



Operating Instructions

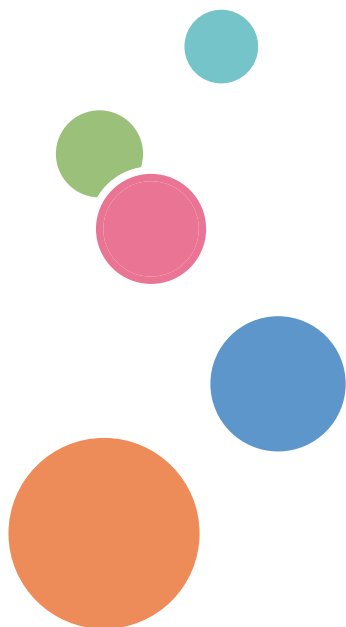


TABLE OF CONTENTS

Disclaimer.....	3
1. Using the Remote Control	
Names and Functions of the Remote Control Buttons.....	5
Installing the batteries into the remote control.....	7
Removing the batteries from the remote control.....	9
Remote Control Usage Tips.....	10
2. Connection	
Connecting Audio/Video Signals.....	11
Connecting the VGA Input.....	11
Connecting the Digital Inputs.....	12
Connecting External Speakers.....	13
Connecting Multiple Displays.....	14
Connecting with a USB Cable.....	15
3. Using the Touch Screen	
Important Instructions for Using the Touch Screen.....	17
4. The On-Screen Display Menu	
The On-Screen Display Menu Overview.....	19
Operations in the On-Screen Display Menu.....	21
Using the Control Panel Buttons.....	21
Using the Remote Control.....	22
Picture Menu.....	25
Sound Menu.....	27
Screen Menu.....	29
PAP Setting (Picture and Picture).....	29
Aspect.....	30
Adjust Screen.....	31
Touch Feature.....	32
Setting Menu.....	33
Language.....	33
Power Save.....	33
Control Setting.....	33
Touch Control Setting.....	34
Set Monitor ID.....	34

Advanced.....	34
Information.....	35
All Reset.....	35
5. Product Information	
Specifications.....	37
List of Video Input Signals Supported by the Machine.....	41
List of PAP Input Signal Combination Supported by the Machine.....	43
List of the Functions and Commands Controlled by the RS-232C Terminal.....	44
Set and Get Commands Table.....	45
Output Signals.....	47
6. Troubleshooting	
Troubleshooting.....	49
7. Appendix	
Trademarks.....	53

Disclaimer

To the maximum extent permitted by applicable laws, in no event will the manufacturer be liable for any damages whatsoever arising out of failures of this machine, losses of the registered data, or the use of this product and operation manuals provided with it.

Make sure that you always copy or have backups of the data registered in this machine.

Documents or data might be erased due to your operational errors or malfunctions of the machine.



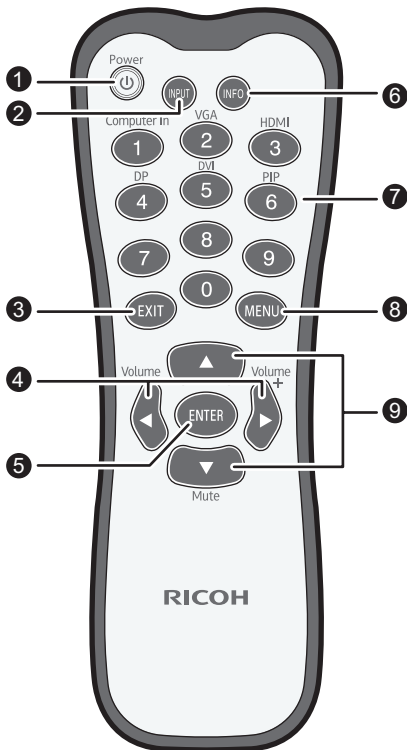
1. Using the Remote Control

This chapter explains how to use the remote control.

Names and Functions of the Remote Control Buttons

★ Important

- Do not put the remote control in the direct heat, humidity, and avoid fire.
- Do not drop the remote control, as doing so may cause the remote control to malfunction.
- Confirm there is no object between the remote control and the remote control sensor of the product.
- When the remote control will not be used for an extended period, remove the batteries.



DTW201

1. [Power]

Turns the machine on or off.

2. [INPUT]

Selects an input source.

3. [EXIT]

Returns to the previous menu or closes the On-Screen Display menu when the On-Screen Display menu is on.

4. [◀]/[Volume-]/[▶]/[Volume+]

- Scrolls through settings and options in the On-Screen Display menu.
- Turns down/up the volume.

5. [ENTER]

Confirms your selection or save changes.

6. [INFO]

Shows the current input source and resolution.

7. Input source buttons/[PIP]

- Numeric buttons perform as input source buttons.
- Numeric button (6) turns on or off the PIP function.

↓ Note

- The [Computer In] is only available if the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display.

8. [MENU]

Opens or closes the On-Screen Display menu.

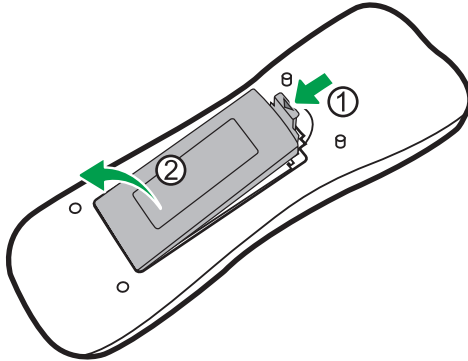
9. [▲]/[▼]/[Mute]

- Scrolls through settings and options in the On-Screen Display menu when the On-Screen Display menu is on.
- Turns on or off the mute function. Used to temporarily disable audio input on the machine.

Installing the batteries into the remote control

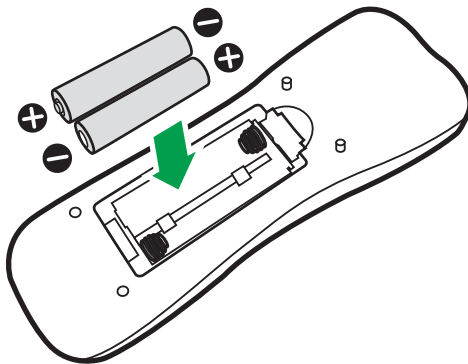
- When batteries fail to function, replace them immediately.
- There may be local restrictions on the disposal or recycling of batteries. Consult your local regulations or waste disposal provider.

1. Open the remote control battery cover.

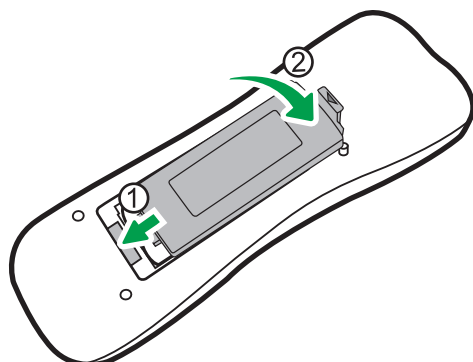


2. Insert the supplied batteries ensuring that the positive and negative marked battery terminals match the (+) and (-) marks in the battery compartment.

You should replace the supplied batteries as soon as possible.

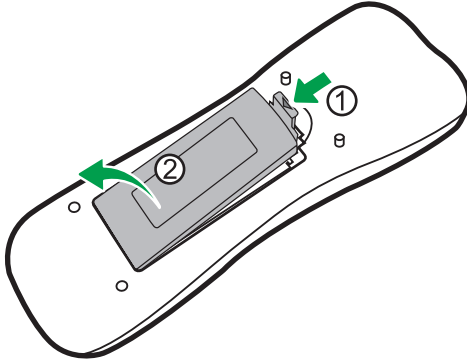


3. Refit the battery cover.

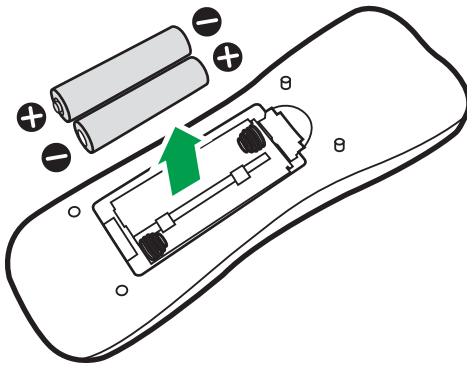


Removing the batteries from the remote control

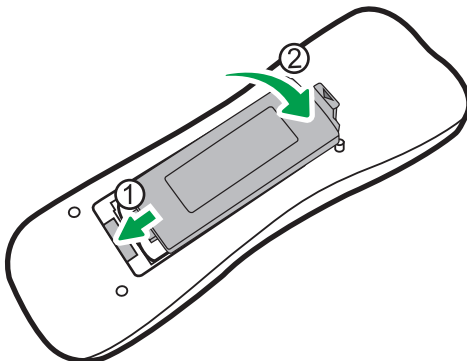
1. Open the remote control battery cover.



2. Remove the batteries.

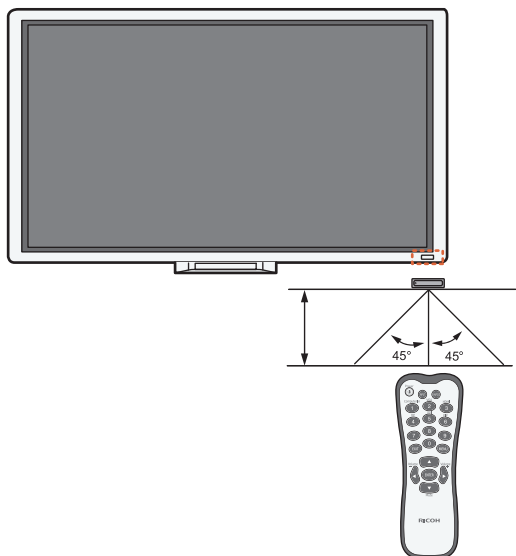


3. Refit the battery cover.



Remote Control Usage Tips

- Point and aim the top front of the remote control directly at the display's remote control sensor window when you press the buttons. The maximum distance for the remote control to operate properly is 7 meters (approx. 22.9 feet) from the top front of the remote control to the remote control sensor window of the display.
- Do not let the remote control become wet or place it in humid environments (like bathrooms).
- If the display's remote control sensor window is exposed to direct sunlight or strong light, the remote control may not operate properly. In this situation, change the light source, readjust the angle of the display or operate the remote control from a location closer to display's remote control sensor window.
- The remote control sensor indicates the power status of the machine. It lights up blue when the power is turned on and flashes blue when the machine is turned off.



DTW202

2. Connection

This chapter explains how to connect cables.

Connecting Audio/Video Signals

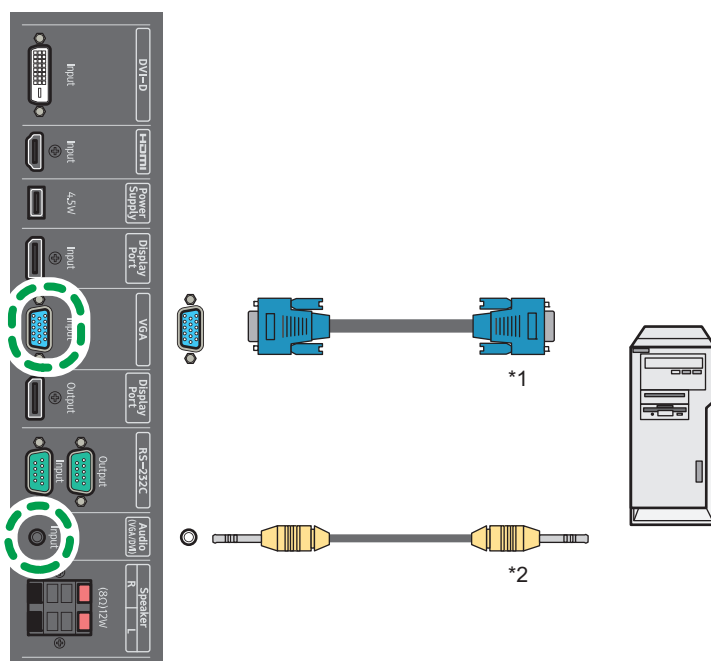
Pay attention to the following notes when you connect cables:

- Please turn off all devices.
- Familiarize yourself with the audio/video ports on the machine and the devices you want to use. Be aware that incorrect connections may adversely affect picture quality or result in the picture not being displayed.
- Do not remove cables from the ports by pulling the cable itself. Always grasp and pull the connectors at the end of the cable.
- Ensure that all cables are fully inserted and firmly seated.

Connecting the VGA Input

1. Connect the VGA Input jack on the display to the VGA output jack on a computer using a D-Sub (15-pin) cable.
2. Connect the computer's audio output jack to the Audio Input (VGA/DVI) jack on the machine using a suitable audio cable.

3. To view images from this input, press the VGA button on the remote control. To select an appropriate audio source, see page 27 "Sound Menu" for details.



DTW203

*1 D-Sub (15-pin) cable

*2 Audio cable

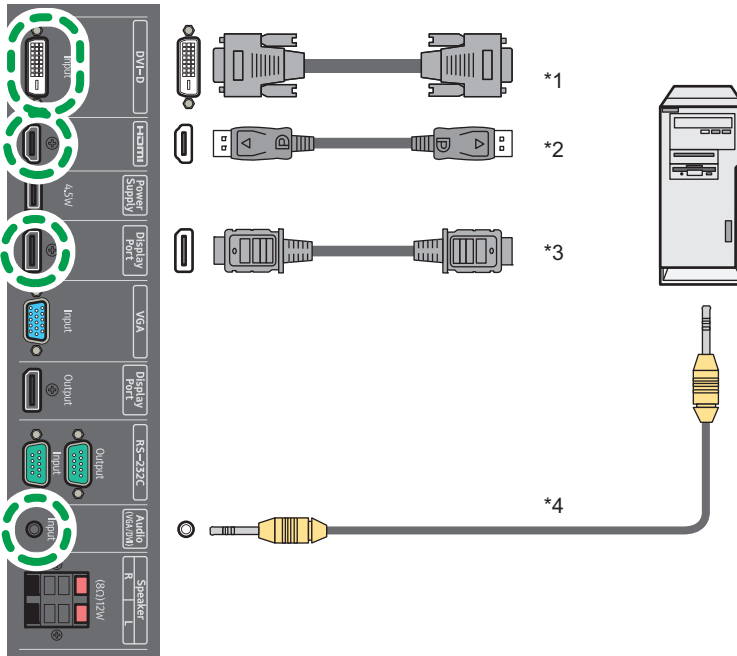
↓ Note

- The audio cable is not supplied and should be purchased separately.

Connecting the Digital Inputs

1. Connect the HDMI output jack of a computer or A/V device (such as a VCR or DVD player) to the HDMI Input jack on the machine using an HDMI cable. If the device has a DisplayPort output jack, connect it to the DisplayPort Input jack on the machine using a DisplayPort cable.
If the device has a DVI-D output jack, connect it to the DVI-D Input jack on the machine using a DVI cable.
2. If the DVI-D connection is used, connect the audio output jack of the device to the Audio Input (VGA/DVI) jack on the machine using a suitable audio cable. This audio connection is not required for the HDMI or DisplayPort connection.

3. To view video image from this input, press the HDMI, DP, or DVI button on the remote control. To select an appropriate audio source, see page 27 "Sound Menu" for details.



DTW204

- * 1 DVI cable
- * 2 HDMI cable
- * 3 DisplayPort cable
- * 4 Audio cable

↓ Note

- The cables other than HDMI cable are not supplied and should be purchased separately.

Connecting External Speakers

The built-in amplifier on the machine allows you to output audio signals through external speakers. Connect external speakers to the Speaker R(8Ω) 12W/Speaker L(8Ω) 12W jacks on the machine.

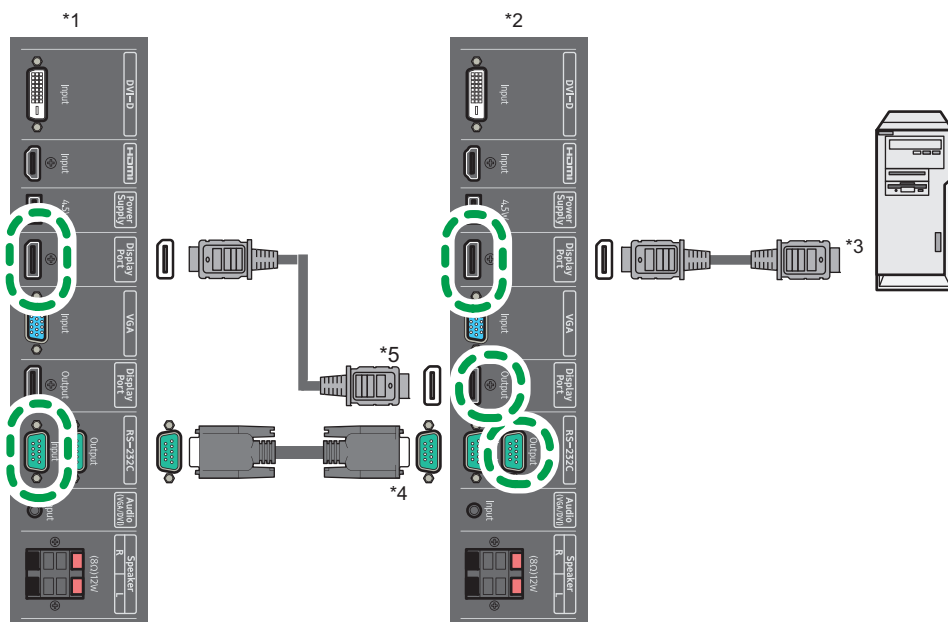


↓ Note

- When connecting external speakers, use speakers that support 8Ω output.
- You can use the remote control or the control panel on the machine to adjust the volume.
- When using external speakers, set Speaker in the Sound menu to External.

Connecting Multiple Displays

You can connect multiple displays serially (daisy chain) to a computer for management. The number of displays you can connect serially depends on the resolution of the input signal you use.



- *1 Additional display
- *2 The first display
- *3 DisplayPort cable
- *4 RS-232C cable
- *5 DisplayPort cable

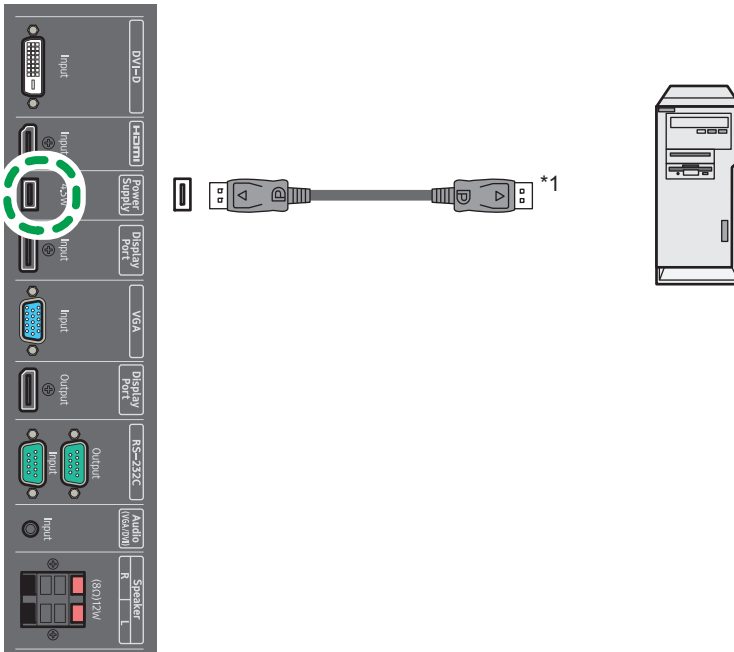
↓ Note

- The RS-232C cable and DisplayPort cable are not supplied and should be purchased separately.
- This RS-232C daisy chain application requires an RS-232C port equipped computer.
- Use RS-232C serial cross cables for daisy chain application.
- The video signals input to the **DisplayPort Input** jack of the additional display are output from the **DisplayPort Output** jack of the first display.

2

Connecting with a USB Cable

Connect the machine and an external device with a USB cable to supply power to the device.



DTW216

*1 USB cable

Note

- This machine has four types of USB ports to connect external devices. For details about the name and description of each USB port, see “Input/Output Terminals”, Read This First.
- For details about how to connect to the USB port located on the control panel, see “Connection”, Read This First.

3. Using the Touch Screen

When the USB Type-B For Touch jack of the machine is connected to the USB port of a computer using the supplied USB cable, you can operate the Windows PC or Mac, just as you would with a mouse, using touch operations with your finger.

For supported operating systems, see page 37 "Specifications".

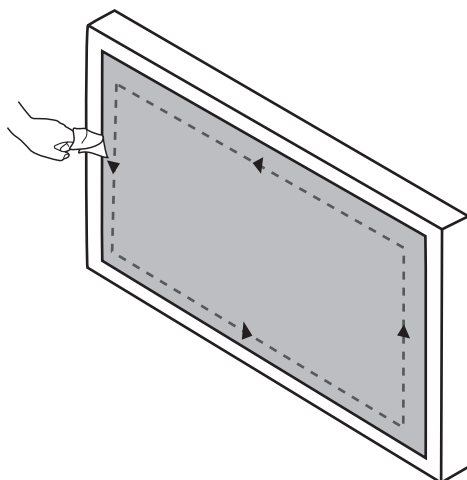
Important Instructions for Using the Touch Screen

3

- To use the touch operations, connect the USB port (USB Type-B For Touch) on the right side of the machine to the USB port of the computer using the supplied USB cable.
- Depending on the operating system, multi-point touch operations may also be supported in addition to single-point touch operations.
- For details on multi-point touch operations, see the Windows PC's operating manual and other similar documents.
- Touch operation behavior may differ depending on the application. See the application's operating manual.
- When a controller designed compliant with OPS (Open Pluggable Specification) standard is connected to the machine, the USB port (USB Type-B For Touch) on the right side of the machine is disabled. The touch screen functions are controlled by the connected controller. When using the touch screen function on a PC connected to the USB Type-B For Touch port on the right side of the machine while a controller is connected, set the Touch Control Setting in the Setting menu to USB.

For details on touch operations when a controller is connected, see the controller's operating manual.

- When the machine and another monitor are connected to the Windows PC at the same time, the touch entry signals may become mixed up. (For example, the cursor on the other monitor may move when the touch screen of the machine is touched.)
 - With the machine connected to the Windows PC, set up "Tablet PC Settings" for Windows.
- Please clean the frame when there is sign of malfunction on the touch screen.
 - Before you clean the screen, make sure the machine is turned off, and unplug the power cord.
 - Remove dust and dirt on the screen and inside the bezel periodically. Use a clean and soft cloth for cleaning.
 - To avoid damage to the screen, never use any type of abrasive materials to wipe the screen.



- Do not spray a detergent on the screen surface or the body directly. It may result in a short circuit to the touch screen.
- Keep the touch screen out of direct sunlight or spotlights.

4. The On-Screen Display Menu

This chapter explains how to use the On-Screen Display menu and describes the menu items on it.

The On-Screen Display Menu Overview

Menu name	Options/functions	See page
Picture	• Picture Mode • Backlight • Contrast • Brightness • Chroma • Phase • Sharpness • Color Temp. • Reset	page 25 "Picture Menu"
Sound	• Sound Mode • Treble • Bass • Balance • Volume • Mute • Speaker • Audio Source • Reset	page 27 "Sound Menu"
Screen	• PAP Setting • Aspect • Adjust Screen • Touch Feature	page 29 "Screen Menu"

Menu name	Options/functions	See page
Setting	• Language • Power Save • Control Setting • Touch Control Setting • Set Monitor ID • Advanced • Information • All Reset	page 33 "Setting Menu"

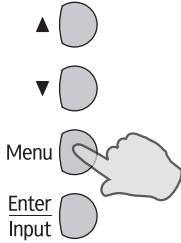
 Note

- Some options are only available when a certain input signal source is selected.

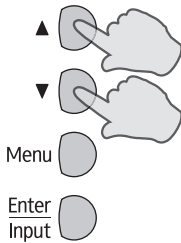
Operations in the On-Screen Display Menu

Using the Control Panel Buttons

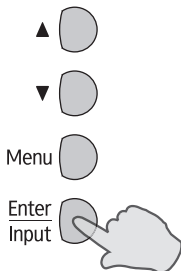
1. Press [Menu] to open the On-Screen Display menu.



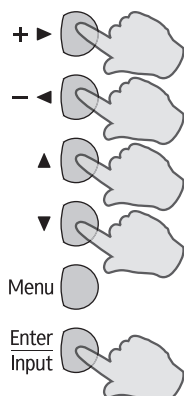
2. Press [▲] or [▼] to select an item.



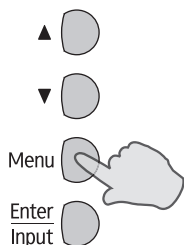
3. Press [Enter/Input] to confirm selections.



4. Press [▲] or [▼] to select a feature and press [◀] or [▶] to adjust settings. Press [Enter/ Input] to save changes.

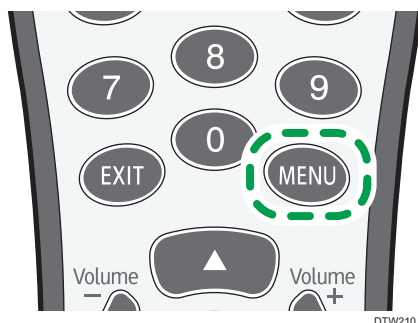


5. Press [Menu] to return to the previous item. Press [Menu] several times to return to the On-Screen Display menu, and press [Menu] again to close the On-Screen Display menu.

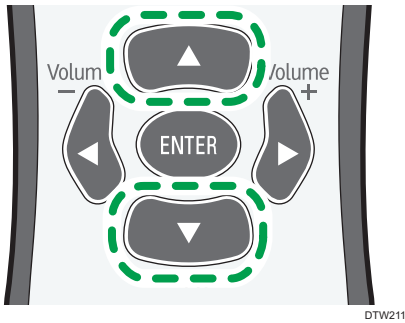


Using the Remote Control

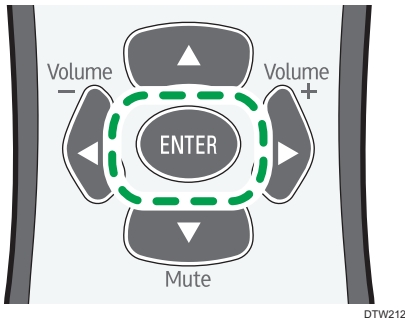
1. Press [Menu] to open the On-Screen Display menu.



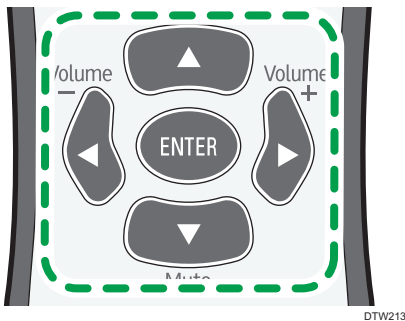
2. Press [▲] or [▼] to select an item.



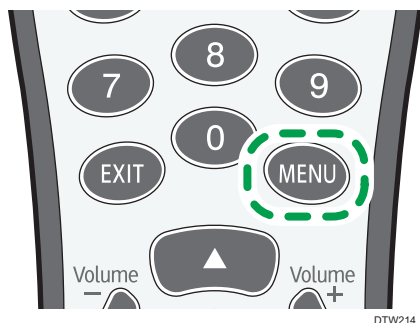
3. Press [Enter] to confirm selections.



4. Press [▲] or [▼] to select a feature and press [◀] or [▶] to adjust settings. Press [Enter] to save changes.

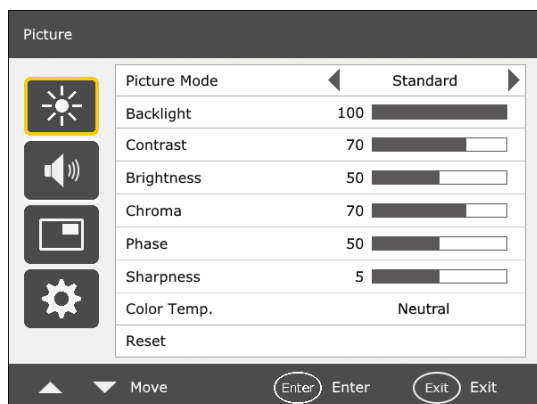


5. Press [Menu] to close the On-Screen Display menu.



DTW214

Picture Menu



4

Picture Mode

Sets the display mode.

- **Standard**
This is the standard setting.
- **Vivid**
Displays the image so it is brighter and more vivid.
- **Cinema**
Setting for viewing videos and movies.
- **Custom**
Sets a combination of Picture Modes.
- **Low Blue Light**
Reduces the amount of blue light, which is harmful to the eyes.

Backlight

Adjusts the backlight intensity for the screen.

This feature is not available if the Adaptive Contrast function is set to On.

Contrast

Adjusts the image contrast.

Brightness

Adjusts the image brightness.

Chroma

Adjusts the color intensity of the image.

Phase

Adjusts the image phase.

Sharpness

Adjusts the image sharpness.

Color Temp.

Adjusts the color temperature.

- Cool

Displays images in a bluish tone.

- Neutral

Displays images in a natural tone.

- Warm

Displays images in a reddish tone.

- Custom

The RGB values can each be adjusted.

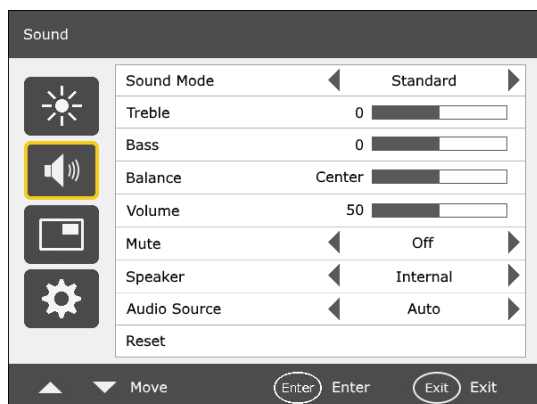
- Low Blue Light

Adjusts the tone to reduce the amount of blue light, which is harmful to the eyes.

Reset

Resets all settings in the Picture menu.

Sound Menu



4

Sound Mode

Adjusts the sound output from the speakers.

- Dynamic: Enhances treble and bass.
- Standard: Flat settings.
- Custom: Recalls the customized settings.

Treble

Adjusts the audio treble.

Bass

Adjusts the audio bass.

Balance

Adjusts the audio balance.

Volume

Turns down/up the volume.

Mute

Turns on or off the mute function.

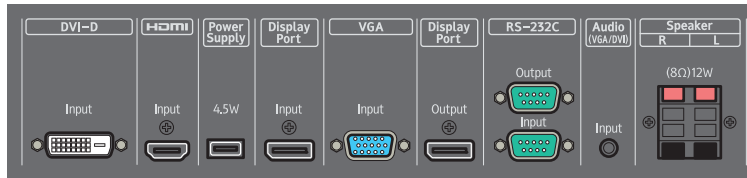
Speaker

Sets the audio source.

- Internal: Selects the audio output source from the internal speakers.
- External: Selects the audio output source from the external speakers.

Audio Source

Select either the audio from the source of the image currently displayed or the audio from Audio Input.

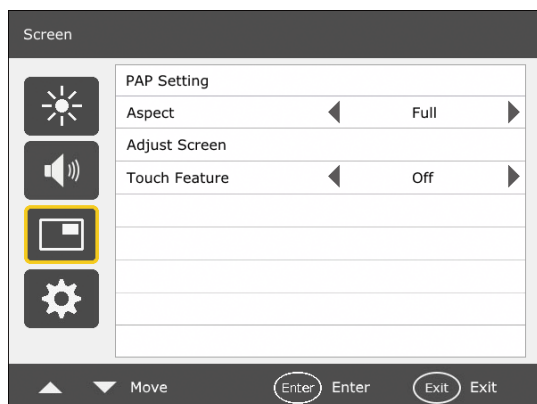


The Computer In is only available if the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display.

Reset

Resets all settings in the Sound menu.

Screen Menu



4

PAP Setting (Picture and Picture)

PAP

Turns on or off the PIP (Picture in Picture) and PBP (Picture by Picture) functions.

If the Touch Feature function is set to On, PIP will be disabled.

PAP Sub source

In PIP mode, selects the image source for the sub picture. In PBP mode, selects the image source for the right picture by default.

Swap

In PIP mode, swaps the main and sub pictures. In PBP mode, swaps the left and right pictures.

Picture Size

Changes the size of the sub picture.

	PIP mode Aspect Ratio (16:9)	
	Width	Height
Small	480	270
Large	864	486

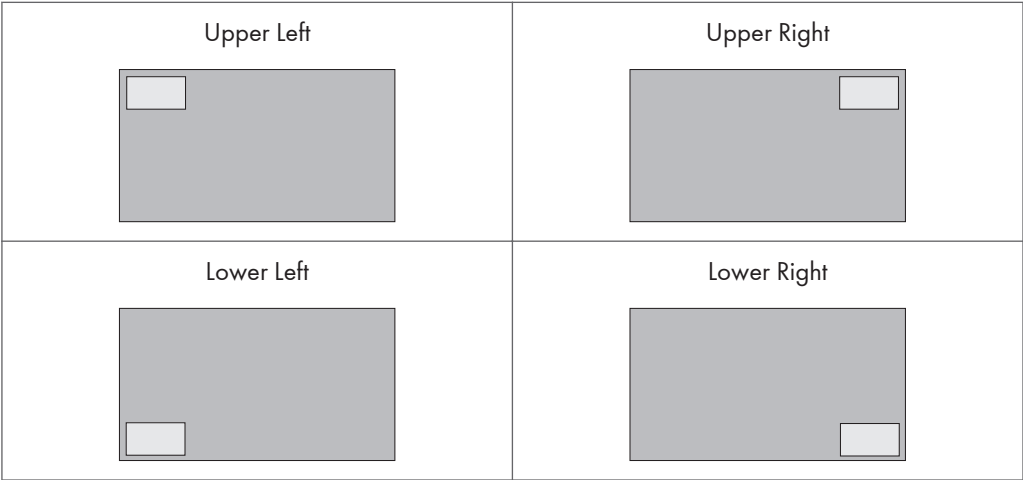
Unit: pixel

The aspect ratio of the sub picture is fixed as 16:9.

In PBP mode, the size of the sub picture cannot be changed.

Picture Position

Only in PIP mode, changes the position of the sub picture.



See page 43 "List of PAP Input Signal Combination Supported by the Machine" for more information on supported combinations.

When a controller designed compliant with OPS (Open Pluggable Specification) standard is connected to the machine, the PBP mode will be disabled.

Aspect

Sets the picture's aspect ratio.

Normal

Enlarges the picture to fill the screen in the vertical direction, keeping the same aspect ratio. A black frame may appear around the picture.

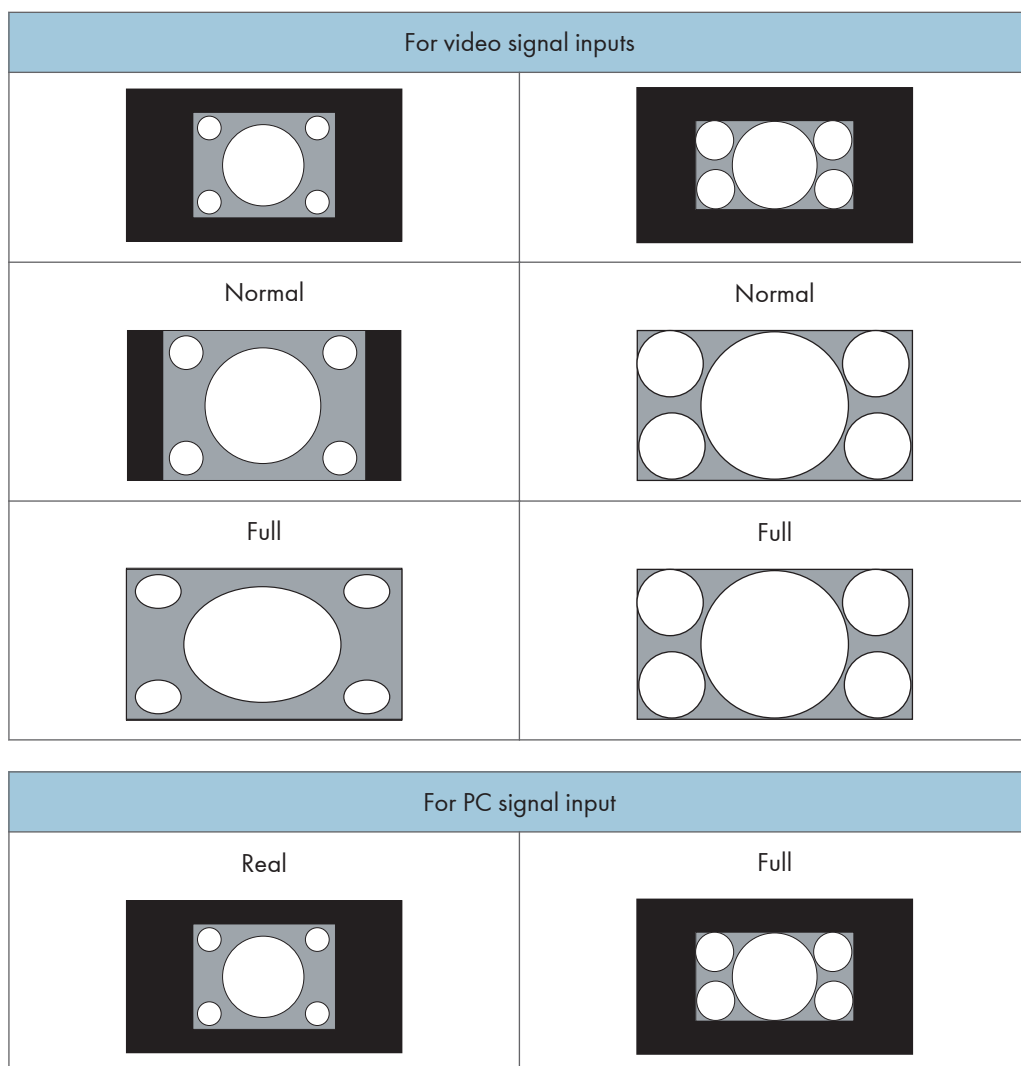
Full

Enlarges the picture horizontally to fill the screen when the picture source is 4:3 (Standard definition). When the picture source is 16:9 (High definition), it displays in the same 16:9 aspect ratio.

Real

Displays the picture in its original number of dots.

For video signal inputs	
4:3 original source	16:9 original source



Adjust Screen

Auto Adjustment

Automatically optimizes image display for the VGA input.

Phase

Adjusts the phase of the VGA input image.

Clock Frequency

Adjusts the clock frequency of the VGA input image.

H. Position

Adjusts the horizontal position of the VGA input image.

V. Position

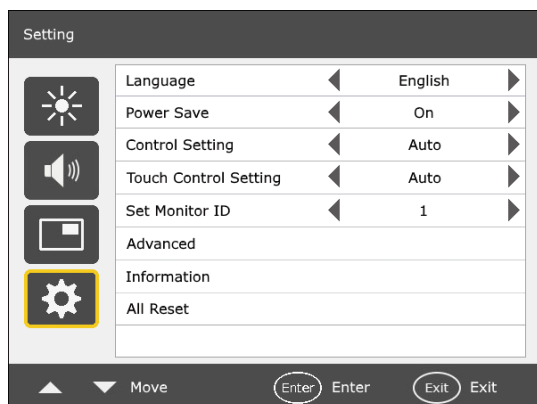
Adjusts the vertical position of the VGA input image.

Touch Feature

When turned On, Aspect, PBP, and Overscan will be disabled to optimize touch performance.

When the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display, Touch Feature is fixed to On.

Setting Menu



4

Language

Sets your preferred language for the On-Screen Display menu.

Power Save

Sets the machine to enter the power saving mode when there is no signal detected.

- On
All source can enter the power saving mode and wake up the display.
- Off
If no source is detected, the backlight will continue on.

When the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display, Power Save is fixed to On.

Control Setting

Auto

If the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display, sets the OPS controller to control the machine. If not, sets RS-232C terminal to control the machine.

RS-232C

Sets RS-232C terminal to control the machine.

Computer In

Sets the OPS (Open Pluggable Specification) controller to control the machine.

The Computer In is only available if the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display.

For details about signals controlled by the RS-232C port, see page 44 "List of the Functions and Commands Controlled by the RS-232C Terminal".

Touch Control Setting

Auto

If the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display, sets the OPS controller to control the touch feature. If an OPS controller is not connected or if the video input source is switched to external input, sets the PC connected to USB Type-B For Touch port to control the touch feature.

USB

Sets the PC connected to USB Type-B For Touch port to control the touch feature.

Computer In

Sets OPS (Open Pluggable Specification) controller to control the touch feature.

The Computer In is only available if the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display.

When Auto is set and the video input source is switched, the device connected to the USB hub of the machine may not be recognized. In that case, connect the USB device again, pair the Bluetooth devices again, or turn the machine on and off.

Set Monitor ID

Assigns an ID number for the current machine when multiple displays are connected.

For use when under the RS-232C control mode.

Advanced

Auto Search

If turned On, the display automatically detects available input sources.

When the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display, Auto Search is fixed to On.

Auto Adjustment

Sets whether to optimize image display for each VGA input.

Overscan

Changes the display area of the image. When this function is enabled, 96% of the original size of the image will be displayed, and the rest of the areas surrounding the image will be cut off.

- On
Enables the Overscan function for Video timing.
- Off
Disables the Overscan function.

The Overscan function will become unavailable (grayed out) when:

- The Touch Feature function in the Screen menu is turned on, or
- The PAP function in the Screen menu is turned on.

OSD Info Box

When turned On, switching signal inputs, or changing timing, the display will show the current input source and resolution on-screen. Select Off to show the information box on-screen only when you press [INFO] on the remote control.

Adaptive Contrast

Turns the Adaptive Contrast function on or off. This feature enhances image contrast for dark scenes.

DisplayPort

Set to DP1.1 when connecting a DisplayPort standard version 1.1 device to the DisplayPort Input jack. When connecting a DisplayPort standard version 1.2 device, select DP1.2.

Information

Displays the following information of your machine.

- Model Name
- Operation Time
- Software Version

All Reset

Returns all settings to factory default values.

5. Product Information

This chapter explains the machine specifications and input and output signals the machine supports.

Specifications

Item		Specifications
LCD panel RICOH Interactive Whiteboard D6510	Backlight	LED
	Panel size	65"
	Pixel pitch (mm)	0.744 × 0.744
	Native resolution (pixels)	1920 × 1080
	Brightness (cd/m ²) (typical)	350
	Contrast (typical)	4000:1
	Response time (ms) (typical)	8 (ms) (Gray to Gray)
	Panel Bit	10-bit
LCD panel RICOH Interactive Whiteboard D5520	Backlight	LED
	Panel size	55"
	Pixel pitch (mm)	0.630 × 0.630
	Native resolution (pixels)	1920 × 1080
	Brightness (cd/m ²) (typical)	450
	Contrast (typical)	1 100:1
	Response time (ms) (typical)	12 (ms) (Gray to Gray)
	Panel Bit	8-bit

Item		Specifications
Touch	Technology	Shadow Sense
	Resolution	1920 × 1080
	Maximum number of touches* ¹	10
	Touch Output	USB 2.0
	Supported Operating Systems	Multi-point touch: Windows 7 (Home Premium/Ultimate/Professional) Windows 8, Windows 8 Pro, Windows 8 Enterprise Windows 8.1, Windows 8.1 Pro, Windows 8.1 Enterprise Windows Embedded Standard 7, Windows Embedded Standard 8 Windows 10 (Home/Pro/Enterprise/ IoT) Single-point touch: Windows 7 (Home Basic/Home Premium/Ultimate/Professional) Windows 8, Windows 8 Pro, Windows 8 Enterprise Windows 8.1, Windows 8.1 Pro, Windows 8.1 Enterprise, Windows Embedded Standard 7, Windows Embedded Standard 8, Windows 10 (Home/Pro/Enterprise/ IoT) Mac OS X (10.10 or later)
Panel glass	Type	AG anti-glare glass
	Thickness	Approximately 3 mm

Item		Specifications
Input	Computer	VGA (D-Sub 15-pin), DVI-D
	Video	HDMI, DVI-D, DisplayPort
	Audio	Audio Input (3.5 mm jack)
	Control	RS-232C (D-Sub 9-pin)
	USB	• USB 2.0 Type-B × 1 (exclusively for the touch panel*²⁾) • USB 2.0 Type-A × 2 (exclusively for Bluetooth adapter) • USB 3.0 Type-A × 4 • USB (Power Supply Only) × 1
Output	Computer	DisplayPort
	Audio	Speaker L/R
	Control	RS-232C (D-Sub 9-pin)
Audio	Audio W (Amp)	12 W × 2
	Internal speaker	12 W (8Ω) × 2
Power	Supply	100 - 240V AC, 50/60 Hz
	Consumption (While operating)	RICOH Interactive Whiteboard D6510: 350 W RICOH Interactive Whiteboard D5520: 255 W
	Consumption (Standby)	Less than 0.5 W
Environment	Operating Temperature	0 - 32°C (32 - 89.6°F)
	Operating Humidity	10 - 80% (without condensation)
Mechanical RICOH Interactive Whiteboard D6510	Weight (includes full options)	Less than 60 kg
	Dimensions (W x H x D)	• with pen tray: 1588 × 888 × 224 mm • without pen tray: 1546 × 888 × 154 mm

Item		Specifications
Mechanical RICOH Interactive Whiteboard D5520	Weight (includes full options)	Less than 46 kg
	Dimensions (W x H x D)	• with pen tray: 1387 × 770 × 189 mm • without pen tray: 1345 × 770 × 119 mm
Feature	RS232 control daisy chain	
	ID setting	
	Sharpness enhancement	
	Dimming control (Adaptive Contrast)	
	Blue light reduction function	
	Picture in Picture (PIP)	
	Picture by Picture (PBP)	
	RICOH Interactive Whiteboard D6510: 10-bit color processing RICOH Interactive Whiteboard D5520: 8-bit color processing	
	Operation Time	

*1 10 touch points are supported at most. However, depending on where you touch, operations can be unstable.

*2 USB Type-B For Touch port is exclusively for the touch panel. You can operate a computer using the touch panel of the machine by connecting the machine to the computer via USB. When a controller designed compliant with OPS (Open Pluggable Specification) standard is connected to the machine, the USB Type-B For Touch port is disabled. When using the USB Type-B For Touch port on the right side of the machine, set the Touch Control Setting in the Setting menu to USB.

 Note

- Specifications and functions are subject to change without notice.

List of Video Input Signals Supported by the Machine

The symbols in the cells have the following meanings:

- : supported
- : not supported

Resolution	Input source			
	VGA	DVI	DisplayPort	HDMI
640 × 480 @ 60Hz (VGA)	○	○	○	○
640 × 480 @ 72Hz	○	○	○	○
640 × 480 @ 75Hz	○	○	○	○
720 × 400 @ 70Hz	○	○	○	○
800 × 600 @ 60Hz (SVGA)	○	○	○	○
800 × 600 @ 75Hz	○	○	○	○
832 × 624 @ 75Hz	○	○	○	○
1024 × 768 @ 60Hz (XGA)	○	○	○	○
1024 × 768 @ 75Hz	○	○	○	○
1152 × 870 @ 75Hz	○	○	○	○
1280 × 800 @ 60Hz	○	○	○	○
1280 × 720 @ 60Hz	○	○	○	○
1280 × 1024 @ 60Hz (SXGA)	○	○	○	○
1280 × 1024 @ 75Hz	○	○	○	○
1600 × 900 @ 60Hz	○	○	○	○
1680 × 1050 @ 60Hz (WSXGA)	○	○	○	○
1680 × 1050 @ 60Hz RB (WSXGA)	○	○	○	○
1920 × 1080 @ 60Hz (FHD)	○	○	○	○

720 × 480i (60Hz)	–	–	–	–
720 × 576i (50Hz)	–	–	–	–
720 × 480p (60Hz)	–	○	○	○
720 × 576p (50Hz)	–	○	○	○
1280 × 720p (25Hz)	–	–	–	–
1280 × 720p (30Hz)	–	–	–	–
1280 × 720p (50Hz)	–	○	○	○
1280 × 720p (60Hz)	–	○	○	○
1920 × 1080i (50Hz)	–	–	–	–
1920 × 1080i (60Hz)	–	–	–	–
1920 × 1080p (24Hz)	–	○	○	○
1920 × 1080p (25Hz)	–	○	○	○
1920 × 1080p (30Hz)	–	○	○	○
1920 × 1080p (50Hz)	–	○	○	○
1920 × 1080p (60Hz)	–	○	○	○
1920 × 1080p (24Psf)	–	–	–	–
1920 × 1080p (25Psf)	–	–	–	–

List of PAP Input Signal Combination Supported by the Machine

The symbols in the cells have the following meanings:

- : supported
- : not supported

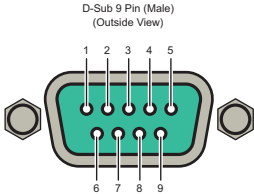
		Main/Left picture signal source				
		VGA	DVI	HDMI	DisplayPort	Computer In ^{*1}
Sub/Right picture signal source	VGA	○	○	○	○	○
	DVI	○	○	○	○	○
	HDMI	○	○	○	○	○
	DisplayPort	○	○	○	○	○
	Computer In ^{*1}	○	○	○	○	○

^{*1} The Computer In is only available if the controller designed compliant with OPS (Open Pluggable Specification) standard is connected to this display.

List of the Functions and Commands Controlled by the RS-232C Terminal

When you connect the machine and a computer with the communication cable RS-232C (crossover cable), you can control the machine from the computer via the RS-232C terminal using a terminal emulation program.

1 Pin Grid Array and Names of Signals



Pin No.	Signal	Remark
1	NC	
2	RXD	Input to the machine (LCD monitor)
3	TXD	Output from the machine (LCD monitor)
4	GND	
5	NC	
6	GND	
7	NC	
8	NC	
9	NC	
frame	GND	

* Using a null modem cable (crossover cable) is required to use the machine with a computer.

2 Communication Settings

Baud rate	115200 bps
Data bits	8 bits
Parity	None
Stop bits	1 bit

3 Communication Specifications

You can control the machine from a computer using the following format command. Control methods contain two commands, which are set command and get command. Set command is used to control the settings of the machine. Get command is used to obtain the setting information of the machine. For details about commands, see "Set and Get Commands Table" below.

If you connect multiple displays to a computer, specify the monitor ID for each display in the Setting menu of the On-Screen Display menu.

3-1 Command Format

Byte1	0	1	2	3	4	5	6	7	8
Name	Length	Monitor ID		Command Type	Command Code	Value			CR
						Byte1	Byte2	Byte3	

3-2 Set Command Example

Input example: Set the brightness value to 76 for the display whose monitor ID is 02.

Byte1	0	1	2	3	4	5	6	7	8
Name	Length	Monitor ID		Command Type	Command Code	Value			CR
						Byte1	Byte2	Byte3	
Hex	0x38	0x30	0x32	0x73	0x24	0x30	0x37	0x36	0x0D

Return example:

Byte1	0	1	2	3	4
Name	Length	Monitor ID		Command Type	Command Code
Hex	0x34	0x30	0x32	0x2B	0x0D

3-3 Get Command Example

Input example: Obtain the brightness value of the display whose monitor ID is 05.

Byte1	0	1	2	3	4	5	6	7	8
Name	Length	Monitor ID		Command Type	Command Code	Value			CR
						Byte1	Byte2	Byte3	
Hex	0x38	0x30	0x35	0x67	0x62	0x30	0x30	0x30	0x0D

Return example: The returned brightness value is 67.

Byte1	0	1	2	3	4	5	6	7	8
Name	Length	Monitor ID		Command Type	Command Code	Value			CR
						Byte1	Byte2	Byte3	
Hex	0x38	0x30	0x35	0x72	0x62	0x30	0x36	0x37	0x0D

07W029

Set and Get Commands Table

Set and Get Commands Table

In the table below, hyphens "-" indicate items that are not supported.

Function	Length	Set Command		Get Command		Value Range (ASCII Bytes)	Remark
		Command Type	Command Code (Hex)	Command Type	Command Code (Hex)		
Power	8	73	21	-	-	000: Standby	
Video Source	8	73	22	67	6A	000: VGA	If the PIP (Picture in Picture) or PBP (Picture by Picture) function is enabled, the returned value is the source at the active window.
						001: HDMI	
						002: Computer In	This is valid if the OPS (Open Pluggable Specification) controller is connected to the machine.
						006: DVI	
						007: DisplayPort	
Picture Menu							
Picture Mode	8	73	81	67	B1	000: Standard	
						001: Vivid	
						002: Cinema	
						003: Custom	
						004: Low Blue Light	
Backlight	8	73	84	67	B4	000-100	
Contrast	8	73	23	67	61	000-100	
Brightness	8	73	24	67	62	000-100	
Chroma (Color)	8	73	82	67	B2	000-100	
Phase (Tint)	8	73	83	67	B3	000-100	
Sharpness	8	73	25	67	63	000-010	
Color Temp	8	73	88	67	B6	000: Cool	
						001: Neutral	
						002: Warm	
						003: Custom	
						004: Low Blue Light	
Picture Reset	8	73	26	-	-		Whatever value can be specified.
Sound Menu							
Sound Mode	8	73	33	67	65	000: Dynamic	
						001: Standard	
						002: Custom	
Treble	8	73	37	67	37	000-010	OSD value = RS232 value-5
Bass	8	73	38	67	38	000-010	OSD value = RS232 value-5
Balance	8	73	39	67	39	000-066	OSD value = RS232 value-33
Volume	8	73	35	67	66	000-100	
Mute	8	73	36	67	67	000: Off	
						001: On	
Speaker	8	73	89	67	B9	000: Internal	
						001: External	
Audio Source	8	73	88	67	88	000: Audio In	
						002: HDMI	
						001: Computer In	This is valid if the OPS (Open Pluggable Specification) controller is connected to the machine.
						004: DisplayPort	
						100: Auto	
Sound Reset	8	73	3B	-	-		Whatever value can be specified.
Screen Menu							
PAP Enable	8	73	8A	67	BA	000: Off	
						001: PIP	
						002: PBP	
PAP Sub source	8	73	8B	67	BB	000: VGA	
						001: HDMI	
						001: Computer In	This is valid if the OPS (Open Pluggable Specification) controller is connected to the machine.
						006: DVI	
						007: DisplayPort	

Function	Length	Set Command		Get Command		Value Range (ASCII Bytes)	Remark
		Command Type	Command Code (Hex)	Command Type	Command Code (Hex)		
PAP Swap	8	73	8C	-	-		Swap main and sub sources. Whatever value can be specified.
PAP Size	10	73	8D	67	BD	00000: Small 10000: Large	When PAP = PIP
PIP Position	10	73	8E	67	BF	00000: Upper Left 10000: Upper Right 20000: Lower Left 30000: Lower Right	
Aspect Ratio	8	73	31	67	77	000: Normal Mode 001: Real mode 002: Full mode	
Auto Adjustment Execute	8	73	8F	-	-		For VGA only
VGA Phase	8	73	91	67	C1	000-063	
VGA Clock frequency	8	73	90	67	C0	000-100	
VGA H.Position	8	73	92	67	C2	000-100	Depends on the timing, 100 cannot be reached.
VGA V.Position	8	73	93	67	C3	000-100	Depends on the timing, 100 cannot be reached.
Touch Feature	8	73	9E	67	9E	000: Off 001: On	
Setting Menu							
Language	8	73	32	67	78	000: English 001: Français 002: Español 003: 繁体中文 004: 简体中文 005: Português 006: German 007: Dutch 008: Polish 009: Russia 010: Czech 011: Danish 012: Swedish 013: Italian 014: Romanian 015: Norwegian 016: Finnish 017: Greek 018: Turkish 020: Japanese	
Power Save	8	73	A9	67	D9	000: Off 001: On	
Touch Control Setting	8	73	EB	67	EB	000: Auto 001: Computer In 002: USB	This is valid if the OPS (Open Pluggable Specification) controller is connected to the machine.
Monitor ID	8	73	3D	67	75	001-098	
Auto Search	8	73	96	67	C6	000: Off 001: On	
Auto Adjustment	8	73	AA	67	DA	000: Off 001: On	
Over Scan	8	73	97	67	C7	000: Off 001: On	
OSD Info Box	8	73	5B	67	5D	000: Off 001: On	
Adaptive Contrast	8	73	85	67	B5	000: Off 001: On	
DisplayPort	8	73	EA	67	EA	000: 1.1 000: 1.2	
Operation Time	10	-	-	67	76	00000-99999	Units are hours.
All Reset	8	73	7E	-	-	000: VGA	Whatever value can be specified.

Output Signals

The DisplayPort Output jack of the machine outputs the signals from the DisplayPort Input jack as they are. You can connect devices, and view the video or image displayed on the machine on the connected device.

↓ Note

- Depending on the connected device, the video or image may not be displayed on the device connected to the output terminal even if it is displayed on the machine's display.

6. Troubleshooting

This chapter explains possible problems and solutions when the functions of this machine cannot be properly used.

Troubleshooting

Problem	Solution
No picture	Check the following: • Is the machine turned on? Check the power indicator of the display. • Is the signal source device turned on? Turn on the device and try again. • Are there any loose cable connections? Make sure that all cables are connected firmly. • Have you chosen an unsupported output resolution on the computer? Refer to page 41 "List of Video Input Signals Supported by the Machine" to select a supported resolution and try again. • Have you chosen an unsupported output resolution on the DVD or Blu-ray disc player? Refer to page 41 "List of Video Input Signals Supported by the Machine" to select a supported resolution and try again.
Only a monochrome image is displayed.	• Reconnect the cable. • Check that the correct cable is used.
• The display is too dark. • The display is too bright.	Press the [Menu] button on the right side of the display and adjust the brightness. For details about how to adjust the brightness, see page 25 "Picture Menu".

Problem	Solution
No sound	Check the following: • Have you turned on the mute function on the machine or the input source device? Turn off the mute function or increase the audio volume level and try again. • Are there any loose cable connections? Make sure that all cables are connected firmly. • Check that the correct audio source is selected. For details about how to select an input source, see page 27 "Sound Menu".
The computer input image looks strange	Check the following: • Have you chosen an unsupported output resolution on the computer? Refer to page 41 "List of Video Input Signals Supported by the Machine" to select a supported resolution and try again. • Use the Auto Adjustment function (See page 29 "Screen Menu") to let the display automatically optimize the display of computer image. • If the result of the Auto Adjustment function is not satisfactory, use the Clock Frequency, Phase, H. Position and V. Position functions to manually adjust the image. • Reconnect the cable again, and then check that the cable is connected correctly. • Save changes to a file you are working on, and then quickly press and release the power button on the front side of the display. When the machine shuts down, press the power button again to restart the machine. If any of these actions do not fix the problem, contact your service representative.

Problem	Solution
The control panel buttons do not work	When a controller designed compliant with OPS (Open Pluggable Specification) standard is connected to the machine, the control panel buttons will not work until the controller is completely shut down. Wait until shutdown is complete.
The remote control does not work	• Check for incorrect battery orientation. • Check for dead batteries. • Check your distance and angle from the machine. • Check whether remote control is properly being pointed at the remote control sensor window of the display. • Check for any obstacle between the remote control and the remote control sensor window. • Check that the remote control sensor window is not under strong fluorescent lighting, or in direct sunlight. • Check for any devices (computer or personal digital assistant, PDA) nearby that transmit infrared signals which may cause interference to signal transmission between the remote control and the machine. Turn off the infrared function of these devices.
An abnormal sound is heard from the area surrounding the output/input terminals on the back of the display	Quickly press and release the power button on the right side of the display. When the machine shuts down, press the power button again to restart the machine. If any of these actions do not fix the problem, contact your service representative.

7. Appendix

This chapter describes the trademarks.

Trademarks

DisplayPort is registered trademarks of Video Electronics Standards Association in the U.S. and/or other jurisdictions.

VGA is a trademark of International Business Machines Corporation in the United States, other countries, or both.

HDMI and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

Bluetooth is a trademark or registered trademark of Bluetooth SIG Inc. in the United States and other countries.

Mac OS is a trademark or registered trademark of Apple Inc., in the United States and other countries.

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

The proper names of the Windows operating systems are as follows:

- The product names of Windows 7 are as follows:

Microsoft® Windows® 7 Home Premium

Microsoft® Windows® 7 Professional

Microsoft® Windows® 7 Ultimate

Microsoft® Windows® 7 Enterprise

- The product names of Windows 8 are as follows:

Microsoft® Windows® 8

Microsoft® Windows® 8 Pro

Microsoft® Windows® 8 Enterprise

- The product names of Windows 8.1 are as follows:

Microsoft® Windows® 8.1

Microsoft® Windows® 8.1 Pro

Microsoft® Windows® 8.1 Enterprise

- The product names of Windows 10 are as follows:

Microsoft® Windows® 10 Home

Microsoft® Windows® 10 Pro

Microsoft® Windows® 10 Enterprise

MEMO

MEMO

MEMO

