

HD-SDeye

Full HD HD-SDI Camera

KP-HD1005-S5

Operation manual

Thank you for procuring this fine Hitachi Kokusai Electric color camera. Before using the camera, please read this operation manual carefully and keep this manual on file for ready reference in the future.



CAUTION FOR SAFE OPERATION

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		
	This symbol is intended to alert the user to the presence of unisolated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.	
	This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.	

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS COLOR CAMERA TO RAIN OR MOISTURE.
AVERTISSEMENT Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer l'appareil à la pluie ou à l'humidité. Afin d'écartier tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.
VORSICHT Um Feuergefahr und die Gefahr eines elektrischen Schiages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden. Um einen elektrischen Schiag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

Note: The model and serial numbers of your product are important for you to keep for your convenience and protection. These numbers appear on the nameplate located on the bottom of the product. Please record these numbers in the spaces provided below, and retain this manual for future reference.	
Model No. _____	Serial No. _____

IMPORTANT SAFETY INSTRUCTIONS

1. Read Instructions

All the safety and operating instructions should be read before the product is operated.

2. Retain Instructions

The safety and operating instructions should be retained for future reference.

3. Heed Warnings

All warnings on the product and the operating instructions should be adhered to.

4. Follow Instructions

All operating and use instructions should be followed.

5. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7. Water and Moisture

Do not use this product near water — for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

8. Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may

fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. Moving

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



10. Ventilation

Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11. Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. Grounding or Polarization

This product is equipped with a three-wire grounding-type plug a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. Power-Cord Protection

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

14. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the

wall outlet. This will prevent damage to the product due to lightning and power-line surges.

15. Overloading

Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

16. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

17. Inflammable and Explosive Substance

Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.

18. Heavy Shock or Vibration

When carrying this product around, do not subject the product to heavy shock or vibration.

19. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. if liquid has been spilled, or objects have fallen into the product.
- c. If the product has been exposed to rain or water.
- d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e. If the product has been dropped or damaged in any way.
- f. When the product exhibits a distinct change in performance—this indicates a need for service.

21. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

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Contents

Caution for safe operation

Contents

Introduction	1
Features	1
Standard Composition	1
Name and function	2
Connections	3
Lens	4-5
Setting	6-11
Specifications	12

Introduction

Hitachi's camera KP-HD1005-S5 is HD-SDI interface one which support Full HD.

Features

High definition

- They are high definition and wide viewing angle because it is full HD.
- Low delay HD video signal and long-distance transmission (at the time of multiunit connection)

High sensitivity

- 1/3 type high sensitivity MOS sensor has made 0.2lux high sensitivity.

Power over coaxial

- A simple system configuration is possible by one cable connection.

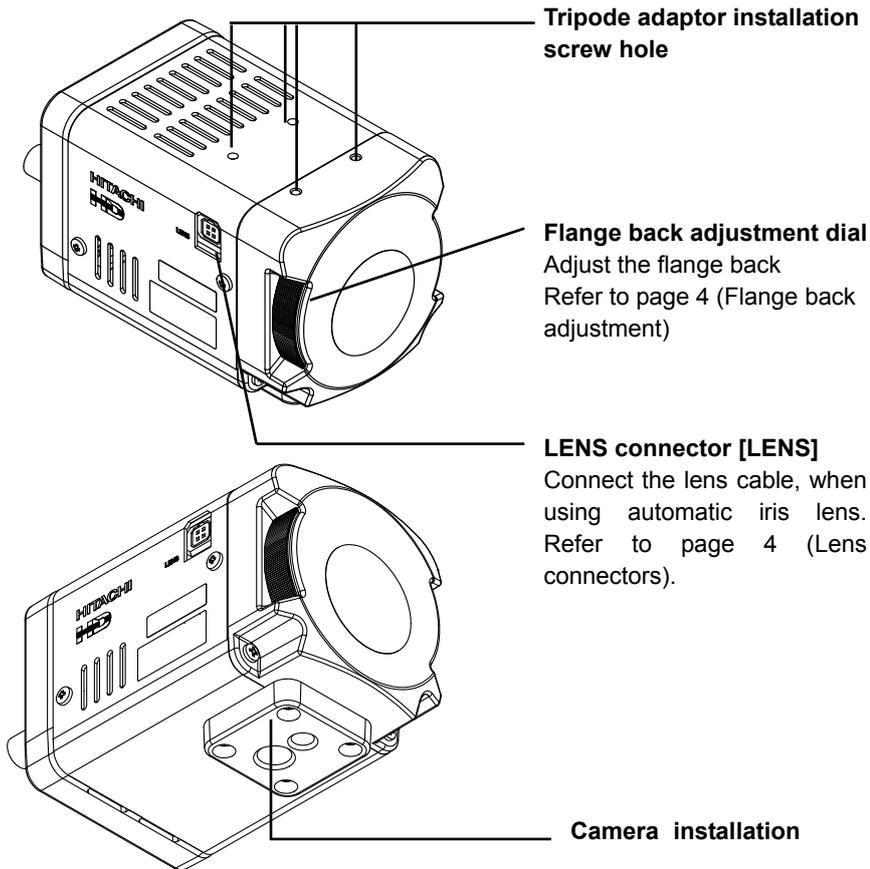
Fog adjust

- The function adjust the picture which it is hard to see by haze or fog, and it can correct it clearly.

Standard composition

- 1) Camera
- 2) Operation manual
- 3) C mount adapter

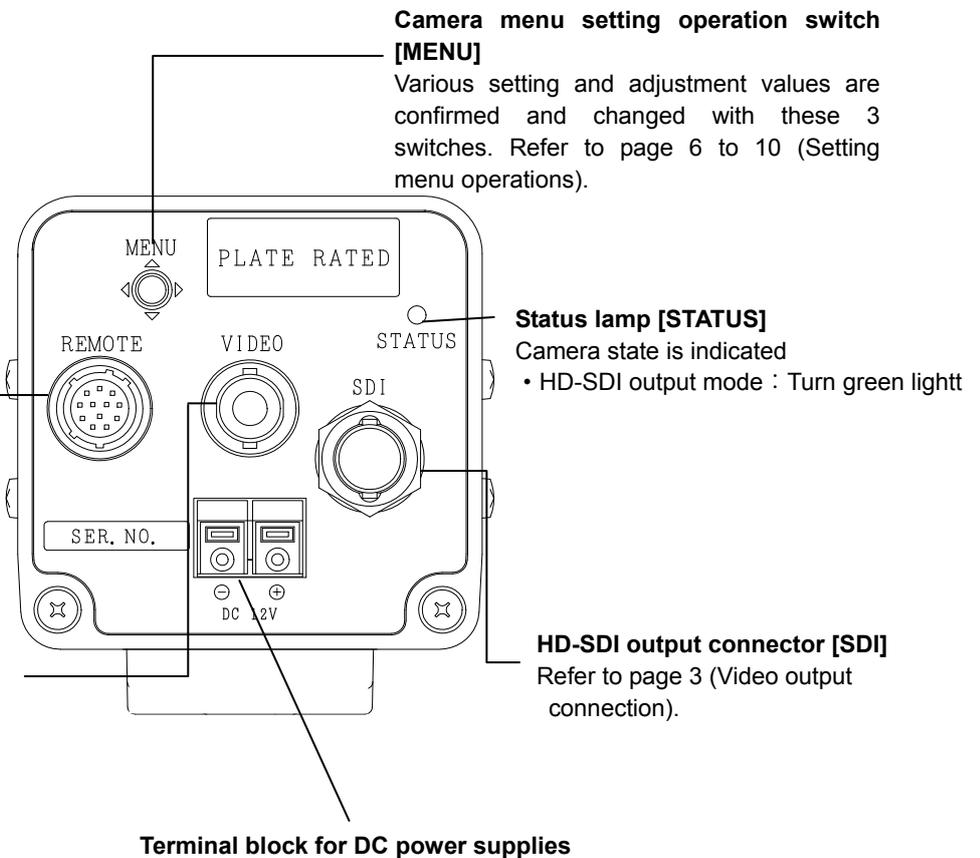
Name and function



Back

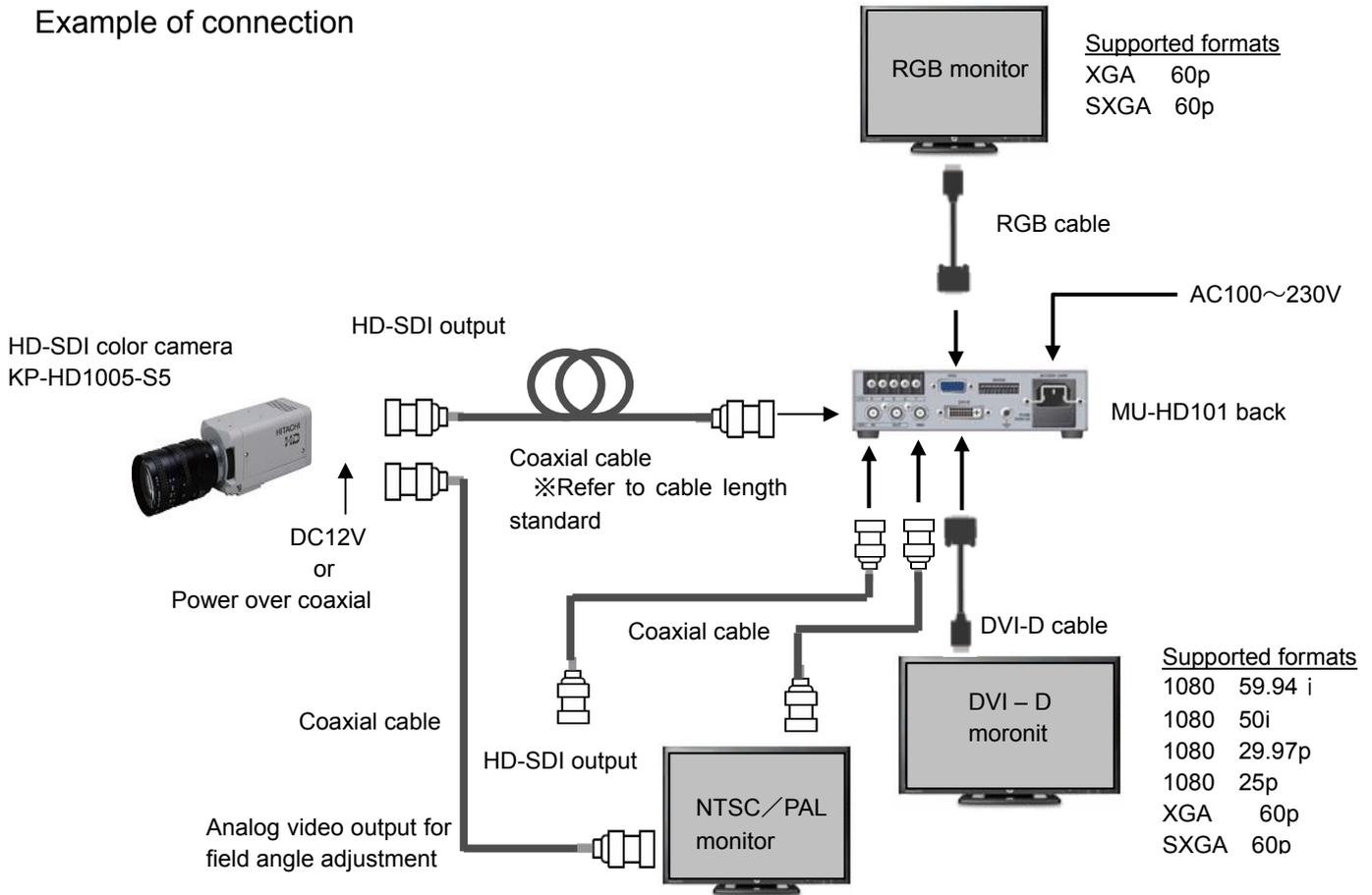
REMOTE connector [REMOTE]
Refer to page 10 to 11 (Remote-contact).

Video output connector [VIDEO]
Refer to page 3 (Video output connection).



Connections

Example of connection



Cable length standard

	HD-SDI mode(1.5Gbps)
5C-2V (DC power)	100m
5C-2V (Power over coaxial)	80m

* Actual distance changes with cable, connector, temperature, etc, because transmission distance is actual measurement by sample cables.

* We recommend using cable of 7C-FB or 5C-FB at the time of using HD-SDI mode, because 7C-2V, 5C-2V and 3C-2V are not guaranteed to support high-frequency signal transmission of HD-SDI mode.

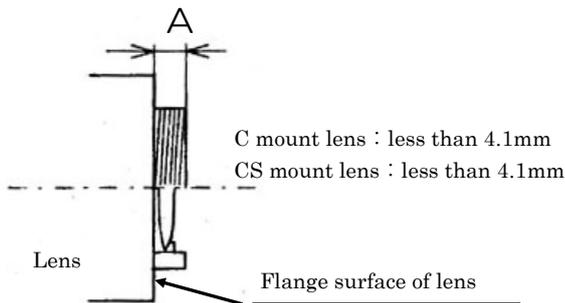
Lens

Lens selection

- 1) Dimension A) of lens installation part should be according to the figure below. When the lens with dimension more than the following size is installed, the internal damage of camera may occur.
- 2) Please do not install a lens which is heavier than the camera body. In case of using such lens, please fix the lens to the installation stand.

Caution

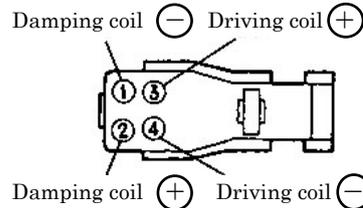
Use of heavy lens may damage the camera because of unbalance.



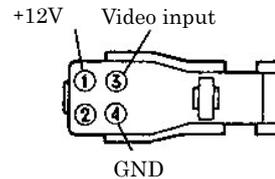
Lens connectors

When a lens-connector-free automatic iris lens is used, the optional lens plug is installed in the lens cable as follows. Please refer the manual for signal and color combination of camera cable.

DC (Direct current) control voltage input type lens



Video signal input type lens



Install the head of lens cable to plug and then insert the plug in the lens connector [LENS] of camera.

Flange back adjustment

Flange back adjustment is needed after installation of lens or in cases where focus cannot be obtained by normal lens focus operation and focus is lost at the wide angle settings of a zoom lens.

In such cases, open the lens iris (refer to page 9) and adjust as follows.

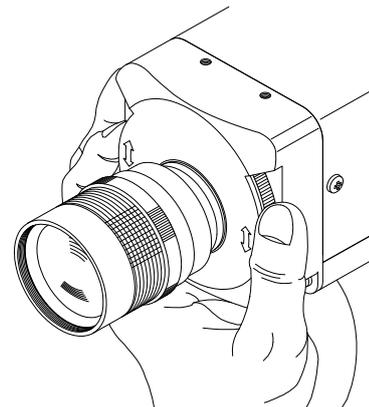
1) Fixed focus lens

- ① Set the lens focus ring to infinity
- ② Aim towards an object at least 20 meters distant.
- ③ Turn the flange back adjustment dial to adjust the focus.
Please take care not to disturb the lens focus ring.

2) Zoom lens

- ① Aim towards an object at least 20 meters distant.
- ② Focus is adjusted by turning the focus ring. Loose the lens mount screws. Set the lens to wide angle and turn the flange back adjustment dial to adjust the focus. Please take care not to disturb the lens focus ring.
- ③ Again set to telephoto and adjust the focus by turning the flange back adjustment dial.
- ④ Repeat these steps until the focus is not suitable for telephoto and wide angle.
- ⑤ Finally, stop turning the focus ring if the focus is adjusted.

- ※ The flange back adjustment can adjust C~CS mount range.
- ※ The angle of view is adjusted by turning the lens zoom ring.



Note

KP-HD1005 camera has structure that user can change lenses.

Therefore dust may adhere to the CCD or the optical filter unit depending on environmental conditions where lens are attached to this camera.

If you use this camera under the bright outdoor conditions, dust may be seen depending on the aperture of lens. In such cases we

Note

If an auto iris lens is used and the object distance is less than few meters, due to focus length of lens, slight blurring can occur at certain iris positions.

In such case, please refer to page 10[Lens open setting] and set the lens to full open. At this time, AES is operated.

Auto Electric Shutter (AES)

AES is a function to automatically adjust the electronic shutter speed according to the amount of incident light and keeps the image level constant.

MAIN MENU

- 1) Press the Set button for at least 2 seconds to display the Main menu on the monitor screen.

■ MAIN MENU	[FILE1 ]	.....Setting scene files setting
SHUTTER	:1/30	.....Shutter speed setting
SENS UP	:OFF	.....Sensitivity enhancement setting
LIGHT CONT.	:>	.....Light control menu
GAIN	:>	.....AGC setting menu
WHITE BAL.	:>	.....White balance setting menu
SUB	:>	.....Sub menu
TITLE	:>	.....Camera tilte setting menu
B/W	:>	.....Color or B/W mode setting menu
LENS	:>	.....Lens setting menu
SYSTEM	:>	.....System menu

Main menu

- 2) Check the current settings at the main menu.
- 3) Shift the cursor vertically by pushing the Up and Down buttons, then press the Set button to change the setting of the selected item.
- 4) To return to the normal screen, press the Set button.
- 5) Changed settings are stored in the camera memory (flash memory) and restore them when the power is switched on.
- 6) When button operation is not performed for 1 minute during displaying menu, changed items are saved and menu display disappears.

Sensitivity enhancement setting (SENS UP)

- (1) It is on a MAIN MENU display, a cursor can be united with SENS UP with the upper (below) direction switch, and a sensitivity rise setup can be switched with a horizontal direction switch.

Preset value

OFF->AUTOX2 ->AUTOX4 ->AUTOX8 ->AUTOX16 ->
 AUTOX32->AUTOX60->OFF->MANUX2->MANUX4->
 MANUX8->MANUX16->MANUX32->MANUX60

LIGHT CONT MENU

■ LIGHT CONT. MENU		
PEAK/AVE.	:0/100	.....Exposure control mode
LEVEL	: 0	.....Video level adjustment
ALC GATE	:OFF	.....Automatic level control gate setting
FOG	:ON	.....Fog adjust mode setting
FOG ADJ	: 1	.....Fog adjust level setting
STEP	: 8	.....Response speed step setting

Light control menu

Light control menu setting

- 1) Press the Set button for longer than 2 seconds to display the Main menu.
 Select "LIGHT CONTROL" by Up (Down) button. Then LIGHT CONTROL MENU can be displayed by Right,
 (1) PEAK/AVE : (PEAK/AVERAGE)
 Set the rate of automatic iris PEAK/AVERAGE.
 0/100, 15/85, 30/70, 50/50, 75/25, 100/0.
 (2)LEVEL : (LEVEL)
 Standard level of Automatic exposure control(AUTO IRIS, AGC, AES) (dark)-128 to 0 to127 (bright)
 (3)ALC GATE : (PEAK/AVERAGE)
 Set PEAK/AVERAGE Automatic level control gate.
 OFF:Full screen, Select 1 to 9.
 (4) FOG : (ON/OFF)
 Select mode of fog adjust.
 ON : .Fog adjust by setting of FOG ADJ.
 OFF: Not use fog adjust mode
 *At the time of fog mode, an upper limit level of the gain in AGC mode of GAIN MENU and the PRESET mode become 42dB from 48dB. (Refer to 8 pages of GAIN setting.)
 (5) FOG ADJ : (Manual setting of Fog adjust level)
 (As for this, FOG is available only at the time of ON mode.)
 1 to 128
 *Under conditions of a subject or environment, when it is high at an adjustment level, over and under exposure of the picture may be out standing.
 (6)STEP : Parameter of response speed setting for the Fog video signal.
 (As for this, FOG is available only at the time of ON mode.)
 *By a set point, the phenomenon such as the behavior of hunting may occur.
 1 to 511

Scene file setting

Scene file is a function to record various mode settings and the adjusted values of the camera at the file.

- 1) Press the Set button for at least 2 seconds to display the main menu on the monitor screen.
- 2) Use UP and Down buttons to move the cursor to MAIN MENU. The scene file setting data blinks. In this state, push the Set button to change the scene file.

Set button : FILE1→FILE2→FILE3

→FILE4→FILE5

Factory setting is FILE1.

SHUTTER SPEED

- 1) Shutter speed can be switched at MAIN MENU. Select "SHUTTER" by Up (Down) button. Then shutter speed can be changed by Right/Left button.

[Preset]

1/30 (1/25)→1/50 →1/100 → 1/250 → 1/500

→1/1000→1/2000→1/5000→1/10000

→1/20000 →1/50000 → AES →AES&LENS(1/1000)

→AES&LENS(1/2000) →AES&LENS(1/5000)

Factory setting is "1/30".

* AES&LENS is AES priority mode.

GAIN MENU

■ GAIN MENU

MODE : AGC Gain mode setting
 *PRESET GAIN: 0dB Fixed amplification setting
 AGC LIMIT : 48dB Maximum amplification setting

Gain setting

- Press the Set button for at least 2 seconds to display the main menu on the monitor screen.
- Select GAIN by Up (Down) button, and display GAIN MENU by Right button.
 - MODE : Set gain mode.
 PRESET : Preset gain mode
 AGC : Automatic gain mode
 - PRESET GAIN : Set gain value of manual.
 0dB to 48dB
 - AGC LIMIT : Set maximum of the automatic gain.
 0 dB~48 dB

SUB MENU

■ SUB MENU

CHROMA : 0 Chroma level setting
 DETAIL : 0 Detail correction setting
 PEDESTAL : 0 Black level setting
 GAMMA : ON Gamma correction setting
 KNEE : ON KNEE mode setting
 KNEE : -> KNEE function setting
 MASKING : PREST Masking mode setting
 *HUE/SAT : -> Masking function setting
 DNR : AUTO DNR setting
 INITIALIZE : PUSH R

- CHROMA : Chroma level setting
 -128 to 0 to 127
 Chroma level is fixed to the value of "-128", and cannot be adjusted, at time of B/W MODE.
- DETAIL : The optimum detail level setting
 -128 to 0 to 127
- PEDESTAL : Set black level.
 -28 to 0 to 100
- GAMMA : Gamma correction setting
 ON : Gamma ON
 HIGH : Gamma ON (High)
 OFF : Gamma OFF
- KNEE MODE: Mode select
 OFF : Not use KNEE function
 ON : Use Knee function
- KNEE: KNEE function setting when KNEE MODE is "ON".
- MASKING MODE: Mode select
 PRESET : Use a standard preset
 VARIABLE : Use a user setting mode
- MASKING: Masking function setting when MASKING MODE is "VARIABLE".
- DNR : (Digital Noise Reduction)
 This function is not available because double shutter WDR function is priority.
- INITIALIZE : Initializing in the factory-shipments state for the current scene file.
 The following message is show after INITIALIZE command execution.
 Push R : INITIALIZE command cancel
 Push D : INITIALIZE command execution

WHITE BALANCE MENU

■ WHITE BALANCE MENU

MODE : ATW Mode setting
 ATW RANGE : NORM Range of Following color temperature setting
 *AWB : push R One push setting
 *R GAIN : 0 Manual setting (R gain)
 *B GAIN : 0 Manual setting (B gain)
 WHITE GATE : OFF Auto level control gate setting

White balance setting menu

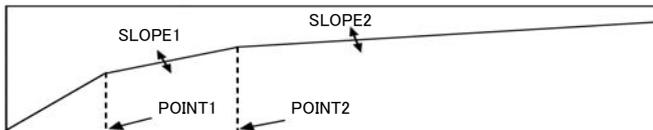
- MODE : Set white balance mode
 ATW : Automatic white balance.
 Manual : Set white balance.
- ATW RANGE : Set Range of Following color temperature
 NORMAL : 2500K to 8000K.
 SPECIAL : 2500K to 8000K+special light
 (Sodium lamp, mercury lamp)
- AWB : One push automatic white balance
 A white balance is adjusted with auto after pressing the right button. The value of R and G GAIN is updated and it fixes to MANUAL.
- R GAIN : White balance hand regulation of R gain
 -128 to 0 to 127
 This operates, only when a white balance is a manual.
- B GAIN : White balance hand regulation of B gain
 -128 to 0 to 127
 This operates, only when a white balance is a manual.
- WHITE GATE : Set auto level control of white balance.
 OFF/ NO.1 to NO.9

KNEE MENU

■ KNEE

SLOPE1 : 72 SLOPE1 setting
 SLOPE2 : 24 SLOPE2 setting
 POINT1 : 48 POINT1 setting
 POINT2 : 80 POINT2 setting

- (1) SLOPE 1 : KNEE slope 1 0 to 255
- (2) SLOPE 2 : KNEE slope 2 0 to 255
- (3) POINT 1 : KNEE point 1 0 to 255
(64 = 100%)
- (4) POINT 2 : KNEE point 1 0 to 255
(64 = 100%)



TITLE

■TITLE

MODE :OFF

TITLE :KP-HD1001

1234567890 ?

ABCDEFGHIJKLMN

OPQRSTUVWXYZ

YZ<>+*/.:

<-> DEL INS RET

Set data

Character

For edit control

- MODE : Set the display position of a camera title
- OFF : A character is not displayed.
- TOP : A character is displayed on the upper part of a screen.
- BOTTOM : A character is displayed on the lower part of a screen.

<TITLE setting>

- (1) In the state where a cursor is in TITLE, if the Down button is pushed, a cursor will move to the setting line of TITLE data, and the 1st character will blink.
- (2) Select the characters by four directions button.
- (3) The character chosen is inputted when the Set button was pushed. This cursor moves to the following character.
- (4) Once it goes into character setting mode The Set button turn into a character selection button, and the usual menu ON/OFF operation is forbidden.
- (5) If the input of a character is completed, a cursor will be moved to RET by four directions buttons. If the Set buttons are pushed, a cursor will move to TITLE and will return to the usual menu operation.
- (6) <-: Character blink of a character setting part moves to the one character left.
- (7) ->: Character blink of a character setting part moves to the one character left.
- (8) DEL : The blinking character eliminate.
- (9) INS : A space is inserted in the position of the blinking character.
- (10) RET : A cursor is moved to DATA SET.

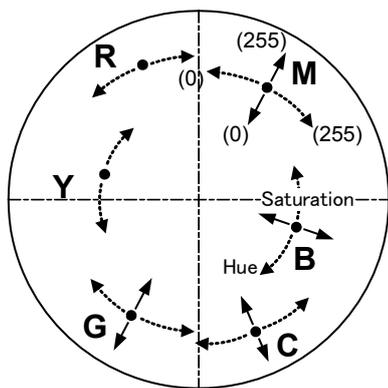
MAKING MENU

■MASKING

(HUE)	(SAT)
R: 150	R: *
Y: 128	Y: *
G: 172	G: 128
C: 150	C: 128
B: 120	B: 128
M: 160	M: 128

INITIALIZE :PUSH R

- (1) (SAT): Degree of saturation of the color
R and Y are noting.
- (2) (HUE): Color phase
 - R : Red mask setting 0 to 255
 - Y : Yellow mask setting 0 to 255
 - G : Green mask setting 0 to 255
 - C : Cyan mask setting 0 to 255
 - B : Blue mask setting 0 to 255
 - M : Magenta mask setting 0 to 255



B/W MENU

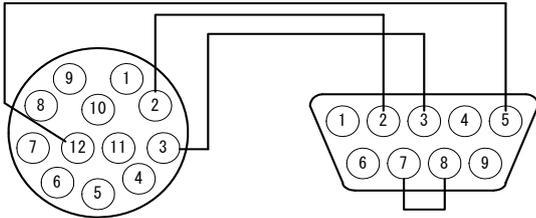
B/W MENU

B/W MODE :OFFB/W mode setting

*BURST :ONBurst setting

Remote-contact operation

The plug is wired as shown in the figure and connected to the remote connector of the camera rear panel.



HR10A-10P-12P(73) (option)
(The placement which is seen from
the back of plug)

PC side
D-sub 9pin

RS-232C mode

Pin No.	Signal	Abbrev	Remarks
1	Not connected	N.C.	Do not connect
2	Serial data output	Tx	Connect to RS-232C data terminal
3	Serial data input	Rx	Connect to RS-232C data terminal
4	Not connected	N.C.	Do not connect
5	Not connected	N.C.	Do not connect
6	Not connected	N.C.	Do not connect
7	Not connected	N.C.	Do not connect
8	Not connected	N.C.	Do not connect
9	Not connected	N.C.	Do not connect
10	Not connected	N.C.	Do not connect
11	Not connected	N.C.	Do not connect
12	GND	GND.	Connect to RS-232C ground

Note

- 1) Nothing should connect with NC pin.
- 2) Please perform extraction and insertion of a remote plug after turning off a camera power supply.

Specifications

1)	Imaging device	1/3" Progressive Scan MOS
	Total pixels	2010(H)x1108(V) 2.2M pixels
	Effective pixels	1944(H)x1092(V) 2.1M pixels
2)	Sync system	Internal
3)	Video output	HD-SDI / Analog CVBS
4)	Video format	HD-SDI: 1080 29.97p /59.94i/ 25p/ 50i CVBS: NTSC/ PAL
5)	Transmission distance	HD-SDI Std mode: max100m (5C-2V 75ohm) HD-SDI POC mode: max 80m (5C-2V 75ohm/ Exclusive multiunit MU-HD101 use)
6)	Minimum illumination	Color: 0.2lux(F1.2/AGC48dB) B/W: 0.02lux(F1.2/AGC48dB) *3200KTungstenlamp use
7)	S/N ratio	50dB (AGC: OFF/Weight: ON)
8)	Resolution	800TV line
9)	Lens mount	C/ CS *C: use C mount Adaptor
10)	Power consumption	DC12V or power over coaxial from MU-HD101, 7.8W
11)	Operating temperature	-10 to +50 C
12)	External dimensions	64(W)x63(H)x103(D)mm
13)	Mass	Approx.400g
14)	Accessory (optional accessory)	Lens/Lens plug/Power plug/Remote plug/Multiunit (MU-HD101)
15)	AGC	OFF/ Auto (Max Gain 48dB)/ Manual (0dB to +48dB) *1dB step setting * At the time of fog mode, an upper limit level of the gain in AGC mode of GAIN MENU and the PRESET mode become 42dB from 48dB.
16)	Electronic shutter	OFF/ AES/ Manual (1/30 (1/25) to 1/100000 sec)
17)	BLC	OFF/ ON (photometry aria can be set)
18)	White Balance	Auto: ATW/ AWC Manual: Manual (2500K to 8000K)
19)	Fog adjust	OFF/ON *Adjustment level FOG ADJ (1 to 128)
20)	Day and night(W/B switching)	Color/ B/W *Mechanical switching of optical filter
21)	Picture adjust menu	Video level/Gamma correction/Chroma level/Black level/Enhance level
22)	Lens control	DC/VIDEO
23)	Remote control	RS-232C/Signal for Auto focus function