CE

Products conforming to RoHS directive

HDL-4500

3CMOS Super High Sensitive HDTV camera

Operation Manual

Ikegami

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Operation Manual

1406 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.

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PRODUCTS CONFORMING TO RoHS DIRECTIVE

Following products described in this manual are products conforming to RoHS directive.

・HDL-4500 HDTV Camera

Products conforming to RoHS directive include products that do not contain specified hazardous substances such as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) in electrical and electronic equipment excluding following exemption applications based on the EU directive.

* About RoHS Directive

The RoHS directive stands for "the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment" and is one of environmental directives in Europe. This directive restricts the use of specified hazardous substances in electrical and electronic equipment.

● Applications exempted from RoHS directive compliance

Followings applications are permitted as exemptions from RoHS directive compliance.

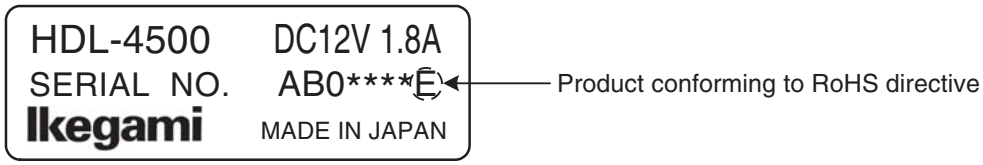
1. Mercury in compact fluorescent lamps not exceeding 5mg per lamp
2. Mercury in straight fluorescent lamps for general purposes not exceeding:
   - ・halophosphate 10mg
   - ・triphosphate with a normal lifetime 5mg
   - ・triphosphate with a long lifetime 8mg
3. Mercury in straight fluorescent lamps for special purposes
4. Mercury in other lamps not specifically mentioned in this Annex
5. Lead in the glass of cathode ray tubes, electronic components and fluorescent tubes
6. Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight
7. Lead in following items
   - ・Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85% lead)
   - ・Lead in solders for servers, storage and storage array systems
   - ・Lead in solders for network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunication
   - ・Lead in electronic ceramic parts (e.g. piezoelectronic devices)
8. Cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations
9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators
10. Lead used in compliant pin connector systems
11. Lead as a coating material for the thermal conduction module C-ring
12. Lead and cadmium in optical and filter glass
13. Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight
14. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages
15. Decabrominated diphenyl ether (Deca-BDE) in polymeric applications

MAINTENANCE OF PRODUCTS CONFORMING TO RoHS DIRECTIVE

Work with care about followings for maintenance of products conforming to RoHS directive.

1. Identification

For products conforming to RoHS directive, the letter “E” is appended at the end of the serial number on the label. For models that the letter cannot be appended to the serial number, the letter “E” will be described in a distinguishable position on the label. A description example on a main label is shown below.



Label

・Print-circuit board of the products conforming to RoHS directive is manufactured by following methods.
[1] Blue resist ink is used for the print-circuit board. (The color of conventional print-circuit board is green.)
[2] Either one of the following marks is indicated by a serigraph or label.

Phase 3A

Phase 3

2. Soldering

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

・Recommended solder composition is “Sn/3.0Ag/0.5Cu” or equivalent.
・Separate the soldering iron exclusively for RoHS products and the soldering iron for conventional use.
・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.
・Finish by a lead-free solder looks dull or whitish compared to conventional solder with lead.
・If the customer mixed the lead-solder with the main body wiring or the circuit board, it becomes guarantee off the subject. Ikegami doesn’t guarantee to do the repair work. Because the solder polluted with lead cannot be removed.

3. Parts

Be sure to use parts conforming to RoHS directive.

INFORMATION TO THE USER

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.

The CE mark means

The CE mark means that the following products will meet the Directives 2004/108/EC and standards EN55022, EN55024.
・HDL-4500 : HDTV CAMERA

Use shielded cable except AC cable.
This equipment is not intended for use in residential areas, so that use in residential areas may cause interference.

NOTES ON USING IN SAFETY

The followings are for your safe use of this product. Please peruse them before you start using.

1. Notes on this manual

(1) This manual is written assuming that readers have a basic knowledge of cameras, so the technical terms are not described here.

(2) The contents of this manual are subject to change without notice in the future.

2. Hazard alert symbols and signal words concerning safety in this manual

The hazard alert symbols, signal words which indicate the degree of danger, notice and reference are used as follows concerning your safety.

HAZARD ALERT SYMBOL : 

SIGNAL WORDS : **DANGER WARNING CAUTION**

However, some of the above symbols and others are not used and described in cases.
Please pay attention to the follows in this manual.

⚠CAUTION : Indicates a potentially hazardous situation which, if mis-operated, will result in injury to user or property damages.

Notice : For readers notice.

Reference : Indicating reference items described elsewhere.

3. Attention on handling of the equipment

This product is designed safely, however, all electric products can cause electric shock or can be damaged if mis-operated or misused.
So, please keep the following messages in mind while you operate the equipment.

(1) Do not remove the cover and disassemble the equipment if possible, because it could result in damage and electric shock.

(2) Be sure to turn off the power after operation.
If the power is not turned off, trouble or accident may be caused when AC pack is used.

(3) Do not give a strong vibration or shock. It can cause equipment damage.

(4) Do not hold or lift the Camera by the viewfinder.

(5) While installing the lens, and other accessories to Camera, put the Camera on a desk or tripod, otherwise it will be difficult to handle and may drop on the ground.

(6) Avoid using or storing the equipment in the following places.
While using or storing it under the following environment, the parts in the equipment would be damaged.
- Extremely high/low temperature
- In direct sunlight for a long time, or near a heater
- High humidity or dusty
- Exposed to water or other liquid
- Strong vibration or shock
- Strong magnetic field or radio waves
- Lightning
- In rain without the rain cover

(7) Do not spread or spill water or other liquid on the equipment.

(8) Avoid moving the equipment from extreme cold place to warm.
It may cause dew condensation in CCD section.

(9) Be sure to hold the plug and pull when you disconnect the cable.
Failure to do so may cause a fire or electric shock due to a broken cable.

(10) Regarding the Lithium Battery

・Please do not perform exchange of the lithium battery inside a camera by the user side.

・Burst or leak of the battery may cause a fire or injury.

And also, when exchanging or discarding it, please contact our field office.

(11) Wipe Camera dust by using a dry, soft cloth.

If the camera is very dirty, soak the cloth in water or neutral cleaner and twist dry the cloth. Wipe the dirty camera it.

In case neutral cleaner is used, wipe the camera again by water-dampened cloth.

Be sure to turn the power off and not to put water into the camera while wiping it.

4. Environmental Cautions

(1) When continuously operating the product in a rainy, cold or hot conditions, use a rain cover, cold-weather cover, and shade cover respectively.

(2) Avoid storing the product in a dusty place for a long time. If unavoidable, use a dustproof cover.

(3) When shooting in places such as airports, military bases or transmitting stations where magnetic and radio fields are excessively strong, completely shield the camera by covering it with aluminum foil.

5. Notice for Use

(1) When carrying or storing the product, always use a carrying case.

(2) Before shooting important subjects, take test shots to obtain the desired effect.

(3) After using the product, always turn off the power.

6. Regular maintenance is recommended

This product includes parts that wear out and have a limited life even in proper use or storage. Therefore, regular maintenance is recommended to extend the life and safe use of this product for a long time. Please contact Ikegami's sales and service centers for the regular maintenance and repair of our products.

HOW TO USE OPERATION MANUAL

This operation manual is intended to describe how to operate the HDL-4500 3CMOS Super High Sensitive HDTV camera (mentioned as HD Camera hereafter).
This operation manual is written for people who have some basic knowledge and understanding of a television camera, so explanation of technical terms is omitted herein.
The operation manual consists of 1 to 7 chapters. Related materials are included in the same chapter as much as possible for convenience. Each chapter is arranged in the order of actual operating procedures. While reading it in sequence, you can smoothly perform a series of steps, from connection to operation in a proper manner.
If you are not familiar with HD Camera, please start with “Chapter 1. OUTLINE”.
If you have some experience in operation, read the relevant pages which you don't know.
It should be noted this manual is written for the standard specification of the camera.
So, custom specifications requested by the customer are addressed in “Chapter 7. CHANGING INFORMATION”.
Because information that has been changed is described in this chapter, you should check this chapter along with the relative descriptions in the manual, though it may be inconvenient (“Chapter 7. CHANGING INFORMATION” may be sent to you later on).

[Structure of Operation Manual]

1. OUTLINE	Briefly introduces the Camera.
2. FEATURES	Describes the features of the Camera.
3. NAME and FUNCTION of EACH PART	Explains the name and function of each part of the Camera.
4. INSTALLATION and CONNECTIONS	Explains how to mount and connect peripheral equipment for the Camera.
5. OPERATION	Explains the function and operation of the Camera.
6. SPECIFICATIONS	Lists the specifications and external appearance of the Camera.
7. CHANGING INFORMATION	Explains revision contents in case of design revision and at request of customers. Read by comparing with the main part of the operation manual.

[Illustrations and Displays]

The illustrations and displays in the text are provided for explanation and may be slightly different from the actual equipment or image.

HDL-4500

OPERATION MANUAL

(TABLE OF CONTENTS)

1. OUTLINE

The HDL-4500 is a 3CMOS ultrasensitive HDTV camera that employs Ikegami's leading-edge camera technology and front line digital technology to realize the highest sensitivity and picture quality.
A high-speed multi-sampling type ultrasensitive 1.3 Mega pixel CMOS sensor makes it possible to obtain sufficient sensitivity without lighting, even when shooting by moonlight at night. And the inclusion of a digital process LSI (ASIC) on the same level as studio HDTV cameras for broadcasting makes resolution and color reproduction equal to that of broadcast studio cameras in daylight or with lighting.
Because the camera head is a one-piece compact, enabling HD SDI output, a wide variety of uses are possible, ranging from broadcast use (weather cameras, etc.), surveillance cameras use(national boarders,etc), or industrial use (medical and PC inputs, etc).

2. FEATURES

2-1 1.3 Mega pixel 3CMOS Camera

By using high-speed multi-sampling type ultrasensitive 1.3 Mega pixel 2/3 inch CMOS sensors with the three types of R,G,B, prism it is possible to achieve color moving images of 59.54 or 50 fields even at night with just moonlight. This is different from a cumulative type sensitivity increase and makes it possible to photograph even fast-moving objects without blurring.

2-2 Broadcast frame rate of 59.95 fps

The broadcast frame rate of the CMOS sensors is 59.94 fps or 50 fps. With the operating format of 1080/59.54i or 1080/50i there is less distortion caused by rolling shutter compared to when photographing with 30 fps, thus realizing natural and smooth moving images.

2-3 Dual Format

The image output can be switched between 1080/59.94i and 1080/50i. This makes it compatible with HDTV formats becoming widespread not only in Japan and USA but also in Europe, China, India and Latin America.

2-4 Operates with 2/3 inch format serial digital interface lens

The lens mount conforms to BTA S-1005B, making it possible to use the wide variety of HDTV lenses and SDTV lenses on the market. And by combining it with the lenses supporting serial digital interface, remote control Zoom/Focus is possible from an OCP-200 control panel and other devices.

2-5 Internal filter servo

Includes internal 4-position ND filter wheel. When shooting outdoor pictures by daylight, inserting the appropriate ND filter makes it possible to keep the iris at a good setting (not excessively closed), and thus obtain high resolution. It's also possible with the various control panels to change the filter position by remote control. What's more, during AVC (Auto Video level Control) it is possible to automatically change the filter position according to the brightness of the subject.

2-6 Full Digital

■ 16 bit digital output CMOS sensor

The 16 bit digital image signal is output directly from the CMOS sensor to the camera DSP. Because absolutely no analog circuits are included in the image processing system, it's possible to obtain highly consistent and stable image.

■ Includes digital process LSI (ASIC)

Features a digital process LSI (ASIC) with an internal process (operation) of max. 38 bits, which is the same as that for Ikegami's broadcast-use studio HDTV camera. Even non-linear processing, such as white shading correction or gamma correction, are digitalized in the camera head to realize consistently high image quality and reliability.

■ Super KNEE

KNEE processing is carried out without changing the color phase of the highlight sections, thus reducing washed-out colors and realizing natural highlight expression.

■ 6-axis color corrector + custom color effects

Features color corrector function allowing adjustment of color phase and saturation individually for the six primary colors R, G, B, cyan, yellow and magenta. Also features a color corrector function to correct any 2 arbitrary colors of the photographic subject.

■ Scene Files

It is possible to store 8 files of memory the various settings for image levels, filters and gain set beforehand on the operation control panel. It is then possible to recall these by pressing a single button on the control panel.

■ Engineer Setup File, Factory Setup File

It is possible to return the menu contents and all image levels and settings adjusted on the operational control panel to the default values determined by the technical department of the user (Engineer Setup). It is also possible to return all settings to the default values set at the time of shipment from this factory (Factory Setup File). This simplifies matters if the production team changes the camera setup or in case of maintenance when lending equipment out from a rental company. It is possible to return to either the values of the Engineer Setup File or the Factory Setup File.

2-7 HD-SDI Output

There is dual output of HD-SDI from the camera head. The systems can independently turn the menu characters ON/OFF for each output. If the output used for the program line is set to character OFF and the output used for monitoring is set to ON, it is possible to operate the menu even when the camera is in operation.

2-8 Operation with viewfinder on the shoulder

If the optional VF attachment is mounted, it is possible to attach a 2-inch color viewfinder and use as a portable camera on the shoulder.

The viewfinder displays the menu, camera photography information and the VF marker.

Camera photography information : GAIN. ND/ECC filter position, AWB channel, SHUTTER speed, EXTENDER, IRIS,

VF Markers: Frame marker, safety area marker, center marker, zebra indicator

2-9 SIGNAL Color Bar

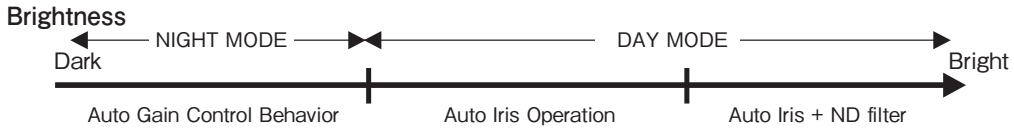
Includes broadcast-use HDTV color bar (ARIB STD-B28) signal emitter as established by ARIB (Association of Radio Industries and Businesses). Ideal for setting the various image levels before photographing and after recording.

2-10 BBS (Black Burst Sync) External Synchronization

In addition to using HD tri-sync, external synchronization is possible with SDTV VBS and BBS.

2-11 AVC (Auto Video Level Control)

This is a function for the combined use of auto-iris, auto-gain-control and filter servo to carry out automatic control to constantly maintain the appropriate image level. If the iris goes to the close side during auto-iris operation, the ND filter is used to lower the light. If it is on the open side, the ND filter is eliminated to increase the intrusive light. If the iris is open with all ND filters removed, auto-gain control is started.



When used with a remote control camera stand, unmanned operation is possible.

DAY MODE : Automatic changing of ND filters from 1 to 2 is possible with a combination of the iris and the ND filters. The iris convergence level can be varied over five stages.

NIGHT MODE : Seamless gain increase is possible with auto-gain control. The gain increase convergence level can be set to four different stages.

2-12 ATW (Auto Tracking White Balance)

In addition to the one-push type AWB, the camera includes ATW for auto-tracking. Automatically adjusts the white balance for outdoor photography, where the color temperature changes.

2-13 Digital Extender

Extends the screen center (possible to choose the magnification rate from the camera menu: 1.5x, 2x, 3x, 4x, 6x, 10x).

⚠ CAUTION

If the digital extender is turned on, the resolution deteriorates, the higher the magnification.

2-14 Remote Control

From the OCP-200 control panel, etc. it is possible to carry out controls required for operation as well as all controls required for use as a broadcast camera, such as GAIN, GAMMA, FLARE, KNEE, DTL, PED, MTRIX, etc. (OCP-200 maximum cable length: 80 m).

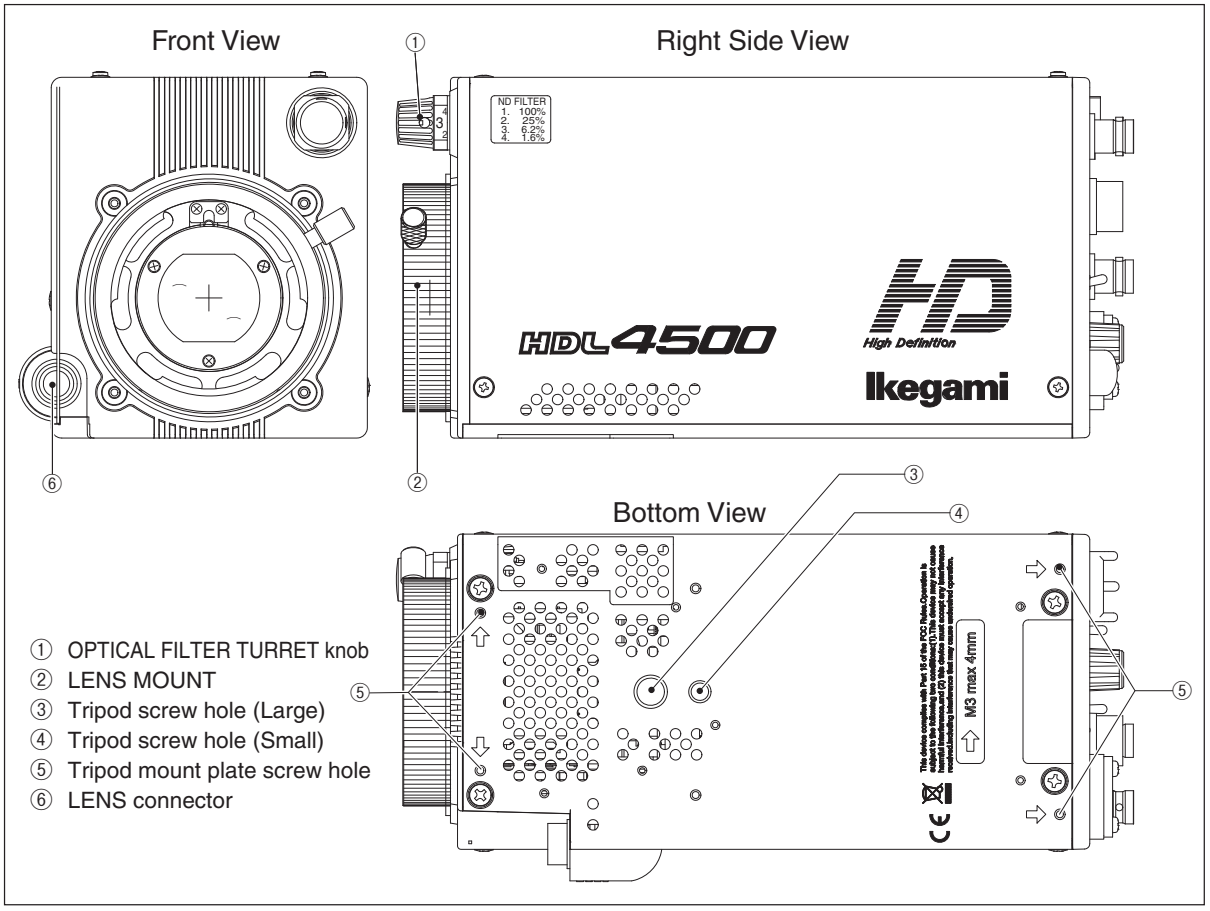
In addition, by switching the camera menu it is possible to respond to ISCP commands (usually known as U4 commands). It is possible from an external remote control panel, such as a camera platform, etc., to carry out controls required for operation. (When inserting in a compact camera platform housing, such as an U4-SP, in order to avoid protrusion to the back of the connector plug, an attachment option is required for the Up CN Box moving to the upper section. In this case, HD SDI OUT is a single system).

2-15 Optical Fiber Cable Extension

By connecting the optional FE-100A series HDTV optical extension device, long-range extension up to a maximum of 500 meters is possible with a single optical fiber camera cable. In addition to controls from the operation control panel, intercom communications and power supply are possible. And, by means of a separate power supply to the camera, the cable can be extended up to 2 meters.

3. NAME and FUNCTION of EACH PART

3.1 Front View / Right Side View / Bottom View



① OPTICAL FILTER TURRET knob

Used to select an optical filter.

1 : 100%

2 : 25%

3 : 6.2%

4 : 1.6%

② LENS MOUNT

Various 2/3-inch type broadcast quality lenses are available. Concerning lens mount, B4 type bayonet mount is standard. (Conforms to BTA S-1005B)

③ Tripod screw hole (Large)

Use to install the camera body to the tripod directly. (Screw hole : 3/8 inch-20UNC, depth 9mm)

④ Tripod screw hole (Small)

Use to install the camera body to the tripod directly. (Screw hole : 1/4 inch-20UNC, depth 6mm)

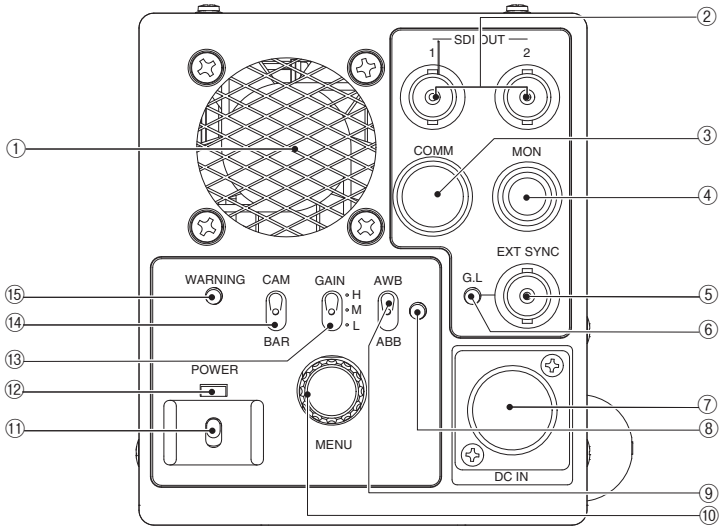
⑤ Tripod mount plate screw hole

Use to fix the camera body to the specified position on the tripod mount plate when necessary. (Screw hole : M3, depth 4mm)

⑥ LENS connector

Accepts the 12-pin LENS cable.

3.2 Rear View



① FAN
② HD SDI OUT connector
③ COMMAND connector
④ MON OUT connector
⑤ EXT SYNC connector
⑥ G.L indicator
⑦ DC IN connector
⑧ AWB/ABB indicator
⑨ AWB/ABB select switch
⑩ MENU select switch
⑪ POWER switch
⑫ POWER indicator
⑬ GAIN select switch
⑭ CAM/BAR select switch
⑮ WARNING indicator

① FAN

Fan makes heat sink for camera body.

② HD SDI OUT connector

Outputs the HD SDI signal (BNC 2ch). (Conforms to SMPTE 292M)

③ COMMAND connector

Used to connect the camera to an operation control panel (OCP-300, etc.: optionally available) using CP cable (RCC- 854 or RCC-274: optionally available) to remotely control the camera (Max: 80m with OCP-300 is connected).

④ MON OUT connector

Outputs the video signal (G/B/R, Y/Pb/Pr) set by setting menu of the camera or the remote control box.
Connect the external monitor with the specified cable.

⑤ EXT SYNC connector

Inputs the sync signal of an external system desired to be genlocked with the equipment (internal termination 75Ω).

⑥ G.L indicator

Lights up during the synchronizing the camera with the SYNC signal of external system.

⑦ DC IN connector

Used to supply +12V (11-16V) DC power from the AC pack.

Pin Number	Name
①	DC-
②	---
③	---
④	DC+

⚠ CAUTION

Do not input power as opposite polarity. If so, the camera maybe damaged.

⑧ AWB/ABB indicator

Lights up during execution of AWB or ABB.

- AWB (Auto White Balance) execution : Lights up Green
- ABB (Auto Black Balance) execution : Lights up Orange
- Completion of AWB or ABB : Turn off automatically
- Incompletion / N.G of AWB : Green blinking
- Incompletion / N.G of ABB : Orange blinking

⑨ AWB/ABB select switch

Executes AWB or ABB.

AWB : White balance is adjusted automatically.
By setting this switch to AWB position, the adjustment starts and the adjusted value is stored in memory.

ABB : Black balance is adjusted automatically.
By setting this switch to ABB position, the adjustment starts and the adjusted value is stored in memory.

⑩ MENU select switch (Rotary Encoder)

Displays various information or control items on the monitor to show the camera status by pressing and holding this switch for more than one second.

Use this switch combined rotary encoder to set the desired item with selection.

Notice

HD SDI outputs can be displayed on the MENU screen through the setting of “SDI MENU MIX (MENU PAGE5)” in “5.3 Camera Menu”.

⑪ POWER switch

This is a switch for powering on the camera.

ON : The equipment is powered through out.

OFF : All the power is turned off.

⑫ POWER indicator

Lights up during turning the camera ON.

⑬ GAIN select switch

Changes the camera gain.

L, M, H : Each gain position is set using the menu screen.
A specified value can be selected from -6 to +78dB and memorized in L, M, H.
But desired gain values should be set to satisfy L < M < H.

⑭ CAM/BAR select switch

Use to select the video signal on the color bar signal.

CAM : Outputs the video signal.

BAR : Output the color bar signal

⑮ WARNING indicator

Lights up when the input voltage is low.

Blinks in red when a trouble occurs for the camera or a fan.

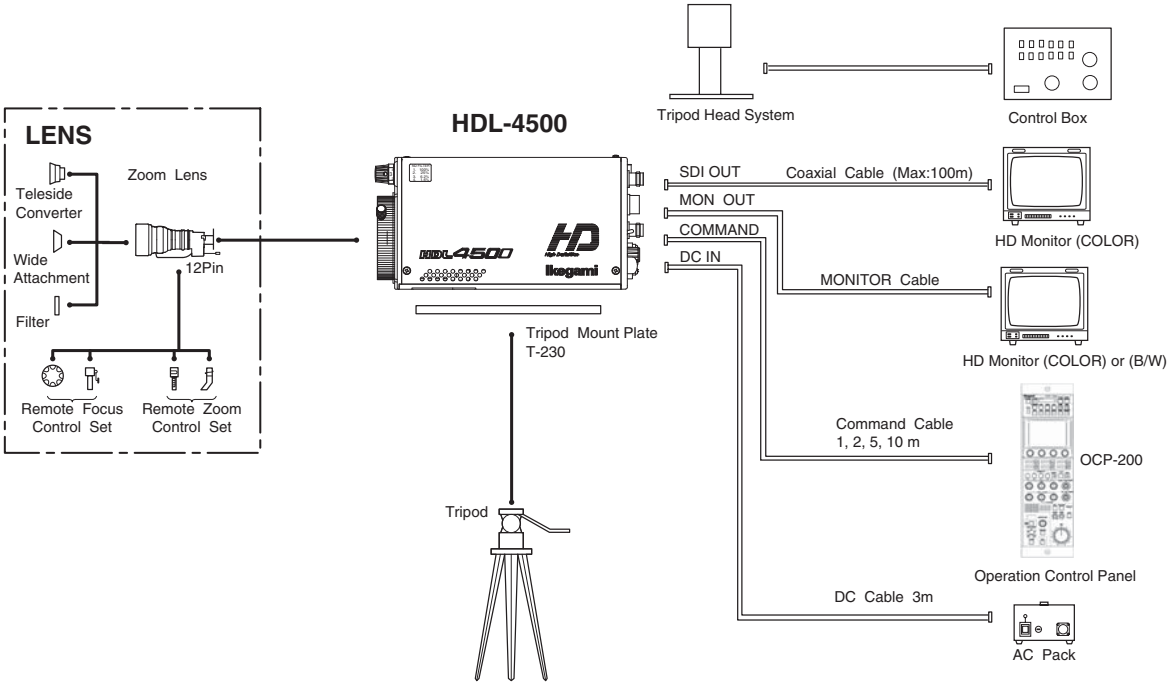
For further details of troubles, refer to “WARNING (MENU PAGE5)” in “5.3 Camera Menu”.

Notice

- When the operation control panel is connected, GAIN select switch and CAM/BAR select switch cannot be controlled.
- When the camera menu “SYSTEM SELECT” is set to ON in Engineering mode, the values settings from the operation control panel have a priority over the switch settings on the back of the camera.

4. INSTALLATION and CONNECTIONS

4.1 System Setup Diagram

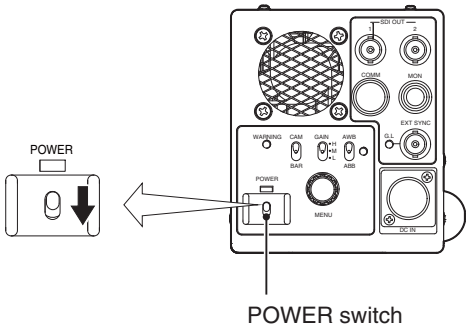


■ A bout use environment for this product

Read “NOTES ON USING IN SAFETY” at the beginning of this document to verify notes on using the product.

■ Verifying the power switch is OFF

Before connecting this product and peripheral equipment, verify that the power switch is turned “OFF”.

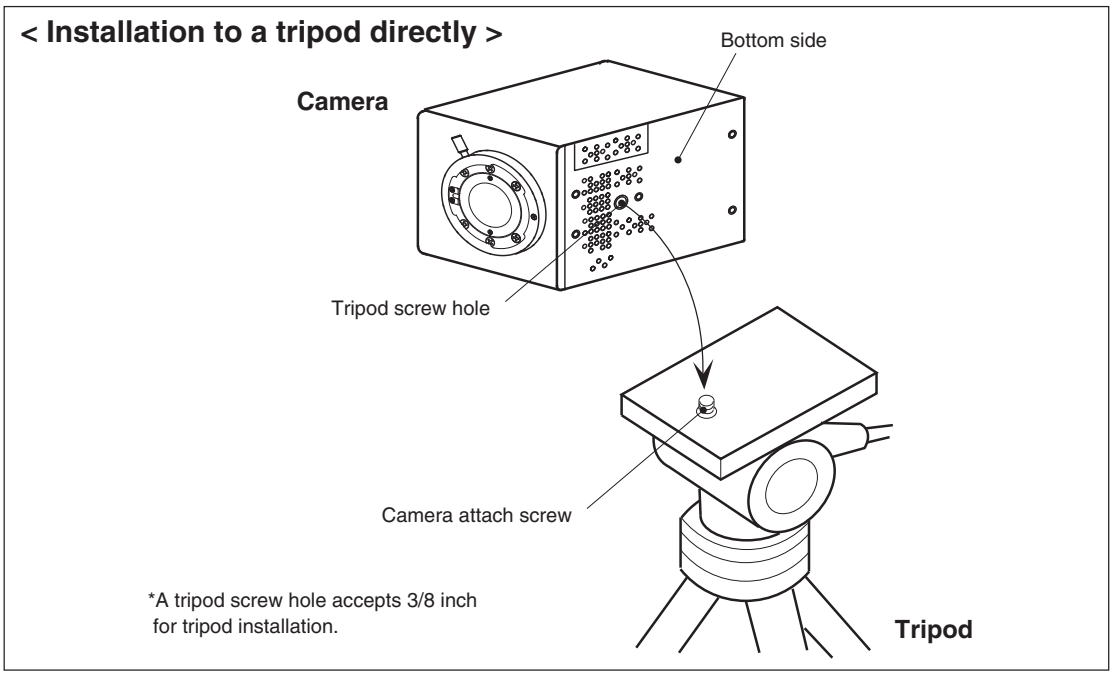


4.2 Tripod Installation

This section explains how to install the camera to the tripod.

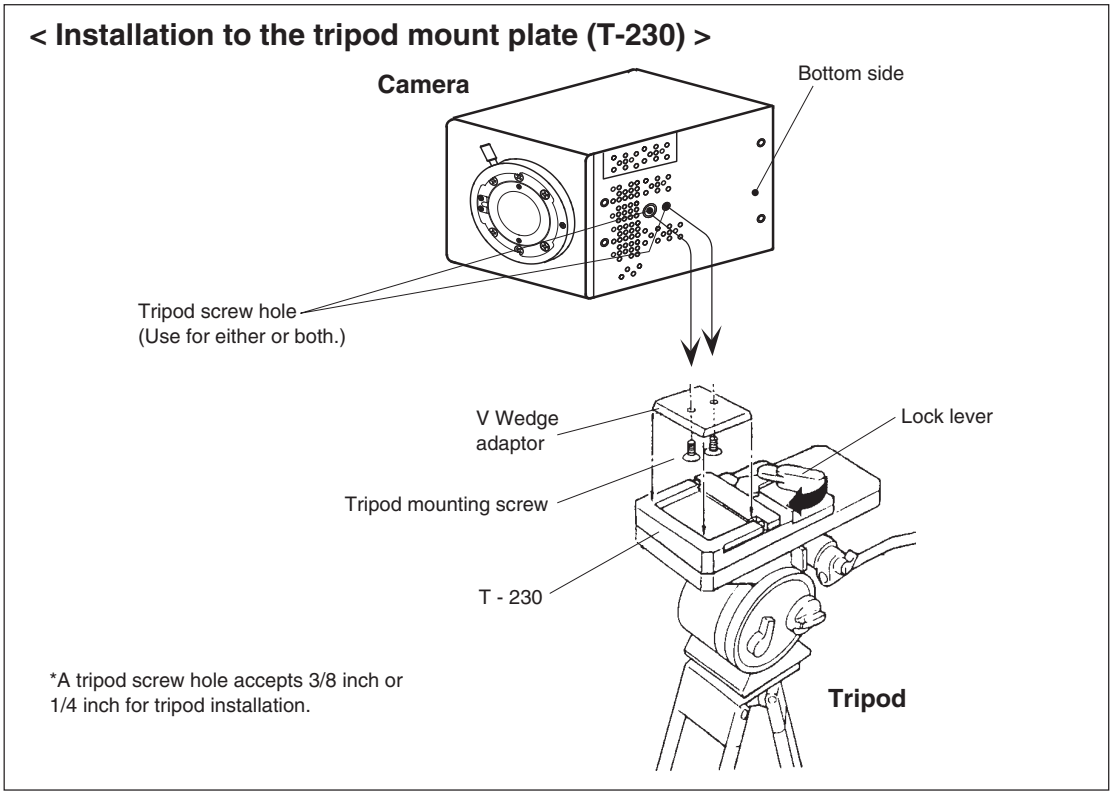
There are two ways to install the camera: one is to install it directly to the tripod and the other is to use the dedicated tripod mount plate (optionally available).

< Installation to a tripod directly >



1. Aligns the tripod screw hole on the camera with the camera attach screw on the tripod.
2. Tighten the camera attach screw until the camera is firmly secured to the tripod.

< Installation to the tripod mount plate (T-230) >

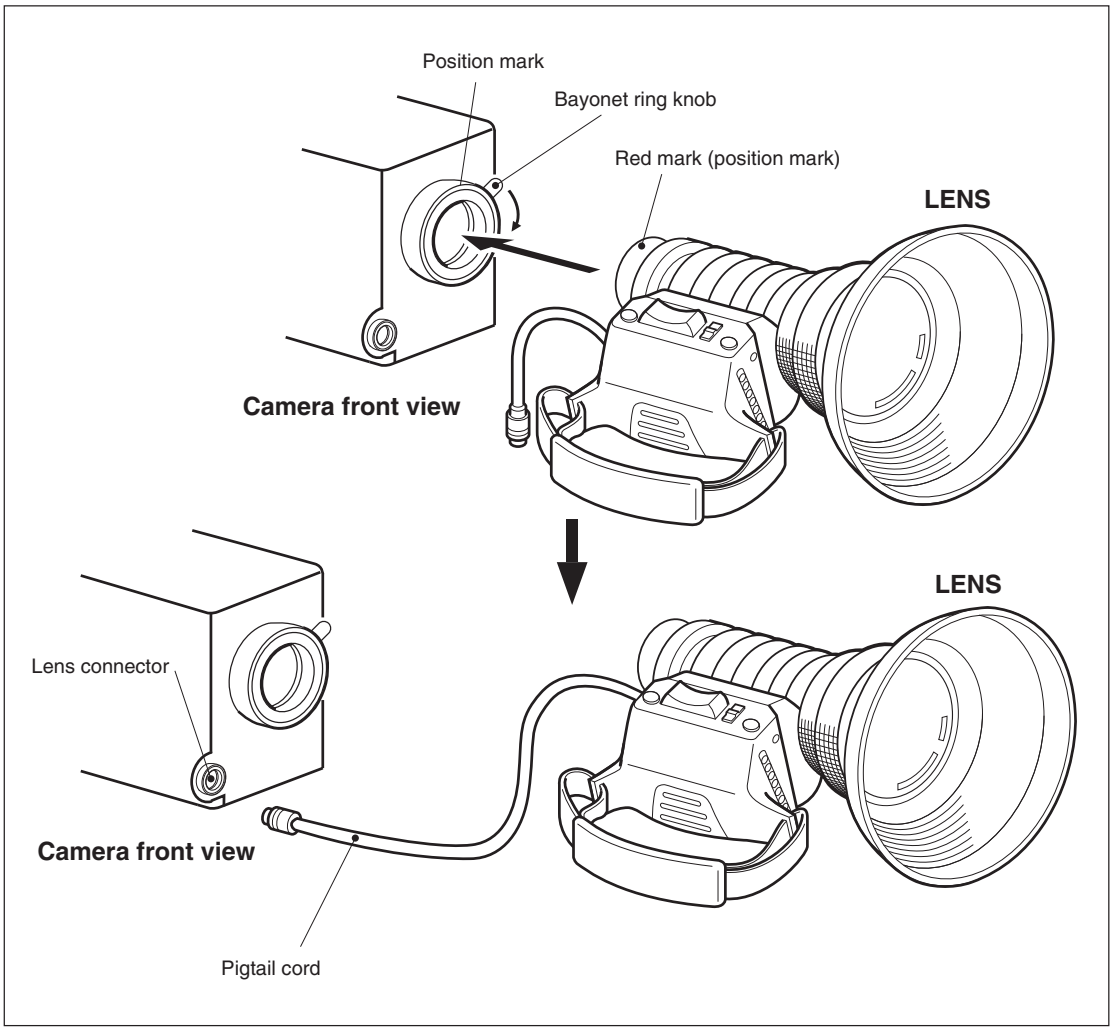


1. Insert the camera into the tripod mount plate (T-230), when the tripod screw hole aligns with the tripod mounting screw of the V Wedge adaptor.
2. Tighten the tripod mounting screw of the V Wedge adaptor, and then secure the V Wedge adaptor by closing the lock lever on the tripod mount plate (T-230).

3. Set the T-230 tripod mount plate with camera body on the tripod. Make sure that the camera is fastened to the tripod mount plate and not loose.

4.3 Lens Mounting

This section explains how to mount the lens on.



1. Remove the protective cap from the camera side mount by rotating the bayonet ring knob clockwise. Also remove the protective cap from the lens side cap.
2. Align the position mark on the lens side mount groove with the position mark on the camera side mount.
3. Secure the lens by rotating the camera side mount bayonet ring knob clockwise.
   Ensure that the lens is properly secured and not loose.
4. Locate the pigtail cord which is located on the lens side push this cord in to the lens connector of camera.
   Be sure to push the pigtail cord until it clicks in to position.

⚠ CAUTION

Do not hold its lens because the mount may be unduly stressed and could bend or break. If the camera is supported grasping its lens, HDL-45E/E1 may easily fall and cause injury.

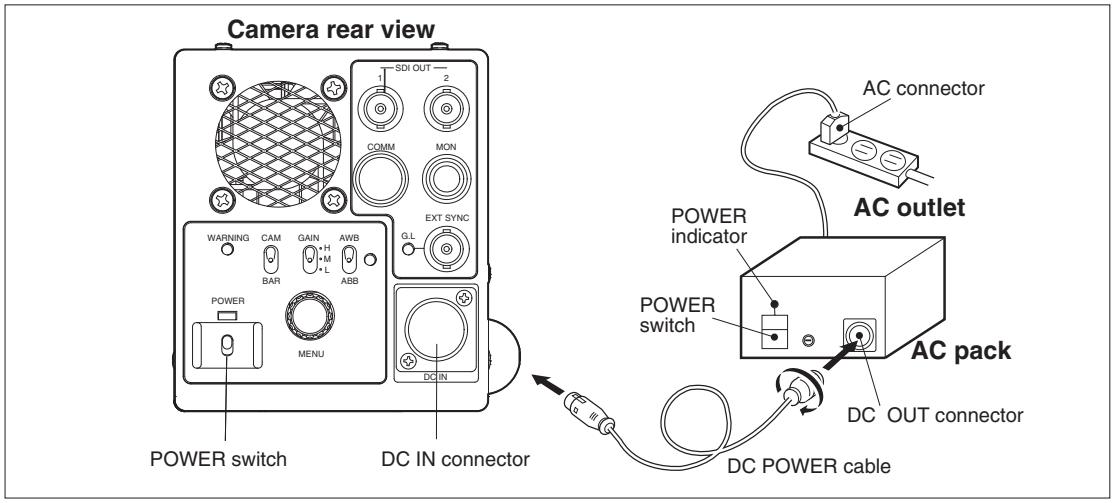
4.4 Connection of Power Supply

This section explains how to connect the power supply.

Power supply source for the camera is +12V (allowable range ： +11v to +16v).

⚠ CAUTION

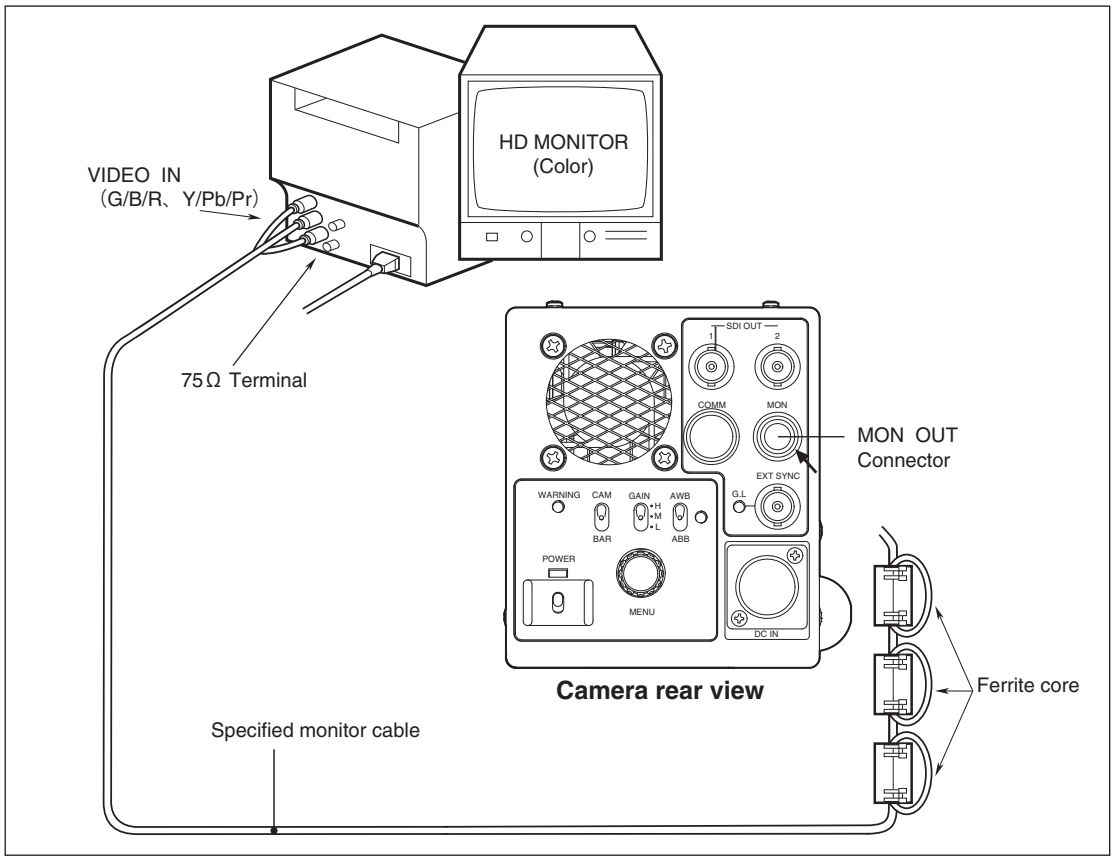
Before connecting the power, verify that the POWER switch of the camera is turned “OFF”.



1. Connect AC connector to an AC power outlet to which commercial power is supplied.
2. Plug the DC cable into the DC OUT connector on the AC pack and push the DC cable into the DC IN connector on the rear of the camera.
3. Turn ON the POWER switch on the front of the AC pack.
4. Turn ON the POWER switch on the rear of the camera. Lights up during power on.

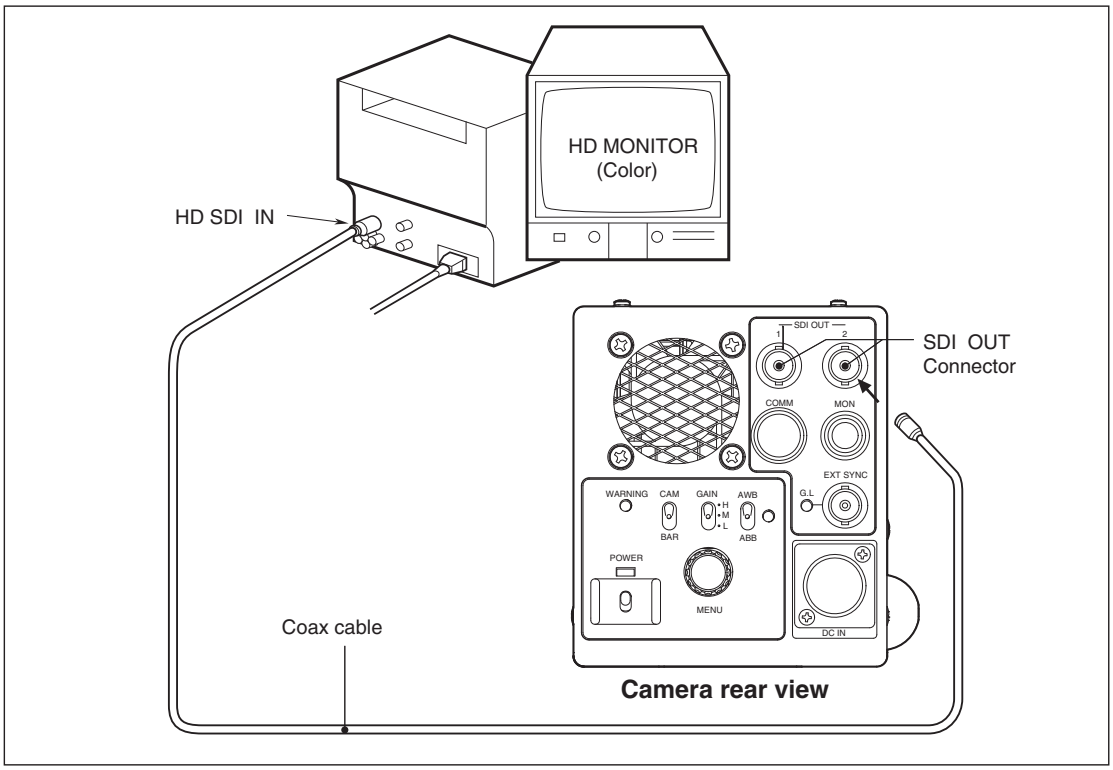
4.5 Connection of Monitor

[ANALOG output]



1. As shown in the figure, connect a dedicated monitor cable (optional) from the MON OUT connector on the rear of the camera to an HD MONITOR (color). Also, perform 75Ω termination on the HD MONITOR side.
2. The analog signal (G/B/R or Y/Pb/Pr) set in 5.3 camera menu “MONITOR OUT (MENU PAGE1)” is output from the MON OUT connector.
3. Attach three Ferrite cores (E04SR401938) associated with the dedicated monitor cable to near the camera side of the cable.

[SDI output]



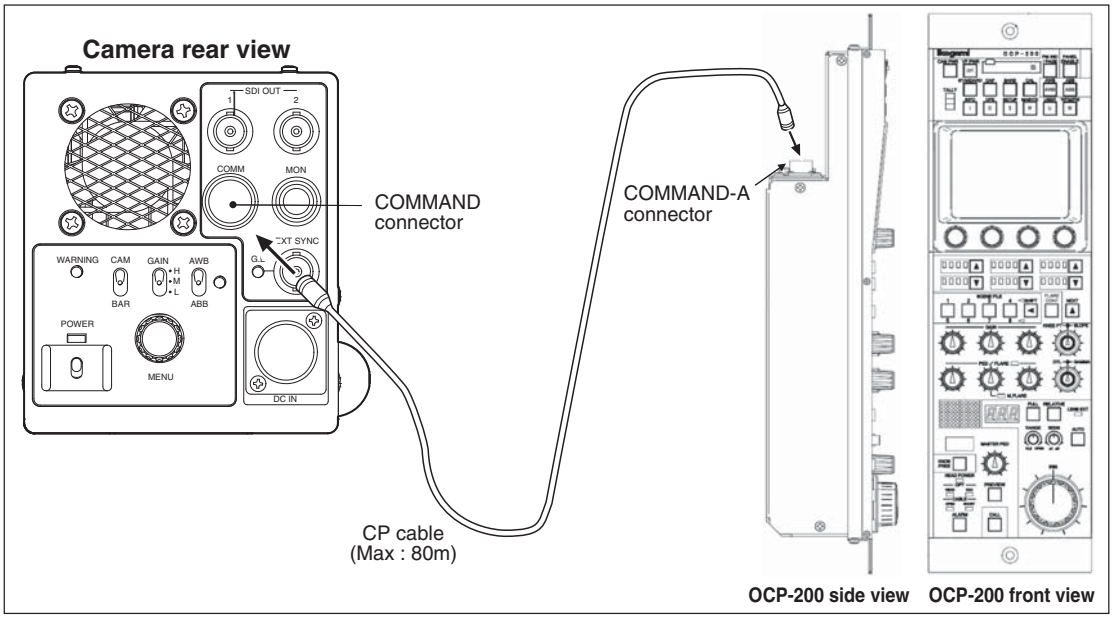
1. With the coax cable, connect the SDI OUT connectors on the rear of the camera to the HDTV monitor. Also, perform 75Ω termination at HD MONITOR side.
2. The SDI OUT connectors on the rear of the camera transfers out the HD SDI signal selected by the camera menu or the remote control box.

Reference

Refer to “5.3 Camera Menu” for how to make setting the camera menu.

4.6 Connection of Operation control panel (OCP-200, etc.)

A variety of images can be made by connecting a operation control panel, OCP-200 (optionally available).



1. With a CP cable (MAX: 80m with OCP-300 is installed.), connect the COMMAND connector on the rear of the camera to the operation control panel. Make sure that the CP cable is fixed to the connector with a locking sound.

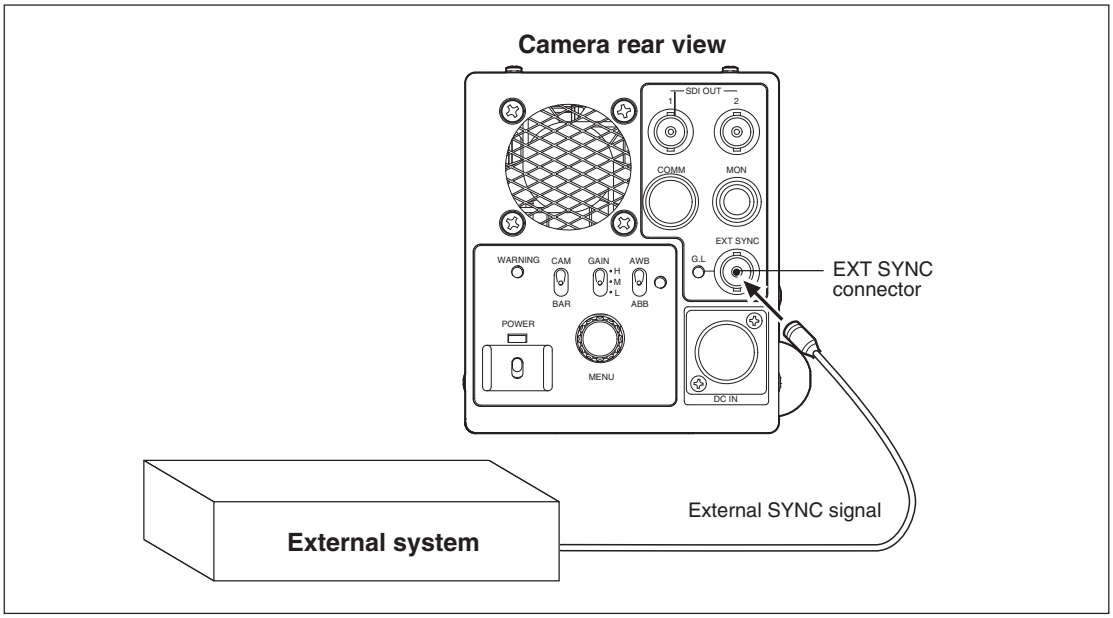
Notice

- When OCP-200, etc. is connected, following controls can be performed.
- To use as a single operation control panel, put it in the dedicated case (optionally available).
  This enables direct connection to the camera.

ON/OFF Control Items	Control
ABB	
AWB	
AHD (Auto Hue Detect)	
AUTO IRIS	
AUTO KNEE	
AWB MEMORY	OFF, A, B
AVC	1, 2, 3, 4
NIGHT MODE	
AVC FILTER HOLD	
ATW	
BARS	
BLACK PRESS	OFF, -3%, -5%, -7%, -9%, -11%
BLACK STRETCH	OFF, +3%, +5%, +7%, +9%, +11%
BLACK SHADING	
CAL	OFF,100%,200%
CAP	
CC FILTER ECC	3200K , 5600K
CHROMA	
COLOR SATURATION	
COLOR CORRECTION	
DIGITAL EXTENDER	×1.5, ×2, ×3, ×4, ×6, ×8, ×10
MAGINIFICANT	
DTL	
FLARE	
GAIN	-6, 0, +6, +12, +18, +24, +30, +36, +42, +48, +54, +60, +66, +72, +78dB
GAMMA	OFF, 0.35, 0.40, 0.45
HI-LIGHT DTL	
KNEE	AUTO , MANUAL
LENS EXTENDER IND.	
LENS FILE	OFF, 1 to 8
MATRIX	
ND FILTER	1, 2, 3, 4
SCENE FILE	1 to 8
SHUTTER	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 VARIABLE 1/15, 1/10, 1/8, 1/6, 1/5, 1/4, 1/3, 1/2, 1s, 2s, 4s
SKIN DTL	
SKIN KEY MARKER	
SMOOTH KNEE	OFF, 1, 2, 3
SOFT DTL	
SUPER KNEE	OFF, LOW, MID, HIGH
WHITE CLIP	
WHITE SHADING	
FOCUS	Only the serial lens installation is effective.
ZOOM	Only the serial lens installation is effective.

Analog Control Items	Control
AUTO IRIS SET	
BLACK SET	
BLACK SHADING	
BLACK GAMMA	
COLOR CORRECTION	
COLOR SATURATION	
DTL BALANCE	
DTL BOOST FREQUENCY	
DTL GAIN	
DTL NOISE SUP	
DTL THRESH	
DTL EDGE BW BALANCE	
FINE DTL	
FLARE	
GAIN	
GAMMA	
H.PHASE	
HI-LIGHT DTL	
IRIS	
KNEE POINT	AUTO, MANUAL
KNEE SLOPE	AUTO, MANUAL
MATRIX	
MASTER PEDESTAL	
PEDESTAL	
SKIN DTL	
SOFT DTL	
VARIABLE SHUTTER	1/63.3 to 1/1983 * In case of1080i60
WHITE CLIP	
WHITE SHADING	
FOCUS	Only the serial lens installation is effective.
ZOOM	Only the serial lens installation is effective.

4.7 Connection of External SYNC Signal for Genlock



1. EXT SYNC connector is used to input the SYNC signal of the external system desired to be genlocked with the equipment.
   When the synchronizing the camera with the SYNC signal of external system, G.L indicator lights up green.
   When the G.L indicator is blinking it is not genlocked. If so, check the external SYNC signal.

Reference

Refer to “5.3 Camera Menu” about level phase adjustment of a synchronization.

5. OPERATION

5.1 Power Supply Injection

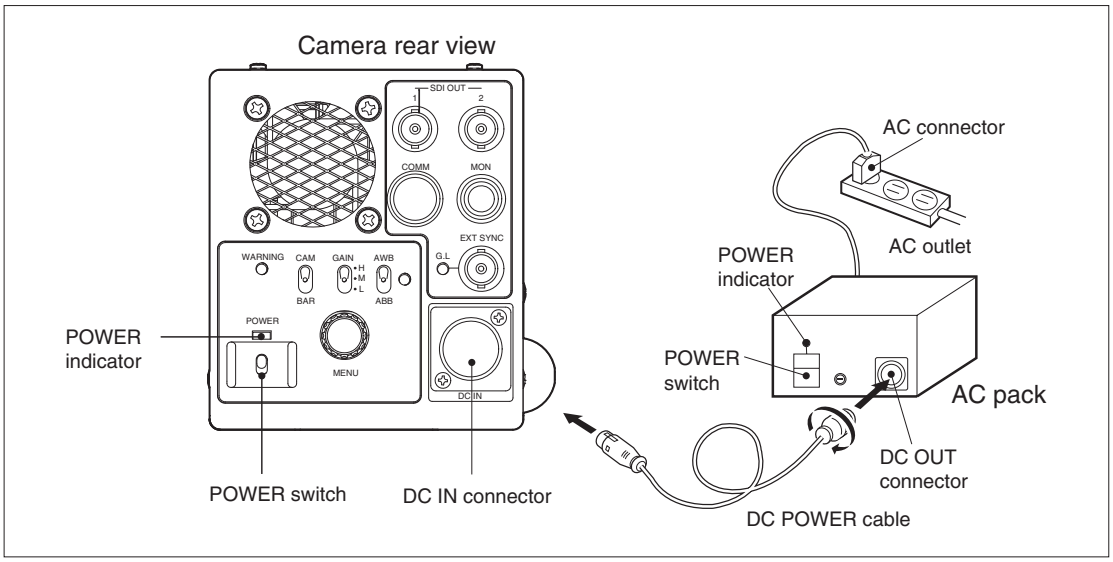
After connecting the camera with the peripheral system components, set the POWER switch on the camera rear panel to “ON” and check to be sure that the POWER indicator comes on.

Display the image output of the camera on the HDTV color monitor connected with the camera.

⚠ CAUTION

Be sure to set the POWER switch of the camera to “OFF” before connecting or disconnecting the peripheral system components.

Connecting or disconnecting during power on may cause failure of the camera or the peripheral system components.



5.2 Photography

5.2.1 Auto Black Balance (ABB)

Press the ABB switch, and the camera automatically adjusts the R/G/B black level.

Notice

The AWB/ABB indicator lights in orange while auto black balance is performed.

It turns off upon completion of auto black balance adjustment and blinks upon failure. In the latter case, operate the ABB switch again to cancel the blinking state.

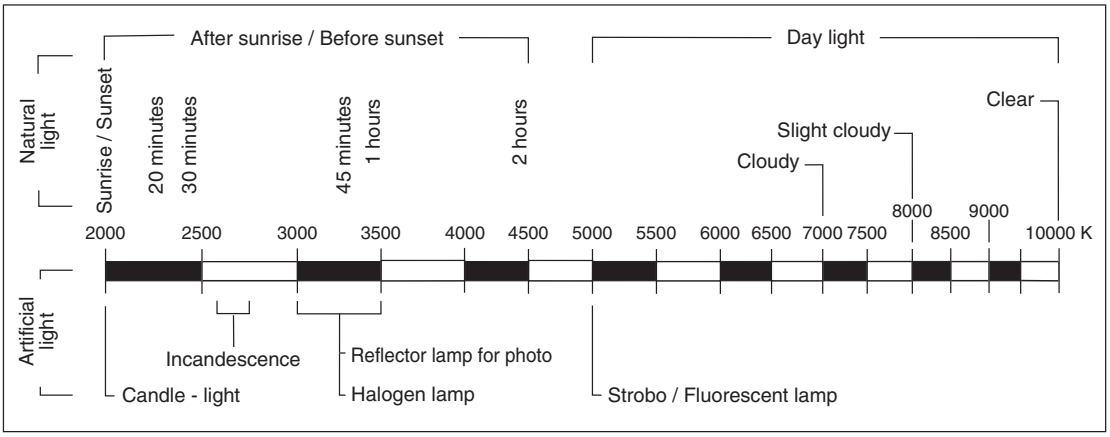
5.2.2 Auto White Balance (AWB)

[White balance adjustment]

To create correct white balance images, it is necessary to perform white balance adjustment in accordance with the condition of place in which the subject is located.

This condition is color temperature. It is determined by the light source for illuminating the subject.

Generally, the distribution of color temperatures are as shown in the table below.



The human eye adapts to a changing environment--the color balance for it will not be disturbed seriously even if color temperature varies according to the environmental conditions and stored data. The camera, on the other hand, has no such adaptability--a change in color temperature results in a change in color balance.

This camera, however, switches over color filters in accordance with lighting conditions of the subject.

Electric color temperature (ECC) filters are used and ECC; 3200K/5600K switch over is automatically performed. With this, all the operator has to do is to operate the AWB switch in order to cover the full range of color temperature without regard to the relationship between the subject and the color temperature filters.

[Adjustment procedure]

* Place a piece of white paper or a white cloth in front of the subject, and zoom in on it so that it occupies more than 1/5 of the entire image. (Be sure that there is no other subject brighter than the piece of white paper or cloth on the image.)
* Set the switch to the AWB position.
* The AWB/ABB indicator lights in green while auto white balance is performed. It turns off upon completion of auto white balance adjustment.

  When the AWB/ABB indicator blinks, check if the shooting conditions for the subject are proper and perform the AWB again.

5.2.3 Auto Iris Control

The quality of images can be further enhanced by changing the setting of the IRIS mode selector switch on the operation control panel (OCP-200, etc.) in accordance with the condition of the subject while monitoring the image displayed on the HDTV monitor. Pressing the auto iris switch on the operation control panel (OCP-200, etc.) causes the lens to enter the auto iris mode in which the optimum iris value is automatically selected according to the brightness of the subject.

⚠ CAUTION

Verify that the iris operation select switch of the lens is set to the auto position.

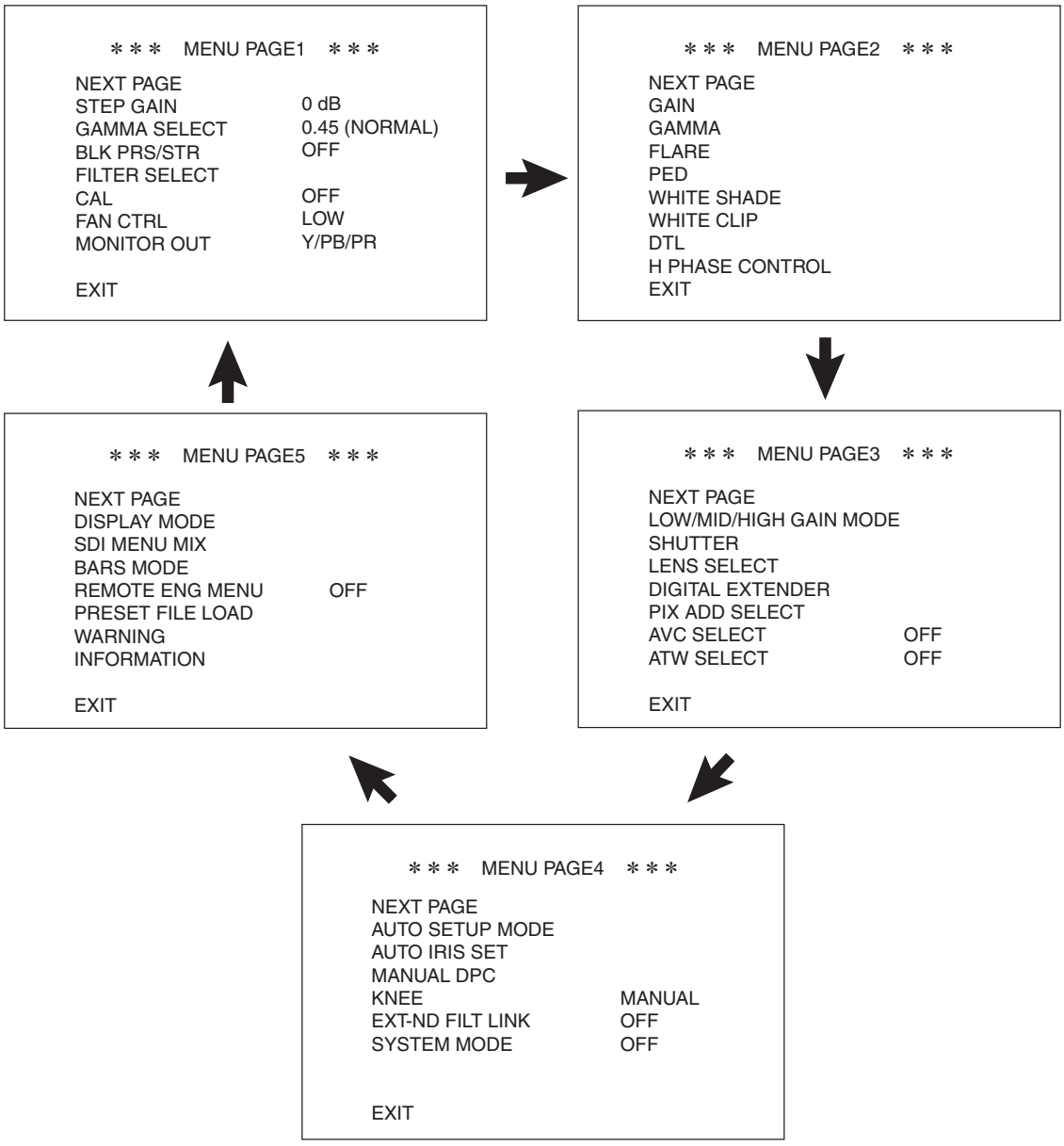
5.3 Camera Menu

Enter the menu by pressing and holding the MENU select switch located on the rear side of the HDL-4500 for more than one second.

Select an item in the menu to change the mode.

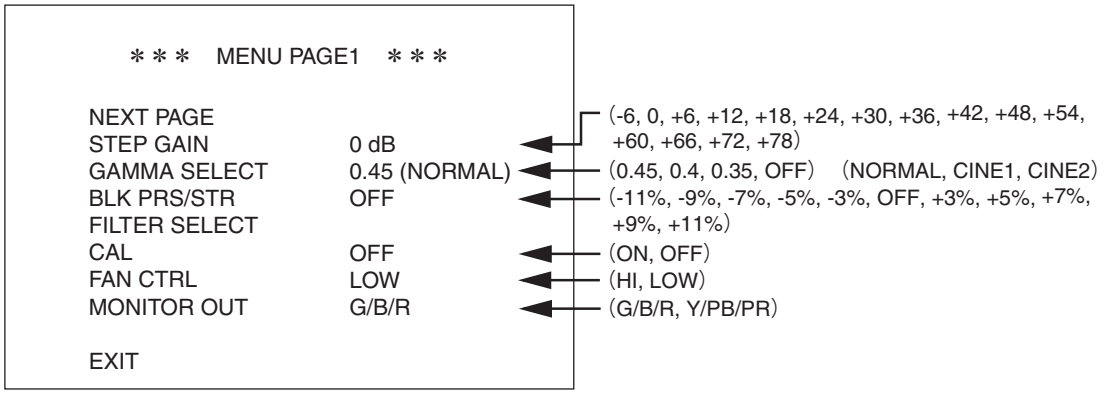
To move to the next menu, select “NEXT PAGE” and press the MENU select switch.

The menu screen automatically disappears if no operation is performed for about one minute. It does not automatically disappear, however, when a remote control panel is connected.



[MENU PAGE 1]

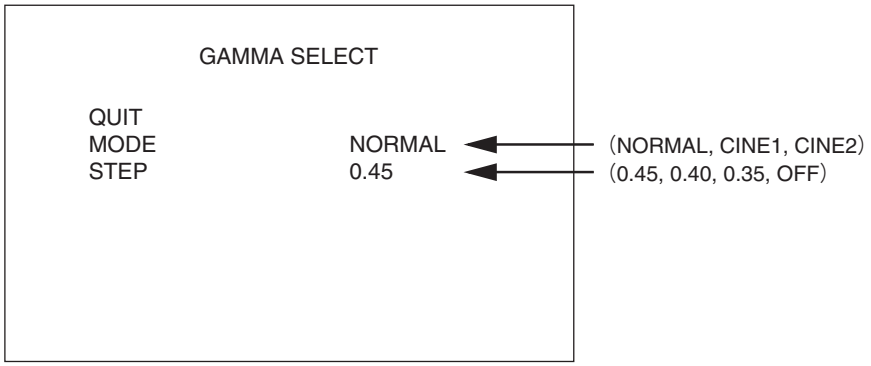
1. “MENU PAGE 1” has the following items included.
2. To select the desired item, turn and press the MENU select switch while the item is blinking.
3. When “STEP GAIN”, “GAMMA SELECT”, “BLK PRS/STR”, “CAL”, “FAN CTRL”, or “MONITOR OUT” is selected, the blinking cursor moves to the mode at the right of the selected item. Turn the MENU select switch to set it to the value to be set and press it while the mode is blinking.
4. When “FILTER SELECT” is selected, the sub menu screen is displayed.
5. If the MENU select switch is pressed while “EXIT” is blinking, the menu will turn off.



STEP GAIN : Switches over gain.
GAMMA SELECT : Switches gamma type (NORMAL, CINE1, CINE2) and step (0.45, 0.40, 0.35, OFF).
BLK PRS/STR : Switches the level of BLK PRS/STR.
FILTER SELECT : Switches over ND and CC respectively.
CAL : Turns CAL on/off.
FAN CTRL : Switches over the FAN speed on the rear side of the camera.
MONITOR OUT : Switches over video output signal.

■ GAMMA SELECT

1. "GAMMA SELECT" contains two items: "MODE", and "STEP". To select the desired item, turn and press the MENU switch while the item is blinking.
2. The blinking cursor moves to the mode at the selected item. Turn the MENU switch to set it to the value to be set and press it while the mode is blinking.
3. To return to the menu screen of "MENU PAGE1", select "QUIT" and press the MENU switch while "QUIT" is blinking.



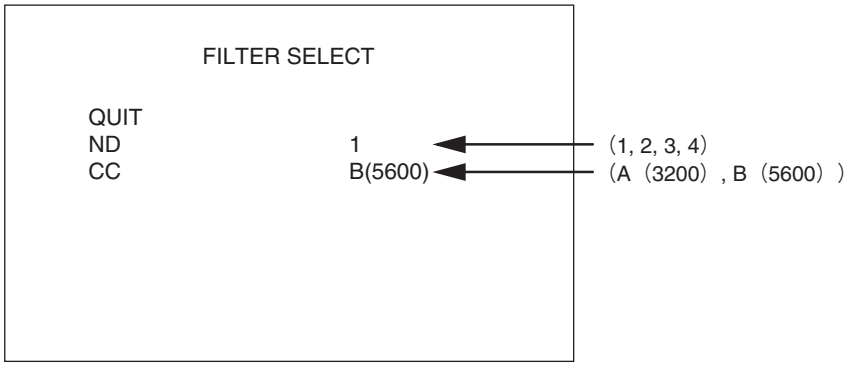
MODE : Switches gamma type.
NORMAL : Normal gamma
CINE1 : CINE gamma type1
CINE2 : CINE gamma type2
STEP : Switches gamma step.

Notice

When MODE is switched to CINE1 and CINE2, KNEE_POINT and KNEE_SLOPE change with the gamma curve. If the setting remains at the normal, KNEE_POINT and KNEE_SLOPE become lower when MODE is switched to CINE1 and CINE2, the necessary dynamic range becomes hard to get. In that case, adjust KNEE_POINT and KNEE_SLOPE from a operation control panel according to the type of CINE gamma. Moreover, return KNEE_POINT and KNEE_SLOPE to former value when you return it from CINE1 and CINE2 to NORMAL.

■ FILTER SELECT

1. FILTER SELECT contains two items: ND and CC. To select the desired item, turn and press the MENU select switch while the item is blinking.
2. The blinking cursor moves to the mode at the right of the selected item. Turn the MENU select switch to set it to the value to be set and press it while the mode is blinking.
3. To return to the menu screen of "MENU PAGE1", select "QUIT" and press the MENU select switch while "QUIT" is blinking.



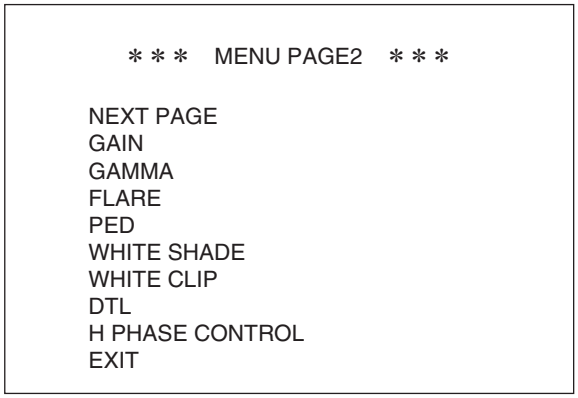
ND : Switches over ND filter.
CC : Switches over electric color temperature (ECC) filter.

⚠ CAUTION

The values for ND and CC vary depending on “ON” or “OFF” for SINGLE FILTER MODE in the engineer menu.

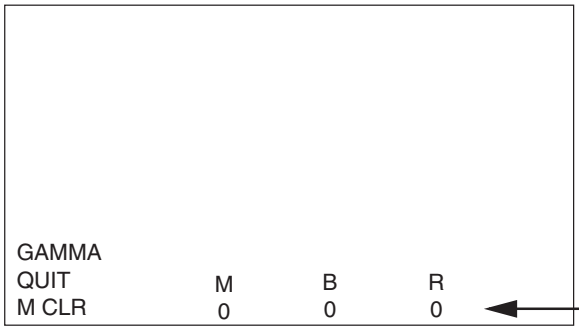
[MENU PAGE 2]

1. “MENU PAGE 2” has the following items included.
2. To select the desired item, turn and press the MENU select switch while the item is blinking. The sub menu screen of the selected item is displayed.
3. If the MENU select switch is pressed while “EXIT” is blinking, the menu will turn off.



GAIN	: Adjusts gain of G/B/R.
GAMMA	: Adjusts gamma of M/B/R.
FLARE	: Adjusts flare of G/B/R/M.
PED	: Adjusts PED of M (MASTER)/B/R.
WHITE SHADE	: Adjusts white shading of H rate and V rate of G/B/R.
WHITE CLIP	: Adjusts white clip of G/B/R.
DTL	: Adjusts GAIN/FREQUENCY/BLACK WHITE/BALANCE/THRESH/FINE/NOISE SUP.
H PHASE CONTROL	: Adjusts level phase when external synchronization signal is input.

■ GAIN

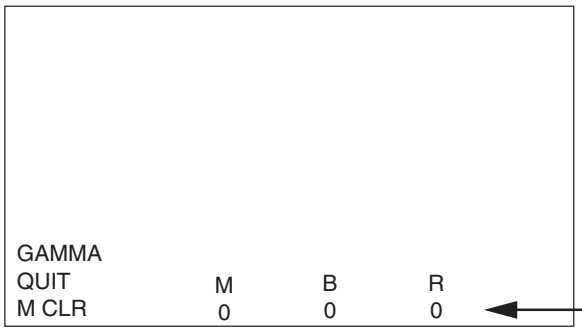


If the MENU select switch is pressed while any of “G”, “B”, or “R” is blinking, the value below it can be changed.
Selecting M CLR makes the system to be set back to the factory setup.

⚠ CAUTION

Changing G GAIN changes the sensitivity of the camera.
In normal use, the value of G GAIN should remain 0 (factory set value).

■ GAMMA

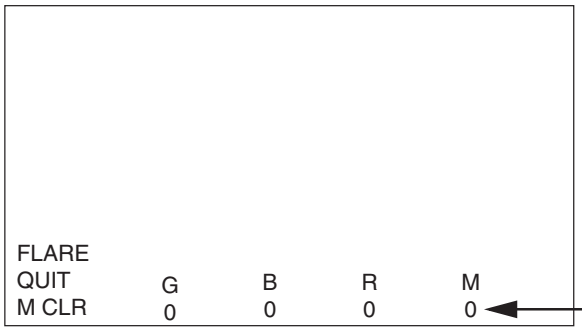


If the MENU select switch is pressed while any of “M”, “B”, or “R” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

⚠ CAUTION

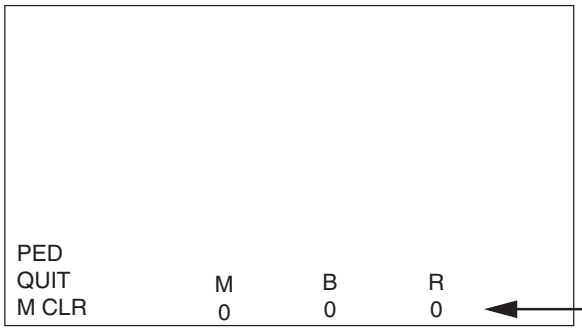
“M” means the master mode in which all of “G”, “B”, and “R” can be changed at one time.

■ FLARE



If the MENU select switch is pressed while any of “G”, “B”, “R” or “M” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

■ PED



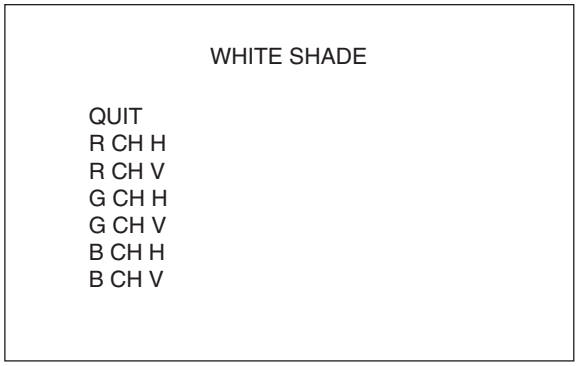
If the MENU select switch is pressed while any of “M”, “B”, or “R” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

⚠ CAUTION

“M” means the master mode in which all of “G”, “B”, and “R” can be changed at one time.

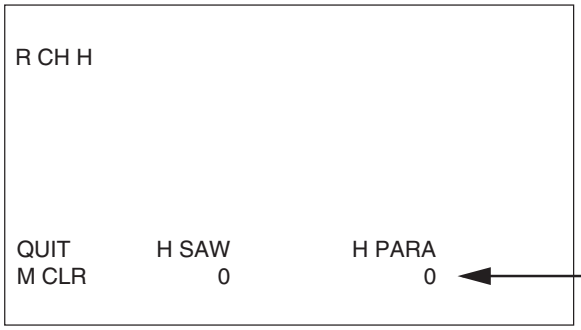
■ WHITE SHADE

1. WHITE SHADE contains six items: “R CH H”, “R CH V”, “G CH H”, “G CH V”, “B CH H”, and “B CH V”.
2. To select the desired item, turn and press the MENU select switch while the item is blinking. The under sub menu screen of the selected item is displayed, as shown below.
3. To return to the menu screen of “MENU PAGE2”, select “QUIT” and press the MENU select switch while “QUIT” is blinking.



R CH H : Adjusts H rate for R ch.
R CH V : Adjusts V rate for R ch.
G CH H : Adjusts H rate for G ch.
G CH V : Adjusts V rate for G ch.
B CH H : Adjusts H rate for B ch.
B CH V : Adjusts V rate for B ch.

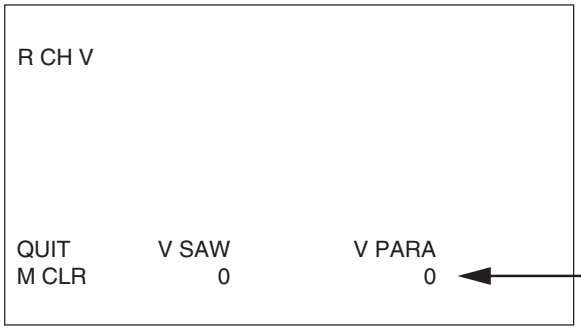
● R CH H



If the MENU select switch is pressed while any of “H SAW” or “H PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

(-100 to +100)

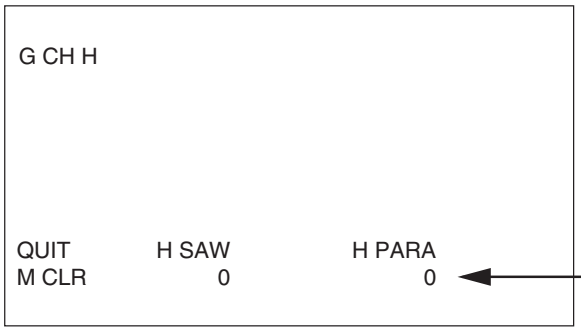
● R CH V



If the MENU select switch is pressed while any of “V SAW” or “V PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

(-100 to +100)

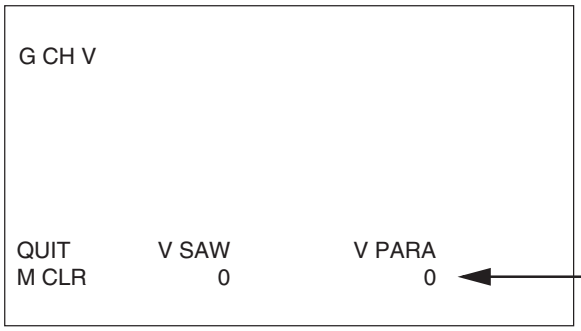
● G CH H



If the MENU select switch is pressed while any of “H SAW” or “H PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

(-100 to +100)

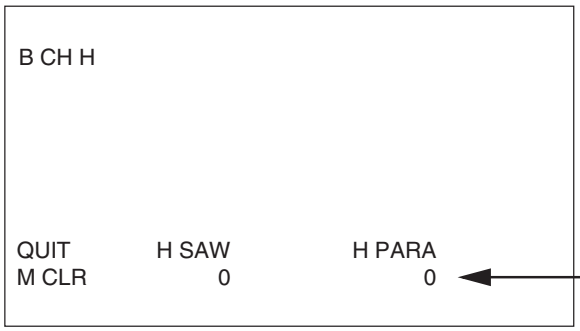
● G CH V



If the MENU select switch is pressed while any of “V SAW” or “V PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

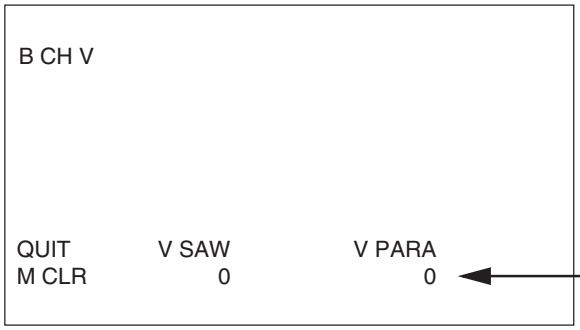
(-100 to +100)

● B CH H



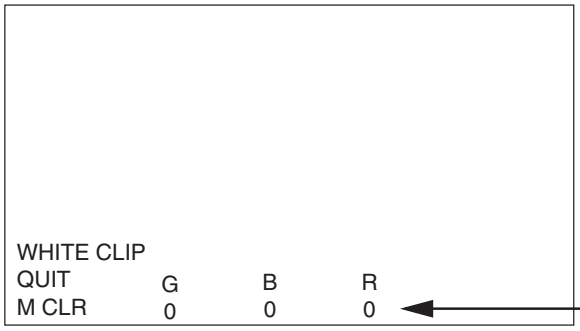
If the MENU select switch is pressed while any of “H SAW” or “H PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

● B CH V



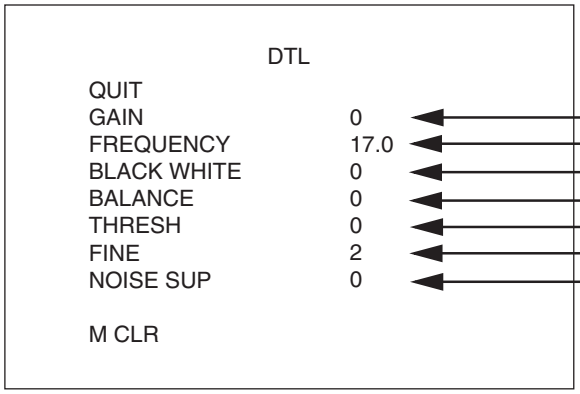
If the MENU select switch is pressed while any of “V SAW” or “V PARA” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

■ **WHITE CLIP**



If the MENU select switch is pressed while any of “G”, “B”, or “R” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

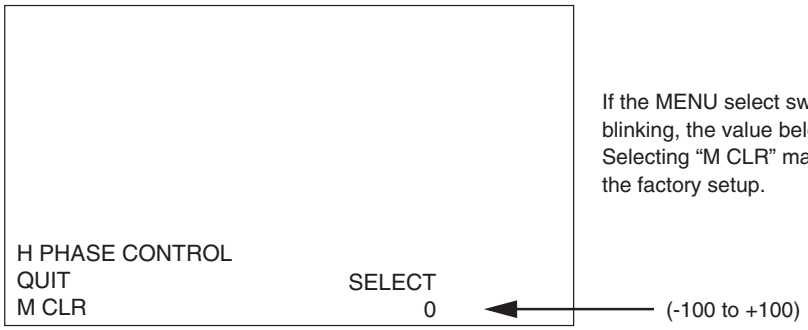
■ **DTL**



GAIN : Adjusts correction volume of outline.
FREQUENCY : Adjusts central frequency.
The higher the frequency becomes, the narrower the width of edge signal becomes.
BLACK WHITE : Adjusts the balance of edge volume between the light part and the dark part.
BALANCE : Adjusts the balance of edge volume between horizontal direction and vertical direction.
THRESH : Adjusts the lower level of the video signal for input.
FINE : Adjusts the volume for increasing edges attached to minute objects and decreasing edges attached to objects whose luminance difference is great.
NOISE SUP : Adjusts DTL GAIN.

Selecting “M CLR” makes the system to be set back to the factory setup.

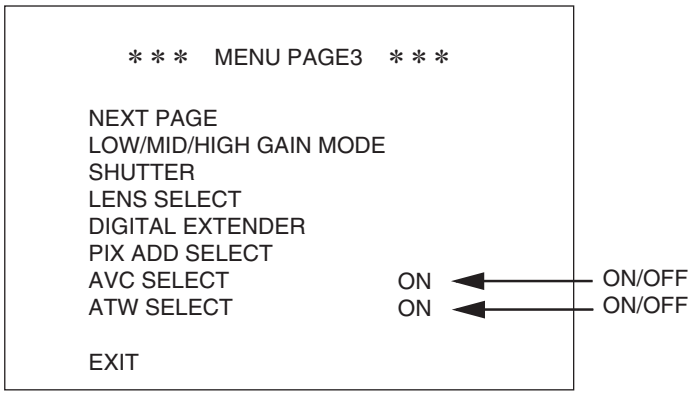
■ H PHASE CONTROL



If the MENU select switch is pressed while “SELECT” is blinking, the value below it can be changed.
Selecting “M CLR” makes the system to be set back to the factory setup.

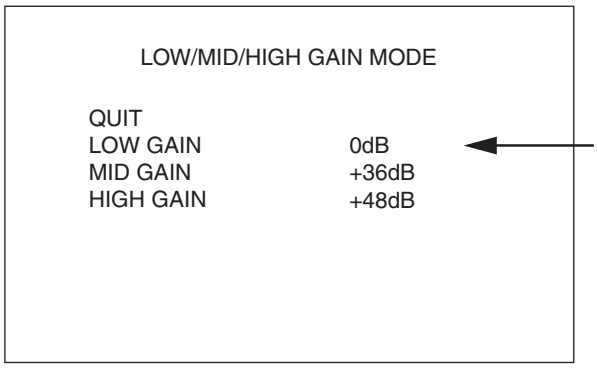
[MENU PAGE 3]

1. “MENU PAGE3” has the following items included.
2. To select the desired item, turn and press the MENU select switch while the item is blinking. The sub menu screen of the selected item is displayed.
3. If the MENU select switch is pressed while “EXIT” is blinking, the menu will turn off.



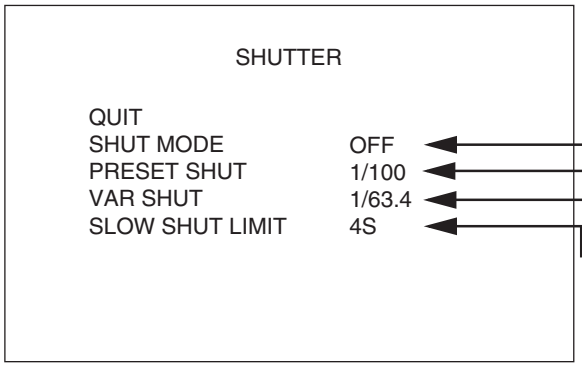
LOW/MID/HIGH GAIN MODE : Sets the “L” “M” and “H” values for the GAIN select switch on the back of the camera.
SHUTTER : Selects SHUTTER or changes the value.
LENS SELECT : Selects lens file.
DIGITAL EXTENDER : Sets the magnification of the digital extender.
PIX ADD SELECT : Sets the gain for starting the horizontal pixel addition or the vertical pixel addition.
AVC SELECT : Switches over ON/OFF of the AVC function.
ATW SELECT : Switches over ON/OFF of the ATW function.

■ LOW/MID/HIGH GAIN MODE



When the MENU select switch is pressed on the item to be set, the value on the right blinks. Keeping this state, turn the MENU select switch to set the value (-6dB to +78dB).
However, set the values as “LOW GAIN” < “MID GAIN” < “HIGH GAIN.”
L : LOW GAIN
M : MID GAIN
H : HIGH GAIN

■ SHUTTER



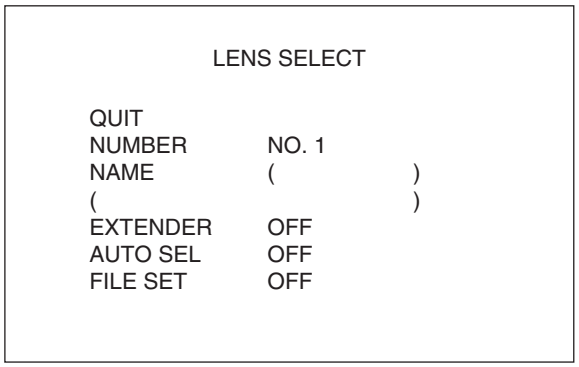
(OFF, PRESET, VAR)
(1/2000, 1/1000, 1/500, 1/250, 1/120, 1/100, 1/15, 1/10, 1/8, 1/6, 1/5, 1/4, 1/3, 1/2, 1s, 2s, 4s)
(1/63.4 to 1/1983)
Sets the limit to the slow shutter that can be controlled from the remote controller.
(4s, 2s, 1s, 1/2, 1/3, 1/4, 1/5, 1/6,1/8, 1/10, 1/15, OFF)

- To select each SHUTTER or change the value, “SHUT MODE” is set to the corresponding item in advance. 1/15, 1/10, 1/8, 1/6, 1/5, 1/4, 1/3, 1/2, 1s, 2s, and 4s are the CCD accumulation sensitivity improvement mode. Sensitivity improves according to the accumulation time. But the residual image also increases according to the accumulation time. The CCD accumulation sensitivity improvement needs to be set with the movement of the object.
- When the MENU select switch is pressed on the item to be set, the value on the right blinks. Keeping this state, turn the MENU select switch to select the desired value and press it.

⚠ CAUTION

The variable range of the variable shutter changes according to the format.

■ LENS SELECT



NUMBER : OFF : No lens file is registered.
No.1 to No.8 : Indicates the lens file number.
NAME ( ) : Manually enter a file name for each lens file.
( ) : Displays the model name automatically obtained from the lens when a serial-interface-capable lens is used.
EXTENDER : OFF : Indicates lens other than one with extender.
ON : Indicates lens with extender.
AUTO SEL : OFF : Displays lens file setting manually.
ON : Recognizes the registered file automatically when the serial lens is attached.
FILE SET : OFF : Does not create lens file.
MANUAL : Saves the current state as lens file.

● Lens file

The color balance changes resulting from differences in the optical properties of lenses are stored in a lens file. Up to eight lens files are available and two statuses - extender OFF and extender ON - can be stored in each file. The data is selected automatically by answer signals from the lens. White shading, flare, gain and gamma are stored in a lens file. When the HDL-4500 is shipped, the compensation data based on the factory standard lens is registered in No. 1.

[Setting lens file name]

Set a file name for each lens file. It is recommended to use the model name of the lens and the like for easy identification. Use 12 characters for a file name.

1. On “MENU PAGE3”, turn the MENU select switch to select “LENS SELECT” and press it. The sub menu of “LENS SELECT” is displayed.
2. Turn the MENU select switch to select “NUMBER” and press it. The registered lens file numbers (OFF, No.1 to No.8) are displayed.
3. Turn the MENU select switch to select the desired lens file number and press it. Set a file name for No.2 and later since the factory set data is set for No.1.
4. Turn the MENU select switch to select “NAME” and press it.
   The blinking cursor moves to the mode and the mode changes to the character entry mode. Turning the MENU select switch changes the character to be entered as shown below.

□ indicates a blank.

Clockwise →

□ABCDEFGHIJKLMN□OPQRSTUVWXYZ□CH : . −＋／□0123456789

← Counterclockwise

5. Turn the MENU select switch to select the desired character and press it.
   One character is set for a file name.
   Be sure to use 12 characters for a file name. Use blanks (□) if a file name is shorter. The file name setting mode cannot be completed if the file name has 11 characters or less.

[Verifying extender]

Displays the state of a lens with extender.

1. On “MENU PAGE3”, turn the MENU select switch to select “LENS SELECT” and press it. The sub menu of “LENS SELECT” is displayed.
2. Turn the MENU select switch to select “EXTENDER” and press it. The blinking cursor moves to the mode.
3. Verify the lens state. One of the following states is displayed.
   - OFF: Lens other than one with extender
   - ON : Lens with extender

[Automatic switchover of lens file number]

Automatically switches over the lens file number according to the model name obtained from the lens.

1. On “MENU PAGE3”, turn the MENU select switch to select “LENS SELECT” and press it. The sub menu of “LENS SELECT” is displayed.
2. Turn the MENU select switch to select “AUTO SEL” and press it. The blinking cursor moves to the mode.
3. Turn the MENU select switch to select the desired value and press it.
   - OFF: Does not switch over lens file number automatically.
   - ON : Switches over lens file number automatically.

Notice

When “AUTO SEL” is set to “ON”, “(AUTO SEL)” is displayed after the lens file number in the “NUMBER” row.

[Making lens file]

Make a lens file.

Check the following in making a lens file.

- Creating a lens file requires precise adjustment. Do not update a lens file without discretion.
- Prepare a uniform white chart on which Kent paper is stuck as a subject. A registration chart is inappropriate as a subject.
- Adjust the illumination for uniform brightness of the imaging surface of the chart by using an illumination meter.
- In making a lens file, verify that a special effect filter is not attached in front of the lens or to the built-in filter disk. If a special effect filter is attached, a lens file may not be made properly.
- In making lens files, prepare everything, including all the target lenses and make lens files at a breath under the same conditions and environment. Precise settings cannot be performed if the conditions or environment change during creation.

1. Connect the remote control panel.
2. On “MENU PAGE3”, turn the MENU select switch to select “LENS SELECT” and press it. The sub menu of “LENS SELECT” is displayed.
3. Turn the MENU select switch to select “NUMBER” and the desired lens file number and press it. Select No.2 or later since the factory set data is set for No.1.
4. Verify the lens state for the “EXTENDER” setting mode. Change the setting, if necessary, referring to [Verifying extender] described above.
5. Turn the MENU select switch to select “FILE SET” and press it. The blinking cursor moves to the mode. Turn the MENU select switch to select “MANUAL” and press it. A “LENS No.x” message is displayed on the lower side of the screen.
6. Adjust lens file items such as GAIN, FLARE, and GAMMA using the operation control panel and press the MENU select switch. In case of a serial-interface-capable lens, advance to procedure M1 and M2 to automatically obtain the model name and the like from the lens.
7. Turn the MENU select switch again to select “FILE SET” and press it. The blinking cursor moves to the mode. Turn the MENU select switch to select “OFF” and press it. At this state, the data is stored in the lens file and the file creation is completed.

M1. Turn the MENU select switch to select “( )” for automatically obtaining and displaying the model name from the lens and press it. The display changes to “MODE CANCEL” to obtain the new model name from the lens.

M2. Turn the MENU select switch to change the display from “MODE CANCEL” to “MODE AUTO READ” and press it.
* “COMPLETED” is displayed on the lower side of the screen.
* When “COMPLETED” disappears, the newly read model name is displayed.
Then, advance to procedure 7 described above.

Notice

If the new model name cannot be read, “READ ERROR” is displayed in place of “COMPLETED” on the lower side of the screen.

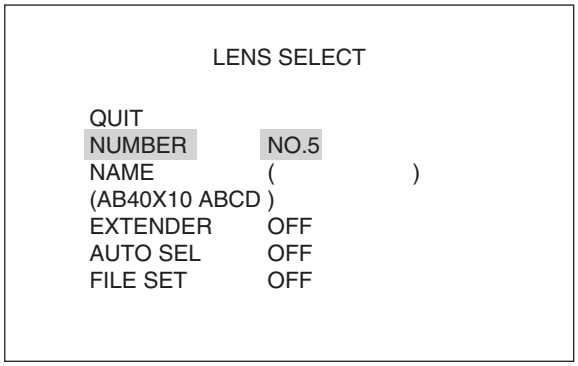
- In procedure M2, turning the MENU select switch to change the display from “MODE CANCEL” to “CLR” and pressing it displays “COMPLETED” on the lower side of the screen.
- When “COMPLETED” disappears next, nothing is displayed in the place for displaying the model name automatically obtained from the lens.

[Reading lens file]

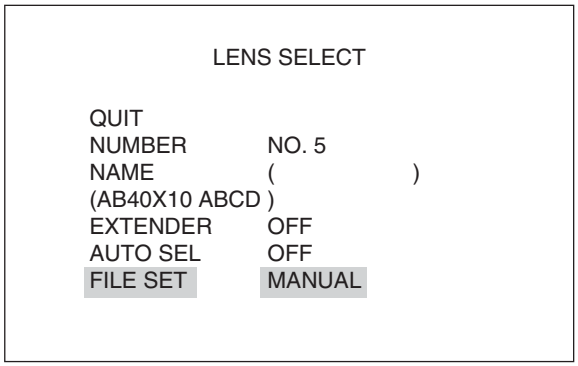
1. On “MENU PAGE3”, turn the MENU select switch to select “LENS SELECT” and press it. The sub menu of “LENS SELECT” is displayed.
2. Turn the MENU select switch to select “NUMBER” and press it. The blinking cursor moves to the mode. Select the desired lens file number (No.1 to No.8) to read the data out.

[Editing lens file name]

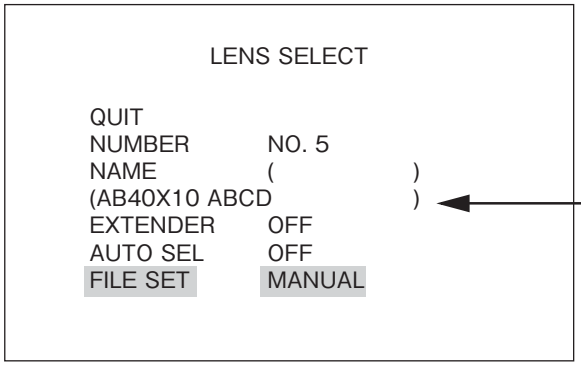
The “AUTO SELECT NAME EDIT” (the edit of lens name used for the lens file auto selection) can be operated by the following procedure.



1. Sets the blinking cursor to “NUMBER” and press “SET”.
2. Selects lens file to edit.

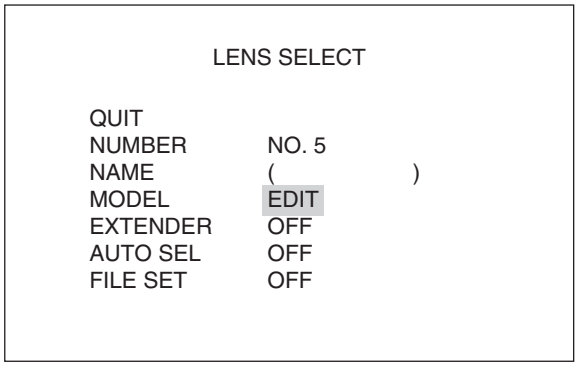


3. Sets the blinking cursor to “FILE SET” and press “SET”.
4. Selects “MANUAL” and press “SET”.



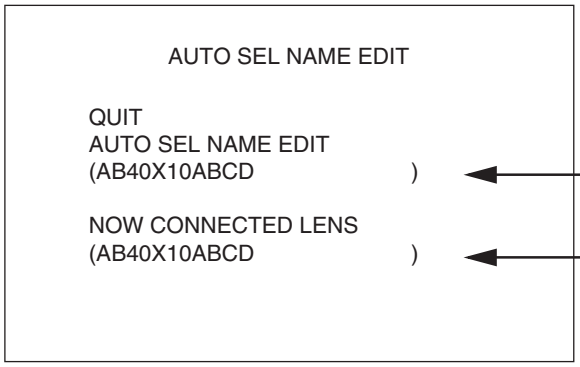
5. Sets the blinking cursor to “(AUTO SEL NAME display part)” and press “SET”.

When AUTO SEL NAME is not set, connect the target lens and perform the following operation after executing AUTO READ.



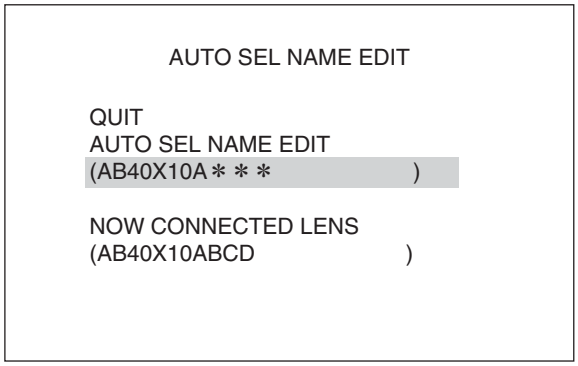
6. Selects “EDIT” and press “SET”.

● **About AUTO SEL NAME EDIT display**



Display part of the lens name to edit
Displays the model name of the lens to edit.

Display part of the lens name to connect
Displays the model name of the lens being connected now.



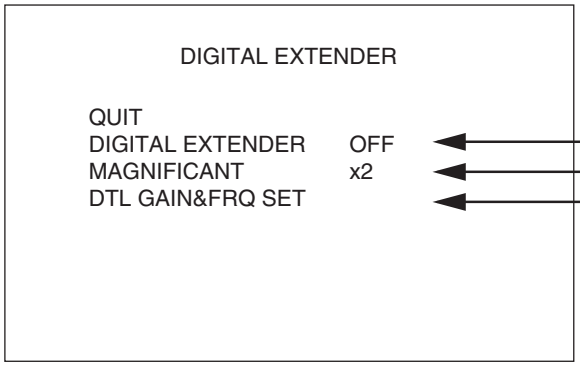
7. Selects the lens name to edit and press “SET”.
   Switches to the edit mode, and ( ) at both ends blinks.
8. Edits AUTO SEL NAME.
   Input “*” after the letters exempt from the comparison target at AUTO SEL. In the example of the left figure, “AB40X10A” is the comparison target and “BCD” is not the comparison target.
   The same lens file can be applied to the following two lenses.
   “AB40X10ABCD” “AB40X10AACD”
9. Press “SET” and finish the edit.
   The edit mode ends, and blinking of ( ) at both ends stops.

Notice

・Processing when AUTO READ is executed is as follows.
  [The serial lens is being connected.]
  AUTO SEL NAME becomes the model name of the serial lens being connected now.
  [The lens is not connected; The analog lens is being connected.]
  Maintains the registered AUTO SEL NAME.

・AUTO SEL NAME EDIT can be set regardless of the connected lens type (including the time of disconnecting).
  AUTO SEL NAME EDIT is a function to edit the model name read by AUTO READ.
  It doesn’t function when the model name of the serial lens being the target in AUTO READ is not obtained.

■ **DIGITAL EXTENDER**



Turns on/off the digital extender. (OFF, ON)

Sets the magnification of the digital extender. However, the resolution decreases when the maginification increases.
(x1.5, x2, x3, x4, x6, x8, x10)
(Set it to the magnification corresponding to the necessary resolution.)

Sets the gain, the booth, and frequency of DTL corresponding to the magnification of the digital extender.

[DIGITAL EXTENDER]

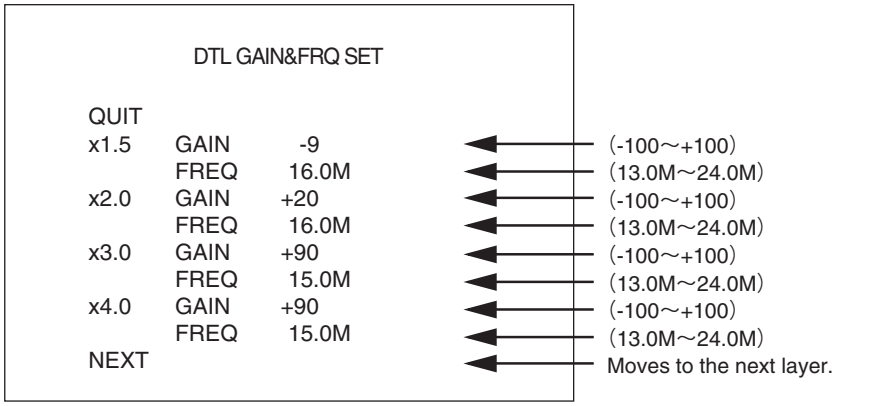
ON : Turns on the digital extender.
OFF : Turns off the digital extender.

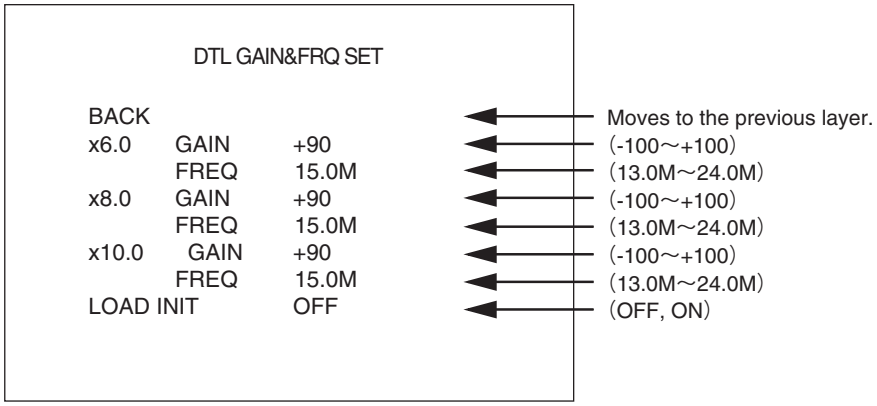
[MAGNIFICANT]

X1.5 : Magnifies X1.5
X2 : Magnifies X2
X3 : Magnifies X3
X4 : Magnifies X4
X6 : Magnifies X6
X8 : Magnifies X8
X10 : Magnifies X10

[DTL GAIN&FRQ SET]

When the digital extender is turned on, the gain, the booth, and the frequency of DTL can be changed according to the expansion magnification.





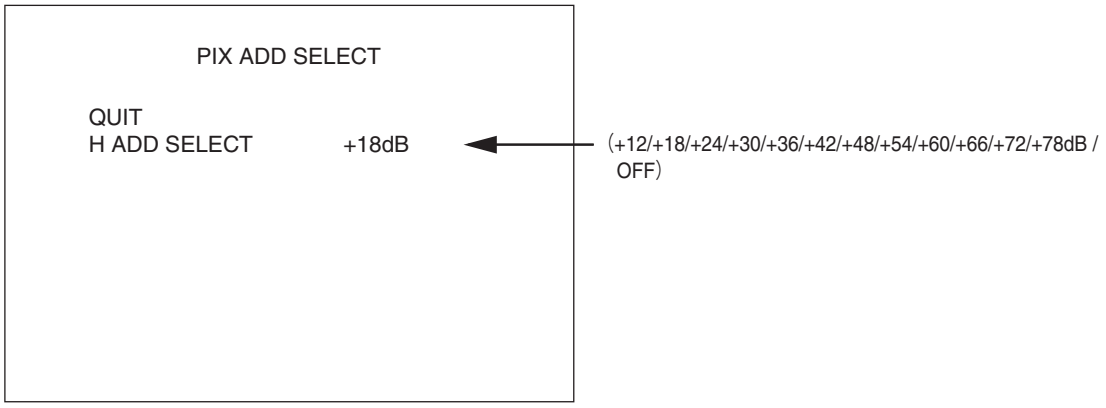
x1.5 GAIN : Sets the DTL gain at the X1.5 magnification.
FREQ : Sets the boost frequency at the FREQ; X1.5.
2.0 GAIN : Sets the DTL gain at the X2.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X2.0.
x3.0 GAIN : Sets the DTL gain at the X3.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X3.0.
x4.0 GAIN : Sets the DTL gain at the X4.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X4.0.
x6.0 GAIN : Sets the DTL gain at the X6.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X6.0.
x8.0 GAIN : Sets the DTL gain at the X8.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X8.0.
x10.0 GAIN : Sets the DTL gain at the X10.0 magnification.
FREQ : Sets the boost frequency at the FREQ; X10.0.
LOAD INIT : Turning it on makes the system to be set back to the default value.

Notice

When LOAD INIT is turned on, GAIN and FREQ of each magnification return to the preset default value.

■ PIX ADD SELECT

Sets the horizontal pixel addition.



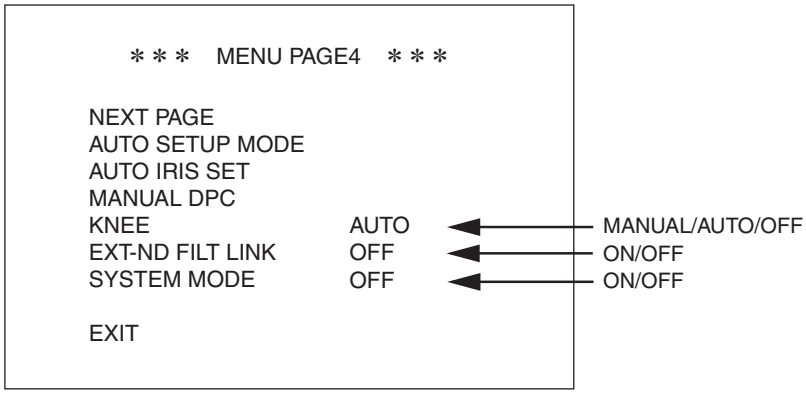
H ADD SELECT

Sets the gain for starting the horizontal pixel addition. The horizontal pixel addition is executed when the gain increase becomes over the setting. The sensitivity improvement that suppresses the deterioration of S/N can be executed by the horizontal pixel addition.

However, the horizontal resolution decreases. The horizontal pixel addition is not executed at turning off.

[MENU PAGE 4]

1. "MENU PAGE4" has the following items included.
2. To select the desired item, turn and press the MENU switch while the item is blinking. The sub menu screen of the selected item is displayed.
3. If the MENU switch is pressed while "EXIT" is blinking, the menu will turn off.



AUTO SETUP MODE : Selects or sets AWB and ABB.

AUTO IRIS SET : Performs the fine adjustment to the iris and adjustment to the PEAK balance when AUTO IRIS is in operation.

MANUAL DPC : This is the function to correct CCD defects. Performs correction by interpolation from the next pixel when white or black defects are created.

KNEE : Switches over the KNEE performance.

MANUAL : MANUAL KNEE ON

AUTO : AUTO KNEE ON

OFF : KNEE OFF

Notice It becomes MANUAL KNEE when the accumulation shutter is ON in AUTO KNEE. Only OFF and MANUAL KNEE can be selected when the accumulation shutter is ON.

EXT-ND FILT LINK : Selects ON/OFF of the mode to control the ND filter that interworks with on/off of the lens extender.

- OFF : The ND filter is not switched if the lens extender is turned on/off.
- ON : The ND filter gets one level brighter if the lens extender is turned on. The ND filter gets one level darker if the lens extender is turned off.

Notice

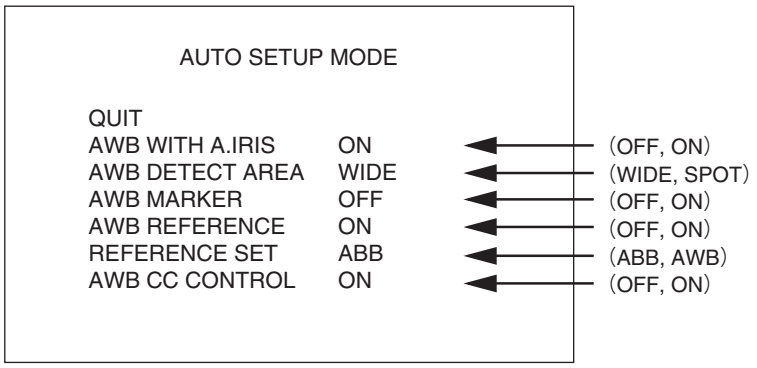
When the brightest ND filter is used before the extender is turned on, the ND filter is not switched.
When the darkest ND filter is used before the extender is turned off, the ND filter is not switched.

⚠ CAUTION

When the ND filter position (order or density) is changed to other than the standard, please do not use this function. Appropriate ND filter control is not performed for other than the standard position.

SYSTEM MODE : OFF : Cancels the value set by the operation control panel when the operation control panel is disconnected. When the operation control panel is connected again, the setting returns to the state before it is disconnected.
ON : Maintains the value set by the operation control panel even if the operation control panel is disconnected.

■ AUTO SETUP



When the MENU select switch is pressed on the item to be set, the value on the right blinks.
Keeping this state, turn the MENU select switch to select the desired value and press it.

[AWB WITH A.IRIS]

- ON : Forcibly controls the IRIS to perform AWB at 100% picture level.
- OFF : Performs AWB with the current IRIS value.

[AWB DETECT AREA]

- WIDE : Performs AWB using about 80% of the screen as the measurement area.
- SPOT : Performs AWB using about 10% (center) of the screen as the measurement area.

[AWB MARKER]

- ON : Displays a marker for the area measured for AWB.
- OFF : Does not display a marker for the measurement area.

[AWB REFERENCE]

- ON : Performs AWB based on the value set for “REFERENCE SET”.
- OFF : Performs AWB based on the picture level of G ch.

[REFERENCE SET]

Set the convergence values when AWB and ABB are performed.
When AWB and ABB are selected, “PUSH SET → START” blinks on the lower side of the menu screen. When the MENU switch is pressed again at this time, AWB and ABB are performed. When you do not perform AWB and ABB, rotate the MENU switch and move to another item.

- AWB
  1. Set “AWB REFERENCE” to “ON”.
  2. Set the GAIN value for each channel.
  3. Perform “REFERENCE SET”.
  4. Perform “AWB” to converge to the set value.
- ABB
  1. Set the PED value.
  2. Perform “REFERENCE SET”.
  3. Perform “ABB” to converge to the set value.

[AWB CC CONTROL]

Sets the mode for which the ECC filter is automatically switched when AWB is performed.

・ON : The ECC filter is automatically switched.

・OFF : The ECC filter is not automatically switched.

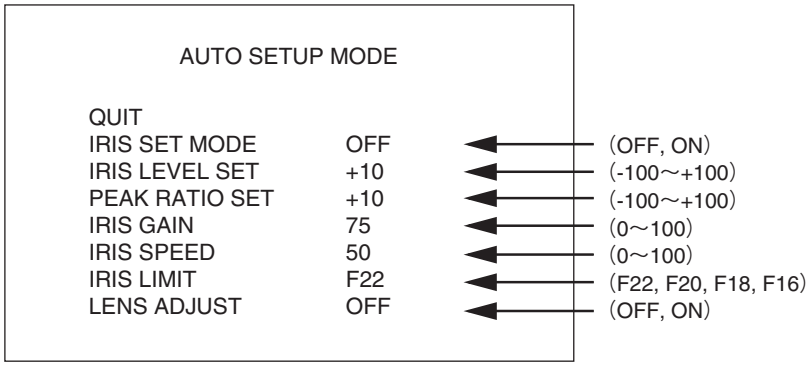
Notice

AWB CC CONTROL is the function to perform AWB again by switching the ECC filter automatically when the color temperature of the subject does not fit with the ECC filter position of the camera. This enables to adjust the white balance within all the color temperature ranges with one operation of AWB.

Notice

Auto Peak Shading is the function to adjust the black level on the edge of the screen automatically. It takes several minutes to complete APS.

■ AUTO IRIS SET



IRIS SET MODE : ON : Enables the adjustment of AUTO IRIS.
OFF : Prohibits the adjustment of AUTO IRIS.

IRIS LEVEL SET : Adjusts the video level where AUTO IRIS converges.

PEAK RATIO SET : Adjusts the AUTO IRIS response. The larger the value is, the more sensitive to a small light source the camera gets.

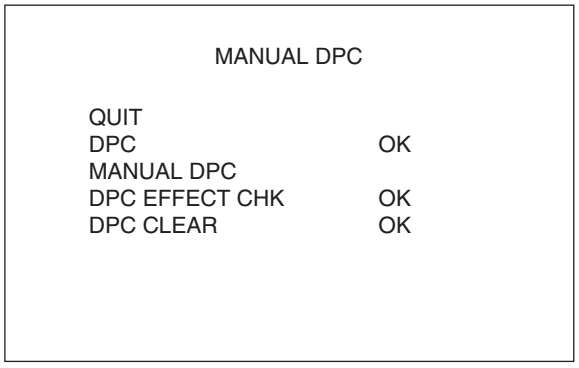
IRIS GAIN : Adjusts the sensitivity of AUTO IRIS.

IRIS SPEED : Adjusts the operation speed of AUTO IRIS.

IRIS LIMIT : Select a limit value of the iris that can be closed by AUTO IRIS. The iris can be closed up to the F value to be selected.

LENS ADJUST : Used to adjust the combination with lenses. Normally, this item is not used.

■ MANUAL DPC



DPC : ON : Goes to defective pixel correction ON condition.
OFF : Goes to defective pixel correction OFF condition.

MANUAL DPC : Carries out defective pixel correction.

DPC EFFECT CHK : OK : Possible to confirm correction condition of scratch within setting range.
CANCEL: Cancels execution of confirmation of scratch correction condition.

DPC CLEAR : OK : Erases all correction data for defective pixel correction.
CANCEL: Cancels execution of erasure of defective pixel correction data.

[Correction Method]

1. Select “MANUAL DPC” on page 4 of the menu and press the MENU switch. The MANUAL DPC sub-menu is displayed.
2. Confirm that DPC is ON. If it is OFF, rotate the MENU switch, align the blinking cursor with DPC and press the MENU switch. The blinking cursor will move to the mode. Rotate the MENU switch to select ON and then press the MENU switch.

Notice

Addition: A uniformly illuminated white subject such as a pattern box is required for detection of black spot pixels. Because there is danger of mistaken operation, do not carry out black pixel detection with normal subjects.

3. Rotate the MENU switch, select MANUAL DPC and press the MENU switch. A cross mark cursor in which the center of the intersection point is missing is displayed on the screen. Align the marker on the intersection point of the cross marker with a position left of the defective pixel.
4. The cross marker intersection point position lacking a center is corrected. Rotate the MENU SWITCH to adjust the correction position sideways (horizontal direction). SAMPLE SET LEFT-RIGHT is displayed in the screen display. Press the MENU switch at the point you wish to correct. Continue rotating the MENU switch to adjust the correction position up and down (vertical direction). SAMPLE SET UP-DOWN is displayed in the screen display.
5. If “DPC: CANCEL” is displayed, rotate the MENU switch, select either CANCEL, EXECUTE or MENU OUT, and press the MENU switch.
   - If the MENU switch is pressed with CANCEL, correction is not carried out and it returns to the position setting condition in which POSITION SET LEFT-RIGHT is displayed.
   - If the MENU switch is pressed with EXECUTE, correction is carried out and it returns to the position setting condition in which POSITION SET LEFT-RIGHT is displayed.
   - If the MENU switch is pressed with MENU OUT, correction is not carried out and it returns to the sub-menu screen.

[Verifying correction state]

1. Turn the MENU switch to select “DPC EFFECT CHK” and press it. The blinking cursor moves to the mode.
2. Turn the MENU switch to select the desired value (“OK” or “CANCEL”) and press it.
   - Selecting “OK” displays blinking “PUSH SET → START” on the lower side of the screen.
   - Selecting “CANCEL” cancels the verification of the defect correction state.
3. When “OK” is selected, press the MENU switch again. “DPC ON” and “DPC OFF” are displayed alternately for a few seconds.
   - DPC ON : Displays the state after the defect correction on the screen.
   - DPC OFF : Displays the state before the defect correction on the screen.

[Deleting defect correction data]

Notice

Execution of DPC CLEAR deletes all defect correction data set so far. Verify if it is deleted before execution.

1. Turn the MENU switch to select “DPC CLEAR” and press it. The blinking cursor moves to the mode.
2. Turn the MENU switch to select the desired value (“OK” or “CANCEL”) and press it. When “OK” is selected, “DPC ON” and “DPC OFF” are displayed alternately for a few seconds.
   - DPC ON : Displays the state after the defect correction on the screen.
   - DPC OFF : Displays the state before the defect correction on the screen.

   Then, blinking “PUSH SET → START” is displayed on the lower side of the screen. When “CANCEL” is selected, deletion of defect correction data is cancelled.

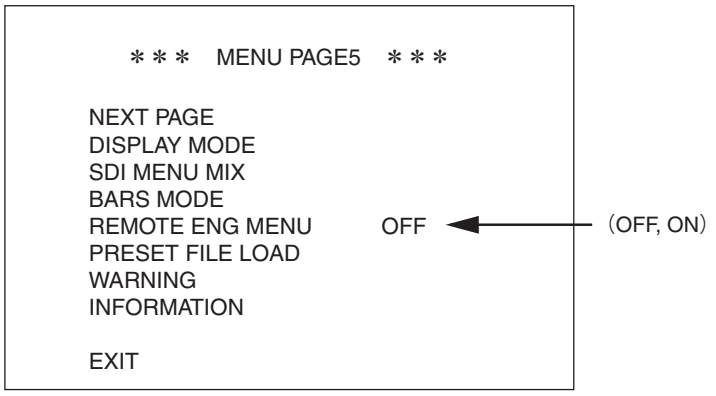
Notice

If “DPC CLEAR” is set to “OK” by mistake, turn the MENU switch at this timing to go back to the sub menu of “AUTO DPC” screen. The correction data is not deleted.

3. When “OK” is selected, press the MENU switch again.
   When the defect correction data is successfully deleted, “DPC CLR COMPLETED” is displayed on the lower side of the screen.

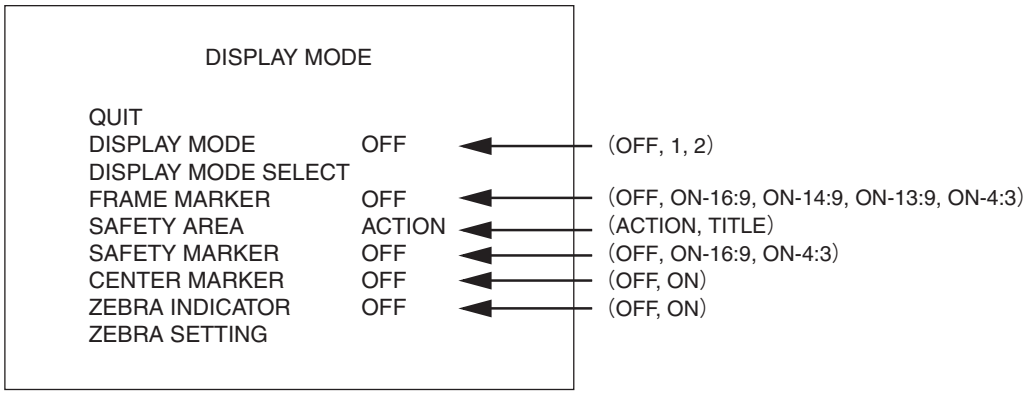
[MENU PAGE 5]

1. “MENU PAGE 5” has the following items included.
2. To select the desired item, turn and press the MENU select switch while the item is blinking. The sub menu screen of the selected item is displayed.
3. If the MENU select switch is pressed while “EXIT” is blinking, the menu will turn off.



DISPLAY MODE : Selects MENU characters and markers that are superimposed on the video.
SDI MENU MIX : Selects the superposition state of MENU characters and markers for the SDI1 and SDI2 connectors.
BARS MODE : Sets the type of the color bar.
REMOTE ENG MENU : When the engineer menu is opened from the operation control panel, it is turned on. When the menu is closed, it returns to be turned off.
PRESET FILE LOAD : It is used to return to the factory setup data or the data saved by “ENGINEER SET FILE RENEW” in the engineer menu.
WARNING : Displays the monitoring information such as the input voltage, internal temperature, and cooling fan of the camera.
INFORMATION : Displays settings on various states and environment of the camera.

■ DISPLAY MODE



DISPLAY MODE : Sets the display mode for the gain, shutter, and filters.
DISPLAY MODE SELECT : Selects the gain, shutter, and filter displays independently.
FRAME MARKER : Selects ON/OFF of the frame marker display and the marker size.
SAFETY AREA : Sets the type of the safety marker.
SAFETY MARKER : Selects ON/OFF of the safety marker display and the marker size.
CENTER MARKER : Selects ON/OFF of the center marker display.
ZEBRA INDICATOR : Selects ON/OFF of the zebra indicator display.
ZEBRA SETTING : Sets the display level of the zebra indicator.

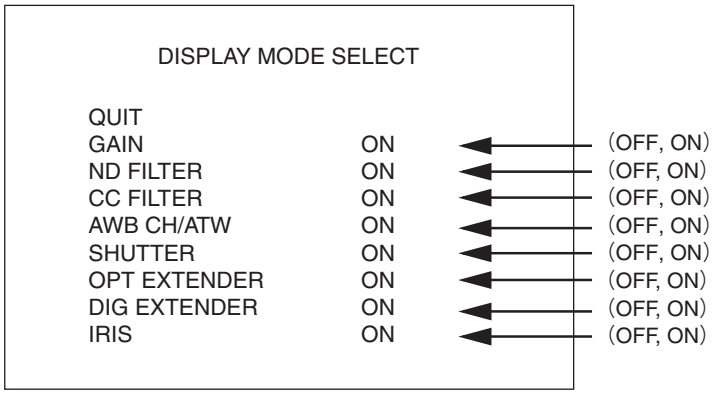
[DISPLAY MODE]

Sets the display mode for the gain, shutter, and filters.

- OFF: Displays only WARNING.
- 1 : Displays the gain, shutter, and filters for 2 seconds after the state changes.
- 2 : Always displays the gain, shutter, and filters. 0dB for the gain disappears 2 seconds after it is displayed.

[DISPLAY MODE SELECT]

Selects the content to be displayed.



GAIN	: ON	: Displays the gain.
	OFF	: Does not display the gain.
ND FILTER	: ON	: Displays the number of the ND filter.
	OFF	: Does not display the number of the ND filter.
CC FILTER	: ON	: Displays the number of the CC filter.
	OFF	: Does not display the number of the CC filter.
AWB CH/ATW	: ON	: Displays the AWB channel. Displays ATW as “T”.
	OFF	: Does not display the AWB channel and ATW.
SHUTTER	: ON	: Displays the shutter speed.
	OFF	: Does not display the shutter speed.
OPT EXTENDER	: ON	: Displays ON of the lens extender.
	OFF	: Does not display ON of the lens extender.
DIG EXTENDER	: ON	: Displays ON and magnification of the digital extender.
	OFF	: Does not display ON and magnification of the digital extender.
IRIS	: ON	: Displays the lens iris number.
	OFF	: Does not display the lens iris number.

[FRAME MARKER]

Sets the display mode of the frame marker.

- OFF : Does not display the frame marker.
- ON-16:9 : Displays the 16:9-size frame marker.
- ON-14:9 : Displays the 14:9-size frame marker.
- ON-13:9 : Displays the 13:9-size frame marker.
- ON-4:3 : Displays the 4:3-size frame marker.

[SAFETY AREA]

Sets the type of the safety marker.

- ACTION : Displays the safety marker for the ACTION area (90%).
- TITLE : Displays the safety marker for the TITLE area (80%).

[SAFETY MARKER]

Sets the display mode of the safety marker.

- OFF : Does not display the safety marker.
- ON-16:9 : Displays the 16:9-size safety marker.
- ON-4:3 : Displays the 4:3-size safety marker.

[CENTER MARKER]

Sets the display mode of the center marker.

- OFF : Does not display the center marker.
- ON : Displays the center marker.

[ZEBRA IND]

Sets the display mode of the zebra marker.

- OFF : Does not display the zebra marker.
- ON : Displays the zebra marker.

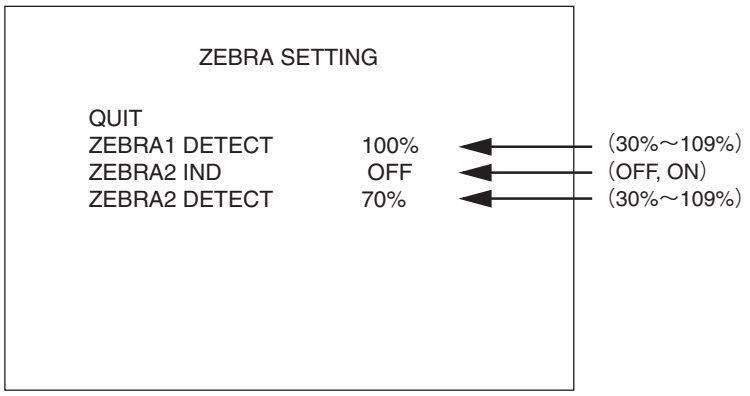
[ZEBRA SETTING]

Sets the zebra signals.

The zebra signals are striped patterns that appear superimposed on the video. There are two types of zebra signals: the zebra 1 signal which appears in the area where the video level of the subject is higher than the set value for “ZEBRA1 DETECT”, and the zebra 2 signal which appears only in the area where the video level is the same as the set value for “ZEBRA2 DETECT”.

The striped patterns to be generated for the zebra 1 signal and zebra 2 signal are different. For the zebra 1 signal, thin and diagonal striped patterns run in the upper right direction of the screen. For the zebra 2 signal, thick and diagonal striped patterns slightly and slowly run in the lower right direction of the screen.

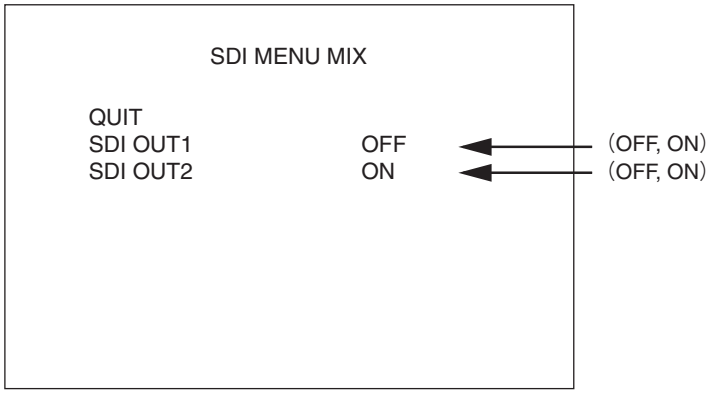
The zebra 1 signal is used to manage tones for the overall screen. The zebra 2 signal is used to mange partial tones of subjects associated with memory colors such as face tones.



ZEBRA1 DETECT : Sets the signal level to display the ZEBRA1 indicator.
ZEBRA2 IND : ON : Displays the ZEBRA2 indicator.
OFF : Does not display the ZEBRA2 indicator.
ZEBRA2 DETECT : Sets the signal level to display the ZEBRA2 indicator.

■ SDI MENU MIX

Sets ON/OFF of the superposition of MENU characters and VF indicators to the SDI signals for the SDI OUT1 and SDI OUT2 connectors.



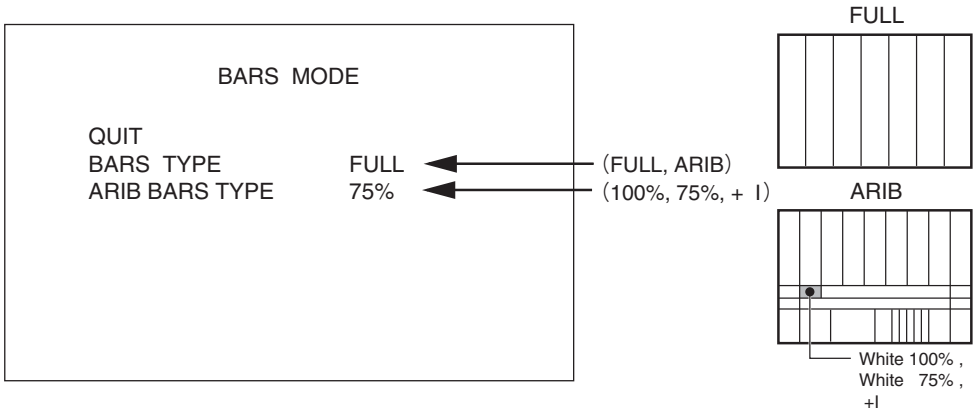
SDI OUT1 : Sets the superposition to the SDI OUT1 connector.
ON : Superimposes.
OFF : Does not superimpose.
SDI OUT2 : Sets the superposition to the SDI OUT2 connector.
ON : Superimposes.
OFF : Does not superimpose.

Notice

Even if it is set to “OFF”, the MENU screen is displayed on the analog signal output from “MON OUT connector” on the back of the camera.

Even if both items are set to “OFF”, the menu screen of “MENU PAGE1” appears by setting the CAM/BAR switch on the rear of the camera to “BAR” and pressing the MENU switch for several seconds. After that, “ON” can be set by selecting “SDI MENU MIX” of “MENU PAGE5”.

■ BARS MODE



When the MENU select switch is pressed on the item to be set, the value on the right blinks.
Keeping this state, turn the MENU select switch to select the desired value and press it.

BARS TYPE : Sets the type of the color bar.
ARIB BARS TYPE : Sets the White level of the ARIB bar as shown in the right figure.

Notice

ARIB : Association of Radio Industries and Businesses

■ REMOTE ENG MENU

Sets how to open the engineer menu from the operation control panel.

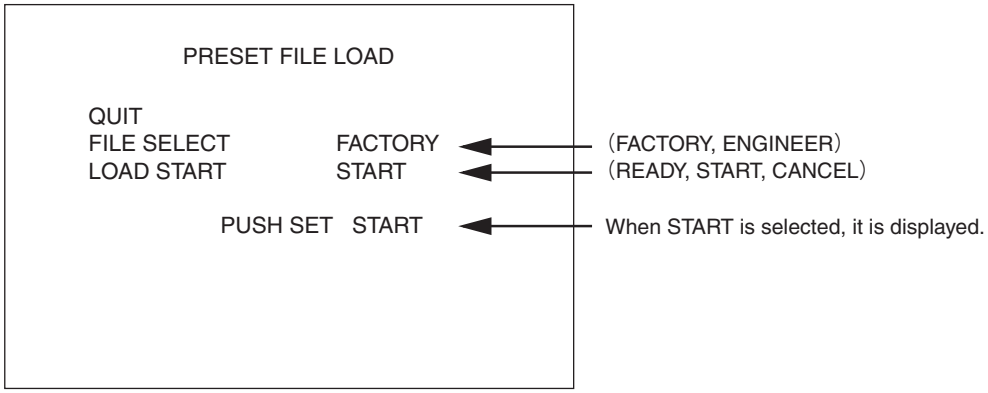
- OFF : Standard mode. The engineer menu cannot be opened from the operation control panel.
- ON : Opens the engineer menu from the operation control panel.

Notice

Once the REMOTE ENG MENU is turned on, it cannot be turned off until the camera menu operation is completed.
It returns to be turned off when the camera menu operation is completed.

■ PRESET FILE LOAD

It is used to return to the factory setup data or the data saved by “ENGINEER SET FILE RENEW” in the engineer menu.



FILE SELECT : Selects the data to load.
FACTORY : Selects the factory setup data.
ENGINEER : Selects the data saved by ENGINEER SET FILE RENEW.
LOAD START : Starts to load data.
When START is selected after READY, PUSH SET → START is displayed. When loading, select START again. When discontinuing, select CANCEL or close the menu with QUIT.

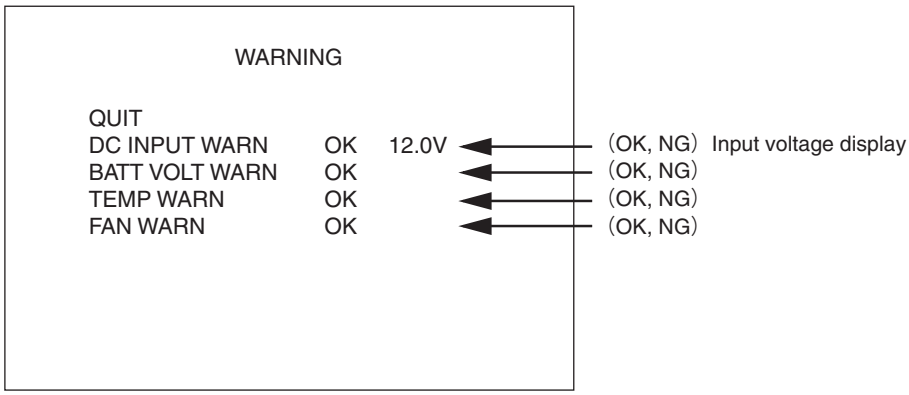
Notice

Before shipment, the ENGINEER SET FILE data is the same as the FACTORY data.
The ENGINEER SET FILE data is overwritten by executing the engineer menu ENGINEER SET FILE RENEW.

Notice

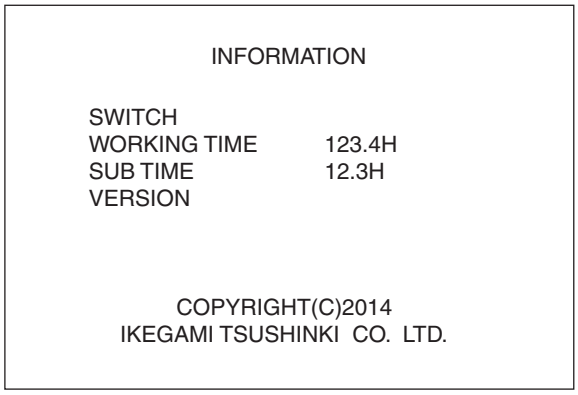
When the data loading of ENGINEER and FACTORY is executed, the display may licker for a few seconds.

■ WARNING



DC INPUT WARN : Displays the voltage state for the +12V power input. Also displays the voltage value.
OK : The input voltage is normal.
NG : The input voltage is abnormal.
BATT VOLT WARN : Displays the voltage state of the battery for the backup of the MPU module.
OK : The battery voltage is normal.
NG : The battery voltage is abnormal.
TEMP WARN : Displays the temperature state inside the CCU.
OK : The internal temperature is normal.
NG : The internal temperature is abnormal.
FAN WARN : Displays the rotational state of the CCU fan.
OK : The fan rotation is normal.
NG : The fan rotation is abnormal.

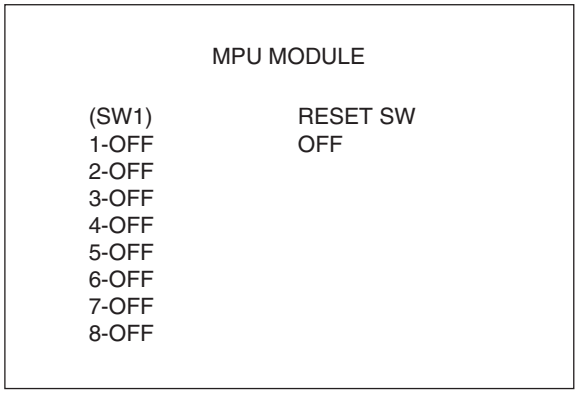
■ INFORMATION



SWITCH : Displays the setting state of the dip switches in the MPU module.
WORKING TIME : Displays accumulated operation time of the camera up to now.
SUB TIME : Displays accumulated operation time of the camera.
VERSION : Camera software and FPGA version information.

[SWITCH]

Displays the switch settings for the MPU module of the CCU in the following sub menu screen. Pressing the MENU switch while this screen is being displayed moves to the “INFORMATION” screen.



[WORKING TIME]

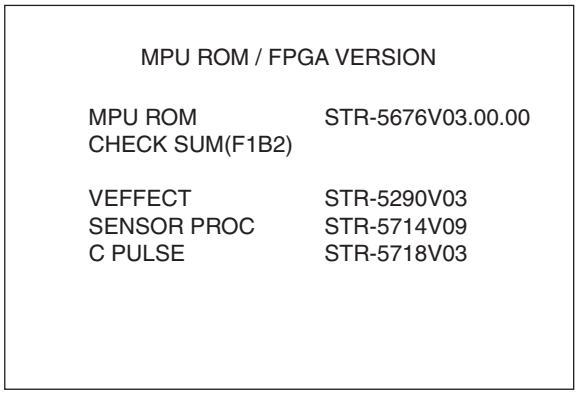
Displays accumulated operation time since the shipment.

[SUB TIME]

Displays the accumulated operation time of the camera. Unlike “WORKING TIME”, this can be reset by a user.

1. Select “SUB TIME” and press the MENU switch. The blinking cursor moves to the mode.
2. Select “RESET” and press the MENU switch. The operation time is reset to “0.0H”.

■ VERSION



MPU ROM : Displays the ROM version inside the MPU module.
CHECK SUM : Displays the check sum of the ROM data.
V EFFECT : Displays the ROM version of the FPGA in the V EFFECT module of the CCU.
In changing the ROM version, verify that the checksum separately informed and the one displayed on the menu screen match.
SENSOR PROC : Displays the FPGA version.
C PULSE : Displays the FPGA version.

5.4 Engineer Menu

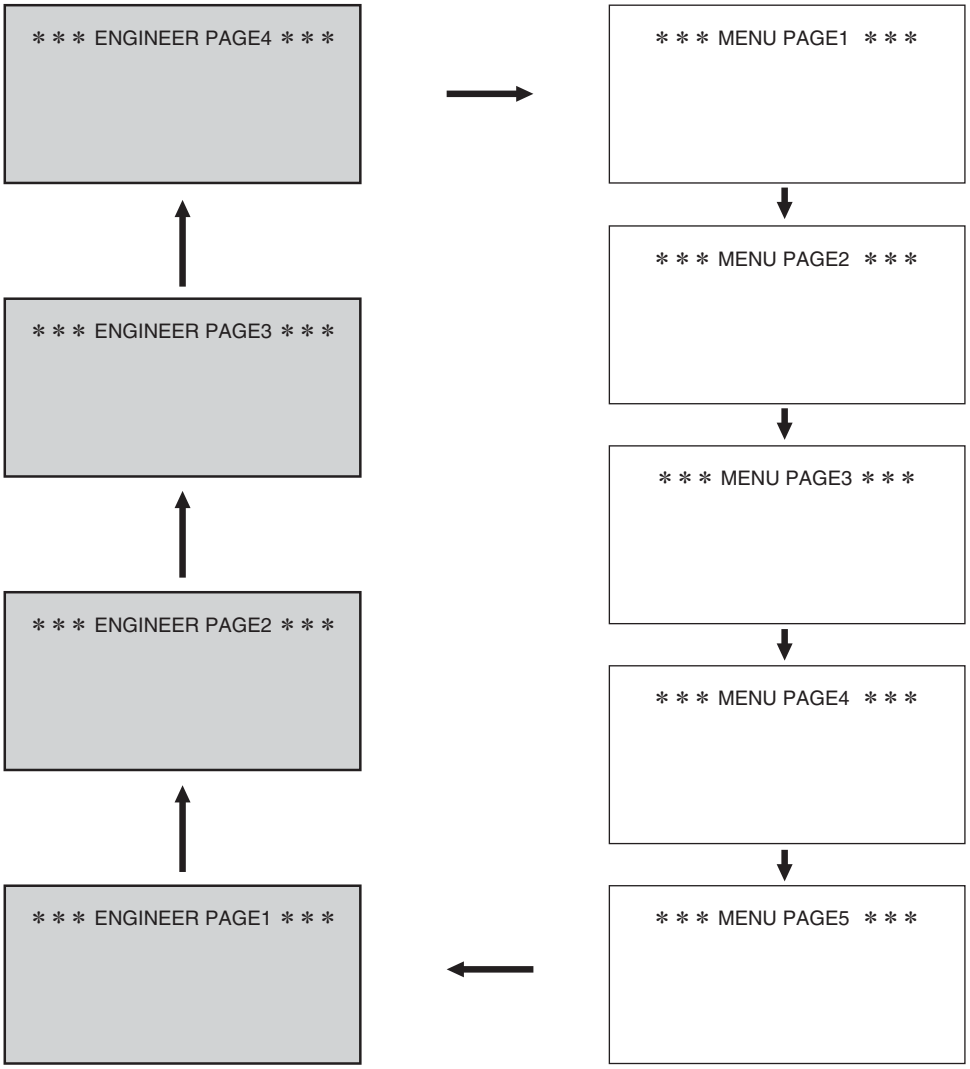
The camera provides engineer menus for maintenance in addition to the camera menus.
New engineer menus ENGINEER PAGE1, ENGINEER PAGE2, ENGINEER PAGE3, and ENGINEER PAGE4 are displayed in this order after camera menu MENU PAGE5.

⚠ CAUTION

As some items set on engineer menus affect the main video signal and operation, be extremely careful when setting engineer menu items. Especially, it is not recommended to operate the engineer menu while the camera is on air.

[Displaying the engineer menu screen]

1. Set the CAM/BAR select switch on the camera rear panel to the “BAR” position.
2. Keep on pressing the MENU switch until the WARNING indicator lights.
3. The engineer menu screen is displayed when the WARNING indicator lights.
   The camera menu screen is redisplayed automatically when the engineer menu screen is exited.



[Hierarchical Structure of the Engineer Menus]

∗∗∗ ENGINEER PAGE1 (1/2) ∗∗∗

MAIN MENU	SUB MENU	SELECT	DEFAULT	FUNCTION
NEXT PAGE	-	-	-	Moves to ENGINEER PAGE2.
SMOOTH KNEE SETUP	QUIT	-	-	Moves from the sub menu to the main menu.
	SMOOTH KNEE	OFF, TYPE1, TYPE2, TYPE3	TYPE1	Selects the SMOOTH KNEE type.
	TEST PULSE	ON, OFF	OFF	Turns on/off the test pulse for setting SMOOTH KNEE.
	POINT1	-	-	Sets the SMOOTH KNEE curve. The entire curve can be determined by setting each one of the three points of the curve. Each curve of TYPE1, TYPE2, or TYPE3 can be set.
	SLOPE1	-	-	
	POINT2	-	-	
	SLOPE2	-	-	
	POINT3	-	-	
	SLOPE3	-	-	
	LOAD INT	-	-	Initializes the data to the factory settings.
HI-LIGHT DTL SET UP	QUIT	-	-	Moves from the sub menu to the main menu.
	HI-LIGHT DTL	ON, OFF	OFF	Turns on/off highlight DTL.
	GAIN	0 to +100	-	Sets highlight DTL GAIN. Increasing the GAIN value increases edges to be added to high luminance parts.
	LIMIT	-100 to +100	-	Sets the clip point of highlight DTL edge. Controls the amplitude of the edge.
ND FILE		ON, OFF	ON	Offsets the color temperature for each ND filter when set to ON. This corrects the white balance deviation which is caused by ND filter incorporation. No offset is performed when set to OFF.
AVC SETUP	QUIT	-	-	Moves from the sub menu to the main menu.
	FUNCTION	ENABLE, DISABLE	ENABLE	Selects whether the operation of the AVC function is valid or invalid. DISABLE is recommended for the indoor operation selection. ENABLE is recommended for the outdoor operation selection.
	MODE	QUIT		Moves to AVC SETUP menu.
	AVC DISPLAY MODE	ON, OFF	OFF	Performs the character display at the AVC operated condition to the main line output. Display items from the left: ND FILTER No., CC FILTER No., Iris F value, operated condition, (“D”ay or “N”ight), gain display, AWB file (“A”ch/“B”ch/A“T”W coupled), NIGHT MODE output No., DAY MODE output No.
	PRESET DAY FILE	MODE1, 2, 3, 4, 5	MODE3	Selects the operation pattern of DAY mode.
	DAY FILE CENTER	MODE1, 2, 3, 4, 5	MODE3	Fixes the center position of the volume.
	PRESET NIGHT FILE	MODE1, 2, 3, 4, 5	MODE2	Selects the operation pattern of NIGHT mode.
	DAY DETECT AREA	AREA1, 2, 3, 4, 5, 6, 7	AREA4	Selects the photometry area of DAY mode.
	NIGHT DETECT AREA	AREA1, 2, 3, 4	AREA4	Selects the photometry area of NIGHT mode.
	GAIN LIMIT	+12, +18, +24, +30, +36, +42, +48, +54, +60, +66, +72, +78dB	+18dB	Sets the limit value of NIGHT mode gain increase.
	D/N TIME	FAST, STANDARD	STANDARD	—
	D/N CHANGE LEVEL	TYPE1, 2, 3, 4	TYPE1	—
	F LIMIT	QUIT		Moves to AVC SETUP menu.
	F2.8	-40 +70		The value of setting F value for entering NIGHT mode.
	F VALUE	-	F2.8	F value for entering NIGHT mode.

∗∗∗ ENGINEER PAGE1 (2/2) ∗∗∗

MAIN MENU	SUB MENU	SELECT	DEFAULT	FUNCTION
ATW SETUP	QUIT	-	--	Moves from the sub menu to the main menu.
	ATW DAY MODE	PRESET, NORMAL	PRESET	ATW allowable range at AVC OFF, AVC DAY MODE.
	ATW NIGHT MODE	PRESET, NORMAL	NORMAL	ATW allowable range at AVC NIGHT MODE.
	ATW SPEED	1 to 10	2	Sets the speed of the ATW correction.
	START UP TIME	1 to 5	OFF	Sets the response speed of correction against the change of the subject.
	START CC FILTER	A(3200), B(5600)	B(5600)	Sets the position of the CC filter when ATW is turned on.
	C.TEMP SETTING RED	QUIT		Moves to ATW SETUP menu.
	RED LIMIT AUTO SET	ON, OFF	OFF	Sets the correction range of R ch.
	RED LIMIT CONTROL	-100 to +100	0	The value for determining the correction range of R ch.
	RED LIMIT INIT	ON, OFF	OFF	Sets back to the correction range of the factory setup value.
	C.TEMP SETTING BLUE	QUIT		Moves to ATW SETUP menu.
	BLUE LIMIT AUTO SET	ON, OFF	OFF	Sets the correction range of B ch.
	BLUE LIMIT CONTROL	-100 to +100	0	The value for determining the correction range of B ch.
	BLUE LIMIT INIT	ON, OFF	OFF	Sets back to the correction range of the factory setup value.
	ATW REFERENCE	QUIT		Moves to ATW SETUP menu.
	ATW RED REFERENCE	-100 to +100	0	Sets the standard value of the R ch level.
	ATW BLUE REFERENCE	-100 to +100	0	Sets the standard value of the B ch level.
NOISE FILTER	QUIT	-	-	Moves from the sub menu to the main menu.
	STEP GAIN	6, 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78dB	0dB	Sets NOISE FILTER level to each gain. But only OFF can be set from -6 to +12dB.
	NOISE FILTER	OFF, LOW, MID, HIGH	OFF	Selects NOISE FILTER level.
AUTO HOLD IRIS	-	HOLD, MANUAL, AUTO	AUTO	IRIS operation at AUTO HOLD.
EXIT	-	-	-	Turns off the menu.

∗∗∗ ENGINEER PAGE2 ∗∗∗

MAIN MENU	SUB MENU	SELECT	DEFAULT	FUNCTION
NEXT PAGE	-	-	-	Moves to ENGINEER PAGE3.
INTERFACE	-	422, SINGLE	422	Switches I/O interfaces of the REMOTE connector. 422 : balanced RS-422 level, SINGLE : unbalanced TTL level
COMMAND MODE	-	ICCP, ISCP (1200/ 2400/ 4800/ 9600/ 19200)	ICCP	Switches communication protocols of the REMOTE connector. ICCP: Standard operation control panel protocol in two-way handshaking mode. ISCP: Remote control protocol in one-way or two-way handshaking mode. Baud rate is set according to the communication speed.
COMMAND/PC	-	COMMAND, PC	COMMAND	COMMAND : Mode for connecting standard operation control panel. PC : Mode for adjusting. It is not used usually.
ISCP LOG (It is displayed only when ISCP is selected with the COMMAND MODE.)	QUIT	-	-	Moves from the sub menu to the main menu.
	RESET LOG	ON, OFF	-	OFF : Saves the received data log. ON: When it is set to ON, data is reset to 0 by selecting EXE.
	COMM LOG	0 82	0	Received data log of ISCP command is displayed by selecting “COMM LOG”. And the data up to 100 can be confirmed by changing the numerical value.
	LOG RUN	START, STOP	START	START: Saves the received data to the log. STOP : Does not save the received data to the log.
EXIT	-	-	-	Turns off the menu.

⚠ CAUTION

When ISCP is selected with the COMMAND MODE, the usual operation control panel cannot be connected. At this time, the menu operation becomes impossible. In this case, please operate the menu switch of CCU to return it to ISCP.

∗∗∗ ENGINEER PAGE3 ∗∗∗

MAIN MENU	SUB MENU	SELECT	DEFAULT	FUNCTION
NEXT PAGE	-	-	-	Moves to ENGINEER PAGE4.
IRIS CIRCUIT ADJUST	QUIT	-	-	Moves from the sub menu to the main menu.
	ADJUST MODE	-	-	Adjusts the relationship between the fixed iris value and the answer value.
FILTER SETUP	QUIT	-	-	Moves from the sub menu to the main menu.
	POSITION ADJUST	ON, OFF	OFF	When it is set to ON, impresses the voltage to filter servo forcibly.
ND FILE SETUP MODE	-	ON, OFF	OFF	Creates ND FILE when set to ON, and AWB is executed at each ND filter position.
SINGLE FILTER MODE	-	ON, OFF	OFF	When it is set to ON, operates as same as the filter structure of 1 : through, 2 : 5600k, 3 : 5600k+1/4ND, 4 : 5600k+1/64ND at the CC filter command.
BLK SET REF	QUIT	-	-	Moves from the sub menu to the main menu.
	R BLK REF	-100 +100	-0	R BLACK SET correction value for each step gain.
	G BLK REF	-100 +100	-0	G BLACK SET correction value for each step gain.
	B BLK REF	-100 +100	-0	B BLACK SET correction value for each step gain.
ENGINEER SET FILE RENEW	QUIT	-	-	Moves from the sub menu to the main menu.
	DATA RENEW MODE	-	-	Saves the camera level adjustments and menu item settings. The saved data can be read as user-set data through “PRESET FILE LOAD” of MENU PAGE6.
PROGRAM UPDATE	CAMERA ROM	READY, CANCEL, EXECUTE	-	Updates the program software of the camera. Operates while connecting the operation control panel (OCP-200, etc.) with a memory card slot.
EXIT	-	-	-	Turns off the menu.

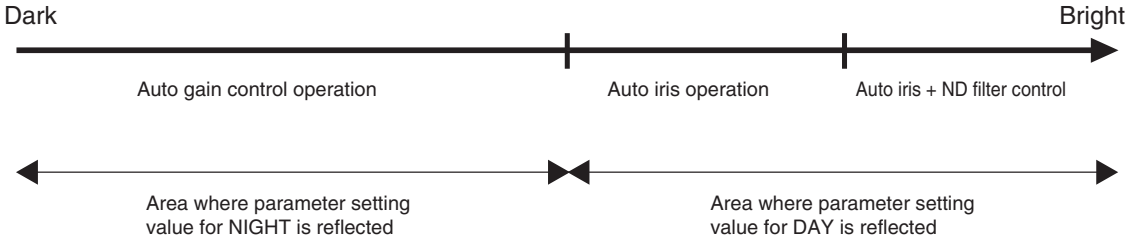
∗∗∗ ENGINEER PAGE4 ∗∗∗

MAIN MENU	SUB MENU	SELECT	DEFAULT	FUNCTION
NEXT PAGE	-	-	-	Moves to MENU PAGE1.
SCAN FORMAT SELECT	QUIT	-	-	Moves from the sub menu to the main menu.
	SCAN MODE	1080I59., 1080I50,	1080I59.	Selects the output format setting. Only the format set to [ENABLE] on the SCAN FORMAT ENABLE can be selected. 1080I59. : 1080/59.94i 1080I50 : 1080/50i
DATA COPY	QUIT	-	-	Moves from the sub menu to the main menu.
	COPY FILE	ALL, CONTROL DATA,SCENE, LENS, AWB Ach/Bch, AWB/ ABB REF, ON/OFF	ALL	Selects the setting of copy of data. To prevent the wrong operation, it cannot be operated from the operation control panel. It can be operated only from the menu switch on the rear of the camera.
	SOURCE FORMAT	1080I59., 1080I50,	1080I59.	Selects the format of copy source. To prevent the wrong operation, it cannot be operated from the operation control panel. It can be operated only from the menu switch on the rear of the camera.
	WRITE FORMAT	1080I59., 1080I50,	1080I50	Selects the format of copy destination. To prevent the wrong operation, it cannot be operated from the operation control panel. It can be operated only from the menu switch on the rear of the camera.
	COPY	READY, CANCEL, EXECUTE	READY	Copies the selected data. Starts the copy when selecting the EXECUTE. To prevent the wrong operation, it cannot be operated from the operation control panel. It can be operated only from the menu switch on the rear of the camera.
SCAN FORMAT ENABLE	QUIT	-	-	Moves from the sub menu to the main menu.
	REMOTE CONTROL	ENABLE, DISABLE	ENABLE	ENABLE : Enables the scanning format from the operation control panel. DISABLE: Disables the scanning format from the operation control panel.
	1080I59.	ENABLE, DISABLE	ENABLE	Selects whether the format change is enabled or disabled from the SCAN FORMAT SELECT. To prevent the wrong operation, it cannot be operated from the operation control panel. It can be operated only from the menu switch on the rear of the camera.
	1080I50	ENABLE, DISABLE	ENABLE	
EXIT	-	-	-	Turns off the menu.

About the operation of the AVC function

The following section describes about the AVC function, and the parameter setting value in the ENGINEER MENU PAGE1 AVC SETUP item.

When the AVC function is operated (MENU PAGE3 AVC SELECT ON), the AVC function is controlled automatically to always keep an appropriate image level by using the auto iris, the auto gain control, and the ND filter. When the iris cannot be stopped down based on the auto iris, the ND filter takes over it. Moreover, when the iris is open, the auto gain control takes over it.



Auto iris + ND filter control

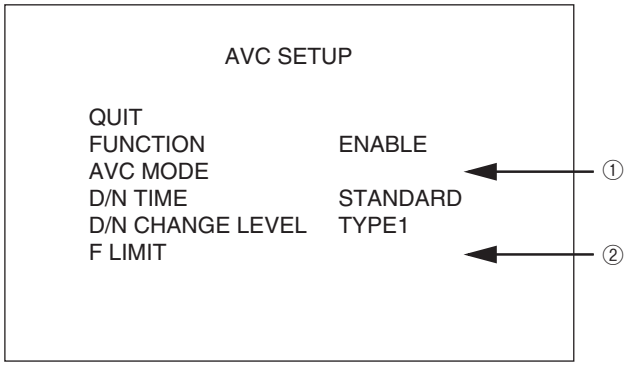
The ND filter enters for one stage when lens IRIS value exceeds F13.

The ND filter drops out of for one stage when lens IRIS value becomes F4 or less.

Auto gain control operation

The auto gain control starts when the ND filter is 1. CLEARD and F value becomes F2.8 or less.

[ENGINEER PAGE1] Structure of AVC SETUP



- FUNCTION
  ENABLE : AVC operation
  DISABLE : Standard operation
- D/N TIME
  The takeover timing of [DAY MODE] and [NIGHT MODE] can be set from two kinds.
  STANDARD : Factory setup data
  FAST : The follow timing becomes rapid operation compared to STANDARD.
- D/N CHANGE LEVEL
  The image level point taken over from [DAY MODE] to [NIGHT MODE] can be set from 4 kinds.
  The image level is taken over from [DAY MODE] to [NIGHT MODE] at a high point in order of TYPE4 → 3 → 2 → 1.

Notice

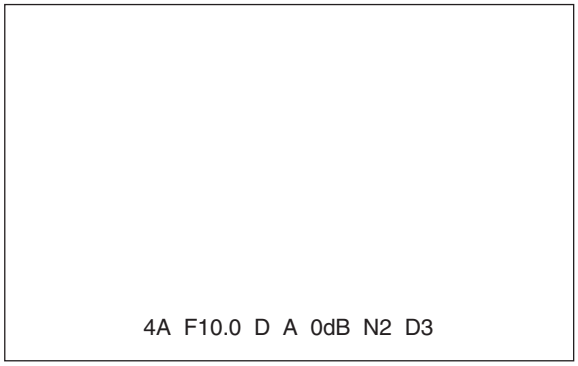
TYPE1 or TYPE2 is recommended for the operation as the information camera, and TYPE3 or TYPE4 is recommended for the operation as the surveillance purpose.

① When [AVC MODE] is selected, the menu is displayed as shown below.

AVC SETUP		
QUIT		
AVC DISPLAY MODE	OFF	(ON, OFF)
PRESET DAY FILE	MODE2	(MODE1～MODE5)
DAY FILE CENTER	MODE3	(MODE1～MODE5)
PRESET NIGHT FILE	MODE2	(MODE1～MODE5)
DAY DETECT AREA	AREA4	(AREA1～AREA7)
NIGHT DETECT AREA	AREA4	(AREA1～AREA5)
GAIN LIMIT	+18dB	(+12dB～+78dB)

・AVC DISPLAY

Performs the character display at the AVC operated condition to the main line.



Display items from the left:
- ・ND FILTER No.
- ・CC FILTER No.
- ・IRIS F value
- ・Present condition “D” → DAY MODE, “N” → NIGHT MODE
- ・AWB file (“A”ch/“B”ch/A“T”W coupled)
- ・Gain display
- ・Output No. of NIGHT MODE
- ・Output No. of DAY MODE

・PRESET DAY FILE

Enables to output 5 patterns of convergence value of the lens IRIS in the DAY MODE operation.

Preset value can be set by determining the selected MODE.

* When the operation control panel is connected and the AUTO IRIS is turned off, the convergence value of the IRIS uses the volume of IRIS CONTROL. MODE1 is output for the direction that the volume becomes minimum, and MODE5 is output for the direction that the volume becomes maximum. When the AUTO IRIS is turned on, the MODE of the preset value by PRESET DAY FILE is output regardless of the angle of the tab. The convergence value of the image approximately becomes the following value on the basis of MODE3.

MODE1 : -10%
MODE2 : -5%
MODE3 : Standard value
MODE4 : +10%
MODE5 : +20%

・DAY FILE CENTER

Fixes the preset MODE to the center position of the IRIS control volume on the operation control panel panel.

⚠ CAUTION

When other than MODE3 is fixed to the center position, it performs one-sided operation.
e.g. When MODE2 is fixed to the center position, MODE5 cannot be fixed.

・PRESET NIGHT FILE

Enables change from 4 patterns at the NIGHT MODE.

Initial setting value of the gain increase at each mode is as follows.

MODE1 : +18dB

MODE2 : +18dB

MODE3 : +30dB

MODE4 : +36dB

The convergence level of the gain increase becomes minimum at MODE1 and maximum at MODE4.

* MODE2 is the factory setup value and starts the gain increase when the image level becomes approx. 30%. MODE1 starts the gain increase at lower level.

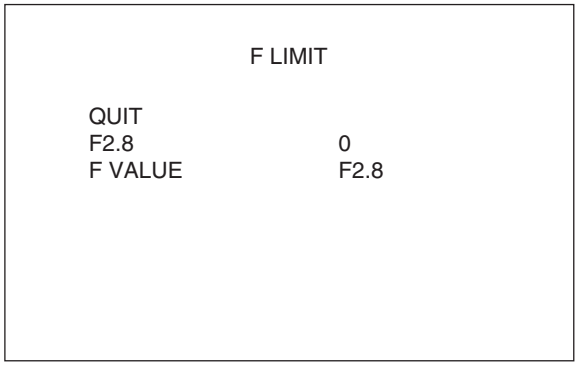
・NIGHT DETECT AREA

Enables to change the photometry area of NIGHT MODE. The photometry area is highlighted when it is changed.

・GAIN LIMIT

Enables to set the limit value of auto gain increase.

② When “F LIMIT” is selected, the menu the menu is displayed as shown below. AVC F LIMIT is a function to set the F value, which starts the auto gain control operation, to F2.8.



⚠ CAUTION

This setting is a function for adjusting the individual difference of lenses.
It is a function necessary for lens exchange, and it is not necessary to be set for usual operation.

[Other]

1. When the AVC function is operated, the following items cannot be controlled.
   - ・AUTO IRIS ON/OFF (But it can be used as the output of AVC DAY MODE.)
   - ・STEP GAIN
   - ・ND filter
   - ・SHUTTER

About the operation of the ATW function

The following section describes about the ATW function, and the parameter setting value in the ENGINEER MENU PAGE1 ATW SETUP item.

- ・Automatically matches the color by operating R GAIN and B GAIN. (Automatic guiding type white balance)
- ・The brightness and the color can be matched automatically by using the AVC function together.
- ・There are two types of settings that are the NORMAL mode and the PRESET mode.
- ・In the NORMAL mode, matches the color from blue near the primary color to red near the primary color.
- ・In the PRESET mode, matches the color from blue of sky blue to red of sunset color.
- ・The color range to be the subject of the PRESET mode function can be changed by the ENGINEER MENU function.
- ・Matches the color for the part where the image level is the highest within the range of shooting.
- ・The function stops when the subject’s color is exempt from the ATW function.

● **When B GAIN exceeds +90 on the panel display**

When blue cannot be matched appropriately, the CC filter is automatically switched to A (3200K) and the color is continued to match.

● **When R GAIN exceeds +90 on the panel display**

When red cannot be matched appropriately, the CC filter is automatically switched to B (5600K) and the color is continued to match.

⚠ CAUTION

ATW stops when the menu screen is displayed.
But when each of the following adjustment items is selected, ATW operates.
- RED LIMIT CONTROL
- BLUE LIMIT CONTROL
- ATW RED REFERENCE
- ATW BLUE REFERENCE

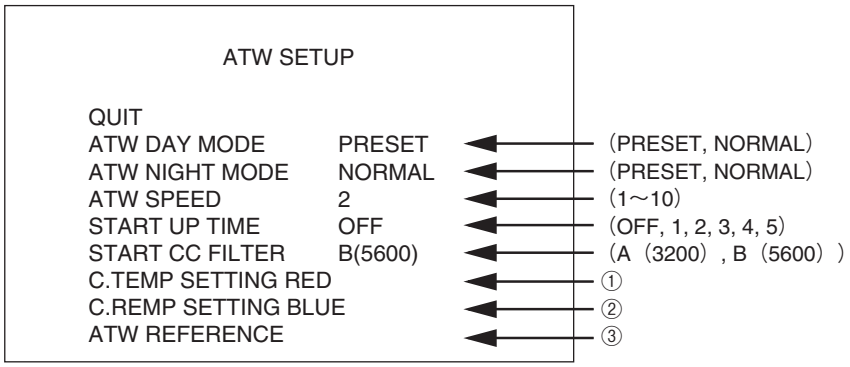
ATW stops when the image level is 100% or more, or 30% or less.

During ATW, R GAIN, G GAIN, and B GAIN cannot be operated on the panel or the menu.

During ATW, the AWB function cannot be used.

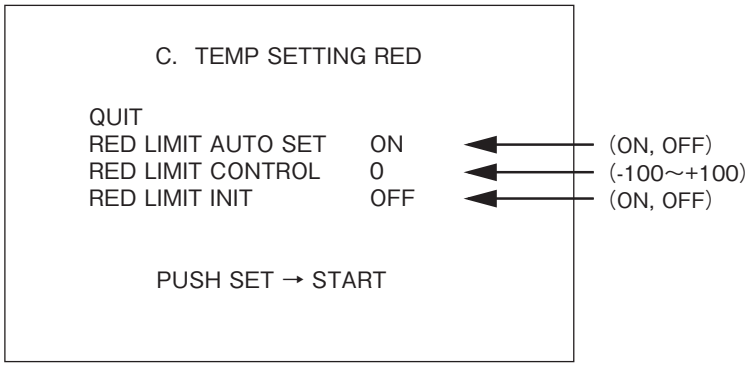
During ATW, the CC filter cannot be switched on the panel or the menu.

[ENGINEER PAGE1] Structure of ATW SETUP



- ATW DAY MODE
  Switches the ATW allowable range at AVC OFF, AVC DAY MODE.
- ATW NIGHT MODE
  Switches the ATW allowable range at AVC NIGHT MODE.
  PRESET : The range of color temperature to correct is narrow. The user can change the setting.
  NORMAL : The range of color temperature to correct is wide.
- ATW SPEED
  This is the value for changing the matching speed of the subject's color. The correction speed increases when the value is low, and decreases when the value is high.
- START UP TIME
  Sets the time taken from the change of the subject's color to moving to the process that actually matches the color. OFF performs correction for the change at once. The time before starting correction is long when the value is high. Please set the speed of reaction toward the subject's change.
- START CC FILTER
  Sets the CC filter at ATW ON.

① When [C.TEMP SETTING RED] is selected, the menu is displayed as shown below. Changes the R ch side correction range of [PRESET] in [ATW MODE].

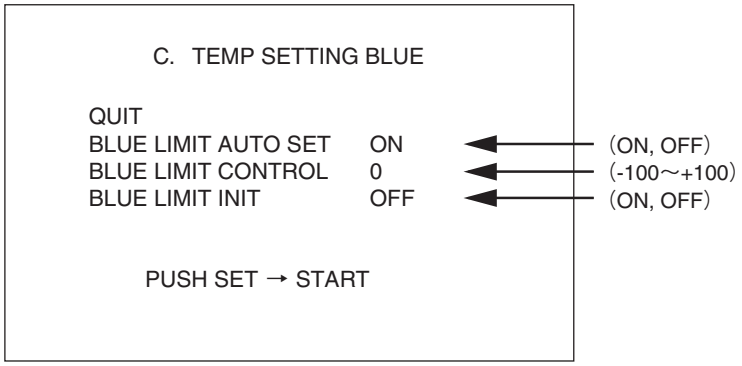


・RED LIMIT AUTO SET
1. Sets ATW MODE to PRESET, and shoots the red subject for matching.
2. Sets [RED LIMIT AUTO SET] to ON, and executes [PUSH SET START].
3. When COMPLETE is displayed, the color temperature (Red) of ATW allowed is changed within the range of color temperature of the subject.

・RED LIMIT CONTROL
Enables the fine adjustment of the ATW allowable range.
By + direction, enables to broaden the ATW allowable range of the color whose color temperature is low (Red).
By - direction, enables to narrow the ATW allowable range of the color whose color temperature is low (Red).

・RED LIMIT INIT
Setting ON makes the ATW allowable range of the color whose PRESET color temperature is low (Red) to be set back to the factory setup.

② When [C.TEMP SETTING BLUE] is selected, the menu is displayed as shown below. Changes the B ch side correction range of [PRESET] in [ATW MODE].

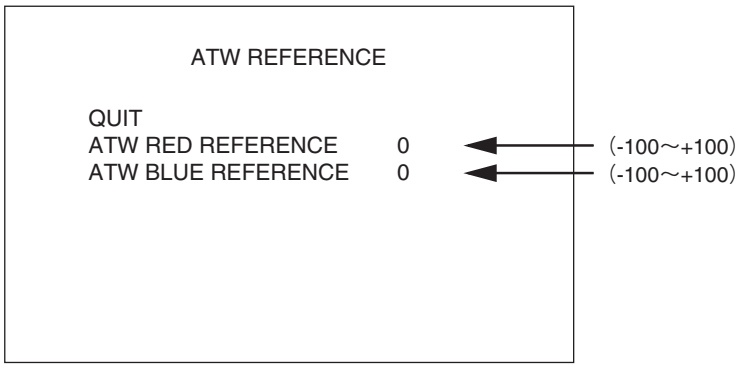


・BLUE LIMIT AUTO SET
1. Sets ATW MODE to PRESET, and shoots the blue subject for matching.
2. Sets [BLUE LIMIT AUTO SET] to ON, and executes [PUSH SET START].
3. When COMPLETE is displayed, the color temperature (Blue) of ATW allowed is changed within the range of color temperature of the subject.

・BLUE LIMIT CONTROL
Enables the fine adjustment of the ATW allowable range.
By + direction, enables to broaden the ATW allowable range of the color whose color temperature is low (Blue).
By - direction, enables to narrow the ATW allowable range of the color whose color temperature is low (Blue).

・BLUE LIMIT INIT
Setting ON makes the ATW allowable range of the color whose PRESET color temperature is low (Blue) to be set back to the factory setup.

③ When [ATW REFERENCE] is clicked, the menu is displayed as shown below.



- Adjusts the color converged when the color whose color temperature is low (Red) is matched at [ATW RED REFERENCE]. (-100 to +100)
- Approx. ±10% of the red level can be adjusted by ±100 adjustment.
- Adjusts the color converged when the color whose color temperature is low (Blue) is matched at [ATW RED REFERENCE]. (-100 to +100)
- Approx. ±10% of the blue level can be adjusted by ±100 adjustment.

About the operation of the AUTO HOLD function

The AUTO HOLD function is a function which temporarily stops the AVC and ATW automatic adjustment function. It is used for preventing the change of pictures due to the on-air automatic adjustment.

Items stopped by the AUTO HOLD function when set to ON

- Automatic change of G, B GAIN in ATW
- Automatic change of the CC filter in ATW
- Automatic change of the ND filter in AVC DAY mode
- Automatic change of GAIN in AVC NIGHT mode
- Automatic switch of DAY MODE/NIGHT MODE in AVC

As for the AUTO HOLD function, command items are different between the camera platform operation control panel and OCP-200, etc.. Please use them by reference to the following table.

Commands	OCP-200, etc.	Camera platform operation control panel
AUTO MODE HOLD ON		AUTO MODE HOLD ON
AVC FILTER HOLD ON	AUTO MODE HOLD ON	
R tally	AUTO MODE HOLD ON	Stopping the automatic change of the ND filter in AVC Stopping the automatic change of the CC filter in ATW

The following items cannot be controlled when AUTO HOLD is ON.

- Switch of ON/OFF in AVC and ATW
- Operation of ABB, AWB, ABS, APS
- Switch of DAY MODE by the IRIS volume in AVC

When AUTO HOLD is ON, the filter action is prohibited whether ATW is ON or OFF.

● About “AUTO HOLD IRIS” in ENGINEER MENU PAGE1

- Selects the IRIS condition in AUTO HOLD ON by “AUTO/HOLD/MANUAL”.
- “AUTO” is the condition of AUTO IRIS in AUTO HOLD ON. At this time, the IRIS fine adjustment function can be operated.
- “MANUAL”is the condition of MANUAL IRIS in AUTO HOLD ON.
- “HOLD” is IRIS HOLD in AUTO HOLD ON and cannot be operated.
- When AUTO HOLD is OFF in NIGHT MODE, the IRIS forcibly returns to F2.8.

How to Change the Scanning Format

The scanning format of ENGINEER PAGE4 can be changed according to the following procedure.

● When doing it from the operation control panel

1. Open the camera menu by the operation control panel.
2. Keep selecting the NEXT PAGE and open the MENU PAGE5.
3. Select the item of REMOTE ENG MENU of the MENU PAGE5 and switches from OFF to ON.
   When the REMOTE ENG MENU is turned on, the engineer menu comes to be opened.
4. Keep selecting the NEXT_PAGE and open the ENGINEER PAGE4.
5. Select the SCAN FORMAT SELECT of the ENGINEER PAGE4 and open the SCAN MODE of the submenu.
6. Select the scanning format with the SCAN MODE.
   The following displays correspond to each format.

Display	Scanning format
1080I59.	1080/59.94i
1080I50	1080/50i

7. When the scanning format is selected, PUSH SET → START is displayed. And when it is selected again, the camera restarts and the scanning format is switched. For cancelling, please return to QUIT.

Notice

Once the menu is closed, the REMOTE ENG MENU of the MENU PAGE5 is automatically turned off.
When selecting the scanning format again, please perform the operation 1 - 3 again, and after the REMOTE ENG MENU is turned on, perform the operation 4 - 7.

Notice

Regarding how to operate the camera menu from the operation control panel, please refer to the manual of each operation control panel.

● When doing it from the CCU MENU switch

1. Set the CAM/BAR switch to BAR, and press and hold the MENU switch until the WARNING lamp lights up.
   By this operation, the engineer menu comes to be opened.
2. Select the NEXT_PAGE and open the ENGINEER PAGE4.
3. Select the SCAN FORMAT SELECT of the ENGINEER PAGE4 and open the SCAN MODE of the submenu.
4. Select the scanning format with the SCAN MODE.
   The following displays correspond to each format.

Display	Scanning format
1080I59.	1080/59.94i
1080I50	1080/50i

5. When the scanning format is selected, PUSH SET → START is displayed. And when pressing the switch again, the camera restarts and the scanning format is switched. For cancelling, please return to QUIT.

Notice

Once the menu is closed, the engineering menu cannot be opened.
When changing the scanning format again, please perform the operation 1 to open the engineering menu and perform the operation 2 - 5.

6. SPECIFICATIONS

6.1 Rating

Items		Rating	Remarks
1	Video output format	1080/59.94i or 1080/50i	16:9 aspect ratio
2	Image sensor	2/3-inch 1.3Mega pixel CMOS ×3	Rolling shutter
3	Total pixels	1408 (horizontal)× 1042 (vertical)	
4	Effective picture elements	1280 (horizontal)× 720 (vertical)	16:9 aspect ratio
5	Imaging frame rate	59.94fps or 50fps	
6	Optical system	2/3-inch R, G, B prism F1.4	
7	Lens mount	BTA S-1005B	
8	Optical filter (ND)	<table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>ND</td><td>100%</td><td>25%</td><td>6.2%</td><td>1.6%</td></tr></table>	With filter servo
9	Electric color temperature correction	3200K/5600K switchover	
10	Power-supply voltage	DC +11 to +16V	
11	Operating temperature range	Operating temperature : -10 to +45℃ Storage temperature : -20 to +60℃	
12	Operating humidity range	30% to 90%	No condensation
13	Dimensions	Approx. W 90×H 103×D 180	Excluding projection parts
14	Weight	Approx. 1.8kg	

6.2 Performance

Items		Rating	Remarks
1	Sensitivity	F22 or more	89.9% 2000lx 3200K reflectance
2	S/N	56dB or more	
3	Modulation	60% or more	520TVL (18MHz in 1080i mode)
4	Limiting resolution	700TVL	
5	GAIN	-6/0/6/12/18/24/30/36/42/48/54/60/66/72/78 dB	
6	GAMMA	OFF, 0.35, 0.40, 0.45	
7	Minimum illumination	0.001 Lux	F1.4 Gain +78 dB 100% level (theoretical value)
8	Electronic shutter	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000	Electronic shutter mode
		1/15, 1/10, 1/8, 1/6, 1/5, 1/4, 1/3, 1/2, 1s, 2s, 4s	Sensor accumulation mode
9	Digital Extender	1.5-fold, 2-fold, 3-fold, 4-fold, 6-fold, 8-fold, 10-fold, 1.5x etc.	
10	Power consumption	Approx. 20W	

6.3 Output Signal

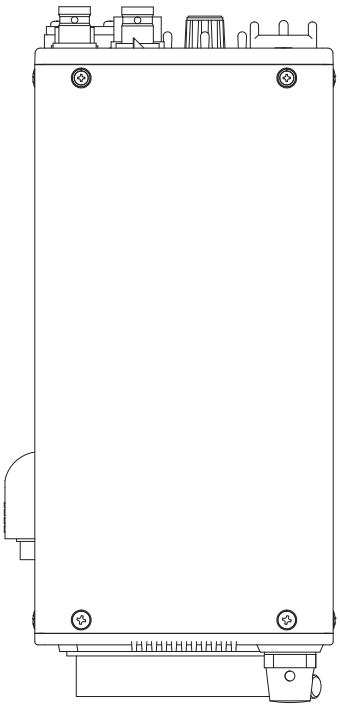
Items		Rating	Remarks
1	Digital video signal	Dual HD-SDI × (75Ω BNC connector) (1 output in UP CN BOX specification)	SMPTE 292M compliant The characters can be superimposed by the camera menu
2	Analog video signal (Viewfinder signal)	G, B, R / Y, Pb, Pr × 1 switching system	(Multi-pin connector)

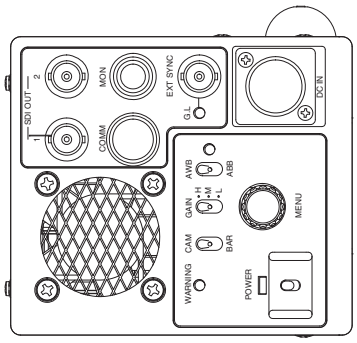
6.4 Input Signal

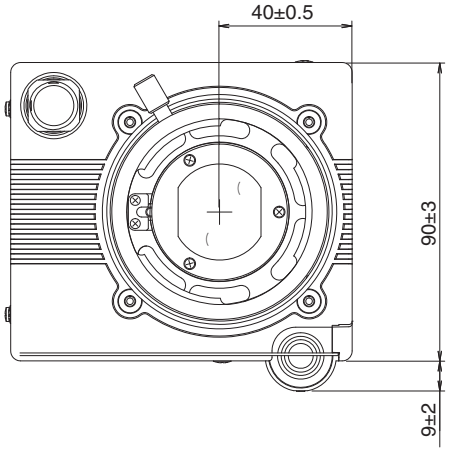
Items		Rating	Remarks
1	External synchronization signal	HDTV : PS 1Vp-p, SYNC 0.6Vp-p ±6dB (75ΩBNC connector) SDTV : VBS 1Vp-p ,BBS 0.3Vp-p	±6dB (75ΩBNC connector)

6.5 External Appearance

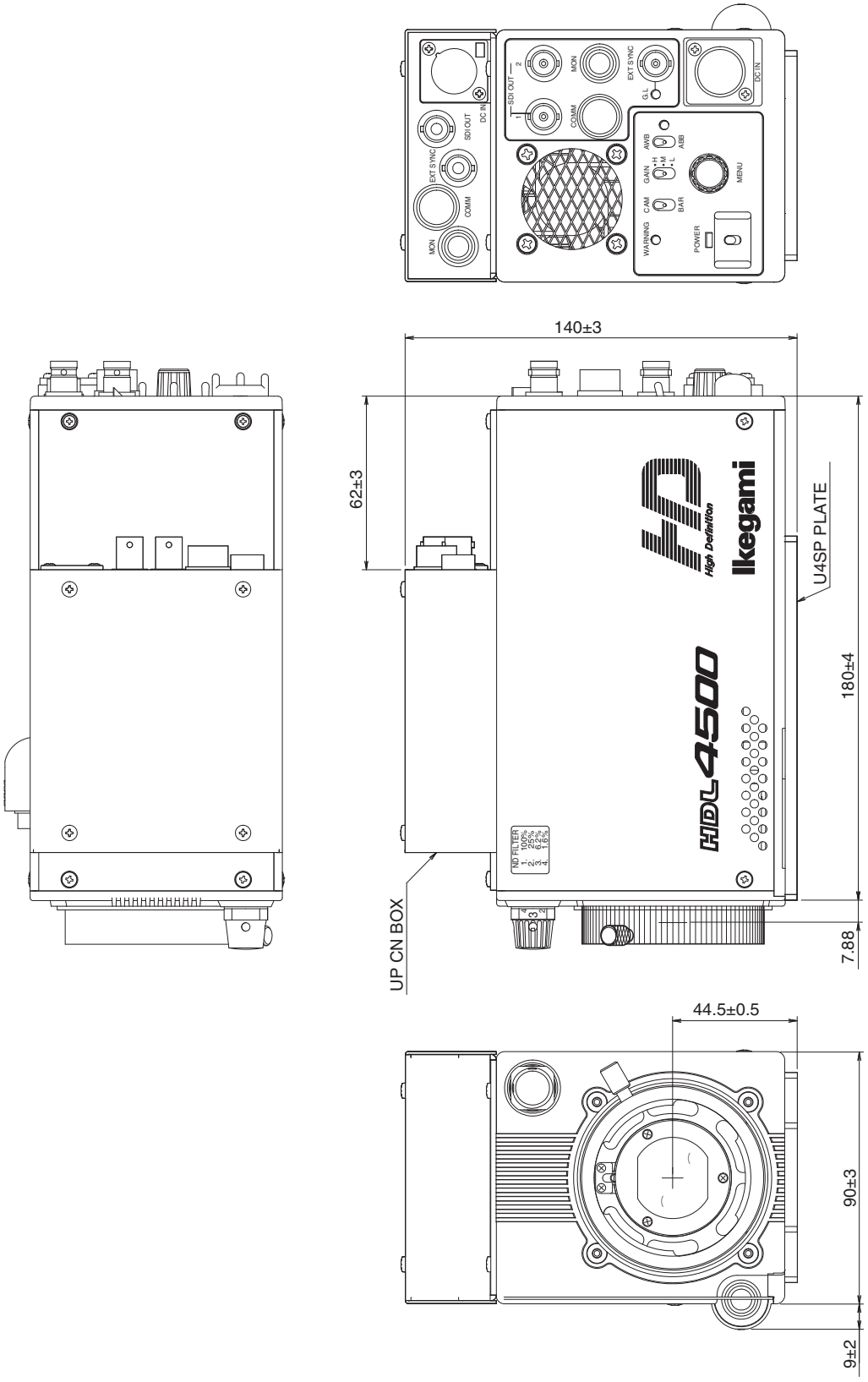
[STANDARD]







[With UP CN BOX: Optionally Available]



7. CHANGING INFORMATION

This chapter explains revision contents in case of design revision at the request of customers.
Read by comparing this information with the main part of the operation manual.

HDL-4500

3CMOS Super High Sensitive HDTV camera

OPERATION MANUAL

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