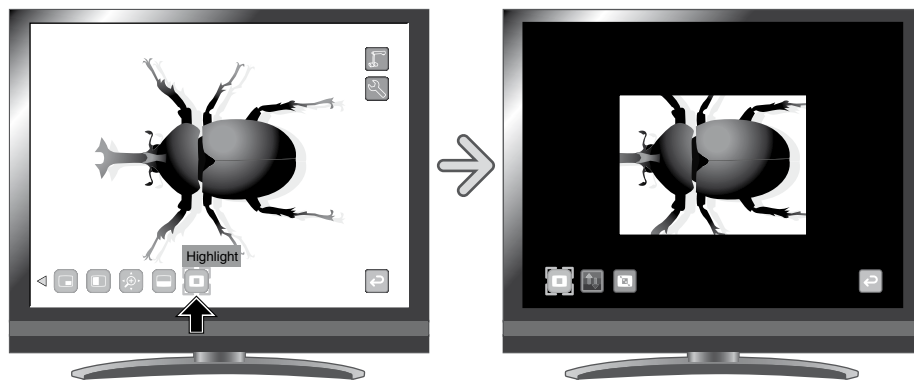This is a function to highlight a particular section of the image.

Use this function to draw attention to a section.

Highlight operations

When you press the [▫] button on the remote control or [▫] on the menu while a camera image or a Play mode is displayed, the highlight function uses the darkness and size set previously.

You can move the highlighted area using the [◄ ☼ ● ►] buttons on the remote control.

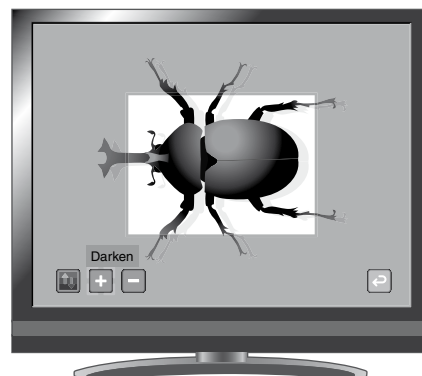The highlight display is cleared when you press the [▫] button on the remote control or [▫] on the menu again.

Highlight

⸻

N o t e

- The Highlight function cannot be used when the [⬙] button is selected in the Image Selection.
- Highlighted image cannot be captured.

Setting operations

You can change the darkness of a particular section by changing the setting of [ ] on the menu while the section is highlighted.

You can also change the size of the highlighted display area by changing the setting of [ ] on the menu.
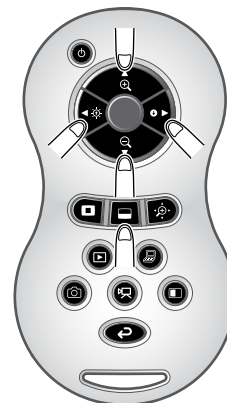
Mask Function

This is a function to mask a section of an image.

Mask operations

When you press the [■] button on the remote control or [▭] on the menu while a camera image or a Play mode is displayed, the mask effect is applied with the darkness set previously.

You can move the masked area using the [◄ ☀ ►] buttons on the remote control.

The mask display is cleared when you press the [■] button on the remote control or [▭] on the menu again.
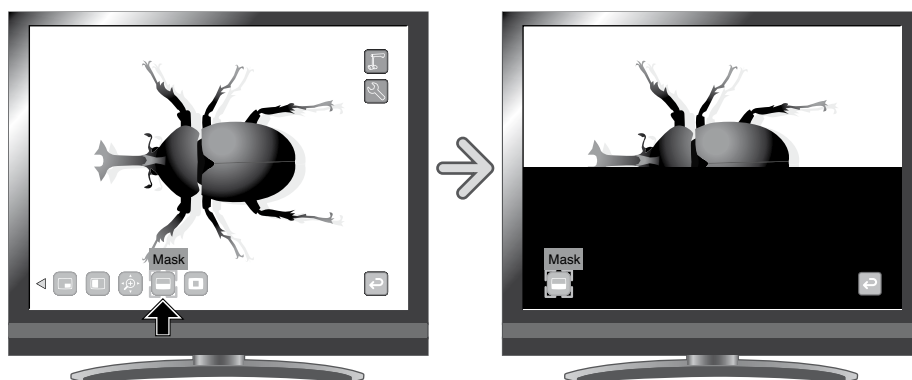
Mask

Mask

✍ **Note**

- The Mask function cannot be used when the [🗇] button is selected in the Image Selection.
- Masked image cannot be captured.

Scroll Function

The image expands to the digital zoom set previously, and the enlarged screen can be scrolled.

Scroll operations

When you press the [🔘] button on the remote control or [🔘] on the menu while a camera image or a Play mode is displayed, the image expands to the digital zoom set previously.

You can scroll the enlarged image by using the [🔘] buttons on the remote control.

Digital zoom is canceled when you press the [🔘] button on the remote control or [🔘] on the menu again.

Scroll

Normal   Digital zoom
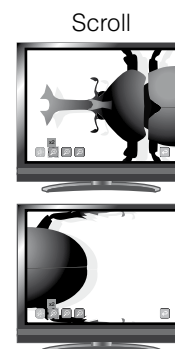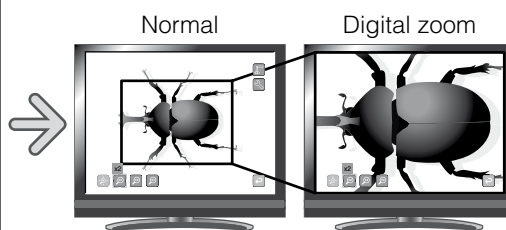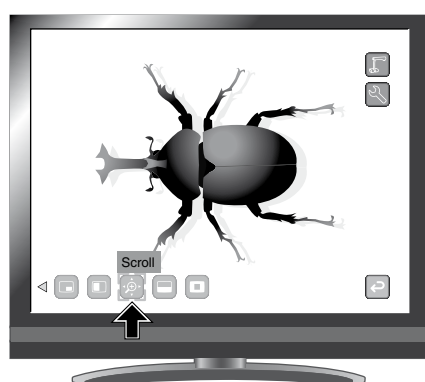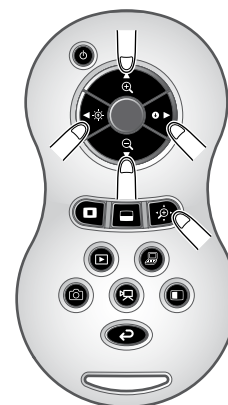
Scroll

N o t e

- The Scroll function cannot be used when the [🔘] button is selected in the Image Selection.
- When digital zoom has already been performed from the zoom dial on the main unit or the zoom buttons on the remote control, digital zoom is released and the scroll function works at the magnification ratio currently set.
- Cannot use digital zoom while scrolling.
- Within the digital zoom range, the image quality deteriorates.

Digital zoom setting operations

You can change the digital zoom ratio to either x2, x3, or x4 by selecting [🔘], [🔘], or [🔘] on the onscreen menu while the scroll function is working.

Compare Picture Function

To display the camera image and the picture stored on the SD card/USB flash drive together.

Compare Picture operations

When you press the [▢] button on the remote control or [▢] on the menu, while a camera image or a play mode is displayed, the camera image is displayed at the right side of the screen and the picture stored on the SD card/USB flash drive is displayed at the left side of the screen.
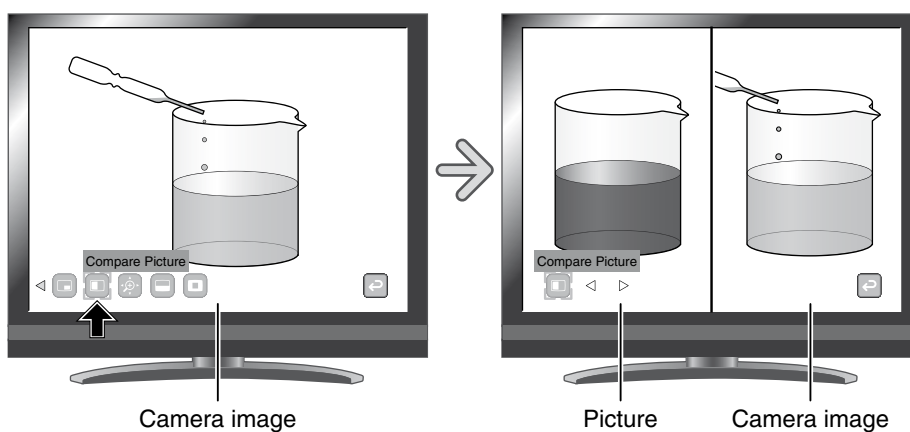
The Compare Picture function is cleared when you press the [▢] button on the remote control or [▢] on the menu again.

Camera image   Picture   Camera image

Changing the still Picture

You can change the picture displayed on the screen to an other picture stored on the SD card/USB flash drive by selecting [◁] or [▷] on the menu, while the compare picture function is working.
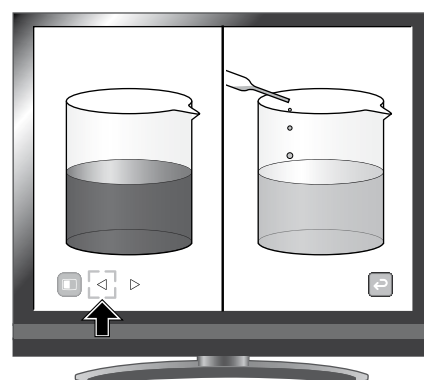
Note

- The Compare Picture Function cannot be used when the [🖼] button is selected in the Image Selection.
- When using the Compare Picture Function, the image cannot be captured.

Picture in Picture Function

To display either a picture stored on the SD card/USB flash drive or a camera image at the bottom right of the screen.

Picture in Picture Operations

When you press the [▣] on the menu, while a camera image is displayed, the picture stored on the SD card/USB flash drive is displayed at the bottom right of the screen.

When you press the [▣] on the menu, while the picture stored on the SD card/USB flash drive is displayed, a camera image is displayed at the bottom right of the screen.

The Picture in Picture effect is cleared when you press the [▣] on the menu again.

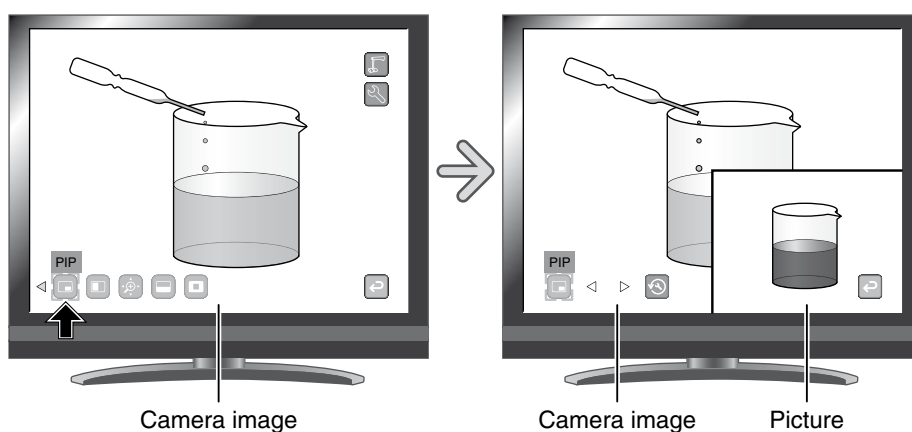Camera image   Camera image   Picture

Changing the still picture

You can change the picture displayed on the screen to an other picture stored on the SD card/USB flash drive by selecting [◁] or [▷] on the menu, while the picture in picture function is working.

BASIC OPERATIONS
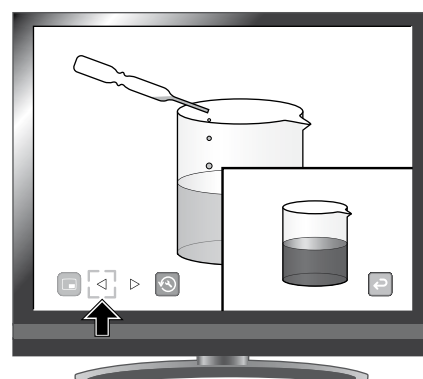
Switching the subscreen and the main screen.

You can switch the subscreen and the main screen by selecting [🖼] on the menu. While the Picture in Picture function is working.

Camera image   Picture   Picture   Camera image

Note

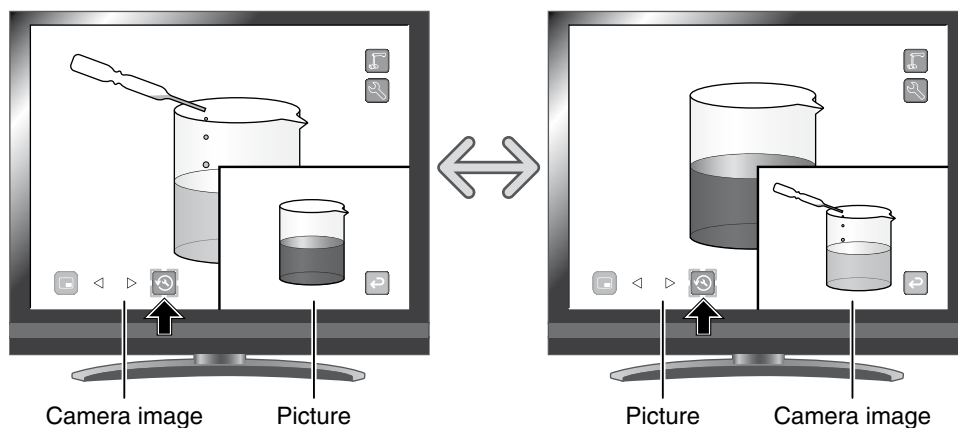- The Picture in Picture function cannot be used when the [🖼] button is selected in the image selection.
- When using the Picture in Picture function, the image cannot be captured.
- When digital zoom is used, the still screen is displayed only at 12x optical zoom magnification.
- Cannot use digital zoom while using PIP function.

Mosaic Function

To apply a mosaic effect to the image. You can change the extent of mosaic.

Mosaic Operations

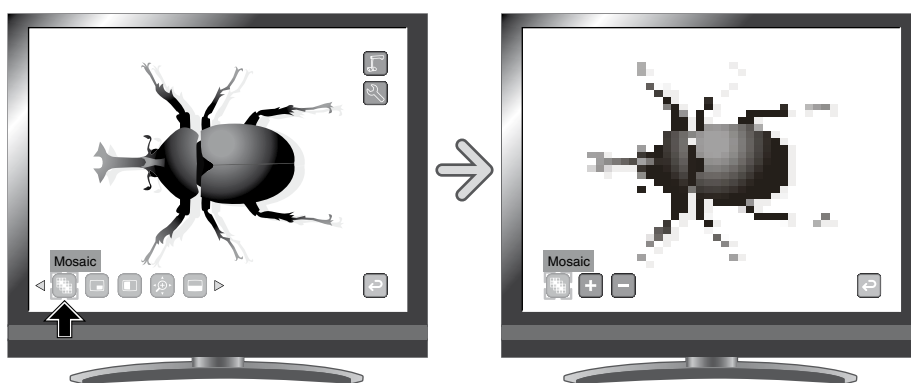When you press the [🔲] on the menu, while a camera image or a Play mode is displayed, the mosaic effect is applied. The mosaic effect is cleared when you press the [🔲] on the menu again.

Mosaic setting Operations

You can change the extent of mosaic by selecting [+] or [−] on the menu.

While the mosaic function is working.
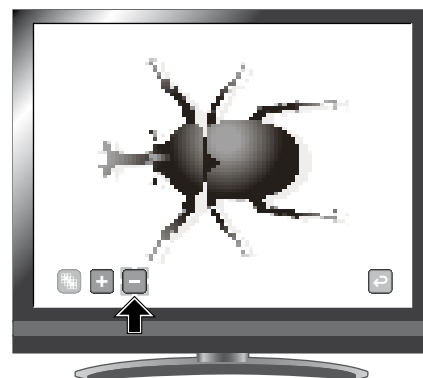
Note

• The Mosaic function cannot be used when the [🔲] button is selected in the image selection.

• When using the Mosaic function, the image cannot be captured.

BASIC OPERATIONS

Marker Mask Function

This is a filter to blacken the color section of an image.

For instance, this can be used to temporarily hide colored text, so students can be questioned about the hidden text.

Marker Mask operations

Press [▨] on the menu to blacken the color section in the image.
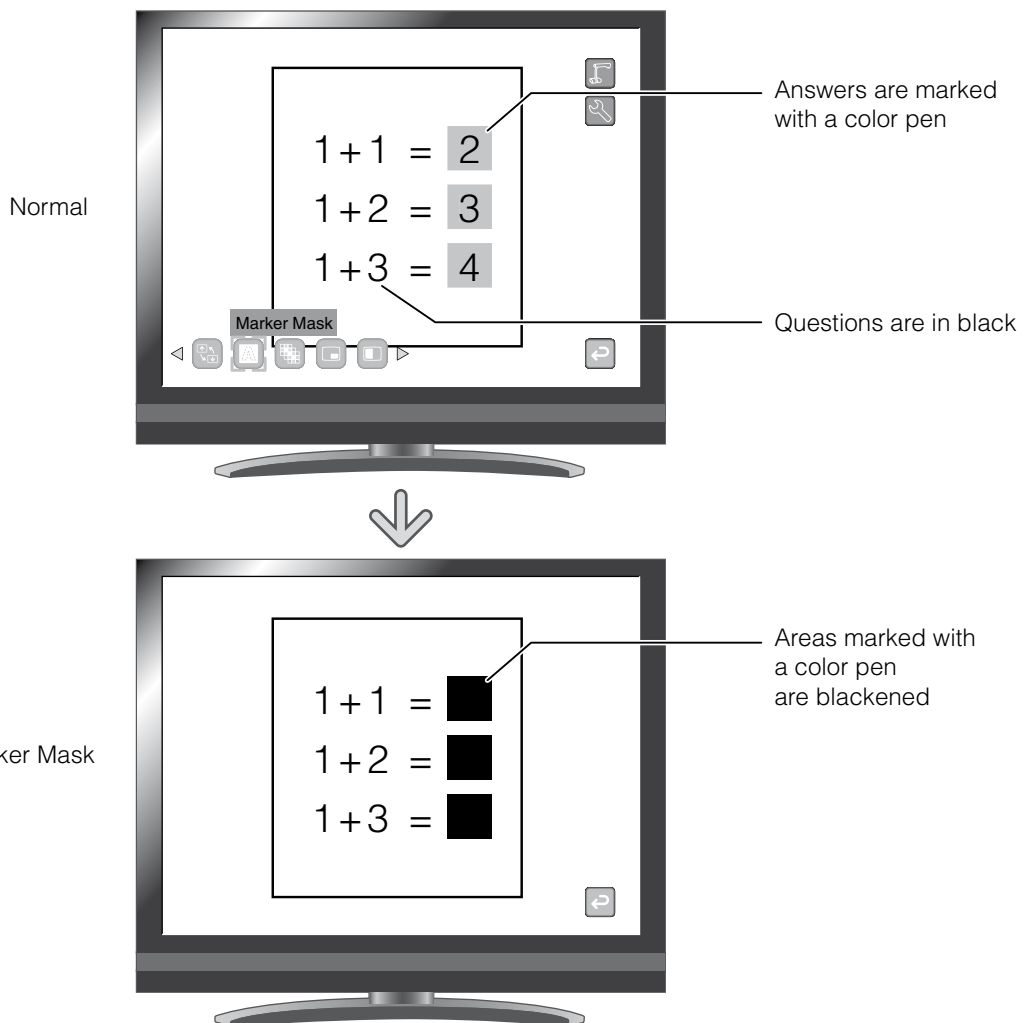
Normal

$1 + 1 = 2$
$1 + 2 = 3$
$1 + 3 = 4$

Marker Mask

Answers are marked with a color pen

Questions are in black

Marker Mask

$1 + 1 = $ ■
$1 + 2 = $ ■
$1 + 3 = $ ■

Areas marked with a color pen are blackened

Note

- The Marker Mask function can be used only when the [𝔽] button is selected in the image selection.
- When using the Marker Mask function, the image cannot be captured.

3 ADVANCED OPERATIONS

3-1 Using an SD card/USB flash drive

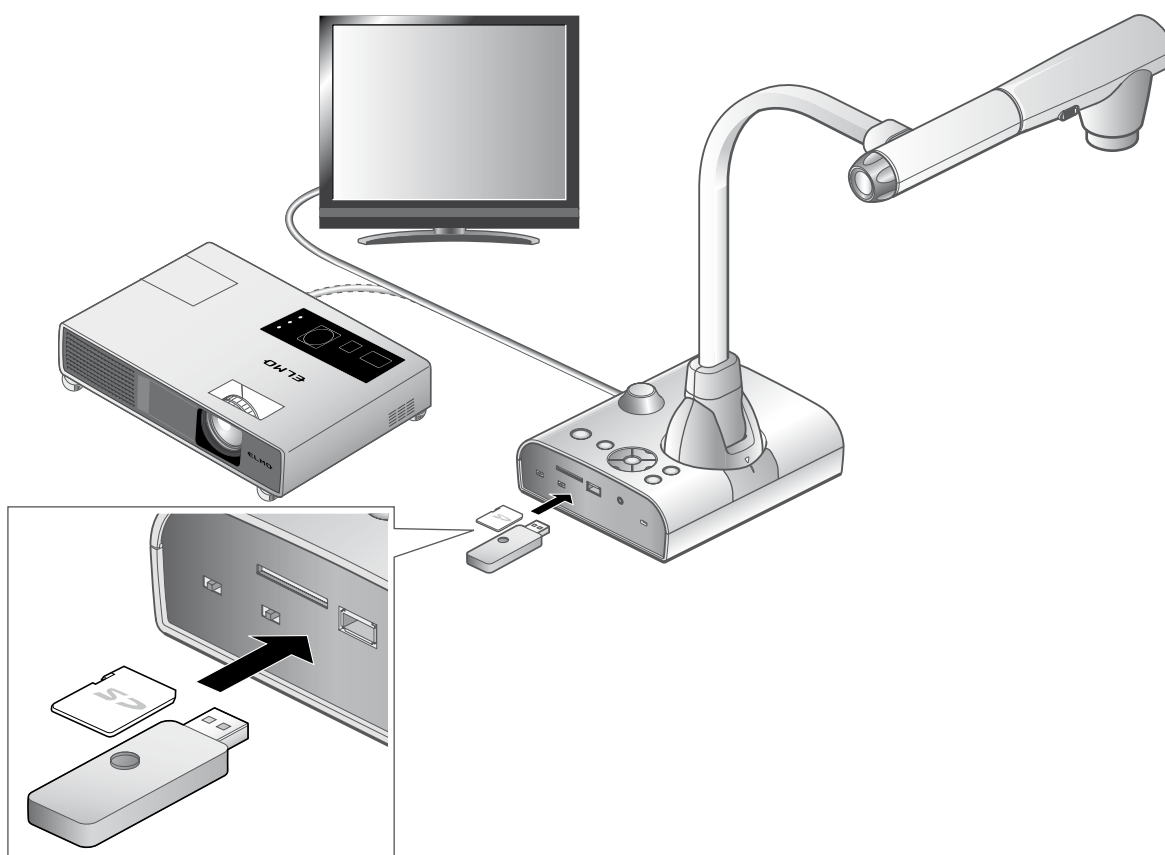With this equipment, you can save a camera image as a picture or movie on an SD card or USB flash drive. You can also display the data stored on the SD card or USB flash drive on the screen.

Before you begin, insert a commercially available SD card or USB flash drive into the corresponding slot on the side panel.

Note

- SD card
  - The SDXC card cannot be used.
  - Formatting the SD card with this product before you use is recommended.
  - Using the SD card to record movies is recommended.
  - Using the SD card class 6 or higer is recommended.
- USB flash drive
  - Supports the USB flash drive up to 32GB.
  - Formatting the USB flash drive with this product before you use is recommended.

N o t e

• Formatting the SD card/USB flash drive.

When you need to format the SD card/USB flash drive, insert it into this product and excute formatting.

① Press the [ ] button on the operating panel or [ ] button on the remote control to switch the output image to Play mode.

② Press the [MENU] button on the operating panel to display the menu.

③ From the menu, select [▷] to switch the menu.

④ Select [ ] from the menu.

⑤ Select [**YES**] to start formatting. If you do not want to format, select [**NO**].

■ Saving images

Picture

Basic operations

① Press the [ ] button on the operating panel or the [ ] button on the remote control.

② Make sure that the menu is not displayed on the screen and press the [ ] button on the operating panel or the [ ] button on the remote control.

If the menu is displayed on the screen, do the above - operation after hiding the menu by pressing the [MENU] on the operating panel.

③ Saving begins when [📷] appears on the screen.
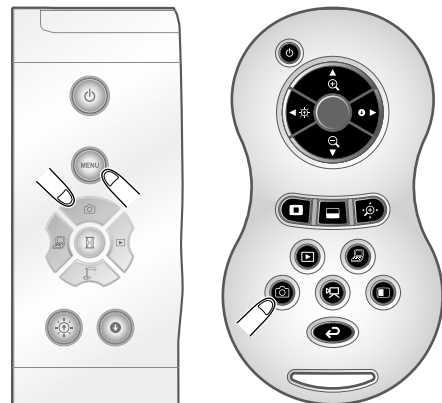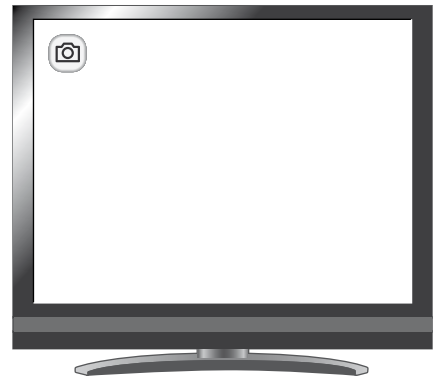
- Saving -

Movie

Basic operations

① Press the [⟨▱⟩] button on the operating panel or the
[⏎] button on the remote control.
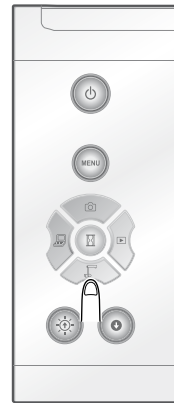
② Press the [🎥] button on the remote control.

③ Recording begins when [🎥] appears at the top left
of the screen. When you press the [🎥] button again
on the remote control, recording stops and [🎥]
disappears.

- Recording -

N o t e

- Even if the output image is set to HDMI and the resolution is set to 1080p, it is recorded with 720p.
- **How to select the destination to save when both SD card and USB flash drive are inserted.**
  While the camera image is displayed on the screen, select [SD Card] or [USB Flash Drive] in the
  [(MENU)] button → [🔧] → [🔼].
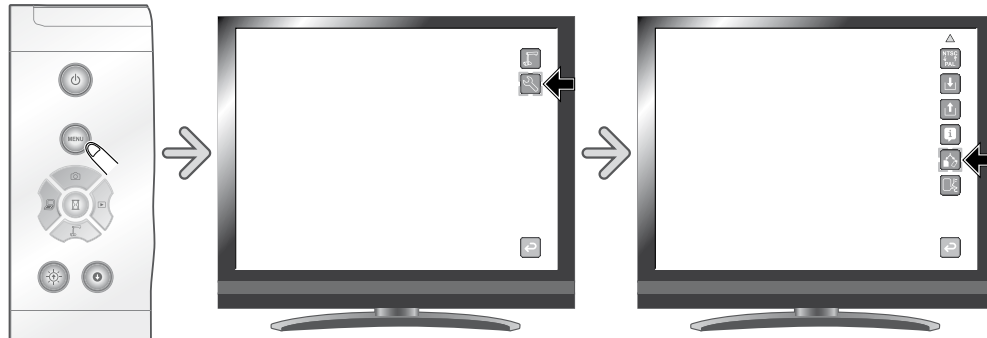
■ Displaying the stored data

Thumbnail display (list of pictures/movies)

Basic operations

① Press the [▣] button on the operating panel or the
[▶] button on the remote control to display the
thumbnails (list of pictures/movies).
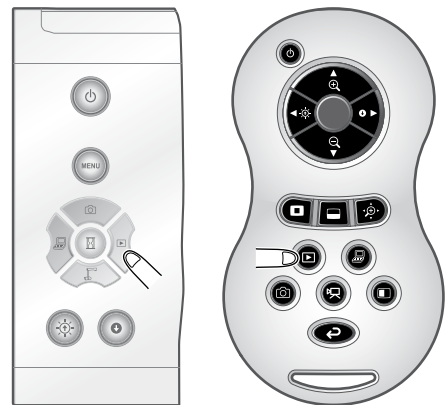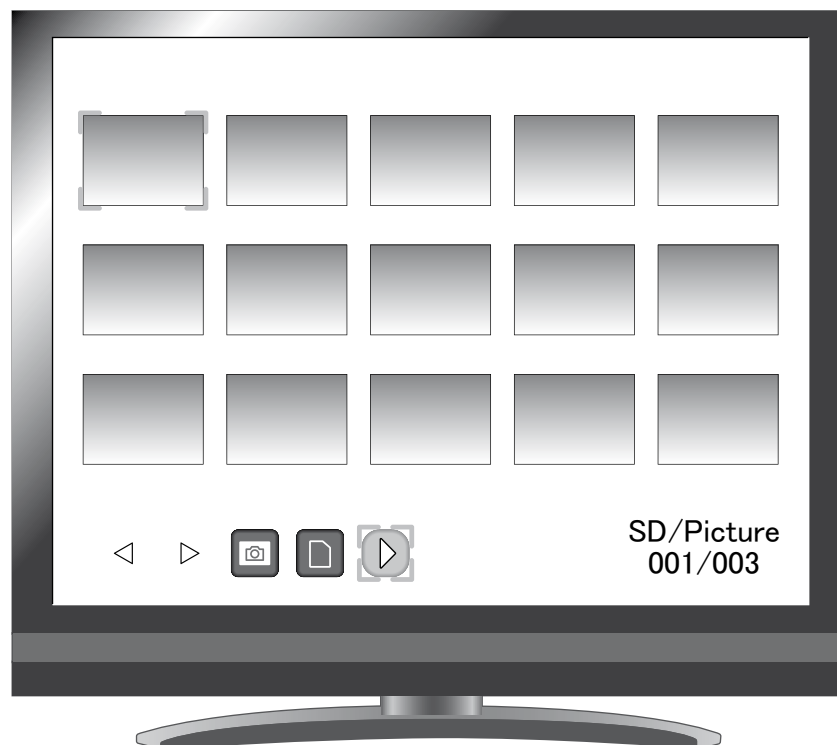
SD/Picture
001/003

② How to move the cursor

    (1)   You can move the cursor using the [⊕] or

            [●] button on the operating panel or the

            [ ] button on the remote control.
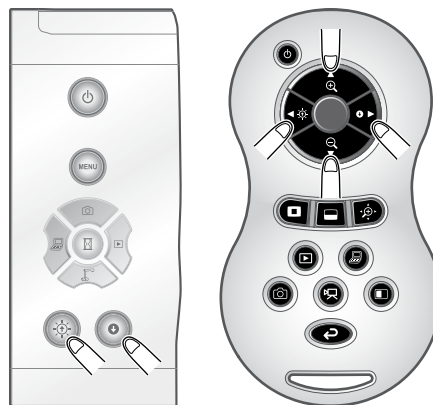
    (2)   You can display the selected picture/movie

            full-screen by pressing the [⊠] button on

            the operating panel or the [●] button on the

            remote control.

ADVANCED OPERATIONS
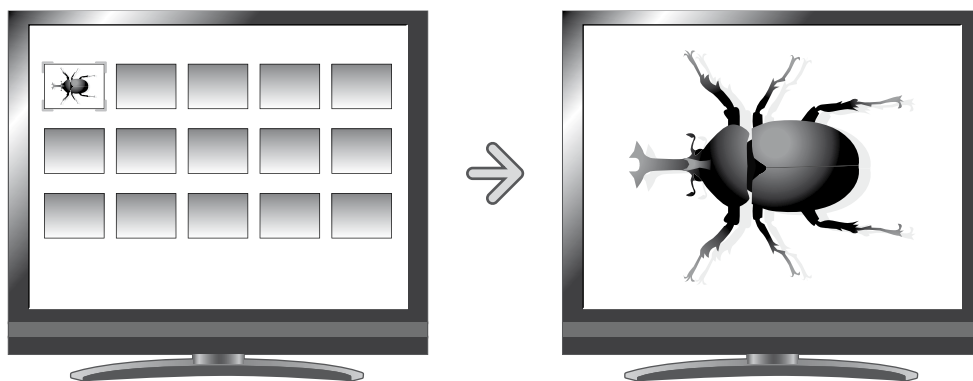
Changing settings

You can display the Thumbnail Menu by pressing the [(MENU)] button on the operating panel while the thumbnails are displayed on the screen.
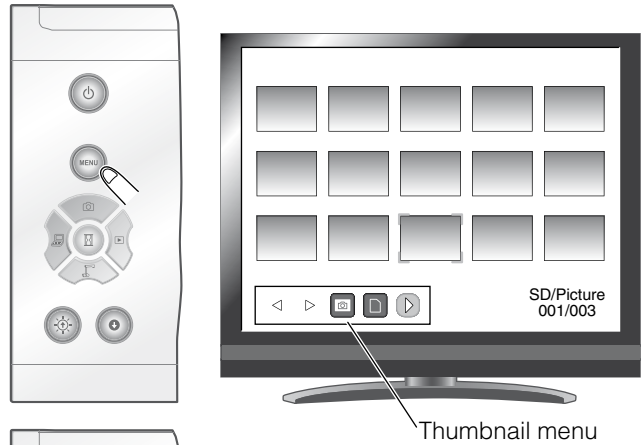
Thumbnail menu

ADVANCED OPERATIONS

• Move the cursor using the [🔲] or [▶] button on the operating panel.

[🔲] button: Moves the cursor left

[▶] button: Moves the cursor right
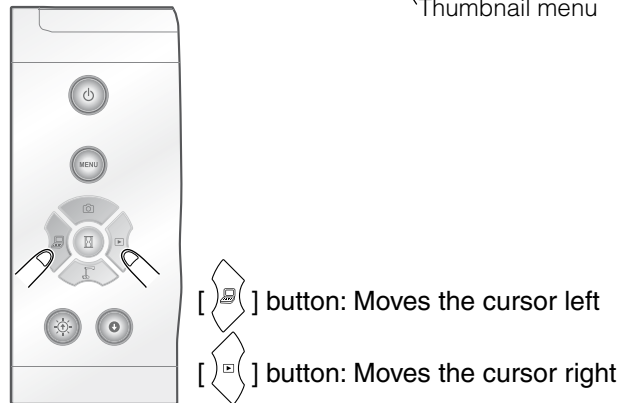
• Press the [🔲] button on the operating panel to select the menu item.

If you press [▷], the next set of menu icons appears.

SD/Picture
001/003

SD/Picture
001/003
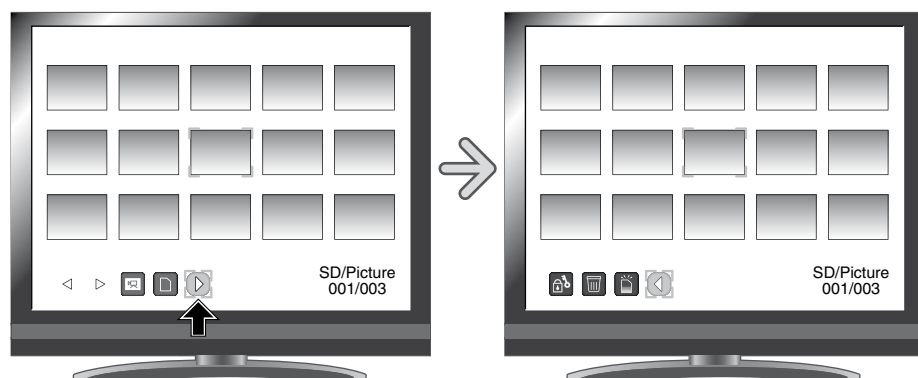
CAUTION

Pressing the [ ] or [ ] button on the operating panel while the menu icons are hidden allows you to navigate among the images.

You can not operate the menu from the remote control.

Menu descriptions

Thumbnail display

Icon	Name	Selection Item	Function
◁	Prev Page		To move to the previous thumbnail page.
▷	Next Page		To move to the next thumbnail page.
🗋	SD Card		To switch between the memory to/from which images are stored/displayed. It can be switched with the [ ] button on the remote control too.
🖉	USB Flash Drive		
🎞	Movie		To switch the data displayed as thumbnails between movies and pictures. It can be switched with the [ ] button on the remote control too.
📷	Picture		
▷	Next Menu		To move to the next menu page.
🔓	Memory Lock	🔓 Lock/Unlock	To lock (set as protected) or unlock (set as unprotected) the selected image. It can be switched with the [ ] button on the remote control too.
		🔒 Lock All	To lock (set as protected) all thumbnail images.
		🔓 Unlock All	To unlock (set as unprotected) all thumbnail images.
🗑	Delete	YES Yes	To delete the selected image.
		NO No	To cancel deletion.
📄	Format	YES Yes	To format the USB flash drive or SD card.
		NO No	To cancel formatting.
◁	Prev Menu		To move to the previous menu page.

Displaying a picture full-screen

You can display a picture you selected from the thumbnails (list of pictures/movies) full-screen.

SD/Picture
001/003

<Thumbnail images>   <Full-screen picture>
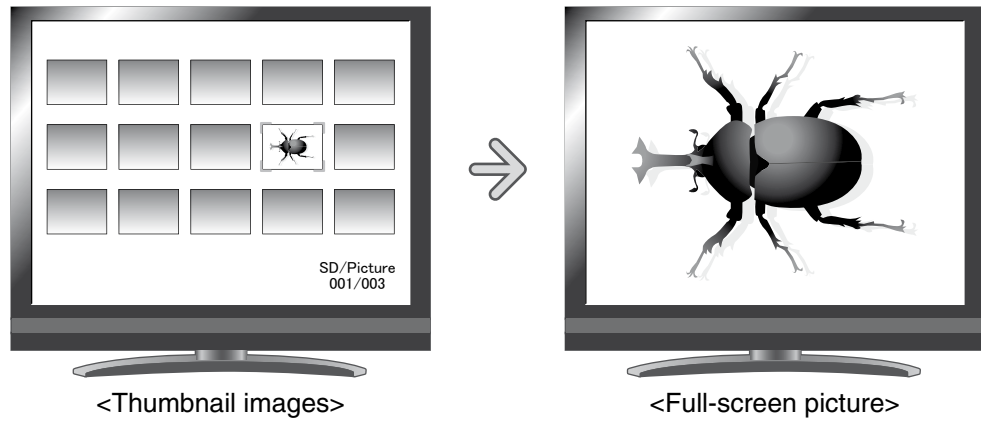
Basic operations

① Show in the Thumbnail Menu the icon for displaying the list of pictures.

Press the [MENU] button on the operating panel to display the Thumbnail Menu.

Then, the current status of the selection is displayed at the button right of the screen.

(1) If you see [🖼] in the menu, the list of pictures has already been displayed.

(2) If you see [📷] in the menu, press the [🖳] or [▣] button on the operating panel to move the cursor to [📷] and then press the [🔳] button. You can display the list of pictures.
Or a list of images can be displayed with the [🔆] button on the remote control.

(3) Press the [MENU] button again to hide the Thumbnail Menu.

SD/Picture
001/003

Thumbnail menu

English

ADVANCED OPERATIONS
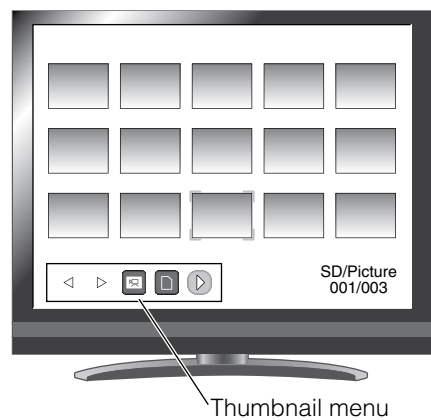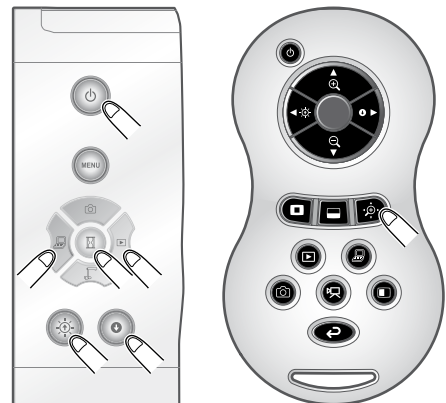
② Select the picture you want to display full-screen.

Press the [🔆] or [●] button on the operating panel or the [◄🔆 ● ►] button on the remote control to move the cursor.
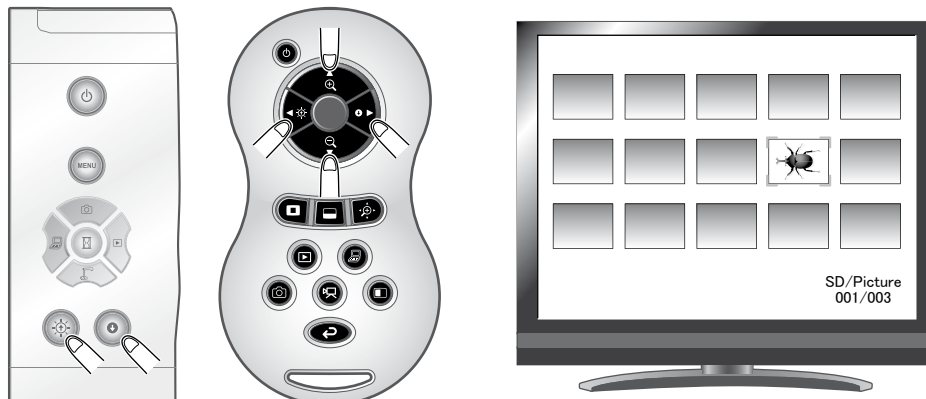
SD/Picture
001/003

③ Select the picture you want to display full-screen.

Press the [🔲] button on the operating panel or the [●] button on the remote control.

In this status, press the [◄🔆 / ● ►] button on the remote control to display another image in the thumbnail list.

④ To return to the thumbnail display, press the [▣] button on the operating panel or the [▶] button on the remote control.

SD/Picture
001/003

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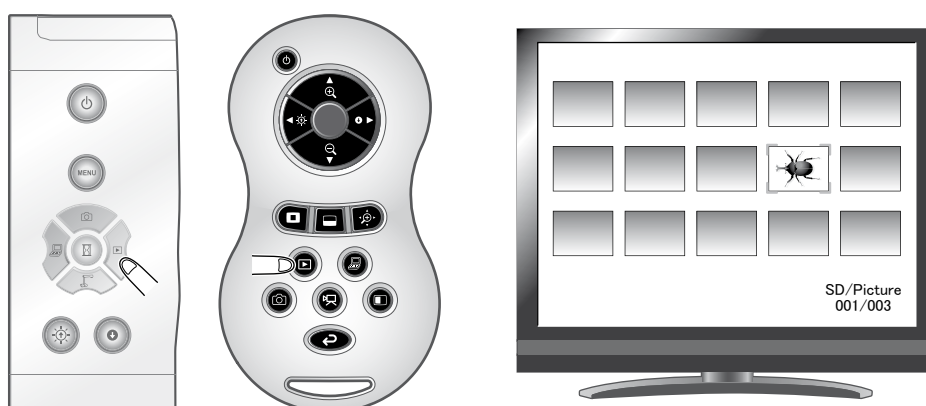
Changing settings

While a picture is displayed full-screen, you can display the Picture Menu and Support Function Menu by pressing the [(MENU)] button on the operating panel.
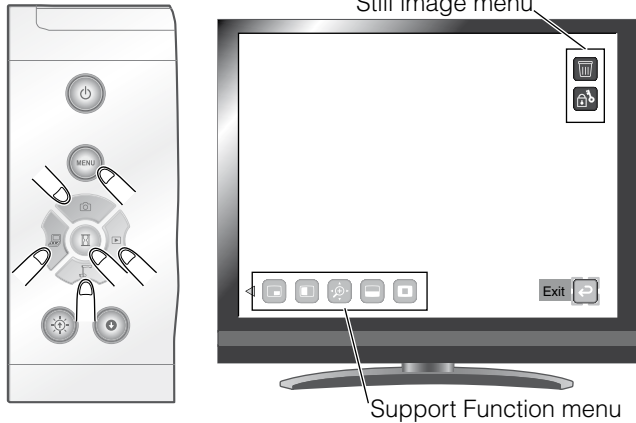
Still image menu

Support Function menu

Move the cursor using the [ ] button on the operating panel and select a menu item with the [ ] button.
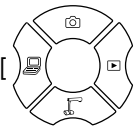
Menu descriptions

Picture Display Menu

Icon	Name	Selection Item	Function
	Delete	Yes	To delete the image displayed on the screen (You can not delete the image if it is protected).
		No	To cancel deletion.
		Exit	Exit the current menu.
	Memory Lock		To lock (set as protected) or unlock (set as unprotected) the selected image.
	Exit		To return to the previous level of menu.

Support Function

Icon	Name	Function	
	Highlight	To highlight part of the image you want to emphasize.	P.28
	Mask	To mask part of the image.	P.30
	Scroll	To enlarge the image to the size you specify, allowing you to move within the enlarged area.	P.31
	Compare Picture	To display the still image captured when this icon is selected on the left, and display the camera image on the right.	P.32
	PIP (Picture in Picture)	To display the still image captured when the icon is selected at the bottom right of the camera image.	P.33
	Mosaic	To apply the mosaic effect to the image.	P.35

ADVANCED OPERATIONS

Icon	Name	Function
	Marker Mask	To apply a filter to a colored area to cover it with the black marker. This function allows you to temporarily hide selected color characters and question the students.
	Image Rotation	To rotate the image by 180°.

Highlight

Icon	Name	Selection Item	Function
	Darkness	Darken	To set the darkness of the darkened (not highlighted) area. [+] makes the dark area less transparent and harder to see through, and [−] makes the area more transparent and easier to see through.
		Lighten	
		Exit	
	Size	Lengthen Height (stretch)	To change the size of the highlighted area.
		Shorten Height	
		Lengthen Width (stretch)	
		Shorten Width	
		Exit	
	Exit		

Mask

Icon	Name	Function
	Exit	

Scroll

Icon	Name	Function
×2	×2	To set the digital zoom magnification to x2 when the Scroll icon is selected.
×3	×3	To set the digital zoom magnification to x3 when the Scroll icon is selected.
×4	×4	To set the digital zoom magnification to x4 when the Scroll icon is selected.
	Exit	

🔳 Compare Picture

Icon	Name	Function
◁	Prev Picture	To show the previous picture.
▷	Next Picture	To show the next picture.
	Exit	

🔲 PIP

Icon	Name	Function
◁	Prev Picture	To show the previous picture.
▷	Next Picture	To show the next picture.
🔲	Change Window	To switch the sub screen and the main screen.
	Exit	

▦ Mosaic

Icon	Name	Function
＋	Coarse	To make the mosaic pattern coarser.
－	Fine	To make the mosaic pattern finer.
	Exit	

🔺 Marker Mask

Icon	Name	Function
	Exit	

ADVANCED OPERATIONS

Playing a movie full-screen

You can play a selected movie from the thumbnails (list of pictures/movies) full-screen.

<Thumbnail images>   <Full screen picture>
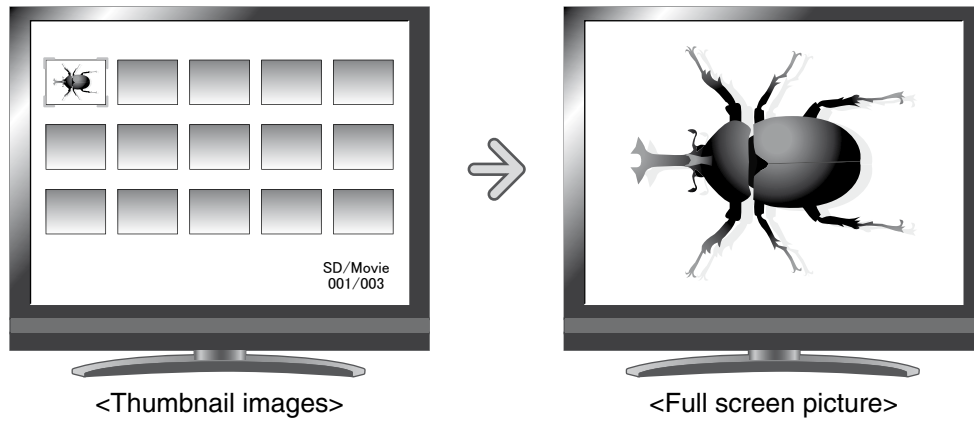
Basic operations

① Show in the Thumbnail Menu the icon for displaying the list of movies.

Press the [(MENU)] button on the operating panel to display the Thumbnail Menu.

Then, the current status of the selection is displayed at the button right of the screen.

(1) If you see [📷] in the menu, the list of movies has already been displayed.

(2) If you see [🖼] in the menu, press the [🖳] or

[▣] button on the operating panel to move the cursor to [🖼] and then press the [(◧)] button. You can display the list of movies.
Or a list of images can be displayed with the [🔆] button on the remote control.

(3) Press the [(MENU)] button again to hide the Thumbnail Menu.

SD/Picture
001/003

Thumbnail menu
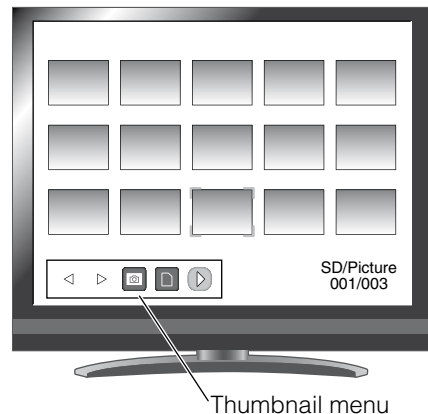
② Select the movie you want to display full-screen.

Press the [⊕] or [●] button on the operating panel or the [◄ ☼ ● ►] button on the remote control to move the cursor.

③ Select the movie you want to display full-screen.

Press the [⊠] button on the operating panel or the [●] button on the remote control.

The movie automatically starts to play.

④ To return to the thumbnail display, press the [▣] button on the operating panel or the [▣] button on the remote control.
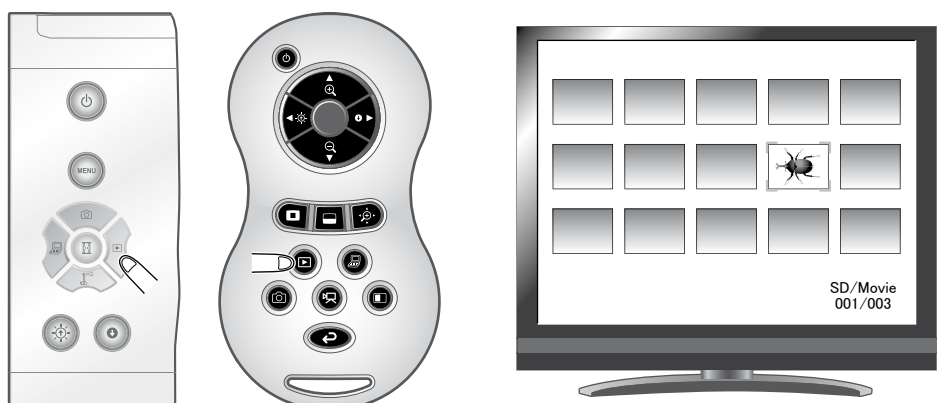
Changing settings

You can display the Movie Menu by pressing the [(MENU)] button on the operating panel while a movie is displayed full-screen.
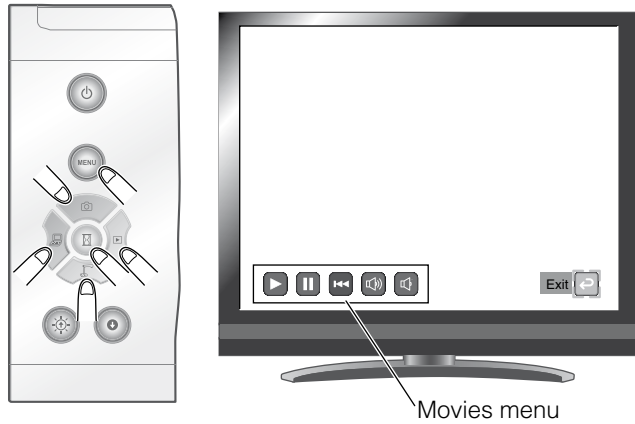
Movies menu

Move the cursor using the [⬜ ▣] button on the operating panel and select a menu item with the [🄺] button.

Menu descriptions

Movie Play Menu

Icon	Name	Function
▶	Play	
⏸	Pause	To play/stop/cueing the movie.
⏮	Cueing	
🔊	Up	To set the output audio volume.
🔉	Down	
↩	Exit	To return to the previous level of menu.

Note

- You may not be able to display image data other than that saved in this product or converted using the conversion function of the software supplies.
- File Converter cannot convert movies.
- You cannot display pictures other than DCF system compliant files.
- Movie files that have the file name other than "MVI_✱✱✱✱.MP4" cannot be displayed.

ADVANCED OPERATIONS

3-2 Saving data stored on an SD card to PC via USB cable
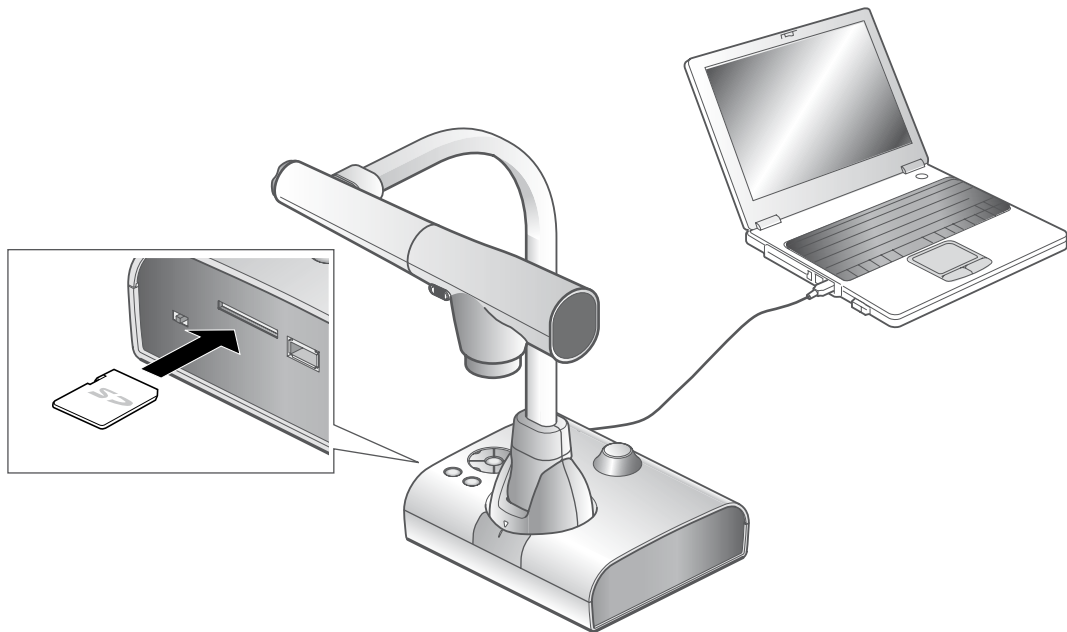
CAUTION

- Set [🔌] (USB Mode) to [Mass Storage] from the Preferences menu on the screen. ▶P.24
- Insert the SD card with the label facing up. Forcing it into the slot with the wrong side up may cause a malfunction.

By connecting this equipment to a PC via USB, you can save the image data stored on the SD card to the PC.

The operating system (OS) for the connected PC should be Microsoft Windows 2000 (SP4 or later), Windows XP (SP2 or later), Windows Vista or Windows 7.

① Turn on the equipment and the PC.

② Connect the equipment to the PC with the supplied USB cable.

Note

- When you connect the equipment to the PC for the first time, the required drivers are installed automatically using the plug-and-play function of Windows. From the second time and thereafter, the drivers are not installed again.

③ The equipment is recognized as a removable disk. You can view the image data on the SD card with the viewer software of the PC.

• The image data is stored as JPEG files in the following folders:

My Computer
└─── Removable Disk
└─── DCIM
└─── 100_ELMO
├─── IMAG0001.JPG
└─── IMAG0002.JPG
•
•
•
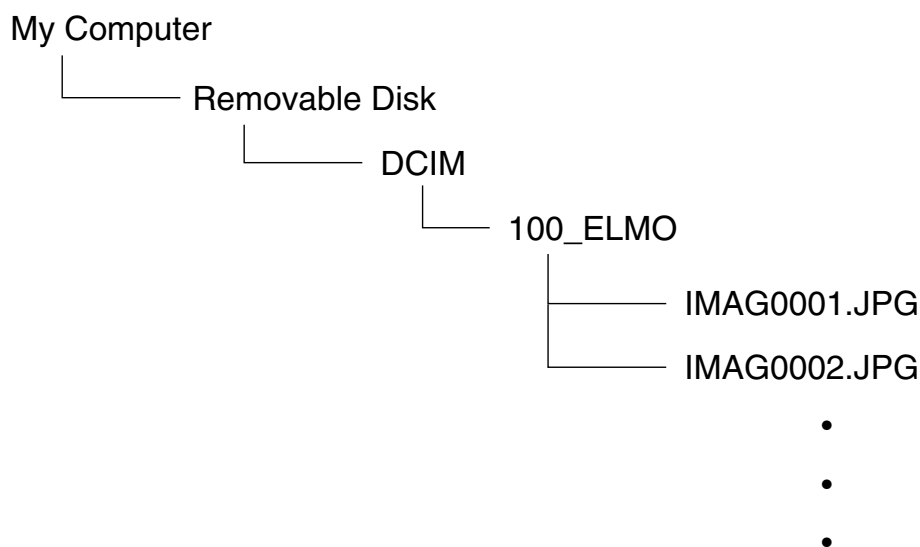
CAUTION

• You can not save, delete, lock, unlock, or format the images from the PC.

• The image files are not stored with the correct date and time.

• Do not connect/disconnect the USB cable while operating the equipment using the operating panel or remote control. This may cause a malfunction.

• While the equipment is in the USB-connection mode, do not switch [🔌] (USB Mode) to another mode from the Preferences menu on the screen.

• We recommend using a USB 2.0-compliant USB cable.

Note

• Depending on the USB environment used by the PC or any peripheral devices, image transfer may be disrupted.

• Operation is not guaranteed for all environments.

• If [USB Mode] has been set to [Mass Storage] and the equipment is connected to the PC, you can not save, delete, lock or unlock the pictures and movies using the equipment, or format the SD card.

3-3 Presentation using a USB-connected PC with the supplied software

ADVANCED OPERATIONS
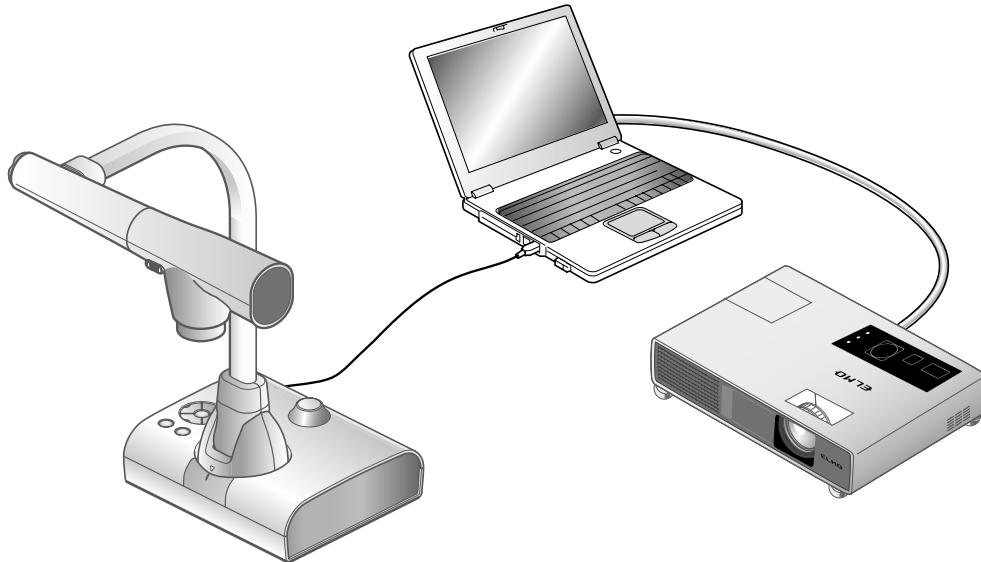
> ✎ **N o t e**
>
> • Set [USB Mode] to [Application] from the Preferences menu on the screen.

"Image Mate" is available from the supplied CD-ROM.

By using the "Image Mate" software for controlling this equipment included in the CD-ROM, you can perform the following tasks:

・ Transfer movie/picture data to the PC

・ Operate the product from the PC

For information on the requirements of the connected PC, OS types and the software guides, see the "Image Mate" installation manual and the "HELP folder" on the CD-ROM.

CAUTION

• Do not connect/disconnect the USB cable while operating the equipment using the operating panel or remote control. This may cause a malfunction.

• We recommend using a USB 2.0-compliant USB cable.

> ✎ **N o t e**
>
> • Depending on the USB environment used by the PC or any peripheral device, image transfer may be disrupted.
> • Operation is not guaranteed for all environments.

3-4 Using the ELMO Wireless Slate/Tablet (CRA-1) with the equipment

By using the separately sold wireless pen tablet with this equipment, you can add comments or draw on camera images directly.

You can also directly perform such operations as zooming in/out.

ELMO Wireless Slate / Tablet
(CRA-1)
CODE:1307
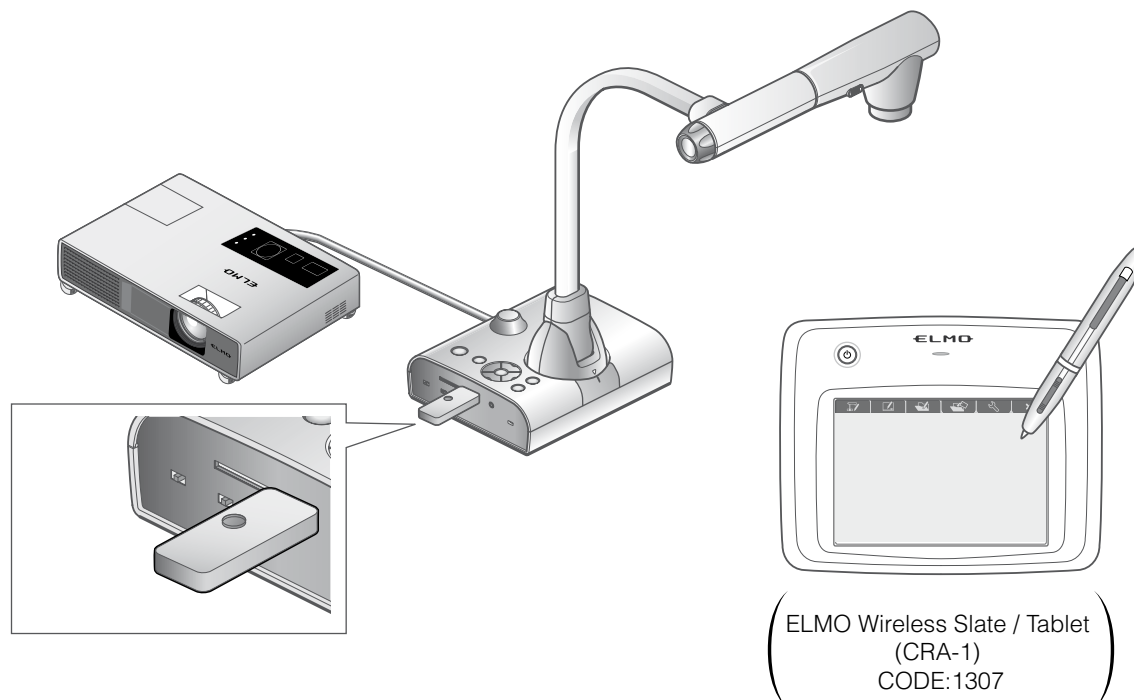
■ Connecting the ELMO Wireless Slate/Tablet (CRA-1)

① Set up the equipment as shown in the figure above and connect to the projector. Then turn on the equipment.

② Connect the dedicated wireless adapter supplied with the pen tablet to the equipment.

③ Turn on the pen tablet.

■ Basic operations

1. Draw	2. Move the cursor	3. Select a menu button
Touch the tablet and move	Lift from the tablet and move	Touch the menu button
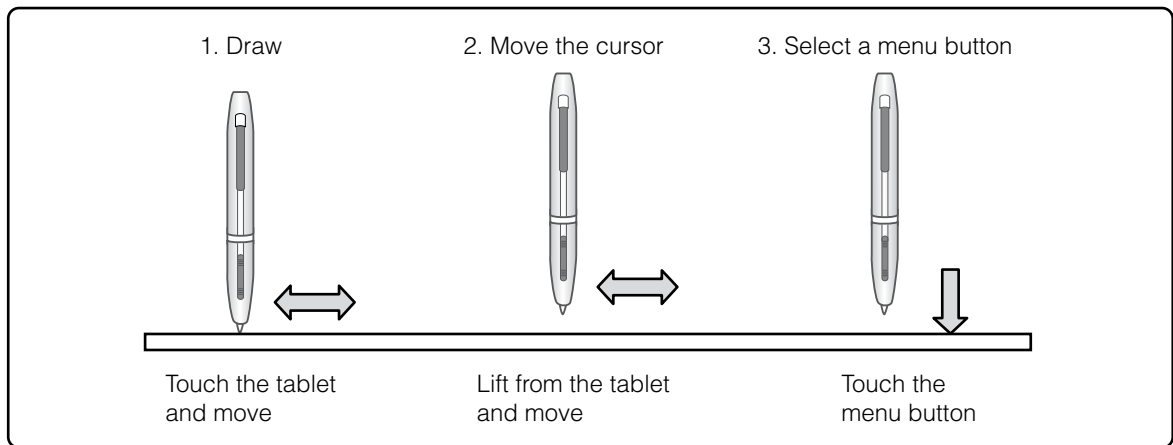
● **Drawing lines**

Touch the tip of the pen to the surface of the tablet and move the pen.

If [✏] or [✏] has been selected, the pen will draw a line. Use this function to draw/erase lines.

Keep pressed down
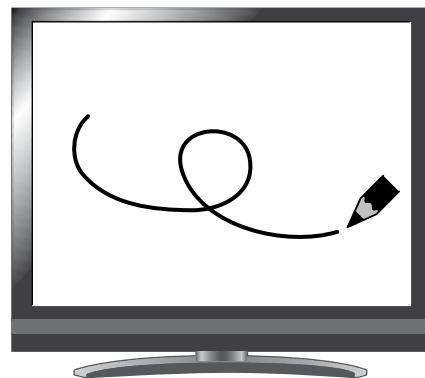
● **Moving the cursor**

Move the pen slightly above the surface of the tablet.

The cursor on the screen moves as the pen moves. Use this function to move the cursor.

Lift the pen a little
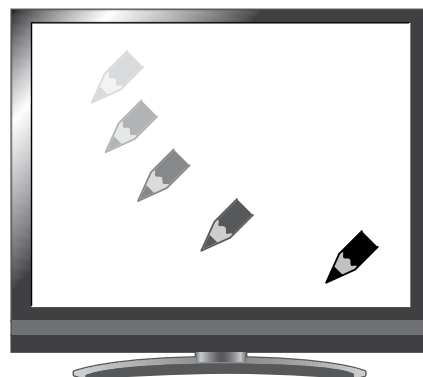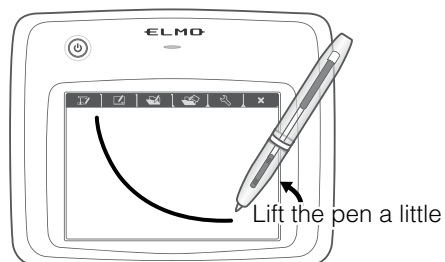
● **Selecting a menu button**

Move the pen slightly above the surface of the tablet to move the cursor and then touch the pen within the working area on the tablet.

Use this function to select a menu button.

Touch once
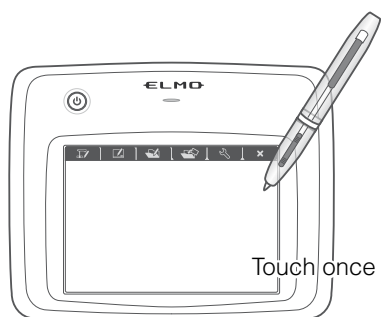
CAUTION

Press the tablet lightly with the pen; do not press hard.

Note

- Hold the pen as upright as possible; holding the pen at an angle may result in a failure of the tablet to recognize the pen.
- If the pen is not used for a while, the power saving mode is activated. Touch the tip to reactivate the pen before you use it again.

The working area on the tablet corresponds to the whole screen.

Next page
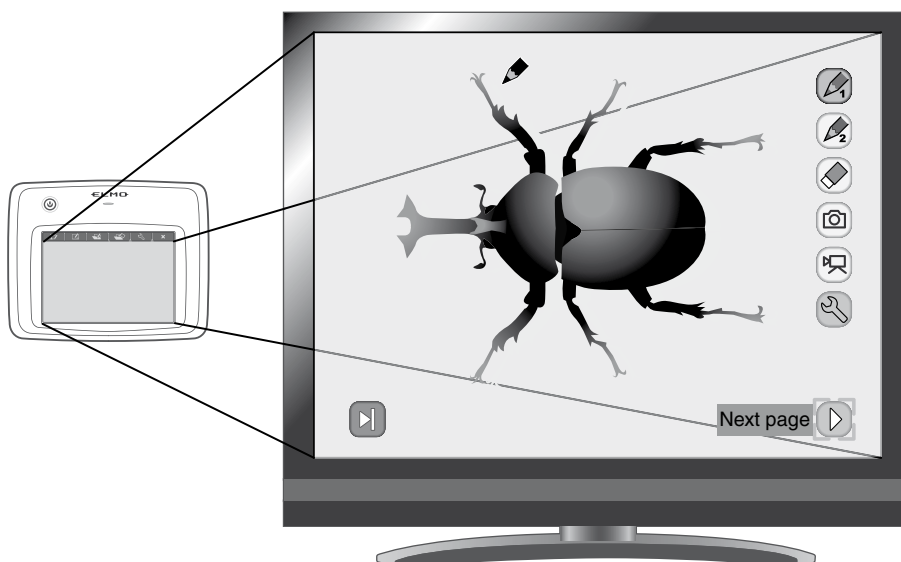
■ Selecting how to use the pen tablet from the tablet menu

To use the pen tablet, touch a function key at the top of the tablet and select a mode according to the

situation described in the table below:
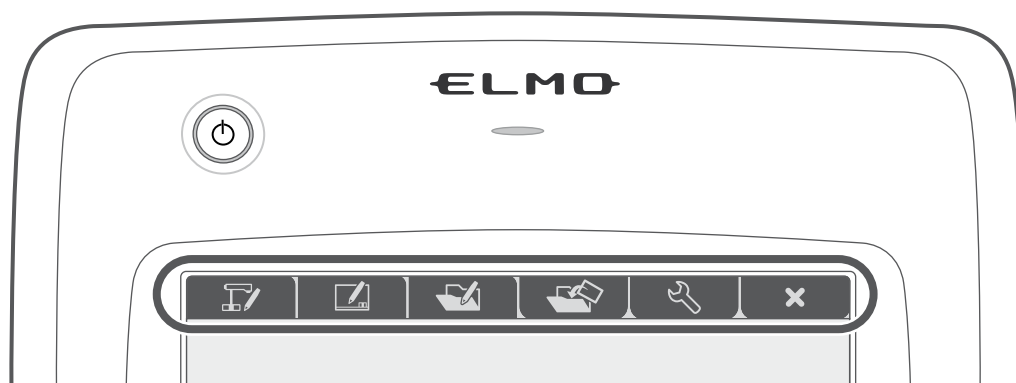
Icon	Name	Function
	Write to/work with camera images (Camera Mode)	Display an image on the document camera as a background, and draw on it with the pen tablet. `P.60`
	Write on a white screen (Whiteboard Mode)	Display a white image as a background, and draw on it using the pen tablet. `P.64`
	Work with/write to stored data (Play Mode)	Display images stored on the SD card/USB flash drive. You can draw on the displayed image only when it is a still picture. You can not draw on a movie with the pen tablet. `P.66`
	Setting	Specify settings for the pen tablet (the settings are common to all modes).

■ Writing to camera images

You can draw on camera images.
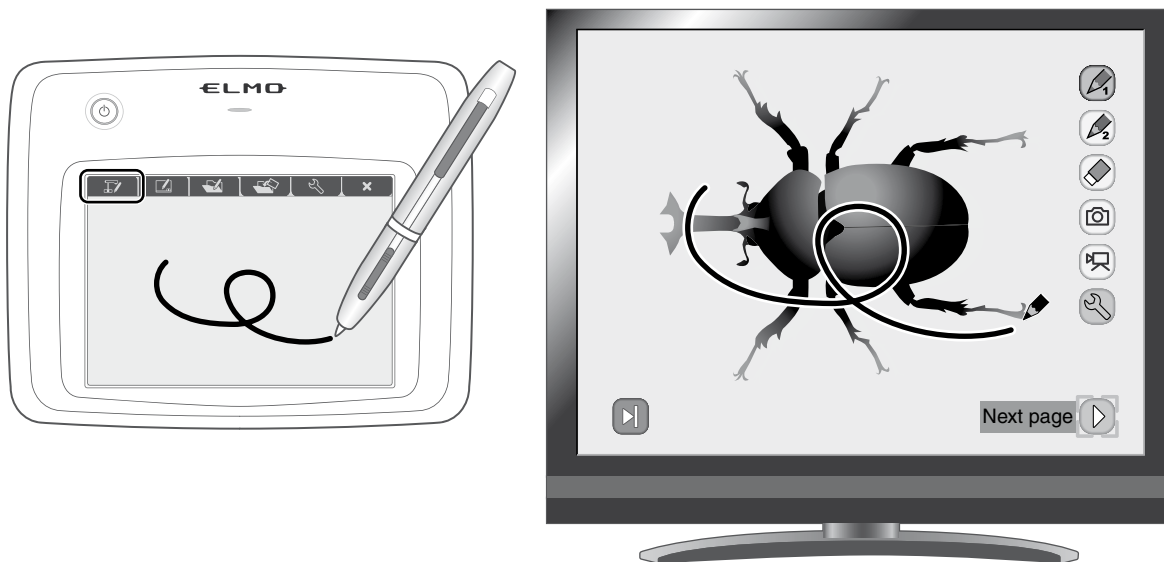
Menu descriptions

Pressing [▷] or [▽]switches the menu pages.

Main menu

Switch page

Support Function menu

Switch page

・ Main Menu 1

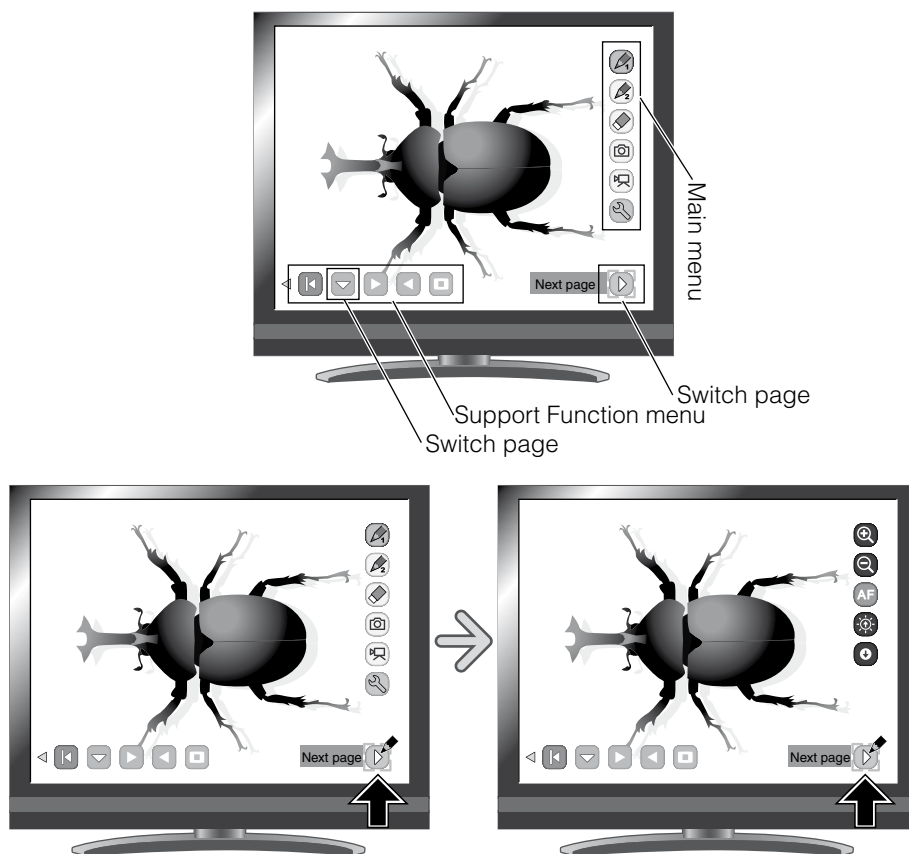| Icon	Name	Function
	Pen1	To select Pen1. The initial color setting is Red. You can change the settings for the pen in the Setting menu.
	Pen2	To select Pen2. The initial color setting is Blue. You can change the settings for the pen in the Setting menu.
	Clear Screen	To erase anything drawn on the screen. If you need to erase a part of a drawing, move the cursor to the section to be erased, and touch the section with the pen while pressing the pen Erase button.
	Capture	To capture the image currently displayed on the screen as a picture and save it on the SD card or USB flash drive. This feature captures only the displayed camera image and your comments/drawings; the cursor and menu icons are not captured.
	Rec	To record the image currently displayed on the screen as a movie and save it on the SD card or USB flash drive. This does not record the lines drawn with the tablet, the menu icons, or the cursor.
	Setting	To specify the settings for Pen and Eraser.
	Next	To go to Main Menu 2.

・ Main Menu 2

Icon	Name	Function
	Zoom In	To enlarge the size of the camera image.
	Zoom Out	To reduce the size of the camera image.
	AF	To enable autofocus operation.
	Brighten	To brighten the camera image.
	Darken	To darken the camera image.
	Next	To go to Main Menu 1.

ADVANCED OPERATIONS

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🔧 Setting Menu

Icon	Name	Selection Item	Default	Function
🖊	Pen1 Color	🖊 Red	✔	To set the pen color to red.
🖊		🖊 Blue		To set the pen color to blue.
🖊		🖊 Black		To set the pen color to black.
✏	Pen1 Thickness	/ Thin		To decrease the pen thickness.
✏		/ Medium	✔	To set the pen thickness to medium width.
✏		/ Thick		To increase the pen thickness.
🖊	Pen2 Color	🖊 Red		To set the pen color to red.
🖊		🖊 Blue		To set the pen color to blue.
🖊		🖊 Black	✔	To set the pen color to black.
✏	Pen2 Thickness	/ Thin		To decrease the pen thickness.
✏		/ Medium	✔	To set the pen thickness to medium width.
✏		/ Thick		To increase the pen thickness.
🩹	Erase Area	○ Narrow		To decrease the area of partial erasure.
🩹		○ Medium	✔	To set the area of partial erasure to the medium range.
🩹		○ Wide		To increase the area of partial erasure.
↩	Exit			To return to the previous level of menu.

Support Function Menu

Icon	Name	Function
▷|	Show	To show/hide the Support Function Menu.
|◁	Hide	
▽	Menu	To change Support Function Menu.
▶	Next Picture	To move to the next picture page.
◀	Prev Picture	To move to the prev picture page.
▣	Highlight	To highlight part of the image you want to emphasize. P.28
▭	Mask	To mask part of the image. P.30
⊕	Scroll	To enlarge the image to the size you specify, allowing you to move within the enlarged area. P.31
▢	Compare Picture	To display the still image captured when this icon is selected on the left, and display the camera image on the right. P.32
▣	PIP (Picture in Picture)	To display the still image captured when the icon is selected at the bottom right of the camera image. P.33
▦	Mosaic	To apply the mosaic effect to the image. P.35
◭	Marker Mask	To apply a filter to a colored area to cover it with the black marker. You can use this to temporarily hide color characters and question the students about the contents. P.36
🔬	Microscope	You can use it to view images using a microscope. P.70
⬆⬇	Image Rotation	To rotate the Camera image by 180° or the picture by 90°.
C B	Color/B&W	To output color camera images.*
		To output black and white camera images.*
P N	Posi/Nega	To output positive camera images.*
		To output negative camera images.*

* : Camera mode only.

■ Using as a whiteboard

You can draw on any blank white images or areas used as a background.
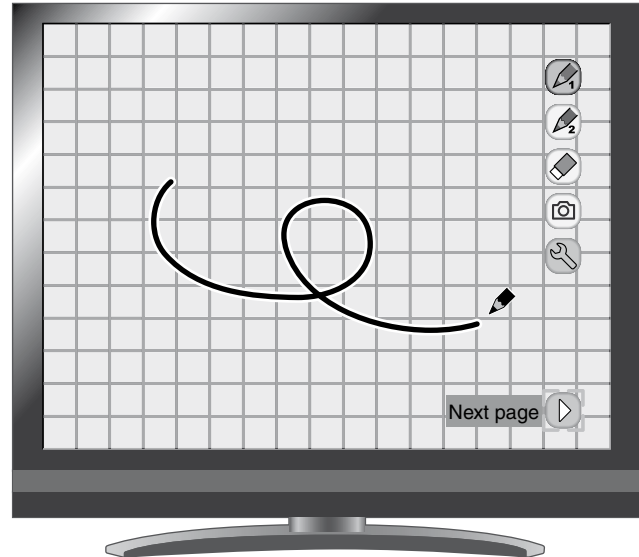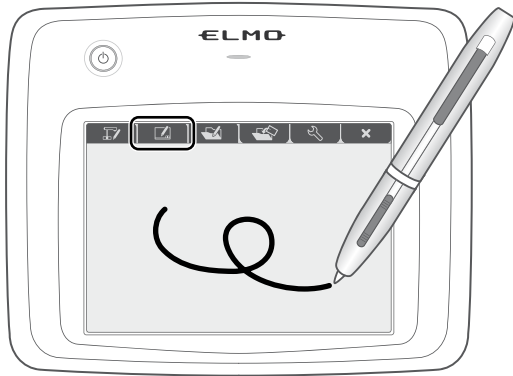
Menu descriptions

Main Menu

Icon	Name	Function
	Pen 1	To select Pen 1. The initial color setting is Red. You can change the settings for the pen in the Setting menu.
	Pen 2	To select Pen 2. The initial color setting is Blue. You can change the settings for the pen in the Setting menu.
	Clear Screen	To erase anything drawn on the screen. If you need to erase a part of a drawing, move the cursor to the section to be erased, and touch the section with the pen while pressing the pen Erase button.
	Capture	To capture the image currently displayed on the screen as a picture and save it on the SD card or USB flash drive. This feature captures only the displayed camera image and your comments/drawings; the cursor and menu icons are not captured.
	Setting	To specify the settings for Pen and Eraser.
	Next	

🔧 Setting Menu

Icon	Name	Selection Item	Default	Function
🖊1	Pen 1 Color	✏️ Red	✔	To set the pen color to red.
🖊1		✏️ Blue		To set the pen color to blue.
🖊1		✏️ Black		To set the pen color to black.
⁄1	Pen 1 Thickness	⁄ Thin		To decrease the pen thickness.
⁄1		⁄ Medium	✔	To set the pen thickness to medium width.
⁄1		⁄ Thick		To increase the pen thickness.
🖊2	Pen 2 Color	✏️ Red		To set the pen color to red.
🖊2		✏️ Blue		To set the pen color to blue.
🖊2		✏️ Black	✔	To set the pen color to black.
⁄2	Pen 2 Thickness	⁄ Thin		To decrease the pen thickness.
⁄2		⁄ Medium	✔	To set the pen thickness to medium width.
⁄2		⁄ Thick		To increase the pen thickness.
◇	Erase Area	○ Narrow		To make the area of partial erasure smaller.
◇		○ Middle	✔	To set the area of partial erasure to the medium range.
◇		○ Wide		To increase the area of partial erasure.
↩	Exit			To return to the previous level of menu.

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OPERATIONS

■ Using the SD card/USB flash drive

You can display a picture or movie stored on the SD card/USB flash drive and use the tablet to draw or write on it.

• Thumbnail display
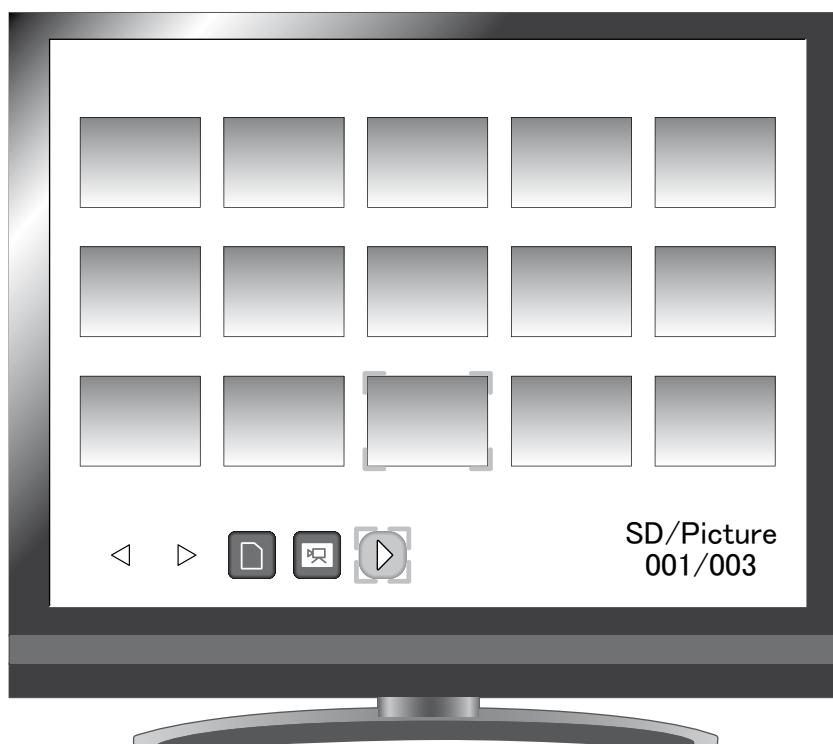
When you select an image from the thumbnails, the selected image is displayed on the screen.

Menu descriptions

Thumbnail Mode

Icon	Name	Selection Item	Function
◁	Prev Page		To move to the previous thumbnail page.
▷	Next Page		To move to the next thumbnail page.
	SD Card		To switch between the media to/from which images are stored/displayed.
	USB Flash Drive		
	Movie		To switch the data displayed as thumbnails between movies and pictures.
	Picture		
▷	Next Menu		To move to the next menu page.
	Memory Lock	Lock/Unlock	To lock (set as protected) or unlock (set as unprotected) the selected image.
		Lock All	To lock (set as protected) all thumbnail images.
		Unlock All	To unlock (set as unprotected) all thumbnail images.
	Delete	YES Yes	To delete the selected image.
		NO No	To cancel deletion.
	Format	YES Yes	To format the USB flash drive or SD card.
		NO No	To cancel formatting.
◁	Prev Menu		To move to the previous menu page.

ADVANCED OPERATIONS

Single Mode

• Picture Display Menu 1

Icon	Name	Function
	Pen 1	To select Pen 1. The initial color setting is Red. You can change the settings for the pen in the Setting menu.
	Pen 2	To select Pen 2. The initial color setting is Blue. You can change the settings for the pen in the Setting menu.
	Clear Screen	To erase anything drawn on the screen. If you need to erase a part of a drawing, move the cursor to the section to be erased, and touch the section with the pen while pressing the pen Erase button.
	Capture	To capture the image currently displayed on the screen as a picture and save it on the SD card or USB flash drive. This feature captures only the displayed camera image and your comments/drawings; the cursor and menu icons are not captured.
	Setting	To specify the settings for Pen and Eraser.
	Next	To go to Menu 2.

• Picture Display Menu 2

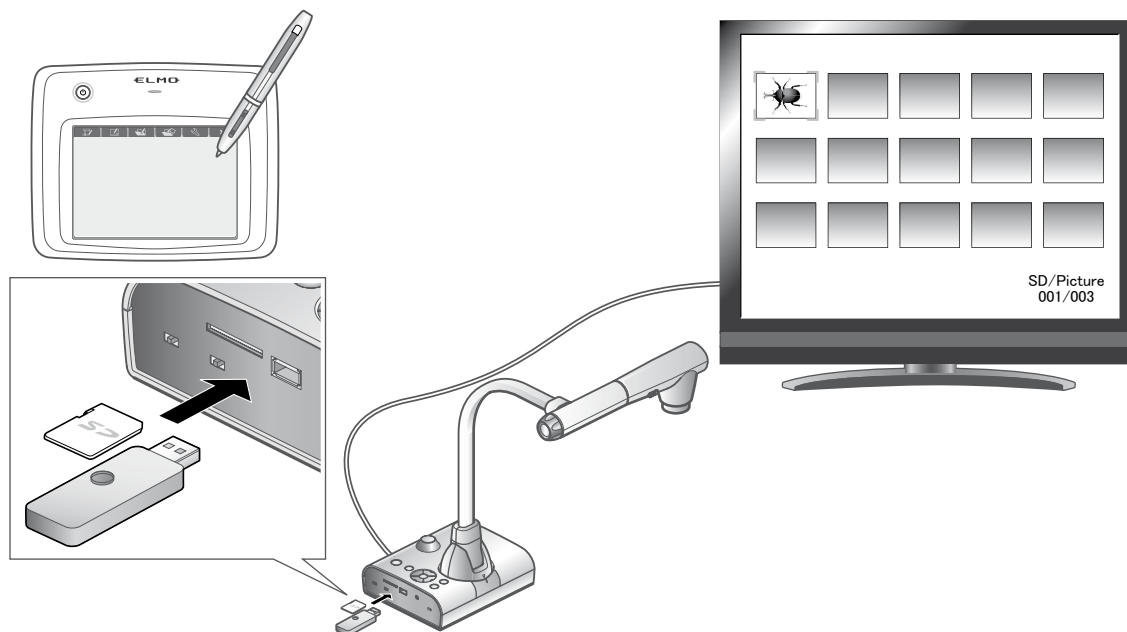| Icon	Name	Selection Item	Function
	Delete	Yes	To delete the image displayed on the screen (You can not delete the image if it is protected).
		No	To cancel deletion.
		Exit	Exit the current menu.
	Memory Lock		To lock (set as protected) or unlock (set as unprotected) the selected image.

Setting Menu (when Setting Menu is selected)

Icon	Name	Selection Item	Default	Function
		Red	✔	To set the pen color to red.
	Pen 1 Color	Blue		To set the pen color to blue.
		Black		To set the pen color to black.
		Thin		To decrease the pen thickness.
	Pen 1 Thickness	Medium	✔	To set the pen thickness to medium width.
		Thick		To increase the pen thickness.

Icon	Name	Selection Item		Default	Function
		Red			To set the pen color to red.
	Pen 2 Color	Blue			To set the pen color to blue.
		Black		✔	To set the pen color to black.
		Thin			To decrease the pen thickness.
	Pen 2 Thickness	Medium		✔	To set the pen thickness to medium width.
		Thick			To increase the pen thickness.
	Erase Area	○ Narrow			To decrease the area of partial erasure.
		○ Medium		✔	To set the area of partial erasure to the medium range.
		◯ Wide			To increase the area of partial erasure.
	Exit				To return to the previous level of menu.

ADVANCED
OPERATIONS

• Movie Play Menu

Icon	Name	Function
▶	Play/Stop	
⏸	Pause	To play/stop/Cueing the movie.
⏮	Cueing	
🔊	Up	
🔉	Down	To set the output audio volume.
↩	Exit	To return to the previous level of menu.

3-5 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.

Adjust

Adjust

(Option) MicroScope attachment lens
CODE:1332
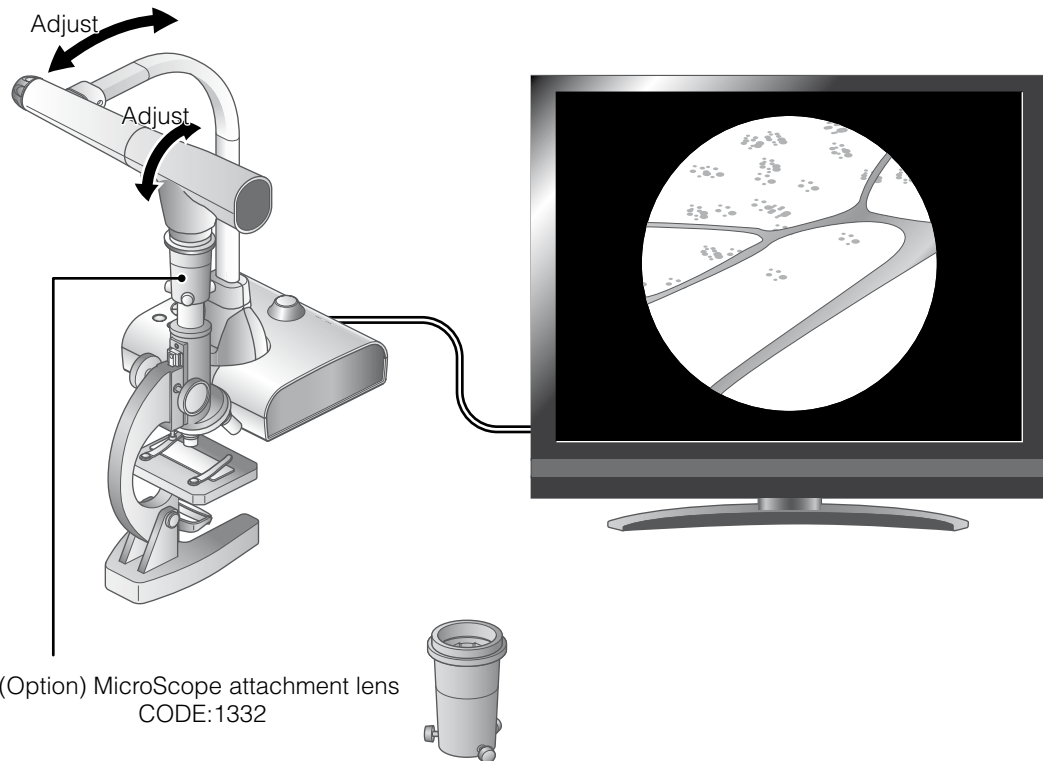
■ Procedure

① Change the setting of this equipment for using a microscope.

Press the [(MENU)] button.

Press [🔬].

② Set the microscope.

Place the 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 guide ring to the microscope attachment lens and cover the eyepiece with it.

Set the microscope attachment lens
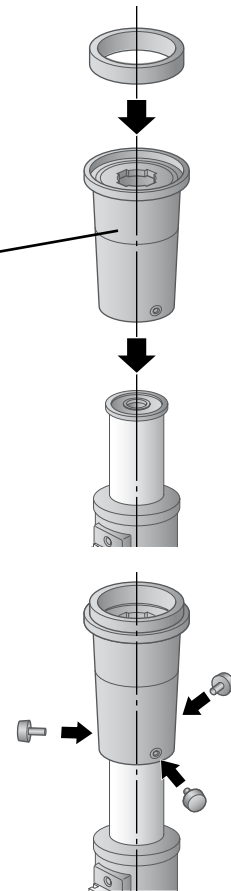
• Match the centers of the microscope attachment lens and eyepiece, and use the three screws to evenly tighten the lenses against each other.

CAUTION

If the screws are screwed too tightly, the microscope eyepiece or tube may be damaged.

④ Adjust the angle of the microscope and the equipment to fit each other.
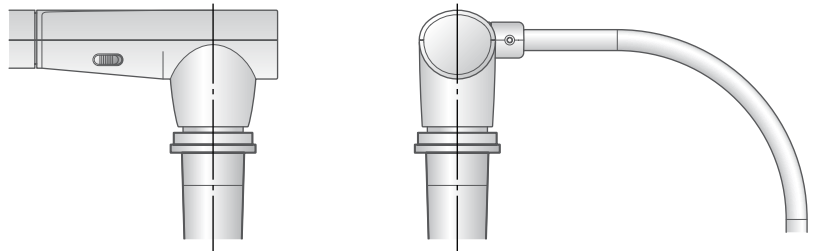
⑤ Adjust the brightness.

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

⑥ Adjust the display range.

Adjust the display range.

⑦ Focus a camera.
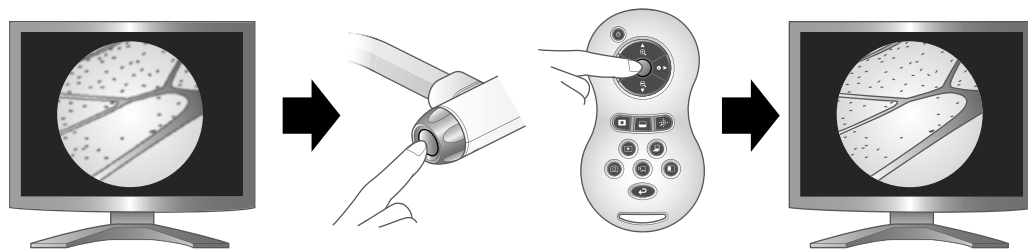
Focus a camera.

■ Exiting the Microscope mode

Change the setting of the equipment.

Press the [(MENU)] button.

⇩

Press [🔬].

✍ **N o t e**

- 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.

- If the equipment is not tall enough to allow you to attach the microscope attachment lens, you can increase its height by placing an object such as a thick book underneath or by fitting the leg attachment (sold separately).

Microscope Leg Attachment
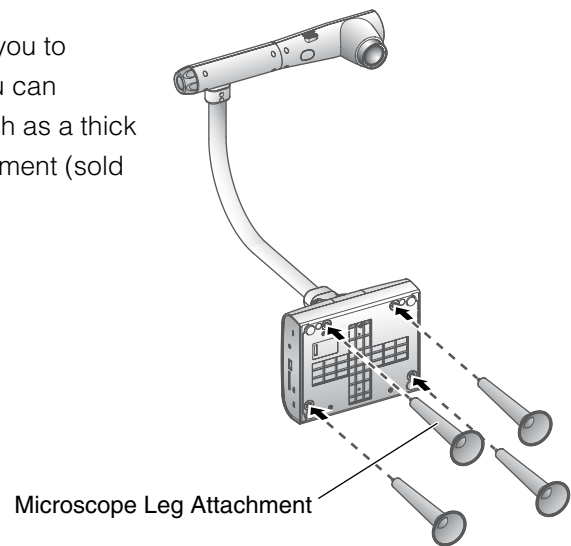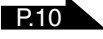
- You can use the microscope attachment lens when the external diameter of the eyepiece is 20 to 28mm.

- 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.

ADVANCED OPERATIONS

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.	• 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 unit. • The power is not ON. (Blue light) • Zoom is set at the TELE side, displaying only the white/black part of the document. • If you turn the power ON immediately after turning it OFF, the unit may not start. Wait for several seconds after turning the power OFF, and then turn it back ON. • The slide switch is not set to the correct image output (RGB/HDMI/VIDEO). Set the "RGB/HDMI/VIDEO Switch" correctly. P.10 • Reconnect the AC adapter.
The output image (resolution) changes automatically.	• When the HDMI monitor is connected, the output image (resolution) is automatically changed based on information from the connected monitor.
No image is displayed from the USB.	• No image is output from USB, when USB mode is set to mass Storage or in Play mode. Switch the USB mode from Mass Storage to Application by referring to the "Function Setting Menu". When using Play mode, change the output image to Camera image.
The image is out of focus.	• The document (object) is too close to the lens. Move the document (object) slightly away from the lens. • Auto focus may have difficulty in adjusting correctly. Focus on an image manually by referring to "Manual focus".
The video output image is scrambled or unclear.	• Video output is set to [NTSC]. If this product is set to the NTSC system and connected to a monitor specially designed for the PAL system, the video image may not be normally output but be scrambled or be displayed in black and white. Set the video output system to PAL.

Symptom	Possible cause/remedy
The image is too dark.	• The intensity of the lighting is insufficient. Press the [◀❖] button on the operating panel or the [⊛] button on the remote control to adjust the brightness.
The image is striped.	• 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. • Vertical stripes may appear on an LCD projector image. Manually adjusting the dot clock at the projector side may help the problem.
Images on the SD card/ USB flash drive are not displayed.	• Remove the SD card, wait a few seconds and reinsert.
The image does not move.	• Camera image is set to [Pause]. Press the Pause button on the operating panel again to restart.
The remote control does not work.	• Battery power is low. Replace the batteries with new ones. • The incorrect remote control is being used. Use the supplied remote control.
After inserting the SD card/ USB flash drive, operations cannot be performed.	• The SD card is not being read correctly. Use the SD card after formatting it twice as described below. First, format the card using a computer. Second, format the card using the main unit.

TROUBLE SHOOTING

About the light (LED lighting)
• The brightness of the light will diminish with long-term use. If its brightness has significantly diminished, consult the dealer from whom you purchased this product or our nearest branch/office for replacement.

About long-term usage of this product
• Due to the lifetime of its parts, if this 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 this product or our nearest branch/office.

5 SPECIFICATIONS

5-1 General

Item	Specifications
Power source	12VDC (AC adapter AC100 - 240V)
Power consumption	17.5W
Outside dimensions	W355 x D373.5 x H426.5mm (W14.0 x D14.7 x H16.8 in) (When setup)
	W195 x D294 x H469mm (W7.7 x D11.6 x H18.5 in) (When folded)
Weight	Approx. 3.2kg (7.1 lbs) (Main body only)
Input selection	Main/External
Output terminal	RGB output Mini Dsub 15P connector, female x 1
	Composite video output RCA pin jack/75 Ω unbalanced x 1 (NTSC/PAL)
	HDMI output terminal x 1
	Line Out terminal ϕ 3.5mm stereo minijack x 1
Input terminal	RGB input Mini Dsub 15P connector, female x 1
	Mic In/Line Out terminal (shared) ϕ 3.5mm stereo minijack x 1
Ext. control terminal	USB device (2.0 compliant) Mini-B receptacle x 1
Memory	SD card slot x 1
Interface	USB host (2.0 compliant) Type A receptacle x 1

※ Use pin plug for RCA pin in accordance with EIAJ RC-6703.

・Line input
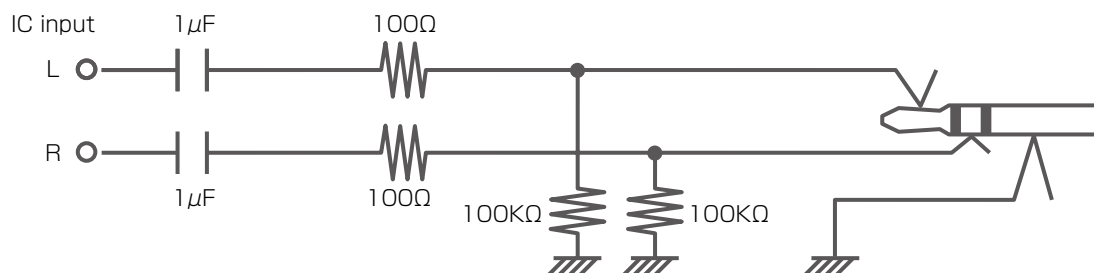
・External mike input
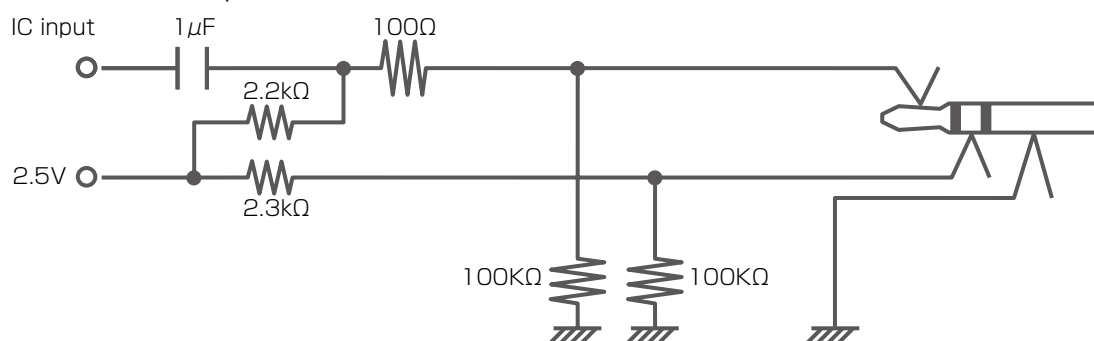
5-2   Main Camera

Item	Specifications				
Lens	f = 4.0mm – 48.0mm (12x zoom) F3.2 – 3.6				
Frame rate	30fps				
Shooting area		Max.		Min.	
	1080p	420mm	x 233mm	48.5mm	x 27.5mm
	720p	420mm	x 233mm	48.5mm	x 27.5mm
	SXGA	420mm	x 334mm	48.5mm	x 38.5mm
	WXGA	420mm	x 259mm	48.5mm	x 30.5mm
	XGA	420mm	x 313mm	48.5mm	x 36.5mm
Limit of focus adjustment	From lens surface: 　　50mm (2.0 in) – ∞ (f=4.0mm – 23.4mm) 　200mm (7.9 in x) – ∞ (f=23.4mm and higher)				
Optical zoom	12X				
Digital zoom	8X				
Focus	Auto/Manual/Zoom Sync				
Image pick-up element	1/2.8" CMOS				
Total pixels	Horizontal 2144, Vertical 1588				
Effective pixels	Horizontal 1920, Vertical 1536				
Synchronized signal	Internal				
Resolution	Analog RGB　　Horizontal 800TV lines or more Vertical 800TV lines or more				
	Video output　　Horizontal 500TV lines or more				
Analog RGB output	Analog RGB output 0.7 V (p-p) 75 Ω unbalanced Synchronized signal 　SXGA : Positive polarity 　WXGA : Horizontal negative polarity, Vertical positive polarity 　XGA　　: Negative polarity 　1080p : Positive polarity 　720p　 : Positive polarity		SXGA: 1280x1024@60Hz 　Horizontal frequency: 63.981kHz 　Vertical frequency: 60.020Hz WXGA: 1280x800@60Hz 　Horizontal frequency: 49.306kHz 　Vertical frequency: 59.910Hz XGA: 1024x768@60Hz 　Horizontal frequency: 48.363kHz 　Vertical frequency: 60.004Hz 1080p: 1920x1080@60Hz 　Horizontal frequency: 67.50kHz 　Vertical frequency: 60.00Hz 720p: 1280x720@60Hz 　Horizontal frequency: 45.00kHz 　Vertical frequency: 60.00Hz		

SPECIFICA-TIONS

Item	Specifications
HDMI output	Image output 　1080p 　720p
	Audio output 　PCM 44.1kHz sampling frequency
Composite video output	Compliant with NTSC/PAL
White Balance	Auto/One-Push/Manual
Video output selection switch	Provided (NTSC/PAL)
Brightness Control	Auto (W/Level adjustment)/Manual
Posi/Nega conversion	Provided
Color/B&W selection	Provided
Image rotation	Provided (0°/180°)
Image Mode	Text1/Text2/Text3/ Graphics1/Graphics2
Gamma setting	Provided (Only for graphic mode)
Edge Effect	Provided (Only for graphic mode)
Pause	Provided
Still Image storage	Provided
Movie storage	Provided
Slide Show	Provided
Flicker connection	60Hz/50Hz

5-3　Illumination Device

Item	Specifications
Illumination light	White LED

5-4   Trademarks · License

ELMO is a registered trademark of ELMO Co., Ltd.

SDHC , **SD** are the registered trademarks of SD-3C, LLC respectively.

HDMI, High-Definition Multimedia Interface are the registered trademarks of HDMI Licensing LLC.

This product is based on the work of the Independent JPEG Group.

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 a non-commercial use of a consumer to

(i) Play AVC Video that was recorded by a consumer engaged in a personal and a non-commercial activity and/or,

(ii) Play AVC Video that was obtained from a video provider licensed from MPEG-LA and LLC

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SPECIFICA-TIONS

────── **WARNING** ──────

Unauthorized recording of copyrighted slide films, materials, photographs, etc. may infringe on the rights of copyright owners and be contrary to copyright laws.

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