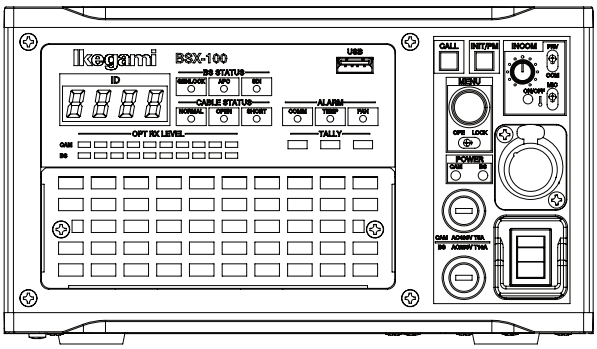
CE



RoHS-compliant Product

BSX-100

Base Station

OPERATION MANUAL

Ikegami

CE

RoHS-compliant Product

BSX-100

Base Station

OPERATION MANUAL

2012 1st Edition (U) (E)

Ikegami

English

Instructions for Disposal of Electric and Electronic Equipment in Private Household

Disposal of used Electric and Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product, or in the related documents in the package, indicates that this product shall not be treated as normal household waste. Instead, it should be taken to a proper applicable collection point or depot for the recycling of electric and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent possible negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.
For more detailed information about recycling of this product, please contact your local city authority, your household waste disposal service or the place where you purchased the product.

Deutsch

Vorschriften für die Entsorgung von elektrischen und elektronischen Geräten in Privathaushalten

Entsorgung von gebrauchten elektrischen und elektronischen Geräten
(In der Europäischen Union und anderen europäischen Ländern mit separaten Sammelsystemen anwendbar.)

Das auf dem Produkt angebrachte Symbol, bzw. die Symbole in den in der Packung beiliegenden Dokumenten, weisen darauf hin, dass dieses Produkt nicht als normaler Haushaltsmüll behandelt werden darf. Es muss deshalb an einer dafür vorgesehenen Sammelstelle abgeliefert werden, in der das Recycling von elektrischen und elektronischen Geräten durchgeführt wird.

Durch die ordnungsgemäße Entsorgung dieses Produkts tragen Sie dazu bei, dass unsere Umwelt und unsere Gesundheit nicht durch unsachgemäße Entsorgung negativ beeinflusst wird. Mit dem Recycling von Materialien tragen wir zur Bewahrung der natürlichen Ressourcen bei.
Für nähere Informationen hinsichtlich des Recyclings für dieses Produkt sprechen Sie bitte mit Ihrer zuständigen Behörde, Ihrer Hausmüll-Entsorgungsstelle oder dem Geschäft, wo Sie das Produkt gekauft haben.

Français

Consignes de mise au rebut des appareils électriques et électroniques dans les foyers privés

Mise au rebut des appareils électriques et électroniques
(Applicable dans l'Union Européenne et autres pays d'Europe ayant un système de récupération séparé)

Ce symbole apposé sur le produit ou dans les documents liés se trouvant dans l'emballage indique que ce produit ne doit pas être traité comme un déchet ménager normal. Il doit être porté à un point de récupération correct ou à un dépôt pour le recyclage des appareils électriques et électroniques.

En vous assurant que ce produit est correctement mis au rebut, vous aiderez à empêcher les conséquences possibles pouvant affecter l'environnement et la santé humaine, pouvant être causées par une mauvaise manipulation des déchets de ce produit. Le recyclage des matériaux favorise la conservation des ressources naturelles.
Pour des informations plus détaillées concernant le recyclage de ce produit, veuillez contacter les autorités locales, votre service de mise au rebut des déchets ménagers ou le lieu d'achat de votre produit.

Español

Instrucciones para eliminar equipos eléctricos y electrónicos de una casa privada

Eliminación de equipos eléctricos y electrónicos usados
(Normas aplicables en la Unión Europea y en otros países europeos con diferentes sistemas de recogida)

Este símbolo en el producto, o en los documentos relacionados, indica que este producto no deberá ser tratado como un residuo doméstico normal. En cambio, deberá ser llevado a un punto o lugar donde los equipos eléctricos y electrónicos sean recogidos para ser reciclados.

Asegurándose de que este producto sea eliminado correctamente, usted ayudará a impedir las posibles consecuencias negativas sobre el medio ambiente y la salud humana que podrían ser causadas por el manejo inapropiado de este producto como residuo doméstico. El reciclado de los materiales ayudará a conservar los recursos naturales.
Para conocer una información más detallada acerca del reciclado de este producto, póngase en contacto con las autoridades de su localidad, con su servicio de recogida de residuos domésticos o con el comercio donde adquirió el producto.

RoHS-COMPLIANT PRODUCTS

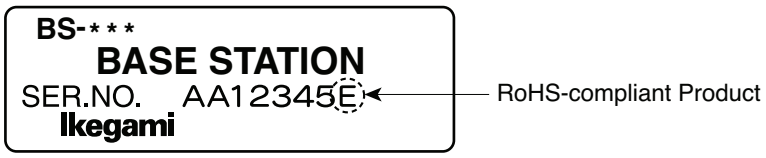
The Following products described in this manual is in compliance with the RoHS directive.
• BSX-100 Base Station

MAINTENANCE OF RoHS-COMPLIANT PRODUCTS

Pay attention to the following during maintenance of RoHS-compliant products.

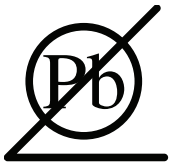
1. Identification

- For products that comply with the RoHS directive, the letter "E" is appended at the end of the serial number on the label. If the letter “E” cannot be appended to the serial number, it will be indicated at a distinguishable position on the label. An example of its indication on a main label is shown below.



Label

- Print-circuit boards of RoHS-compliant products are manufactured by the following methods.
  [1] Blue resist ink is used for the print-circuit board. (The color of conventional print-circuit boards is green.)
  [2] They are indicated by one of the following marks in the form of screen printing or a label.



Phase 3A

Phase 3

2. Soldering

Since the melting point of lead-free solder used for RoHS-compliant products is 20 to 45 degrees Celsius higher than that of conventional lead solder (Sn-Pb eutectic solder), the soldering iron needs to be set to a high temperature. Taking into consideration the upper temperature limit of the parts-and to ensure stable work, use a soldering iron with excellent thermal recovery characteristics.

- Recommended solder composition is "Sn/3.0Ag/0.5Cu" or equivalent.
- Use a separate soldering iron exclusively for RoHS products that is different from the existing soldering iron.
- Set the temperature of the soldering bit to 350 to 370 degrees Celsius.
  The temperature may need to be adjusted according to the size of the copper foil land on the print-circuit board and the tip width of the soldering bit.
- Lead-free solder finish appears duller or whitish in color compared to conventional lead solder.
- If the wiring of the main unit or the circuit board is polluted with lead solder by the user, repair of the product will not be covered under the warranty as it is impossible to remove the polluted solder.

3. Parts

Be sure to use parts that comply with the RoHS directive.

INFORMATION TO USERS

1. 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.
   Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Declaration of conformity
   The CE mark means that the following products will meet the Directive 2004/108/EC,2006/95/EC and the Standards EN55103-1 E4-E5, EN55103-2 E4-E5 (for EMC), EN60950-1 (for LVD).
   For European customer.

3. Please use it by less than 10m, when you use cable of MIC1 OUT, MIC2 OUT, AUD TRUNK, INTERCOM, and DIGITAL AUDIO.

4. We carried out a test in accordance with EN55103-1 Annex B. As a result, the value of the inrush current is as follows.

   Inrush current
   BSX-100 + HDK-79GX + FA-97 + COP-399 : 7.42A

5. Use shielded cable except AC cable.

6. This equipment doesn't intend to use at residential areas, so that use in residential areas may cause interference.

People’s Republic of China Electronic Industry Standard (SJ/T11364—2006)

Marking Styles for Names and Contents of Toxic or hazardous Substances and Elements

Part Name	Toxic or hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr/(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
BSX-100	×	○	○	○	○	○
CCU-980	×	○	○	○	○	○

○ : Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.
× : Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

SAFETY PRECAUTIONS

This manual describes the precautions using various pictorial symbols for safe use of the product. Please read through these precautions carefully before use. The symbols and meanings are as follows:

The following hazard alert symbols are used to indicate the level of impact on the body or property if you do not follow the precautions.

⚠ ***WARNING***	Indicates that mishandling of the product due to ignorance of this label may lead to dangers resulting in a serious injury or death.
⚠ ***CAUTION***	Indicates that mishandling of the product due to ignorance of this label may lead to dangers resulting in an injury or property damage.

The following symbols are used to indicate the expected injuries or hazards if you do not follow the precautions.

	Indicates general precautions on matters such as safe work, procedure, and installation location. Mishandling may not directly lead to death, injury, or property damage.
	Indicates that mishandling may cause an electric shock.
	Indicates that mishandling may cause a fire.
	Indicates that mishandling may cause injury.

The following symbol is used to indicate other precautions to prevent damage or hazard from occurring:

	Indicates a prohibited action.

■ *Handling Precautions*

⚠ *WARNING*

Related to the the Equipment

Do not disassemble or modify the product if the procedures are not described in this manual. Doing so may cause fire, electric shock, or injury.

Related to the Power

When you disconnect the cable, be sure to pull it out by holding the plug. Failure to do so may cause a fire or electric shock due to cable damage.

To inspect or operate from the interior of the equipment, turn off the power and wait for one to two minutes before starting as high voltage is applied to some modules and connectors of this product.

⚠ *CAUTION*

Related to the Equipment

Avoid use or storage in the following conditions:
- Extremely high/low temperature
- Under direct sunlight for a long time, or near a heater
- Highly humid or dusty environment
- Exposure to water or other liquids
- Strong vibration or impact shock
- Strong magnetic field or radio waves
- Likelihood of exposure to lightning strikes
- In the rain without a rain cover

Be sure to hold the plug and pull when you disconnect the cable.
Failure to do so may cause damage to the cable and result in fire or electric shock.

Avoid moving the equipment suddenly from an extremely cold place to a warm place.
Condensation may occur in the device, which causes it to malfunction.

Do not drop or insert a metal object such as a pin or foreign object into the equipment.

Do not pour or spill water or other liquid over the equipment.

Do not subject the equipment to a strong impact shock or vibration.
Doing so may cause damage to or malfunction of the equipment.
Excessive sound pressure from the headset may result in hearing impairments.

Related to the Modules

Pay attention to the following points when handling the modules:
- Do not allow the parts of the modules or the printed wiring pattern to come into contact with the metal parts (for conduction).
- Avoid placing or storing the modules in humid places.
- Do not touch the parts of the modules or the printed wiring pattern with dirty or wet hands. Do not touch them with your hand unless necessary.

Related to the Power and Lithium Battery

Use the product in compliance with the rating of the fuse. Failure to do so may result in a malfunction.

Do not use batteries that are not specified for use with the product.
Wrong usage of batteries may cause liquid leakage, explosion, or overheating, and may result in worst injury or fire. When changing or discarding a battery, please contact our sales and service center.

■ *Maintenance*

Related to the Equipment

Before performing maintenance of the product, be sure to turn off the power to ensure safety and protection it against malfunction.

Clean the product using a dry and soft cloth.

If the product is very dirty, wipe with a cloth that is wet with water or neutral detergent and wrung dry. If neutral detergent is used, wipe again with a cloth that is in wet with clear water and wrung dryout.

■ *Regular Maintenance Recommended*

This product makes use of consumable parts that have a limited life even when they are properly used or stored. Therefore, regular maintenance (once every three years or 8000 hours of use) is recommended to enable safe use of this product for a long time. Please contact our sales and service centers or Techno Ikegami Co., Ltd. for queries on the regular maintenance and repair of our products.

HOW TO READ THE OPERATION MANUAL

This page explains the points to note when reading the BSX-100 Operation Manual, as well as the symbols and notations used in the manual.

■ Notes on the Manual

- The target readers of this manual are those who have basic knowledge about handling equipment such as television cameras for broadcasting, base stations and control panels.
- The contents of this manual are subject to change without notice.

■ Symbols

The symbols used in this manual are as follows:

CAUTION:	Points requiring attention during operation. Be sure to read through the information.
Note:	Supplementary or reference information
Reference:	Sections where the relevant information can be found

■ Notations

The following notations are used in this manual.

This product, BS	Indicates the BSX-100 Base Station.
Camera head	Indicates general broadcast cameras.
“”-“”-“”	Indicates that the items enclosed in “” shall be selected and set in the sequence as shown.

■ Illustrations and Screens

The illustrations and screens in the manual are provided for the purpose of explanation and may be slightly different from the actual equipment or image.

■ Related Manuals

Refer to the operation manuals and maintenance manuals that come with the peripheral equipments to be used.

■ Structure of the Operation Manual

This manual is intended for both safe and smooth opertion of the BSX-100. It is made up of six chapters. Reading through the chapters in sequence helps you to smoothly perform the series of steps from installation to operation.

Chapter 1

OUTLINE

Explains the features and the main operating mode of this product.
If you are not familiar with the BSX-100, please start from this chapter.

Chapter 2

NAMES and FUNCTIONS

Explains the name and function of each part of the BS.

Chapter 3

FORMATS and GENLOCK

Explains the signal formats and GENLOCK of the BS.

Chapter 4

EQUIPMENT CONNECTIONS

Explains the ways to connect the BSX-100 to a camera head. Also explains the way to connect this product to other peripheral equipment as well as examples on how to operate this product.

Chapter 5

BS SETTINGS and ADJUSTMENT

Explains the menu screens of the BSX-100 and module switch settings inside the BS.

Chapter 6

TROUBLESHOOTING and MAINTENANCE

The BSX-100 is equipped with a self-diagnostic function. When the alarm indicator lights up during operation of this product, refer to this chapter to identify the problem. This chapter also provides explanation on the regular maintenance procedures.

Chapter 7

SPECIFICATIONS

Describes the specifications of this product.

CHANGING INFORMATION

This manual is written based on the standard specifications. Information on customized specifications and revisions is described here. Read through this chapter while referring to the main text of the maintenance manual. ("CHANGING INFORMATION" may be sent to you later on.).

BSX-100

BASE STATION

OPERATION MANUAL

Chapter 1 OUTLINE

1.1 OUTLINE

Equipped with a video circuit that supports 3Gbps transmission and the 3G-SDI format, the BSX-100 is half-rack size base station that can be used with the 3G-compatible "Unicam HD" camera series to construct a multi format system.
The base station and the camera head are connected using a 8-core optical composite cable (two single mode fibers, four power wire and two control wires). It can be extended to a maximum of 2000m when a portable camera head is used and up to 1000m(*) when operating using a large camera head and build-up unit.
* The maximum cable length varies according to the type of lens and system configuration.

1.2 Features

■ Supports 3G-SDI Transmission

Transmission is possible between the camera head and BS (Base Station) with the use of 3G-SDI signals.
Enables progressive scan at and transmission of 1080p/59.94 and 1080p/50 signals by the camera head.
Also able to output 2x speed images (119.88i /100i) compatible with the slow-motion format (EVS).
(A camera head that suppors 2x speed and a video server are required for slow-motion playback.)

■ Multi ports for Output

Equipped with 3G/HD-SDI multi-ports for SDI output.
Selection can be made for each channel from the menu (3 channels 7 outputs).
In addition, different formats including progressive, PsF, double-speed and normal speed format can be output simultaneously (simultaneous output) for each channel.

■ Bidirectional HD-SDI Trunk Line

This product is equipped with a bidirectional HD-SDI trunk line as a standard component.
It also supports asynchronous videos and embedded audio of synchronous videos (4ch).
In addition, it can also output ACTIVE-LOOP THROUGH of HD-QTV signals that are input to the BSX-100.
* A fiber adapter compatible with 3G transmission is required.
* Use of HEAD→BS TRUNK line is disabled when using the 3G transmission format.

■ Multi return Output

The 4-channel input that supports 3G/HD-SDI automatic recognition can be used for return video input.
Each channel is equipped with an independent frame synchronizer function and also supports asynchronous signals.
Comes with a two-channel ACTIVE-LOOP THROUGH function.
Switching between the ACTIVE-LOOP THROUGH and 4-channel input function is possible by changing the selection in the BS Menu.

■ ICCP & Ethernet

In addition to the conventional Ikegami serial command (ICCP) communication, the Ethernet communication function can also be used for communication with the camera remote control.

■ SDR / HDR Gamma Conversion, BT.2020 Color Matrix Conversion

Flexible operation is made possible with gamma conversion according to the HDR and the BT.2020 color matrix conversion functions.
* It is necessary to connect this product to a camera head that supports HDR.

■ Supports Installation of 4K Upconverter (Optional)

The 4K (UHD) format output is supported with the use of an optional software.
12G-SDI output can also be supported by mounting a 12G-SDI unit to the empty slot.
The 4K system can be made possible without changing the usability of the existing HDTV camera system.
* It is necessary to set the camera head to the 1080p progressive format.

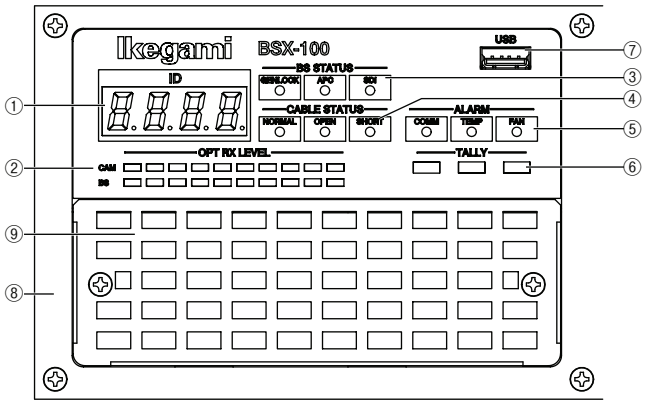
■ MoIP Interface (Optional)

Able to support the MoIP interface by adding a software option key and unit. (*Complies with SMPTE ST 2110)
Equipped with a dedicated Ethernet port for MoIP control that supports NMOS.

Chapter 2
NAMES and FUNCTIONS

This chapter explains the names and functions of the parts.

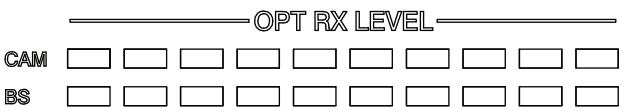
2.1 Front Left



① ID Display

Displays the camera program number and status information.

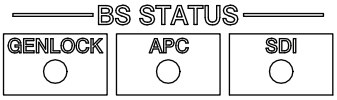
② Optical Level Indicator



Displays the optical level in 10 levels.
"CAM" indicates the light reception status of the camera, while "BS" indicates the light reception status of the BS.

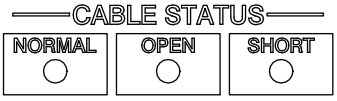
Lighting Status	Light Reception Status	
■■■■■■■■■■ ■■■■■■■■■□ ■■■■■■■■□□ 8-10/10 Green Light On	OK	Light reception is good.
■■■■■■■□□□ ■■■■■■□□□□ ■■■■■□□□□□ 5-7/10 Yellow Light On	ATTENTION	Light reception level is low. Although there is no problem with the reception of signals transmitted, cleaning of the fiber connector is required.
■■■■□□□□□□ ■■■□□□□□□□ ■■□□□□□□□□ 2-4/10 Red Light On	WARNING	Light reception level is very low. There might be a problem with the reception of signals transmitted. Immediate cleaning of the fiber connector is required.
■□□□□□□□□□ □□□□□□□□□□ 1/10 Red Light On	NG	Light cannot be received. There is a problem with the reception of signals transmitted. Cleaning of the optical composite cable is required. Alternatively, replace the fiber cable as it might be broken.

③ BS Status Indicator



GENLOCK (Green) : Lights up when it is synchronized with the external synchronizing signal that was input to BS.
APC (Green) : Lights up when there is proper phase synchronization between the camera and BS.
SDI (Green) : Lights up when data transmission from the camera is properly received by the BS.

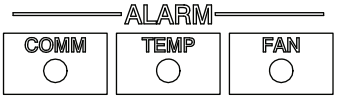
④ Cable Status Indicator



Displays the status of the optical composite cable.
Electric power is supplied from the BS to the camera only when NORMAL lights up.
* Check the status of the optical composite cable when OPEN and SHORT light up.

NORMAL (Green) : Lights up when there is no abnormality with the optical composite cable.
OPEN (Red) : Lights up when the optical composite cable is broken or not connected.
SHORT (Red) : Lights up when the power supply wiring of the optical composite cable is damaged or the connector joints are short- circuited by water droplets, etc.

⑤ Alarm Indicator



COMM (Red) : Lights up when there is an abnormality in the control wiring between the camera and the BS.
TEMP (Red) : Lights upon when there is an abnormal increase in the internal temperture of the BS . (*1)
FAN (Red) : Lights up when the motor fan (cooling fan) inside the BS power supply stops. (*2)

CAUTION:

*1: When the TEMP alarm lights up stop the operation immediately.
Check that the ventilation hole on the front panel and the exhaust hole on the rear panel are not blocked or clogged with dust.

*2: When the FAN alarm lights up stop the operation immediately and turn off the main power switch.

⑥ TALLY Indicator

Indicators for Red TALLY, Green TALLY, and Yellow TALLY.

Lights up when the R/G/Y TALLY signal is input to the TALLY IN connector on the rear of the BS.

Also lights up while the CALL switch of the camera head or the respective control panels (OCP, etc.) is pressed.

⑦ USB Connector

For loading or reading files.
Do not connect any device other than a USB flash memory.

⑧ Front Cover

Protection cover on the front of the BS.

How to open the front cover:

To open the front cover, loosen the fastening screws at the four corners of the cover. Anti-drop screws are used.

CAUTION:

The cover is connected to the main unit with a cable.
When removing the cover, do not apply excessive force to the cable.

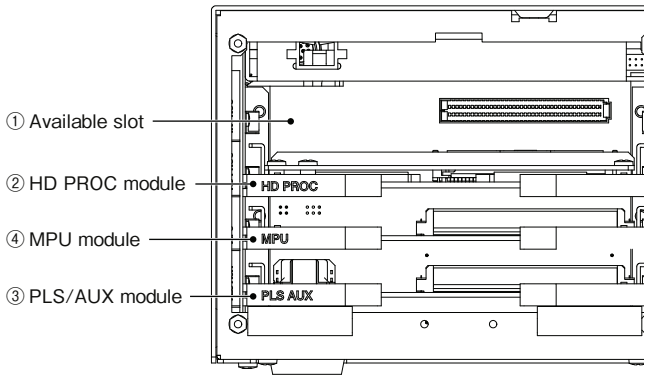
⑨ Air Intake Fan Cover

Protection cover for the fan on the front of the BS. Open it when you need to clean the dust filter in the vent hole.

How to open the fan cover:

To open the fan cover, loosen the fastening screws at the left and right corners of the cover.

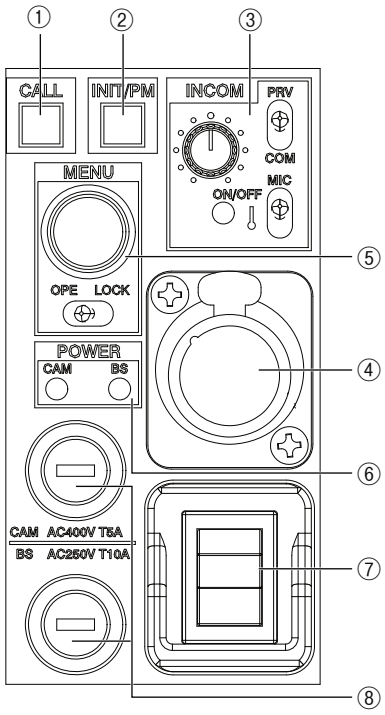
2.2 BSX-100 Front View with Front Cover Off



NOTE:

It is necessary to remove the circuit board when changing the settings of the switches on the circuit board.
Remove the front cover. Then, remove the module retainer with two screws at the bottom.
Pull out each circuit board by raising the card pullers on both sides to the front and pulling them out at the same time.
To install the circuit board, perform these steps in reverse order.

2.3 Front Right



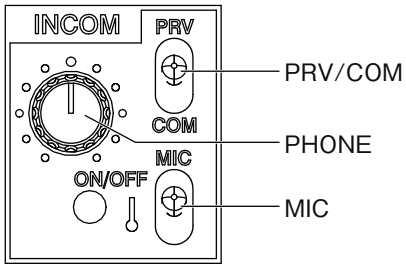
① CALL Switch

The R TALLY indicators on the camera head and the control panel will light up only while this switch is pressed. Equipment with a buzzer will output a buzzer sound.

② INIT/PM Switch

Displays various types of information including diagnosis (failure diagnosis) on the picture monitor and pages are switched.

③ INTERCOM Volume Knob and Switch

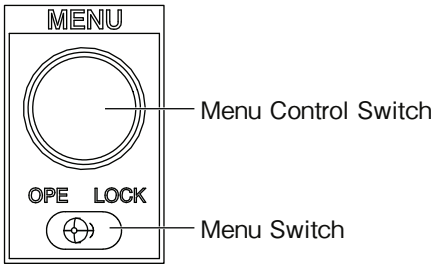


PHONE : Adjusts the headset volume.
MIC : Switches the headset microphone to ON/OFF. Every time the switch is pressed, the microphone switches on or off. When it is ON, the LED of the indicator lights up.
PRV/COM : Switches the INTERCOM conversation mode. PRV = Conversation with the camera only. COMM = Conversation with the entire system.

④ INTERCOM Headset Connector

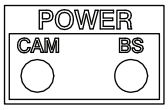
For connecting the INTERCOM headset.
The connector type varies according to the intended region of use and the specifications.

⑤ Menu Control Switch



When the Menu Control Switch is pressed and held down for 3 seconds while the Menu Switch is set to "OPE", the BS menu is displayed on PM OUT (monitor output).
Move the cursor by turning the knob of the Menu Control Switch while looking at the menu screen of the picture monitor.
Press the Menu Control Switch to confirm the selected menu item.

⑥ Power Indicator



Displays the status of power conduction between the camera and the BS.
Each indicator lights up (green) when there is current flow.
When the camera is not connected and the power of the camera head is turned off, the indicator on the CAM side lights up in red.

⑦ BS Power Switch

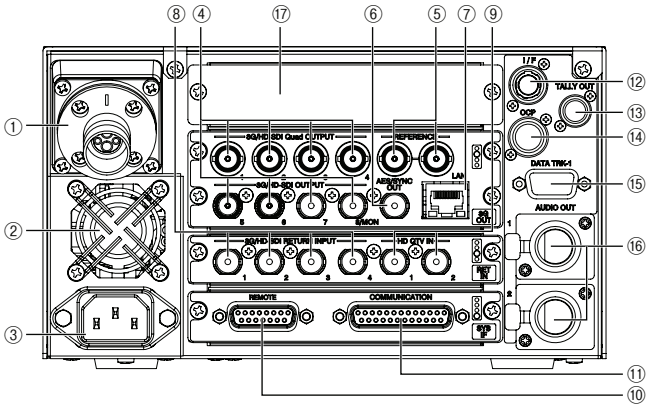
ON/OFF switch for the BS power supply.
ON : Supplies power to the BS and camera.
OFF : Stops power supply to the BS and camera.

⑧ Fuse

Fuse for power transmission to camera head (upper)
Uses a 400V T5A fuse (rate) ("T" indicates a time lag fuse.)

Fuse for BS AC power input (lower)
Uses a 250V T10A fuse (rated)

2.4 Rear



① CAMERA Connector

The BS and camera are connected using an optical composite cable.
This connector supplies power to the camera, and transmits and receives various data including main line video signal and communication command.

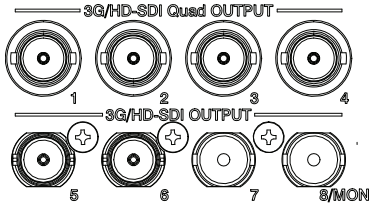
② Fan Motor

Fan to cool the interior of the BS.

③ AC Power Input Connector

AC inlet to input power from a AC100 - 120VAC or 220 - 240VAC commercial power supply to the BS.

④ SDI OUT Connector



Outputs 4K (UHD) /HD video signals.
Outputs 4K (UHD) video from 3G QUAD LINK of Output 1 to 4 when this product is equipped with a 4K upconverter.
Outputs the HD video from 5 to 7.
Outputs PM (Picture Monitor) OUT from 8.
The “BS MENU” and “DIAGNOSTIC INFORMATION” characters are superimposed onto the PM output.

⑤ REFERENCE Connector

Inputs the reference synchronization signal (HDTV tri-level SYNC or SDTV VBS/BBS).
Supports loop-through connection (bridge connection).
A 75 Ω external terminal is required.

⑥ AES / SYNC OUT Connector

For selecting the AES OUT or SYNC OUT format in the BS menu.

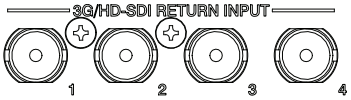
AES : Outputs the audio signal that is input to the MIC-1,2 (AUDIO IN) connectors of the camera. The signal conforms to the AES/EBU format.

SYNC : Outputs the signal for synchronization of external equipment (tri-level sync).

⑦ LAN Connector (Ethernet RJ45(8P8C))

For connecting a network-compatible remote controller via a network switch.

⑧ RETURN IN Connector



For input of the return signal to the camera.
Supports HD-SDI/3G-SDI.
When ACTIVE-THROUGH is selected in the menu, the return video signal becomes a 2-channel input with CH1 and CH3 for input and CH2 and CH4 for output.

⑨ HD QTV IN Connector

For input of the HD-SDI QTV (video prompter) signal to be sent to the camera .
ACTIVE-THROUGH of HD QTV1 IN is output from HD QTV2.

⑩ REMOTE Connector

Connector used to externally control the microphone volume of the camera.

⑪ COMMUNICATION Connector

Connector used for input and output of INTERCOM, PGM and TALLY.

⑫ I/F Connector

Connector that is assigned for RS-422 DATA TRUNK (Channel #2) input/output to/from the camera, MIC control of Intercom headset, PREVIEW output, etc.

⑬ TALLY OUT Connector

Outputs TALLY OUT signals that are used for an external control device.

⑭ OCP Connector

For connecting the camera remote controller.

⑮ DATA TRUNK Connector

DATA TRUNK (Channel #1) connector for RS-422 signal transmission with the camera.

⑯ AUDIO OUT Connector

Outputs the analog audio signals that are input to the MIC-1,2 (AUDIO IN) connector of the camera.

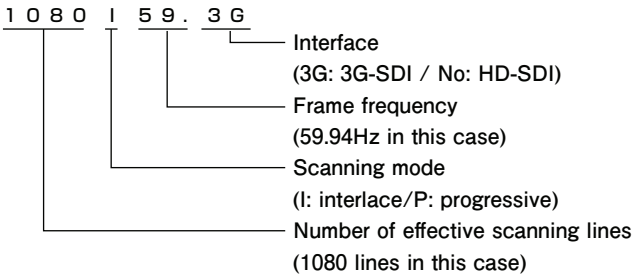
⑰ Option Slot

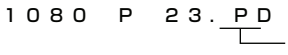
For mounting the SDI OUT/MoIP optional board.

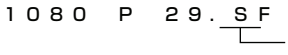
Chapter 3
FORMATS and GENLOCK

3.1 HDTV Format

This section explains the HDTV formats displayed on the BS menu and self-diagnosis with the use of some examples.

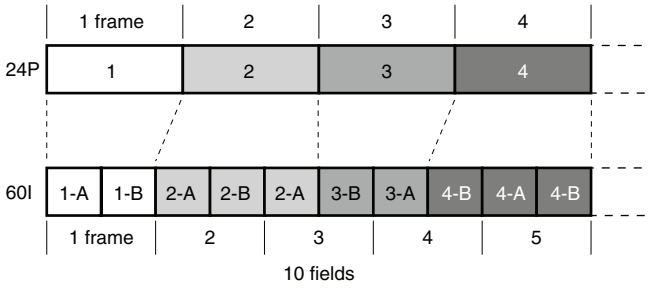






■2-3 "Pulldown"

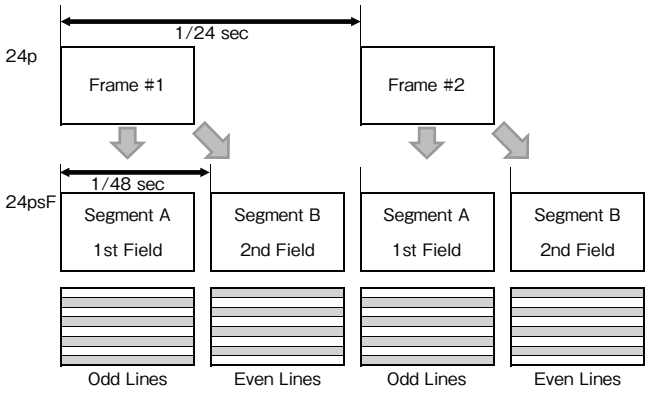
2-3 pull down is a method of converting a 24-frame (24P) video into a 60-field (60I) video.
Traditionally, this method has been adopted in telecine, a process which converts film movies to television signals.
It allows connection to different HDTV systems as the 1080p23.98PD signals are processed as 1080i59.94 signals.



(A: odd field, B: even field)

■ "Segmented Frame"

Segmented frame is a method for converting a progressive video by extracting video signals for each line and converting them into an interlaced video.



For the sake of convenience, 23.976 is indicated as 24 and 47.952 is 48.

A characteristic feature of segmented frames is that there is no movement in the first frame (Segment A) and the second frame (Segment B). These two frames are combined to form one progressive signal.
The PsF (Progressive segmented Frame) method has been widely adopted since the appearance of the 24P format as it can be created without making significant changes to the conventional interlaced equipment for display on CRT monitors.
Also, as the 1080PsF29.97 signals can be processed as 1080i59.94, and the 1080PsF25 signals as 1080i50, this method is increasingly used in recent years for creating a time-lapse video effect in television broadcasting.

3.2 GENLOCK System

This section explains the input/output synchronization signals and illustrates examples on connection of the GENLOCK system for this product.

■Input Synchronization Signal

The output video signal is synchronously coupled to the reference synchronization signal that is input to the "REFERENCE" connector. The phase between the output video signal and reference synchronization signal can be changed in both the horizontal and vertically directionsl from the menu screen.
The REFERENCE connector supports the following synchronization signals.
- HDTV PS/S (tri-level sync)
- SDTV BBS

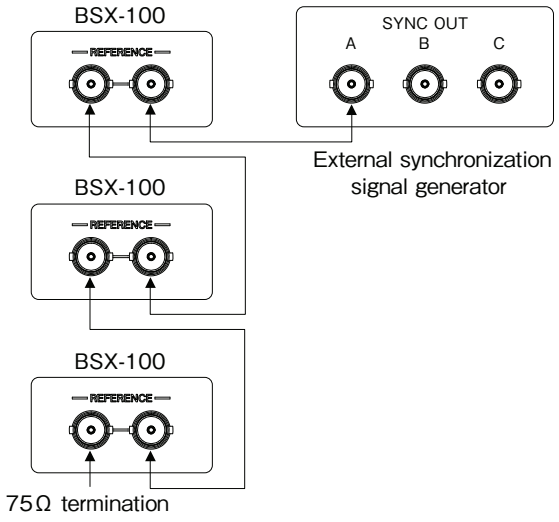
■Output Synchronization Signal

The "SYNC OUT" connector outputs the tri-level SYNC with a phase that matches the output video signal.
Both horizontal and vertical output phases can be changed in the BS MENU.

■Synchronization Signal Input (REFERENCE) Connector

Connection Example (Loop-Through)
For input of reference synchronization signals to the REFERENCE connector.

When using an external synchronization signal generator



■SYNC OUT Connector

Outputs synchronization signals. The format that can be selected varies depending on the setting of SYSTEM FORMAT settings. (Select a format from the BS menu.)

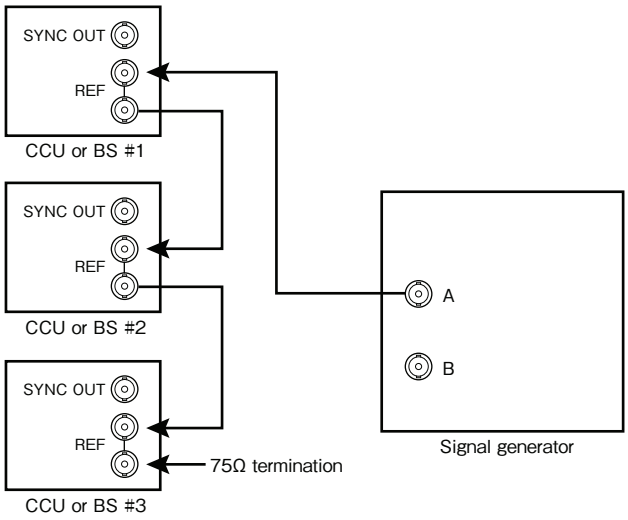
In addition, when the 1080P23PD format is selected, it is possible to select from the menu whether to add a 2H pulse for every 10 FIELD of 1080I59 (this is different from the 10 FIELD ID specified in SMPTE 318M; but it is also referred to as "10 FIELD ID" here).

SYSTEM FORMAT	Format that can be selected in SYNC OUT of OUTPUT FORMAT
1080P59	1080I59
1080I59	1080I59
1080P23PD	1080I59 / 1080P23 / 1080P23SF
1080P29SF	1080I59 / 1080P29
1080I119	1080I59
720P59	720P59
1080P50	1080I50
1080I50	1080I50
1080P25SF	1080I50 / 1080P25
1080I100	1080I50
720P50	720P50

■Mode of Operation

- When format conversion is not performed

Example)
SYSTEM FORMAT of BS/CCU: 1080i59.94
Format of camera head: 1080i59.94
Synchronization signal input to the REF connector
HDTV tri-level SYNC 1080i59.94 or SDTV BBS

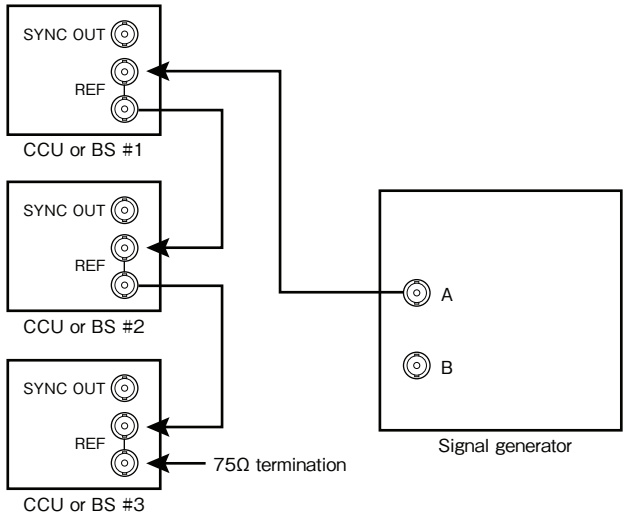


Requirements on signals output by the signal generator in this case
A: HDTV tri-level sync signal with a format that is the same as that of the camera head, or NTSC BBS signal

- When format conversion is performed

The following example uses 1080P/23.98PD as the format of the camera head.
In addition, 1080P/23.98 is used as the output of the format conversion.

When NTSC BBS +10 FIELD ID (SMPTE 318M-compliant) signals can be supplied from the signal generator



Requirement on signals output by the signal generator
A: NTSC BBS + 10 FIELD ID (SMPTE 318M-compliant)

Chapter 4 EQUIPMENT CONNECTIONS

4.1 Preparation

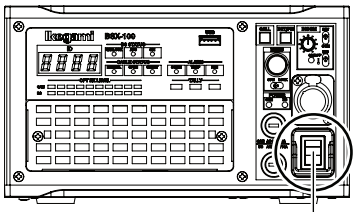
■ Environment for Using This Product

Please read through "SAFETY PRECAUTIONS" described at the beginning of this manual for precautions on the use of this product.

■ Make sure the power switch is OFF

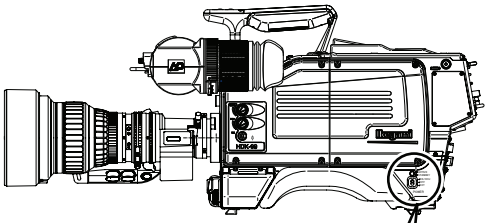
Please make sure that the power switch is set to "OFF" before connecting this product (camera, BS) and other peripheral equipment.

BS (Front View)

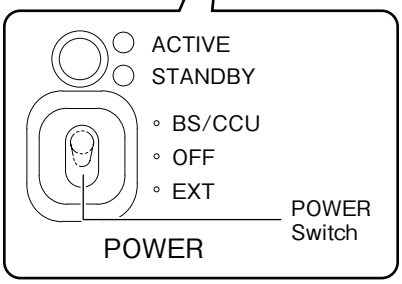


MAIN POWER Switch

Camera (Right View)



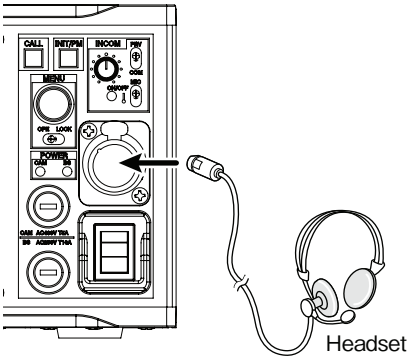
* The HDK-99 camera head is used in this example for explanation.



Turn the INCOM PHONE knob to set the volume to the minimum before adjusting it to an appropriate level.

CAUTION:

Do not set the INCOM PHONE knob suddenly to a level close to MAX when connecting the headset to the INCOM connector. Maximizing the volume while wearing the headset on your ears may rupture or damage the eardrums. Also, excess sound pressure may result in hearing impairments.



4.2 Power Supply

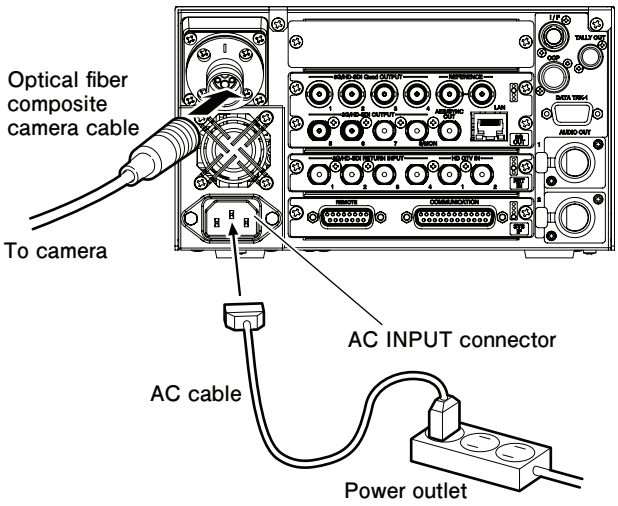
1 Connect the AC cable to the AC INPUT connector (AC inlet) on the rear of the BS.

2 Insert the AC plug into the AC outlet.

CAUTION:
Do not turn on the main power switch.

3 Connect the optical composite cable to the CAMERA connector on the rear side of the BS and the other side of the cable to the camera head.

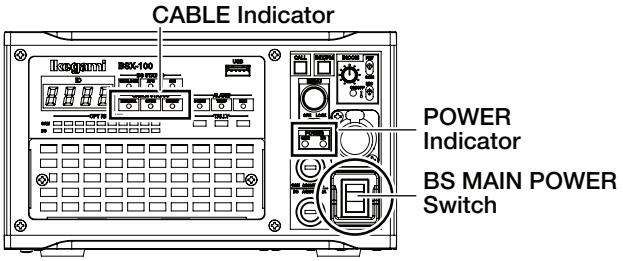
* Refer to "4.3 BS and Camera Head Connection" on how to connect the optical composite cable to the camera head.



■ Controlling Power of the Camera from BS

1 Set the [BS MAIN POWER switch] on the front to "ON".

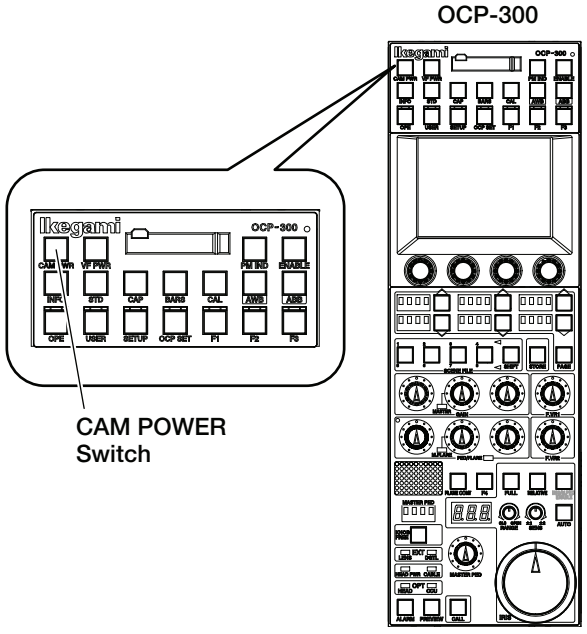
The power of the BS turns on, and the BS POWER indicator lights up.
The status of the optical composite cable connection between the camera head and the BS is automatically checked.
If the connection is found to be normal, the [NORMAL] green LED lights up.
If the cable is defective, or if connection fails, the [OPEN]/[SHORT] red LED lights up.
When power is supplied to the camera head, the CAM POWER indicator turns from red to green.



■ Controlling Power of the Camera from OCP (Remote Control)

1 To switch the status of the power supply to the camera from ON (switch lights up) to OFF, press and hold [CAM PWR switch] on the OCP for approximately 2 seconds.

2 To switch the status of power supply to the camera from OFF (switch light goes off) to ON, press [CAM PWR switch] on the OCP.



Note:

Switching the CAM POWER switch on the OCP ON/OFF only turns on/off the power supply to the camera head and does not affect the BS main power.

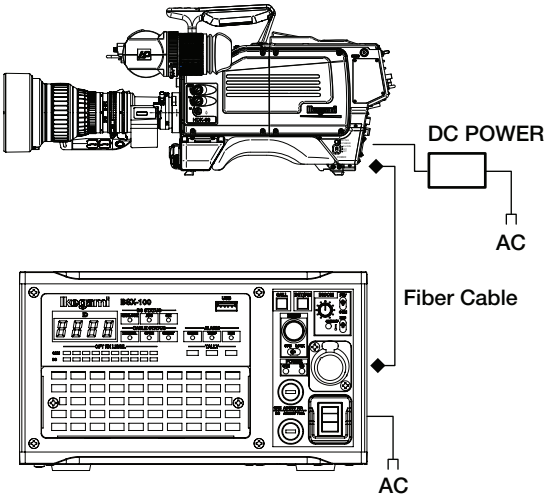
■Starting up in the Fiber Single Mode

The Fiber Single mode is used to extend the transmission distance between the camera and the BS. The transmission distance is generally determined by the power transmission capability of the BS and attenuation of the optical level. When there is insufficient power transmission capability power is supplied using another power source at the camera head side to avoid limitation on the transmission distance due to insufficient power supply.

When the Fiber Single mode is turned on, power supply from the BS stops, but the bidirectional optical transmission can still be performed as usual.

The camera and the BS need to be set up individually to operate in the Fiber Single mode. The following shows the method for setting up the camera and the BS.

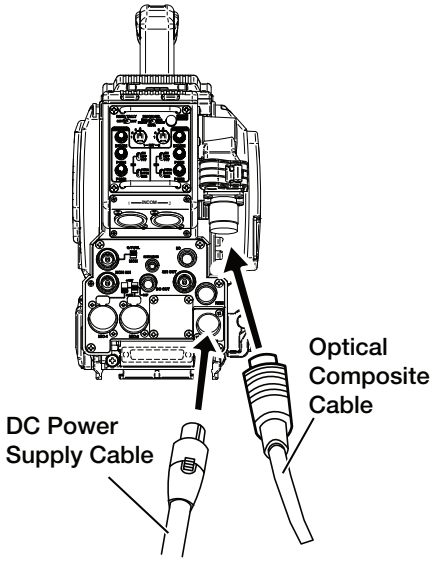
This product allows the distance to be extended up to 10km.



1 **Set the output voltage of the external power supply to +12V (Supply voltage range: +11 - 17V), and turn off the output.**

2 **Set the POWER switch on the right side of the camera to the OFF side.**

3 **Connect the connector from the external power supply to the DC IN connector on the rear side of the camera.**



4 **Turn on the BS power.**

5 **Turn on the "FIBER SINGLE MODE" in the menu setting of the BS.**

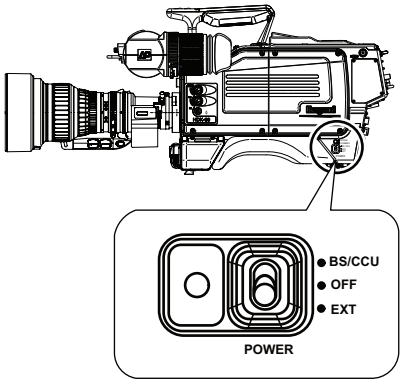
6 **Turn on the camera power switch on the BS.**

7 **Turn on the external power switch.**

8 **Set the POWER switch on the right side of the camera to "EXT".**

Turn on "SYSTEM" - "FIBER SINGLE MODE CONT" from the engineer menu of the camera.

Refer to the manual of the corresponding camera for details.

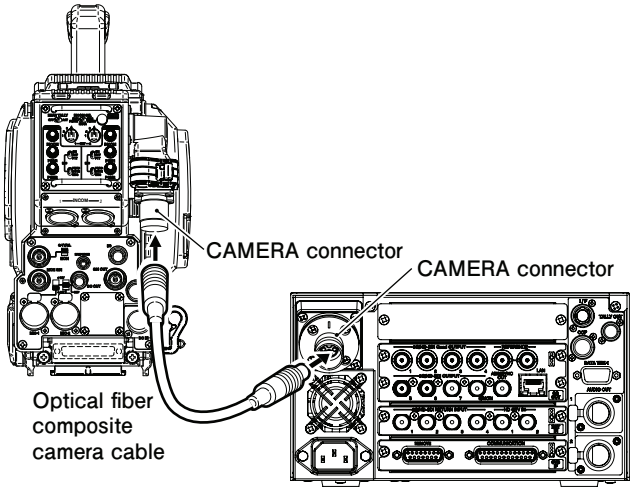


4.3 BS and Camera Head Connection

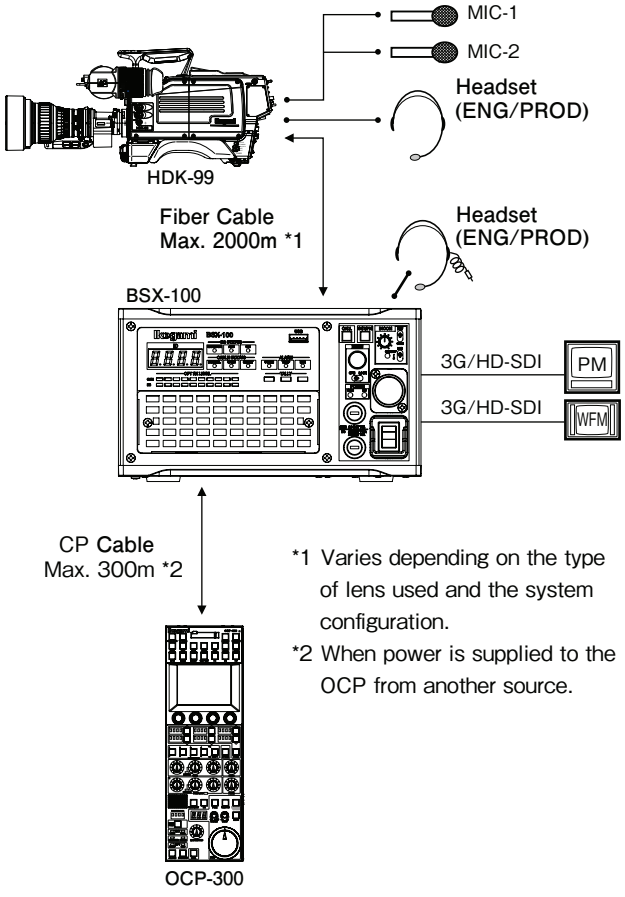
This section explains how to connect the BS to the camera head.
Connect the CAMERA connector on the rear of the BS to the CAMERA connector on the camera head via an optical fiber composite camera cable.

CAUTION:

- The connector of the optical fiber composite camera cable has a plug and jack.
  Note the differences before connecting.
- Do not forcibly bend the optical fiber composite camera cable or apply excessive force on the cable.
- Refer to the instructions manual that comes with the optical fiber composite camera cable to be used on how to handle the cable.



4.4 System Setup Diagram



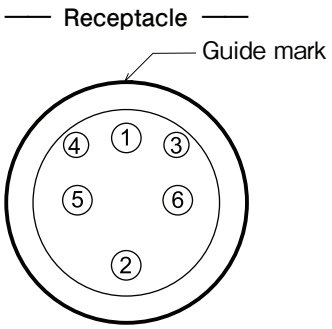
*1 Varies depending on the type of lens used and the system configuration.
*2 When power is supplied to the OCP from another source.

4.5 External Connections

■ CAMERA Connector

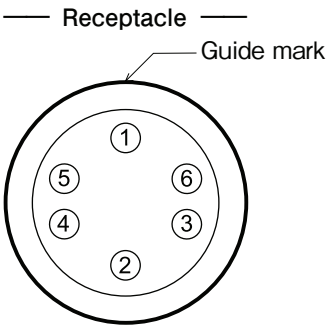
Connector for connecting the camera head and the BS. There are two types of CAMERA connectors with the following specifications.

[3K Series]



Insertion Side
BS side : FFXW.3K or FCFRA

[OPS Series]



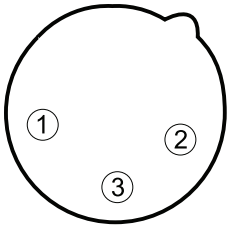
Insertion Side
BS side : OPS-PR

Pin No.	Name	Function	I/O	External Interface
①	OPT H - C/B	Light contact Camera --> CCU/BS	IN	
②	OPT C/B - H	Light contact CCU/BS --> Camera	OUT	
③	CONTROL (H)	Control signal (H) CCU/BS --> Camera	OUT	
④	CONTROL (C)	Control signal (C) Camera --> CCU/BS	IN	
⑤	POWER (H)	Power (H) supplied to the camera	OUT	
⑥	POWER (C)	Power (C) supplied to the camera	OUT	

■ AUDIO OUT Connector

Output connector for the analog audio signal that is input from the camera head. There are two types of specifications, male and female.

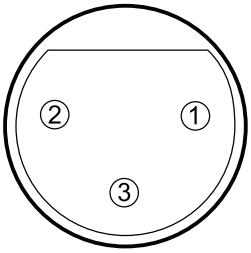
— Male receptacle —



Insertion Side

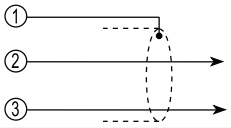
BS side : HA16RD-3P (76)
Cable side : SMP-03V-NC (3-pin female plug) or equivalent

— Female receptacle —



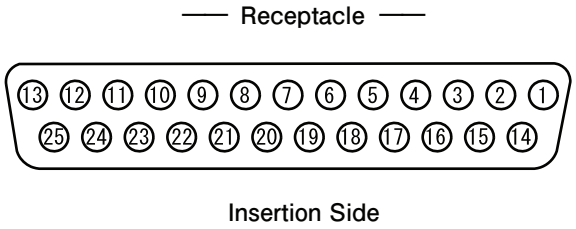
Insertion Side

BS side : HA16RD-3P (71)
Cable side : SMR-03V-N (3-pin male plug) or equivalent

Pin No.	Name	Function	I/O	External Interface
①	SHIELD	AUDIO LINE SHIELD	GND	
②	MIC (H)	AUDIO LINE HOT	OUT	
③	MIC (C)	AUDIO LINE COLD	OUT	

■ COMMUNICATION Connector

Connector for connecting the control inputs from the external INTERCOM system, program audio and external TALLY system. The standard specification of the fitting screws used for the main unit of the Japanese domestic models isare 2.6 mm, and that for overseas models is #4-4OUNC.

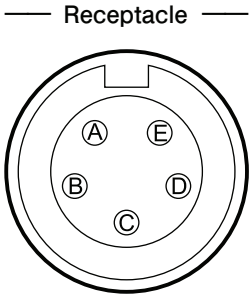


BS side : 【metric】 17LE-13250-27(D3AB)-FA
【inch】 17LE-13250-27(D3CB)-FA
Cable side : DB-25PF-N or equivalent

Pin No.	Name	Function	I/O	External Interface
				4 WIRE / RTS / Clear-Com
①	ENG B-S(H)	ENG CH Intercom output to the system from the CCU/BS (H)	OUT	1
②	ENG B-S(C)	ENG CH Intercom output to the system from the CCU/BS (C)	OUT	2
③	ENG(S)	ENG CH Intercom Shield		3
④	ENG S-B(H)	ENG CH Intercom input to the CCU/BS from the system (H)	IN	4
⑤	ENG S-B(C)	ENG CH Intercom input to the CCU/BS from the system (C)	IN	5
⑥	PGM-1(H)	Program Audio Channel-1 input (H)	IN	6
⑦	PGM-1(C)	Program Audio Channel-1 input (C)	IN	7
⑧	PGM-1(S)	Program Audio Channel-1 Shield		8
⑨	GND	Ground	GND	9
⑩	Y TALLY IN	Yellow Tally Input (+)	IN	10 MAKE
⑪	R TALLY IN	Red Tally Input (+)	IN	11 MAKE
⑫	R TALLY COMM	Red Tally Common		12
⑬	GND	Ground	GND	13
⑭	PROD B-S(H)	PROD CH Intercom output to the system from the CCU/BS (H)	OUT	14
⑮	PROD B-S(C)	PROD CH Intercom output to the system from the CCU/BS (C)	OUT	15
⑯	PROD(S)	PROD CH Intercom Shield		16
⑰	PROD S-B(H)	PROD CH Intercom input to the CCU/BS from the system (H)	IN	17
⑱	PROD S-B(C)	PROD CH Intercom input to the CCU/BS from the system (C)	IN	18
⑲	PGM-2(H)	Program Audio Channel-2 input (H)	IN	19
⑳	PGM-2(C)	Program Audio Channel-2 input (C)	IN	20
㉑	PGM-2(S)	Program Audio Channel-2 Shield		21
㉒	PGM-3(H)	Program Audio Channel-3 input (H)	IN	22
㉓	PGM-3(C)	Program Audio Channel-3 input (C)	IN	23
㉔	G TALLY IN	Green Tally Input (+)	IN	24 MAKE
㉕	G TALLY COMM	Green Tally Common		25

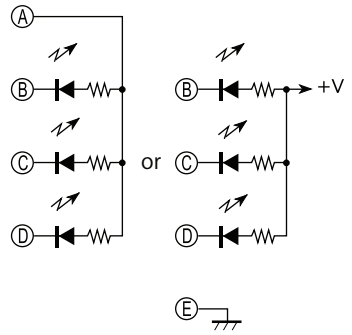
■ TALLY OUT Connector

Connector used to output the TALLY control signals.



Insertion Side

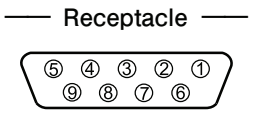
BS side : EPRC05-RB5F1
Cable side : EPRC 05-P5M or equivalent

Pin No.	Name	Function	I/O	External Interface
Ⓐ	DC +12 V OUT	DC +12V power output	OUT	
Ⓑ	R TALLY	Red Tally output (ON: GND)	OUT	
Ⓒ	Y TALLY/COM TALLY	Yellow Tally output or COMMON TALLY output (ON: GND)	OUT	
Ⓓ	G TALLY	Green TALLY output (ON: GND)	OUT	
Ⓔ	TALLY GND	Ground for TALLY signal	GND	

- Select either Y TALLY or COMMON TALLY output for pin C from the BS menu.
  Using COMMON TALLY OUT enables simultaneous control of both R TALLY and G TALLY.

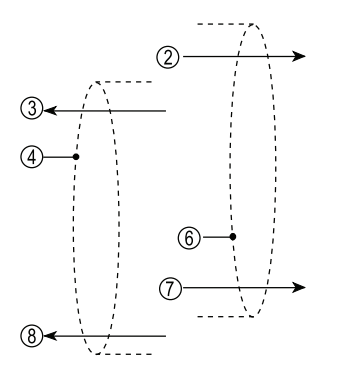
■ DATA TRK (DATA TRUNK)

Connector for RS-422 (serial communication standard) input/output.



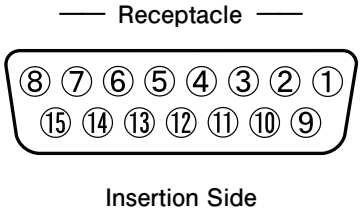
Insertion Side

BS side : DE-9SF-T-N
Cable side : D-sub connector (9-pin male plug and inch thread #4-40UNC)

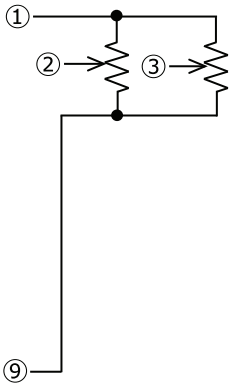
Pin No.	Name	Function	I/O	External Interface
①	N. C	————————	—	
②	TR1 OUT (−)	Digital Data Output (-)	OUT	
③	TR1 IN (+)	Digital Data Input (+)	IN	
④	IN (S)	Input Shield	—	
⑤	N. C	————————	—	
⑥	OUT (S)	Output Shield	—	
⑦	TR1 OUT (+)	Digital Data Output (+)	OUT	
⑧	TR1 IN (−)	Digital Data Input (-)	IN	
⑨	GND	GND	GND	

■ REMOTE Connector

Connector used to externally control the microphone gain of the camera.
The standard specification of the hex jack screws for the Japanese domestic models is 2.6 mm, and that for overseas models is #4-40UNC.



BS side : 【metric】 17LE-13150-27(D3AB)-FA
【inch】 17LE-13150-27(D3CB)-FA
Cable side : DA-15PF-N or equivalent

Pin No.	Name	Function	I/O	External Interface
①	+5.0V	DC + 5.0V output	OUT	
②	MIC1_FINE_CTL	MIC1 GAIN control voltage input 0 to 5.0V	IN	
③	MIC2_FINE_CTL	MIC2 GAIN control voltage input 0 to 5.0V	IN	
④	NC			
⑤	MIC1 GAIN STEP2	MIC1 GAIN STEP2 ※1	IN	
⑥	MIC1 GAIN STEP1	MIC1 GAIN STEP1 ※1	IN	
⑦	MIC1 GAIN STEP0	MIC1 GAIN STEP0 ※1	IN	
⑧	/MIC_REM_CTL#1	Remote control #1 ※2	IN	
⑨	GND	GND	GND	
⑩	NC			
⑪	NC			
⑫	MIC2 GAIN STEP2	MIC2 GAIN STEP2 ※1	IN	
⑬	MIC2 GAIN STEP1	MIC2 GAIN STEP1 ※1	IN	
⑭	MIC2 GAIN STEP0	MIC2 GAIN STEP0 ※1	IN	
⑮	/MIC_REM_CTL#2	Remote control #2 ※2	IN	

※1 MIC GAIN STEP CONTROL

GAIN STEP2	GAIN STEP1	GAIN STEP0	GAIN
H	H	H	-60 dB
H	H	L	-50 dB
H	L	H	-40 dB
H	L	L	-30 dB
L	H	H	-20 dB
L	H	L	-10 dB
L	L	H	0 dB
L	L	L	+4 dB

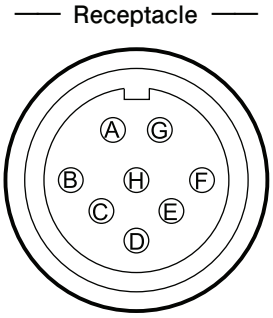
※2 MIC GAIN EXTERNAL REMOTE CONTROL

MIC1 REM_CTRL	MIC2 REM_CTRL	MIC GAIN CTRL
L	L	MIC 1 and 2 ON
L	H	MIC 1 ON
H	L	MIC 2 ON
H	H	INTERNAL

If FINE control is not used, connect the intermediate potential of pin ① (5.5V) and pin ⑨ (GND) to pins ② and ③ .

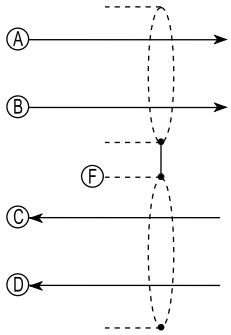
■ OCP Connector

Connector for connecting the control panel.



Insertion Side

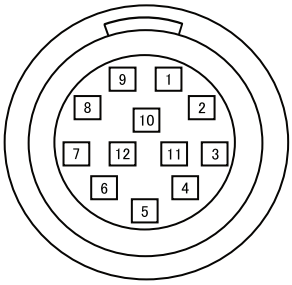
BS side : ERPC05-RB8F1
Cable side : EPRC 05-PB8M or equivalent

Pin No.	Name	Function	I/O	External Interface
Ⓐ	HED (+)	Digital data output (+) from CCU/BS to control panel	OUT	
Ⓑ	HED (−)	Digital data output (-) from CCU/BS to control panel	OUT	
Ⓒ	HEC (+)	Digital data input (+) from control panel to CCU/BS	IN	
Ⓓ	HEC (−)	Digital data input (-) from control panel to CCU/BS	IN	
Ⓔ	+12 V	DC +12V power output for control panel	OUT	
Ⓕ	+12 V RET	DC +12V power RET (GND)	GND	
Ⓖ	NC	———	—	
Ⓗ	NC	———	—	

■ IF Connector

Connector that is assigned as RS-422 (serial communication standard) DATA TRUNK #2, Intercom external control, preview switch contact, etc.
The camera head will also need to support DATA TRUNK #2.

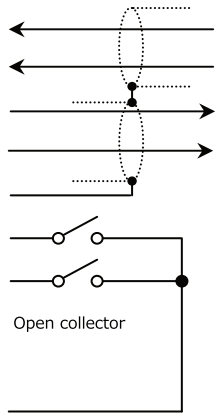
Receptacle



Insertion Side

BS side : HR10A-10R-12SC (71)
Cable side : HR10A-10P-12PC (73) Crimp Type
: HR10A-10P-12P (73) Solder type

Pin No.	Name	Function	I/O	External Interface
1	TR2 IN(+)	DTAT TRUNK2 Digital Data Input (+)	IN	
2	TR2 IN(-)	DTAT TRUNK2 Digital Data Input (-)	IN	
3	TR2 OUT(+)	DTAT TRUNK2 Digital Data Output (+)	OUT	
4	TR2 OUT(-)	DTAT TRUNK2 Digital Data Output (-)	OUT	
5	TR2(S)	DTAT TRUNK2 Shield		
6	REM ISOLATE OFF	Private Incom OFF external control	IN	
7	EXT MIC OFF	Camera Incom MIC OFF external control	IN	
8	HP IND	Head Power ON IND output	OUT	
9	+12V OUT	DC +12V power output	OUT	
10	GND	Ground	GND	
11	PREVIEW SW	Preview switch	OUT	
12	PREVIEW COM	Preview switch GND	GND	



Chapter 5 BS SETTINGS and ADJUSTMENT

5.1 Setting Using the BS Menu

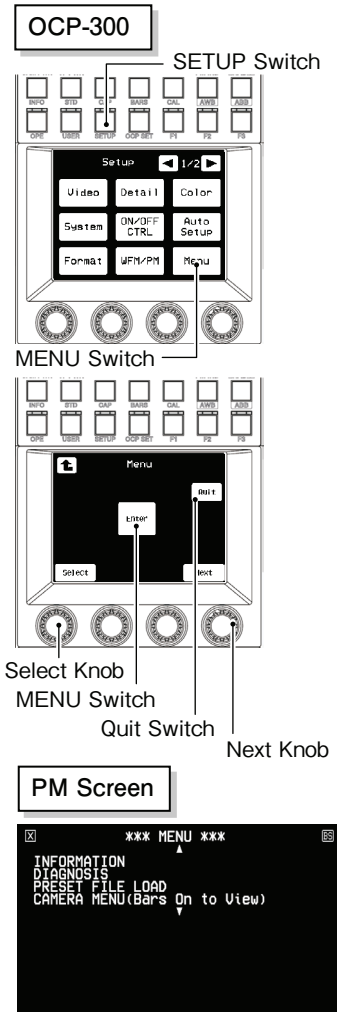
Menu operation related to the settings of the BS is performed on the control panel or the BS itself.
Setting of each item is performed by displaying the main menu/ submenu screen on the PM screen.

Note:

Abbreviations
PM : Abbreviation of Picture Monitor
PM screen: Refers to the PM OUT output screen of BS.
Various characters are superimposed on the PM screen.

■ Operating from OCP-300

1 **Press the "SETUP" switch on the OCP-300 to display the SETUP items on the LCD monitor of the OCP.**



PM Screen

2 **Press and hold the MENU switch to display the MENU screen on the PM screen.**

Various settings can be specified by selecting an item from the main menu displayed on the PM screen and displaying the submenu screen.

3 **Make sure that the main menu screen is displayed on the PM screen.**

4 **Turn the Select knob or the Next knob to place the blinking cursor over the setting item, and press the Enter switch on the LCD screen of the OCP.**

A submenu appears, for specifying the various settings.

Note:

Depending on the functions of the main menu settings items, the setting of some items changes when the knob is turned,; while others settings are changed when the Enter switch on the LCD screen of the OCP is pressed.

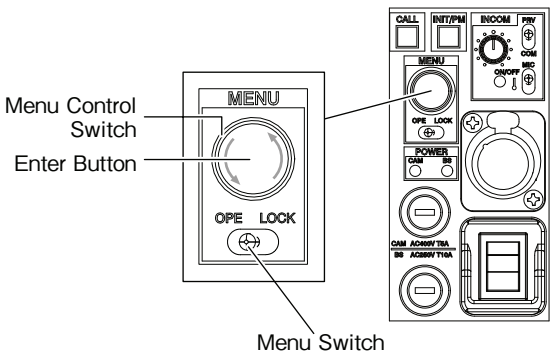
5 **Exit the Menu**

Exit the menu screen using any of the following methods:
- Select " ☒ " on the BS main menu and press the Enter switch.
- Press the Quit switch on the LCD screen of the OCP.

■ Operating from the BS Main Unit

1 **Set the MENU switch from the "OPE - LOCK" side to the "OPE" side.**

2 **Press and hold the menu operation knob for approximately 3 seconds. The main menu screen appears on the PM screen.**



3 **After making sure that the main menu screen is displayed on the PM screen, turn the menu operation knob to place the blinking cursor over the setting item, and press the knob (Enter button).**

PM Screen

4 **Turn the Select or Next knob place the blinking cursor over the item to set, and press the Enter switch on the OCP LCD screen.**

CAUTION:

Depending on the function of the setting items, the setting of some items changes when the knob is turned, while other settings are changed when the Enter button is pressed.

5 **Exit the menu screen via any of the following methods:**

- Select " ☒ " on the top screen of the BS main menu and press the Enter switch.
- Push the MENU switch from the "OPE - LOCK" side to the "LOCK" side (BS).

5.2 Menu Configuration and Contents

The following are settings to be performed on the BS.

■Submenu Setting Items

① INFORMATION
Provides the technical information (hardware and firmware versions and operating status) of the camera and BS.

② PRESET FILE LOAD
Resets the operating state to the initial settings or engineering settings.

③ DIAGNOSIS
Displays the results obtained from monitoring each module and device.

④ CAMERA MENU
Remote controls the settings on the camera from the CCU.

⑤ SYSTEM SETTINGS (1/2)
Sets the operation setting of the camera output. This item is used to specify the settings for other video equipment and thus need not be adjusted on a daily basis.

⑥ SYSTEM SETTINGS (2/2)
Specifies various settings including the setting and phase synchronization of the video processing unit and connection with the intercom and other equipment.

⑦ CONFIGURATION
Specifies the settings for external connections, etc.

CAUTION:

Please note that the product is subject to refinement and improvement and thus some of the setting procedures on the actual product may differ from those in this manual.

■ INFORMATION

Provides the technical information (hardware and firmware versions and operating status) of the camera and BS.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
INFORMATION			Displays various setting information.
— SPECIFICATIONS			Displays DISABLE/ENABLE for the mounted optional boards, software options, etc.
— MODULE			
— HD PROC	ENABLE	DISABLE/ENABLE	
— 12G OUT(OPTION)	DISABLE	DISABLE/ENABLE	
— FUNCTION			
— UP CONVERT 4K(OPTION)	DISABLE	DISABLE/ENABLE	
— MOIP(OPTION)	DISABLE	DISABLE/ENABLE	
— HFR(OPTION)	DISABLE	DISABLE/ENABLE	
— ETHERNET			Displays the ETHERNET settings.
— IP ADDRESS			
— SUBNET MASK			
— DEFAULT GATE WAY			
— SPEED/DUPLEX			
— MAC ADDRESS			
— FIRMWARE VERSION			Displays information on the serial number and firmware of the equipment.
— SERIAL NUMBER	AB*****E		
— PACKAGE VERSION	6501V**.**.**		
— MAIN SOFT	6500Vxx.yy.zz(C/S)		
— HD PROC FPGA1	6482V**.**		
— FPGA2	6483V**.**		
— PLS/AUX FPGA	6463V**.**		
— CPLD	6464V**.**		
— MPU FPGA	6498V**.**		
— HARDWARE VERSION			Displays the hardware version.
— HD PROC	VERSION*		
— PLS/AUX	VERSION*		
— MPU	VERSION*		
— DATE/TIME	20YY/MM/DD hh:mm:ss		Displays and sets the date, time, and operating time.
— DATE SET	20YY/MM/DD		Sets the date. (YYYY/MM/DD)
— TIME SET	hh: mm;: ss		Sets the time. (24-hour clock)
— WORKING TIME	*****H**M		Displays the cumulative operating time.
— SUB WORKING TIME	*****H**M		Displays the operating time of an interval (resettable).
SUB WORKING TIME RESET →			Resets the operating time of an interval.
— USER ID	STANDARD		Displays the USER ID setting.

■ DIAGNOSIS

Displays the results obtained from monitoring each module and element.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
DIAGNOSIS			Displays the self-diagnosis status.
TEMPERATURE			Displays the temperature of various device inside the BS in degrees Celsius.
HD_PROC	***.*		
FPGA1	***.*		
FPGA2	***.*		
OPT T/R	***.*		
PLS/AUX	***.*		
MPU	***.*		
BS POWER			
OPT RX CONDITION	OK	OK / LOS	
Rx LOS FLAG			Displays the LOS FLAG status of the optical transceiver.
HD_PROC CRC	OK	OK / ERROR	Displays the results obtained from monitoring CRC of the HD_PROC module.
MAIN	OK	OK / ERROR	
RET1	OK	OK / ERROR	
RET2	OK	OK / ERROR	
RET3	OK	OK / ERROR	
RET4	OK	OK / ERROR	
QTV1	OK	OK / ERROR	
QTV2			
FAN CONDITION			Displays the condition of the BS cooling fan.
FAN1(FRONT LEFT)	OK	OK / NG	
FAN2(FRONT RIGHT)	OK	OK / NG	
FAN3(REAR)	OK	OK / NG	
FAN4(SIDE1)	OK	OK / NG	
FAN5(SIDE2)	OK	OK / NG	
FAN6(MOIP)	OK	OK / NG	
BATTERY CONDITION			Displays the condition of the battery for BACKUP.
MPU BATTERY	OK	OK / NG	

■ PRESET FILE LOAD

Used for resetting the operating state to the initial settings or engineer settings.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
PRESET FILE LOAD			Load the updated files under the ENGINEER SET FILE RENEW item.
├ **FILE SELECT**	ENGINEER-1	ENGINEER-1 / -2 / -3 / FACTORY	
└ **LOAD START**	READY	START / CANCEL	
PUSH SET → START			
CAMERA MENU			Displays the CAMERA MENU. "Camera Power OFF" is displayed during CAMERA POWER OFF. The MENU characters of the UNICAM HD camera are superimposed onto the main line video. For this reason, the CAMERA MENU is accessible only when the COLOR BAR is turned on.

■ SYSTEM SETTINGS (1/2)

Used for resetting the operating state to the initial setting or engineer setting.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
BS OUTPUT			
— **BS FORMAT**	CAMERA	CAMERA / COLOR BARS	For selecting a BS video output.
SYSTEM FORMAT			For setting the basic format.
— **IMAGE SIZE**	1920x1080	1920x1080 / 1280x720	For selecting an image size.
— **FREQ&SCAN**	59.94P	59.94P / 29.97P / 29.97PsF / 23.98P / 23.98PsF 50P / 25P / 25PsF / 24P / 24PsF 59.94I / 50I 119.88I / 100I	For selecting a frame rate and scan mode.
— **SAMPLING**	YCbCr 4：2：2	YCbCr 422 / RGB 444	For selecting a sampling mode.
— **FORMAT CHANGE**	READY	EXECUTE / CANCEL	Applies the above settings.
12G OUT1-4 FORMAT			For settings the output of the 12G OUT1-4 format. The available options vary according to SYSTEM FORMAT.
— **IMAGE SIZE**	1920x1080	3840x2160 / 1920x1080 / 1280x720	For selecting an image size.
— **FREQ&SCAN**	59.94P	59.94P / 29.97P / 29.97PsF / 23.98P / 23.98PsF 50P / 25P / 25PsF / 24P / 24PsF 59.94I / 50I 119.88I / 100I	For selecting a frame rate and scan mode.
— **SAMPLING**	YCbCr 4：2：2	YCbCr 422 / RGB 444	For selecting a sampling mode.
— **MAPPING**	3G-SDI LVL-A	3G-SDI LVL-A / 3G-SDI LVL-B / HD-SDI / EVS SL	For selecting a SDI mapping setting.
— **4K OUTPUT**	12G-SDI	12G-SDI / 3G QL 2SI	For selecting the output method of 4K.
— **FORMAT CHANGE**	READY	EXECUTE / CANCEL	Applies the above settings.
SDI OUT1-4 FORMAT			For settings output of the SDI OUT1-4 format. The available options vary according to SYSTEM FORMAT.
— **IMAGE SIZE**	1920x1080	1920x1080 / 1280x720	For selecting an image size.
— **FREQ&SCAN**	59.94P	59.94P / 29.97P / 29.97PsF / 23.98P / 23.98PsFP 50P / 25P / 25PsF / 24P / 24PsF 59.94I / 50I 119.88I / 100I	For selecting a frame rate and scan mode.
— **SAMPLING**	YCbCr 4：2：2	YCbCr 422 / RGB 444	For selecting a sampling mode.
— **MAPPING**	3G-SDI LVL-A	3G-SDI LVL-A / 3G-SDI LVL-B / HD-SDI / EVS SL	For selecting a SDI mapping setting.
— **4K OUTPUT**	3G QL 2SI-1	3G QL 2SI / HD QL SQD	Displays the output method of 4K.
— **FORMAT CHANGE**	READY	EXECUTE / CANCEL	Applies the above settings.
SDI OUT5-7 FORMAT			For setting output of the SDI OUT5-7 main line format. The available options vary according to SYSTEM FORMAT.
— **IMAGE SIZE**	1920x1080	1920x1080 / 1280x720	For selecting an image size.
— **FREQ&SCAN**	59.94P	59.94P / 29.97P / 29.97PsF / 23.98P / 23.98PsF 50P / 25P / 25PsF / 24P / 24PsF 59.94I / 50I 119.88I / 100I	For selecting a frame rate and scan mode.
— **SAMPLING**	YCbCr 4：2：2	YCbCr 422 / RGB 444	For selecting a sampling mode.
— **MAPPING**	3G-SDI LVL-A	3G-SDI LVL-A / 3G-SDI LVL-B / HD-SDI / EVS SL	For selecting a SDI mapping setting.
— **FORMAT CHANGE**	READY	EXECUTE / CANCEL	Applies the above settings.
SDI OUT5-7 SELECT			For setting the video signal that is output from SDI OUT5-7(BNC).
— **SDI-OUT5**	LINE VIDEO	LINE VIDEO / PM / HD TRUNK	
— **SDI-OUT6**	LINE VIDEO	LINE VIDEO / PM / HD TRUNK	
— **SDI-OUT7**	LINE VIDEO	LINE VIDEO / PM / HD TRUNK	

<< SYSTEM SETTING (1/2) continued on next page >>

<< SYSTEM SETTING (1/2) continued >>

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
MONITOR OUT			For setting the BS MONITOR system.
— FORMAT	1080I59.94 422 HD-SDI	1080I59.94 422 HD-SDI / 1080I50 422 HD-SDI 1080P29.97 422 HD-SDI / 1080P29.97sF 422 HD-SDI 1080P23.98 422 HD-SDI / 1080P23.98sF 422 HD-SDI 1080P25 422 HD-SDI / 1080P25sF 422 HD-SDI 1080P24 422 HD-SDI / 1080P24sF 422 HD-SDI 720P59.94 422 HD-SDI / 720P50 422 HD-SDI	
— PM CHAR LEVEL	80	0 - 100	For setting the display level of the MONITOR system character.
— WARNING BIG CHAR	OFF	OFF / ON	Displays the applicable DIAGNOSTIC INFORMATION item in a large font when the setting is ON and when an error has occurreds.
— CAMERA STATUS DISP	OFF	OFF / ON	Displays the setting of the camera on the BS PM.
— POSITION	UPPER	UPPER / LOWER / UPPER LEFT / LOWER LEFT / UPPER RIGHT / LOWER RIGHT	For setting the display position of the camera setting.
— FILTER POSITION	ON	ON / OFF	For setting the display of each item to ON/OFF. The setting is reflected on the monitor screen.
— GAIN	ON	ON / OFF	
— IRIS	ON	ON / OFF	
— EXTENDER	ON	ON / OFF	
— SHUTTER	ON	ON / OFF	
— CAM PGM NO.	ON	ON / OFF	
— VARIABLE COLOR TEMP	ON	ON / OFF	
BARS TITLE			For settings the characters to superimpose onto COLOR BARS.
— DISPLAY	OFF	OFF / ON	For setting the BARS TITLE display to ON/OFF..
— TITLE EDIT			For editing the BARS TITLE.
— POSITION			For setting the display position of BARS TITLE.
AES/SYNC OUT			
— OUT SELECT	SYNC OUT	SYNC OUT / AES OUT	Displays the format of the synchronization signal that is output from AES/SYNC OUT (BNC).
— SYNC OUT FORMAT	1080I59.94	1080I59.94 / 1080I50 1080P29.97 / 1080P29.97sF / 1080P23.98 / 1080P23.98sF 1080P25 / 1080P25sF / 720P59.94 / 720P50	Displays the signal that is output from AES/SYNC OUT (BNC)

■ SYSTEM SETTINGS (2/2)

Used for specifying settings including the setting and phase synchronization of the video processing unit and connection of the intercom, etc. with other equipment.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
SYSTEM SETTINGS (2/2)			
VIDEO PROCESS			For setting the video system.
— HDTV COLOR BARS	SMPTE	SMPTE, ARIB, 100/100, 75/75	For selecting a HDTV output COLOR BAR.
— ARIB BARS TYPE	---	75% / 100% / +I	
— SMPTE BARS TYPE	75%/0%	/0%, 100%/0%, +I/0%, -I/+Q	
— MAIN CHAR LEVEL	100	0 - 100	For setting the display level of the main line character.
HD VIDEO PROCESS			For setting the HDTV video system.
— SDR CONV	OFF	OFF/ ON	Function for HDR/SDR simultaneous output.
RET VIDEO SETTING			For setting the RETURN VIDEO.
— RET1	FS OFF	FS ON/OFF	For setting the FS (Frame Synchronizer function) to ON/ OFF.
— RET2	FS OFF	FS ON/OFF	The output of RET-2 becomes that of RET-1 when in the ACTIVE-THROUGH ON mode.
— RET3	FS OFF	FS ON/OFF	For setting the FS (Frame Synchronizer function) to ON/ OFF.
— RET4	FS OFF	FS ON/OFF	The output of RET-4 becomes that of RET-3 when in the ACTIVE-THROUGH ON mode.
— ACTIVE-THROUGH	OFF	OFF / ON	The output of RET-2 becomes that of RET-1, and the output of RET-4 becomes that of RET-3 when the setting is ON.
PHASE CONTROL			For performing phase adjustment of the videos and synchronization signals.
— MASTER V PHASE	0	0 to 1124 or 0 to 749	
— MASTER H PHASE	0	-800 to 800	
— SDI OUT1-4 H PHASE	0	-800 to 800	
— SDI OUT5-7 H PHASE	0	-800 to 800	
— MON OUT H PHASE	0	-800 to 800	
— 12G OUT H PHASE	0	-800 to 800	
— HD TRUNK H PHASE	0	-800 to 800	
— SYNC OUT V PHASE	0	-262 to 262	For setting the vertical phase of the synchronization signal that is output from SYNC OUT (BNC).
— SYNC OUT H PHASE	0	-857 to 858	For setting the horizontal phase of the synchronization signal that is output from SYNC OUT (BNC).

<< SYSTEM SETTING (2/2) continued on next page >>

<< SYSTEM SETTING (2/2) continued >>

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
AUDIO SETTING			
EMBEDDED AUDIO			For setting the embedded audio.
SDI OUT1-4	ON	ON / OFF	For setting the SDI OUT output (1-4).
SDI OUT5-7	ON	ON / OFF	For setting the SDI OUT output (5 to 7).
MON OUT	ON	ON / OFF	For setting the MON output.
MASTER DELAY	0	0 - 84msec	For setting the delay amount of the master audio signal. The maximum delay amount is 84msec.
EMB AUDIO DELAY	0	0 - 84msec	For setting the delay amount of EMBEDDED AUDIO. The maximum delay amount is 84msec. (1ch/2ch/3ch/4ch)
AES/EBU DELAY	0	0 - 84msec	For setting the delay amount of AES EBU. The maximum delay amount is 84msec.
ANALOG OUT DELAY	0	0 - 84msec	For setting the delay amount of the analog audio output. The maximum delay amount is 84msec.
AUDIO-1 OUTPUT LEVEL	0dB	0dB / 4dB	For setting the output level of AUDIO-1.
LEVEL ADJ (0dB)	265	1 - 1023	For setting the level for the 0dB setting.
LEVEL ADJ (4dB)	755	1 - 1023	For setting the level for the 4dB setting.
AUDIO-2 OUTPUT LEVEL	0dB	0dB / 4dB	For setting the output level of AUDIO-2.
LEVEL ADJ (0dB)	265	1 - 1023	For setting the level for the 0dB setting.
LEVEL ADJ (4dB)	755	1 - 1023	For setting the level for the 4dB setting.
MIC GAIN REMOTE			Setting for remote control of MIC GAIN.
MIC1 CENTER SET	READY	EXECUTE / CANCEL / CLEAR	Adjustment of center OFFSET for EXT MIC GAIN REMOTE VR.
MIC2 CENTER SET	READY	EXECUTE / CANCEL / CLEAR	Adjustment of center OFFSET for EXT MIC GAIN REMOTE VR.
INTERCOM SETTING			For setting the intercom line.
INTERCOM LINE	2LINE	2LINE / 1LINE	For setting the number of lines.
ENGINEER IF	4W	4W / RTS / CC	The settings of the 4W / RTS / CC input and output are linked to each other. The settings can be adjusted separately after they are linked.
INPUT TERM	600	600 / 10k / ---	600 / --- / ---
OUTPUT LOAD	---	--- / OPEN / 200	--- / OPEN / OPEN
PRODUCER IF	4W	4W / RTS / CC	The settings of the 4W / RTS / CC input and output are linked to each other. The settings can be adjusted separately after they are linked.
INPUT TERM	600	600 / 10k / ---	600 / --- / ---
OUTPUT LOAD	---	--- / OPEN / 200	--- / OPEN / OPEN
PGM1 TERM	600	600 / 10k	For setting PROGRAM AUDIO.
PGM1 INPUT LEVEL	0dB	0dB / -20dB / 4dB	
PGM2 TERM	600	600 / 10k	
PGM2 INPUT LEVEL	0dB	0dB / -20dB / 4dB	
PGM3 TERM	600	600 / 10k	
PGM3 INPUT LEVEL	0dB	0dB / -20dB / 4dB	
FRONT INTERCOM MIC	DYNAMIC	DYNAMIC / CARBON / ECM	For setting the type of headset microphone on the front of BS. * INTERCOM MIC POWER can be set to ON/OFF only when ECM is selected.
INTERCOM MIC POWER	OFF	ON / OFF	
PGM MIX	OFF	OFF / PGM1 / PGM2 / PGM3	
PGM LEVEL	X1.00	X0.00 to 2.00	

*1: RETURN VIDEO input

- 3G-SDI/HD-SDI: Automatically recognizes the signals of two rates.
- When the ACTIVE-THROUGH function is in use, the return 2 channel specifications are applied to both the BS and camera. The through output video signals are not output if the power of the BS is not ON.
- When the input video signal format switches to a signal that does not require FS (Frame Synchronizer) while FS is turned on, FS does not turn off automatically.
  If FS is not necessary, turn it off manually.

CAUTION:

*2: When the REMOTE ON/OFF switch of the MIC GAIN REMOTE PANEL is turned on, the MIC GAIN can be controlled only from the REMOTE PANEL.

MIC1/2 CENTER ADJ Function

The microphone gain of the camera can be altered continuously from the potentiometer that is connected to an external system via the MIC GAIN REMOTE function.

However, there are cases where the mechanical and electrical center values may not coincide with control voltage depending on the performance of the potentiometer and features of each unit.

In this case, the amount of MAX/MIN control for the microphone gain of the camera may deviate from the center value.

This function is to set the mechanical center position of the potentiometer as the center of the control value.

Generally, this setting is performed at the factory and adjustment is not required. Note that executing "CENTER ADJ" at a wrong position may cause an error in the control range of the microphone gain.

■ CONFIGURATION

Used for setting the external connections, etc.

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
CONFIGURATION			
ETHERNET			For specifying the ETHERNET settings.
— GROUP IP	0	0 - 99	For setting the GROUP ID. (For ICNP communication)
— DEVICE ID	1	1 - 99	For setting the DEVICE ID. (For ICNP communication)
— DEVICE NAME	( )	16 characters	For setting the DEVICE name. (For ICNP communication)
— IP ADDRESS			For setting the IP ADDRESS for ETHERNET communication.
— IP ADDRESS	192.168. 1.100	0.0.0.0 - 255.255.255.255	For setting the IP ADDRESS.
— SUBNET MASK	255.255.255. 0	0.0.0.0 - 255.255.255.255	For setting the SUBNET MASK.
— DEFAULT GATEWAY	0. 0. 0. 0	0.0.0.0 - 255.255.255.255	For setting the DEFAULT GATEWAY.
— SPEED/DUPLEX	AUTO NEGOTIATION	AUTO NEGOTIATION/10M HALF/10M FULL/100M HALF/100M FULL	For setting the communication speed and communication method of ETHERNET.
— SET	READY	REBOOT CANCEL / REBOOT EXECUTE	Applies the IP ADDRESS screen settings via REBOOT EXECUTE. BS will restart when “Confirm” is selected and executed.
— UDP CONTROL			
— ICCP PORT NO	50001	0 - 65535	For setting the PORT NO for ICCP communication.
— ICNP PORT NO	50002	0 - 65535	For setting the PORT NO for ICNP communication.
— SET	READY	REBOOT CANCEL / REBOOT EXECUTE	Applies the setting of the UDP CONTROL screen settings via REBOOT EXECUTE. BS will restart when “Confirm” is selected and executed.
— MASTER			For setting the MASTER for ICNP communication.
— PRIMARY	DISABLE	DISABLE / ENABLE	For setting the PRIMARY device to Enable or Disable.
— IP ADDRESS	192.168. 1.220	0.0.0.0 - 255.255.255.255	For setting the IP ADDRESS of the PRIMARY device.
— ICNP PORT NO	50002	0 - 65535	For setting the PORT NO of the PRIMARY device.
— SECONDARY	DISABLE	DISABLE / ENABLE	For setting the SECONDARY device to Enable or Disable.
— IP ADDRESS	192.168. 1.140	0.0.0.0 - 255.255.255.255	For setting the IP ADDRESS of the SECONDARY device.
— ICNP PORT NO	50002	0 - 65535	For setting the PORT NO of the SECONDARY device.
— SET	READY	REBOOT CANCEL / REBOOT EXECUTE	Applies the MASTER screen settings via REBOOT EXECUTE. BS will restart when “Confirm” is selected and executed.
PGM NO.			For setting the program number.
— CAM PGM NO. SET	OFF	OFF, 1 to 99	For setting the program number to be displayed in the ID INDICATOR on the front of BS.
ID INDICATOR			For setting the ID INDICATOR display on the front of BS.
— FRONT ID DISPLAY	OFF	OFF / PGM NO.	For setting the ON/OFF of the ID display on the front of BS.
— DISPLAY ITEM SELECT	SYSTEM FORMAT	SYSTEM FORMAT / IP ADDRESS(LAN)	For setting the information items to be displayed in the ID on the front of the BS during start up or when the INIT/PM switch is pressed down.
POWER CONTROL			Setting on power transmission to the camera.
— OCP CAM PWR CTRL	---	--- / ON / OFF / LAST	For selecting an operation mode according to the camera power switch status of the OCP. ON : Camera power is always on when starting up. OFF : Camera power is always off when starting up. LAST : Applies the BS power status when it was last turned off.
— CAM CODE	---	--- / NORMAL / CUT	Regional option (USA only)
— SAFETY&H.PWR	---	--- / NORMAL / CUT	Regional option (USA only)
FIBER SINGLE MODE	OFF	OFF / ON	For setting the fiber single mode.

<< CONFIGURATION continued on next page >>

<< CONFIGURATION continued >>

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
ENGINEER SET FILE RENEW			For updating the ENGINEER SET FILE.
— PASSWORD	□□□□		For input of the password.
0123456789			
— FILE SELECT	ENGINEER-1	ENGINEER-1 / ENGINEER-2 / ENGINEER-3	
— DATA RENEW MODE			
— PUSH SET → RENEW			
PASSWORD ENTRY			For setting the password for updating the ENGINEER SET FILE.
— INPUT	□□□□	Inputs the current PASSWORD.	The initial value is 0000.
— RENEW	□□□□	Input a new PASSWORD.	
— CONFIRM	□□□□	Reconfirm the new PASSWORD.	
0123456789			
FIRMWARE UPDATE			For updating the firmware.
— ALL UPDATE	6501Vxx.xx.xx		
— CURRENT VERSION	6501Vxx.xx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
— MAIN SOFT	6501Vxx.xx.xx		
— CURRENT VERSION	6501Vxx.xx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
— HD PROC FPGA1	6482Vxx.xx		
— CURRENT VERSION	6482Vxx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
— HD PROC FPGA2	6483Vxx.xx		
— CURRENT VERSION	6483Vxx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
— PLS/AUX FPGA	6463Vxx.xx		
— CURRENT VERSION	6463Vxx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
— MPU FPGA	6498Vxx.xx		
— CURRENT VERSION	6498Vxx.xx		
— FILE SELECT			
— PUSH SET → CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	

<< CONFIGURATION continued on next page >>

<< CONFIGURATION continued >>

Setting Item	Initial Setting	Setting (Display) Values	Description and Remarks
FILE OPERATION			
└ USB DATA SAVE			For collecting the LOG DATA.
├ LOG DATA	---	---	
└ PUSH SET CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
└ USB DATA LOAD			
├ KEY FILE			For loading the Option KEY.
└ PUSH SET CANCEL	PUSH SET→CANCEL	PUSH SET→CANCEL / PUSH SET→START	
OTHERS			
├ PM TALLY SEL	Y	Y / COMM	For selecting Y TALLY OUT or COMM TALLY OUT.
└ REM OPT ALARM LEVEL	ATTEN	ATTEN / WARNING / NG	For setting the optical level for the optical alarm of the remote panel to light up.

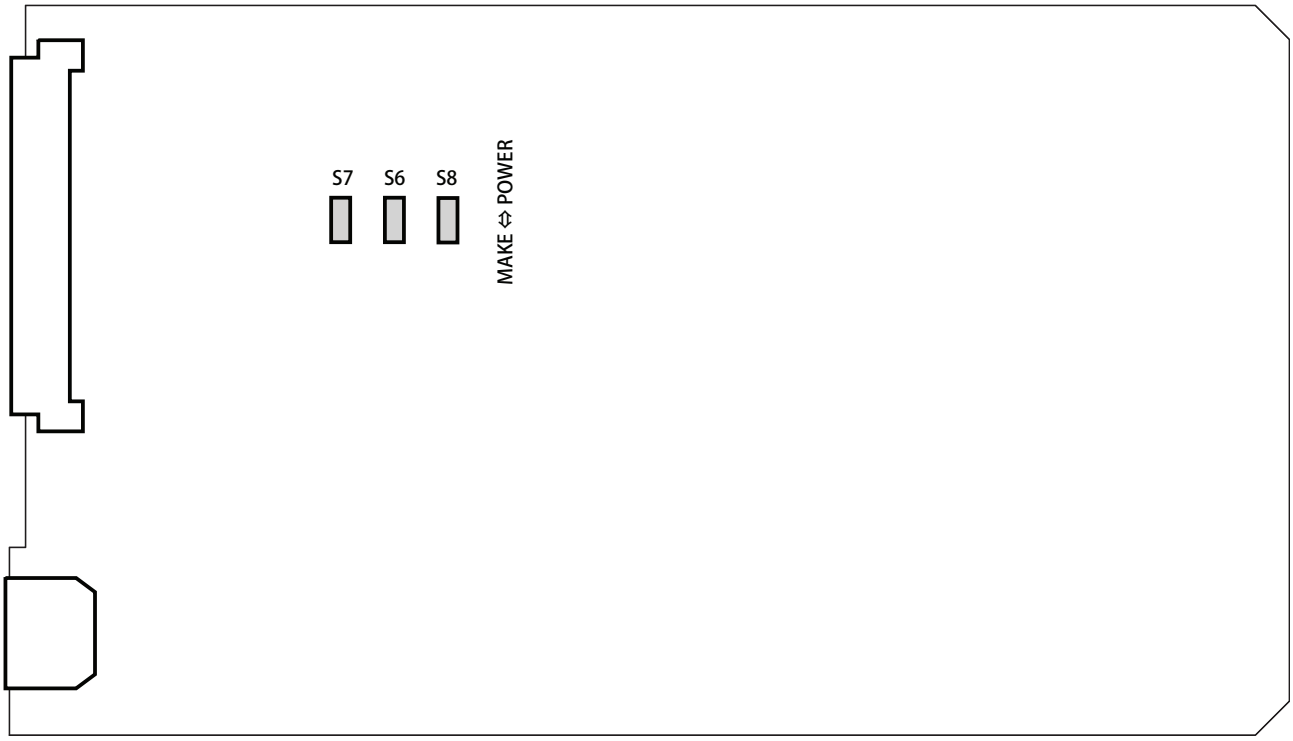
5.3 Settings Using Switches on the Module

It is necessary to set hard switches of the module according to the external system, etc. connected to BS.

TALLY Mode Setting

Set the control mode of the tally signal input to the COMMUNICATION connector on the rear of the BS.

Switching is executed with S6 to S8 of the PLS/AUX module.



PLS/AUX module

Switch No.	Function Name	Setting	Description
S6	R TALLY	POWER	Sets the R TALLY signal input to the CCU/BS to "POWER mode".
		MAKE	Sets the R TALLY signal input to the CCU/BS to "MAKE CONTACT mode".
S7	G TALLY	POWER	Sets the G TALLY signal input to the CCU/BS to "POWER mode".
		MAKE	Sets the G TALLY signal input to the CCU/BS to "MAKE CONTACT mode".
S8	Y TALLY	POWER	Sets Y TALLY signal input to the CCU/BS to "POWER mode".
		MAKE	Sets Y TALLY signal input to the CCU/BS to "MAKE CONTACT mode".

Chapter 6 TROUBLESHOOTING and MAINTENANCE

6.1 Alarm Light on the OCP Flashes

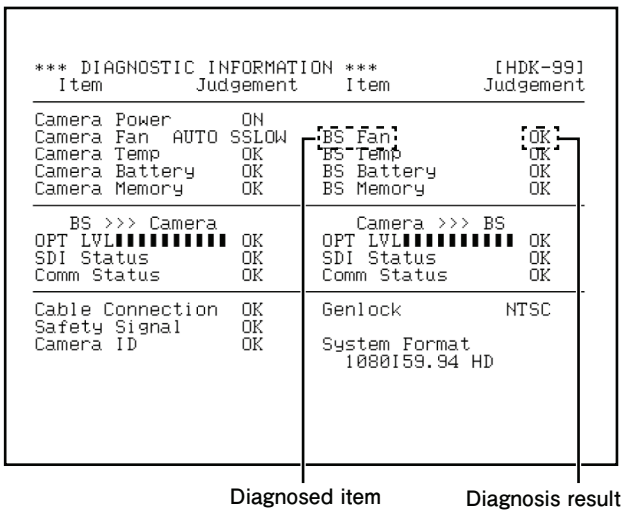
The BS has a self-diagnostic function to monitor if there is any abnormality in the BS and camera.
This function turns on when the power of the device is turned on and keeps working while the device is in operation.
If an error occurs in the BS or camera, the self-diagnostic function immediately detects the error, and the ALARM indicator on the control panel flashes. When this occurs, the self-diagnostic information (diagnostics information) is displayed on the Picture Monitor screen for you to locate the error.

Note:

Even if the ALARM indicator does not flash, you can check the condition of the BS and camera by pressing the PM IND/PAGE switch on the control panel twice to display the self-diagnostics information on the Picture Monitor screen.

■ Self-diagnostic Information of BS

Display screen of the self-diagnosis of BS.



List of Self-diagnostic Information

The following table is a list of the self-diagnostic information for the standard specifications of this product.

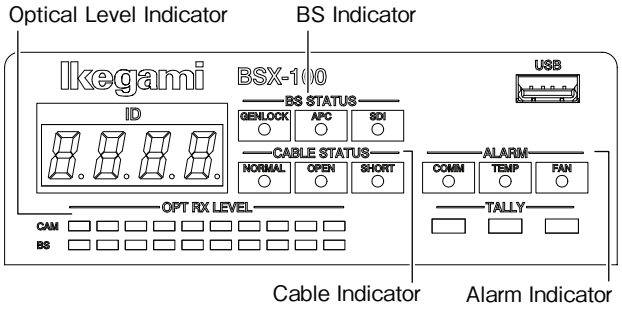
List of Self-diagnostic Information

Diagnosed Item		Description	Diagnosis Result	Meaning
Camera Power		Power status of the camera head	ON	The camera head is powered ON.
			OFF	The camera head is powered OFF.
Camera Fan		Rotating state of the fan of the camera head or FA (Fiber Adaptor)	AUTO SSLOW	Super-slow in auto mode
			AUTO SLOW	Slow in auto mode
			AUTO NOR	Normal in auto mode
			AUTO FAST	Fast in auto mode
			SSLOW	Super-slow in manual mode
			SLOW	Slow in manual mode
			NOR	Normal in manual mode
			FAST	Fast in manual mode
			NG	Fan has stopped.
Camera Temp		Internal temperature of the camera head	OK	Normal
			NG	The temperature is abnormally high or the difference between the internal temperature and outside temperature is at least 25°C.
Camera Battery		Status of the battery in the MPU module of the camera head	OK	Normal
			NG	The backup battery voltage is low.
Camera Memory		Status of the RAM in the MPU module of the camera head	OK	Normal
			NG	Data in the module is damaged.
BS Fan		Rotating state of the fans on the rear and inner of the BS	OK	Normal
			NG	One of the internal cooling fans has stopped.
BS Temp		Internal temperature of the BS	OK	Normal
			NG	The temperature is abnormally high or the difference between the internal temperature and outside-air temperature is at least 25°C.
BS Battery		Status of the battery in the BS MPU module	OK	Normal
			NG	The backup battery voltage is low.
BS Memory		Status of the RAM in the BS MPU module	OK	Normal
			NG	Data in the module is damaged.
BS >>> Camera (BS to Camera Transmission)	OPT Level	Optical signal level sent from the BS to the camera head (Detect the optical reception level at the camera head side and display the status).	OK	Good
			ATTEN	The amount of light received has decreased.
			WARN	The amount of light received has significantly decreased.
			NG	Light cannot be received.
	SDI Status	Status of SDI signal	OK	The format is normal and there is no CRC error.
			NG	The format is abnormal or there is a CRC error.
	Comm Status	Status of the command signal sent from the BS to the camera head	OK	Normal
			NG	Command signals are not sent, or a CPU error has occurred.
Head >>> BS (Head to BS transmission)	OPT Level	Optical signal level sent from the camera head to the BS (Detect the optical reception level at the BS side and display the status).	OK	Good
			ATTEN	The amount of light received has decreased.
			WARN	The amount of light received has significantly decreased.
			NG	Light cannot be received.
	SDI Status	Status of SDI signal	OK	The format is normal and there is no CRC error.
			NG	The format is abnormal or there is a CRC error.
	Comm Status	Status of the command signal sent from the camera head to the BS	OK	Normal
			NG	No command signals are sent, or a CPU error occurs.
Cable Connection		Optical composite cable connection status between the camera head and the BS	OK	Normal
			OPEN	Cable is not connected, or is broken.
			SHORT	A short circuit has occurred in the cable.
Safety Signal		Status of the safety signal sent from the camera head to the BS	OK	Normal
			NG	Safety signal is not received, or the connected camera head is not supported by this BS.
Head ID		Status of the model identification signal sent from the camera head to the BS	OK	Normal
			NG	Model identification signal is not received, or the connected camera head is not supported by this BS.

Diagnosed Item	Description	Diagnosis Result	Meaning
Genlock	Status of external SYNC signal	INT	No input of external SYNC signals (operates with internal SYNC signals) Internal mode
		NTSC	When external SYNC signal is NTSC
		NTSC 10f	When external SYNC signal is NTSC +10 FIELD ID
		1080I59	When external SYNC signal is 1080I59.94
		1080P23	When external SYNC signal is 1080P23.98
		1080P23SF	When external SYNC signal is 1080P23.98SF
		1080P29	When external SYNC signal is 1080P29.97
		720P59	When external SYNC signal is 720P59.94
		PAL	When external SYNC signal is PAL
		1080I50	When external SYNC signal is 1080I50
		720P50	When external SYNC signal is 720P50
		UNKNOWN	External SYNC signals are input, but synchronization is not performed.
10 Field Lock	When the output format is "1080P23. PD", "1080P23.SF" or "1080P23"., output phase is locked (or not locked) to the first frame of “1080P23” or "1080P23 .PD" of the external SYNC.	LOCK	Locked to external SYNC signal.
		UNLOCK	Not locked to external SYNC signal.
System Format	Displays the FORMAT set in SYSTEM FORMAT.	1080I59	1080I/59.94 Y Pb Pr 4:2:2
		1080P23PD	1080P/23.98 2-3 pulldown Y Pb Pr 4:2:2
		1080P29SF	1080P/29.97 Segment frame Y Pb Pr 4:2:2
		720P59	720P/59.94 Y Pb Pr 4:2:2
		1080P59 3G	1080P/59.94 Y Pb Pr 4:2:2
		1080I59 3G	1080I/59.94 G B R 4:4:4
		1080P23PD 3G	1080P/23.98 2-3 pulldown G B R 4:4:4
		1080P29SF 3G	1080P/29.97 Segment frame G B R 4:4:4
		1080I119 3G	1080I/119.88 Y Pb Pr 4:2:2
		720P119 3G	720/P119.88 Y Pb Pr 4:2:2
		1080I50	1080I/50 Y Pb Pr 4:2:2
		1080P25SF	1080P/25 Segment frame Y Pb Pr 4:2:2
		720P50	720P/50 Y Pb Pr 4:2:2
		1080P50 3G	1080P/50 Y Pb Pr 4:2:2
		1080I50 3G	1080I/50 G B R 4:4:4
		1080P25SF 3G	1080P/25 Segment frame G B R 4:4:4
		1080I100 3G	1080I/100 Y Pb Pr 4:2:2
		720P100 3G	720/P100 Y Pb Pr 4:2:2

6.2 Indicator on the Front of BS Lights up

The LED indicator on the front lights up when there is an error on the BS. The cause varies depending on the indicator that is illuminated. Take the following actions accordingly.



■ When the Optical Level (OPTICAL RX LEVEL) indicator lights up in yellow or red

"CAM" displays the reception status of the camera, and "BS" displays the reception status of the BS.

Cause	Action
The optical connector is dirty. The light status of the OPTICAL RX LEVEL indicator changes.	Clean the optical connector on the equipment or at the cable end.

■ When the (CABLE) OPEN indicator lights up

Cause	Action
The OPEN indicator (cable status indicator) lights up when the optical composite cable is not connected or is broken.	Check whether the optical composite cable is properly connected or if it is broken. If it is broken, replace the optical composite cable with a new one.

■ When the (CABLE) SHORT indicator lights up

Cause	Action
The SHORT indicator (cable status indicator) lights up when the optical composite cable is damaged, or when a short circuit has occurred in the optical connector due to water droplets or other reasons.	Check whether the optical composite cable is damaged or whether the connector joint is wet due to water droplets, etc. If it is wet, dry it followed by cleaning the optical connector.

■ When the FAN ALARM indicator lights up

Cause	Action
The indicator lights up when the cooling fan of BS has stopped.	Check the fan for any abnormality. If there is any abnormality in the fan or if the fan has reached the end of its service life, replace it with a new one .*

■ When the TEMP ALARM indicator lights up

Cause	Action
The indicator lights up when the internal temperature of the BS is abnormally high . If you continue to operate the BS while the warning is active and the internal temperature increases further as a result, a buzzer sound will be output as a warning.	When this indicator lights up, check that the ventilation hole on the front panel and the exhaust hole on the rear panel are not blocked or clogged with dust . Also, avoid using it at a place that is exposed to direct sunlight.

■ When the COMM ALARM indicator lights up

Cause	Action
The indicator lights up when command communication is not functioning properly.	Check the connection between the CAMERA and BS.

CAUTION:

*1: Ignoring the FAN ALARM and TEMP ALARM warnings and continuing to operate the BS may cause serious failures, including power shutdown and module damage of the equipment due to overheating. Stop operation of the BS immediately.
Details of the status of each cooling fan and the module temperature are displayed on the DIAGNOSIS page of the BS MENU.

6.3 Initializing the Settings of This Product

The BS can be initialized by operating the MENU to select FACTORY / ENGINEER(1-3) on the PRESET FILE LOAD screen. Refer to Section 5.2 "PRESET FILE LOAD" for details.

Setting Value		Description
FILE SELECT	ENGINEER (default)	Resets the state to the user settings.
	FACTORY	Resets the state to the initial factory settings.
LOAD START	READY (default)	The state before initialization
	START	Starts initialization.
	CANCEL	Cancels initialization.

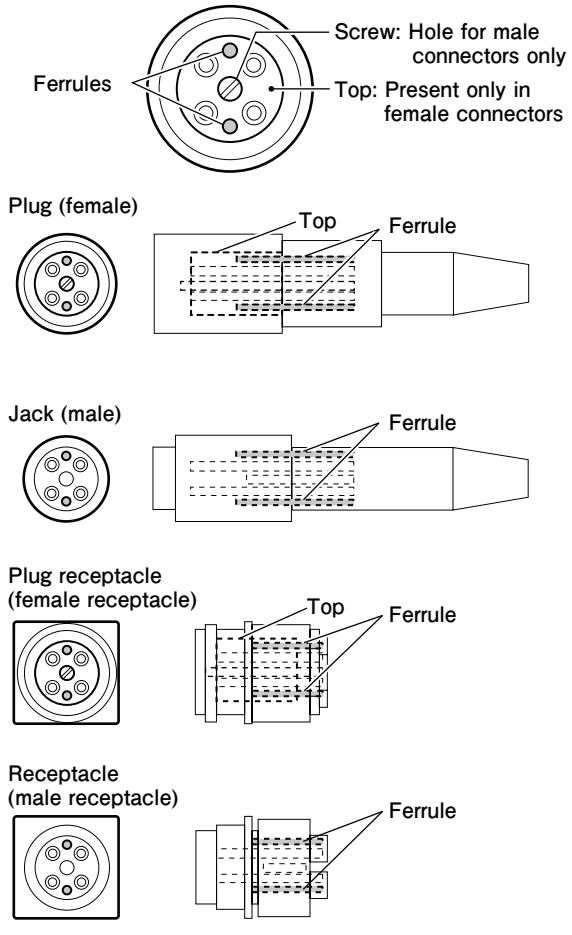
6.4 Cleaning the Camera Connectors

■ Cleaning Optical Connectors

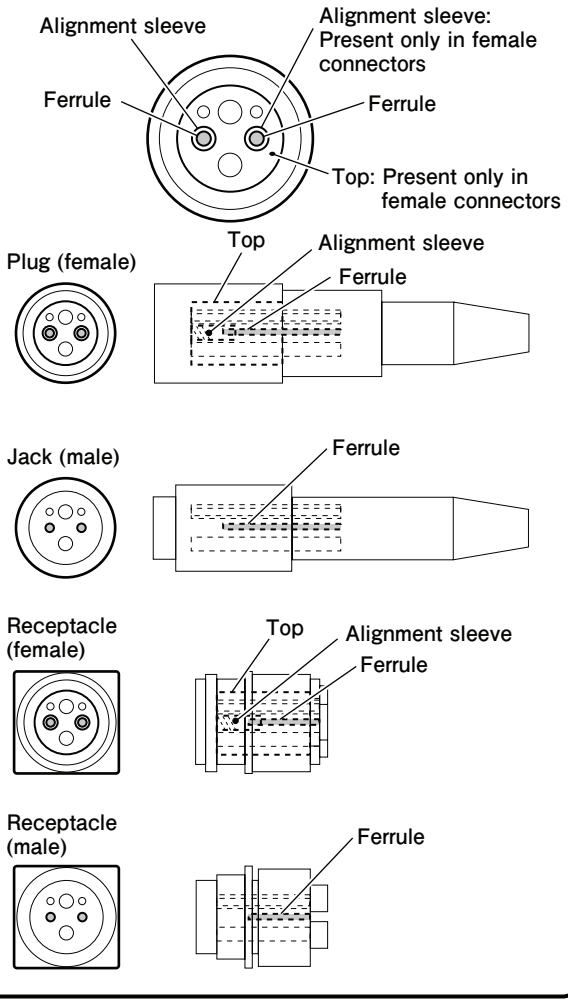
The optical composite cable connecting the camera and BS transmits optical signals through 10µm core glass fibers.
If the ferrules for securing the glass fiber, are dirty or have dust attached to them, transmission loss (optical signal attenuation) occurs. If they are extremely dirty, optical signals are interrupted and the camera cable may not work properly.
Clean the ferrules regularly if the CAMERA connector is frequently removed and inserted.
The following shows the shape of the CAMERA connector joint, location of the ferrules, and how to clean the ferrules.

●*Camera Connector Joint*

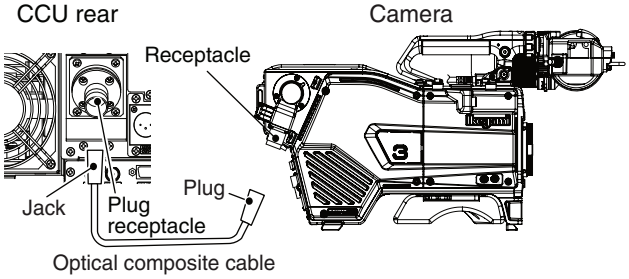
OPS Series



3K Series



●*Plug/Jack for Camera Connectors*



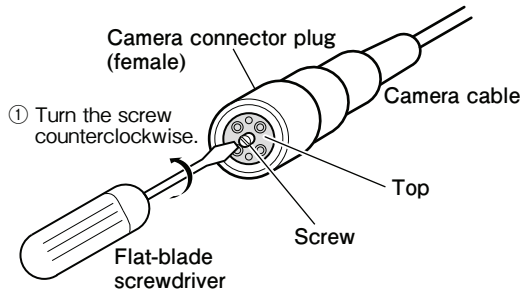
Clean the four sections: receptacle on the camera head, plug receptacle on the BS, and plug/jack on both ends of the optical composite cable. The cleaning method for male connectors differs from that for female connectors.

■ OPS Series Connectors

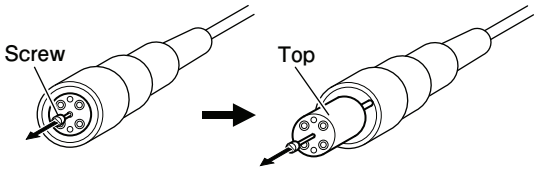
The following explains how to clean ferrules using a Tajimi OPS series optical composite cable plug (female) as an example.

1 Loosen the screw at the center of the connector.

Turn the screw counterclockwise 9 or 10 turns to unfasten it.
However, the screw is designed in such a way that it is attached to the top and cannot be removed.

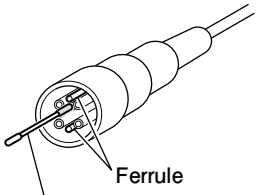


2 Pull the screw and draw out the top from the connector.

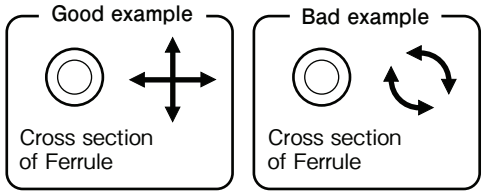


② Pull the screw to draw out the top from the connector.

3 Wipe the ferrule with a cotton swab that is dampened with alcohol.



③ Wipe with a cotton swab dampened with alcohol.



CAUTION:

- When wiping the ferrule, move the cotton swab in a straight line to brush the dust off the ferrule.
  Do not wipe by moving the swab back and forth or in a circle.
  Doing so may spread the dirt instead of removing it.
- Do not blow your breath on the ferrule unnecessarily.

4 Wipe the ferrule with a dry cotton swab after wiping it with alcohol.

5 Make sure that the dirt is removed, align the top with the connector guide and place it back in the connector.

Use a magnifying glass to examine the ferrule.
Be sure to push the top such that it fits securely into the connector.

6 Tighten the screw.

* Male connectors do not have a "top", and thus steps 1, 2, and 6 above are not required.

■ 3K Series Connectors

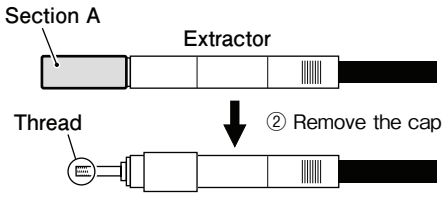
The following explains how to clean ferrules using a Lemo 3K series optical composite cable plug (female) as an example.

CAUTION:

When removing the alignment sleeve, be sure to use a dedicated optical contact extractor (DCC.91.312.5LA). Also, use an extractor that has an thread on the inner side.

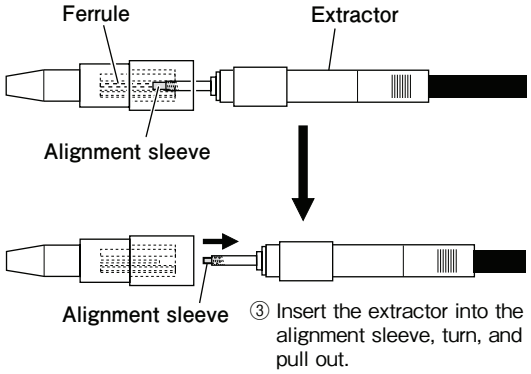
1 **Prepare a dedicated extractor, and place it in a position parallel to the connector.**

2 **Remove the cap of Section A (with a thread).**

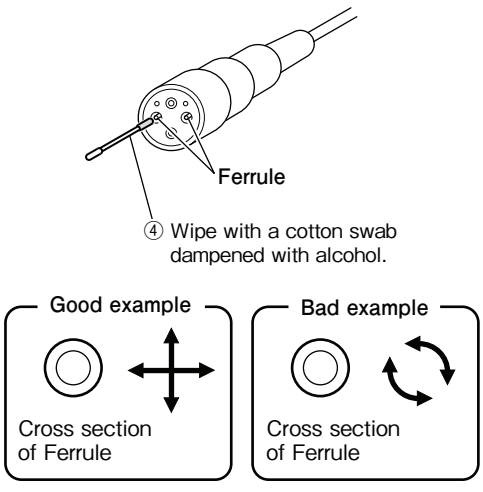


3 **Insert the extractor into the alignment sleeve, and turn the extractor clockwise 8 to 10 turns until it stops. When it stops, pull the extractor out straight.**

Leave the alignment sleeve attached to the extractor.



4 **Wipe the ferrule with a cotton swab dampened with alcohol.**



CAUTION:

- When wiping the ferrule, move the cotton swab in a straight line to brush the dust off the Ferule.
  Do not wipe by moving the swab back and forth or in a circle.
  Doing so may spread the dirt instead of removing it.
- Do not blow your breath on the ferrule unnecessarily.

5 **Wipe the ferrule with a dry cotton swab after wiping it with alcohol.**

6 **Make sure that the dirt is removed.**

Use a magnifying glass to examine the ferrule.

7 **Wipe the electrical contacts and alignment sleeve in the same way.**

8 **Insert the alignment sleeve into the optical contact until a "click" sound is heard, and turn the extractor counterclockwise 8 to 10 turns.**

The extractor is naturally removed from the alignment sleeve.

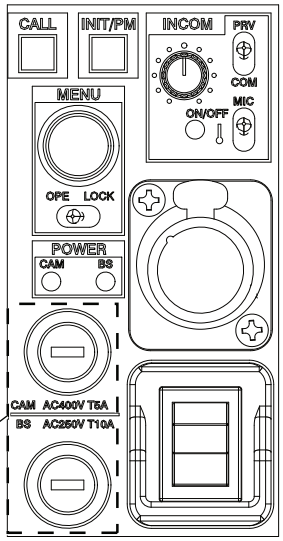
* Male connectors do not have a "top", and thus steps 1 to 3, and 8 above are not required.

6.5 Fuse Replacement

The fuse may be broken if the power cannot be turned on even when AC power is properly supplied to this product and connections with peripheral equipment are properly established, or if there is intermittent interruption in power transmission. If the fuse is blown, replace it by following the procedure below.

1 **Make sure the MAIN POWER switch on the front side of the BS is "OFF".**

2 **Push the fuse on the front side of the BS with a tool such as a flat-blade screwdriver, and turn it counterclockwise to remove the fuse.**



Upper : For Camera Head Power Transmission
Lower : For BS AC Power Input

3 **Insert a new fuse into the fuse cap, push it with a tool such as a flat-blade screwdriver, and turn it clockwise to install the fuse.**

CAUTION:

Use the designated or an equivalent fuse.
Fuse to be used:
- Fuse for camera head power transmission (Upper)
  (Rating) AC 400V T5A
- Fuse for BS AC power input (Lower)
  (Rating) AC 250V T10A

("T" in the rating indicates a time lag fuse.)

Chapter 7 SPECIFICATIONS

7.1 Product Specifications

■ Rating

Power supply	Source voltage	AC100 to 240V ±10%
	Power consumption	BSX-100 unit 90VA
Ambient condition	Temperature range	Operating temperature: 0°C to +40°C Storage temperature: -30°C to +60°C
	Operating humidity range	30% - 90% (no condensation)
	Electrical environment	Normal living area (excluding strong electric field, strong magnetic field, etc.)
External dimensions		W216 x H123.6 x D407.2 (excluding protrusions)
Mass		Approx. 8kg
Applicable standard	EMC standards	FCC15 Subpart B Class A / EN55032, EN55035
	Safety standard	EN62368-1
	Quality control	ISO 9001 (JIS 9901)
	Security trade control	Not applicable to this product

■ Input/Output Ports

Input / Output	Port	Signal	
Video output	OUT-1 (Main line)	3G/HD-SDI x4	Compliant with SMPTE 425M / SMPTE 372M / SMPTE292M
	OUT-2 (Main line HD-TRUNK)	3G/HD-SDI x3	
	OUT-3 (PM)	3G/HD-SDI x1	
	SDI OUT optional (Main line)	12G/3G/HD-SDI x4	Compliant with SMPTE ST2082 / SMPTE 425M / SMPTE 372M / SMPTE292M
	MoIP optional	10G/25G SFP (3G/HD) x1	Compliant with SMPTE ST 2110
Video input	RETURN	3G/HD-SDI x4 or 2ch Active-Through	
	HD QTV	HD-SDI x1	
	MoIP optional (RET, QTV)	10G/25G SFP (3G/HD) x2	
Reference input	REF	Tri Level Sync/BB x2 Loop-Through	
SYNC/AES output	SYNC/AES	Tri Level Sync x1 or Digital Audio OUT (AES / EBU) x1	

■ Supported Video Formats

Video Output		
1080p	(59.94 / 50Hz)	YPbPr 4:2:2
1080p	(59.94 / 50Hz)	YPbPr 4:2:2 RGB 4:4:4
720p	(59.94 / 50Hz)	YPbPr 4:2:2

Video Output (Optional)		
1080i	(119.88 / 100Hz)	YPbPr 4:2:2
1080p	(29.97 / 25Hz)	YPbPr 4:2:2 / RGB 4:4:4 YPbPr 4:2:2 / RGB 4:4:4 (sF)
1080p	(23.98Hz)	YPbPr 4:2:2 / RGB 4:4:4 YPbPr 4:2:2 / RGB 4:4:4 (sF) YPbPr 4:2:2 / RGB 4:4:4 2-3pull down
2160p	(59.94 / 50Hz)	YPbPr 4:2:2
2160p	(29.97 / 25Hz)	YPbPr 4:2:2

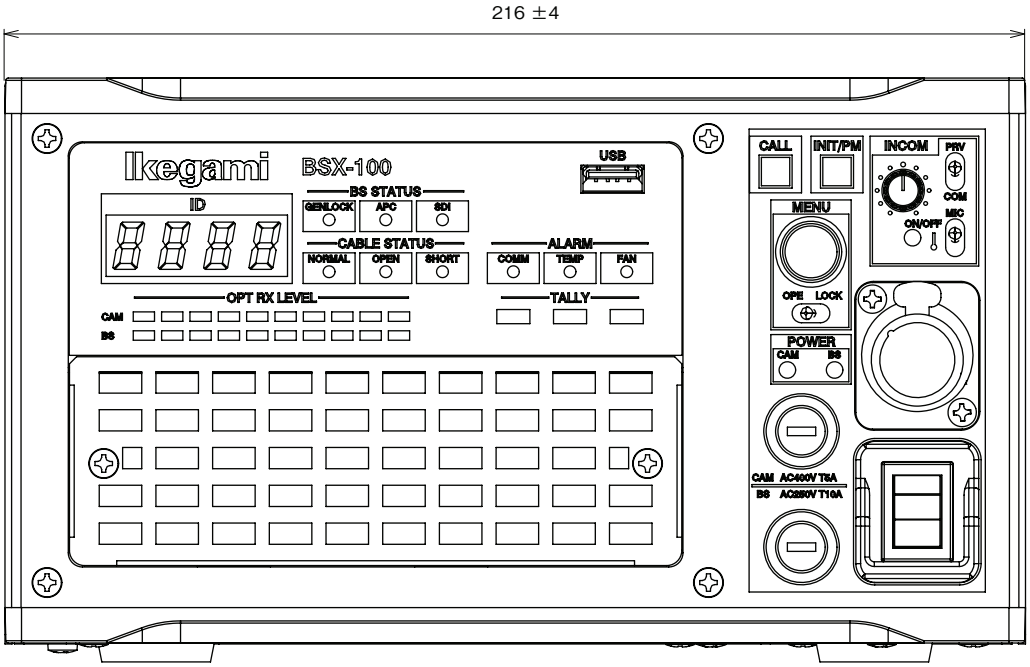
* The camera head needs to support the applicable format.
* The 2160p format is supported when the 4K up-converter option is enabled.

Video Input		
1080p	(59.94 / 50Hz)	YPbPr 4:2:2
1080i	(59.94 / 50Hz)	YPbPr 4:2:2
720p	(59.94 / 50Hz)	YPbPr 4:2:2

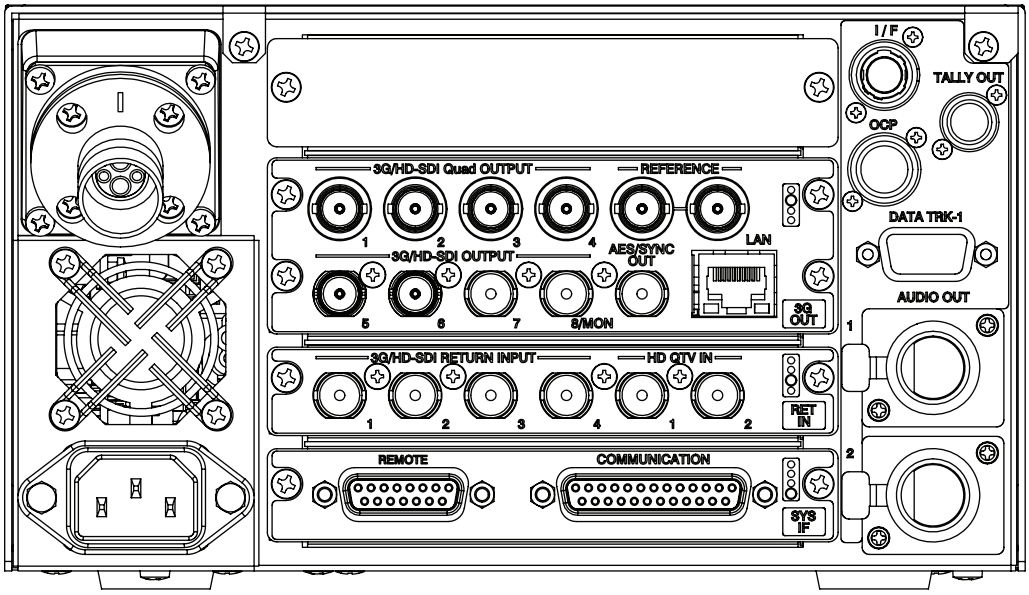
Video Input (Optional)		
1080p	(29.97 / 25Hz)	YPbPr 4:2:2 / RGB 4:4:4

■ External Dimensions Diagram

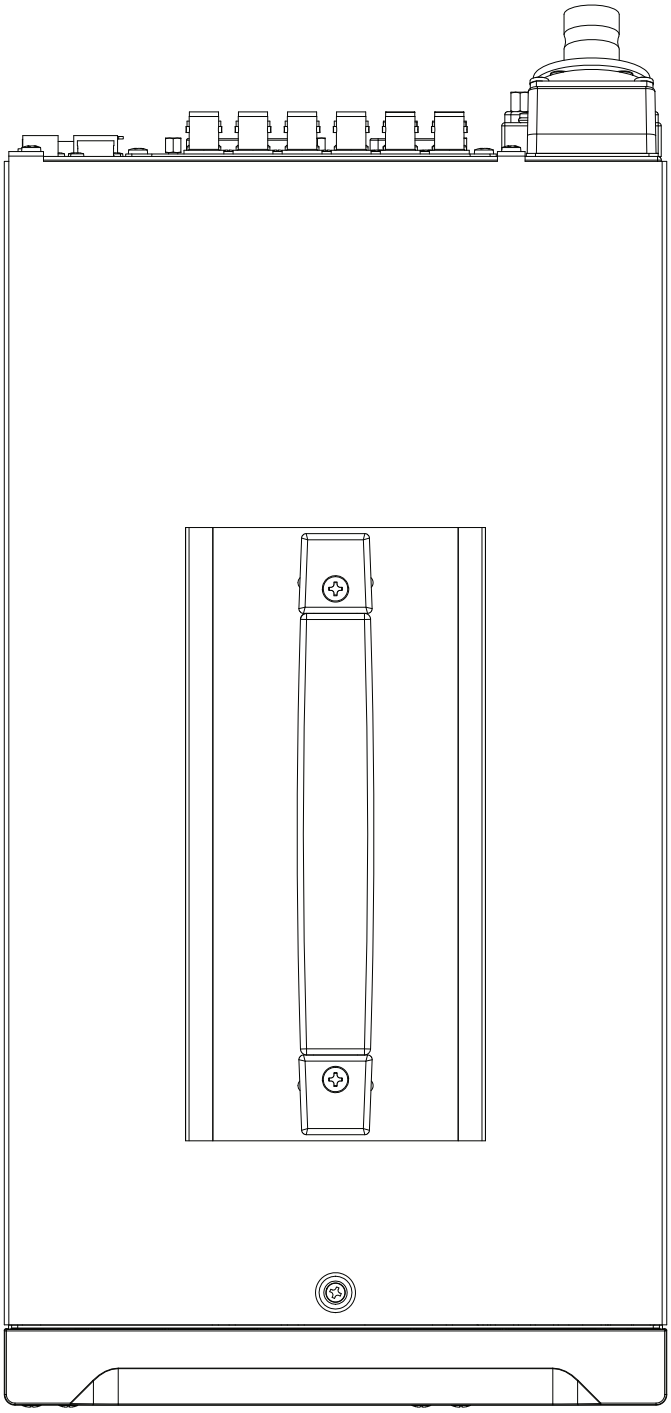
- Front view



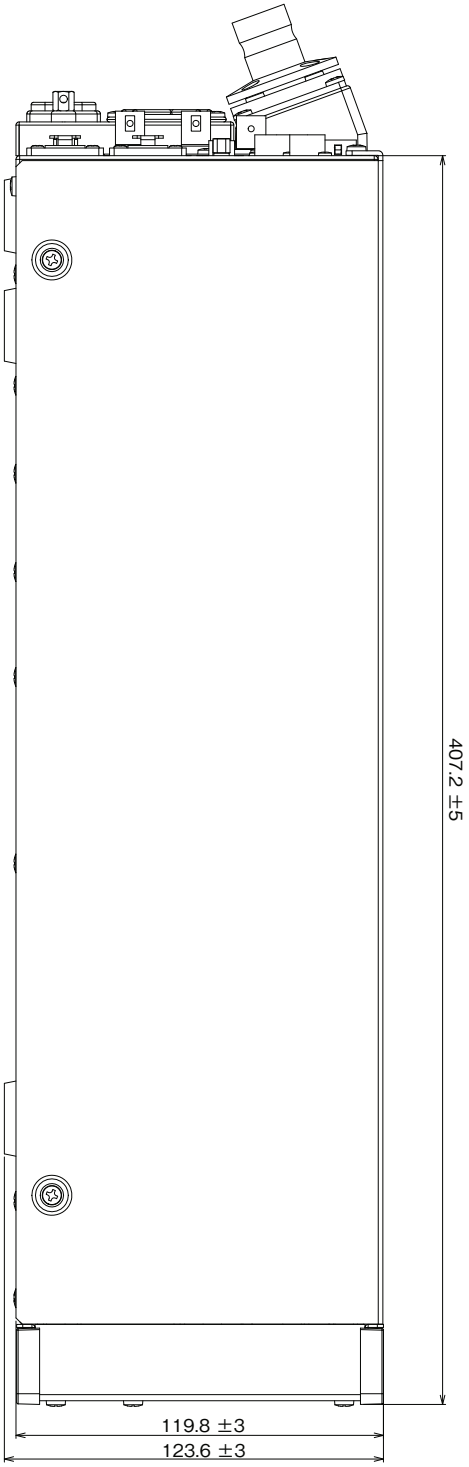
- Rear view



- Top view



- Side view



CHANGING INFORMATION

This chapter contains revision information on user-specific specifications or design changes requested by the user.
Read through this chapter while referring to the main text of the maintenance manual

BSX-100

Base Station

OPERATION MANUAL

1st Edition : Desember 2020

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