# Panasonic®

Operating Instructions
<Basics>

Remote Camera Controller
Model No. **AW-RP120G**

- Die Bedienungsanleitung in Deutsch ist als PDF-Datei in der CD-ROM enthalten. (Seite 2)
- Le mode d'emploi en français est fourni sous forme de fichier PDF sur le CD-ROM. (page 2)
- Le istruzioni per l'uso in italiano sono contenute in un file PDF sul CD-ROM. (pagina 2)
- Las instrucciones de funcionamiento en español se encuentran en un archivo PDF del CD-ROM. (página 2)
- Документ Инструкция по эксплуатации на русском языке находится в виде PDF-файла на диске CD-ROM. (стр. 2)
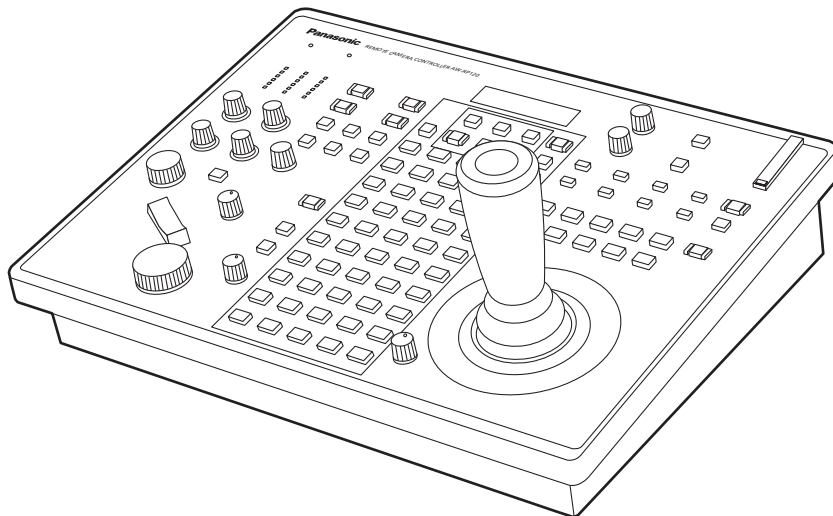
Before operating this product, please read the instructions carefully and save this manual for future use.

- **How the Operating Instructions are configured**
  <Basics> (this manual):
    This <Basics> describes the procedure for connection with the required equipment and for installation. Before installing this unit, be sure to take the time to read through <Basics> to ensure that the unit will be installed correctly.
    This manual <Basics> is also contained as a PDF file on the CD-ROM supplied with the unit. (page 2)
  <Operations and Settings>:
    The <Operations and Settings> describes how to operate the unit and how to establish its settings.
    The <Operations and Settings> is contained as a PDF file on the CD-ROM supplied with the unit. (page 2)

ENGLISH

- **How to open the operating instruction manual PDF files**
  Discontinue installation if the installation screen of the software opens as a result of inserting the CD-ROM.
  When [INDEX.pdf] on the CD-ROM is opened, a list of the operating instruction manuals will be displayed.
  Click on the document name of the manual to be opened.

- **Adobe® Reader® is required to read PDF files. It can be downloaded from the home page of Adobe Systems.**

DEUTSCH

- **Öffnen der PDF-Dateien der Bedienungsanleitung**
  Brechen Sie die Installation ab, falls beim Einlegen der CD-ROM der Installationsbildschirm der Software erscheint.
  Wenn [INDEX.pdf] auf der CD-ROM geöffnet wird, erscheint eine Liste der Bedienungsanleitungen.
  Klicken Sie auf den Dokumentennamen der zu öffnenden Anleitung.

- **Zum Lesen der PDF-Dateien benötigen Sie Adobe® Reader®. Dieses Programm kann von der Homepage von Adobe Systems heruntergeladen werden.**

FRANÇAIS

- **Comment ouvrir les fichiers PDF des manuels du mode d'emploi**
  Arrêter l'installation si l'écran d'installation du logiciel s'ouvre quand le CD-ROM est inséré.
  Quand [INDEX.pdf] sur le CD-ROM s'ouvre, la liste des manuels du mode d'emploi s'affiche.
  Cliquer sur le nom du document correspondant au manuel à consulter.

- **Adobe® Reader® est nécessaire pour lire les fichiers PDF. Ce logiciel peut être téléchargé depuis la page d'accueil d'Adobe Systems.**

ITALIANO

- **Come aprire i file dei manuali di istruzioni per l'uso**
  Se inserendo il CD-ROM si apre la schermata di installazione del software, interrompere l'installazione.
  Aprendo [INDEX.pdf] sul CD-ROM, viene visualizzato un elenco di manuali di istruzioni per l'uso.
  Fare clic sul nome del documento corrispondente al manuale da aprire.

- **Per leggere i file PDF è necessario Adobe® Reader®. Il programma può essere scaricato dal sito Web di Adobe Systems.**

ESPAÑOL

- **Modo de abrir los archivos PDF que contienen el manual de las instrucciones de funcionamiento**
  Interrumpa la instalación si la pantalla de instalación del software se abre como resultado de insertar el CD-ROM.
  Cuando se abra [INDEX.pdf] en el CD-ROM se visualizará una lista de los manuales de instrucciones de funcionamiento.
  Haga clic en el nombre de documento del manual que va a abrir.

- **Para leer los archivos PDF se necesita el programa Adobe® Reader®. Este programa se puede descargar de la página inicial de Adobe Systems.**

РУССКИЙ

- **Как открыть PDF-файлы инструкции по эксплуатации**
  Прекратите установку, если в результате загрузки диска CD-ROM появилось окно установки программного обеспечения.
  При открытии файла [INDEX.pdf] на диске CD-ROM будет отображен список инструкций по эксплуатации.
  Щелкните название документа руководства, чтобы открыть его.

- **Для чтения PDF-файлов потребуется Adobe® Reader®.**
- **Данное программное обеспечение можно скачать с домашней страницы Adobe Systems.**

Read this first!

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord form being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

AEEE Yönetmeliğine Uygundur.
AEEE Complies with Directive of Turkey.

EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

1. Applicable standards and operating environment (AW-RP120G)

The apparatus is compliant with:
- standards EN55103-1 and EN55103-2, and
- electromagnetic environments E1, E2, E3 and E4.

2. Pre-requisite conditions to achieving compliance with the above standards

<1> Peripheral equipment to be connected to the apparatus and special connecting cables
- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

<2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.
- Video signal connecting cables
  Use double shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).
  Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables
  If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU.
  Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables (LAN, RS-422)
  Use shielded cables, which provide quality performance for high-frequency applications, as connecting cables.
- When connecting to the DVI signal terminal, use a cable with a ferrite core.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

3. Performance level
The performance level of the apparatus is equivalent to or better than the performance level required by these standards. However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:
1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

Declaration of Conformity
with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in Electrical and Electronic Equipment
(adopted by Order №1057 of Cabinet of Ministers of Ukraine)

The Product is in conformity with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment (TR on RoHS).

The content of hazardous substance with the exemption of the applications listed in the Annex №2 of TR on RoHS:

1. Lead (Pb) – not over 0,1 % or 1000wt ppm;
2. Cadmium (Cd) – not over 0,01 % or 100wt ppm;
3. Mercury (Hg) – not over 0,1 % or 1000wt ppm;
4. Hexavalent chromium (Cr^{6+}) – not over 0,1 % or 1000wt ppm;
5. Polybrominated biphenyls (PBBs) – not over 0,1 % or 1000wt ppm;
6. Polybrominated diphenyl ethers (PBDEs) – not over 0,1 % or 1000wt ppm.

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Illustrations and screen images in this manual

Illustrations of the unit and screens may appear different from the actual unit and screens.

Abbreviations

The following abbreviations are used in this manual.
- Microsoft® Windows® 7 Professional SP1 32/64-bit is referred to as "Windows 7".
- Microsoft® Windows® XP Professional SP3 and Microsoft® Windows® XP Home Edition SP3 are referred to as "Windows XP".
- SD memory cards and SDHC memory cards are both referred to as "memory cards".
  They are referred to individually in descriptions in which each of them is discussed separately.
- In these instructions, the phrases "HD integrated camera" and "pan-tilt head and camera combination" are referred to collectively as "remote camera" except in places where specific equipment is mentioned.

Furthermore, the product numbers of equipment are referred to as follows.

Equipment part number	Notation in this manual	Equipment part number	Notation in this manual
AW-RP120G	**AW-RP120**	AW-PH400P	**AW-PH400**
AW-HE60HN	**AW-HE60**	AW-PH400E	
AW-HE60SN		AW-IF400G	**AW-IF400**
AW-HE60HE		AW-HE870N	**AW-HE870**
AW-HE60SE		AW-HE870E	
AW-HE50HN	**AW-HE50**	AW-E860N	**AW-E860**
AW-HE50SN		AW-E860L	
AW-HE50HE		AW-E750P	**AW-E750**
AW-HE50SE		AW-E750E	
AW-HE120WP	**AW-HE120**	AW-E650P	**AW-E650**
AW-HE120KP		AW-E650E	
AW-HE120WE		AW-E350P	**AW-E350**
AW-HE120KE		AW-E350E	
AW-HE100N	**AW-HE100**	AK-HC1500G	**AK-HC1500**
AW-HE100E		AK-HC1800G	**AK-HC1800**
AW-HE2P	**AW-HE2**	AW-HS50N	**AW-HS50**
AW-HE2E		AW-HS50E	
AW-PH360N	**AW-PH360**	AW-RP50N	**AW-RP50**
AW-PH360L		AW-RP50E	
AW-PH405N	**AW-PH405**	AV-HS6000 Series	**AV-HS6000**
AW-PH405E			
AW-PH650N	**AW-PH650**		
AW-PH650L			

Introduction

■ Overview

This unit is a controller which is designed to control remote cameras.
It can be used to control up to 100 remote cameras when IP connections are used, and up to 5 remote cameras when serial connections are used.
Also, operation linked to an AW-HS50 compact live switcher can be implemented by means of an IP connection.

■ Required personal computer environment

Run the software that is supplied with the unit on a personal computer which satisfies the following specifications.

CPU	Intel® Core™2 Duo 2.4 GHz or faster, or a CPU with equivalent specs
Memory	Windows XP: 512 MB or more Windows 7: 1 GB or more
Network function	10BASE-T or 100BASE-TX
Image display function	Resolution: 1024 x 768 pixels or more Color generation: True Color (24 bits or more)
Supported operating systems	Windows XP Windows 7
Hard disk drive	At least 50 MB of free space
Other	CD-ROM drive (For using the Operating Instructions and various software) Adobe® Reader® (For browsing the Operating Instructions on the CD-ROM)

■ Disclaimer of warranty

IN NO EVENT SHALL Panasonic Corporation BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

(1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
(2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
(3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
(4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
(5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
(6) ANY INCONVENIENCE, DAMAGES OR LOSSES RESULTING FROM ACCIDENTS CAUSED BY AN INADEQUATE INSTALLATION METHOD OR ANY FACTORS OTHER THAN A DEFECT IN THE PRODUCT ITSELF;
(7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE;
(8) ANY DAMAGE OR CLAIMS DUE TO LOSS OR LEAKAGE OF IMAGE DATA OR SETTING DATA SAVED ON THIS UNIT OR ON A MEMORY CARD OR COMPUTER.

■ Network security

As you will use this unit connected to a network, your attention is called to the following security risks.

(1) Leakage or disclosure of information transmitted via this unit
(2) Unauthorized use of this unit by a third person with malicious intent
(3) Interference or stoppage of this unit by a third person with malicious intent

It is your responsibility to take sufficient network security measures such as those described below to protect yourself against the above risks.

● Use this unit in a network secured by a firewall, etc.
● If this unit is used in a system with a computer connected, make sure that checks for and removal of computer viruses and malicious programs are implemented regularly.
● Do not install the unit in a location where the unit, cables, and other parts may be easily damaged.

User authentication

The user authentication function of this unit uses basic authentication. When basic authentication is used on an unsecured network, there is the risk of passwords being leaked.
We recommend using host authentication in such a case.
Configure the host authentication settings on the remote cameras. For details, refer to the Operating Instructions for the remote cameras.

Restrictions on use

With regards to the network for connecting the remote cameras and personal computer to the unit, we recommend that the segment is the same.
If there are connections for which the segment is different, events dependent upon, for example, settings unique to the network equipment may occur so carefully check the connections prior to the start of operation.

Features

IP connections and serial connections supported

IP connections

- Up to 100 remote cameras [*1] can be controlled via a network hub (switching hub).
- The unit's auto IP setting function can be used to automatically assign and control the IP addresses of the remote cameras [*1] and switcher [*2].

[*1]: Supported cameras: AW-HE50, AW-HE60, AW-HE120, and AW-HE2
[*2]: Supported switcher: AW-HS50, AV-HS6000

- One remote camera can be simultaneously controlled from up to 5 units.
- The setup software supplied with this unit can be used to set the IP addresses of the remote cameras and switchers from a personal computer via the unit.

Serial connections

- Up to 5 remote cameras can be connected.

Easy to operate the remote cameras

- The unit is equipped with dedicated levers, buttons, and dials for performing pan, tilt, zoom, and focus operations. Furthermore, there is a dedicated speed adjustment knob for each of them. Camera angle adjustment can be performed quickly and reliably.
- The unit is equipped with an AWB button and ABB button for executing automatic adjustment of the white balance and black balance. Furthermore, there are dedicated dials for adjusting the pedestal and gain for each of the R channel and B channel. Manual color adjustment is also easy.
- The 1 to 50 number buttons and page buttons enable quick access operations at sites where presets are used frequently.
  Also, the speed at which a remote camera moves to a preset position (PRESET SPEED) can be memorized for each preset number of the unit. Thus, a remote camera can be operated at a different speed depending on the preset number in accordance with operation, enabling video playback at a variety of speeds.
- Tracing memory is incorporated for recording a series of operations.
  It allows you to duplicate remote camera operations.

Supported remote cameras

- **HD integrated cameras**
  AW-HE50, AW-HE60, AW-HE120, AW-HE100, and AW-HE2 [*3]
  [*3]: Some operations of the AW-HE2 differ from those of other HD integrated cameras.
  For details, refer to "Operations of AW-HE2" in <Operations and Settings> (page 51).

- **Pan-tilt head and camera combinations**
  Systems including a combination of any of the following pan-tilt heads and cameras can be controlled.
  <Pan-tilt heads>
  AW-PH360, AW-PH405, AW-PH650, and AW-PH400 [*4]
  [*4]: AW-IF400 is required to connect AW-PH400 to the unit.
  <Cameras>
  AW-HE870, AW-E860, AW-E750, AW-E650, AW-E350, AK-HC1500, and AK-HC1800

Supported switcher

- **Compact live switcher**
  AW-HS50
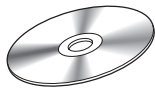
- **2ME Live Switcher**
  AV-HS6000

Accessories

Check the accessories.
● After unpacking the product, dispose of the packaging material appropriately.

CD-ROM.......................... 1

● Operating Instructions <Basics>
● Operating Instructions <Operations and Settings>
● Setup Software

Precautions for use

Observe the following in addition to the information included in "Read this first!".

Handle carefully
Do not drop the product, or subject it to a strong impact or vibration.
Do not carry or move the product by the PAN/TILT lever or a dial.
Doing so may cause a failure or accident.

Use the product in an ambient temperature of 0 °C to 40 °C (32 °F to 104 °F)
Avoid using the product in a cold place where the temperature drops below 0 °C (32 °F) or in a hot place where the temperature rises above 40 °C (104 °F) because an extremely low or high temperature will adversely affect the internal parts.

Turn off the power before connecting or disconnecting cables
Before connecting or disconnecting the cables, be sure to turn the power off.

Avoid humidity and dust
Avoid using the product in a very humid or dusty place because a lot of humidity and dust will cause damage to the internal parts.

Cleaning
Turn the power off and wipe the product with a dry cloth. To remove stubborn dirt, dip a cloth into a diluted solution of kitchen detergent (neutral detergent), wring it out well, and wipe the product gently. Then, wipe the product with a cloth dampened with water. Finally, wipe the product with a dry cloth.

Notes
● Avoid using benzine, paint thinners and other volatile fluids.
● If a chemical cleaning cloth is to be used, carefully read through the precautions for its use.

Disposal of the unit
When the unit has reached the end of its service life and is to be disposed of, ask a qualified contractor to dispose of the unit properly in order to protect the environment.

Precautions for installation

In addition to the safety precautions given in "Read this first!", also observe the following instructions.

Be sure to ask your dealer to perform the installation and connection work for the unit.

Connecting a power supply
● Insert the DC plug for the external DC power supply all the way in until it locks into place.
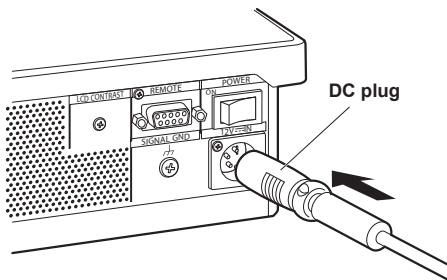
DC plug

● When the unit will not be used for a long time, turn off the power switch and remove the DC plug for the external DC power supply to save power.

Do not allow any foreign objects to enter inside the unit
● Allowing water, metal items, food or drink, or other foreign objects to enter inside the unit may cause a fire or electric shock.

Installation location
● This unit is designed for indoor use only.
● Install and use the unit in a stable location.
● Avoid installing the unit where it will be exposed to direct sunlight.
● Installing the unit in a location with a lot of humidity, dust, or vibration may result in a failure.

Example of embedding the unit in a desktop

When you will use the unit embedded in a desktop, refer to the following procedure.

1. Make mount angles suitable for the installation location.

<Mount angle example>
● **Desk mounting side**　　　　　　**Unit: mm (inch)**

25 (31/32)

160 (6-5/16)

Ø5 (3/16)
(Desk mounting holes)

● **Unit mounting side**
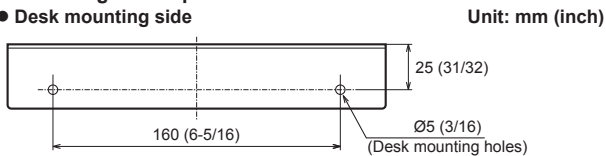
210 (8-9/32)
140 (5-1/2)
2 (3/32)
30 (1-3/16)
21 (13/16)
35 (1-3/8)
Ø3.5 (1/8)
(Unit mounting hole)
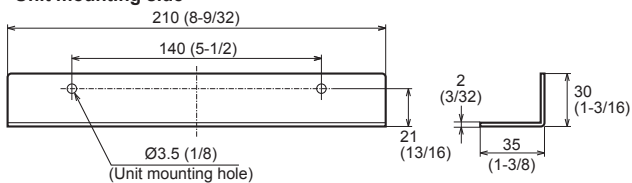
2. Attach the mount angles to the sides of the unit with four M3 screws.

Unit

M3 screws
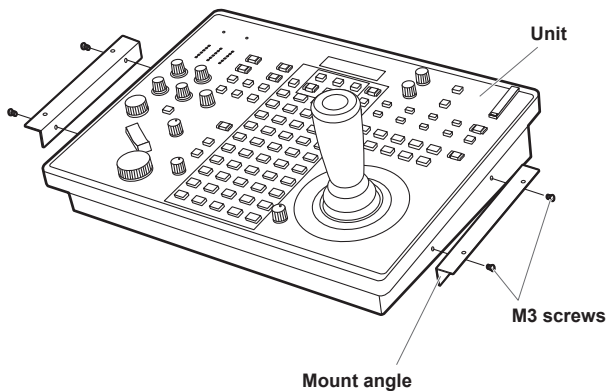
Mount angle

Note
● For details on the dimensions for attaching mount angles to the unit, refer to "Appearance" (page 11).

3. Insert the unit into the desktop hole and then fix it in place with four screws.
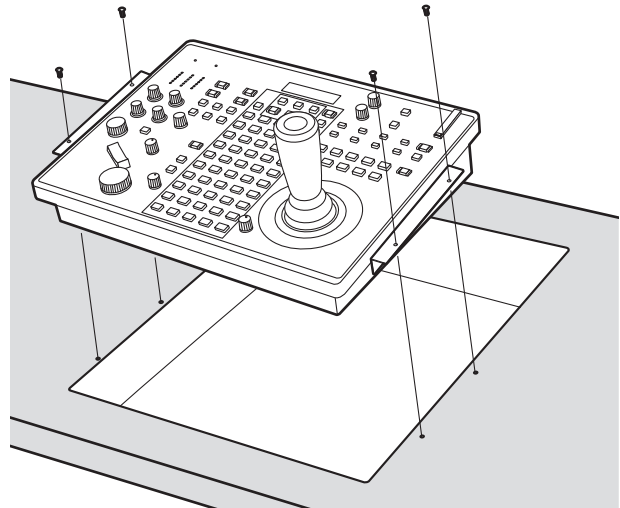
● Provide screws that match the size of the desktop mounting holes (e.g. Ø5 mm [3/16 inches]).

4. If necessary, make and attach a panel to cover the rest of desktop hole.

Panel to cover hole
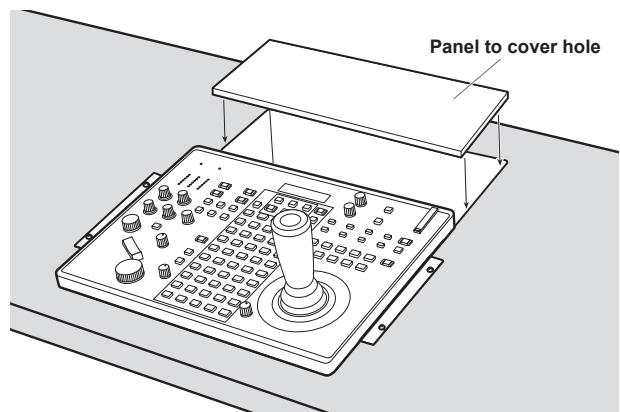
Appearance

Unit: mm (inch)
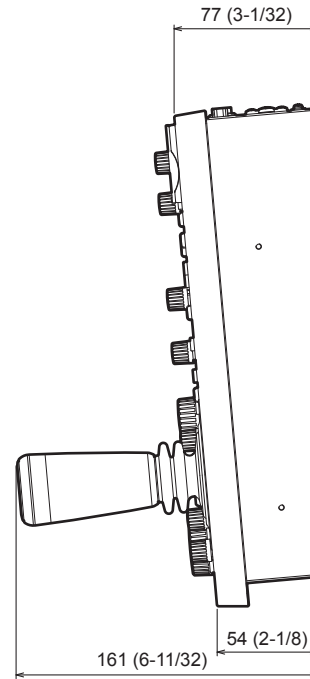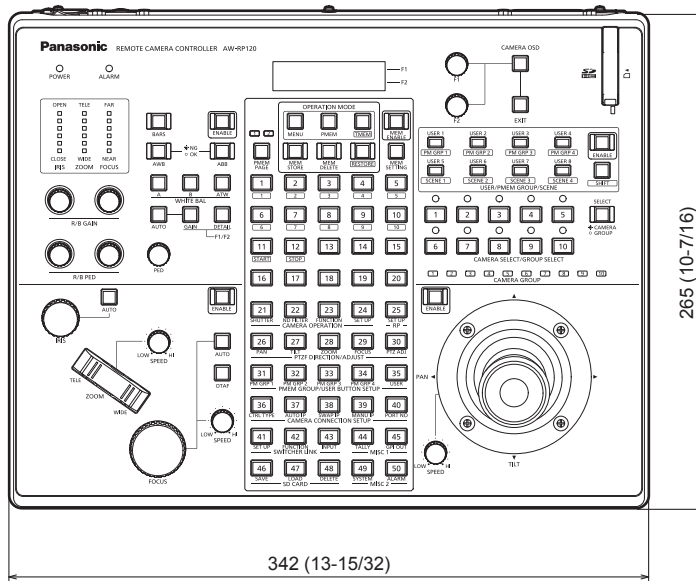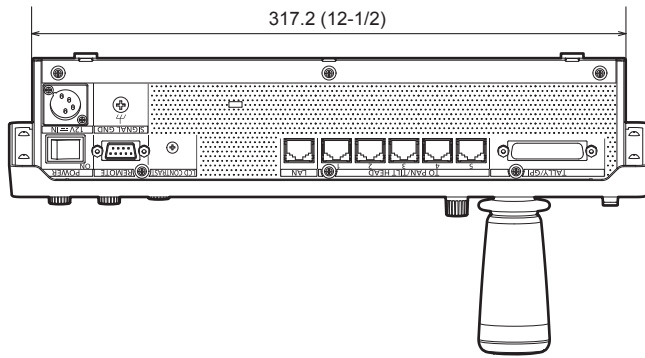
● **Mount angle attachment position**
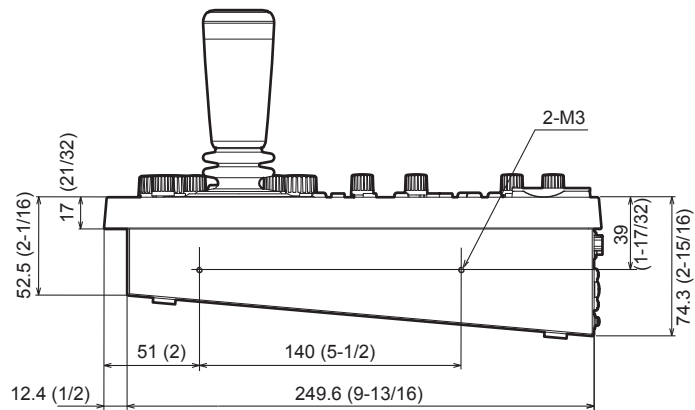
Parts and their functions

Control panel
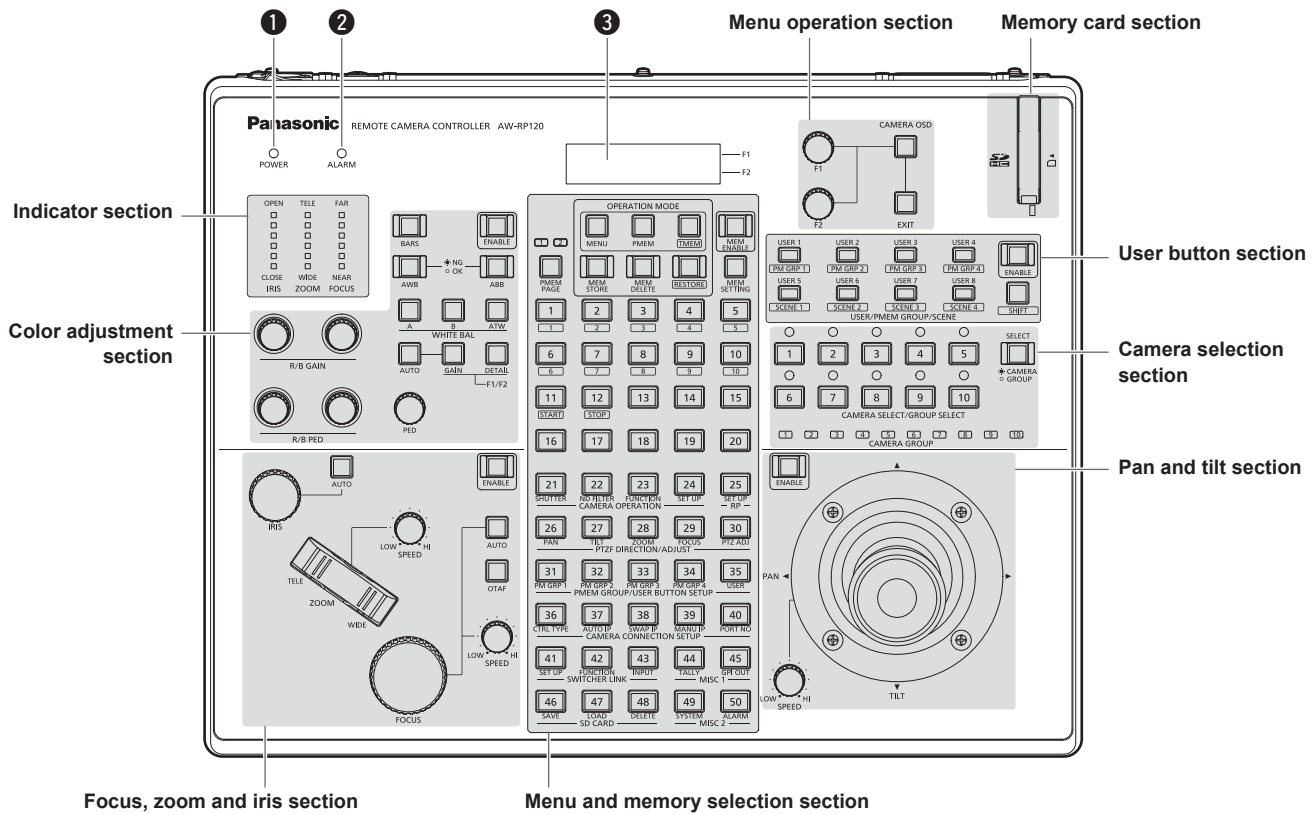
❶ POWER indicator [POWER]
This turns on when the POWER switch (㊾) on the rear panel is set to ON while power is supplied to the DC IN socket (㊿).

❷ ALARM indicator [ALARM]
This turns on when there is a problem with the power supply (voltage drop).
It also turns on when an alarm (a cooling fan alarm or pan/tilt error) has been received from a remote camera.
⇒ "Checking alarm information" in <Operations and Settings> (page 40)

❸ LCD panel
This indicates the current setting statuses.

Menu operation section
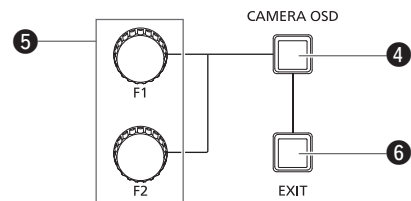
❹ CAMERA OSD button [CAMERA OSD]
Hold down this to turn the button indicator on or off and switch the operation target of the F1 dial and F2 dial.

Button indicator on : The OSD menu of the selected remote camera is displayed.
The OSD menu of the remote camera can be operated with the F1 dial and F2 dial.
Button indicator off : The OSD menu of the selected remote camera is not displayed.
The menus of the unit can be operated with the F1 dial and F2 dial.

❺ F1 dial [F1]
F2 dial [F2]
Use these to operate the menus of the unit or the OSD menu of a remote camera.
Use the CAMERA OSD button (❹) to select which operation to perform.
When the dials are used to operate the menus of the unit, the F1 dial operates the items displayed at the top of the LCD panel of the unit, and the F2 dial operates the items displayed at the bottom of the LCD panel.
Operation of the OSD menu of a remote camera differs depending on the camera type.
⇒ "Operating the OSD menu of a remote camera" in <Operations and Settings> (page 11)

❻ EXIT button [EXIT]
Use this to cancel the changes to the settings during operation of the OSD menu of a remote camera.
It cannot be used during operation of the menus of the unit.
⇒ "Operating the OSD menu of a remote camera" in <Operations and Settings> (page 11)

Camera selection section
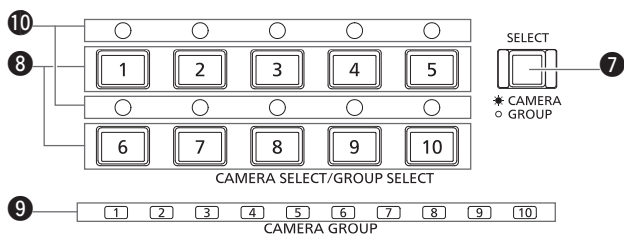
❼ Mode selection button [SELECT]
Each press of this switches the button indicator between on and off in the order of on → off → on, and so on, and switches the operation mode of the camera selection buttons (❽).

Button indicator on : Camera selection mode
Button indicator off : Camera group selection mode

❽ Camera selection buttons
[CAMERA SELECT/GROUP SELECT 1 to 10]
Use these to select the remote camera or camera group to control from the unit.
Pressing any of [1] to [10] in camera selection mode switches to the corresponding remote camera.
Holding down any of [1] to [10] in camera group selection mode switches to the corresponding camera group and turns on the corresponding camera group indicator (❾).

> **Note**
>
> ● If a camera selection button is pressed to switch the remote camera that the unit controls while the OSD menu of a remote camera is displayed, the CAMERA OSD button (❹) indicator turns off and the OSD menu of the remote camera originally selected disappears.

❾ Camera group indicators [CAMERA GROUP 1 to 10]
The indicator for the selected camera group number is on.

❿ Camera status indicators [1] to [10]
These indicate the statuses of the remote cameras assigned to [1] to [10].
⇒ "Selecting a remote camera" (page 38)

Pan and tilt section
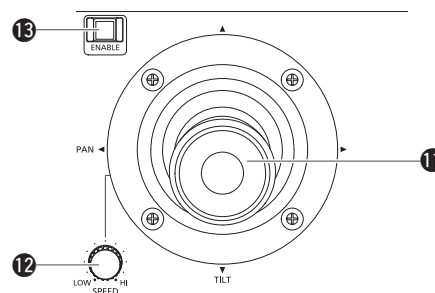
⓫ PAN/TILT lever
Use this to control the direction in which the currently selected remote camera points.
The movement speed differs depending on the angle to which the PAN/TILT lever is moved.

Moved left or right : The camera points to the left or right.
Moved toward you or away from you:
The camera points up or down.

● When the function for linking with a switcher is enabled, you can use the PAN/TILT lever to control switcher parameters.
⇒ "Operating the switcher with the PAN/TILT lever and ZOOM button" in <Operations and Settings> (page 34)
● Setting "REVERSE" in PAN DIRECTION menu [26] and TILT DIRECTION menu [27] changes the direction the camera moves in relation to the direction that the lever is moved.
⇒ "Setting the pan, tilt, zoom, and focus operation directions" in <Operations and Settings> (page 23)

⓬ PAN/TILT SPEED dial [SPEED]
Use this to adjust the operation speed variation amount for PAN/TILT lever operation.

Turned clockwise : Operation is at a higher speed (HI)
Turned counterclockwise : Operation is at a lower speed (LOW)

⓭ PAN/TILT ENABLE button [ENABLE]
Use this to enable PAN/TILT lever operation.

Button indicator on or blinking : PAN/TILT lever operation is enabled.
Button indicator off : PAN/TILT lever operation is disabled.

● The PAN/TILT ENABLE button indicator is on while the PAN/TILT lever is being used to control the direction in which the remote camera points.
● The PAN/TILT ENABLE button indicator is blinking while the PAN/TILT lever is being used to control the switcher parameters.
● When the "9. P/T/Z CONTROL" item in SW FUNCTION menu [42] is set to "Button Select", pressing the PAN/TILT ENABLE button switches the control application of the PAN/TILT lever.
⇒ "Operating the switcher with the PAN/TILT lever and ZOOM button" in <Operations and Settings> (page 34)

13

Focus, zoom and iris section

⑭ FOCUS dial [FOCUS]

Use this to manually control the focus.
During auto focusing (when the auto focus button [⑮] indicator is on), operation is disabled.

Turned clockwise : The focus moves to the far end.
Turned counterclockwise : The focus moves to the near end.

● Setting "REVERSE" in FOCUS DIRECTION menu [29] changes the direction the focus moves in relation to the direction that the FOCUS dial is turned.

⑮ Auto focus button [AUTO]

Use this to set focus control to "Auto (auto focus)".
During auto focusing, operation of the FOCUS dial (⑭) and one-touch auto focus button (⑯) is disabled.

Button indicator on : Auto focus
Button indicator off : Manual focus

● When a lens equipped with an extender function is used for the remote camera, each press of this button switches the extender function on or off.

　Button indicator on : The extender function is enabled.
　Button indicator off : The extender function is disabled.

　(For details on how to connect the lens control cables to the pan-tilt head, refer to the Operating Instructions of the pan-tilt head.)
● Button operation is disabled if the remote camera has no auto focus function and lens extender function.

⑯ One-touch auto focus button [OTAF]

When this button is pressed during manual focusing (when the auto focus button [⑮] indicator is off), the button indicator turns on for a brief moment and the auto focusing operation is performed to bring the subject into focus.

● Button operation is disabled if the remote camera has no auto focus function.

⑰ FOCUS SPEED dial [SPEED]

Use this to adjust the operation variation amount for FOCUS dial (⑭) operation.

Turned clockwise : Operation is at a higher speed (HI)
Turned counterclockwise : Operation is at a lower speed (LOW)

⑱ ZOOM button [ZOOM]

Use this to adjust the lens zoom.
The zooming speed changes depending on the extent to which the button is pressed.

When the TELE side is pressed : Moves toward the telephoto end.
When the WIDE side is pressed : Moves toward the wide-angle end.

● When the function for linking with a switcher is enabled, you can press the ZOOM button to control switcher parameters.
　⇒ "Operating the switcher with the PAN/TILT lever and ZOOM button" in <Operations and Settings> (page 34)
● Setting "REVERSE" in ZOOM DIRECTION menu [28] changes the direction the lens zoom moves in relation to the direction that the ZOOM button is moved.

⑲ ZOOM SPEED dial [SPEED]

Use this to adjust the operation variation amount for ZOOM button (⑱) operation.

Turned clockwise : Operation is at a higher speed (HI)
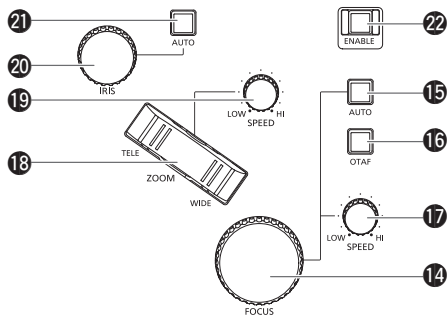**Turned counterclockwise** : Operation is at a lower speed (LOW)

⑳ IRIS dial [IRIS]

During manual iris (when the auto iris button [㉑] indicator is off), use this to manually control the lens iris.
During auto iris (when the auto iris button [㉑] indicator is on), use this to adjust the convergence level of the auto iris of the remote camera.

Turned clockwise : The lens iris opens.
Turned counterclockwise : The lens iris closes.

㉑ Auto iris button [AUTO]

Use this to set lens iris control to "Auto (auto iris)".

Button indicator on : Auto iris
Button indicator off : Manual iris

● When AW-HE50 or AW-HE60 is being controlled, Contrast Mode switches to "Auto" or "Manual" in conjunction with the selection of auto iris or manual iris. Also, if you set the shooting mode to "FullAuto", the lens iris is fixed to auto iris and button operation is disabled.
● When the AW-PH400 is connected via a protocol converter (AW-IF400), the remote camera operates in the "auto iris" state regardless of the auto iris button state if the power of the AW-PH400 is turned on after the power of the unit. Press the auto iris button to match the states of the unit and camera and then perform the operation.

㉒ FOCUS/ZOOM/IRIS ENABLE button [ENABLE]

Use this to enable or disable operation of the FOCUS dial (⑭), ZOOM button (⑱) and IRIS dial (⑳).

Button indicator on or blinking:
　　　　Operation of the FOCUS dial, ZOOM button and IRIS dial is enabled.
Button indicator off : Operation of the FOCUS dial, ZOOM button and IRIS dial is disabled.

● The FOCUS/ZOOM/IRIS ENABLE button indicator is on while the ZOOM button is being used to control the lens zoom.
● The FOCUS/ZOOM/IRIS ENABLE button indicator is blinking while the ZOOM button is being used to control the switcher parameters.
● When the "9. P/T/Z CONTROL" item in SW FUNCTION menu [42] is set to "Button Select", pressing the FOCUS/ZOOM/IRIS ENABLE button switches the control application of the ZOOM button.
　⇒ "Operating the switcher with the PAN/TILT lever and ZOOM button" in <Operations and Settings> (page 34)

Color adjustment section
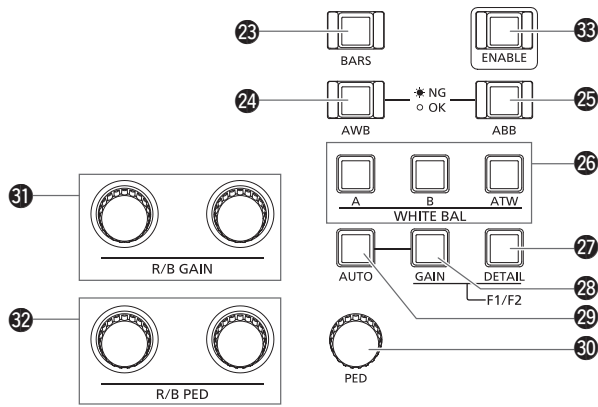
㉓ BARS button [BARS]

Use this to select the video signal output from the remote camera.
Each press switches between the "signal for the images shot by the camera" and the "color bar signal".

Button indicator off : Outputs the signal for the images shot by the camera
Button indicator on : Outputs the color bar signal

㉔ AWB button [AWB]

Use this to execute automatic adjustment of the white balance and then register the adjustment result to memory A or B of the remote camera.
The AWB button indicator blinks during white balance adjustment and turns off when adjustment is successful. When adjustment was not possible, the indicator turns on and the white balance setting does not change.

● When automatic adjustment of the white balance ends, the R GAIN and B GAIN values become ±0.
● If the AWB button is pressed when the color bar signal is output from the remote camera (when the BARS button (㉓) indicator is on) or when ATW is selected (when the ATW button (㉖) indicator is on), the adjustment is not made and the button indicator turns on.
● When adjustment was not possible, try changing, for example, the light source, lens iris, and subject, and then perform adjustment again.

㉕ ABB button [ABB]

Use this to execute automatic adjustment of the black balance.
When the button is pressed, adjustment is performed by automatically closing the iris.
The ABB button indicator blinks during black balance adjustment and turns off when adjustment is successful. When adjustment was not possible, the indicator turns on and the black balance setting does not change.

● When adjustment was not possible, check the camera and lens cable connections, and then perform adjustment again.

㉖ WHITE BAL A/B/ATW buttons [WHITE BAL A/B/ATW]

Use these to select the white balance mode of the remote camera.

A : Press the A button to switch to the white balance state registered in memory A of the remote camera and to turn on the A button indicator.
Pressing the AWB button (㉔) after the A button automatically adjusts the white balance and registers the adjustment result to memory A of the camera.

B : Press the B button to switch to the white balance state registered in memory B of the remote camera and to turn on the B button indicator.
Pressing the AWB button (㉔) after the B button automatically adjusts the white balance and registers the adjustment result to memory B of the camera.

ATW: Press the ATW button to switch to the auto tracking white balance (ATW) mode for automatically tracking the white balance in accordance with the lighting conditions and to turn on the ATW button indicator.

㉗ DETAIL button [DETAIL]

Use this to adjust the details of the remote camera.
Pressing the button displays the DETAIL setting values of the remote camera on the LCD panel (❸). Use the F1 dial and F2 dial (❺) to change the setting values.

㉘ GAIN button [GAIN]

Use this to change the gain setting of the remote camera.
Pressing the button displays the GAIN setting value of the remote camera on the LCD panel (❸). Use the F1 dial (❺) to change the setting value.

㉙ AUTO GAIN button [AUTO]

Use this to automatically adjust the gain of the remote camera.

Button indicator on : Auto gain
Button indicator off : Manual gain

● If the shooting mode is set to "FullAuto" when AW-HE50 or AW-HE60 is being controlled, the gain is fixed to auto gain and button operation is disabled.

㉚ PED dial [PED]

Use this to adjust the master pedestal.

Turned clockwise : Displays the setting value of the master pedestal on the LCD panel and changes the value in the plus (+) direction.
Turned counterclockwise : Displays the setting value of the master pedestal on the LCD panel and changes the value in the minus (–) direction.

● Pressing this dial displays the current setting value on the LCD panel (❸).

㉛ R/B GAIN dials [R/B GAIN]

Use these to individually adjust the gain of the R channel and B channel (R GAIN and B GAIN) in order to set the desired white balance. The adjustment value is registered to memory A or B of the remote camera.

Turned clockwise : Displays the setting values of the R GAIN and B GAIN on the LCD panel and changes the value in the plus (+) direction.
Turned counterclockwise : Displays the setting values of the R GAIN and B GAIN on the LCD panel and changes the value in the minus (–) direction.

● Pressing these dials displays the current setting values on the LCD panel (❸).
● If these dials are turned when ATW is selected (when the ATW button [㉖] indicator is on), "– – –" appears on the LCD panel and the white balance settings are not changed.

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㉜ R/B PED dials [R/B PED]

Use these to individually adjust the pedestal of the R channel and B channel (R PED and B PED) in order to set the desired black balance.

Turned clockwise : Displays the setting values of the R PED and B PED on the LCD panel and changes the value in the plus (+) direction.

Turned counterclockwise : Displays the setting values of the R PED and B PED on the LCD panel and changes the value in the minus (–) direction.

● Pressing these dials displays the current setting values on the LCD panel (❸).

㉝ Color adjustment ENABLE button [ENABLE]

Use this to enable or disable operation of the color adjustment section.

Button indicator on : Operation of the color adjustment section is enabled.

Button indicator off : Operation of the color adjustment section is disabled.

✎ **Memo** ✎

● Operating the DETAIL button (㉗), GAIN button (㉘), PED dial (㉚), R/B GAIN dials (㉛), and R/B PED dials (㉜) switches the LCD panel display to the corresponding value, but the original display is redisplayed after approximately 3 seconds.

Menu and memory selection section
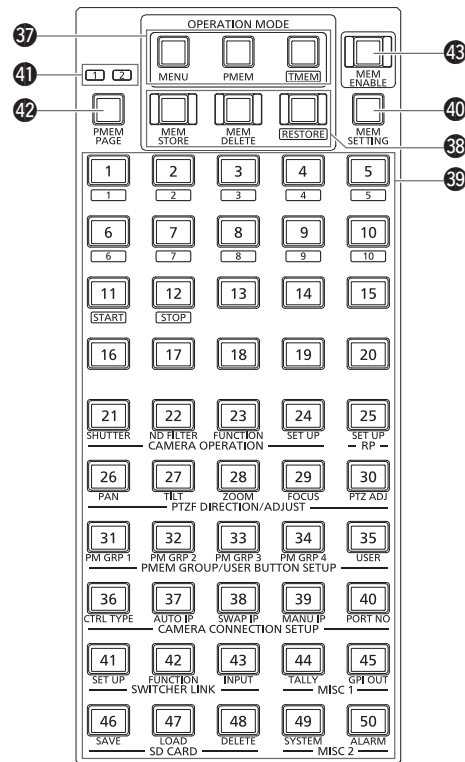
Indicator section
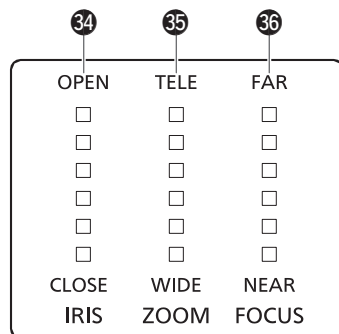
㉞ IRIS indicator [IRIS]

This indicates the position of the lens iris of the remote camera in 6 levels.

㉟ ZOOM indicator [ZOOM]

This indicates the position of the lens zoom of the remote camera in 6 levels.

㊱ FOCUS indicator [FOCUS]

This indicates the position of the lens focus of the remote camera in 6 levels.

㊲ Main mode selection buttons [MENU] [PMEM] [TMEM]

Use these to select the operation mode of the menu and memory selection section.

Pressing a button turns on the button indicator of only that button and switches to the corresponding operation mode.

MENU : Switches to the mode for selecting a menu (MENU mode).
⇒ "Basic operations for the menus" (page 20)

PMEM : Switches to the mode for recalling, storing, and deleting preset memory (PMEM mode).
⇒ "Operating preset memory (PMEM)" in <Operations and Settings> (page 12)

TMEM : Switches to the mode for recalling, storing, deleting, and restoring tracing memory (TMEM mode).
⇒ "Operating tracing memory (TMEM)" in <Operations and Settings> (page 18)

㊳ Memory mode selection buttons
[MEM STORE] [MEM DELETE] [RESTORE]

Use these to select any operation from store, delete, and restore when PMEM or TMEM has been selected with the corresponding main mode selection button (㊲).

Pressing a button when its indicator is off turns on the button indicator of only that button and switches to the corresponding operation mode.

Pressing a button when its indicator is on turns off all three button indicators and switches to the mode for recalling memory (RECALL mode).

MEM STORE : Switches to the mode for storing memory (STORE mode).

MEM DELETE : Switches to the mode for deleting memory (DELETE mode).

RESTORE : Switches to the mode for restoring tracing memory (RESTORE mode).

● For details on each mode, refer to the following.
⇒ "Operating preset memory (PMEM)" in <Operations and Settings> (page 13)
⇒ "Operating tracing memory (TMEM)" in <Operations and Settings> (pages 18 to 21)

㊴ Number buttons [1] to [50]
Use these to select menus, preset memory, and tracing memory.

㊵ MEMORY SETTING button [MEM SETTING]
Use this to set SPEED and SCOPE of the preset memory.
⇒ "Operating preset memory (PMEM)" in <Operations and Settings> (page 14)

㊶ PMEM PAGE indicators [1] [2]
These indicate the page number of the preset memory.
One of PMEM PAGE [1] and [2] lights.

㊷ PMEM PAGE button [PMEM PAGE]
Use this to select the page number of the preset memory.
Each press of the button changes the lighting state of the PMEM PAGE indicators (㊶) in the order of [1]→[2]→[1], and so on, and changes the page number.

㊸ MEMORY ENABLE button [MEM ENABLE]
Use this to enable or disable operation of the preset memory and tracing memory.

Button indicator on : Enabled
Button indicator off : Disabled

● Menu operation is possible even when the MEMORY ENABLE button indicator is off.

User button section

㊹ USER buttons [USER 1] to [USER 8]
Use these to access the functions assigned to USER 1 to USER 8.
⇒ "Assigning functions to the USER buttons" in <Operations and Settings> (page 30)
Also, when the SHIFT button (㊺) is pressed to turn on its indicator, you can use these buttons to access preset memory groups and SCENE 1 to SCENE 4 of the remote camera.
⇒ "Setting the shooting mode (SCENE 1 to SCENE 4)" in <Operations and Settings> (page 9)

㊺ SHIFT button [SHIFT]
Use this to switch the operation mode for USER buttons.
Each press of the button switches the button indicator in the order of on → off → on, and so on.

Button indicator off : The SHIFT button is disabled.
Pressing the USER 1 to USER 8 buttons accesses the functions assigned to USER 1 to USER 8.
Button indicator on : The SHIFT button is enabled.
Pressing the USER 1 to USER 8 buttons accesses the preset memory groups and SCENE 1 to SCENE 4 of the remote camera.

㊻ USER ENABLE button [ENABLE]
Use this to enable or disable operation of the USER buttons.

Button indicator on : Operation of the USER buttons is enabled.
Button indicator off : Operation of the USER buttons is disabled.

Memory card section

㊼ Memory card slot
Insert an SD memory card (option) or SDHC memory card (option).

㊽ Memory card access lamp
This is lit while the memory card is being accessed.
(It blinks when access for a short period of time is performed repeatedly.)
Do not turn off the power of the unit or remove the memory card while the access lamp is lit or blinking. Doing so may cause the data in the memory card to become corrupt.

● **Memory cards**
Memory cards used with the unit should conform to SD or SDHC standards.
Be sure to use the unit to format memory cards.
Memory cards with the following capacity can be used with the unit.
SDXC memory cards and MultiMediaCards (MMC) are not supported.

SD	8 MB to 2 GB
SDHC	4 GB to 32 GB

For the latest information not described in the Operating Instructions, refer to the following websites.

   http://pro-av.panasonic.net/

● Observe the following points when using and storing the memory cards.
  • **Avoid high temperature and humidity.**
  • **Avoid water droplets.**
  • **Avoid static electricity.**

Rear panel
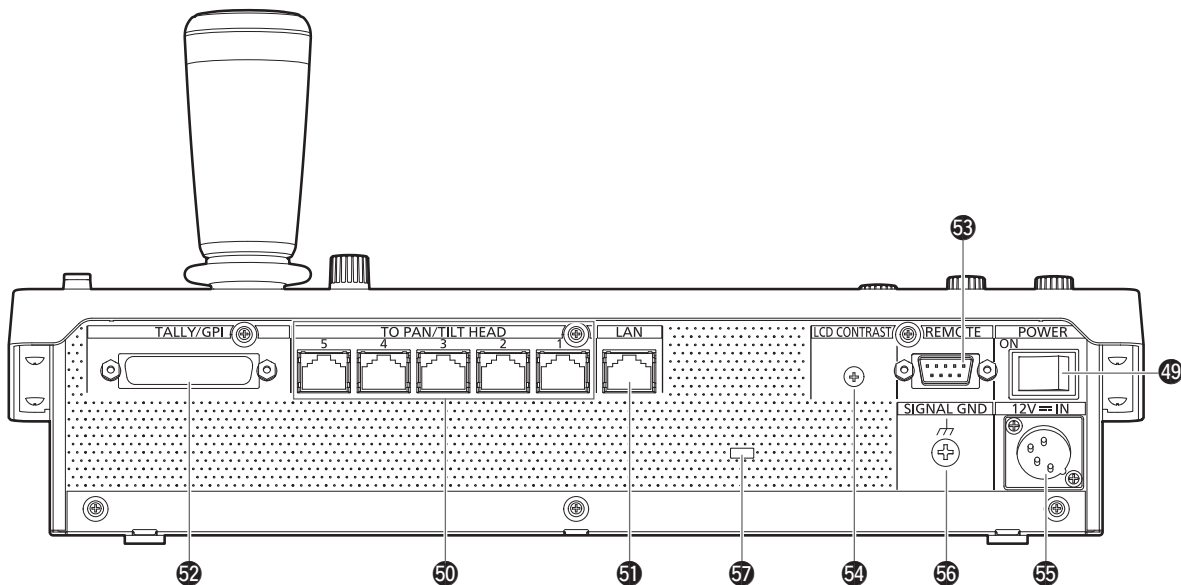
㊾ POWER switch [POWER]
When the POWER switch is set to the ON position, the POWER indicator (❶) lights, and the unit can be operated.

㊿ TO PAN/TILT HEAD 1 to 5 connectors [TO PAN/TILT HEAD 1 to 5] (RJ-45)
Connect remote cameras that support a serial connection to these connectors with LAN cables.
Connect them with straight cables (category 5 or better shielded cable).
⇒ "Connections" (pages 21 to 26)

51 LAN connector [LAN] (RJ-45) (10BASE-T/100BASE-TX)
Connect a remote camera, switcher or computer that supports an IP connection to this connector with a LAN cable.
When directly connecting a device to the unit, use a crossover cable (category 5 or better shielded cable).
When connecting via a hub (switching hub) or other device, use a straight cable (category 5 or better shielded cable).
⇒ "Connections" (pages 21 to 26)

52 TALLY/GPI connector [TALLY/GPI] JST: JBY-25S-1A3F(LF)(SN)
Connect an external device to this connector to receive tally information or send the camera selection status.
Use a shielded cable to connect an external device to the TALLY/GPI connector.

53 REMOTE connector [REMOTE] JST: JEY-9P-1A3F(LF)(SN)
Connect an external device to this connector when you want to control remote cameras from an external device.
Use a shielded cable to connect an external device to the REMOTE connector.

54 LCD CONTRAST control [LCD CONTRAST]
Use this to adjust the contrast of the LCD panel (❸).

55 DC IN socket [12V ⎓ IN] (DC 12 V) Hirose Electric: HA16RA-4P(77)
Connect an external DC power supply to this connector.

Pin number	Function
1	GND
2	NC
3	NC
4	+12 V
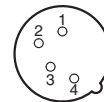
About the external DC power supply
- Make sure that the output voltage meets the voltage rating of the unit before you connect the external DC power supply.
- Choose an external DC power supply with an output current rating that is the same as or higher than the input current rating of the unit.
- Use a shielded cable that is shorter than 2 m (6.56 ft) for the DC cable to connect the unit and an external DC power supply.
- Inrush current occurs when the power of the unit is turned on. Insufficient power supply capacity at power on may cause a failure. We recommend using an external DC power supply that provides at least twice the power consumed by the unit.

- **Check the pin assignment of the DC output terminal (DC plug) of the external DC power supply and the pin assignment of the DC IN terminal on the unit, and connect the terminals with the correct polarity. Incorrect connection of the +12 V power supply to the GND terminal may cause a fire or failure.**

56 Grounding terminal [SIGNAL GND]
Connect this to the system ground.

57 Wire fastening hole
A commercially available anti-theft wire can be fastened to this hole to prevent theft.

Basic operations of the unit

1. Turn on the unit's power.

Set the POWER switch to the ON position.
Power is supplied to the unit, and the POWER indicator turns on.

- When the "2. AUTO ON" item in CAMERA SETUP menu [24] is set to "On", the power of the remote cameras also turn on simultaneously with the turning on of the unit's power.
  ⇒ "How to turn on the power of the remote cameras" in <Operations and Settings> (page 3)
- The remote cameras set to "Serial" or "Network" in CTRL TYPE menu [36] are targets for turning the power on simultaneously with the turning on of the unit's power.
  ⇒ "Setting the connection types (serial/IP/no connection) for remote cameras" (page 30)

2. Select a remote camera.

When the mode selection button [SELECT] indicator is on, press a [CAMERA SELECT/GROUP SELECT] button to select the remote camera to control from the unit.

3. Adjust the direction in which the remote camera points.

When the PAN/TILT ENABLE button [ENABLE] indicator is on, use the PAN/TILT lever to adjust the direction in which the remote camera points.

4. Adjust the zoom.

When the FOCUS/ZOOM/IRIS ENABLE button [ENABLE] indicator is on, use the ZOOM button to adjust the lens zoom.
When the TELE side is pressed, the zoom is set to the telephoto mode, and when the WIDE side is pressed, it is set to the wide-angle mode.

5. Adjust the lens iris.

When the FOCUS/ZOOM/IRIS ENABLE button [ENABLE] indicator is on, turn the IRIS dial to adjust the lens iris.

6. Adjust the focus.

When the FOCUS/ZOOM/IRIS ENABLE button [ENABLE] indicator is on, turn the FOCUS dial to adjust the lens focus.
When the one-touch auto focus button is pressed during manual focusing, the mode switches to auto focusing mode temporarily, and the subject is brought into focus automatically.

- OTAF (one-touch auto focus) is enabled for remote cameras which are equipped with the OTAF function.

7. Turn off the unit's power.

Set the POWER switch to the OFF position.
The unit's power is turned off, and the POWER indicator turns off.

- When the unit's power is turned off, the power of the connected remote cameras does not turn off.
- To turn off the power of the remote cameras, select and execute "ALL OFF↓" or "GROUP OFF↓" in the "1. CAM POWER" item of CAMERA SETUP menu [24].
  ⇒ "How to turn off the power of the remote cameras" in <Operations and Settings> (page 4)
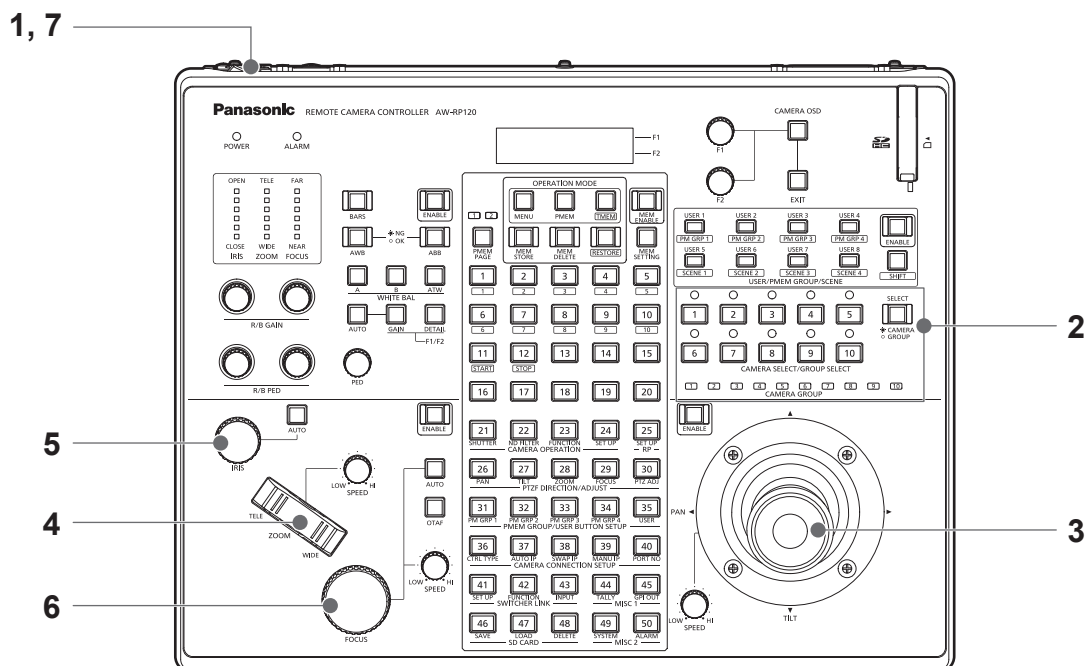
Basic operations for the menus

1. Set the MENU button to ON.
Press the MENU button to turn on its indicator.

2. Select the target menu.
Press any of the number buttons [21] to [50] to turn on its indicator.
The selected menu is displayed on the LCD panel.

3. Use the F1 dial and F2 dial to change the setting values.
Use the F1 dial and F2 dial to select the menus and change the setting values.
Use the F1 dial for operations involving the items displayed on the top line of the LCD panel. Use the F2 dial for operations involving the items displayed on the bottom line of the LCD panel.
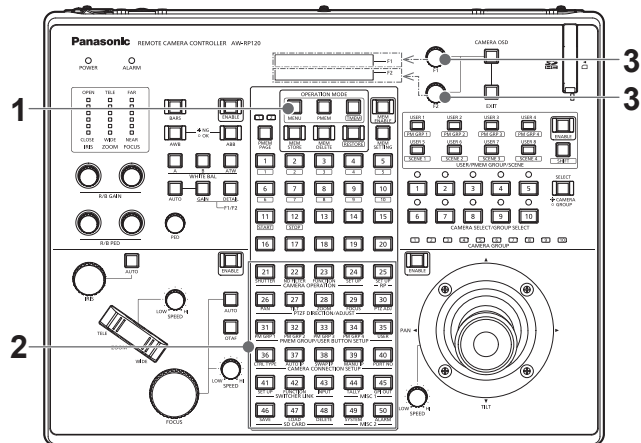
- When "↓" is displayed for a setting value, it means that the value will be confirmed and the setting reflected when the dial is pressed. The "↓" indication will disappear after the dial is pressed.

```
1.SHUTTER
          Off↓
```

- When "↓" is not displayed for a setting value, it means that the value will be confirmed and the setting reflected when the dial is turned.

```
2.SPEED
          1/100
```

For details on the settings for each of the menus, refer to <Operations and Settings>.

✐ Memo ✐

Notations used for menus in this manual
In this manual, the following notations are used for menu names assigned to the number buttons.

Number button	Menu name notation in this manual	Number button	Menu name notation in this manual
[21]	SHUTTER	[36]	CTRL TYPE
[22]	ND FILTER	[37]	AUTO IP
[23]	FUNCTION	[38]	SWAP IP
[24]	CAMERA SETUP	[39]	MANUAL IP
[25]	RP SETUP	[40]	PORT NO
[26]	PAN DIRECTION	[41]	SW SETUP
[27]	TILT DIRECTION	[42]	SW FUNCTION
[28]	ZOOM DIRECTION	[43]	SW INPUT
[29]	FOCUS DIRECTION	[44]	TALLY
[30]	PTZ ADJUST	[45]	GPI OUT
[31]	PM GRP1	[46]	SD SAVE
[32]	PM GRP2	[47]	SD LOAD
[33]	PM GRP3	[48]	SD DELETE
[34]	PM GRP4	[49]	SYSTEM
[35]	USER BUTTON	[50]	ALARM

● Menus appear as, for example, "SHUTTER menu [21]" in this manual.

Connections

Examples of IP connections

■ **IP connections for remote cameras (AW-HE120, AW-HE50S and AW-HE60S) and AW-HS50**
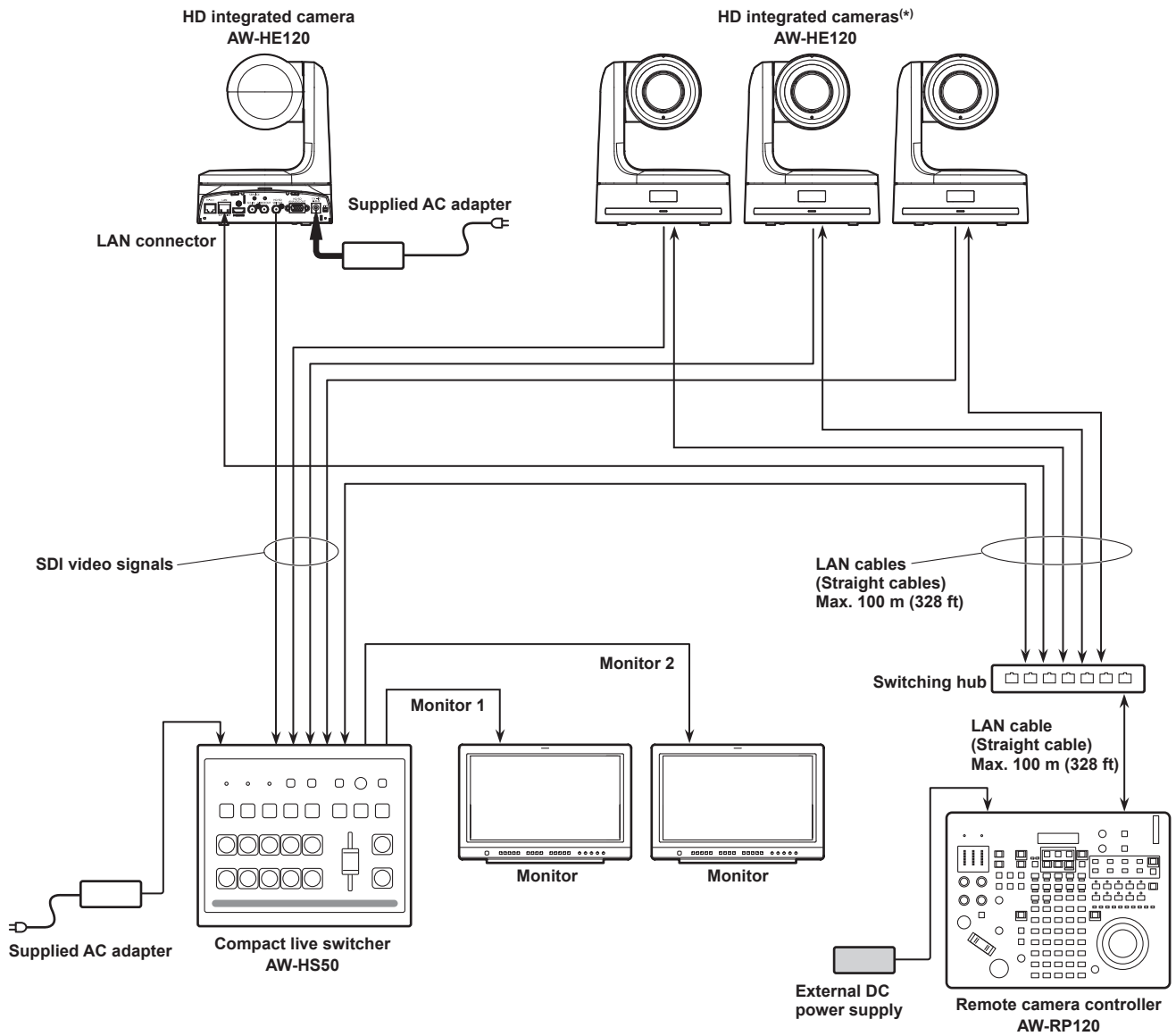
HD integrated camera
AW-HE120

HD integrated cameras(*)
AW-HE120

Supplied AC adapter

LAN connector

SDI video signals

LAN cables
(Straight cables)
Max. 100 m (328 ft)

Monitor 2

Monitor 1

Switching hub

LAN cable
(Straight cable)
Max. 100 m (328 ft)

Monitor

Monitor

Supplied AC adapter

Compact live switcher
AW-HS50

External DC
power supply

Remote camera controller
AW-RP120

(*) The illustration of the supplied AC adapter has been omitted.

- The diagram above is an example of connecting AW-HE120 but you can use the same connection method for both AW-HE50S and AW-HE60S.
- Use straight cables (category 5 or better shielded cable) for the LAN cables.
- It is possible to have a mixture of remote cameras connected via serial connections and remote cameras connected via IP connections.
- A total of up to 100 remote cameras connected via IP connections and serial connections can be registered as control destinations to one unit.

Connections (continued)

■ IP connections for multiple units and remote cameras (AW-HE120, AW-HE50 and AW-HE60)
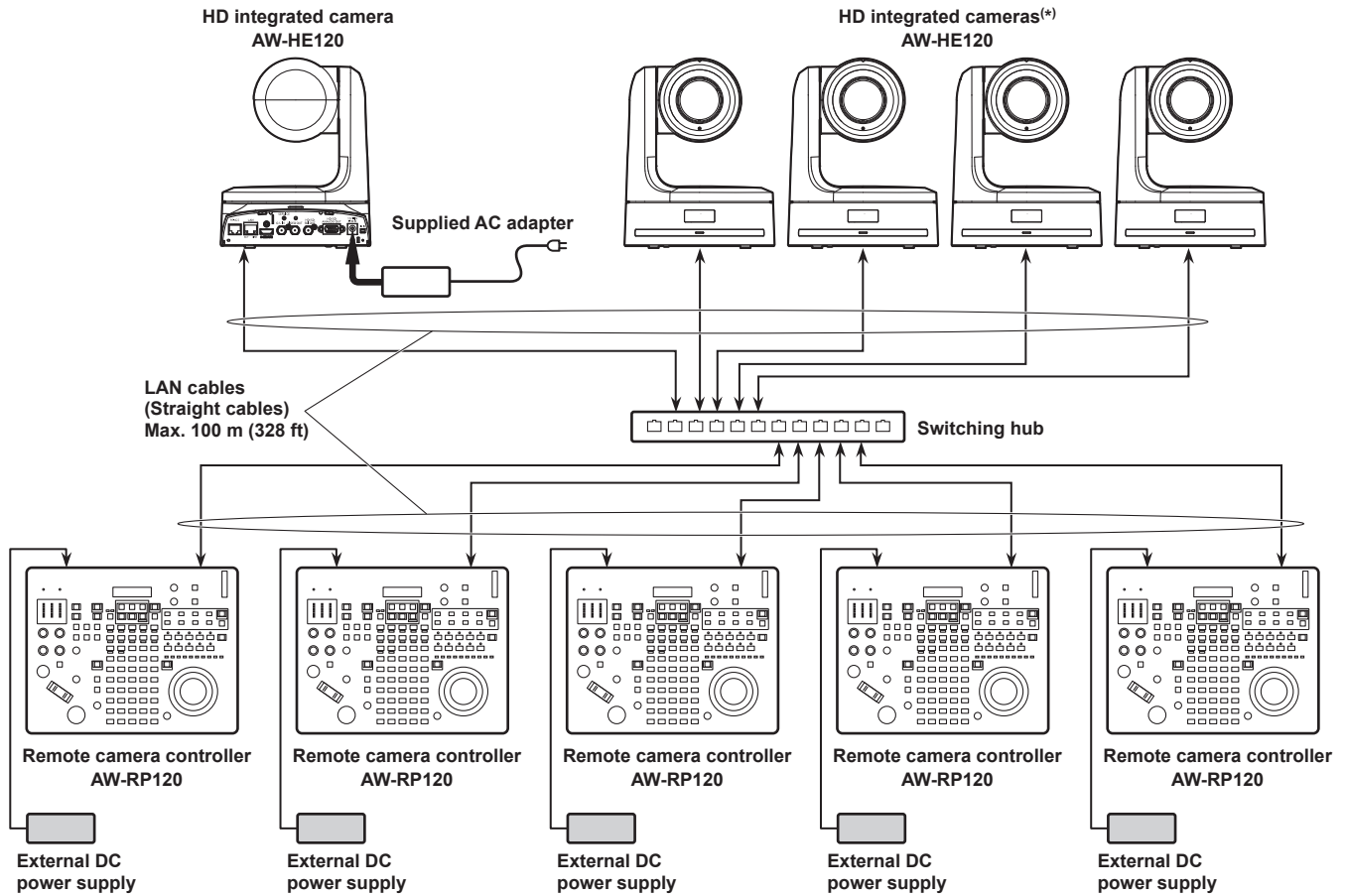
HD integrated camera AW-HE120

HD integrated cameras(*) AW-HE120

Supplied AC adapter

LAN cables (Straight cables) Max. 100 m (328 ft)

Switching hub

Remote camera controller AW-RP120

Remote camera controller AW-RP120

Remote camera controller AW-RP120

Remote camera controller AW-RP120

Remote camera controller AW-RP120

External DC power supply

External DC power supply

External DC power supply

External DC power supply

External DC power supply

(*) The illustration of the supplied AC adapter has been omitted.

- The diagram above is an example of connecting AW-HE120 but you can use the same connection method for both AW-HE50 and AW-HE60.
- Use straight cables (category 5 or better shielded cable) for the LAN cables.
- One remote camera can be simultaneously controlled from up to 5 units. (When IP connection)

■ IP connection for one unit and one remote camera (AW-HE120, AW-HE50, or AW-HE60)

HD integrated camera AW-HE120

LAN cable (crossover cable) Max. 100 m (328 ft)

Supplied AC adapter

External DC power supply

Remote camera controller AW-RP120

- Use a crossover cable (category 5 or better shielded cable) for the LAN cable.

Examples of serial connections

■ **Serial connections for AW-HE120 remote cameras**

**HD integrated camera
AW-HE120**

HD integrated cameras(*)
AW-HE120

Supplied AC adapter

RS-422 connector

**LAN cables (straight cables)
Max. 1000 m (3280 ft)**

**SDI video
signals**

Monitor 1

Monitor

Monitor 2

Monitor

Switcher

**External DC
power supply**

**Remote camera controller
AW-RP120**
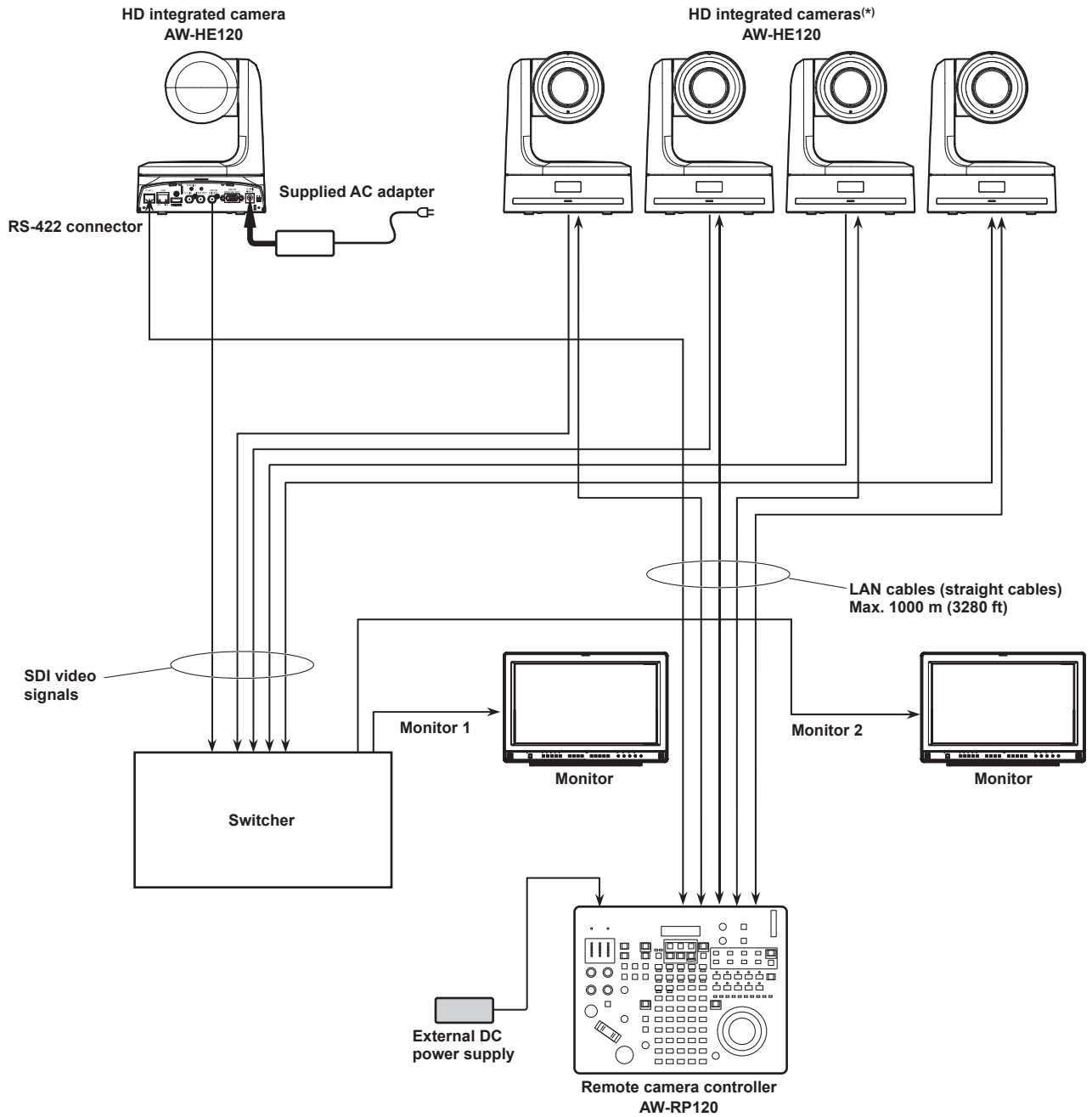
(*) The illustration of the supplied AC adapter has been omitted.

- Use straight cables (category 5 or better shielded cable) for the LAN cables.
- When serial connections are used, up to five remote cameras can be connected to one unit.
- It is possible to have a mixture of remote cameras connected via IP connections and remote cameras connected via serial connections.
- A total of up to 100 remote cameras connected via IP connections and serial connections can be registered as control destinations to one unit.

■ **Serial connection for a remote camera (AW-HE50 or AW-HE60)**

HD integrated camera
AW-HE50

Remote camera controller
AW-RP120

LAN cable (straight cable)
Max. 1000 m (3280 ft)

RJ-45 relay
adapter

(✱)

Monitor

External DC
power supply

Multi-interface cable
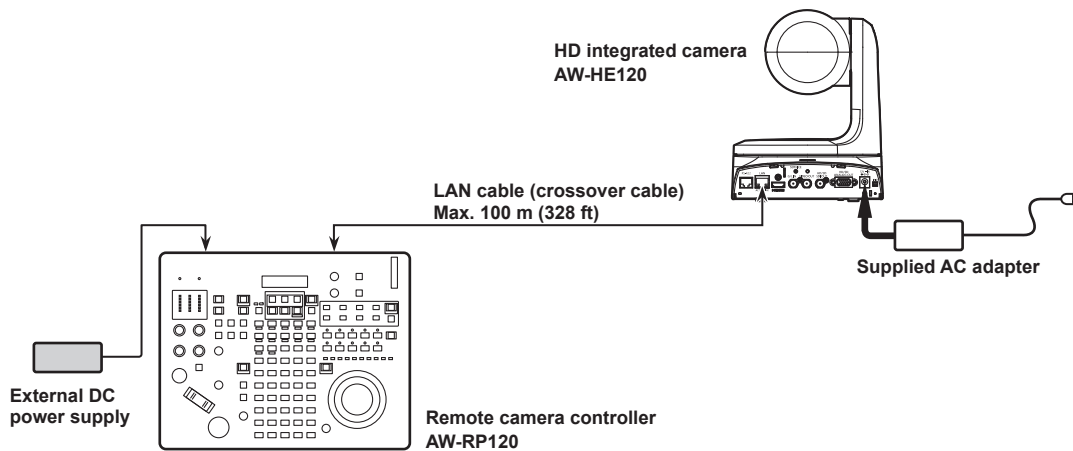**AW-CA20T6G**

Supplied AC adapter
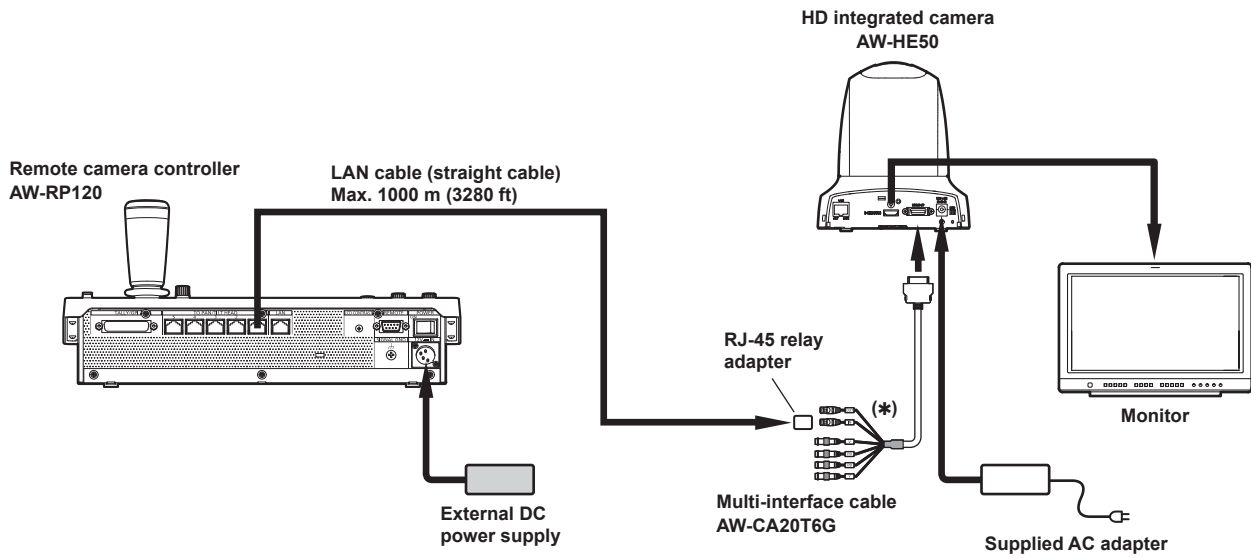
(✱) **Connect to the connector indicated as "IN".**

● The diagram above is an example of connecting AW-HE50 but you can use the same connection method for AW-HE60.
● The multi-interface cable (AW-CA20T6G) is required for a serial connection with a remote camera (AW-HE50 or AW-HE60).
● Use a straight cable (category 5 or better shielded cable) for the LAN cable.
● When serial connections are used, up to five remote cameras can be connected to one unit.

■ **Serial connection for AW-HE100**
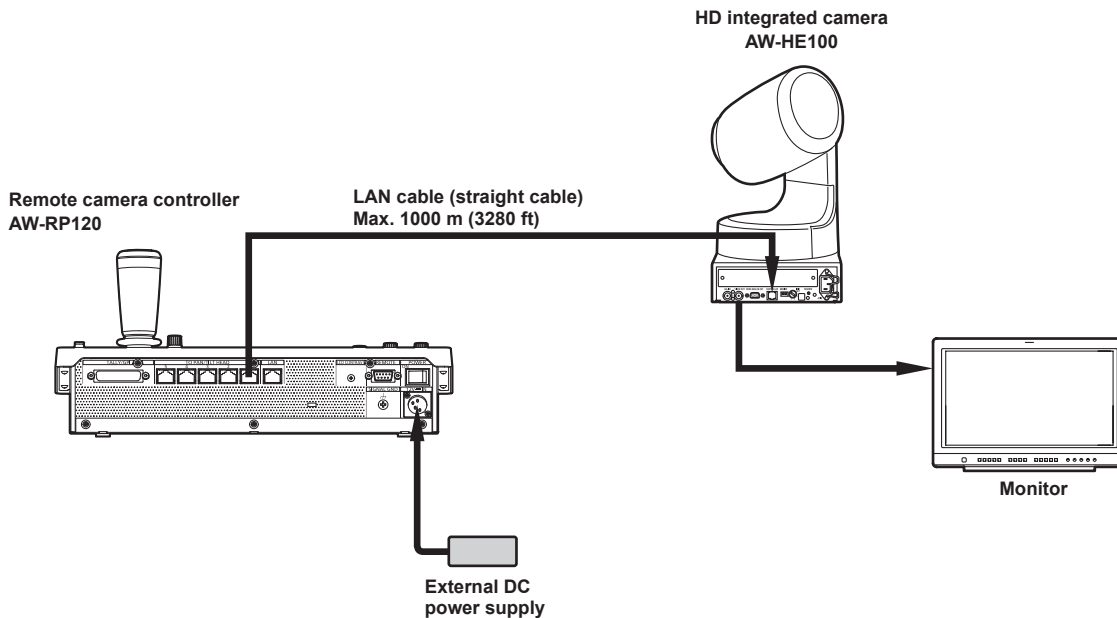
HD integrated camera
AW-HE100

Remote camera controller
AW-RP120

LAN cable (straight cable)
Max. 1000 m (3280 ft)

Monitor

External DC
power supply

● Use a straight cable (category 5 or better shielded cable) for the LAN cable.

■ **Serial connections for AW-PH400 and camera**

Supported camera:
Any of AW-HE870, AW-E860, AW-E750, AW-E650, AW-E350, AK-HC1500 or AK-HC1800

● **Switch settings of AW-IF400**

SW1	SW2	SET UP			
		1	2	3	4
OFF	OFF	ON	OFF	ON (300 deg.)	OFF (190 deg.)	OFF
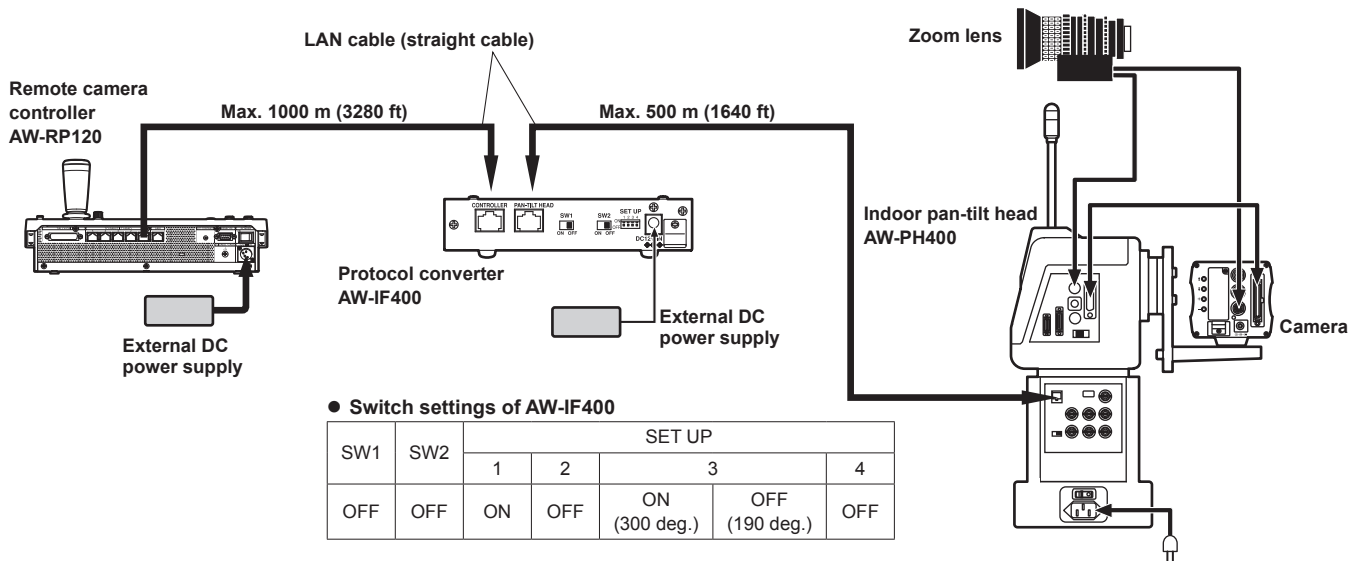
● Use a straight cable (category 5 or better shielded cable) for the LAN cable.

■ **Serial connections for AW-PH405 and camera**

Supported camera:
Any of AW-HE870, AW-E860, AW-E750, AW-E650, AW-E350, AK-HC1500 or AK-HC1800
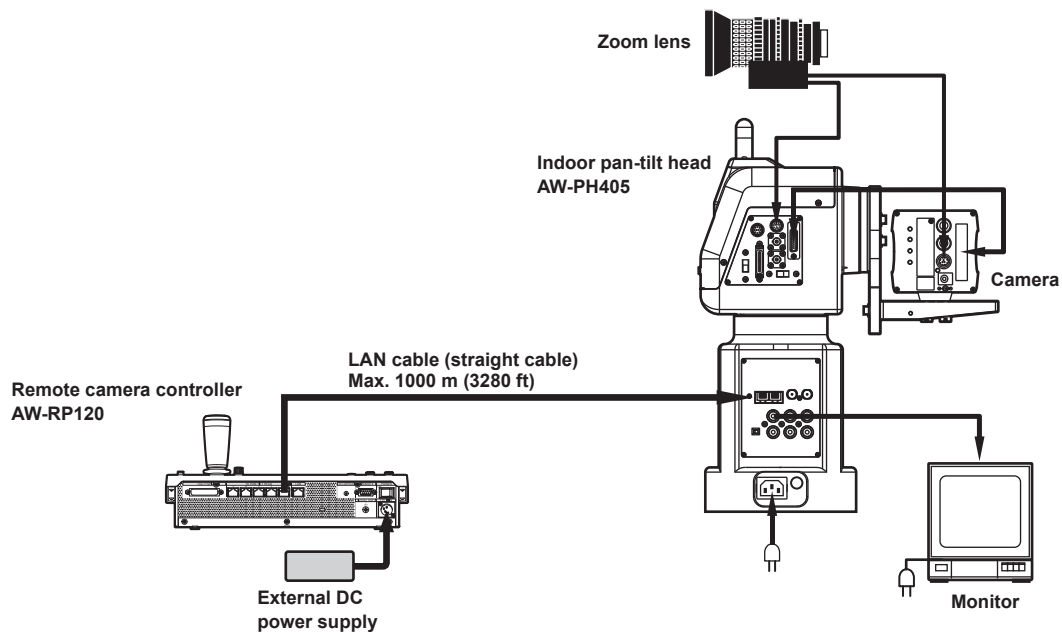
● Use a straight cable (category 5 or better shielded cable) for the LAN cable.

■ **Serial connections for AW-PH650 and camera**

Outdoor pan-tilt head
AW-PH650

MULTI

SDI
OUT   **POWER**

RJ-45 relay adapter

Remote camera controller   **LAN cable (straight cable)**
AW-RP120   **Max. 1000 m (3280 ft)**

Pr

Y

Pb

G/L input

External DC
power supply

Monitor
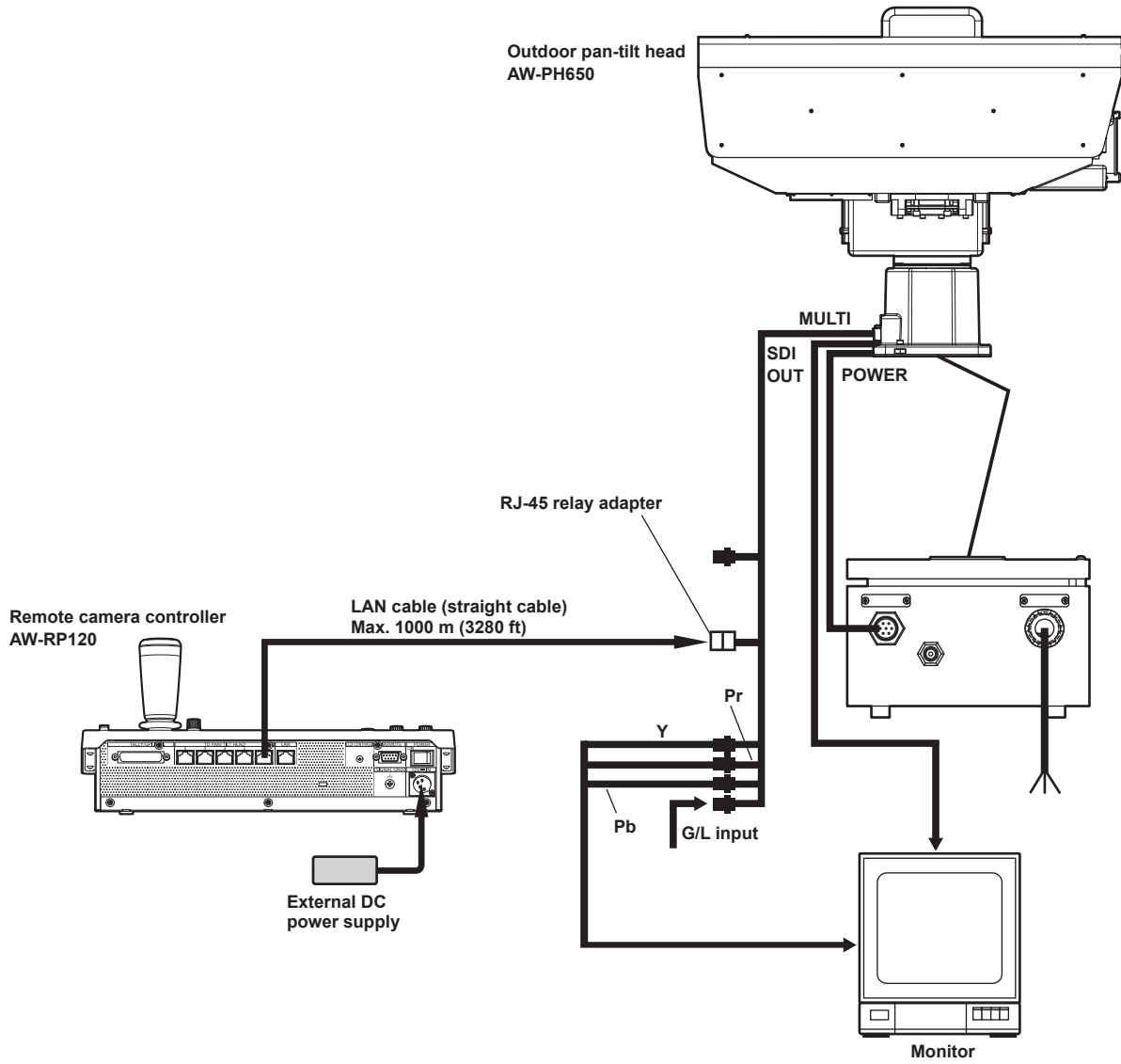
● Use a straight cable (category 5 or better shielded cable) for the LAN cable.

Network settings of the unit

To control a remote camera connected via an IP connection from the unit, you need to set the network settings of the unit.

> **Note**
>
> ● Correct operation is not possible if the same IP address already exists in the same network.
> Set IP addresses that are not duplicates of any existing IP addresses.

Setting the IP address of the unit

1. Open RP SETUP menu [25] and turn the F1 dial to display the "7. IP ADDRESS" item.

```
7.IP ADDRESS
192↓168.000.009
```

● This is set to "192.168.000.009" by default.

2. Use the F2 dial to set the IP address of the unit to one that is not a duplicate of that of another device.
Enter this in four blocks of numerals.
Enter all of the blocks and then press the F2 dial to confirm the IP address.
● When the IP address is a duplicate of that of a remote camera or switcher connection destination, the following message appears and the IP address is not set.

```
7.IP ADDRESS
IP Duplicate!
```

● When you enter a value that cannot be set, the following message appears and the IP address is not set.
Refer to the "Settable addresses" (page 28) memo.

```
Unavailable
network setting
```

> **Notes**
>
> ● In order for the setting to take effect, the unit must be restarted. Turn off the unit's power, and then turn it back on.
> ● Consult the network administrator before setting the IP address.

Setting the subnet mask

1. Open RP SETUP menu [25] and turn the F1 dial to display the "8. SUBNETMASK" item.

```
8.SUBNETMASK
255↓255.255.000
```

● This is set to "255.255.255.000" by default.

2. Use the F2 dial to set the subnet mask of the unit.
Enter this in four blocks of numerals.
Enter all of the blocks and then press the F2 dial to confirm the subnet mask.
● When you enter a value that cannot be set, the following message appears and the subnet mask is not set.
Refer to the "Settable addresses" (page 28) memo.

```
Unavailable
network setting
```

> **Note**
>
> ● In order for the setting to take effect, the unit must be restarted. Turn off the unit's power, and then turn it back on.

Setting the default gateway

1. Open RP SETUP menu [25] and turn the F1 dial to display the "9. GATEWAY" item.

```
9.GATEWAY
192↓168.000.001
```

● This is set to "192.168.000.001" by default.

2. Use the F2 dial to set the default gateway of the unit.
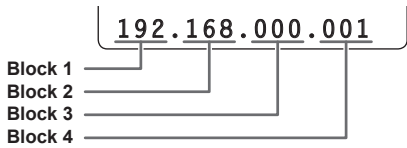Enter this in four blocks of numerals.
Enter all of the blocks and then press the F2 dial to confirm the default gateway.

> **Note**
>
> ● In order for the setting to take effect, the unit must be restarted. Turn off the unit's power, and then turn it back on.

✐ **Memo** ✐

Settable addresses

192.168.000.001

Block 1
Block 2
Block 3
Block 4

● For the IP address, you can set values within the following ranges.

Block 1: 1 to 223	Block 2: 0 to 255
Block 3: 0 to 255	Block 4: 1 to 254

However, "127.000.000.001" cannot be set even though it is within the above ranges.

● For the subnet mask, you can set values within the following ranges.

Block 1: 0 to 255	Block 2: 0 to 255
Block 3: 0 to 255	Block 4: 0 to 255

However, "000.000.000.000" and "127.000.000.001" cannot be set even though they are within the above ranges.

Displaying the MAC address

1. Open RP SETUP menu [25] and turn the F1 dial to display the "10. MAC ADDRESS" item.

10.MAC ADDRESS
****

● The MAC address can only be displayed. It cannot be changed.

Setting the reception port numbers

Set the port numbers for receiving camera information update notifications from remote cameras.
Set this when connecting remote cameras via a router.
● Set 10 port numbers because update notifications are received from the remote cameras in the selected camera group.

1. Open RP SETUP menu [25] and turn the F1 dial to display the "11. PORT CAM1" to "20. PORT CAM10" items.

11.PORT CAM1
61000↓

to

20.PORT CAM10
61009↓

2. Use the F2 dial to set the reception port number for each camera number.

Input range : 61000 to 65535

● When duplicate reception port numbers are entered, the following message appears and the settings are not reflected.

Unavailable
network setting

Setting GLOBAL AREA

Set GLOBAL AREA to "On" to send control commands regardless of the status of the remote camera that is the connection destination.
The camera status indicators that correspond to camera numbers with the connection type set to "Network" are always lit, and the other camera status indicators are off.
For details on the camera status indicator display when GLOBAL AREA is set to "Off", refer to "Selecting a remote camera" (page 38).
● For details on connection types, refer to "Setting the connection types (serial/IP/no connection) for remote cameras" (page 30).

1. Open RP SETUP menu [25] and turn the F1 dial to display the "6. GLOBAL AREA" item.

6.GLOBAL AREA
Off↓

2. Turn the F2 dial to display "On", and then press the F2 dial to confirm the setting.

┌─ **Note** ─────────────────────────
│ ● When the GLOBAL AREA setting is "On", a remote camera
│   connected with a serial connection cannot be controlled.
│   For a camera number with the connection type set to "Serial",
│   the connection type is automatically set to "NoAsign" when the
│   GLOBAL AREA setting is set to "On".
└──────────────────────────────────

Settings for connecting with the remote cameras and switcher

To control remote cameras from the unit and use the function to link the unit and a switcher, you need to set the connection settings in advance. There are two ways of configuring the connection settings. You can either configure the settings on the unit or use the setup software to configure the settings.
This section describes how to configure the settings on the unit.
For details on how to use the setup software to configure the settings, refer to "Setup Software" in <Operations and Settings> (page 48).

┌─ **Notes** ─────────────────────────────┐
  ● All the remote cameras are set to the same IP address when they are shipped from the factory. Therefore, if multiple remote cameras left set to the factory default state are connected with IP connections and then operated from the unit, they will not operate properly.
  ● When another remote camera that is set to the same IP address as an existing remote camera is to be connected because, for example, the existing remote camera is being replaced, turn off the unit's power before making the connection. When the remote camera is connected without first turning off the unit's power, the remote camera may not operate properly.
└───┘

Link settings

Selecting one of the camera numbers CAM1 to CAM100 on the unit identifies the remote camera to control. When the remote camera you are attempting to control is connected via an IP connection, you need to set an IP address that is not a duplicate of that of each of the remote cameras and associate each IP address and each camera number on the unit beforehand in order to perform control.
Likewise, to use the function for linking with a switcher, you need to associate the IP address of the switcher with the unit.
These association settings are referred to as **"link settings"** in this manual.

Connection destination IP addresses

The IP address for the unit to identify the connection target (remote camera or switcher) is referred to as the **"connection destination IP address"** in this manual.
One remote camera connection destination IP address for each of the CAM1 to CAM100 camera numbers (total of 100) is set on the unit, and one switcher connection destination IP address is set on the unit.
You can confirm the connection destination IP address for each camera number in MANUAL IP menu [39]. You can confirm the connection destination IP address for the switcher in SW SETUP menu [41].

Overview of related menus and operations

CTRL TYPE menu [36]
Set the connection type (serial/IP/no connection) for the remote camera to be connected for each camera number.

AUTO IP menu [37]
Use this menu when you want to configure the settings for linking with the remote cameras and a switcher automatically. (Auto IP setting)
There are the following three operation modes.

RENEW IP ADR	Configures the link settings by the unit renewing the IP addresses set on the remote cameras and switcher.
KEEP IP ADR	Configures the link settings by keeping the IP addresses set on the remote cameras and switcher and renewing the connection destination IP addresses set on the unit.
ALL CLEAR	Initializes the connection destination IP addresses set on the unit.

SWAP IP menu [38]
Use this menu when you want to change the camera number and connection destination IP address combinations linked by auto IP setting.

MANUAL IP menu [39]
Use this menu when you want to check or manually change the connection destination IP address set for each camera number.

SW SETUP menu [41]
Use this menu when you want to set the connection type (IP/no connection) for the switcher to be linked with the unit or set the connection destination IP addresses.

Setting the connection types (serial/IP/ no connection) for remote cameras

1. Set the connection types for camera numbers CAM1 to CAM100.
Open CTRL TYPE menu [36] and turn the F1 dial to display the camera number to set.

```
1.CAM1
        NoAsign↓
```

2. Turn the F2 dial to select the connection type, and then press the F2 dial to confirm the setting.

Serial : Serial connection
Network : IP connection
NoAsign: No connection (default setting)

The following message appears while the setting is being changed.

```
Setting
      CTRL TYPE
```

● The TO PAN/TILT HEAD connectors [1] to [5] for serial connections correspond to each of the camera numbers CAM1 to CAM5.
The serial connection "Serial" setting cannot be selected for CAM6 to CAM100.

Note

● When performing the steps described in "auto IP setting" (pages 30 to 34), set the target camera number to "NoAsign".

Setting the connection type (IP/ no connection) for the switcher

1. Set the connection type for the switcher to be linked with the unit.
Open SW SETUP menu [41] and turn the F1 dial to open the "1. SW CTL" item.

```
1.SW CTL
        NoAsign↓
```

2. Turn the F2 dial to select the connection type, and then press the F2 dial to confirm the setting.

Network : IP connection
NoAsign: No connection (default setting)

Note

● When performing the steps described in "auto IP setting" (pages 30 to 34), set the "1. SW CTL" item to "NoAsign".

Setting the IP addresses automatically (auto IP setting)

When "auto IP setting" is executed, the settings for linking between the remote cameras and switcher connected within the same subnet as the unit are configured automatically.
The following explanations are split into configuring the settings for the first time (when the remote cameras and switcher are in the factory default state) and introducing additional remote cameras or a switcher into an environment in which IP connections are already in use.

When configuring the settings for the first time

<Overview of operation>
The link settings can be configured by executing "RENEW IP ADR" in AUTO IP menu [37].
With "RENEW IP ADR", the unit first searches within the same subnet. Then, a link is set between each detected remote camera and a camera number for which the connection type is set to "NoAsign" on the unit.
At that time, the IP address of each remote camera is overwritten with the connection destination IP address value set for the corresponding camera number on the unit.
Likewise, when a new switcher is detected while the connection type for the switcher is set to "NoAsign" on the unit, the link setting is configured by overwriting the IP address of the detected switcher with the connection destination IP address value set on the unit.

Example:
(1) IP addresses set for remote cameras A, B and C (factory default state).
Remote camera A : 192.168.000.010
Remote camera B : 192.168.000.010
Remote camera C : 192.168.000.010

(2) Connection types set on the unit (CTRL TYPE menu [36])
CAM1 : NoAsign
CAM2 : NoAsign
CAM3 : NoAsign

(3) Connection destination IP addresses set on the unit (MANUAL IP menu [39])
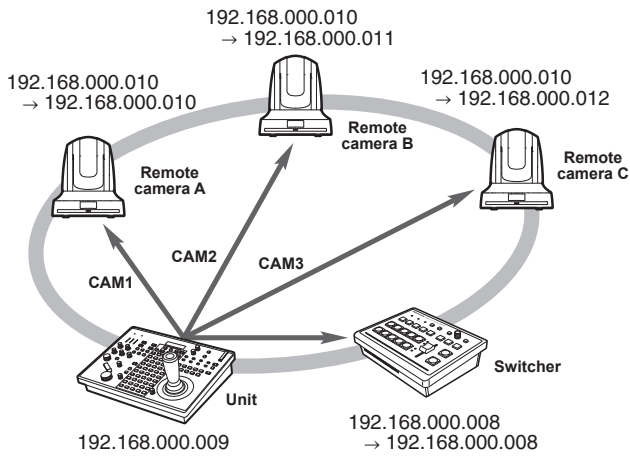**CAM1 :** 192.168.000.010
CAM2 : 192.168.000.011
CAM3 : 192.168.000.012

When "RENEW IP ADR" is executed in this state, the IP addresses of remote cameras A to C are overwritten with the following values, and a link is set to each of the camera numbers CAM1 to CAM3, respectively.
Remote camera A : 192.168.000.010
Remote camera B : 192.168.000.011
Remote camera C : 192.168.000.012

192.168.000.010
→ 192.168.000.011

192.168.000.010
→ 192.168.000.010

**Remote
camera B**

**Remote
camera A**

192.168.000.010
→ 192.168.000.012

**Remote
camera C**

CAM2

CAM3

CAM1

Switcher

Unit

192.168.000.009

192.168.000.008
→ 192.168.000.008

- The subnet mask, default gateway, and port number settings are set the same as those for the unit.
- For the camera numbers for which "auto IP setting" is executed, the connection type becomes "Network" and the camera numbers are excluded from the setting targets the next time "auto IP setting" is executed.
  However, camera numbers for which the connection destination IP address was changed manually or connection type was changed to "NoAsign" or "Serial" and then returned to "Network" after "auto IP setting" was executed become target for "auto IP setting" again.

<Operating procedure>

> **Note**
>
> - Before configuring the settings, check that the connection types of the remote cameras are "NoAsign".
>
> | **Connection type settings** |
> | CTRL TYPE menu [36] → "1. CAM1" to "100. CAM100" items |

1. Connect the remote cameras, switcher and unit to the network within the same subnet.

2. Open AUTO IP menu [37], turn the F2 dial to display "RENEW IP ADR" and press the F2 dial.

```
1.AUTO SET
    RENEW IP ADR↓
```

Both the number of devices (all remote cameras and the switcher) currently being managed by the unit and the number of new devices detected are displayed on the LCD panel.

```
C:003/003 S:1/1
            NO↓
```

C:003/003
  └ **Number of devices currently managed by the unit
    + number of new devices detected**
  └ **Number of new devices detected**

C: Remote camera, S: Switcher

3. Turn the F2 dial to select "Yes", and then press the F2 dial.

"Auto IP setting" starts.
During "auto IP setting", the progress is indicated by the number of "✻" which are reduced one by one.

```
1.AUTO SET
  ✻ ✻ ✻ ✻ ✻
```

When all the operations have been completed successfully, the following message appears.

```
1.AUTO SET
      COMPLETE
```

The remote cameras and the switcher are automatically rebooted, and they restart with the new IP addresses that were set.
The remote cameras can now be operated from the unit.
The function for linking the switcher with the unit can now be used.

- When setting the IP addresses failed, the following message appears.

```
1.AUTO SET
    SET UP ERR!
```

The cause of the problem is likely to be a network malfunction. Check the connection status of the hub and LAN cables, and then retry the "auto IP setting" operation.

31

When introducing additional remote cameras or a switcher into an environment in which IP connections are already in use

The settings can be configured using "auto IP setting" even when introducing additional remote cameras or a switcher into an environment in which IP connections are already in use.

There are the following two methods.

1. Automatically changing the IP address set on the additional device to be introduced from the unit
2. Leaving the IP addresses of the additional devices to be introduced unchanged and automatically updating the connection destination IP addresses set on the unit

■ **Automatically changing the IP address set on the additional device to be introduced from the unit**

<Overview of operation>

The link settings can be configured by executing "RENEW IP ADR" in AUTO IP menu [37].

With "RENEW IP ADR", the unit first searches within the same subnet. Then, links are set between the newly detected remote cameras and camera numbers for which the connection type is set to "NoAsign" on the unit.

At that time, the IP addresses of the remote cameras are overwritten with the connection destination IP address values set on the unit.

Likewise, when a new switcher is detected while the connection type for the switcher is set to "NoAsign" on the unit, the link setting is configured by overwriting the IP address of the detected switcher with the connection destination IP address value set on the unit.

Example:

(1) Operation is being performed with the three remote cameras A, B and C set to CAM1, CAM2 and CAM3, respectively.

(2) The new remote camera D (with the following IP address value) is added.
Remote camera D : 192.168.000.010

(3) Connection types set on the unit (CTRL TYPE menu [36])
CAM1 : Network
CAM2 : Network
CAM3 : Network
CAM4 : NoAsign

(4) Connection destination IP address set on the unit (MANUAL IP menu [39])
CAM4 : 192.168.000.013

When "RENEW IP ADR" is executed in this state, the IP address of remote camera D is overwritten with the following value, and a link is set to the camera number CAM4.
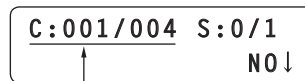**Remote camera D :** 192.168.000.013
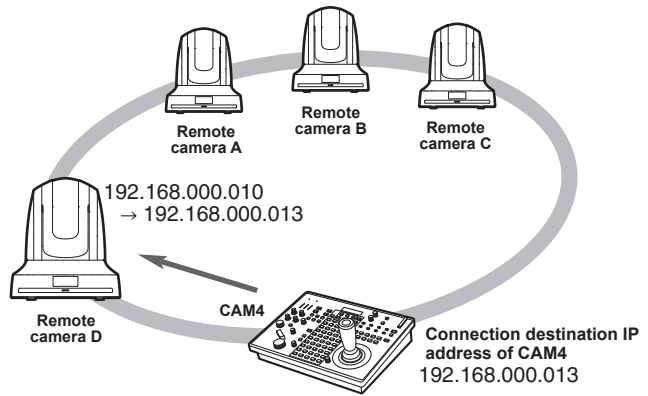
● The subnet mask, default gateway, and port number settings are set to the same as those for the unit.
● When you connect a remote camera for which the IP address has been changed using a personal computer or other device after a link was set to the unit with auto IP setting and then execute "RENEW IP ADR", the same IP address as was set when auto IP setting was executed the first time is set again for the corresponding camera.

<Operating procedure>

1. **Connect the additional remote cameras and switcher to be introduced and the unit to the network within the same subnet.**

2. **Open AUTO IP menu [37], turn the F2 dial to display "RENEW IP ADR" and press the F2 dial.**

```
1.AUTO SET
    RENEW IP ADR↓
```

Both the number of devices (all remote cameras and the switcher) currently being managed by the unit and the number of new devices detected are displayed on the LCD panel.

```
C:001/004 S:0/1
           NO↓
```

C:001/004
⌐ Number of devices currently managed by the unit + number of new devices detected
⌐ Number of new devices detected

C: Remote camera, S: Switcher

3. **Turn the F2 dial to select "Yes", and then press the F2 dial.**

"Auto IP setting" starts.
During "auto IP setting", the progress is indicated by the number of "＊" which are reduced one by one.

```
1.AUTO SET
      ＊ ＊ ＊ ＊ ＊
```

When all the operations have been completed successfully, the following message appears.

```
1.AUTO SET
          COMPLETE
```

The remote cameras and the switcher are automatically rebooted, and they restart with the new IP addresses which were set.
The remote cameras can now be operated from the unit.
The function for linking the switcher with the unit can now be used.

● When setting the IP addresses failed, the following message appears.

```
1.AUTO SET
        SET UP ERR!
```

The cause of the problem is likely to be a network malfunction. Check the connection status of the hub and LAN cables, and then retry the "auto IP setting" operation.

■ **Leaving the IP addresses of the additional devices to be introduced unchanged and automatically updating the connection destination IP addresses set on the unit**

<Overview of operation>
The link settings can be configured by executing "KEEP IP ADR" in AUTO IP menu [37].
With "KEEP IP ADR", the unit first searches within the same subnet. Then, links are set between the newly detected remote cameras and camera numbers for which the connection type is set to "NoAsign" on the unit.
At that time, the IP addresses of the remote cameras are kept as is and the connection destination IP address values set on the unit are overwritten.
Likewise, when a new switcher is detected while the connection type for the switcher is set to "NoAsign" on the unit, the link setting is configured by keeping the IP address of the detected switcher and overwriting the connection destination IP address value set on the unit.

Example:
(1) Operation is being performed with the three remote cameras A, B and C set to CAM1, CAM2 and CAM3, respectively.

(2) The new remote camera D (with the following IP address value) is added.
Remote camera D : 192.168.000.020

(3) Connection types set on the unit (CTRL TYPE menu [36])
**CAM1 :** Network
CAM2 : Network
CAM3 : Network
CAM4 : NoAsign

(4) Connection destination IP address set on the unit (MANUAL IP menu [39])
CAM4 : 192.168.000.013

When "KEEP IP ADR" is executed in this state, the IP address of remote camera D is not changed, the connection destination IP address set on the unit is overwritten with the following value, and a link is set to remote camera D.
Connection destination IP address of CAM4:
192.168.000.200
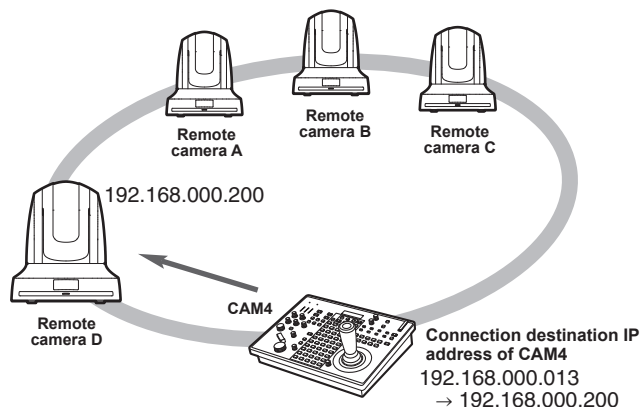
● If camera numbers for which the connection type is set to other than "Serial" include a camera number for which the connection destination IP address is set to the same value as the IP address of a detected remote camera, the connection destination IP address set on the unit is not updated. The connection destination IP address is kept as is and a link is set for the corresponding camera number and remote camera.

Note
● Set the subnet mask of the unit and remote camera to the same value. If the subnet masks are different, no operations using the network will be possible.

<Operating procedure>

1. Connect the additional remote cameras and switcher to be introduced and the unit to the network within the same subnet.

2. Open AUTO IP menu [37], turn the F2 dial to display "KEEP IP ADR" and press the F2 dial.

```
1.AUTO SET
        KEEP IP ADR↓
```

Both the number of devices (all remote cameras and the switcher) currently being managed by the unit and the number of new devices detected are displayed on the LCD panel.

```
C:001/004 S:0/1
              NO↓
```

C:001/004

└ **Number of devices currently managed by the unit + number of new devices detected**

Number of new devices detected

C: Remote camera, S: Switcher

3. Turn the F2 dial to select "Yes", and then press the F2 dial.

"Auto IP setting" starts.
During "auto IP setting", the progress is indicated by the number of "＊" which are reduced one by one.

```
1.AUTO SET
    ＊ ＊ ＊ ＊ ＊
```

When all the operations have been completed successfully, the following message appears.

```
1.AUTO SET
        COMPLETE
```

The remote cameras can now be operated from the unit.
The function for linking the switcher with the unit can now be used.

● When there is duplication between the IP addresses of the devices in operation and the IP addresses of the additional remote cameras to be introduced, the following message appears and the link settings are not configured.

```
1.AUTO SET
    IP Duplicate!
```

Check the IP addresses of the additional remote cameras to be introduced, and then perform the "auto IP setting" operation again.

● When setting the IP addresses failed, the following message appears.

```
1.AUTO SET
    SET UP ERR!
```

The cause of the problem is likely to be a network malfunction. Check the connection status of the hub and LAN cables, and then retry the "auto IP setting" operation.

✎ **Memo** ✎

Connection device detection

● When the number of new devices detected by "RENEW IP ADR" or "KEEP IP ADR" exceeds the number of devices that can be registered (100 remote cameras and 1 switcher), "C/S OVER!" appears on the bottom line of the LCD panel.
Auto IP setting can be executed even in this state, but IP addresses will be set only for the number of devices that can be registered.

```
C:020/100 S:1/1
C/S OVER!    YES↓
```

● The unit may not be able to detect all of the remote cameras when, for example, multiple remote cameras are started at the same time. In such a case, select "RETRY" and then press the F2 dial to retry the operation.
● When the number displayed for the number of new devices detected is lower than the actual number of devices to be set for reasons such as some of the remote cameras or the switcher not being powered on, resolve the problem and then select "RETRY" and press the F2 dial to execute the operation again.

```
C:020/020 S:1/1
              RETRY↓
```

Notes

● When adding another remote camera controller (AW-RP120 [this unit] or AW-RP50), set an IP address that is not a duplicate of any IP address within the same network before making the connection.
● Execute "auto IP setting" when devices not applicable for auto IP setting (devices other than the remote cameras and switcher) are in a non-operation state. After executing auto IP setting, connect these devices after checking that there is no duplicate IP address within the same network.

Swapping connection destination IP addresses

When "auto IP setting" is executed, the remote cameras are linked to the camera numbers of the unit and become able to be controlled from the unit.
If the link settings are not as desired, you can use the following procedure to change the settings as you wish.

1. **Open SWAP IP menu [38] and turn the F1 dial to display the camera number for which you want to change the setting.**
   The IP address set as the connection destination of the corresponding camera number is displayed on the second line of the LCD panel.

   ```
   1.CAM1
   192.168.000.001
   ```

2. **Turn the F2 dial to select the camera (IP address) you want to set as the connection destination.**
   When you turn the F2 dial, the IP address indication changes and the tally lamp of the remote camera with the corresponding IP address set turns on and the PAN/TILT lever becomes able to be operated.

   Identify the remote camera you want to set while checking the tally lamp lighting state and video output.

   ● The IP addresses displayed as the connection destinations are the connection destination IP addresses of the camera numbers with "Network" set as the connection type in CTRL TYPE menu [36].

3. **Press the F2 dial to confirm the IP address.**
   The connection destination IP addresses are swapped between the two camera numbers.

   ```
   1.CAM1
   192.168.000.003↓
   ```

   Example:
   (1) Original setting
   Connection destination IP address of camera number CAM1:
   192.168.000.001
   Connection destination IP address of camera number CAM3:
   192.168.000.003

   (2) Open SWAP IP menu [38] and set the connection destination IP address of camera number CAM1 to 192.168.000.003.

   (3) The settings change as shown below and which remote camera operates when each of the camera numbers is selected is swapped.
   Connection destination IP address of camera number CAM1:
   192.168.000.003
   Connection destination IP address of camera number CAM3:
   192.168.000.001

   Notes
   ● When SWAP IP menu [38] is open, operation of the camera selection buttons [CAMERA SELECT/GROUP SELECT] and camera control (IRIS, FOCUS, ZOOM and CAMERA OSD) are not possible.
   ● The IP addresses set on the remote cameras are not changed by this operation.

Manually setting the connection destination IP addresses (remote cameras)

Use the following procedure when connecting (via a router) remote cameras whose IP addresses cannot be set by following the steps in "auto IP setting" or to manually configure the link settings for the unit and remote cameras.

1. **Open MANUAL IP menu [39] and turn the F1 dial to display the camera number for which you want to change the setting.**

   ```
   1.CAM1
   192.168.000.001↓
   ```

2. **Use the F2 dial to set the IP address for the connection destination.**
   Enter this in four blocks of numerals.
   Enter all of the blocks and then press the F2 dial to confirm the IP address.
   The IP addresses can also be set for camera numbers with "NoAsign" or "Serial" set as the connection type in CTRL TYPE menu [36].

   ● This is set to the following value by default.
     CAM1 : 192.168.000.010
       ↓
     CAM100 : 192.168.000.109

   ● When a connection destination IP address is changed, a check for IP address duplication is conducted.
     If the same IP address is used more than once, the "IP Duplicate!" message is displayed for 3 seconds.
     The settings are reflected as is even if connection destination IP addresses are duplicated.

   ```
   1.CAM1
      IP Duplicate!
   ```

   Note
   ● The IP addresses set on the remote cameras are not changed by this operation.

Setting the connection destination port number

Set this when the remote camera needs to be identified by a port number such as when connecting via a router.
● The connection destination port number of the switcher cannot be set.

1. **Open PORT NO menu [40] and turn the F1 dial to display the camera number for which you want to change the setting.**

```
1.CAM1
                  80
```

2. **Turn the F2 dial to select a value, and then press the F2 dial to confirm the selection.**
   ● This is set to "80" by default for all of the camera numbers CAM1 to CAM100.

   When you enter a value that cannot be set, the following message appears and the port number is not set.

```
Unavailable
network setting
```

✐ Memo ✐

● **Settable port numbers**
   You can set a value within the range of 1 to 65535.
   However, the following values cannot be set even though they are within this range.

20, 21, 23, 25, 42, 53, 67, 68, 69, 110, 123, 161, 162, 995, 10669, 10670

Manually setting the connection destination IP address (switcher)

Use the following procedure to manually set the link settings for the unit and switcher.

1. **Open SW SETUP menu [41] and turn the F1 dial to display the "2. SW IP ADDRESS" item.**

```
2.SW IP ADDRESS
192.168.000.008↓
```

   ● This is set to "192.168.000.008" by default.

2. **Use the F2 dial to set the IP address for the connection destination.**
   Enter this in four blocks of numerals.
   Enter all of the blocks and then press the F2 dial to confirm the IP address.

Initializing the connection destination IP addresses set on the unit

Use the following procedure to initialize the connection types and connection destination IP addresses set on the unit.

1. **Open AUTO IP menu [37] and turn the F2 dial to display "ALL CLEAR".**

```
1.AUTO SET
        ALL CLEAR↓
```

2. **Press the F2 dial to execute initialization.**
   The settings for connecting with the remote cameras and switcher are initialized.

✐ Memo ✐

● When the connection type is set to "Network", it is changed to "NoAsign".
   When the connection type is set to "Serial", it is not changed.
● If the IP address of the unit in RP SETUP menu [25] is changed, the connection destination IP addresses are changed automatically.
   • IP addresses after the IP address of the unit are set for the camera numbers in ascending order.
   • The value immediately before the IP address of the unit is set as the connection destination IP address of the switcher.
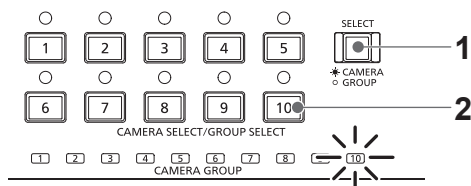
Selecting a camera group

This unit allows you to register up to 100 remote cameras as control targets by configuring the connection settings for each of the camera numbers CAM1 to CAM100. To select a remote camera to control from these cameras, you need to select the camera group to which it belongs beforehand.

Camera group	Camera numbers	Camera group	Camera numbers
1	CAM1 to CAM10	6	CAM51 to CAM60
2	CAM11 to CAM20	7	CAM61 to CAM70
3	CAM21 to CAM30	8	CAM71 to CAM80
4	CAM31 to CAM40	9	CAM81 to CAM90
5	CAM41 to CAM50	10	CAM91 to CAM100

Selecting a camera group

1. **Press the mode selection button [SELECT] to turn off the button indicator.**

2. **Hold down a camera selection button [CAMERA SELECT/GROUP SELECT] to select the camera group to which the remote camera you want to control belongs.**
   When a camera group is selected, the corresponding camera group indicator [CAMERA GROUP] lights and the indicator of the camera selection button that was held down blinks. When the camera selection button lights, the remote cameras can be operated from the unit.

Example: When camera group "10" is selected

Notes

- When selecting a camera group, hold down the camera selection button.
- After a camera group is selected, it takes approximately 5 seconds in the case of IP connections and approximately 20 seconds in the case of serial connections for operation of the remote cameras to become possible.
  (When AW-HE50, AW-HE60 and AW-HE120 are connected, and they are all powered on.)

Selecting a remote camera

When the mode selection button [SELECT] indicator is on, you can press a camera selection button [CAMERA SELECT/GROUP SELECT] to select the remote camera to control.
When a camera selection button is pressed, the indicator of the pressed button turns on and the remote camera is selected.
Also, you can determine the statuses of the remote cameras assigned to camera selection buttons 1 to 10 from the lighting statuses of the indicators (camera status indicators) above the buttons.

● **Camera status indicator lighting statuses and remote camera statuses**

Indicator lighting status	Remote camera status	Connection between unit and remote camera
Off	● The connection type of the corresponding camera number is set to "NoAsign". ● Power is not being supplied to the remote camera. *1	IP connection/ serial connection
On *3 (orange)	The remote camera is in the standby state. *2	IP connection/ serial connection
Blinking (orange)	The unit cannot connect to the corresponding remote camera because five other AW-RP120 or AW-RP50 are already connected.	IP connection
On (green)	The unit is connected to the remote camera.	IP connection/ serial connection
Blinking (green)	The corresponding remote camera is connected to another AW-RP120 or to AW-RP50.	IP connection
On (red)	The unit is receiving the tally information for the corresponding remote camera via the network or from the TALLY/GPI connector on the rear panel.	IP connection/ serial connection
Blinking (red)	The corresponding remote camera is connected to another AW-RP120 or to AW-RP50, and the unit is receiving the tally information for that remote camera via the network or from the TALLY/GPI connector on the rear panel. *4	IP connection

*1: When the AW-PH400 is connected via a protocol converter (AW-IF400), the indicator also "turns off" when the LAN cable is connected or disconnected. Turn the power off and back on as described in "How to turn on the power of the remote cameras" in <Operations and Settings> (page 3).
*2: Turn the power on as described in "How to turn on the power of the remote cameras" in <Operations and Settings> (page 3).
*3: The indicator is "off" when the AW-PH400 is connected via a protocol converter (AW-IF400).
*4: Even if the tally lamp of the corresponding remote camera is on, it will not turn red unless the tally information is received via the network or from the TALLY/GPI connector on the rear panel.


Note

● When the "6. GLOBAL AREA" item in RP SETUP menu [25] is set to "On", the indicators corresponding to the camera numbers for which the connection type is set to "Network" in CTRL TYPE menu [36] light, and all the other indicators turn off.
Also, any remote camera connected with a serial connection cannot be operated.

Troubleshooting

Symptom	Cause and Measure	Reference Page
Cannot turn the power of the unit on.	● **Is external DC power being supplied?**	–
	● **Is the DC plug of the external DC power supply connected to the unit properly?**	–
Cannot operate a remote camera.	● **Is a power supply connected to the remote camera properly?**	–
	● **Are the remote camera and unit connected properly?**	\<Basics\> P. 21 to P. 26
	● **Are the connection settings correct?**	\<Basics\> P. 29 to P. 36
	● **Is the remote camera in the standby state?** → Turn on the power of the remote camera.	\<Operations and Settings\> P. 3
	● **Is the remote camera selected properly?**	\<Basics\> P. 37 to P. 38
	● **Is the ENABLE button indicator on?**	\<Operations and Settings\> P. 27
The remote camera moves in the opposite direction to the operation of the PAN/TILT lever.	● **Is the installation method setting configured for the remote camera?** → The setting needs to be configured in accordance with the actual installation state (mounted right side up or upside down). Refer to the Operating Instructions for the remote camera.	–
	● **Is the movement direction set properly on the unit?**	\<Operations and Settings\> P. 23
The remote camera moves in the opposite direction to operation of the ZOOM button and FOCUS dial.	● **Is the movement direction set properly on the unit?**	\<Operations and Settings\> P. 23 to 24
The switcher IP link function does not work.	● **Are the connection settings correct?**	\<Basics\> P. 29 to P. 36
	● **Are the settings for linking with the switcher correct?**	\<Operations and Settings\> P. 31

Specifications

Power supply:	12 V DC / 0.5 A
	(DC input range: 10 V DC to 16 V DC)
Power consumption:	6 W

☐ indicates safety information.

■ General

Ambient operating temperature:	0 °C to 40 °C (32 °F to 104 °F)
Allowable humidity:	10% to 90% (no condensation)
Weight:	Approx. 3.0 kg (6.61 lb)
Dimensions (W x H x D):	342 mm x 77 mm x 265 mm
	(13-15/32 inches x 3-1/32 inches x 10-7/16 inches)
	(excluding protrusions)

■ Input/output connectors

DC 12 V IN (XLR 4-pin)

LAN (RJ-45):	10BASE-T/100BASE-TX
	Connection cable: LAN cable, max. 100 m (328 ft)

> ● When connecting the unit via a switching hub:
> Use a straight cable (category 5 or better shielded cable), STP (Shielded Twisted Pair) cable recommended
> ● When connecting the unit directly:
> Crossover cable (category 5 or better shielded cable), STP (Shielded Twisted Pair) cable recommended

TO PAN/TILT HEAD (RJ-45):

RS-422 (control signals for remote cameras)
Connecting cable:
Straight cable (category 5 or better shielded cable), max. 1000 m (3280 ft)

TALLY/GPI (D-sub 25-pin, female, inch thread):

TALLY IN	:	10 inputs (for receiving photocoupler signals)
GPI IN	:	6 inputs (for receiving photocoupler signals)
GPI OUT	:	5 outputs (open collector outputs, negative logic)

REMOTE (D-sub 9-pin, male, inch thread):

RS-232C

Index

Memo

Memo

Disposal of Old Equipment
Only for European Union and countries with recycling systems

This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products must not be mixed with general household waste.
For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation.
By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment. For more information about collection and recycling, please contact your local municipality, dealer or supplier.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.