StarBoard DCHD-5M

User's Guide

How to Request a User's Guide

When requesting a separate copy of this User's Guide, specify DCHD-ML101201.

Read this User's Guide carefully, and connect correctly.
Before using this product, be sure to read and fully understand the safety precautions. Store this User's guide in a safe place near to this equipment for easy future reference.

DCHD-ML101201

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

Hitachi Solutions

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Product Warranty Provisions

This product is limited for use within Japan.
For warranty details, see "4.5 Product Warranty Provisions".

This User's Guide (DCHD-ML101201) is for the StarBoard DCHD-5M product.

    AH00275:   DCHD-5M(US)
    AH00276:   DCHD-5M(EU)
    AH00277:   DCHD-5M(JP)

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Introduction

Thank you very much for purchasing this Hitachi Solutions Ltd., StarBoard DCHD-5M (henceforth referred to as document camera).

This User's Guide has been created for people who already have a working knowledge of personal computers (henceforth referred to as "PC").

Please make sure that you understand the contents of this User's Guide and use the software correctly.

Store this User's Guide nearby for ease of reference.

Safe Handling

Markings and Symbols

Various markings and symbols are used in this User's Guide and on this product to ensure the safe and correct use of this product, and to prevent personal injury and property damage. These symbols and their meanings are as explained below. Understand the information well before reading the body of the User's Guide.

> ⚠ This is a Safety Warning symbol. This symbol raises the attention of the user to existing risks that may cause harm to people. To avoid any chances of injuries or possibly death, be sure to follow the safety instructions that follow this symbol.
>
> ⚠ **WARNING**
>
> This is used to warn of the risk of death or fatal injury.
>
> ⚠ **CAUTION**
>
> This is used to warn of the risk of moderate or light injury.
>
> **NOTICE**
>
> This is used to warn of the risk of damage to property.

Explanation of Markings and Symbols

△	This symbol draws attention to cautions (including warnings).
🚫	This symbol indicates something prohibited.
●	This symbol indicates something that must be done.

Safety Precautions   (Required Precautions)

(1)Precautions Regarding Operation

⚠ WARNING

🚫	**Do not make modifications.** Do not make any adjustments, repairs, or modifications. Doing so may lead to electric shock or injury.
🚫	**Do not remove the cover of this product.** Doing so may cause electric shock, injury, or damage to the product. Refer internal inspections, adjustments, and repairs to your dealerof support center.

⚠ CAUTION

⚠	**Be particularly careful when laying connecting cables etc.** Laying cables in places where people may trip over them may lead to injury or damage to the device if the device falls.
⚠	**Do not install this product or accessories on the floor.** Doing so may cause damage to the products or injury by people accidentally stepping on the products.
🚫	**Do not place objects on top of this product.** If a foreign object falls on top of or inside this product, it may lead to personal injury or damage to the product.
⚠	**Do not point the camera lens directly at the sun, or record bright light sources for prolonged periods.** Doing so may cause damage to eyesight or damage the product.

	NOTICE	
🚫	**Do not place heavy objects on, pull on, or subject cables to excess heat.** Doing so may result in damage to the cables.	
🚫	**Always grasp the plug of the connecting cable when connecting or disconnecting.** Pulling on the cables may result in scratching or damage to the cables.	

(2) Dealing with Trouble

	⚠ WARNING	
	What to do in case of emission of smoke, strange odors, or strange noises. If an abnormal condition such as emission of smoke, strange odor, or strange noise happen to occur, immediately disconnect all of the cables from this device. Confirm that the smoke or strange odor is no longer being emitted, and contact a support center to request repairs. Continued operation without repair may result in fire.	
	What to do if the product breaks down, or if a connecting cable is damaged. If this product breaks down or a connecting cable becomes damaged for some reason, immediately disconnect the cable and contact a support center. Continued operation without repair may result in emission of a strange odor or smoke.	

(3) Precautions Regarding Handling

	⚠ WARNING	
	Do not touch this product if you hear thunder. Doing so may result in electric shock.	

⚠ CAUTION

Do not place heavy objects onto this device unit.

Do not place heavy objects onto this unit.

Doing so may cause personal injury if the object becomes unbalanced and falls.

Do not splash with water or chemical compounds.
Do not place this product in a location subject to contact with water droplets or place any containers containing water or other chemical compounds on top of or nearby this product. Doing so may result in damage or fire if water or chemical compounds get inside this product.

Do not mix old and new batteries, and do not use unspecified batteries.

Doing so may cause the batteries to rupture and leak, which may cause fire, injury, or damage to the product surroundings.

NOTICE

Disconnect connecting cables during extended periods of non-use.
For safety reasons, disconnect the connecting cables if the product is not going to be used for an extended period of time. Failure to do so may result in fire.

Handle connecting cables properly.
Improper handling of the connecting cables such as jamming them against walls, undue bending, pulling, or twisting may result in overheating or damage due to exposure of the conductive core, electrical short, or severing of the cable.

(4) Precautions Regarding Moving the Product

NOTICE

Always disconnect the connecting cables when moving this product.
Failure to do so may result in damage to the cables and/or the product itself.

NOTICE

⚠	**Do not subject to shock of impact.** This product is a precision instrument. Excessive shock of impact may hinder further operation. Take extreme care when moving this product.
⚠	**Do not carry holding the camera section.** Doing so may cause damage to the main unit section.

(5) Precautions Regarding Setup Environment

⚠WARNING

🚫	**Do not place in a location with flammable or corrosive gas.** Placing this product in a location where there is flammable or corrosive gas may result in fire or damage to this product. In particular, there is a risk of explosion from flammable gas. Do not place this product in a location where there is flammable or corrosive gas.

⚠CAUTION

🚫	**Do not place in locations subject to excess moisture, dust, smoke, or steam.** Placing this product in a location where there is flammable or corrosive gas may result in fire or damage to this product.
🚫	**Do not touch internally mounted parts.** Directly touching internally mounted parts may result in personal injury or damage to the product.

NOTICE

	Do not use this product near water. If water somehow gets inside this product, immediately disconnect the connecting cables and contact the support center.
	Do not use this product in locations subject to high temperature or high humidity. Product usage environment conditions: Temp.: 5°C – 35°C Humidity: 20**%**RH – 80**%**RH (no condensation)
	Do not set up in location subject to vibration and/or shock of impact. Vibration and/or shock of impact may harm internal components of this product, causing damage to it. Do not set up this product in a location subject to vibration or shock of impact.
	Do not set up this product near a high-voltage line or power source. If this product is set up near high-voltage lines or power sources, it might receive interference.
	Do not set up in a location subject to direct sunlight or near a heater. Doing so may result in deformation or damage to the product.

(6) Precautions Regarding Disposal

NOTICE

	At the time of disposal, handle this product as industrial waste according to all applicable laws and regulations. When disposing of this product, the user should follow all laws and regulations of the locality in which it is being used.

(7) Product Disclaimer

NOTICE

This product uses a CMOS image sensor that is composed of many image pixels, and among these image pixels there are some which do not operate correctly. When an image is externally output, there may be some dots that appear white or black. However, this is a special characteristic of the CMOS system and is not a malfunction.

LCD screens are manufactured using extremely precise technology, yet sometimes pixels may appear to be missing or always on. This is not a malfunction. Also, it does not affect the recorded image.

(8) Warning Displays Throughout the manual

⚠ CAUTION	Page
Be sure to install batteries correctly. Do not install batteries with positive and negative terminals reversed, or use batteries other than the type specified. Do not mix old and new batteries. Doing so may cause fire or damage.	P. 3-6
Be sure to insulate batteries for disposal. Be sure to insulate the positive and negative terminals of the battery using cellophane tape for disposal. Disposing of batteries without insulating them may lead to overheating, bursting, or ignition due to shorting, resulting in personal injury or fire. Furthermore, be sure to follow all local rules and regulations regarding proper battery disposal.	P. 3-6
Always remove all cables before cleaning. Failure to do so may cause electric shock or damage to the device.	P. 4-3

NOTICE	Page
Do not strike the camera section against a table or hard object. Subjecting the camera section to impact may cause damage to the product.	P. 2-7
Do not bend the arm backwards. Bending the arm in the wrong direction may cause damage to the product.	P. 2-7
Switch off the product power supply before connecting cables. Performing wiring work when the power is on may cause damage to the product.	P. 2-8
Do not insert or remove cables while the product is operating. Do not insert or remove cables when operating using the control panel or remote control. Doing so may cause the product to malfunction.	P. 2-8, 3-4
Precautions for handling SD cards. Do not switch off the document camera unit power supply while the SD card is being formatted. Also, use this product to format the SD card for use. When using cards formatted using a PC, use this product to format the SD card again.	P. 3-4

1. Introduction

1.1 Component Parts/Accessories Check
## 1.2 Names and Functions of Parts

1. Introduction

1.1 Component Parts/Accessories Check

After unpacking, make sure that all of the following component parts and accessories are present.

Number	Name	Quantity
(1)	Document Camera	1
(2)	AC Adaptor	1
(3)	Remote Control	1
(4)	AAA batteries	2
(5)	RGB Cable	1
(6)	HDMI Cable	1
(7)	USB Cable	1
(8)	VIDEO Cable	1

Number	Name	Quantity
(9)	Audio cable	1
(10)	Microscope adaptor	3
(11)	Anti Glare Sheet	1
(12)	Startup guide	1
(13)	CD	1
(14)	Warranty card	1
(15)	Conversion plug	1

* The shape of (2) differs depending on the delivery location. (15) May not be included depending on the delivery location.

(1)	(2)	(3)	(4)
(5)	(6)	(7)	(8)
(9)	(10)	(11)	(12)
(13)	(14)	(15)	
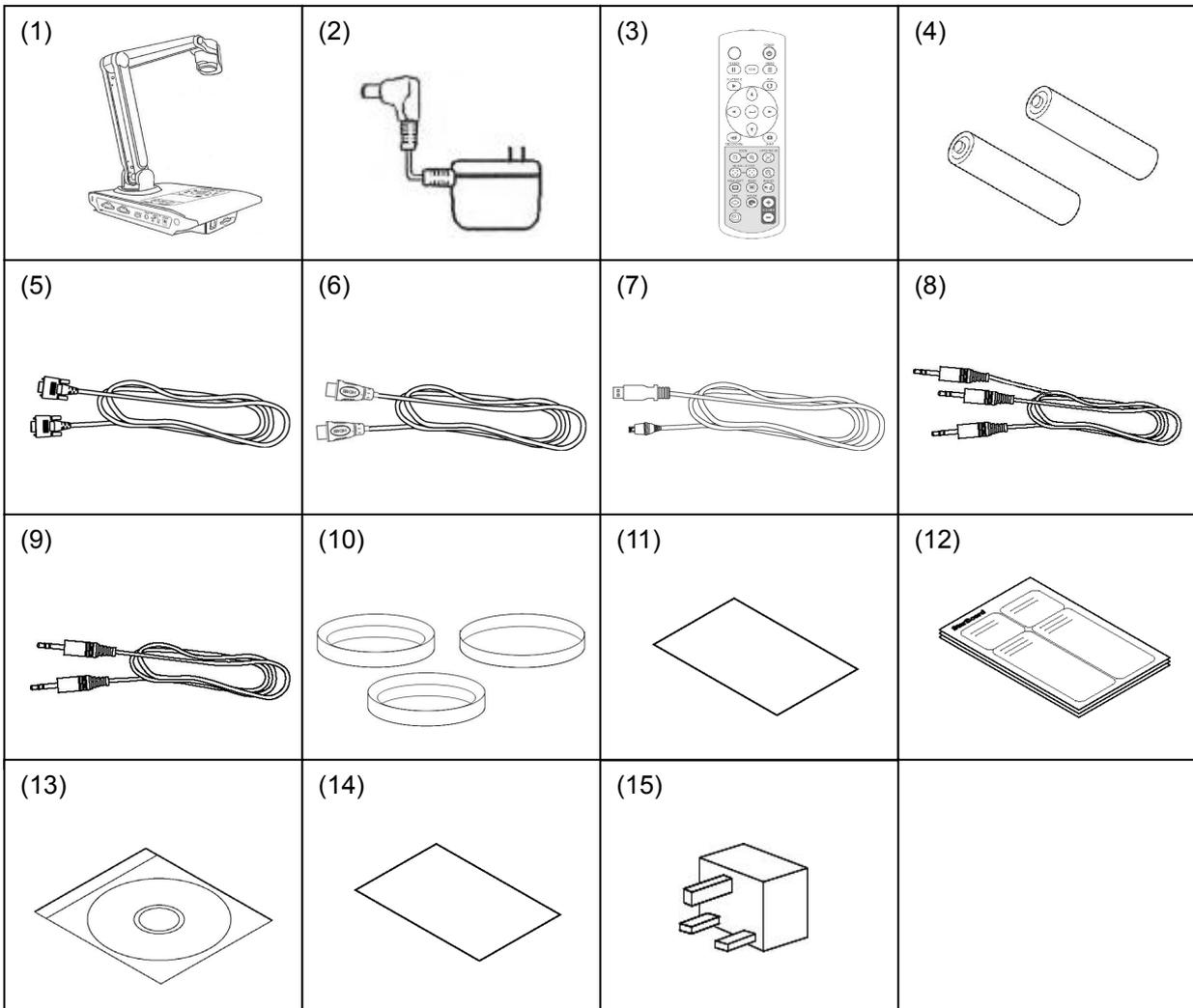
1.2 Names and Functions of Parts

The terminals installed on the side of the document camera are arranged as shown in the diagram below. See the table for explanations of each of the terminals.
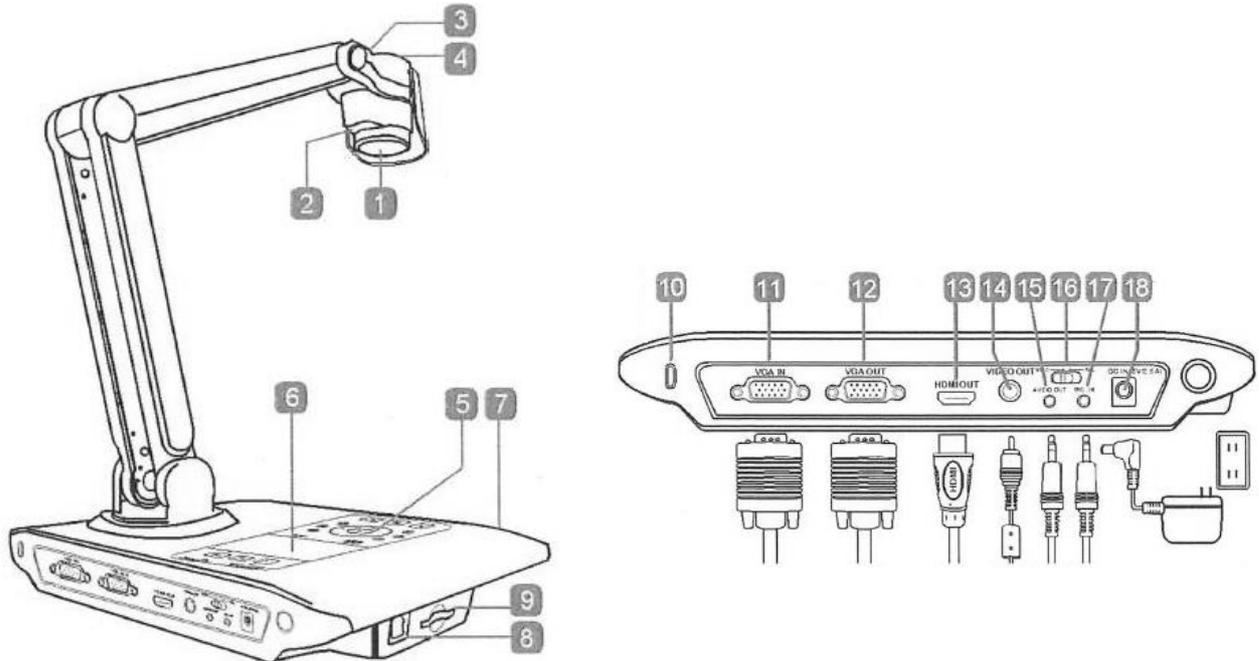
Number	Name	Explanation
1	Camera section	Lends and CMOS sensor used to record the subject.
2	LED Light	The LED light can be used when the surrounding environment is dark.
3	LED Light ON/OFF Button	Used to turn the LED light ON/OFF.
4	LED Light Brightness	The brightness of the LED light can be adjusted.
5	Control Panel	Contains various buttons.
6	LCD Screen	LCD screen used to display photographed images.
7	Remote control sensor	Receives signals from the remote control.
8	USB port	Connect to output a recorded image to a PC.
9	SD Card Slot	Insert an SD card to save movies and pictures.
10	Anti-theft slot	Compatible for use with a Kensington security lock or other such anti-theft device.
11	RGB Input Terminal	A signal is entered from the PC, and passed through only to the RGB output terminal. Connect this terminal to the RGB output terminal of the PC.
12	RGB Output Terminal	Connect to output to a CRT/LCD monitor or projector.
13	HDMI Output Terminal	Connect to output to an LCD/PDP monitor that is equipped with a HDMI input terminal.
14	Video Output Terminal	Connect to output to a TV or other video device.
15	Audio Output Terminal	Used to output audio signals to external speakers etc.
16	Television signal switching switch	Used to switch between NTSC and PAL signals.
17	Microphone Input Terminal	Used to input audio from a microphone.
18	AC Adaptor Connection Terminal	Connect the AC adaptor.

2. Document Camera Setup

### 2.1 Setup Method
2.2 Connection Method

2. Document Camera Setup
2.1 Setup Method
#### 2.1.1 Driver Installation

The attached driver is compatible with Windows XP(32bit)/Vista(32bit)/7(32bit, 64bit) and Mac OS 10.4/10.5/10.6. Before using the Document Camera connected to the PC for the first time, install the driver in accordance with the following procedure. Start the install procedure without connecting the Document Camera to the PC. To use the Document Camera's images while displaying on the screen, use StarBoard Software 9.3 or later. (Please refer to the Starboard Software User's Guide for how to operate the StarBoard Software.) When the Document Camera is connected to the PC, some of the buttons on the main body cannot be used. Please refer to P. 3-1 for details.

For Windows

1. Insert the "StarBoard DCHD-5M Setup Software" CD-ROM into the PC.

2. Move to the "StarBoard DCHD-5M Driver (WIN)" in the DVD drive using Windows Explorer to execute "DCHD-5M Driver Setup.exe".
   ※ For Windows Vista/7, "User Account Control" window starts up. Click "Yes". (The confirmed publisher differs from our company name.)
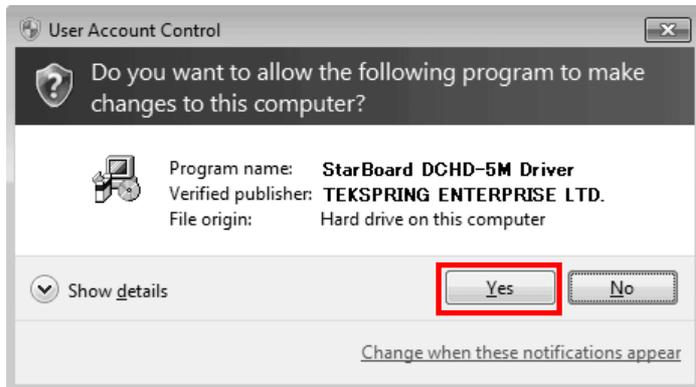

3. "InstallShield Wizard" window starts up. Click "Next".
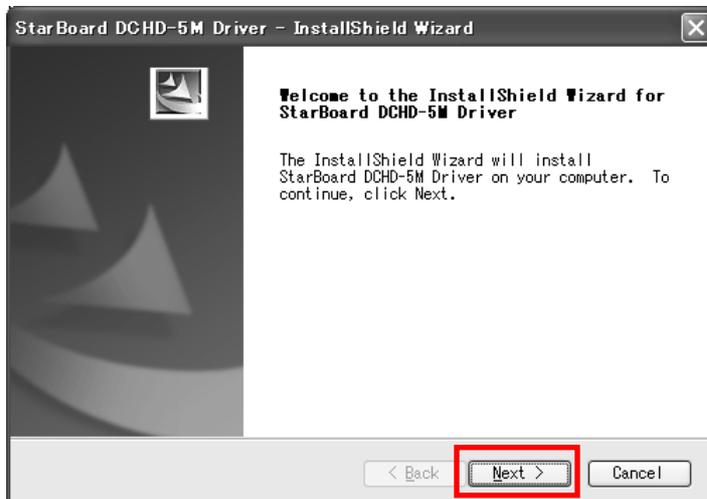
4. Click "Install".

5. Procedure differs depending on the Windows version.

5-1. For Windows XP, the following warning message appears. Click "Continue Anyway".
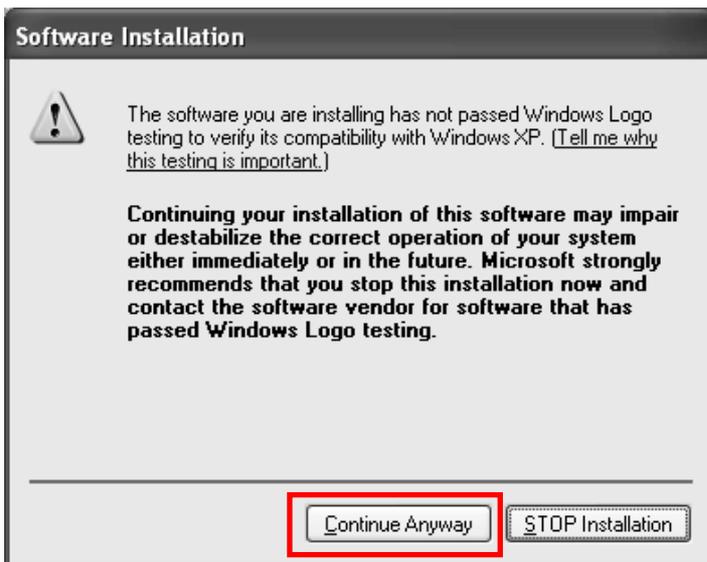
5-2. For Windows Vista/7, "Windows Security" window starts up. Click "Install".
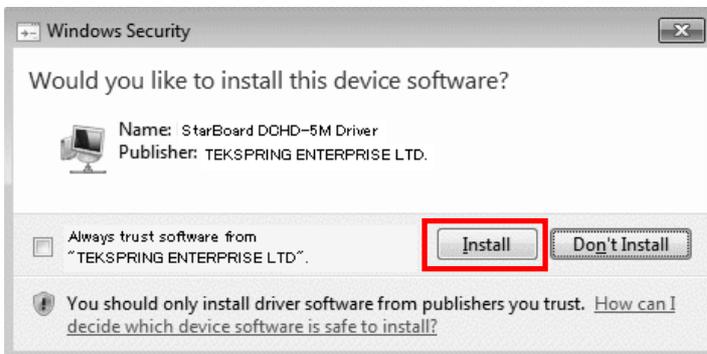
6. When install is successfully completed, the display below appears. Click "Finish".

7. Turn on the Document Camera. Connect the Document Camera to the PC using a USB cable.

7-1. For Windows Vista/7, you can use it as is. You do not have to carry out any more procedures.

7-2. For Windows XP, "Found New Hardware Wizard" window starts up. Select "No, not this time" and click "Next".
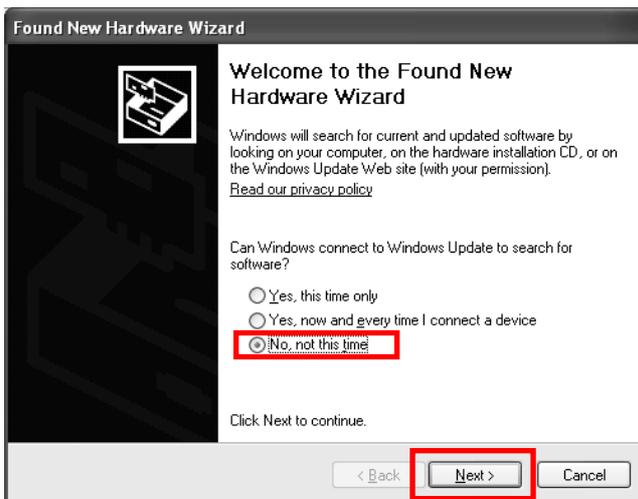
8. Select "Install the software automatically (Recommended)" and click "Next".
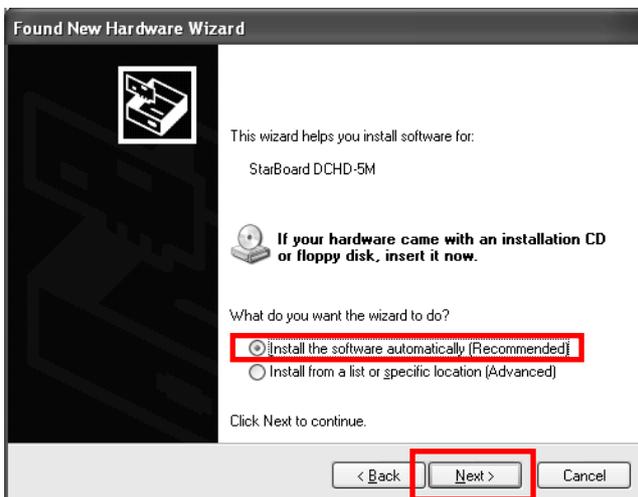
9. The following warning message appears. Click "Continue Anyway".
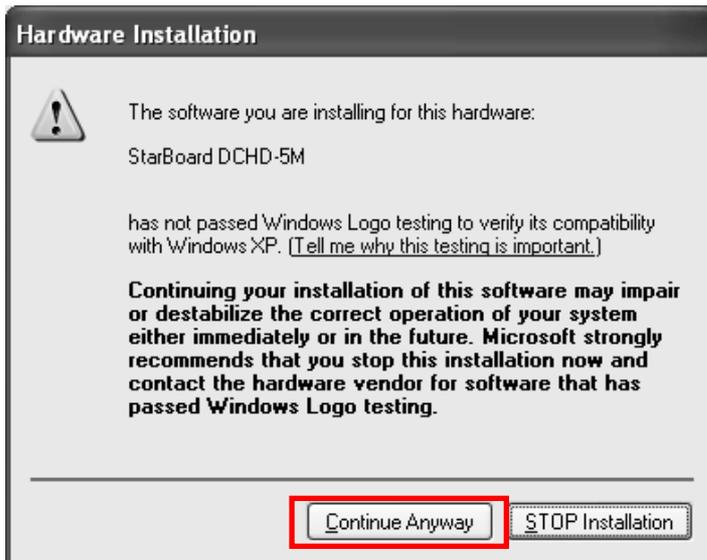
10. "Completing the Found New Hardware Wizard" window is displayed. Click "Finish".
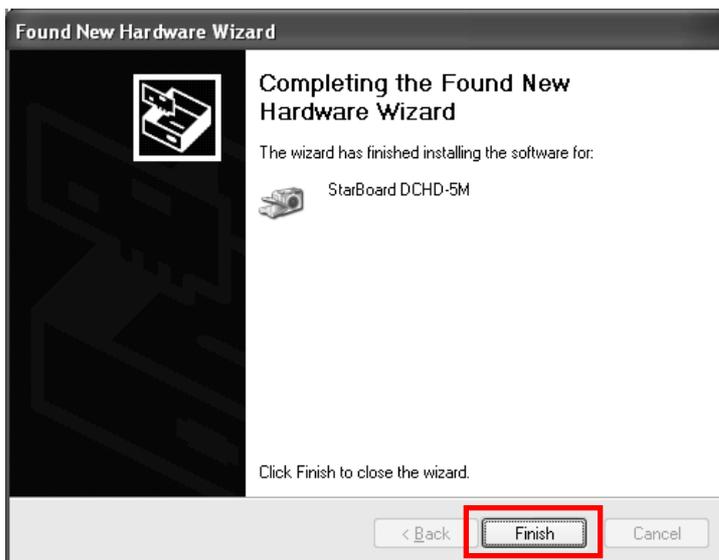

Then Windows driver install is finished.

For Mac OS

1. Insert the CD-ROM, "StarBoard DCHD-5M Setup Software" into the PC.

2. Move to the "StarBoard DCHD-5M Driver (Mac)" in the DVD drive and click "DCHD-5N_Driver.pkg".

3. "Welcome to StarBoard DCHD-5M Installer" window starts up. Click "Continue".



4. Click "Install".
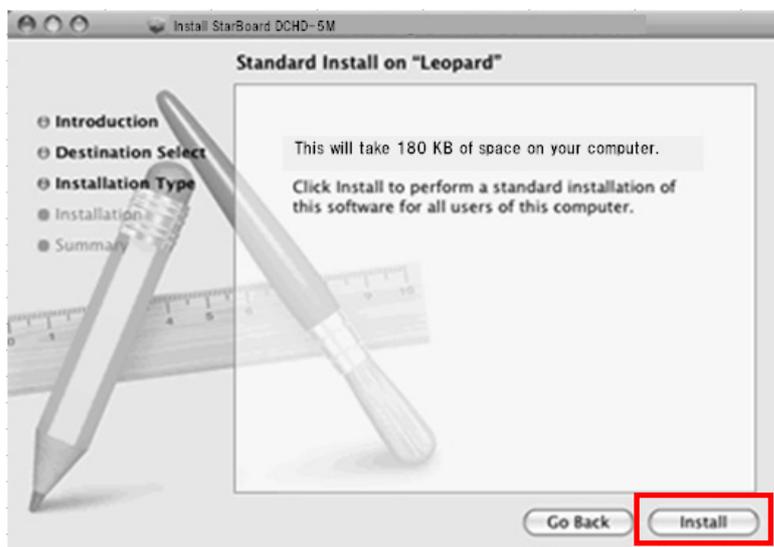
5. When install is successfully completed, the display below appears. Click "Close".
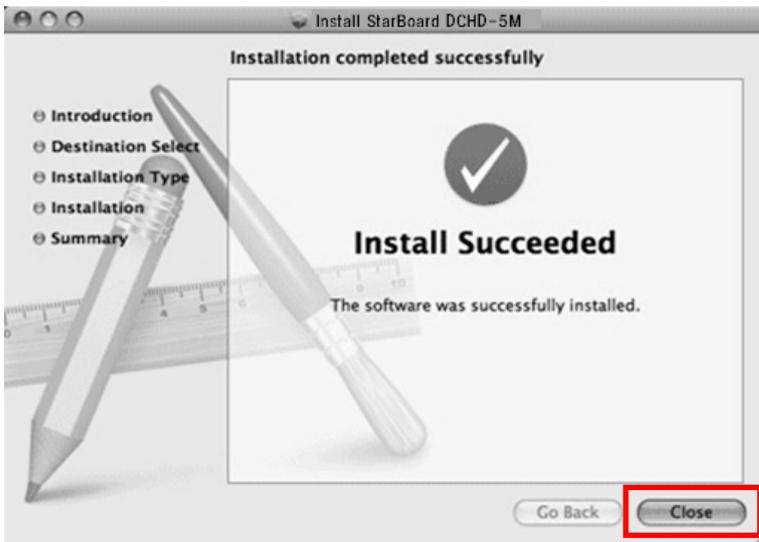
6. Turn on the Document Camera. Connect the Document Camera with Mac using a USB cable. Then Mac OS driver install is finished.

2.1.2 Document Camera Unit Setup

The camera section and arm can be adjusted to a position where the subject can be seen easily. Each moveable part can be rotated a maximum of 180°. If the recording location is dark, the LED lamp can be used to illuminate the subject for recording. Additionally, the arm installation section can be rotated 180° to enable use in a variety of recording areas.

NOTICE
Do not strike the camera section against a table or hard object.   Subjecting the camera section to impact may cause damage to the product.
Do not bend the arm backwards.   Bending the arm in the wrong direction may cause damage to the product.

The moveable sections can be rotated a maximum of 180° as shown on the left. 2 Recording areas can be used.

Recording Area 2

Recording Area 1

2.2 Connection Method

Images recorded using the document camera can be displayed on a wide variety of external output devices. Use the connection terminals on the side of the document camera and provided cables to connect to external devices. You can also connect a microphone for audio recording, and playback sound via external speakers.

First, connect the supplied AC adaptor to an AC100-240V power supply.

### *NOTICE*

Do not insert or remove cables while the product is operating.

Do not insert or remove cables when operating using the control panel or remote control.

Doing so may cause the product to malfunction.

Switch off the product power supply before connecting cables.

Performing wiring work when the power is on may cause damage to the product.
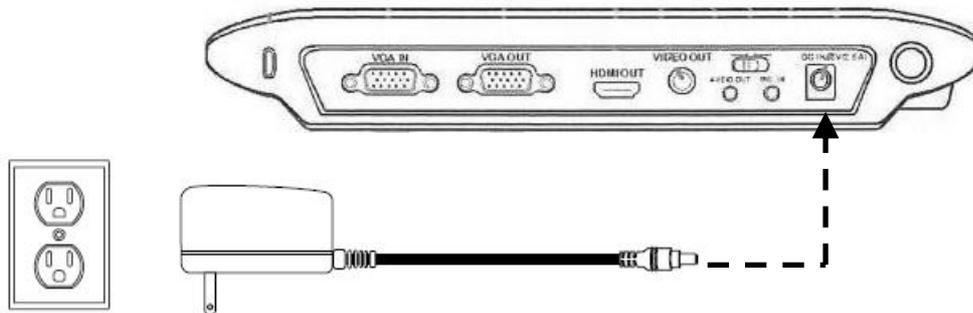
2.2.1 Connection Method when using RGB Cables

Connect the RGB input terminal of an external display such as an LCD projector or LCD display etc with the RGB output terminal of the document camera using the provided RGB cable. At this time, set the connection switch on the main control panel to VGA. Also, change the aspect ratio to match that of the display.

Projector

RGB Cable   LCD Display etc.
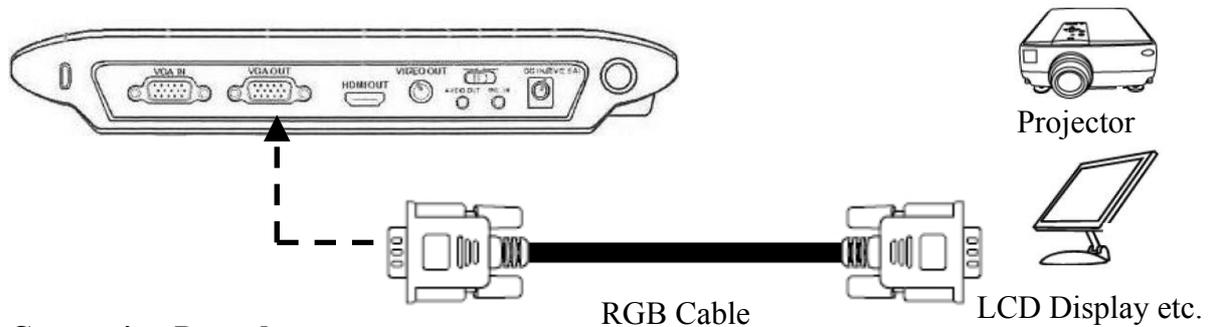
Connection Procedure
1. Connect the RGB cable.
2. Switch the document camera power on.
3. Set the connection switch to "VGA".
4. Select the aspect ratio of the display you are using with the aspect ratio selection switch.
5. Press the DISPLAY SELECT switch.

2.2.1 Connection Method when using an HDMI Cable

Connect the HDMI input terminal of an external display device such as a plasma display to the HDMI output terminal of the document camera using the supplied HDMI cable. At this time, set the connection switch on the main control panel to HDMI. Also, change the aspect ratio to match that of the display.

HDMI cable   Plasma display etc.
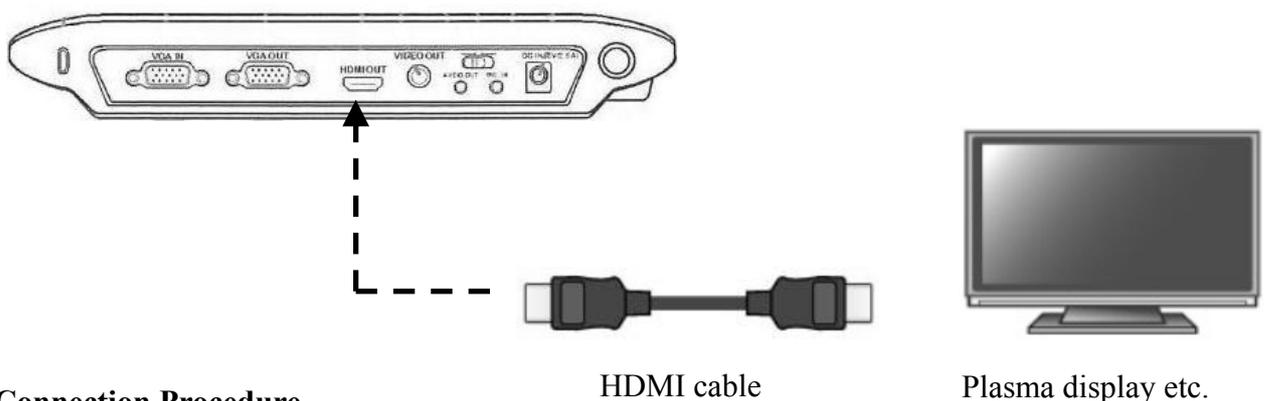
Connection Procedure
1. Connect the HDMI cable.
2. Switch the document camera power on.
3. Set the connection switch to "HDMI".
4. Select the aspect ratio of the display you are using with the aspect ratio selection switch.
5. Press the DISPLAY SELECT switch.

2.2.1 Connection Method when using VIDEO Cables

Connect the VIDEO input terminal of an external display device such as a television to the VIDEO output terminal of the document camera using the supplied VIDEO cable. At this time, set the connection switch on the main control panel to VIDEO. Also, change the aspect ratio to match that of the display.


VIDEO cable   Television etc.
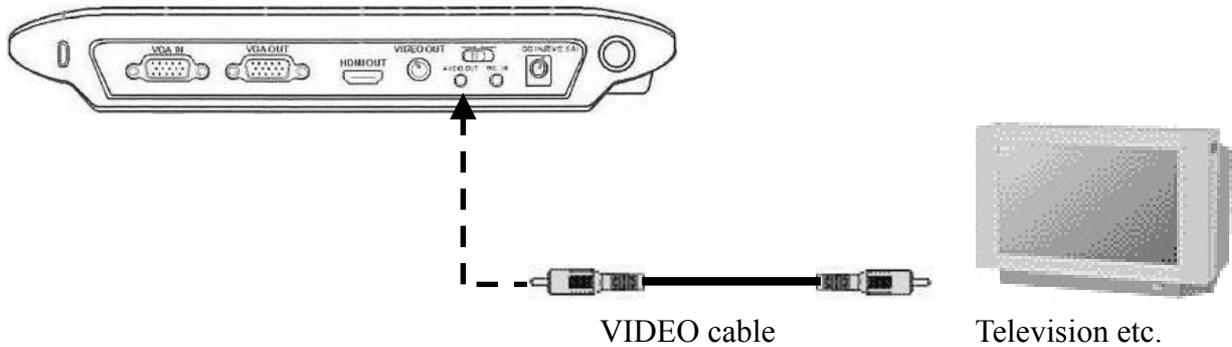
Connection Procedure
1. Connect the VIDEO cable.
2. Switch the document camera power on.
3. Set the connection switch to "VIDEO".
4. Select the aspect ratio of the display you are using with the aspect ratio selection switch.
5. Press the DISPLAY SELECT switch.

2.2.4 Connection Method to PC (when using RGB cables)

Connect the RGB output terminal of the PC to be used for displaying a presentation to the RGB input terminal of the document camera. RGB input terminal video signals are streamed to the RGB output terminals and displayed on the screen.

LCD Display etc.

RGB cable

PC
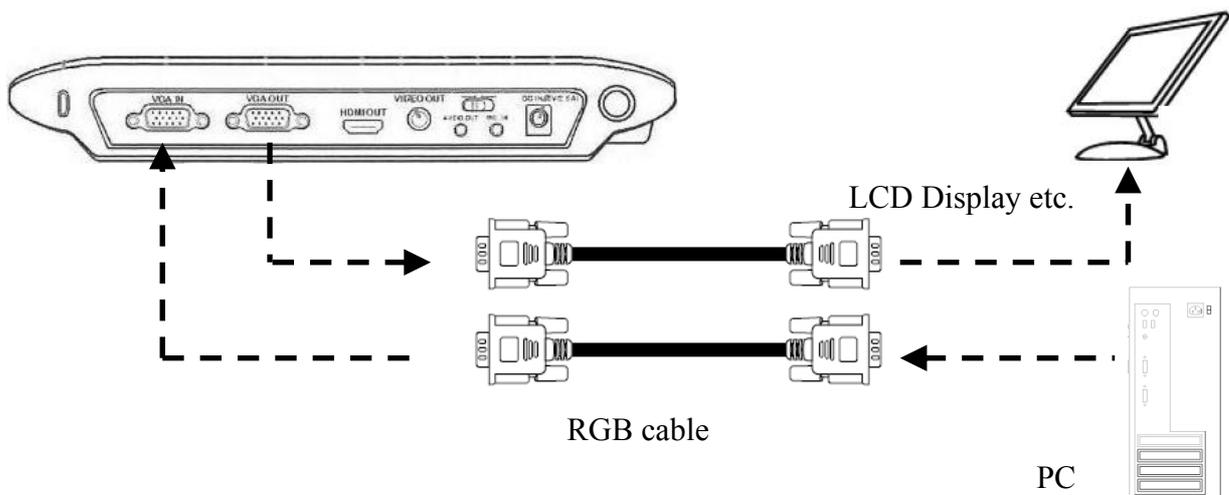
To display the PC image, press the PC button on main unit, and switch the document camera to PC mode.

2.2.5 Connection Method to PC (when using USB cables)

Connect the PC and document camera with a USB cable. The document camera can be used as a USB camera to record images onto the internal memory, and then copy them to the PC. For details, see P.3-4. When the Document Camera is connected with the PC, some of the buttons on the main body cannot be used. Please refer to P. 3-1 for details.

USB Cable   PC
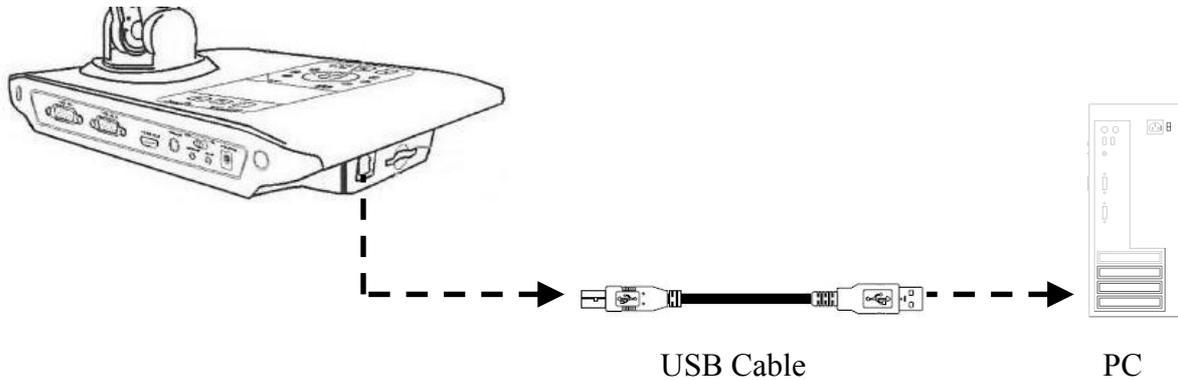
2.2.6 Connection Method for Speakers

Connect the 3.5mm speaker plug to the audio output terminal of the document camera. Only the audio recorded when movies are recorded using the document camera can be output.

Speakers
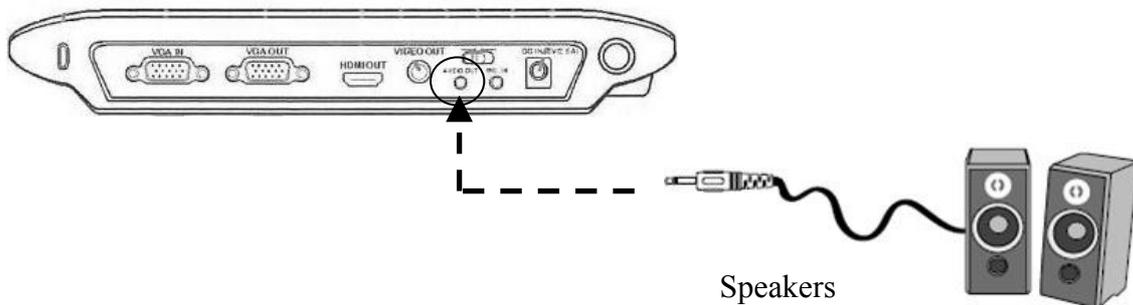
2.2.7 Connection Method for Microphone

Connect the 3.5mm microphone plug to the mic input terminal of the document camera. When an external microphone is connected, the document camera internal microphone cannot be used.

Microphone
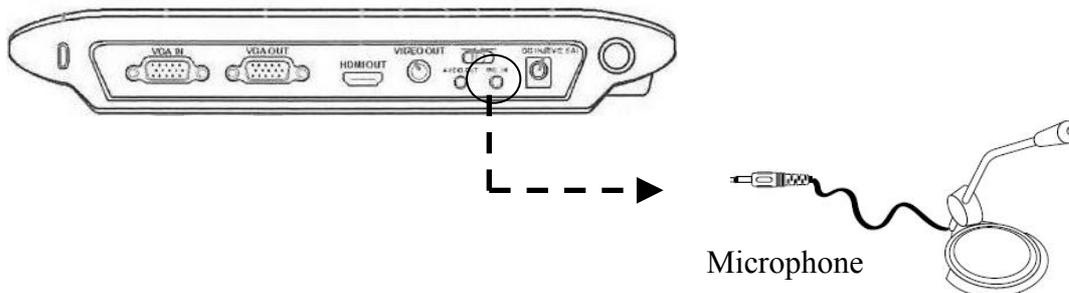
2.2.8 Connection Method for Microscope

By connecting a microscope to the document camera, the subject can be displayed on a large screen. Follow the procedure below to connect the microscope and display images.

1. Capture the subject using the microscope, and adjust the focus so the subject can be seen clearly.

2. Check the size of the microscope adaptor that corresponds to the eyepiece of the microscope, and select the correct microscope adaptor.
   * Size can be adjusted using the included adaptor (for details, see the next page).

3. Attach the microscope adaptor to the document camera section.

4. Connect the document camera to an external display etc, and then bring the camera close to the microscope.

External Display

Document Camera

Microscope Adaptor

Microscope
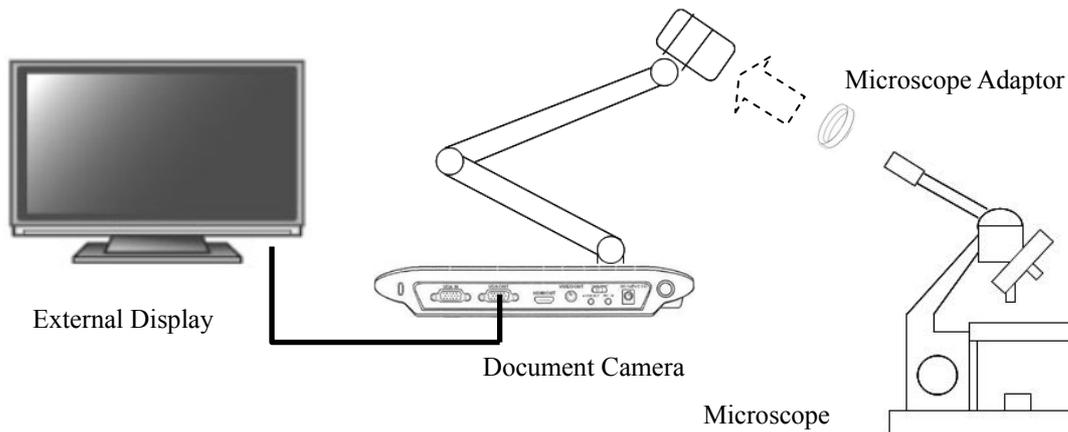
5. Set the focus to macro mode using the procedure below.
   1）Press the MENU button.
   2）Select "Focus".
   3）Select "Macro".
   4）Press the Enter button.

* When using the remote control, simply pressing the "Macro button" switches to macro mode.

<u>Adjustment Method for Microscope Adaptor</u>

1. Check parts

Part Name	Adaptor Unit	Adjustment Adaptor	Adjustment Adaptor
Material	Plastic	Rubber	Rubber
Diameter	33–34mm	31mm	28mm
Quantity	1	1	1
Figure			

2. Adaptor Adjustments

If the diameter of the microscope eyepiece is 33–34mm, use the adaptor unit as is. If the diameter is 31mm or 28mm, follow the procedure below to assembly and adjust the adaptor.

Eyepiece Diameter	31mm	28mm
Connection Method	Attach the adjustment adaptor (31mm) to the adaptor unit.	Attach the adjustment adaptor (28mm) to the adaptor unit.
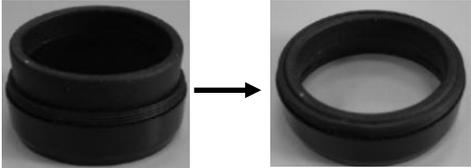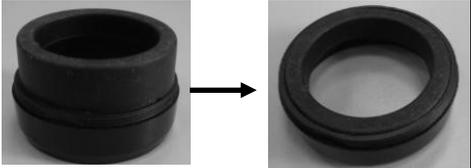
3. How to Use the Document Camera

3.1 How to Use the Document Camera
3.2 How to Use the Remote Control

3. How to Use the Document Camera
   3.1 How to Use the Document Camera
      3.1.1 Control Panel

   The document camera can be controlled using the control panel on the document camera unit.
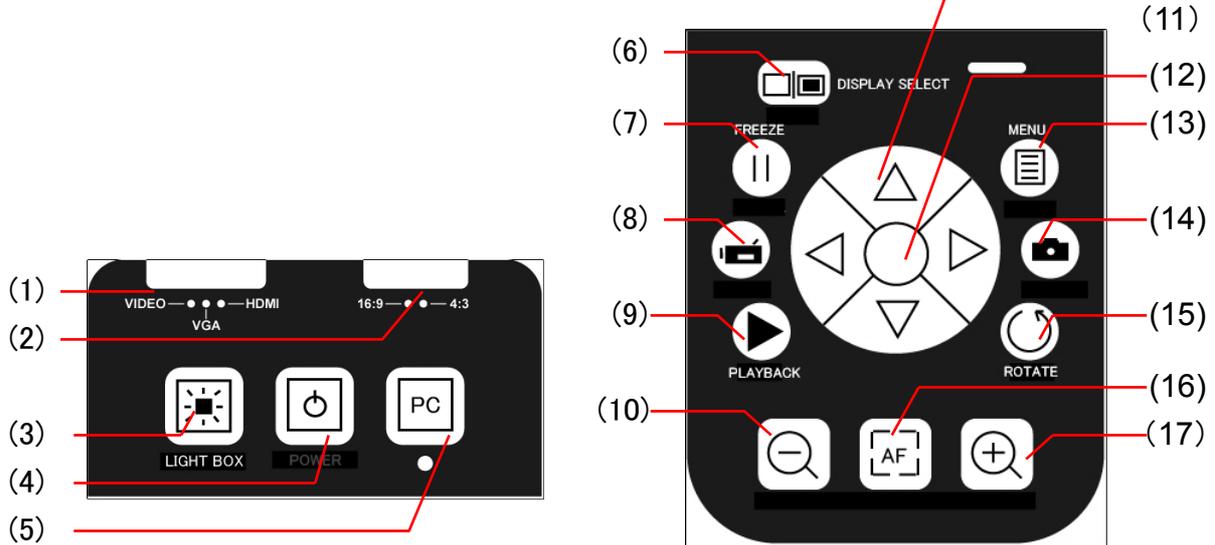
Number	Name	Explanation
1	OUTPUT	Select the connection method from VIDEO, VGA, or HDMI to match the external display device.
2	ASPECT RATIO	Switches the aspect ratio of output images between 16:9 and 4:3.
3	LIGHT BOX	Switches the LCD display backlight ON/OFF.
4	POWER	Switches the main unit power ON/OFF.
5	PC	Used when RGB is connected, to pass-through the document camera.
6	DISPLAY SELECT	Switches the output destination between LCD display and external display device.
7	FREEZE	Pauses the image during recording or playback.
8	RECORDING	Records movies.
9	PLAYBACK	Plays still images or movies as follows. SD card in use: SD card SD card not in use: Internal memory
10	Zoom Out	Zooms out of the image being displayed.
11	Cross Key	Used to select menu items or perform settings.
12	Enter Key	Used to confirm the selected menu.
13	MENU	Displays or exits from the OSD menu.
14	SNAP	Records still images.
15	ROTATE	Rotates images in the display by 180°.
16	AUTO FOCUS	Automatically adjusts the focus.
17	Zoom In	Zooms in to the image being displayed.

   When the Document Camera is connected with the PC using a USB cable, only FREEZE, ZOOM and AUTO FOCUS buttons can be used.

3.1.2 OSD Menu

Using the OSD menu function, you can perform fine adjustments of the screen display, select the OSD language, and perform other such settings.

OSD Menu Basic Operations
1. Press the "MENU" button on the control panel or remote control.
2. Select the icon using the left and right buttons of the cross key.
3. Press the Enter key to select the chosen icon.
4. Adjust the settings using the left and right buttons of the cross key.
5. Press the Enter key to enter the selected settings.
6. Press the "MENU" button to exit the OSD menu.

OSD Menu List (Normally displayed in the screen)

Name		Icon	Option	Details
Brightness				Adjusts the image to appear brighter or darker.
Effect			Graphic 1	Mode optimized for image display.
			Graphic 2	
			Text 1	Mode optimized for text displays that emphasizes the outline of images.
			Text 2	
			B&W	Displays images in black and white.
			Negative	Displays images in negative.
Zoom			2x	Changes the magnification settings applied by the quick zoom button on the remote control.
			4x	
Focus			Normal	Standard focus mode.
			Macro	Focus mode optimized for macro recording, and when using a microscope.
Rec HD			OFF	Set to record movies in HD720p high definition format.
			ON	
Still Resolution			2M	The resolution of still images can be selected.
			5M	
			12M	
Setting	Beep		OFF	Set whether or not to sound the beep sound.
			ON	
	Flicker		50Hz	Selects the electrical frequency.
			60Hz	
	USB Connection		PC Camera	When connected to a PC, this device is detected as a PC camera.
			Disk	When connected to a PC, this device is detected as a large capacity disk.
			OFF	Cancels the USB connection.
	Language			Selects the OSD menu language.

	Name	Icon	Option	Details
Setting	Volume			Adjusts the output volume.
	Clock			The year, month, date, and time can be set.
	Format		Yes	Formats the following.
			No	SD card in use: SD card SD card not in use: Internal memory *When format is performed, all recorded images are deleted.
	Reset Default		Yes	Returns all settings to the factory default settings.
			No	

OSD Menu List (Only displayed during recording)

When the PLAYBACK button is pressed, recorded images are displayed on the screen. When each menu button is pressed, the following OSD menus are displayed.

Name	Icon	Option	Details
File Info			Confirm the file name, recording date and time, size, and recording duration (movies).
Slide Show		OFF	Recorded images are continually displayed at the set interval.
		5 sec	
		10 sec	
		30 sec	
Delete One		Yes	Deletes the 1 file that is currently in the display.
		No	
Delete All		Yes	Deletes all recorded images.
		No	

3.1.3 Various Usage Methods

Inserting an SD Card (Sold Separately)

1. With the label side of the SD card facing upwards, insert the SD card fully into the slot until you hear a clicking sound.
2. If the SD card is inserted correctly, the SD card icon is displayed on the screen, and the internal memory can no longer be accessed.
3. To remove the SD card, push the SD card in once, and then slowly pull it out.

*This equipment is compatible with SD memory cards and SDHC memory cards.

NOTICE

Precautions for handling SD cards.
Do not switch off the document camera unit power supply while the SD card is being formatted. Also, use this product to format the SD card for use. When using cards formatted using a PC, use this product to format the SD card again.

Saving Recorded Files to PC

1. Turn on the Document Camera.
2. On the OSD menu, select "Setting" > "USB Connection" > "Disk".
3. Connect the Document Camera with the PC using a USB cable.

The Document Camera is detected as USB device. Using Windows Explorer or Mac OS's Finder, etc., image data recorded in the SD card or built-in memory can be operated from the PC.

To display images as the Document Camera, follow the procedure below.
1. Unplug the USB cable from the PC.
2. On OSD menu, select "Setting" > "USB Connection" > "PC Cam".
3. Connect the Document Camera with the PC using a USB cable.

To switch between displaying images with the Document Camera and operating as a USB device, plug or unplug the USB cable in addition to the setting change of the OSD menu.

NOTICE

Do not insert or remove a USB cable while the device is operating.
Do not insert or remove a USB cable while operating the device with the control panel or remote control. Doing so may cause a malfunction.

Anti Glare Sheet

The anti glare sheet is a specially coated sheet. By simply placing the anti glare sheet onto glossy documents such as magazines or photographs, the amount of light reflected from the document when recording the image is reduced.

Recording Movies

1. Set up the subject and document camera. If the distance between the subject and camera is more than 20cm, set the focus mode to standard mode. If the distance is between 5-20cm, set to macro mode. For details on the setting method, see "3.1.2 OSD Menu".
2. Use the ZOOM button to zoom in or out to the desired position.
3. Press the AUTO FOCUS button to adjust the focus. To use the manual focus, use the MANUAL FOCUS button on the remote control.
4. Press the RECORDING button, and recording starts.
5. Press the RECORDING button again to stop recording.

Recording Still Images

1. Set up the subject and document camera. If the distance between the subject and camera is more than 20cm, set the focus mode to standard mode. If the distance is between 5–20cm, set to macro mode. For details on the setting method, see "3.1.2 OSD Menu".
2. Use the ZOOM button to zoom in or out to the desired position.
3. Press the AUTO FOCUS button to adjust the focus. To use the manual focus, use the MANUAL FOCUS button on the remote control.
4. Press the SNAP button to record a still image.

Playing Back Movies and Still Images

1. Press the PLAYBACK button.
2. The most recently recorded movie or still image is played back.
3. Use the up and down button of the cross key to select the file that you want to play back.
4. Press the zoom out button to display the screen divided into 9 segments.

*Playback the still image on aspect ratio 4:3.

3.2 How to Use the Remote Control

The document camera can be operated using the remote control provided.
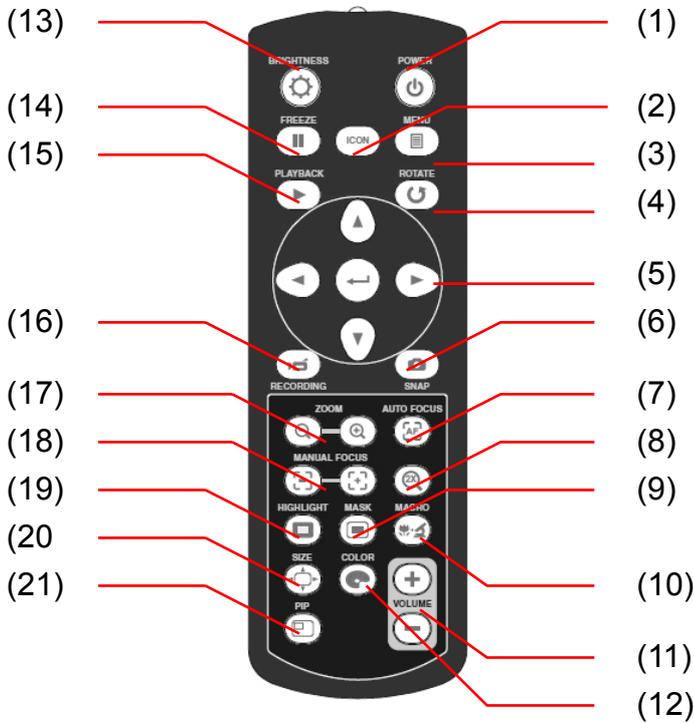
⚠️ **CAUTION**

Be sure to install batteries correctly.
Do not install batteries with positive and negative terminals reversed, or use batteries other than the type specified. Do not mix old and new batteries. Doing so may cause fire or damage.

Be sure to insulate batteries for disposal.
Be sure to insulate the positive and negative terminals of the battery using cellophane tape for disposal. Disposing of batteries without insulating them may lead to overheating, bursting, or ignition due to shorting, resulting in personal injury or fire. Furthermore, be sure to follow all local rules and regulations regarding proper battery disposal.

Number	Name	Explanation
1	POWER	Switches the main unit power ON/OFF.
2	ICON	Selects whether to display or hide the icon on the screen.
3	MENU	Displays or exits from the OSD menu.
4	ROTATE	Rotates images in the display by 180°.
5	Cross Key	Used to select menu items or perform settings.
6	SNAP	Records still images.
7	AUTO FOCUS	Automatically adjusts the focus.
8	2X	Zooms at either 2x or 4x magnification.
9	MASK	Hides one part of the image.
10	MACRO	Switches between macro ON/OFF.
11	VOLUME	Adjusts the output volume.
12	COLOR	Switches the color of the external area when highlight or mask is used.
13	BRIGHTNESS	Adjusts the screen brightness, picture and video.
14	FREEZE	Pauses the image during recording or playback.
15	PLAYBACK	Plays still images or movies as follows. SD card in use: SD card SD card not in use: Internal memory
16	RECORDING	Records movies.
17	ZOOM	Zooms in/out of the image being displayed.
18	MANUAL FOCUS	Adjusts the focus manually.
19	HIGHLIGHT	Displays only 1 section of the image.
20	SIZE	Adjusts the border size of the highlighting or mask.
21	PIP	Displays a small window within the image.

4. Appendix

4. Appendix
4.1 Troubleshooting

Problem	What to Check	What to Do
Power does not switch on.	Is the AC adaptor plugged correctly into the wall socket, and connected correctly to the document camera?	Disconnect the AC adaptor from the wall socket and camera, and reconnect them.
Cannot record still images or movies.	Is there insufficient free space on the SD card or internal memory?	Delete some of the data recorded onto the SD card or internal memory to free up more space.
	Is the SD card write protected?	Remove write protection from the SD card.
Cannot display images even when connected.	Is the document camera connected correctly to the external display?	Read this User's Guide carefully, and connect correctly.
	Does the output display support the resolution of this product?	Adjust the resolution settings of the display to match the resolution settings of this product (for details on how to change the settings, see the display manual).
	Is the connection switch on the document camera set correctly?	Set the connection switch to the correct position.
	Is the image displayed on the LCD panel of the control panel?	Press the DISPLAY SELECT switch to display the image on the external display.
	Is the PC Pass-through button ON?	Switch the PC Pass-through button OFF.
	Is HD Recording ON?	If Rec HD is ON, the mage can only be displayed on the control panel LCD display. Turn Rec HD OFF.
Image is blurred.	Is the subject too close to the camera lens?	Press the AUTO FOCUS or MANUAL FOCUS button to adjust the focus.
		If the distance between the lens and subject is less than 20m, switch to macro mode.
Is the image paused?	Is the recording image currently paused?	Press the FREEZE button again to release the image from being paused.
Remote control does not operate.	Are the batteries exhausted?	Replace with new AAA batteries.
	Is there an obstruction between the document camera and remote control?	Remove the obstruction, and point the remote control at the remote control sensor on the document camera to operate it.
	Is the distance between the document camera and remote control too great?	Operate the remote control within 2m from the document camera.
"MEMORY ERROR" or "CARD ERROR" is displayed on the LCD screen of the camera unit.	The format of the SD card is not compatible with this device.	Format the SD card with this device.
	Is the SD card damaged?	Use a new SD card.
Noise is occurring in the image.	Is the electrical frequency setting adjusted correctly for the region where you live?	Switch the electrical frequency settings to the appropriate settings for your region.

4.2 Product Specifications

Document Camera Specifications

Classification	Item	Specification
Model	Model name	DCHD-5M
	Type name	AH00275(US), AH00276(EU), AH00277(JP)
Image	Image Sensor	1/2.5 Inch CMOS sensor
	Maximum effective pixels	Approx. 5 million megapixels
	Frame rate	Max. 30 frames/second
	HDMI Output	HD：1,280 X 720 (30fps), XGA：1,024 X 768 (30fps)
	VGA Output	HD：1,280 X 720 (30fps), XGA：1,024 X 768 (30fps)
	White balance	Auto
	Brightness	Adjustable
Internal Memory	Image capture	Max 45 images (still), 70 seconds (movie)
Optical system	Lens	7.5–22.5mm / F3.6–6.7
	Focus	Auto/Manual
	Recording area	When aspect ratio is 4:3, 330mm x 246mm When aspect ratio is 16:9, 330mm x 183mm
	Zoom	Optical 3x, digital 4x
Lighting	Upper level	LED light
	Lower level	3-inch LCD light box
Presentation tool	Image control	Pause, highlight, mask, rotate, picture-in-picture, slideshow
	Image effects	Text emphasis, photo, black & white, negative
	Aux. monitor	Yes
	Remote Control	Yes
	Arm operation	Camera section: 180°, arm section: 180°
	RGB Pass through	Yes
Input/Output	RGB Input/Output	15 pin D-sub
	HDMI Output	19 pin HDMI
	VIDEO Output	RCA Jack
	MIC Input	3.5mm Audio jack
	Audio Output	3.5mm Audio jack (Recommender impedance: over 16Ω, Output 15mW)
	USB	USB2.0 Type B
	Power	DC 5V

Classification	Item	Specification
External recording		SDHC Card slot (operable on Max. 32GB SDHC Card)
Power Supply	Power	DC 5V、100–240V、50–60Hz
	Power consumption	When LED light is OFF, 5.5W When LED light is ON, 7W
Dimensions (WxDxH)	When in use	386mm x 198mm x 508mm
	When in storage	386mm x 198mm x 86mm
	Weight	Approx. 2.0kg
Environment	Operating Conditions	+5–+35°C (humidity 20–80% RH, no condensation)
	Storage conditions	-10–+45 (humidity 20–80% RH, no condensation)
Regulations etc.	Document Camera	VCCI Class A, FCC Class A, CE

Compatible Display Resolution

Output	Aspect Ratio	TV Signal Type	Resolution	Refresh Rate
VIDEO	-	NTSC	720 x 480	60Hz
VIDEO	-	PAL	720 x 576	50Hz
VGA	16:9	-	1280 x 720	50Hz/60Hz
VGA	4:3	-	1024 x 768	50Hz/60Hz
HDMI	16:9	-	1280 x 720	50Hz/60Hz
HDMI	4:3	-	1024 x 768	50Hz/60Hz

4.3 Proper Care and Cleaning

⚠ **CAUTION**

Remove all cables before starting to clean this equipment.
Failure to do so may cause electric shock or damage to the equipment.

Clean the document camera periodically so that you may use it for a long time to come.
- To clean the document camera, use a diluted neutral cleansing agent that does not contain a polishing compound. (Never use a solvent such as thinner.)
- Rubbing or striking the surface of the document camera with a fingernail or other hard object may result in scratching.
- To clean the surface of the LCD display, use a soft cloth that will not scratch the surface.

4.4 Replaceable Parts/Product Warranty Period

4.4.1 Replaceable Parts

- AAA batteries

4.4.2 Product Warranty Period

- Document Camera (5 years)
  For details on obtaining them contact your dealer or the support center.

4.5 Product Warranty Provisions

1. During the free warranty service period, if a malfunction occurs during normal use, the malfunction will be corrected without charge, according to the provisions of the warranty. Furthermore, if the customer registration card accompanying the warranty is not returned to our company, the customer information will not be registered; so free repairs might be unavailable. After receiving this product, please immediately fill out and return this customer registration card.

2. The warranty coverage is listed in the following table.

Part Name	Warranty Coverage
Document Camera	+
AC Adaptor	-
Remote Control	-
RGB Cable	-
HDMI Cable	-
USB Cable	-
VIDEO Cable	-
Audio cable	-
Microscope adaptor	-
Anti Glare Sheet	-
AAA batteries	-

(Key): + →Covered by warranty (excluding wear or physical damage)
      - →Not covered by warranty

3. Please refer to the warranty about this product's warranty service period.

4. Even during the warranty period, there will be a repair charge in the following cases.
   1) If the registration card accompanying the warranty is not returned to our company.
   2) If the warranty is not presented.
   3) If specified fields on the registration card accompanying the warranty are not completed, or if the wording has been changed without authorization.
   4) The warranty applies only to the original purchasers. (It does not apply to a third party to whom the customer resold this product.)
   5) In the event of a malfunction or damage resulting from the customer's improper handling, such as a fall, impact etc., caused by the customer during transportation or movement.
   6) In the event of problems resulting from handling contrary to the handling and precautions mentioned in this user's guide.
   7) In the event of failure or damage resulting from abnormal voltages, pollution or other natural disasters, such as fire, earthquake, and lightening.
   8) In the event of a malfunction in this product caused by a different device connected to this product.
   9) In the event that there is no abnormality in this product, but a defect in a part other than this product was detected or remedied.
   10) In the event of ordinary wear and tear, wear, deterioration etc., of consumables, even during normal use.

5. If this product malfunctions, review the contents of this user's guide. If the problems remain irreparable, contact the support center. The support center will determine whether or not the product must be repaired, so please contact them. If the customer sends the product to our company without contacting us first, the product may not be covered by the warranty.

6. As a rule the customer is responsible for shipping charges required to send all or part of the product for repair etc. Our company will assume responsibility for the return shipping to the customer.

7. This warranty does not cover labor fees for repair-associated equipment assembly or disassembly.

8. Incidental damaged caused by the failure of this product (e.g., loss of profit that should have resulted from the use of this product) is outside the scope of this warranty.

9. The aforementioned provisions define this warranty, and they supersede those of all express or implied warranties that include legal defect liability.

10. This warranty is limited to use of this product within the country where the user bought this product.