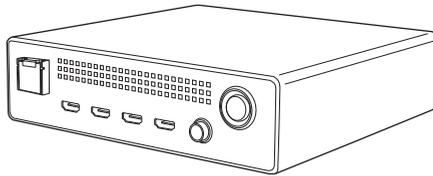


Panasonic®

Operating Instructions

360-degree Live Camera Base Unit

Model No. **AW-360B10**



Before operating this product, please read the instructions carefully and save this manual for future use.

GJ

W0917HK1018 -FJ

ENGLISH

DVQP1395YA

Deutsch	Für neueste Sicherheitsinformationen und wichtige Benachrichtigungen bezüglich des Produktes besuchen Sie die folgende Website.
Français	Visitez le site Web suivant pour consulter les dernières informations de sécurité et les notifications importantes concernant le produit.
Italiano	Visitare il seguente sito Web per le più recenti informazioni sulla sicurezza e per importanti notifiche sul prodotto.
Español	Visite el siguiente sitio web para consultar la última información sobre seguridad y notificaciones importantes acerca del producto.
български	Посетете следния уебсайт относно последната информация за безопасността и важни уведомления за продукта.
Hrvatski	Za najnovije sigurnosne informacije i važne obavijesti o proizvodu posjetite sljedeću internetsku stranicu.
Čeština	Na následujícím webu najdete nejaktuálnější bezpečnostní informace a důležité poznámky k tomuto produktu.
Dansk	Besøg følgende webside for den seneste sikkerhedsinformation og vigtige bemærkninger vedrørende produktet.
Nederlands	Ga naar de volgende website voor de recentste veiligheidsinformatie en belangrijke meldingen over het product.
Eesti	Toodet puudutava värskeima ohutusteabe ja oluliste märkuste saamiseks külastage järgmist veebilehte.
Suomi	Käy seuraavalla verkkosivulla saadaksesi uusimmat turvallisuustiedot ja tärkeät tiedot liittyen laitteeseen.
Ελληνικά	Για τις πιο πρόσφατα επικαιροποιημένες πληροφορίες σχετικά με θέματα ασφάλειας και σημαντικές ειδοποιήσεις που αφορούν το προϊόν σας, επισκεφτείτε τον ιστότοπο που ακολουθεί.
Magyar	A termékkel kapcsolatos legfrissebb biztonságági információkért és fontos értesítésekért látogasson el az alábbi weboldadra.
Latviešu	Lai iegūtu jaunāko informāciju par drošību un skatītu svarīgus paziņojumus par šo produktu, apmeklējiet tālāk norādīto tīmekļa vietni.
Lietuvių	Jei reikia naujausios saugos informacijos ir svarbių pranešimų apie gaminį, apsilankykite toliau nurodytoje svetainėje.
Polski	Najnowsze informacje o bezpieczeństwie i ważne informacje o produkcie znajdują się w poniższej witrynie internetowej.
Português	Consulte o seguinte website para as mais recentes informações de segurança e importantes notificações sobre o produto.
Română	Vizitați următoarea pagină web pentru ultimele informații de securitate și notificări importante cu privire la produs.
Slovensky	Pre najnovšie bezpečnostné informácie a dôležité oznámenia súvisiace s produktom navštívte túto webovú stránku.
Slovenščina	Za najnovejše varnostne informacije in pomembna obvestila v zvezi z izdelkom obiščite naslednje spletno mesto.
Svenska	Besök följande webbplats för senaste säkerhetsinformation och viktiga meddelanden om produkten.

<http://pro-av.panasonic.net/en/manual/index.html>

Manufactured by: Panasonic Corporation, Osaka, Japan
Importer's name and address of pursuant to EU rules:
Panasonic Marketing Europe GmbH
Panasonic Testing Centre
Winsbergring 15, 22525 Hamburg, Germany

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- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
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- Intel® and Intel®Core™ are trademarks of Intel Corporation in the U.S. and/or other countries.
- Mac, macOS, iPad, and Safari are registered trademarks of Apple Inc. in the United States and other countries.
- Google Chrome™ is a trademark or registered trademark of Google Inc.
- Other names of systems and products mentioned in these instructions are usually the registered trademarks or trademarks of the manufacturers who developed the system or product concerned.

■ Carefully observe copyright laws

Transferring, copying, disassembling, decompiling or reverse engineering the software included in this unit, or exporting it in violation of export laws is prohibited.

■ About the pictures and illustrations used in this document

Please note that the product images, illustrations, and various drawings of the product used in this document slightly differ from the actual product.

■ For the purposes of these operating instructions

- microSD Memory Card, microSDHC Memory Card and microSDXC Memory Card are referred to as the “microSD card”.
- The unit “360-degree Live Camera Base Unit (AW-360B10)” is referred to as the “Base Unit”.
- The optional “360-degree Live Camera Head (AW-360C10)” is referred to as the “Camera Head”.
- The process of combining video images recorded with multiple camera units of the Camera Head into a single image is called “stitching” and is referred to as such throughout this document.
- Video images that are combined together by stitching are called “360-degree video” and are referred to as such throughout this document.
- Pages for reference are indicated by an arrow, for example: → 00

Read this first!

Information for Your Safety

WARNING:

To reduce the risk of fire, electric shock or product damage,

- Do not expose this unit to rain, moisture, dripping or splashing.
- Do not place objects filled with liquids, such as vases, on this unit.
- Use only the recommended accessories.
- Do not remove covers.
- Do not repair this unit by yourself. Refer servicing to qualified service personnel.

CAUTION!

To reduce the risk of fire, electric shock or product damage,

- Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure this unit is well ventilated.
- Do not obstruct this unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.
- Do not place sources of naked flames, such as lighted candles, on this unit.

CAUTION:

About using SD Card, Cable strap

- Keep the Memory Card, Cable strap out of reach of children to prevent swallowing.

 indicates safety information.

AVERTISSEMENT:

Afin de réduire les risques d'incendie, de chocs électriques ou d'endommagement du produit,

- N'exposez pas cet appareil à la pluie, l'humidité, l'égouttement ou les éclaboussures.
- Ne placez pas d'objets remplis d'eau, comme des vases, sur cet appareil.
- Utiliser uniquement les accessoires recommandés.
- Ne retirez pas les caches.
- Ne réparez pas vous-même l'appareil. Adressez-vous à un personnel qualifié.

ATTENTION!

Afin de réduire les risques d'incendie, de chocs électriques ou d'endommagement du produit,

- N'installez pas et ne placez pas cet appareil dans une bibliothèque, un placard ou un autre endroit confiné. Assurez-vous que l'appareil est bien ventilé.
- Ne bouchez pas les ouvertures de ventilation de l'appareil avec des journaux, des serviettes, des rideaux, et d'autres éléments similaires.
- Ne placez pas de source de flamme nue, comme une bougie allumée, sur cet appareil.

ATTENTION:

À propos de l'utilisation d'une carte SD, de la sangle pour câble

- Conservez la carte mémoire, la sangle pour câble, hors de portée des enfants afin qu'ils ne puissent pas les avaler.

 Informations concernant la sécurité.

■ 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 from 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.



■ Directives importantes

Avant d'utiliser l'appareil, lire attentivement les instructions qui suivent. Se conformer tout particulièrement aux avertissements inscrits sur l'appareil et aux consignes de sécurité indiquées ci-dessous. Conserver le présent manuel pour consultation ultérieure.

- 1) Lire attentivement ces instructions.
- 2) Conserver ces instructions.
- 3) Lire toutes les mises en garde.
- 4) Suivre toutes les instructions.
- 5) Ne pas utiliser cet appareil près d'une source d'eau.
- 6) Ne nettoyer qu'avec un chiffon sec.
- 7) Ne pas bloquer les événements d'aération. Installer l'appareil selon les instructions du fabricant.
- 8) Ne pas installer l'appareil près d'un appareil de chauffage tel qu'un radiateur, une cuisinière, un registre de chaleur ou tout dispositif émettant de la chaleur (y compris un amplificateur).
- 9) Pour des raisons de sécurité, ne pas modifier la fiche polarisée ou celle de mise à la terre. Une fiche polarisée est une fiche à deux lames, dont une plus large. Une fiche de mise à la terre est une fiche à deux lames avec une broche de masse. La lame plus large ou la broche de masse procure une protection accrue. Si ce genre de fiche ne peut être inséré dans une prise de courant, communiquer avec un électricien pour remplacer la prise.
- 10) S'assurer que le cordon est placé dans un endroit où il ne risque pas d'être écrasé, piétiné ou coincé. Faire particulièrement attention à ses extrémités de branchement, y compris sa fiche.
- 11) N'utiliser que les accessoires ou périphériques recommandés par le fabricant.
- 12) Ne placer l'appareil que dans une baie ou sur un support, trépied, gabarit d'installation, etc., recommandé par le fabricant ou vendu avec l'appareil. Le chariot sur lequel se trouve l'appareil doit être déplacé avec soin. Des arrêts brusques, l'utilisation d'une force excessive et des surfaces inégales peuvent entraîner la chute du chariot.
- 13) Débrancher cet appareil lors d'un orage ou en cas de non-utilisation prolongée.
- 14) Confier l'appareil à un technicien qualifié pour toute réparation : cordon d'alimentation ou fiche endommagé, liquide renversé ou objet tombé dans l'appareil, exposition à la pluie ou à une humidité excessive, mauvais fonctionnement ou échappement de l'appareil.



FCC NOTICE (USA)

Declaration of Conformity

Model Number: AW-360B10
Trade Name: Panasonic
Responsible Party: Panasonic Corporation of North America
Two Riverfront Plaza Newark NJ07102
Support contact: 1-800-524-1448

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

CAUTION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

FCC Warning:

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

NOTIFICATION (Canada)

CAN ICES-3(B)/NMB-3(B)

indicates safety information.

NOTIFICATION (Canada)

CAN ICES-3(B)/NMB-3(B)

Informations concernant la sécurité.

<For U.S.A. only>



This unit is intended for use in moderate and tropical climates.

AEEE Yönetmeliğine Uygundur.
AEEE Complies with Directive of Turkey.



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

This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products must not be mixed with general household waste.

For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation. By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment. For more information about collection and recycling, please contact your local municipality, dealer or supplier. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

Інформація для покупця

Виробник:	Panasonic Corporation	Панасонік Корпорейшн
Адреса виробника:	Kadoma, Osaka, Japan	Кадома, Осака, Японія
Країна походження:	Japan	Японія

Імпортер:	ТОВ "ПАНАСОНІК УКРАЇНА ЛТД"
Адреса імпортера:	провулок Охтирський, будинок 7, місто Київ, 03022, Україна

Примітки:	
Термін служби виробу	7 років

Дату виготовлення можна визначити за комбінацією букв і цифр серійного номера, що розташований на маркувальній табличці виробу.

Приклад:

X X XXXXXXX

Рік: остання цифра року (6 – 2016, 7 – 2017, ... 0 – 2020)

Місяць: А – Січень, В – Лютий... L – Грудень

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Operating precautions

■ About this unit

The unit become warm during use. This is not a malfunction.

Keep this unit as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).

- If you use this unit on top of or near a TV, the pictures and/or sound on this unit may be disrupted by electromagnetic wave radiation.
- Do not use this unit near cell phones because doing so may result in noise adversely affecting the pictures and/or sound.
- Recorded data may be damaged, or pictures may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by microprocessors may adversely affect this unit, disturbing the pictures and/or sound.
- If this unit is adversely affected and stops operating properly, disconnect the DC cable of the Base Unit and the camera head option cable of the Camera Head first, and then reconnect these cables and turn on the unit again.

Do not use this unit near radio transmitters or high-voltage lines.

- If you use near radio transmitters or high-voltage lines, the recorded pictures and/or sound may be adversely affected.

When connecting to the dedicated Camera Head (AW-360C10)

- Always use a genuine Panasonic Camera head option cable (AG-C20003G (3 m (9.8 feet)): optional).
- Always use a genuine Panasonic HDMI Cable (AW-CAH103G: optional).

When connecting to a network

- LAN cable* (category 5 or above), max. 100 meters (328 feet)
- * Use of an STP (shielded twisted pair) cable is recommended.

When connecting to an HDMI output device

- Use a commercially-available High Speed HDMI cable. If possible, we recommend using a cable with a length of 3 m (9.8 feet) or less.

Power button [⏻/⏻]/Status indicator

- Press this button to turn the unit on and off.

When the unit turns off, the status indicator goes off and the unit enters standby mode.
The unit is still using a small amount of power in the standby. Standby uses less power.

Do not extend the optional cables to be used.

Do not spray insecticides or volatile chemicals onto the unit.

- If the unit is sprayed with such chemicals, its body may be marred and the surface finish may peel off.
- Do not leave rubber or plastic products in contact with the unit for a long time.

When you use the unit in a sandy or dusty place such as a beach, do not let sand or fine dust get into the body and terminals of the unit.

Also, keep the unit away from sea water.

- Sand or dust may damage the unit.
- If sea water splashes onto the unit, wipe off the water with a well wrung cloth. Then wipe the unit again with a dry cloth.

When carrying the unit, do not drop or bump it.

- A strong impact can break the unit's casing, causing it to malfunction.

Cleaning

When cleaning, do not use benzine or thinner.

- Using benzine or paint thinners may deform this unit and/or cause the surface finish to peel off.
- Disconnect the DC cable before cleaning.
- Use a soft, clean cloth to wipe this unit. To remove stubborn dirt, wipe this unit with a cloth moistened with kitchen detergent that has been diluted with water and then use a dry cloth to take up the remaining moisture.

When you are not going to use the unit for an extended time

- When storing the unit, it is recommended that you place a desiccant (silica gel) in with it.

Do not leave the unit in direct contact with the skin when in use.

- Low temperature burns may result if the skin is left in direct contact with the high temperature parts of the unit or heated air from the ventilation openings of the unit.

Do not allow the cord to drag on the ground or pull a connected cord along the passage

- The cord will be damaged, causing fire or electrical shock, when the cord gets caught by the feet, excite will also cause personal injury.

■ About operation from the Web screen

It is possible to change the setup of the unit (IP control) on the web browser screen of a PC or iPad connected to the unit via a network. (→ 24)

- The IP image refresh speed and operations from the web screen may become slower depending on the following factors.
 - Network environment
 - PC or iPad performance
 - Subjects
 - Number of accesses to the unit

■ About combination of 360-degree Live Camera Base Unit and 360-degree Live Camera Head

This unit (AW-360B10) is compatible only to the dedicated camera head AW-360C10.

It will not operate if any other model is connected.

The camera head AW-360C10 will not operate when connected to any base unit other than this unit (AW-360B10).

■ Regarding system frequencies

It is possible to switch the system frequency (59.94 Hz/50.00 Hz) with this unit by changing the setup for outputting images from the Camera Head. ([Capture Mode]: → 43)

■ Disclaimer of warranty

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

- 1 ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- 2 PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- 3 UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- 4 INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
- 5 ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
- 6 DEMANDS FOR COMPENSATION, CLAIMS, ETC. MADE BY INDIVIDUALS AND/OR ORGANIZATIONS ON GROUNDS SUCH AS THE INFRINGEMENT OF THEIR PRIVACY THAT RESULTED WHEN THEIR IMAGES SHOT BY THE USER WERE USED AFTER BEING MADE AVAILABLE TO THE PUBLIC DOMAIN FOR SOME REASON OR OTHER;
- 7 LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE (INCLUDING INITIALIZATION OF THE PRODUCT DUE TO FORGOTTEN AUTHENTICATION INFORMATION SUCH AS A USER NAME AND PASSWORD)

■ Network security

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

- 1 Leakage or theft of information through the unit
- 2 Use of the unit for illegal operations by persons with malicious intent
- 3 Interference with or stoppage of the unit by persons with malicious intent

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

- Use the unit in a network secured by a firewall, etc.
- If the unit is connected to a network that includes personal computers, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated antivirus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by setting up user authentication to restrict users to those who log in with an authorized user name and password. In addition, to prevent third parties from identifying user name information (including passwords), change the information from the factory default.

For details, refer to "User authentication" on page 26.

- After accessing the unit, be sure to close all web browsers.
- Store authentication information (user names and passwords) appropriately so that no third parties will be able to access it.
- Change the password periodically.
- Restrict access to the unit by authenticating the users, for example, to prevent setting information stored on the unit from leaking over the network.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.

● Concerning user authorization

User authentication on the unit can be performed via basic authentication. If basic authentication is used without using a dedicated line equipped with an authentication function, password leaks may occur.

● Usage restrictions

Use of the same segment is recommended for the network in which the unit and the personal computer are connected.

If the equipment uses connections with different segments, events based on the settings inherent to the network equipment, for instance, may occur so check this thoroughly prior to operation.

■ About security

Be careful about the possibility of theft or loss of the unit, and be careful not to leave the unit unattended. Please note that Panasonic does not accept any responsibility for the compromise, manipulation, and loss of information caused by these events.

■ When disposing of/transferring the unit

The unit records personal information related to your operations. When you part with the unit due to such reasons as disposal or transfer, make sure to restore the default settings with the Function button (→ 17) and erase recorded information.

■ Caution regarding laser beams

- The MOS sensor may be damaged if any of the lenses is subjected to light from a laser beam. Take sufficient care to prevent laser beams from striking the lenses when recording in an environment where laser devices are used.

■ Information on software used with this product

This product incorporates the following software:

- (1) the software developed independently by or for Panasonic Corporation,
- (2) the software owned by third party and licensed to Panasonic Corporation, and/or
- (3) open source software

The software categorised as (3) is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

For details please refer to the license conditions displayed by the method described in Operating Instructions (PDF format) [Settings screen] → [Product information screen [Product Info.]] → [OSS License Display]

Accessories

Check the accessories before using this unit.

Cable strap (×2)
(→ 20)



- To purchase extra accessories, contact your dealer.
- After removing the product from its container, dispose of the packing materials in an appropriate manner.

Optional accessories

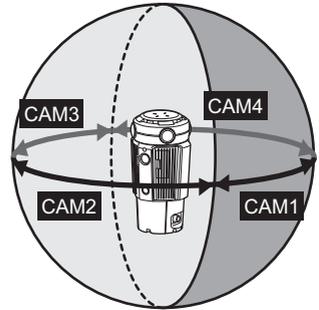
Some optional accessories may not be available in some countries.

360-degree Live Camera Head (AW-360C10)
Camera head option cable (AG-C20003G [3 m] (9.8 feet))
HDMI Cable (AW-CAH103G [3 m (9.8 feet) ×4])

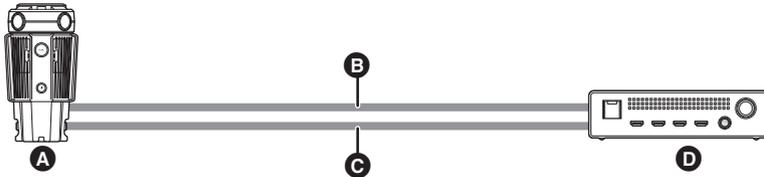
What you can do with this system

This unit is the Base Unit of the 360-degree Live Camera. The 360-degree Live Camera comes with the following features.

- It is possible to combine images recorded with four camera units together by using real-time stitching technology capable of minimizing time lag.
- It is possible to combine images into 360-degree video with smooth seams.
 - It is possible to automatically correct parallax (i.e. automatically adjust the seams between images) according to the movement of and changes in subjects.
 - It is possible to perform coordinated control of the brightness and White Balance of the four camera units.



Images captured by the Camera Head are combined into 360-degree video by the unit. Connect the unit and the Camera Head to use the unit. (→ 19)

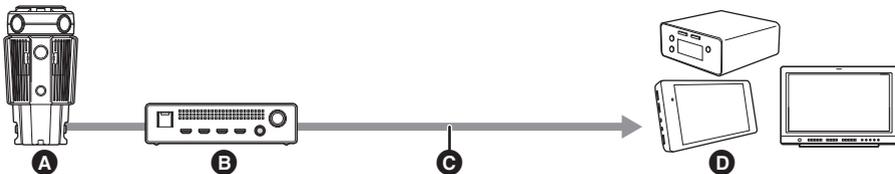


- A** 360-degree Live Camera Head (AW-360C10: optional)
- B** HDMI Cable (AW-CAH103G: optional)
- C** Camera head option cable (AG-C20003G: optional)
- D** 360-degree Live Camera Base Unit

- Objects around the edges of the images of the camera units that are closer than 1 m (3.3 feet) may not appear in the combined image.
- Depending on the recording conditions, the combined image may have noticeable or misaligned seams.

Outputting images to an external device (live streaming device, etc.) at 4K resolution

It is possible to output 360-degree video in 4K resolution to an external device (live streaming device, recorder, monitor, etc.) connected with HDMI Cables. (→ 22)

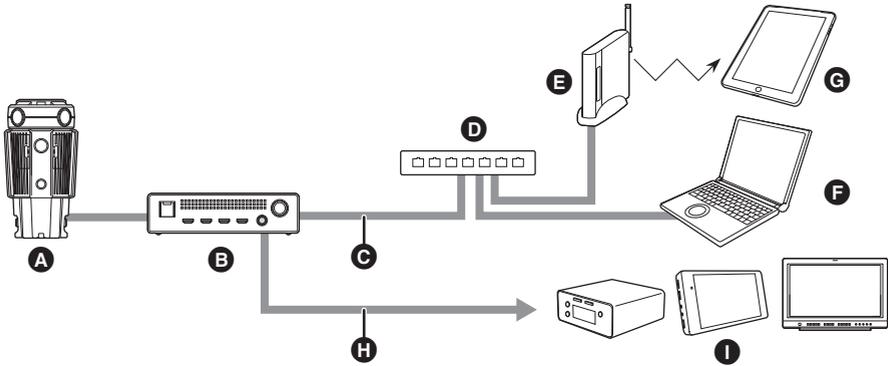


- A** Camera Head
- B** Base Unit
- C** HDMI Cable (commercially-available)*
- D** External device (live streaming device, monitor, recorder, etc.)

* Use a commercially-available High Speed HDMI cable. If possible, we recommend using a cable with a length of 3 m (9.8 feet) or less.

Cross-platform operation using a web browser

Operate the web browser of the PC connected via wired LAN or the iPad connected via a wireless access point to configure various settings of the unit. Cross-platform operation is made possible by the use of a web browser. (→ 24)



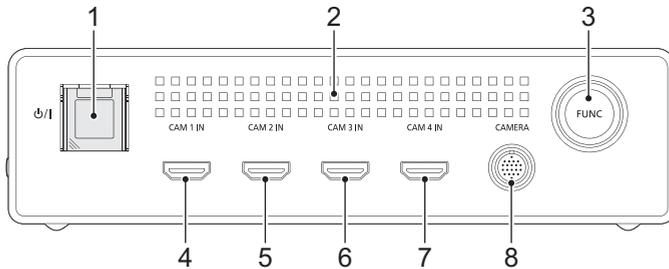
- A** Camera Head
- B** Base Unit
- C** LAN cable (commercially-available)
- D** Switching hub
- E** Wireless access point

- F** PC
- G** iPad
- H** HDMI Cable (commercially-available)*
- I** External device (live streaming device, monitor, recorder, etc.)

* Use a commercially-available High Speed HDMI cable. If possible, we recommend using a cable with a length of 3 m (9.8 feet) or less.

- To display the images of the unit on a web browser, it is necessary to output them to an external device through HDMI Cables.

Names and Functions of Main Parts



1 Power button [⏻/⏺] (→ 21)/ Status indicator (→ 21)

- The status indicator normally lights or flashes in green. When there is a problem, it lights or flashes in red.

2 Air outlet (cooling fan)

3 Function button/Function lamp [FUNC]

- If you press and hold the function button (approx. 10 seconds) while the unit is turned on, the [Networks] settings, such as the IP address setting (→ 44), and the login ID and password settings (→ 41) will return to the factory defaults. When initialization starts, the status indicator (red) and the function lamp will start flashing alternately. Even after the settings are returned to the factory defaults, there may be times when you want to restore the factory defaults again. In such cases, before performing the operation, turn off and on the unit.

- The function lamp lights while a card is being accessed. For example, it will light when you format a card on the Camera Head.
- Do not perform the following while the card is being accessed (while the function lamp is lit). Doing so may damage card data or cause the unit to malfunction.
 - Removing the microSD card from the Camera Head
 - Turning off the unit
 - Shaking or striking the unit

4 [CAM 1 IN] terminal (→ 19)

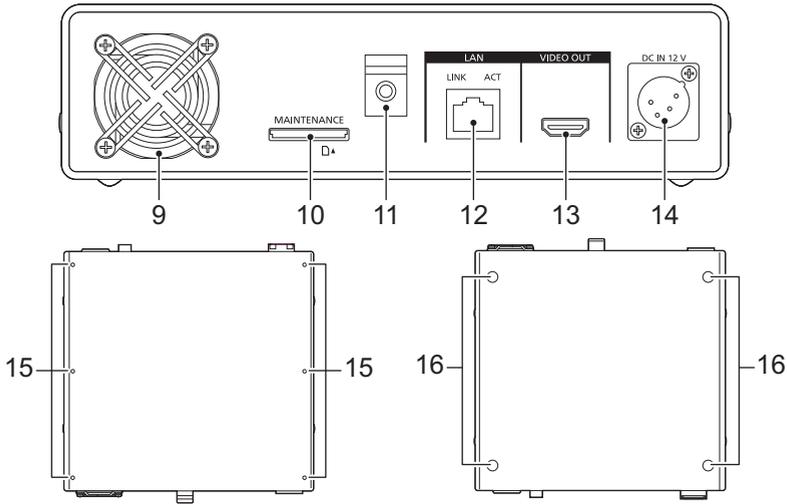
5 [CAM 2 IN] terminal (→ 19)

6 [CAM 3 IN] terminal (→ 19)

7 [CAM 4 IN] terminal (→ 19)

- Use these terminals when connecting the unit and the Camera Head with HDMI Cables. Do not use the terminals for connection to other devices.

8 CAMERA terminal (→ 19)



9 Air Inlet (cooling fan)

10 Maintenance port [MAINTENANCE]

- This port is used for maintenance of the unit. (Not normally used)

11 Cable clamper (→ 22)

12 LAN connector for IP control [LAN LINK/ACT]

- This LAN connector (RJ-45) is connected when exercising IP control over the unit from an external device. Use a cable with the following specifications for the connection to the LAN connector:

LAN cable* (category 5 or above), max. 100 meters (328 feet)
 * Use of an STP (shielded twisted pair) cable is recommended.

Verify the pin positions of the output connector of the DC power supply and the unit's DC IN terminal, and be sure to connect with the correct polarities. Connecting +12 V power to the GND terminal may result in fire or malfunction.

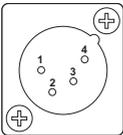
15 Multipurpose screw hole

- M3 (3 mm diameter) type screws with lengths up to 6 mm can be used for the six screw holes on the upper surface of this unit.
- When using screws, do not apply excessive force. Also, if you use a M3 (3 mm diameter) type screw longer than 6 mm in length, this unit may be damaged.

13 VIDEO OUT terminal (→ 22)

14 DC input terminal [DC IN 12 V] (→ 21)

- Connect a DC power source (DC 12 V).



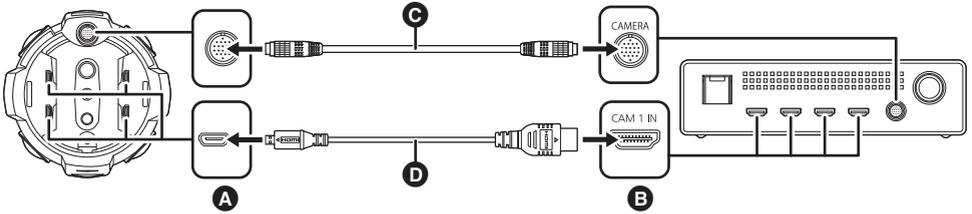
Pin no.	Signal
1	GND
2, 3	—
4	12 V
CASE	Frame GND

- Verify that the output voltage matches the unit's voltage rating before connection.
- Use a source with an output power rating equal to or higher than the unit's input power rating.
- An inrush current is generated when this unit is turned on. An insufficient power supply capacity when the power is turned on may result in malfunction. We recommend using a DC power supply that can provide at least twice the power consumption value of the unit.

16 Setting legs

Connecting this unit to the Camera Head

- Be sure to turn off this unit before attaching or removing the camera head option cable and HDMI Cables.



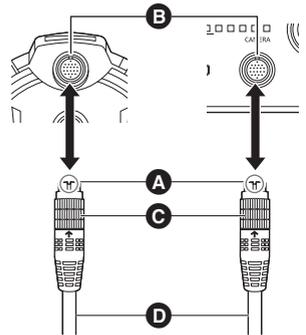
- A** Type D terminal
- B** Type A terminal

- C** Camera head option cable
- D** HDMI Cable (×4)

Attaching the Camera head option cable (optional)

- 1** Insert Camera head option cable **D** into this unit's CAMERA terminal and the Camera Head connecting terminal.
 - Align notch **A** of the terminal of the Camera head option cable and guide **B** of the connecting terminal to insert.

- 2** Turn the Camera head option cable terminal ring **C** clockwise.
 - Fix firmly so that there is no looseness.

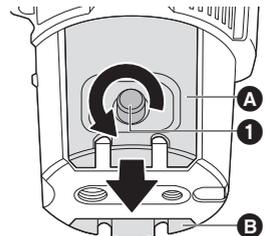


■ Removing the Camera head option cable

- 1** Loosen the ring on the terminal of the Camera head option cable by turning it counterclockwise.
- 2** Hold the ring on the terminal of the Camera head option cable and pull it straight out.

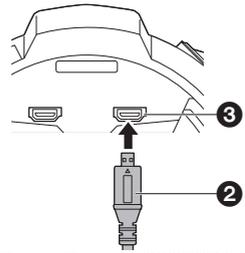
Connecting HDMI Cables (optional)

- 1** Loosen the cable cover screw **1** of the Camera Head, and remove the cable cover.
 - Remove the two cable covers, the cable cover for CAM1/2 **A** and the cable cover for CAM3/4 **B**.



2 Insert the Type D connector **2** of each of the HDMI Cables into one of the video output terminals **3** (illustrated example: CAM1 OUT terminal) of the Camera Head.

- Insert the HDMI Cables to all of the CAM1 OUT-CAM4 OUT terminals.

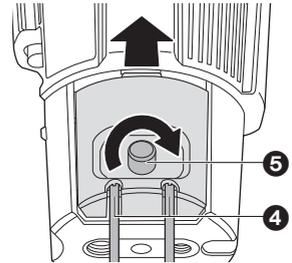


3 Align the position of each of the HDMI Cables with the corresponding cable cover slit **4**, and attach the cable cover to the Camera Head.

- Attaching the cable cover without aligning the position may cause damage to the HDMI Cable. Be sure to align the position of each of the HDMI Cables.

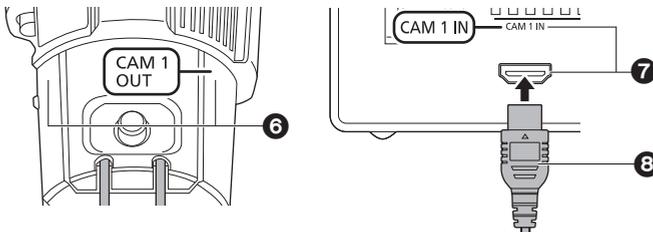
4 Tighten the cable cover screw **5** to fix the HDMI Cable.

- Use the cable cover while the HDMI Cable is connected to prevent it from being accidentally pulled out.
- Attach the two cable covers, the cable cover for CAM1/2 and the cable cover for CAM3/4.

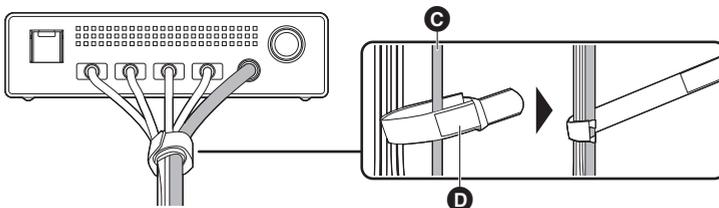


5 Check each of the terminal numbers **6** (illustrated example: CAM1 OUT) on the Camera Head, and insert the Type A connector **8** of each of the HDMI Cables into the Base Unit's video input terminal **7** (illustrated example: CAM1 IN terminal) indicated with the matching number.

- Insert the HDMI Cables to all of the CAM1 IN-CAM4 IN terminals.



- Bundle the Camera head option cable and the HDMI Cables together near the terminals of the unit using one of the cable straps to prevent them from being accidentally pulled out. Attach the cable strap **d** to the Camera head option cable **c**.



■ Removing the HDMI Cables

Before disconnecting the HDMI Cables, remove the cable covers.

- Disconnecting the HDMI Cables while the cable covers are still attached may cause damage to the HDMI Cables.
- If the HDMI Cables are bundled, attach labels of some sort identifying terminal numbers to the terminals before disconnecting them. The labels will be useful for reconnecting the bundled cables.

- Use the supplied cable straps to organize the camera head option cable and the HDMI Cables.
- When the HDMI Cables are not in use, attach the cable covers to the Camera Head to protect the terminals.

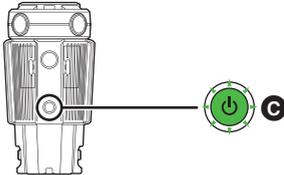
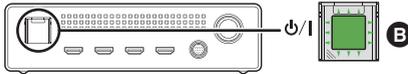
Turning the unit on/off

Connect a DC power source to the DC input terminal (→ 18) of the unit.

- The unit will turn on and the status indicators of the unit and the Camera Head will light in green.
- If the status indicator flashes in red when the unit turns on, the unit needs to be restarted. Press the power button to turn off the unit, and then press the power button again to turn it on.



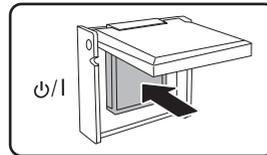
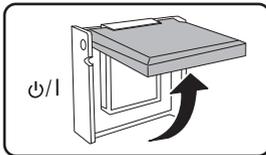
- A** DC input terminal
- B** Power button/Status indicator
- C** Status indicator



■ To turn off the unit

Press the power button on the unit.

- After use, disconnect the DC cable.



Removing the DC power source with the unit turned on may cause the unit and the Camera Head to malfunction. Be sure to use the power button to turn off the unit.

- When the unit turns off, the status indicators of the unit and the Camera Head go off and the unit enters standby mode. In standby mode, the unit consumes a small amount of power. After use, disconnect the DC cable.
- The unit will turn on if you press the power button again while the DC power source is connected.
- To force shut down the unit, press the power button of the unit for 10 seconds or more.

- The setups saved in the unit are reflected to the Camera Head after the unit is turned on.
- Connecting or removing the Camera Head with this unit turned on may cause this unit and the Camera Head to malfunction. Be sure to turn off this unit before connecting/disconnecting the Camera Head to/from it.
- The status indicator lights or flashes in red if there is a problem such as malfunction or cable disconnection. (Warning Indications)
Refer to page 54 for details about "Warning Indications".

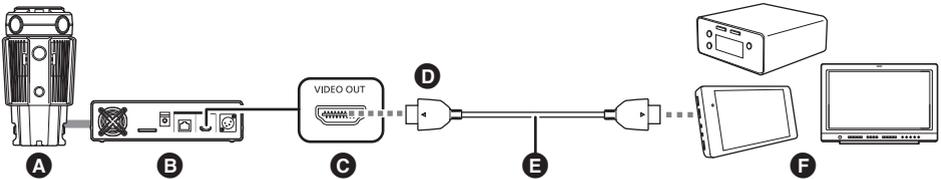
Before Shooting

- When shooting, make sure your footing is stable and there is no danger of colliding with another person or object.
- Do not block the air inlet or air outlet of the cooling fan with your hands, etc. (→ 17, 18)
- **For stable images, it is recommended to use a tripod whenever possible.**

• For information about the tripod mounting procedure and pre-recording checks, refer to the Operating Instructions for the AW-360C10 Camera Head.

Outputting Images to an External Device

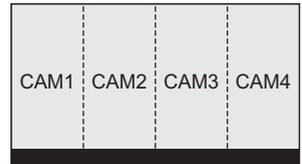
It is possible to output 360-degree video in 4K resolution to an external device (live streaming device, recorder, monitor, etc.) connected with HDMI Cables.



- A** Camera Head
- B** Base Unit
- C** VIDEO OUT terminal
- D** Type A terminal

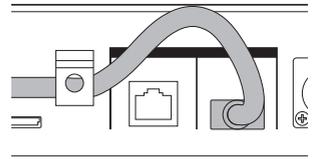
- E** HDMI Cable (commercially-available)
- F** External device (live streaming device, monitor, recorder, etc.)

- Images are combined into 360-degree video with an aspect ratio of 2:1. The combined image is output at the 16:9 aspect ratio in a letter box format that adds a black band to the bottom of the image.
- Set the output resolution on the web screen. The factory default is set so that images are output at 3840×2160/29.97p, 1920×1080/59.94p or 1920×1080/29.97p, etc. to suit the connected device. Refer to page 42 for details.
- The output quantization bit rate is 8 bit.
- The color sampling method is RGB.
- Audio is output in 2ch linear PCM (LPCM) format. On the web screen, select the audio to be output to L CH/R CH from MC1-MC4 of the Camera Head. The default output setting is L CH (MC2)/R CH (MC3). Refer to page 43 for details.



When using HDMI-to-DVI converters, etc. to connect HDMI Cables, be sure to connect the HDMI Cables to the VIDEO OUT terminals of the unit as the last step. If you connect them to the VIDEO OUT terminals of the unit first, malfunction may result.

- Attach the HDMI Cable to the cable clammer to prevent it from being accidentally pulled out.
- Use a commercially-available High Speed HDMI cable. If possible, we recommend using a cable with a length of 3 m (9.8 feet) or less.
- If you connect this unit to the external monitor, a squealing sound may be output.
- If you operate the unit on the web screen while images are being output through the connected HDMI Cables, the images being output to the external device may be interrupted for a few seconds.



Operating environment (for web screen operations)

CPU	Intel Core 2 Duo 2.4 GHz or higher recommended
Memory	For Windows: 32bit OS: 1 GB or more 64bit OS: 2 GB or more For Mac: 2 GB or more
Network function	10BASE-T or 100BASE-TX port × 1
Image display function	Resolution: 1024×768 pixels or more Color generation: True Color 24-bit or more
Supported operating system and Web browser	Windows: Windows 7 (32bit/64bit) Professional SP1*1 Windows 10 (32bit/64bit) Pro Google Chrome
	Mac: macOS 10.12 Safari 10
	iPad *2 iOS 10.2, Standard browser

*1 Windows XP Compatible Mode cannot be used.

*2 It cannot be used when the [Protocol] (→ 46) of the unit is set to [https].

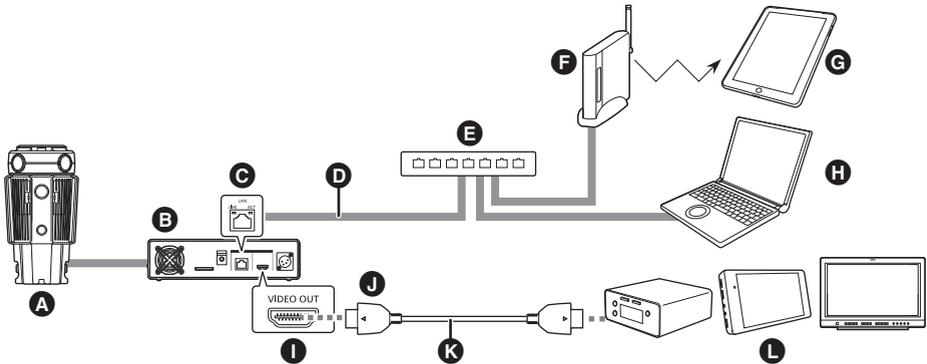
IMPORTANT

- Failure to provide the required personal computer environment may slow down the delineation of the images on the screen, make it impossible for the web browser to work and cause other kinds of problems.

- For the most recent information on compatible operating systems and web browsers, visit the support desk at the following web site.
<http://pro-av.panasonic.net/>
- The operation procedures and screen shots in this document is explained with Windows 10 and Google Chrome.

Displaying the web screen

Operate the web browser of the PC connected via wired LAN or the iPad connected via a wireless access point to configure various settings of the unit.



- | | |
|---|---|
| A Camera Head | G iPad |
| B Base Unit | H PC |
| C LAN connector (RJ-45) | I VIDEO OUT terminal |
| D LAN cable (commercially-available) | J Type A terminal |
| E Switching hub | K HDMI Cable (commercially-available) |
| F Wireless access point | L External device (live streaming device, monitor, recorder, etc.) |

- To display the images of the unit on a web browser, it is necessary to output them to an external device through HDMI Cables.
- This unit will automatically recognize straight cables and crossover cables connected to the LAN connector.
- The unit cannot be accessed from the internet.

Network settings

Select an IP address for the PC within the private address range while ensuring that it is different from the address of the unit. Set the subnet mask to the same address as the unit.

	Settings of the unit (factory defaults)	Settings selected for the PC (When connecting to the unit using its factory defaults)
IP address	192.168.0.10	192.168.0.1 to 192.168.0.254 <ul style="list-style-type: none"> • An address within the same private address range as the unit that is different from the unit and other devices connected to the network
Subnet mask	255.255.255.0	255.255.255.0 <ul style="list-style-type: none"> • The same setting as the unit

For the operating environment of a PC, refer to page 23.

Displaying the web screen

The instructions provided in this document are based on the screen for Windows (Google Chrome), but the same procedures apply to Mac (Safari) and iPad*.

* There may be differences in some parts of the screen displays.

1 Open the web browser.

Operating system installed	Web browser
Windows	Google Chrome
Mac	Safari

2 Enter the IP address of the unit in the address bar of the web browser.

IP address entry example:

http://<IP Address set in [IP address(IPv4)]>

http://192.168.0.10/

- Enter the URL of the factory default IP address (http://192.168.0.10/) for the first time connection.



If the port number is set to a value other than [80] ([Port]: → 45)

- If the port number has been changed from [80], enter "http://<IP address of the unit>:<port number>" in the address bar.

Example: http://192.168.0.10:XXXX

[XXXX] represents the port number.

3 Press the [Enter] key.

- A login screen is displayed.

4 Enter the user name and password.

- Listed below are the factory default user name and password.

User name [User ID]	admin
Password [Password]	12345



5 Click the [Login] button.

- The web screen is displayed.
- While the initial settings remain used for the user name and password, a message prompting the user to change the user name and password is displayed after authorization. In order to ensure security, be sure to change both the user name and password. It is also recommended that the password be changed at regular intervals.



Forgot the IP address, user name, and/or password for the unit?

Operate the function button (→ 17) to reset their settings to the factory defaults, and then access the unit.

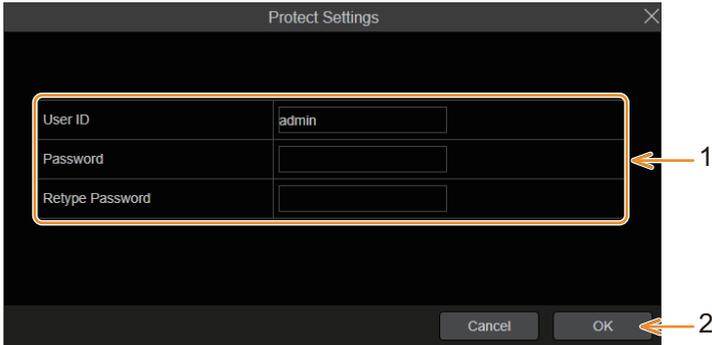
- If you try to display the images of multiple Base Units on a single PC, their IP images may not be displayed, depending on the specs of the PC.
- A maximum of four users can access the unit at the same time. When accessed by five or more users at the same time, the unit cannot display the web screen correctly, so the image refresh speed may become slower, for example.
- The image refresh speed may become slower depending on the network environment, performance of your computer, subject, number of accesses, and settings configured.
- When the shooting scenes vary significantly, restrictions imposed by the graphics processing (GDI) of the operating system installed may give rise to a phenomenon called "screen tearing" (where parts of the picture are not displayed in synchronization) although this will depend on the personal computer used.

User authentication

To prevent infringement of privacy and personality rights, information leaks, and other issues concerning **unauthorized access by third parties**, change the settings of the user authentication function from their factory defaults upon installation.

Getting started:

- Operate the PC connected to the unit to display the web screen of the unit (→ 24).
- Click the settings button [] → [General] → [Protect] → [Setting] to display the user authentication setup screen. (→ 27, 40, 41)



- 1 Enter [User ID], [Password], [Retype Password], and change the user name/password settings from the factory defaults.
- 2 Click the [OK] button.
 - Log in again after changing the settings.

User name and password management

- Use a combination of characters and numbers that is difficult to guess.
Avoid using a string of the same characters, such as “11111”, birth dates, or telephone numbers.
For information about the types and number of characters that can be entered, refer to [User ID] and [Password] in “User authentication setup screen”. (→ 41)
- Change user names and passwords periodically.
- Make sure to manage the configured user names and passwords.
- To prevent third parties from identifying user names and passwords, change the user name and password settings from the factory defaults.
- We recommend creating a password of at least 8 characters, including at least 3 types of characters from digits (single-byte), uppercase alphabetic characters (single-byte), lowercase alphabetic characters (single-byte), and special characters.

About the main screen

The instructions provided in this document are based on the screen for Windows (Google Chrome).

- The displayed items may differ depending on various factors such as the operating system of the PC and the usage environment.
- Some displayed items and operations such as character entry differ if you are using an iPad.



1	Settings button	Displays the settings screen.	→ 39
2	Camera name display area	Displays the name of the unit set in [Camera Name].	→ 40
3	Main area (IP video display area)	Displays the IP images stitched together by the Base Unit as 360-degree video. <ul style="list-style-type: none"> • No IP images are displayed if the unit is not outputting images to the external device through the HDMI Cables. • IP images are displayed only in the active window (the window that has been selected and responds to your operations). 	—
4	Live image indication	Indicates that the IP images are live images.	—
5	Stitching adjustment button	Displays the stitching adjustment screen in the main area.	→ 28
6	Exposure adjustment button	Displays the exposure adjustment screen in the main area.	→ 31
7	White balance adjustment button	Displays the white balance adjustment screen in the main area.	→ 34
8	Picture Display	Sets whether or not to display the IP images in the main area when [On] or [Off] is selected in the pull-down menu. <ul style="list-style-type: none"> • If you turn off and on the unit, it will start up with the [On] setting. 	—
9	Load image quality setup button	Displays the load image quality setup screen.	→ 38
10	Save image quality setup button	Displays the save image quality setup screen.	→ 37
11	Advanced adjustment tab	Displays/hides the advanced adjustment screen.	—

- The resolution and frame rate (→ 42) of the IP images differ from those of the images that are output through the HDMI Cables.
- If there is a problem in the unit or the Camera Head, a [Warning] message is displayed on the web screen. (Warning Indications) Refer to page 54 for details about “Warning Indications”.

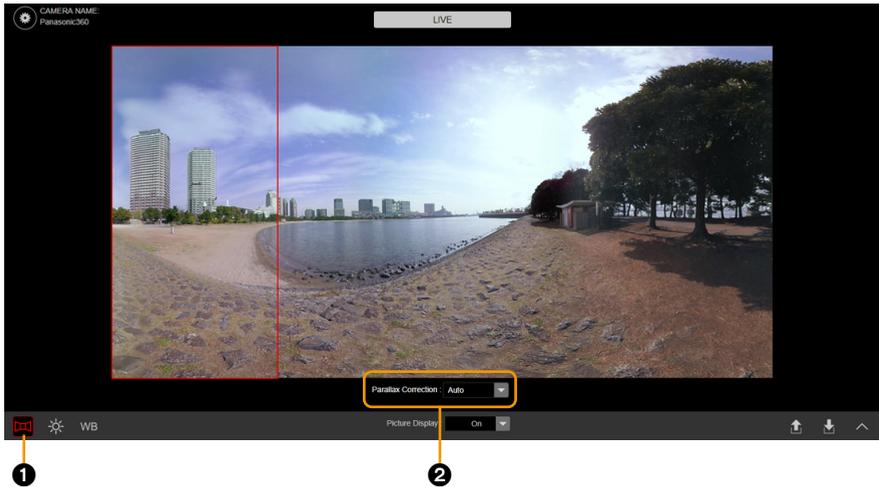
Stitching adjustment

Specify the automatic parallax correction setting (the setting for automatically adjusting image stitching seams) and if necessary, adjust the area displayed by each camera unit.

The area displayed by each camera unit can be adjusted only when the Automatic Parallax Correction Mode is set to [Off]. (→ 29)

It is possible to make more advanced adjustments of the area displayed by each camera unit on the advanced adjustment screen. (→ 30)

Set the automatic parallax correction



- 1 Click the stitching adjustment button ①.
- 2 Use the pull-down menu ② to change the Automatic Parallax Correction Mode.

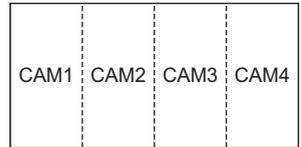
[Auto]	<p>Enables automatic parallax correction.</p> <ul style="list-style-type: none"> • The seams between the images are adjusted automatically according to the movement of and changes in each subject. • It is not possible to adjust the area displayed by each camera unit when [Auto] is set. The seams between images are automatically adjusted based on the factory default settings.
[Off]	<p>Disables automatic parallax correction.</p>

- The underlined setting is the factory default.
- It is also possible to specify the same setting in [Parallax Correction]. (→ 50)

Adjust the image stitching seams of each camera unit



- 1 Click the stitching adjustment button ①.
- 2 Select [Off] from the pull-down menu ②.
- 3 Click the main area ③ to select the camera unit to be adjusted.
 - The area of the selected camera unit is indicated by the red frame.



- 4 Click the item to be set.

④	< / > (PAN)	Moves the image horizontally.
⑤	^ / v (TILT)	Moves the image vertically.
⑥	ROLL	Rolls the image. <ul style="list-style-type: none"> • Click the slide bar to adjust the position.
⑦	ZOOM	Zooms in/out the image.

- If you set the Automatic Parallax Correction Mode ② to [Auto] after changing the values of these items, the values will be reset to the factory defaults.
To save the set values, save them as image quality setup information. (→ 37)
- It is also possible to specify the same settings in [ZOOM] and [Posture On The Camera] on the camera setup screen. (→ 49)
- At the time of shipment, the fields for these items are set to the values pre-selected at the factory.
- The values of these items can be reset to the factory defaults by selecting [Default Data Set] on the camera setup screen. (→ 49)

Making adjustments on the advanced adjustment screen



- 1 Use the pull-down menu ① to change the mode to [Off].
- 2 Click the advanced adjustment tab ②.
- 3 Click the item to be set, and enter values.

③	[PAN]	Moves the image horizontally.	
④	[TILT]	Moves the image vertically.	
⑤	[ROLL]	Rolls the image.	<ul style="list-style-type: none"> Click to display the slide bar. 
⑥	[ZOOM]	Zooms in/out the image.	
⑦	[Offset X]	Moves the image horizontally to an offset position.	
⑧	[Offset Y]	Moves the image vertically to an offset position.	

- If you set the Automatic Parallax Correction Mode ① to [Auto] after changing the values of these items, the values will be reset to the factory defaults.
To save the set values, save them as image quality setup information. (→ 37)
- It is also possible to specify the same settings in [Offset], [ZOOM], and [Posture On The Camera] on the camera setup screen. (→ 49)
- At the time of shipment, the fields for these items are set to the values pre-selected at the factory.
- The values of these items can be reset to the factory defaults by selecting [Default Data Set] on the camera setup screen. (→ 49)
- [■] ⑨ is displayed for the selected camera unit.
- The area of the selected camera unit is indicated by the red frame ⑩ in the main area.

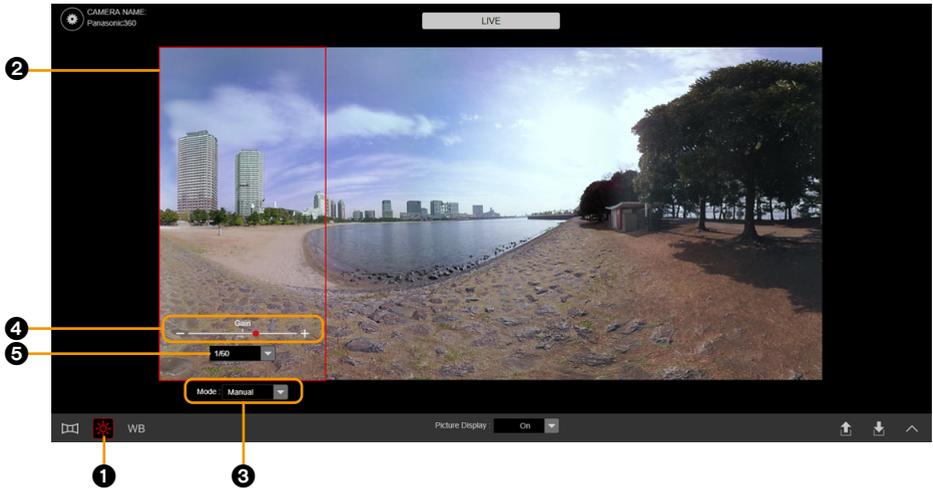
Exposure (gain/shutter speed) adjustment

Adjust the exposure (gain and shutter speed).

In Master Camera Mode, it is possible to apply the setup of the master camera to all areas of the 360-degree video through coordinated exposure control. This mode can only be set on the advanced adjustment screen. (→ 32)

- **Factory settings:** Master Camera Mode (CAM2)
- **Setting value:**

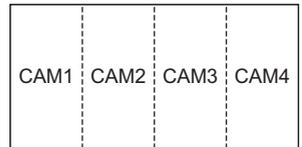
Gain	0 dB to 30 dB
Shutter speed	1/30 to 1/12000 seconds (when [Capture Mode] is set to [NTSC]) 1/25 to 1/12000 seconds (when [Capture Mode] is set to [PAL])



1 Click the stitching adjustment button ①.

2 Click the main area ② to select the camera unit to be adjusted.

- In Master Camera Mode (factory settings), it is not possible to select a camera unit on the main area. Switch to Detail Mode on the advanced adjustment screen. (→ 33)
- The area of the selected camera unit is indicated by the red frame.



3 Use the pull-down menu ③ to change the mode.

[Auto]	Adjusts the level automatically.
[Manual]	Adjusts the level manually.

4 (When [Manual] has been selected) Click the item to be set.

④	[Gain]	Click the slide bar to adjust the gain.
⑤	[Shutter]	Use the pull-down menu to adjust the shutter speed.

Making adjustments on the advanced adjustment screen (Master Camera Mode)



- 1 Click the advanced adjustment tab ①.
- 2 (When [Master] is displayed) Click [Master] ② to switch to the Master Camera Mode.
- 3 Click the item to be set.

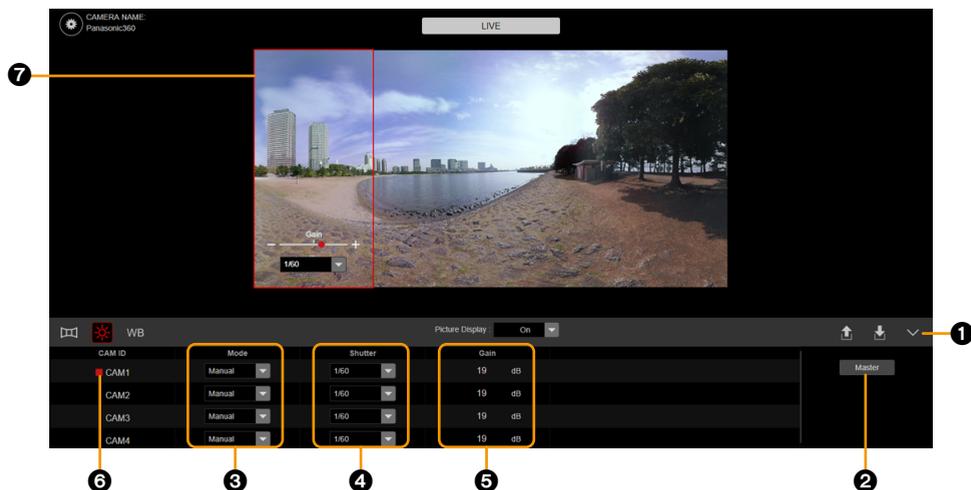
③	[Master]	[CAM1]	Use the pull-down menu to change the master camera. <ul style="list-style-type: none"> The exposure setup of the master camera is applied to all areas of the 360-degree video.
		[CAM2]	
		[CAM3]	
		[CAM4]	
④	[Mode]	[Auto]	Use the pull-down menu to change the mode. <ul style="list-style-type: none"> When [Auto] is selected, the exposure adjusted automatically by the master camera is applied to all areas of the 360-degree video.
		[Manual]	

- The following items can only be set when [Mode] is set to [Manual].

⑤	[Shutter]	Use the pull-down menu to adjust the shutter speed.
⑥	[Gain]	Adjusts the gain. <ul style="list-style-type: none"> Click to display the slide bar. <div style="text-align: right;">  </div>

- Underlined settings are the factory defaults.
- The area of the master camera is indicated by the red frame ⑦ in the main area.

Making adjustments on the advanced adjustment screen (Detail Mode)



- 1 Click the advanced adjustment tab ①.
- 2 (When [Detail] is displayed) Click [Detail] ② to switch to Detail Mode.
- 3 Click the item to be set.

③	[Mode]	[Auto]	Use the pull-down menu to change the mode.
		[Manual]	

- The following items can only be set when [Mode] is set to [Manual].

④	[Shutter]	Use the pull-down menu to adjust the shutter speed.
⑤	[Gain]	Adjusts the gain. <ul style="list-style-type: none"> • Click to display the slide bar.



- [■] ⑥ is displayed for the selected camera unit.
- The area of the selected camera unit is indicated by the red frame ⑦ in the main area.

- You may see a band of light around an object that is shining very bright, or highly reflective.
- If you record an extremely bright object or record under indoor lighting, color and screen brightness may change or vertical lines may appear on the screen. In this case, change settings as follows.
 - Adjust the shutter speed to 1/50, 1/60 or 1/100.
- If the gain value is increased, the noise on the screen increases.

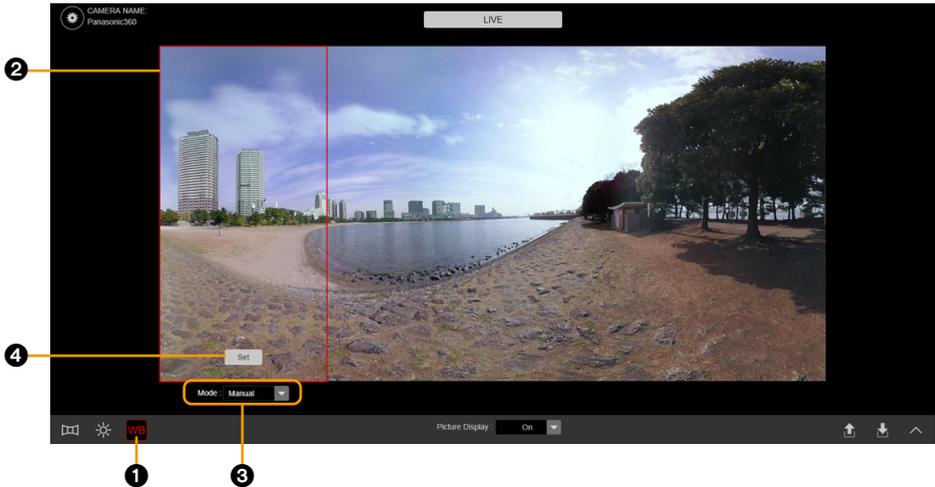
White Balance

Adjust the White Balance.

In Master Camera Mode, it is possible to apply the setup of the master camera to all areas of the 360-degree video through coordinated White Balance control. The setup can only be configured on the advanced adjustment screen. (→ 35)

It is possible to fine-adjust the White Balance on the advanced adjustment screen. (→ 35, 36)

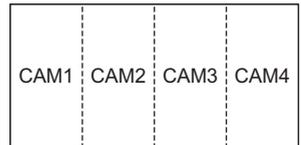
- **Factory settings:** Master Camera Mode (CAM2)



1 Click the White Balance adjustment button ①.

2 Click the main area ② to select the camera unit to be adjusted.

- In Master Camera Mode (factory settings), it is not possible to select a camera unit on the main area. Switch to Detail Mode on the advanced adjustment screen. (→ 36)
- The area corresponding to the selected camera unit is indicated by the red frame.



3 Use the pull-down menu ③ to change the mode.

[Auto]	Adjusts the level automatically.
[Manual]	Adjusts the level manually.

4 (When [Manual] has been selected) Click the button specified below.

④	[Set]	Adjusts the White Balance when clicked. <ul style="list-style-type: none"> • To adjust the White Balance to suit the recording conditions, align the center of the red frame ② with a white object.
---	-------	--

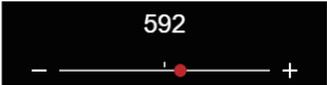
Making adjustments on the advanced adjustment screen (Master Camera Mode)



- 1 Click the advanced adjustment tab ①.
- 2 (When [Master] is displayed) Click [Master] ② to switch to the Master Camera Mode.
- 3 Click the item to be set.

③	[Master]	[CAM1]	Use the pull-down menu to change the master camera. <ul style="list-style-type: none"> The White Balance of the master camera is applied to all areas of the 360-degree video.
		[CAM2]	
		[CAM3]	
		[CAM4]	
④	[Mode]	[Auto]	Use the pull-down menu to change the mode. <ul style="list-style-type: none"> When [Auto] is selected, the White Balance adjusted automatically by the master camera is applied to all areas of the 360-degree video.
		[Manual]	

- The following items can be set only when [Mode] is set to [Manual].

⑤	[B Gain]	Adjusts the blue level.	<ul style="list-style-type: none"> Click to display the slide bar. 
		Adjusts the red level.	
⑦	[WB Set]	Adjusts the White Balance when [Set] is clicked. <ul style="list-style-type: none"> To adjust the White Balance to suit the recording conditions, align the center of the red frame ⑧ with a white object. The setting is applied to [B Gain] and [R Gain]. 	

- Underlined settings are the factory defaults.
- The area of the master camera is indicated by the red frame ⑧ in the main area.

Making adjustments on the advanced adjustment screen (Detail Mode)



- 1 Click the advanced adjustment tab ①.
- 2 (When [Detail] is displayed) Click [Detail] ② to switch to Detail Mode.
- 3 Click the item to be set.

③	[Mode]	[Auto]	Use the pull-down menu to change the mode.
		[Manual]	

- The following items can be set only when [Mode] is set to [Manual].

④	[B Gain]	Adjusts the blue level.	<ul style="list-style-type: none"> • Click to display the slide bar. 
		Adjusts the red level.	
⑤	[R Gain]	Adjusts the red level.	
⑥	[WB Set]	Adjusts the White Balance when [Set] is clicked.	<ul style="list-style-type: none"> • To adjust the White Balance to suit the recording conditions, align the center of the red frame ⑤ with a white object. • The setting is applied to [B Gain] and [R Gain].
		<ul style="list-style-type: none"> • To adjust the White Balance to suit the recording conditions, align the center of the red frame ⑤ with a white object. • The setting is applied to [B Gain] and [R Gain]. 	

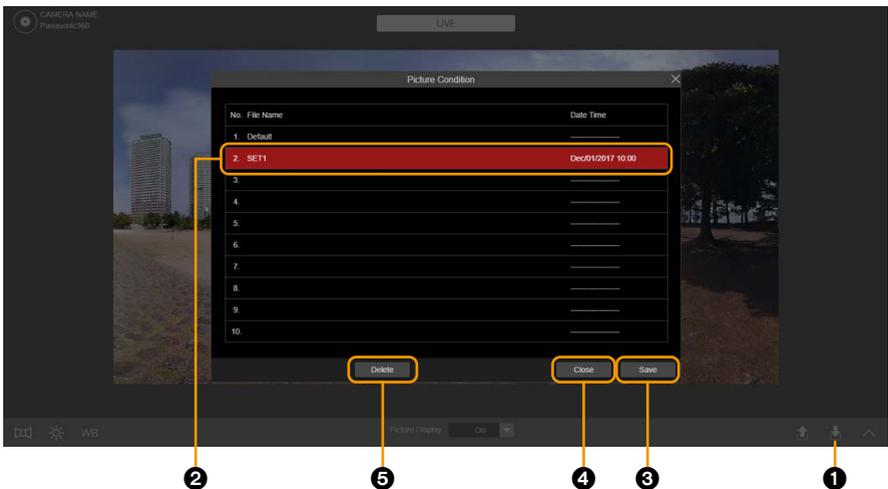
- [] ⑦ is displayed for the selected camera unit.
- The area of the selected camera unit is indicated by the red frame ⑧ in the main area.

Saving/loading the image quality setup information

A maximum of 10 items of image quality setup information can be saved. It is also possible to load saved setup information.

- The following types of setup information can be saved/loaded.
 - Exposure adjustment
 - White balance
 - The settings of [Upside-down] on the system setup screen ([System Mode])
 - The settings of [Offset], [ZOOM] and [Posture On The Camera] on the camera setup screen ([Camera])
 - The settings of [Picture Shift], [Parallax Correction], and [Flare Mitigation] on the stitching setup screen ([Stitching])
- When setup information is saved, the time it is saved will be recorded on it. Please note, however, that the clock is not set by default. To record the time when setup information is saved, set [Clock]. (→ 40)

Saving image quality setup information



- 1 Click the save image quality setup button ①.
- 2 Click the save destination ②.
- 3 Click the [Save] button ③, and enter a name.

- You can enter between 1 to 64 half-size characters.
- The following characters can be displayed.

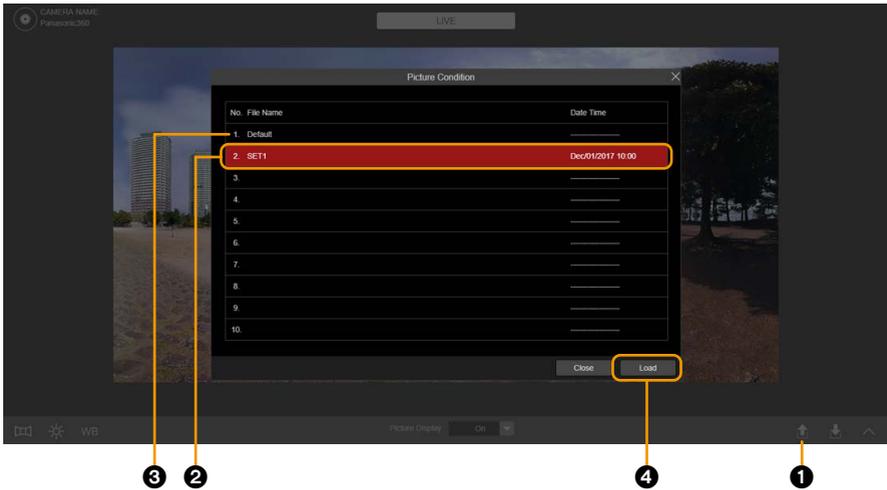
Half-size numeric characters	0123456789
Half-size alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
Symbols	!#\$%&'()*+,-./:;=?@[]^_`{ }~¥

- 4 Click the [OK] button to save the setup information.
 - After the setting has been completed, click the [Close] button ④ to close the setup screen.

■ Deleting image quality setup information

- 1 Click the setup information to be deleted.
- 2 Click [Delete] button ⑤.

Loading image quality setup information



- 1 Click the load image quality setup button ①.
- 2 Click the setup information to be loaded ②.
 - Select [Default] ③ to return the image quality settings to the factory defaults.
- 3 Click the [Load] button ④ to load the setup information.

Settings screen

Configure the unit's settings other than those of picture quality.



- 1 Click the settings button ①.
- 2 Click the tab to be set in ② to display the setup screen corresponding to the tab.

[General]	Displays the basic setup screen.	→ 40
[Video Output]	Displays the image output setup screen.	→ 42
[System Mode]	Displays the system setup screen.	→ 43
[Networks]	Displays the network setup screen.	→ 44
[Camera]	Displays the camera setup screen	→ 49
[Stitching]	Displays the stitching setup screen.	→ 50
[SD Card Format]	Displays the memory card format screen.	→ 51
[Product Info.]	Displays the product information screen.	→ 52
[Hour Meter]	Displays the hour meter screen.	→ 53

- For details about the setup screen for each tab, refer to the corresponding page.

- 3 Change the settings on the setup screen ③.
- 4 Click the [OK] button ④ to complete the setup changes.
 - The setup screen will close when this operation is performed.
 - Click the [Cancel] button to close the setup screen without applying the setup changes.
 - Click the [Apply] button to apply the setup changes while leaving the setup screen open.

Basic setup screen [General]

Configure the unit's basic settings such as device name and user authentication.



1 Camera Name

Input the name of the camera here.

When the [OK] button is clicked, the input name appears in the camera title display area.

Factory settings: Panasonic360

- You can enter between 1 to 32 half-size characters.
- The following characters can be displayed.

Half-size numeric characters	0123456789
Half-size alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
Symbols	! # \$ % ' () * + , - . / : ; = ? @ [] ^ _ ` { } ~ ¥

2 Clock

Configure the settings for the clock. Click the [Setting] button to display the clock setup screen.

Configure the settings for the month, day, year, hour, and minute on the clock setup screen. The unit's clock is set when the [OK] button is clicked.

Setting value: JAN/1/2000 00:00 to DEC/31/2037 23:59

Factory settings: JAN/1/2017 00:00

- The data display format is MMM/DD/YYYY.
- The time is in the 24-hour format.

3 Settings Reset

Click the [Reset] button to reset the unit's settings to the factory defaults.

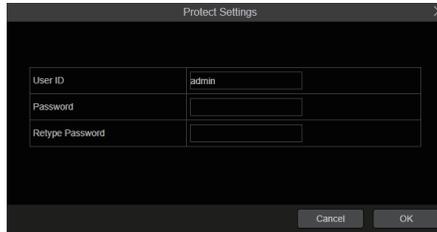
- The settings of [Clock] (→ 40), user name and password information ([Protect]: → 41), [Networks] (→ 44), [Camera] (→ 49), and [Hour Meter] (→ 53) will remain the same.
- Turn off and on the unit after changing the setting.

4 Protect

Configure the user authorization settings for the personal computers and iPad that can access the unit.
Click the [Setting] button to display the user authentication setup screen.

- Log in again after changing the settings.

■ User authentication setup screen



User ID

The user name is input here.

Enter the setting using the [OK] button.

Factory settings: admin

- You can enter between 1 to 32 half-size characters.
- The following characters can be displayed.

Half-size numeric characters	0123456789
Half-size alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Password

Retype Password

The password is input here.

Enter the setting using the [OK] button.

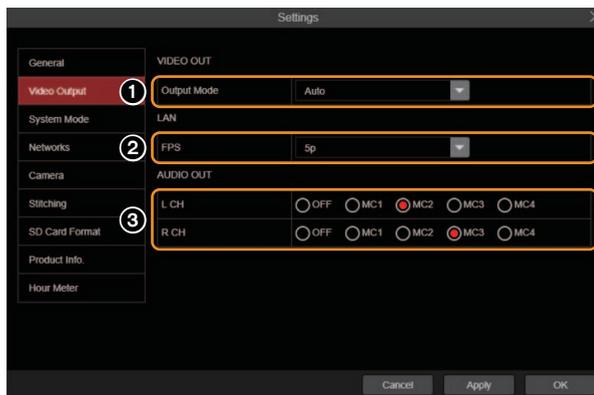
Factory settings: 12345

- You can enter between 4 to 32 half-size characters.
- The following characters can be displayed.

Half-size numeric characters	0123456789
Half-size alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Image output setup screen [Video Output]

Configure the settings for outputting images to the external device through the HDMI Cables.



VIDEO OUT

1 Output Mode

Changes the output resolution of images that are output to the external device through the HDMI Cables. The available setting values vary depending on the [Capture Mode] setting.

[Capture Mode] setting	Setting value	System frequency	Output resolution	Frame rate
NTSC	<u>Auto</u>	59.94Hz	These settings change automatically to suit the connected device.	
	3840×2160/29.97p		3840×2160	29.97p
	1920×1080/59.94p		1920×1080	59.94p
	1920×1080/29.97p		1920×1080	29.97p
PAL	<u>Auto</u>	50.00Hz	These settings change automatically to suit the connected device.	
	3840×2160/25p		3840×2160	25.00p
	1920×1080/50p		1920×1080	50.00p
	1920×1080/25p		1920×1080	25.00p

- Underlined settings are the factory defaults.
- Turn off and on the unit after changing the setting.

LAN

2 FPS

Changes the unit's IP image frame rate for wired LAN transmission.

Setting value: NTSC:15p PAL:12.5p, 5p

Factory settings: 5p

- The IP image resolution will be set to 1240×620.

Audio Out

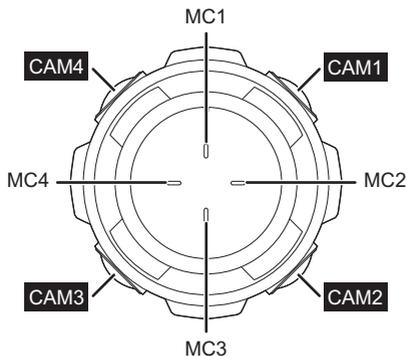
③ L CH/R CH

Sets the Camera Head's built-in microphones (MC1-MC4) to be used as L CH/R CH devices that output audio through the HDMI Cables.

Setting value: L CH/R CH (OFF, MC1, MC2, MC3, MC4)

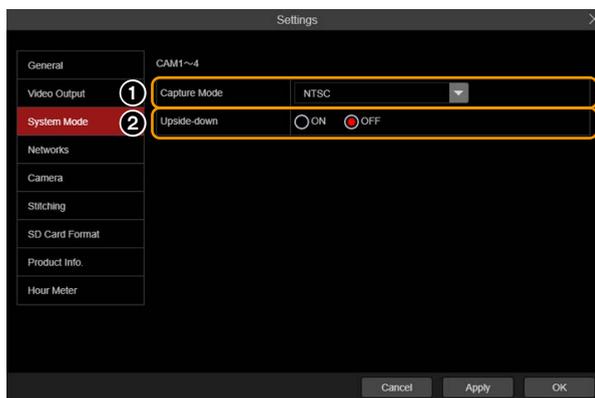
Factory settings: L CH (MC2)/R CH (MC3)

- Audio is not provided for IP images output to the web screen.



System setup screen [System Mode]

Configure the settings for outputting the Camera Head's images to the unit.



CAM1~4

① Capture Mode

This changes the system frequency of the Camera Head's images that are output to the unit.

Setting value	System frequency	Output resolution
NTSC	59.94Hz	1920×1080
PAL	50.00Hz	1920×1080

Factory settings: NTSC

- Turn off and on the unit after changing the setting.

② Upside-down

This flips the 360-degree video output from the unit upside-down.

Setting value: ON, OFF

Factory settings: OFF

- Use this function for suspended (upside-down) installation.
- If you select [ON], the camera unit positions in [Picture Shift] (→ 50) will be rearranged in reversed left-right order.
- If you select [ON], the left-right positions of the built-in microphones with respect to the images will be reversed, but the [L CH/R CH] (→ 43) settings will not be changed. Reset the settings as necessary.

Network setup screen [Networks]

Configure network settings.

- The following information is required to configure network settings. Consult your network administrator.
 - IP address
 - Subnet mask
 - Default gateway (when using a gateway server or router)
 - HTTP port
 - DNS primary and secondary server addresses (when using DNS)
- The unit does not support an IPv4/IPv6 switching function. (It only supports IPv4)



- A connection cannot be made unless the combination of the IP address, subnet mask, and gateway are correct.
- Establish a connection again after changing the settings.

1 DHCP

Whether the DHCP function is to be used is set by selecting [ON] or [OFF] here. Set the DHCP server in such a way that the same IP address cannot be used by personal computers without the DHCP function or by other network cameras.

For details on the server settings, consult your network administrator.

Factory settings: OFF

The IP address that was automatically assigned with DHCP can be viewed using the “Easy IP Setup Software”. (Windows only) The software can be downloaded from the support website below.

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

- The network settings of the unit cannot be configured with the “Easy IP Setup Software”.

2 IP address(IPv4)

Input the unit’s IP address here when the DHCP function is not going to be used. Input an address that will not duplicate an existing IP address which has been set for a personal computer or another network camera.

Factory settings: 192.168.0.10

- Multiple IP addresses cannot be used even when the DHCP function is used. For details on the DHCP server settings, consult your network administrator.

3 Subnet Mask

Input the unit’s subnet mask here if the DHCP function is not going to be used.

Factory settings: 255.255.255.0

④ Default gateway

Input the unit's default gateway if the DHCP function is not going to be used.

Factory settings: 192.168.0.1

- Multiple IP addresses cannot be used for the default gateway even when the DHCP function is used. For details on the DHCP server settings, consult your network administrator.
- When not using the gateway, set it to [0.0.0.0].

⑤ DNS

Whether the DNS server address is to be acquired automatically (Auto) or manually (Manual) is input here. If [Manual] has been selected, the DNS settings must be established. If [Auto] is selected when the DHCP function is going to be used, the DNS server address is acquired automatically. For further details, consult your system administrator.

Setting value: Auto, Manual

Factory settings: Manual

⑥ Primary Server Address

Factory settings: 192.168.0.1

⑦ Secondary Server Address

Factory settings: blank

Input the IP address of the DNS server if the [Manual] setting has been selected for [DNS].

For details on the IP address of the DNS server, consult your system administrator.

⑧ Port

Port numbers are allocated.

Setting range: 1 to 65535

The following port numbers are used by the unit so they cannot be used.

20, 21, 23, 25, 42, 53, 67, 68, 69, 110, 123, 161, 162, 554, 995, 10669, 10670, 59000 to 61000

Factory settings: 80

- If you set [Protocol] (→ 46) to [https], [Port] will be automatically set to [443]; if you set [Protocol] to [http], [Port] will be automatically set to [80].

⑨ Proxy

When using a proxy server, enter its IP address. Contact the system administrator for information about the IP address of the proxy server.

Factory settings: blank

⑩ Protocol

This sets the method to connect to the unit.

Setting value:

http	Only HTTP connection is possible.
https	Only HTTPS connection is possible. <ul style="list-style-type: none">● If you select [https], the unit cannot be connected from an iPad.

Factory settings: http

- If you set [Protocol] to [https], [Port] will be automatically set to [443]; if you set [Protocol] to [http], [Port] will be automatically set to [80].
- Establish a connection again after changing the [Protocol] setting.

For details about the steps to follow when [https] is set, refer to “Accessing the unit from the PC by HTTPS” (→ 47).

- The unit uses a self-signed certificate for HTTPS connections. It is not possible to use a server certificate.
- When accessing the unit by HTTPS, the image display speed may reduce.
- When accessing the unit by HTTPS, it may take some time for the images to be displayed.
- When accessing the unit by HTTPS, images may be disturbed and sound may be interrupted.

Accessing the unit from the PC by HTTPS

- 1 Launch the web browser in your personal computer.
- 2 Enter the IP address of the unit in the address bar of the web browser.
 - Example of input: `https://192.168.0.10/`

If the port number is set to a value other than [443] ([Port]: → 45)

- Enter [`https://<IP address of the unit>:<port number>`] into the address bar.
Example: `https://192.168.0.10:XXXX`
[XXXX] represents the port number.

- Set a proxy server in Internet Settings or Network Settings to ensure that a proxy server is not used for a local address.

- 3 Press the [Enter] key.
 - The Login screen is displayed.

If one of the following messages appears, proceed to the steps below.

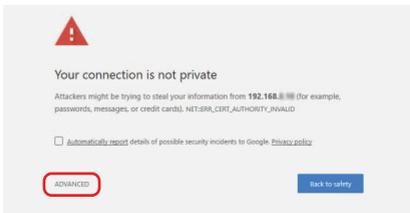
Windows	[Your connection is not private]
Mac	[Safari can't verify the identity of the website "XXX.XXX.X.XXX".]

- [XXX.XXX.X.XXX] indicates the IP address of the unit.

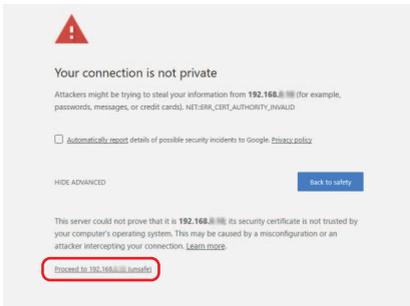
- When one of the above messages is displayed after accessing a device apart from the unit or a website whose address is not the address specified for the unit, there may be a security problem, so please be careful.

■ Windows

- 1 Click [ADVANCED].



- 2 Click [Proceed to XXX.XXX.X.XXX (unsafe)].
 - [XXX.XXX.X.XXX] indicates the IP address of the unit.



- The Login screen is displayed.

■ Mac

1 Click [Show Certificate].



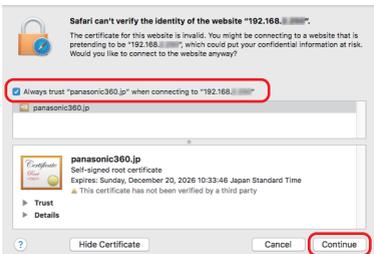
- If you click [Continue], this message may not appear again and, as a result, you may not be able to access the unit.

To display the message again, try the following operations and access the address again.

- If the certificate of the unit is stored in [Keychain Access] in [Utilities], delete it.
- Restart the PC (Mac).

If the message still does not reappear, change the IP address of the unit and access the new address to display the message again.

2 Check the checkbox asking you to always trust the certificate when connecting to the unit, and click [Continue].



- A message may appear prompting you to update the certificate. Enter the password to update.
- The Login screen is displayed.

-
- When HTTPS is used, screen and image display may slow down and image update interval (frame rate) may also slow down.

Camera setup screen [Camera]

Adjust the area displayed by each camera unit.



- Select the camera unit in ① and set the items ②-④.
- If you change any setting of ② [Offset], ③ [ZOOM] or ④ [Posture On The Camera] or if you click the [Default] button of ⑤ [Default Data Set], the automatic parallax correction setting ([Parallax Correction]: → 50) will change to [Off].
- If you set the Automatic Parallax Correction to [Auto] after changing the values of these items, the values will be reset to the factory defaults. To save the set values, save them as image quality setup information. (→ 37)

① Camera Configuration

Sets the camera unit to be fine-adjusted.

Setting value: 1 (CAM1), 2 (CAM2), 3 (CAM3), 4 (CAM4)

② Offset

Sets the X (vertical) and Y (horizontal) offset coordinates of the optical center to move the image.

Setting value: X (-100 to 100), Y(-100 to 100)

- At the time of shipment, the fields for this item are set to the values pre-selected at the factory.

③ ZOOM

Sets the image scale to magnify/reduce the image.

Setting value: 0.9 to 1.1

- At the time of shipment, the field for this item is set to the value pre-selected at the factory.

④ Posture On The Camera

Sets the position of the camera.

Setting value:

PAN	CAM1	-145.0 to -125.0
	CAM2	-55.0 to -35.0
	CAM3	35.0 to 55.0
	CAM4	125.0 to 145.0

TILT	-20 to 20
ROLL	80 to 100

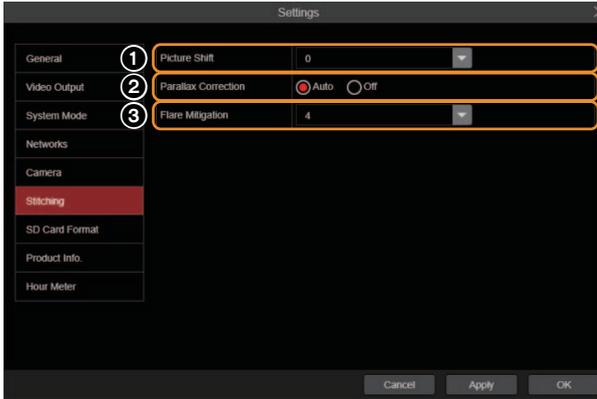
- At the time of shipment, the fields for this item are set to the values pre-selected at the factory.

⑤ Default Data Set

Click the [Default] button to reset the settings of the camera setup screen to the factory defaults. The settings of all the camera units will be reset.

Stitching setup screen [Stitching]

Configure the stitching settings for combining images into 360-degree video.



1 Picture Shift

Rearranges the camera unit images of the 360-degree video.

Setting value: 0 to 3

0	1	2	3																
<table border="1"> <tr> <td>CAM 1</td> <td>CAM 2</td> <td>CAM 3</td> <td>CAM 4</td> </tr> </table>	CAM 1	CAM 2	CAM 3	CAM 4	<table border="1"> <tr> <td>CAM 2</td> <td>CAM 3</td> <td>CAM 4</td> <td>CAM 1</td> </tr> </table>	CAM 2	CAM 3	CAM 4	CAM 1	<table border="1"> <tr> <td>CAM 3</td> <td>CAM 4</td> <td>CAM 1</td> <td>CAM 2</td> </tr> </table>	CAM 3	CAM 4	CAM 1	CAM 2	<table border="1"> <tr> <td>CAM 4</td> <td>CAM 1</td> <td>CAM 2</td> <td>CAM 3</td> </tr> </table>	CAM 4	CAM 1	CAM 2	CAM 3
CAM 1	CAM 2	CAM 3	CAM 4																
CAM 2	CAM 3	CAM 4	CAM 1																
CAM 3	CAM 4	CAM 1	CAM 2																
CAM 4	CAM 1	CAM 2	CAM 3																

Factory settings: 0

- If you set [Upside-down] (→ 43) to [ON], the camera unit positions will be rearranged in reversed left-right order.

0	1	2	3																
<table border="1"> <tr> <td>CAM 4</td> <td>CAM 3</td> <td>CAM 2</td> <td>CAM 1</td> </tr> </table>	CAM 4	CAM 3	CAM 2	CAM 1	<table border="1"> <tr> <td>CAM 1</td> <td>CAM 4</td> <td>CAM 3</td> <td>CAM 2</td> </tr> </table>	CAM 1	CAM 4	CAM 3	CAM 2	<table border="1"> <tr> <td>CAM 2</td> <td>CAM 1</td> <td>CAM 4</td> <td>CAM 3</td> </tr> </table>	CAM 2	CAM 1	CAM 4	CAM 3	<table border="1"> <tr> <td>CAM 3</td> <td>CAM 2</td> <td>CAM 1</td> <td>CAM 4</td> </tr> </table>	CAM 3	CAM 2	CAM 1	CAM 4
CAM 4	CAM 3	CAM 2	CAM 1																
CAM 1	CAM 4	CAM 3	CAM 2																
CAM 2	CAM 1	CAM 4	CAM 3																
CAM 3	CAM 2	CAM 1	CAM 4																

2 Parallax Correction

Changes the automatic parallax correction setting.

If [Auto] is selected, the stitching seams between images are adjusted automatically according to the movement of and changes in each subject.

Setting value: Auto, Off

Factory settings: Auto

- If you select [Auto], the settings of the items on the camera setup screen (→ 49) will be reset to the factory defaults.

3 Flare Mitigation

Changes the effectiveness of the flare mitigation function.

Setting value: 0 (no compensation) to 7 (most effective)

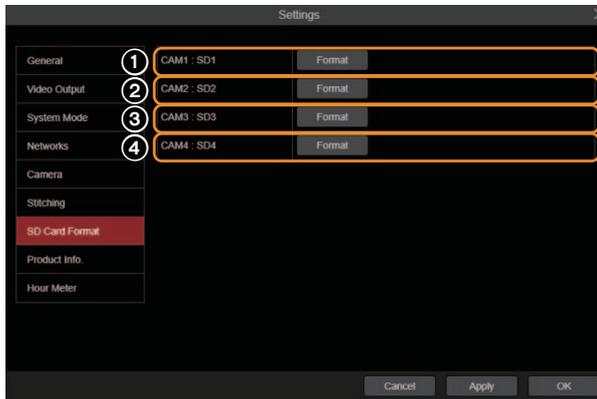
Factory settings: 4

Memory card format screen [SD Card Format]

Format a microSD card in the Camera Head.

To update the firmware of the Camera Head, format a microSD card on the unit.

- Please be aware that if a medium is formatted, then all the data recorded on the medium will be erased and cannot be restored. Back up important data on a PC etc.



1 CAM1: SD1

2 CAM2: SD2

3 CAM3: SD3

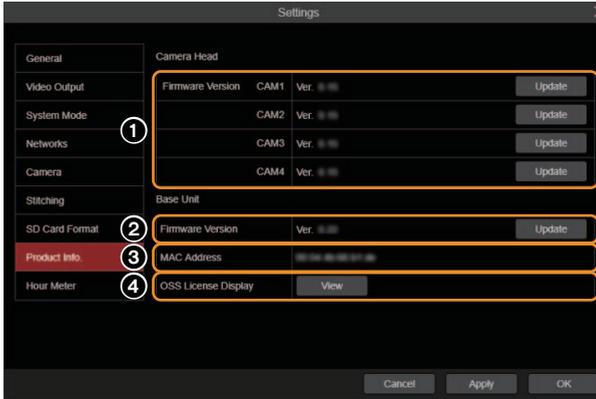
4 CAM4: SD4

Click the appropriate [Format] button to format the microSD card inserted in the desired microSD card slot (CAM1-CAM4) of the Camera Head.

- Do not turn this unit off or remove the microSD card, while formatting. Do not expose the unit to vibrations or shock.

Product information screen [Product Info.]

Product information, such as the firmware versions of this unit and the Camera Head, are displayed.



Camera Head

❶ Firmware Version (CAM1-CAM4)

Displays the firmware version of the Camera Head.

■ To update the firmware of the Camera Head

- 1 Download the update file available from the support website, and save it on a microSD card. (→ 53).
- 2 Insert the microSD card containing the update file into the appropriate microSD card slot (CAM1-CAM4) of the Camera Head.
- 3 Click the appropriate [Update] button located by [Firmware Version (CAM1-CAM4)] under [Camera Head] on the product information screen to start the update.

- Refer to page 53 for firmware update information.

Base Unit

❷ Firmware Version

Displays the firmware version of the unit.

■ To update the firmware of the unit

- 1 Download and save the update file available on the support website to the PC (→ 53).
- 2 Click the [Update] button located by [Firmware Version] under [Base Unit] on the product information screen.
- 3 Click [Browse...], and select the update file that has been saved on the PC.
- 4 Click the [OK] button to start the update.

- Refer to page 53 for firmware update information.

❸ MAC Address

The unit's MAC address is displayed here.

❹ OSS License Display

When you press the [View] button, the OSS license appears.

Press the [OK] button to close the OSS license display screen.

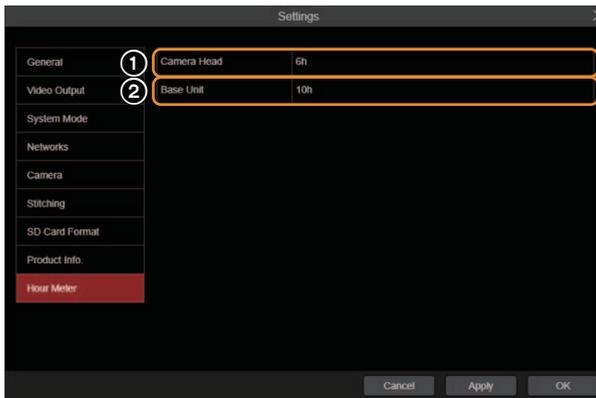
Firmware update information

For the most current information regarding the update, confirm at the following support site.

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

- Updating is not possible with illegal firmware files.
- It takes about 40 minutes to update the firmware of the unit. Use a DC power source with enough charge. Do not operate the unit while a firmware update is in progress.
The status indicator will flash in green when the update is complete. Turn off and on the unit.
- When updating the firmware of the Camera Head:
 - Before updating the firmware with a microSD card, perform [SD Card Format] (→ 51) to format the card.
 - Update all of the camera units (CAM1-CAM4) to the same version. The Camera Head does not operate properly if the camera units run different versions.
 - Turn off and on the unit after the update is complete. Go to [Firmware Version] (CAM1-CAM4) (→ 52) to confirm that the firmware of the Camera Head has been updated.
- Do not turn off the unit while an update is in progress. Keep in mind that if the unit is turned off, the update will not complete.

Hour meter screen [Hour Meter]



The total operating times of the unit and the Camera Head are displayed. (Up to 999999h)

1 Camera Head

Displays the Camera Head's total operating time.

2 Base Unit

Displays the unit's total operating time.

Warning Indications

If a problem is detected immediately after the unit is turned on or while you are operating it, the status indicators of the unit and the Camera Head and a web screen indication report the problem.

Camera Head connection error	Status indicator	The status indicator of the unit flashes in red.
	Web screen indication	The message [Check Cable. Turn Power Off.] is displayed.
	Meaning of the warning	There is a problem in the connection to the Camera Head.
	Operation of the unit	The operation stops.
	Solution	Turn off the unit, check the connection to the Camera Head, and turn on the unit again.
Firmware version error	Status indicator	The status indicators of the unit and the Camera Head light up in red.
	Web screen indication	The message [Firmware update.] is displayed.
	Meaning of the warning	Older firmware versions are running on some of the camera units of the Camera Head.
	Operation of the unit	The operation continues.
	Solution	Update the firmware of the camera units that are running older versions.
Restart request	Status indicator	The status indicator of the unit flashes in red once every 1 second.
	Web screen indication	The message [Turn Power Off.] is displayed.
	Meaning of the warning	The unit needs to be restarted.
	Operation of the unit	The operation stops.
	Solution	Press the power button to turn off the unit, and then press the power button again to turn it on. If the warning persists, consult your dealer.
Low input voltage	Status indicator	The status indicators of the unit and the Camera Head light up in red.
	Web screen indication	The message [Check Battery.] is displayed.
	Meaning of the warning	The voltage of the DC power supply is low.
	Operation of the unit	The operation stops. This unit turns off automatically.
	Solution	Replace the DC power supply.

Camera Head The cooling fan has stopped Abnormally high temperature	Status indicator	The status indicators of the unit and the Camera Head light up in red.
	Web screen indication	The message [Fan Error in Camera Head. Turn Power Off.] is displayed.
	Meaning of the warning	The cooling fan of the Camera Head has stopped due to an error in the fan. The internal temperature of the Camera Head has risen above the acceptable range.
	Operation of the unit	The operation continues.
	Solution	Turn off the unit. Check to see if something is blocking the air inlet or exhaust opening of the cooling fan of the Camera Head. Wait for a while until the Camera Head's temperature drops, and turn on the unit again. If the warning still persists, consult your dealer.
Base Unit The cooling fan has stopped	Status indicator	The status indicator of the unit flashes in red.
	Web screen indication	The message [Fan Error in Base Unit. Turn Power Off.] is displayed.
	Meaning of the warning	The cooling fan of the unit has stopped due to an error in the fan.
	Operation of the unit	The operation continues.
	Solution	Turn off the unit. Check to see if something is blocking the air inlet or exhaust opening of the cooling fan of the unit, and turn on the unit again. If the warning still persists, consult your dealer.

Maintenance

Messages

Major confirmation/error messages to be indicated on the Web screen in text.

Display	Description	Behavior and cause
[Entered information is incorrect. Enter again.]	This appears when you have entered an invalid value or left a required field blank.	<ul style="list-style-type: none"> • Check the information you have entered, and re-enter it correctly.
[Card Error.]	A management information error has been found in a microSD card in the Camera Head.	<ul style="list-style-type: none"> • The management information will be automatically recovered after this message is displayed.
[Check Card.]	This appears when formatting of a microSD card in the Camera Head has failed.	<ul style="list-style-type: none"> • Check the microSD card. • Replace the microSD card that has caused this error.
[Failed firmware update. Turn Power Off.]	This appears when the unit's firmware version update has failed.	<ul style="list-style-type: none"> • After turning off the unit, check the update procedure and perform the update again.
[Check Network.]	This appears when LAN communication with the unit has been lost.	<ul style="list-style-type: none"> • Check LAN connection to the unit. • Check the [Networks] settings (→ 44).

Troubleshooting

■ It is not a malfunction in following cases

Object seems to be warped.	<ul style="list-style-type: none"> Object seems to be warped slightly when the object moves across the image very fast, but this is because the Camera Head is using MOS for the image sensor. This is not a malfunction.
----------------------------	--

■ Power

Problem	Check points
This unit cannot be turned on. This unit does not stay on long enough.	<ul style="list-style-type: none"> Connect the Camera Head Option cable correctly. (→ 19) Confirm if the DC cable is correctly connected.
This unit cannot be operated though it is turned on. This unit does not operate normally.	<ul style="list-style-type: none"> Press the power button of the unit for 10 seconds or more to force shut down the unit. After forcing the unit to shut down, remove the DC cable, wait about 1 minute and then reconnect the DC cable. Then about 1 minute later, turn on the unit again. If normal operation is still not restored, detach the power connected, and consult the dealer who you purchased this unit from.
[Turn Power Off.] is displayed on the Web screen.	<ul style="list-style-type: none"> Press the power button to turn off the unit, and then press the power button again to turn it on. Repair is needed if it is repeatedly displayed even if it is restarted. Detach the power connected, and consult the dealer who you purchased this unit from. Do not attempt to repair the unit by yourself.
The status indicator is lit or flashing in red.	<ul style="list-style-type: none"> An error has occurred. Refer to warning indications. (→ 54)

■ Shooting

Problem	Check points
Color or brightness of the image changes, or you may see vertical bars in the image. The image flickers indoors.	<ul style="list-style-type: none"> Color or brightness of the image may change, or you may see vertical bars in the image when the object is recorded under fluorescent light, mercury light or sodium light, etc., but this is not a malfunction. Set the [Mode] for exposure adjustment to [Manual], and set the shutter speed to 1/50, 1/60 or 1/100.
No pictures are displayed or the pictures are disturbed	<ul style="list-style-type: none"> Confirm if the connected device is correctly connected. Confirm if the image signal setup is correctly selected. (→ 42)
Something is wrong with the coloring of the pictures	<ul style="list-style-type: none"> Set the [Mode] for White Balance to [Auto]. (→ 34) In some situations, the proper colors may not be reproduced using the [Auto] function. In cases like this, proceed with the white balance adjustment. (→ 34)

Problem	Check points
The pictures are too light or too dark	<ul style="list-style-type: none"> Set the [Mode] for exposure adjustment to [Auto]. (→ 31)
When fine lines or cyclical patterns are shot, flickering is seen or coloring is added to them	<ul style="list-style-type: none"> This phenomenon occurs because the pixels are arranged systematically on each image sensor. It is noticeable when the spatial frequency of a subject and the pixel pitch are brought into proximity so change the camera angle or take other such action.
Noise occurs in the audio input	<ul style="list-style-type: none"> Confirm the following. <ul style="list-style-type: none"> Are the Camera Head, the unit, the switching hub, or other peripheral devices grounded? Are power lines are running nearby? Is equipment generating strong electric or magnetic fields (e.g., television and radio antennas, air conditioning compressors, power transformers) located nearby?
Noticeable seams appear on the 360-degree video. The subjects look unnatural in the combined image.	<ul style="list-style-type: none"> Noticeable seams may appear when the subjects move. When they appear, set the Automatic Parallax Correction Mode to [Auto]. (→ 28) When the Parallax Correction Mode is set to [Auto], a low-contrast or dark subject may cause unstable stitching operation. Noticeable seams may appear when the exposure or White Balance of the camera units are set individually. In this case, set the exposure and White Balance to Master Camera Mode. (→ 32, → 35)

■ With other products

Problem	Check points
Although this unit is correctly connected to an external monitor, images cannot be seen.	<ul style="list-style-type: none"> Please read the operating instructions of your external monitor and select the channel that matches the input used for the connection.
Even when this unit is connected to the external monitor by the HDMI Cable, images or sounds are not output.	<ul style="list-style-type: none"> Check if the HDMI Cable is connected correctly. Insert the HDMI Cable all the way in. Check what signals are supported by the HDMI monitor.
The images and sound break up.	<ul style="list-style-type: none"> When the movements of subjects are not smooth, setting the picture display ([Picture Display]: → 27) to [Off] may solve the problem. If you disconnect and connect the HDMI Cable while the unit is turned on, the images and sound may break up or stop being output. When this occurs, turn off and on the unit with the HDMI Cable plugged in.
Images do not appear.	<ul style="list-style-type: none"> If you disconnect the HDMI Cable and connect it to another device while the unit is turned on, it may take some time until images appear.

■ Others

Problem	Check points
If the microSD card is inserted in the Camera Head, it is not recognized.	<ul style="list-style-type: none"> If the microSD card is formatted on a PC, it may not be recognized by this unit. Use this unit to format microSD cards. (→ 51)

■ Web screen

Problem	Check points
I have forgotten the IP address, user name, and/or password.	<ul style="list-style-type: none"> Operate the function button (→ 17) to reset their settings to the factory defaults, and then access the unit.

Problem	Check points
I don't know the IP address.	<ul style="list-style-type: none"> ● [When using Windows] The IP address that was assigned automatically via DHCP can be checked using the "Easy IP Setup Software". The software can be downloaded from the support website below. http://pro-av.panasonic.net/ – The network settings of the unit cannot be configured with the "Easy IP Setup Software".
No access is possible from the web browser	<ul style="list-style-type: none"> ● Connect the LAN cable with Category 5 or above to the IP control LAN connector. ● Confirm illumination of the [LINK] LED on the IP control LAN connector. If it is not lit, it means that something is wrong with the connection to the LAN or that the network at the connection destination is not working properly. Check the LAN cable for defective contacts, and check the wiring. ● Confirm if this unit is turned on. If the status indicator of the unit is turned off, the unit is turned off. ● When not using the DHCP function, set a valid IP address for the unit. (→ 44) ● Confirm if wrong IP address is accessed. Connection can be confirmed by the following methods. [When using Windows] Using the Windows command prompt, execute > ping "IP address which has been set in the unit" A reply returned from the unit signifies that there are no problems in operation. [When using Mac] Using the OS X terminal, execute > ping -c 10 "IP address which has been set in the unit" A reply returned from the unit signifies that there are no problems in operation. ● Perform access via "https://" when using the HTTPS function. ● In the following cases, an additional step of entering the port number is required. <ul style="list-style-type: none"> – When [Protocol] is set to [http] and [Port] is set to a value other than [80] – When [Protocol] is set to [https] and [Port] is set to a value other than [443] ● Confirm if the set IP address is not duplicate of another device. ● Check out the IP addresses of the unit, access devices (PC/iPad, etc.) and any other cameras. ● Confirm if the set subnet mask matches the network subnet mask at the installation. Check out the subnet mask settings of the unit and access devices, and then consult with the network administrator. (→ 44) ● Check to see if a proxy server has been set in Internet Settings or Network Settings of the PC. If this is the case, it is recommended that the IP address of the unit be set as an exception (unused domain). ● The network may get disconnected when the PC goes into sleep. After canceling the sleep mode, reload the screen as necessary.
Cannot access the unit from the iPad.	<ul style="list-style-type: none"> ● It is not possible to access the unit from an iPad via HTTPS. Set the [Protocol] of the unit to [http], and access the unit again. (→ 46)

Problem	Check points
<p>Images are not displayed or updated</p> <p>The settings on the web setting screen are not updated or displayed properly</p>	<ul style="list-style-type: none"> • Images are not displayed on the web screen if the unit is not outputting them to the external device through the HDMI Cables. Verify that the unit and the external device are connected correctly with the HDMI Cables.
	<ul style="list-style-type: none"> • IP images are displayed only in the active window (the window that has been selected and responds to your operations). Ensure that the active window is used.
	<ul style="list-style-type: none"> • The images may not be refreshed or other trouble may occur with some web browsers or their version which is being used.
	<ul style="list-style-type: none"> • Image display may be suspended if the network is congested or the unit is being accessed excessively. • When the IP video settings of the unit have been changed, the display of the images may be suspended temporarily. Check the status of access to the unit, and stop any access which can be suspended. Then take one of the following steps. [When using Windows] Press the [F5] key on the keyboard of the PC to request that the settings be acquired. [When using Mac] Press the [Command] + [R] keys on the keyboard of the PC to request that the settings be acquired. [When using a iPad] Refresh the screen by, for instance, pressing the [↻] of the web browser to request that the settings be acquired.
<p>Screens displays take a while to appear and operations are slower</p>	<ul style="list-style-type: none"> • Follow the steps below to delete temporary internet files (cache). [When using Windows] <ol style="list-style-type: none"> 1 In Google Chrome, select [⋮], and go to [More tools]→[Clear browsing data→]. 2 Select [the beginning of time] from the pull-down menu where you can choose the time period you want to delete data from. 3 Check the [Cached images and files] checkbox. 4 Click [Clear browsing data]. [When using Mac] <ol style="list-style-type: none"> 1 In Safari, select [Safari]→[Preferences]→the [Advanced] tab, and check the [Show Develop menu in menu bar] checkbox. 2 Select [Develop]→[Empty Caches].
	<ul style="list-style-type: none"> • The unit's ports may be filtered by the firewall or other function of the anti-virus software. Change the port number of the unit to a port number which will not be filtered.
	<ul style="list-style-type: none"> • The display becomes slower when accessing with the HTTPS mode due to decryption.
	<ul style="list-style-type: none"> • [When using Windows] Set a proxy server with Google Chrome ([⋮] at the top right corner of the screen → [Settings] → [Show advanced settings...] → [Change proxy settings...]) to ensure that a proxy server is not used for a local address. • [When using Mac] Set a proxy server in [Network] in [System Preferences] to ensure that a proxy server is not used for a local address.
	<ul style="list-style-type: none"> • When multiple users access the unit's IP videos at the same time, image display and operations may take some time to occur, and the refresh speed of the IP videos may drop.
	<ul style="list-style-type: none"> • Depending on the performance of the PC, the screen display images will be displayed later than the actual images. Also, the motion of the screen display images may not be smooth immediately after opening the web screen.

Problem	Check points
The images break up	<ul style="list-style-type: none"> ● Convergence of transmission lines or some other factor may be making it impossible for the video information to be transmitted properly, causing the images to break up. Consult with the network administrator.
The screen goes dark when the iPad is left standing for a while	<ul style="list-style-type: none"> ● Turn the power-saving function of the iPad OFF so that images are displayed at all times.
The screen is not displayed correctly. For example, part of the screen is cut off.	<ul style="list-style-type: none"> ● [When using Windows] This may occur depending on the combination of the PC display adapter and the driver. If this occurs, update the driver of the display adaptor to the latest version first. If this does not resolve the problem, set the hardware accelerator function as follows. <ul style="list-style-type: none"> ❶ Select [⋮] at the top right corner of the Google Chrome screen, and select [Settings]. ❷ Click [Show advanced settings...]. ❸ Uncheck the [Use hardware acceleration when available] checkbox under [System]. <ul style="list-style-type: none"> – After changing the setting, Google Chrome needs to be restarted.
The images do not fit the frame used for display	<ul style="list-style-type: none"> ● Images may not be displayed correctly if you use the DPI setting of the monitor or the zoom function of Google Chrome while the web browser is open. Press the [F5] key or perform a similar update operation to fix the problem. ● If a setting other than 100 % has been selected as the magnification level used for the zoom function of Google Chrome, the images may not be displayed properly.

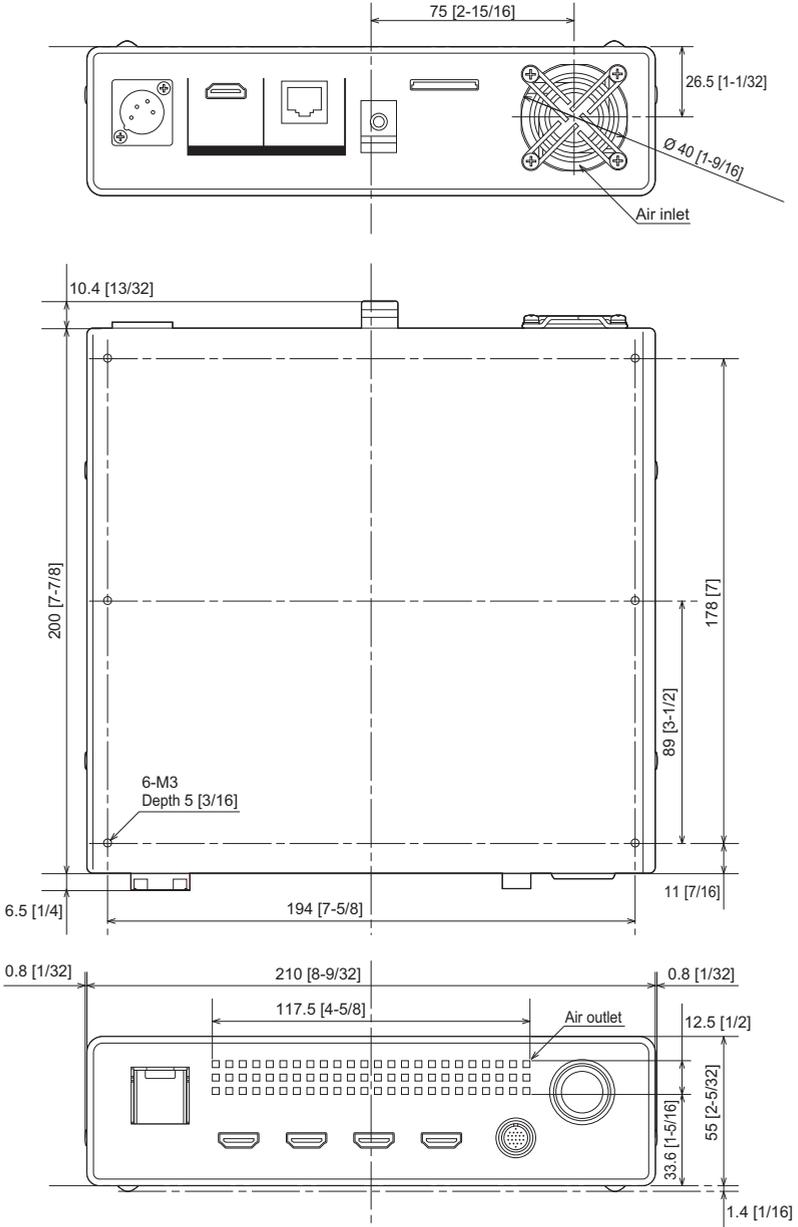
Repairing microSD cards in the Camera Head

If abnormal management information is found on a microSD card in the Camera Head, the function lamp and the Camera Head's lamp for expanded functionality will flash and the microSD card will be repaired.
(Repairing may take time depending on the error.)

- Use a DC power source with enough charge.
- Depending on the condition of the data, it may not be possible to completely repair the data.
- When data recorded on another device is recovered, it may not be possible to play back the data on the other device.
- If recovery fails, turn the unit off and on again after waiting awhile. If recovery fails repeatedly, format a media on the unit. Please be aware that if a media is formatted, then all the data recorded on the media will be erased.

Appearance

Unit: mm [inch]



Specification

360-degree Live Camera Base Unit

General

Power:

DC (===) 12 V (11.5 V - 17 V)

Power consumption:

When the special camera head (AW-360C10) is connected;
43.4 W (including the power consumed by the Camera Head)

 indicates safety information

Ambient operating temperature:

0 °C to 40 °C (32 °F to 104 °F)

Ambient operating humidity:

10% to 80% (no condensation)

Storage temperature:

-10 °C to 60 °C (14 °F to 140 °F)

Storage humidity:

30% to 80%

Mass (Weight):

Approx. 1.55 kg (Approx. 3.42 lbs.)

Dimensions (W×H×D):

210 mm×55 mm×200 mm

[8-9/32 inches×2-5/32 inches×7-7/8 inches]

(excluding projecting parts)

Stitching

Stitching format:

2:1 equirectangular projection

Shortest stitching distance:

Approx. 1 m (3.3 feet)

Shooting functions

White Balance:

Auto, Manual, WB set

Exposure:

Auto, Manual

Shutter speed;

- [Capture Mode] = [NTSC]
1/30 to 1/12000
 - [Capture Mode] = [PAL]
1/25 to 1/12000
- Gain; 0 dB to 30 dB

Digital video

System Frequency:

59.94 Hz ([Capture Mode] = [NTSC])/

50.00 Hz ([Capture Mode] = [PAL])

The setting can be changed in [Capture Mode]

Video signal for external output:

8 bit RGB

Digital audio

Audio signal for external output:

48 kHz/16 bit 2CH

Input/Output

■ Image input

CAM 1 IN terminal, CAM 2 IN terminal,

CAM 3 IN terminal, CAM 4 IN terminal

(These terminals connect to the dedicated Camera Head AW-360C10)

■ Image output

VIDEO OUT terminal:

Output format;

3840×2160/29.97p/25.00p,

1920×1080/59.94p/50.00p/29.97p/25.00p

■ Audio input

CAM 1 IN terminal, CAM 2 IN terminal,

CAM 3 IN terminal, CAM 4 IN terminal

(These terminals connect to the dedicated Camera Head AW-360C10)

■ Audio output

VIDEO OUT terminal:

2CH (Linear PCM)

External terminal

CAMERA terminal

(These terminals connect to the dedicated Camera Head AW-360C10):

20-pin dedicated interface

LAN:

IP control LAN connector (RJ-45)

With straight cable/crossover cable automatic recognition function

DC IN 12 V:

DC 12 V (11.4 V - 12.6 V) EIAJ Type4

Network section

Video compression format:

Motion JPEG

Transfer mode:

Resolution	Frame rate ^{*1}	
	System Frequency 59.94 Hz	System Frequency 50.00 Hz
1240×620	15 fps 5 fps	12.5 fps 5 fps

*1 Frame rate may lower than the setup depending on the operating condition.

Compatible protocol:

IPv4	TCP/IP, UDP/IP, HTTP, HTTPS ^{*2} , DHCP, DNS, SSL(TLS) ^{*2}
------	--

*2 It cannot be used to connect to an iPad.

IP connection cable:

LAN cable^{*3} (Category 5 or above)

Maximum of 100 m (328 feet)

*3 Recommended STP (Shielded Twisted Pair)

Panasonic Corporation

Web Site: <http://www.panasonic.com>

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