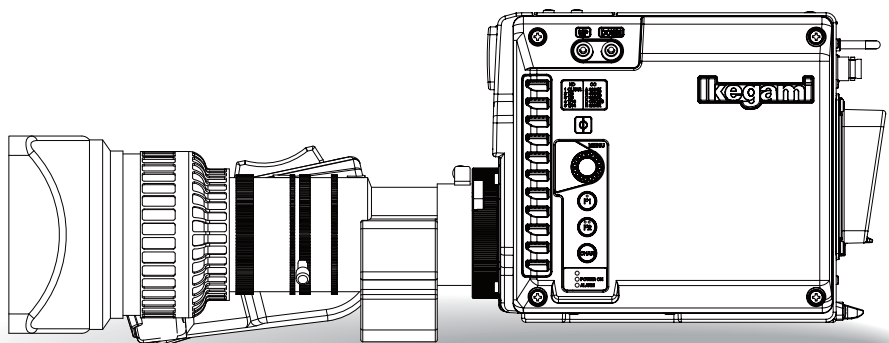


Products conforming to RoHS directive



UHL-43

Multi Purpose Camera

OPERATION MANUAL

CE

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.

PRODUCTS CONFORMING TO RoHS DIRECTIVE

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

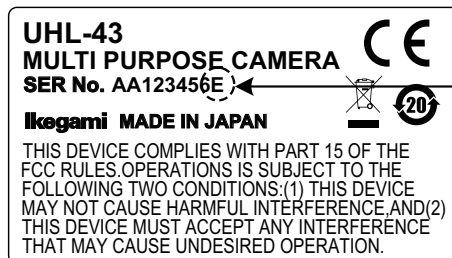
- UHL-43 Multi purpose Camera

MAINTENANCE OF PRODUCTS CONFORMING TO RoHS DIRECTIVE

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

1. Identification

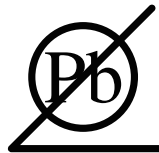
- For products conforming to RoHS directive, the letter “E” is appended at the end of the serial number on the label. For models that the letter cannot be appended to the serial number, the letter “E” will be described in a distinguishable position on the label. A description example on a main label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



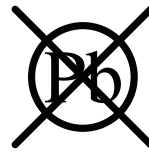
Product conforming to RoHS directive

Label

- The printed circuit boards of the RoHS compliant products have either of the following marks with 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

1. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

- (1) This device may out cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Product Name : Multi Purpose Camera

Model Name : UHL-43

Responsible Party : Contact Information

Ikegami Electronics (U. S. A.) Inc
300 Route 17 South, Mahwah, NJ 07430, USA
Tel : 201-368-9171

2. Declaration of conformity

The CE mark means that the following products will meet and the Standards EN55032, EN-55035. For European customer.

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

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



Part Name	Toxic or hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr/(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
UHL-43	×	○	○	○	○	○
○: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006. ×: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.						







SAFETY PRECAUTIONS

This manual describes the precautions using various pictorial symbols for you to use the product safely. Please read these precautions thoroughly before use. The symbols and meanings are as follows:


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

 WARNING	Indicates that mishandling of the product by ignoring this label may lead to a danger resulting in a serious injury or death.
 CAUTION	Indicates that mishandling of the product by ignoring this label may lead to a danger resulting in an injury or property damage.

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

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

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

	Indicates prohibited action.
---	------------------------------

■ Handling Precautions

WARNING

Regarding the Product



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

CAUTION

Regarding the Product



Do not lift or hold the camera by the projection parts.
If you lift or hold the camera by the viewfinder or the lens, you are prone to dropping it. Moreover, the connection parts between the camera and the viewfinder, or the camera and the lens may be exposed to unnecessary pressure, which may cause equipment damage.
Always install the accessories or connect the cables after placing the camera on a fixed position.
When installing such accessories as lens or microphone, fix the camera on a stable place (e.g. on a table, a tripod, etc.).



Avoid use or storage in the following conditions:

- 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

Regarding the Product



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.

Avoid moving the equipment suddenly from an extremely cold place to a warm place.
Condensation may occur in the optical block or other area of the camera.

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

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

Do not subject the equipment to a strong shock or vibration.
Doing so may cause damage or malfunction of the equipment.

Since CMOS sensors are element is adopted as the imagers sensor in picture elements, no burning occurs in ordinary operation. However, when shooting a subject which emits an excessive amount of light (Sun, laser light, etc.) for long hours, take great care for temperature increase inside of the sensors.

Laser beams may damage the sensors. If you shoot a scene that includes a laser beam, be careful not to let a laser beam become directed into the lens of the camera.

Before connecting an accessories, make sure that the camera and equipment to be connected are powered off. Also, be sure to use dedicated cables.

Excessive sound pressure from the headset may cause a hearing loss.

Regarding the Power and the Lithium Battery

Use the product in compliance with the rating of the fuse within the product and that within the product. Otherwise, a fault can occur.



Do not use an unspecified battery.

Wrong usage of batteries may cause liquid leak, explosion, and heat, and at worst injury or fire.

When changing or discarding a battery, please contact Ikegami's sales and service centers.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

■ Environmental Cautions**Regarding the product**

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

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

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.

■ Maintenance**Regarding the product**

Before performing maintenance on the product, be sure to turn off the power for safety and for protection against malfunction.

Clean the product using a dry and soft cloth.

If the stain is hard, soak the cloth with water or detergent, wring well and wipe. If you use detergent, wipe off the detergent with a cloth that is soaked in just water and wrung well.

■ Notice for Use

- When carrying or storing the product, always use a carrying case.
- Before shooting important subjects, take test shots to obtain the desired effect.
- After using the product, always turn off the power.

■ Regular Maintenance 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 READ THE OPERATION MANUAL

This page explains general notes on reading the UHL-43 Operation Manual, and the symbols and notations used in the manual.

■ Notes on the Manual

- This manual is written for readers with a basic knowledge of handling broadcast cameras.
- The contents of this manual are subject to change without notice in the future.

■ Symbols

The symbols used in this manual are as follows:

CAUTION:	Things you have to be careful during operation. Be sure to read.
Note:	Supplementary information or guidance
Reference:	Sections where related information is available

■ Notations

The following notations are used in this manual.

This product, Camera	Indicates UHL-43.
OCP	Basically indicates OCP-300 Operation Control Panel.
MCP	Basically indicates MCP-300 Maintenance Control Panel.
“ ” _ “ ” _ “ ”	Indicates the items enclosed by double quotes (“ ”) are to be selected and confirmed in the order shown.
4K	4K indicates the video outputs with active image area of 3840 x 2160 or 4096 x 2160. In this document, 4K indicates the 3840 x 2160 output.
HD (SDI)	Signals that comply with SMPTE 292 1.5Gb/s Signal/Data Serial Interface 1280×720, 1920 x 1080.
3G (SDI)	Signals that comply with SMPTE 424/425 3Gb/s Signal/Data Serial Interface 1920×1080 (Level-A/B).
Quad Link	A method to construct a 4K image with 4 links.

■ 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.

■ Related Manuals

Please refer to Operation Manual and Maintenance Manual of each product.

■ *Structure of Operation Manual*

This manual is intended to help you operate the UHL-43 safely and smoothly. This manual consists of seven chapters. We recommend you read them in sequence from Chapter 1 to Chapter 7 so that you can carry out all the work smoothly through the installation to the operation of the camera equipment.

Chapter 1

OUTLINE

Explains the features and the main operating systems of this product.
If you are not familiar with UHL-43 Camera System, please start with this chapter.

Chapter 2

NAME and FUNCTION

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

Chapter 3

INSTALLATION and CONNECTION

This chapter explains the installation method of this product and lenses, etc.
And examples how to connect this product to the peripheral equipment.

Chapter 4

OPERATION

Explains the setup required before shooting.
Before shooting for the first time, read this chapter and check that this product is operating normally.

Chapter 5

CAMERA SETTINGS and ADJUSTMENT

This product realizes detailed settings to support a wide range of operations and various video expressions through the menu window. This chapter explains the settings through the menu screen.

Chapter 6

TROUBLE SHOOTING and MAINTENANCE

When the alarm lamp lights during the operation of this product, read here to know the problem. This chapter also explains the regular maintenance.

Chapter 7

SPECIFICATIONS

Explains the specifications of this product.

CHANGING INFORMATION

Contains revision information of design revision or customer-specific specification requested by customers. Read by comparing with the main text of the operation manual. (“CHANGING INFORMATION” may be sent to you later on.)

UHL-43

Multi Purpose Camera

OPERATION MANUAL

PRODUCTS CONFORMING TO RoHS DIRECTIVE...	i	Chapter 5 Camera Setting and Adjustment	
MAINTENANCE OF PRODUCTS CONFORMING TO		5.1 Basic Operation of the Menu	13
RoHS DIRECTIVE.....	i	5.2 Menu structures and contents.....	16
INFORMATION TO THE USER	ii	5.3 Creation of a lens file	35
SAFETY PRECAUTIONS	iii	5.4 Using the USB memory	38
HOW TO READ THE OPERATION MANUAL	vi	5.5 Allocation of functions to FUNCTION switches.....	41
		5.6 Displays in the Viewfinder	42
Chapter 1 OUTLINE		Chapter 6 Troubleshooting	
1.1 Outline	1	6.1 When the STATUS indicator lights red ...	44
1.2 Features.....	1	6.2 Initializing the settings of this camera....	44
		6.3 Fuse replacement	46
Chapter 2 NAME and FUNCTION		Chapter 7 Specification	
2.1 Right Side	2	7.1 Product specification	47
2.2 Right side of the handle (Option).....	2		
2.3 Front side.....	3	CHANGING INFORMATION.....	50
2.4 Rear side	5		
2.5 Bottom side	6		
Chapter 3 INSTALLATION and CONNECTION			
3.1 Preparation	7		
3.2 Mounting the camera on the Tripod	7		
3.3 Lens Attachment.....	7		
3.4 Power supply connection.....	8		
3.5 Connecting the Remote Controller	8		
3.6 Connecting a Monitor.....	8		
3.7 GENLOCK System	8		
Chapter 4 Operation			
4.1 Turning ON Power.....	10		
4.2 Checking the output signal	10		
4.3 Executing automatic setup	10		
4.4 Adjusting the Lens	11		

Chapter 1 OUTLINE

1.1 Outline

The UHL-43 is a one-piece native 4K Ultra High Definition Digital Multi Purpose Camera, employing the same sensors as the UHK-430/435 "UNICAM XE" series cameras, and achieving the same performance.

The camera provides the same operation and same workflow as the UHK-430/435 system cameras, and due to its compact one-piece form factor, it supports various POV applications such as flash and studio robotic camera, jib and Steadicam camera, traffic and weather camera, scoreboard camera, as well as, a wide range of surveillance applications.

Moreover, the camera provides various kinds of 4K main output including 12G-SDI and Quad Link 3G-SDI, realizing flexible 4K system integration.

1.2 Features

■ *Real 4K Resolution using 2/3-inch Native 4K CMOS Sensors*

The UHL-43 utilizes three 2/3-inch 8 megapixel CMOS sensors, each capable of capturing native 4K 3840 x 2160 resolution images.

It offers an excellent sensitivity of F10 (in 4K/59.94p) and a remarkable signal-to-noise ratio.

Unlike single chip cameras or cameras using pixel-offset technology, three native 4K CMOS sensors and prism optics provide real 4K resolution, superior color reproduction and no color aliasing.

■ *HDR (High Dynamic Range) mode*

The UHL-43 provides an HLG (Hybrid Log Gamma) mode, conforming to ITU-R BT.2100 which is an international standard for HDR. It is now possible to expand the range represented from dark to bright, providing superb bright pictures with High Dynamic Range, and also achieve rich colors with wide color gamut.

■ *Lens chromatic aberration correction*

The UHL-43 acquires correction data from serial digital lenses and automatically corrects lens chromatic aberration based on lens zoom, focus, and iris position information.

■ *Various output interfaces*

HD output is supported as a standard output. 4K outputs (12G SDI, QUAD LINK, and 12G Optical) are supported as options.

■ *Various configurations*

An optional kit is available to convert this box camera for handheld operation with top handle, 2-inch viewfinder, etc.

■ *Ethernet connection supported*

Remote control by Ethernet connection is available as standard.

In addition to the Ethernet connection, conventional Ikegami serial command (ICCP) is available as an option.

■ *Indicators*

The UHL-43 provides tally and camera number (2 digit) on the front side, and tally on the rear side, increasing visibility.

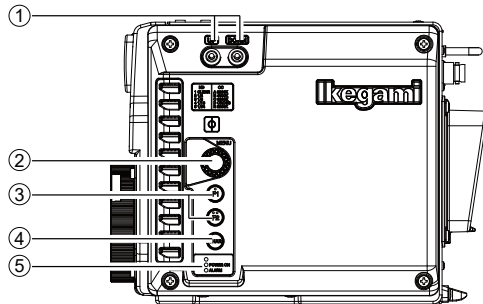
■ *Enhanced Maintenance*

Maintenance is enhanced by logging camera information. In addition, updating the firmware of each module is available from the USB port at the rear side of the camera.

Chapter 2 NAME and FUNCTION

This section explains the names and functions of the controls and connectors on the camera.

2.1 Right Side



(1) UP/DOWN switches

To adjust the assigned item. For the assigned items, refer to "Chapter 5 Camera Setting and Adjustment."

(2) MENU Rotary Encoder (RE)

The USER MENU screen is displayed by pressing this RE. Turn the RE to select the operation you wish to use from the menu items displayed on the screen, and press this RE to select. The contents of the menu and setting methods are explained in "Chapter 5 : CAMERA SETTINGS and ADJUSTMENT".

(3) F1 (Function 1)/F2 (Function 2) switches

Select one of the items available using the menu, and assign it to F1 or F2 switch.

Please refer to "Chapter 5 : CAMERA SETTINGS and ADJUSTMENT" for assigning items and method.

(4) CHAR switch

The character display on the VF video (Monitor output) displays information (characters) used to confirm the status of various controls of the camera. Pressing the CHAR switch will call up the full character display on the viewfinder video. This is also used to call up the MENU by pressing the MENU RE simultaneously.

(5) STATUS/POWER Indicator

Displays the status of power supply condition to the camera.

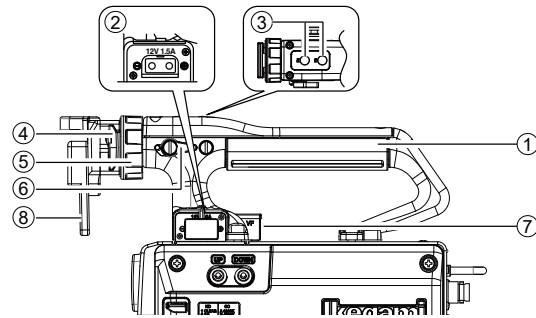
Green light: Power is supplied.

Red light : Warning indication.

Caution

Check the warning contents and handle appropriately. For the explanation of warnings, refer to "Chapter 6 Troubleshooting."

2.2 Right side of the handle (Option)

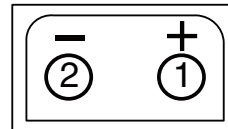


(1) Handle

To hold the camera or to use viewfinder. This is an optional handle.

(2) D-TAP connector

A power output connector (DC +12V 1.5A) that supplies power to external compact monitors, etc. This is on the optional handle.



Camera side: D-Tap CN BASE

Cable side: D-Tap connector (male)

Pin No.	Name	Function	I/O
①	+12V	DC +12V power supply	OUT
②	+12V_RET	Ground for DC+12V power supply	GND

(3) F3 (Function 3)/F4 (Function 4) switches

Select one of the items available using the menu, and assign it to F3 or F4 switch.

This is on the optional handle.

Please refer to "Chapter 5 : CAMERA SETTINGS and ADJUSTMENT" for assigning items and method.

(4) VF lock mount

To mount a portable viewfinder.

This is on the optional handle.

(5) VF lock ring

To lock the viewfinder after adjusting left/right position.

This is on the optional handle.

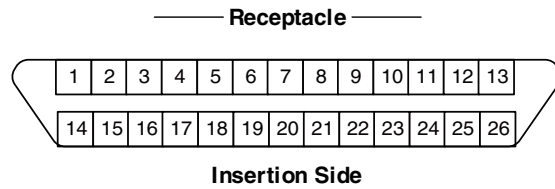
(6) VF front-back lock lever

To lock the viewfinder after adjusting front/back position.

This is on the optional handle.

(7) VF connector

Connect the viewfinder cable.
This is on the optional handle.

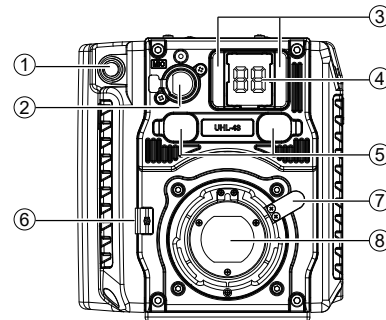


Camera side: HDR-EA26LMYPG1-SLE+
Cable side: HDR-EA26FAG1+

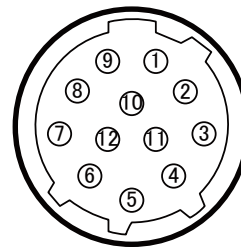
Pin No.	Name	Function	I/O
①	GND	Ground for DC+12V power supply	GND
⑭	GND	Ground for DC+12V power supply	GND
②	GND	Ground for DC+12V power supply	GND
⑮	GND	Ground for DC+12V power supply	GND
③	+12V	DC +12V power supply	OUT
⑯	+12V	DC +12V power supply	OUT
④	+12V	DC +12V power supply	OUT
⑰	+12V	DC +12V power supply	OUT
⑤	RS422_RX+	Serial control signal (P) (VF -> Camera)	IN
⑱	RS422_RX-	Serial control signal (N) (VF -> Camera)	IN
⑥	SIGNAL_GND	Ground for Serial control signal (VF -> Camera)	GND
⑲	IKEGAMI_VF	IKEGAMI VF connection control signal	IN
⑦	RS422_TX+	Serial control signal (P) (Camera -> VF)	OUT
⑳	RS422_TX-	Serial control signal (N) (Camera -> VF)	OUT
⑧	SIGNAL_GND	Ground for Serial control signal (Camera -> VF)	GND
㉑	NC	—	—
⑨	NC	—	—
㉒	R TALLY	R TALLY signal	OUT
⑩	G TALLY	G TALLY signal	OUT
㉓	Y TALLY	Y TALLY signal	OUT
⑪	NC	—	OUT
㉔	SIGNAL_GND	GND	GND
⑫	SDI+	Serial video signal + (HD SDI)	OUT
㉕	SDI-	Serial video signal - (HD SDI)	OUT
⑬	SIGNAL_GND	GND	GND
㉖	SIGNAL_GND	GND	GND

(8) VF offset plate (option)

It lowers the height of viewfinder attachment to the optional handle.

2.3 Front side**(1) LENS connector**

Connect the lens cable (12 pins).



Camera side : HR10A-10R-12SC
Cable side : HR10A-10P-12PC (12-pin male plug)

Pin No.	Name	Function	I/O
①	RET ON	RETURN VIDEO ON/OFF signal RETURN ON: 0.5V or less Zout = 10M Ω or more RETURN OFF: OPEN Zout = 1.5k Ω or less Zin = 100k Ω ± 5% (10kΩ or more) Momentary operation	IN
②	VTR TRIG	VTR START/STOP signal VTR START: 0.5V or less Zout = 10M Ω or more VTR STOP: OPEN Zout = 1.5k Ω or less Zin = 100k Ω ± 5% (10kΩ or more) Momentary operation	IN
③	GND	Grounding for LENS	GND
④	IRIS SERVO	Forced IRIS servo ON/OFF SERVO ON: +5V ± 0.5V Zout = 10k Ω or less SERVO OFF : 0.5V or less Zout = 1.5k Ω or less or 100k Ω or more 上	OUT
⑤	IRIS CONT	Control output of lens iris F2.8 : 6.2V ± 0.05V (6.2V ± 0.1V) F16: 3.4V ± 0.05V (3.4V ± 0.1V) CLOSE: 2.5V ± 0.2V (2.1V to 2.9V) Zout = 1k Ω ± 10% (Fixed)	OUT
⑥	+12V LENS	DC+12V output for LENS Normal operation range: DC+10V - +20V (DC+10V - +17V)	OUT

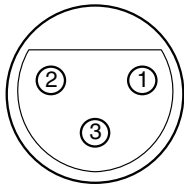
Pin No.	Name	Function	I/O
⑦	IRIS FOLLOW	Control output of lens iris F2.8 : 6.2V ± 0.05V (6.2V ± 0.1V) F 16 : 3.4V ± 0.05V (3.4V ± 0.1V) CLOSE: 2.5V ± 0.2V (2.1V to 2.9V) Zin = 100k Ω ± 2% (100k Ω or more)	IN
⑧	IRIS REM/AUTO	Switching between REMOTE/ AUTO of IRIS REMOTE : +5V ± 0.5V Zout = 1k Ω ± 10% (10k Ω or less) AUTO : 0.5V or less Zout = 1.5k Ω or less or 100k Ω or more Zin = 100k Ω ± 2% (100k Ω or less)	OUT
⑨	EXT ANS	Input/output of answer signals from the external system IN : +0.5V Ω or less Zout = 1.5k Ω or less OUT : OPEN Zout = 10M Ω or more Zin = 100k Ω ± 5% (10k Ω or more)	IN
⑩	ZOOM FOLLOW	Control output of lens zoom WIDE : 2.0V ± 0.05V (2.0V ± 0.2V) TELE: 7.0V ± 0.05V (7.0V ± 0.2V) Zin = 100k Ω ± 2% (10k Ω or more) Zout = 1k Ω ± 10% (1k Ω or less)	IN
⑪	SERIAL LENS→ CAMERA /FOCUS FOLLOW	Serial data reception (LENS ---> CAMERA) +0.5V CMOS level (VCC 5V ± 0.25V) Control output of lens focus Close end: 2.0V ± 0.05V (2.0V ± 0.2V) Infinite end: 7.0V ± 0.05V (7.0V ± 0.2V) Zin = 100k Ω ± 2% (20k Ω or more) Zout = 1k Ω ± 10% (1k Ω or less)	OUT
⑫	SERIAL CAMERA→ LENS	Serial data transmission (CAMERA ---> LENS) +0.5V CMOS level (VCC 5V ± 0.25V)	OUT

(The values indicated in () are standard values in 2/3" Camera/Lens.

IN : Camera <--- Lens
OUT : Camera ---> Lens

(2) MIC connector

To connect a microphone or to input a line level audio signal.



Plug receptacle HA16PRM-3S (05)

Pin No.	Name
①	Shield
②	Hot
③	Cold

Refer to "Chapter 5 Camera Setting and Adjustment" for the power to the microphone and the settings such as input level adjustment.

(3) FRONT TALLY lamp

Lights up red when the R TALLY signal is input. Refer to "Chapter 5 Camera Setting and Adjustment" to adjust the brightness or turn off.

(4) Camera number indicator

Indication area of the assigned camera number. Refer to "Chapter 5 Camera Setting and Adjustment" to assign the camera number.

(5) Emergency manual optical filter control

For emergency, to rotate filter disc by screw driver. Remove rubber cap and turn using a flathead screw driver.

Caution

Turn off the power before adjusting or set FILTER SERVO CONT to MANUAL from the Menu to prevent damage to the motor drive.

Caution

Keep the rubber cap after adjusting to protect against dust entering the camera.

(6) Lens cable clamp

Clamp the lens cable.

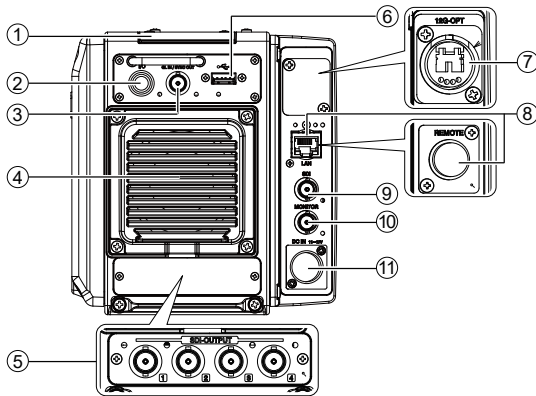
(7) Lens lock lever

A lever used to lock the lens mount. Insert the lens, and then turn and tighten the lens mount ring with the lever.

(8) Lens mount

Various 2/3-inch broadcast lenses can be used.

2.4 Rear side

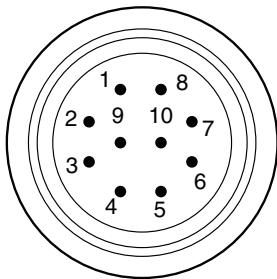


(1) REAR TALLY lamp

Lights up red or green when the R TALLY signal or G TALLY signal is input. Refer to "Chapter 5 Camera Setting and Adjustment" to adjust the brightness or turn off.

(2) I/O connector

Input TALLY IN signals and output TALLY OUT for external interface.



Receptacle HR10A-10R-10SC(71)

Pin No.	Name	Function	External Interface
①	TXD_P	Output for PC	Reserved for factory use
②	TXD_N	Output for PC	
③	RXD_P	Input for PC	
④	RXD_N	Input for PC	
⑤	GND		
⑥	UNREG_OUT	DC11-17V 500 mA MAX	
⑦	R_TALLY_OUT	Red tally control output	
⑧	G_TALLY_OUT	Green tally control output	
⑨	R_TALLY_IN	Red tally control input	
⑩	G_TALLY_IN	Green tally control input	

(3) GL IN/SYNC OUT connector

Synchronization signal (HDTV tri-level SYNC or SDTV VBS/ BBS) is input to synchronize the camera.

Synchronization signal (Tri-level sync) can be output by setting in the MENU.

(4) Fan motor

Fan motor to cool inside of the camera.

Caution

Do not block the exhaust port. Otherwise, the temperature inside the camera increases, and serious damage to the camera can occur.

(5) QUAD LINK (option)

Connector panel to output 4 lines of 3G/HD-SDI signal. QUAD Link 4K signal can be output when operating in an optional 4K format.

(6) USB connector

Connect a USB memory drive to save or load a settings data file.

Refer to "Chapter 5 Camera Setting and Adjustment" for detail.

(7) 12G-SDI fiber link (option)

Connector for optical Main output and RET input signals to extend the transmission distance.

The control signal is not included.

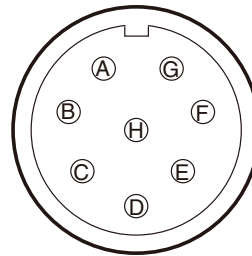
Prepare external LAN cable for control.

(8) LAN connector (Ethernet RJ45 (8P8C))

Connects a network compatible remote controller via a PoE+ supported switch.

(8) REMOTE connector (option)

An optional connector to connect a serial data remote controller using a CP cable.



Insertion Side

Camera side : PRC05-R8F

Cable side : PRC05-PB8M

Pin No.	Name	Function	I/O
A	HED (+)	Digital data output (+) from camera to remote controller	OUT
B	HED (-)	Digital data output (-) from camera to remote controller	OUT
C	HEC (+)	Digital data input (+) from remote controller to camera	IN
D	HEC (-)	Digital data input (-) from remote controller to camera	IN
E	MU_REAR+12V	DC+12V power supply (max. 2.0A)	OUT
F	DGND	Ground for DC+12V power supply	OUT
G	RESERVE		
H	RESERVE		

(9) SDI connector

Output 3G/HD-SDI Main signal.

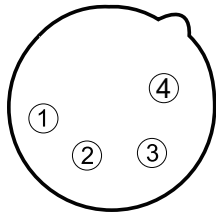
12G-SDI signal can be output when operating in an optional 4K format.

(10) MONITOR connector

The characters such as MENU are superimposed. VF signal can be output by selecting in the MENU. Refer to "**Chapter 5 Camera Setting and Adjustment**" for details.

(11) DC IN connector

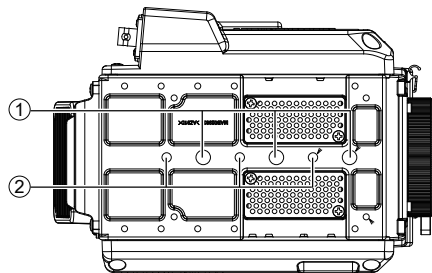
DC+12V input connector to connect to the AC Adapter to supply power to the camera.



Plug receptacle XLR-4-32-F512

Pin No.	Name
①	+DC12V-RET (GND)
②	NC
③	NC
④	DC+12V (+12V IN)

2.5 Bottom side

**(1) Camera mounting screw (3/8-16UNC)**

To mount the camera to the tripod. It supports 3/8-16UNC screws (7 mm or shorter in length).

(2) Camera mounting screw (1/4-20UNC)

To mount the camera to the tripod. It supports 1/4-20UNC screws (6 mm or shorter in length).

Chapter 3 INSTALLATION and CONNECTION

3.1 Preparation

■ Operating environment

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

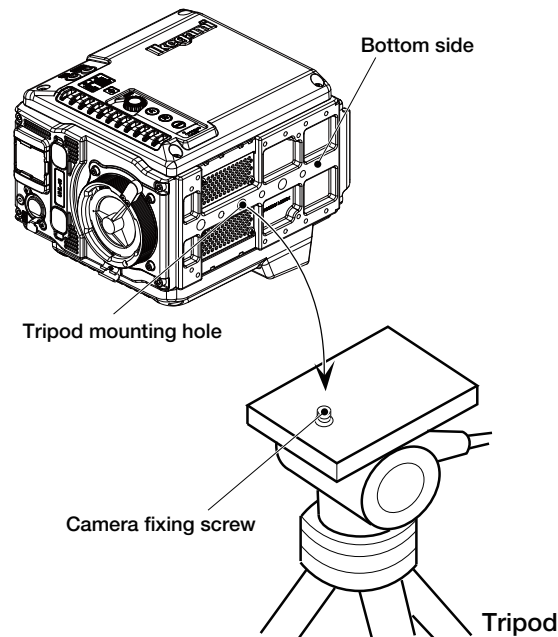
■ Make sure the Power Switch of AC Adapter is OFF.

This product does not have a power switch. Be sure the Power switch of AC Adapter is turned off before connecting this product.

3.2 Mounting the camera on the Tripod

Attach the camera to the tripod.

- 1 Align a tripod mounting hole of the camera to the camera fixing screw of the tripod.



Caution

The camera has two types of mounting holes. Check the screw size at the tripod side.

- Camera mounting screw (3/8-16UNC)
- Camera mounting screw (1/4-20UNC)

- 2 Tighten the camera fixing screw to fix the camera to the tripod.

3.3 Lens Attachment

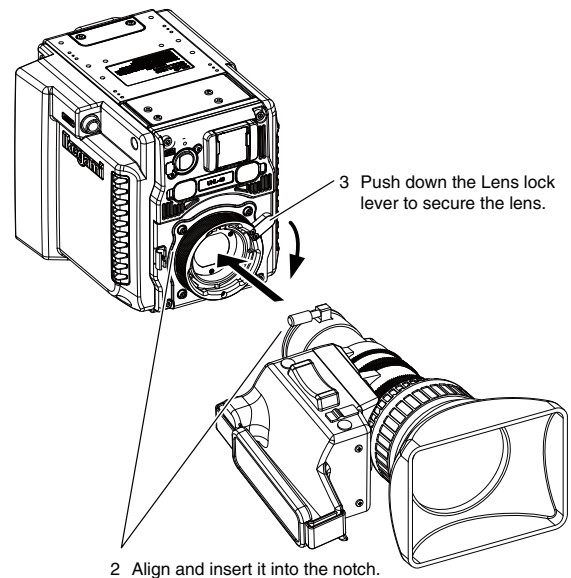
Attach the lens to the camera.

When attaching the lens, place the camera on the tripod or on a horizontal and stable surface.

Note

The lens mount of the camera supports the BTA mount method.

- 1 Raise the lens lock lever to remove the lens cap.
- 2 Align the lens pin and the notch of the camera lens mount and insert horizontally.
At this time, hold with hand in order to prevent dropping the lens.
- 3 Fix the lens to the camera.
Lower the lens lock lever and fix the lens to the camera.



- 4 Connect the pigtail cable to the lens connector.

When the pigtail cable is pressed in with the connector pin aligned, it is automatically locked.

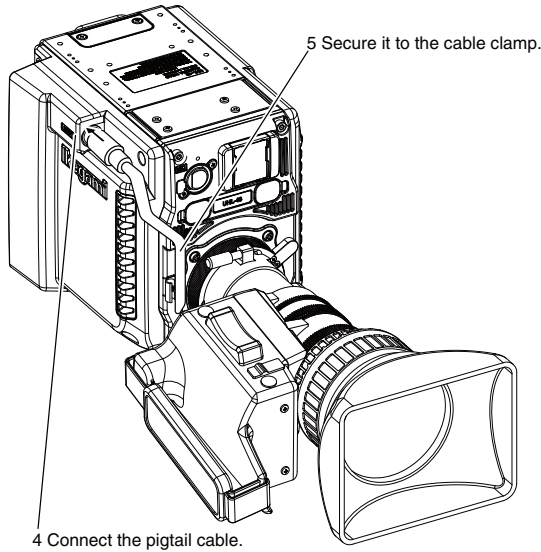
Note

Do not turn to lock or unlock.

- 5 Fix the pigtail cable to the cable clamp so it does not get loose.

Caution

Avoid carrying the camera by holding the lens housing only. Applying excessive force to the lens mount can cause damage.



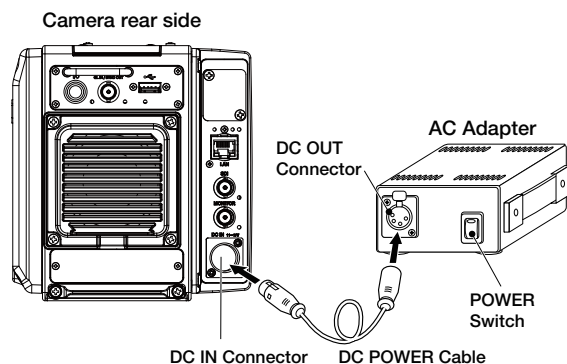
3.4 Power supply connection

The power supply voltage to the camera is DC+12V. In addition, the allowable range is DC11 to 17V.

Caution

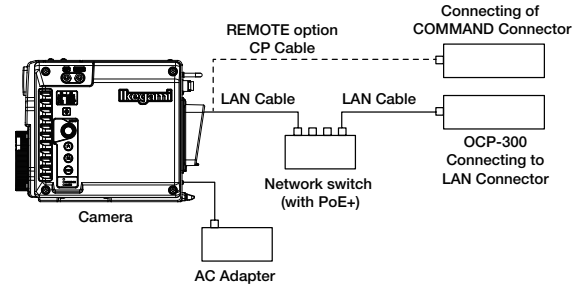
Do not use an AC Adapter with output out of range. The camera may have serious damage.
This product does not have a power switch. Be sure the Power switch of AC Adapter is turned off before connecting this product.

- 1 Confirm that the power supply switch of the AC adapter is OFF.
- 2 Connect the DC cable to the DC OUT connector of the AC adapter.
- 3 Connect the DC cable to the DC IN connector on the camera.
- 4 Turn the power switch of the AC adapter to ON to supply power to the camera.
(When the power is supplied, the camera STATUS indicator turns Green on.)



3.5 Connecting the Remote Controller

Connect the LAN connector at the camera rear side and the connector for LAN of the Remote control panel (OCP-300) which can be controlled by the network connection via the PoE+ (IEEE 802.3at)-supported network switch.

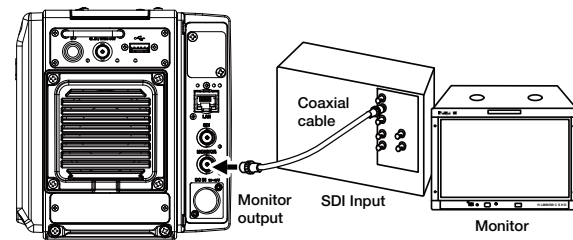


Note

The REMOTE (option) is necessary to use a conventional CP cable.

3.6 Connecting a Monitor

Connect a monitor which has an HD-SDI input to the MONITOR connector on the camera using a coaxial cable. The output signal can be changed from the menu. The default setting is 1080i59.94 format.



3.7 GENLOCK System

This section explains the input signal and output signal of the GENLOCK system of this product.

Input synchronous signal

The output video signals can be locked to a standard synchronization signal input to the GL IN/SYNC OUT connector. The phase between the output video signals and standard synchronization signal can be adjusted in horizontal and vertical from the Menu.

Two types of signals can be input to the GL IN/SYNC OUT connector:

- HDTV PS/S (tri-level sync)
- SDTV VBS/BBS (NTSC/PAL)

When switching between the input and output of the GL IN/SYNC OUT connector and for phase adjustment of the output video signal and the reference synchronous signal, refer to "Chapter 5 Camera setting and adjustment".

■ Output synchronous signal

The GL IN/SYNC OUT connector can be switched to an output connector for the synchronization signal. The phase between the output video signals and the output synchronization signals are the same.

Note

The output synchronization signal is TRI-LEVEL SYNC only.

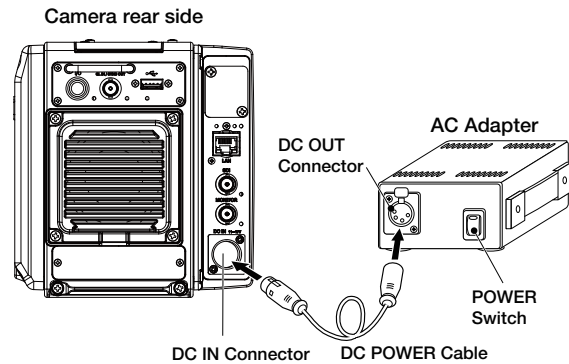
Chapter 4 Operation

4.1 Turning ON Power

After connecting with the peripheral equipment, turn on the power. This device does not have a power supply switch. It is turned on by operating the POWER switch of the connected AC adapter, etc.

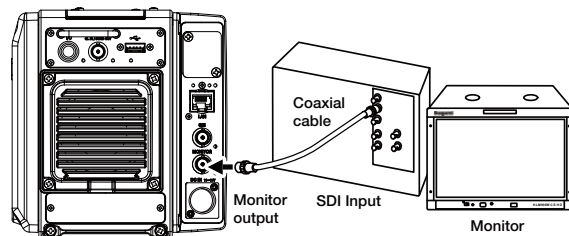
Caution

When connecting or disconnecting the peripheral equipment, be sure that the POWER switch of the AC adapter is "OFF."



4.2 Checking the output signal

After turning ON the power, make sure the video signal is properly output by checking the monitor connected to the MONITOR connector.



4.3 Executing automatic setup

The camera is equipped with an auto setup function that automatically adjusts various levels and settings using the CPU of the camera.

■ Auto Setup function

(1) FULL auto setup

Executes all auto setup items in the camera. This is mainly executed after maintenance and inspection. The auto setup chart is required.

(2) LEVEL auto setup

Set the video processing levels. This process can be executed daily before using the camera. The auto setup chart is required.

(3) FULL QUICK auto setup

Because the FULL QUICK auto setup uses an electrical test pulse signal built in the camera, you do not need an external chart. Setup is possible even when you cannot shoot a chart.

(4) QUICK auto setup

Because the QUICK auto setup uses a test pulse, the setup does not include adjustment of some circuits, CMOS sensors, lens, etc. which are in the path prior to the point of injection of the test signal.

(5) Auto White Balance (AWB)

Sets the white level of the R and B signals. White balance needs to be readjusted when the color temperature of the light source changes or optical filters are changed because white balance is affected by the color temperature of the light source and by optical filters.

(6) Auto Black Balance (ABB)

Sets the black level of the R, G and B signals. Though black balance is affected neither by the color temperature of the light source nor by optical filters, it needs to be readjusted when GAIN is changed or the ambient temperature has changed significantly.

Note

Auto setup adjusts the camera based on a reference file. This reference file is created in the memory prior to shipment. The reference file needs to be created again if you want to change the reference for auto setup of the camera.

Auto setup can be activated from the camera or remote controller. See the table in the next page for which functions are adjusted by each auto setup process.

■ Auto Setup Function List

Control Item	Auto Setup Function						
		FULL	LEVEL	FULL QUICK	QUICK	AWB	ABB
	REF	INT/EXT	EXT	INT/EXT	EXT	EXT	EXT
LEVEL							
BLK SET		R, G, B	R, G, B	R, G, B	R, G, B		R, G, B
PED		R, G, B	R, G, B	R, G, B	R, G, B		R, G, B
GAIN		R, G , B	R, G , B	R, G, B	R, G, B	R, B	
GAMMA		R, G, B	R, G, B	R, G, B	R, G, B		
FLARE		R, G, B	R, G, B	R, G, B	R, G, B		
WHITE CLIP		R, G, B	R, G, B	R, G, B	R, G, B		
AUTO KNEE							
SLOPE		R, G, B	R, G, B	R, G, B	R, G, B		
POINT		R, G, B	R, G, B	R, G, B	R, G, B		
MANU KNEE							
SLOPE		R, G, B	R, G, B	R, G, B	R, G, B		
POINT		R, G, B	R, G, B	R, G, B	R, G, B		
WHITE SHADE							
H SAW		R, G , B					
H PARA		R, G , B					
V SAW		R, G , B					
V PARA		R, G , B					
CAL × 100 (GAIN, PED)		R, G, B		R, G, B			R, G, B

Reference

- INT (internal reference) REF is the factory setting value by software.
- EXT (external reference) REF is the value set by the reference set function.
- The items for the G channel with a black square only works when it is set with a diascope (lens option). When you use an external chart, set the G manually.

4.4 Adjusting the Lens

Adjusting the Lens Flange Back (Back Focus)

Broadcast lenses are designed to maintain focus throughout the zoom range when the distance from the lens to the subject does not change. The Flange Back (Back Focus) adjustment on the lens is used to optimize this function. Once the lens flange back is adjusted it should not be necessary to readjust until the lens is replaced with another one.

An example of adjustment method is shown below.

- 1 Set the IRIS mode switch of zoom lens to "M" (manual).
- 2 Open the Iris fully.

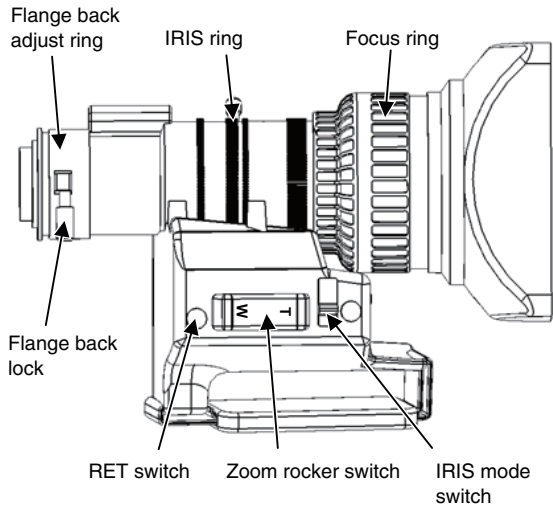
The depth-of-focus becomes narrow and most critical with the iris fully open. Adjust the Flange Back under this condition.

Note

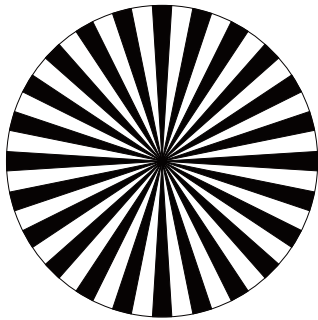
- Lock at the MONITOR output screen and shoot a subject in which the video level does not get saturated (filled with white). A subject with detailed patterns is easier to adjust the focus.

- If a subject is too bright and saturated, employ the shutter or ND filter.
- Siemens star chart is recommended for a subject. The center part has detailed patterns, so it is easy to adjust the focus. (Refer to the next page.)

- 3 Shoot a subject about 5 m away.
- 4 Press the zoom rocker switch for a tight shot of the subject, and optimize the focus using the standard lens focus ring.
- 5 Press the zoom rocker switch for a wide shot of the subject. Do not readjust the lens focus ring.
- 6 Loosen the flange back lock, and turn it to adjust the focus.
- 7 Repeat the procedures 4 - 6, and tighten the flange back lock with "T" and "W" both in focus.



■ **An example of the flange back adjustment chart**



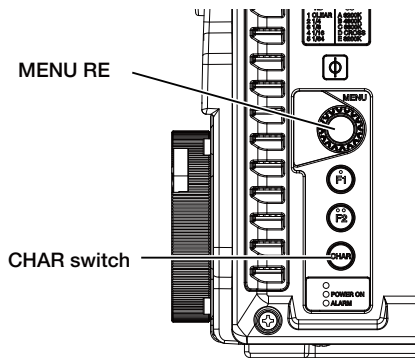
Siemens star chart

Chapter 5 Camera Setting and Adjustment

5.1 Basic Operation of the Menu

Various setting items on the Menu screen can be displayed on the MONITOR output to freely set the various functions of the camera. Selections and settings of various items are conducted by looking at the Main menu screen/Submenu screen displayed on the MONITOR output.

The menu has a layered system. There are User menu, Normal (Main) menu, and Engineer menu.



Note

MENU Rotary Encoder (RE) – Turning: Setting items can be selected by turning this RE.

MENU Rotary Encoder (RE) – Pressing: Selection and setting of each camera function can be finalized by pressing this RE.

CHAR switch: Displays character information on the MONITOR output video.

Menu screen operation

■ User menu (USER MENU) screen display

The User menu opens when the MENU RE is pressed for 0.5 seconds.

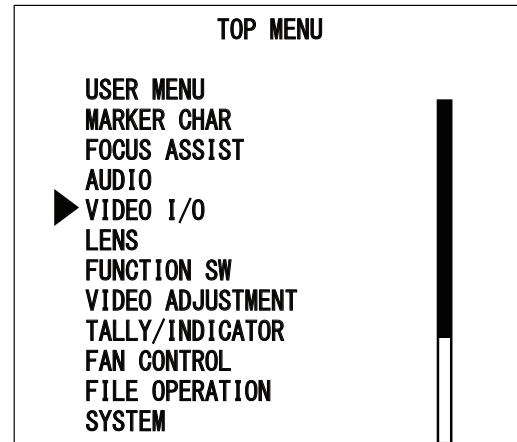
■ Top menu screen (Main menu screen) display

It opens when the CHAR switch and the MENU RE are pressed simultaneously.

■ Menu setting screen

The setting items on the Menu screen have a layered system. In addition, the setting items are classified into User setting items and Engineer setting items.

- User setting items: Daily operation items
- Engineer setting items: Periodical maintenance items



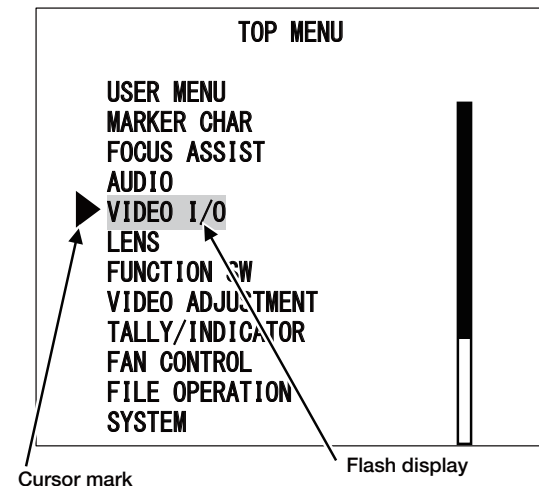
① In this manual, "TOP MENU" is referred to as the Main menu screen.

② In this manual, setting items and Set value select screen are referred to as the Submenu screen.

■ Menu setting screen display

To display the Menu screen, conduct the following operation.

- 1 When the CHAR switch and the MENU RE are pressed together, the Main menu ("TOP MENU") screen opens.

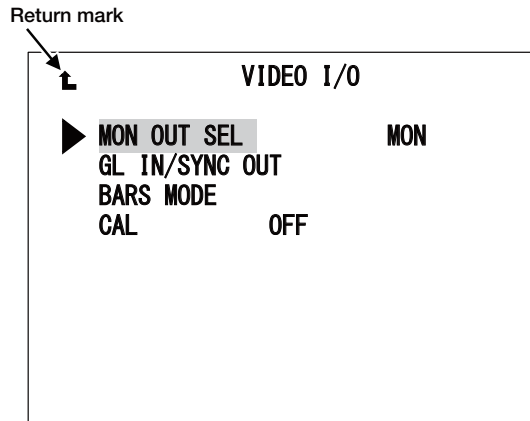


- 2 By turning the MENU RE, move the cursor mark on the Main menu screen to the item to be set.

The item which the cursor is moved to starts blinking.

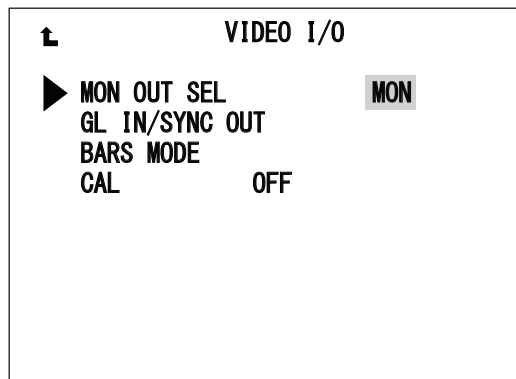
- 3** When the MENU RE is pressed, the screen changes to the Submenu screen of the selected item.

The screen changed to the "VIDEO I/O" submenu screen in this example.



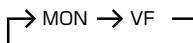
- 4** By turning the MENU RE, move the cursor mark on the Submenu screen to the item to be set.

The item which the cursor is moved to starts blinking.



- 5** When the MENU RE is pressed, the set value of the item starts blinking. Turn the MENU RE to change the set value.

[Example]



- 6** When the desired set value is displayed, press the MENU RE to finalize the selection.

When the set value is finalized, the screen returns to the Submenu screen.

- 7** When returning to the Main menu in the middle of the setting, move the cursor mark to the return mark and press the MENU RE.

Note

If the MENU RE is not pressed after changing setting, the change may become invalid.

Memo

- When "L" is selected and the MENU RE is pressed, the screen returns to the Main menu screen.
- The Main menu screen and Submenu screen which have many items switch their pages in conjunction with the cursor mark.
- The MENU RE on the camera and the same control on the optional viewfinder can be used in parallel.

Closing the Menu screen

The Main menu screen/Submenu screen displayed on the monitor output can be closed as follow:

- 1** Press the CHAR switch on the right side of the camera.

The Main menu screen/Submenu screen closes.

USER MENU

Items which are frequently used in daily operations are registered to the USER MENU for quick display and setting change.

This section describes the initial value, customization, moving, and deleting operations of the USER MENU.

Initial values of the USER MENU

Default items included in the USER MENU are the following:

- MARKER CHAR
- FOCUS ASSIST
- AUDIO
- VIDEO I/O
- FUNCTION SW
- TALLY/INDICATOR
- INFORMATION

USER MENU display

The USER MENU can be displayed in the following two ways.

- (1) Display by selecting from the Main menu ("TOP MENU").
- (2) Display by pressing the MENU RE for 0.5 seconds.

USER MENU customize

Up to 20 items can be registered in the USER Menu. The registration method is as follows.

- 1** Select "USER MENU CUSTOM" from the Main menu ("TOP MENU").
- 2** No. 1 to 20 appear (by scrolling the page). Move the cursor to the number to be registered and press the MENU RE.

3 "SELECT," "MOVE," "DELETE," and "CANCEL" are displayed. Align the cursor to "SELECT" and press the MENU RE.

4 The item list of the Main menu appears. Move the cursor and select the number (item) to be registered.

At this time, selectable items blink when the cursor is moved and aligned.

5 When there are more selectable items in the lower layers, "SET," "EXPAND," and "CANCEL" are displayed.

When registering a selected menu item to the user menu, select "SET."

When expanding the selected menu item, select "EXPAND."

The menu list is displayed. Select an item from the list.

6 When there is no selectable item under the selected item, or when expanding is not possible (the item is in the lowest layer), the selected item is registered.

7 When registering continuously, repeat steps 2 to 5 or 6.

■ Moving the USER MENU

When moving the registered menu item to another number, take the following procedure.

1 Select "USER MENU CUSTOM" from the Main menu ("TOP MENU").

2 No. 1 to 20 appear (by scrolling the page). Align the cursor to the number (item) to be moved and press the MENU RE.

3 "SELECT," "MOVE," "DELETE," and "CANCEL" are displayed. Align the cursor to "MOVE" and press the MENU RE.

4 A list of destinations are displayed. Align the cursor to the desired destination and press the MENU RE.

The item is moved.

5 When moving other items continuously, repeat steps 2 to 4.

Caution

When the selected destination already has a registered item, that item is overwritten. Redoing the overwriting is not possible.

The original item becomes vacant. (It is just moving the item and not exchanging.)

For example, when A is registered to No. 1 and B is registered to No. 2, if No. 1 is moved to No. 2 by using "MOVE," No. 1 becomes vacant, and No. 2 becomes A.

■ Deleting USER MENU

When deleting a registered menu item, take the following procedure.

1 Select "USER MENU CUSTOM" from "TOP MENU."

2 No. 1 to 20 appear (by scrolling the page). Move the cursor to the number (item) to be deleted and press the MENU RE.

3 "SELECT," "MOVE," "DELETE," and "CANCEL" are displayed. Align the cursor to "DELETE" and press the MENU RE.

4 When deleting other items continuously, repeat steps 2 to 3.

ENGINEER MENU display

When displaying the ENGINEER MENU items, take the following procedure.

1 Move the cursor from the Main menu ("TOP MENU") to "MENU MODE" and press the MENU RE.

2 "ENGINEER MENU" ON/OFF setting screen is displayed. Align the cursor to ON and press the MENU RE.

3 Display the Main menu ("TOP MENU"). At this time, add the item to be set with "ENGINEER MENU" to the standard "TOP MENU" item and display.

Caution

The ENGINEER MENU setting turns to OFF when the power is turned off and restarted. When displaying the Engineer menu again, turn "ENGINEER MENU" to ON again.

- Menu items which have (E) at the end are ENGINEER MENU items.

5.2 Menu structures and contents

The following section describes about each setting item.

■ Submenu setting item

① USER MENU

It sets the items to be used in daily operations. (Items relating to maintenance and inspection are excluded.)

- MARKER CHAR
- FOCUS ASSIST
- AUDIO
- VIDEO I/O
- LENS
- FUNCTION SW
- VIDEO ADJUSTMENT
- TALLY/INDICATOR
- FAN CONTROL
- FILE OPERATION
- SYSTEM
- INFORMATION
- USER MENU CUSTOM
- MENU MODE

For details of USER MENU, refer to "**5.1 Basic Operation of Menu Screen**".

② MARKER CHAR

It functions to support camera operators by selecting which markers and image information are displayed on the viewfinder during shooting.

③ FOCUS ASSIST

It supports focusing the lens by setting an emphasized display of the viewfinder image signal, etc.

④ AUDIO

It includes settings for audio operation.

⑤ VIDEO I/O

It sets the input/output video signals of the camera.

⑥ LENS

It sets the lens iris and necessary information for creating a lens file.

⑦ FUNCTION SW

It assigns the functions to the function switches of the camera, the optional handle and the viewfinder.

⑧ VIDEO ADJUSTMENT

It sets conditions necessary for image signal processing and executes automatic setup.

⑨ TALLY/INDICATOR

It sets the tally display and conditions to display the zebra pattern.

⑩ FAN CONTROL

It sets the operating conditions of the air cooling fans integrated to the camera and the optional viewfinder.

⑪ FILE OPERATION

It saves and recalls data using a USB memory.

⑫ SYSTEM

It sets the basic operation of the camera.

⑬ INFORMATION

It displays the camera operation status.

⑭ USER MENU CUSTOM

It sets the user menu.

⑮ MENU MODE

It displays the "ENGINEER MENU."

Caution

Please note that actual operations may be partially different from the content of this manual due to firmware updates.

② MARKER CHAR

Menu Item	Initial setting	Setting value	Description, Remarks
DISPLAY MODE	2	OFF, 1, 2	OFF : Markers and characters are always turned off and only warning messages are displayed. 1 : Markers are always displayed. Character-related items are displayed for 2 seconds when functions are operated and when parameters are changed. 2 : Markers and characters are always displayed.
MARKER/CHAR LVL	100	1 to 100	Sets the brightness levels of the markers and characters. The brightness level gets dark in the direction of "1".
CHARACTER SETTING			The screen switches to another screen, and individually turn on/off the characters.
MARKER SETTING			
— FRAME MARKER	OFF	ON-16 : 9, ON-14 : 9, ON-13 : 9, ON-4 : 3, OFF	Sets the ON/OFF state of the frame markers and the size (aspect ratio).
— SAFETY AREA	TITLE	ACTION, TITLE	ACTION : Area marker of 93% of the screen height and width. TITLE : Area marker of 88% of the screen height and width.
— SAFETY MARKER	ON-16 : 9	ON-4 : 3, ON-16 : 9, OFF	Sets the ON/OFF state of the safety markers and the size (aspect ratio).
— SIDE MASK	OFF	OFF, ON-14 : 9, ON-13 : 9, ON-4 : 3	Sets the side mask.
— CONTRAST	50	0 to 100	Adjusts the side mask contrast level.
— BRIGHT	60	0 to 100	Adjusts the side mask brightness level.
— CENTER MARKER	TYPE3	OFF, TYPE1, TYPE2, TYPE3	Sets the center marker. OFF: Turns off the center marker. TYPE1: Marker with blank at the center. TYPE2: Marker (Large) with lines crossing at the center. TYPE3: Marker (Small) with lines crossing at the center.
— MARKER ON/OFF [VF]	OFF	OFF, ON	Sets the ON/OFF of the marker display.
— MARKER SELECT [VF]	SAFETY	SAFETY, FRM+SAFE, ASP+SAFE, ASPECT, C.CROSS, CROSS10, CROSS5	Sets the marker types.
— CENTER MARKER [VF]	OFF	OFF, TYPE-A, TYPE-B	Sets the ON/OFF of the center marker display.
— ASPECT MARKER [VF]	4 : 3	4 : 3, 13 : 9, 14 : 9, 15 : 9	Sets the aspect marker types.
— SAFETY MARKER [VF]	80%	80% to 100%	Sets the safety markers "80 - 100%" (1% increments).
— SHADOW MODE [VF]	OFF	OFF, SHADOW, MRK+SHD	Sets the shadow of the safety markers or aspect markers.
— SHADOW LEVEL [VF]	60%	20%, 40%, 60%	Sets the shadow level.
— MARKER COLOR [VF]	WHITE	WHITE, YELLOW, RED, BLUE, GREEN, CYAN, MAGENTA	Sets the marker display color.
— MARKER LEVEL [VF]	60%	20%, 40%, 60%, 80%, 100%	Sets the marker display level.
— USER MARKER [VF]	OFF	OFF, ON	Sets the ON/OFF of the user marker display.
— MARKER LEVEL [VF]	60%	20%, 40%, 60%, 80%, 100%	Sets the user marker display level.
— SCENE SELECT [VF]	SCENE1	SCENE1 to SCENE5	Sets 5 types of scenes.
BARS TITLE			
— DISPLAY	OFF	ON, OFF	Sets the ON/OFF of the colorbar title display.
— TITLE EDIT			Edits the characters of the colorbar title display.
— POSITION			Sets the position of the colorbar title display.
— BLINK	OFF	ON, OFF	

③ FOCUS ASSIST

Menu Item	Initial setting	Setting value	Description, Remarks
VF PEAKING [VF]			
PEAKING [VF]	OFF	ON, OFF	Sets the ON/OFF of PEAKING on the VF screen.
PEAKING MODE [VF]	H&V	H&V, H-ONLY	Sets the edge mode of PEAKING.
PEAKING WIDTH [VF]	1	1 to 4	Sets the edge width of PEAKING.
NOISE SUP [VF]	0	0 to 9	Sets the removal level of the noise signals.
PEAKING UP [VF]	OFF	OFF, X2, X4, X8	Sets the PEAKING level (x2/x4/x8).
ZOOMUP PEAKING [VF]	OFF	ON, OFF	Sets the ON/OFF of PEAKING corresponding to the ZOOM ratio of the camera lens.
ZOOMUP PEAK-MAX [VF]	100	MIN to 100(1step)	Sets the maximum Tele side value of ZOOMUP PEAKING.
ZOOMUP PEAK-MIN [VF]	0	0 to MAX(1step)	Sets the minimum Wide side value of ZOOMUP PEAKING.
COLOR PEAKING [VF]	WHITE	WHITE, YELLOW, RED, BLUE, GREEN	Gives colors to PEAKING of the VF video.
VIDEO MAG [VF]	X2	X2, X4, X8	Sets the display settings of the VF screen magnification function.
MAG. TIMER [VF]	OFF	OFF, 1 to 7sec	Sets the display time of the VF screen magnification function.
VF VIDEO SETTING			
COLOR/MONO [VF]	COLOR	COLOR, MONO	Switches between COLOR/MONO for the VF screen.
VIDEO SELECT	R/G/B	Y, R+G+B, R, G, B, R/G/B	Sets the video signals to change the VF screen to MONO display.
DTL	35	0 to 100	Sets the VF detail amount. The detail amount decreases in the direction of "0" and increases in the direction of "100".
BOOST FREQ.	10MHz	10MHz, 15MHz, 18MHz, 18MHz, WIDTH	Sets the outline correction highlight horizontal frequency in the VF screen.
NOISE SUP.	3	0 to 100 continuously variable	Sets the noise removal level during outline correction in the VF screen.
CAPTURE DISPLAY [VF]	OFF	OFF, ON	Performs a capture of the VF display screen.
DISP.INTERVAL [VF]	1FRAME	HOLD, 1, 2, 3, 5, 10, 30, 60FRAME	Sets the display interval of the VF screen display.
GAMMA SELECT [VF]	GAMMA 2.2	1, 2, 3, 5, 10, 30, 60FRAME	Sets the gamma curve of video signals that are displayed on the VF screen.
PICTURE-IN-PICTURE [VF]	OFF	OFF, ON(R), ON(L)	Set ON/OFF and position of PINP.
CHROMA UP [VF]	OFF	OFF, ON	Sets ON/OFF of the function that increases the color strength of the VF video.

<< FOCUS ASSIST continues to the next page >>

<< FOCUS ASSIST continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
FOCUS ASSIST WINDOW			
ASSIST AREA	TRIGGER ON	TRIGGER ON, ALWAYS ON, OFF	Sets the focus assist area display. Select TRIGGER ON if you wish to display with the trigger of lens operation, etc.
TRIGGER	FOCUS	FOCUS, FOCUS/ZOOM, LENS VTR	Trigger to display the focus assist area. This setting is used when TRIGGER ON is selected.
AREA ON/OFF SW	NONE	LENS VTR, NONE	Selects the switch to turn ON/OFF the focus assist area.
VF VIDEO MAG.	UNLINK	LINK, UNLINK	Sets whether to send control signals of VF VIDEO MAG function to VF or not.
ASSIST DATA	NO.1	N0.1 to N0.4	Selects the ASSIST DATA compiled in the ASSIST DATA SETTING menu.
ASSIST DATA SETTING			
SW ACTION	ALTERNATE	ALTERNATE, MOMENTARY	If the trigger has been assigned to the LENS VTR SW, sets whether it is momentary operation or alternate operation.
AREA DISP TIME	1.0S	0.0S to 5.0S (0.5 sec interval)	Sets the time from trigger detection until the focus assist area is erased.
AREA SIZE	15	1 to 100	Sets the focus assist area range. If set to "100", it is the entire screen domain.
AREA LEVEL	60%	25% to 100%	Sets the image level of the focus assist area.
AREA COLOR	MONO	MONO, COLOR, NEGA	Sets whether the focus assist area image should be color, monochrome or negative.
AREA MARKER	OFF	ON, OFF	Sets whether the focus assist area frame marker is displayed nor not.
EDGE BOOST LEVEL	55	1 to 100	Sets the boost level of the edge signal.
EDGE COLOR	MONO	MONO, CYAN, MAGENTA, YELLOW, GREEN, RED, BLUE	Sets the color of the edge signal.
STORE DATA	---	N0.1 to N0.4	The contents set in the ASSIST DATA SETTING menu are stored as ASSIST DATA. Select the numbers you wish to store from No. 1 to No. 4 and write over the present data to store them.

④ AUDIO

Menu Item	Initial setting	Setting value	Description, Remarks
[MIC GAIN CONTROL]			
MIC SETUP			
MIC SETUP SELECT	MIC	MIC / LINE	Sets the microphone mode. The power is supplied according to setting of "+48V POWER" during the MIC setting. The power supply is stopped regardless of setting of "+48V POWER" during the LINE setting.
+48V POWER	OFF	ON, OFF	Selects the ON/OFF of power supply to the microphone.
MIC STEP	-40dB	+4dB, 0dB, -10dB, -20dB, -30dB, -40dB, -50dB, -60dB	The MIC gain is changed step by step. MIC : +4dB to -60dB LINE: +4dB, 0dB, -20dB
MIC FINE	0	-100 to 100	Fine adjustment of the MIC gain. The gain decreases about -10 dB with -100, and increases about +10 dB with +100.
EMBEDDED SETTING			
4K EMBEDDED AUDIO	ON	ON, OFF	Sets the audio embed to the 4K SDI output.
EMB AUDIO DELAY	0	0 to 21	Sets the amount of EMBEDDED AUDIO delay. The maximum delay amount is 2.5 FRAME.

⑤ VIDEO I/O

Menu Item	Initial setting	Setting value	Description, Remarks
MON OUT SEL	MON	MON, VF	Sets the signals outputted from the MONITOR connector.
GL IN/SYNC OUT			
GL IN/SYNC OUT SEL	GL IN	GL IN, SYNC OUT	Selects the input and output of the GL IN/SYNC OUT connector.
SYNC OUT FORMAT	1080I59.94	1080I59.94, 1080I50 1080P59.94, 1080P50 1080P29.97, 1080P29.97sF 1080P23.98, 1080P23.98sF 1080P25, 1080P25sF 1080P24, 1080P24sF 720P59.94, 720P50	Sets the format of the synchronization signals outputted from SYNC OUT connector.
SYNC IN SEL	GL IN	GL IN, RET, SFP	Select reference input to be used by the camera.
BARS MODE			
BARS	OFF	ON, OFF	Sets the ON/OFF of COLOR BARS.
UHDTV 4K COLOR BARS	4K 709	4K 709, ARIB UHD ARIB SIMPLIFIED, ARIB HLG	Selects the UHD COLOR BAR.
HDTV COLOR BARS	SMPTE	SMPTE, ARIB, 100/100, 75/75, ARIB HLG	
ARIB BARS TYPE	---	75%, 100%, +I	Selects the HDTV Output COLOR BAR.
SMPTE BARS TYPE	75%/0%	75%/0%, 100%/0%, +I/0%, -I/+Q	
CAL	OFF	OFF, 100%, 200%	Sets the ON/OFF of CAL.

⑥ LENS

Menu Item	Initial setting	Setting value	Description, Remarks
AUTO IRIS SET			
IRIS MOTION	STUDIO	STUDIO, OUTSIDE	Set auto iris overall response in accordance to the application.
IRIS SET MODE	OFF	ON, OFF	ON : Enables auto-iris operation setting. If set to "ON", the iris adjustment from the remote controller is disabled.
IRIS LEVEL SET	0	-100 to +100	Adjusts the convergence level of auto iris. Shoot the registration chart with the camera and adjust the value so that the video level becomes 75%.
PEAK RATIO SET	-70	-100 to +100	Shoot the gray scale chart with the camera and adjust the value so that the video level is 100%. Set the exposure for a bright area in the "+" direction and for a dark area in the "-" direction.
WINDOW	1	WINDOW1 to 6	Sets the detection area of the auto iris.
IRIS SPEED	50	1 to 100	Sets the response speed characteristics of the auto-iris. The auto-iris speed becomes slower for "1" and faster for "100".
IRIS GAIN	50	1 to 100	Sets the auto-iris response sensitivity characteristics. The auto-iris operation sensitivity is such that "1" is low and "100" is high. Hunting tends to occur more often as the value goes up. (Set it to the default value "50" as long as hunting is not occurring)
IRIS LIMIT	F16	F22, F20, F18, F16	Sets a limit on the iris closing during auto iris operation.
FILE SETTING			
NUMBER	OFF	NO.1 to NO .16, OFF	Selects the lens file No. - If the lens code is obtained from the lens, "(CODE SEL)" is displayed on the back of the lens No. display. - If "AUTO SEL" is set to "ON", "(AUTO SEL)" is displayed on the back of the lens No. display.
NAME	(-----)	12 characters	Sets the file name per lens file. Giving the lens type name, etc. makes easier to find the lens No. and lens compatibility.
(MODEL)	(-----)	Name display section for AUTO SEL	Displays the lens name obtained from a serial lens.
EXTENDER	OFF	ON-1, ON-2, ON-3, x0.8 CONV, OFF	Displays the extender status.
AUTO SEL	OFF	ON, OFF	Automatically switches the lens file No. according to the type name obtained from the lens.
FILE SET	OFF	MANUAL, AUTO(AWS), AUTO(FULL), OFF	Please refer to "5.3 Creates the Lens File" for more details on FILE SET.
LENS TYPE	OFF	C.PORTABLE C.STUDIO C.FIELD F.PORTABLE F.STUDIO F.FIELD F.FIELD OFF OFF	Sets the lens type used to match the operation property of the zoom tracking DTL to the zoom property of the lens. This is set per lens file (No. 1 - 8). Lens type C.PORTABLE : Canon portble lens C.STUDIO : Canon studio lens C.FIELD : Canon field lens F.PORTABLE : Fujinon portble lens F.STUDIO : Fujinon studio lens F.FIELD : Fujinon field lens OFF : Zoom tracking DTL is OFF.
SERIAL I/F (E)	ENABLE	ENABLE, DISABLE	Sets the ENABLE/DISABLE to the serial interface of the lens.

⑦ FUNCTION SW

Menu Item	Initial setting	Setting value	Description, Remarks
FUNC SW1	NONE	NONE, FOCUS ASSIST, CALL, ABB, AWB, AWB CH, DISPLAY MODE, FAN, FILTER LOCAL, RET	Selects the function to be assigned to each function switch. If it is set to ABB and AWB, ABB and AWB are performed when the function switch press and held for approximately 2 seconds. If it is set to FOCUS ASSIST, the following operation is performed. The [ASSIST AREA] items on the TOP MENU - FOCUS ASSIST - FOCUS ASSIST WINDOW screen are switched every time SW is pressed. When a serial lens is attached: Repeats TRIGGER ON <> OFF. When a lens other than serial lens is attached: Repeats ALWAYS ON <_> OFF
FUNC SW2	NONE		
FUNC SW 3/4[HANDLE]	NONE	NONE, ZOOM, FOCUS, RET/NONE	Sets the function of FUNCTION SW3 and FUNCTION SW4 on the top part of the handle. To assign it to ZOOM and FOCUS, it requires a serial lens.
ZOOM SPEED	15	0 to 100	Sets the operation speed of ZOOM control. "0" indicates a slow speed and "100" indicates a high speed.
FOCUS SPEED	15	0 to 100	Sets the operation speed of FOCUS control. "0" indicates a slow speed and "100" indicates a high speed.
UP/DOWN	NONE	NONE, GAIN, ND, CC	Selects the function to be assigned to UP/DOWN switches.
VTR SW	---	FOCUS ASSIST, RET	Sets a function of the VTR SW on the lens. If the TRIGGER item on the FOCUS ASSIST menu is set to "LENS VTR", "FOCUS TRIG" is fixed (information display).
VF F1 SW [VF]	MONO	NONE, CAPTURE, CHROMA, CPTDISP, FAN, GAMMA, MAG, MARKER, MONO, NOISESUP, PEAKING, PEAKUP, PRESET, REVERSE, SCENE, SDI, TALLY, USRMRK, VSC, WFM, ZMPEAK, P-IN-P(VF), GAMMA1.4, FOCUS ASSIST, P-IN-P(RET)	Sets the function to the FUNCTION switch F1.
VF F2 SW [VF]	MARKER		Sets the function to the FUNCTION switch F2.
VF F3 SW [VF]	SDI		Sets the function to the FUNCTION switch F3.
VF F4 SW [VF]	TALLY		Sets the function to the FUNCTION switch F4.

⑧ VIDEO ADJUSTMENT

Menu Item	Initial setting	Setting value	Description, Remarks
AUTO SETUP MODE			
AUTO SETUP	LEVEL	LEVEL, FULL, QUICK, F.QUICK, AWS, ABS	Performs the AUTO SETUP process selected.
FULL AUTO REF	EXT	INT, EXT	INT : Sets to the default factory setting. EXT : Sets to the user setting.
AWB WITH A.IRIS	ON	ON, OFF	Selects whether to automatically include the A.IRIS when the AWB is performed. This menu is enabled only during the self contain operation. It is always "OFF" during the operation with remote controller.
AWB DETECT AREA	WIDE	WIDE, SPOT	Selects the DETECT AREA of AWB.
AWB MARKER	OFF	ON, OFF	Sets the ON/OFF of the AWB marker display.
SMOOTH AWB	ON-0.5s	OFF, ON-0.3s, ON-0.5s, ON-0.7s, ON-1.0s, ON-1.5s, ON-2.0s	Sets transition time to change it smoothly between Ach/Bch of AWB.
AWB REFERENCE	ON	ON, OFF	ON : Makes the convergence value of the AWB converged to the EXT AWB REF file. OFF : Calibrates the Reh/Bch to the Gch.
CHART SEARCH	ENABLE	ENABLE, DISABLE	'ENABLE : Automatically adjusts the angle of view of the chart when FULL AUTO SETUP is performed. DISABLE : Manually adjusts the angle of view of the chart when FULL AUTO SETUP is performed.
REFERENCE SET	ABB	ABB, AWB	Creates the convergence value (EXT REF FILE) of AWB and ABB.

<< VIDEO ADJUSTMENT continues to the next page >>

<< VIDEO ADJUSTMENT continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
PROCESS SETUP			
STEP GAIN	0	-6, -3, 0, +3, +6, +9, +12	Sets the step gain.
GAIN			
R	0.0	-100 to +100	Sets the gain value of M/G/R/B. The gain value decreases in the direction of "-100" and increases in the direction of "+100".
G	0.0	-100 to +100	
B	0.0	-100 to +100	
M	0.0	-100 to +100	
MANUAL CLR			
BLK PRS/STR	OFF	-11, -9, -7, -5, -3, +3, +5, +7, +9, +11, OFF	Sets the level of BLK PRS/STR.
GAMMA TYPE	NORMAL	NORMAL, CUSTOM1-5	Selects the type of gamma curve. NORMAL : Normal gamma curve CUSTOM1-5 : Custom gamma curve Refer to the "CUSTOM GAMMA" for custom gamma data editing.
STEP GAMMA	0.45	0.45, 0.40, 0.35, OFF	Sets the step gamma.
GAMMA			
R	0.0	-100 to +100	Sets the gamma value of M/R/B. The gamma value decreases in the direction of "-100" and increases in the direction of "+100".
B	0.0	-100 to +100	
M	0.0	-100 to +100	
MANUAL CLR			
PED			
R	0.0	-100 to +100	Sets the pedestal value of M/R/B. The pedestal value decreases in the direction of "-100" and increases in the direction of "+100".
B	0.0	-100 to +100	
M	0.0	-100 to +100	
MANUAL CLR			
FLARE			
R	0.0	-100 to +100	Sets the flare value of G/R/B. The flare value decreases in the direction of "-100" and increases in the direction of "+100".
G	0.0	-100 to +100	
B	0.0	-100 to +100	
MANUAL CLR			
DTL			
GAIN	0.0	-100 to +100	Sets the various Detail correction settings. Sets the detail amount. The detail amount decreases in the direction of "-100" and increases in the direction of "+100".
FREQUENCY	17.0	13.0 to 24.0	Sets the horizontal peak frequency of detail correction.
BLACK WHITE	0.0	-100 to +100	Sets the balance between dark area and bright area.
BALANCE	0.0	-100 to +100	Sets the balance of the amount between horizontal detail and vertical detail.
THRESH	0.0	-100 to +100	Sets the lower limit level to mix the detail correction.
FINE	2	0, 1, 2, 3, 4, 5, 6, 7, 8	Reduces the amount of correction for edges with large brightness differences.
NOISE SUP	0.0	-100 to +100	Sets the reduction amount of noise.
MANUAL CLR			Resets all changes of DTL back to previous setting.
HI-LIGHT DTL SETUP			
HI-LIGHT DTL	OFF	ON, OFF	Enable the high light detail correction.
GAIN	-	0 to +100	Sets the HI-LIGHT DTL amount. The detail amount on the high light area increases in the direction of "+100".
LIMIT	-	-100 to +100	Sets the limit level of HI-LIGHT DTL.
KNEE	MANUAL	MANUAL, AUTO, OFF	Selects the knee function.
SMOOTH KNEE SETUP			
SMOOTH KNEE	TYPE1	OFF, TYPE1, TYPE2, TYPE3	Selects the type of SMOOTH KNEE.
TEST PULSE	OFF	ON, OFF	Enable the TEST PULSE to adjust SMOOTH KNEE.
POINT	75	-100 to +100	Sets the curve of SMOOTH KNEE.
SLOPE	10	-100 to +100	
LOAD INIT	CANCEL	CANCEL, INDIV, ALL	Resets the data of SMOOTH KNEE.
MATRIX	1	1, 2, 3, OFF	Select the Matrix mode.
ADVANCED MATRIX	OFF	ON, OFF	Turns on/off the advanced matrix.
HV SLIM DTL TYPE	H ONLY	H ONLY, V ONLY, H+V	Sets the type of SLIM DTL.
V SLIM DTL FREQ	A	A, B, C, D	Sets the boost frequency type of SLIM DTL.
NR MODE	OFF	OFF, LOW, HIGH	Sets the NR (noise reducer).
DOWN CONV FILTER	STD	STD, HI, HQ, LOW	Setting of FIR-FILTER when the 4K image is converted to HD (1080i & 1080p)

<< VIDEO ADJUSTMENT continues to the next page >>

<< VIDEO ADJUSTMENT continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
STANDARD GAMMA			
└─ GAMMA TABLE	STANDARD1	STANDARD1, STANDARD2	Select the standard gamma table.
CUSTOM GAMMA			
└─ EASY MODE			Easy creation mode. Sets various parameters and creates the custom gamma data.
└─┬─ DEFAULT RESET	-	EXECUTE, CANCEL	Returns to the original custom gamma data. The original data cannot be recovered once it is overwritten with the "SAVE" function.
└─┬─ SELECT	NORMAL	NORMAL, CUSTOM1to5	Selects the gamma table to be created.
└─┬─ CURVE TYPE	NORMAL	NORMAL, LOG, SPECIAL	Sets the basic properties of gamma curve.
└─┬─ INITIAL GAIN	4.5	1.0 to 9.0	Sets the slope of gamma curve at around 0%. The curve rises steeply as the value increases.
└─┬─ 18% GRAY	58.0%	14.0% to 107.0%	Sets what level it should be after the gamma has been applied when converting from 18% level before applied.
└─┬─ DYNAMIC RANGE	600%	100% to 600%	Sets the maximum level (the maximum input level to the gamma) before the gamma has been applied.
└─┬─ WHITE LIMIT	109%	70% to 109%	Sets the white clip after the gamma has been applied.
└─┬─ CAL	OFF	OFF, CAL100%, CAL200%	Selects the test waveform (CAL) to check the gamma table.
└─┬─ SAVE	READY	EXECUTE, CANCEL	Saves the data that has been created. The data is temporary unless you save it. Therefore, the data will be cleared if you end the menu without saving it.
└─ SHUTTER	OFF	OFF, PRESET, VARIABLE	Selects the electronic shutter.
└─ SHUTTER SPEED	-	PRESET 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 VARIABLE	Selects the shutter speed. (Only when SHUTTER is PRESET and VARIABLE)
└─ GAMMA CURVE COPY	-	CUSTOM1to5, ALL >CUSTOM1to5, ALL	Copies the custom gamma data created to other gamma table in the camera.
└─ USB MEMORY			
└─ SAVE	-		Saves the custom gamma data to the USB memory.
└─ LOAD	-		Loads the custom gamma data from the USB memory.

<< VIDEO ADJUSTMENT continues to the next page >>

<< VIDEO ADJUSTMENT continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
AVC SETUP			Sets the AVC(Auto Video level Control).
— AVC	OFF	ON, OFF	Enable AVC function.
— [DAY FILE SETUP] (E)			Sets the AVC Day Mode items.
— PRESET LEVEL	MODE2	-100 to +100MODE1, 2, 3, 4, 5	Sets the target video level in AVC DAY MODE operation. Higher number gives higher video level. This setting is activated only on AUTO IRIS mode.
— MANUAL LEVEL	MODE3	MODE1, 2, 3, 4, 5	Sets the target video level in AVC DAY MODE operation with MANUAL IRIS mode (AUTO IRIS OFF). MODE number increases when IRIS volume on the remote controller turns to open side.
— DETECT AREA	AREA1	AREA1, 2, 3, 4, 5, 6	Sets the sample area in AVC Day MODE operation. Marker on Monitor output shows area when the setting is changed.
— [NIGHT FILE SETUP] (E)			Sets the AVC Night Mode items.
— PRESET LEVEL	MODE2	MODE1, 2, 3, 4	Sets the target video level in AVC NIGHT MODE operation. Higher number gives higher video level.
— GAIN LIMIT	+18dB	+12dB, +18dB	Sets the maximum step gain in AVC NIGHT MODE operation.
— DETECT AREA	AREA1	AREA1, 2, 3, 4, 5, 6	Sets the sample area in AVC NIGHT MODE operation. Marker on Monitor output shows area when the setting is changed.
— D/N CHANGE TIME (E)	FAST	FAST, STANDARD	Sets the waiting time before auto switchover between DAY MODE and NIGHT MODE operation.
— D/N CHANGE LEVEL (E)	TYPE1	TYPE1, 2, 3, 4	Sets the scene illumination level for auto switchover between DAY MODE and NIGHT MODE operation. Auto switchover illumination level increases when TYPE number decreases.
ATW SETUP			
— ATW	OFF	ON, OFF	Enable ATW Auto Tracking White balance.
— ATW SPEED	5	1 to 10	Sets the speed of adjusting the red and blue channel gains for white balance.
— TRACKING RANGE	STANDARD	NARROW, STANDARD, WIDE	Sets the overall color temperature range for ATW operation.
— START UP TIME (E)	OFF	1 to 5, OFF	Sets the delay before ATW starts to white balance after color temperature change.
— START CC FILTER (E)	B. 5600	A. 3200, B. 5600	Sets the starting CC filter when ATW is initially turned on.
— [REFERENCE]			
— RED REFERENCE (E)	0	-100 to +100	Trim adjustment for white balance of the red channel.
— BLUE REFERENCE (E)	0	-100 to +100	Trim adjustment for white balance of the blue channel.
— DETECT AREA (E)	AREA1	AREA1, 2, 3, 4, 5, 6	Sets the sample area in ATW operation. Marker on Monitor output shows area when the setting is changed.
AUTO HOLD SETUP			
— IRIS	AUTO	HOLD, MANUAL, AUTO	Selects the Auto Hold mode in AVC mode. HOLD:Disable Auto Iris AUTO:Auto Iris mode MANUAL:Manual Iris mode
MATRIX PRESET DATA(E)			
— MATRIX 1	BT.709		
— MATRIX 2	BT.2020	OFF, BT.709, SMPTE, EBU, BT.2020, USER1, USER2	Selects the preset of color matrix. * In order to select USER1 and 2, you must turn on "MATRIX USER1(2) DATA SET - DATA SET MODE."
— MATRIX 3	SMPTE		
MATRIX USER1 DATA SET (E)			Sets the preset (USER1) of color matrix.
— BASE COLOR	USER1	OFF, BT.709, SMPTE, EBU, BT.2020, USER1, USER2	ON : Sets the preset data. OFF : Does not set the preset data.
— R-G	0.0	-100 to +100	Sets the matrix of R-G.
— R-B	0.0	-100 to +100	Sets the matrix of R-B.
— G-R	0.0	-100 to +100	Sets the matrix of G-R.
— G-B	0.0	-100 to +100	Sets the matrix of G-B.
— B-R	0.0	-100 to +100	Sets the matrix of B-R.
— B-G	0.0	-100 to +100	Sets the matrix of B-G.
— DATA SAVE	---	READY	READY : Normal status PUSH SET --> CLR : Clears the preset data. CANCEL : Exit "DATA CLEAR" without clearing the settings.
— TRANSFER MATRIX	BT.709	BT.709, BT.2020	Sets the transfer matrix.

<< VIDEO ADJUSTMENT continues to the next page >>

<< VIDEO ADJUSTMENT continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
MATRIX USER2 DATA SET (E)			Sets the preset (USER2) of color matrix.
— BASE COLOR	USER2	OFF, BT.709, SMPTE, EBU, BT.2020, USER1, USER2	ON : Sets the preset data. OFF : Does not set the preset data.
— R-G	0.0	-100 to +100	Sets the matrix of R-G.
— R-B	0.0	-100 to +100	Sets the matrix of R-B.
— G-R	0.0	-100 to +100	Sets the matrix of G-R.
— G-B	0.0	-100 to +100	Sets the matrix of G-B.
— B-R	0.0	-100 to +100	Sets the matrix of B-R.
— B-G	0.0	-100 to +100	Sets the matrix of B-G.
— DATA SAVE	---	READY	READY : Normal status PUSH SET ---> CLR : Clears the preset data. CANCEL : Exit "DATA CLEAR" without clearing the settings.
— TRANSFER MATRIX	BT.709	BT.709, BT.2020	Sets the transfer matrix.
OPTICAL ABERRATION CORR. (E)			
— CORRECTION	ENABLE	ENABLE, DISABLE	Switches between Enable/Disable of aberration correction. This setting is saved when the power is turned off. Therefore, set it to "DISABLE" if aberration correction is not used.
— CORR. LEVEL R	0	-10 to 10	Changes the intensity of the correction.
— CORR. LEVEL B	0	-10 to 10	Changes the intensity of the correction.
— OAC GUIDE MARK	ON	ON, OFF	Sets whether a character display indicator is shown on the VF or not when the aberration correction value is not properly received from the serial lens.

⑨ TALLY/INDICATOR

Menu Item	Initial setting	Setting value	Description, Remarks
FRONT TALLY LEVEL	7	0 to 10	Sets the brightness of FRONT TALLY Tally.
REAR TALLY LEVEL	7	0 to 10	Sets the brightness of REAR TALLY Tally.
CAM NUMBER LEVEL	7	0 to 10	Sets the brightness of CAMERA NUMBER.
ETHER LED	ON	ON, OFF	Sets the ON/OFF of the LED of the ETHER connector.
FRONT TALLY [VF]	LOW	OFF, LOW, HIGH	Sets the ON/OFF of brightness and display of the VF front Tally.
VF TALLY LEVEL [VF]	7	1 to 10	Sets the brightness of VF Tally.
TALLY MODE [VF]	G-R-G	G-R-G, R-G-R, R-R-R	Sets the display position of VF R/G Tally.
BEZEL INDICATOR [VF]	ENABLE	ENABLE, DISABLE	Sets to disable the indicator light in the frame.
VOLUME INDICATOR [VF]	OFF	ON, OFF	Sets the ON/OFF of the setting value displays for the VF PEAKING/ CONTRAST/BRIGHT.
ZOOM INDICATOR [VF]	OFF	ON, OFF	Sets the ON/OFF of the ZOOM position indicator display.
FOCUS INDICATOR [VF]	OFF	ON, OFF	Sets the ON/OFF of the FOCUS position indicator display.
ZEBRA SETTING			
ZEBRA	OFF	ON, OFF	Sets all Zebra (1 and 2) function ON/OFF.
ZEBRA1 DETECT	100%	30 to 109%	Sets the Zebra1 detecting level (typically a white level).
ZEBRA2 IND	OFF	ON, OFF	Sets Zebra 2 ON/OFF.
ZEBRA2 DETECT	70%	30 to 109%	Sets the Zebra2 detecting level (typically a skin tone level).
ZEBRA IND LVL	78	1 to 100	Sets the Zebra indication level.
WFM/VSC SETTING [VF]			
WAVE FORM [VF]	OFF	ON, OFF	Sets the ON/OFF of WFM display.
DIMMER [VF]	MID	LOW, MID, HIGH	Sets the brightness of WFM.
SIZE [VF]	NORMAL	NORMAL, SMALL	Sets the display of WFM.
POSITION [VF]	RIGHT	RIGHT, LEFT, ENTER	Sets the display position (right/left/center) of WFM.
COLOR [VF]	WHITE	WHITE, GREEN	Sets the display color (white/green) of WFM.
VECTOR SCOPE [VF]	OFF	ON, OFF	Sets the ON/OFF of the vector scope (VSC) display.
DIMMER [VF]	MID	LOW, MID, HIGH	Sets the brightness of VSC.
MAGNIFICATION [VF]	OFF	OFF, X2, X4, X8	Sets the magnification ($\times 1/2/4/8$) of VSC.
SCALE [VF]	100%	80%, 100%	Sets the scale display (75%/100%) of COLOR BOX.
POSITION [VF]	RIGHT	RIGHT, LEFT, CENTER	Sets the display position (right/left/center) of vector scope.
COLOR [VF]	WHITE	WHITE, GREEN	Sets the display color (white/green) of VSC.

⑩ FAN CONTROL

Menu Item	Initial setting	Setting value	Description, Remarks
CAMERA FAN CONT MODE	AUTO	AUTO, STOP	AUTO : Automatically changes the cooling fan speed according to the internal temperature level. STOP : Keeps the fan stopped as long as the internal temperature does not reach a critical level. If the power is turned on again, it returns to AUTO. The surface temperature of the enclosure may be increased higher than the normal temperature when the STOP mode is selected.
VF FAN CONT MODE [VF]	AUTO	AUTO,OFF, ON	Sets the FAN operation of VF to AUTO/Force OFF/Force ON.
CAMERA	---	(information display)	SSLOW : The fan speed is very slow.
VF	---		SLOW : The fan speed is slow. NOR : Normal fan speed. FAST : The fan speed is fast. NG : Fan malfunction

⑪ FILE OPERATION

Saves and sets various data using USB memory.

Menu Item	Initial setting	Setting value	Description, Remarks
USB MEMORY			Please refer to ** Using the USB memory.
SAVE FILE			
ALL DATA	---		Saves the selected data to the USB memory.
SNAP SHOT	---		
SCENE	---		
REFERENCE	---		
LENS	---		
CAM STATUS NAME	---		
MENU DATA	---		
LOG DATA	---		
LOAD FILE			
ALL DATA	---		Loads ALL files.
SNAP SHOT	---		Reads snap shot files.
SCENE	---	ALL, SELECT NUMBER	Selects all (bulk) or single item (selected from 1 to 8) from SCENE DATA.
PREFERENCE	---		Loads the reference file.
LENS	---	ALL, SELECT NUMBER	Selects all (bulk) or single item (selected from 1 to 8) from LENS DATA.
CAM STATUS NAME	---	ALL, ND, CC, GAMMA, MATRIX	Reads the Camera Status Name (ND,CC,GAMMA,MATRIX) File.
MENU DATA	---	ALL, VF, AUDIO	Selects whether to load the entire MENU or only menu related "VF" or only menu related "AUDIO" from "MENU DATA".
KEY FILE	---		Reads KEY files.
PRESET FILE LOAD			Function to load the user settings (ENGINEER SET FILE) or factory settings (FACTORY SET FILE) for the level adjustment or menu of the camera. Used to return the camera state back to the previous or initial settings.
FILE SELECT	ENGINEER	ENGINEER, FACTORY	ENGINEER : Initializes the state back to the user setting. FACTORY : Initializes the state back to the initial factory setting.
LOAD START	READY	READY, START, CANCEL	Selects from settings ready, start, or cancel.
PRESET FILE SAVE (E)			Saves the level adjustment and the setting status of the menu. The saved data can be loaded as user settings data of "PRESET FILE LOAD" .
FILE SELECT	ENGINEER	fixed to ENGINEER	Saves the user settings.
SAVE START	READY	READY, START, CANCEL	Execute the save.
PROGRAM UPDATE (E)			
FILE SELECT	---		Updates all programs. (SOFT & P_MPU FPGA & P_PROC FPGA) The package version is updated by this update.

12 SYSTEM

Menu Item	Initial setting	Setting value	Description, Remarks
SDI OUT FORMAT			
— IMGAE SIZE	1920x1080	3840x2160 / 1920x1080 / 1280x720	Selects IMAGE SIZE.
— FREQ&SCAN	59.94P	59.94P / 29.97P / 29.97PsF / 23.98P / 23.98PsF / 50P / 25P / 25PsF / 24P / 24PsF / 59.94I / 50I / 119.88I / 100I	Selects the frame rate and scanning method.
— SAMPLING	YCbCr 4:2:2	YCbCr 422 / RGB 444	Selects the sampling method.
— MAPPING	3G-SDI LVL-A	3G-SDI LVL-A / 3G-SDI LVL-B / HD-SDI / EVS SL	Selects the SDI mapping.
— QUAD OUTPUT	3G QL 2SI	3G QL 2SI / 3G QL SQD / HD QL SQD	Selects the 4K QUAD output method.
— FORMAT CHANGE	READY	EXECUTE / CANCEL	Sets the above settings.
MON OUT FORMAT			
— IMGAE SIZE	1920x1080	1920x1080 / 1280x720 (Information display)	Display the IMAGE SIZE.
— FREQ&SCAN	59.94I		Selects the frame rate and scanning method.
— SAMPLING	YCbCr 4:2:2	YCbCr 422 (Information display)	Display the sampling method.
— MAPPING	HD-SDI	HD-SDI / 3G-SDI LVL-A (Information display)	Display the SDI mapping.
— FORMAT CHANGE	READY	EXECUTE / CANCEL	Sets the above settings.
H PHASE	0.0	-100 to +100	Matches the phase of internal synchronization signals with the phase of external synchronization signals. The internal synchronization goes forward in "-" direction and delays with "+" direction compared to external synchronization.
V PHASE	0	- 562 to 2249	Matches the phase of internal synchronization signals with the phase of external synchronization signals. The internal synchronization goes forward in "-" direction and delays with "+" direction compared to external synchronization.
FILTER SERVO CONT	SERVO	SERVO , MANUAL	SERVO : Sets to the automatic control. MANUAL : Sets to the manual control.
BATT WARN VOLT	11.0V	11.0 to 17.0V	Sets the battery voltage value that issues the warning.
SYSTEM MODE	ON	ON, OFF	Sets the setting of camera when remote controller is disconnected. ON : Camera holds settings. Auto Iris does not turn on automatically. OFF : Camera does not hold settings. Auto iris turns on automatically.
CONTROL SETTING [REMOTE]			
— PROTOCOL	ICCP	ICCP, ISCP	Selects protocol for optional REMOTE connector.
— ISCP INTERFACE	422A	422A, TTL	Selects the interfece of ISCP.
— ISCP BAUDRATE	9600	1200, 2400, 4800, 9600, 19200	Sets the baud rate of ISCP.
— ISCP LOGE			Sets the setting of ISCP LOG.
— RESET LOG	READY	CANCEL, EXECUTE	Resets the LOG of ISCP.
— COMM LOG	0	0 to 82	Sets the display number of ISCP LOG data.
— LOG RUN	START	START, STOP	Starts the recording of LOG.

<< SYSTEM continues to the next page >>

<< SYSTEM continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
ETHERNET(E)			Sets the ETHERNET settings.
GROUP ID	0	0 to 99	Sets the GROUP ID of the camera for ICNP.
DEVICE ID	1	1 to 99	Sets the DEVICE ID of the camera for ICNP.
DEVICE NAME	(----- ---)	16 characters	Allows the user to name the camera for ICNP.
IP ADDRESS			
IP ADDRESS	192.168.1.100	0.0.0.0. to 255.255.255.255	Sets the IP address of the camera for network control.
SUBNET MASK	255.255.255.0	0.0.0.0. to 255.255.255.255	Sets the SUBNET MASK for the IP ADDRESS of the camera.
DEFAULT GATEWAY	0.0.0.0	0.0.0.0. to 255.255.255.255	Sets the DEFAULT GATEWAY for the IP ADDRESS of the camera.
SPEED/DUPLEX	AUTO NEGOTIATION	AUTO NEGOTIATION, 10M HALF, 10M FULL, 100M HALF, 100M FULL	Sets the communication method and speed for Ethernet camera control.
SET	READY	REBOOT CANCEL, REBOOT EXECUTE	Executes the IP ADDRESS settings preset above.
UDP CONTROL			
ICCP PORT NO	50001	0 to 65535	Sets the port number for ICCP.
ICNP PORT NOR	50002	0 to 65535	Sets the port number for ICNP.
MASTER			
PRIMARY	DISABLE	DISABLE, ENABLE	Enable primary device via ICNP.
IP ADDRESS	192.168.1.220	0.0.0.0. to 255.255.255.255	Sets the IP ADDRESS corresponding to primary device.
ICNP PORT NO	50002	0 to 65535	Sets the port number for primary device.
SECONDARY	DISABLE	DISABLE, ENABLE	Enable a secondary device via ICNP.
IP ADDRESS	192.168.1.140	0.0.0.0. to 255.255.255.255	Sets the IP ADDRESS corresponding to secondary device.
ICNP PORT NO	50002	0 to 65535	Sets the port number for secondary device.
CAMERA ID SETUP (E)			
PROGRAM NO. (E)	1	1 to 99, OFF	Sets the camera No. at the time of program operation, etc. If the display of the camera No. is set on the OCP side, the set ID No. is displayed. If the camera No. is set on the camera side, the set ID No. is displayed on OCP.
CAM STATUS NAME SET(E)			
FILTER NAME			
ND			Sets the name of ND filters.
1:	1		
2:	2	1, 2, 3, 4, 5, 1/4, 1/8, 1/16,	
3:	3	1/64, CLR, 25%, 12.5%,	Sets th name of ND filters.
4:	4	6.25%, 1.5%, CUSTM	The name can be customized in mode CUSTM(custom).
5:	5		
CC			Sets the name of CC filters.
A:	A		
B:	B	A, B, C, D, E, 3200K,	
C:	C	4300K, 6300K, CROSS,	Sets th name of CC filters.
D:	D	CUSTM	Name can be customized in mode CUSTM(custom).
E:	E		
GAMMA NAME			Sets the name of Gamma setting.
CUSTOM GAMMA:	DEFAULT	DEFAULT, CUSTOM	Selects the default name or custom name of Gamma.
1:	CST1		
2:	CST2		
3:	CST3		
4:	CST4		The name can be customized in mode CUSTOM.
5:	HLG		
MATRIX NAME			
MATRIX SELECT:	DEFAULT	DEFAULT, CUSTOM	Selects the default name or custom name of Matrix.
OFF:	OFF		
BT.709:	709		
SMPTE:	SMPTE		
EBU:	EBU		
BT.2020	2020		
USER1	USER1		
USER2	USER2		The name can be customized in mode CUSTOM.

<< SYSTEM continues to the next page >>

<< SYSTEM continued >>

Menu Item	Initial setting	Setting value	Description, Remarks
DATE(YY/MM/DD) (E)	---	YY / MM / DD	Sets the date and time for saving files to a USB memory.
TIME (E)	---	HH : MM : SS	Sets the date and time for saving files to a USB memory.
MAIN MENU CHAR(E)	DISABLE	ENABLE, DISABLE	Permits menu display on MAIN Video output.

13 INFORMATION

Menu Item	Initial setting	Setting value	Description, Remarks
WARNING			
└─ DC INPUT	OK	OK, NG(Information display)	Displays the status of the DC input.
└─ TEMP	OK	OK, NG(Information display)	Displays the status of the camera's internal temperature.
└─ FAN	OK	OK, NG(Information display)	Displays the status of the FAN.
└─ MEM BATT	OK	OK, NG(Information display)	Displays the status of the memory battery.
WORKING TIME	---	*****H (Information display)	Displays the total accumulated operation time of the camera up to the present.
SUB WORKING TIME	---	*****H (Information display) RESET	Displays the cumulative operating time of the camera up to the current time. Users can reset arbitrarily unlike "WORKING TIME".
ETHERNET			
└─ IP ADDRESS		(Information display)	Displays the setting values of ETHERNET.
└─ SUBNET MASK		(Information display)	
└─ DEFAULT GATE WAY		(Information display)	
└─ SPEED/DUPLEX		(Information display)	
└─ MAC ADDRESS		(Information display)	
FIRMWARE VERSION			
└─ CAMERA			
└─┬─ SOFTWARE	---	STRB6001V**.*.*.* (Information display)	Displays the software version of the main unit.
└─┬─ CHECK SUM	---	(Information display)	Displays the software checksum of the main unit.
└─┬─ P_PROC	---	(Information display)	Displays the version of FPGA.
└─┬─ P_MPU	---	(Information display)	
└─ VF			
└─┬─ SOFTWARE	---	(Information display)	Displays the software version of VF.
└─┬─ FPGA	---	(Information display)	Displays the FPGA version.
HARDWARE VERSION			
└─ P_PROC	---	(Information display)	Displays the version information of the module PCB.
└─ P_MPU	---	(Information display)	
└─ P_AXII_T	---	(Information display)	
└─ P_AXII_B	---	(Information display)	
└─ VF	---	(Information display)	
SERIAL NUMBER	---	(Information display)	Displays the serial number of the camera.
MODULE SW	---	(Information display)	Displays the setting status of dip switches on the PCB.
KEY DATA			
└─ 4K FORMAT	---	(Information display)	

⑮ MENU MODE

Menu Item	Initial setting	Setting value	Description, Remarks
ENGINEER MENU	OFF	ON, OFF	

Caution

- The menu items marked with "(E)" at the end are [ENGINEER MENU] items.
- The menu items marked with "[VF]" at the end are Viewfinder items.
Functions may not work depending on the Viewfinder model.
- The menu items marked with "[REMOTE]" at the end are optional REMOTE connector items.
Those functions work only with optional REMOTE connector.

5.3 Creation of a lens file

The purpose of creating a lens file is to memorize the color balance change resulting from the lens' optical characteristics. In that way, it optimizes GAIN, Flare, and W.SHADING when lenses with different magnification or manufacturer are used or when the extender is changed. The lens file is switched by selecting the lens number with the menu. It is not necessary to readjust every time. Lenses supporting serial digital interface can recall the appropriate lens file automatically. In addition, the extender status is memorized. Thus, automatic switching is possible by the extender answer signal from the lens.

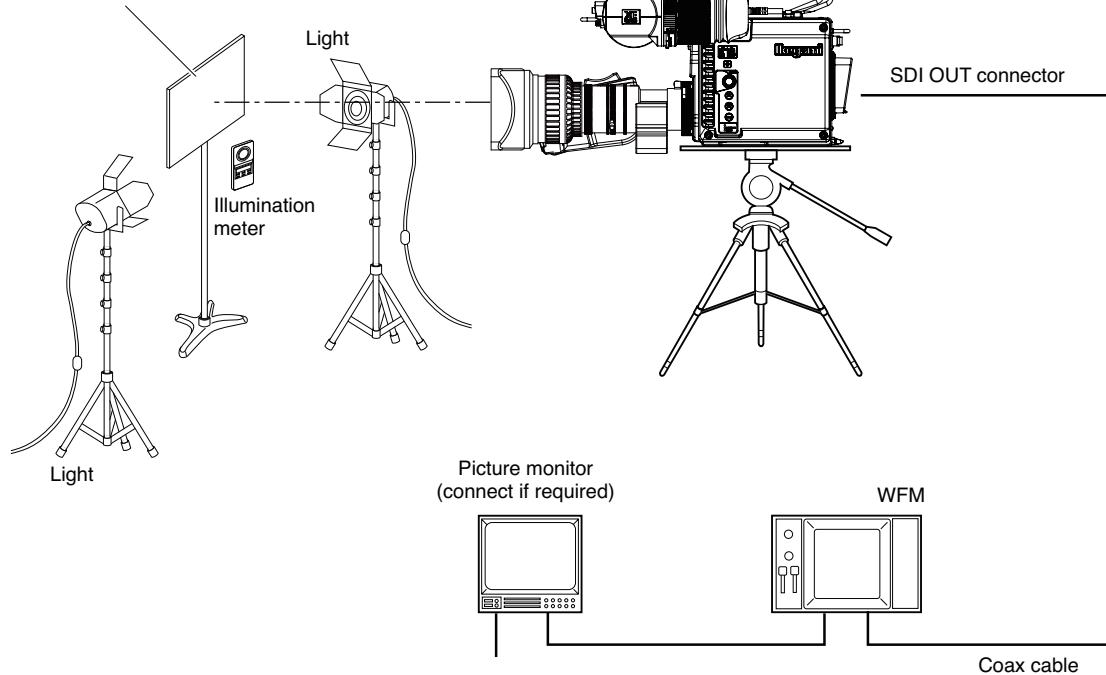
Up to 16 lenses can be registered per camera, so files can also be created when a prompter or an external filter is used.

■ Constructing the environment

Construct the test environment as shown in the following figure.

At the start, attach the "standard lens" to be used for the basic setup of the camera. In addition, use a uniform white chart as the subject. Adjust the light using a light meter so the entire chart has uniform brightness.

Chart on which Kent paper, etc. has been pasted and the entire surface is a uniform white.



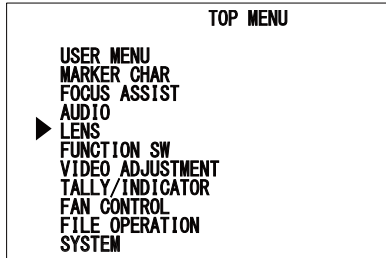
Memo

- When creating a lens file, set the optical filter to ND: CLEAR (100%) and the CC filter to 3200K. In addition, make sure that a special effect filter is not attached to the front section of the lens or to the integrated filter disc. If a special filter is attached, there are cases that the lens file cannot be created correctly.
- When creating the lens files, thoroughly prepare all target lenses and create the files sequentially without interruption under the same conditions. When the conditions change during file creation, accurate setting becomes impossible. The lens file is used to memorize the level difference between lenses. Therefore, if the light or the chart changes, it cannot be judged whether the difference is due to the lens, light, or chart.

■ Creation of the lens OFF file

First, "Lens OFF file" which is the lens file of the standard lens is created. The lens OFF file becomes the reference value when creating the lens file.

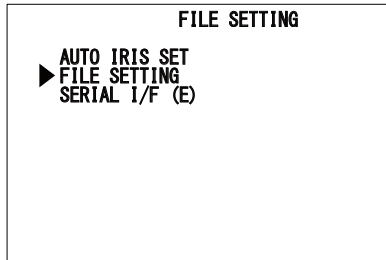
- 1 Open the ENGINEER MENU screen and select "LENS." Press the MENU RE.



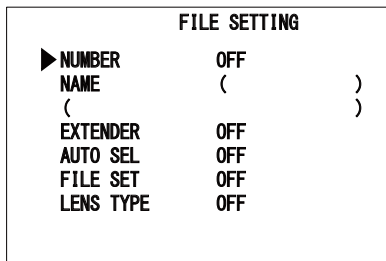
Caution

When creating the lens file, turn ENGINEER MENU to ON. For the setting of ENGINEER MENU, refer to "5.1 Basic Operation of the Menu."

- 2 On the Submenu screen, select "FILE SETTING" under "LENS" and press the MENU RE.

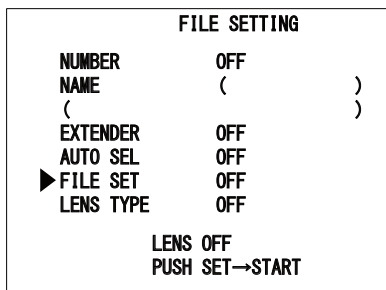


- 3 Select "OFF" by "NUMBER."



- 4 Select "AUTO" from "FILE SET" and then select "START."

Start acquiring the data. When "COMPLETED" is displayed, creation of the Lens OFF file is completed.



■ Creation of a lens file

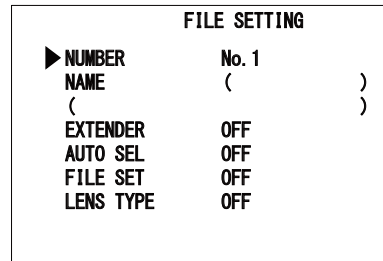
After creating the "Lens OFF file," create lens files for all lenses. In the lens file which will be created, the difference data compared to the lens OFF file will be memorized. In this section, the setting method for the serial interface supported lens case is described.

- 1 Open the ENGINEER MENU screen and select "LENS." Press the MENU RE.
- 2 On the Submenu screen, select "FILE SETTING" under "LENS" and press the MENU RE.
- 3 Select "No. **" by "NUMBER."

Select from No. 1 to No. 16.

Specify the desired number to be set for the "NUMBER."

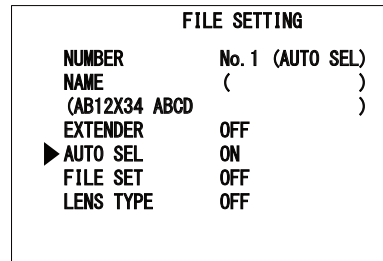
Please note if the file is created with the same lens number, the data is overwritten and updated.



- 4 Select "ON" by "AUTO SEL."

For each lens file, set the file name to "NAME" (1st line).

At his time, "NAME" (2nd line) and "EXTENDER" information is automatically acquired.



Memo

There are two types of displays for the lens file name.

- The file name of the first line (NAME section) is manually input for each lens file. Distinguishing the relationship between the lens number and the lens becomes easy by providing the lens model name.
- In case of the serial interface corresponding lens, the file name of the second line (AUTO SEL NAME display section) displays the model name which is automatically acquired from the lens.
- This model name is acquired when the lens file is created and memorized by each lens file number.

5 Select "AUTO" from "FILE SET" and then select "START."

Data acquisition starts.

Creation of the lens file completed.

FILE SETTING	
NUMBER	No. 1 (AUTO SEL)
NAME	()
(AB12X34 ABCD)
EXTENDER	OFF
AUTO SEL	ON
▶ FILE SET	AUTO
LENS TYPE	OFF
LENS No. 1	
PUSH SET→START	

Memo

Manual adjustments of GAIN, Flare and W.SHADING are available.

- After adjusting with OCP and MCP, selecting "MANUAL" with "FILE SET" allows creating the lens file.

FILE SETTING	
NUMBER	No. 1 (AUTO SEL)
NAME	()
(AB12X34 ABCD)
EXTENDER	OFF
AUTO SEL	ON
▶ FILE SET	MANUAL
LENS TYPE	OFF

5.4 Using the USB memory

The USB memory can be used to store/read the setting condition of the camera.

Caution

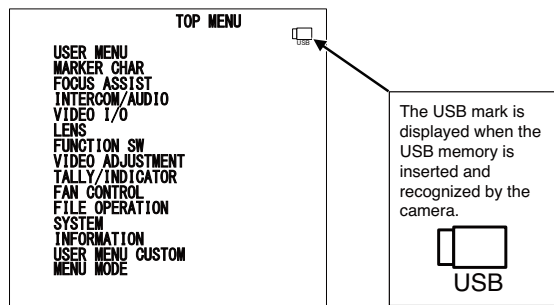
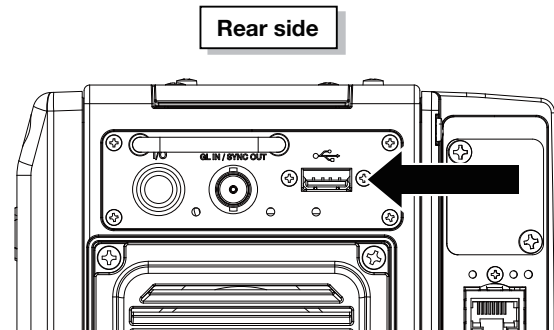
Market-sold USB memory have undergone sufficient confirmation of operation at this company.
A USB which is locked with a password cannot be used.

■ Inserting and removing the USB memory

There is a USB memory slot as shown in the following figure on the rear side of the camera.

Caution

When inserting the USB memory in the slot, be sure that the USB memory is facing in the correct direction.



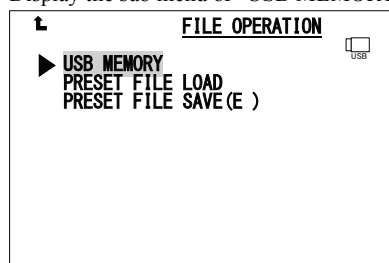
■ Saving the Setting Status of Camera to the USB Memory

- 1 Use the MENU RE in the "MAIN MENU" to move the cursor to "FILE OPERATION".

Then press the MENU RE to display the "FILE OPERATION" sub menu

- 2 Select "USB MEMORY" and press the MENU RE.

Display the sub menu of "USB MEMORY".

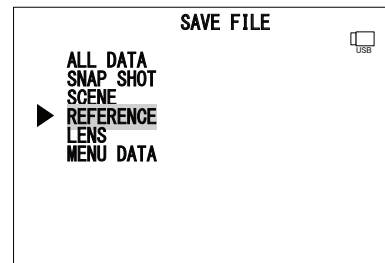


- 3 Select the item from the SAVE FILE submenu that you wish to save.

In the figure, "SAVE FILE" is selected to save the file.

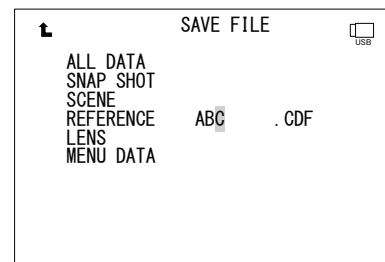


- 4 Select the items you wish to save, and then press the MENU RE.

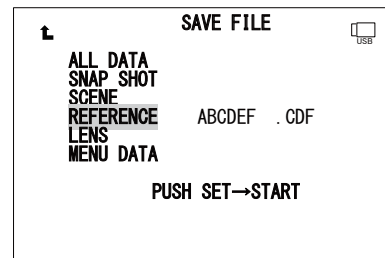


- 5 Use the MENU RE to set the file name with 8 characters.

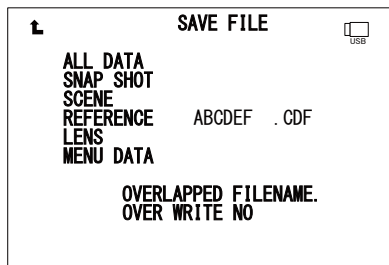
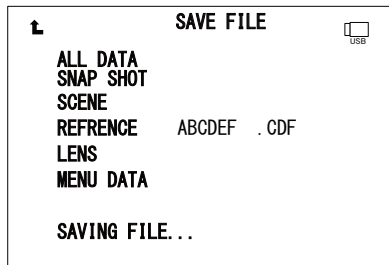
Turn the MENU RE at the flashing character position. Then, select the desired character and press the MENU RE. When the MENU RE is pressed, it moves to the next character.



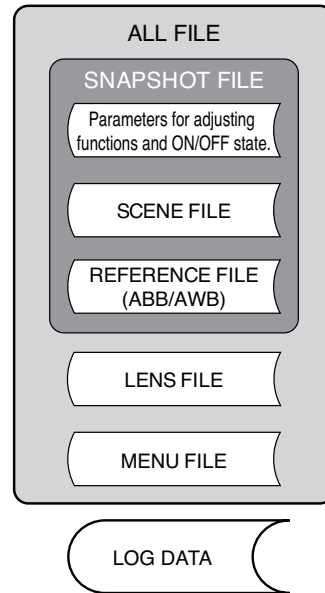
- 6 When the file name is confirmed, the screen returns to the "SAVE FILE" screen and "PUSH SET → START" is displayed. Then, press the MENU RE. If a file with the same name exists in the USB memory, go to the Procedure 8. To cancel the saving process, turn the MENU RE when "PUSHSET → START" is displayed. Then select "CANCEL" and press the MENU RE.



- 7** When the file is being saved, [SAVING FILE...] is displayed.
If the file is saved normally, [COMPLETE] is displayed.

**Note**

The images of the storage range for files are shown in the figure below.

**Caution**

Never remove the USB memory from the slot during display of [SAVING FILE] or while the access indicator is lighted, as data is being written to the USB memory. Removing it at this time could damage the USB memory data or the USB memory itself.

- 8** If a file with the same file name exists on the USB memory, a message is displayed asking whether it is all right to write over the data. To enable writing over of data, change [NO] to [YES] and press the MENU RE. If [NO] has been selected, storage is cancelled and the system returns to step [3].

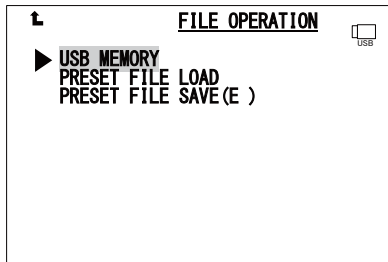
■ **The setting status of the camera loaded from the USB memory.**

Read the camera setting condition from the USB memory.

1 Use the MENU RE in the "MAIN MENU" to move the cursor to "FILE OPERATION". Then press the MENU RE to display the "FILE OPERATION" sub menu.

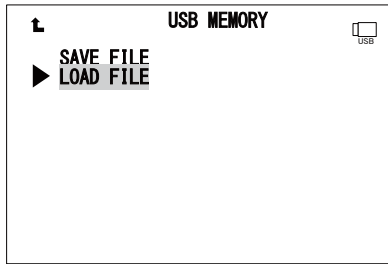
2 Select "USB MEMORY" and press the MENU RE

Display the sub menu of "USB MEMORY".



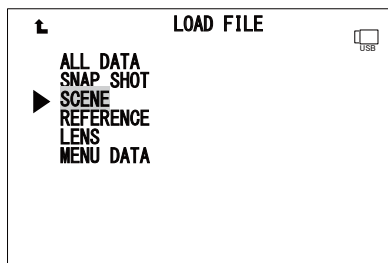
3 Select the operation items performed from the sub menu of "USB MEMORY".

Select "LOAD FILE" to load the file.

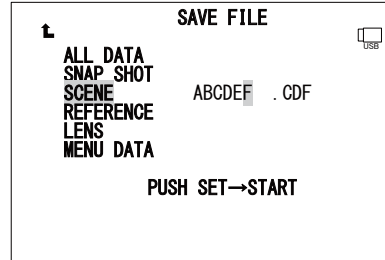


4 Select the items you wish to load from the sub menu of LOADFILE.

In the figure, select "SCENE" and press the MENU RE.



5 After selecting the item to be read to the camera, press the MENU RE. Then select whether to read all files or individual files from No. 1 to No. 8. In the example in the figure, No. 8 is selected. Then select a file stored on the USB memory. After the contents are determined, [PUSH SET -> START] is displayed. Press the MENU RE. If you wish to cancel, turn the MENU RE when [PUSH SET -> START] is displayed.

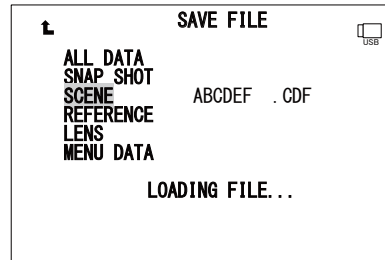


Note

For SCENE FILE, LENS FILE and MENU DATA, it is possible to select individual data or all data.

- SCENE : ALL , NO.1-NO.8
- LENS FILE : ALL , NO
- MENU DATA: ALL , VF

6 When the file is being saved, [LOADING FILE] is displayed. If the file is saved normally, [COMPLETE] is displayed. If ALL FILE and MENU DATA have been read, the camera is automatically restarted after display of [COMPLETE].



Caution

Never remove the USB memory from the slot during display of [LOADING FILE] or while the access indicator is lighted, as data is being written to the USB memory. Removing it at this time could damage the USB memory data or the USB memory itself.

Caution

If changes as those listed below have been made in the file name stored to a PC, etc., it is not possible to display the file name normally.

- If a file name with more than 8 characters has been set.
- Using file names (kanji, kana, etc.) composed of characters other than half-size letters of the alphabet.

■ Error Message

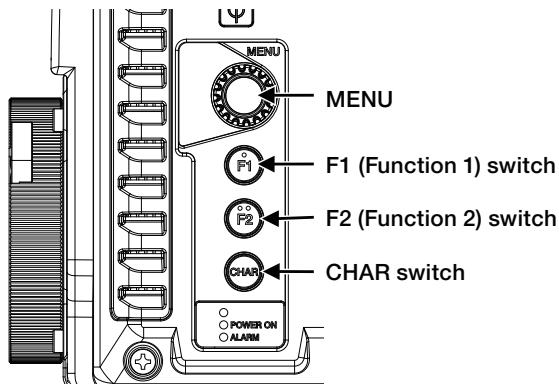
If an error occurs during saving and loading data, the following error messages are displayed.

Error Message	Contents
NO DEVICE	A USB memory is not inserted.
CANNOT OPEN FILE	Cannot open the file.
NOT CAMERA DATA FILE.	This data file is not for this camera.
FILE OF DIFFERENT CAMERA.	This file is for another model.
RELEVANT DATA IS NOT FOUND.	No related data found.
WIRTE ERROR	Writing error.
READ ERROR	Reading error
ERROR	Other error

5.5 Allocation of functions to FUNCTION switches

A user can assign a function to the Function switches. By assigning a switch, easy use matching the users' operation becomes possible.

■ Assigning the FUNCTION switches on the right side of the camera

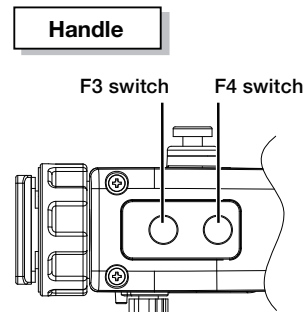


- 1** Press the "CHAR" switch and the MENU RE together to display the Main menu ("TOP MENU").
- 2** Use the MENU RE to select "FUNCTION SW" and press the MENU RE.
- 3** On the "FUNCTION" Submenu screen, use the MENU RE to select "FUNC SW1" and press the MENU RE.
- 4** The blinking cursor moves to the set value field.
- 5** Use the MENU RE to select the desired function. Press the MENU RE to confirm the selection.

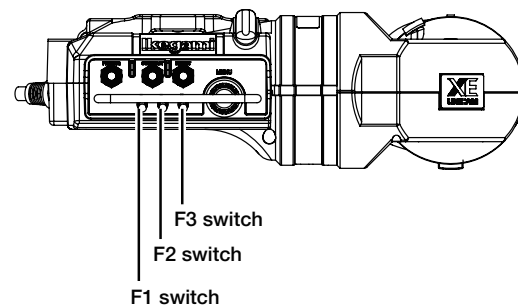
- 6** In the following section, set "FUNC SW3," "FUNC SW4," "VTR SW," and "VF SW1 to 4" in the same way.

Memo

For the available items, refer to 5.2 Menu structures and contents.



VFL201D



Note

Depending on the connected device, it is possible the F switch is not provided.

5.6 Displays in the Viewfinder

In addition to the LED indicators on the viewfinder, markers and characters are also displayed on the viewfinder screen. Details are provided below.

Display Mode

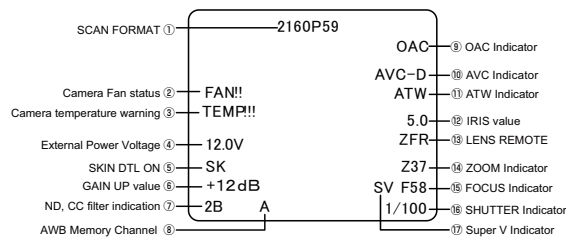
The display mode sets the markers and characters to be displayed in the viewfinder.

Reference

See "5.2 Menu structures and contents" for how the display mode is set from the menu.

Viewfinder Display

■ Status Display



■ Function Display in the Viewfinder

① SCAN FORMAT

Displays the setting values for the operation format of the camera.

② Camera Fan Status

The fan status is displayed.

AUTO : Fan is in the AUTO mode.

Displayed when the CHAR switch is pressed.

FAN!! : Displayed flashing when the fan has stopped abnormally.

③ Camera temperature warning

Displays when the temperature inside the Camera exceeds the recommended maximum.

④ External power supply voltage

Displays the external power supply voltage when the external power supply voltage is used to operate the camera.

⑤ SKIN DTL ON/OFF

"SK" is displayed when the SKIN DTL function is ON.

⑥ GAIN UP value

Displays for 2 seconds when the increment of the step gain is switched.

The step position is one of the following: -3dB, 0dB, +3dB, +6dB, +9dB, +12dB.

⑦ ND and CC filter numbers

ND	1	2	3	4	5
	CLEAR	1/4ND	1/8ND	1/16ND	1/64ND
CC	A	B	C	D	E
	3200K	4300K	6300K	CROSS	3200K (OPTION)

⑧ AWB memory channel

The memory selected by the AWB SELECT switch is displayed.

A : A-ch memory

B : B-ch memory

O : White balance adjustment is in the preset condition (3200K).

⑨ OAC Indicator

Displays when "OAC GUIDE MARK" is set to "ON" in the Menu setting ("VIDEO ADJUSTMENT" → "OPTICAL ABERRATION CORR.").

OAC : Displays for 2 seconds when the aberration correction value is properly received from the serial lens. The display continues to flash when either of ZIF is displayed. Also it is displayed while CHAR switch is pressed.

OAC_Z : Flashes when the zoom position information of the lens is not linked normally. Please move the zoom.

OAC_I : Flashes when the iris position information of the lens is not linked normally. Please move the iris.

OAC_F : Flashes when the focus position information of the lens is not linked normally. Please move the focus.

⑩ AVC Indicator

Displayed during AVC operation.

AVC-D : DAY mode

AVC-N : NIGHT mode

⑪ ATW Indicator

Displayed during ATW operation.

⑫ IRIS value

Displayed when the lens is connected.

⑬ LENS REMOTE

Displayed when the operation of the lens is remote controlled (at the OCP-300, etc.). The remote operation of the lens is acquired or released using the operation control panel.

⑭ ZOOM indicator

Displays the lens zoom position (0 to 100).

⑮ FOCUS indicator

Displays the lens focus position (0 to 100).

⑯ Shutter indicator

Displays the shutter speed value when the Shutter is turned on.

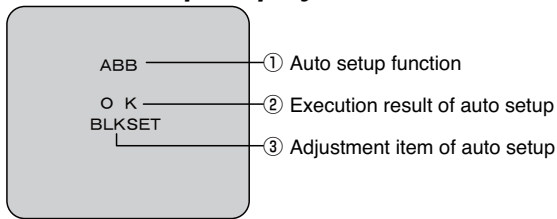
⑰ Super V Indicator

Appears for 2 seconds when the Super V is turned on. Also it is displayed while CHAR switch is pressed.

Note

Super V function works only on Interlace formats 1080i.

■ Auto Setup Display



① Auto setup function

Executing auto setup function is displayed.

“AWB”
 “ABB”
 “FULL SETUP”
 “LEVEL SETUP” etc.

② Execution result of auto setup

Execution result of auto setup (AWB, ABB, etc.) is displayed.

OK : Auto setup has been completed.
 NG : Auto setup was not completed.
 STOP : Auto setup was discontinued.
 LEVEL OVER : Input signal level is too high.
 LEVEL UNDER : Input signal level is too low.
 CHG FILTER : Optical filter is not appropriate.

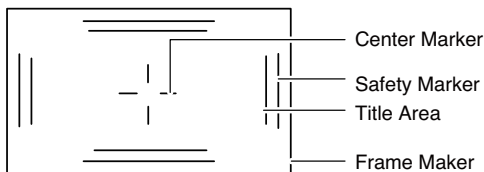
③ Adjustment item of auto setup

The item to which adjustment is being made is displayed during auto setup.

“FLARE GAMMA GAIN”
 “PED”
 “IRIS” etc.

■ Center Marker, Safety Marker, Frame Marker

- The Center Marker is used to ascertain the center of the screen or align the camera horizontally and vertically. The center marker is selected from three types of shapes on the Menu screen.
- The Safety Markers are used to check the action safety area or title safety area. Switching between the action area and the title area is made from the menu.
- The Frame Marker is used to ascertain the frame of the image being shot.
- Aspect ratio (4:3/13:9/14:9/16:9) can be set to the Safety Markers and Frame Marker separately.

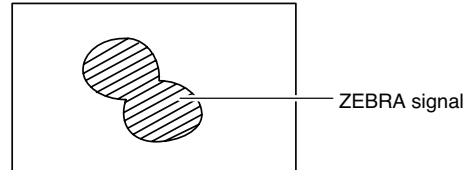


Reference

Please refer to "5.2 Menu structures and contents" for the setting method of the markers.

■ ZEBRA Indicator

Zebra Pattern means a stripe pattern displayed over the video. There are two types of Zebra signals: The first Zebra signal displays the part where the video level of the subject exceeds the setting value, and the second Zebra signal displays the part where the video level matches with the setting value. The ZEBRA indicator can be turned on/off when assigned to a Function switch on front side of viewfinder.



Reference

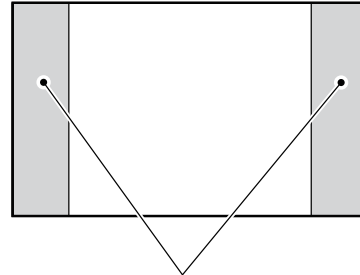
Please refer to "5.2 Menu structures and contents" for the setting method of zebra signal.

■ Side Mask Function

When the camera output aspect ratio is set to 16:9, the picture on the viewfinder is displayed with a 16:9 aspect ratio. In consideration of converting to a 4:3 picture, the contrast of the picture outside the frame marker area can be adjusted.

The side mask is displayed when the frame marker is set to the following ratio:

- With 16:9 mode : 4:3, 13:9, 14:9, 15:9



Brightness of the picture outside the frame marker can be adjusted.

Reference

See "5.2 Menu structures and contents" for how to set the side mask.

Chapter 6

Troubleshooting

6.1 When the STATUS indicator lights red

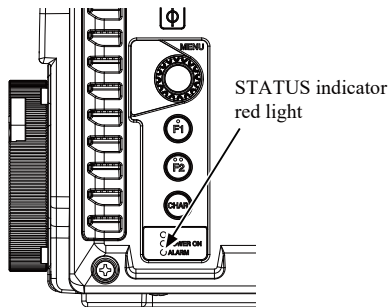
This device has a self-diagnosis function to monitor camera failures. This function turns on when the power of the device is turned on and keeps working while the device is in operation.

Self-diagnosis information of the device

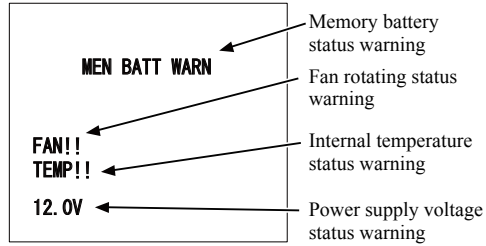
■ List of warnings

When any failure occurs for the following items, the device outputs the warning status shown in the table.

Diagnosed result	STATUS indicator	Screen display	Description
Power supply voltage status	Red light	Voltage in blinking indication	The supplied voltage is equal to or lower than the set value. The voltage to start outputting the warning is set in "BATT WARN VOLT" in the menu.
Internal temperature status	Red light	"TEMP!!" in blinking indication	Internal temperature too high
Fan rotating status	Red light	"FAN!!" in blinking indication	The fan has stopped.
Memory battery status	Red light	"MEM BATT WARN" in blinking indication for a few seconds	The backup battery voltage is low. This indication appears only when the power is turned on.



MONITOR output



Caution

When a warning indication appears, check the warning content. Then please respond properly or contact the nearest IKEGAMI service center or sales office.

6.2 Initializing the settings of this camera

There are two methods to initialize the settings of this camera.

① Initializing to the status set by the user (ENGINEER SET FILE)

The camera is initialized to the setup which the user's engineer set according to the operating environment and the shooting status.

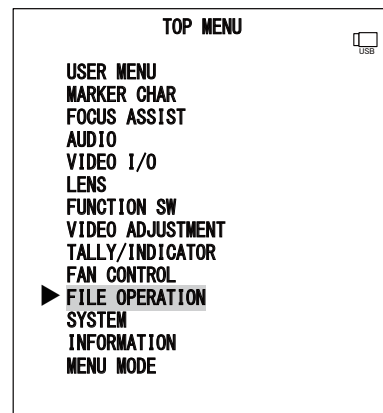
② Initializing to the factory default setup (FACTORY SET FILE)

The camera is initialized to the default setting. Initialization is performed using the Menu screen. The following section describes the initialization method.

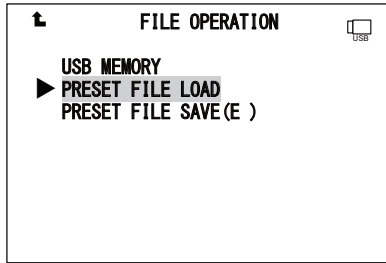
■ Camera initialization

1

On the main menu (TOP MENU), turn the MENU Rotary Encoder (RE) to align the cursor to "FILE OPERATION." Press the MENU RE to display the sub menu.

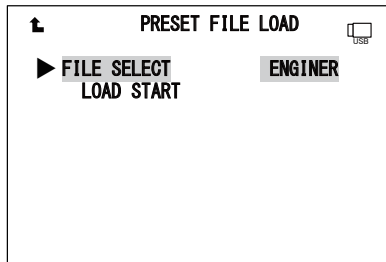


- 2** Turn the MENU RE to align the cursor to the "PRE SET FILE LOAD." Press the MENU RE.



- 3** Turn the MENU RE to align the cursor to the "FILE SELECT." Press the MENU RE.

The cursor moves to the mode setting.



- 4** Turn the MENU RE to align the cursor to the value to be set (ENGINEER, FACTRY). Press the MENU RE.

The selection is finalized.

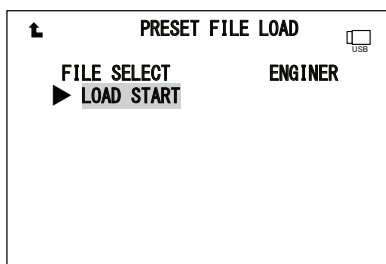
- 5** The cursor automatically moves to "LOAD START." Press the MENU RE.

When the cursor moves to mode setting, the mode setting value changes from "READY" to "START."

- When "CANCEL" is selected with the MENU RE, the setting is cancelled, and "PRESET FILE LOAD" ends.

- When "START" is selected, the lower section of the screen indicates "PUSH SET -> START."

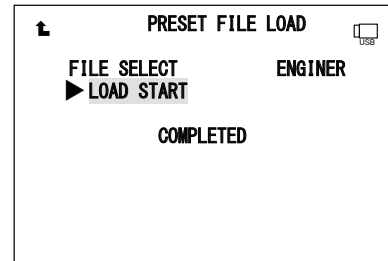
When "START" is set, the condition moves to Step 6.



- 6** Press the MENU RE.

Initialization starts.

When the file is loaded, "COMPLETED" is displayed on the screen. Then, "CAMERA RESTART" starts blinking for approximately 3 seconds. Then, the camera restarts up, and the initialization completes with the setup file selected in "FILE SELECT."



Caution

It is necessary to understand the following points before initializing this device.

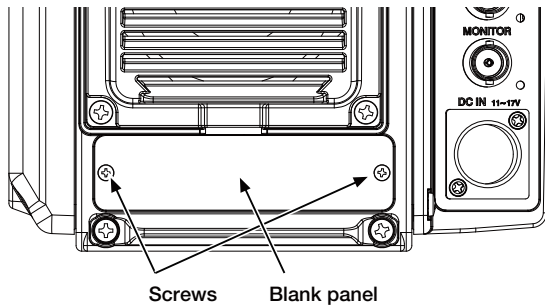
- (1) Initialization is not the same as "Restore" to the original settings.
- (2) The initialization of the engineering setting items restores to a certain point in time, but the contents may be different from your wish. If the conditions when the data is saved and conditions when the setting items are initialized are different, the settings items may not be as you desired.
- (3) Restoring the factory settings may result in losing your settings.

After understanding these points, if you still wish to perform initialization, please follow the procedure outlined above.

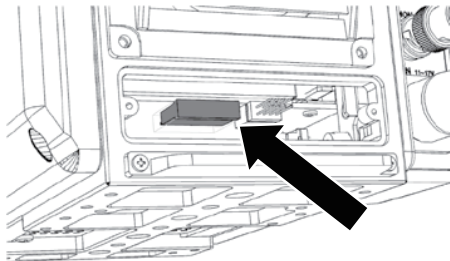
6.3 Fuse replacement

When the power cannot be turned on even when the power is properly supplied to the camera and when connections with peripheral equipment are proper, the fuse may be blown. If the fuse is blown, replace by following the procedure below.

- 1** Turn off the AC adapter power and pull out the DC power supply cable.
- 2** Remove two screws and the blank panel (if any optional panel is attached, remove the option panel).



- 3** Remove the following fuse and attach a new fuse.



Caution

Use the designated fuse or an equivalent one.
Fuse to be used
Model: 1044-0001
Manufacturer: Pacific Engineering Corporation
Housing color: Blue
Rated current: 15A

Chapter 7

Specification

7.1 Product specification

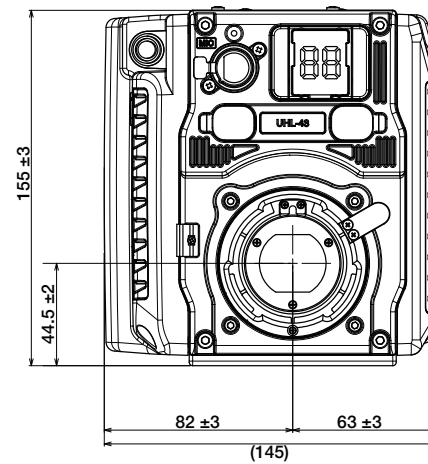
Rating

	Item	Rating
1	Scanning system	<ul style="list-style-type: none"> 3840 x 2160 23.98P/29.97P/59.94P /24P/25P/50P 1920 x 1080 119.88P/100P
2	Imaging sensor	2/3-inch CMOS sensor x 3 pc Total pixel: Approx. 8-million pixel/pc
3	Effective number of pixels	3840 x 2160 @ 4K 1920 x 1080 @ HD
4	Sensitivity	F10 @ 4K 59.94P F11 @ 4K 50P F10 @ HD 59.94i F11 @ HD 50i 2000 lx Reflectance 89.9%
5	Optical system	2/3 type R, G, B prism
6	Lens mount	2/3 type bayonet mount
7	Optical filter (ND)	1: CLEAR 2: 1/4ND 3: 1/8ND 4: 1/16MD 5: 1/64ND
8	Optical filter (CC)	A: 3200K B: 4300K C: 6300K D: CROSS E: 3200K (for OPTION)
9	Power supply voltage	+11 to +17 VDC
10	Ambient temperature	Operating temperature: -20°C to +45°C Storage temperature: -20°C to +60°C
11	Ambient humidity	330% to 90% No dew condensation
12	Dimensions	W 145 x H 155 x D 169
13	Weight	Approx. 2.6 kg Options excluded

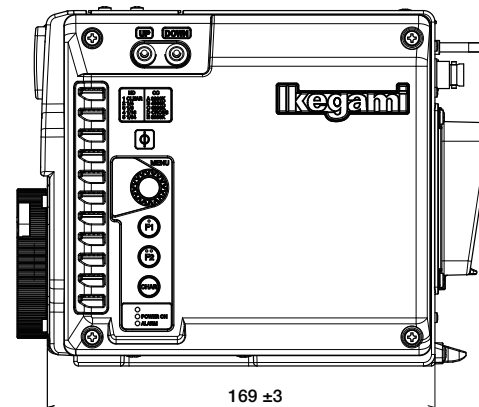
* 4K operation is an option

Dimensions

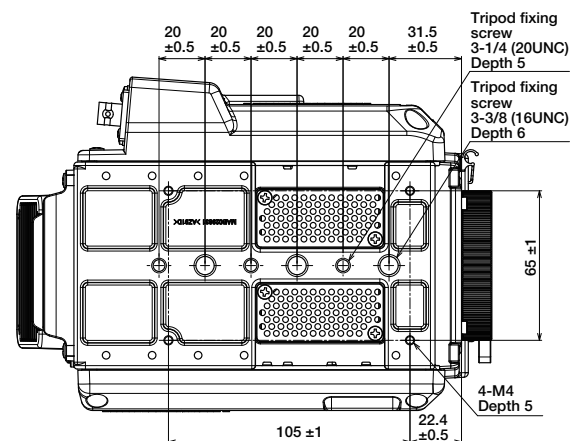
Front side



Right side



Bottom side



■ Performance

	Item	Rating
1	SN ratio	HD 62 dB (typ.) @HD 59.94i
2	Modulation Depth	35 % (typ.) @ 4K 59.94p 60 % (typ.) @ HD
3	Resolution	2000 TVL (typ.) @ 4K 59.94p 1000 TVL (typ.) @ HD
4	GAIN	-6, -3, 0, +3, +6, +9, +12dB
5	GAMMA	OFF, 0.35, 0.4, 0.45
6	Electronic shutter	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000
7	Power consumption	49W (max.) without option

* 4K operation is an option.

■ Input and output signals

	Item	Rating
1	4K/HD SDI Output	BNC (x1) 0.8Vp-p, 75Ω · 4K output (option) 12G-SDI: SMPTE 2082 · HD output 3G-SDI :SMPTE 424/425 Level-A/B HD-SDI:SMPTE 292M BNC (x4) 0.8Vp-p, 75Ω (option) · 4K output 3G Quad Link :SMPTE 424/425 Level-A/B · HD output 3G-SDI :SMPTE 424/425 Level-A/B HD-SDI: SMPTE 292M
2	HD-SDI MONITOR Output	BNC out (x1) 0.8Vp-p, 75Ω 3G-SDI: SMPTE 424/425 Level-A/B HD-SDI: SMPTE 292M
3	GL IN /SYNC OUT	BNC input/output (x1) · GL IN HD: Tri-level sync SMPTE 274M, 0.6Vp-p, 75Ω SD: Black burst NTSC: 0.286Vp-p, 75Ω, PAL: 0.3Vp-p, 75Ω · SYNC OUT HD: Tri-level sync SMPTE 274M, 0.6Vp-p, 75Ω
4	LENS	HR10A-12pin (x1) (TR-B37)
5	REMOTE control	Ethernet: 8P8C(RJ45) (x1) (POE Non-compliant) ICCP/ISCP: PRC05-8pin (x1) (option)
6	USB	USB 2.0, Type A, 4pin (x1)
7	I/O	HR10A-10pin (x1)
8	DC IN	XLR-4pin
9	MIC input	XLR-type 3pin female (x1) · Input Level Step : -60, -50, -40, -30, -20, -10, 0, +4 dBu Variable : ±10 dBu · Power Supply OFF/+48V

* 4K operation is an option.

■ Supported formats

HD-SDI SMPTE 292M							
1920 x 1080	interlace	60/1.001	59.94i	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	interlace	50	50i	1.485	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive	30/1.001	29.97p	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive(sF)	30/1.001	29.97psF	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive	25	25p	1.485	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive(sF)	25	25psF	1.485	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive	24	24p	1.485	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive(sF)	24	24psF	1.485	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive	24/1.001	23.98p	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	progressive(sF)	24/1.001	23.98psF	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1280 x 720	progressive	60/1.001	59.94p	1.485/1.001	Gbps	YCbCr 4:2:2	10bit
1280 x 720	progressive	50	50p	1.485	Gbps	YCbCr 4:2:2	10bit
3G-SDI (Level A / Level B-DL) SMPTE 424/425 Level-A/B							
1920 x 1080	progressive	60/1.001	59.94p	2.970/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	interlace	60/1.001	59.94i	2.970/1.001	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive	50	50p	2.970	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	interlace	50	50i	2.970	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive	30/1.001	29.97p	2.970/1.001	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive(sF)	30/1.001	29.97psF	2.970/1.001	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive	25	25p	2.970	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive(sF)	25	25psF	2.970	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive	24	24p	2.970	Gbps	RGB 4:4:4	10bit
1920 x 1080	progressive(sF)	24	24psF	2.970	Gbps	RGB 4:4:4	10bit
1280 x 720	progressive	24/1.001	23.98p	2.970/1.001	Gbps	RGB 4:4:4	10bit
1280 x 720	progressive(sF)	24/1.001	23.98psF	2.970/1.001	Gbps	RGB 4:4:4	10bit
Double speed (EVS from XT-3) *1							
1920 x 1080	interlace	120/1.001	119.88i	2.970/1.001	Gbps	YCbCr 4:2:2	10bit
1920 x 1080	interlace	100	100i	2.970	Gbps	YCbCr 4:2:2	10bit
12G-SDI SMPTE 2082 [*Option]							
3G-SDI Quad Link (2-sample interleave division / Square division) SMPTE 425-5 Level-A/B [*Option]							
3840 x 2160	progressive	60/1.001	59.94p	2.970/1.001 x4	Gbps	YCbCr 4:2:2	10bit
3840 x 2160	progressive	50	50p	2.970 x4	Gbps	YCbCr 4:2:2	10bit
3840 x 2160	progressive	30/1.001	29.97p	2.970/1.001 x4	Gbps	RGB 4:4:4	10bit
3840 x 2160	progressive	25	25p	2.970 x4	Gbps	RGB 4:4:4	10bit
3840 x 2160	progressive	24	24p	2.970 x4	Gbps	RGB 4:4:4	10bit
3840 x 2160	progressive	24/1.001	23.98p	2.970/1.001 x4	Gbps	RGB 4:4:4	10bit
HD-SDI Quad Link (Square division) [*Option] *2							
3840 x 2160	progressive	30/1.001	29.97p	1.485/1.001 x4	Gbps	YCbCr 4:2:2	10bit
3840 x 2160	progressive	25	25p	1.485 x4	Gbps	YCbCr 4:2:2	10bit
3840 x 2160	progressive	24	24p	1.485 x4	Gbps	YCbCr 4:2:2	10bit
3840 x 2160	progressive	24/1.001	23.98p	1.485/1.001 x4	Gbps	YCbCr 4:2:2	10bit

sF : segmented Frame

*1 Double speed is only works on PRODUCTION SERVER XT-3 from EVS.

“EVS”and “XT-3”are trade mark of Belgian company EVS.

*2 In SMPTE ST 425-5, Quad Link of 1.5G-SDI is not defined.

Therefore, there are only limited equipment which can support receptions of HD-SDI (1.5G) Quad Link signals.

CHANGING INFORMATION

This chapter contains the revision information of user-specific specification or design change requested by users or any changes done by Ikegami.

Read by comparing this information with the main part of the operation manual.

UHL-43

Multi Purpose Camera

OPERATION MANUAL

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Ikegami

Ikegami Tsushinki Co., Ltd.

5-6-16, Ikegami, Ohta-ku, Tokyo, 146-8567, Japan
Phone : +81-(0)3-5700-4114 Fax : +81-(0)3-5748-2200
E-Mail : info_e@ikegami.co.jp
URL : <http://www.ikegami.co.jp/en/>

Ikegami Electronics (U.S.A.),Inc.

300 Route 17 South, Mahwah, New Jersey 07430, U.S.A.
Phone : +1-201-368-9171 Fax : +1-201-569-1626
E-Mail : engineering@ikegami.com, service@ikegami.com
URL : <http://www.ikegami.com>

Ikegami Electronics (Europe) GmbH

Ikegami Strasse 1, D-41460 Neuss, GERMANY
Phone : +49-(0)2131-123-0 Fax : +49-(0)2131-102820
E-Mail : info@ikegami.de
URL : <http://www.ikegami.de>

Ikegami Electronics Asia Pacific Pte.Ltd.

1 Tampines Central 5, #06-04 CPF Tampines Building,
Singapore 529508
Phone : +65-6260-8820 Fax: +65-6260-8896
URL : <http://sg.ikegami.co.jp>

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