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DOCUMENT CAMERA P10S INSTRUCTION MANUAL

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

IMPORTANT SAFEGUARDS

■ **Read Instructions** – All the safety and operating instructions should be read before the appliance is operated.

■ **Retain Instructions** – The safety and operating instructions should be retained for future reference.

■ **Heed Warnings** – All warnings on the product and in the operating instructions should be adhered to.

■ **Follow Instructions** – All operating and use instructions should be followed.

■ **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

■ **Attachments** – Do not use attachments not recommended by the product manufacturer as they may cause hazards.

■ **Water and Moisture** – Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

■ **Placement** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

■ **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

■ **Power Sources** – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home consult your appliance dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

■ **Grounding or Polarization** – This product may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin. The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

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

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

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

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



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

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

■ **Damage Requiring Service –** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

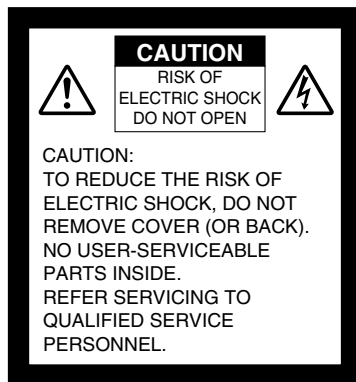
- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by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

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

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

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

■ This product includes a Fluorescent Lamps component that contains mercury. Please consult your state and local regarding proper disposal or recycling, and do not place in the trash.



SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. This marking is located at the bottom of product.



SA 1966

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

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

THIS IS A CLASS A
PRODUCT.
IN A DOMESTIC
ENVIRONMENT THIS
PRODUCT MAY CAUSE
RADIO
INTERFERENCE IN
WHICH CASE THE
USER MAY BE
REQUIRED TO TAKE
ADEQUATE MEASURES.

WARNING : Handling the
 cord on this product or
 cords associated with
 accessories sold with this
 product, will expose you to
 lead, a chemical known to
 the State of California to
 cause birth defects or
 other reproductive harm.

***Wash hands after
 handling.***

**FOR UNITED STATES
 USERS:**

INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER CAUTION:

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

BEFORE YOU USE

- The power cord applicable to the local power specifications is attached. Be sure to use the power cord applicable to your local power specification.
- Do not leave this product under direct sunlight or by heaters, or this product may be discolored, deformed, or damaged.
- Do not place this product in any humid, dusty, windy or vibrating location. Use this product in the following environmental conditions:
 Temperature: 5°C~40°C (41°F~104°F)
 Humidity: 30%~85% (No condensation)
- Use a soft, dry cloth for cleaning. Do not use any volatile solvent, such as thinner or benzene.
- Do not directly point the camera lens into the sun, or the camera may be damaged.
- Caring for the batteries:
 - If this product is not used for a long time, take out the batteries from the wireless remote control.
 - Do not use rechargeable Ni-Cd batteries.
 - Do not use new and old batteries, or batteries of different types together.
 - Do not try to recharge or short-circuit the batteries.
- Luminescent and Black Spots
 There may be some pixels that do not operate properly due to the use of CCD Area Image Sensors that are made-up of many pixels. You may experience luminescent or black spots on the screen; however, this is a phenomenon of CCD Area Image Sensors and is not a malfunction.
- Back up important data
 Transfer the data in an SD card to a PC or other data storage means for backup purpose. Note with care that the data in the SD card could be lost due to failure or repair of this product.

**PART NAMES
AND
FUNCTIONS**

SETTING UP

STORING

**OPERATION
PROCEDURE**

**VARIOUS
FUNCTIONS
AND OPERATIONS**

**ABOUT
RS-232C**

TROUBLESHOOTING

SPECIFICATIONS

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PART NAMES
AND
FUNCTIONS

SETTING UP

STORING

OPERATION
PROCEDURE

VARIOUS
FUNCTIONS
AND OPERATIONS

ABOUT
RS-232C

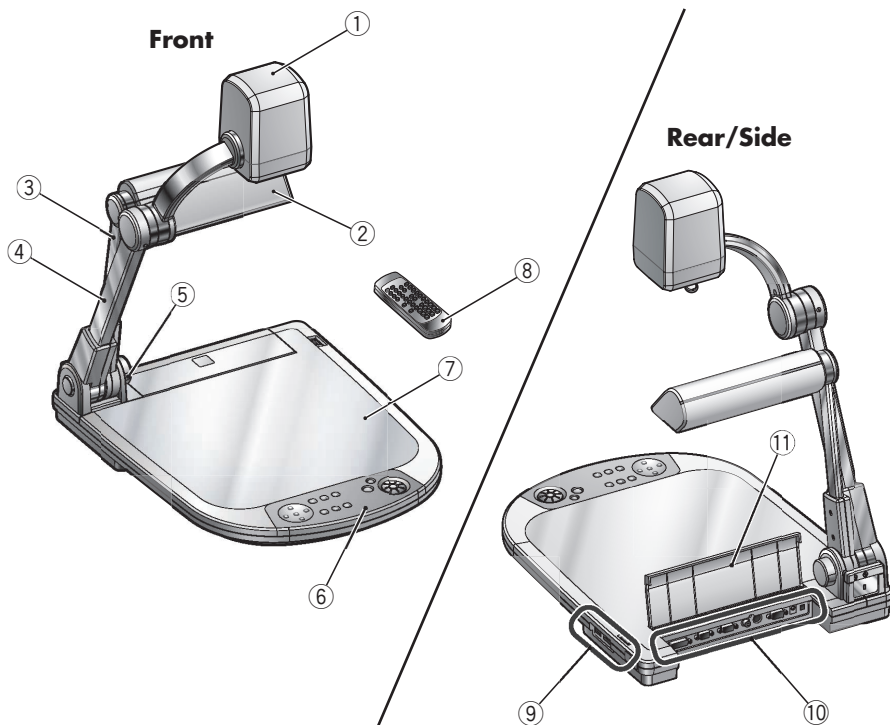
TROUBLESHOOTING

SPECIFICATIONS

1 PART NAMES AND FUNCTIONS

Name of Each Part

■ Appearance



Front

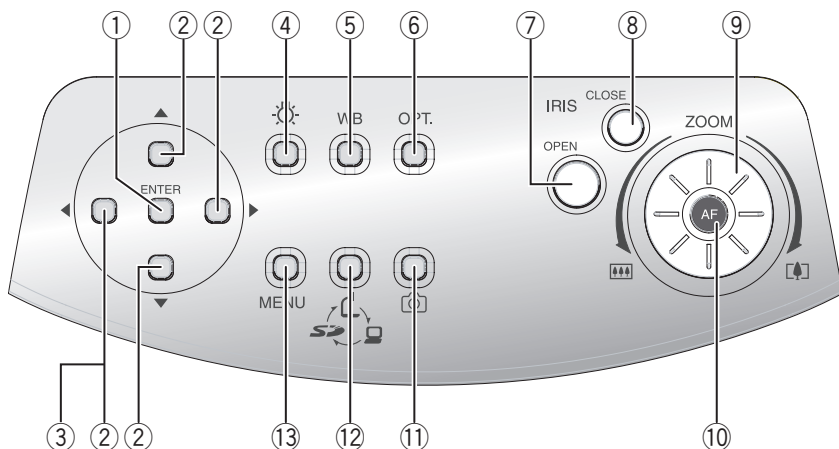
No.	Name
①	Camera head
②	Lamp head
③	Lamp column
④	Camera column
⑤	Infrared sensor
⑥	Front operating panel P.64
⑦	Stage
⑧	Wireless remote control P.71

Rear/side

No.	Name
⑨	Side panel P.66
⑩	Rear panel P.65
⑪	Cord cover Open this cover when connecting/ disconnecting a cord.  When carrying this product, do not hold this cord cover.

Functions

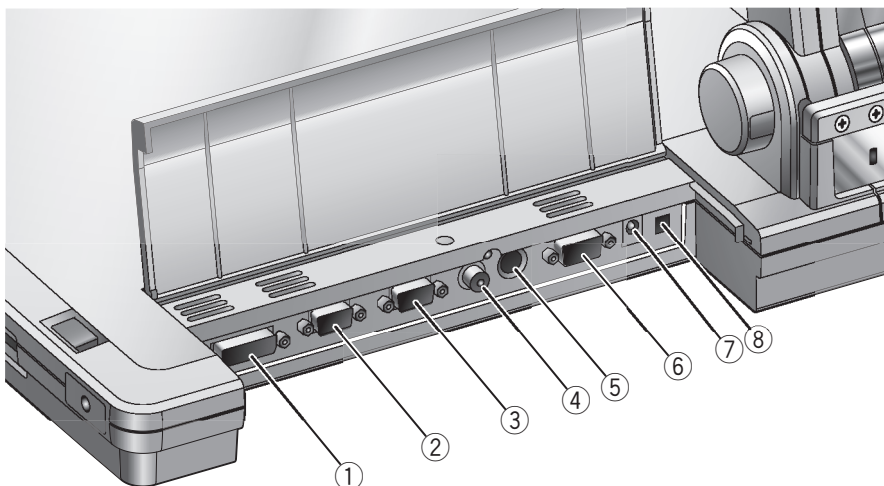
■ Front Operating Panel



* Hereinafter the menu items to be displayed/selected on the monitor or projection screen are referred to as "OSD (On-Screen Display)."

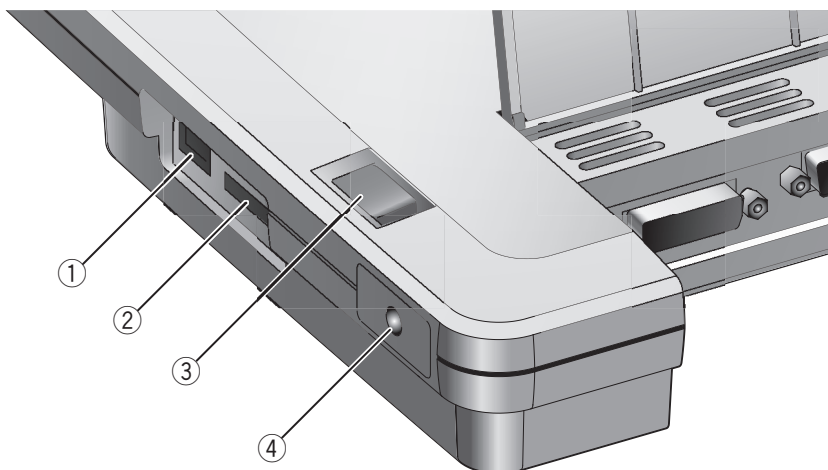
	Name		Function
①	OSD Opera- tion	ENTER (Fix)	To fix the OSD item, select an image from the images in the SD card displayed on the split screen P.67
②		▲ ▼ ◀ ▶ (Direction)	To select the OSD item, move the selection frame (cursor) of the recorded image, scroll the digitally zoomed-in image P.67
③		◀ (Menu Delete)	To cancel the OSD from the screen when the top OSD item is resumed P.67
④		(Lamp)	To turn ON/OFF the lighting P.86
⑤	WB	(White Balance)	To select Auto Track/Auto Adjust and Fix P.88
⑥	OPT.	(Optional Setting)	To set the desired function by using the OSD P.68
⑦	IRIS	OPEN (Open)	To brighten the camera image P.93
⑧		CLOSE (Close)	To darken the camera image P.93
⑨	ZOOM	(Zoom)	To operate the zoom function by turning the dial P.87
⑩	AF	(Auto Focus)	To focus the camera automatically P.91
⑪		(Image Save)	To save the image to an SD card P.81
⑫		(Image Select)	To switch the output image by pressing this button in order of Camera image () → RGB image () → SD mode () P.89 Images to be switched depend on the image output terminal. P.65
⑬	MENU	(Menu)	To display/cancel the OSD

■ Rear Panel



	Name	Function	Image whose display is selectable with image select button									
①	DVI OUT (DVI Output Terminal)	To output digital video signal to the projector, the PC monitor or other DVI input device P.75	☐ Camera image ☐ SD mode									
②	RGB OUT (Analog RGB Output Terminal)	To output analog video signal to the projector, the PC monitor or other RGB input device P.75	☐ Camera image ☐ [RGB IN] image ☐ SD mode									
③	RGB IN (Analog RGB Input Terminal)	Input image is output from the analog RGB output terminal when RGB IN () is selected with image select button. P.76										
④	VIDEO OUT (Composite Video Output Terminal)	To output image from the RCA pin-jack terminal to the NTSC/PAL-system monitor (e.g., TV monitor) P.76		☐ Camera image ☐ SD mode								
⑤	S-VIDEO OUT (S-video Output Terminal)	To output image from the Mini DIN 4P terminal to the NTSC/PAL-system monitor (e.g., TV monitor) P.76										
⑥	RS-232C (RS-232C Terminal)	To control the main unit from a PC through the RS-232C cable P.96										
⑦	12VDC IN (Power Socket)	Socket for the AC adapter										
⑧	(DIP Switch)  A B Display of Rear Panel	To switch the following: [A] key: Image output system [B] key: Image output screen size <table><tr><td></td><td>[A] key</td><td>[B] key</td></tr><tr><td>0</td><td>NTSC</td><td>Over-scan</td></tr><tr><td>1</td><td>PAL</td><td>Under-scan</td></tr></table>  When switching the DIP switch key settings, be sure to turn OFF the power supply to the main unit.			[A] key	[B] key	0	NTSC	Over-scan	1	PAL	Under-scan
	[A] key	[B] key										
0	NTSC	Over-scan										
1	PAL	Under-scan										

■ Side Panel



	Name	Function
①	USB (Compliant with 2.0)	To transfer the data recorded in an SD card to the connected PC, or to transfer image or control the main unit by using the software contained in the Utility Software CD-ROM P.75
②	 (SD Card Slot)	To insert an SD card To remove the SD card, push it in once P.80
③	Main Switch	To turn ON/OFF the power supply
④	LCD Monitor Mounting Seat	To mount the LCD monitor (LM-5611A) and the LCD monitor bracket (MS-30), both available on option P.95

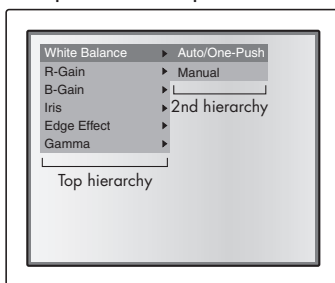
OSD (On-Screen Display)

The menu items displayed/selected on the monitor or the projection screen are referred to as "OSD (On-Screen Display)."

When the **[MENU]** button on the front operating panel or on the wireless remote control is pressed, the OSD menu is displayed on the monitor screen. By pressing the **[MENU]** button again, the OSD menu disappears.

Move the cursor to the item to be set with the direction buttons [**▲ ▼ ◀ ▶**], and press the **[ENTER]** button on the front operating panel or on the wireless remote control to fix the selection. Each time the direction button [**◀**] is pressed, the cursor moves back the OSD menu by one hierarchy. When the direction button [**◀**] is pressed on the top hierarchy, the OSD menu disappears.

Display example of the top and 2nd hierarchies



■ Camera Mode (Menu when camera image is in display)

Top hierarchy	Name	2nd hierarchy	Function
White Balance (White Balance)	Auto/One-Push	✓	To set the white balance to Auto/One-Push P.88
	Manual (Manual Adjust)		To adjust the red and blue elements manually P.88
R-Gain	(Displayed in level bar)		To adjust the red element when the white balance is set to Manual P.88
B-Gain	(Displayed in level bar)		To adjust the blue element when the white balance is set to Manual P.88
Iris (Iris)	Auto (Auto Adjustment of Brightness)	✓	To change the level of brightness when the object is tracked automatically P.93
	Manual (Manual Adjustment of Brightness)		To fix the brightness of the image to any level P.93
Edge Effect (Edge Enhancement)	3		To give edge enhancement to the image to sharpen it The larger the value is, the stronger the effect is.
	2		
	1	✓	
	OFF		
Gamma (Gamma Set)	0		γ = 0.63
	1		γ = 0.56
	2		γ = 0.50
	3	✓	γ = 0.45
	4		γ = 0.42
	5		γ = 0.38
	6		γ = 0.36
	7		γ = 0.33
			To set the gamma value. Tone wedge can be changed according to the projector, the PC monitor and other image output devices. This function is effective only when the Text mode is OFF.

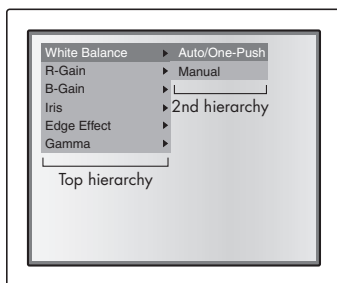
Name		Function
Top hierarchy	2nd hierarchy	
Posi/Nega (Posi/Nega)	Posi (Posi) ✓	To switch the posi/nega of the camera image • Factory setting for Nega When Text (Text) is OFF Gamma (Gamma) : 3 When Text (Text) is ON Gamma (Gamma) : Fixed value for the text mode
	Nega (Nega)	
Color/B&W (Color/Black and White)	Color (Color) ✓	To switch the Color/Black and White of the camera image Use this function to make the black-and-white document easy-to-read.
	B&W (Black and White)	
Text (Text)	ON	To sharpen black-and-white characters and lines of image
	OFF	Use this function to view text document.
Image Rotation (Image Rotate)	ON (180° rotate)	To rotate the camera image by 180° when this function is ON
	OFF (0°) ✓	
Preset (Position Save)	1 (Memory No.1)	To save the current setting position of the unit in the selected memory No. P.94
	2 (Memory No.2)	
	3 (Memory No.3)	
	4 (Memory No.4)	
	5 (Memory No.5)	
	Power On (Setting when POWER is ON)	
Call (Position Call)	1 (Memory No.1)	To call the setting position from the selected memory No. P.94
	2 (Memory No.2)	
	3 (Memory No.3)	
	4 (Memory No.4)	
	5 (Memory No.5)	
	Power On (Setting when POWER is ON) Default (Factory-set Settings)	
Optional (Optional Setting)	Pause (Pause) P.72 ✓	To set a desired function to the [OPT.] button on the front operating panel
	Posi/Nega (Posi/Nega)	
	Color/B&W (Color/Black and White)	
	Text (Text)	
	Delete Current Image (File Delete)	
USB Mode (USB Mode Select)	Mass Storage (Transfer)	To transfer the data from an SD card into the USB-connected PC P.84
	Application (Application) ✓	To control the main unit from the USB-connected PC or transfer image into the PC P.83
Guide (State Display)	ON ✓	To set whether the operation state of the main unit should be displayed on the screen or not
	OFF	
Video Out (Video Output Set)	All Mode (All mode) ✓	To output all signals from the [VIDEO OUT] terminal and [S-VIDEO OUT] terminal according to the image switching
	Camera & SD (Image of Camera & SD only)	To limit the switching of the output from the [VIDEO OUT] terminal and [S-VIDEO OUT] terminal to the camera image and SD mode

* [✓] indicates the factory default settings.

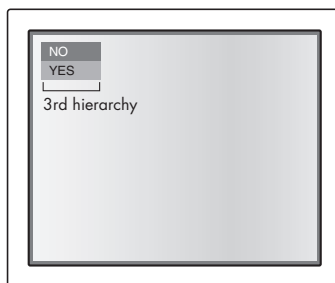
* The defaults of the Text vary depending on the place where this Camera is used.

OSD (On-Screen Display) (Continued)

Display example of the top
and 2nd hierarchies



Display example of the 3rd hierarchy
(display for reconfirming the operation)



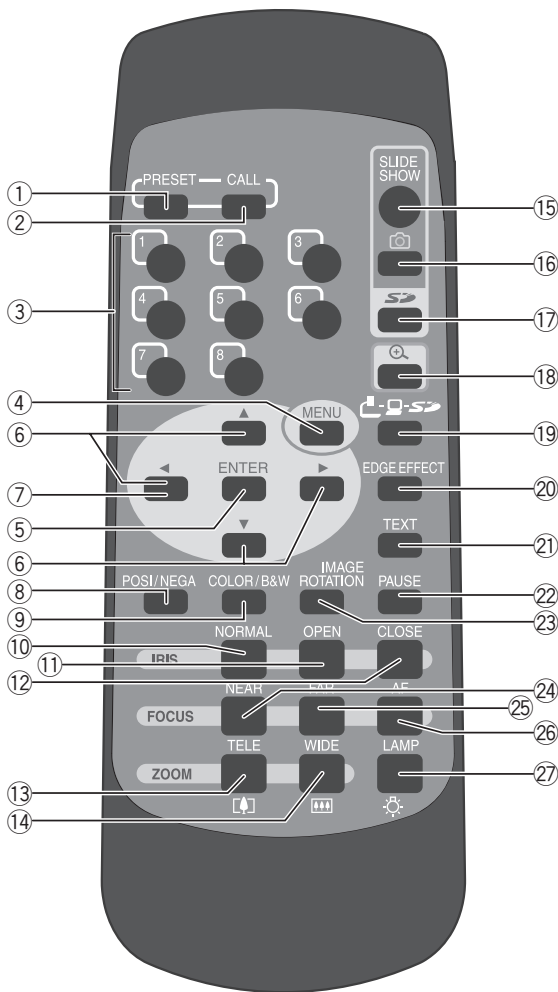
■ SD Mode (Menu when image stored in an SD card is in display)

Name			Function
Top hierarchy	2nd hierarchy	3rd hierarchy	
Delete (Delete)	Current (Selected Image)	NO	To cancel the delete
		YES	To delete the image in display on the full screen or the image selected from the split screen Locked image can not be deleted
	All (All images)	NO	To cancel the delete
Lock (Lock)		YES	To delete all images
	Current (Selected image)		To lock the image in display on the full screen or the image selected from the split screen Can set the image not to be deleted On the split screen, a green frame appears on the locked image
	All (All Images)		To lock all image files Can select the delete-protected image
Unlock (Lock Release)	Current (Selected Image)		To release the lock of the image in display on the full screen or the image selected from the split screen
	All (All Images)		To release the lock of all image files
Format Media (Initialize)	Format (Initialize)	NO	To cancel the format
		YES	To format the SD card Since all records in the SD card will be cleared, use this function carefully.

Name			Function
Top hierarchy	2nd hierarchy	3rd hierarchy	
Slide Show Settings (Slide Show Set) 	Effect (Effect of Image Feed)	All ☒	To show all visual effects in sequence
		Random	To show visual effect selectively at random
		Top down	To slide from top to bottom
		Left to right	To slide from left to right
		Bottom up	To slide from bottom to top
		Right to left	To slide from right to left
		LT to RB	To slide diagonally from left top to right bottom
		RT to LB	To slide diagonally from right top to left bottom
		RB to LT	To slide diagonally from right bottom to left top
		LB to RT	To slide diagonally from left bottom to right top
		Random block	To disperse small blocks irregularly
		Fade in/out	To fade out into the next image
		Overlap	To mix with the next image into the next image
		Shutter	To open from center to top and bottom into the next image
		Door	To open from center to right and left into the next image
		Stripe	To slide images spaced at regular intervals in a stripe from right or left
		BW to color	To change gradually from black and white to color from left to right
		Color to sepia	To change gradually from color to sepia
		Joint V	To close from top and bottom to center into the next image
		Joint H	To close from right and left to center into the next image
		None	To show no visual effect
	Select (Object File)	All ☒	To set the slide-show objects to all displayable images in an SD card
		Locked Only	To set the slide-show objects only to the locked image files
		List File	To set the slide-show objects to the image files in the list file 
	Order (Order of Image Feed)	Forward ☒	To give slide show in order of file name serial No. from the smallest to the largest
		Backward	To give slide show in order of file name serial No. from the largest to the smallest
	Interval (Interval of Image Feed)	3 Sec ☒	To set the interval of slide show until displaying the next image from 3 to 30 sec
		5 Sec	
		10 Sec	
		15 Sec	
		30 Sec	
	Repeat (Repeat)	ON	To set whether the slide show should be played repeatedly or not
		OFF ☒	
Start Slide Show (Slide Show Start)			To start the slide show 
Display (Display)	Single		To set the number of the images in an SD card to be displayed on the split screen
	3×3 ☒		
	4×4		

* [☒] indicates the factory default settings.

Wireless Remote Control



	Name	Function
①	PRESET (State Save)	To save the current setting state of the unit Use this function together with the memory No. P.94
②	CALL (State Call)	To call the setting state Use this function together with the memory No. P.94
③	(Memory No.)	To indicate the memory No.

	Name	Function
④	(OSD Operation) MENU (Menu)	To display/cancel the OSD To stop the slide-show operation P.67
⑤	ENTER (Input)	To fix the OSD item To stop the slide-show operation P.67
⑥	▲ ▼ ◀ ▶ (Direction)	To select the OSD item, select an image from the split screen, scroll in digital zoom mode To stop slide-show operation P.67
⑦	◀ (Menu Cancel)	To cancel the OSD from the screen when the top OSD item is resumed P.67
⑧	POSI/NEGA (Posi/Nega)	To switch the posi/nega of the camera image
⑨	COLOR/B&W (Color/Black and White)	To switch the Color/Black and White of the camera image Use this function to make the black-and-white document easy-to-read.
⑩	IRIS (Iris) NORMAL (Normal)	To return the Auto Iris to the factory default setting P.93
⑪	OPEN (Open)	To brighten the camera image P.93
⑫	CLOSE (Close)	To darken the camera image P.93
⑬	ZOOM (Zoom)  (Telescopic)	To zoom in P.87
⑭	 (Wide-angle)	To zoom out P.87
⑮	SLIDE SHOW (Slide Show)	To start the slide show when the image in an SD card is in display P.82
⑯	 (Image Save)	To save the image in an SD card P.81
⑰	 (Play)	To display the image in an SD card P.81
⑱	 (Electronic Zoom-in)	To zoom in the image to the double-size or quadruple-size When this button is pressed again, the image size returns to the full-size.
⑲	 (Image switch)	To switch the output image by pressing this button in order of Camera image () → RGB image () → SD mode () P.89  The image to be switched into depends on the video output terminal. P.65
⑳	EDGE EFFECT (Edge Enhancement)	To give edge enhancement to sharpen the image
㉑	Text (Text Mode)	To sharpen the image with black-and-white characters and lines Use this function to shoot the document or the like.
㉒	PAUSE (Pause)	To pause the camera image. When this button is pressed again, the moving image is restored  The paused image cannot be processed in any other way.
㉓	IMAGE ROTATION (Image Turn)	To turn the camera image by 180°
㉔	FOCUS NEAR (Near)	To move the focus near P.92
㉕	(Focus) FAR (Far)	To move the focus far P.92
㉖	AF (Auto Focus)	To focus the camera automatically P.91
㉗	LAMP (Lamp)	To switch ON/OFF the lighting P.86

■ Receivable Range



Point the infrared emitting part of the wireless remote control at the infrared sensor of the main unit, and press the button for desired function.

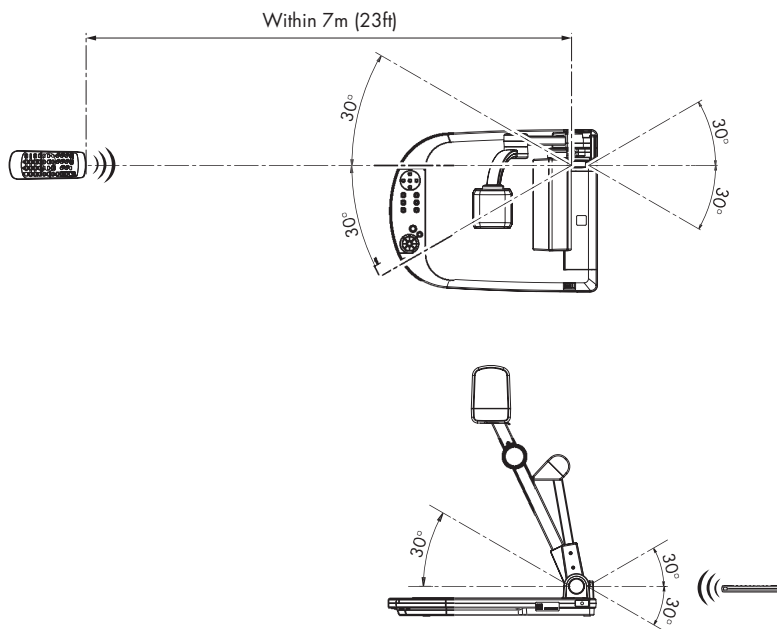
The receiving range may be reduced when the main unit is placed in direct sunlight, near an inverter fluorescent lamp or in any other unfavorable surrounding.

Depending on the conditions of fluorescent lamps, etc., the sensor may fail to receive the infrared light. In such case, relocate the main unit, or take other countermeasures.

• Receivable range

Distance: Approx. 7m (23ft) or less from the front of the infrared sensor

Angle: Approx. 30° or less to the right, leftward, upward and downward, respectively, from the infrared sensor



■ Battery Change

Remove the battery case cover on the rear side by pressing down the [↓ OPEN] mark part in the direction as indicated by the arrow.

Install 2 pcs of batteries (Type R03, AAA) in the battery case in the direction as indicated there.



Install the batteries with the correct polarity.



Although the battery life depends on the operating conditions and battery type, changing batteries once a year is recommended.

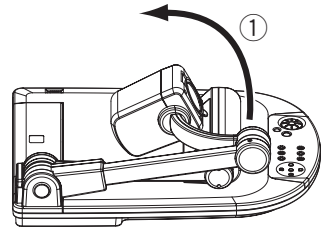


The supplied batteries are only for use in initially confirming the operation of this product. Therefore, it is not guaranteed that these batteries remain alive for the validated period.

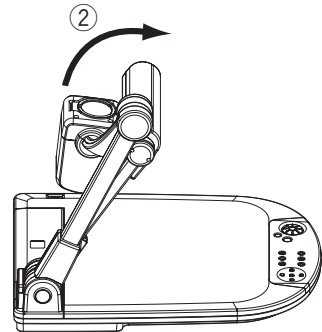
2 SETTING UP

Setting Up

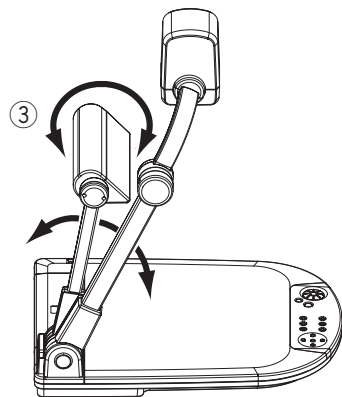
- (1) Lift the camera column. Simultaneously, the lamp column is also lifted.



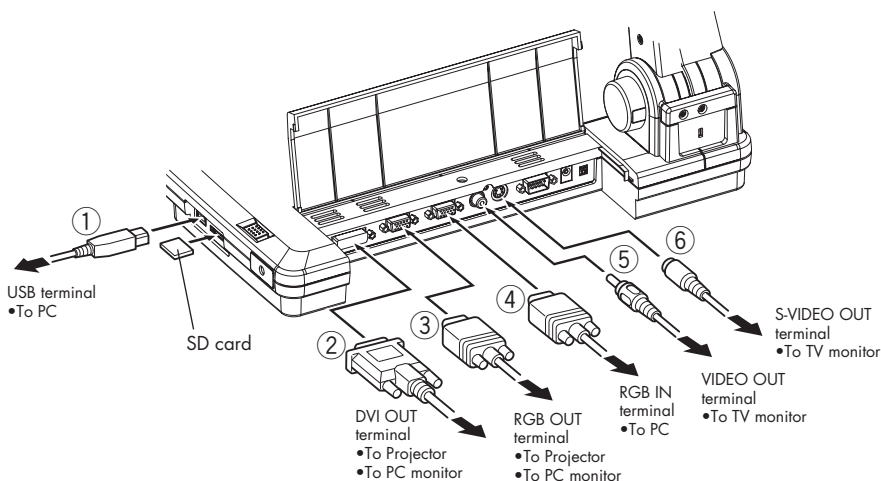
- (2) Turn the camera head.



- (3) Move the lamp column and the lamp head to an appropriate position as shown in the right figure.



Connecting of Video Cables



To protect this product and the peripheral units to be connected to this product, be sure to turn OFF the power supply to all units beforehand.



When plugging in/out the connection cable, hold the plug part of the cable.

① Connecting to the PC with a USB cable

Connect a USB cable to the [USB] terminal on the side panel.



The USB cable compliant with USB2.0 is recommended.



If you plug into a USB connector with power on, PC may not recognize this product.



Under the influence of the USB environment or peripheral units used by the PC, image transfer may be disturbed.



The connection of the AC adapter and video cable as per above is not always guaranteed in any environment.

② Connecting to the unit having the DVI input terminal

Connect the DVI cable to the [DVI OUT] terminal on the rear panel.

③ Connecting to the unit having the analog RGB input terminal

Connect the analog RGB cable to the [RGB OUT] terminal on the rear panel.



The display position may be displaced from the center of the screen. In such case, adjust the horizontal and vertical positions manually from the connected device.



Vertical stripes may appear on the LCD projector screen or the monitor screen. This phenomenon can be mitigated by adjusting the dot clock manually from the connected device.

④ Connecting to the unit having the analog RGB output terminal

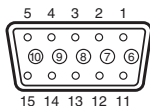
Connect the analog RGB cable to the [RGB IN] terminal on the rear panel.



When a laptop having an external output mode switching function is used, switch the video output of the Camera to [RGB IN] and then set the laptop to the external output mode

- Specifications of the analog RGB input terminal of this product

Signal allocation



DSUB 15P shrink terminal (Female)

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)

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

⑤ Connecting to the unit having the composite vide input terminal

Connect the video cable with RCA pin plug to the [VIDEO OUT] terminal on the rear panel.

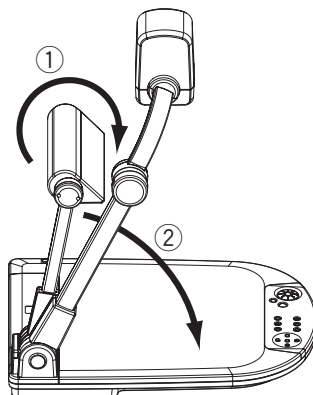
⑥ Connecting to the unit having S-video input terminal

Connect the S-video cable to the [S-VIDEO OUT] terminal on the rear panel. If the unit to be connected has a Y/C-separated connector, a conversion adapter is required.

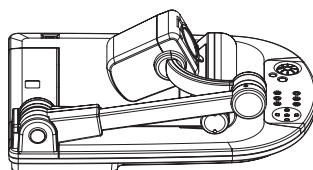
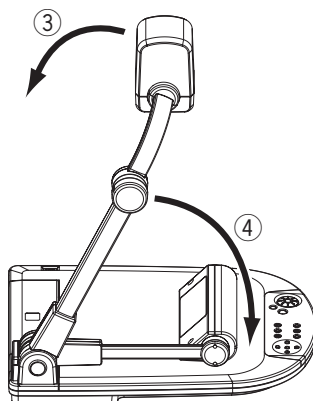
3 STORING

Storing

- (1) As shown in the right figure, turn the lamp head and the lamp column and fold them down on the stage.



- (2) Turn the camera head and the camera column and fold them down on the stage.

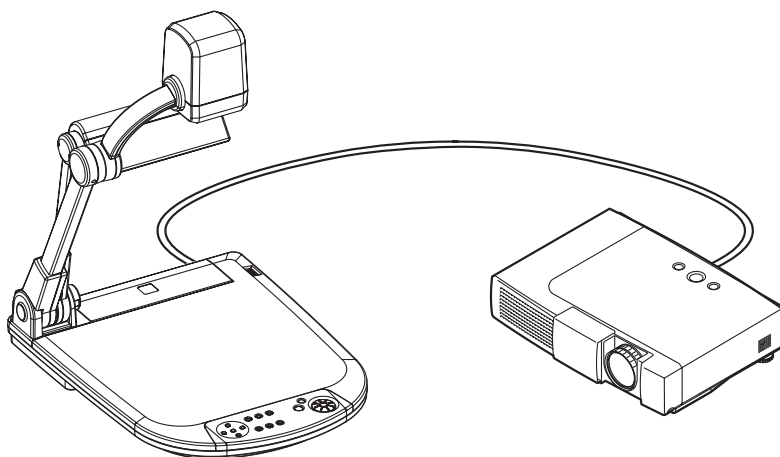


4 OPERATION PROCEDURE



When connecting this product and the peripheral units, be sure to turn OFF the power supply to all units beforehand.

Presentation using printed materials



① Setting the main unit

Set the main unit as show in the above figure, connect the main unit to the projector or the PC monitor, and then turn ON the power supply.

② Adjusting the lamp position

While watching the screen, adjust the angles of the lamp column and the lamp head until the illumination is provided uniformly over the stage. Bring the lamp column closer to the camera head as much as possible but only to such an extent that the lamp head is not seen on the screen, and then face the light emitting part of the lamp head right downward, and the illumination will flood over the stage evenly.



Depending on the lamp position, the camera column shadow may be seen on the screen.

P.86

③ Adjusting the size

Place an object on the stage, and adjust the position of the object with the zoom dial **[ZOOM]** on the front operating panel or the zoom button ([], []) on the wireless remote control so that the part of the object to be viewed can fit the screen size.

P.87

④ Adjusting the focus

Press the **[AF]** button on the front operating panel or wireless remote control to focus the camera on the object.

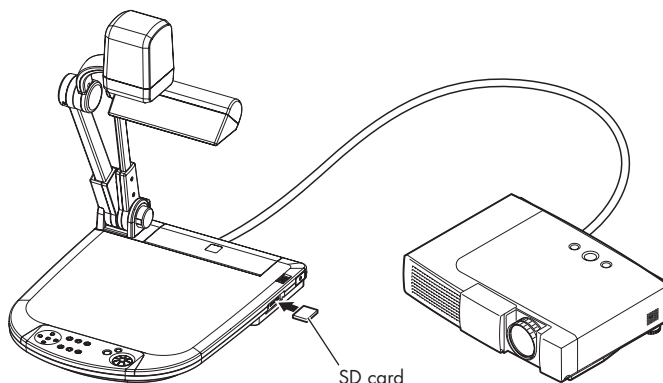
P.91

⑤ Adjusting the brightness

Press the **[IRIS • OPEN]** button and **[IRIS • CLOSE]** button on the front operating panel or wireless remote control to adjust the brightness of the image by the lens iris.

P.93

Presentation using SD card (Option)



-  Before starting the operation, insert an SD card (Option) into the SD card slot on the side panel. To remove the SD card, push it again, and it will come out.
-  Insert the SD card with the labeled side up. Forcing it in the wrong way may cause a malfunction.
-  Before inserting or removing the SD card or turning OFF the power supply, be sure to select [Camera] [C] with the [C-SD] button on the front operating panel or wireless remote control, and confirm that the output image has turned to the camera image. Otherwise, the contents of the SD card could be destroyed or failure could be caused to the main unit.
-  The SD card is composed of parts vulnerable to static electricity. Therefore, due to the impact of static electricity, the SD card could malfunction or its contents could be destroyed. When handling the SD card, take care to avoid static electricity.
-  The image data that can be viewed on this product are limited only to those stored in this product and those converted by using the conversion software (Option).
-  If the data of the system that is not compatible with this product, a black or gray image will be displayed.
-  If the image conversion to the image in the SD card is tried without inserting the SD card, a black image will be displayed.
-  After using the SD card, do not leave it inside this product but be sure to remove it.
-  The SD card of Panasonic 128MB or 256MB is recommended.
Resolution of saved image is 1024 x 768 (XGA).
This product can store images up to 2048 pcs.
-  This product is not compatible with SDHC cards. Use a card recommended for this product.
-  ELMO is not liable for any damage caused by the loss of the data in the SD card or passive damage.

Presentation using SD card (Option) (Continued)

■ Saving the Image

- (1) Press the [C-SD] button on the front operating panel or wireless remote control to switch the image mode to the Camera mode.
- (2) Press the [CAM] button on the front operating panel or wireless remote control.
- (3) When the [CAM] mark lights up on the screen, the image saving starts. When this mark goes out, the image saving is completed.



Be sure to try out shooting and saving beforehand to confirm the normal saving of the image. If the image fails to be saved due to some problems in the camera or SD card, ELMO is not liable for any compensation for the recorded contents.



The [CAM] mark on the screen is displayed only when the [Guide] menu is set to ON.



When the SD card is write-protected, the image cannot be saved in the SD card.



When the capacity of the SD card becomes full and no more images can be saved, the [CAM] mark does not light up. Then, delete unnecessary images or use a new SD card.



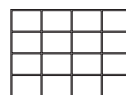
When the SD card is in the read/write mode, do not remove the SD card, or failure could occur with this product.

■ Displaying the image

- (1) Press the [C-SD] button on the front operating panel or wireless remote control or press the [SD] button on the wireless remote control to switch the output image mode to the SD mode. Then, the images in the SD card are displayed on the split screen. The number of images to be displayed on the split screen can be changed by the [Display] settings on the OSD. The number of divisions on default is 3×3.



3 × 3

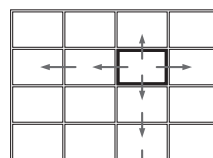


4 × 4

- (2) Move the selection frame (cursor) of the recorded image with the direction buttons [▲ ▼ ◀ ▶], and select the images with the [ENTER] button on the front operating panel or wireless remote control to display them on the full-screen.

- When the images are displayed on the split screen (3×3, 4×4)

Move the selection frame (cursor) of the recorded image with the direction buttons [▲ ▼ ◀ ▶], and display the images on the full-screen with the [ENTER] button on the front operating panel or wireless remote control. When the direction button [▼] is held down, the selection frame (cursor) moves as shown in the right figure.



(To the top of the next page)

- When the images are displayed on the full-screen



When the direction button [▶] or [▼] on the front operating panel or wireless remote control is pressed, the next image is displayed. When the direction button [◀] or [▲] on the front operating panel or wireless remote control is pressed, the previous image is displayed. The image displayed on the full screen can be zoomed in/out with the zoom dial on the front operating panel or the zoom button on the wireless remote control. When the image is zoomed in, the displayed part of the image can be scrolled with the direction buttons [▲ ▼ ◀ ▶]. When the [ENTER] button on the front operating panel or wireless remote control is pressed, the display on the split screen is resumed.

■ Deleting the Image

- (1) Press the [**⏮-□-⏭**] button on the front operating panel or wireless remote control or press the [**SD**] button on the wireless remote control to have the images in the SD card displayed on the full-screen or split screen.
- (2) Select the image to be deleted with the direction buttons [**▲ ▼ ◀ ▶**] on the front operating panel or wireless remote control.
- (3) Press the [**MENU**] button on the front operating panel or wireless remote control, and select the [Delete] menu on the OSD. To delete only the selected image, select [Current]. To delete all images, select [All].

When [YES] is selected with the [**ENTER**] button on the front operating panel or wireless remote control, the delete is executed. (To go back without executing the delete, press [NO].)

■ Slide show

- (1) Press the [**⏮-□-⏭**] button on the front operating panel or wireless remote control or press the [**SD**] button on the wireless remote control to switch the outputted image mode to the SD mode.
- (2) Press the [**MENU**] button on the front operating panel or wireless remote control to display the OSD. When the [Start Slide Show] menu is selected, the slide show starts. The slide show can be started also by pressing the [**SLIDE SHOW**] on the wireless remote control.
- (3) When the direction button or the [**ENTER**] button is pressed, the slide show stops.
 - [Effect] (Visual effect), [Interval] (Display interval), [Repeat] (Repeat), etc. can be set on the [Slide Show Settings] on the OSD.
 - When the slides are arranged in order of the slide show by using the software bundled in the PC and the list file is stored in the SD card, the slide show can be held in any order. For details, refer to the Help folder in the Utility Software CD-ROM.

■ Formatting the SD card

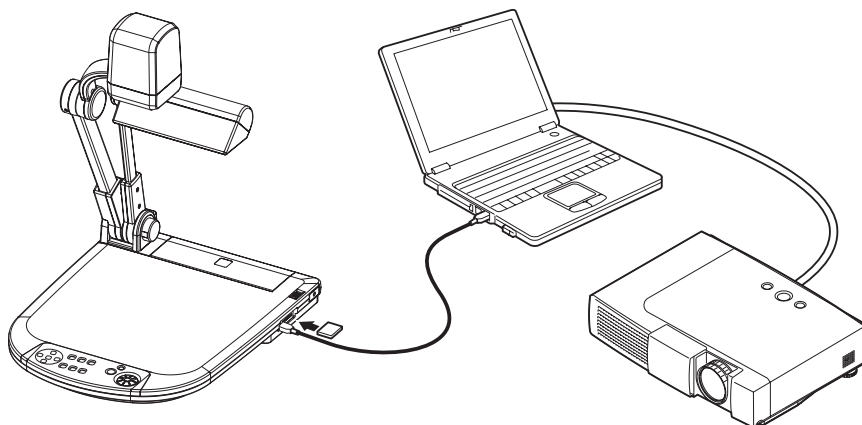
When the SD card is formatted, insert the SD card into this product, and execute formatting.

- (1) Switch the image mode to the SD mode by pressing the [**⏮-□-⏭**] button on the front operating panel or press the [**SD**] button on the wireless remote control.
- (2) Press the [**MENU**] button on the front operating panel or wireless remote control button to display the OSD, and then select [Format Media].
- (3) Now, [Format] starts.



When [USB Mode] has been set to [Mass Storage] and a USB cable has been connected to the PC, an SD card cannot be deleted, locked, unlocked, formatted, and saved with image data.

Presentation using the attached software with the USB-connected PC



Set [USB Mode] to [Application] on the OSD.

"Utility Software" is downloadable from the homepage of ELMO or in the CD-ROM supplied from ELMO.

"Utility Software" contains the PC link software "Image Mate for Presentation", "Image Mate for Movie Creation" and the TWAIN driver "ELMO TWAIN DS(P30)" for the following operations:

- Moving image saving to PC.
- Transfer of moving/still images to the PC
- Operation of this product from the PC

The PC equipped with Microsoft Windows 2000(SP4 or newer)/XP(SP2 or newer)/VISTA is recommended.

For details, refer to the "Utility Software" Installation Manual and the help folder with the software.



When the front operating panel or the wireless remote control is in operation, do not connect/disconnect the USB cable, or malfunction will be caused to this product.

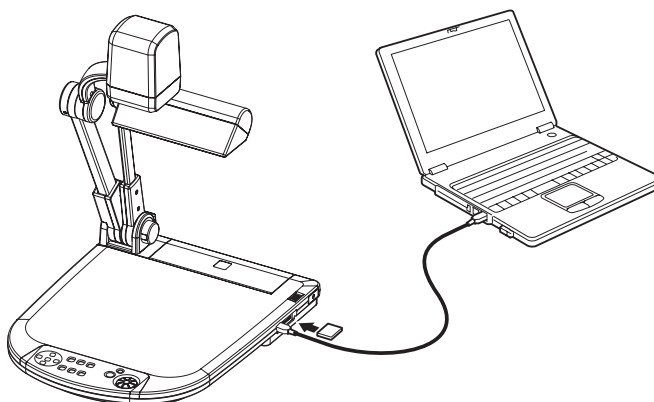


Do not switch [USB Mode] on the OSD when this product is in USB-connection.



The USB cable compliant with USB2.0 is recommended.

Transferring the images from the SD card into the USB-connected PC



 Set [USB Mode] to [Mass Storage] on the OSD.

 Insert the SD card with the labeled side up. Forcing it in the wrong way may cause a malfunction.

When this product is USB-connected to the PC, image data in the SD card can be transferred into the PC. The Operating System (OS) of the connected PC should be Microsoft Windows 2000(SP4 or newer)/XP(SP2 or newer)/VISTA.

- (1) Turn ON the power supply to this product and to the PC.
- (2) Connect this product to the PC with the attached USB cable.

 When this product is connected to the PC for the first time, the required drivers are installed automatically due to the plug-and-play function of Windows. For the second time and thereafter, the drivers are no longer installed.

- (3) This product is recognized as a removable disk. The image data in an SD card can be viewed by using the viewer software of the PC.

- The image data are stored in JPEG format in the following folders:

```

My Computer
├── Removable disk
│   ├── DCIM
│   │   ├── 100_ELMO
│   │   │   ├── IMAG0001.JPG
│   │   │   ├── IMAG0002.JPG
│   │   │   └── :

```

 An SD card set in this product cannot be formatted or written, deleted, locked, and unlocked with image data from the PC.

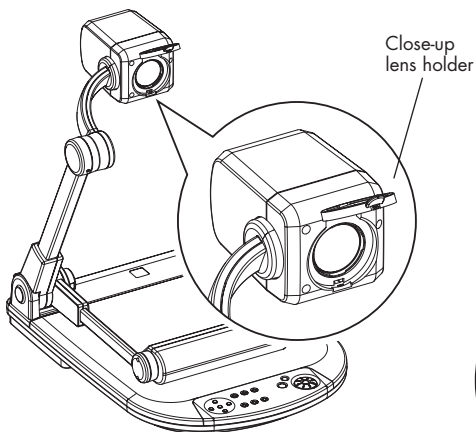
 The image data cannot be recorded with the correct date and time.

 When the front operating panel or wireless remote control is in operation, do not connect/disconnect the USB cable, or malfunction will be caused to this product.

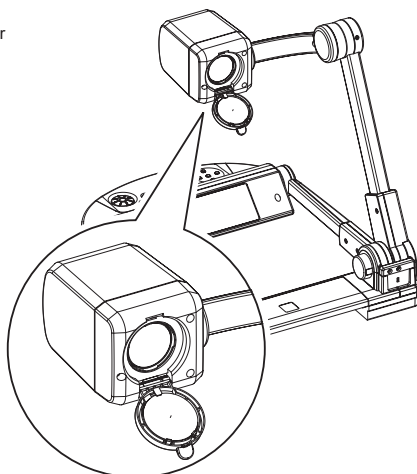
 Do not switch [USB Mode] on the OSD when this product is in USB-connection.

 The USB cable compliant with USB2.0 is recommended.

Shooting off the stage



<Forward shooting>



<Backward shooting>

When the camera head is set horizontally, wall, distant view, etc. can be shot.

When the object is in the distant view, open the close-up lens holder forward.



To shoot horizontally, turn the image by 180° by pressing the [IMAGE ROTATION] button or setting the OSD accordingly.



Shooting enabled range when the close-up lens holder is opened:

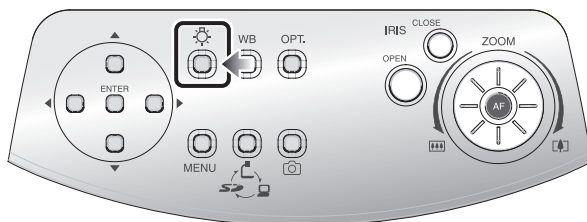
TELE (Telescopic): 500mm – ∞ from the zoom lens

WIDE (Wide-angle): 50mm – ∞ from the zoom lens

5 VARIOUS FUNCTIONS AND OPERATIONS

Lighting

Front operating panel



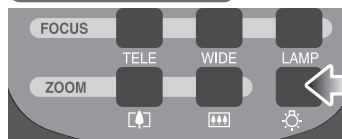
Wireless remote control



When the [LAMP] button on the front operating panel or wireless remote control is pressed, the fluorescent lamp lights up in 1 – 3 seconds. Each time the [LAMP] button is pressed, the fluorescent lamp turns ON/OFF alternately.

When the lighting lamp is used when the stage is not sufficiently bright or a 3D object is shot, a sharp image with high color rendering properties can be obtained.

Wireless remote control

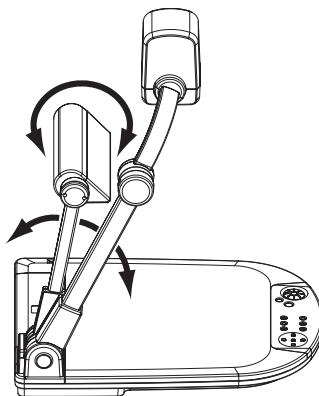


● Adjusting the lamp position

While watching the screen, adjust the angles of the lamp column and the lamp head until the illumination is provided uniformly over the stage. Bring the lamp column closer to the camera head as much as possible but only to such an extent that the lamp head is not shot on the screen, and then face the light emitting part of the lamp head right downward, and the illumination will flood over the stage evenly.

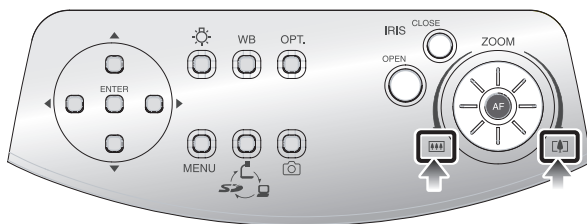


Depending on the lamp position, the camera column shadow may appear on the screen.



Zoom

Front operating panel



Wireless remote control



When the zoom dial [], [] on the front operating panel is turned or the zoom button [], [] on the wireless remote control is pressed, the document display range can be adjusted.

According to the zoom dial turning angle, the zooming speed varies in 3 steps (3-step speed change).

● Zoom magnification in the Camera mode

When the optical zoom is maximized (about 16 $\times$), the digital zoom is activated and the image can be zoomed in further up to 8 $\times$ (about 128 $\times$ combined with the optical zoom).

● Zoom magnification in the SD Card mode

The digital zoom is available up to 8 $\times$.



Within the digital zoom range, the image quality is degraded.



Within the digital zoom range, the zoom speed is locked.



When the digital zoom is in operation, the screen can be scrolled with the direction buttons [] on the front operating panel or wireless remote control.

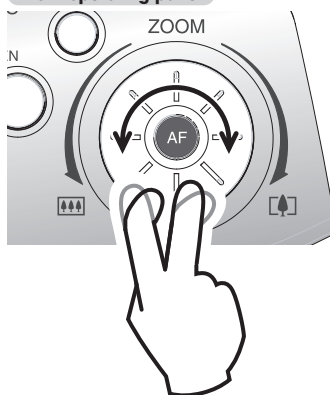


When the image is in transmission through the USB cable, the digital zoom speed is slow.

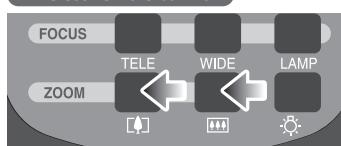


When [Guide] is set to [ON] on the OSD, whether the zoom is optical or digital can be distinguished on the screen.

Front operating panel

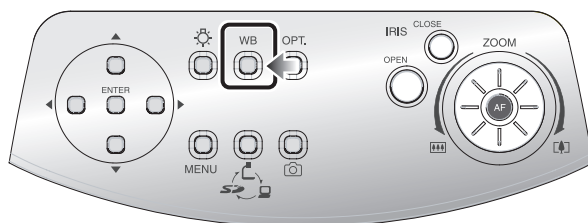


Wireless remote control



White Balance

Front operating panel



■ [Auto/One-Push] (Auto Track/Auto Adjust and Fix)

The Auto (auto track) mode for adjusting the white coloring automatically according to the document or lighting condition and the One-Push (auto adjust and fix) mode for maintaining the automatically adjusted state can be switched alternately.

If the image color balance is lost due to the document or lighting condition, shoot a sheet of white paper and then press the **[WB]** button on the front operating panel. Then, the white coloring is adjusted automatically according to the document or lighting condition, and then an automatically adjusted state is maintained.

When the **[WB]** button on the front operating panel is pressed, the Auto (auto track) mode is resumed.

■ [Manual] (Manual Adjust)

When [White Balance] is set to [Manual] on the OSD, the white balance is locked, and then, [R-Gain] (red element) and [B-Gain] (blue element) on the OSD can be adjusted.

When [White Balance] is set to [Auto/One-Push] on the OSD, manual adjustment is released, the white balance is adjusted once automatically, and then the W/B level is locked.



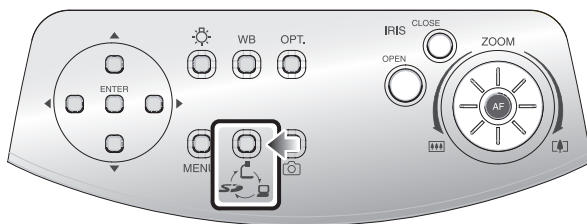
The color-temperature range that can be tracked automatically is approx. 3000K – 8000K.



When [Guide] is set to [ON] on the OSD, the setting contents are displayed on the screen.

Image Selection

Front operating panel



Wireless remote control



Each time the [ -  - ] button on the front operating panel or wireless remote control is pressed, the image is switched in order of the camera image to the image inputted in the analog RGB input terminal [RGB IN], then to the image in the SD card, and then to the camera image again.

When the PC or other unit is connected to the analog RGB input terminal [RGB IN], the output image can be switched without spending time and labor exchanging the connection cables.

Wireless remote control



The image from the DVI output terminal [DVI OUT] and video output terminals [VIDEO OUT], [S-VIDEO OUT] cannot be switched to [RGB IN] image. **P.65**



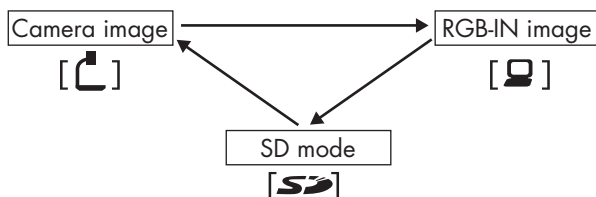
When a laptop having an external output mode switching function is used, switch the video output of this Camera to [RGB IN] and then set the notebook PC to the external output mode.



If the image mode switching is tried to the SD mode when an SD card is not in this product, the screen will turn black.



By setting [Guide] to [ON] on the OSD, the setting contents are displayed on the screen.



■ Input Image Signals to Analog RGB Input Terminal [RGB IN] That Enables Output from Video Output Terminal [VIDEO OUT] or [S-VIDEO OUT]

Signal	Frequency			Resolution (Number of lines)		Polarity of synchronized signal (P: Positive, N: Negative)
	Horizontal	Vertical	Pixel clock	Horizontal	Vertical	
Mode name	kHz	Hz	MHz			HS/VS
VGA1	37.861	84.889	31.500	640	350	P / N
VGA2	37.861	85.080	31.500	640	400	N / P
VGA3	37.927	85.039	35.500	720	400	N / P
VGA@60Hz	31.469	59.941	25.175	640	480	N / N
VGA@72Hz	37.861	72.809	31.500	640	480	N / N
VGA@75Hz	37.500	75.000	31.500	640	480	N / N
VGA@85Hz	43.269	85.008	36.000	640	480	N / N
SVGA@56Hz	35.156	56.250	36.000	800	600	P / P
SVGA@60Hz	37.879	60.317	40.000	800	600	P / P
SVGA@72Hz	48.077	72.188	50.000	800	600	P / P
SVGA@75Hz	46.875	75.000	49.500	800	600	P / P
SVGA@85Hz	53.674	85.061	56.250	800	600	P / P
XGA@60Hz	48.363	60.004	65.000	1024	768	N / N
XGA@70Hz	56.476	70.069	75.000	1024	768	N / N
XGA@75Hz	60.023	75.029	78.750	1024	768	P / P
XGA@85Hz	68.677	84.997	94.500	1024	768	P / P
SXGA1	67.500	75.000	108.000	1152	864	P / P
SXGA2	60.000	60.000	108.000	1280	960	P / P
SXGA3	85.938	85.003	148.500	1280	960	P / P
SXGA@60Hz	63.981	60.020	108.000	1280	1024	P / P
SXGA@75Hz	79.976	75.025	135.000	1280	1024	P / P
SXGA@85Hz	91.146	85.024	157.500	1280	1024	P / P
UXGA@60Hz	75.000	60.000	162.000	1600	1200	P / P
UXGA@65Hz	81.250	65.000	175.500	1600	1200	P / P
UXGA@70Hz	87.500	70.000	189.000	1600	1200	P / P
UXGA@75Hz	93.750	75.000	202.500	1600	1200	P / P
UXGA@85Hz	106.250	85.000	229.500	1600	1200	P / P
Mac 13	35.000	66.667	30.240	640	480	N / N
Mac 16	49.725	74.550	57.283	832	624	N / N
Mac 19	60.241	74.927	80.000	1024	768	N / N
Mac 21	68.681	75.062	100.000	1152	870	N / N
PC98	24.825	56.420	21.052	640	400	N / N



This product may not accommodate any signal other than those listed in the above table.



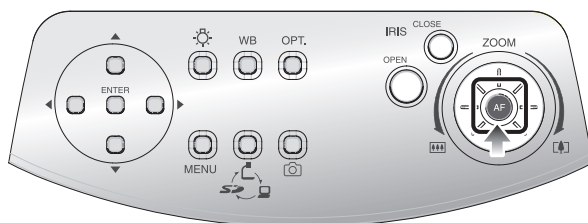
Depending on the input signal, the image may not be outputted in full size.



This product does not accommodate such synchronized signal as composite and SyncOnGreen.

Focus

Front operating panel



Wireless remote control



The focus on the object is adjusted.

■ Auto Focus

When the **[AF]** button on the front operating panel or wireless remote control is pressed, the camera is focused automatically. This product is of one-shot auto focus type. That is, once the camera is focused, the auto focus operation is released, and then focus position is maintained.



The objects listed below may not be brought into focus in the auto focus. In such case, use the manual focus mode.

- Objects having little contrast
- Objects with fine repeated patterns, such as lateral stripes and cross stripes
- Objects glittering or reflecting strong light
- Objects with bright background or excessive contrast
- Objects that are entirely dark
- Objects located near and far away at the same time
- Objects in motion



If the manual focus button **[FOCUS • NEAR]** or **[FOCUS • FAR]** on the wireless remote control is pressed when the auto focus is in operation, the auto focus operation will be cancelled.



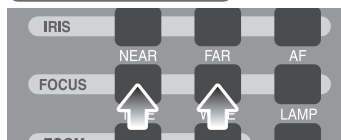
Limit of focus adjustment:

- With close-up lens
 - TELE (Telescopic) : 305 – 405mm (12.0 – 15.9 in) from close-up lens
 - WIDE (Wide-angle) : 50 – 405 mm (2.0 – 15.9 in) from close-up lens
- Without close-up lens
 - TELE (Telescopic) : 500mm – ∞ (19.7 in – ∞) from zoom lens
 - WIDE (Wide-angle) : 50mm – ∞ (2.0 in – ∞) from zoom lens

Wireless remote control



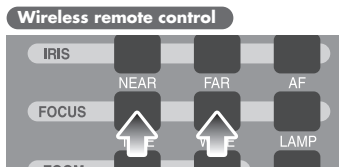
Wireless remote control



■ Manual Focus

When the focus button **[FOCUS • NEAR]** or **[FOCUS • FAR]** on the wireless remote control is pressed, the height on which the camera is focused changes.

This function is used for focusing the camera on any portion of a 3D object or the like.

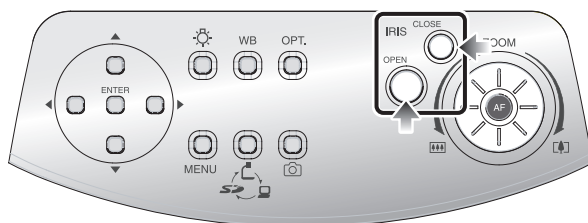


Limit of focus adjustment:

- With close-up lens
 - TELE (Telescopic) : 305 – 405mm (12.0 – 15.9 in) from close-up lens
 - WIDE (Wide-angle) : 50 – 405 mm (2.0 – 15.9 in) from close-up lens
- Without close-up lens
 - TELE (Telescopic) : 500mm – ∞ (19.7 in – ∞) from zoom lens
 - WIDE (Wide-angle) : 50mm – ∞ (2.0 in – ∞) from zoom lens

Iris

Front operating panel

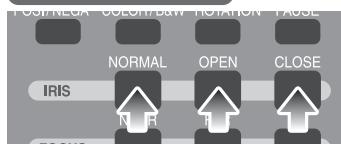


Wireless remote control



When the **[IRIS • OPEN]** button or **[IRIS • CLOSE]** button on the front operating panel or wireless remote control is pressed, the lens iris is adjusted for image brightness. This adjustment can be made in either of the following 2 modes, which are set in **[Iris]** on the OSD:

Wireless remote control



■ Auto Brightness Adjustment

(**[Iris]** is set to **[Auto]** on the OSD.)

It is so set that the brightness to be tracked automatically can be adjusted.

When the **[OPEN]** button and **[CLOSE]** button on the front operating panel are pressed together or **[NORMAL]** is selected in **[IRIS]** on the wireless remote control, the current settings are reset to the default settings.

■ Manual Brightness Adjustment

(**[Iris]** is set to **[Manual]** on the OSD.)

It is set so that the brightness can be locked to any level.



The default setting is **[Auto]** (Auto Brightness Adjustment).



In the Manual Brightness Adjustment, the brightness is locked and the change in the object brightness is not tracked.



When **[Guide]** is set to **[ON]** on the OSD, the setting contents are displayed on the screen.

State Presetting

The setting position of this product can be saved/called. Up to 6 positions can be saved. The presets that can be saved are as follows:

- Current zoom field angle
- Iris state
- White Balance state
- Edge Effect settings
- Gamma value settings
- Lighting ON/OFF
- Color/B&W selection settings
- Image Rotation state
- Text mode settings
- Posi/Nega settings



The saved state can be retained even if the power supply is turned OFF.



Rotated position cannot be saved to "Power On" setting. (Memory No.6 on remote control)

Wireless remote control



■ Presetting

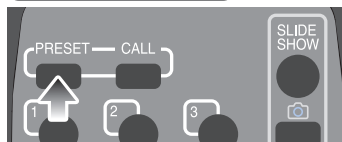
When the **[PRESET]** button on the wireless remote control is pressed and then the memory No. button on the wireless remote control is pressed within "approx. 4 seconds" or alternatively [Preset] is set to [Memory No.] on the OSD, the operation state of the current unit is saved in the specified memory No.

When the **[PRESET]** button on the wireless remote control is pressed and then **[6]** of the memory No. on the wireless remote control is pressed or alternatively [Preset] is set to [Power On] on the OSD and saved, such settings are called when the power supply is turned ON the next time.

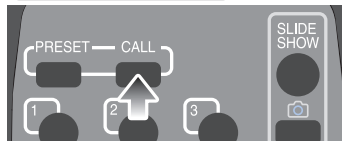
■ Calling

When the **[CALL]** button on the wireless remote control is pressed and then the memory No. button on the wireless remote control is pressed within "approx. 4 seconds" or alternatively [Call] is set to [Memory No.] on the OSD, the settings are set to those of the selected No. When [Call] is set to [Default] on the OSD, the settings are reset to the factory settings.

Wireless remote control

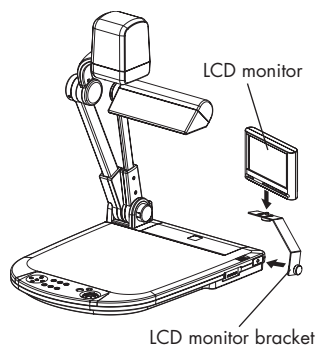


Wireless remote control



Mounting the LCD Optional Monitor

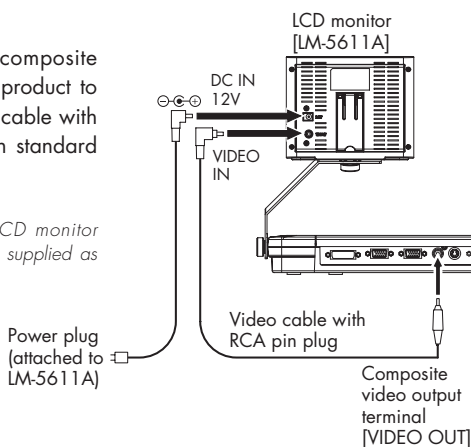
To mount the LCD monitor (LM-5611A) on option, the LCD monitor bracket (MS-30) is required.



As show in the right figure, connect the composite video output terminal [VIDEO OUT] of this product to the LCD monitor (LM-5611A) with the video cable with RCA pin plug (supplied as an accessory on standard or available in the market).



The LCD monitor (LM-5611A) and the LCD monitor bracket (MS-30) are options, which are not supplied as an accessory on standard with this product.



6 RS-232C SPECIFICATIONS

This product can be controlled from a PC connected to this product through the RS-232C terminal [RS-232C].

Setting Up

- ① Connect this product to a PC with an RS-232C cable.



When using an RS-232C cable available on the market, make sure that pin connections are the same as below.



To protect this product and the PC, be sure to turn OFF the power supply to all units before starting the connection work.

- ② Start the PC, and set the communication mode of the RS-232C to the communication mode of this product.



For the information how to set the communication mode of the RS-232C, refer to the instruction manual of the PC.

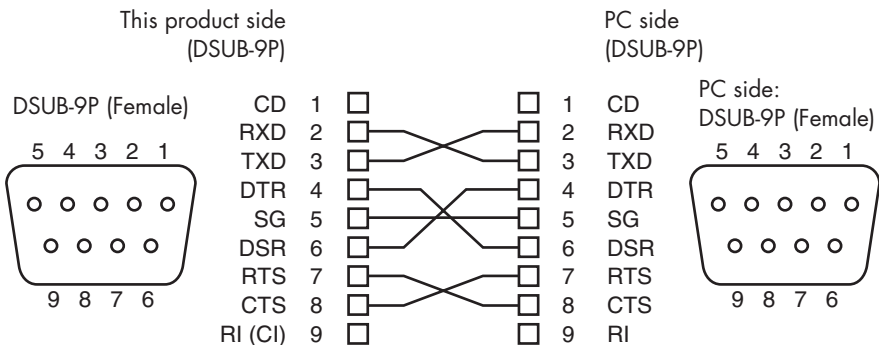
- ③ Start the PC program to operate this product.

- ④ Control through the RS-232C will start.



For communication control, be sure to take the above steps for settings.

Cable Connection



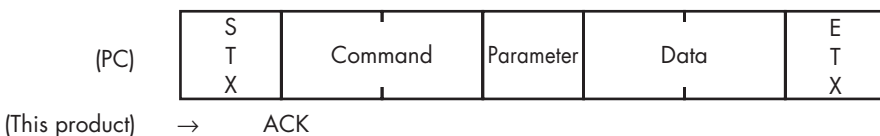
Data Format Specification

This command is executed in the form of 1-command/1-packet. The next command is not accepted until the previous processing is completed.

- The communication command always starts with STX (Start of Text), and ends with ETX (End of Text).
- If the communication format of command name is wrong, NAK (Negative Acknowledge) will be sent from this product as a result of failing to receive correctly.
- When communication format is received correctly, this product sends ACK (Normal Acknowledge).

■ Operation Command (PC → This product)

Each operation command is executed in ASCII code, and transmitted in a set of 7 bytes as follows:



■ Response Data Format (This product → PC)

All response data is transmitted as ASCII code, corresponding to the parameters in the operation command table.

- Status 0

S T X	Lighting ON/OFF	Input selection	Posi/ Nega	Color/ B&W	Camera mode /SD mode	Display	Pause	Local lockout	E T X
-------------	--------------------	--------------------	---------------	---------------	----------------------------	---------	-------	------------------	-------------

- Status 2

S T X	Iris mode	Gamma selection	Image rotation	Edge effect	White balance	Text	Monitor output	USB mode	E T X
-------------	--------------	--------------------	-------------------	----------------	------------------	------	-------------------	-------------	-------------

AUTO:31H
MANUAL:32H

- ROM Ver0 (SUB)

S T X	V 56H	H 48H	L 4CH	* * H	* * H	* * H	E T X
-------------	----------	----------	----------	-------	-------	-------	-------------

ROM Ver.1

- ROM Ver1 (MAIN) . . . Upper 6 bytes

S T X	* * H	* * H	* * H	* * H	* * H	* * H	E T X
-------------	-------	-------	-------	-------	-------	-------	-------------

- ROM Ver 2 (MAIN) . . . Lower 4 bytes

S T X	* * H	* * H	* * H	* * H	20H	20H	E T X
-------------	-------	-------	-------	-------	-----	-----	-------------

Transmission Specifications

- Full duplex start-stop sync. mode
- Start bit : 1 bit
- Data bit : 8 bits
- Stop bit : 1 bit
- Parity bit : None
- X parameter : None
- Baud rate (Communication speed) : 9600bps

UART Communication Format

Commands, parameters and data are all transmitted in ASCII code.

Function	Command	Parameter	Data	Contents
Auto Focus	AF	0	■■	To perform the one-shot auto focus
Focus adjustment	FO	+ (Near)	■■	To adjust the focus
		- (Far)		
		0 (Stop)		
Zoom adjustment	ZO	+ (Tele)	■■	To adjust the zoom
		- (Wide)		
		0 (Stop)		
Iris adjustment	IR	+ (Open)	■■	To adjust the iris
		- (Close)		
		0 (Stop)		
		1 (Auto)		
		2 (Manual)		
Lighting selection	PL	0 (OFF)	■■	To turn ON/OFF the lighting
		1 (ON)		
Display mode selection	AV	0 (Camera)	■■	To switch the display mode
		1 (RGB IN)		
		2 (SD)		
Video output selection	MO	0 (All Mode)	■■	To switch the video output
		1 (Camera & SD)		
Direction	KE	0 (Menu)	■■	To scroll in the direction indicated by arrow when the digital zoom is in operation To select and determine an image on the split screen
		1 (Enter)		
		2 (→)		
		3 (←)		
		4 (↑)		
		5 (↓)		
Pause	FZ	0 (OFF)	■■	To freeze the image
		1 (ON)		
Guide	GU	0 (OFF)	■■	To set whether the main unit operation state should be displayed on the screen or not
		1 (ON)		
Display	DP	0 (Single)	■■	To select whether the images in the SD card mode should be displayed on the split screen or not
		1 (3×3)		
		2 (4×4)		
Slide show	SS	0 (Stop)	■■	To start/stop the slide show
		1 (Start)		
Electronic zoom-in	DZ	0	■■	To zoom in electronically

Function	Command	Parameter	Data	Contents
Slide-show image feed effect	SE	0 (All)	■■	To set the visual effect of the slide show
		1 (Random)		
		2 (Top down)		
		3 (Left to right)		
		4 (Bottom up)		
		5 (Right to left)		
		6 (LT to RB)		
		7 (RT to LB)		
		8 (RB to LT)		
		9 (LB to RT)		
		A (Random block)		
		B (Fade in/out)		
		C (Overlap)		
		D (Shutter)		
		E (Door)		
		F (Stripe)		
		G (BW to color)		
		H (Clolor to sepia)		
		I (Joint V)		
		J (Joint H)		
		K (None)		
Slide-show object file	ST	0 (All)	■■	To select whether the object of the slide show should be all images in the SD card, only the locked image file or a file in the list file
		1 (Locked)		
		2 (List)		
Slide-show feed order	SO	0 (FWD)	■■	To set whether the slide show should be proceeded in the ascending order or in the descending order
		1 (BWD)		
Slide-show image feed interval	SI	0 (3s)	■■	To set the interval of the image switching in the slide show
		1 (5s)		
		2 (10s)		
		3 (15s)		
		4 (30s)		
Slide-show repeat	SR	0 (OFF)	■■	To proceed the slide show repeatedly
		1 (ON)		
File delete	DE	0 (Current)	■■	To delete an image file in the SD card
		1 (All)		
File lock	SL	0 (Current)	■■	To lock an image file in the SD card
		1 (All)		
File unlock	SU	0 (Current)	■■	To unlock the locked image file in the SD card
		1 (All)		
Format	SF	0	■■	To format the SD card
Image save	CA	0	■■	To save the image in the SD card
USB mode	UM	0 (Mass Storage)	■■	To switch the USB mode
		1 (Application)		
Gamma setting	GM	0 ($\gamma = 0.63$)	■■	To set the gamma value of the image
		1 ($\gamma = 0.56$)		
		2 ($\gamma = 0.50$)		
		3 ($\gamma = 0.45$)		
		4 ($\gamma = 0.42$)		
		5 ($\gamma = 0.38$)		
		6 ($\gamma = 0.36$)		
		7 ($\gamma = 0.33$)		

Function	Command	Parameter	Data	Contents
Image rotation	RO	0 (0°)	■■	To turn the image
		1 (180°)		
Edge effect	AP	0 (OFF)	■■	To set the edge enhancement
		1 (Low)		
		2 (Mid)		
		3 (High)		
White balance	AW	0 (Manual)	■■	To switch the white balance mode
		1 (Auto)		
		2 (One Push)		
		3 (R_Up)		
		4 (R_Down)		
		5 (B_Up)		
Text	CT	0 (OFF)	■■	To set the contrast
		1 (ON)		
Posi/Nega	NP	0 (Posi)	■■	To set the Posi/Nega
		1 (Nega)		
Color/B&W	CB	0 (Color)	■■	To set the Color/B&W
		1 (B&W)		
Local lockout	LL	0 (OFF)	■■	To invalidate the operation of the front operating panel and wireless remote control
		1 (ON)		
Default	DF	0	■■	To reset to the default settings
Status request	QS	0	■■	To inquire about the unit state
		2		
ROM version	QR	0	■■	To inquire about the ROM version
		1		
		2		
ACK check	SA	0 (OFF)	■■	To switch the ACK check mode
		1 (ON)		
CR addition	SC	0 (OFF)	■■	To switch the CR addition settings
		1 (ON)		



For "■■" in the data column, transmit the SPACE [20H] twice.

About Connection

If the RS-232C cable is not connected correctly between this product and the PC, no acknowledgement is transmitted.

Connect the RS-232C cable correctly, and fix it firmly with the connector set screws before starting the operation.

7 TROUBLESHOOTING

Symptoms and Confirmation

Check the following items. If any abnormality is found, consult the seller from whom you have purchased this product or our branch/office near your location.

Symptom	Check this item
No image is displayed on the TV monitor.	- The cable is not connected correctly to the video-in terminal of the monitor. - The power cord is disconnected from the wall AC outlet. - The plug is disconnected from the power cord receptacle of this presenter. - The power switch is not ON. - Zoom is set at the TELE side, displaying only the white/black part of the document. - The power switch is turned ON immediately after it is turned OFF. In this case, this product may not start immediately. Wait for several seconds after turning OFF the power switch, and then turn it ON.
The image is out of focus.	- The document (object) is too close to the lens. - Zoom is at the TELE side after focusing at a wide angle (at the WIDE side). Focus on the point of max. at the TELE side. - In the auto focus, focusing is difficult in some cases.
The lamp does not light up quickly.	For the protection purpose, the lamp is arranged to light up after preheating for 2 seconds. This is not a fault.
The video output image is disarrayed.	The video output is set to the PAL system. If this product, set to the PAL system, is connected to the monitor specially designed for the NTSC system, the video image may not be outputted normally but be disarrayed or in black and white. In such case, switch the system of the video output by referring to "DIP Switch" at P. 65.
The image is too dark.	- The intensity of the lighting is not sufficient. Press the  button on the front operating panel or wireless remote control to turn ON the lamp. - The iris is adjusted to the CLOSE side. Adjust the iris to the OPEN side.
The image is striped.	- This may be interference fringes between dots of printed matter and TV scanning lines or CCD pixels. This may be mitigated by changing the projection range. - When using an LCD projector, vertical stripes may appear on the screen. This may be mitigated by manually adjusting the dot clock frequency on the projector side.
The brightness tone is out of order.	This may be mitigated by switching gamma settings.

Replacement of Lighting Lamp (Fluorescent Lamp)

The lighting lamps (fluorescent lamps) are expendables. When any of them begins to shimmer or dim, replace it.



For the replacement of the lamp, consult the dealer from whom you have purchased this product or our branch/office near your location.

8 SPECIFICATIONS

■ General

Item	Specifications		
Power source	12VDC (AC adapter: 100 ~ 240VAC)		
Power consumption	30W (AC adapter included)		
Outside dimensions	377×482×180mm (14.8×19.0×7.1 in) (When folded)		
	377×482×582mm (14.8×19.0×22.9in) (When set up)		
Weight	Approx. 4.7kg (10.4 lbs) (Main body only)		
Input selection	Main body/External one system		
Output terminal	DVI output	DVI-D 24P connector, female	×1
	RGB output	Mini DSUB 15P connector, female	×1
	Composite video output	RCA pin jack/750Ω unbalanced (NTSC/PAL)	×1
	S-video output	Mini DIN 4P connector/750Ω unbalanced (NTSC/PAL)	×1
Input terminal	RGB input	Mini DSUB 15P connector, female	×1
Ext. control terminal	RS-232C	Dsub 9P connector, male	×1
	USB (2.0 compliant)	Type B receptacle	×1
Memory interface	SD card slot		

■ Main Camera

Item	Specifications	
Lens	f = 4.7 ~ 75.2mm (16-time zoom), F2.8	
Shooting speed	20 frames/sec	
Shooting area	405×303mm (15.9×11.9 in) max. 29×22mm (1.1×0.9 in) min.	
Limit of focus adjustment	With close-up lens: TELE side : 305 ~ 405mm (12.0 ~ 15.9 in) from close-up lens WIDE side : 50 ~ 405 mm (2.0 ~ 15.9 in) from close-up lens Without close-up lens: TELE side : 500mm ~ ∞ (19.7 in ~ ∞) from zoom lens WIDE side : 50mm ~ ∞ (2.0 in ~ ∞) from zoom lens	
Optical zoom	16×	
Digital zoom	8×	
Focus	Auto/Manual	
Iris	Auto (Level adjustable)/Manual	
Image pick-up element	1/3" CCD	
Total picture elements	Horizontal 1077, Vertical 788 ... Approx. 850,000 pixels	
Effective picture elements	Horizontal 1034, Vertical 779	
Synchronized signal	Internal	
Resolution	Analog RGB output: Horizontal 600TV lines or more Vertical 600TV lines or more Video output: Horizontal 450TV lines or more	
DVI output	TMDS data signal 0.5 (Vp-p) 50Ω (Terminated)	XGA: Horizontal frequency 48.363kHz; Vertical frequency 60.004Hz (1024×768 at 60Hz); Compliant with VESA
Analog RGB output	0.7 (Vp-p) 75Ω unbalanced, Synchronized signal: Negative polarity	
Composite video output	Compliant with NTSC/PAL	
S-video output	Compliant with NTSC/PAL	
White balance	Full auto/One-push/Manual	
Video output selection	Provided (NTSC/PAL)	
Posi/Nega conversion	Provided	
Color/B&W selection	Provided	
Image rotation	Provided (0°/180°)	
Text mode	Provided	
Gamma setting	Provided	
Edge enhancement	Provided	
Pause	Provided	
Image recording	Provided (SD card)	
Split display	Provided (SD card image, 9-splits, 16-splits)	
Electronic image enlargement	Provided (2×, 4×, Scroll)	
Slide show	Provided (SD card image)	

■ Lighting

Item	Specifications
Lighting	High frequency lighting mode, twin fluorescent lamp, Type 9 (Model: FPL9EX-N)

■ Supplied Accessories

Name	Quantity
Power adapter	1
Power cord (1.5m)	1
Video cable (RCA pin connector) (3m)	1
S-video cable (Mini DIN 4P connector) (2m)	1
Analog RGB cable (DSUB 15P connector) (2m)	1
Infrared wireless remote control	1
Batteries (Type R03, AAA)	2
Instruction Manual for P10S	1
Warranty Card for P10S	1
USB cable (1.8m)	1
Utility Software Installation Manual	1
Utility Software CD-ROM	1

■ Options

- 5.6" TFT LCD color monitor kit (LM-5611A)
- LCD monitor bracket (MS-30)



For the RCA pin, use a pin plug compliant with EIAJ RC-6703.



The above specifications are subject to change without notice.

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