Operating Instructions

Indoor Pan/Tilt Head	AW-PH400P
Pan/Tilt Control Panel	AW-RP400N
Cable Compensation Unit	AW-RC400N
Roll Unit	AW-RL400G

AW-PH400

AW-RP400

AW-RC400

AW-RL400
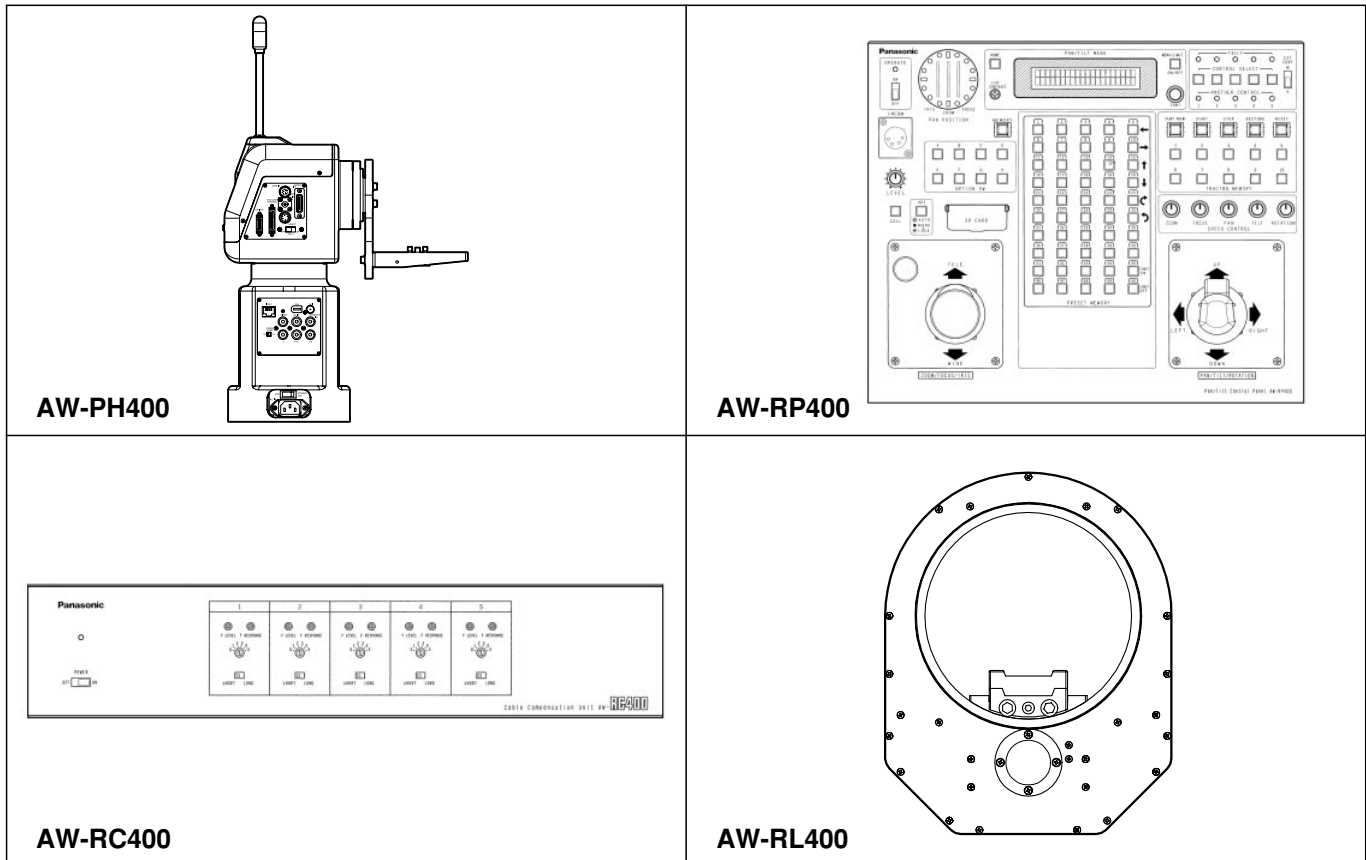
Panasonic®

Before attempting to connect, operate or adjust this product,
please read these instructions completely.

Safety precautions

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

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

For CANADA

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

WARNING:
TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE EQUIPMENT.

WARNING:
TO PREVENT INJURY, THIS APPARATUS MUST BE SECURELY ATTACHED TO THE FLOOR/WALL IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS.

FCC Note:
This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

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

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES.

CAUTION:
DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR ANY OTHER CONFINED SPACE IN ORDER TO MAINTAIN ADEQUATE VENTILATION. ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING.

Models AW-RP400, AW-RC400 only

Note:
The rating plate (serial number plate) is on the bottom of the unit.

indicates safety information.

Safety precautions

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

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.

The socket outlet shall be installed near the equipment and easily accessible or the mains plug or an appliance coupler shall remain readily operable.

Keep the small memory cards such as the SD Memory Card out of reach of children. If swallowed, seek medical advice immediately.

Replace battery with part No. CR2032 only.
Use of another battery may present a risk of fire or explosion.
Caution—Battery may explode if mistreated.
Do not recharge, disassemble or dispose of in fire.

A warning that an apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

indicates safety information.

Contents

Operating precautions

- **Handle the units carefully.**
  Dropping the units or subjecting them to strong impact may give rise to malfunctioning or accidents.

- **Turn off the power before connecting or disconnecting the cables.**
  Be absolutely sure to turn off the power before connecting or disconnecting the cables.

- **Do not use the units outdoors.**

- **Maintenance**
  Wipe the units using a dry cloth. To remove stubborn dirt, dip a cloth into a diluted solution of kitchen detergent, wring them out well, and wipe the units gently.

  <Caution>
  - 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.

Introduction

- The stand-alone indoor pan/tilt head can be rotated through 300 degrees in the vertical direction and 400 degrees in the horizontal direction.

- Operations can be performed at high speeds of up to 90 degrees per second.

- Equipment such as a camera and lens with a total weight of 17.6 lbs (8 kg) can be mounted on the unit.

- The camera can also be rotated using the AW-RL400 roll unit available as an option.

- The shooting positions and settings for up to 50 positions can be registered as preset memory data.

NOTE

- The AW-PH400 cannot be controlled from the AW-RP301, AW-RP305, AW-RP501, AW-RP505, AW-RP605 or AW-RP605A controller.

- In order to protect the environment when the pan/tilt head is to be discarded at the end of its service life, ask a specialized contractor to dispose of it properly.

Accessories

Rotary arm 1
Camera mounting base 1
Rotary arm and camera base mounting screws (with flat washers)
       M5 × 22 mm 7
Camera cable 1
Tally lamp 1
Tally mounting screws (M3 × 6 mm) 2
Blank panel for tally 1
Wire mounting screws (with flat washers, spring washers)
       M4 × 8 mm 1
       M4 × 6 mm 1
Hexagon key wrench 1
AC cable 1
Rubber piece 1

Precautions for use

The AW-PH400 uses a manganese dioxide-lithium battery (CR2032).
Before discarding the pan/tilt head or its printed circuit boards, be absolutely sure to remove the battery.
Be absolutely sure to dispose of the removed battery in accordance with the applicable domestic laws and regulations.

Do not throw out the battery along with the general household garbage.
For the procedure to remove the battery, refer to the section on replacing the battery in "Replacing the consumable parts" (page 19).

Replace the lithium battery here.
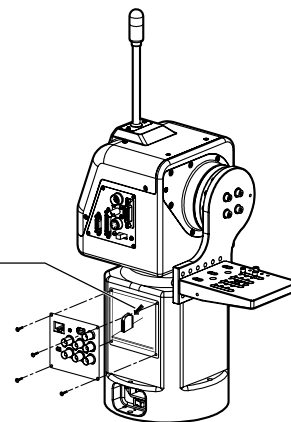
Installation precautions

- Do not install the unit on any of its sides.

- Avoid using the unit in the kitchen and other locations with lots of steam and oily vapors.

- Mount the camera on the pan/tilt head only when you have finished installing it.

- The maximum load-bearing capacity of this unit is 17.6 lbs (8 kg).
  It cannot be used if the load to be borne exceeds 17.6 lbs (8 kg).

- Do not use a lens which will impair or upset the unit's balance.
  Even if the load borne by the unit is less than 17.6 lbs (8 kg), it cannot be used if the unit will be set off-balance by the lens mounted on it.

- Do not install the unit outdoors or in places where the temperature will be hotter than 113°F (45°C) or colder than 32°F (0°C).
  Use the unit in places where the humidity is below 90%.

- Purchase the mounting screws separately since they are not supplied with the unit.

- Do not hold or lift the unit by its rotating part. Doing so may cause malfunctioning.

- Do not turn the unit's rotating part by hand. Doing so may cause malfunctioning.

- Dropping the unit or subjecting it to strong impact may give rise to malfunctioning.

- Leave a clearance of at least 3.3 ft (1 meter) from around the monitor when installing the unit.

- When mounting the camera on the unit, take sufficient steps to ensure that it will not become detached from the unit or fall onto the floor.

- Install the unit in such a way that the equipment mounted on it and its cables will not come into contact with anything when the pan/tilt head swivels, and set definite movement limits.
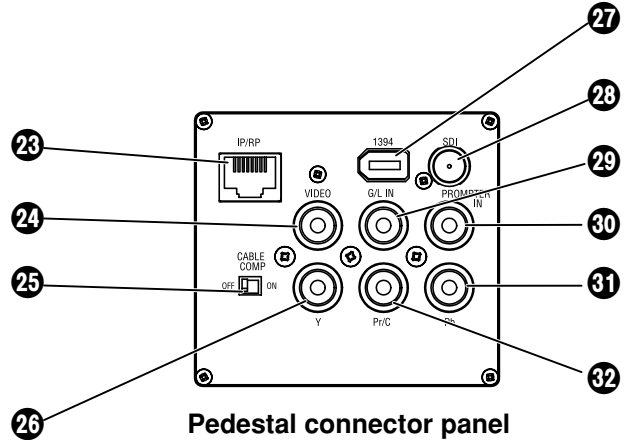
Parts and their function
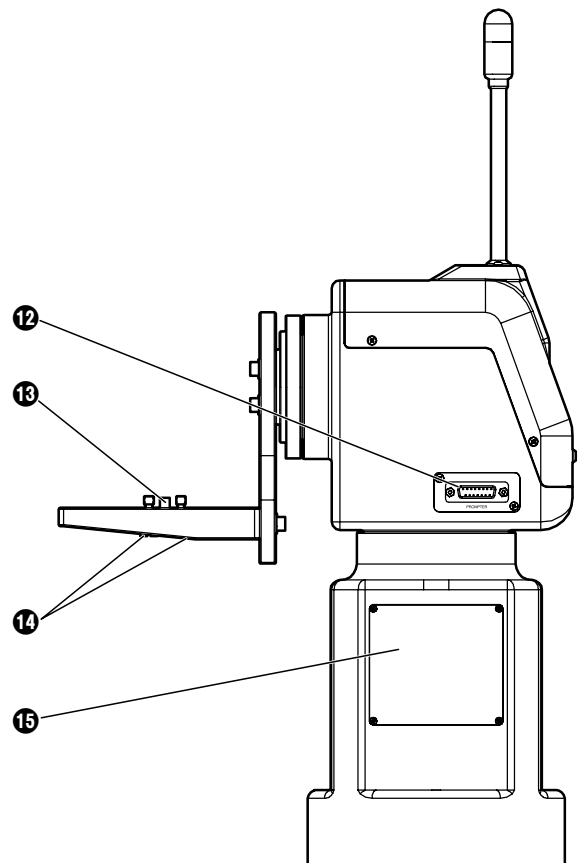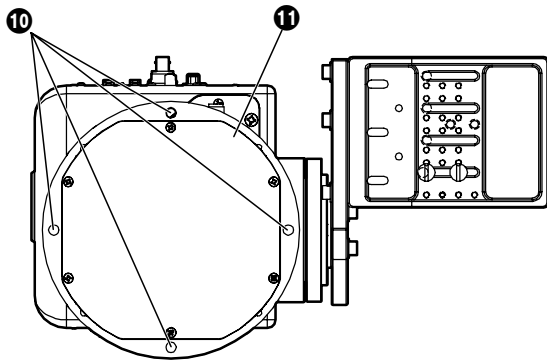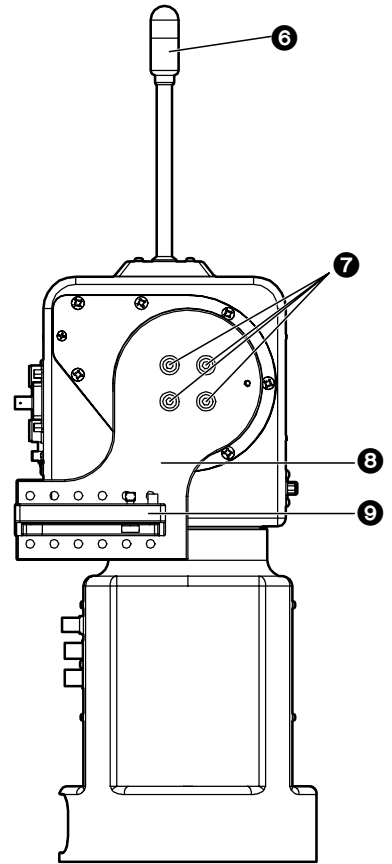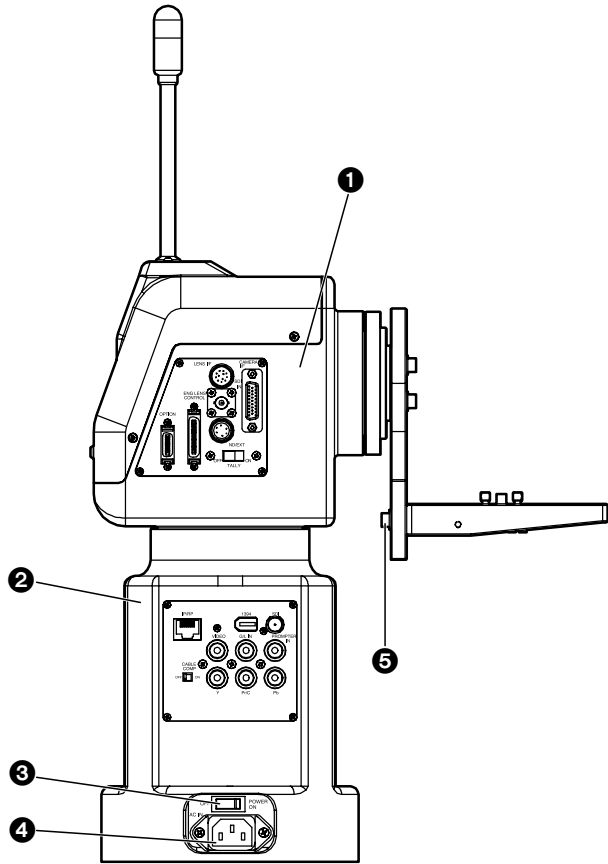
Parts and their function
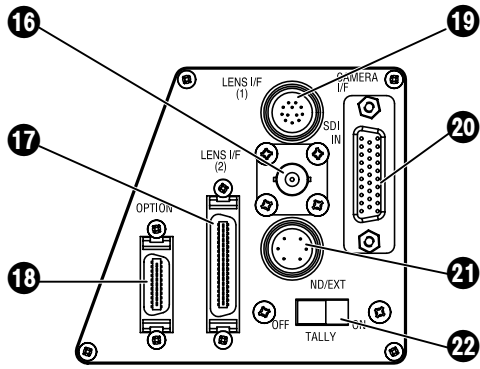
Rotary head connector panel

Pedestal connector panel

AW-PH400

❶ Rotary head
This rotates in the horizontal direction.

❷ Pedestal

❸ POWER ON/OFF switch
When this is set to ON, the unit's power is turned on; when it is set to OFF, it is turned off.

❹ AC 120 inlet [AC IN] (AC 3-point inlet)
Connect the accessory AC power cable to this inlet.

❺ Camera mounting base mounting screws
M5 × 22 mm hexagon socket head screws, M5 flat washers (3 of each provided as accessories)
These parts are used to secure the camera mounting base to the rotary arm.

❻ Tally lamp (accessory)
This is lighted up red by the selected signals.

❼ Rotary arm mounting screws
M5 × 22 mm hexagon socket head screws, M5 flat washers (4 of each provided as accessories)
These parts are used to secure the rotary arm to the rotary head.

❽ Rotary arm
This rotates in the vertical direction.

❾ Camera mounting base
Mount the convertible camera on this base.

❿ Pan/tilt head mounting holes
These four holes are used when installing the pan/tilt head.

⓫ Bottom panel

⓬ PROMPTER connector
The prompter is connected to this connector.
The maximum current which can be supplied from the DC 12V OUT socket is 2A.
When the prompter is connected, the pan/tilt head's speed is reduced to about one-third.
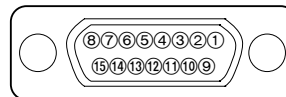
Pin layout as seen facing the prompter connector

Pin No.		Signal Name
1		– – –
	9	– – –
2		PROMPTER VIDEO
	10	PROMPTER VIDEO GND
3		– – –
	11	– – –
4		DC 12V OUT
	12	– – –
5		GND
	13	– – –
6		– – –
	14	DETECT
7		– – –
	15	GND
8		– – –

Parts and their function

⑬ **Guide pin**
Use this to determine the direction in which the camera is to be mounted.

⑭ **Camera mounting screws (U1/4" 20UNC)**
These are used to secure the camera firmly after it has been mounted.

⑮ **Side blank panel**
This is used when the mounting direction of the pedestal connector panel is to be changed.

⑯ **SDI IN connector [SDI IN]**
Use a coaxial cable to connect this to the SDI OUT connector on the AW-PB504 SDI card or other card installed in the convertible camera.

⑰ **LENS I/F (2) connector [LENS I/F (2)]**
This is used when an IAS, WAS or VAS lens made by Canon or an RD lens made by Fujinon is to be used.
One of the cables described in "Cable specifications" on pages 58 to 60 is required to connect the lens with the connector.

⑱ **OPTION connector [OPTION]**
The optional AW-RL400 roll unit is connected here using the cable supplied with the AW-RL400.

⑲ **LENS I/F (1) connector [LENS I/F (1)]**
This is used to control the zooming and focusing of the motorized lens unit. Use the motorized lens unit's remote (zoom/focus) control cable to make the connection.

⑳ **CAMERA I/F connector [CAMERA I/F]**
This is used for the control of the convertible camera.
Use the camera cable supplied with the AW-PH400 to connect the connector with the REMOTE connector on the camera.
Depending on the functions of the optional card, a special camera cable (sold separately) is required.

㉑ **ND/EXT connector [ND/EXT]**
This is for the control of the ND filter and lens extender of the motorized lens unit.
Connect this connector when using a motorized lens unit with ND filter and lens extender functions.
The compatible connector is the R03-P6M or R03-PB6M made by Tajimi Electronics Co., Ltd.

ND signal   CVCC (+12V)

A F

ND return — B   E — CGND

C D

EXT return

EXT signal
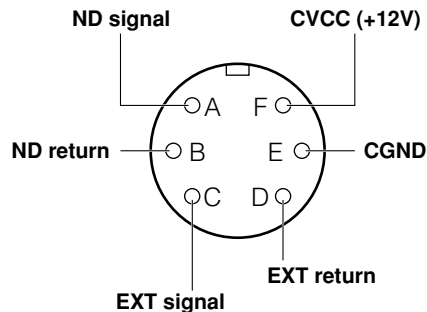
(Pin layout as seen from cable end)

㉒ **TALLY OFF/ON switch [TALLY]**
When this is set to ON, the tally lamp is lighted by the selected signals. When it is set to OFF, the (❻) tally lamp will not light even if the selected signals are supplied.

㉓ **CONTROL IN IP/RP connector [IP/RP]**
This is the connector for the control of signals of the camera and pan/tilt head.
It is connected to the CONTROL OUT TO PAN/TILT connector on the AW-RP400 pan/tilt control panel.
Use a 10BASE-T (equivalent to UTP category 5) straight cable for the connecting cable.

㉔ **VIDEO connector [VIDEO]**
This the output connector for the camera's video signals.
It is connected to the Y/VIDEO connector on the AW-RC400 cable compensation unit or monitor, etc.
Use a BNC coaxial cable for the connecting cable.

㉕ **CABLE COMP OFF/ON switch [CABLE COMP]**
When this is set to ON, signals which have been cable-compensated for the equivalent of 500 meters are output from the VIDEO connector and the Y, Pr and Pb connectors.
When this switch is used in conjunction with the AW-RC400 cable compensation unit, the video cable can be extended up to a maximum of 1000 meters.

Parts and their function

㉖ Y connector [Y]
This is the output connector for the camera's video signals.
It is connected to the Y/VIDEO connector on the AW-RC400 cable compensation unit or monitor, etc.
Use a BNC coaxial cable for the connecting cable.
The AW-PB302 RGB card must be installed if the AW-E300, AW-E300A, AW-E600, AW-E800 or AW-E800A convertible camera is to be used.

㉗ 1394 connector [1394]
This is used for the control of the convertible camera and pan/tilt head equipped with an IEEE1394 card such as the AW-PB310.
Use an IEEE1394 cable for the connecting cable.

㉘ SDI connector [SDI]
This is the output connector for the camera's video signals.
When the AW-PB504 SDI card or other card is inserted in the convertible camera for use, SDI signals can be output.
Use a BNC coaxial cable for the connecting cable.

㉙ G/L IN connector [G/L IN]
This is the genlock signal input connector.
It is connected to the G/L OUT connector on the AW-RC400 cable compensation unit or other unit.
Use a BNC coaxial cable for the connecting cable.

㉚ PROMPTER IN connector [PROMPTER IN]
The video signals for the prompter are input to this connector.
Use a BNC coaxial cable for the connecting cable.

㉛ Pb connector [Pb]
This is the output connector for the camera's video signals.
It is connected to the Pb connector on the AW-RC400 cable compensation unit or monitor, etc.
Use a BNC coaxial cable for the connecting cable.

㉜ Pr/C connector [Pr/C]
This is the output connector for the camera's video signals.
It is connected to the Pr/C connector on the AW-RC400 cable compensation unit or monitor, etc.
Use a BNC coaxial cable for the connecting cable.

Installation *(Be sure to ask your dealer to install the unit.)*

■ Assembling the pan/tilt head

When assembling the pan/tilt head, use the Allen key (provided) and screwdriver, and secure the head by tightening the screws firmly. After mounting the pan/tilt head, check there is no play in its installation.

① **Attaching the camera mounting base**
Attach the camera mounting base to the rotary arm using the three mounting screws (M5 × 22 mm, with flat washers) provided. The installation direction differs depending on how the base is installed.

② **Attaching the rotary arm**
Attach the rotary arm to the rotary head using the four mounting screws (M5 × 22 mm, with flat washers) provided. The installation direction differs depending on how the arm is installed.

For a stand-alone installation

Rotary head

Camera mounting base
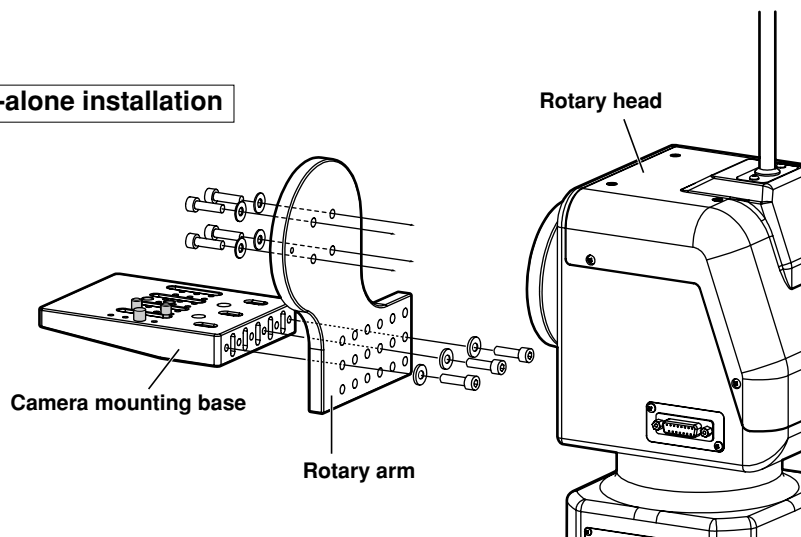
Rotary arm

For installation on the ceiling

Change the guide pin and screw positions as shown in the figure below on the right, and then attach the camera mounting base to the rotary arm.

Rotary arm

Camera Mounting base

Change the positions of the guide pins.

Change the positions of the camera mounting screws.

Camera mounting base

Rotary head

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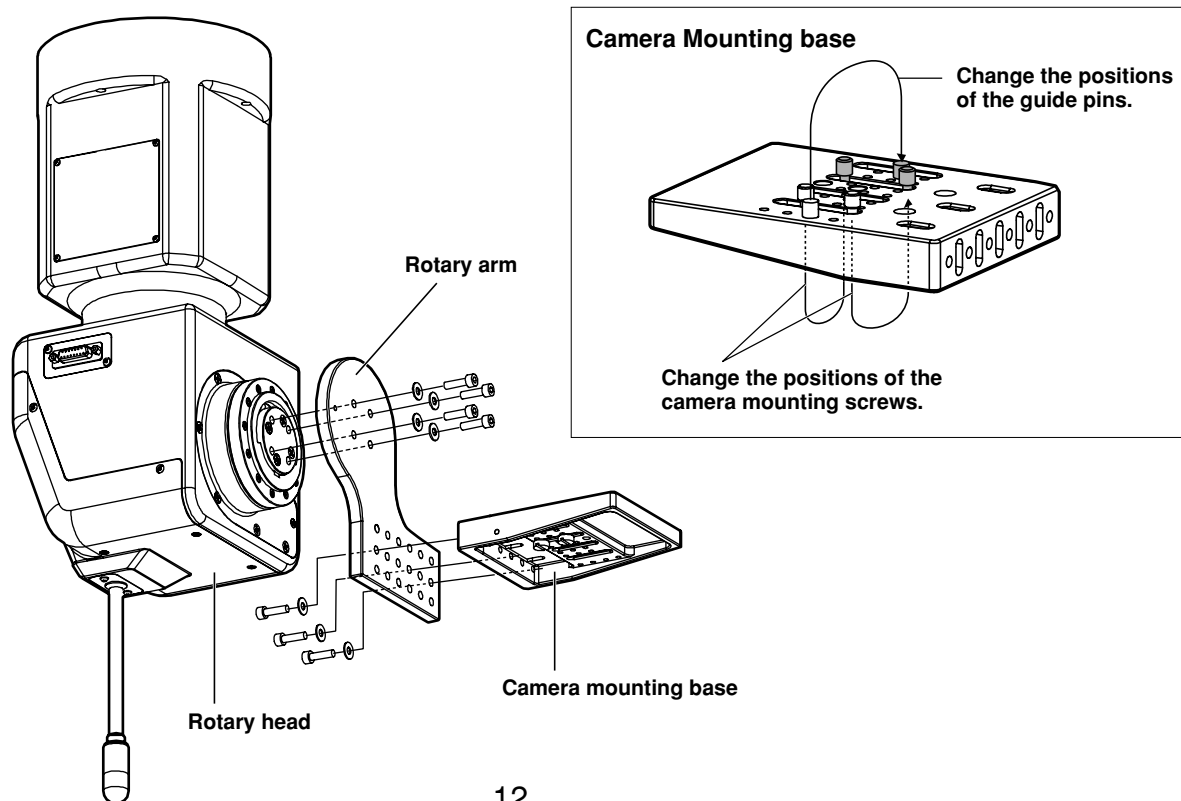
Installation *(Be sure to ask your dealer to install the unit.)*

③**Mounting the tally lamp**
Connect the cable connector which is taped to the top of the pan/tilt head to the tally lamp connector.
Mount the tally lamp on the top of the pan/tilt head using the two screws provided.
Mount the lamp while paying attention to the wire.

If the tally lamp is not going to be used, insert the cable which is stuck to the top of the pan/tilt head inside the pan/tilt head, and attach the blank panel for the tally lamp using the two screws provided.

AW-PH400

Tally lamp

Tally lamp cable connector

Taped

Blank panel
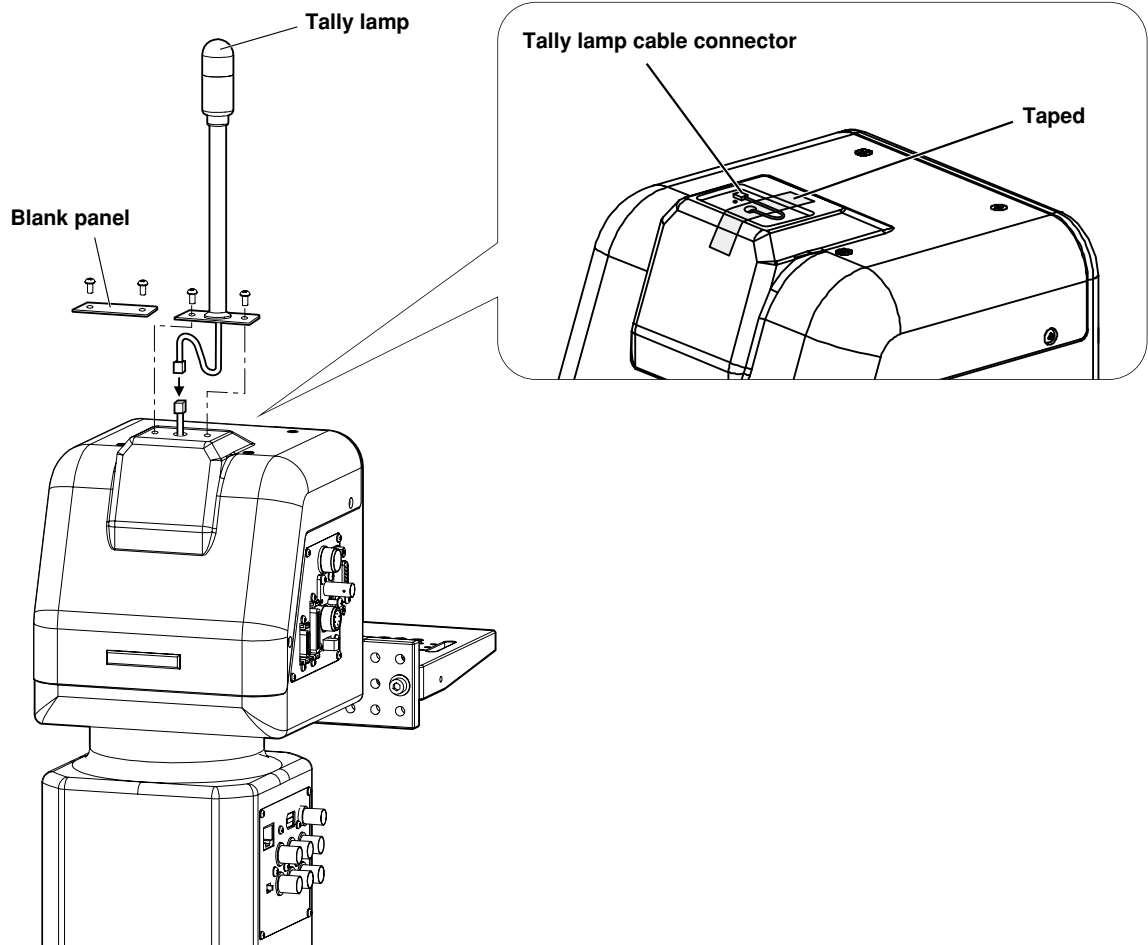
● Tighten up the screws securely to ensure that they will not come loose during use.

Installation *(Be sure to ask your dealer to install the unit.)*

■ Setting the mounting direction switch

Set the switch as follows when the unit is to be installed on the ceiling.
(This switch was set to the stand-alone installation position at the factory.)

① Remove the four screws, and gently remove the pedestal connector panel.

② Set switch S1 on the PCB inside the pan/tilt head as follows.

    For stand-alone installation:
        Set S1 to the rear position (T). (Factory setting)

    For installation on the ceiling:
        Set S1 to the front position (H).

③ Upon completion of the setting, return the pedestal connector panel to its original position, and attach it using the screws.
   (Take care not to pinch or disconnect the wires.)

**Rear position (T)
for stand-alone
installation**

S1

S2

**Front position (H)
for installation on
the ceiling**

S1

Pedestal connector panel
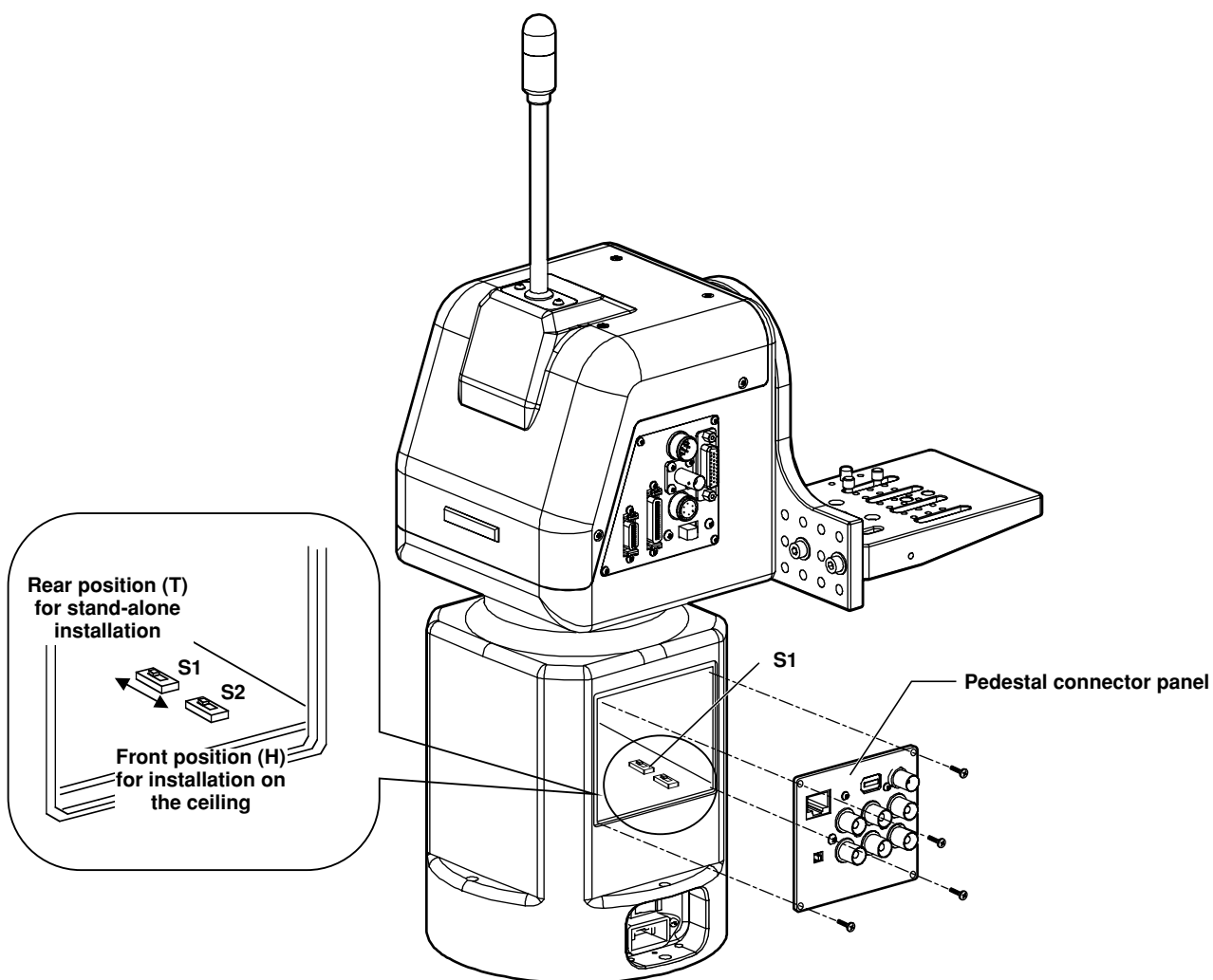
● Be absolutely sure to turn off the power before changing the position of this switch.

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Installation *(Be sure to ask your dealer to install the unit.)*

■ Setting the PCB switches

The switches on the CONNECTOR PCB will need to be set in accordance with the signals to be transmitted and the equipment to be connected to the pan/tilt head.
(The switches are set to support analog/SDI at the factory.)

● **Analog/SDI support**
  IP/IEEE switch: IEEE
  422/IP switch: 422

● **Web card support**
  IP/IEEE switch: IP
  422/IP switch: IP

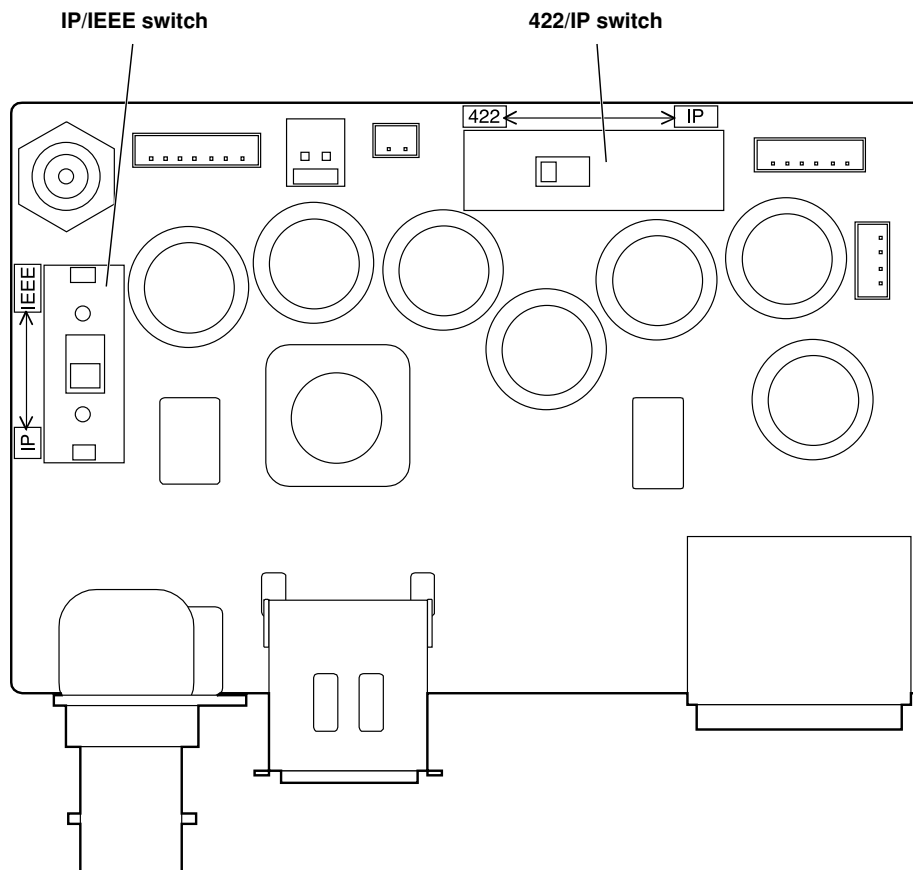● **IEEE1394 card support**
  IP/IEEE switch: IEEE
  422/IP switch: 422

IP/IEEE switch

422/IP switch

Installation *(Be sure to ask your dealer to install the unit.)*

■ Installing the pan/tilt head

When installing the pan/tilt head, follow the instructions below carefully.
In order to prevent accidents resulting when the product becomes dislodged or falls down, be absolutely sure to proceed as instructed. Do not install the pan/tilt head on its side since its prescribed operation and performance cannot be ensured.

● After the pan/tilt head has been installed, mount the camera on it.

● When installing the pan/tilt head, use the four mounting holes to secure the pan/tilt head firmly.

● Use the M6 hexagon head bolts (including one short bolt) for installation.

● Use hexagon head bolts which are longer than the thickness (t) of the mounted member + 25 mm.

● As shown in the figure, use flat washers, spring washers and hexagon nuts for the hexagon head bolts.

● Use a wrench of the appropriate size to tighten up the hexagon head bolts.

● When installing the pan/tilt head on the ceiling, attach the wire together with the bolts, and then anchor them securely to a rigid part of the ceiling.

● Use a wire which is strong enough to bear the weight of the entire pan/tilt head (pan/tilt head, camera and lens cable).

● Install the pan/tilt head in such a way that the equipment and cable attached to it will not make contact with any surrounding objects when the head is swiveled.
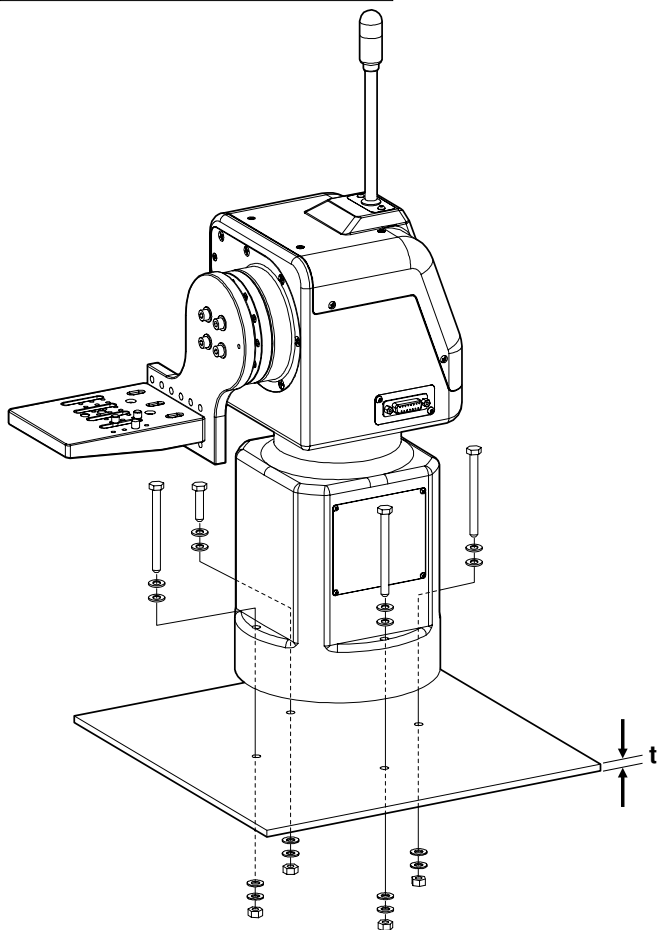
For a stand-alone installation	For installation on the ceiling
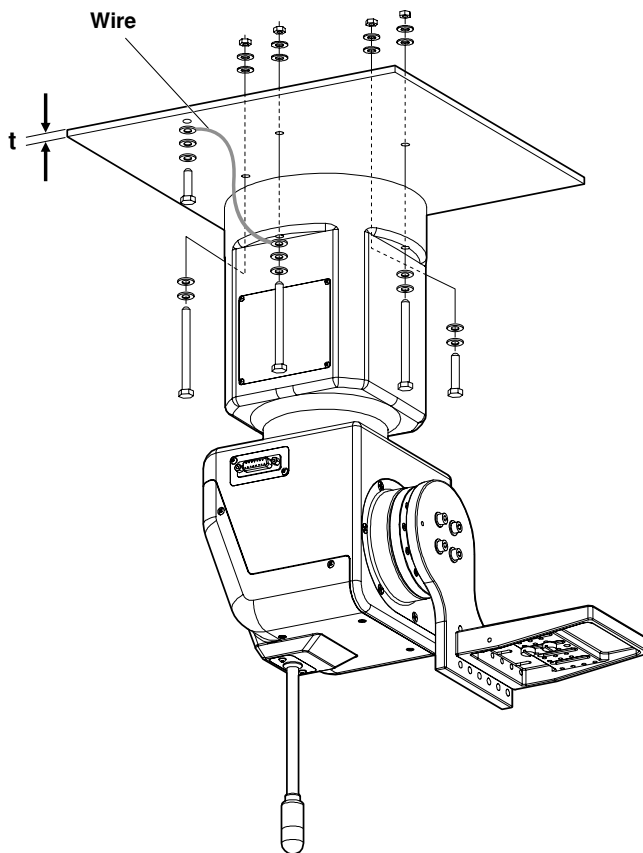
✳ When installing the pan/tilt head, do not forcibly turn the rotary head or rotary arm manually. Doing so may result in malfunctioning.

Installation *(Be sure to ask your dealer to install the unit.)*

■ Mounting the camera

When mounting the camera on the pan/tilt head, be very careful to ensure that the camera does not fall off or fall down.

① Mount the lens onto the convertible camera. (Before mounting a large lens, consult with your dealer.)
② Insert the rubber piece between the camera and pan/tilt head, and mount the convertible camera after aligning it with the guide pins. Use a tool to tighten up the mounting screws so that they are securely tightened.
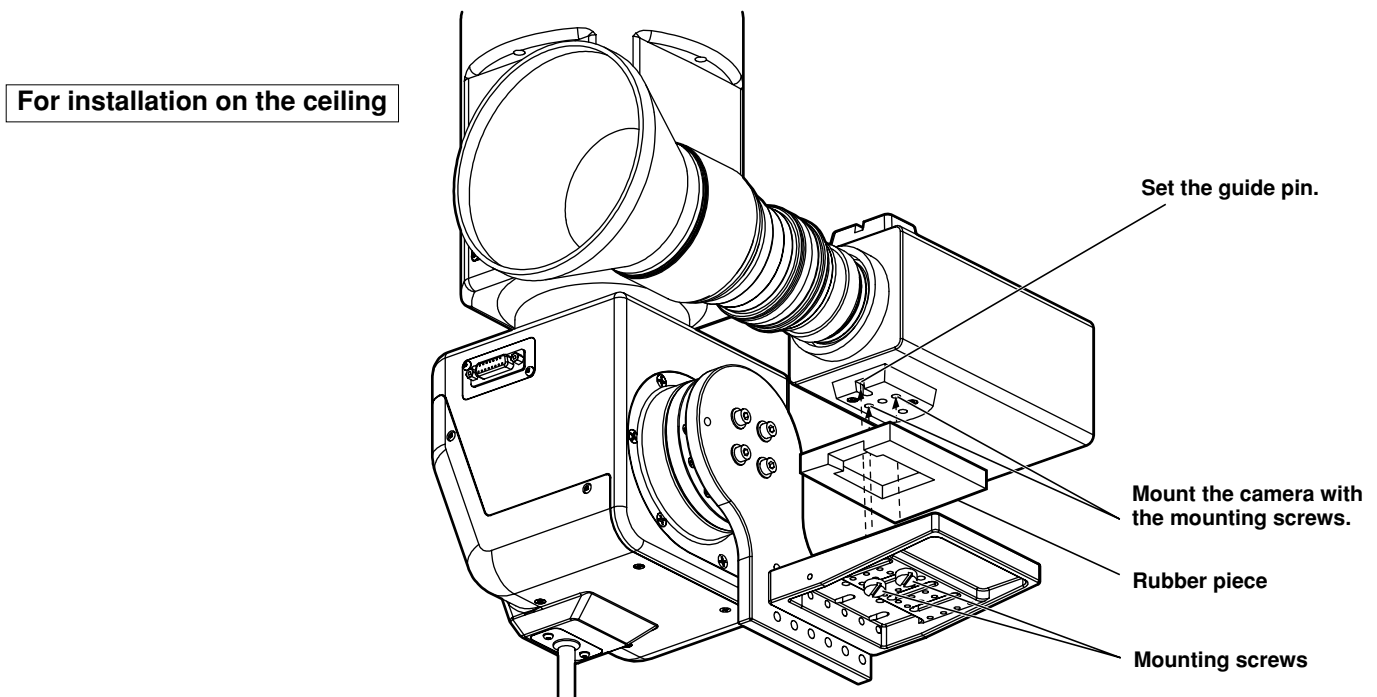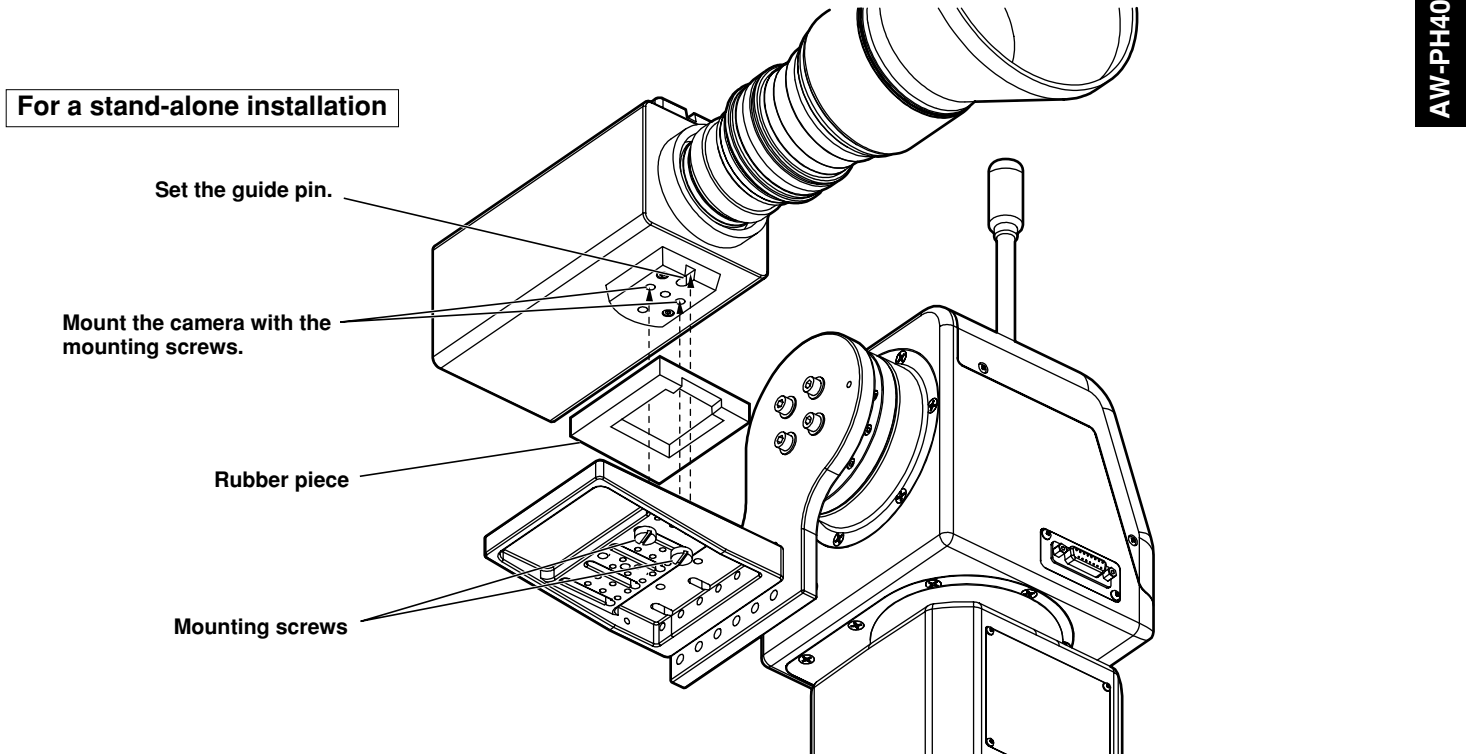
AW-PH400

For a stand-alone installation

Set the guide pin.

Mount the camera with the mounting screws.

Rubber piece

Mounting screws

For installation on the ceiling

Set the guide pin.

Mount the camera with the mounting screws.

Rubber piece

Mounting screws

✽ Be absolutely sure to use a screwdriver or other tool to tighten the two camera mounting screws so that the camera is secured firmly.
✽ After the camera has been mounted, check that there is no play in the way it was mounted.

Installation (Be sure to ask your dealer to install the unit.)

■ Attaching the wire

The wire is not provided. Use one which is strong enough to bear the weight of the whole camera (camera + lens).

When mounting the cameras with fan (AW-E655, AW-E750, AW-E800, AW-E800A)

① Use the wire mounting screw (M4 × 8 mm with flat washer and spring washer) to attach one end of the wire to the pan/tilt head's arm.

② Mount the mounting spacer on the top panel of the camera.

③ Use the wire mounting screw (M4 × 6 mm with flat washer and spring washer) to attach the other end of the wire to the screw hole of the mounting spacer.

When mounting the cameras without fan (AW-E350, AW-E650, AW-E300, AW-E300A, AW-E600)

① Use the wire mounting screw (M4 × 8 mm with flat washer and spring washer) to attach one end of the wire to the pan/tilt head's arm.

② Use the wire mounting screw (M4 × 6 mm with flat washer and spring washer) to attach the other end of the wire to the screw hole of the top panel of the camera.
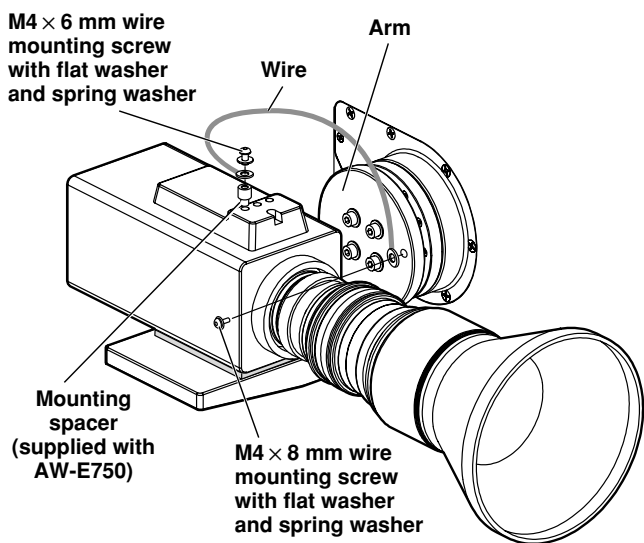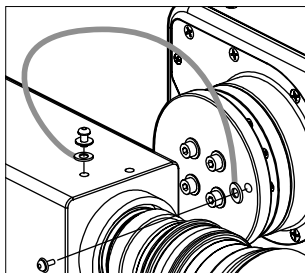
For a stand-alone installation	For installation on the ceiling
● **Camera: AW-E750**	● **Camera: AW-E750**
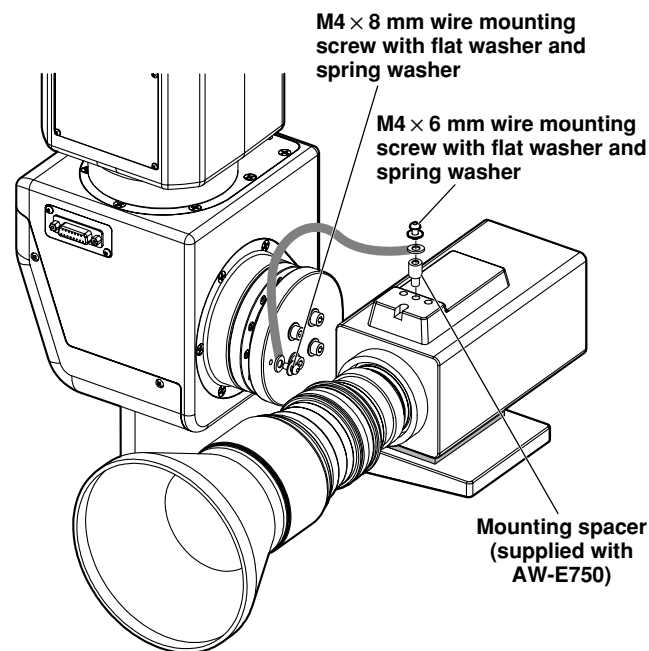
● **Camera: AW-E650, AW-E350**	● **Camera: AW-E650, AW-E350**
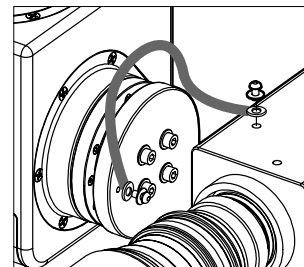
✳ Be absolutely sure to tighten up the mounting spacer and screws securely using a tool such as a screwdriver.

Replacing the consumable parts

■ Replacing the battery

The battery has a service life of approximately 5 years.
The unit stores the preset positions, limiters and other data in its memory. This data is retained even when the power is turned off, but if the internal battery has reached the end of its service life, the data will be lost when the power is turned off.
Replace a battery that has lost its charge with a new one. (Battery used: CR2032 manganese dioxide-lithium battery)

■ How to remove the battery

① Remove the four screws, and remove the pedestal connector panel.
② Push the battery in the direction indicated by the arrow in the figure, and slide it out.
③ With the battery slid out, raise it from underneath the part with the arrow.
④ After disengaging the part with the arrow from the battery holder, pull the battery out toward yourself.

■ How to install the battery

① Make the "+" side of the new battery to the front side, and insert its end into the battery holder from the direction of the arrow.
② Push the battery into the holder while pushing the battery in the direction of the arrow.
③ Attach the pedestal connector panel using the four screws.

Replace the lithium battery here.

Pedestal connector panel
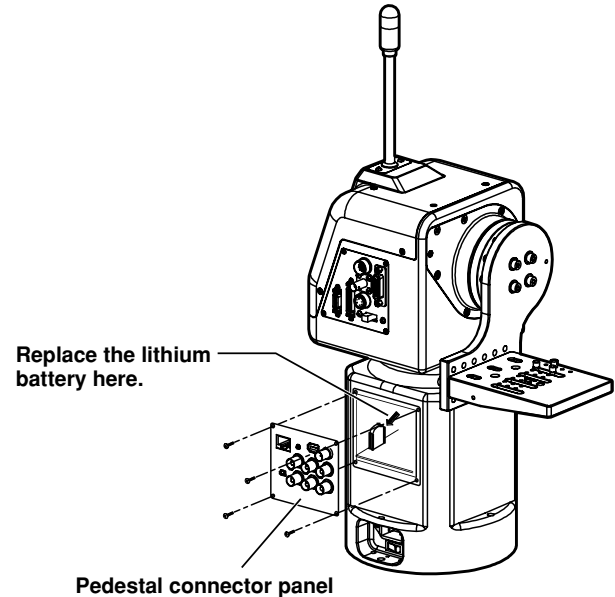
■ Replacing the motor

Replace the motor when it ceases to operate properly.
For details on the motor replacement, consult your dealer.

■ Replacing the belt

Replace the belt when the preset stop accuracy has deteriorated.
For details on the belt replacement, consult your dealer.

■ Replacing the gear

Replace the gear when the preset stop accuracy has deteriorated.
For details on the gear replacement, consult your dealer.

> **The motor, gear and belt are consumables.**
>
> **They need to be replaced at periodic intervals.**

Specifications

Supply voltage:	AC 120 V, 60 Hz
Power consumption:	145 W

⬜ indicates safety information.

Genlock input:	BNC Black burst or composite video signal
Prompter input (PROMPTER IN):	BNC Through output to PROMPTER connector
Prompter output (PROMPTER OUT):	D-SUB 15-pin
Camera video output	
VIDEO:	BNC, 75-ohm output
Y:	BNC, 75-ohm output
Pr/C:	BNC, 75-ohm output
Pb:	BNC, 75-ohm output
SDI:	BNC
Camera, pan/tilt head control:	RJ45, RS-485, pan/tilt head control signal output
RP/IP	Connecting cable: 10BASE-T straight cable (equivalent to UTP category 5), max. 500 meters

Functions/performance:	Maximum load-bearing capacity: 17.6 lbs (8 kg)
	Tilt range: 300 degrees (approx. ±150 degrees)
	    The tilt range is limited to 190 degrees by the initial setting of the AW-RP400. To move
	    beyond 190 degrees, change the AW-RP400 setting.
	    The tilt range is subject to restrictions depending on the cable and lens of camera to be
	    mounted on pan/tilt head.
	Pan range: 400 degrees (approx. ±200 degrees)
	Maximum operating speed: 90 degrees/sec.
	    (Maximum operating speed with prompter mounted: 30 degrees/sec.)
	Repeatability: ±30"
	Noise level: Less than NC30 (at less than 30 degrees/sec.)

Ambient operating temperature:	32°F to 113°F (0°C to +45°C)
Storage temperature:	–4°F to 140°F (–20°C to +60°C)
Ambient operating humidity:	30% to 90% (no condensation)
Dimensions (W × H × D):	12-3/8" × 21" × 7-3/8" (315 × 534 × 188 mm)
Weight:	Approx. 22.5 lbs (10.2 kg)
Finish:	AV ivory paint (color resembling Munsell 7.9Y6.8/0.8)

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

MEMO

Introduction

- This pan/tilt control panel enables up to five AW-PH400 indoor pan/tilt heads to be controlled.

- By connecting the AW-CB400 remote operation panel or WV-CB700A remote control box to the control panel, the convertible cameras mounted on the pan/tilt heads can be controlled at the same time.

- By installing an additional control panel, two of the five units in the pan/tilt head system can be controlled at the same time.

- Up to ten tracing memories can be accommodated.

- Up to 50 preset memories can be set.

- The connection distance between the control panel and pan/tilt head system can be extended up to a maximum of 500 meters.

NOTE

- The AW-RP400 cannot be used to control the model AW-PH300, AW-PH300A, AW-PH350, AW-PH500 or AW-PH600 pan/tilt heads.

- Before using the control panel, the movement range (limiters) of the pan/tilt head system must be set without fail.

- When the AW-RP400 control panel is to be discarded at the end of its service life, ask a specialized contractor to dispose of it properly in order to protect the environment.

Accessories

Zoom switch 1
Plug (D-SUB 15-pin) for tally/INCOM system .... 1 set
Rack-mounting adaptors 2
Mounting screws (M4 $\times$ 8 mm) 4

Parts and their function

■ Front panel
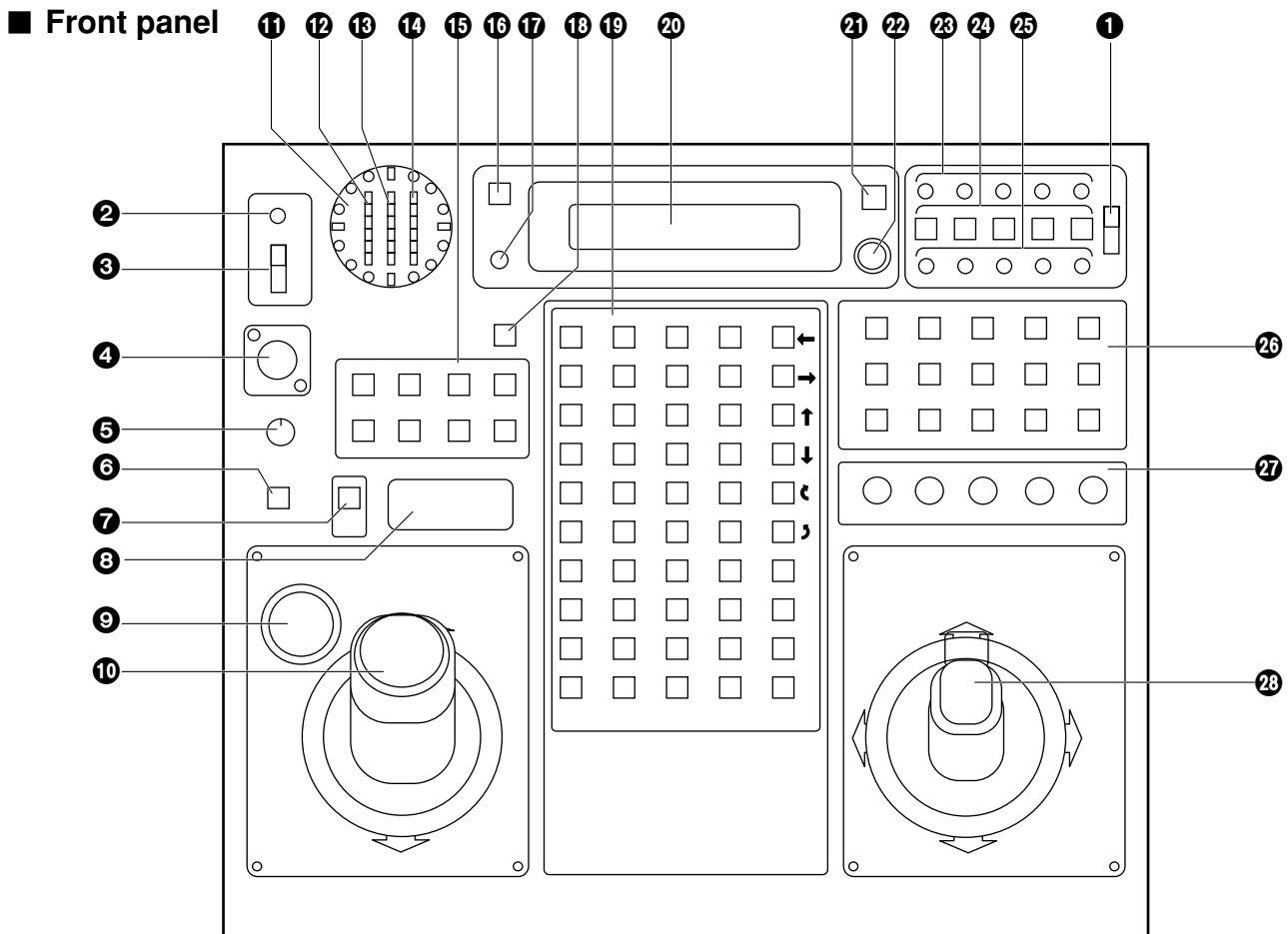
❶ EXT CONT [M/S] switch

This switch is normally kept at the [M] (master) position. When an additional AW-RP400 control panel has been installed, set the EXT CONT switch on the additional unit to [S] (slave).

If no additional AW-RP400 control panel is going to be installed, the EXT CONT switch on this control panel must be kept at the [M] (master) position without fail.

❷ OPERATE lamp

This lights up green when the (❸) OPERATE switch is at ON. It goes off when the switch is set to OFF.

❸ OPERATE [OFF/ON] switch

When this switch is set to [ON], the power supply from the connected pan/tilt heads to the cameras is turned on, and system control is enabled.

When it is set to [OFF], the power supply from the connected pan/tilt heads to the cameras is turned off.

NOTE

● The centering of the joystick and zoom switch is adjusted when the OPERATE switch has been set to [ON]. Therefore, do not touch the joystick or zoom switch while this switch is at the [ON] position.

● When an additional AW-RP400 control panel is installed and used, it will not be possible to exercise control from the slave control panel unless the OPERATE switches not only on the slave control panel but on the master control panel as well are set to [ON]. Remember to set the OPERATE switch on the slave control panel to [ON] first before setting the OPERATE switch on the master control panel to [ON].

---

❹ INCOM jack

The INCOM (inter-communication) headset is connected here.

❺ LEVEL control

Use this to adjust the volume of the headset's receiver.

❻ CALL button

When this button is pressed, the buzzer of the connected control panel sounds, and the CALL button lamp lights.

AW-RP400

Parts and their function

❼ IRIS [AUTO/MANU/LOCK] button

Use this to select the method for adjusting the lens iris of the cameras in the currently selected pan/tilt head system.
Each time it is pressed, the setting is switched in the sequence of AUTO, MANU and LOCK.

AUTO: The cameras automatically adjust the lens iris in accordance with the light quantity, and the IRIS button lamp lights.

MANU: The lens iris is adjusted manually using the IRIS dial. At this setting, the IRIS button lamp is off.

LOCK: The lens iris is locked at the manually adjusted setting. It does not move even when the (❾) IRIS dial is turned. In this status, the IRIS button lamp flashes slowly.

While MANU or LOCK is selected, the IRIS button lamp starts flashing quickly when the IRIS dial is turned: this indicates that the lens iris cannot be controlled even when the (❾) IRIS dial is turned.

● The IRIS button on the control panel does not work when the WV-CB700A remote control box is connected to the control panel. Select AUTO or MANU using the IRIS [AUTO/MAN] button on the WV-CB700A.

❽ SD CARD slot

This slot is where the SD memory cards are inserted. The pan/tilt head and camera setting can be stored on these cards.

❾ IRIS dial

The lens iris can be adjusted by turning this dial while the (❼) IRIS [AUTO/MANU/LOCK] button is set to MANU. The iris is opened by turning the dial clockwise and stopped down by turning it counterclockwise.

● The IRIS dial on the control panel does not work when the WV-CB700A remote control box is connected to the control panel. Adjust the iris using the IRIS control on the WV-CB700A.

❿ ZOOM lever/FOCUS dial

Use the ZOOM lever to adjust the lens zoom. The TELE (telephoto) and WIDE (wide angle) settings are established by the direction in which the lever is tilted; the zooming speed is adjusted by the angle to which the lever is tilted.
The lens is focused using the FOCUS dial on the top of the lever.

⓫ PAN POSITION indicator

Sixteen LEDs are used to display the position of the pan/tilt head in the horizontal rotational direction for 200 degrees to the left or right.
When the pan/tilt head is rotated to the right by more than 180 degrees up to 200 degrees, the 180-degree LED flashes, and LEDs on its left light.
Conversely, when the pan/tilt head is rotated to the left by more than 180 degrees up to 200 degrees, the 180-degree LED flashes, and LEDs on its right light.

0°

90° to the left ← → 90° to the right

180° to the left or right
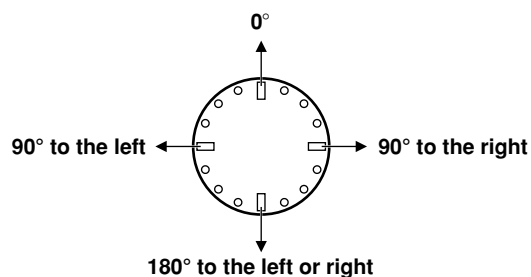
⓬ IRIS indicator

The position of the lens iris in the currently selected pan/tilt head system is indicated by a 6-step display (CLOSE → OPEN).

⓭ ZOOM indicator

The position of the lens zoom in the currently selected pan/tilt head system is indicated by a 6-step display (WIDE → TELE).

⓮ FOCUS indicator

The position of the lens focus in the currently selected pan/tilt head system is indicated by a 6-step display (NEAR → FAR).

⓯ OPTION switches [A to H]

The "NOT USE", "DEF", "WIP", "HEATER/FAN", "LAMP", "OPTION", "ND", "EXT" and "AF" functions can be allocated to OPTION switches A to H by menu settings.

⓰ HOME button

Press this to move the pan/tilt head and roll unit to the home position.

⓱ LCD CONTRAST control

Use this to adjust the contrast of the LCD panel.

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Parts and their function

⑱ MEMORY button

When one of the (⑲) PRESET MEMORY selection buttons [1] to [50] is pressed while holding down the MEMORY button, the settings of the pan/tilt head system can be registered in that PRESET MEMORY selection button.

The MEMORY button flashes if the pan/tilt head selected by the (㉔) CONTROL SELECT button is not connected or its power has not been turned on.

⑲ PRESET MEMORY selection buttons [1] to [50]

Use these buttons to call the settings registered in them. When data has been registered in the tracing memories, the recording/play time displays appear.

⑳ LCD panel

The current setting statuses are displayed on this panel.

㉑ MENU/LIMIT button

Hold down this button for two or more seconds to turn the setting menu ON or OFF.

When (⑲) PRESET MEMORY selection button [5], [10], [15], [20], [25] or [30] is pressed while holding down the MENU/LIMIT button, ON/OFF control over the limiters can be exercised.

㉒ CONT dial

This is used for the setting menu operations.

㉓ TALLY lamps [1] to [5]

When tally signals are supplied to the (㉛) TALLY/INCOM connectors [1] to [5] on the rear panel, the lamps with the numbers corresponding to those connectors light up. When tally signals are supplied to the tally connectors [1] to [5] of the AW-CB400 remote operation panel, if this panel is connected to the pan/tilt control panel, the lamps with the numbers corresponding to those connectors also light up.

㉔ CONTROL SELECT buttons [1] to [5]

The (㉞) CONTROL OUT TO PAN/TILT HEAD [P1] to [P5] connectors on the rear panel can be selected by pressing buttons [1] to [5]. The button lamps corresponding to the numbers of the buttons selected light, and the selected pan/tilt head systems can be controlled.

When the (㉟) MONI SEL OUT connector on this control panel is connected to the MONI SEL IN connector on the AW-RC400 cable compensation unit, the images of the camera connected to the MONI1 or MONI2 connector on the AW-RC400 can be output.

● When two AW-RP400 control panels are connected, the combination of the control panels which select the monitor output can be set on the menu.

㉕ ANOTHER CONTROL lamps [1] to [5]

When another AW-RP400 control panel is connected, these lamps indicate the numbers of the pan/tilt head systems selected by the additional AW-RP400 control panel.

㉖ TRACING MEMORY [START POINT, START, STOP, RESTORE, RESET, 1 to 10] buttons

Use these for the tracing memory operations. For details on operation, refer to the tracing memory section.

㉗ SPEED controls [ZOOM/FOCUS/PAN/TILT/ROTATION]

These enable the pan/tilt head, lens and roll unit control speeds to be adjusted.

By turning these controls as far as they will go in the counterclockwise direction, operation of the pan/tilt heads and lenses can be prevented even when control is exercised using the joystick, etc.

㉘ PAN/TILT lever/ROTATION control switch

Use these to adjust the direction of the pan/tilt heads. When the lever is tilted to the left or right, the pan/tilt heads move toward the left or right; when it is tilted up or down, they move upward or downward. The movement speed can be adjusted by the angle to which the lever is tilted.

Further, the angle of the AW-RL400 roll unit can be adjusted using the ROTATION control switch on the front of the lever. By pressing the top part of the ROTATION control switch, the roll unit rotates clockwise; by pressing the bottom part, it rotates counterclockwise. The speed of the rotation changes in accordance with the amount of pressure applied.

AW-RP400

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Parts and their function

■ **Rear panel**
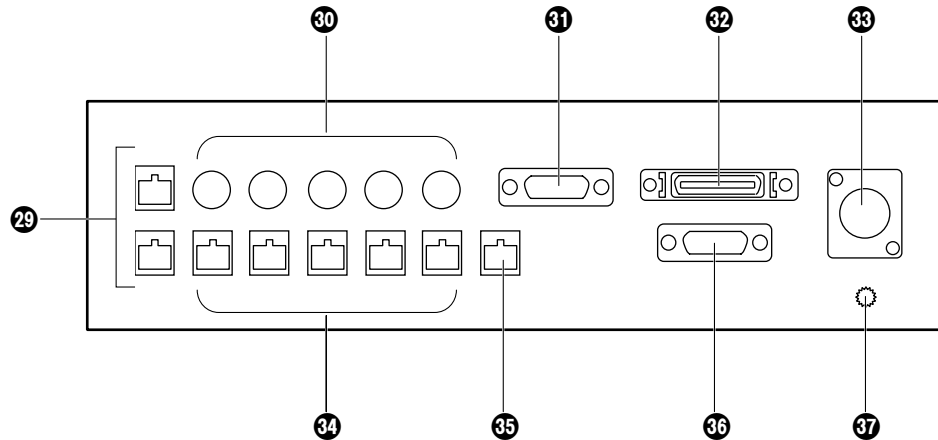
29 **EXT CONT IN/OUT connectors**

When an additional AW-RP400 control panel is to be provided, connect these connectors on the two AW-RP400 control panels using a 10BASE-T (equivalent to UTP category 5) straight cable.
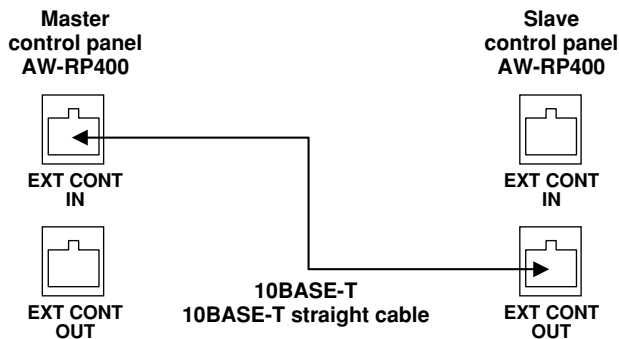
30 **CAMERA CONTROL IN FROM RCB [P1] to [P5] connectors**

Connect the WV-CB700A remote control boxes to these connectors.
The cameras installed on the pan/tilt heads corresponding to the ports where the WV-CB700A boxes have been connected can then be controlled.
When even one WV-CB700A box is connected, the cameras cannot be controlled from the AW-CB400 remote operation panel even if the AW-CB400 is connected.

31 **TALLY/INCOM connector**

Connect this to the TALLY/INCOM connector on the video switcher or other unit.
When the TALLY input connector is set to the GND level, the TALLY lamp on the control panel or pan/tilt head lights.
Do not apply a voltage in excess of 5V to this connector.
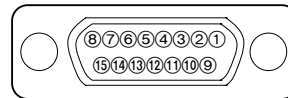
Pin layout as seen from the back panel of AW-RP400

Pin No.		Signal name
1		TALLY1
	9	TALLY2
2		TALLY3
	10	TALLY4
3		TALLY5
	11	TALLY GND
4		– – –
	12	– – –
5		– – –
	13	– – –
6		MIC+
	14	MIC–
7		INCOM GND
	15	SP–
8		SP+

Use the accessory plug (D-SUB 15-pin) to connect the tally/INCOM signals to the system.
Connect a 4-wire INCOM system to the INCOM connector.
When an additional control panel has been provided or when the AW-CB400 remote operation panel has been connected, the tally or INCOM function of all the units will take effect if tally or INCOM signals are connected to one of the units.

Parts and their function

㉜ REMOTE connector

Connect an external unit to this connector to control the pan/tilt head systems from a PC or other external unit. Connect the connector to the PC using the AW-CA50T9 RS-232C cable.

㉝ DC 12V IN socket

Connect the AW-PS505 AC adaptor (sold separately) to this socket.

㉞ CONTROL OUT TO PAN/TILT HEAD [P1] to [P5] connectors

Connect these connectors to the IP/RP connectors on the AW-PH400 indoor pan/tilt heads using 10BASE-T (equivalent to UTP category 5) straight cables. The cables can be extended up to a maximum of 500 meters.

㉟ MONI SEL OUT connector

Connect this connector to the MONI SEL OUT connector on the AW-RC400 cable compensation unit using a 10BASE-T (equivalent to UTP category 5) straight cable. You can monitor the images of the system selected by the AW-RP400 from the MONITOR1 connector on the AW-RC400 and the images of the system selected by the AW-CB400 from the MONITOR2 connector on the AW-RC400.

If two AW-RP400 units are connected, you can monitor the images of the system selected by the master AW-RP400 from the MONITOR1 connector on the AW-RC400 and the images of the system selected by the slave AW-RP400 from the MONITOR2 connector on the AW-RC400.

㊱ CAMERA CONTROL IN FROM ROP connector

Connect the AW-CB400 remote operation panel to this connector using the connecting cable packed with the AW-CB400.

The cameras installed on the pan/tilt heads can now be controlled from the AW-CB400.

㊲ Ground terminal

Connect this terminal to ground.

Menu settings

■ Operation method

① The menu setting items are displayed when the MENU/LIMIT switch is held down for two or more seconds.

② If nothing appears on the bottom line of the LCD display, turn the CONT dial to select a menu item.

③ When the CONT dial is pressed, what has been set appears on the bottom line. If more than one setting is involved in the menu item, the settings on the bottom line are switched each time the dial is pressed.

④ When a setting is displayed, the setting can be changed by turning the CONT dial.

⑤ Press the CONT dial successively: all the detailed settings come to an end, and the display on the bottom line is cleared, enabling another menu item to be selected.

⑥ To exit the setting menu, hold down the MENU/LIMIT switch for two or more seconds.
Even when a setting is displayed on the bottom line of the LCD display, the menu is exited when the MENU/LIMIT switch is held down for two or more seconds.

```
AW-RP400
 P/T CONTROL PANEL
```
↓
```
PRIORITY

```
↓
```
DIRECTION SET

```
↓
```
DIRECTION
 PAN      NORMAL
```
↓
```
DIRECTION
 TILT     NORMAL
```
↓
```
DIRECTION
 TILT      REVERSE
```
↓
```
DIRECTION

```
↓
```
AW-RP400
 P/T CONTROL PANEL
```

28
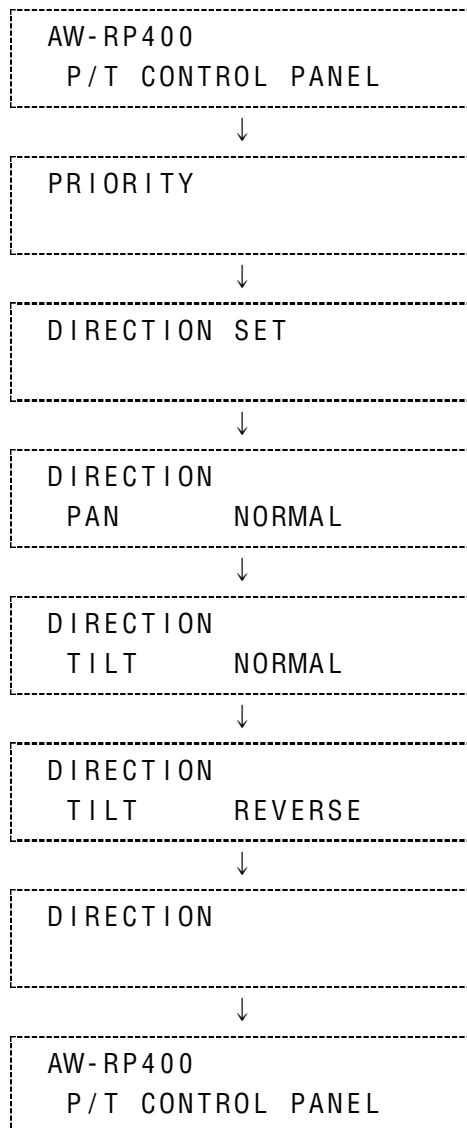
Menu settings

■ List of menu items and settings

Menu item	Setting	Description	Initial value
PRIORITY		MASTER, SLAVE	MASTER
DIRECTION	PAN	NORMAL, REVERSE	NORMAL
	TILT		
	ZOOM		
	FOCUS		
	IRIS		
	ROTATION		
TILT RANGE		190°, 300°	190°
SPEED WITH ZOOM POS.		OFF, 1, 2, 3	OFF
MEMORY LENGTH		60s, 120s, 300s, 600s	60s
PRESET SPEED		1 to 25	25
IRIS CONTROL		BOTH, RP400, CB400	BOTH
ROTATION SWITCH		ROTATION, FOCUS, ZOOM, IRIS	ROTATION
OPTION SWITCH	A	NOT USE, DEF, WIP, HEATER/FAN, LAMP, OPTION, ND, EXT, AF	NOT USE
	B		
	C		
	D		
	E		
	F		
	G		
	H		
CONTROL SELECT MODE		INTERLOCK, UN-INTERLOCK	INTERLOCK
BUZZER		OFF, ON	ON
AUTO RUN	START No.	1 to 50	1
	END No.	1 to 50	50
	INTERVAL	1s to 30s	1s
	OPERATE	STOP, RUN	STOP
SD CARD		STORE, LOAD	– – –

PRIORITY (MASTER/SLAVE)

When two AW-RP400 pan/tilt control panels have been connected, the priority of the CONTROL SELECT buttons is to be set.

When MASTER is selected as the setting, the master AW-RP400 has priority; when SLAVE is selected, the slave AW-RP400 has priority.

If the AW-RP400 control panel with a high priority has selected the pan/tilt heads, which were selected by the AW-RP400 control panel with a low priority, the CONTROL SELECT button lamps on the AW-RP400 control panel with the low priority start flashing to indicate that the control rights have been ceded to the other control panel. This setting is performed using the master AW-RP400 control panel.

AW-RP400

Menu settings

DIRECTION settings (PAN, TILT, ZOOM, FOCUS, IRIS, ROTATION: NORMAL/REVERSE)

When the lever or dial is operated, the DIRECTION menu item enables the operational direction of PAN, TILT, ZOOM, FOCUS, IRIS or ROTATION to be set as the user desires.

PAN: When NORMAL is selected, the pan/tilt head moves toward the left when the PAN/TILT lever is tilted to the LEFT and toward the right when it is tilted to the RIGHT. When REVERSE is selected, the head moves in the opposite direction.

TILT: When NORMAL is selected, the pan/tilt head moves upward when the PAN/TILT lever is tilted toward UP and down when it is tilted toward DOWN. When REVERSE is selected, the head moves in the opposite direction.

ZOOM: When NORMAL is selected, the lens zoom moves toward the telephoto end when the ZOOM lever is tilted toward TELE and toward the wide-angle end when it is tilted toward WIDE. When REVERSE is selected, the zoom moves in the opposite direction.

FOCUS: When NORMAL is selected, the lens focus moves toward FAR when the FOCUS dial is turned clockwise and toward NEAR when it is turned counterclockwise. When REVERSE is selected, the lens focus moves in the opposite direction.

IRIS: When NORMAL is selected, the lens iris moves toward open when the IRIS dial is turned clockwise and toward closed when it is turned counterclockwise. When REVERSE is selected, the lens iris moves in the opposite direction.

ROTATION: When NORMAL is selected, the pan/tilt head moves clockwise when the top of the ROTATION control switch is pressed and counterclockwise when the bottom is pressed. When REVERSE is selected, the head moves in the opposite direction.

TILT RANGE setting (190/300 degrees)

This menu item is used to set the tilting range of the AW-PH400. Normally, the 190 degrees setting is used.

SPEED WITH ZOOM POS. setting (OFF/1/2/3)

At the OFF setting, the pan and tilt speed does not change in accordance with the zoom position.
At the 1, 2 or 3 setting, the panning and tilting of the pan/tilt head slows down as the zoom approaches the telephoto end, making it easier to adjust the pan or tilt position even at the telephoto end.
The higher the number selected for the setting, the slower the pan and tilt speed at the telephoto end, and the easier it is to adjust the position using a zoom lens with a high magnification rate.

PRESET SPEED setting (1 to 25)

During preset memory data play, this menu item enables the movement speed to the preset positions to be set to one of 25 steps. The higher the setting, the faster the movement speed to the preset positions; conversely, the lower the setting, the slower the movement speed.

IRIS CONTROL setting (BOTH/RP400/CB400)

When the AW-CB400 remote operation panel has been connected to the AW-RP400 control panel, this menu item is used to set which control panel is to be used to adjust the lens iris.
At the BOTH setting, the lens iris can be controlled from both the AW-RP400 and AW-CB400. At the RP400 setting, it can be controlled only from the AW-RP400; similarly, at the CB400 setting, it can be controlled only from the AW-CB400.

ROTATION SWITCH setting (ROTATION/FOCUS/ZOOM/IRIS)

This menu item enables ROTATION, FOCUS, ZOOM or IRIS to be selected as the function to be controlled by the ROTATION switch.

Menu settings

OPTION SWITCH A to H settings
(NOT USE / DEF / WIP / HEATER/FAN / LAMP / OPTION / ND / EXT / AF)

The following functions can be allocated to OPTION buttons A to H. Different functions can be allocated for different pan/tilt heads.

NOT USE: The button is disabled.

DEF: This controls the ON and OFF states of the defroster function when using a pan/tilt head system equipped with this function.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the defroster function is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

WIP: This controls the ON and OFF states of the wiper function when using a pan/tilt head system equipped with this function.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the wiper function is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

HEATER/FAN: This controls the ON and OFF states of the heater/fan function when using a pan/tilt head system equipped with this function.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the heater/fan function is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

LAMP: This controls the ON/OFF switching of the power from the AC outlet which is used for the AC adaptor's lamp when using an AC adaptor for a pan/tilt head provided with a lamp control function.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the lamp is ON, the button to which the function is allocated lights; when it is OFF, the button goes off.
If the lamp fails at the ON setting, the button blinks.

OPTION: This controls the short-circuit and open-circuit states of the AC adaptor's OPTION CONTROL OUT connector when using an AC adaptor for a pan/tilt head system equipped with the OPTION switch control function.
Each time the button is pressed, short circuit is switched to open circuit or vice versa.
When short-circuited, the lamp of the button to which this function has been allocated is lighted; when open-circuited, the lamp is off.

ND: This controls the ON and OFF states of the ND filter when using a lens equipped with an ND filter. Each time the button is pressed, ON is switched to OFF or vice versa.
When the ND filter is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

EXT: This controls the ON and OFF states of the extender when using a lens equipped with an extender.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the extender is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

AF: This controls the ON and OFF states of the auto focus function when using a lens equipped with this function.
Each time the button is pressed, ON is switched to OFF or vice versa.
When the auto focus function is ON, the lamp of the button to which this function has been allocated is lighted; when it is OFF, the lamp is off.

MEMORY LENGTH setting (60s/120s/300s/600s)

This menu item is used to set the tracing memory data recording time and the number of memories.

60s : 60 sec. × 10 memories
120s : 120 sec. × 5 memories
300s : 300 sec. × 2 memories
600s : 600 sec. × 1 memory

● When data has already been registered in a tracing memory, the setting for the recording time and number of memories cannot be changed. To reset a setting, delete the registered data in the tracing memory first.

Menu settings

CONTROL SELECT MODE setting (INTERLOCK/UN-INTERLOCK)

This menu item is for selecting the method used to select the pan/tilt head and camera when the AW-CB400 remote operation panel has been connected to the AW-RP400 control panel.

 INTERLOCK: When the pan/tilt head and camera system are selected by the AW-RP400 or AW-CB400, the same system is selected by the other unit as well.

 UN-INTERLOCK: A different pan/tilt head and camera system can be selected by the AW-RP400 and AW-CB400.

● When two AW-RP400 units are connected, INTERLOCK is always set regardless of this menu item's setting.

BUZZER setting (OFF/ON)

This menu item is used to select ON or OFF for the buzzer inside the control panel. The buzzer does not sound at the OFF setting.

The buzzer sounds when the CALL button has been pressed or when a tracing memory operation (record, play or change) is started, suspended or ended.

AUTO RUN setting (START No., END No., INTERVAL)

This menu item enables the presets of the pan/tilt head to be repeated automatically.

 START No. (1 to 50): This sets the first number of the preset to be repeated.

 END No. (1 to 50): This sets the last number of the preset to be repeated.

 INTERVAL (1s to 30s): This sets the stop time at the preset position.
          Up to 30 seconds can be set in 1-second increments for the stop time.

 OPERATE (STOP/RUN): When RUN is selected, the presets from the START No. to STOP No. are played repeatedly; when STOP is selected, operation stops.
          When the PAN/TILT lever is operated, STOP is selected automatically, and operation stops.

SD CARD setting

The menu setting data of this control panel, the preset memory data of the pan/tilt heads and the setting data of the cameras can be stored on SD memory cards.

If the MENU button is pressed while STORE is displayed, the display changes to EXECUTE, and the settings are saved on the SD memory card. The process is completed when the EXECUTE display is cleared from the screen.

If the MENU button is pressed while LOAD is displayed, the display changes to EXECUTE, and the settings on the SD memory card are called and loaded into the unit, pan/tilt head and camera. The process is completed when the EXECUTE display is cleared from the screen.

● Confine the use of the SD memory card to this unit only, and refrain from using it with a personal computer, digital camera or other device.
● Do not eject the SD memory card, turn off the power or set the OPERATE switch to OFF while EXECUTE is displayed.
● The tracing memory data is not stored.

How to mount the AW-RP400 in a rack

<NOTE> ● **The AW-RP400 is 320 mm wide. If it is to be installed in a full-size rack (which accommodates units totaling 420 mm in width), provide panels or other parts to supplement the AW-RP400's width so that it will fill the rack width-wise.**
● **If the AW-RP400 is joined to the AW-CB400, the resulting width will be equivalent to that of the full width of the rack (which accommodates units totaling 420 mm in width).**

① Use the accessory mounting screws (M4 × 8 mm) to attach the rack-mounting adaptors.

Rack-mounting adaptor

320mm

AW-RP400

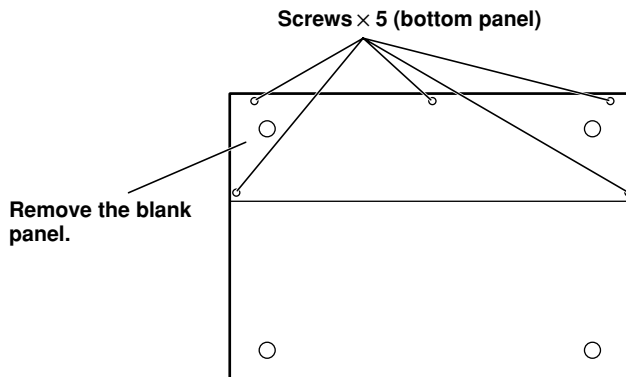**Accessory mounting screws (M4 × 8 mm) 4 pcs**

AW-RP400
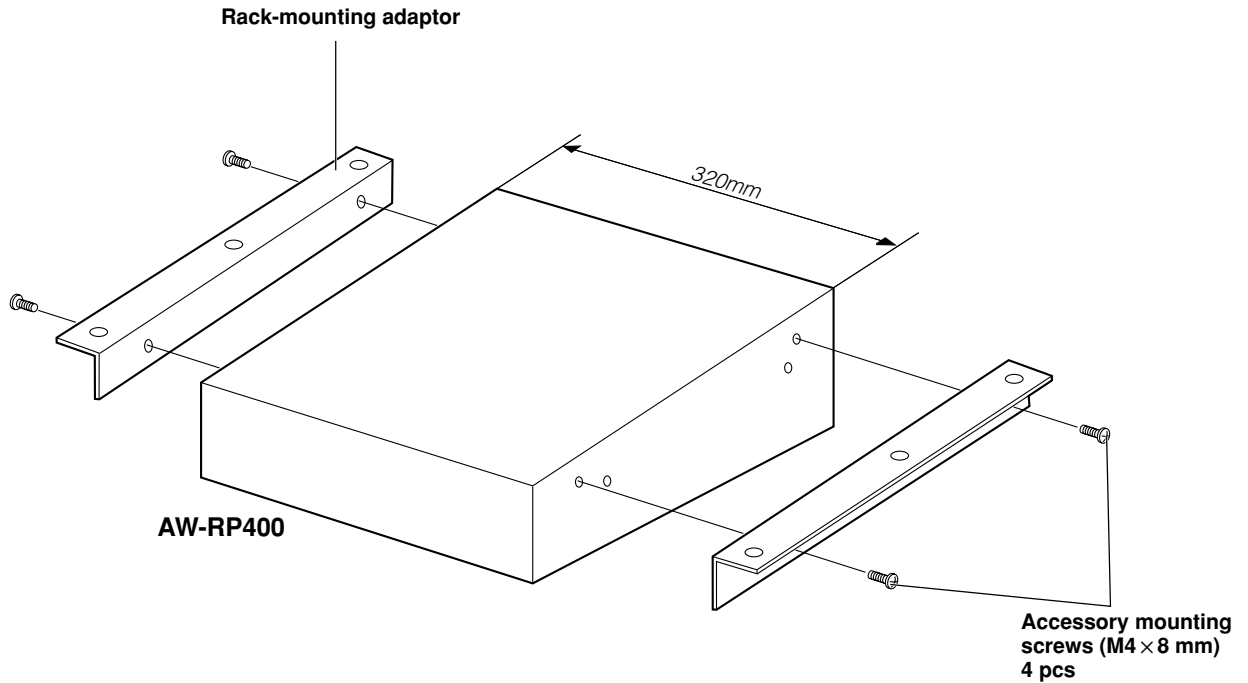
How to change the position of the connector panel

The position of the connector panel can be changed from the rear panel to the bottom panel.

✻ **Before changing the position, turn off the power.**

Screws × 5 (bottom panel)

① Remove the five bottom panel screws, and remove the blank panel.

Remove the blank panel.

Screws × 5 (rear panel)

② Remove the five rear panel screws, and remove the connector panel.

Remove the connector panel.
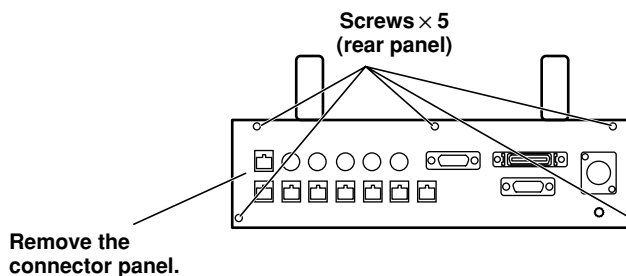
Screws × 5 (rear panel)

③ Secure the blank panel to the rear panel using the screws.

Blank panel

④ Remove the two rubber feet from the blank panel.

Remove the two rubber feet.

Screws × 5 (bottom panel)
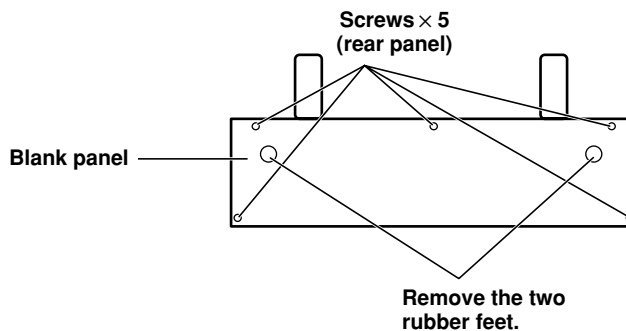
⑤ Secure the connector panel to the bottom panel using the screws.

Connector panel

34
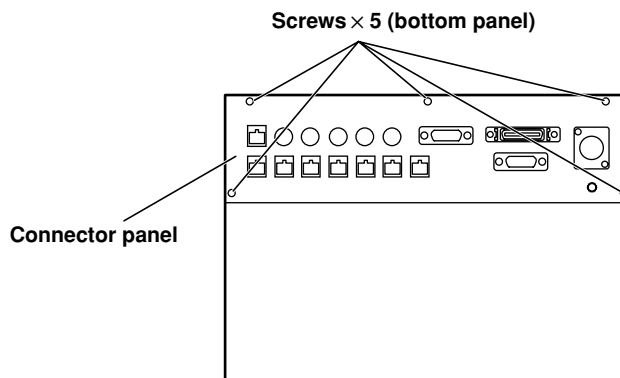
How to replace the zoom switch

※ **Before replacing the zoom switch, turn off the power.**

① Remove the four screws that secure the zoom lever.

Screws ✕ **4**
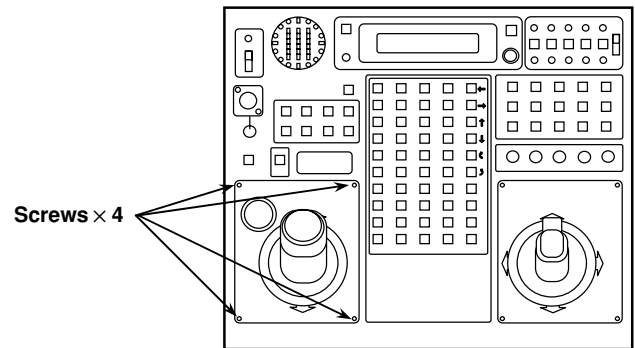
② Pull out the zoom lever, disconnect the two cables from the circuit board inside, and remove the zoom lever.
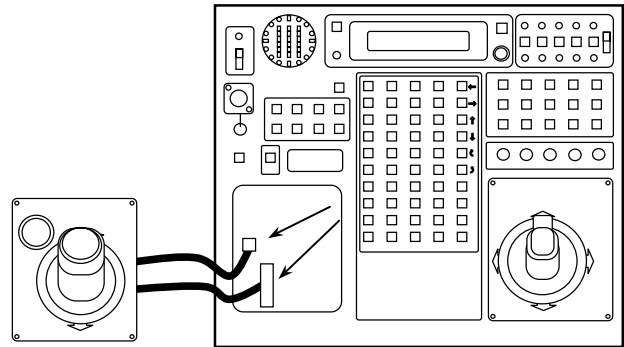
③ Plug the two cables extending from the zoom switch into the connectors on the circuit board inside.
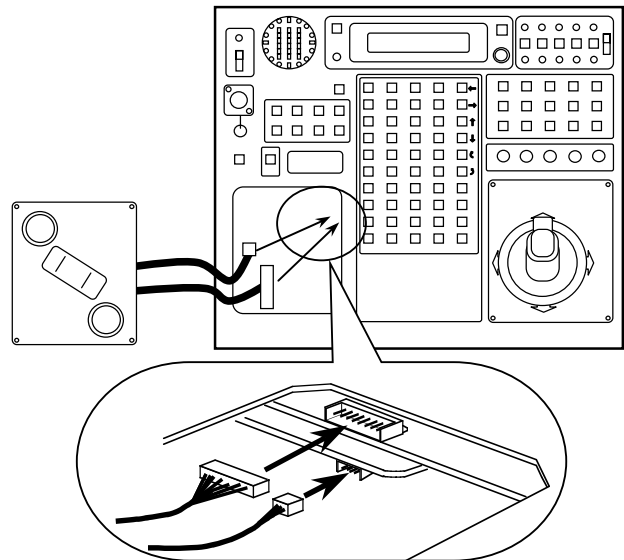
④ Secure the zoom switch using the four screws.

Screws ✕ **4**

AW-RP400
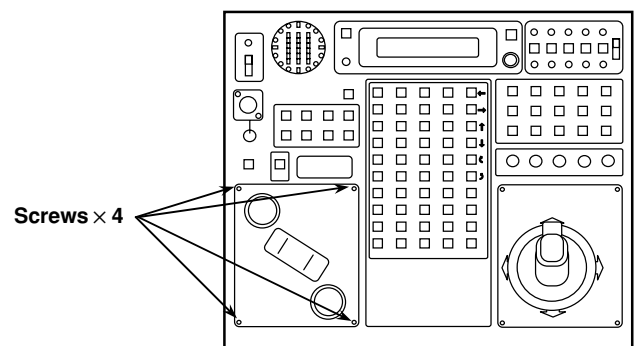
Replacing the consumable parts

The joysticks and zoom switch are consumables.

Replace them if they are not working properly.

Ask your dealer to do the replacement work.

Specifications

⬜ indicates safety information.

AW-RP400

Input connectors

DC 12V IN:	XLR, 4 pins
CONTROL IN FROM ROP:	D-SUB 29-pin, cable supplied with AW-CB400 remote operation panel
CONTROL IN FROM RCB:	10-pin round connector, cable supplied with WV-CB700A
EXT CONT IN:	RJ45, additional AW-RP400 control signal input; 10BASE-T straight cable (UTP category 5), max. 500 meters
REMOTE:	50-pin D-SUB connector, external control input, AW-CA50T9

Output connectors

CONTROL OUT TO

PAN/TILT HEAD:	RJ45, pan/tilt head control signal output; 10BASE-T straight cable (UTP category 5), max. 500 meters
MONI SEL OUT:	RJ45, monitor switching signal output; 10BASE-T straight cable (UTP category 5), max. 50 meters
EXT CONT OUT:	RJ45, additional AW-RP400 control signal output; 10BASE-T straight cable (UTP category 5), max. 500 meters

Input/output connectors

|	
INCOM (top panel):	XLR, 4 pins
TALLY/INCOM:	D-SUB, 15-pin
	TALLY: Contact input (Do not apply a voltage in excess of 5V to this connector.)
	INCOM: 4-wire system

Switch functions: Master/slave switching, OPERATE control, home position, menu/limit switch, optional function operations, pan/tilt head selection, lens iris AUTO/MANU/LOCK switching, preset memory data operations, tracing memory data operations, call

Adjustment functions: LCD contrast, INCOM level, lens iris, zoom, focus, pan/tilt/rotation, zoom speed, focus speed, pan speed, tilt speed, rotation speed, menu settings

Ambient operating temperature: 14°F to 113°F (–10°C to +45°C)

Storage temperature: –4°F to 140°F (–20°C to +60°C)

Ambient operating humidity: 30% to 90% (no condensation)

Dimensions (W × H × D):   12-5/8” × 3-3/8” × 10-1/2” (320 × 85 × 266 mm)

Weight: Approx. 8.4 lbs (3.8 kg)

Finish: Color resembling Munsell 3.5 paint

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

Introduction

- The AW-RC400 is capable of providing cable compensation for analog composite, analog Y/C or analog component signals in five channels up to 500 meters (when the BELDEN 8281 connecting cable or its equivalent is used).

- It features a 5μs advance function for the sync signals in order to provide easy support for a system (another cable compensation unit is required) in which the coaxial cable connected between this AW-RC400 cable compensation unit and the camera is longer than 500 meters.

NOTE

- Input either sync signals to the sync signal input connector on the AW-RC400 cable compensation unit or input video signals to one of the video channels (input composite signals or Y signals with sync to video input connector 1). If neither of these signals is input, the monitor selection will not be controlled.

- The AW-RC400 provides cable compensation for the three Y, Pr and Pb signal channels by means of a single control. This means that the Y, Pr and Pb signals cannot be adjusted separately. In the same way, the Y and C signals cannot be adjusted separately.

- The AW-RC400 is a cable compensation unit and, as such, it does not come with signal conversion functions (for converting component signals into composite signals, for instance).

- When the cable compensation unit is to be discarded at the end of its service life, ask a specialized contractor to dispose of it properly in order to protect the environment.

Accessories

Parts and their function

Front panel   **Rear panel**
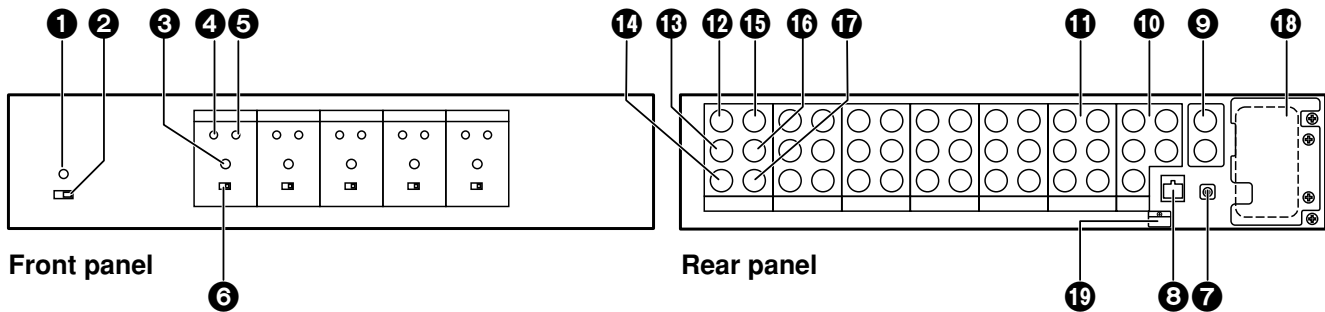
❶ Power LED
This lights up green when the (❷) POWER switch is set to ON while a DC 12V voltage is supplied to the (❼) DC 12V IN socket.

❷ POWER switch
Set this to ON to turn on the cable compensation unit's power. Part of the power supply circuitry will still operate even when the power switch is at the OFF position. To turn off the power completely, disconnect the AC adaptor.

❸ Cable length setting switches [0 to 5]
Set these switches according to the length of the coaxial cable connected. [0] is used to provide the minimum amount of cable compensation, and [5] the maximum amount. As a general guideline, set to [1] if the coaxial cable is 100 meters long, and [2] if it is 200 meters long.

❹ Y LEVEL control
Use this to adjust the output level of the cable compensation output signals (video output).

❺ F RESPONSE control
Use this to adjust the amount of cable compensation (frequency response compensation) for the cable compensation output signals.

❻ SHORT/LONG selector switch
This is normally used at the SHORT position. Set it to LONG if the coaxial cable from the camera is a long one and the camera's sync adjustment range is insufficient, or if the cable compensation unit is used as part of a system (another cable compensation unit is required) in which the coaxial cable (BELDEN 8281 or equivalent) connected to the camera is longer than 500 meters.

❼ DC 12V IN socket
This is the power input socket. Connect the AW-PS301 AC adaptor (sold separately) here.

❽ MONI SEL IN connector
Control signals for selecting the video signals output to the MONITOR1 or 2 connector are supplied to this connector. Connect it to the MONI SEL OUT connector on AW-RP400 pan/tilt control panel using a 10BASE-T straight cable (equivalent to UTP category 5). It is then possible to output the video signals of the camera selected by the AW-RP400 or the AW-CB400 remote operation panel which is connected to the AW-RP400, to the MONITOR1 or MONITOR2 connector.

❾ G/L IN connectors
The sync signals (black burst signals) are input here. These connectors are automatically terminated internally by a 75-ohm resistance. The top and bottom connectors have the same specifications, and the signals can be connected to either one. The termination is released if BNC cables are connected to both input connectors (when they are used in a loop-through configuration).

❿ G/L OUT connectors [1 to 5]
The genlock signals supplied to the G/L IN connector can be distributed and output to five cameras.
Use sync signal outputs 1 to 5 to correspond to video signal channels 1 to 5.
The signals of sync signal output connector 1 are supplied to the camera connected to video input connector 1.

Parts and their function

⓫MONITOR1, 2 connectors

The video signals of the cameras selected by the AW-RP400 pan/tilt control panel or the AW-CB400 remote operation panel which is connected to the AW-RP400 are output from these connectors.
The output signals are cable-compensated signals of the same type as the input signals. For instance, if a channel to which composite signals have been input is selected, these composite signals will be cable-compensated and output.

⓬Y/VIDEO IN connectors [1 to 5]

The analog video signals are input to these connectors. They are terminated internally by a 75-ohm resistance. Either Y (component signals or Y of the Y/C signals with sync) or VIDEO (composite) signals are supplied.

⓭Pr/C IN connectors [1 to 5]

The analog video signals are input to these connectors. They are terminated internally by a 75-ohm resistance. Either Pr (R-Y among the component signals) or C (C of the Y/C signals) signals are supplied.

⓮Pb IN connectors [1 to 5]

The analog video signals are input to these connectors. They are terminated internally by a 75-ohm resistance. The Pb (B-Y among the component signals) signals are supplied.

⓯Y/VIDEO OUT connectors [1 to 5]

The analog video signals are output from these connectors. Cable-compensated Y or VIDEO (composite) signals that are in accordance with the input signals are output. Y signals are output if component Y signals have been input to the Y/VIDEO IN connectors [1 to 5], and composite signals are output if composite signals have been input.

⓰Pr/C OUT connectors [1 to 5]

The analog video signals are output from these connectors. Cable-compensated Pr or C signals that are in accordance with the input signals are output.
Pr signals are output if Pr signals have been input to the Pr/C IN connectors [1 to 5], and C signals are output if C signals have been input.

⓱Pb OUT connectors [1 to 5]

The analog video signals are output from these connectors. Cable-compensated Pb signals are output if Pb signals have been input to the Pb IN connectors [1 to 5].

⓲AC adaptor storage space

The AC adaptor can be stored here when the ambient temperature in the location where the cable compensation unit has been installed is under 86°F (30°C). Remove the two screws, and remove the storage space cover. Stow the AW-PS301 AC adaptor in such a way that the pull-out cable will not be stressed. Trouble will occur in the AC adaptor if the ambient temperature exceeds 86°F (30°C), in which case it should not be stored in the space.

⓳Cable clamp

This is used to clamp the cable of the AW-PS301 AC adaptor in place and prevent it from coming loose.

How to mount the AW-RC400 in a rack

Use the accessory rack-mounting adaptors and accessory mounting screws (M4 × 8 mm) to mount the unit in a rack.

① Set the POWER switch at the OFF position to turn off the power.

② Remove four feet on the bottom of the unit.

POWER switch

Remove four feet.

AW-RC400
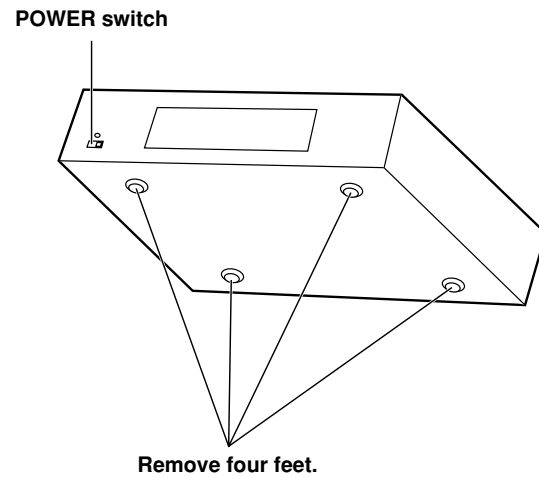
③ Place the rack-mounting adaptors to the both ends of the unit, and fix it using four mounting screws.

Rack-mounting adaptor

Mounting screws

Cable Compensation Unit AW-RC400
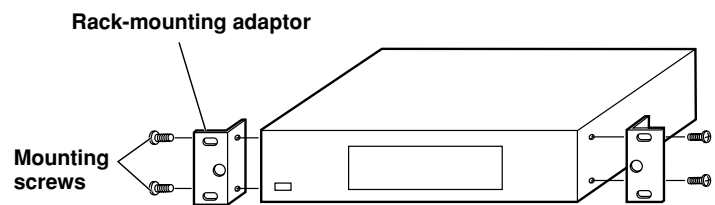
Specifications

```
Supply voltage:        DC 12.0 V
Power consumption:  Approx. 9 W
```

▭ indicates safety information.

Input connectors

DC 12V IN:	For connecting optional accessory AC adaptor (AW-PS301)
G/L IN:	BNC×2, automatically terminated by 75-ohm resistance, loop-through output, black burst
VIDEO/Y, Pr/C, Pb:	BNC×3 (5 sets), 75-ohm termination
	Composite
	Y/C
	Component (Y/Pr/Pb)
MONI SEL IN:	RJ45
	Connecting cable: 10BASE-T straight cable (UTP category 5), max. 50 meters

Output connectors

G/L OUT:	BNC×5, 75-ohm output, BELDEN 8281 connecting cable, max. 1000 meters
VIDEO/Y, Pr/C, Pb:	BNC×3 (5 sets), 75-ohm output
	Composite
	Y/C
	Component (Y/Pr/Pb)
	(Cable compensation adjustment is required)
MONITOR OUT1/2:	BNC×3 (2 sets), 75-ohm output

Switch and adjustment functions: Power ON/OFF; cable length setting 0/1/2/3/4/5; sync signal setting SHORT/LONG; cable compensation amount adjustment; video level adjustment

Ambient operating temperature: 14°F to 113°F (–10°C to +45°C)

Storage temperature: –4°F to 140°F (–20°C to +60°C)

Ambient operating humidity: 30% to 90% (no condensation)

Dimensions (W×H×D): 16-9/16"×3-7/16"×9-13/16" (420×88×250 mm)

Weight: Approx. 8.2 lbs (3.7 kg)

Finish: AV ivory paint (color resembling Munsell 7.9Y6.8/0.8)

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

Introduction

- The AW-RL400 roll unit enables a camera to be rotated when it is used in combination with the AW-PH400 indoor pan/tilt head.

NOTE

- Since the roll unit causes the camera to rotate, the user should ensure that all the wiring such as the camera cable and lens cable will not become entangled when the roll unit is operated.

- When the roll unit is to be discarded at the end of its service life, ask a specialized contractor to dispose of it properly in order to protect the environment.

Accessories

Pan/tilt head connecting cable 1

AW-RL400

Parts and their function
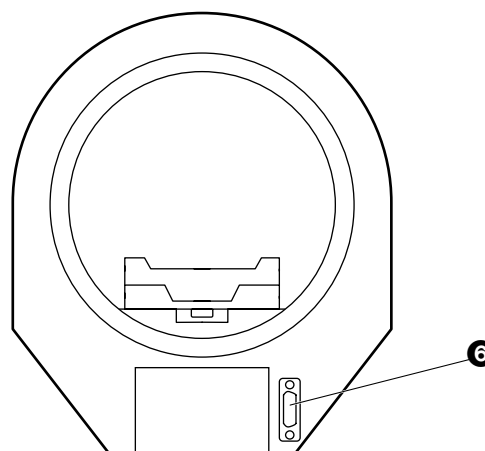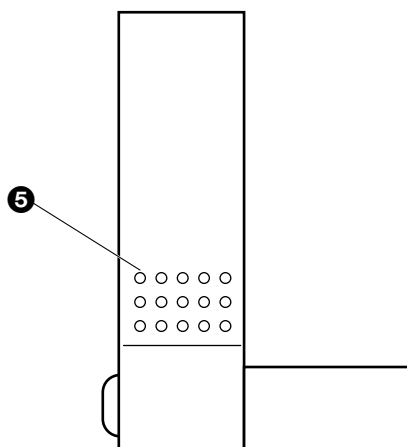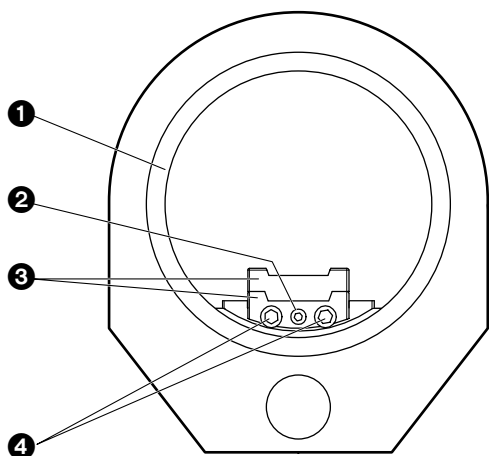
❶ Rotary ring

❷ Camera mounting screw (U1/4"-20UNC)
After mounting the camera, secure it firmly using this screw.

❸ Camera mounting plate (A) (B)
Mount the camera on this plate using the camera mounting screws.

❹ Camera mounting plate anchoring screws
After mounting the camera on the camera mounting plate, anchor it to the roll unit using these screws.

❺ Roll unit anchoring screw holes
This is where the roll unit is secured to the rotary arm of the pan/tilt head.

❻ Pan/tilt head connector
Connect this to the OPTION connector on the pan/tilt head using the pan/tilt head connecting cable supplied.

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Installation

① Attach the pan/tilt head's rotary arm to the roll unit using the three mounting screws (M5 × 22 mm, with flat washers, pan/tilt head accessory).

② Attach the rotary arm to the pan/tilt head using the mounting screws (M5 × 22 mm, with flat washers, pan/tilt head accessory).

Roll unit

Rotary arm

**Camera mounting plate
(consisting of 2 separate
 sub plates)**

AW-RL400
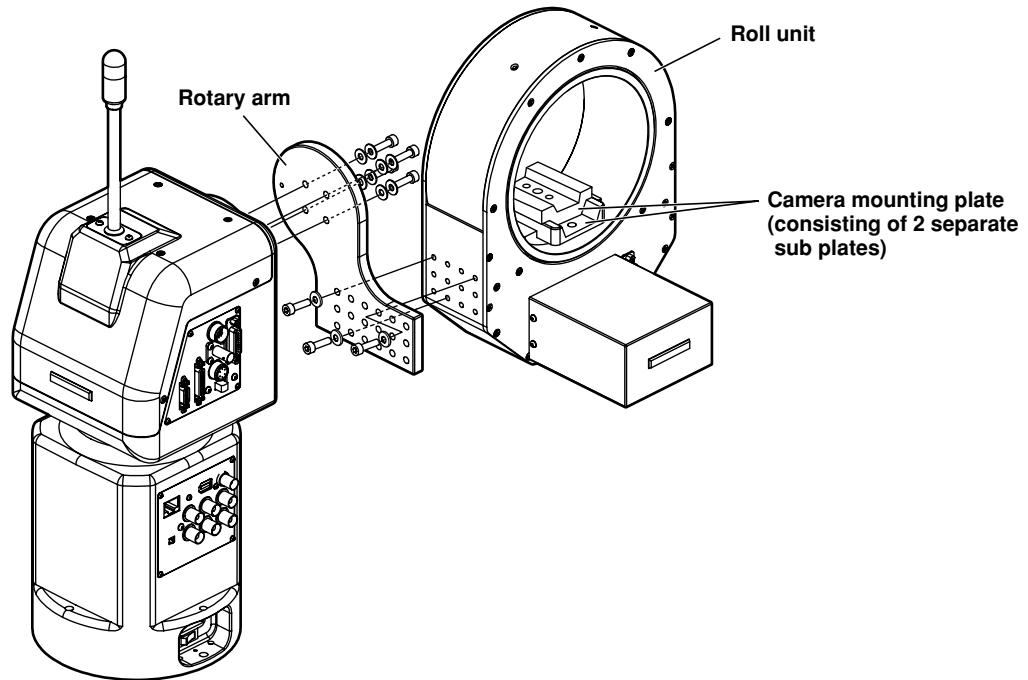
③ Loosen the two screws of camera mounting plate which is already installed to the roll unit.
   Then remove the camera mounting plate.

**Camera mounting plate
(consisting of 2 separate
 sub plates)**
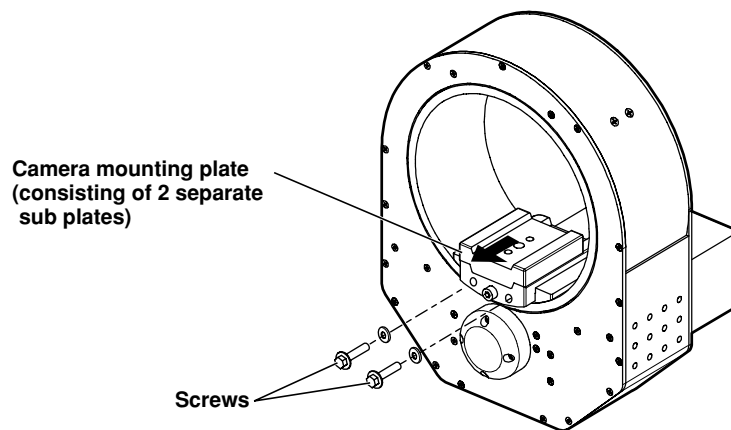
Screws

✻ When assembling the units, use the Allen key (provided), wrench and screwdriver, and secure the units by tightening the screws firmly. After mounting the units, check there is no play in the way they are mounted.

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Installation

④ Separate the camera mounting plate, which was removed in step ③, into its two sub plates.
  ● Separate the camera mounting plate into sub plate (A) and sub plate (B) by loosening the clamping screw.

(B)

(A)

Clamping screw
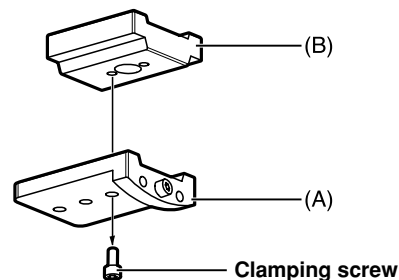
⑤ Follow the steps below to mount the camera mounting sub plates, which were separated in step ④, onto the camera body.

When the AW-E750, AW-E650 or AW-E350 is used as the camera
(1) Remove the screw attached to camera mounting sub plate (A), and use it to mount camera mounting sub plate (B) onto the tripod mounting seat.
(2) Mount camera mounting sub plate (A) onto camera mounting sub plate (B).

(B)

(A)
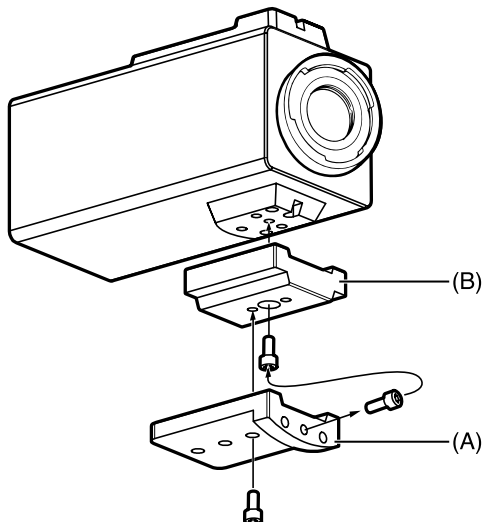
When the AW-E655 is used as the camera
(1) Mount camera mounting sub plate (A) onto the tripod mounting seat using the two camera mounting screws.
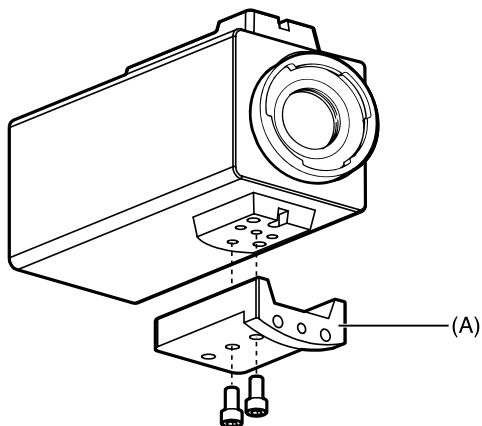
(A)

✽ Be absolutely sure to use a screwdriver or other tool to tighten the two camera mounting screws so that the camera mounting plate is secured firmly.

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Installation

⑥ Attach the camera mounting plate to the roll unit in a way contrary to the procedure
of removing it in step ③.

Camera mounting plate's screws
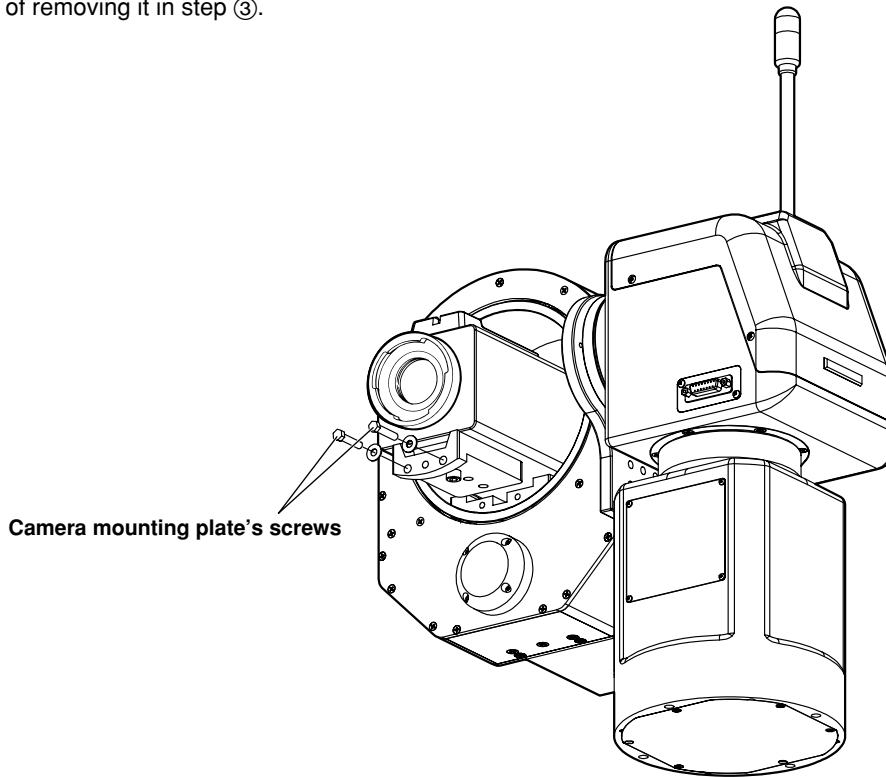
⑦ Using the pan/tilt head connecting cable provided, connect the [OPTION] connector on the pan/tilt head connector panel and
the connector on the roll unit.

OPTION connector

Lens cable

Pan/tilt head connecting cable
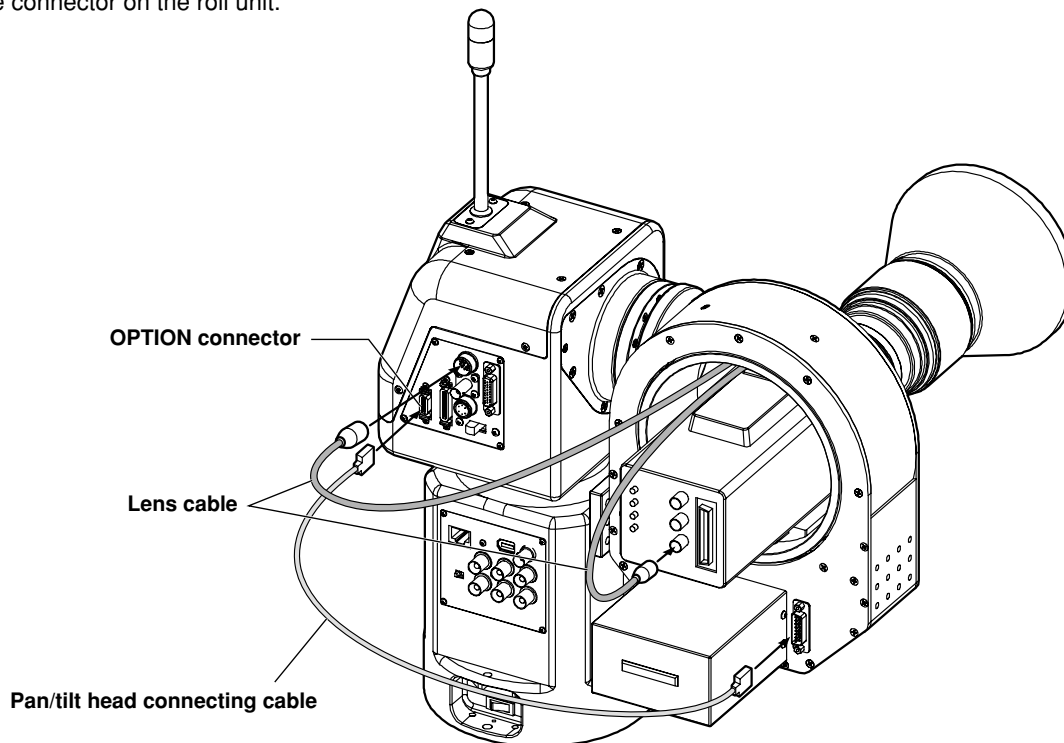
⑧ After the roll unit, camera body and pan/tilt head have been mounted, complete the installation by mounting the lens.

⑨ Connect the lens cable connectors to the camera body and pan/tilt head.

Specifications

<div style="border:1px solid black">

Supply voltage: DC 24 V

Power consumption: Approx. 24 W

</div>

▭ indicates safety information.

Pan/tilt head connector: Connected to pan/tilt head using cable supplied

Performance: Maximum load-bearing capability: 8.8 lbs (4 kg)
Rotary range: 380 degrees (approx. ±190 degrees)
Maximum operating speed: 60 degrees/sec.
Repeatability: Less than ±1 degree

Ambient operating temperature: 32°F to 113°F (0°C to +45°C)

Storage temperature: −4°F to 140°F (−20°C to +60°C)

Ambient operating humidity: 30% to 90% (no condensation)

Dimensions (W × H × D): 8-1/16" × 7-13/16" × 10-1/4" (205 × 198 × 260 mm)

Weight: Approx. 8.6 lbs (3.9 kg)

Finish: AV ivory paint (color resembling Munsell 7.9Y6.8/0.8)

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

Connections

- Turn off the power of all the equipment before proceeding with the connections.

- Use the AW-PS505 as the AC adaptor for the AW-RP400 pan/tilt control panel. Use the DC cable supplied with the AW-PS505 to connect the DC 12V IN socket on the AW-RP400 with the DC 12V OUT socket on the AW-PS505.

- Connect the AC power cable supplied with the AW-PH400 for the AW-PH400 indoor pan/tilt head.

- Use the AC adaptor (optional accessory) for the AW-RC400 cable compensation unit.

- Use 10BASE-T straight cables to connect the IP/RP connectors on the pan/tilt heads with the CONTROL OUT TO PAN/TILT HEAD (1 to 5) connectors on the AW-RP400. The maximum extension distance is 500 meters when using UTP category 5 cables or their equivalent.

- Use the camera cables supplied with the pan/tilt head to connect the AW-PH400 to the convertible camera.

- Connect the iris control cable of the motorized zoom lens to the IRIS connector on the camera, and connect the zoom/focus cable to the LENS I/F connector on the pan/tilt head.

- Use either the AW-CB400 remote operation panel or WV-CB700A remote control box for camera control.
  The AW-CB400 and WV-CB700A cannot be used together.

- When using the AW-CB400, use the cable (10 m) supplied with the AW-CB400 to connect the CAMERA CONTROL IN FROM ROP connector on the AW-RP400 with the I/F CONNECTOR on the AW-CB400.
  Five cameras can be controlled from the AW-CB400.
  Power is supplied through this cable from the AW-RP400 to the AW-CB400 so the AC adaptor need not be connected to the AW-CB400.

- When using the WV-CB700A, use the RCB cables (2 m) supplied with the WV-CB700A to connect the CAMERA CONTROL IN FROM RCB (1 to 5) connectors on the AW-RP400 with the RCB connectors on the WV-CB700A.
  Only one camera can be controlled from the WV-CB700A. If there is a multiple number of cameras, one AW-CB700A will be required for each camera. It is also necessary to align the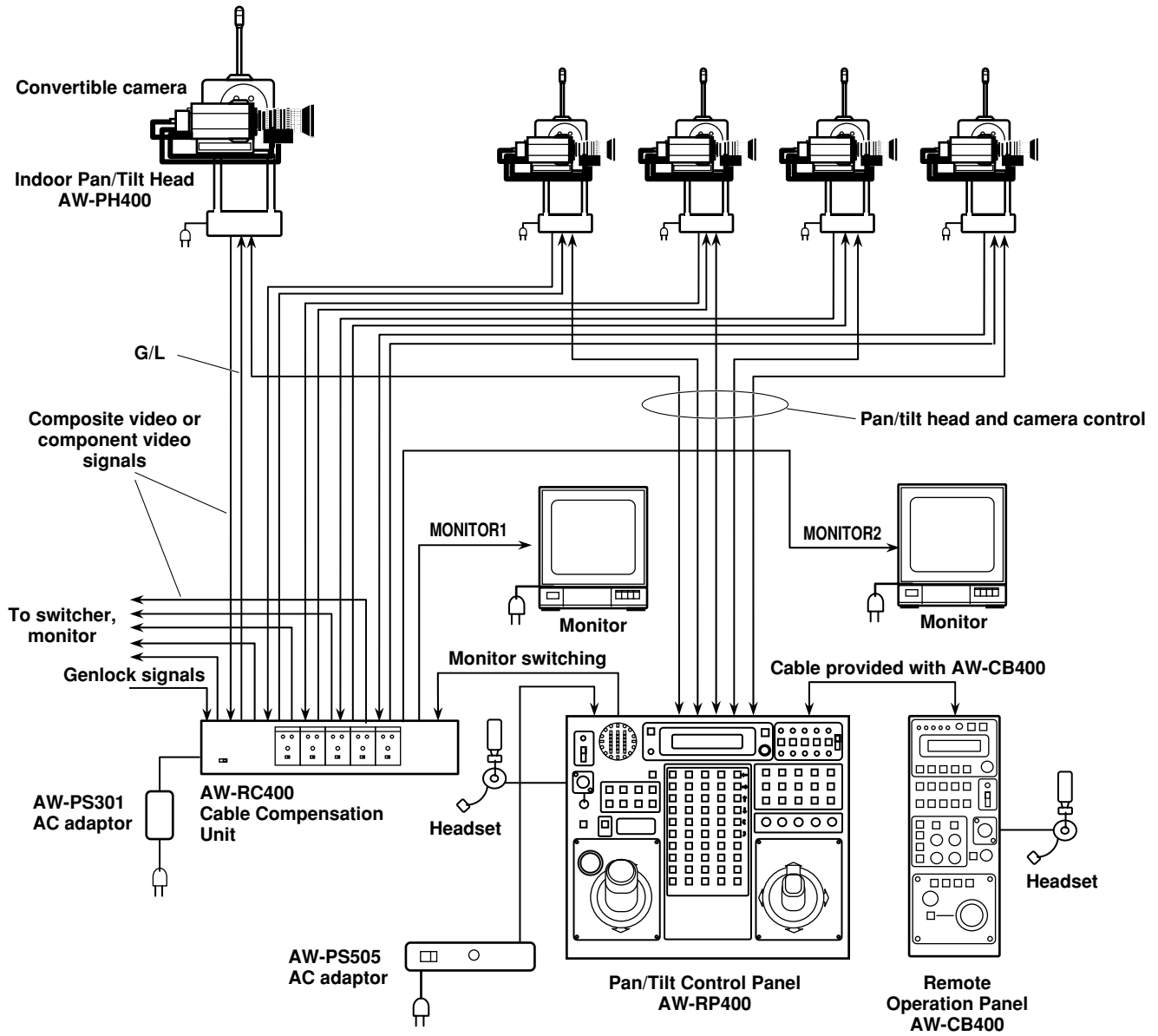 number of the CONTROL OUT TO PAN/TILT HEAD connectors connected to the cameras to be controlled with the CAMERA CONTROL IN FROM RCB connectors used to connect the WV-CB700A.

- Use the 10BASE-T straight cable to connect the MONI SEL OUT connector on the AW-RP400 with the MONI SEL IN connector on the AW-RC400. The maximum extension distance is 50 meters when using a UTP category 5 cable or its equivalent.
  By connecting these MONI SEL connectors, the video signals of the camera selected by the AW-RP400 can be output from the MONITOR1 connector and the video signals of the camera selected by the AW-CB400 can be output from the MONITOR2 connector.
  When the WV-CB700A is used, MONITOR2 cannot be switched.

- Use a coaxial cable to connect the AW-RC400 and AW-PH400.

- Supply the genlock signals from a unit such as a signal generator to the G/L IN connector on the AW-RC400, and connect the G/L OUT (1 to 5) connectors on the AW-RC400 with the G/L IN connectors on the pan/tilt heads.

- When using composite signals, connect the VIDEO connectors on the pan/tilt heads and Y/VIDEO IN connectors (1 to 5) on the AW-RC400.
  Also connect the Y/VIDEO OUT connectors on the AW-RC400 to switchers or monitors.

- When using Y/C signals, connect the Y connectors and Pr/C connectors on the pan/tilt heads to the Y/VIDEO IN connectors and Pr/C IN connectors, respectively, on the AW-RC400.
  Also connect the Y/VIDEO OUT connectors and Pr/C OUT connectors on the AW-RC400 to switchers or monitors.

- When using component signals, connect the Y connector, Pr/C connector and Pb connector on the pan/tilt head to the Y/VIDEO IN connector, Pr/C IN connector and Pb IN connector, respectively, on the cable compensation unit.
  Also connect the Y/VIDEO OUT connectors, Pr/C OUT connectors and Pb OUT connectors on the AW-RC400 to switchers or monitors.

Connections

Motorized zoom lens

Iris control

Zoom/focus control

AW-PH400 Indoor Pan/Tilt Head

Camera cable supplied with AW-PH400

Convertible camera

Pan/tilt head/camera control signals

Genlock signals

Video signals

AC power cable supplied with AW-PH400

Video signal output

Genlock signal input

AW-CB400 Remote Operation Panel

AW-RP400 Pan/tilt control panel

AW-RC400 Cable Compensation Unit

Cable supplied with AW-CB400 (AW-CB400 power and camera control signals)

AW-PS505 AC adaptor

AW-PS301 AC adaptor

Monitor switching signals

Monitor for AW-RP400

Monitor signals 1

Monitor for AW-CB400

Monitor signals 2

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Example of system configuration

Convertible camera

Indoor Pan/Tilt Head
AW-PH400

G/L

Composite video or
component video
signals

Pan/tilt head and camera control

MONITOR1

MONITOR2

Monitor

Monitor

To switcher,
monitor

Monitor switching

Cable provided with AW-CB400

Genlock signals

AW-PS301
AC adaptor

AW-RC400
Cable Compensation
Unit

Headset

Headset

AW-PS505
AC adaptor

Pan/Tilt Control Panel
AW-RP400

Remote
Operation Panel
AW-CB400

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Operating procedures

■ Turning on the power

① When using one AW-RP400, set its EXT CONT [M/S] switch to the [M] position.
When two AW-RP400 units are used, set the EXT CONT [M/S] switch on the AW-RP400 to which the pan/tilt head is connected to the [M] (master) position and the switch on the AW-RP400 to which the pan/tilt head is not connected to the [S] (slave) position.

② Turn on the power.
Follow the sequence below to turn on the power when one AW-RP400 is going to be used: Set the power switch of the AC adaptor used for the AW-RP400 and the AC power switch on the AW-PH400 to [ON], set the OPERATE switch on the AW-CB400 to [ON], and then set the OPERATE switch on the AW-RP400 to [ON].
Follow the sequence below to turn on the power when two AW-RP400 units are going to be used: Set the OPERATE switches of the AW-CB400 and of the AW-RP400 set as the slave to [ON], and then set the OPERATE switch on the AW-RP400 set as the master to [ON].

■ Setting the movement range (limiters) of the AW-PH400 indoor pan/tilt head

If there are any objects obstructing the movement of the AW-PH400 indoor pan/tilt head in the immediate vicinity, set restrictions on the movement range (limiters: left, right, top and bottom limits of rotation).
When the AW-RL400 roll unit is connected to the AW-RP400, set the movement limits (clockwise and counterclockwise limits) of the roll unit as well.
Before using these units, set these limits without fail.

● When it is shipped, the AW-PH400 is set up to be placed on a stand or base. If it is to be suspended from the ceiling, the mounting direction switch must be set without fail. If this setting is not performed correctly, the directions of the pan/tilt operations will be reversed, and the movement range (limiter) settings of the pan/tilt head will not be stored in the memory properly. For details on the setting methods and related aspects, refer to "Setting the mounting direction switch" in the operating instructions for the AW-PH400.

Now proceed with the settings for the AW-RP400 pan/tilt control panel.

① Use the CONTROL SELECT buttons to select the pan/tilt head whose movement range (limiters) is to be set.

② To set the left limit, use the PAN/TILT lever to rotate the pan/tilt head as far as the left limit which is to be set.
While holding down the MENU/LIMIT button, press the PRESET MEMORY button [5].
Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
To release the setting, press the PRESET MEMORY button [5] again while holding down the MENU/LIMIT button.
Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

③ To set the right limit, use the PAN/TILT lever to rotate the pan/tilt head as far as the right limit which is to be set.
While holding down the MENU/LIMIT button, press the PRESET MEMORY button [10].
Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
To release the setting, press the PRESET MEMORY button [10] again while holding down the MENU/LIMIT button.
Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

④ To set the top limit, use the PAN/TILT lever to rotate the pan/tilt head as far as the top limit which is to be set.
While holding down the MENU/LIMIT button, press the PRESET MEMORY button [15].
Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
To release the setting, press the PRESET MEMORY button [15] again while holding down the MENU/LIMIT button.
Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

⑤ To set the bottom limit, use the PAN/TILT lever to rotate the pan/tilt head as far as the bottom limit which is to be set.
While holding down the MENU/LIMIT button, press the PRESET MEMORY button [20].
Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
To release the setting, press the PRESET MEMORY button [20] again while holding down the MENU/LIMIT button.
Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

Operating procedures

⑥ To set the counterclockwise limit of the roll unit, use the ROTATION switch to rotate the roll unit as far as the limit in the counterclockwise direction which is to be set.
   While holding down the MENU/LIMIT button, press the PRESET MEMORY button [25].
   Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
   To release the setting, press the PRESET MEMORY button [25] again while holding down the MENU/LIMIT button.
   Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

⑦ To set the clockwise limit of the roll unit, use the ROTATION switch to rotate the roll unit as far as the limit in the clockwise direction which is to be set.
   While holding down the MENU/LIMIT button, press the PRESET MEMORY button [30].
   Once the limit is set, the lamp of the PRESET MEMORY button [45] will light.
   To release the setting, press the PRESET MEMORY button [30] again while holding down the MENU/LIMIT button.
   Once the setting is released, the lamp of the PRESET MEMORY button [50] will light.

■ Providing cable compensation for the cameras

Make these adjustments using the AW-RC400 cable compensation unit.

① Connect a waveform monitor to the video output connector on the AW-RC400, and set the signals supplied to the corresponding video input connector to color bar signals.

② Set the waveform monitor to the H rate (see figure below), and while monitoring the rise and fall sections of the waveforms, set the cable length setting switch at the point where the undershoot and overshoot are kept to the minimum. At this time, keep the Y LEVEL control and F RESPONSE control at their center positions.

③ Turn the F RESPONSE control, and adjust in such a way that the undershoot and overshoot of the waveforms in the rise and fall sections are kept to the minimum. If the adjustment range of the control is exceeded, see if another setting can be selected for the cable length setting switch.

④ Next, use the Y LEVEL control to obtain the prescribed video level.

⑤ With component signals, while observing the Y signal on the waveform monitor in the same way as with the composite signals, use the cable length setting switch, F RESPONSE control and Y LEVEL control to adjust the cable compensation in such a way that the prescribed video signals are obtained.

⑥ Next, view the Y, Pr and Pb signals in their entirety, and re-adjust the F RESPONSE control and Y LEVEL control in such a way that the optimum cable compensation is provided.

⑦ With Y/C signals as well, first adjust the Y signal in the same way as with the component signals, view both the Y and C signals, and adjust in such a way that the optimum cable compensation is provided.
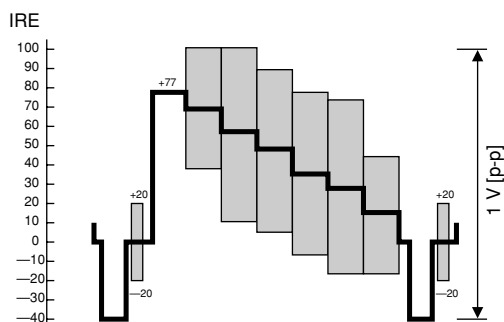
Waveform monitor (composite signals)
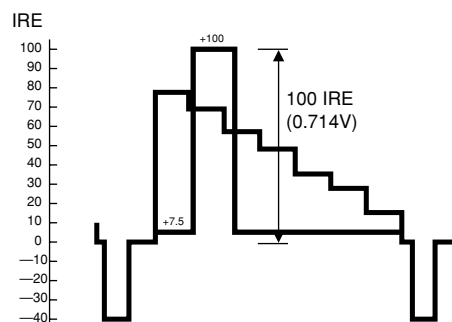
Waveform monitor (component signals)

Operating procedures

■ Genlock adjustments for the respective cameras

For details on the genlock adjustments, refer to the operating instructions of the AW-CB400 remote operation panel or WV-CB700A remote control box.

■ Video adjustments for the cameras

Adjust the total pedestal (black level), white balance, black balance, etc. of the cameras.
For details on the camera adjustments, refer to the operating instructions of the AW-CB400 remote operation panel or WV-CB700A remote control box.

■ Tracing memory settings

Perform these settings on the AW-RP400 pan/tilt control panel.

The AW-RP400 comes with a tracing memory function for registering the paths along which the pan/tilt head systems move. Using this function, the data is registered in TRACING MEMORY buttons 1 to 10.

> **Setting the recording time and number of memories**

① Select the first pan/tilt head system using one of the CONTROL SELECT buttons.

② Set the recording time in the tracing memory and the number of memories using the MEMORY LENGTH menu setting.

MEMORY LENGTH	Setting
60s	60 sec. × 10 memories (buttons 1 to 10)
120s	120 sec. × 5 memories (buttons 1 to 5)
300s	300 sec. × 2 memories (buttons 1, 2)
600s	600 sec. × 1 memory (button 1)

- It is not possible to set MEMORY LENGTH if data has already been registered in the tracing memory.
  Before selecting a different setting, delete the registered data in the tracing memory, and then perform the setting.
- The recording time and the number of memories cannot be changed in each button in which they are registered.

③ Select the other pan/tilt head systems using the other CONTROL SELECT buttons, and set the recording time and number of memories for each of the pan/tilt head systems.

> **Registering the tracing memory data**

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.
  When using the AW-CB400 for camera control, select the same number for the AW-CB400.

② Set the statuses of the pan/tilt head and camera at the start point in the tracing memory.
- Decide on the view angle and focus using the PAN, TILT, ZOOM and FOCUS controls.
- Select auto iris, manual iris or manual lock using the IRIS [AUTO/MANUAL/LOCK] button.
- If manual iris is selected, adjust the iris using the IRIS dial.
- Adjust the black level, black balance and white balance using the camera controller.

Operating procedures

③ Press the START POINT button.
  The lamps of the buttons among TRACING MEMORY buttons 1 to 10 where data can be registered now light.
  ● The lamps of the buttons with numbers exceeding the number of memories set by the MEMORY LENGTH menu setting do not light.
  ● If the lamp of any button among the number of memories in which data can be set is off, it means that data has already been registered in the button. When registering data in such a button, delete the existing data in its memory first.

④ Press the number of the button in which the data is to be registered.
  Only the lamp of the button pressed now lights, and START button flashes. The pan/tilt head position and camera settings prevailing at this time are recorded as the start position of the tracing memory.
  ● When the STOP button is now operated, the registration of the tracing memory data is canceled.

⑤ Press the START button.
  The lamp of the START button stops flashing and goes off, then the recording standby mode is established.
  ● If the STOP button is now operated, the registration of the tracing memory data is canceled.

⑥ Since tracing memory recording starts at the point where the PAN, TILT, ZOOM or FOCUS control is operated, proceed to register the data.
  The lamp of the START button stops flashing, and the lamp of the STOP button starts flashing. As a general rule, the time which can be stored in the memory is about 6 seconds for each of the PRESET MEMORY buttons No.1 to 10 and about 60 seconds for each of the PRESET MEMORY buttons No.11 to 30.
  Starting with the No.10 button, the button lamps go off every 6 seconds to indicate the remaining time for recording in the memory. When the lamps of all the buttons have gone off, the buzzer sounds, and the registration of the tracing memory data is ended.
  ● To suspend the recording of the tracing memory data at any time, press the STOP button.
    The operations performed up to the moment when the recording was suspended are registered as the tracing memory data.
  ● The buzzer sounds when the tracing memory data recording starts, is suspended or ends.

⑦ If necessary, register the data in TRACING MEMORY buttons No.1 to 10.

⑧ Select another pan/tilt head system using the CONTROL SELECT button, and proceed with the tracing memory data settings for the pan/tilt head system concerned. Repeat this step for all the pan/tilt head systems.

> The tracing memory information is recorded in the pan/tilt heads and control panels.
> If a pan/tilt head or control panel is replaced, re-register the data in the tracing memory.

Playing the tracing memory data

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.

② Press the button in which the tracing memory data to be played is registered.
  The pan/tilt head system is set to the start position registered in the tracing memory.

③ After the pan/tilt head system has been set to the start position registered in the tracing memory and stopped, the operation of the data registered in the tracing memory can be started by pressing the button corresponding to the tracing memory in which that data is registered.
  ● To suspend the play of the tracing memory data at any time, press the STOP button.
    Play is also suspended when the PAN, TILT, ZOOM or FOCUS control is operated.
  ● The buzzer sounds when tracing memory play starts, is suspended or ends.

Operating procedures

Changing the tracing memory data

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.
   When using the AW-CB400 for camera control, select the same number for the AW-CB400.

② Press the button corresponding to the tracing memory whose registered data is to be changed, and call the start position.

③ Press the RESTORE button.
   The pan/tilt head system starts the operation registered in the tracing memory, and the lamp of the STOP button flashes. As when the data was registered, the PRESET MEMORY buttons 1 to 30 serve to provide a general indication of the time.

④ Change the tracing memory operation.
   ● It is not possible to change parts of the tracing memory operation. Re-register the whole operation from the point where the change was made all the way to the end.

⑤ When the lamps of all PRESET MEMORY buttons have gone off, the buzzer sounds, and the changing of the tracing memory data is completed.

Erasing the tracing memory data

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.

② Press the RESET button.
   The lamps of the buttons (TRACING MEMORY buttons 1 to 10) corresponding to the tracing memories in which data has been registered now light.

③ Press the button with the number whose data is to be erased.
   The lamp of the button goes off, and the tracing memory data is erased.

■ Setting the preset memory data

Perform these settings on the AW-RP400 pan/tilt control panel.

The AW-RP400 comes with a preset memory function for registering the positions and settings used for shooting by the pan/tilt head systems. The preset memory data is registered in PRESET MEMORY buttons 1 to 50.

Registering the preset memory data

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.

② Set the statuses of the pan/tilt heads and cameras.
   ● Decide on the view angle and focus using the PAN, TILT, ZOOM and FOCUS controls.
   ● Select auto iris or manual iris using the IRIS [AUTO/MANUAL/LOCK] button.
   ● If manual iris is selected, adjust the iris using the IRIS dial.
   ● Adjust the black level, black balance and white balance using the camera controller.

③ While holding down the MEMORY button, press one of the buttons (PRESET MEMORY buttons 1 to 50) in which the preset memory data is to be registered.

④ If necessary, register other shooting positions and settings in PRESET MEMORY buttons 1 to 50 as preset memory data.

⑤ Select another pan/tilt head system using the CONTROL SELECT button, and proceed with the preset memory data settings for the pan/tilt head system concerned. Repeat this step for all the pan/tilt head systems.
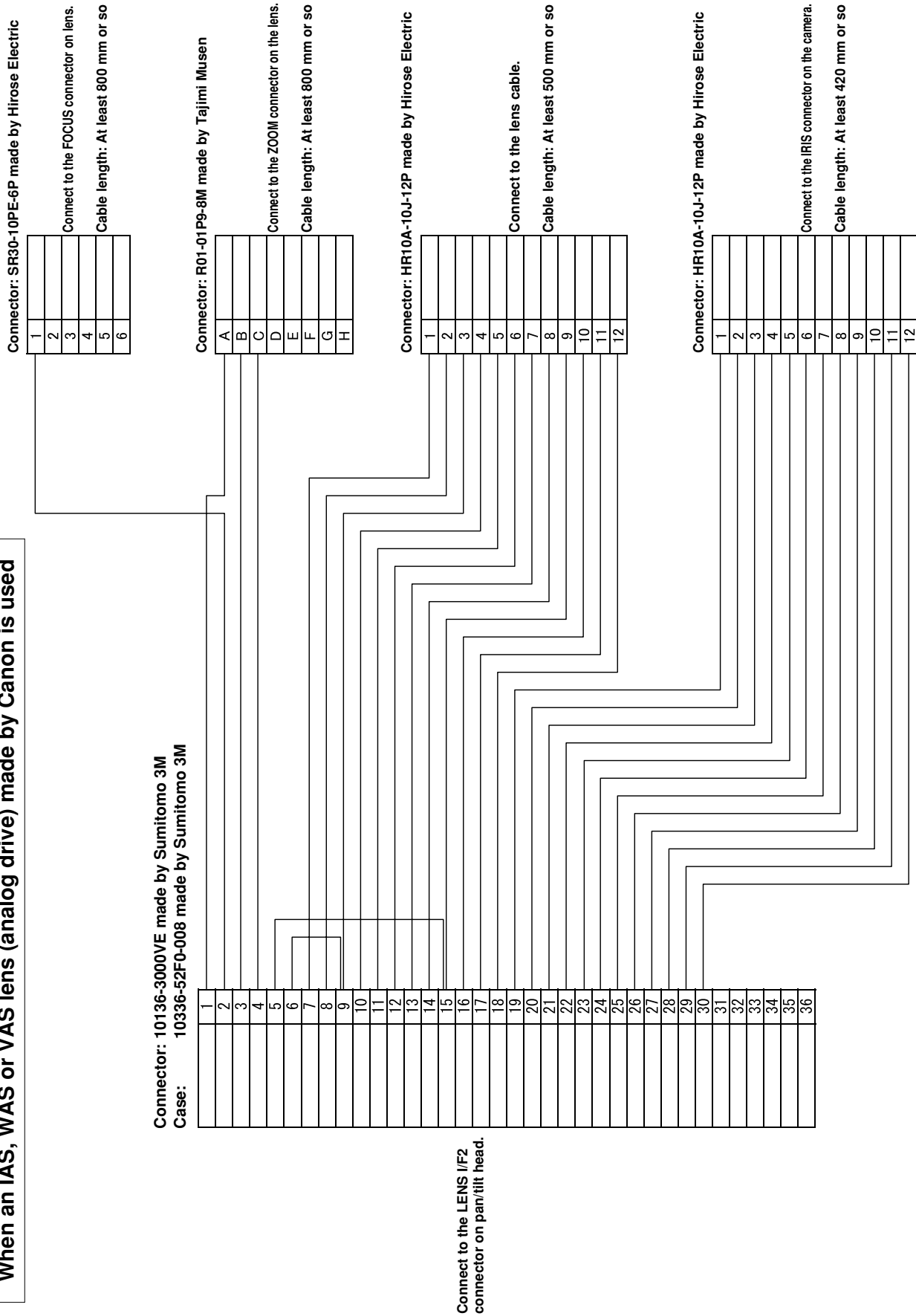
Operating procedures

Playing the preset memory data

① Select the pan/tilt head system using one of the CONTROL SELECT buttons.

② When the button corresponding to the registered preset memory data is pressed, the pan/tilt head system is set to the registered status.

Cable specifications

When an IAS, WAS or VAS lens (analog drive) made by Canon is used

Connector: SR30-10PE-6P made by Hirose Electric

Connect to the FOCUS connector on lens.

Cable length: At least 800 mm or so

| 1 | 2 | 3 | 4 | 5 | 6 |

Connector: R01-01P9-8M made by Tajimi Musen

Connect to the ZOOM connector on the lens.

Cable length: At least 800 mm or so

| A | B | C | D | E | F | G | H |

Connector: HR10A-10J-12P made by Hirose Electric

Connect to the lens cable.

Cable length: At least 500 mm or so

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Connector: HR10A-10J-12P made by Hirose Electric

Connect to the IRIS connector on the camera.

Cable length: At least 420 mm or so

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Connector: 10136-3000VE made by Sumitomo 3M
Case: 10336-52F0-008 made by Sumitomo 3M

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

Connect to the LENS I/F2 connector on pan/tilt head.

✻ The cable lengths are approximate. Ensure that their lengths are appropriate for the actual system used.

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Cable specifications

When an IASD, WASD or VASD lens (digital drive) made by Canon is used

Connector: HR25-9P-20P made by Hirose Electric

Connect to the ZOOM/FOCUS connector on lens.

Cable length: At least 800 mm or so

Pins: 1–20

Connector: HR10A-10J-12P made by Hirose Electric

Connect to the lens cable.

Cable length: At least 500 mm or so

Pins: 1–12

Connector: HR10A-10J-12P made by Hirose Electric

Connect to the IRIS connector on the camera.

Cable length: At least 420 mm or so

Pins: 1–12

Connector: 10136-3000VE made by Sumitomo 3M
Case: 10336-52F0-008 made by Sumitomo 3M

Connect to the LENS I/F2 connector on pan/tilt head.

Pins: 1–36

✽ The cable lengths are approximate. Ensure that their lengths are appropriate for the actual system used.

Cable specifications

When an RD lens made by Fujinon is used

Connector: HR10A-10P-12P made by Hirose Electric

Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Connect to the FOCUS connector on lens.

Cable length: At least 800 mm or so

Connector: HR10A-10P-12P made by Hirose Electric

Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Connect to the ZOOM connector on the lens.

Cable length: At least 800 mm or so

Connector: HR10A-10J-12P made by Hirose Electric

Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Connect to the lens cable.

Cable length: At least 500 mm or so
Cable length: At least 500 mm or so

Connector: HR10A-10J-12P made by Hirose Electric

Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Connect to the IRIS connector on the camera.

Cable length: At least 420 mm or so

Connector: 10136-3000VE made by Sumitomo 3M
Case: 10336-52F0-008 made by Sumitomo 3M

Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36

Connect to the LENS I/F2 connector on pan/tilt head.

✽ The cable lengths are approximate. Ensure that their lengths are appropriate for the actual system used.

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