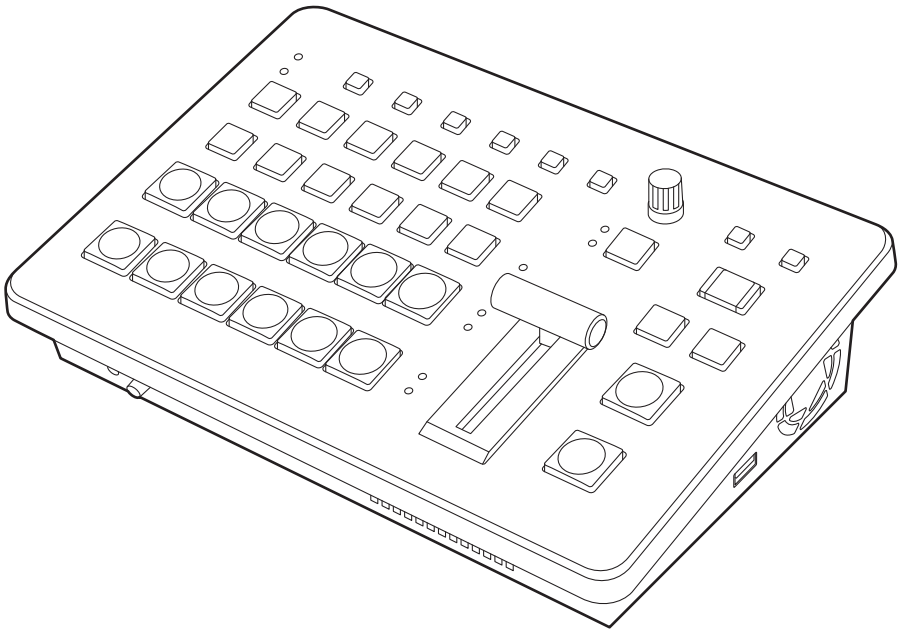
Panasonic

Operating Instructions

Compact Live Switcher

Model No. AV-HSW10P

Model No. AV-HSW10E



HDMI™

Before operating this product, please read the instructions carefully and save this manual for future use.
Please carefully read the "Read this first!" (pages 3 to 7) of this Manual before use.

PJ EJ
W1023GU2015 -FJ

ENGLISH
DVQP3077XA

- **Information on software for this product**
  1. Included with this product is software licensed under the GNU General Public License (GPL) and GNU Lesser General Public License (LGPL), and users are hereby informed that they have the right to obtain, change and redistribute the source codes of this software.
     To obtain the source codes, go to the following website:

     https://pro-av.panasonic.net/en/

     The manufacturer asks users to refrain from directing inquiries concerning the source codes they have obtained and other details to its representatives.
  2. Included with this product is software which is licensed under MIT-License.
  3. This product includes software which is licensed under FreeType Project (www.freetype.org).

  For more information about these, refer to the website below.
  https://pro-av.panasonic.net/manual/en/index.html
  Details are given in the original (English language) text.

Trademarks and registered trademarks

- 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.
- NDI® is a video connectivity technology and is registered as a trademark by Vizrt NDI AB in the United States and other countries.
- Other names of companies and products contained in these Operating Instructions may be trademarks or registered trademarks of their respective owners.

About copyright and licence

Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this unit are expressly prohibited.

Abbreviations

The following abbreviations are used in this manual.
- Personal computers are referred to as “computers” or “PCs”.
- NDI® will be referred to as “NDI”.
- "NDI HX" is used to refer to NDI® HX1 and NDI® HX2.
- NDI® High Bandwidth will be referred to as "NDI".

Illustrations and screen displays featured in the manual

- What is shown in the manual’s illustrations and screen displays may differ from how it is actually appears.

Read this first!

WARNING:

This equipment must be grounded.
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power outlet which is effectively grounded through normal household wiring.
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the ground. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power outlet is grounded or that the installation is completely safe. For your safety, if you are in any doubt about the effective grounding of the power outlet, please consult a qualified electrician.

WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

WARNING:

Always keep accessories (ground connector mounting screws, cable clamp) out of the reach of babies and small children.

WARNING:

This equipment is compliant with Class A of CISPR 32.
In a residential environment this equipment may cause radio interference.

CAUTION:

Do not remove panel covers by unscrewing.
To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside.
Refer servicing to qualified service personnel.

CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:

The mains plug of the power supply cord shall remain readily operable.
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible. To completely disconnect this equipment from the AC mains, disconnect the power cord plug from the AC receptacle.

CAUTION:

A coin type battery is installed inside of the unit.
Do not expose the unit to excessive heat such as sunshine, fire or the like.

CAUTION:

Naked flame sources, such as lighted candles, should not be placed on the apparatus.

CAUTION:

To reduce the risk of fire or electric shock caused by damage to the power supply cord, do not squeeze, bend, or pull the power supply cord when using the apparatus.

For U.S.A. and Canada

CAUTION:

This apparatus can be operated at a voltage in the range of 100 – 240 V AC.
Voltages other than 120 V are not intended for U.S.A. and Canada.
Operation at a voltage other than 120 V AC may require the use of a different AC plug. Please contact either a local or foreign Panasonic authorized service center for assistance in selecting an alternate AC plug.

▭ indicates safety information.

Read this first!

The symbols on this product (including the accessories) represent the following:

~	AC
⎓	DC

廃電池請回収

For AV-HSW10P

FCC NOTICE (USA)

Supplier's Declaration of Conformity
Model Number: AV-HSW10P
Trade Name: Panasonic
Responsible Party: Panasonic Corporation of North America
Two Riverfront Plaza, Newark, NJ 07102
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.

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

Warning:
To assure continued FCC emission limit compliance, the user must use only shielded interface cables when connecting to external units. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate it.

NOTIFICATION (Canada)

CAN ICES-003 (A)/NMB-003(A)

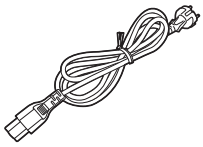
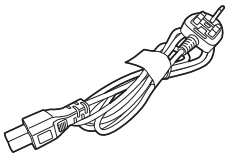
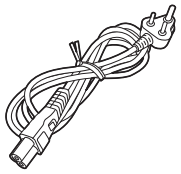
▭ indicates safety information.

For AV-HSW10E

Caution for AC Mains Lead

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.
This product is equipped with 3 types of AC mains cable.

Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

FOR CONTINENTAL EUROPE, ETC.	FOR U.K. ONLY	FOR INDIA ONLY
Not to be used in the U.K.	If the plug supplied is not suitable for your socket outlet, it should be cut off and appropriate one fitted.	
		

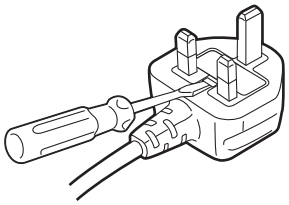
FOR U.K. ONLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 13 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark or the BSI mark on the body of the fuse.

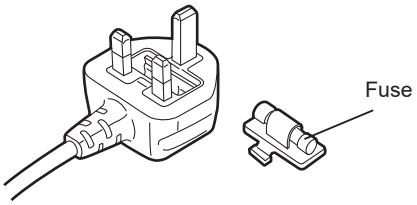
If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

How to replace the fuse

1. Open the fuse compartment with a screwdriver.



2. Replace the fuse.



indicates safety information.

Manufactured by:
Panasonic Entertainment & Communication Co., Ltd.
1-10-12, Yagumo-higashi-machi, Moriguchi City, Osaka, Japan
Importer:
Panasonic Connect Europe GmbH
Hagenauer Strasse 43, 65203 Wiesbaden, Germany
Authorized Representative in EU:
Panasonic Connect Europe GmbH
Panasonic Testing Centre
Winsbergring 15, 22525 Hamburg, Germany

Importer for UK:
Panasonic Connect UK,
a branch of Panasonic Connect Europe GmbH,
Maxis 2, Western Road, Bracknell, Berkshire, RG12 1RT

Read this first!

EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

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

<1> Peripheral equipment to be connected to the apparatus and special connecting cables

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

<2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.

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

2. Performance level

The performance level of the apparatus is equivalent to or better than the performance level required by these standards. However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

Turkey Only
AEEE Yönetmeliğine Uygundur.
AEEE Complies with Directive of Turkey.

WARNING: THIS PRODUCT CONTAINS A COIN BATTERY

- INGESTION HAZARD: This product contains a button cell or coin battery.
- DEATH or serious injury can occur in 2 hours or less if swallowed or placed inside any part of the body.
- The battery is hazardous, KEEP new and used batteries OUT OF REACH of CHILDREN.
- Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body.

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

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, 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 authority, dealer or supplier.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

Note for the battery symbol (bottom symbol):
This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

TO REMOVE BATTERY
Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

Read this first!

ІНФОРМАЦІЯ ПРО ПІДТВЕРДЖЕННЯ ВІДПОВІДНОСТІ ПРОДУКТУ

Виробник:	**Panasonic Entertainment & Communication Co., Ltd.**	**Панасонік Ентертейнмент енд Коммюнікейшн Ко., Лтд.**
Адреса виробника:	**Moriguchi, Osaka, Japan**	**Моріґучі Осака Японія**
Країна походження:	**China**	**Китай**

Імпортер:	**ТОВ “ПАНАСОНІК УКРАЇНА ЛТД”**
Адреса Імпортера:	**вул. Васильківська, буд. 30, м. 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: A – Січень, B – Лютий… L – Грудень

Information for Users in India

Information on hazardous constituents as specified in the E-Waste (Management) Rules in electrical and electronic equipment.
Declaration of Conformity with the requirements of the E-Waste (Management) Rules limits with respect to Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls,Polybrominated diphenyl ethers.
The content of hazardous substance with the exemption of the applications listed in the E-Waste (Management) Rules:
1. Lead (Pb) – not over 0.1% by weight.
2. Cadmium (Cd) – not over 0.01% by weight.
3. Mercury (Hg) – not over 0.1% by weight.
4. Hexavalent chromium (Cr6+) – not over 0.1% by weight.
5. Polybrominated biphenyls (PBBs) – not over 0.1% by weight.
6. Polybrominated diphenyl ethers (PBDEs) – not over 0.1% by weight.

For the purpose of recycling to facilitate effective utilization of resources, please return this product to a nearby authorized collection center, registered dismantler of recycler, or Panasonic service center when disposing of this product.
Customer care number (Toll free) : 1800 103 1333 ,1800 108 1333
Please see the Panasonic website for further information on collection centers, etc. or call the customer care toll-free number.
https://www.panasonic.com/in/corporate/e-waste-management.html

Do’s & Don’ts		
No.	Do’s	Don’ts
1	All electrical and electronic products are required to be handed over only to the Authorized recycler.	The product should not be opened by the user himself / herself, but only by authorized service personnel.
2	The product should be handed over only to authorized recycler for disposal.	The product is not meant for re-sale to any unauthorized agencies / scrap dealers / kabariwalas.
3	Keep the product in an isolated area, after it becomes non-functional / unrepairable so as to prevent its accidental breakage.	The product is not meant for mixing into household waste stream.
4	Refer to Operating Instructions for handling of end of life products.	Do not keep any replaced spare part(s) from the product in an exposed area.
5	Always dispose of products that have reached end of life at Panasonic Life Solutions India Authorized Service Centre.	Do not donate old electronic items to anybody. Do not dispose of your product in garbage bins along with municipal waste that ultimately reaches landfill.
6	Wherever possible or as instructed, separate the packaging material according to responsible waste disposal options and sorting for recycling.	Do not give e-waste to informal and unorganized sectors like Local Scrap Dealers / Rag Pickers.

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Before use

■ Overview

This unit is a 1 ME digital video switcher which supports a multiple number of 3G and HD formats.
Despite its compact size, it comes with four SDI inputs, two HDMI inputs, two SDI outputs, one HDMI output, four IP inputs, two IP outputs, and analog audio 2-channel input/output.
The AV-HSW10 compact live switcher, compatible with IP input/output systems such as NDI, SRT, and RTMP/RTMPS, along with 3G-SDI, has basic functions that rival those in mid-range medium-sized switchers, enabling the production of HD video.
With its excellent portability, the all-in-one main unit can easily be transported for use at a variety of live, music, sport, and entertainment events.
Furthermore, along with support for 3G/HD multiformat, it also has a variety of IP inputs and outputs, is compatible with UVC, enabling it to not only be smoothly operated at events where there are a number of cameras*1, but also to directly transmit video using a variety of methods of expression at remote locations.
The keyers, which enable a variety of program production techniques, include two keyers, including PinP 2ch and chroma key 1ch.
Furthermore, you are able to flexibly select video output to match your purposes, even when you have scenes using different formats, using the up/down converter function and the HDMI scaler function.
We have endeavored to make the product useful in a variety of portable applications, such as special event venues, broadcast vehicles, at university or company presentations, etc., and of course inside broadcasters themselves. This compact live switcher really exhibits its high performance capabilities when it produces living images on location.

*1 Panasonic 4K/HD integrated cameras and the AG-CX350 memory card camera recorder.
For 4K/HD integrated cameras that are compatible with NDI and NDI HX, refer to the following Panasonic website.
https://pro-av.panasonic.net/en/

■ Concerning the ratings display

The name, model number, and power rating for the unit are displayed on the side panel.

■ Disclaimer of warranty

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

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

■ Network security

The unit also has functions which are used when it is connected to a network. Using the unit when it has been connected to a network may possibly give rise to the following issues.

① Leakage or theft of information through this unit
② Use of this unit for illegal operations by persons with malicious intent
③ Interference with or stoppage of this 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 this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes 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.).

The following points should be borne in mind as well.

- Use with the same segment is recommended for the equipment which is connected to the unit.
  If the unit is connected to equipment whose segments are different, events dependent upon the settings inherent to the network equipment, for instance, may occur so thoroughly check the connections with the equipment to which the unit will be connected prior to the start of operation.
- Do not choose an installation location where the unit, cables and other parts will be easily damaged.
- NDI communication may become unstable in some network environments.
  Confirm the planned amount of NDI traffic by roughly calculating the volume of NDI communication, then make sure there is enough latitude in the line speed.
  When multiple references are made to a single NDI source, there is an expansion in NDI signal volume on the transmission side corresponding to the number of references.
  Investigate the use of multicasting if it appears to be required by the system design.

Precautions for use

● Handle carefully.

Do not drop the product, or subject it to strong shock or vibration.
Do not carry or move the product by the fader lever. This is important to prevent malfunctioning or accidents.

● Use the product in an ambient temperature of 0 °C to 40 °C (32 °F to 104 °F).

Avoid using the product at a cold place below 0 °C (32 °F) or at a hot place above 40 °C (104 °F) because extremely low or high temperature will adversely affect the parts inside.

● Power off before connecting or disconnecting cables.

Before plugging or unplugging the cables, be sure to switch power off.

● Avoid humidity and dust.

Avoid using the product at a humid, dusty place because much humidity and dust will cause damage to the parts inside.

● Maintenance

Turn off the unit's power and wipe the product using a dry cloth. To remove stubborn dirt, dip a cloth into a diluted solution of kitchen detergent (neutral), wring it out well, and wipe the product gently. Then, after wiping the product with a moist cloth, wipe it again with a dry cloth.

Caution

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

● Precaution to be observed during production

This product's image switching and image effect functions can be used to produce images which flicker rapidly or images which change rapidly.
However, bear in mind when using these functions in production that the kinds of images produced may have an adverse effect on the viewer's physical well-being.

● When the product is to be discarded

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

● Concerning the consumable parts

Cooling fan:
This is a consumable part.
As a general rule, replace it every 5 years or so (when the unit has been operated for 15 hours a day).

AC Adaptor:
This is a consumable part.
As a general rule, replace it every 5 years or so (when the unit has been operated for 15 hours a day).

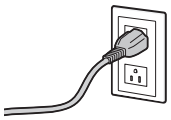
The period when the consumable parts need to be replaced will differ depending on the operating conditions.
When the time comes to replace one of these parts, be absolutely sure to ask your dealer to do the job.

Installation precautions

●In addition to heeding the points presented in the “Read this first!”, observe the following precautions as well.

Be absolutely sure to ask your dealer to do the jobs of installing and connecting the unit.

Connecting the power supply



- Be absolutely sure to use only the AC Cable and AC Adaptor supplied with the unit.
- Be absolutely sure to connect the ground terminal (SIGNAL GND) at the rear of the unit to the system ground.
- Push the AC Adaptor in fully all the way.
- When the unit is not going to be used for a prolonged period of time, turn off its power, and disconnect the power plug from the AC outlet.

Handle carefully!

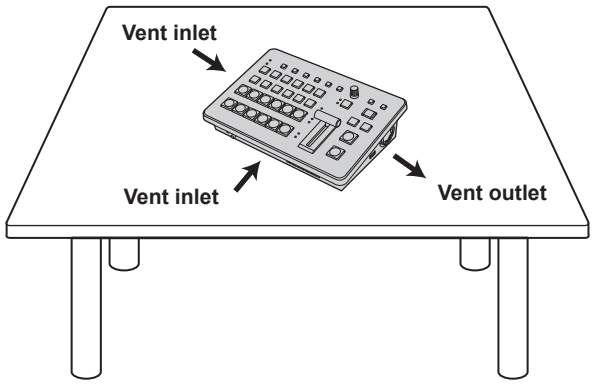
- Dropping the unit or subjecting it to strong impact or vibration may cause trouble and/or malfunctioning.

Do not allow any foreign objects to enter inside the unit!

- Allowing water, metal items, scraps of food or other foreign objects inside the unit may cause a fire and/or electric shocks.

Choosing the best installation location

- This unit is designed for indoor use only.
- Install the unit on a sufficiently strong, stable and level surface for use.
- Ensure a space of at least 100 mm (3-15/16 inches) around the unit’s vents to avoid obstructing ventilation.
  In particular, ensure sufficient space between ventilation and wiring when using mounted in a panel or table.
- Do not install the unit in a manner in which its cables and other accessories can be easily damaged.
- Do not install the unit in a cold place where the temperatures will drop below 0 °C (32 °F) or in a hot place where the temperatures will rise above 40 °C (104 °F).
- Avoid installing the unit where it will be exposed to direct sunlight or to the hot air that is blown out from other products.
- Installing the unit in a very humid, dusty or vibration-prone location may give rise to trouble.



Features

Compact design, abundant inputs and outputs

- Despite its compact size, it comes with four SDI inputs, two HDMI inputs, two SDI outputs and one HDMI output. Furthermore, it is capable of handling a variety of live switching situations, being equipped with IP inputs and outputs, reference input, through output, 2-channel analog audio input and output, and UVC output.
- Along with the background transitions using cuts, mixes, and wipes, the unit is also equipped with two keyers including one channel for chroma keys and two channels of PinP.
- The multi view display function enables a single monitor to be divided so that it can display a maximum of 16 videos.
- Input/output accommodates 3G/HD-SDI, and each input is equipped with a frame synchronizer (FS).
- It supports many IP input and output systems, including NDI, NDI HX, and RTMP/RTMPS.
- The 2-channel analog audio input connectors enable embedding of audio via any of the output buses.
  You can also make adjustments to the input level and audio delay.

Supports multiple formats

- The following signal formats are supported:

2K formats: 1080 × 59.94p, 1080 × 50p, 1080 × 29.97p, 1080 × 25p, 1080 × 24p, 1080 × 23.98p, 1080 × 59.94i, 1080 × 50i
HD formats: 720×59.94p, 720×50p

- Supports multiple 2K/HD formats.
- Compatible with a variety of interfaces, such as 3G-SDI, 1.5G-SDI, HDMI and IP.
- The maximum number of inputs is four for SDI, two for HDMI, and four for IP.
- The maximum number of outputs is two for SDI, one for HDMI, and two for IP.
- Equipped with two keyers to enable an abundance of video effects.
- Equipped with features such as up/down converters.
- Equipped with two AUX BUS. Has a MIX transition function.
- Fitted with a remote camera controller function that is able to control tally of a maximum of nine Panasonic 4K/HD integrated cameras.
- Chroma key is possible.
- Video memory (two for still images) can be recorded and called up with key signals attached.
- Equipped with a shot memory function.
- Compatible with USB memory.

Accessories

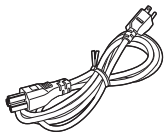
Check that the following accessories are present and accounted for.

- After removing the product from its container, dispose of the power cable cap (if supplied) and packing materials in an appropriate manner.
- This unit is supplied with a cable clamp that prevents the AC Adaptor from unplugging accidentally.

AC Adaptor 1

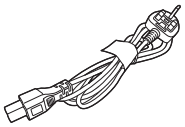
Cable clamp..... 1

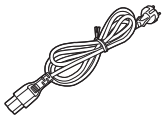
AC Cable for AV-HSW10P..... 1

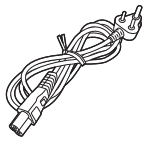


AC Cable for AV-HSW10E..... 3

- For U.K. and Saudi Arabia
- For Continental Europe, etc.
- For India only



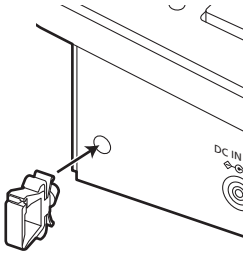




- This product is equipped with 3 types of AC mains cable.
  Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

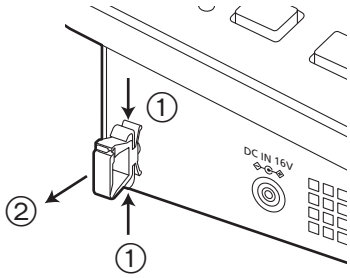
Accessories

Attaching the cable clamp



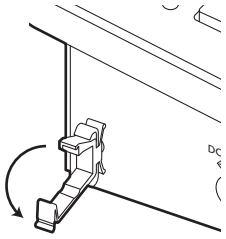
Detaching the cable clamp

1 **Pinch ① and pull in the direction of ②.**

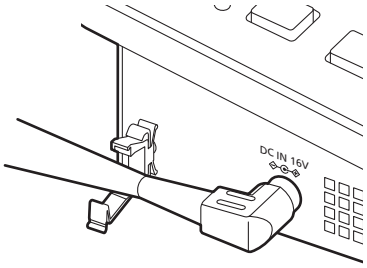


Securing the AC Adaptor

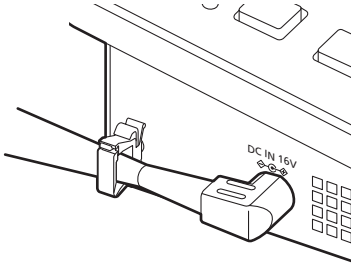
1 **Unlock the cable clamp.**



2 **Insert the AC Adaptor.**

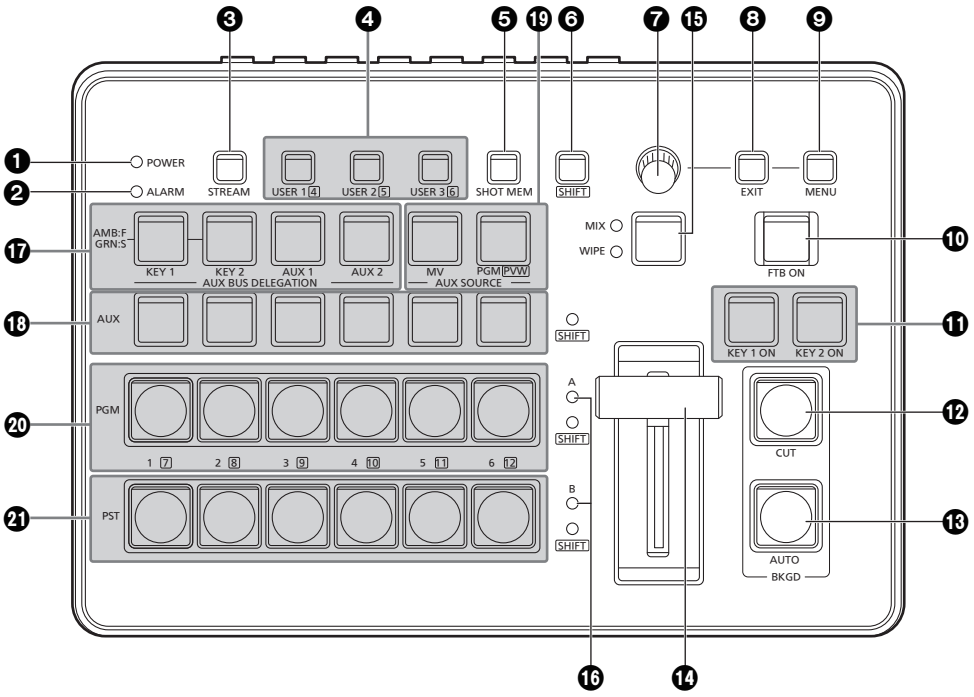


3 **Lock the cable of the AC Adaptor with the cable clamp.**



Parts and their functions

Control panel



❶ POWER indicator [POWER]

This indicator lights when the POWER switch (㉒) on the rear panel is set to ON while power is supplied to the DC IN connector (㊲).

❷ ALARM indicator [ALARM]

This indicator lights when the cooling fan (㊱) has stopped running, when there is a problem with the power supply (voltage drop) or when the temperature inside the unit has reached an abnormally high level.
When this occurs, an alarm message appears on the OSD menu while the OSD menu is displayed on an external monitor (in the OSD ON status).
The alarm information can be output to an external device from the unit's TALLY/GPI connector (㉚).
→ Refer to "Alarm message".
When an alarm has occurred, stop using the unit immediately, and be absolutely sure to contact your dealer. Continuing to use the unit even after an alarm has occurred could damage the unit.

❸ STREAM button [STREAM]

Transmissions can be directly started, stopped, and set to standby from this unit with SRT and RTMP/RTMPS.
The color of the LED illumination changes to indicate the status of transmissions. (OFF: Off (*1), Standby: Green, Transmitting: Red)
This unit is equipped with two transmission channels (CH1 and CH2), and operations for CH2 can be performed while pressing the [SHIFT] button (❻).

Transmission channel: LED \ Button operation	Press	Hold down
OFF: Off (*1)	Transmitting: Red	Standby: Green
Standby: Green	Transmitting: Red	OFF: Off (*1)
Transmitting: Red	Standby: Green	OFF: Off (*1)

*1 Lights in the colors set in Color Group in [12] Config > Button Illumination > Color Group Other > STREAM.

❹ USER buttons [USER 1, USER 2, USER 3]

Any six functions selected from among the menu items can be assigned to the [USER 1] button, [USER 2] button and [USER 3] button, and then used.
The functions registered in [USER 1] and [USER 4] are assigned to the [USER 1] button whereas the functions registered in [USER 2] and [USER 5] are assigned to the [USER 2] button, and the functions registered in [USER 3] and [USER 6] are assigned to the [USER 3] button.
While the SHIFT button (❻) is held down, the function registered in [USER 4], [USER 5] or [USER 6] can be selected.

Lights	The functions assigned to the [USER] buttons are enabled.
Extinguished	The functions assigned to the [USER] buttons are disabled.

❺ Shot Memory button [SHOT MEM]

This button enables registration, recalling, and deleting of shot memories.
→ Refer to “Shot memories”.

❻ SHIFT button [SHIFT]

This button is used to call up the functions of [USER 4], [USER 5], and [USER 6] that have been assigned to the [USER 1] button, [USER 2] button, and the [USER 3] button, and also to call up the XPT7 to XPT12 materials assigned to crosspoint buttons [1] to [6], and for Shot Memory operations.

Lights	The [SHIFT] button is enabled.
Extinguished	The [SHIFT] button is disabled.

(The functions executed using the [SHIFT] button take effect only while the button is held down.)

❼ OSD/TIME dial

The following operations are performed using this dial.

- **When the main menu is displayed:**
  Turn the OSD/TIME dial to select a submenu, and press the dial to enter the selection.
- **When a submenu is displayed:**
  Turn the OSD/TIME dial to select a submenu, and press the dial to enter the selection.
  When entering setting values, the setting values change when you first press the dial and then turn it, then the setting values are confirmed when you press the dial again.
  Hold down the dial to return a setting value to the default value.
- When the dial is turned while it is still held down after the [KEY1 ON], [KEY2 ON], [FTB ON] or [AUTO] button has been held down, the respective transition duration can be changed.

❽ EXIT button [EXIT]

This button takes you up one submenu layer when you are using the OSD menus.

❾ MENU button [MENU]

This selects whether the OSD menu is to be displayed or hidden.
Each time you hold down the [MENU] button, the menu is either displayed or hidden.

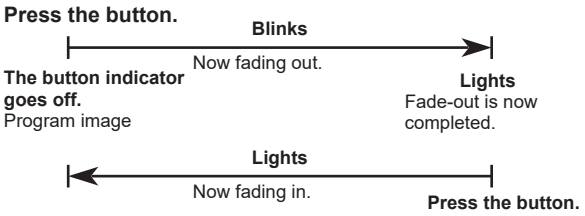
Orange light	OSD menu displayed
Off	OSD menu hidden

When the [MENU] button is pressed while the OSD menu is being displayed, the display switches between the main menu and the status display.
You can view the following information in the status display:

- Wipe pattern settings
- Transition time settings
- [USER] button settings
- Crosspoint assignment settings

❿ FTB ON button [FTB ON]

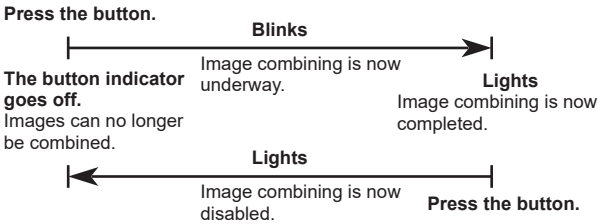
Press this button to fade out the program image to a black screen for the transition duration which has been set.
When the button is pressed again, the program image is faded in from the black screen.



An image other than the black screen can be set as the screen to which the program image is to be faded out.
→ Refer to “FTB (Fade to Black)”.
By turning the OSD/TIME dial (❼) while keeping the [FTB ON] button pressed after the button has been held down, the transition duration can be changed.

⓫ KEY 1 ON button, KEY 2 ON button [KEY 1 ON, KEY 2 ON]

This is used to combine key materials for the transition duration which has been set.



By turning the OSD/TIME dial (❼) while keeping the [KEY 1 ON] button or [KEY 2 ON] button pressed after the button has been held down, the transition duration can be changed.

⓬ CUT button [BKGD CUT]

This instantly initiates a transition for the currently selected operation.

Lights	The transition is being executed.
Extinguished	The transition is complete.

⓭ AUTO button [BKGD AUTO]

This automatically initiates the transition for the transition duration which has been set (Auto transition).

Lights	Auto transition is being executed.
Extinguished	Auto transition is complete.

If the [AUTO] button is pressed while auto transition is being executed, the auto transition operation is aborted. When the button is pressed again after the operation was aborted, the remaining transition is executed.
When the [AUTO] button is pressed while the fader lever (⓮) is at an interim setting, the transition is executed in the time remaining from the interim setting.
By turning the OSD/TIME dial (❼) while keeping the [AUTO] button pressed after the button has been held down, the transition duration can be changed.

⓮ Fader lever

This is used when executing transitions manually.
When the fader lever is moved to the end, the transition is completed.
If the fader lever is moved during auto transition, the operation switches to manual at the point where the fader lever position overtakes the current amount of transition.
It is possible to select a background or key using a menu for materials involving transitions.

⓯ MIX/WIPE switching button [MIX, WIPE]

This button selects the transition method.
MIX and WIPE switch each time you press the button.

MIX	This is used to execute transitions (MIX transitions) while overlapping the images of the A bus and B bus (or images of the PGM bus and PST bus). While a transition is being executed, the total of the A bus and B bus (or PGM bus and PST bus) outputs is held at 100 %. The [MIX] indicator to the left lights orange while MIX is selected.
WIPE	The transition is made according to the selected wipe pattern. The [WIPE] indicator to the left lights orange while WIPE is selected.

⓰ Bus tally indicators [A, B]

The indicator corresponding to the bus whose program (PGM) materials are being output lights.

⓱ AUX bus selector buttons [AUX BUS DELEGATION]

Select the bus to be operated using the AUX bus crosspoint buttons (⓲).
The selected button lights.

[KEY 1], [KEY 2]:
This button is used to change the AUX bus crosspoint buttons (⓲) into the source selector buttons for the key fill buses or key source buses.
Each time it is pressed, the selector button function is switched between the key fill buses and key source buses.

Orange light	Key fill buses
Green light	Key source buses

[AUX 1], [AUX 2]:
These buttons are used to change the AUX bus crosspoint buttons (⓲) into the selector buttons for the sources of the AUX buses.

⓲ AUX bus crosspoint buttons

These buttons are used to select the source of the bus which was selected by the AUX bus selector button (⓱).
Buttons 1 to 12 can be selected using the [SHIFT] button (❻). When the crosspoint buttons (⓲, ⓴, ㉑) are held down, the OSD shows the name of the input material and the crosspoint button number.

⓳ Dedicated crosspoint buttons for the AUX bus [AUX SOURCE]

While the [AUX 1], [AUX 2] AUX bus selector buttons (⓱) are illuminated, these select AUX bus sources.
The buttons that are pressed turn amber.

[MV]:
Selects either multi view display signal for the AUX bus.

[PGM/PVW]:
Selects either the PGM signal or the PVW signal for the AUX bus.
Switching between the PGM signal and the PVW signal is done with the [SHIFT] button (❻).

⓴ PGM bus crosspoint buttons [1 to 6]

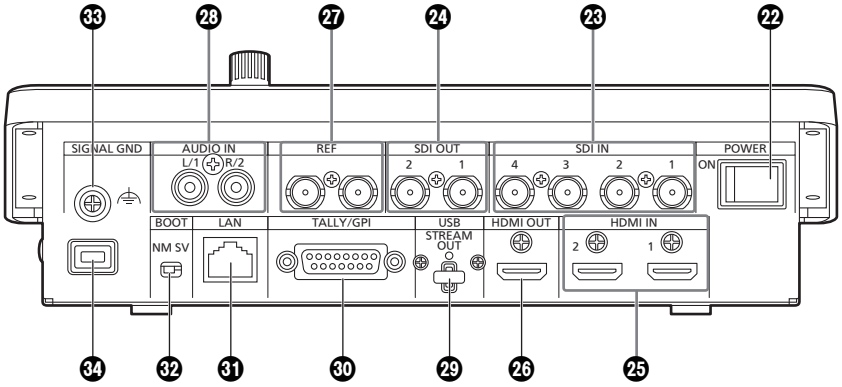
These are used to select the PGM/A bus video signals.
Buttons 1 to 12 can be selected using the [SHIFT] button (❻).
Bus Mode can be selected as “A/B”, “PGM-A/PST-B”, or “PGM-B/PST-A” in the Config menu.
→ Refer to “Background transition”.
When the crosspoint buttons (⓲, ⓴, ㉑) are held down, the OSD shows the name of the input material and the crosspoint button number.

㉑ PST bus crosspoint buttons [1 to 6]

These are used to select the PGM/B bus video signals.
Buttons 1 to 12 can be selected using the [SHIFT] button (❻).
Bus Mode can be selected as “A/B”, “PGM-A/PST-B”, or “PGM-B/PST-A” in the Config menu.
→ Refer to “Background transition”.
When the crosspoint buttons (⓲, ⓴, ㉑) are held down, the OSD shows the name of the input material and the crosspoint button number.

Parts and their functions

Rear panel area



㉒ Power switch [POWER]

When the [POWER] switch is turned on, the [POWER] indicator (❶) lights up, and the unit can be operated.

㉓ SDI IN connectors [SDI IN 1 to 4]

These are the HD SDI signal input connectors.

- SDI IN 1 and HDMI IN 1 are mutually exclusive. Select one of them from the Input menu.
- There are advanced up-converter/down-converter settings available for SDI IN 3 and 4.

㉔ SDI OUT connectors [SDI OUT 1, 2]

These are the HD SDI signal output connectors. The following signals can be assigned to the connector by menu operations:

PGM, PVW, CLN, AUX1, AUX2, MV, Key Out

OSD menus are not displayed from the SDI OUT 1 connector.

㉕ HDMI IN connectors [HDMI IN 1, 2]

These are HDMI signal input connectors. They support HDMI 1.4b. This unit does not support HDCP.
Signals with the following resolutions can be input with menu operations.

Resolution (Vertical frequency: 60Hz): WSXGA+ (1600 × 1050), SXGA (1280 × 1024), WXGA (1280 × 768), XGA (1024 × 768) **Resolution:** 1920 × 1080/59.94p, 1920 × 1080/50p, 1920 × 1080/29.97p, 1920 × 1080/25p, 1920 × 1080/24p, 1920 × 1080/23.98p, 1920 × 1080/59.94i, 1920 × 1080/50i, 1280 × 720/59.94p, 1280 × 720/50p

- The HDMI IN connector supports the scaler function.

㉖ HDMI OUT connector [HDMI OUT]

This is the HDMI signal output connector. The following signals can be assigned to the connector by menu operations:

PGM, PVW, CLN, AUX1, AUX2, MV, Key Out

It is possible to output with the same resolution as the system format of this unit.

Signals with the following resolutions can be output with menu operations.
The output resolution can be fixed to 1080/720.

Resolution (Vertical frequency: 60Hz): WSXGA+ (1600 × 1050), SXGA (1280 × 1024), WXGA (1280 × 768), XGA (1024 × 768) **Resolution:** 1920 × 1080/59.94p, 1920 × 1080/50p, 1920 × 1080/29.97p, 1920 × 1080/25p, 1920 × 1080/24p, 1920 × 1080/23.98p, 1920 × 1080/59.94i, 1920 × 1080/50i, 1280 × 720/59.94p, 1280 × 720/50p

㉗ Reference input connector [REF]

Loop-through output in the external sync mode.
If the loop-through output is not going to be used, provide a 75-ohm termination.

㉘ Audio input connector [AUDIO IN]

These are the connectors for inputting external audio (microphone/line).
They support two channels, left and right.

㉙ USB connector (*1) (Type-C connector) [USB STREAM OUT]

You can load video and audio output from this unit onto a computer by connecting them via USB Video Class.
The following signals can be assigned to the connector by menu operations:

PGM, PVW, CLN, AUX1, AUX2, MV, Key Out

*1 USB 3.2 Gen1 DEVICE, no USB bus power functionality

Parts and their functions

㉚ TALLY/GPI connector [TALLY/GPI] (D-sub 15-pin, female, inch screw)

The unit is equipped with 5 contact input ports to control this unit from external devices and 8 open collector output ports for outputting tally information and alarm information from this unit.

㉛ LAN connector [LAN] (RJ-45) (1000Base-T)

This is a LAN connector (RJ-45) used for connecting an external device to this unit for the purpose of IP control. Furthermore, IP signals are also sent end received by this connector.
Use a LAN cable (*1) for connection.

*1 Category 5e or better, STP (Shielded Twisted Pair), max. 100 m (328 ft)

㉜ SERVICE switch [BOOT SV/NM]

This switch is used for maintenance purposes.
For normal operations, select the [NM] position.

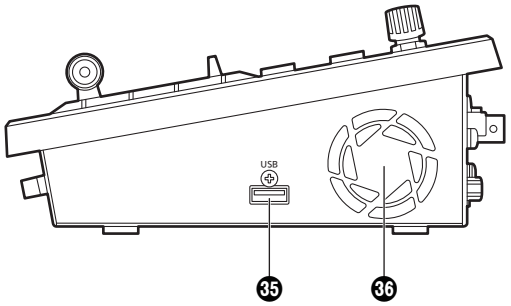
㉝ Ground connector [SIGNAL GND]

Connect to the system's earth ground.

㉞ Security slot

You can connect a security cable manufactured by Kensington.
Refer to the operating instructions supplied with the cable for connection instructions.
The security slot and security cable are for the prevention of theft. Panasonic accepts no responsibility for any damage incurred if an incidence of theft occurs.

Right panel area



㉟ USB connector (*2) (Type-A connector) [USB]

Project files can be loaded and saved by connecting this unit and a USB memory.
Furthermore, you can also load and save Still data, save log files, and load firmware.

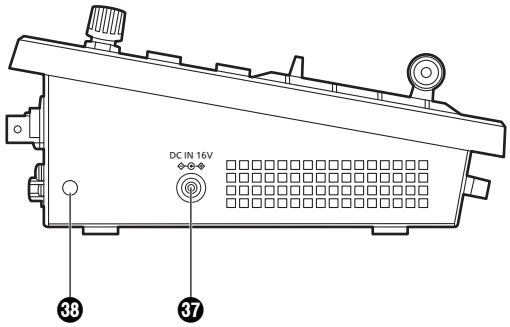
*2 USB2.0 DEVICE, has USB bus power functionality

㊱ Cooling fan

Blocking the vents of the cooling fan may cause a malfunction.
Leave sufficient space in the vicinity of the vents.

Parts and their functions

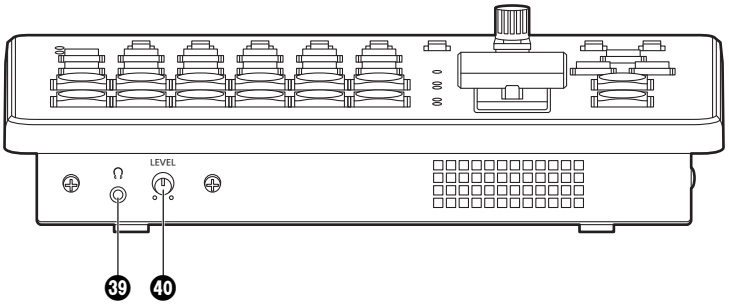
Left panel area



㊲ DC IN connector [DC IN 16 V ⟐⊖⟐]
(DC 16 V, 3.0 A)
The AC Adaptor provided with the unit is connected to this connector.

㊳ Hole for fitting the cable clamp
Attach the supplied cable clamp to secure the AC Adaptor. (page 17)

Front panel area



㊴ Headphone connector [🎧]
(Φ3.5 mm, stereo mini jack)
Audio output can be monitored by connecting headphones to the unit.
PGM, PVW, AUX1, AUX2, or CLN can be selected with the setting menus on this unit.

㊵ Monitor volume dial [LEVEL]
This dial is used to adjust the volume of the monitoring headphones.

Preparations

Turning the unit's power on and off

Turning on the power

1 Set the [POWER] switch to the ON position.

When power is supplied to the unit, the [POWER] indicator lights.

During start up of the unit, the PGM bus crosspoint buttons and PST bus crosspoint buttons light blue in order. When all of the buttons turn off, start up of the unit is complete.

Turning off the power

1 Set the [POWER] switch to the OFF position.

The unit's power is turned off, and the [POWER] indicator goes off.

Checking the video output

Described below are the steps taken to display the unit's OSD menu on an external monitor to check the unit's video output.

Displaying the OSD menus on a HDMI monitor

1 Connect the HDMI monitor to the unit's HDMI OUT connector.

2 Turn on the power of the HDMI monitor.

3 Turn on the power of the unit.

4 Hold down the [MENU] button.

The [MENU] button indicator lights, and the OSD menus are displayed on the HDMI monitor.
If the OSD menus do not appear on the monitor, refer to "How to forcibly display the OSD menus".

Note

If the OSD menu fails to appear on the HDMI monitor even after the above steps have been taken, it may mean that the HDMI monitor does not support the unit's HDMI output format.
Check the input specifications of the HDMI monitor.

Displaying the OSD menus on an SDI monitor

1 Connect the SDI monitor to the unit's SDI OUT 2 connector.

2 Turn on the power of the SDI monitor.

3 Turn on the power of the unit.

4 Hold down the [MENU] button.

The [MENU] button indicator lights, and the OSD menus are displayed on the SDI monitor.
If the OSD menus do not appear on the monitor, refer to "How to forcibly display the OSD menus".

Notes

- The OSD menus cannot be output from the SDI OUT 1 connector.
- If the OSD menu fails to appear on the SDI monitor even after the above steps have been taken, it may mean that the video format which has been set in the unit is not the correct one.
  Take the steps in the next section to change the unit's video format.
  → Refer to "Changing the video format".

Preparations

Changing the video format

You can specify a video format while the power is off, and then start up the system.
If the OSD menus cannot be displayed even when the SDI monitor has been connected to the unit, the video format must be changed.
Follow the steps below to change the video format.
If the OSD menus can be displayed using an HDMI monitor, change the video format by following the steps in “Setting the system format”.

1 Turn off the power of the unit.

2 Turn on the unit’s power while at the same time holding down the button that corresponds to the video format supported by the SDI monitor.

Button to press at the same time	Video format
[MENU] + A bus crosspoint [1]	1080/59.94p
[MENU] + A bus crosspoint [2]	1080/50p
[MENU] + A bus crosspoint [3]	1080/59.94i
[MENU] + A bus crosspoint [4]	1080/50i
[MENU] + A bus crosspoint [5]	1080/29.97p
[MENU] + A bus crosspoint [6]	1080/25p
[MENU] + B bus crosspoint [1]	1080/24p
[MENU] + B bus crosspoint [2]	1080/23.98p
[MENU] + B bus crosspoint [3]	720/59.94p
[MENU] + B bus crosspoint [4]	720/50p

- Continue pressing the button until start up of the unit is complete.

3 Hold down the [MENU] button.

The [MENU] button indicator lights, and the OSD menus are displayed on the SDI monitor.

Note

If the OSD menu fails to appear on the SDI monitor even after the above steps have been taken, it may mean that the SDI monitor does not support the unit’s SDI output format.
Check the input specifications of the SDI monitor.

Preparations

OSD (on-screen display) menu operations

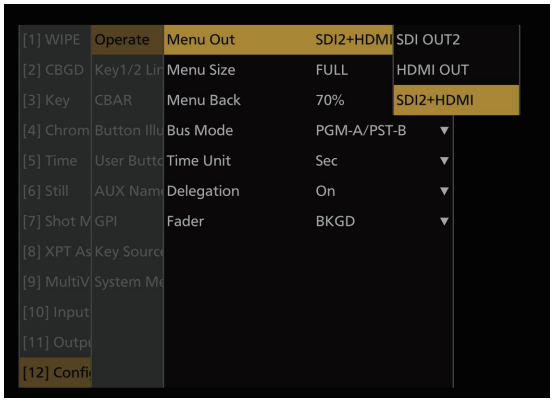
The unit's settings are selected using the OSD menus which are displayed on the external monitor.
Described here is how to operate the OSD menus.

Displaying and clearing the OSD menus

Basic operations

When the [MENU] button is held down, the [MENU] button indicator lights, and the OSD menus are displayed on the external monitor.
When the [MENU] button is held down while an OSD menu is displayed, the [MENU] button indicator goes off, and the OSD menu display is cleared.

Changing the connector for outputting the OSD menus



The OSD menu output connector can be changed using the Operate > Menu Out item on the [12] Config.

SDI OUT2	The menus are output from the SDI OUT 2 connector.
HDMI OUT	The menus are output from the HDMI OUT connector.
SDI2+HDMI	The menus are output from both the SDI OUT 2 connector and HDMI OUT connector.

Furthermore, using the setting in the OUT6 (UVC OUT) > Menu Out item in [11] Output, the OSD menu output settings from the USB connector (USB STREAM OUT, Type-C connector) can be changed.

On	The OSD menus are output via the USB connector (Type-C connector).
Off	The OSD menus are not output via the USB connector (Type-C connector).

Note

The OSD menus cannot be output from the SDI OUT 1 connector.

How to forcibly display the OSD menus

When the [MENU] button and [SHIFT] button are pressed at the same time while the unit is operating, the following is automatically set:

- The SDI OUT 2 connector and HDMI OUT connector are set to output the OSD menus. Furthermore, output from the USB connector (Type-C connector) is enabled.
- The screen size output from the HDMI OUT connector is set to "Auto".

Preparations

Menu configuration and moving between menus

Menu configuration of the unit

The OSD menus of this consist of “main menu” and “submenu” which have multiple layers.

Main menu:
This lists the submenu items.

Submenu:
Submenu items in lower layers are displayed.
This displays the setting items and the settings.
The settings can be changed on this screen.

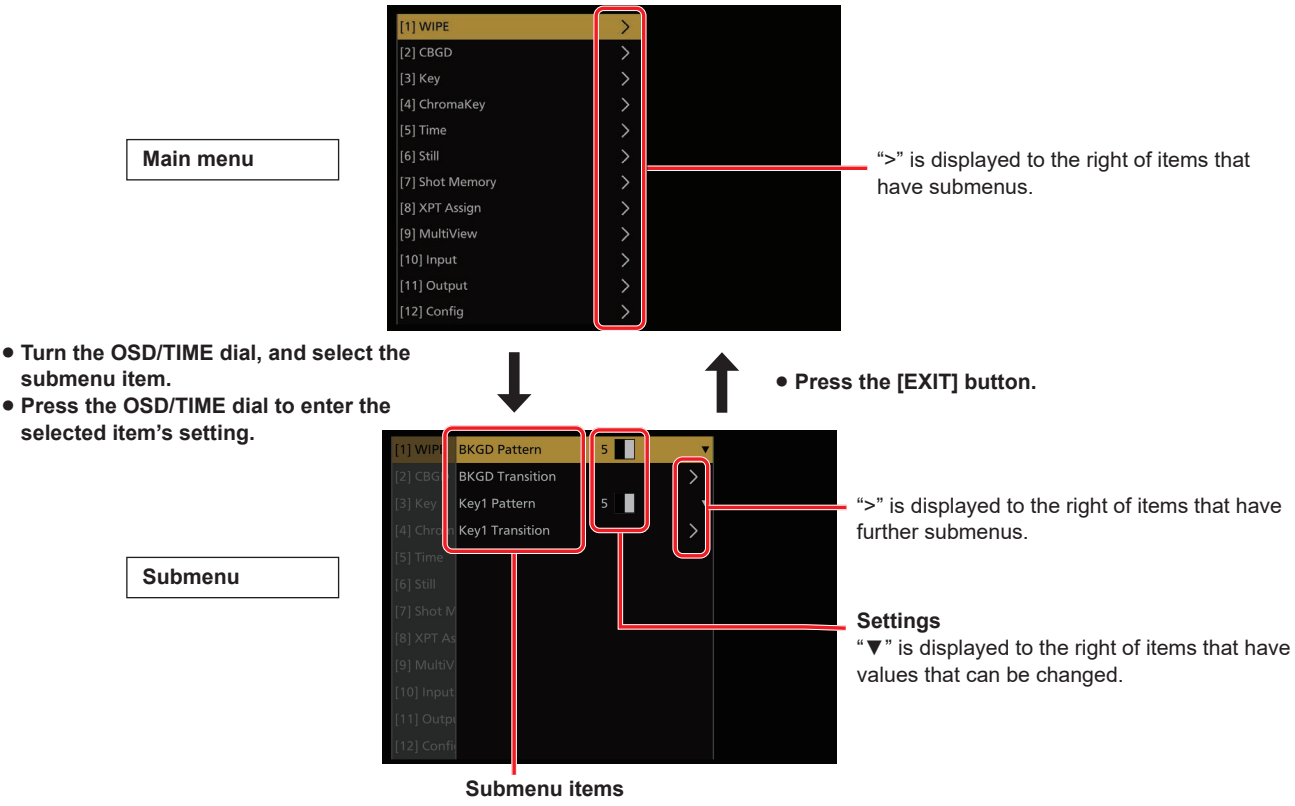
Moving between the main menu and submenus

Moving from the main menu to a submenu

To select a submenu item:
Turn the OSD/TIME dial to select an item.

Entering the setting selected for the submenu item:
Press the OSD/TIME dial to enter the selected item’s setting.

Moving from a submenu to a submenu in an upper layer or to the main menu
Press the [EXIT] button to return to a submenu in an upper layer or to the main menu.



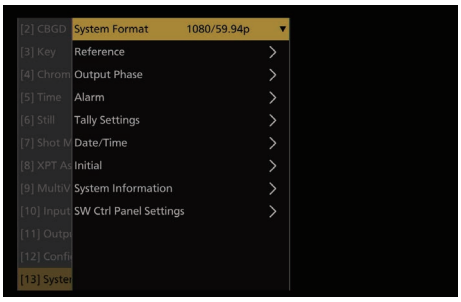
Displaying menus consisting of more than one page

When a menu contains many setting items, they are displayed on more than one page.
In this manual, only one menu screen is shown even when that screen consists of more than one page.

Operations using the submenus

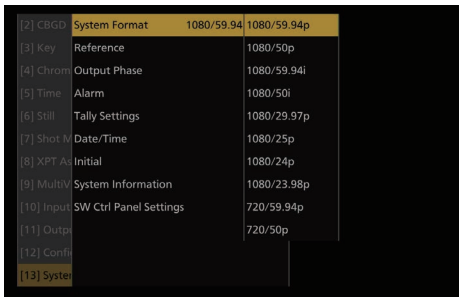
1 Select the line with the setting item.

The highlighted cursor moves up and down when you turn the OSD/TIME dial.
When the cursor is on the line for the setting item you want to change, pressing the OSD/TIME dial makes it possible to change the setting value.
Furthermore, “>” is displayed to the right of the item if it has further submenus.
The submenus in the layer below are displayed when you press the OSD/TIME dial.



Turn the OSD/TIME dial, and select the item.

Press the OSD/TIME dial to enter the item.



Setting value can now be changed.

2 Change the setting.

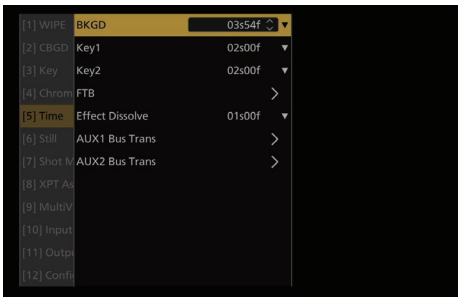
There are the two followings ways to change the setting values:

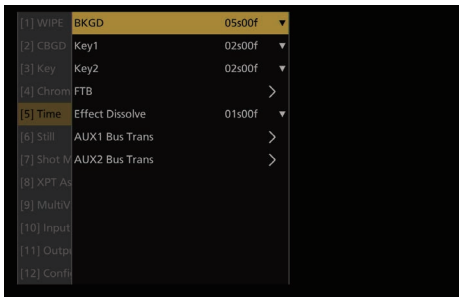
- Pull-down menu

While the cursor is on the line for the setting item you want to change, pressing the OSD/TIME dial displays a pull-down menu with the values that can be set.
Turn the OSD/TIME dial to move the cursor to the setting value, then press the OSD/TIME dial to update with that value.

- Changing a numerical value

Press the OSD/TIME dial while on the line for the setting item you want to change so the setting can be changed.
Turn the OSD/TIME dial to change the setting.
The values change faster if you turn the dial faster.





Turn the OSD/TIME dial to change the setting that is now blinking.

[Returning the setting to its default value]
When the OSD/TIME dial is held down now, the value is returned to its default value.

Note

When values are changed for the regular setting items, these changes are reflected straight away but, with some of the setting items (such as Format), the changes will not be reflected unless the OSD/TIME dial is pressed once the changes have been made.
The cursor blinks on this type of item.

Preparations

Entering character strings

Some setting items on this unit require you to enter character strings.

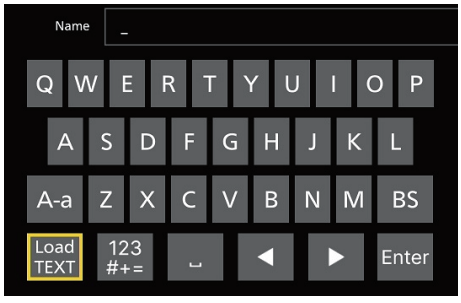
Press the OSD/TIME dial while on the line for the setting item you want to change so the character string can be entered.
A character string selection screen similar to a keyboard appears, and the yellow border indicates selection.
Turn the OSD/TIME dial to select a character, then press the OSD/TIME dial to enter the character.
Selecting the following changes the types of characters available.

[A-a]	Switches between upper-case and lower-case characters
[BS]	Deletes one character
[123#+=]	Switches to numeral and symbol input
[!?~]	Switches to symbol input
[␣]	Space
[◀]	Moves the cursor left
[▶]	Moves the cursor right
[Enter]	Confirms the character string and returns to the setting line
[Load TEXT]	Opens the screen for loading character strings from a USB memory

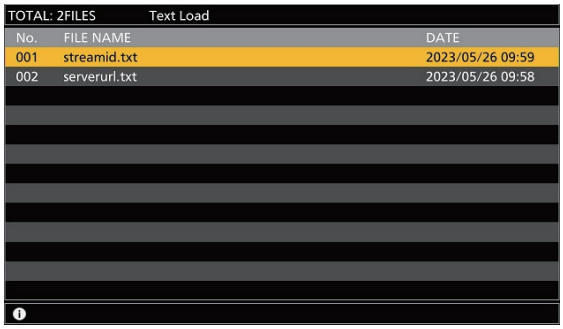
Notes regarding [Load TEXT]

When you select [Load TEXT] you can load a text file (.txt) that was saved to the “HS\HSW10\TEXT” folder on the USB memory formatted by this unit, and use the content to set as a character string.
[Load TEXT] cannot be selected if a USB memory is not connected.

[Load TEXT] can be selected when a USB memory is connected.



After selecting [Load TEXT], select the text file you want to load from the displayed dialog.



There are the following restrictions on the text file:
- A load error occurs if you include multi-byte characters, such as are found in Japanese.
- You can load only up to the available input character string length.
- Line feed characters are automatically deleted.

Indications used in this Operating Instructions

The operations for the setting items are indicated in this Operating Instructions as shown below.
Example: When operating the “[1] WIPE > BKGD Transition > Direction” item.

[1] WIPE > ← **Submenu**
BKGD Transition > Direction ← **Setting item**

Preparations

Menu delegation function

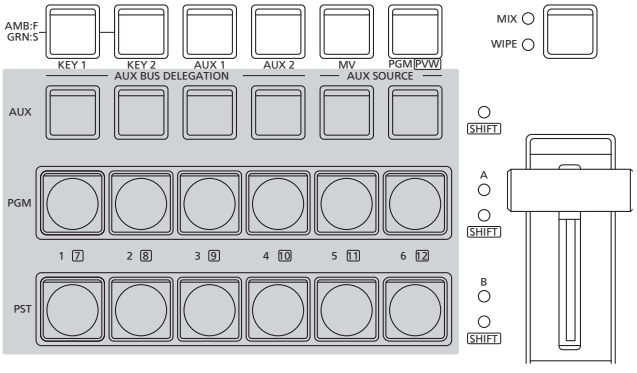
When the following buttons are pressed twice, the menu switches to the delegated menu.
(The menu delegation function)
The operation corresponding to the button pressed is also executed.

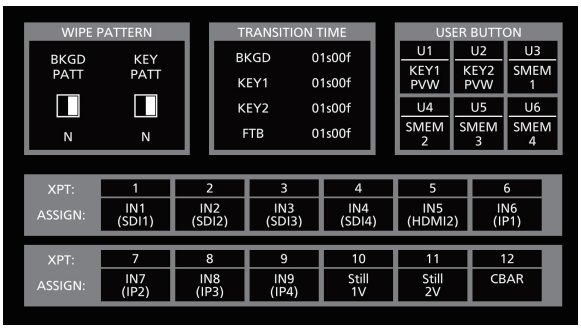
<List of menu delegation functions>

Button	Menu selected
AUTO	[5] Time
FTB	
KEY 1 ON	
KEY 2 ON	
MIX/WIPE	[1] WIPE
KEY 1 F/S	• When PinP is “On” [3] Key > PinP • When PinP is “Off” and “Chroma” is selected as the Key Type [4] ChromaKey • When PinP is “Off” and other than “Chroma” is selected as the Key Type [3] Key
KEY 2 F/S	• When PinP is “On” [3] Key > PinP • When PinP is “Off” [3] Key
USER 1	[12] Config > User Button
USER 2	
USER 3	
USER 4 (SHIFT + USER 1)	
USER 5 (SHIFT + USER 2)	
USER 6 (SHIFT + USER 3)	

Bus status displays

When the [MENU] button is pressed again while the OSD menu is being displayed, the status screen is displayed.
Furthermore, when the A bus, B bus, or AUX bus crosspoint buttons are held down, the status screen is shown on the OSD menu.



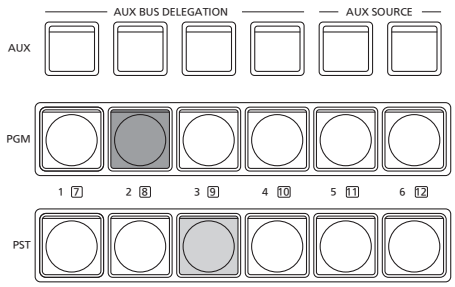


Background transition

Selecting the bus

Press one of the crosspoint buttons to select the material to be used for the background transition.
Depending on the operating status, the button pressed will light in one of two colors.

Lighting in red	When the selected input signals are output to PGM. (However, the indicator lights in amber during FTB operations.)
Lighting in green	When the selected input signals are not output to PGM.



- When the crosspoint buttons are held down, the button numbers and the names of the input materials assigned to the buttons are displayed on the built-in display in the form of a list for as long as the crosspoint buttons remain held down.

Selecting the bus using the SHIFT function

The SHIFT function enables two materials to be allocated — the front material and the rear material — to one button, and the materials to be selected using the [SHIFT] button.
A total of 12 materials — front materials (1 to 6) and rear materials (7 to 12) — can be allocated to the three groups of 12 crosspoint buttons whether these buttons are the PGM/A bus crosspoint buttons, PST/B bus crosspoint buttons or AUX bus crosspoint buttons.

All SHIFT is used to switch all the materials of the PGM/A bus crosspoint buttons, PST/B bus crosspoint buttons or AUX bus crosspoint buttons from front materials to rear materials or vice versa.

Rear materials are selected only while the [SHIFT] button is being pressed.

- When the rear materials (7 to 12) have been selected, the [SHIFT] LED lights in amber.

Selecting the bus mode

Select A/B bus mode or a flip-flop system (PGM/PST system) in the setting menu.

Select the bus mode with the following menu operation:

[12] Config >
Operate > Bus Mode

A/B	When the fader lever is at side A, the signals selected by the A bus are replaced PGM bus materials. When the fader lever is at side B, the signals selected by the B bus are replaced PGM bus materials.
PGM-A/ PST-B	Using a flip-flop system, the signals selected by the A bus are always replaced PGM bus materials, and the signals selected by the B bus are always replaced PST bus materials.
PGM-B/ PST-A	Using a flip-flop system, the signals selected by the B bus are always replaced PGM bus materials, and the signals selected by the A bus are always replaced PST bus materials.

Selecting the transition mode

Select the transition mode using the [MIX] and [WIPE] buttons.

Switch the background transition mode with the [MIX/WIPE] switching button.
The LED of the selected mode lights.

Manual transition

Operate the fader lever to execute transitions manually.
If the fader lever has been operated during auto transition, auto transition will be switched to manual operation as soon as the fader position overtakes the amount of the transition being executed.
The bus tally LEDs on the left of the fader lever indicate the program bus output status.

LED A only lights	PGM/A bus output
LEDs A and B light	During the transition
LED B only lights	PST/B bus output

Select the transition target with the following menu operation:

[12] Config >
Operate > Fader

Any of the following targets for which the transition is to be executed can be set by operating the fader lever.

BKGD	Background transition
KEY1	Key transition
BKGD+KEY1	Background transition and key transition will be executed concurrently.
No Assign	Transitions are not executed even when the fader lever is operated.

Auto transition

- When the [AUTO] button is pressed, the transition is executed automatically using the transition time which has been set.
- The transition is executed in the remaining time when the [AUTO] button is pressed while the fader lever is being operated.

Auto transition time settings are made with the following menu operation:

[5] Time >
BKGD

Select the display units with the following menu operation:

[12] Config >
Operate > Time Unit

Sec	The time is displayed as a number of seconds.
Frame	The time is displayed as a number of frames.

Any time from 0 to 999f can be set. The time which can be set when seconds are used as the display unit differs depending on the system format.

59.94i	max. 33s09f	**29.97p**	max. 33s09f
50i	max. 39s24f	**25p**	max. 39s24f
59.94p	max. 16s39f	**24p**	max. 41s15f
50p	max. 19s49f	**23.98p**	max. 41s15f

- Even when the “KEY1”, “BKGD+KEY1” or “No Assign” has been selected as the setting of the fader lever function, the background always serves as the target for executing auto transitions.

Cut transition

When the [CUT] button is pressed, the transition is executed instantly.

- Even when the “KEY1”, “BKGD+KEY1” or “No Assign” has been selected as the setting of the fader lever function, the background always serves as the target for executing cut transitions.

Basic operations

Wipe

Selecting the wipe pattern

Select the wipe pattern with the following menu operation:

[1] WIPE >
BKGD Pattern

<Table of wipe patterns>

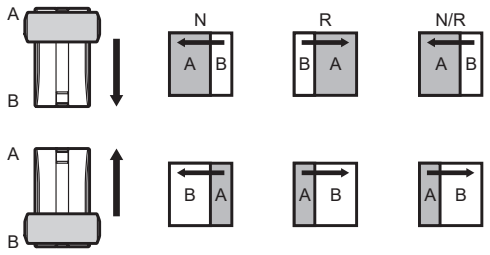
Wipe patterns and numbers				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16				

Selecting the wipe direction

Select the wipe direction for background transitions with the following menu operation:

[1] WIPE >
BKGD Transition > Direction

(The key transitions are set by the menu. The direction which is set here will not be reflected.)
→ See “Key transitions”.



When [Normal] is selected:
Wiping proceeds in the normal direction.
When [Reverse] is selected:
Wiping proceeds in the reverse direction.
When [N/R] is selected:
The normal direction is replaced with the reverse direction (or vice versa) when the transition is completed.

Wipe decorations (border, soft effect)

A border effect or soft effect can be added to the wiping of background transitions.

Setting the border and soft effect

① Select border On/Off with the following menu operation:

[1] WIPE >
BKGD Transition > Border > Border

② Set the border width with the following menu operation:

[1] WIPE >
BKGD Transition > Border > Width

③ Set the amount of soft effect with the following menu operation:

[1] WIPE >
BKGD Transition > Border > Soft

When “On” has been selected as the Border item setting, the ratio of the soft effect to the border width is indicated as the amount of soft effect.
When only the soft effect is to be added to wipe, select “Off” as the Border item setting.

Setting the border color

Adjust Hue, Sat, and Lum of the border color with the following menu operation:

[1] WIPE >
BKGD Transition > Border Color > Hue

[1] WIPE >
BKGD Transition > Border Color > Sat

[1] WIPE >
BKGD Transition > Border Color > Lum

■ **To call the preset color**

Select the preset color with the following menu operation and press the OSD/TIME dial:

[1] WIPE >
BKGD Transition > Border Color > Load

- When OSD/TIME dial is pressed, what has been set so far is canceled and replaced with the preset color values.
- To save the values that were set before calling the preset color, refer to “Shot memories”.

Setting the wipe start position

Wipe start can be set at any desired position.

Target patterns:
9, 10, 11, 12, 13

① Set the wipe start position with the following menu operation:

[1] WIPE >
BKGD Transition > Position > X-Position

[1] WIPE >
BKGD Transition > Position > Y-Position

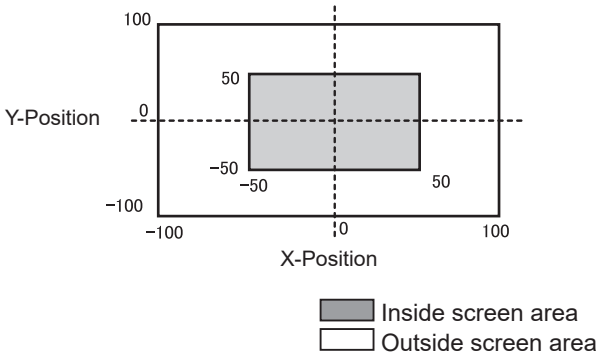
[1] WIPE >
Key1 Transition > Position > X-Position

[1] WIPE >
Key1 Transition > Position > Y-Position

This setting is possible only if the target pattern has been selected for the background or key pattern.

② Either operate the fader lever or press the [AUTO] button to check the wipe operation.
(When, for instance, –50 has been set for X-Position and –50 for Y-Position, the following screen (or key) appears from the bottom left and wipe is performed while the screen (or key) moves to the screen center.)

<X-Position, Y-Position setting range>



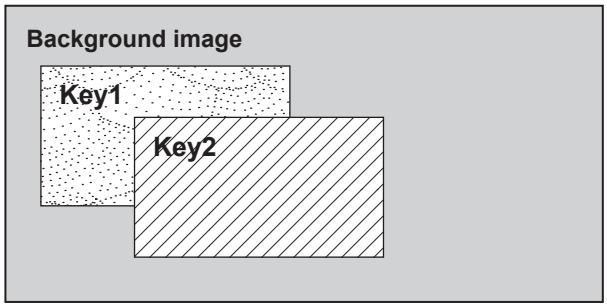
Basic operations

Key

This operation combines the background image with another image.
The key definition can be adjusted, and an edge can be added to the combined image.

Key1 and Key2 are available as materials to compose the background images.
The default settings for priority (image positioning) are as shown in the figure below.

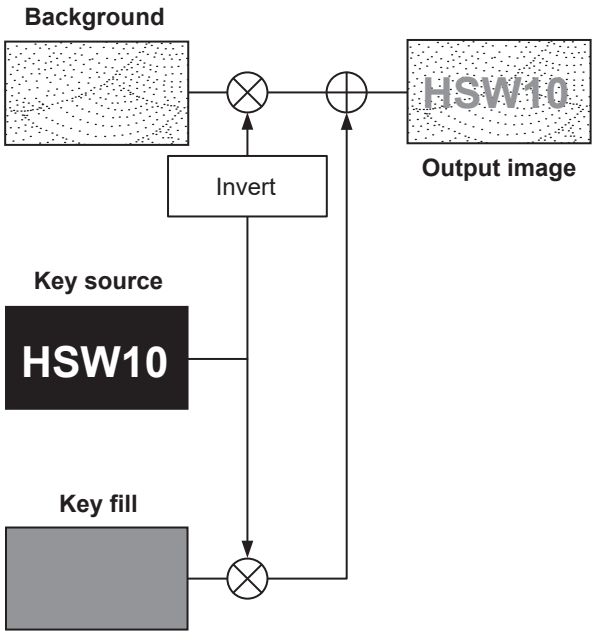
<Priority default settings>



You can change the prioritization for Key1 and Key2.
→ Refer to “Setting the priority”.

How key combinations work is shown in the figure below.

<How key composition works>



Selecting the key type

① Select the target key (Key1/Key2) with the following menu operation:

[3] Key >
Key Select

② Select the key type with the following menu operation:

[3] Key >
Key Type

Lum(ChromaOff) (luminance key· Chroma off/ self key)	This is for creating the key signals from the luminance component of the key source signal.
Lum(ChromaOn) (luminance key· Chroma off/ self key)	This is for creating the key signals from the luminance component or chroma component of the key fill signal.
Linear (linear key/EXT key)	This is for creating the key signals from the luminance component of the key source signal. It is used when the key source signal and key fill signal are different.
Chroma (chroma key/self key)	This is for creating the key signals using a specific hue of the key fill signal as the reference.
Full (full key/self key)	This is for creating the key signals using the images on the full screen as the key source signals.

Since the luminance and chroma keys are operated as self keys, the key fill signals are used as the key source signals. For the full key, the images on the full screen are used as the key source signals.
When the luminance key, chroma key or full key has been selected as the key type, the key signals will remain unchanged even when the key source signals are switched.

When using the linear key, use material with a black background and white characters or shape to be combined by the key as the key source signal.
Material which is not black and white may not be combined clearly.
Material with a white background and black characters, etc. can be reversed using the key invert function for use.

③ When the luminance key has been selected, the chroma component can be included in the generation of the key signals in view of the self key application. (This does not apply to the linear key.)
Select Lum (Chroma On) or Lum (Chroma Off) for the key type.

Chroma On	In addition to the luminance component, the chroma component is also taken into account in the generation of the key signals. This is the setting for using a color with a low luminance component for the key signals (such as when defining blue characters).
Chroma Off	The key signals are generated from only the luminance component.

④ Select the fill type with the following menu operation:

[3] Key >
Fill

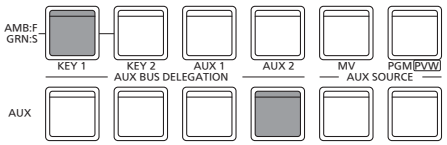
Bus	The bus signal is used for the key fill signal.
Matte	The internal fill matte is used for the key fill signal.

Selecting the key material

Selecting the key fill and key source signals

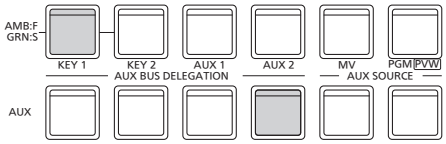
Press the [KEY] button in the AUX bus selection area, and switch the selection of the key fill signal (indicator lights in amber) and key source signal (indicator lights in green).

<Selecting the key fill signal>
With the indicator of the [KEY] button lit in amber, press one of the AUX bus crosspoint buttons 1 to 6 to select the key fill signal.
The indicator of the selected AUX bus crosspoint button lights in amber. (It will light in red if the selected signal is being output from the PGM connector.)



Lighting in amber

<Selecting the key source signal>
With the indicator of the [KEY] button lit in green, press one of the AUX bus crosspoint buttons 1 to 6 to select the key source signal.
The indicator of the selected AUX bus crosspoint button lights in green. (It will light in red if the selected signal is being output from the PGM connector.)
Since the luminance and chroma keys are operated as self keys, the key fill signals are used as the key source signals. When the luminance key or chroma key has been selected as the key type, the key signals will remain unchanged even when the key source signals are switched.



Lighting in green

Linking the key fill signal and key source signal selection

① Select the target key (Key1/Key2) with the following menu operation:

[3] Key >
Key Select

② Set Key Signal Coupling with the following menu operation:

[3] Key >
Key Signal Coupling

③ Set Fill/Source with the following menu operation:

[12] Config >
Key Source Signal Coupling > Fill/Source

- If Fill/Source is Fill to Source, select what to use as the Source for the Fill.
- Alternatively, if it is Source to Fill, select what to use as the Fill for the selected Source.

<Key Signal Coupling>
When the [KEY] button lights in amber, the key fill signal can be selected, and when it lights in green, the key source signal can be selected.

Key Signal Coupling

Independent	If Fill to Source, you can independently set a Source that is linked to Fill and separate from other KEYs. If Source to Fill, you can independently set a Fill that is linked to Source and separate from other KEYs.
Coupling	Follows the settings of items other than Fill/Source within Key Source Signal Coupling.

<Fill To Source>
When the key fill signal is selected, the key source signal also switches automatically.

<Source To Fill>
When the key source signal is selected, the key fill signal switches automatically.

Setting the fill matte color

Adjust Hue, Sat, and Lum of the fill matte with the following menu operation:

[3] Key >
Fill Matte > Hue

[3] Key >
Fill Matte > Sat

[3] Key >
Fill Matte > Lum

■ To call the preset color
Select the preset color with the following menu operation and press the OSD/TIME dial:

[3] Key >
Fill Matte > Load

- When OSD/TIME dial is pressed, what has been set so far is canceled and replaced with the preset color values.
- To save the values that were set before calling the preset color, refer to “Shot memories”.

Key transitions

① Select the transition mode with the following menu operation:

[12] Config >
Operate > Fader

You can set the target for transitioning when you operate the fader lever from the following:

BKGD	Background transition
KEY1	Key transition
BKGD+KEY1	Background transition and key transition at the same time
No Assign	No transition when the fader lever is operated

② Select the transition type (MIX/WIPE) with the following menu operation:

[3] WIPE >
Key1 Transition > Type

If you select WIPE, select the wipe pattern with the following menu operation:

[1] WIPE >
Key1 Pattern

<Table of wipe patterns>

Wipe patterns and numbers				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16				

③ Set the transition time with the following menu operation:

[5] Time >
Key1

[5] Time >
Key2

Set the transition time the same as for background transition.

④ Set the wipe direction with the following menu operation:

[3] WIPE >
Key1 Transition > Keyout Pattern

Normal	The key out pattern moves in the same direction as the key in pattern.
Reverse	The key out pattern moves in the opposite direction from the key in pattern.

<Pattern examples>

	Pattern example 1	Pattern example 2 Wipe patterns 9 to 16
Key in		
Key out (Normal)		
Key out (Reverse)		

■: This indicates the areas where keys are combined.

- Wipe patterns 9 to 16 behave like pattern example 2.

⑤ Execute the transition.
Use the fader lever to execute the transition manually.

Key auto transition

When the [KEY ON] button in the transition area is pressed, the transition is automatically executed at the transition time that has been set.
During key in, the indicator of the [KEY ON] button blinks in red, and it lights in red when the transition is completed.
If the [KEY ON] button is pressed with the picture completely keyed in, the Key image transition (key out) is executed.
During key out, the indicator of the [KEY ON] button lights in red, and it goes off when the transition is completed.
If the [KEY ON] button is pressed during the transition, the transition direction is reversed.

Key preview

Key preview images can be output to the preview output, and the keys can be adjusted and checked.

Set the preview with the following menu operation:

[3] Key >
PVW

Linking of Menus

PVW images
When PVW is OFF:
The PGM status is displayed in the PVW.
This is not reflected in the transition status, however.

When PVW is ON:
When PVW is set to “On”, the PGM images are displayed after the PVW.

Background of the PVW
The BKGD images for PVW will be PST irrespective of settings.

When you press the user button assigned On/Off, it switches alternately between On (button lights) and Off (button turns off).
(The relevant user button items are KEY1_PVW/KEY2_PVW.)

Menu	User button	When the user button is pressed
On	Lights	Off: Extinguished
Off	Extinguished	On: Lights

Adjusting the luminance key and linear key

These steps are taken to adjust the luminance key and linear key definition.

① Adjust the definition of the key with the following menu operation:

[3] Key >
Key Adjust > Clip

[3] Key >
Key Adjust > Gain

[3] Key >
Key Adjust > Density

② Set the key invert with the following menu operation:

[3] Key >
Key Adjust > Invert

When “On” is selected, the key signals to be generated internally are inverted.

Parameter	Description of setting	Setting range
Clip	Reference level for generating key signals	0.0 to 108.0
Gain	Key amplitude	0.0 to 200.0
Density	Key density	0.0 to 100.0
Invert	Key signal inversion	On, Off

Adjusting the chroma key

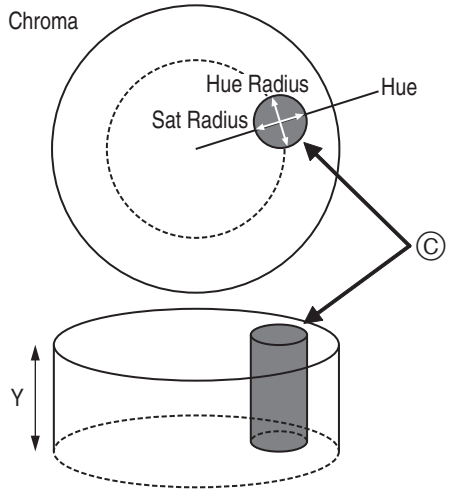
How the chroma key is to be defined can be adjusted.

Before proceeding with the adjustments, select “Chroma” as the key type using the menu item below.

[3] Key >
Key Type

As the chroma key, a key signal is created using a specific hue as a reference.
For instance, the key signal is created by detecting the color of the background from the image of a person standing in front of a specific background color, and another background is combined.

This unit uses an area system whose area is designated by a rectangular frame. The result of averaging the colors of the pixels inside that area is used as the chroma key reference color (key reference), and the maximum deviation from the average value is used as the radius of the chroma key oval. Chroma keys faithful to the chroma space sample (area Ⓒ in the figure) can be generated.



Oval-shaped chroma key

Executing the sampling automatically

By specifying the area where the background is to be inserted, the chroma components are sampled.

■ **Marker**

[4] ChromaKey >
Marker

This item is used to set the sample marker to ON to display the marker on the PVW image.

■ **Marker Pos**

[4] ChromaKey >
Marker Position

This item is used to adjust the X coordinate, Y coordinate and size of the sample marker.

■ **Sample**

[4] ChromaKey >
Sample

Press the OSD/TIME dial to sample the hue components of the area selected by the sample marker.

- When sampling is completed, the image obtained by combining the chroma key with the PVW image is output. (Set the PVW function of the key to ON.)

Other chroma key settings

■ Marker Aspect

[4] ChromaKey > Marker Aspect

This item is used to change the aspect ratio of the sample marker.

■ Ref Adjust

[4] ChromaKey > Ref Adjust

This item makes it possible to change the color to be used as the chroma key reference from the sampled color.

Hue (Hue)	Hue to be used as the reference
Sat (Saturation)	Color saturation to be used as the reference
Lum (Luminance)	Luminance to be used as the reference

- After auto sampling is finished, the sampled values are displayed.

■ Y-Influence

[4] ChromaKey > Y-Influence

This item is used to set the extent of the influence to be exerted by the Y (luminance) component.
The higher the value set, the greater the influence, and with a “0” setting, the luminance component has no influence.

■ Radius

[4] ChromaKey > Radius

This item is used to set the range of the color to be defined.

Hue (Hue-Radius)	Extent of the range of the hue to be defined
Sat (Saturation-Radius)	Extent of the range of the color saturation to be defined

- After auto sampling is finished, the sampled values are displayed.

■ Soft

[4] ChromaKey > Soft

This item is used to adjust the amount of the soft effect on the boundary of the color to be defined.

■ Cancel

[4] ChromaKey > Cancel

This item is used to adjust the amount of color muting.
The color muting is adjusted when the background color is superimposed over the fill image.

Note

Knack of adjusting the chroma key
The chroma key adjustments are facilitated by following the steps below.

① Initiate automatic sampling, and decide on the color to be defined.

② Using the “Radius” item, adjust so that the background color is completely defined.

③ Using the “Soft” item, finely adjust the key signal boundary.

Basic operations

Key decorations

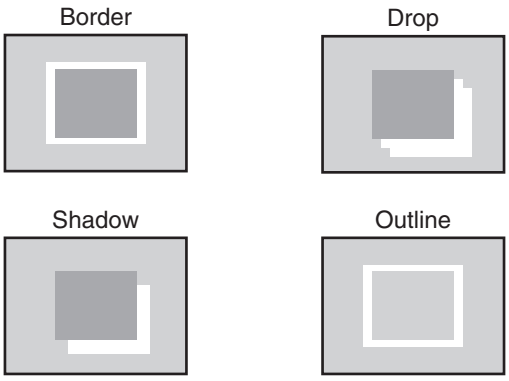
A border, shadow or other edge can be added to the key.

Setting the key edge

① Select the type of edge with the following menu operation:

[3] Key >
Edge > Type

Off	An edge is not added.
Border	A border is added around the entire edge.
Drop	A diagonal border is added.
Shadow	A shadow is added.
Outline	An outline (only a border with no fill) is added.

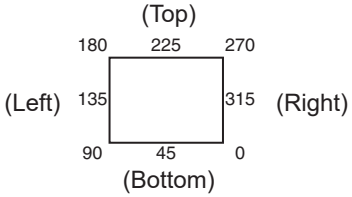


② Select the width of the edge with the following menu operation:

[3] Key >
Edge > Width

③ Select the direction (in 45° units) for adding “Drop” and “Shadow” with the following menu operation:

[3] Key >
Edge > Direction



④ Select density of the edge with the following menu operation:

[3] Key >
Edge > Density

Selecting the Edge Fill settings

Materials to be inserted as edges can be set.

Select the material of edge with the following menu operation:

[3] Key >
Edge > Fill

Color	The color set using Edge Color is used.
CBGD1	The color background is used.
CBGD2	
Still1	The still image video memory (Still1) is used.
Still2	The still image video memory (Still2) is used.

Setting the edge color

Adjust Hue, Sat, and Lum of the edge color with the following menu operation:

[3] Key >
Edge > Color > Hue

[3] Key >
Edge > Color > Sat

[3] Key >
Edge > Color > Lum

■ To call the preset color
Select the preset color with the following menu operation and press the OSD/TIME dial:

[3] Key >
Edge > Color > Load

- When OSD/TIME dial is pressed, what has been set so far is canceled and replaced with the preset color values.
- To save the values that were set before calling the preset color, refer to “Shot memories”.

Masking the key signals

These steps are taken to mask the key signals using the mask signal of the box pattern.

① Set the mask mode with the following menu operation:

[3] Key >
Mask > Size

Off	The key signals are not masked.
Manual	The area that is set using the Position sub menu is masked.
4:3	The signals are masked to the 4:3 aspect ratio.

② Set whether to invert the mask signal with the following menu operation:

[3] Key >
Mask > Invert

On	The mask signal is inverted.
Off	The mask signal is not inverted.

③ Set the mask area with the following menu operation:

[3] Key >
Mask > Position > Left

[3] Key >
Mask > Position > Top

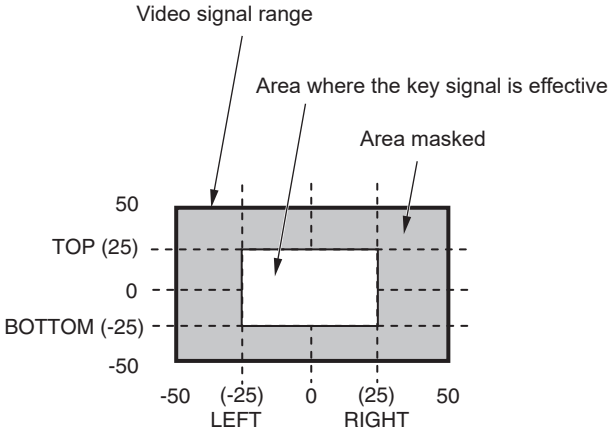
[3] Key >
Mask > Position > Bottom

[3] Key >
Mask > Position > Right

Parameter	Description of setting	Setting range/ Initial value
Left	Key left position	−50.00 to 50.00/ −25.00
Top	Key top position	−50.00 to 50.00/ 25.00
Bottom	Key bottom position	−50.00 to 50.00/ −25.00
Right	Key right position	−50.00 to 50.00/ 25.00

The Left setting cannot exceed the Right setting (and vice versa) and, similarly, the Top setting cannot exceed the Bottom setting (and vice versa).

<Key mask setting> (figure shows the default values)



Setting the priority

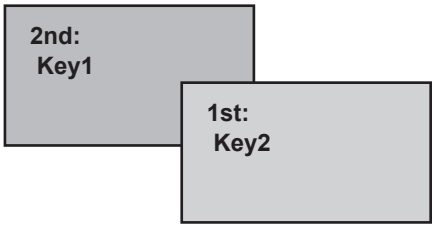
The relative positions of the images when Key1 and Key2 images are to be superimposed onto one another can be set.

Set the relative positions of the 2nd item and the 1st item with the following menu operation:

[3] Key >
Key Priority > Key*

* Only the menu selected in [3] Key > Key Select is displayed.

1st	Set the upper image.
2nd	Set the lower image.



PinP (picture in picture)

Another image can be combined with the background image. This unit supports PinP for 2 channels, Key1 and Key2.

Set enable (On)/disable (Off) for PinP with the following menu operation:

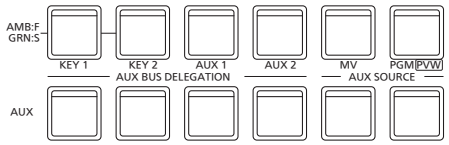
[3] Key >
PinP > PinP

Selecting the PinP channel and material

Press the [Key1] or [Key2] button among the AUX bus selector buttons.

The pressed button lights.
The state in which the PinP materials are selected is now established for the AUX bus crosspoint buttons.

The selected AUX bus crosspoint button lights in amber. (It will light in red if the selected signal is a PGM output signal.)



Selecting Shape

Square, Circle, Heart, Flower or Star can be selected as the shape used for combining PinP images.
- This setting is enabled only when [Full Key] is [ON].

① Select the shape when combining images with the following menu operation:

[3] Key >
PinP > Shape

② Select the transmissivity (darkness) when combining images with the following menu operation:

[3] Key >
PinP > Density

Full Key On/Off

Set enable (On)/disable (Off) for Full Key with the following menu operation:

[3] Key >
PinP > Full Key

On	Irrespective of the values set with [3] Key > Key Type, PinP images are composed with Full Key.
Off	PinP images are composed according to the values set with [3] Key > Key Type.

PinP adjustments

Adjusting the PinP position and size

Set the X and Y coordinates and the size with the following menu operation:

[3] Key >
PinP > Position > X-Position

[3] Key >
PinP > Position > Y-Position

[3] Key >
PinP > Position > Size

Linking Key1 PinP and Key2 PinP

The Key1 PinP and Key2 PinP images perform a symmetrical operation for the axis whose coordinates have been set.
The image serving as the reference is the PinP image of the menu being operated.

Linking Key1 PinP and Key2 PinP

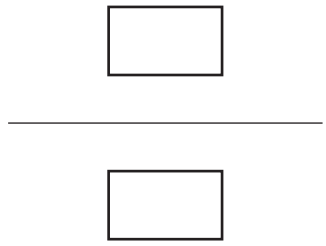
Select the position to be used for reference with the following menu operation:

[3] Key >
PinP > Sync > Symmetry

The image serving as the reference is the PinP image of the menu being operated.

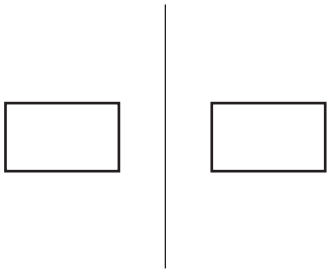
When "X" has been selected as the Symmetry setting

The coordinates are made symmetrical to the X axis.



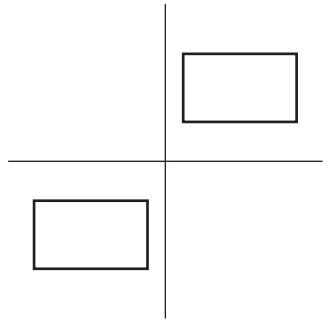
When "Y" has been selected as the Symmetry setting

The coordinates are made symmetrical to the Y axis.



When "Center" has been selected as the Symmetry setting

The coordinates are made symmetrical to the center.



When "Same" has been selected as the Symmetry setting

The coordinates are the same.

Copying the settings

Setting values can be copied with the following menu operation:

[3] Key >
PinP > Sync > Copy to Key

The Key1 PinP settings can be copied to Key2 PinP and, similarly, the Key2 PinP settings can be copied to Key1 PinP.
- Source names not selected in [3] Key > Key Select are displayed.

The setting value for Key1 PinP (or Key2 PinP) is copied and set as the value for Key2 PinP (or Key1 PinP) when the OSD/TIME dial is pressed with the following menu operation:

Note

The following settings are not copied.
- [3] Key > PinP > PinP
- [3] Key > PinP > Shape
- [3] Key > PinP > Density
- [3] Key > PinP > Full Key
- [3] Key > PinP > Trim > Trim
- [3] Key > PinP > Trim > Pair
- [3] Key > PinP > Trim > Preset

PinP decorations

A border or soft effect can be added to PinP.

① Set border On/Off with the following menu operation:

[3] Key >
PinP > Border > Border

② Set the border width with the following menu operation:

[3] Key >
PinP > Border > Width

③ Set the amount of soft effect with the following menu operation:
The soft effect is OFF if 0.0 is set.

[3] Key >
PinP > Border > Soft

When “On” has been selected as the Border item setting, the ratio of the soft effect to the border width is indicated as the amount of soft effect.
When only the soft effect is to be added to PinP, select “Off” as the Border item setting.

④ Set the border width variation with the following menu operation:

[3] Key >
PinP > Border > Mode

Fix	The border width is kept constant.
Variable	The border width changes to suit the PinP size.

Setting the border color

Adjust Hue, Sat, and Lum of the border color with the following menu operation:

[3] Key >
PinP > Border > Color > Hue

[3] Key >
PinP > Border > Color > Sat

[3] Key >
PinP > Border > Color > Lum

■ To call the preset color
Select the preset color with the following menu operation and press the OSD/TIME dial:

[3] Key >
PinP > Border > Color > Load

- When OSD/TIME dial is pressed, what has been set so far is canceled and replaced with the preset color values.
- To save the values that were set before calling the preset color, refer to “Shot memories”.

Trimming settings

① Set trimming On/Off with the following menu operation:

[3] Key >
PinP > Trim > Trim

On	Trimming is performed.
Off	No trimming

② Set the trimming type with the following menu operation:

[3] Key >
PinP > Trim > Preset

16:9	Automatic trimming so that the aspect ratio is 16:9.
12:9	Automatic trimming so that the aspect ratio is 12:9.
9:9	Automatic trimming so that the aspect ratio is 9:9.
7:9	Automatic trimming so that the aspect ratio is 7:9.
6:9	Automatic trimming so that the aspect ratio is 6:9.
Manual	Trimming using the value set on the Trim sub menu.

③ Set Pair On/Off with the following menu operation:

[3] Key >
PinP > Trim > Pair

On	The settings are changed in such a way that the Left and Right trimming amounts and the Top and Bottom trimming amounts are the same. (This makes for a top-bottom and left-right symmetry.)
Off	Pair settings not made.

④ Set the trimming values with the following menu operation:

[3] Key > PinP > Trim > Adjust > Left

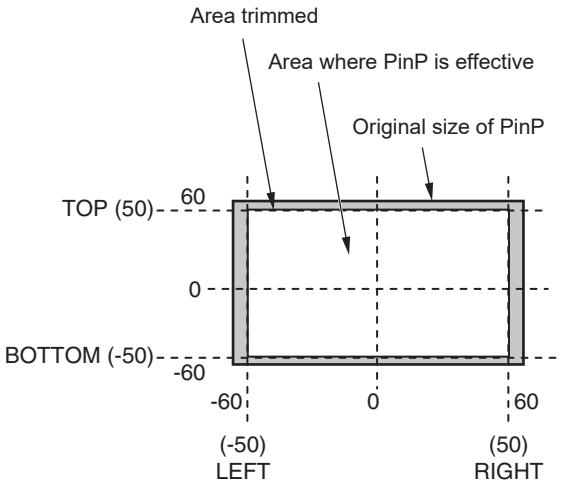
[3] Key > PinP > Trim > Adjust > Top

[3] Key > PinP > Trim > Adjust > Bottom

[3] Key > PinP > Trim > Adjust > Right

Parameter	Description of setting	Setting range/ Initial value
Left	Trimming value at left	−50.00 to 50.00/ −50.00
Top	Trimming value at top	−50.00 to 50.00/ 50.00
Bottom	Trimming value at bottom	−50.00 to 50.00/ −50.00
Right	Trimming value at right	−50.00 to 50.00/ 50.00

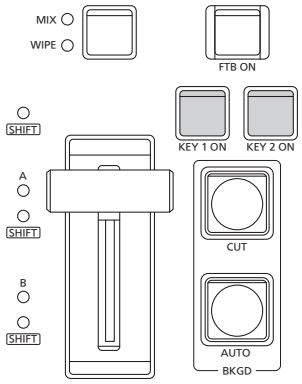
<Trimming settings> (figure shows the default values)



Key Link

Key1 and Key2 can be linked.

The [KEY1 ON] button and the [KEY2 ON] button On/Off (button lights/button turns off) can be linked.



Set On/Off for whether there is a link for each of the buttons with the following menu operation:

[3] Config > Key1/2 Link

- There is no linking if “Off” is selected.

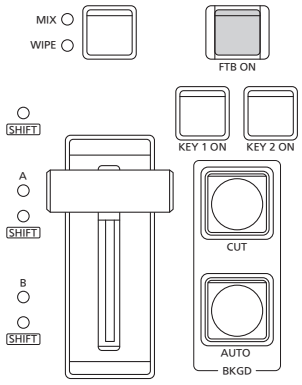
FTB (Fade to Black)

The user can fade out from a program image to the black screen/white screen/Still/color background screen or fade in to a program image from a black screen/white screen/Still/color background.

① Set the duration of the transition.
Set the transition time the same as for each background transition with the following menu operation:

[5] Time >
FTB > Trans Time

→ Refer to “Auto transition”.



② The screen fades out to the setting screen at the set transition time when you press the [FTB ON] button in the transition area.
During fade-out, the indicator of the [FTB ON] button blinks in red, and it lights in red when the transition (fade-out) is completed, and the black screen is displayed.*
When the [FTB ON] button is pressed with the black screen displayed, fade-in to the program image is initiated.
During fade-in, the indicator of the [FTB ON] button lights in red, and it goes off when the transition (fade-in) is completed.
If the [FTB ON] button is pressed at any point during a transition, the direction of the transition is reversed.

*: In the FTB status, the crosspoint button which is normally lit in red lights in amber.

Selecting the image

The image to be used for fading out can be selected.

Select the image for fade-out with the following menu operation:

[5] Time >
FTB > Source

Still1	The still image video memory (Still1) is used.
Still2	The still image video memory (Still2) is used.
CBGD1	The color background is used.
CBGD2	
White	White background
Black	Black background

Muting audio

You can select whether to synchronize the fade-out of audio with the image fade-out.

Select whether to have audio fade-out with the following menu operation:

[5] Time >
FTB > Mute

Off	No audio fade-out during image fade-out.
On	Audio fade-out during image fade-out.

Basic operations

Internal color signals

This unit supports two sets of internal color signals.

Setting the color background

The color background to be used by the bus can be set.
Two methods are available: under one method the Hue (hue), Sat (color saturation) and Lum (luminance) are set, and under the other the 8 preset colors (white, yellow, cyan, green, magenta, red, blue and black) are called.
The Hue, Sat and Lum of the called colors can also be adjusted.

Adjusting the colors

① Select the target color background (CBGD1/CBGD2) with the following menu operation:

[2] CBGD >
CBGD Select

② Adjust the color (Hue, Sat, Lum) with the following menu operation:

[2] CBGD >
CBGD Main > Hue

[2] CBGD >
CBGD Main > Sat

[2] CBGD >
CBGD Main > Lum

■ To call the preset color
Select the preset color with the following menu operation and press the OSD/TIME dial:

[2] CBGD >
CBGD Main > Load

- When OSD/TIME dial is pressed, what has been set so far is canceled and replaced with the preset color values.
- To save the values that were set before calling the preset color, refer to “Shot memories”.

Setting the Wash effect

The gradation effect for color backgrounds can be set.

Selecting the Wash effect and setting the colors

① Set the Wash (gradation) effect with the following menu operation:

[2] CBGD >
CBGD Wash > Wash

On	The gradation effect is added.
Off	The gradation effect is not added.

② Set the color of the Wash (gradation) effect with the following menu operation:

[2] CBGD >
CBGD Wash > Color

Dual	A dual-color gradation effect is added. (This results in a gradation of two colors, namely, the CBGD1 Main color and the CBGD1 Sub color.)
Rainbow	The rainbow color gradation effect is added.

③ If “Dual” is selected, adjust the color (Hue, Sat, Lum) of the sub color with the following menu operation:

[2] CBGD >
CBGD Sub > Hue

[2] CBGD >
CBGD Sub > Sat

[2] CBGD >
CBGD Sub > Lum

Basic operations

Adjusting the Wash waveforms

① Select the waveform of the gradation with the following menu operation:

[2] CBGD >
CBGD Wave > Pattern

Sine	Sine waves are selected.
Saw	Sawtooth waves are selected.

② Select the cycle of the gradation with the following menu operation:

[2] CBGD >
CBGD Wave > Cycle

③ Select the phase of the gradation with the following menu operation:

[2] CBGD >
CBGD Wave > Phase

④ Select the angle of the gradation with the following menu operation:

[2] CBGD >
CBGD Wave > Angle

Setting the Wash movements

① Set the movement of the gradation with the following menu operation:

[2] CBGD >
CBGD Move > Move

Off	No movement is set.
Roll	The gradations are scrolled.
Rotation	The gradations are rotated.

② Set the speed of the movement with the following menu operation:

[2] CBGD >
CBGD Move > Speed

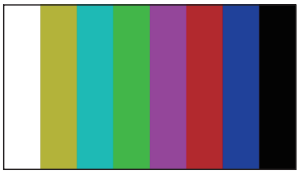
Internal color bar signal

The unit supports 1 internal color bar signal.

Selecting the color bar signal

You can set the built-in color bar type to Type1 to 3 with the following menu settings:

[12]Config >
CBAR > Type

Type1	
Type2	
Type3	

- The color bar is for the adjustment of the color phase. The width and position of the bar may differ from other models.

Setting the color bar signal movement

You can set the speed of color bar signal movement in 2 levels.

- The color bar signals that can be moved are Type2 and Type3.

Set the speed of movement with the following menu operation:

[12] Config >
CBAR > Move

Normal	Color bar signal moves fast.
Low	Color bar signal moves slow.
Off	Color bar signal does not move.

Test tone settings

The settings related to the test tone signals (1 kHz) output with color bar signals can be set.

Set the test tone function with the following menu operation:

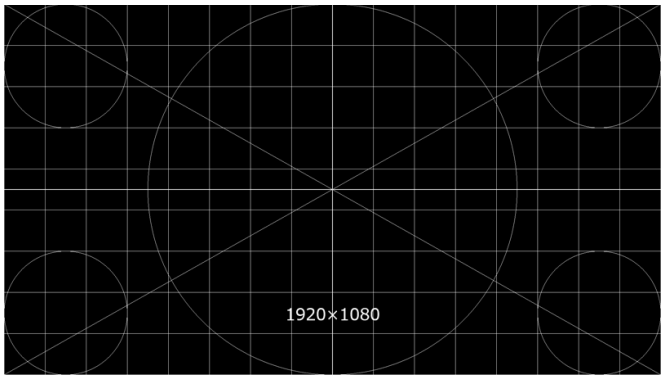
[12] Config >
CBAR > Test Tone

Normal	Test tones are output at the normal volume (–12 dB).
Low	Test tones are output at lower volume (–20 dB).
Off	Test tones are not output.

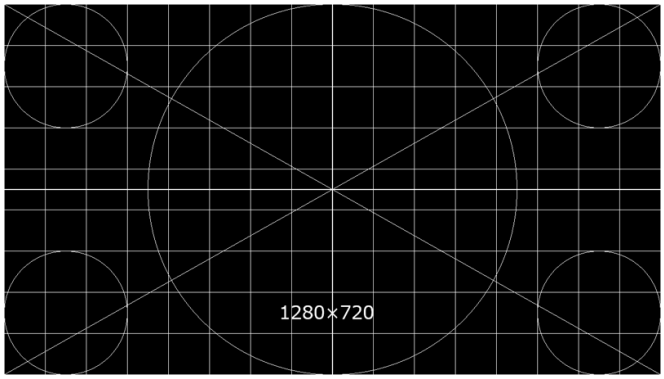
In-built test pattern signal

This unit can output a test pattern signal.
It allows you to check factors such as the aspect ratio on connected devices.
A test pattern signal with an angle of view is selected that corresponds to the system format set on this unit.
It is loaded to either Still1 or Still2 in the video memory and can be used as an internal source.

<Test pattern when the system mode is 1080>



<Test pattern when the system mode is 720>



① Select the device to which the test pattern signal will be output with the following operation:

[6] Still >
Still Select

② Press the OSD/TIME dial (Execute) in the following menu to load to the selected video memory:

[6] Still >
Test Pattern > Load

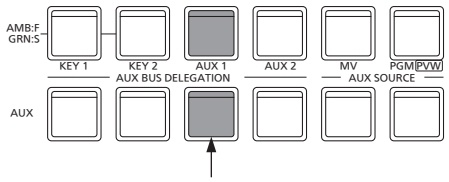
Switching the AUX output

Selecting the AUX output materials

The output signals of the AUX buses (AUX1, AUX2) can be selected.

① Press one of the [AUX1], [AUX2] buttons among the AUX bus selector buttons.
The selected button lights in amber.

② Press one of the AUX bus crosspoint buttons.
The selected signal is output to the pressed [AUX1], [AUX2] button.



The button with the signals selected by AUX1 lights in amber.

<Signals that can be selected with the AUX bus>

Name of signal	Description of signal
IN1	SDI/HDMI input signal 1
IN2	SDI input signal 2
IN3	SDI input signal 3
IN4	SDI input signal 4
IN5	HDMI input signal 2
IN6	IP input signal 1
IN7	IP input signal 2
IN8	IP input signal 3
IN9	IP input signal 4
PGM	Program video signal
PVW	Preview video signal
CLN	Clean signal
MV	Multi view display output signal
KeyOut	Key output signal
Black	Black signal
CBGD1, CBGD2	Color background 1, 2
CBAR	Color bar
Still1, Still2	Video memory (still image) 1, 2

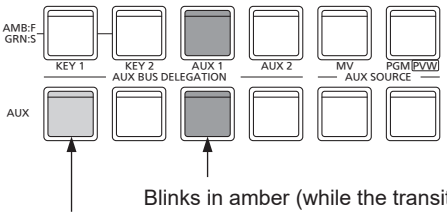
- When the AUX bus for which “MV” has been selected is displayed on the sub screen of the multi view display, the images are looped as if two mirrors were facing each other.

AUX1/2 transitions

The MIX transition is executed when the output signal set for AUX1/2 is switched.

① Press the [AUX1] or [AUX2] button of the AUX bus selector buttons.
The selected button and its corresponding AUX bus crosspoint button light in amber.

② Press the AUX bus crosspoint button for the output signal to be switched to.
The MIX transition is now initiated for the length of the transition time that was set using the Time menu.
While the transition is underway, the transition source AUX button lights in green, and the transition destination AUX button blinks in amber.
As soon as the transition is completed, the transition source AUX button goes off, and the transition destination AUX button lights in amber.
Furthermore, when another signal is selected at a midway point through a transition, the transition processing continues from that midway point.



Blinks in amber (while the transition is underway).

Lights in green.

- The AUX bus transition when Shot Memory is recalled is linked to the Shot Memory dissolve time.

Setting enable/disable for the AUX1/2 transition

The AUX1/2 transition time and transition enable/disable can be set.

① Set the transition time with the following menu operation:

[5] Time >
AUX1 Bus Trans > Trans Time

[5] Time >
AUX2 Bus Trans > Trans Time

Any time from 0 to 999f can be set. The time which can be set when seconds are used as the display unit differs depending on the system format.

59.94i	max. 33s09f	**29.97p**	max. 33s09f
50i	max. 39s24f	**25p**	max. 39s24f
59.94p	max. 16s39f	**24p**	max. 41s15f
50p	max. 19s49f	**23.98p**	max. 41s15f

② Set the enable/disable for transition with the following menu operation:

[5] Time >
AUX1 Bus Trans > Transition

[5] Time >
AUX2 Bus Trans > Transition

On	Enable
Off	Disable

When disable has been set for the transition, the output signals are switched with no transition when the output signals set in AUX1/2 is switched.

Basic operations

Shot memories

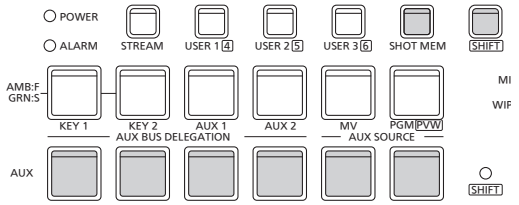
The background transition pattern, PinP size, border width and other video effects can be registered in the memory and recalled. The memory used for this is referred to as a shot memory.
By setting effect dissolve, it is possible to ensure a smooth change of the switching from the current images to the images or operations registered in the shot memory.

Memory items that can be registered and recalled

Item	Material selection	Transition	Pattern	Menu
BKGD	● PGM/A bus ● PST/B bus	● Fader amount ● Wipe direction	● BKGD patterns (MIX, WIPE)	● [1] WIPE
Key1	● Key1 Fill bus ● Key1 Source bus	● Key1 On/Off ● Fader amount ● Wipe direction	● KEY patterns (MIX, WIPE)	● [1] WIPE ● [3] Key ● [4] ChromaKey
Key2	● Key2 Fill bus ● Key2 Source bus	● Key2 On/Off		● [3] Key
AUX1	● AUX1 bus			
AUX2	● AUX2 bus			
CBGD				● [2] CBGD

Storing the settings in the memory (Store)

Images and operations to be registered can be set and then registered in the memories.



① Using the unit, set the images or operations to be kept in the memory.

② Set the item to be registered in the memory with the following menus:

[7] Shot Memory >
Target Select > BKGD

[7] Shot Memory >
Target Select > Key1

[7] Shot Memory >
Target Select > Key2

[7] Shot Memory >
Target Select > AUX1

[7] Shot Memory >
Target Select > AUX2

[7] Shot Memory >
Target Select > CBGD

→ Refer to “Memory items that can be registered and recalled”.

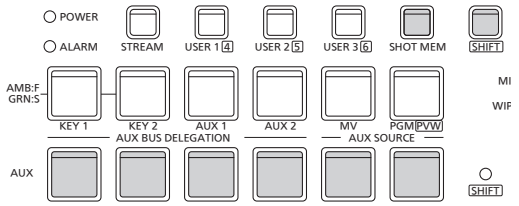
③ Press the [SHOT MEM] button.
The [SHOT MEM] button turns amber.

④ Hold down the AUX BUS selector button (1 to 12) of the memory number to register. (Approx. 1 second)
The AUX BUS selector button of the memory number lights green when registration is complete.
- The AUX BUS selector buttons 1 to 6 act as 7 to 12 while you are pressing the [SHIFT] button.
- AUX BUS selector buttons that light green or amber already have a memory registered.

⑤ Repeat the above steps to register other kinds of settings in the memories.

Basic operations

Recalling the operations stored in the memory (Recall)



① Select the target to be recalled from the memory with the following menus:

[7] Shot Memory >
Target Select > BKGD

[7] Shot Memory >
Target Select > Key1

[7] Shot Memory >
Target Select > Key2

[7] Shot Memory >
Target Select > AUX1

[7] Shot Memory >
Target Select > AUX2

[7] Shot Memory >
Target Select > CBGD

→ Refer to “Selecting targets for registration and targets for playback”.

② Turn “On” the following menu to use the crosspoint buttons on the control panel to select the material rather than using the material registered in the “Material selection” item.

[7] Shot Memory >
XPT Disable

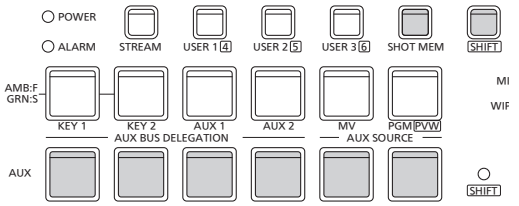
→ Refer to “Selecting targets for registration and targets for playback”.

③ Press the [SHOT MEM] button.
The [SHOT MEM] button turns amber.

④ Press the AUX BUS selector button (1 to 12) of the memory number to recall.
- The AUX BUS selector buttons 1 to 6 act as 7 to 12 while you are pressing the [SHIFT] button.
- In the case of a shot memory, the video effects are recalled, and playback starts.
  During playback, the AUX BUS selector button of the memory number lights amber.

Refer to “Setting the user buttons” when recalling memory operations from the user buttons

Deleting the operations stored in the memory (Delete)



① Hold down the [SHOT MEM] button.

The [SHOT MEM] button blinks amber.
The AUX BUS selector buttons where memory is registered also blink green or amber.

② Hold down (for about 1 second) the AUX BUS selector button (1 to 12) of the memory number to delete.

The pressed AUX BUS selector button turns off.
- The AUX BUS selector buttons 1 to 6 act as 7 to 12 while you are pressing the [SHIFT] button.

Selecting targets for registration and targets for playback

Selecting the target and the “Material selection” item when registering a memory

When creating a shot memory, you select the items that are to be saved.

Set “On” for the items to be saved with the following menu operation:

[7] Shot Memory > Target Select > BKGD > Target

[7] Shot Memory > Target Select > Key1 > Target

[7] Shot Memory > Target Select > Key2 > Target

On	Register the target setting in the memory.
Off	Do not register the target setting in the memory.

[7] Shot Memory > Target Select > BKGD > XPT

[7] Shot Memory > Target Select > Key1 > XPT

[7] Shot Memory > Target Select > Key2 > XPT

On	Register the “Material selection” item in the memory.
Off	Do not register the “Material selection” item in the memory.

[7] Shot Memory > Target Select > AUX1

[7] Shot Memory > Target Select > AUX2

[7] Shot Memory > Target Select > CBGD

On	Register the target setting in the memory.
Off	Do not register the target setting in the memory.

Selecting the target and the “Material selection” item when playing back a memory

When playing back a shot memory, you select the item that is to be played back and the “Material selection” item.

Set “On” for the item to be played back with the following menu operation:

[7] Shot Memory > Target Select > BKGD > Target

[7] Shot Memory > Target Select > Key1 > Target

[7] Shot Memory > Target Select > Key2 > Target

On	Plays back the target. **It does not play back if it is not registered in the memory, however.**
Off	Does not play back the target.

[7] Shot Memory > Target Select > BKGD > XPT

[7] Shot Memory > Target Select > Key1 > XPT

[7] Shot Memory > Target Select > Key2 > XPT

On	Plays back the “Material selection” item. **It does not play back if it is not registered in the memory, however.**
Off	Does not play back the “Material selection” item.

[7] Shot Memory > Target Select > AUX1

[7] Shot Memory > Target Select > AUX2

[7] Shot Memory > Target Select > CBGD

On	Plays back the target. **It does not play back if it is not registered in the memory, however.**
Off	Does not play back the target.

[7] Shot Memory > XPT Disable

On	Does not play back the “Material selection” items of BKGD, Key1, and Key2.
Off	Plays back the “Material selection” items of BKGD, Key1, and Key2. **It does not play back if it is not registered in the memory, however.**

Setting effect dissolve (shot memory)

Switching from the current image to the image or operation stored in the shot memory can be performed smoothly.

① Set the effect when switching images with the following menu operation:

[7] Shot Memory >
Effect

Cut	The images are switched using the cut effect.
Dissolve	The images are switched using the dissolve effect.

- Set the time for the dissolve effect with the following menu operation:

[5] Time >
Effect Dissolve

② Select the effect when changing colors with the following menu operation:

[7] Shot Memory >
Hue Path

The following colors are targeted by Hue.
- Colors of the color background
- Colors of the borders
- Colors of the edges
- Colors of the fill matte

Short	The colors are changed toward less hue on the vectorscope.
Long	The colors are changed toward more hue on the vectorscope.
CW	The Hue is changed clockwise on the vectorscope.
CCW	The Hue is changed counterclockwise on the vectorscope.

- The pressed AUX BUS selector button lights in amber when the operation is switched.
- When the Effect item is changed from “Dissolve” to “Cut” while operation is being switched, the dissolve effect is released, and the images are switched to the images of the selected shot memory in an instant.
- During the operation switching, the operation of the fader lever is canceled.
- Other memory operations cannot be recalled while an operation is switching.

Video memories

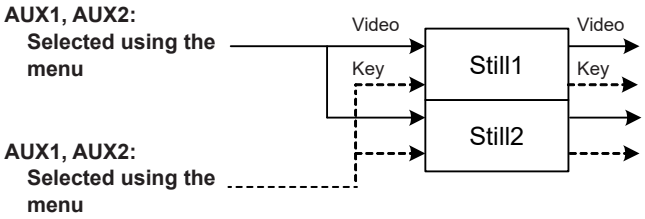
This unit can save still image memories (Still) in two channels for use.

- Images with key signals can be stored in the video memories (still images and moving images).
- Video memory data is stored in the internal storage. It is kept even if the power of the unit is turned off.
- The video memory data can be stored onto, and read out from, USB memory.
- If the system format of this unit is changed between 1080 and 720, the stored video memories are deleted. Before changing the system format, save the video memories to a USB memory or project file.

■ Video memory input/output

The image input materials can be selected from the output signals of the AUX buses (AUX1, AUX2).

<Image systems of the video memories>



Recording still images (Still)

① Select “Still1” or “Still2” with the following menu operation:

[6] Still >
Still Select

② Set the images to be recorded in the video memory with the following menu operation:

[6] Still >
Capture Setting > Video

AUX1, AUX2	The output signals of the AUX buses (AUX1, AUX2) are recorded as the material.

③ Set the review display with the following menu operation:

[6] Still >
Capture Setting > Review

On	After the images have been recorded, the images of the video memory recorded in the AUX bus are displayed (for 2 seconds or so).
Off	The review display is not shown.

④ The still image is recorded at the same time you press the OSD/TIME dial (Execute) in the following menu.

[6] Still >
Capture

Basic operations

USB memory

You can save the video memory data and setup data of this unit to a USB memory as a project file.
Conversely, this data can be loaded from the USB memory to the unit.
Furthermore, it is possible to update the unit's software.
- It may take a while to store a still image file with high image quality on the USB memory.

Video memory (still image data: Still1, Still2):

<File formats supported>

Bitmap (bmp), JPEG (jpg), TARGA (tga), TIFF (tif), GIF (gif), PNG (png)

- This unit supports 24-bit uncompressed or 32-bit uncompressed TARGA files.
  If any other types of TARGA files are loaded into the unit, black images will be displayed as the thumbnails, and the unit cannot recognize the files.
- Be aware that saving video memory still images on the memory card in GIF format will cause the picture quality to deteriorate.

<Applicable sizes>

HD/1080i: 1920×1080	HD/720p: 1280×720
HD/1080p: 1920×1080	

- Images that do not match any of the "applicable sizes" are output from AV-HSW10 centered without having their size changed. If the size is large, the parts that protrude outside of the size are cut off. If the size is small, the blank parts are blacked out. Also note that files with sizes exceeding 1920×1080 pixels cannot be loaded.

Project file data (Project):

The "project file data" refers to all the data stored in the unit with the exception of the following data.
Project files can be saved.

Date, time, network settings

Software for updating (Update):

The software for updating is loaded.
This software can be obtained from "Service and Support" on the Web site whose address is provided below:
https://pro-av.panasonic.net/en/
For the update procedure, follow the steps in the directions which are contained in the download file.

Log file (Log):

Log files stored in the unit can be saved.

●Concerning USB memory

USB memory used with the unit should conform to USB 2.0 standards.
Be sure to format USB memory using the unit.
Use memory cards formatted with FAT or exFAT.
(NTFS formatted USB memory cannot be recognized.)

Operation with this unit has been confirmed for the following USB memory devices:
- KIOXIA TransMemory U301 (32GB, 64GB, 128GB)
- SanDisk Cruzer Glide CZ600 (32GB, 64GB, 128GB)

For the latest information not available in the Operating Instructions, visit the following Web sites.
https://pro-av.panasonic.net/en/

- Memory cards must not be used or stored in an environment where they may be
  - **Exposed to high temperatures/humidities;**
  - **Exposed to water droplets; or**
  - **Electrically charged.**

Basic operations

The data is stored in the following folders on the USB memory.
When data is to be loaded, first store the data in the respective folders, and then load the files.

<Data folder configuration>

Data type	Save Type item	Storage folder	Extension
Project file (project)	Project (*1)	“HS\COMM\PROJECT”	001, 002, … (*3)
Video memory (Still file)	Still1, Still2 (*2)	“HS\COMM\IMAGE”	bmp, tga, png, jpg(jpeg), tif(tiff), gif
Update file	–	“HS\HSW10\UPDATE”	10d
Log file	Log	“HS\HSW10\LOG”	log
Load TEXT file (page 29)		“HS\HSW10\TEXT”	txt (*4)

*1 The project file saves together the setup data, shot memory data, and still image data selected with the following menu operation:

[18] USB Memory >
Save > Setup

[18] USB Memory >
Save > Shot

[18] USB Memory >
Save > Still

*2 When the still image data with key signals attached is stored into the video memory, select “tga” or “png” as the file format.
The still image data of any other file format cannot be stored with attaching the key signals.

*3 The project file is saved in a folder created as File Name folder created under the HS\COMM\PROJECT folder.
When the project file being stored is large, the file is divided and each file is appended with a serial number extension (001, 002, etc.).

*4 When you select [Load TEXT] you can load a text file (.txt) that was saved to the "HS\HSW10\TEXT” folder on the USB memory formatted by this unit, and use the content to set as a character string.[Load TEXT] cannot be selected if a USB memory is not connected.

USB memory handling precautions

- “Unmount” the USB memory before removing it.
  If the USB memory is removed without “Unmount”, the transition may pause or the content saved in the USB memory may be lost.
- The data stored on USB memory may be lost as a result of misplacing the USB memory or performing erroneous operations, for instance. It is recommended that valuable data be stored on a computer or other device.

Formatting USB memory

Before using a USB memory on this unit, **the USB memory must first be formatted on this unit.** Executing the format means that the USB memory is formatted and a dedicated directory is created. (All files saved on the USB memory will be erased.)

① Insert the USB memory into the unit's USB connector (Type-A connector).

② Press the OSD/TIME dial (Execute) in the following menu to format.

[18] USB Memory >
Format

The item is grayed out if a USB memory is not inserted.
- To format, select "YES" in the confirmation screen.
- To cancel, select "NO".

Format the USB memory to use it in this unit.

Saving data on USB memory

① Insert a USB memory that was formatted on this unit into the USB connector (Type-A connector).

② Select the data to save in the USB memory with the following menu operation:

[18] USB Memory >
Save > Save Type

When saving still images:
Select the file format for saving still images with the following menu operation:

[18] USB Memory >
Save > File Format

When saving project files:
Turned "On" the items to be saved as the project file with the following menu operation:

[18] USB Memory >
Save > Setup

[18] USB Memory >
Save > Shot

[18] USB Memory >
Save > Still

③ Press the OSD/TIME dial (Execute) in the following menu to display the file selection screen.

[18] USB Memory >
Save > Save

For the destinations where the data is stored, refer to <Data folder configuration>.

- Be aware that saving video memory still images on the USB memory in GIF format will cause the picture quality to deteriorate.
- Alphanumeric characters and symbols can be used for file names.
  Files using other characters cannot be displayed on this unit.

Basic operations

Loading data from USB memory

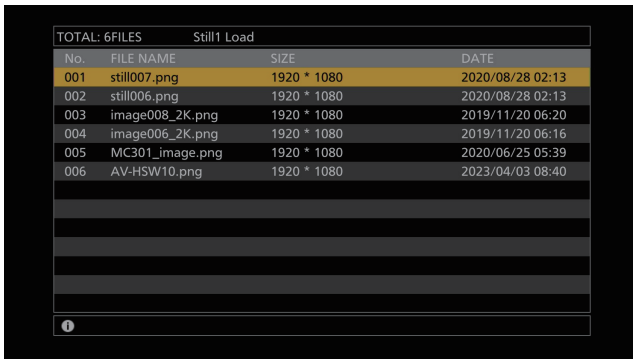
① Insert the USB memory on which the data is stored into the USB connector (Type-A connector).
Load the file after its data has been stored in the each folder.
Data stored in other folders will not be recognized by the unit.

For the destinations where the data is stored, refer to <Data folder configuration>.

② Press the OSD/TIME dial (Execute) in the following menu to display the file selection screen.

[18] USB Memory >
Load > Load

<Example of what appears on the file selection screen>



③ Select the type of file to load with the following menu operation:

[18] USB Memory >
Load > Load Type

④ Turn the OSD/TIME dial to select the file name to load.
A shortened file name may be displayed if the filename being loaded exceeds 11 characters.
If the name of the file to be loaded is 33 characters or more, it will not be displayed on the file selection screen.

- Alphanumeric characters and symbols can be used for file names.
  Files using other characters cannot be displayed on this unit.

⑤ Press the OSD/TIME dial to load the file.

Displaying the USB memory information

① Insert the USB memory on which the data is stored into the USB connector (Type-A connector).

② Display the following menus:

[18] USB Memory >
Free

[18] USB Memory >
Total

Free	The USB memory's remaining free space is displayed.
Total	The memory card's capacity is displayed.

Basic operations

Internal storage

The setup data for this unit can be saved as a project file in the internal storage.
Furthermore, you can also load the setup data from the internal storage to this unit.

- It may take some time when saving still image files with high image quality to the internal storage.
- The following data can be selected and saved or loaded as a project file.
  Setup data, shot memory data, still video memory
- The date, time, and network settings cannot be saved.

Project file management screen

Display the following menus:

[14] Project

- You can load, save, delete and rename project files in the internal storage using this menu screen.
  You can also view the information for the project file that was most recently loaded.

Saving project files to the internal storage

① Select the file to save with the following menus:

[14] Project >
Project File > Project 1

[14] Project >
Project File > Project 2

[14] Project >
Project File > Project 3

- You can overwrite a project file that has already been saved.
- You cannot overwrite files that have the Protect item “On”.

② Press the OSD/TIME dial (Execute) in the Save item to save the project file in the internal storage.

Loading project files from the internal storage

① Select the file to load with the following menus:

[14] Project >
Project File > Project 1

[14] Project >
Project File > Project 2

[14] Project >
Project File > Project 3

② Press the OSD/TIME dial (Execute) in the Load item to load a project file from the internal storage.

③ You can protect the target file by setting the Protect item.

- Project files that have the Protect item “On” cannot be overwritten, deleted, or filenames changed.

Deleting project files from the internal storage

① Select the file to delete with the following menus:

[14] Project >
Project File > Project 1

[14] Project >
Project File > Project 2

[14] Project >
Project File > Project 3

② Press the OSD/TIME dial (Execute) in the Delete item to delete the project file from the internal storage.

- You cannot delete files that have the Protect item “On”.

③ You can protect the target file by setting the Protect item.

- Project files that have the Protect item “On” cannot be overwritten, deleted, or filenames changed.

Changing the filenames of project files saved in the internal storage

① Select the project file for which you want to change the name with the following menus:

[14] Project >
Project File > Project 1

[14] Project >
Project File > Project 2

[14] Project >
Project File > Project 3

② You can change the name of the project files saved in the internal storage with the Name item.

- The file name can have a maximum of 32 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

③ You can protect the target file by setting the Protect item.

- Project files that have the Protect item “On” cannot be overwritten, deleted, or filenames changed.

Input/output signal settings

Input signal settings

The available inputs are as follows:

Logical input name	Physical input name	Limitations
IN1	SDI IN1/HDMI IN1	SDI/HDMI mutually exclusive, simplified UC/DC, with scaler
IN2	SDI IN2	Simplified UC/DC
IN3	SDI IN3	With UC/DC
IN4	SDI IN4	With UC/DC
IN5	HDMI IN2	With scaler
IN6	LAN	SRT/NDI HX
IN7	LAN	SRT/NDI HX
IN8	LAN	NDI, equipped with α compatibility, IN9 is disabled at this time
IN9	LAN	NDI

When setting input signals, first select the input signal you want to set in the following menus:

[10] Input >
IN1 > SDI/HDMI

[10] Input >
INx > Streaming Mode

You can expand IP input on this unit by updating the firmware.
Go to the Panasonic website to change to the firmware that suits your purpose.
The following 2 types of IP input mode are available.
The limitations on SDI IN1 to 4 and HDMI IN1 to 2 are common across the IP modes.

IP mode name	IP input limitations
Normal	IN6: SRT / NDI HX IN7: SRT / NDI HX IN8: NDI, equipped with α compatibility, IN9 is disabled at this time IN9: NDI * The firmware is for the Normal mode in the factory settings.
NDI HB	IN6: NDI, equipped with α compatibility, IN7 is disabled at this time IN7: NDI IN8: NDI, equipped with α compatibility, IN9 is disabled at this time IN9: NDI

Check the IP mode of the unit with the following menu operation:

[13] System >
IP Mode

- You can view the current IP mode name.
  You can change the IP mode with Update in USB Memory > Load > Load Type.

Input/output signal settings

<List of settings by input signal>

Input connector	Setting menu and page in this manual							
	Status	FS	Freeze	Limited	Name	Up/Down Converter	C/C	HDMI Status
	P69	P70	P70	P71	P71	P71	P72	P74
SDI IN 1	✓	✓	✓	–	✓	–	✓	–
SDI IN 2	✓	✓	✓	–	✓	–	✓	–
SDI IN 3	✓	✓	✓	–	✓	✓	✓	–
SDI IN 4	✓	✓	✓	–	✓	✓	✓	–
HDMI IN 1	–	–	✓	✓	✓	–	✓	✓
HDMI IN 2	–	–	✓	✓	✓	–	✓	✓
IP IN1	–	–	–	–	✓	–	–	–
IP IN2	–	–	–	–	✓	–	–	–
IP IN3	–	–	–	–	✓	–	–	–
IP IN4	–	–	–	–	✓	–	–	–

Input connector	Setting menu and page in this manual						
	HDMI Input	Scale	SRT Status	SRT Input	NDI Status	NDI Input	Camera Setting
	P73	P73	P75	P75	P77	P76	P104
SDI IN 1	–	–	–	–	–	–	✓
SDI IN 2	–	–	–	–	–	–	✓
SDI IN 3	–	–	–	–	–	–	✓
SDI IN 4	–	–	–	–	–	–	✓
HDMI IN 1	✓	✓	–	–	–	–	✓
HDMI IN 2	✓	✓	–	–	–	–	✓
IP IN1	–	–	✓*1	✓*1	✓*2	✓*2	✓
IP IN2	–	–	✓*1	✓*1	✓*2	✓*2	✓
IP IN3	–	–	–	–	✓	✓	✓
IP IN4	–	–	–	–	✓	✓	✓

✓: Can be set.
—: Cannot be set.

*1 Only for SRT settings
*2 Only for NDI/NDI HX settings

Input/output signal settings

Settings for the exclusionary input connectors

Set the exclusionary input for the SDI input connectors (SDI IN 1)/HDMI input connectors (HDMI IN 1).

Set the input signal type with the following menu operation:

[10] Input >
IN1 > SDI/HDMI

SDI IN	Selects the SDI signal input to SDI IN 1 for IN1. Even if HDMI signals are input, they are not input to this unit.
HDMI IN	Selects the HDMI signal input to HDMI IN1 for IN1. Even if SDI signals are input, they are not input to this unit.

Checking the input signal status

You can check the status of input signals.

For SDI input signals

Display the following menus:

[10] Input >
INx > Status Information

The unit automatically determines the content of input signals and displays the following information.

Format	Displays the image format information for the SDI signal being input.
Audio	Displays the audio information for the SDI signal being input.
Status	Detect: An input signal format suited to the system format of this unit. Unsupported: An input signal format not suited to the system format of this unit. Not Detect: There is no video signal being input to the unit.

For HDMI input signals

Display the following menus:

[10] Input >
INx > Status Information

The unit automatically determines the content of input signals and displays the following information.

Size	Displays the resolution information for the HDMI signal being input.
Dot Clock	Displays the dot clock information for the HDMI signal being input.
H-Frequency	Displays the horizontal frequency information for the HDMI signal being input.
V-Frequency	Displays the vertical frequency information for the HDMI signal being input.
Status	Detect: An input signal format suited to the system format of this unit. Unsupported: An input signal format not suited to the system format of this unit. Not Detect: There is no video signal being input to the unit.

For SRT input signals

→ Refer to “Displaying the SRT input signal information”.

For NDI input signals

→ Refer to “Displaying the NDI input signal information”.

Input/output signal settings

Setting the frame synchronizer

The frame synchronizer can be set to On or Off for each SDI input.
The HDMI input frame synchronizer is permanently On.
It cannot be set from On to Off or vice versa.

Set the frame synchronizer with the following menu operation:

[10] Input >
INx > FS Mode

Off	Turns the frame synchronizer Off. The line synchronizer function operates in this case. The line synchronizer function automatically adjusts the phases of input video signals to match the phases of the horizontal sync signals.
Normal	Enables the frame synchronizer function. When a signal that is different from the system format is input, the screen turns black.
Auto	Enables the frame synchronizer function. Even when a signal that is different from the system format is input, the screen does not turn black. The video output in this case may be disrupted.

- If the output signal phase is set to [0H], “Off” cannot be selected as the FS item setting.
  If the FS item is set to “Off”, this changes to Normal.
- When inputting 3G-SDI Level B Mapping signals, set the frame synchronizer setting to “Auto”.

Setting the delay amount

The input signals can be delayed.
- This setting is for input signals to SDI IN1 to 4.
- This does not have an effect on embedded audio.

Set the delay amount with the following menu operation:

[10] Input >
INx > FS Delay

Freezing the input signals

The SDI/HDMI input signals can be frozen and used.
While signals are frozen, the tally signals of the corresponding input will not be output.

Setting freeze

① Select the behavior of freeze with the following menu operation:

[10] Input >
INx > Freeze Select

Frame	The images are frozen frame by frame.
Field	The images are frozen field by field. This is used to freeze moving images. With interlace signals, however, diagonal lines and moving parts appear jagged.

- Frame or Field can also be selected while an image is frozen.

② Freeze and release input images with the following menu operation:

[10] Input >
INx > Freeze

- Image signals are frozen when you change “Disable” to “Enable”.
- Image signals are released from freeze when you change “Enable” to “Disable”.
  When you freeze signals set to output to multi view displays, an “F” mark is displayed in front of the source name.

- When the unit is used with the frame synchronizer function OFF, the output images may be disturbed when freezing is executed, but the frozen images will not be adversely affected.
- If, when the switcher is used with the frame synchronizer function at OFF, “Enable” is set as the freeze setting, the frame synchronizer function will be automatically switched to ON.

Input/output signal settings

Limited settings

On this unit, you can make settings for full range and limited range to suit the HDMI tone levels of connected input devices, such as cameras.

[10] Input >
INx > Limited

Off	Select when the tone levels of the HDMI input are full range.
On	Select when the tone levels of the HDMI input are limited range.

- Full range: HDMI input supports RGB 0 to 255.
- Limited range: HDMI input supports RGB 16 to 235. This is also referred to as the video range.

Setting the material names

Material names can be given to the input signals.
These names can be selected from the default settings or user settings.

Select the material name type with the following menu operation:

[10] Input >
INx > Name Type

Default (default settings)	The following material names are selected automatically: IN1 to 9
User (user settings)	The material names are set using up to 32 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space, ! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Setting the up-converter

Select the settings for SDI IN3, SDI IN4, that is built into the optional unit listed below:

① Set the image motion detection sensitivity with the following menu operation:

[10] Input >
INx > Up/Down Converter > Move Detect

1	Toward still images
⌇	⌇
3	Standard
⌇	⌇
5	Toward moving images

② Set the degree of sharpness of edges of images with the following menu operation:

[10] Input >
INx > Up/Down Converter > Sharp

1	Not sharp edges
⌇	⌇
3	Standard
⌇	⌇
5	Very sharp edges

Input/output signal settings

Color Corrector

Make settings for the Color Correctors built in to SDI/HDMI.

Color Corrector settings

Set enable (On)/disable (Off) for the Color Corrector with the following menu operation:

[10] Input >
INx > Color Correct > C/C

Process control

① Set the Y signal gain value with the following menu operation:

[10] Input >
INx > Color Correct > C/C Process > Y-Gain

② Set the pedestal level value with the following menu operation:

[10] Input >
INx > Color Correct > C/C Process > Pedestal

③ Set the gain value of the saturation with the following menu operation:

[10] Input >
INx > Color Correct > C/C Process > C-Gain

④ Set the amount of change to the hue with the following menu operation:

[10] Input >
INx > Color Correct > C/C Process > Hue

Input/output signal settings

Setting the HDMI input signals

Make settings for HDMI input signals.
Signals with the following resolutions can be input.

<HDMI input signal compatibility chart>

HDMI input signals	System format									
	1080/ 59.94p	1080/ 50p	1080/ 29.97p	1080/ 25p	1080/ 24p	1080/ 23.98p	1080/ 59.94i	1080/ 50i	720/ 59.94p	720/ 50p
1080/59.94p (1920 x 1080)/ 59.94 Hz, 60 Hz	✓	–	–	–	–	–	✓	–	✓	–
1080/50p (1920 x 1080)/50 Hz	–	✓	–	–	–	–	–	✓	–	✓
1080/29.97p (1920 x 1080)/ 29.97 Hz	–	–	✓	–	–	–	–	–	–	–
1080/25p (1920 x 1080)/25 Hz	–	–	–	✓	–	–	–	–	–	–
1080/24p (1920 x 1080)/24 Hz	–	–	–	–	✓	–	–	–	–	–
1080/23.98p (1920 x 1080)/ 23.98 Hz	–	–	–	–	–	✓	–	–	–	–
1080/59.94i (1920 x 1080)/ 59.94 Hz, 60 Hz	✓	–	✓	–	–	–	✓	–	✓	–
1080/50i (1920 x 1080)/50 Hz	–	✓	–	✓	–	–	–	✓	–	✓
720/59.94p (1280 x 720)/59.94 Hz, 60 Hz	✓	–	–	–	–	–	✓	–	✓	–
720/50p (1280 x 720)/50 Hz	–	✓	–	–	–	–	–	✓	–	✓
WSXGA+ (1680 x 1200)/60 Hz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SXGA (1280 x 1024)/60 Hz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WXGA (1280 x 768)/60 Hz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
XGA (1024 x 768)/60 Hz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓: Can be set.
—: Cannot be set.

- If signals with any other resolutions or frequencies are input, the signals cannot be imported correctly. The images which are output at a time like this may be black or disturbed.
- These units are incompatible with the HDCP (High-bandwidth Digital Content Protection).

Select the scaling mode with the following menu operation:

[10] Input > INx > Scale

Fit-V	The aspect ratio of the input images is maintained, and the size of the images is increased or reduced in accordance with the vertical resolution.
Fit-H	The aspect ratio of the input images is maintained, and the size of the images is increased or reduced in accordance with the horizontal resolution.
Full	The size of the input images is increased or reduced in accordance with the system resolution. (The aspect ratio of the input images is not kept the same. The rate at which the image size is increased or reduced in the vertical direction and in the horizontal direction differs.)

Input/output signal settings

Displaying the HDMI input signal information

These are used to display the information concerning the HDMI input signal images.
The information cannot be changed.

Display the following menus:

[10] Input >
INx > Status Information

Size	This indicates the pixel count of the images.
Dot Clock	This indicates the dot clock frequency of the images.
H-Frequency	This indicates the horizontal frequency of the images.
V-Frequency	This indicates the vertical frequency of the images.
Status	Detect: An input signal format suited to the system format of this unit. Unsupported: An input signal format not suited to the system format of this unit. Not Detect: There is no video signal being input to the unit.

The formats supported are listed below.

<HDMI formats supported>

HDMI input signal			Dot clock frequency (MHz)	Frequency	
				Horizontal (kHz)	Vertical (Hz)
XGA	1024×768	Digital	65.0	48.36	60.00
WXGA	1280×768	Digital	79.5	47.78	59.87
SXGA	1280×1024	Digital	108.0	63.98	60.02
WSXGA+	1680×1050	Digital	146.2	65.29	59.95
720/59.94p	1280×720	Digital	74.25/1.001	44.96	60.00/1.001
720/50p	1280×720	Digital	74.25	37.50	50.00
1080/59.94i	1920×1080	Digital	74.25/1.001	33.72	60.00/1.001
1080/50i	1920×1080	Digital	74.25	28.13	50.00
1080/23.98p	1920×1080	Digital	74.2	27.0	24.00/1.001
1080/24p	1920×1080	Digital	74.2	27.0	24.00
1080/25p	1920×1080	Digital	74.2	28.1	25.00
1080/29.97p	1920×1080	Digital	74.2	33.7	30.00
1080/59.94p	1920×1080	Digital	148.5/1.001	67.50/1.001	60.00/1.001
1080/50p	1920×1080	Digital	148.5	56.25	50.00

- If the format of the input signals is not supported, it may not be possible to import the signals properly, and a black image or disturbed image may appear.

Input/output signal settings

SRT Input signal settings

2 SRT signals can be input into this unit.

SRT settings for inputs that support SRT are available in “Input signal settings”.
When setting SRT input signals, first set the input signal you want to set in the following menu:

[10] Input >
INx > Streaming Mode

① Set the connection mode with the following menu operation:

[10] Input >
INx > Mode

Caller	Specify when specifying the server URL and port number of the transmission source to send requests to start transmission from this unit.
Listener	Specify when specifying the standby port when starting transmission externally.

② Set the server URL and port number of the transmission source with the following menu operation (For Caller only):

[10] Input >
INx > Server URL

- Can be set between 1 and 254 characters.

[10] Input >
INx > Server Port

③ Set the standby port number for this unit with the following menu operation (For Listener only):

[10] Input >
INx > Port

- A message is displayed if you select one of the ports that is not available.

④ Set the Stream ID with the following menu operation:

[10] Input >
INx > Stream ID

- Can be set up to 512 characters.

⑤ Set the encryption mode for the transmitted images with the following menu operation:

[10] Input >
INx > Encryption

Disable	Received images are not decoded. Unencrypted images can be handled.
Enable	Decode received images.

⑥ Set the phrase for decoding the received images with the following menu operation:

[10] Input >
INx > Passphrase

- Can be set between 10 and 79 characters.

Displaying the SRT input signal information

You can check the status of the SRT signal being input to this unit.
Display the following menus:

[10] Input >
INx > Status Information

This unit automatically determines the content of the SRT input signal and displays the following information:

Format	Displays the image format information for the SRT signal being input.
Sampling Rate	Displays the sampling rate information for the SRT signal being input.
Audio Channel	Displays the surround information for the SRT signal being input.
Codec	Displays the compression format information for the SRT signal being input.
Level	Displays the levels that indicate the H.264/H.265 resolution and the upper limit of the frame rate.
Status	Detect: An input signal format suited to the system format of this unit. Unsupported: An input signal format not suited to the system format of this unit. Not Detect: There is no video signal being input to the unit.

Setting the material names (SRT input signal)

Material names can be given to the input signals.
These names can be selected from the default settings or user settings.

Select the material name type with the following menu operation:

[10] Input >
INx > Name Type

Default (default settings)	Select the material names from the following: IN1 to 9
User (user settings)	The material names are set using up to 32 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space, ! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Input/output signal settings

NDI/NDI HX

This unit can input 2 NDI signals and 2 NDI HX signals for a total of 4 NDI/NDI HX signals.
Changing the IP mode enables input of up to a maximum of 4 NDI signals. (NDI HX signals cannot be input in this case.)

NDI HX

This unit supports both NDI HX1 and NDI HX2.
Both NDI HX1 and NDI HX2 support H.264 as the image compression standard. NDI HX2 also supports H.265.

NDI Input signal settings

NDI settings for inputs that support NDI are available in “Input signal settings”.
When setting NDI input signals, first set the input signal you want to set in the following menu:

[10] Input >
INx > Streaming Mode

① Select the mode to use for searching for NDI input sources on the network with the following menu operation:

[10] Input >
INx > Scan Mode

HB/HX v2	Searches for NDI or NDI HX2 input sources.
HX v1	Searches for NDI HX1 input sources.

② Press the OSD/TIME dial (Execute) in the following menu to execute the device search:

[10] Input >
INx > Scan

- The search results are displayed in a list in the format MACHINE NAME(SOURCE NAME).
- Machine searches on a network may take some time.

③ Select the combination of the device to be set as the input source and the NDI image source, then confirm with the OSD/TIME dial.

- This can be unselected by selecting “None”.

Reception protocol settings

Set the protocol to use with the NDI transmitter.

① Set the protocol to use with the NDI transmitter with the following menu operation:

[10] Input >
INx > Protocol

TCP	Sets TCP as the protocol to use with the NDI transmitter. (Default) Permits communication using sTCP.
UDP	Sets UDP as the protocol to use with the NDI transmitter. Permits communication using UDP and sTCP.

- The superior protocol is selected through negotiations with the protocol settings on the NDI transmission side.

Notes

- sTCP (single TCP): A connection-oriented communication method that guarantees accurate delivery of data, but the communication speed is slower compared to UDP.
- UDP: A connectionless communication method that enables high-speed data transfers, but the reliability of that data is less than TCP.
- UDP is used with multicast transmissions, irrespective of the protocol setting.

Input/output signal settings

Displaying the NDI input signal information

You can check the status of the NDI signal being input to this unit.
Display the following menus:

[10] Input >
INx > Status Information

This unit automatically determines the content of the NDI input signal and displays the following information:

Format	Displays the image format information for the NDI signal being input.
Sampling Rate	Displays the sampling rate information for the NDI signal being input.
Audio Channel	Displays the surround information for the NDI signal being input.
Frame Data	Displays the color information for the NDI signal being input.
Codec	Displays the compression format information for the NDI signal being input.
Streaming Mode	Displays the format information for the NDI signal being input.
Level	Displays the levels that indicate the H.264/H.265 resolution and the upper limit of the frame rate. This not displayed for NDI High Bandwidth.
Status	Detect: An input signal format suited to the system format of this unit. Unsupported: An input signal format not suited to the system format of this unit. Not Detect: There is no video signal being input to the unit.

Setting the material names (NDI input signal)

Material names can be given to the input signals.
These names can be selected from the default settings or user settings.

Select the material name type with the following menu operation:

[10] Input >
INx > Name Type

Default (default settings)	The following material names are selected automatically: IN1 to 9
User (user settings)	The material names are set using up to 32 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Input settings for material with α channel

This unit can input normal NDI signals and signals with α channel, switching between them to use as material.
1 set of NDI signals with an α channel can be input. Changing the IP mode enables input of a maximum of 2 signals. The settings shown in the below chart are possible by switching the α channel settings:

	α channel settings	
	Disabled	**Enabled**
IN6	Fill	Fill
IN7	Fill	Key
IN8	Fill	Fill
IN9	Fill	Key

- IN6 and IN7 can be set only when the IP mode is NDI HB.

Select the enable/disable for the α channel with the following menu operation:

[10] Input >
INx > Alpha Setting > Use Alpha

Setting groups

By setting NDI senders and receivers in groups to which each belongs, you can specify the group to be searched when performing machine searches.
It is possible to specify multiple groups, separating them with commas.
This function is not available with NDI HX1.

① Select enable or disable for the group search function with the following menu operation:

[10] Input >
INx > Group > Group

Enable	Group search function enabled.
Disable	Group search function disabled. (Default)

② Enter the group name with the following menu operation:

[10] Input >
INx > Group > Group Name

- You can enter a character string of up to 64 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Input/output signal settings

Discovery Server settings

It is possible to set the function for automatically searching for NDI sources to centrally register with an external server. Enabling this setting is effective when there is a large amount of NDI sources on the network and it is desirable to avoid an increase in traffic, or when multicast transmission is not possible or undesirable.

① Select whether to set an external server with the following menu operation:

[10] Input >
INx > Use Discovery server >
Use Discovery server

Enable	External server settings enabled.
Disable	External server settings disabled. (Default)

② Enter the IP address of the external server with the following menu operation:

[10] Input >
INx > Use Discovery server >
Discovery server IP

RTSP port settings

You can set the port and the request URL of this unit to match the RTSP port settings of the camera to be connected.
This function is effective with NDI HX1.

① Enter the RTSP port number to suit the camera settings with the following menu operation:

[10] Input >
INx > RTSP > Port

- Port numbers 10668, 10669, and 10670 cannot be used.

② Enter the Request URL to suit the camera settings with the following menu operation:

[10] Input >
INx > RTSP > Request URL

- Enter a character string of up to 255 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

③ After entering Port and Request URL, press the OSD/TIME dial (Execute) in the following menu to update the settings with the changes:

[10] Input >
INx > RTSP > Connect

Analog audio input signal settings

Analog audio can be input to two input channels (left channel and right channel) of this unit.

① Enable analog audio input with the following menu operation:

[15] Ancillary/Audio >
Analog IN > Audio

Off	Analog audio input disabled.
On	Analog audio input enabled.

② Set the level for analog audio input with the following menu operation:

[15] Ancillary/Audio >
Analog IN > Input Type

LINE	Set to line input level.
MIC	Set to microphone input level.

③ Set the gain with the following menu operation:

[15] Ancillary/Audio >
Analog IN > Gain

- You can enter in a range between –36 and 12dB.

④ Set the delay amount with the following menu operation:

[15] Ancillary/Audio >
Analog IN > Delay (ms)

- You can enter in a range between 0 and 512 ms.

Input/output signal settings

Output signal settings

Outputs available are as follows:

<Output (common)>

Logical output name	Physical output name	Limitations
OUT1	SDI OUT1	
OUT2	SDI OUT2	
OUT3	HDMI OUT	
OUT4	LAN	SRT/RTMP/RTMPS/NDI
OUT5	LAN	SRT/RTMP/RTMPS/NDI
OUT6	USB STREAM OUT	UVC fixed allocation

Before proceeding to set the output signals, first select the output signals to be set using the Output sub menu.

[11] Output >
OUT4 > Streaming Mode

[11] Output >
OUT5 > Streaming Mode

You can expand IP input on this unit by updating the firmware.
When you do this, limitations on IP output will be incurred according to the IP mode.
No changes are made to SDI output OUT1 and 2, HDMI output OUT3, or UVC output OUT6.

IP mode name	IP input limitations
Normal	OUT4: SRT / RTMP / RTMPS / NDI OUT5: SRT / RTMP / RTMPS / NDI * The firmware is for the Normal mode in the factory settings.
NDI HB	OUT4: NDI OUT5: Disabled

Check the IP mode of the unit with the following menu operation:

[13] System >
IP Mode

- You can view the current IP mode name.
  You can change the IP mode with Update in USB Memory > Load > Load Type.

<List of settings by output signal>

Output connector	Setting menu and page in this manual								
	Assign	SDI Output	HDMI Output	Down Converter	Scale	SRT Output	NDI Output	RTMP Output	UVC Output
	P80	–	P80	–	P80	P81	P82	P84	P84
SDI OUT 1	✓	✓	–	–	–	–	–	–	–
SDI OUT 2	✓	✓	–	–	–	–	–	–	–
HDMI OUT	✓	–	✓	–	✓	–	–	–	–
IP(OUT4)	✓	–	–	–	–	✓	✓	✓	–
IP(OUT5)	✓	–	–	–	–	✓	✓	✓	–
UVC OUT	✓	–	–	–	–	–	–	–	✓

✓: Can be set.
—: Cannot be set.

Input/output signal settings

Assigning the output signals

Assign output signals to each of the outputs.

Set the output signal type with the following menu operation:

[11] Output >
OUTx > Assign

PGM	An image provided with the wipe, mix, key, downstream key or other effect is output at the switcher's main line output.
PVW	This is the preview output that enables the next operation to be checked before it is executed.
CLN	The clean signal (the image resulting when the key, downstream key or other effect has been removed from the PGM signal) is output.
AUX1, AUX2	The signals selected by the 2 lines of AUX buses (AUX1, AUX2) are output.
MV	The multi view display signals are output. Multiple input signals and output signals are reduced in size and output to one screen.
KeyOut	The key signal is output.
Still1, Still2	The still images selected for Still1 and Still2 are output. Only OUT4 and 5 (IP OUT1 and 2) can be set. (During NDI, SRT, RTMP/RTMPS output)

Setting the HDMI output signals

Make settings for HDMI output signals.

① Set the output signal type with the following menu operation:

[11] Output >
OUT3 > Assign

→ Refer to "Assigning the output signals".

② Select the resolution of the video to be output with the following menu operation:

[11] Output >
OUT3 > Size

Auto	The equipment information of the output destination is captured by the HDMI signals, and the images are output at the optimum resolution.
XGA	(1024 × 768) / 60 Hz
WXGA	(1280 × 768) / 60 Hz
SXGA	(1280 × 1024) / 60 Hz
WXGA+	(1680 × 1050) / 60 Hz
Native	Same format as the system format is output.

③ Set the output color space with the following menu operation:

[11] Output >
OUT3 > Color

Auto	Device information about the connection destination is obtained via the HDMI signal, and output uses the optimum color space accordingly.
RGB	The color space is set with the RGB format.
YUV444	The color space is set with the Y, Cb, Cr at 4:4:4. (With this method, for each 4 horizontal pixels, 4 pixels each are sampled of the luminance component and 2 color difference components)
YUV422	The color space is set with the Y, Cb, Cr at 4:2:2. (With this method, for each 2 horizontal pixels, 1 pixel each is sampled of the color difference components, and each pixel is sampled of the luminance component)

④ Select the scaling mode with the following menu operation:

[11] Output >
OUT3 > Scale

Fit-V	The aspect ratio of the output images is maintained, and the size of the images is increased or reduced in accordance with the vertical resolution. (Black bands are inserted into the areas where there are no images. The protruding parts of the images are cropped.)
Fit-H	The aspect ratio of the output images is maintained, and the size of the images is increased or reduced in accordance with the horizontal resolution. (Black bands are inserted into the areas where there are no images. The protruding parts of the images are cropped.)
Full	The size of the output images is increased or reduced in accordance with the system resolution.
Full80%	The size of the output image is increased or reduced in accordance with the 80% size of the system resolution.
Full90%	The size of the output image is increased or reduced in accordance with the 90% size of the system resolution.

- The aspect ratio is not maintained at the Full, Full80% or Full90% setting.
  The rate at which the image size is increased or reduced in the vertical direction and in the horizontal direction differs.

⑤ Set the image motion detection sensitivity with the following menu operation:

[11] Output >
OUT3 > Move Detect

1	Toward still images
〜	〜
3	Standard
〜	〜
5	Toward moving images

Input/output signal settings

Setting the SRT output signals

This unit can output a maximum of 2 SRT signals.

Assign SRT output signals.

① Set the output signal type with the following menu operation:

[11] Output >
OUTx > Assign

→ Refer to “Assigning the output signals”.

② Set the connection mode with the following menu operation:

[11] Output >
OUTx > Mode

Caller	Specify when specifying the server URL and port number of the transmission destination to send requests to start transmission from this unit.
Listener	Specify when specifying the standby port when starting transmission externally.

③ Set the URL, port, and Stream ID with the following menu operation (For Caller only):

[11] Output >
OUTx > Destination URL

[11] Output >
OUTx > Destination Port

[11] Output >
OUTx > Stream ID

Destination URL	URL of the connected server
Destination Port	Port of the connected server
Stream ID	Stream ID of the connected server

- DNS settings are required in order to resolve the domain name of the connected server.
- The Destination URL can be set between 1 and 254 characters.

<Characters available for the Destination URL>

A to Z, a to z, 0 to 9, -, .

- The Stream ID can be set up to 512 characters.

<Characters available for the Stream ID>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

④ Set the standby port with the following menu operation (for Listener only):

[11] Output >
OUTx > Port

- A message is displayed if you select one of the ports that is not available.

⑤ Set the TTL/HOP Limit with the following menu operation:

[11] Output >
OUTx > TTL/HOP Limit

⑥ Set the time between when images are sent and when they are played on the receiving device with the following menu operation:

[11] Output >
OUTx > Latency(ms)

- The set time may not be guaranteed depending on the network bandwidth.

⑦ Set the encryption mode for the images to be transmitted with the following menu operation:

[11] Output >
OUTx > Encryption

Disable	Images are transmitted without encryption.
AES128	Images are transmitted with AES-128 encryption.
AES256	Images are transmitted with AES-256 encryption.

⑧ Set the phrase for decoding the encrypted images with the following menu operation:

[11] Output >
OUTx > Passphrase

- Can be set between 10 and 79 characters.

⑨ Select H.264 or H.265 as the image format with the following menu operation:

[11] Output >
OUTx > Codec

⑩ Set the bit rate control mode for the image format with the following menu operation:

[11] Output >
OUTx > Rate Control Mode

CBR	Transmission is with the bit rate set in Target bit rate.
VBR	With the bit rate set in Max bit rate as the maximum, transmissions are made to approach the bit rate set as the Target bit rate. The actual bit rate depends on the video being transmitted.

⑪ Set the target bit rate for transmission with the following menu operation:

[11] Output >
OUTx > Target bit rate

⑫ Set the maximum bit rate for transmission with the following menu operation (for VBR only):

[11] Output >
OUTx > Max bit rate

Input/output signal settings

Setting the NDI output signals

This unit can output a maximum of 2 NDI signals.
NDI HX signal output is not possible.

For NDI signals, there is 1 output of High Bandwidth and 1 output of Low Bandwidth output constantly with each NDI output.

NDI HX

This unit can only output NDI High Bandwidth signals. It cannot output NDI HX1/NDI HX2 signals.

Assigning NDI output signals

Assign NDI output signals.

Set the output signal type with the following menu operation:

[11] Output >
OUTx > Assign

→ Refer to “Assigning the output signals”.

Common NDI output signal settings

On this unit, it is possible to set with character strings the Machine Name and Source Name displayed when searching from an NDI receiver.

① Set the name to display for the NDI receiver with the following menu operation:

[11] Output >
OUTx > Machine Name

- You can enter a character string of up to 20 characters.

② Set the name to display for the NDI receiver with the following menu operation:

[11] Output >
OUTx > Source Name

- You can enter a character string of up to 32 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space, -, _

NDI transmission protocol settings

Set the protocol to use with the NDI receiver.

① Set the protocol to use with the NDI receiver with the following menu operation:

[11] Output >
OUTx > Protocol

TCP	TCP is set as the protocol to use with the NDI receiver. (Default) Permits communication using sTCP.
UDP	UDP is set as the protocol to use with the NDI receiver. Permits communication using UDP and sTCP.

- The superior protocol is selected through negotiations with the protocol settings on the NDI transmission side.

Notes

- sTCP (single TCP): A connection-oriented communication method that guarantees accurate delivery of data, but the communication speed is slower compared to UDP.
- UDP: A connectionless communication method that enables high-speed data transfers, but the reliability of that data is less than TCP.
- It is necessary to fix the protocol to UDP when performing multicast transmissions.

Input/output signal settings

NDI multicast settings

Set whether to enable or disable multicast transmission for the NDI receiver.
When multicast transmissions are to be enabled, transmissions are made according to the settings for IP address, subnet mask, and TTL/HOP Limit.
With this unit, it is possible to perform multicast transmissions within the same subnet.

① Set enable or disable for multicast transmissions with the following menu operation:

[11] Output >
OUTx > Multicast > Multicast

Enable	Multicast transmission to the NDI receiver is enabled.
Disable	Multicast transmission to the NDI receiver is disabled. (Default)

② Set the IP address, subnet mask, and TTL with the following menu operation:

[11] Output >
OUTx > Multicast > IP Address

[11] Output >
OUTx > Multicast > Subnet Mask

[11] Output >
OUTx > Multicast > TTL/HOP Limit

Setting NDI groups

By setting NDI senders and receivers in groups to which each belongs, you can specify the group to be searched when performing machine searches.
It is possible to specify multiple groups, separating them with commas.

① Set enable or disable for the group search function with the following menu operation:

[11] Output >
OUTx > Group > Group

Enable	Group search function enabled.
Disable	Group search function disabled. (Default)

② Enter the group name with the following menu operation:

[11] Output >
OUTx > Group > Group Name

- You can enter a character string of up to 64 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

NDI discovery Server settings

It is possible to set the function for automatically searching for NDI sources to centrally register with an external server.
Enabling this setting is effective when there is a large amount of NDI sources on the network and it is desirable to avoid an increase in traffic, or when multicast transmission is not possible or undesirable.

① Set enable or disable for the external server settings with the following menu operation:

[11] Output >
OUTx > Use Discovery server >
Use Discovery server

Enable	External server settings enabled.
Disable	External server settings disabled. (Default)

② Enter the IP address for the external server settings with the following menu operation:

[11] Output >
OUTx > Use Discovery server >
Discovery server IP

Input/output signal settings

Setting the RTMP/RTMPS output signals

This unit can output a maximum of 2 RTMP/RTMPS signals.

Assign RTMP/RTMPS output signals.

① Set the output signal type with the following menu operation:

[11] Output >
OUTx > Assign

→ Refer to “Assigning the output signals”.

② Set the URL and Stream Key of the server with the following menu operation:

[11] Output >
OUTx > Server URL

[11] Output >
OUTx > Stream Key

Server URL	URL of the connected server
Stream Key	Stream Key of the connected server

- DNS settings are required in order to resolve the domain name of the connected server.
- The Server URL can be set between 1 and 254 characters.
- The Stream Key can be set up to 512 characters.

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

③ Set the bit rate control mode for the image format with the following menu operation:

[11] Output >
OUTx > Rate Control Mode

CBR	Transmission is with the bit rate set in Target bit rate.
VBR	With the bit rate set in Max bit rate as the maximum, transmissions are made to approach the bit rate set as the Target bit rate. The actual bit rate depends on the video being transmitted.

④ Set the target bit rate for transmission with the following menu operation:

[11] Output >
OUTx > Target bit rate

⑤ Set the maximum bit rate for transmission with the following menu operation (for VBR only):

[11] Output >
OUTx > Max bit rate

Setting the UVC output signals

This unit supports output of UVC (USB Video Class) and UAC (USB Audio Class).
By connecting the USB connector (Type-C connector) to a computer, this unit can be used like a Web camera.
Use a USB cable that supports USB3.0 for the connection between this unit and the computer.

Assign UVC output signals.

① Set the output signal type with the following menu operation:

[11] Output >
OUTx > Assign

→ Refer to “Assigning the output signals”.

② Set the output signal resolution with the following menu operation:

[11] Output >
Mode

Normal	Output at 1080.
720p	Output at 720.

- When the system format is 720/59.94p or 50p, this item is grayed out and output is at 720.

Note

If the output format is changed by changes to the system format settings, you will need to restart the app that is receiving the UVC images on the computer.

Input/output signal settings

Analog audio output settings

This unit has 1 headphone connector [🎧] (Φ3.5 mm, stereo mini jack).

Assign the analog output signals.

① Set the output signal type with the following menu operation:

[15] Ancillary/Audio >
Analog OUT > Assign

PGM	Outputs the audio data of the selected source.
PVW	
AUX1, 2	
CLN	

② Adjust the volume with the monitor volume dial.
Values can be viewed in the following menu:

[15] Ancillary/Audio >
Analog OUT > Volume

③ Analog audio output can be muted, irrespective of the monitor volume adjustment.
Set with the following menu:

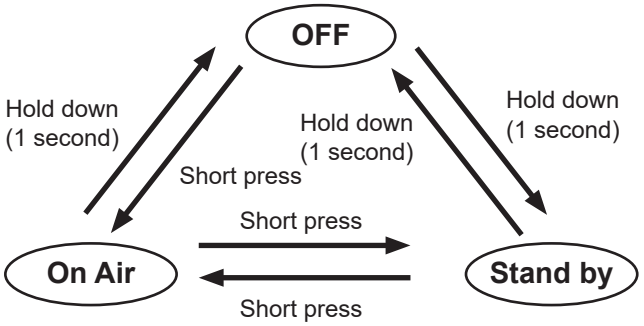
[15] Ancillary/Audio >
Analog OUT > Mute

Off	Audio output not muted.
On	Audio output muted. The volume value set at ② is not changed.

Input/output signal settings

Send operations for SRT/RTMP/RTMPS signals

Start and stop operations for SRT/RTMP/RTMPS signals are performed with the [STREAM] button.



OFF	The initial setting when the power is turned on. Signals are not sent. The [STREAM] button is off.
Stand by	Images set for this mode are sent. The [STREAM] button lights green.
On Air	Images set for this mode are sent. The [STREAM] button lights red.

The operation target changes by pressing the [SHIFT] button.

[SHIFT] not pressed	IP OUT1
[SHIFT] pressed	IP OUT2

The status of IP OUT1/2 can be linked with the following menu operation:

[11] Output >
OUTx > Streaming Link

Furthermore, you can assign the image signal for Stand by during SRT/RTMP/RTMPS output with the following menu operation:

[11] Output >
OUTx > Assign STDBY

→ Refer to “Assigning the output signals”.

You can set the transition effect for when switching from Stand by to On Air during SRT/RTMP/RTMPS output with the following menu operation:

[5] Time >
OUTx Trans > Transition

Off	Executes cut transition when switching between Stand by and On Air.
On	Executes mix transition when switching between Stand by and On Air.

Set the time for mix transitions with the following menu operation:

[5] Time >
OUTx Trans > Trans Time

→ Refer to "Auto transition".

Input/output signal settings

Setting the sync signals

The sync signals to be used by the system can be selected.

External sync:

For synchronization with an external sync signal (gen-lock).
The reference input signal is looped through and output.

BB	Black burst signal (vertical phase of 0H)
Tri-level sync	Tri-level sync signal (vertical phase of 0H)
Internal	For synchronization with an internal reference signal (INT). The REFOUT signal (black burst signal) is output from the two reference connectors.

- This unit supports synchronization signals for field frequencies that are same as those of the system format.

① Select the synchronization signal with the following menu operation and press the OSD/TIME dial to confirm the selected content:

[13] System >
Reference > Sync Select

② The genlock status is displayed in the following menu:

[13] System >
Reference > Status

Locked	Synchronized with the external sync signal or internal reference signal.
UnLock	Not synchronized with the external sync signal or internal reference signal.

Input/output signal settings

Adjusting the output signal phase

The phase of the output video signals can be adjusted.

① Select “0H” or “1H” with the following menu operation:

[13] System >
Output Phase > System

0H	The output video signals are output to the system Reference signal with using in-phase. The frame synchronizer function is ON for all input signals.
1H	The output video signals are output to the system Reference signal with 1H delay. When the frame synchronizer function is ON, the output video signals are output with 1 frame + 1H delay.

② Adjust H phase with the following menu operation:

[13] System >
Output Phase > H-Phase

H-Phase can be adjusted within a range of –0.50H to +0.49H.

- The setting displayed on the menu differs depending on the system format.

③ Adjust V phase with the following menu operation:

[13] System >
Output Phase > V-Phase

V-Phase can be adjusted within a range of –100H to +100H.

Input/output signal settings

Ancillary settings for the AUX bus, PGM, and PVW

Set the function that passes through the V ancillary data and embedded audio data of the SDI/HDMI input signal.

Setting for the output signals of the AUX buses (AUX1, AUX2)

① Select On/Off with the following menu operation:

[15] Ancillary/Audio > Ancillary > AUX

Off	The ancillary data and embedded audio of the AUX bus (AUX1, AUX2) outputs are not passed through.
On	The ancillary data and embedded audio of the AUX bus (AUX1, AUX2) outputs are passed through.

Setting for the program output signals

② Select On/Off with the following menu operation:

[15] Ancillary/Audio > Ancillary > PGM

Off	The ancillary data and embedded audio of the PGM outputs are not passed through.
On	The ancillary data and embedded audio of the PGM outputs are passed through.

Setting for the preview output signals

③ Select On/Off with the following menu operation:

[15] Ancillary/Audio > Ancillary > PVW

Off	The ancillary data and embedded audio of the PVW outputs are not passed through.
On	The ancillary data and embedded audio of the PVW outputs are passed through.

Setting for clean output signals

④ Select On/Off with the following menu operation:

[15] Ancillary/Audio > Ancillary > CLN

Off	The ancillary data and embedded audio of the CLN outputs are not passed through.
On	The ancillary data and embedded audio of the CLN outputs are passed through.

Setting for the output signals of the multi view display

⑤ Select PGM/PVW/Off with the following menu operation:

[15] Ancillary/Audio > Ancillary > MV

PGM	The ancillary data and embedded audio of the PGM are passed through to all MV outputs.
PVW	The ancillary data and embedded audio of the PVW are passed through to all MV outputs.
Off	The ancillary data and the embedded audio are not passed through any MV outputs.

Notes

- If Key is combined, the audio from them are also superimposed.
- VANC data is not passed if the format of the input signal is different to the system format.

Input/output signal settings

Embedded audio settings

Set the function for assigning audio data for each input signal, the pass through function for each output signal, and the function for appending audio data to key sources.
To enable this function, turn on the ancillary setting for each bus.

Settings for assigning audio data to each input signal

① Assign or delete audio data to/from input signals with the following menu operation:

[15] Ancillary/Audio >
Audio Assign > Input Assign > INx

For each of the input signals IN1 to 9, you can select SDI IN1 to 4, HDMI IN1 to 2, IP IN1 to 4, Analog IN, and Off.

Audio settings for the output signals of the AUX buses (AUX1 and AUX2)

① Set the input signal that will pass through the audio data with the following menu operation:

[15] Ancillary/Audio >
Audio Assign > Output Bus Assign > AUX1

[15] Ancillary/Audio >
Audio Assign > Output Bus Assign > AUX2

Audio settings for program output signals

② Set the input signal that will pass through the audio data with the following menu operation:

[15] Ancillary/Audio >
Audio Assign > Output Bus Assign > PGM

Audio settings for preview output signals

③ Set the input signal that will pass through the audio data with the following menu operation:

[15] Ancillary/Audio >
Audio Assign > Output Bus Assign > PVW

Audio settings for clean output signals

④ Set the input signal that will pass through the audio data with the following menu operation:

[15] Ancillary/Audio >
Audio Assign > Output Bus Assign > CLN

You can select just one input signal from the following for each output signal:

IN1 to 9	The embedded audio in each input signal is passed through.
Analog IN	The audio data of the audio input connector is passed through.
Follow Video	The embedded audio of the input signal selected by the bus is passed through.
Off	The embedded audio is not passed through.

Settings for appending audio data to each key source

① Append or delete audio data for each key source with the following menu operation:

[15] Ancillary/Audio >
Key1 Audio

[15] Ancillary/Audio >
Key2 Audio

On	Mixes the embedded audio data of key sources combined in the background.
Off	Does not mix the embedded audio data of key sources combined in the background.

Display of assign status information

You can view the assign status for each audio data output.
Display the following menu:

[15] Ancillary/Audio >
Audio Output Status

Assign OUT	Displays the buses assigned to the output terminals of this unit (OUT1 to 6, Analog OUT). [11] Output settings are displayed in a list.
Output Bus Assign	Displays the audio inputs assigned to each of the unit's buses (AUX1/2, PGM, PVW, CLN, and MV). The settings in [15] Ancillary/Audio > Audio Assign >Output Bus Assign are displayed in a list. If the selection is IN1 to 9, then the information set in Input Assign is also displayed.

Setting the multi view display

Setting the screen layout

You can select one of the following 10 patterns for the screen layout.
The multi view display of this unit supports MV.

4Split	5-aSplit	5-bSplit	6-aSplit	6-bSplit
9Split	10-aSplit	10-bSplit	12Split	16Split

Display of the following signals can be assigned to sub screens 1 to 16.

Signals that can be assigned
IN1 to 9, Black, CBGD1, CBGD2, CBAR, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, Clock, Analog IN, IP OUT1, IP OUT2*1

*1 The status is displayed if IP OUT1(OUT4) or IP OUT2(OUT5) is set to SRT or RTMP/RTMPS.
Unlike the encoding for images, the displayed bitrate is calculated with the priority on the display interval. This means that there will be cases where there will be a different value to the output setting.

① Set the split display mode with the following menu operation:

[9] MultiView >
Split

② Set the size mode of the split screen with the following menu operation:

[9] MultiView >
Size

Fit	The sizes of the split frame and the split screen will be the same.
SQ	The sizes of the split frame and the split screen will be smaller, and the material name, level meter, etc., are displayed on the outside of the split screen.

③ Set the signal name to be displayed on the sub screens (1 to 16) with the following menu operation:

[9] MultiView >
Source Select

- When input signals (IN1 to 9) are selected, the display of the material names set in the following menus depends on the characters and symbols:

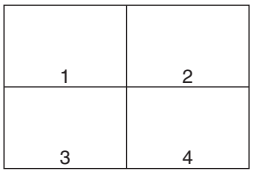
  [10] Input >
  INx > Name Type

  [10] Input >
  INx > Name

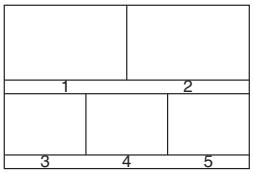
- When AUX buses (AUX1, AUX2) are selected as the input signal, the material name displayed inside [ ] depends on the characters and symbols.
- When the AUX bus for which “MV” has been selected is displayed on the sub screen of the multi view display, the images are looped as if two mirrors were facing each other.
- 12 split frames cannot be selected for 720p.

Setting the multi view display

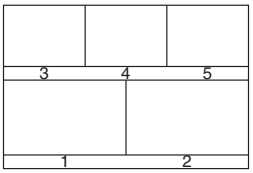
<Display modes>



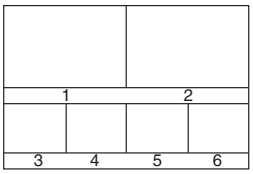
4Split



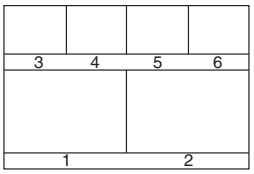
5-aSplit



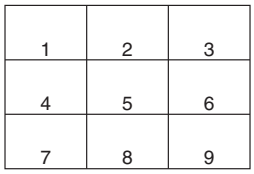
5-bSplit



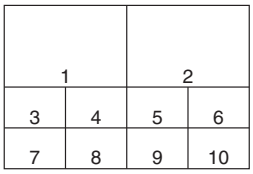
6-aSplit



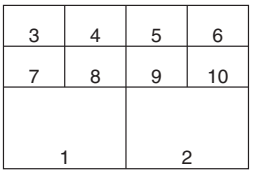
6-bSplit



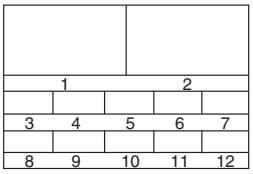
9Split



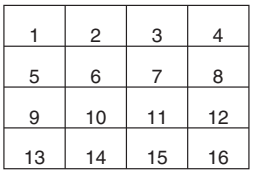
10-aSplit



10-bSplit



12Split



16Split

Setting the multi view display

Setting the split frame and characters

Set the frame, character brightness and background of the split screens to be displayed on the multi view display.

① Set the brightness of the split frame and the display of the split frame with the following menu operation:

[9] MultiView >
MV Frame

LUM0%, LUM25%, LUM50%, LUM75%, LUM100%	Select one of these settings for the brightness of the split frame (gray scale).
Off	The split frame is not displayed.

② Set the brightness of the characters and the display of the characters with the following menu operation:

[9] MultiView >
MV Character

LUM0%, LUM25%, LUM50%, LUM75%, LUM100%	Select one of these character (gray scale) brightness settings.
Off	The characters are not displayed. Neither is the character background shown.

③ Set the character background (half tone) display with the following menu operation:

[9] MultiView >
MV Label

On	The character background is displayed.
Off	The character background is not displayed.

- This is enabled when Fit mode is on.

Setting the tally displays

Set the tally displays to be superimposed onto the split frame of the multi view display.
You can set 3 tally groups on this unit, and you can set materials for each of the groups.
You can display the red tally, green tally, and yellow tally with the multi view display.

① Select the material to assign to the red tally, green tally, and yellow tally with the following menu operation:

[13] System >
Tally Settings > Tally Target > Red Tally

[13] System >
Tally Settings > Tally Target > Green Tally

[13] System >
Tally Settings > Tally Target > Yellow Tally

Off	No signal
PGM	Program video signal
PVW	Preview video signal
CLN	Clean signal
KeyOut	Key output signal
AUX1	AUX1 bus output signal
AUX2	AUX2 bus output signal
IP OUT1	IP OUT1 output signal
IP OUT2	IP OUT2 output signal (Not displayed unless the IP mode is Normal)

② Display the following menus:

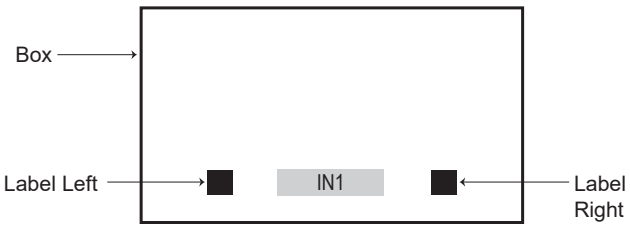
[9] MultiView >
Red Tally

[9] MultiView >
Green Tally

[9] MultiView >
Yellow Tally

- The red tally, green tally, and yellow tally set in ① above can be set to display on the multi view display.

③ Set the tally displays to be superimposed onto the split frame of the multi view display.



On	Tally displays are displayed.
Off	No tally displays are shown.

Setting the multi view display

Changing the material names (input signal)

The material names of the input signals (IN1 to 9) to be set on the multi view display can be changed.
These names can be selected from the default settings or user settings.

① Select the material name type with the following menu operation:

[10] Input >
INx > Name Type

Default (default settings)	The following material names are selected automatically. IN1 to 9
User (user settings)	The material names are set using up to 32 characters.

User type setting procedure

① Set the material name type to “User” with the following menu operation:

[10] Input >
INx > Name Type

② Enter the material name with the following menu operation:

[10] Input >
INx > Name

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Changing the material names (output signal)

The material names of the output signals (AUX1, AUX2) to be set on the multi view display can be changed.
These names can be selected from the default settings or user settings.

Select the material name type for AUX1 and AUX2 with the following menu operation:

[12] Config >
AUX Name > AUX1 Type

[12] Config >
AUX Name > AUX2 Type

Default (default settings)	The following material names are selected automatically. AUX1, AUX2
User (user settings)	The material names are set using up to 32 characters.

User type setting procedure

① Set the material name type to “User” with the following menu operation:

[12] Config >
AUX Name > AUX1 Type

[12] Config >
AUX Name > AUX2 Type

② Enter the material name with the following menu operation:

[12] Config >
AUX Name > AUX1 Name

[12] Config >
AUX Name > AUX2 Name

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Setting the level meters

You can display in each split screen the level meters for audio signals transmitted together with each input and output.
Left display: Channel 1 of group 1
Right display: Channel 2 of group 1

Set the level meter display with the following menu operation:

[9] MultiView >
Display > Level Meter

OFF	The level meters are not displayed.
IN ON	The level meters for the input signal (including the audio input connector) and the color bar are displayed.
OUT ON	The level meters for PGM/PVW/CLN/AUX are displayed.
IN/OUT ON	The level meters for the input signal (including the audio input connector), the color bar, and PGM/PVW/CLN/AUX are displayed.

Setting the multi view display

Setting the input signal marks

The status of the input signals can be displayed in front of the material names displayed on the split screens.

“F” mark:
This appears when the input signals are frozen.

“ ! ” mark:
This appears when no signals are input or when signals with different formats are input.

- When the “F” mark is displayed, the “!” mark is not displayed.

Set the input signal status display with the following menu operation:

[9] MultiView >
Display > Input Status

On	The input signal status is displayed.
Off	The input signal status is not displayed.

Setting the markers

Safety markers can be displayed for the multi view materials.

① Set the marker display with the following menu operation:

[9] MultiView >
Display > Marker

4:3	The markers are displayed using the 4:3 aspect ratio.
16:9	The markers are displayed using the 16:9 aspect ratio.
Off	The markers are not displayed.

② Set the marker size with the following menu operation:

[9] MultiView >
Display > Marker Size

System settings

Setting the system format

One system format (input/output signal) can be selected.

Do not change the format during any of the following operations:
- When reading from a memory card or saving to a USB memory
- When restoring data from video memory or saving data to internal storage
- When recording moving images or still images

Select the format with the following menu operation and press the OSD/TIME dial to confirm the selected content:

[13] System >
System Format

Setting the crosspoints

Assigning signals to the crosspoints

External video input signals and internally generated signals can be assigned to crosspoint buttons 1 to 12.
The assign status of crosspoint buttons 1 to 12 are displayed on the OSD menu output destination while you are holding down the crosspoint buttons 1 to 12.

Changing the current assignment of the signals selected by the crosspoint buttons will cause the positions of the lit crosspoint buttons to change to correspond with the assignment change. The images output at this time will remain unchanged.

The table below lists the materials which can be assigned.

Signal	What appears on the display	Description
IN1 to 9	IN1 to 9	Input 1 to 9 Refer to “Input signal settings” for advanced signal assignment.
Black	Black	Internally generated signal (black)
CBGD1, CBGD2	CBGD1, CBGD2	Internally generated signal (color background)
CBAR	CBAR	Internally generated signal (color bar)
Still1V, Still1K, Still2V, Still2K	Still1V, Still1K, Still2V, Still2K	Still image video memory
CLN	CLN	CLN (AUX bus and built-in display images only)
KeyOut	KeyOut	KeyOut (AUX bus and built-in display images only)
None	None	No assignment

- The image will not be changed by pressing any button to which “None” is assigned.

The table below lists the default settings.

Button	What appears on the display	Button	What appears on the display
XPT1	IN1	XPT7	IN7
XPT2	IN2	XPT8	IN8
XPT3	IN3	XPT9	IN9
XPT4	IN4	XPT10	CBAR
XPT5	IN5	XPT11	CBGD1
XPT6	IN6	XPT12	CBGD2

Setting the crosspoint switching

The timing at which the crosspoints are to be switched can be set.
This switching involves the operations of the crosspoint buttons and [Cut] button.

Select the timing for switching with the following menu operation:

[8] XPT Assign >
Switch Timing

Any	The crosspoints are switched in the nearest field. This is suited to live applications.
Field1	The crosspoints are switched in field 1. This is suited to editing applications.
Field2	The crosspoints are switched in field 2. This is suited to editing applications.

System settings

Button assignments

Setting the user buttons

The user can assign several functions which can be set using the menu items into six user buttons (U1 to U6).
The user buttons light in amber when the assigned function is ON and are off when the assigned function is OFF.
Each time the user button is pressed, the function setting alternates between ON and OFF.

The table below lists the functions which can be assigned to the user buttons (U1 to U6).

Function name	Description of function
Key1 PVW	Output the KEY1 image to the preview output.
Key2 PVW	Output the KEY2 image to the preview output.
GPIl-EN	Enables or disables GPI-In.
GPIO-EN	Enables or disables GPI-Out.
AUX Trans	Enables or disables the AUX bus transitions.
AUX1 Trans	Enables or disables the AUX1 bus transitions.
AUX2 Trans	Enables or disables the AUX2 bus transitions.
Effect Dissolve	Switches effect dissolve between ON and OFF.
Capture Still1	The output signal from the AUX bus (AUX1, AUX2) is recorded as material in Still1.
Capture Still2	The output signal from the AUX bus (AUX1, AUX2) is recorded as material in Still2.
None	Nothing is assigned.
Shot Memory1 to 12	Recalls shot memories 1 to 12.
XPT Disable	Enables/disables shot memory XPT Disable.

■ Default settings

Button	Function name	Button	Function name
U1	Key1 PVW	U4	Shot Memory2
U2	Key2 PVW	U5	Shot Memory3
U3	Shot Memory1	U6	Shot Memory4

<Setting method>
Select the functions to assign to the U1 to U6 buttons with the following menu operation:

[12] Config >
User Button > User 1

[12] Config >
User Button > User 2

[12] Config >
User Button > User 3

[12] Config >
User Button > User 4

[12] Config >
User Button > User 5

[12] Config >
User Button > User 6

System settings

Setting the date and time

Set the date and time used for USB memory time stamps and server authentication during RTMPS output.
You must make these settings if you are going to use a USB memory or the RTMPS output function.

Selecting the mode of date and time setting

① Select the setting mode with the following menu operation:

[13] System >
Date/Time > Setting

Manual	Enter the date and time manually.
Auto	Acquire date and time data from an NTP server.

② Select the time zone matching the region where this unit is used with the following menu operation:

[13] System >
Date/Time > Time Zone

Operate the OSD/TIME dial to select the relevant region from the list.

- When entering the time data manually, set the date and time with the following menus.

Setting the date

① Press the OSD/TIME dial in the Date/Time > Date Setting menu to set the year, month, and day in that order.

[13] System >
Date/Time > Date Setting

② While in the day setting state, press the OSD/TIME dial to confirm the year, month, and day.

Setting the time

① Press the OSD/TIME dial in the Date/Time > Time Setting menu to set the hours, minutes, and seconds in that order.

[13] System >
Date/Time > Time Setting

② While in the seconds setting state, press the OSD/TIME dial to confirm the hours, minutes, and seconds.

- When acquiring the time information automatically from an NTP server, execute the following settings:

① Enter the IP address or host name of the NTP server with the following menu:

[13] System >
Date/Time > NTP Server Address

You can enter between 1 and 128 characters.
<Characters that can be used>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

② Enter the port number of the NTP server with the following menu operation:

[13] System >
Date/Time > NTP Port

Possible setting range	0 to 65535
Default value	123

③ Select the interval for acquiring the time data from the NTP server with the following menu operation.
You can select an interval between 1 and 24 hours in one hour units.

[13] System >
Date/Time > Adjust Interval

About the built-in battery for the date/time
When the time display is “2020/01/01 00:00:00”, the built-in battery for the date/time is exhausted.
After recharging the built-in battery for the date/time, set the date and the time.

To recharge the built-in battery for the date/time
Turn the power of the unit on and leave it for approximately 3 hours.
It can keep the clock settings for approximately 6 months.

System settings

Network settings

Proceed with the network settings to perform such tasks as updating the software version via LAN.
The network initial setup is: IP address: 192.168.0.8, subnet mask: 255.255.255.0.
When using the host computer with settings matching the initial setup, it is not necessary to setup via the menu.

Entering the IP address

Set the IP address with the following menu operation:

[16] Network >
LAN > IP Address

Entering the subnet mask

Set the subnet mask with the following menu operation:

[16] Network >
LAN > Subnet Mask

Setting the default gateway

Set the default gateway with the following menu operation:

[16] Network >
LAN > Default Gateway

Display the MAC address

Display the MAC address with the following menu:

[16] Network >
LAN > MAC Address

DNS server settings

Set the primary DNS server and the secondary DNS server with the following menu operation:

[16] Network >
Primary DNS > IP Address

[16] Network >
Secondary DNS > IP Address

- This is necessary for domain name resolution with SRT or RTMP/RTMPS.
- This will be blank if it is not set.

System settings

Setting the button illumination

Button illumination

The button indicators can be kept illuminated all the time. This will make it easy to see the text printed in the vicinity of the buttons, even when you are operating the unit in dark places.

① Make settings for the selected button with the following menu operation:

[12] Config >
Button Illumination > Button Illumination >
Lighting

80% to 150%	The button illumination lights. Brightness can be adjusted between 80% and 150%.

② Make settings for the button when the unit is off with the following menu operation:

[12] Config >
Button Illumination > Button Illumination >
XPT Color

Input	Set [Color Group1] to [Color Group8] for each of the Color Group IN, Color Group Internal, Color Group Still, and Color Group Other materials.
Color Group1 to 8	8 different colors can be set.

③ Make [R], [G], and [B] settings for button illumination with the following menu operation:

[12] Config >
Button Illumination > Button Color Group1

[12] Config >
Button Illumination > Button Color Group2

[12] Config >
Button Illumination > Button Color Group3

[12] Config >
Button Illumination > Button Color Group4

[12] Config >
Button Illumination > Button Color Group5

[12] Config >
Button Illumination > Button Color Group6

[12] Config >
Button Illumination > Button Color Group7

[12] Config >
Button Illumination > Button Color Group8

④ Set the following button illuminations, which cannot be set in ①, with the following menu operation:

[12] Config >
Button Illumination > Button Illumination >
Dimmer

USER1, USER2, USER3, Shot Memory button, SHIFT button, MENU button

On	Turns on the button illuminations.
Off	Turns off the button illuminations.

System settings

Status displays

Alarm status displays

Alarms that alert about problems with the unit's power or the cooling fan are displayed on the OSD menu output destination.

Display the following menus:

[13] System >
Alarm > Power

[13] System >
Alarm > Fan

[13] System >
Alarm > Temperature

The alert status of the power supplies is displayed in the Power item.
The alert status of the cooling fan is displayed in the Fan item.
The alert status of the internal temperature is displayed in the Temperature item.

No Alarm	No irregularity
Alarm	Irregularity

Alarm message

Messages are displayed on the OSD menu output destination when alarms occur.
These messages are displayed only when OSD menus are being displayed.

Alarm message displayed	Type of trouble	Operation
ALARM ! Fan Stop.	Shutdown of the cooling fan	When OK is pressed, the alarm message is cleared. ● Contact your dealer immediately.
ALARM ! Power Stop.	Drop in the supply voltage	
ALARM ! High temperature.	Rise in the temperature inside the unit	

Displaying the version information

Displays the version information for the software and hardware of the unit.

Display the following menus:

[13] System >
System Information

- The unit's system version information is displayed in the System Version item.

System settings

Initialization

Initializing setting data

Returns setting data to the initial state.
When setting data is initialized, Stills are deleted, but the project files saved in the internal storage are not deleted.

<Items and data which are not initialized>
- The items of the menu listed below:

[13] System >
Date/Time

[16] Network

① Press the OSD/TIME dial (Execute) in the following menu to initialize.

[13] System >
Initial > Initial Settings

② To initialize, operate the OSD/TIME dial to press “YES”.
- To cancel, operate the OSD/TIME dial to press “NO”.

Initializing to the factory settings

Returns the setting data and user data of the unit to the factory settings.
When initializing to the factory settings, network settings, Stills, and project files and Stills saved in the internal storage are also deleted.

<Items excluded from initializing to the factory settings>
- The following menu items:

[13] System >
Date/Time > Date Setting

[13] System >
Date/Time > Time Setting

[13] System >
Date/Time > Time Zone

① Press the OSD/TIME dial (Execute) in the following menu to initialize to the factory settings:

[13] System >
Initial > Factory Default

② To initialize, operate the OSD/TIME dial to press “YES”.
- To cancel, operate the OSD/TIME dial to press “NO”.

Initializing fader

The range for executing a transition can be initialized by operating the fader lever.
Initialization should be performed when transitions are not completed to the end even when the fader lever has been moved as far as it will go.

① Press the OSD/TIME dial (Execute) in the following menu to initialize.

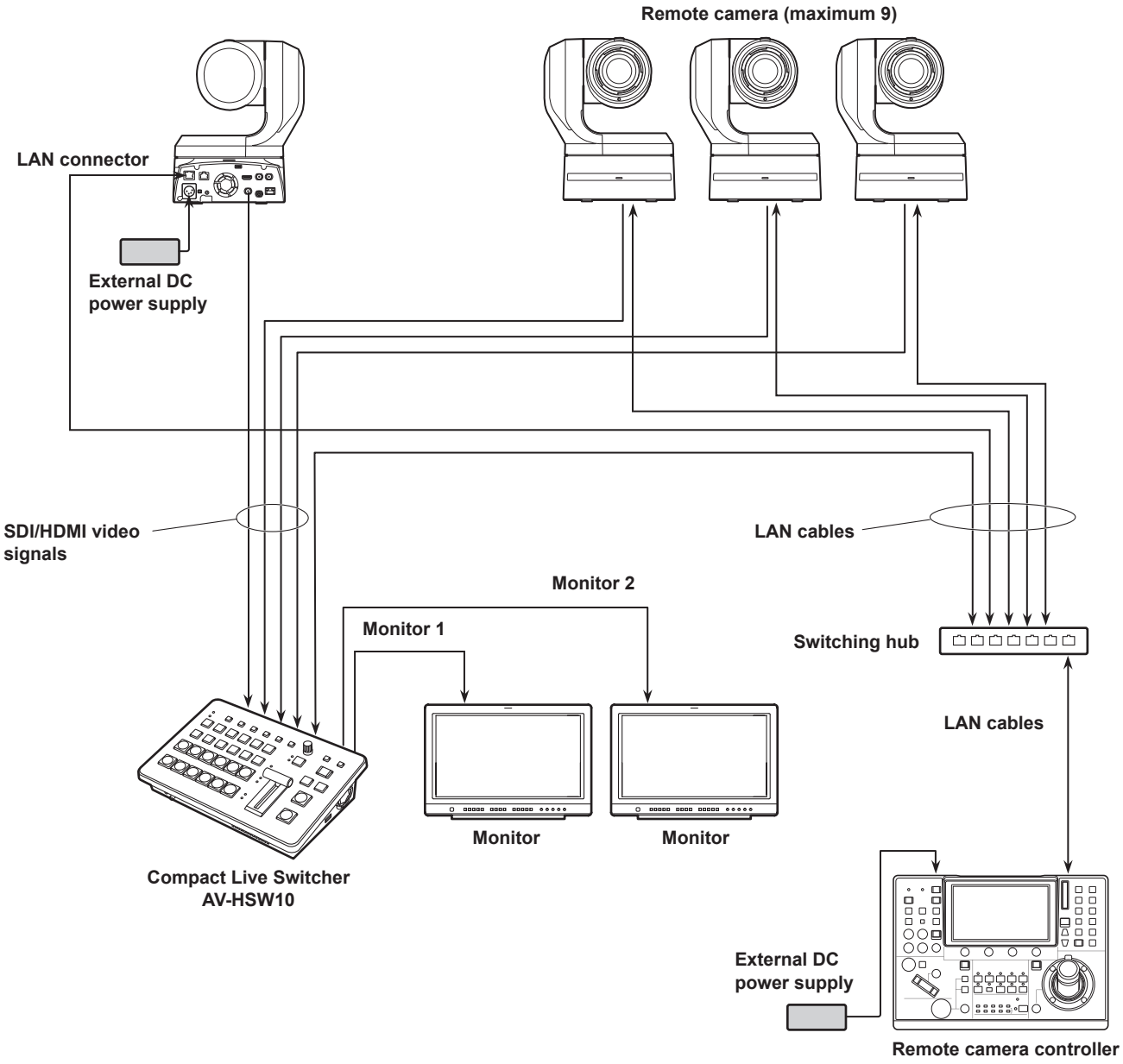
[13] System >
Initial > Initial Fader

② To initialize, operate the OSD/TIME dial to press “YES”.
- To cancel, operate the OSD/TIME dial to press “NO”.

Remote camera link functions

It is possible to connect a maximum of 9 remote cameras to this unit via LAN and remote control them.
For compatibility with remote camera products that can be connected, refer to the AV-HSW10 page on the following website:
https://pro-av.panasonic.net/en/

■ **Examples of connections**



- Use a GbE compatible switching hub and Category 5e or better STP LAN cables for the connection between the unit and the remote cameras.
- Furthermore, use a network design so that the IP addresses for the unit and the remote cameras are within the same subnet.

Remote camera link functions

The control functions for the remote cameras connected to this unit are as follows:
- IP address automatic detection
- It is possible to tally control connected remote cameras linked to the tally status of this unit

Settings for connections to remote cameras

Selecting the terminals for remote camera connection

Select the input signal to which the remote camera is connected from the following menu:

[10] Input

- The following remote camera settings are possible according to the input to IN1 to 9.

IP address settings

To set automatically

You can scan for the IP addresses set in the connected remote cameras and set them in this unit.

Scan the IP addresses of connected remote cameras with the following menu operation:

[10] Input >
INx > Camera Setting > Scan IP Address

- The scan results are displayed in the list of the IP address item.

  [10] Input >
  INx > Camera Setting > IP Address

  - When “Select From List” is displayed, use OSD/TIME dial and select the IP address of the connected remote camera in the IP address item.
  - “Not Detected” is displayed if the IP address of the remote camera could not be detected.
  - Modify the IP address of the unit or the remote camera and set so that there is no duplication.
  - The “Duplicate IP Address Detected. (ErrNo = – 650)” error message is displayed if the IP address of the remote camera is duplicated.

To set manually

You can directly set the IP addresses set in the connected remote cameras in this unit.

Enter the IP addresses of connected remote cameras with the following menu operation:

[10] Input >
INx > Camera Setting > Edit IP Address

Remote camera port settings

Set the ports of connected remote cameras with the following menu operation:

[10] Input >
INx > Camera Setting > Port

Remote camera authentication settings

① Set the user name used for authentication with connected remote cameras with the following menu operation:

[10] Input >
INx > Camera Setting > Edit User Name

② Set the password used for authentication with connected remote cameras with the following menu operation:

[10] Input >
INx > Camera Setting > Edit Password

<Characters which can be used for filenames>

A to Z, a to z, 0 to 9,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Remote camera link functions

Checking the remote camera connection status

① The camera names set on the remote cameras are displayed in the following menu:

[10] Input >
INx > Camera Setting > Name

② The IP connection status of the unit and the remote cameras is displayed in the following menu:

[10] Input >
INx > Camera Setting > Network Status

No IP Address	The IP address of the camera has not been entered in the Input menu.
Now Checking…	The unit and the remote camera are communicating.
Connected	The unit and the remote camera are connected.
Unauthorized	Authentication information has not been entered or is incorrect.
Not Connected	There is a communication error.

Remote camera tally control settings

You can link the red, green, and yellow tally controls of remote cameras connected to this unit to the red, green, and yellow tally controls of this unit.

① Set the link between the red tally control on this unit and the red tally control on the remote camera with the following menu operation:

[10] Input >
INx > Camera Setting > Red Tally

Enable	Linked.
Disable	Not linked.

② Set the link between the green tally control on this unit and the green tally control on the remote camera with the following menu operation:

[10] Input >
INx > Camera Setting > Green Tally

Enable	Linked.
Disable	Not linked.

③ Set the link between the yellow tally control on this unit and the yellow tally control on the remote camera with the following menu operation:

[10] Input >
INx > Camera Setting > Yellow Tally

Enable	Linked.
Disable	Not linked.

External interfaces

Setting the GPI I/O

The user can set the functions that are to be controlled from the GPI ports and set whether to enable the control.

① Set enable (On) and disable (Off) for the controls to perform from the ports with the following menu operation:

[12] Config >
GPI > GPI-In Setting > GPI-In Enable

[12] Config >
GPI > GPI-Out Setting > GPI-Out Enable

② Set the AUX bus notifying the tally with the following menu operation:

[12] Config >
GPI > GPI-In Setting > AUX Sel

[12] Config >
GPI > GPI-Out Setting > AUX Tly Sel

③ Assign functions to each of the pin numbers with the following menu operation:

[12] Config >
GPI > GPI-In Port > Port1 Assign

[12] Config >
GPI > GPI-In Port > Port2 Assign

[12] Config >
GPI > GPI-In Port > Port3 Assign

[12] Config >
GPI > GPI-In Port > Port4 Assign

[12] Config >
GPI > GPI-In Port > Port5 Assign

[12] Config >
GPI > GPI-Out Port > Port 1 Assign

[12] Config >
GPI > GPI-Out Port > Port 2 Assign

[12] Config >
GPI > GPI-Out Port > Port 3 Assign

[12] Config >
GPI > GPI-Out Port > Port 4 Assign

[12] Config >
GPI > GPI-Out Port > Port 5 Assign

[12] Config >
GPI > GPI-Out Port > Port 6 Assign

[12] Config >
GPI > GPI-Out Port > Port 7 Assign

[12] Config >
GPI > GPI-Out Port > Port 8 Assign

→ Refer to “Control using the GPI Input port” and “Output from the GPI Output port”.

- Settings for the GPI-In Enable (or GPI-Out Enable) item can be assigned to one of the user buttons.
  → Refer to “Setting the user buttons”.

External interfaces

■ Control using the GPI Input port

Assign Item	Description of function assigned	Control method
KEY 1/2 ON	KEY1, KEY2 button in transition area	Operations are performed using contact inputs (30 ms or more).
FTB ON	FTB button in transition area	
BKGD AUTO	AUTO button when the background is selected	
BKGD CUT	CUT button when the background is selected	
KEY1 AUTO	AUTO button when the key is selected	
KEY1 CUT	CUT button when the key is selected	
REC Still1	Still1 recording	
REC Still2	Still2 recording	
AUX XPT1 to 12	Crosspoint buttons (1 to 12) used to switch the AUX buses. ● Select the AUX buses (AUX1, AUX2) to be controlled using the menu.	
RTly DSBL	Red tally signal is not output	Functions are enabled using contact inputs (or disabled in open status).
GTly DSBL	Green tally signal is not output	
YTly DSBL	Yellow tally signal is not output	
AUXTly DSBL	AUX tally signal is not output	
No Assign	No function assigned	

■ Output from the GPI Output port

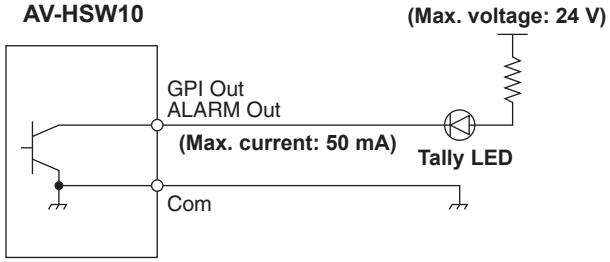
Assign Item	Description of function assigned	Output
KEY1 ON, KEY2 ON	Key1, 2 transition start	Low pulses are output (approx. 50 to 60 ms).
FTB ON	FTB transition start	
BKGD CUT	Cut transition for the background executed	
KEY1 CUT	Cut transition for a key1 executed	
BKGD AUTO	Auto transition execution in progress for background	A low level is output.
KEY1 AUTO	Auto transition execution in progress for key1	
RTly SDI IN1 to 4	Red tally for SDI IN1 to IN4	A low level is output during tally output.
RTly HDMI IN1, 2	Red tally for HDMI IN1, 2	
RTly IP IN1 to 4	Red tally for IP IN1 to IN4	
GTly SDI IN1 to 4	Green tally for SDI IN1 to IN4	
GTly HDMI IN1, 2	Green tally for HDMI IN1, 2	
GTly IP IN1 to 4	Green tally for IP IN1 to IN4	
YTly SDI IN1 to 4	Yellow tally for SDI IN1 to IN4	
YTly HDMI IN1, 2	Yellow tally for HDMI IN1, 2	
YTly IP IN1 to 4	Yellow tally for IP IN1 to IN4	
AUXTly SDI IN1 to 4	When SDI IN1 to IN4 have been selected by the AUX bus*	A low level is output while the inputs are selected.
AUXTly HDMI IN1, 2	When HDMI IN1, 2 have been selected by the AUX bus*	
AUXTly IP IN1 to 4	When IP IN1 to IN4 have been selected by the AUX bus*	
No Assign	No function assigned	

*: Select the AUX buses (AUX1, AUX2) whose signals are to be output using the menu.

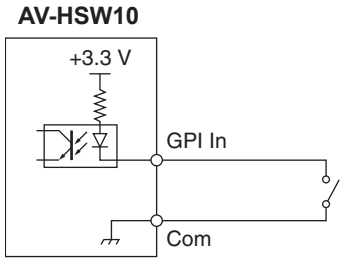
External interfaces

Example of GPI Out and ALARM connections
Ensure that the conditions given below are satisfied.

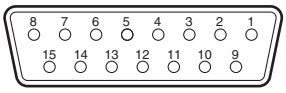
Dielectric strength: Max. DC 24 V
Current: Max. 50 mA



Example of GPI In connections
Provide contact inputs.



TALLY/GPI



Pin No.		Signal name
1		GPI-Out1
	9	GPI-Out8
2		GPI-Out2
	10	GPI-In1
3		GPI-Out3
	11	GPI-In2
4		GPI-Out4
	12	GPI-In3
5		GPI-Out5
	13	GPI-In4
6		ALARM Out
	14	GPI-In5
7		GPI-Out6
	15	GPI-Com
8		GPI-Out7

LAN

Connect the unit and computer or the unit and an external device*.
*: An external device can be controlled from the unit.

- Use a Category 5e or better, straight or crossover STP (Shielded Twisted Pair) LAN cable, maximum 100 m (328 ft).

External interfaces

Controlling with external panels

With this unit, you can perform the following operations from external panels (*) connected via an IP network:
- Select materials for each bus
- Execute video transitions
- Play back shot memories
- Crosspoint selection for each bus

*: This unit supports the LBP series from LAWO. Consult LAWO for LBP series settings and operations.

Preparations

Use a LAN cable to connect the external panel to the LAN connector on the back of the unit.
It is possible to connect a maximum of 20 external panels.
When connecting multiple external panels, connect via a hub.

Notes

Turning ON/OFF external panels and this unit
Take note of the following points when turning ON/OFF or restarting the devices.
- If the external panel cannot be connected even after 3 minutes or more have elapsed since restarting this unit, restart the external panel.
- If an external panel is to be turned off while this unit is running, first set the following item to “Disable”, then turn off the external panel.

  [17] External Interfaces > External Panel Information > Active

External panel settings

Check the following settings on this unit, then make the settings on the connected external panels:

- Set the address value set in the following item to the IP address of the device that is to be controlled by the external panel:

  [16] Network > LAN > IP Address

- Set the port number set in the following item to the port number of the device that is to be controlled by the external panel:

  [17] External Interfaces > External Panel Information > Port No

Also set the subnet mask and the default gateway in the following menus according to the network environment connected:

[16] Network > LAN > Subnet Mask

[16] Network > LAN > Default Gateway

Settings on this unit when external panels are connected

Receiving port number settings

① Set enable/disable for external panel functions with the following menu operation:

[17] External Interfaces > External Panel Information > Active

② Set the receiving port number used by this unit with the following menu operation:

[17] External Interfaces > External Panel Information > Port No

Possible setting range	62000 to 65535
Default value	62010

External interfaces

Shot memory playback target settings

Set the playback targets for when shot memories of this unit are played back by operations on the external panels.

Set the playback targets for the shot memory with the following menu operation:

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
BKGD

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
Key1

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
Key2

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
AUX1

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
AUX2

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
CBGD

[17] External Interfaces >
External Panel IP > Shot Memory Recall >
XPT

- BKGD, Key, AUX, color background, and crosspoint area can be individually turned On/Off.

External interfaces

List of bus IDs and source IDs

When operations are performed on external panels, crosspoint setting commands are issued that specify the materials (Source) for the buses (Destination).
When this unit receives the crosspoint setting command from the external panel, materials are selected and video transitions are executed according to the bus and material combinations specified in the command.
This section describes the IDs (numbers) used by this unit to identify each bus and each material.

IDs can be categorized broadly into the following 2 types:

1) Normal bus IDs and material IDs
IDs that specify the buses inside the switcher (PGM, AUX1, etc.) and the switcher materials (IN1, CBGD1, STILL1-V, etc.).
Use a number between 1 and 512.

2) Extended bus IDs and extended material IDs
IDs used for playback of video transitions and shot memories.
When this unit receives a crosspoint setting command in which the same extended ID is specified for the bus and the material, the corresponding function is executed.
For example, when a command is received that specifies the BKGD AUTO material (ID: 522) for the BKGD AUTO bus (ID: 522), an AUTO transition is executed.
Use a number between 513 and 1024.

Executable operations	Specified bus and material
ME key transition	KEY1 AUTO, KEY2 AUTO
ME key transition (CUT)	KEY1 CUT, KEY2 CUT
ME AUTO transition	BKGD AUTO
ME CUT transition	BKGD CUT
Playing back shot memory registered memories	SHOTPLAY1 to SHOTPLAY12
Crosspoint selection for each bus	XPT1 to XPT12

- Consult LAWO for details on how to assign IDs to the operations of each of the buttons on the LBP series.

Notes

Settings for the external panel (LBP series from LAWO) used as the external interface (ExtPanel)
Take note of the following points when connecting multiple (2 or more) external panels.
- When creating configuration data for multiple external panels, create the data within the same .snap file.
- For each external panel to be used, use the same parameter settings, with just the name of the router to be different.

If you do not take the above measures and make settings for the extended bus IDs/extended source IDs 810 to 821 (XPT1 to XPT12) of the control IDs on multiple external panels, the external panels may not work correctly.

External interfaces

Bus ID

ID	Bus
1	PGM
2	PVW
3	KEY1-F
4	KEY1-S
5	KEY2-F
6	KEY2-S
7	–
⋮	

ID	Bus
112	–
113	AUX1
114	AUX2
115	–
⋮	
149	–
150	VMEM-V
151	VMEM-K

ID	Bus
152	–
153	MV-1
154	MV-2
155	MV-3
156	MV-4
157	MV-5
158	MV-6
159	MV-7

ID	Bus
160	MV-8
161	MV-9
162	MV-10
163	MV-11
164	MV-12
165	MV-13
166	MV-14
167	MV-15

ID	Bus
168	MV-16
169	–
⋮	
512	–

–: Unused ID

Source ID

ID	Source
1	IN1
2	IN2
3	IN3
4	IN4
5	IN5
6	IN6
7	IN7
8	IN8
9	IN9
10	Analog IN
11	–

ID	Source
⋮	
144	–
145	CBGD1
146	CBGD2
147	CBAR
148	Black
149	STILL1V
150	STILL1K
151	STILL2V
152	STILL2K
153	–

ID	Source
⋮	
164	–
165	MV
166	–
⋮	
170	–
171	Key Out
172	CLN
173	–
⋮	
200	–

ID	Source
201	PGM
202	–
203	PVW
204	–
⋮	
226	–
227	AUX1
228	AUX2
229	–
230	–
231	IP OUT1

ID	Source
232	IP OUT2
233	–
⋮	
250	–
251	CLOCK
252	–
⋮	
512	–

–: Unused ID

Extended bus ID

ID	Bus
513	–
514	KEY1 AUTO
515	KEY2 AUTO
516	–
517	–
518	KEY1 CUT
519	KEY2 CUT
520	–
521	–

ID	Bus
522	BKGD AUTO
523	BKGD CUT
524	–
⋮	
709	–
710	SHOTPLAY1
711	SHOTPLAY2
712	SHOTPLAY3
713	SHOTPLAY4

ID	Bus
714	SHOTPLAY5
715	SHOTPLAY6
716	SHOTPLAY7
717	SHOTPLAY8
718	SHOTPLAY9
719	SHOTPLAY10
720	SHOTPLAY11
721	SHOTPLAY12
722	–

ID	Bus
⋮	
809	–
810	XPT1
811	XPT2
812	XPT3
813	XPT4
814	XPT5
815	XPT6
816	XPT7

ID	Bus
817	XPT8
818	XPT9
819	XPT10
820	XPT11
821	XPT12
822	–
⋮	
1024	–

–: Disabled ID (-1) sent

Extended Source ID

ID	Source
513	–
514	KEY1 AUTO
515	KEY2 AUTO
516	–
517	–
518	KEY1 CUT
519	KEY2 CUT
520	–
521	–

ID	Source
522	BKGD AUTO
523	BKGD CUT
524	–
⋮	
709	–
710	SHOTPLAY1
711	SHOTPLAY2
712	SHOTPLAY3
713	SHOTPLAY4

ID	Source
714	SHOTPLAY5
715	SHOTPLAY6
716	SHOTPLAY7
717	SHOTPLAY8
718	SHOTPLAY9
719	SHOTPLAY10
720	SHOTPLAY11
721	SHOTPLAY12
722	–

ID	Source
⋮	
809	–
810	XPT1
811	XPT2
812	XPT3
813	XPT4
814	XPT5
815	XPT6
816	XPT7

ID	Source
817	XPT8
818	XPT9
819	XPT10
820	XPT11
821	XPT12
822	–
⋮	
1024	–

–: Unused ID

External interfaces

External Control

<Overview>
It is possible to switch the materials of all buses on the unit and transmit and receive the material name information of all buses on this unit with external devices connected to the network such as system controllers and tally interfaces.
It is also possible to switch the Key Signal Coupling settings from external devices.
It is possible to transmit and receive tally information and Source ID information using a transmission format that is compatible with TSL UMD Protocol V5.0.
By connecting the AW-RP series Remote Camera Controller from Panasonic via IP, it is possible to switch materials, transmit Tally information, perform focus assist, and acquire material names for the buses of the unit using the AW-RP series camera selector.

- Refer to the operating instructions for AW-RP series for information about control bus settings, etc.

<Preparation>
Use a LAN cable to connect the external device to the LAN connector on the rear of this unit.
The unit supports 20 IP connections. When connecting to multiple external devices, connect via a hub. Set IP address so there is no duplication.
Check the network settings for this unit in the following menus:

[16] Network >
LAN > IP Address

[16] Network >
LAN > Subnet Mask

The initial settings are; IP Address: “192.168.0.50”, Subnet Mask: “255.255.255.0”.

<Settings>
① Set enable/disable for External Control functions with the following menu operation:

[17] External Interfaces >
External Control Switcher > Active

② Set the network with the following menu operation:

[17] External Interfaces >
External Control Switcher > Port No

③ Set the command transmission interval with the following menu operation:

[17] External Interfaces >
External Control Switcher > Interval Time

④ Set the sending of change notifications for the transmission source with the following menu operation:

[17] External Interfaces >
External Control Switcher > Response

On	Send a change notification to the transmission source.
Off	Do not send a change notification to the transmission source.

⑤ Set the IP address of the connected external device with the following menu operation:

[17] External Interfaces >
External Control AUX Panel > IP AddressXX

⑥ Set the receiving port number of the connected external device with the following menu operation:

[17] External Interfaces >
External Control AUX Panel > Port No

- Set to 60031 when connecting to the Remote Camera Controller AW-RP series.

⑦ Information about the DMSG-CONTROL parameter of the TSL UMD Protocol V5.0 commands

Red Tally settings are output when RH tally is output.
Green Tally settings are output when TXT tally is output.
Yellow Tally settings are output when LH tally is output.

⑧ The following item needs to be set to “User” if the material names are to be changed:

[10] Input >
INx > Name Type

<Command specifications>
Refer to the AV-HSW10 external interface communications protocol specifications.

External interfaces

Software panel connection settings

With this unit, it is possible to remotely operate this unit and control settings of this unit by using a LAN connection to connect a PC on which the AV-SF10 software panel has been installed.
Make the settings for the certification information on this unit in order to certify the software panel.

- When installing the software panel on a local PC, refer to the installation procedures for AV-SF10.
- Refer to the operating instructions for AV-SF10 for information about operations on the software panel.

① Execute the following menu to set the user name used for authentication with the software panel:

[13] System >
User Auth > User Name

- The user name can be set between 1 and 32 characters.

<Characters available for the user name>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

② Execute the following menu to set the password used for authentication with the software panel:

- The authentication password needs to be entered 2 times.

[13] System >
User Auth > Password

- The password can be set between 1 and 32 characters.

<Characters available for the password>

A to Z, a to z, 0 to 9

EasyIP Setup Tool Plus connection settings

You can use Media Production Suite and EasyIP Setup Tool Plus to make network related settings for this unit.
Media Production Suite and EasyIP Setup Tool Plus can be obtained by downloading from the following websites.

Japanese: https://panasonic.biz/cns/sav/
English: https://pro-av.panasonic.net/

Refer to the Help pages for Media Production Suite and EasyIP Setup Tool Plus for details.

- Set the user name and password for authentication when connecting a software panel.

① Execute the following menu to set the time allowed for network setting operations from Media Production Suite and EasyIP Setup Tool Plus:

[13] System >
User Auth > EasyIP Setup Limit

20min	Allows network setting operations on Media Production Suite and EasyIP Setup Tool Plus for just 20 minutes after start up of this unit.
Unlimited	Allows network setting operations on Media Production Suite and EasyIP Setup Tool Plus at any time.

EasyIP device name settings

The fixed name of the unit is displayed in Media Production Suite and EasyIP Setup Tool Plus.

① Execute the following menu to set the name of this unit. AV-HSW10 is set as the default value.

[13] System >
Switcher Title

- You can enter between 1 and 20 characters.

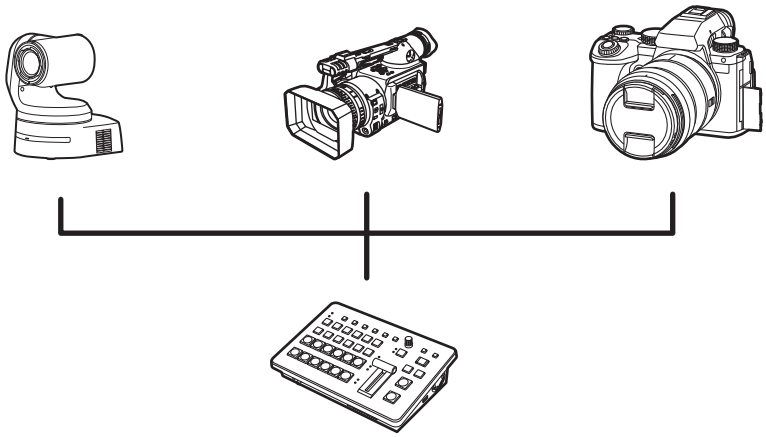
<Characters that can be used>

A to Z, a to z, 0 to 9, space,
! # $ % & ' ( ) @ ^ ` _ { } - * = [ ] ; , . + | ~ : ? < > /

Automatic color tone adjustment

<Overview>

Multiple cameras can be connected to this unit and switched for use, but as each camera has different color properties, it may appear strange when switching. For that reason, you need to perform a matching process so that, after completing individual adjustments on each camera, the color properties of the other cameras are matched with the master camera. This function is provided as a way to perform the adjustments on this unit in order to simplify color property matching.



<Settings>

① Use the functions of the cameras to make adjustments on each individual camera. This is not a function of this unit. Refer to the operating instructions, etc., of the device being used.

② Decide a master camera, match the 24 points on the Macbeth chart with the markers, or match the markers, then record.

- It is anticipated that a Macbeth chart will be used with this function, but other color charts can also be used.

③ Successively match the other cameras with the 24 points of the Macbeth chart as you did with the master camera, then use the master camera recording to calibrate.

- The parameters are determined by comparing the extracted 24 points with each other, but a characteristic of the calibration process means that it will not be an absolute match. Calibrations are made so that the overall variation after calibration is reduced to the minimum.
- If the camera settings are readjusted due to changed conditions, etc., you will need to run this function again. For this reason, we recommend turning OFF the automatic adjustment functions of the cameras.

Automatic color tone adjustment

Master camera recording

① Select the target input with the following menu operation:

[19] Color Adjust >
Target

② Display a marker on the target input with the following menu operation:

[19] Color Adjust >
Marker

③ Set the marker position with the following menu operation:

[19] Color Adjust >
Left

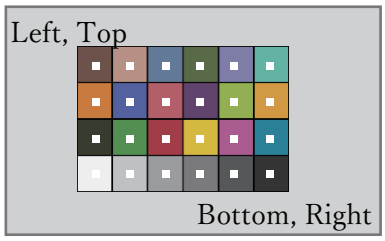
[19] Color Adjust >
Top

[19] Color Adjust >
Bottom

[19] Color Adjust >
Right

[19] Color Adjust >
Set capture points

Left	Specify the left edge of the area where the point is to be generated.
Top	Specify the upper edge of the area where the point is to be generated.
Bottom	Specify the lower edge of the area where the point is to be generated.
Right	Specify the right edge of the area where the point is to be generated.
Set capture points	24 points are generated in the specified area in a vertical 6 × horizontal 4 pattern.



④ Adjust the marker positions with the following menu operation:

[19] Color Adjust >
Points > Point x

⑤ Select the place to record the color of the marker position with the following menu operation:

[19] Color Adjust >
Parameter No

⑥ Press the OSD/TIME dial (Execute) in the following menu to record in the selected place:

[19] Color Adjust >
Capture for Master

- If there is already a recording, it is overwritten.

⑦ Set a name in the recording with the following menu operation:

[19] Color Adjust >
Parameters > Parameter x > Name

- You can enter a character string of up to 16 characters.

Calibrating the other cameras

① Select the target input with the following menu operation:

[19] Color Adjust >
Adjust Target

② Match markers.

→ Refer to ② to ④ in “Master camera recording”.

③ Select the recording of the master camera that will be used as the calibration reference with the following menu operation:

[19] Color Adjust >
Parameter No

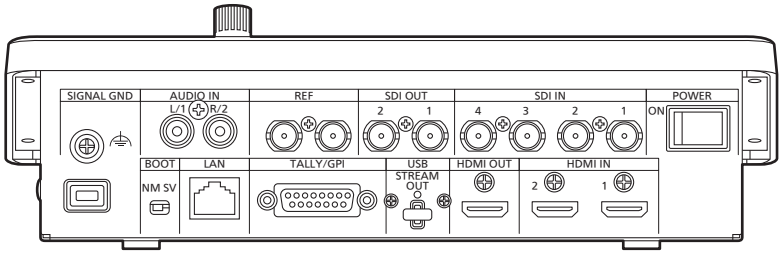
④ Press the OSD/TIME dial (Execute) in the following menu to make the color adjustments:

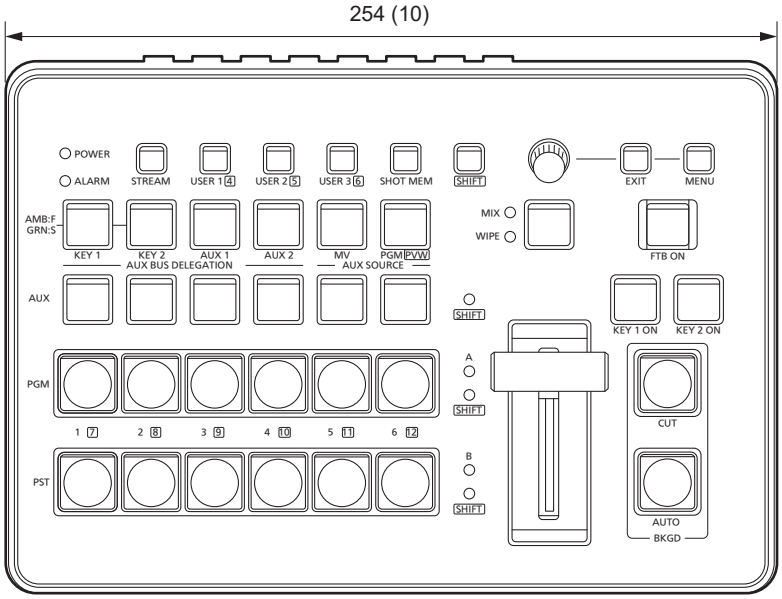
[19] Color Adjust >
Adjust Target

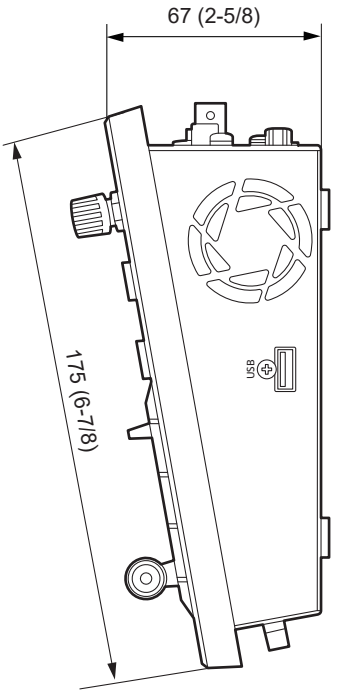
- [19] Color Corrector > Enable Color Adjust is automatically changed to “Enable” at this time. Change to “Disable” to disable the calibration.

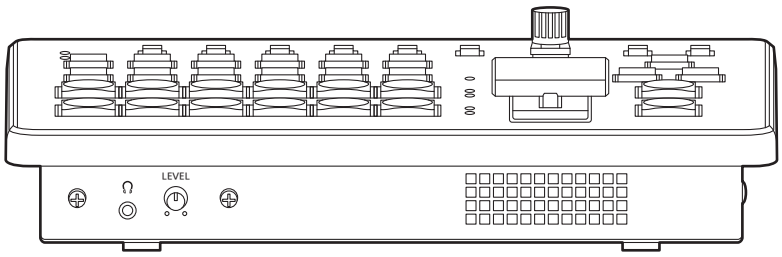
Appearance

Unit: mm (inch)









Specifications

Power supply: DC ⎓ 16 V Dedicated AC Adaptor
Current consumption: 3.0 A (48 W)

▭ indicates safety information.

General

Ambient operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Ambient operating humidity	10 % to 90 % (no condensation)
Storage temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage humidity	10 % to 90 % (no condensation)
Mass	Approx. 1.8 kg (3.96 lbs.)
Dimensions (W × H × D)	254 mm × 67 mm × 175 mm (10 inches × 2-5/8 inches × 6-7/8 inches) (excluding protrusions)

Video connectors

<SDI IN 1> to <SDI IN 4> terminals	4 lines ● Connectors: BNC × 4 ● Equipped with frame synchronizer and simplified color corrector. ● Connectors <SDI IN 1> and <SDI IN 2> have simplified format converters, <SDI IN 3> and <SDI IN 4> have high-performance format converters. * SDI IN 1 excludes HDMI IN 1.	
	3G-SDI	3G-SDI, complied with SMPTE424M standard (Compatible with Level-A/Level-B) ● 0.8 V [p-p] ± 10 % (75 Ω) ● Automatic equalizer 100 m (when using a cable)
	HD-SDI	HD-SDI, complied with SMPTE292M standard ● 0.8 V [p-p] ± 10 % (75 Ω) ● Automatic equalizer 100 m (when using a cable)
<HDMI IN 1>, <HDMI IN 2> terminals	2 lines, HDMI1.4b compatible Video format inputs: 720p/59.94 Hz, 720p/50 Hz, 1080i/59.94 Hz, 1080i/50 Hz, 1080p/59.94 Hz, 1080p/50 Hz, 1080p/29.97 Hz, 1080p/25 Hz, 1080p/24 Hz, 1080p/23.98 Hz PC format inputs (resolution, vertical frequency: 60 Hz): WSXGA+ (1680 × 1050, 60 Hz), SXGA (1280 × 1024, 60 Hz), WXGA (1280 × 768, 60 Hz), XGA (1024 × 768, 60 Hz) Mode: Full/Fit-H/Fit-V ● Connectors: HDMI × 2 ● Equipped with frame synchronizer and simplified color corrector. ● The HDMI IN connector has a scaler function. ● This connector does not support the HDCP technologies. * HDMI IN 1 excludes SDI IN 1.	
<SDI OUT 1>, <SDI OUT 2> terminals	2 lines ● Connectors: BNC × 2 ● PGM, PVW, CLN, MV, AUX1/2, and Key Out can be assigned.	
	3G-SDI	3G-SDI, complied with SMPTE424M standard (Compatible with Level-A) ● 0.8 V [p-p] ± 10 % (75 Ω)
	HD-SDI	HD-SDI, complied with SMPTE292M standard ● 0.8 V [p-p] ± 10 % (75 Ω)
<HDMI OUT> terminal	1 line, HDMI1.4b compatible ● Connector: HDMI × 1 ● Equipped with scaler function. Mode: Fit-V, Fit-H, Full, Full-90%, Full-80% ● PGM, PVW, CLN, MV, AUX1/2, and Key Out can be assigned.	

Specifications

<LAN> terminal	Compatible with 1000Base-T and AUTO-MDIX (for IP signal transmission/control) ● Connecting cable: LAN cable (Category 5e or more), max. 100 m (328 ft), STP (Shielded Twisted Pair) cable recommended ● Connector: RJ-45	
	■ IP input signal Assigned to IN 6 to 9. ● IN 6, IN 7: Selectable from NDI High Bandwidth/HX1/HX2 and SRT.* ● IN 8, IN 9: NDI High Bandwidth Supports NDI α channel input. * Can be modified by firstly updating the firmware and then changing the IP mode.	
	■ IP output signal Assigned to OUT 4 and OUT 5. ● OUT 4, OUT 5: Selectable from NDI High Bandwidth, SRT, and RTMP/RTMPS. ● PGM, PVW, CLN, MV, AUX1/2, Key Out, Still1, and Still2 can be assigned. ● NDI output is equipped with i/p switching functionality. ● Possible output formats: 1920 × 1080/60fps, 50fps, 30fps, 25fps, 24fps 1280 × 720/60fps, 50fps	
<USB> terminal	Connector for outputting UVC/UAC Assigned to OUT 6. ● Connector: USB3.2 Gen1 Type-C, No USB bus power functionality ● PGM, PVW, CLN, MV, AUX1/2, and Key Out can be assigned. ● Equipped with scaler function and i/p conversion function. ● Possible output formats: 1920 × 1080/60fps, 50fps, 30fps, 25fps, 24fps 1280 × 720/60fps, 50fps, 30fps, 25fps, 24fps	
System format	1080/59.94p, 50p, 29.97p, 25p, 24p, 23.98p, 59.94i, 50i 720/59.94p, 50p	
Signal processing	R:G:B	4:4:4 8bit / 4:2:2 10bit (when HDMI)
	Y:Cb:Cr	4:2:2 8bit (when NDI High Bandwidth or UVC)
	Y:Cb:Cr	4:2:0 8bit (when NDI HX1/HX2, SRT or RTMP/RTMPS)
	Y:Cb:Cr	4:2:2 10bit
ME number	1ME	

Audio connectors

<AUDIO IN> terminal	● L/1 and R/2 ● Connector: Pin jacks ● Equipped with embedded functionality to each output. ● Equipped with delay/level adjustment function.
<AUDIO OUT> terminal	Connector for headphone monitor ● Connector: Φ3.5 mm TRS ● Equipped with output volume adjustment function.

Synchronizing connectors

<REF> terminals Reference input	In Genlock mode: Selectable from BB (black burst), Tri-level Sync, and internal synchronization ● Loop-through output is performed in BB mode and Tri-level Sync mode. ● If loop-through output is not going to be used, provide a 75 Ω termination. ● Connectors: BNC×2 ● Same field frequencies as those of the system formats supported. ● For 23.98 Hz and 24 Hz, only Tri-level input or internal synchronization is supported.	
Video delay time	1 line (H)	When the frame synchronizer setting is [Off] and neither the up-converter nor the down-converter is operating
	1 frame (F)	When the frame synchronizer setting is on and the up-converter and down-converter are operating
	● When the signals have passed through PinP, multi view, down-converter or HDMI IN/OUT, a maximum delay of 1 frame is applied in each case.	

Specifications

Control connectors

<LAN> terminal	Compatible with 1000Base-T and AUTO-MDIX (For IP control) ● Connecting cable: LAN cable (Category 5e), max. 100 m (328 ft), STP (Shielded Twisted Pair) cable recommended ● Connector: RJ-45
<TALLY GPI> terminals	INPUT: 5 inputs, general-purpose, photocoupler sensing OUTPUT: 8 outputs, selected from R/G/Y tally, general-purpose ALARM: 1 output, open collector output (negative logic) ● Connectors: D-Sub 15pin
<USB> terminal	● Connector: USB2.0, Type-A, with USB bus power functionality Use a USB memory to save and load configuration files and still data, and perform firmware updates.

AC Adaptor

Rated input: 100 V – 240 V AC (~) 50 Hz/60 Hz
1.6 A – 0.9 A

Rated output: 16 V DC (⎓), 4.06 A

▭ indicates safety information.

Setting menu table

No.	Sub menu	Setting item			Setting				
1	WIPE	1	BKGD Pattern		Setting range	Select each pattern (page 34)			
					Default value	5			
		2	BKGD Transition	Direction	Setting range	Normal, Reverse, N/R			
					Default value	Normal			
				Border	Setting range	Border	On, Off	Width	0.1 to 100.0
					Default value		Off		5.0
					Setting range	Soft	0.0 to 100.0		
					Default value		0.0		
				Border Color	Setting range	Load	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black	Hue	0.0 to 359.9
					Default value		White		0.0
					Setting range	Sat	0.0 to 100.0	Lum	0.0 to 108.0
					Default value		0.0		100.0
				Position	Setting range	X-Position	–100.00 to 100.00	Y-Position	–100.00 to 100.00
					Default value		0.00		0.00
		3	Key1 Pattern		Setting range	Select each pattern (page 39)			
					Default value	5			
		4	Key1 Transition	Type	Setting range	MIX, WIPE			
					Default value	MIX			
				Keyout Pattern	Setting range	Normal, Reverse			
					Default value	Normal			
				Position	Setting range	X-Position	–100.00 to 100.00	Y-Position	–100.00 to 100.00
					Default value		0.00		0.00
2	CBGD	1	CBGD Select		Setting range	CBGD1, CBGD2			
					Default value	CBGD1			
		2	CBGD Main	Load	Setting range	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black			
					Default value	Blue, Red			
				Hue	Setting range	0.0 to 359.9			
					Default value	120.0, 0.0			
				Sat	Setting range	0.0 to 100.0			
					Default value	100.0			
				Lum	Setting range	0.0 to 108.0			
					Default value	100.0			
		3	CBGD Sub	Load	Setting range	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black			
					Default value	White			
				Hue	Setting range	0.0 to 359.9			
					Default value	0.0			
				Sat	Setting range	0.0 to 100.0			
					Default value	0.0			
				Lum	Setting range	0.0 to 108.0			
					Default value	100.0			
		4	CBGD Wash	Wash	Setting range	On, Off			
					Default value	Off			
				Color	Setting range	Dual, Rainbow			
					Default value	Dual			
				Rainbow Sat	Setting range	0.0 to 100.0			
					Default value	100.0			
				Rainbow Lum	Setting range	0.0 to 108.0			
					Default value	100.0			

Setting menu table

No.	Sub menu	Setting item			Setting	
2	CBGD	5	CBGD Wave	Pattern	Setting range	Sine, Saw
					Default value	Sine
				Cycle	Setting range	0.0 to 100.0
					Default value	0.0
				Phase	Setting range	–180.0 to 180.0
					Default value	0.0
				Angle	Setting range	0.0 to 360.0
					Default value	0.0
		6	CBGD Move	Move	Setting range	Off, Roll, Rotation
					Default value	Off
				Speed	Setting range	–50.0 to 50.0
					Default value	1.0
3	Key	1	Key Select		Setting range	Key1, Key2
					Default value	Key1
		2	Key Type		Setting range	Lum (ChromaOff), Lum (ChromaOn), Linear, Chroma, Full
					Default value	Linear
		3	Fill		Setting range	Bus, Matte
					Default value	Bus
		4	PVW		Setting range	Off, On
					Default value	Off
		5	Key Adjust	Clip	Setting range	0.0 to 108.0
					Default value	0.0
				Gain	Setting range	0.0 to 200.0
					Default value	100.0
				Density	Setting range	0.0 to 100.0
					Default value	100.0
				Invert	Setting range	On, Off
					Default value	Off
		6	Fill Matte	Load	Setting range	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black
					Default value	White
				Hue	Setting range	0.0 to 359.9
					Default value	0.0
				Sat	Setting range	0.0 to 100.0
					Default value	0.0
				Lum	Setting range	0.0 to 108.0
					Default value	100.0
		7	Edge	Type	Setting range	Off, Border, Drop, Shadow, Outline
					Default value	Off
				Width	Setting range	0 to 4
					Default value	2
				Direction	Setting range	0, 45, 90, 135, 180, 225, 270, 315
					Default value	0
				Density	Setting range	25%, 50%, 75%, 100%
					Default value	100%
				Fill	Setting range	Color, CBGD1, CBGD2, Still1, Still2
					Default value	Color

Setting menu table

No.	Sub menu	Setting item			Setting				
3	Key	7	Edge	Color	Setting range	Load	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black	Hue	0.0 to 359.9
					Default value		Black		0.0
					Setting range	Sat	0.0 to 100.0	Lum	0.0 to 108.0
					Default value		0.0		0.0
		8	Mask	Size	Setting range	Off, Manual, 4:3			
					Default value	Off			
				Invert	Setting range	On, Off			
					Default value	Off			
				Position	Setting range	Left	–50.00 to 50.00	Top	–50.00 to 50.00
					Default value		–25.00		25.00
					Setting range	Bottom	–50.00 to 50.00	Right	–50.00 to 50.00
					Default value		–25.00		25.00
		9	PinP	PinP	Setting range	On, Off			
					Default value	Off			
				Shape	Setting range	Square, Circle, Heart, Flower, Star			
					Default value	Square			
				Density	Setting range	0.0 to 100.0			
					Default value	100.0			
				Full Key	Setting range	On, Off			
					Default value	On			
				Border	Setting range	Border	Off, On	Width	0.1 to 100.0
					Default value		Off		5.0
					Setting range	Soft	0.0 to 100.0	Mode	Fix, Variable
					Default value		0.0		Fix
					Setting range	Color	Load	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black	
					Default value			Black	
					Setting range		Hue	0.0 to 359.9	
					Default value			0.0	
					Setting range		Sat	0.0 to 100.0	
					Default value			0.0	
					Setting range		Lum	0.0 to 108.0	
					Default value			0.0	
				Position	Setting range	X-Position	–100.00 to 100.00	Y-Position	–100.00 to 100.00
					Default value		0.00		0.00
					Setting range	Size	0.00 to 100.00		
					Default value		25.00		

Setting menu table

No.	Sub menu	Setting item			Setting				
3	Key	9	PinP	Trim	Setting range	Trim	Off, On	Pair	Off, On
					Default value		Off		Off
					Setting range	Preset	16:9, 12:9, 9:9, 7:9, 6:9, Manual		
					Default value		16:9		
					Setting range	Adjust	Left	–50.00 to 50.00	
					Default value			–50.00	
					Setting range		Top	–50.00 to 50.00	
					Default value			50.00	
					Setting range		Bottom	–50.00 to 50.00	
					Default value			–50.00	
					Setting range		Right	–50.00 to 50.00	
					Default value			50.00	
				Sync	Setting range	Symmetry	Off, X, Y, Center, Same	Copy to KEY	Execute
					Default value		Off		
		10	Key Signal Coupling		Setting range	Coupling, Independent			
					Default value	Coupling			
		11	Key Priority	Key	Setting range	1st, 2nd			
					Default value	2nd			
4	ChromaKey	1	Marker		Setting range	On, Off			
					Default value	Off			
		2	Sample		Setting range	Execute			
					Default value	Execute			
		3	Marker Position	X-Position	Setting range	–50.00 to 50.00			
					Default value	0.00			
				Y-Position	Setting range	–50.00 to 50.00			
					Default value	0.00			
				Size	Setting range	1.00 to 80.00			
					Default value	10.00			
		4	Marker Aspect		Setting range	–50.00 to 50.00			
					Default value	0.00			
		5	Ref Adjust	Hue	Setting range	0.0 to 359.9			
					Default value	354.0			
				Sat	Setting range	0.0 to 100.0			
					Default value	100.0			
				Lum	Setting range	0.0 to 108.0			
					Default value	7.00			
		6	Y-Influence		Setting range	0.0 to 100.0			
					Default value	0.0			
		7	Radius	Hue	Setting range	0.0 to 100.0			
					Default value	100.0			
				Sat	Setting range	0.0 to 100.0			
					Default value	50.0			
		8	Soft		Setting range	0.0 to 100.0			
					Default value	0.0			
		9	Cancel		Setting range	0.0 to 100.0			
					Default value	0.0			

Setting menu table

No.	Sub menu	Setting item			Setting	
5	Time	1	BKGD		Setting range	0 to 999 (Frame)
					Default value	1s00f
		2	Key1		Setting range	0 to 999 (Frame)
					Default value	1s00f
		3	Key2		Setting range	0 to 999 (Frame)
					Default value	1s00f
		4	FTB	Trans Time	Setting range	0 to 999 (Frame)
					Default value	1s00f
				Source	Setting range	Still1, Still2, CBGD1, CBGD2, White, Black
					Default value	Black
				Mute	Setting range	Off, On
					Default value	Off
		5	Effect Dissolve		Setting range	0 to 999 (Frame)
					Default value	1s00f
		6	AUX1 Bus Trans	Transition	Setting range	Off, On
					Default value	Off
				Trans Time	Setting range	0 to 999 (Frame)
					Default value	1s00f
		7	AUX2 Bus Trans	Transition	Setting range	Off, On
					Default value	Off
				Trans Time	Setting range	0 to 999 (Frame)
					Default value	1s00f
		8	OUT4(IP OUT1) Trans	Transition	Setting range	Off, On
					Default value	Off
				Trans Time	Setting range	0 to 999 (Frame)
					Default value	1s00f
		9	OUT5(IP OUT2) Trans	Transition	Setting range	Off, On
					Default value	Off
				Trans Time	Setting range	0 to 999 (Frame)
					Default value	1s00f
6	Still	1	Still Select		Setting range	Still1, Still2
					Default value	Still1
		2	Key Status		Setting range	On, Off
					Default value	–
		3	Capture		Setting range	Execute
					Default value	
		4	Capture Setting	Video	Setting range	AUX1, AUX2
					Default value	AUX1
				Key Enable	Setting range	On, Off
					Default value	On
				Key	Setting range	AUX1, AUX2
					Default value	AUX1
				Review	Setting range	On, Off
					Default value	On
		5	Test Pattern	Load	Setting range	Execute
					Default value	

Setting menu table

No.	Sub menu	Setting item			Setting				
7	Shot Memory	1	Target Select	BKGD	Setting range	Target	On, Off	XPT	On, Off
					Default value		On		On
				Key1	Setting range	Target	On, Off	XPT	On, Off
					Default value		On		On
				Key2	Setting range	Target	On, Off	XPT	On, Off
					Default value		On		On
				AUX1	Setting range	On, Off			
					Default value	On			
				AUX2	Setting range	On, Off			
					Default value	On			
				CBGD	Setting range	On, Off			
					Default value	On			
		2	Effect		Setting range	Cut, Dissolve			
					Default value	Dissolve			
		3	Hue Path		Setting range	Short, Long, CW, CCW			
					Default value	Short			
		4	XPT Disable		Setting range	Off, On			
					Default value	Off			

Setting menu table

No.	Sub menu	Setting item			Setting	
8	XPT Assign	1	XPT1		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN1
		2	XPT2		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN2
		3	XPT3		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN3
		4	XPT4		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN4
		5	XPT5		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN5
		6	XPT6		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN6
		7	XPT7		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN7
		8	XPT8		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN8
		9	XPT9		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	IN9
		10	XPT10		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	CBAR
		11	XPT11		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	CBGD1
		12	XPT12		Setting range	IN1 to 9(**********), Black, CBGD1, CBGD 2, CBAR, Still1V, Still1K, Still2V, Still2K, CLN, Key Out, None
					Default value	CBGD2
		13	Switch Timing		Setting range	Any, Field1, Field2
					Default value	Any

Setting menu table

No.	Sub menu	Setting item			Setting	
9	MultiView **********: Name of the currently set material	1	Split		Setting range	4Split, 5-aSplit, 5-bSplit, 6-aSplit, 6-bSplit, 9Split, 10-aSplit, 10-bSplit, 12Split, 16Split
					Default value	10-aSplit
		2	Size		Setting range	Fit, SQ
					Default value	SQ
		3	Source Select	Pos1 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	PGM
				Pos2 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	PVW
				Pos3 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN1
				Pos4 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP-OUT1, IP-OUT2*
					Default value	IN2
				Pos5 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN3
				Pos6 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN4
				Pos7 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN5
				Pos8 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN6
				Pos9 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN7
				Pos10 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN8

* IP OUT2 is hidden except when the IP mode is Normal.

Setting menu table

No.	Sub menu	Setting item			Setting	
9	MultiView **********: Name of the currently set material	3	Source Select	Pos11 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	IN9
				Pos12 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	Still1V
				Pos13 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	Still2V
				Pos14 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	CBAR
				Pos15 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	CBGD1
				Pos16 Source	Setting range	IN1 to 9 (**********), CBAR, CBGD1, CBGD2, Still1V, Still1K, Still2V, Still2K, PGM, PVW, CLN, Key Out, AUX1, AUX2, MV, Clock, Black, Analog IN, IP OUT1, IP OUT2*
					Default value	CBGD2
		4	MV Frame		Setting range	LUM0%, LUM25%, LUM50%, LUM75%, LUM100%, Off
					Default value	LUM75%
		5	MV Character		Setting range	LUM0%, LUM25%, LUM50%, LUM75%, LUM100%, Off
					Default value	LUM75%
		6	MV Label		Setting range	On, Off
					Default value	On
		7	Red Tally	Box	Setting range	On, Off
					Default value	Off
				Label Left	Setting range	On, Off
					Default value	Off
				Label Right	Setting range	On, Off
					Default value	Off
		8	Green Tally	Box	Setting range	On, Off
					Default value	Off
				Label Left	Setting range	On, Off
					Default value	Off
				Label Right	Setting range	On, Off
					Default value	Off

* IP OUT2 is hidden except when the IP mode is Normal.

Setting menu table

No.	Sub menu	Setting item			Setting	
9	MultiView	9	Yellow Tally	Box	Setting range	On, Off
					Default value	Off
				Label Left	Setting range	On, Off
					Default value	Off
				Label Right	Setting range	On, Off
					Default value	Off
		10	Display	Level Meter	Setting range	OFF, IN ON, OUT ON, IN/OUT ON
					Default value	OFF
				Input Status	Setting range	On, Off
					Default value	On
				Marker	Setting range	4:3, 16:9, Off
					Default value	Off
				Marker Size	Setting range	80 to 100%
					Default value	95%

Setting menu table

Upper layer

No.	Sub menu	Setting item			Setting	
10	Input	1	IN1(SDI1/ HDMI1)	Display only	Menu for the next layer	Moves to lower layer A
		2	IN2(SDI IN2)			
		3	IN3(SDI IN3)			
		4	IN4(SDI IN4)			
		5	IN5(HDMI IN2)			
		6	IN6(IP IN1)			Moves to lower layer B
		7	IN7(IP IN2)			
		8	IN8(IP IN3)			
		9	IN9(IP IN4)			

Lower layer A

No.	Sub menu	Setting item			Setting	
	SDI1/HDMI1	1	SDI/HDMI		Setting range	SDI, HDMI
					Default value	SDI
	SDI IN XX	2	Status Information	Format	Display only	
				Audio		
				Status		
		3	FS Mode		Setting range	Off, Normal, Auto
					Default value	Auto
		4	FS Delay		Setting range	0F to 6F ● SDI IN1 is 0F to 2F.
					Default value	0F
		5	Freeze		Setting range	Disable, Enable
					Default value	Disable
		6	Freeze Select		Setting range	Frame, Field
					Default value	Frame
		7	Name Type		Setting range	Default, User
					Default value	Default
		8	Name		Setting range	32 characters can be set.
					Default value	
		9	Up/Down Converter	Move Detect	Setting range	1 to 5
					Default value	5
				Sharp	Setting range	1 to 5
					Default value	3

Setting menu table

No.	Sub menu	Setting item			Setting				
	SDI IN XX	10	Color Correct	C/C	Setting range	On, Off			
					Default value	Off			
				C/C Process	Setting range	Y-Gain	0.0 to 200.0	Pedestal	–20.0 to 20.0
					Default value		100.0		0.0
					Setting range	C-Gain	0.0 to 200.0	Hue	0.0 to 359.9
					Default value		100.0		0.0
		11	Camera Setting	IP Address	Setting range	IP Address selection			
					Default value				
				Port	Setting range	1 to 65535			
					Default value	80			
				Edit IP Address	Setting range	Execute			
					Default value				
				Scan IP Address	Setting range	Execute			
					Default value				
				Edit User Name	Setting range				
					Default value				
				Edit Password	Setting range	********			
					Default value				
				Name	Setting range	Name registered on the camera			
					Default value				
				Network Status	Setting range	No IP Address, Now Checking…, Connected, Unauthorized, Not Connected			
					Default value	No IP Address			
				Red Tally	Setting range	Disable, Enable			
					Default value	Enable			
				Green Tally	Setting range	Disable, Enable			
					Default value	Enable			
				Yellow Tally	Setting range	Disable, Enable			
					Default value	Enable			

Setting menu table

No.	Sub menu	Setting item			Setting				
	HDMI IN XX	2	Status Information	Size	Display only				
				Dot Clock					
				H-Frequency					
				V-Frequency					
				Status					
		3	Freeze		Setting range	Disable, Enable			
					Default value	Disable			
		4	Freeze Select		Setting range	Frame, Field			
					Default value	Frame			
		5	Limited		Setting range	On, Off			
					Default value	Off			
		6	Name Type		Setting range	Default, User			
					Default value	Default			
		7	Name		Setting range	32 characters can be set.			
					Default value				
		8	Scale		Setting range	Fit-V, Fit-H, Full			
					Default value	Full			
		9	Color Correct	C/C	Setting range	On, Off			
					Default value	Off			
				C/C Process	Setting range	Y-Gain	0.0 to 200.0	Pedestal	–20.0 to 20.0
					Default value		100.0		0.0
					Setting range	C-Gain	0.0 to 200.0	Hue	0.0 to 359.9
					Default value		100.0		0.0
		10	Camera Setting	IP Address	Setting range	IP Address selection			
					Default value				
				Port	Setting range	1 to 65535			
					Default value	80			
				Edit IP Address	Setting range	Execute			
					Default value				
				Scan IP Address	Setting range	Execute			
					Default value				
				Edit User Name	Setting range				
					Default value				
				Edit Password	Setting range	********			
					Default value				
				Name	Setting range	Name registered on the camera			
					Default value				
				Network Status	Setting range	No IP Address, Now Checking…, Connected, Unauthorized, Not Connected			
					Default value	No IP Address			
				Red Tally	Setting range	Disable, Enable			
					Default value	Enable			
				Green Tally	Setting range	Disable, Enable			
					Default value	Enable			
				Yellow Tally	Setting range	Disable, Enable			
					Default value	Enable			

Setting menu table

Lower layer B

No.	Sub menu	Setting item			Setting	
	IP IN1,2	1	Streaming Mode		Setting range	NDI|HX, SRT (selected source shown below)
					Default value	NDI|HX
	IP IN3,4	1	Streaming Mode		Setting range	NDI
					Default value	NDI
	NDI IN XX	2	Status Information	Format	Display only	
				Sampling Rate		
				Audio Channel		
				Frame Data		
				Codec		
				Streaming Mode		
				Status		
		3	Alpha Settings	Use Alpha	Setting range	Disable, Enable
					Default value	Disable
				Type	Display only	
				Alpha Signal		
				Key Source BKGD	Setting range	White, Black
					Default value	White
		4	Machine Name		Display only	
		5	Source Name			
		6	Scan Mode		Setting range	HB/HX v2, HX v1
					Default value	HB/HX v2
		7	Scan		Setting range	Move to another menu (List of scan results)
					Default value	
		8	Protocol		Setting range	TCP, UDP
					Default value	TCP

Setting menu table

No.	Sub menu	Setting item			Setting	
	NDI IN XX	9	Group	Group	Setting range	Disable, Enable
					Default value	Disable
				Group Name	Setting range	64 characters can be set.
					Default value	
		10	Use Discovery server	Use Discovery server	Setting range	Disable, Enable
					Default value	Disable
				Discovery server IP	Setting range	IP Address input
					Default value	
		11	RTSP	Port	Setting range	1 to 65535
					Default value	554
				Request URL	Setting range	255 characters can be set.
					Default value	MediaInput/h264/stream_1
				Connect	Setting range	Execute
					Default value	
		12	Name Type		Setting range	Default, User
					Default value	Default
		13	Name		Setting range	32 characters can be set.
					Default value	
		14	Camera Setting	Control	Setting range	Panasonic, NDI
					Default value	Panasonic
				IP Address	Setting range	IP Address selection
					Default value	
				Port	Setting range	1 to 65535
					Default value	80
				Edit IP Address	Setting range	Execute
					Default value	
				Scan IP Address	Setting range	Execute
					Default value	
				Edit User Name	Setting range	
					Default value	
				Edit Password	Setting range	********
					Default value	
				Name	Setting range	Name registered on the camera
					Default value	
				Network Status	Setting range	No IP Address, Now Checking…, Connected, Unauthorized, Not Connected
					Default value	No IP Address
				Red Tally	Setting range	Disable, Enable
					Default value	Enable
				Green Tally	Setting range	Disable, Enable
					Default value	Enable
				Yellow Tally	Setting range	Disable, Enable
					Default value	Enable

Setting menu table

No.	Sub menu	Setting item			Setting	
	SRT IN XX	2	Status Information	Format	Display only	Video format (1080/59.94p, etc.)
				Sampling Rate		
				Audio Channel		
				Codec		H.264/H.265
				Status		
		3	Name Type		Setting range	Default, User
					Default value	Default
		4	Name		Setting range	32 characters can be set.
					Default value	
		5	Mode		Setting range	Caller, Listener
					Default value	Caller
		6	Server URL		Setting range	Enter URL. 1 to 254 characters
					Default value	
		7	Server Port		Setting range	0 to 65535
					Default value	30000
		8	Stream ID		Setting range	512 characters can be set.
					Default value	
		9	Port		Setting range	1024 to 65535
					Default value	2020
		10	Encryption		Setting range	Disable, Enable
					Default value	Disable
		11	Passphrase		Setting range	10 to 79 characters can be set.
					Default value	
		12	Camera Setting	IP Address	Setting range	IP Address selection
					Default value	
				Port	Setting range	1 to 65535
					Default value	80
				Edit IP Address	Setting range	Execute
					Default value	
				Scan IP Address	Setting range	Execute
					Default value	
				Edit User Name	Setting range	
					Default value	
				Edit Password	Setting range	********
					Default value	
				Name	Setting range	Name registered on the camera
					Default value	
				Network Status	Setting range	No IP Address, Now Checking…, Connected, Unauthorized, Not Connected
					Default value	No IP Address
				Red Tally	Setting range	Disable, Enable
					Default value	Enable
				Green Tally	Setting range	Disable, Enable
					Default value	Enable
				Yellow Tally	Setting range	Disable, Enable
					Default value	Enable

Setting menu table

Upper layer

No.	Sub menu	Setting item			Setting	
11	Output	1	OUT1(SDI OUT1)	Display only	Menu for the next layer	Moves to lower layer A
		2	OUT2(SDI OUT2)			Moves to lower layer A
		3	OUT3(HDMI OUT)			Moves to lower layer B
		4	OUT4(IP OUT1)			Moves to lower layer C
		5	OUT5(IP OUT2)			Moves to lower layer C
		6	OUT6(UVC OUT)			Moves to lower layer D

Lower layer A

No.	Sub menu	Setting item			Setting	
	SDI OUT XX	1	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out
					Default value	PGM

Setting menu table

Lower layer B

No.	Sub menu	Setting item			Setting	
	HDMI OUT	1	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out
					Default value	MV
		2	Size		Setting range	Auto, XGA, WXGA, SXGA, WSXGA+, Native
					Default value	Auto
		3	Color		Setting range	Auto, RGB, YUV444, YUV422
					Default value	Auto
		4	Scale		Setting range	Fit-V, Fit-H, Full, Full90%, Full80%
					Default value	Full
		5	Move Detect		Setting range	1 to 5
					Default value	5

Lower layer C

No.	Sub menu	Setting item			Setting	
	IP OUT XX	1	Streaming Mode		Setting range	NDI, SRT, RTMP (selected source shown below)
					Default value	NDI
		2	Streaming Link		Setting range	On, Off
					Default value	Off
	NDI OUT XX	3	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out, Still1, Still2
					Default value	PGM
		4	Machine Name		Setting range	Up to 20 characters
					Default value	AV-HSW10
		5	Source Name	Display only	Setting range	Up to 32 characters
					Default value	NDI Device xx
		6	Protocol		Setting range	TCP, UDP
					Default value	TCP
		7	Multicast	Multicast	Setting range	Disable, Enable
					Default value	Disable
				IP Address	Setting range	IP Address input
					Default value	239.192.0.30
				Subnet Mask	Setting range	IP Address input
					Default value	255.0.0.0
				TTL/HOP Limit	Setting range	1 to 254
					Default value	16
		8	Group	Group	Setting range	Disable, Enable
					Default value	Disable
				Group Name	Setting range	64 characters can be set.
					Default value	
		9	Use Discovery server	Use Discovery server	Setting range	Disable, Enable
					Default value	Disable
				Discovery server IP	Setting range	IP Address input
					Default value	

Setting menu table

No.	Sub menu	Setting item			Setting	
	SRT OUT XX	3	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out, Still1, Still2
					Default value	PGM
		4	Assign STDBY		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out, Still1, Still2
					Default value	PGM
		5	Mode		Setting range	Caller, Listener
					Default value	Caller
		6	Destination URL		Setting range	Enter URL. 1 to 254 characters
					Default value	
		7	Destination Port		Setting range	0 to 65535
					Default value	30000
		8	Stream ID		Setting range	512 characters can be set.
					Default value	
		9	Port		Setting range	1024 to 65535
					Default value	2020
		10	TTL/HOP Limit		Setting range	1 to 254
					Default value	64
		11	Latency(ms)		Setting range	0 to 9999
					Default value	20
		12	Encryption		Setting range	Disable, AES128, AES256
					Default value	Disable
		13	Passphrase		Setting range	10 to 79 characters can be set.
					Default value	
		14	Codec		Setting range	H.264, H.265
					Default value	H.264
		15	Rate Control Mode		Setting range	CBR, VBR
					Default value	CBR
		16	Target bit rate		Setting range	4Mbps, 8Mbps, 10Mbps, 14Mbps, 20Mbps, 24Mbps
					Default value	14Mbps
		17	Max bit rate		Setting range	4Mbps, 8Mbps, 10Mbps, 14Mbps, 20Mbps, 24Mbps
					Default value	14Mbps

Setting menu table

No.	Sub menu	Setting item			Setting	
	RTMP OUT XX	3	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out, Still1, Still2
					Default value	PGM
		4	Assign STDBY		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out, Still1, Still2
					Default value	PGM
		5	Server		Setting range	1 to 3
					Default value	1
		6	Server URL		Setting range	Enter URL. 1 to 254 characters
					Default value	
		7	Stream Key		Setting range	512 characters can be set.
					Default value	
		8	Timeout (sec)		Setting range	1 to 30
					Default value	10
		9	Codec		Setting range	H.264
					Default value	H.264
		10	Rate Control Mode		Setting range	CBR, VBR
					Default value	CBR
		11	Target bit rate		Setting range	4Mbps, 8Mbps, 10Mbps, 14Mbps, 20Mbps, 24Mbps
					Default value	14Mbps
		12	Max bit rate		Setting range	4Mbps, 8Mbps, 10Mbps, 14Mbps, 20Mbps, 24Mbps
					Default value	14Mbps

Lower layer D

No.	Sub menu	Setting item			Setting	
	UVC OUT	1	Assign		Setting range	PGM, PVW, CLN, AUX1, AUX2, MV, Key Out
					Default value	PGM
		2	Menu Out		Setting range	Off, On
					Default value	Off
		3	Mode		Setting range	Normal, 720p
					Default value	Normal

Setting menu table

No.	Sub menu	Setting item			Setting		
12	Config	1	Operate	Menu Out	Setting range	SDI OUT2, HDMI OUT, SDI2+HDMI	
					Default value	SDI2+HDMI	
				Menu Size	Setting range	FULL, Upper-Left, Upper-Right, Lower-Right, Lower-Left	
					Default value	FULL	
				Menu Back	Setting range	70%, 80%, 90%, 100%	
					Default value	100%	
				Bus Mode	Setting range	A/B, PGM-A/PST-B, PGM-B/PST-A	
					Default value	PGM-A/PST-B	
				Time Unit	Setting range	Sec, Frame	
					Default value	Sec	
				Delegation	Setting range	On, Off	
					Default value	On	
				Fader	Setting range	BKGD, KEY1, BKGD+KEY1, No Assign	
					Default value	BKGD	
		2	Key1/2 Link		Setting range	Off, On	
					Default value	Off	
		3	CBAR	Type	Setting range	Type1, Type2, Type3	
					Default value	Type1	
				Move	Setting range	Normal, Low, Off	
					Default value	Off	
				Test Tone	Setting range	Normal, Low, Off	
					Default value	Off	
		4	Button Illumination	Button Illumination	Setting range	Dimmer	Off, On
					Default value		Off
					Setting range	Lighting	80%, 90%, 100%, 110%, 120%, 130%, 140%, 150%
					Default value		150%
					Setting range	XPT Color	Input, Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Input
				Color Group IN	Setting range	IN1(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN2(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN3(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN4(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN5(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN6(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1

Setting menu table

No.	Sub menu	Setting item			Setting		
12	Config	4	Button Illumination	Color Group IN	Setting range	IN7(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN8(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	IN9(***)	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
				Color Group Internal	Setting range	Black	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	CBGD1	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	CBGD2	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	CBAR	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
				Color Group Still	Setting range	Still 1V	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	Still 1K	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	Still 2V	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1
					Setting range	Still 2K	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8
					Default value		Color Group1

Setting menu table

No.	Sub menu	Setting item			Setting				
12	Config	4	Button Illumination	Color Group Other	Setting range	CLN	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8		
					Default value		Color Group1		
					Setting range	Key Out	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8		
					Default value		Color Group1		
					Setting range	STREAM	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8		
					Default value		Color Group1		
					Setting range	AUX BUS DELEG	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8		
					Default value		Color Group1		
					Setting range	AUX SOURCE	Color Group1, Color Group2, Color Group3, Color Group4, Color Group5, Color Group6, Color Group7, Color Group8		
					Default value		Color Group1		
				Button Color Group1	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.1		0.1
					Setting range	B	0.0 to 1.5		
					Default value		0.1		
				Button Color Group2	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.1		0.1
					Setting range	B	0.0 to 1.5		
					Default value		0.0		
				Button Color Group3	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.0		0.1
					Setting range	B	0.0 to 1.5		
					Default value		0.1		
				Button Color Group4	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.0		0.1
					Setting range	B	0.0 to 1.5		
					Default value		0.0		
				Button Color Group5	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.1		0.0
					Setting range	B	0.0 to 1.5		
					Default value		0.1		
				Button Color Group6	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.1		0.0
					Setting range	B	0.0 to 1.5		
					Default value		0.0		
				Button Color Group7	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.0		0.0
					Setting range	B	0.0 to 1.5		
					Default value		0.1		

Setting menu table

No.	Sub menu	Setting item			Setting				
12	Config	4	Button Illumination	Button Color Group8	Setting range	R	0.0 to 1.5	G	0.0 to 1.5
					Default value		0.0		0.0
					Setting range	B	0.0 to 1.5		
					Default value		0.0		
		5	User Button	User 1	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, None, Shot Memory1 to 12, XPT Disable			
					Default value	Key1 PVW			
				User 2	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, Shot Memory1 to 12, XPT Disable			
					Default value	Key2 PVW			
				User 3	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, Shot Memory1 to 12, XPT Disable			
					Default value	Shot Memory1			
				User 4	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, Shot Memory1 to 12, XPT Disable			
					Default value	Shot Memory2			
				User 5	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, Shot Memory1 to 12, XPT Disable			
					Default value	Shot Memory3			
				User 6	Setting range	Key1 PVW, Key2 PVW, GPII-EN, GPIO-EN, AUX Trans, AUX1 Trans, AUX2 Trans, Effect Dissolve, Capture Still1, Capture Still2, None, Shot Memory1 to 12, XPT Disable			
					Default value	Shot Memory4			
		6	AUX Name	AUX1 Type	Setting range	Default, User			
					Default value	Default			
				AUX1 Name	Setting range	32 characters can be set.			
					Default value				
				AUX2 Type	Setting range	Default, User			
					Default value	Default			
				AUX2 Name	Setting range	32 characters can be set.			
					Default value				
		7	GPI	GPI-In Setting	Setting range	GPI-In Enable	On, Off	AUX Sel	AUX1, AUX2
					Default value		On		AUX1
				GPI-In Port	Setting range	Port1 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, REC Still1, REC Still2, AUX XPT1 to 12, RTly DSBL, GTly DSBL, YTly DSBL, AUX Tly DSBL		
					Default value		GTly DSBL		
					Setting range	Port2 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, REC Still1, REC Still2, AUX XPT1 to 12, RTly DSBL, GTly DSBL, YTly DSBL, AUX Tly DSBL		
					Default value		BKGD AUTO		
					Setting range	Port3 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, REC Still1, REC Still2, AUX XPT1 to 12, RTly DSBL, GTly DSBL, YTly DSBL, AUX Tly DSBL		
					Default value		BKGD CUT		

Setting menu table

No.	Sub menu	Setting item			Setting				
12	Config	7	GPI	GPI-In Port	Setting range	Port4 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, REC Still1, REC Still2, AUX XPT1 to 12, RTly DSBL, GTly DSBL, YTly DSBL, AUX Tly DSBL		
					Default value		KEY1 ON		
					Setting range	Port5 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, REC Still1, REC Still2, AUX XPT1 to 12, RTly DSBL, GTly DSBL, YTly DSBL, AUX Tly DSBL		
					Default value		KEY2 ON		
				GPI-Out Setting	Setting range	GPI-Out Enable	On, Off	AUX Tly Sel	AUX1, AUX2
					Default value		On		AUX1
				GPI-Out Port	Setting range	Port 1 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4		
					Default value		RTly SDI IN1		
					Setting range	Port 2 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4		
					Default value		RTly SDI IN2		
					Setting range	Port 3 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4		
					Default value		RTly SDI IN3		
					Setting range	Port 4 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4		
					Default value		RTly SDI IN4		
					Setting range	Port 5 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4		
					Default value		RTly HDMI IN2		

Setting menu table

No.	Sub menu	Setting item			Setting		
12	Config	7	GPI	GPI-Out Port	Setting range	Port 6 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4
					Default value		KEY1 ON
					Setting range	Port 7 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4
					Default value		No Assign
					Setting range	Port 8 Assign	No Assign, KEY1 ON, KEY2 ON, FTB ON, BKGD AUTO, BKGD CUT, KEY1 AUTO, KEY1 CUT, RTly SDI IN1 to 4, RTly HDMI IN1, 2, RTly IP IN1 to 4, GTly SDI IN1 to 4, GTly HDMI IN1, 2, GTly IP IN1 to 4, YTly SDI IN1 to 4, YTly HDMI IN1, 2, YTly IP1 to 4, AUXTly SDI IN1 to 4, AUXTly HDMI IN1, 2, AUXTly IP IN1 to 4
					Default value		No Assign
		8	Key Source Signal Coupling	Fill/Source	Setting range	Fill To Source, Source To Fill	
					Default value	Fill To Source	
				IN1(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN1	
				IN2(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN2	
				IN3(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN3	
				IN4(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN4	
				IN5(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN5	
				IN6(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN6	
				IN7(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN7	
				IN8(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN8	
				IN9(***)	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K	
					Default value	IN9	

Setting menu table

No.	Sub menu	Setting item			Setting	
12	Config	8	Key Source Signal Coupling	Black	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	Black
				CBGD 1	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	CBGD 1
				CBGD 2	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	CBGD 2
				CBAR	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	CBAR
				Still 1V	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	Still 1V
				Still 1K	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	Still 1K
				Still 2V	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	Still 2V
				Still 2K	Setting range	IN1(***) to IN9(***), Black, CBGD 1, CBGD 2, CBAR, Still 1V, Still 1K, Still 2V, Still 2K
					Default value	Still 2K
		9	System Menu Lock		Setting range	On, Off
					Default value	Off

Setting menu table

No.	Sub menu	Setting item			Setting				
13	System	1	IP Mode		Display only				
		2	System Format		Setting range	1080/59.94p, 50p, 59.94i, 50i, 29.97p, 25p, 24p, 23.98p, 720/59.94p, 50p			
					Default value	1080/59.94p			
		3	Reference	Reference Select	Setting range	BB, Tri-level Sync, Internal			
					Default value	BB			
				Status	Setting range				
					Default value				
		4	Output Phase	System	Setting range	0H, 1H			
					Default value	0H			
				H-Phase	Setting range	–0.50 to 0.49			
					Default value	0.00			
				V-Phase	Setting range	–100 to 100			
					Default value	0			
		5	Switcher Title		Setting range	Can be set between 1 and 32 characters.			
					Default value	AV-HSW10			
		6	User Auth	User Name	Setting range	Can be set between 1 and 32 characters.			
					Default value				
				Password	Setting range	******** (Can be set between 1 and 32 characters.)			
					Default value				
				EasyIP Setup Limit	Setting range	20min, Unlimited			
					Default value	20min			
		7	Alarm	Power	Setting range	Alarm, No Alarm			
					Default value				
				Fan	Setting range	Alarm, No Alarm			
					Default value				
				Temperature	Setting range	Alarm, No Alarm			
					Default value				
		8	Tally Settings	Tally Mode	Setting range	Off, On			
					Default value	On			
				Tally Target	Setting range	Red Tally	Off, PGM, CLN, Key Out, AUX1, AUX2, IP OUT1, IP OUT2*	Green Tally	Off, PGM, PVW, CLN, Key Out, AUX1, AUX2, IP OUT1, IP OUT2*
					Default value		PGM		PVW
					Setting range	Yellow Tally	Off, PGM, PVW, CLN, Key Out, AUX1, AUX2, IP OUT1, IP OUT2*		
					Default value		AUX1		

* IP OUT2 is hidden except when the IP mode is Normal.

Setting menu table

No.	Sub menu	Setting item			Setting	
13	System	9	Date/Time	Setting	Setting range	Auto, Manual
					Default value	Manual
				NTP Server Address	Setting range	Enter address. 1 to 128 characters
					Default value	
				NTP Port	Setting range	0 to 65535
					Default value	123
				Adjust Interval	Setting range	1h to 24h (1h units)
					Default value	1h
				Time Zone	Setting range	(GMT-12:00) to (GMT+13:00)
					Default value	(GMT) Greenwich Mean Time
				Date Setting	Setting range	yyyy / mm / dd
					Default value	
				Time Setting	Setting range	hh : mm : ss
					Default value	
		10	Initial	Initial Settings	Setting range	Execute
					Default value	
				Initial Fader	Setting range	Execute
					Default value	
				Factory Default	Setting range	Execute
					Default value	
		11	System Information	System Version	Setting range	Display only
					Default value	
				System Core1 Version	Setting range	Display only
					Default value	
				System Core2 Version	Setting range	Display only
					Default value	
				System Core Update	Setting range	Execute
					Default value	

Setting menu table

No.	Sub menu	Setting item			Setting				
14	Project	1	Project File	Project 1	Setting range	Protect	Off, On	Load	Execute
					Default value		Off		
					Setting range	Save	Execute	Delete	Execute
					Default value				
					Setting range	Name	32 characters	Date	Display only
					Default value				
				Project 2	Setting range	Protect	Off, On	Load	Execute
					Default value		Off		
					Setting range	Save	Execute	Delete	Execute
					Default value				
					Setting range	Name	32 characters	Date	Display only
					Default value				
				Project 3	Setting range	Protect	Off, On	Load	Execute
					Default value		Off		
					Setting range	Save	Execute	Delete	Execute
					Default value				
					Setting range	Name	32 characters	Date	Display only
					Default value				
		2	Last Load File Name		Setting range	I: *****, U: *****, L: *****			
					Default value				
		3	Last Load Date		Setting range	yyyy/mm/dd hh:mm			
					Default value				

Setting menu table

No.	Sub menu	Setting item			Setting	
15	Ancillary/Audio	1	Ancillary	AUX	Setting range	Off, On
					Default value	On
				PGM	Setting range	Off, On
					Default value	On
				PVW	Setting range	Off, On
					Default value	On
				CLN	Setting range	Off, On
					Default value	On
				MV	Setting range	Off, On
					Default value	On
		2	Audio Output Status	Assign OUT	Display only	
				OUT1(SDI OUT1)		
				OUT2(SDI OUT2)		
				OUT3(HDMI OUT)		
				OUT4(IP OUT1)		
				OUT5(IP OUT2)		
				OUT6(UVC)		
				Analog OUT		
				Output Bus Assign		
				AUX1		
				AUX2		
				PGM		
				PVW		
				CLN		
				MV		
		3	Audio Assign	Input Assign	Menu for the next layer	Moves to lower layer A
				Output Bus Assign		Moves to lower layer B
		4	Key1 Audio		Setting range	Off, On
					Default value	On
		5	Key2 Audio		Setting range	Off, On
					Default value	On
		6	Analog IN	Audio	Setting range	Off, On
					Default value	Off
				Input Type	Setting range	LINE, MIC
					Default value	LINE
				Gain	Setting range	–36dB, –33dB, –30dB, –27dB, –24dB, –21dB, –18dB, –15dB, –12dB, –9dB, –6dB, –3dB, 0dB, 3dB, 6dB, 9dB, 12dB
					Default value	0dB
				Delay(ms)	Setting range	0 to 512
					Default value	0
		7	Analog OUT	Assign	Setting range	PGM, PVW, AUX1, AUX2, CLN
					Default value	PGM
				Mute	Setting range	Off, On
					Default value	Off
				Volume	Setting range	Displays the value for the monitor volume dial on the front panel area of this unit. The range is between 0 and 100.
					Default value	

Setting menu table

Lower layer A

No.	Sub menu	Setting item			Setting	
	Input Assign	1	IN1(SDI1/ HDMI1)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	SDI1/HDMI1
		2	IN2(SDI IN2)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	SDI IN2
		3	IN3(SDI IN3)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	SDI IN3
		4	IN4(SDI IN4)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	SDI IN4
		5	IN5(HDMI IN2)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	HDMI IN2
		6	IN6(IP IN1)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	IP IN1
		7	IN7(IP IN2)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	IP IN2
		8	IN8(IP IN3)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	IP IN3
		9	IN9(IP IN4)		Setting range	SDI1/HDMI1, SDI IN2 to 4, HDMI IN2, IP IN1 to 4, Analog IN, Off
					Default value	IP IN4

Lower layer B

No.	Sub menu	Setting item			Setting	
	Output Bus Assign	1	AUX1		Setting range	IN1 to 9, Analog IN, Follow Video, Off
					Default value	Follow Video
		2	AUX2		Setting range	IN1 to 9, Analog IN, Follow Video, Off
					Default value	Follow Video
		3	PGM		Setting range	IN1 to 9, Analog IN, Follow Video, Off
					Default value	Follow Video
		4	PVW		Setting range	IN1 to 9, Analog IN, Follow Video, Off
					Default value	Follow Video
		5	CLN		Setting range	IN1 to 9, Analog IN, Follow Video, Off
					Default value	Follow Video

No.	Sub menu	Setting item			Setting	
16	Network	1	LAN	IP Address	Setting range	0 to 255.255.255.255
					Default value	192.168.0.8
				Subnet Mask	Setting range	0 to 255.255.255.255
					Default value	255.255.255.0
				Default Gateway	Setting range	0 to 255.255.255.255
					Default value	192.168.0.1
				MAC Address	Setting range	–
					Default value	–
		2	Primary DNS	IP Address	Setting range	0 to 255.255.255.255
					Default value	–
		3	Secondary DNS	IP Address	Setting range	0 to 255.255.255.255
					Default value	–

Setting menu table

No.	Sub menu	Setting item				Setting				
17	External Interfaces	1	External Panel Information	Active		Setting range	Disable, Enable			
						Default value	Disable			
				Port No		Setting range	62000 to 65535			
						Default value	62010			
		2	External Panel IP	Shot Memory Recall	BKGD	Setting range	Target	Off, On	XPT	Off, On
						Default value		Off		Off
					Key1	Setting range	Target	Off, On	XPT	Off, On
						Default value		Off		Off
					Key2	Setting range	Target	Off, On	XPT	Off, On
						Default value		Off		Off
					AUX1	Setting range	Off, On			
						Default value	Off			
					AUX2	Setting range	Off, On			
						Default value	Off			
					CBGD	Setting range	Off, On			
						Default value	Off			
					XPT	Setting range	Off, On			
						Default value	Off			
		3	External Control Switcher	Active		Setting range	Disable, Enable			
						Default value	Disable			
				Port No		Setting range	62000 to 65535			
						Default value	62000			
				Interval Time		Setting range	0ms, 16ms, 32ms, 48ms, 64ms, 80ms			
						Default value	16ms			
				Response		Setting range	On, Off			
						Default value	On			
		4	External Control AUX Panel	Port No		Setting range	60000 to 65535			
						Default value	65000			
				IP Address1		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address2		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address3		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address4		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address5		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address6		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address7		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address8		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address9		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			
				IP Address10		Setting range	0 to 255.255.255.255			
						Default value	0.0.0.0			

Setting menu table

No.	Sub menu	Setting item				Setting	
17	External Interfaces	4	External Control AUX Panel	IP Address11		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address12		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address13		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address14		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address15		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address16		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address17		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address18		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address19		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
				IP Address20		Setting range	0 to 255.255.255.255
						Default value	0.0.0.0
18	USB Memory	1	Load	Load Type		Setting range	Still1, Still2, Project, Update
						Default value	Still1
				Load		Setting range	Execute
						Default value	
		2	Save	Save Type		Setting range	Still1, Still2, Project, Log
						Default value	Project
				Setup		Setting range	On, Off
						Default value	On
				Shot		Setting range	On, Off
						Default value	On
				Still		Setting range	On, Off
						Default value	Off
				File Format		Setting range	bmp, tga, png, jpg, tif, gif
						Default value	png
				Save		Setting range	Execute
						Default value	
		3	Free			Setting range	Free space [KB/MB/GB]
						Default value	
		4	Total			Setting range	Total space [KB/MB/GB]
						Default value	
		5	Unmount			Setting range	Execute
						Default value	
		6	Format			Setting range	Execute
						Default value	

Setting menu table

No.	Sub menu	Setting item			Setting		
19	Color Adjust	1	Target		Setting range	IN1(***) to IN5(***)	
					Default value	IN1(***)	
		2	Parameter No		Setting range	1 to 10	
					Default value	1	
		3	Marker		Setting range	Off, On	
					Default value	Off	
		4	Capture for Master		Setting range	Execute	
					Default value		
		5	Adjust Target		Setting range	Execute	
					Default value		
		6	Enable Color Adjust		Setting range	Disable, Enable	
					Default value	Disable	
		7	Left		Setting range	–50.00 to 50.00 (Left<Right)	
					Default value	–42.50	
		8	Top		Setting range	–50.00 to 50.00 (Top>Bottom)	
					Default value	50.00	
		9	Bottom		Setting range	–50.00 to 50.00 (Top>Bottom)	
					Default value	–50.00	
		10	Right		Setting range	–50.00 to 50.00 (Left<Right)	
					Default value	42.50	
		11	Set Capture Points		Setting range	Execute	
					Default value		
		12	Points	Point 1 to 24	Setting range	X-Position	–50.00 to 50.00
					Default value		Value generated by Left = –50.00, Top = 50.00, Bottom = –50.00, Right = 50.00 (full-screen use)
					Setting range	Y-Position	–50.00 to 50.00
					Default value		Value generated by Left = –50.00, Top = 50.00, Bottom = –50.00, Right = 50.00 (full-screen use)
		13	Parameters	Parameter 1 to 10	Setting range	Master	IN1 to 5
					Default value		
					Setting range	Name	Can set up to 16 characters.
					Default value		

Appendix (glossary)

Defined below are the terms used in this manual.

Word	Explanation
AB Bus system	A bus control mode. By executing a transition, the A bus and B bus signals are output to the program images alternately.
Ancillary Data	The auxiliary data other than the video signals which is transmitted inside the data stream of the video serial interface. The data superimposed on the vertical blanking period is referred to as the V ancillary data (VANC).
Aspect ratio	The ratio between the horizontal and vertical dimensions of an image or screen. It is 16:9 for the HD format and 4:3 for the SD format.
AUX **[Auxiliary Bus]**	A spare bus which can be switched by signals other than the main line output signals.
BB **[Black burst]**	Abbreviation for Black Burst signals. A full-screen black level composite signal which is used as the reference signal for gen-lock.
Border	The area or margin that is added to the edge of a wipe or key. Its width and color can be adjusted. The defocusing of the area around a border is referred to as the soft effect.
Chroma key	This refers to the function for creating the key signals based on the color information of the video signals and combining the keys.
Clip	The threshold level of the luminance when key signals are created from a key source.
Color Background	The signals which are output from the internal color generator and used as the background image.
Cut	This refers to the effect where the display is instantly switched to the next image.
Density	A parameter which is used to adjust the density of the key signals.
Down Converter	This is the function that converts material in the 4K format into the 2K/HD format.
Embedded Audio	This refers to the audio data packets which are transferred inside the data stream of the video serial interface.
Flip Flop system **(PGM/PST system)**	A bus control mode. The signals selected by the program bus are always output as the program images. By executing a transition, the program bus and preset bus signals are switched over.
Frame Synchronizer	A function which matches the synchronization of non-synchronized video input signals.
Freeze	A function for pausing video signals.
FTB [Fade to Black]	This is the effect where the background image is faded out to the black screen.
Genlock	A function for synchronizing the video signals using an external sync signal as the reference.
GPI **[General Purpose Interface]**	Interface signals which control auto transition from an external source.
Hue	The color tone of the video signals.
Key Edge	The border or shadow added to the edges of keys.
Key Fill	The signal that uses key combination processing to fill in the areas left blank by the key signals.
Key Gain	A parameter which is used to adjust the amplitude of the key signals.
Key Invert	A function which inverts the key signals.
Key Mask	This is the function that specifies the area for key combination using the box pattern, etc. When only part of the area of the key signals is used, key combination is executed with the unnecessary area masked.
Key Source	The video signals for creating the key signals.

Appendix (glossary)

Word	Explanation
Line Synchronizer	A function to automatically adjust the input image signal phase to the horizontal synchronization reference signal phase.
Linear Key	The function which combines keys using monochrome key signals with gradations in its outlines as a reference.
Lum [Luminance]	The brightness portion of the video signals.
Luminance Key	The function which creates key signals based on the luminance (brightness) information of the video signals to combine keys.
ME [Mix Effect]	A video effect device which combines a number of video signals to create mix, wipe, key and other video signals.
Mix	The picture-changing effect produced by overlapping one image with the next. It is also referred to as “dissolve”.
Multi View Display	This function combines multiple materials and displays them on one screen. PGM, PVW and the input material can be previewed at the same time on a single screen.
PinP [Picture in Picture]	This function combines a sub screen image with the background image.
PVW [Preview]	The function for checking ahead of time the image which will be output after the next transition. The image is output from the PVW system.
PGM [Program Bus]	The bus which always carries the program output signals.
PST [Preset Bus]	The bus which carries the program output signals after the next background transition.
Sat [Saturation]	This refers to the intensity of the color chrominance level of video signals.
SDI [Serial Digital Interface]	The standard by which video signals in various SD and HD formats are transmitted along a single coaxial cable.
Self Key	A function that creates key signals from key fill signals for combining keys.
Setup Data	The memory in which the control panel statuses can be saved and recalled. The button selection statuses as well as the border, color and other setting information can be saved in this memory.
Tally	The signal which outputs the program output statuses of the input signals to an external device. The LED that indicates the program output status on the control panel is also referred to as tally.
Transition	A function that switches from one image to another. Wipe, mix and other effects are available for the images during switching.
Tri-level Sync	The sync signal used for HD formats.
Trimming	This is the function that eliminates the unnecessary parts at the top, bottom, left and/or right of the images which are combined using the PinP function.
Up Converter	This is the function that converts material in the 2K/HD format into the 4K format which yields a high resolution.
Video Memory	This is the memory in which the images (still images) with key signals can be stored.
Wipe	A video effect in which one image is gradually replaced by another as the boundary between the two is moved using a preselected pattern.

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MEMO

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