SONY

COLOR CAMERA

# HDC4300

*SUPER MOTION*

OPERATION MANUAL English

1st Edition (Revised 2)

# Table of Contents

# Overview

The HDC4300 is a camera unit equipped with a 2/3-inch, 9.8 megapixel, 3-chip CMOS image sensor for super motion video camera systems.
In addition to standard HD and HD high frame rate (HD-HFR) imaging, it also supports 4K multi-format imaging.

## Features

### High definition, high picture quality, and high performance

The HDC4300 features a newly developed 2/3-inch 9.8 megapixel CMOS image sensor and newly developed wide color gamut prism block, and a high performance digital signal processor LSI.
It connects to an HDCU4300[1)] or BPU4000/4500 Baseband Processor Unit[1)] and HDCU2000/2500 Camera Control Unit[1)] via optical camera cables to support various formats from HD high-speed imaging to 4K imaging, enabling the reproduction of high image quality, high-definition images.
(The addition of image formats is supported using options.)

1) For details about supported software versions, contact a Sony sales representative or Sony service representative.

### High-speed imaging

HD format (1080P, 1080i, 720P) imaging is supported at 2× and 3× frame rates (100, 119.88, 150, 179.82 fps) as standard. 4×, 6×, and 8× (200, 239.76, 300, 359.64, 400, 479.52 fps) are supported using option packages.

### 4K image shooting

4K/23.98P, 24P, 25P, 29.97P, 50P, 59.94P, 100P, 119.88P is supported using an option package. Pure 4K high-definition images can be captured using a 4K 3-chip RGB-Full pixel sensor.
And the newly developed wide color gamut prism enables color reproduction covering the 2020 color gamut.

### Focus assist functions

The camera features various focus assist functions in the viewfinder for enhanced focusing.
When shooting in 4K in particular, the dynamic focus function enables 4K-quality focus adjustment.

### Operability and scalability

The camera is essentially the same size and weight as HDC2500-series cameras, and accordingly features the same advantages in usability.
The main functions and camera operation, including connection with peripheral devices, power supply to the camera, and intercom function, all follow that of conventional devices.

## Main Functions

### Various color-reproduction adjustment functions

#### Adaptive-matrix function

This function controls the matrix calculation coefficients for more accurate color conversion when shooting. It provides accurate color conversion, even when shooting under conditions that would otherwise exceed the color conversion range of traditional matrix functions, such as under strong monochromatic blue light sources.

#### Multimatrix color correction

In addition to the standard 6-axis matrix function, the unit has a multimatrix function that permits you to adjust the hue and chroma independently for color components in 16-axis directions. This is quite useful in color matching among multiple cameras.

#### Knee saturation

This compensates the change of hue and decrease in chroma that occur in highlighted areas. This enables reproduction of natural skin tones under strong lighting.

#### Low key saturation

This compensates for saturation in low-key zones. It compensates for color reproduction in all zones, in combination with the matrix color compensation and knee saturation functions.

#### Selectable gamma table

Equipped with seven types of standard gamma tables and four types of hyper gamma tables. Hyper gamma enables cinema-like image reproduction with wide dynamic range that cannot be achieved with conventional video gamma.

#### User gamma

Gamma tables created using CvpFileEditor™ can be saved to a “Memory Stick,” and registered in the camera from MSU-1000/1500 and RCP-1500 series devices.

### Versatile detail control functions

#### Skin-tone detail function/Natural skin detail function

Like HDC2500-series cameras, this function allows control (emphasis or suppression) of the detail level for a certain hue or chroma area in the image, by creating a detail gate signal from color components of your specified hue, such as skin tones. The detail levels of three hues can be adjusted independently at the same time.
The camera features a natural skin detail function that adjusts the detail gate signal in order to distinguish clearly between parts of skin you want to smooth from the parts you do not want to smooth, such as eyebrows.

### Detail boost-frequency control

The boost frequency can be adjusted from 20 MHz to 30 MHz. This allows the thickness of the detail signal to be set appropriately for the subject, thus enabling high-definition image reproduction.

### H/V ratio control

Adjusts the ratio between the applied horizontal and vertical detail.

### White/black limiter

The white and black details can be limited independently.

## Focus assist functions

### VF detail

Supports focusing on various scenes using a function that adds color to the VF detail signal displayed in the viewfinder, a function that applies modulation to flicker the VF detail signal, and a function that changes the level of the VF detail signal according to the zoom position.

### Focus assist indicator

Displays a focusing level indicator in the viewfinder as a guide to the focus position. This allows the focus point to be determined easily by observing the fluctuation of the indicator.

### Dynamic focus

Displays a 4K resolution-specific focus point. This displays a marker in the viewfinder, derived from the luminance signal and color signal, for the area where 4K resolution signal is being output (valid when shooting in 4K only).

### Focus position meter

Displays the lens focus position as a meter, when a supported lens[1)] is attached.
This allows you to place a marker for any focus value which acts as a guide for focus control.

1) Lenses that support serial, lens command control.

### Follow focus function

Enables focus control from the camera (focus demand), and both a MSU-1000/1500 and RCP-1000/15000-series device, when a supported lens[1)] is attached. This allows focusing with main control from the camera, and additional fine control from MSU-1000/1500 and RCP-1000/1500-series devices.

1) Lenses that support serial, lens command control Ver. 1.04 or later.

## Various viewfinder functions

### Wide variety of viewfinder display options

You can display configuration settings, in addition to operation messages, a zebra pattern, a safety-zone marker, and a center marker in the viewfinder. Also, there are indicators along the top and bottom of the viewfinder, such as a tally lamp, battery warning indicator, and an indicator that warns you when one or more settings are not within standard range.

### Menu-based operation function

You can make selections and settings related to viewfinder display items, safety zone marker, center marker, and screen size marker, etc. quickly and easily using the menu displayed in the viewfinder or on an external monitor.

### PinP function

The return video signal or HD prompter picture can be displayed on the viewfinder in picture-in-picture mode.

**Note**

The PinP function cannot be used during standalone operation.

## Wide variety of input/output interfaces

In addition to 3G/HD/SD-SDI output and HD/SD-SDI input, the HDC4300 features a wide variety of input/output interfaces, including the following.

### Network TRUNK function

The network TRUNK function (LAN port) allows for data transmission between the camera and CCU at speeds of up to 100 Mbps.

**Note**

The network TRUNK transfer rate differs depending on the video format. Jumbo frames are not supported.

### HD prompter function

The HDC4300 supports an HD prompter function where HD-SDI equivalent digital data is sent from the HDCU2000/2500/4300 to the HDC4300, separate from the return video signal.

**Note**

The HD prompter function can only be used when a single format is selected and the network TRUNK function is set to OFF.

## User-friendly operation

### Spirit level display function

The HDC4300 features a spirit level function, which enables you to display the amount of camera roll on the viewfinder or a monitor. By checking the level of the camera, more stable shooting can be achieved.

### Carbon-graphite outer cover

The HDC4300 outer cover is made of carbon graphite. Much lighter and stronger than plastic, it can easily withstand intense movement under the toughest shooting conditions.

### Uni-body construction with low center of gravity

The HDC4300, like the HDC2500 series, adopts a stylish appearance with a low-slung design.
When used in combination with the HDLA1500-series Large Lens Adaptor, it permits the viewfinder to be mounted at a low position, making the viewfinder position closer to the optical axis of the lens.

### Swing handle and VF slide mechanism

A slight protrusion of the upper front part of the handle enables stable holding of the camera while you are shooting, by holding the front part of the handle. Furthermore, the movable range of a front-rear slide mechanism for the viewfinder attachment is wide to provide the best balance for shooting with the camera on your shoulder.
The swing handle mechanism allows for mounting and usage on the HDLA1500 series, making forward shifting with a large-scale viewfinder possible. This enables the same total longitudinal size as a standard studio-use camera, for operability equivalent to that of a standard studio-use camera.

### Adjustable shoulder pad

The position of the shoulder pad can be adjusted for stable shooting according to the build of the camera operator, the type of lens in use, or the shooting style.
A low-repulsion foam shoulder pad (fixed type) is available as an option (Part No.: A-8286-346-A).

### Assignable switches

The assignable switches on the side panel can be assigned to your desired function, such as electronic color-temperature conversion.
These switches can be synchronized with the assignable switches on viewfinder models, such as the HDVF-EL75, and can be used to operate the viewfinder functions, such as magnification.
Also, two function-assignable switches are on the upper part of the handle, and can be used to set the viewfinder functions such as lens zoom.

### USB connector

Connects to a USB flash drive for importing/exporting menu configuration settings and other data.

### Electric shock protection

This function stops the high-voltage power supply from the camera control unit if the unit is not connected securely.

## Optional accessories

You can add new functions and compatibility with other video formats by embedding the following optional accessories.

*For details about installing optional accessories, please contact a Sony sales representative or Sony service representative.*

*For specifications or more detailed information on optional accessories, refer to the manual of each accessory.*

### SZC-4001/4001M/4001W 4K upgrade software

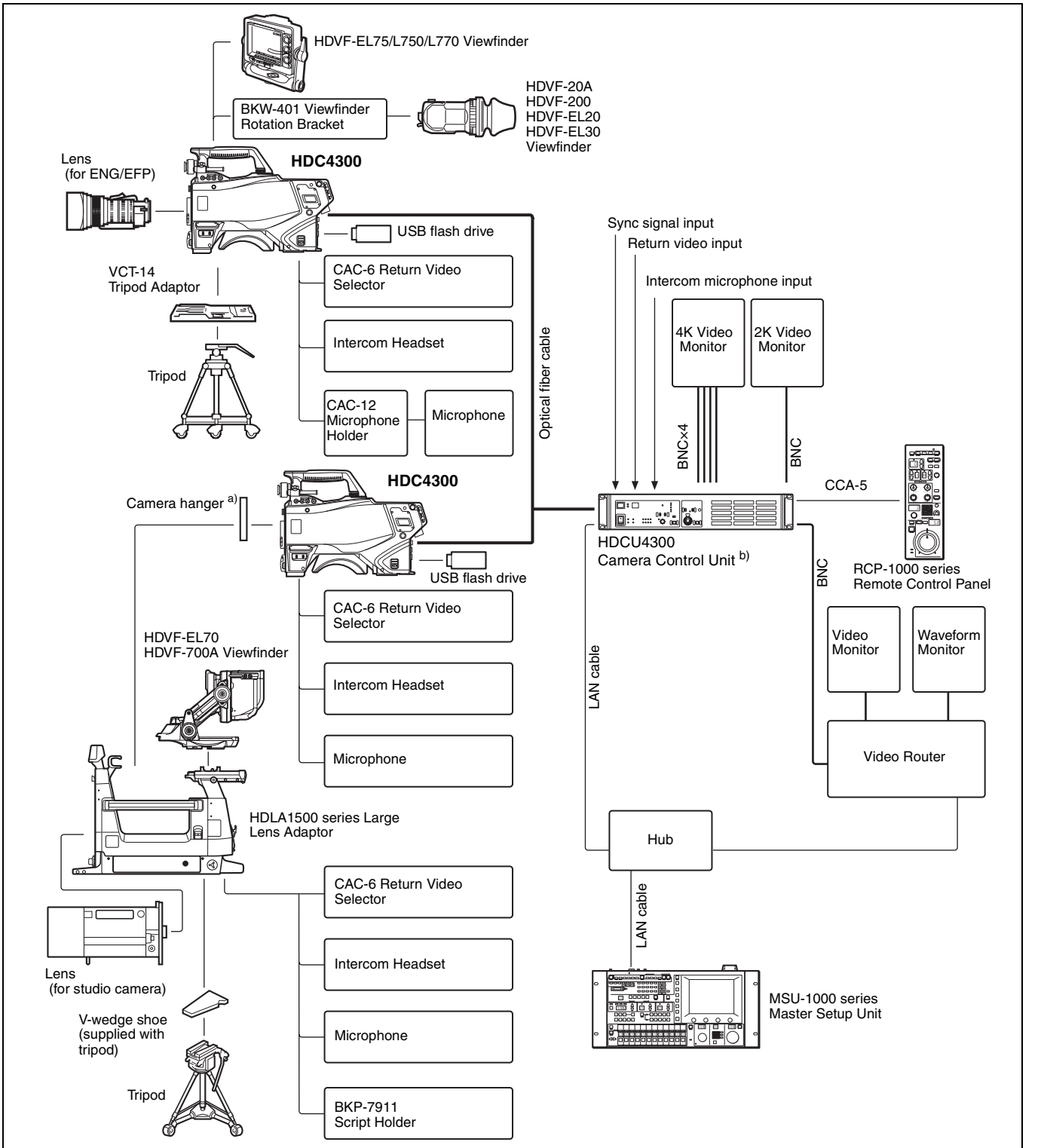
Enables shooting of 4K images.

# System Configuration

**Note**

Production of some of the peripherals and related devices shown in the figures may have been discontinued.
For advice on choosing devices, please contact your Sony dealer or a Sony sales representative.

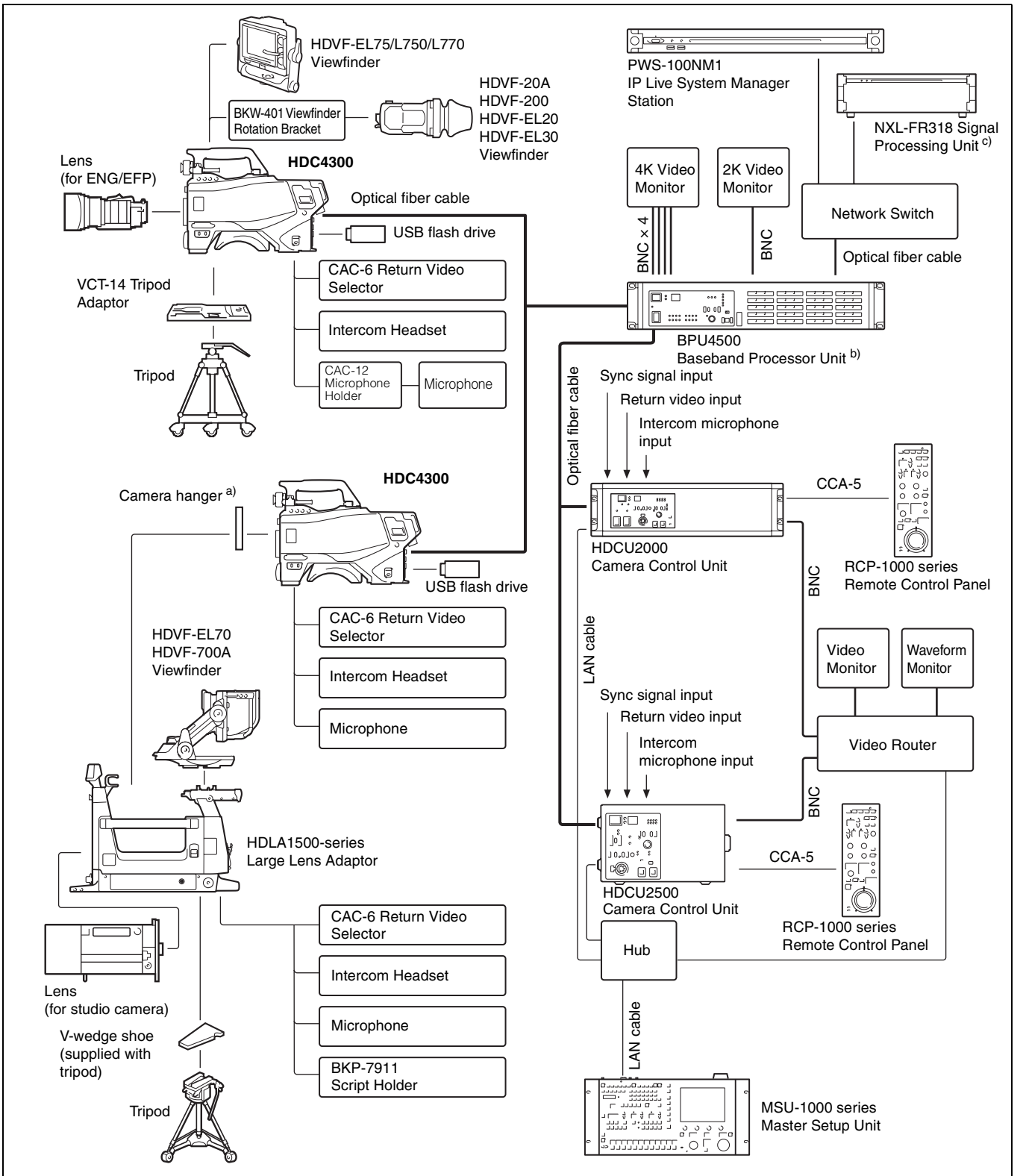
## HDCU4300 connection example




a) Supplied with HDLA1500 series (Part number: A-1128-405-A)

b) The SZC-4002/4002M/4002W HFR software option must be installed for HFR (High Frame Rate) imaging at speeds up to 4×, 6×, and 8×.

## BPU4500 connection example

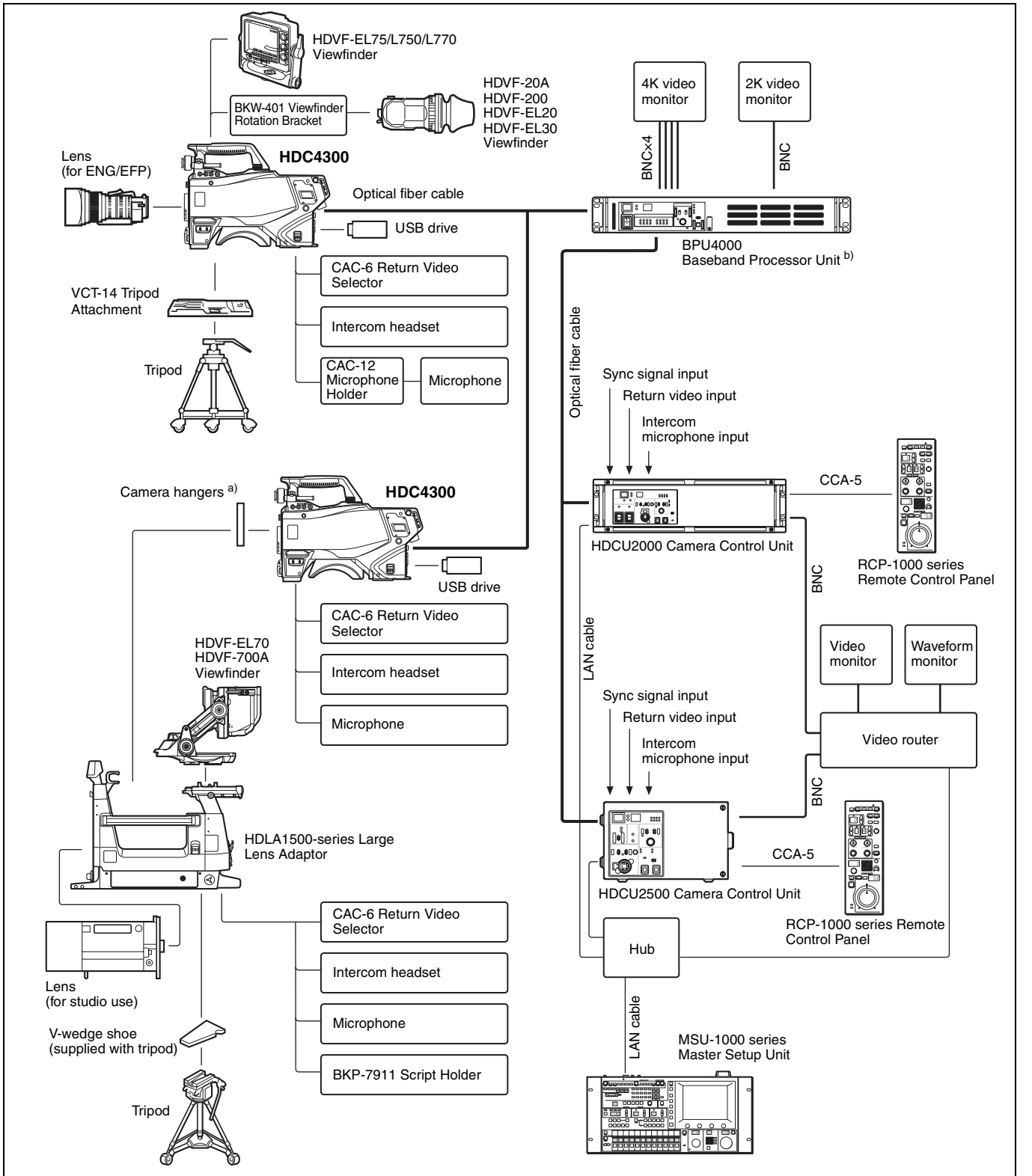



a) Supplied with HDLA1500 series (Part number: A-1128-405-A)

b) The SZC-4002/4002M/4002W HFR software option must be installed for HFR (High Frame Rate) imaging at speeds up to 4×, 6×, and 8×.

c) Install NXLK-IP40F SDI-IP converter board (option).

## BPU4000 connection example

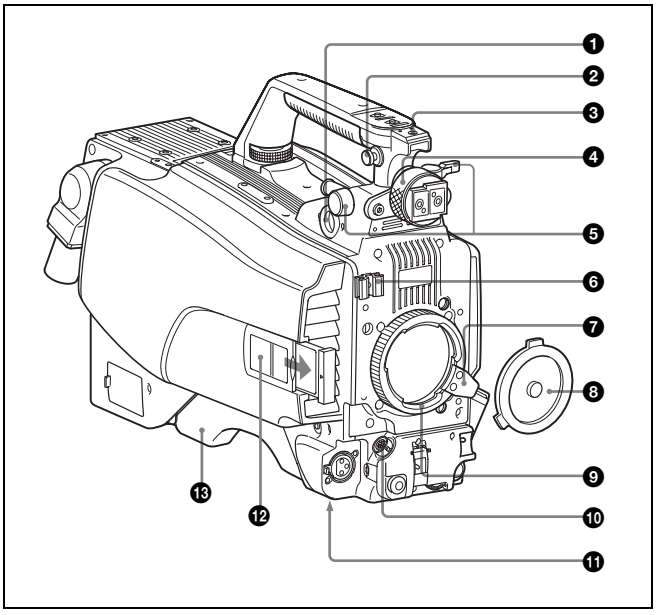



a) Supplied with HDLA1500 series (Part number: A-1128-405-A)

b) The SZC-4002/4002M/4002W HFR software option must be installed for HFR (High Frame Rate) imaging at speeds up to 4×, 6×, and 8×.

# Locations and Functions of Parts

## Accessory Attachments




**❶ VF (viewfinder) connector (20-pin)**
Connect the cable of the viewfinder (not supplied).

**❷ Shoulder strap fitting post**
Attach one end of a shoulder strap (not supplied) to this fitting post, and the other end to the fitting post on the other side of the camera.

**❸ Accessory shoe**
To attach an accessory using a 1/4-inch screw.

**❹ Viewfinder left-right positioning ring**
Locks the left-right position of the viewfinder.
Loosen this ring to adjust the viewfinder position.

**❺ Viewfinder front-rear positioning lever and LOCK knob**
Locks the front-rear position of the viewfinder.
Loosen the lever and knob to adjust the viewfinder position.

*For details about adjusting the viewfinder position, see "Attaching a Viewfinder" on page 16.*

**❻ Lens cable clamp**
To secure the cable of the lens (not supplied).

**❼ Lens fixing lever**
To secure the lens in the lens mount.

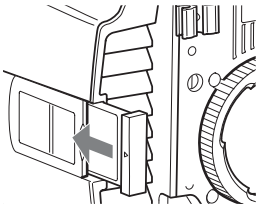
**❽ Lens mount cap**
Always keep the lens mount covered with this cap when a lens is not attached. The cover can be removed by moving the lens fixing lever upwards.

**❾ Lens mount**
To attach a lens.

**❿ LENS connector (12-pin)**
Connect the lens cable. The camera can control the lens functions through this cable.

**⓫ Tripod mount**
Attach the VCT-14 Tripod Attachment when mounting the camera on a tripod.

**⓬ Camera number**
Insert the supplied camera number label to display the camera number.

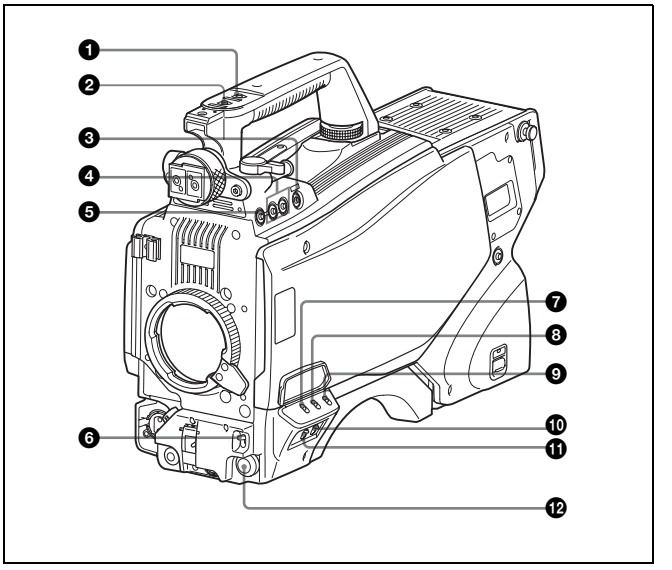


**⓭ Shoulder pad**
You can adjust the position toward the front or rear.

*For details, see "Adjusting the Shoulder Pad Position" on page 19.*

## Controls and Connectors

### Front right




**❶ INCOM (intercom 1) button**
The intercom 1 microphone is turned ON while this button is held pressed.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

**❷ RET 1 (return video 1) button**
The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It functions the same as the RET 1 button on the side *(page 11)* and on the operation panel on the rear of the camera *(page 12 (JN/SY models) or page 13 (CE/CN models))*.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

**❸ Assignable switches**
You can assign a function using the menu displayed on the viewfinder screen.

**❹ Filter select buttons**
You can switch the built-in ND and CC (color temperature conversion) filters by pressing the select buttons while holding the FILTER LOCAL button depressed.
Pressing the left button selects the available ND filters (clear, 1/4ND, 1/8ND, 1/16ND,1/64ND) in sequence.
Pressing the right button selects the available CC filters (cross filter[1)], 3200K, 4300K, 6300K) in sequence.

1) The cross filter cannot be selected when shooting HD-HFR at 6× or 8× frame rate.

**❺ FILTER LOCAL button**
While holding this button depressed, press either of the filter select buttons to select the built-in optical filters.

**❻ AUTO W/B BAL (white and black balance automatic adjustment) switch**
To automatically adjust white and black balance when the camera is used in standalone status without connecting to the camera control unit.
**WHT:** Automatically adjust white balance.
**BLK:** Automatically adjust black balance.

**❼ GAIN switch**
To select the master gain of the video amplifier based on lighting conditions when the camera is used in standalone status without connecting a camera control unit.
When shipped from the factory, the values set are L = 0 dB, M = 6 dB, and H = 12 dB.

**❽ OUTPUT (output signal selection)/AUTO KNEE switch**
To select the signal (color bar signal or camera's video signal) to be used as output to a VTR, the viewfinder or a video monitor when the camera is used in standalone status without connecting a camera control unit.
When the camera's video signal is being used as output, the auto knee function may be used.
The relationship between the switch setting and the output signal and auto knee function is shown in the table below.

| OUTPUT | AUTO KNEE | Function |
|---|---|---|
| BARS | OFF | Output is a color bar signal. |
| CAM | OFF | Output is the camera's video signal. The auto knee circuit is disabled. |
| CAM | ON | Output is the camera's video signal. The auto knee circuit is enabled. |

**❾ WHITE BAL (white balance memory selection) switch**
To select the white balance adjustment method or the memory used to store the adjusted value when the camera is used in standalone status without connecting a camera control unit.
**PRST (preset memory):** White balance is adjusted to a preset value corresponding to a color temperature of 3200K.
**A or B:** Selects memory A or B.

**❿ DISPLAY switch**
The functions of the DISPLAY switch are as follows:
**DISPLAY:** Characters and messages showing the camera settings and operating status may be displayed on the viewfinder screen.
**OFF:** Status messages will not appear on the viewfinder screen.
**MENU:** Menus for camera settings will be displayed on the viewfinder screen.

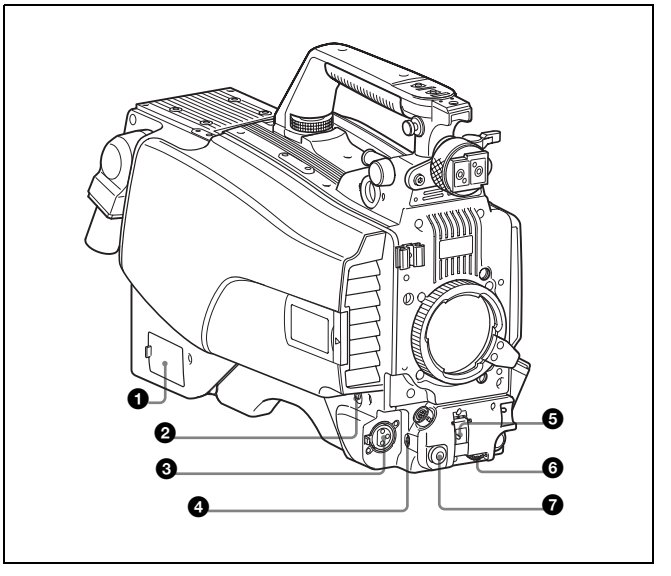
**⓫ STATUS/CANCEL switch**
**STATUS:** When no menu is displayed on the viewfinder screen, the status information of this camera is displayed.
**CANCEL:** When a menu is displayed on the viewfinder screen, you can cancel any changed settings or return the display to the previous menu.

**⓬ MENU SEL (menu select) knob/ENTER button (rotary encoder)**
To select settings from menus displayed on the viewfinder screen (by turning the knob) and to confirm settings (by pressing the button).

**Note**

When a camera control unit or a remote control device, such as an MSU or RCP, is connected, the functions of ❻ to ❾ are controlled from the external control device and the controls on the camera are disabled.

## Front left




**❶ NETWORK TRUNK connector (RJ-45 8-pin)**
Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

**❷ RET 1 (return video 1) button**
The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It functions the same as the RET 1 buttons on the handle *(page 10)* and on the operation panel on the rear of the camera *(page 12 (JN/SY models) or page 13 (CE/CN models))*.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

**❸ MIC 1 IN (microphone 1 input) connector (XLR 3-pin)**
Connect a microphone.
This connector and the AUDIO IN CH1 connector *(page 14)* on the connector panel on the rear of the camera are alternately activated with the CH1 audio input select switch *(page 14)*.

**❹ MIC (microphone) power switch**
**+48V:** To supply power at +48 V to the microphone connected to the MIC 1 IN connector.
**OFF:** Not to supply power to the microphone connected to the MIC 1 IN connector.

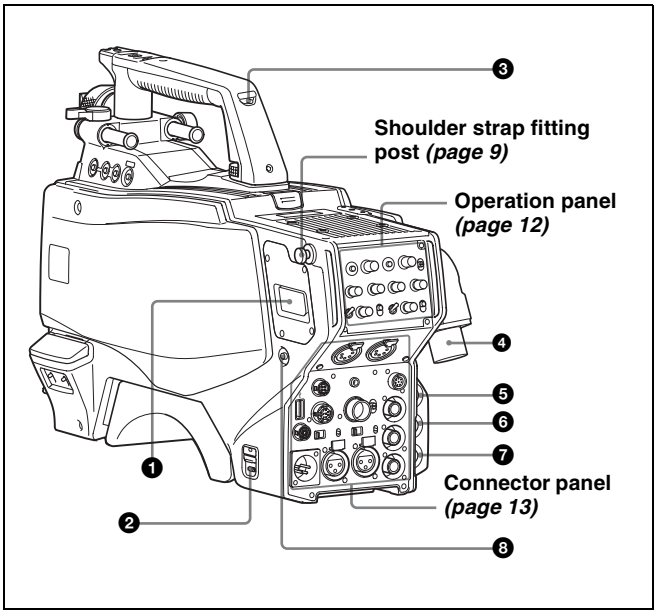
**❺ SHUTTER switch**
For setting the electronic shutter functions when the camera is used in standalone status without connecting a camera control unit.
**OFF:** The electronic shutter does not function.
**ON:** The electronic shutter is activated.
**SEL:** The shutter speed and shutter mode change each time the switch is set to this position.

*For details, see "Setting the Electronic Shutter" on page 22.*

**❻ INTERCOM LEVEL control**
To adjust the intercom/earphone volume level.
The intercom level adjustment is enabled when the INTERCOM 1 and 2 LEVEL/MIC switches (on the JN/SY-model operation panel *(page 12)*) or the LEVEL switch (on the CE/CN-model operation panel *(page 13)*) on the rear of the camera are set to FRONT.

**❼ RET 2 (return video 2) button**
When this button is pressed, the picture on the viewfinder screen changes to the return video signal selected with the RET 2 select switch *(page 12 (JN/SY models) or page 13 (CE/CN models))* on the operation panel on the rear of the camera.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

## Rear




**❶ DC power supply out connector (2-pin)**
Supplies power to an external device up to 2.5 A.

**❷ CAMERA POWER switch**
**CCU:** Power is supplied from the camera control unit.
**EXT:** Power is supplied through the DC IN connector.

**❸ Tally lamp and switch**
**ON:** The tally lamp lights when a tally signal is input to the connected camera control unit or a call signal is generated in response to pressing the CALL button.
**OFF:** The tally lamp is prevented from lighting.

**❹ BPU (Baseband Processor Unit) connector (optical/electrical multi-connector)**
Connect to HDCU4300 Camera Control Unit or BPU4000/4500 Baseband Processor Unit using an optical/electrical multi cable.

**❺ SDI 1 (serial digital interface 1) connector (BNC-type)**
For 3G-SDI, HD-SDI or HD PROMPTER signal output.

**❻ SDI 2 (serial digital interface 2) connector (BNC-type)**
For HD-SDI signal output.
During standalone operation, also used for inputting an HD-SDI return signal.
When RET (return) is set to 1, this is displayed in the viewfinder.

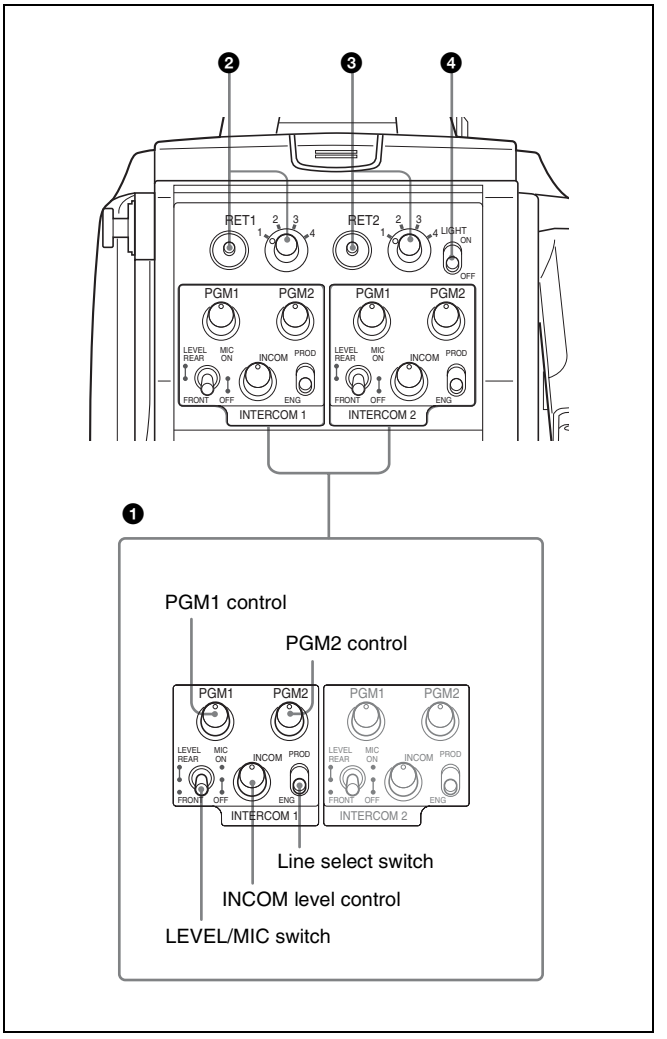
**❼ PROMPTER2 connector (BNC-type)**
For prompter 2 signal output.
Available only when connecting a camera control unit with a prompter 2 input connector.
During standalone operation, also used for inputting a VBS return signal.
When RET (return) is set to 2, this is displayed in the viewfinder.

**❽ CALL button**
When this button is pressed, the red tally lamp of the RCP-1000 series Remote Control Panel or the MSU-1000 series

Master Setup Unit will light. Use to call the operator of the RCP or MSU.

## Operation panel

### JN and SY models (for NTSC areas)




**❶ INTERCOM1 and INTERCOM2 controls and switches**
There are PGM1 and 2 controls incorporated with a line select switch, a LEVEL/MIC switch, and INCOM level control each for intercom line 1 and 2.

**PGM1 (program 1) control**
Adjust the audio listening level of program 1.

**PGM1 (program 2) control**
Adjust the audio listening level of program 2.

**LEVEL/MIC (level/microphone) switch**
**REAR/ON:** The intercom headset microphone is turned on. The intercom audio listening level is adjusted with the INCOM level control.
**REAR/OFF:** The intercom headset microphone is turned off. The intercom audio listening level is adjusted with the INCOM level control.
**FRONT/OFF:** The intercom headset microphone is turned off. The intercom audio listening level is adjusted with the INCOM level control and the INTERCOM LEVEL control *(page 11)* on the front of the camera.

**INCOM (intercom) level control**
Adjust the intercom audio listening level.

**Line select switch**
Select the intercom line.
**PROD:** Producer line
**ENG:** Engineer line

**❷ RET 1 (return video 1) button and select switch**
Press the button to display the return video signal selected with the switch on the viewfinder screen.

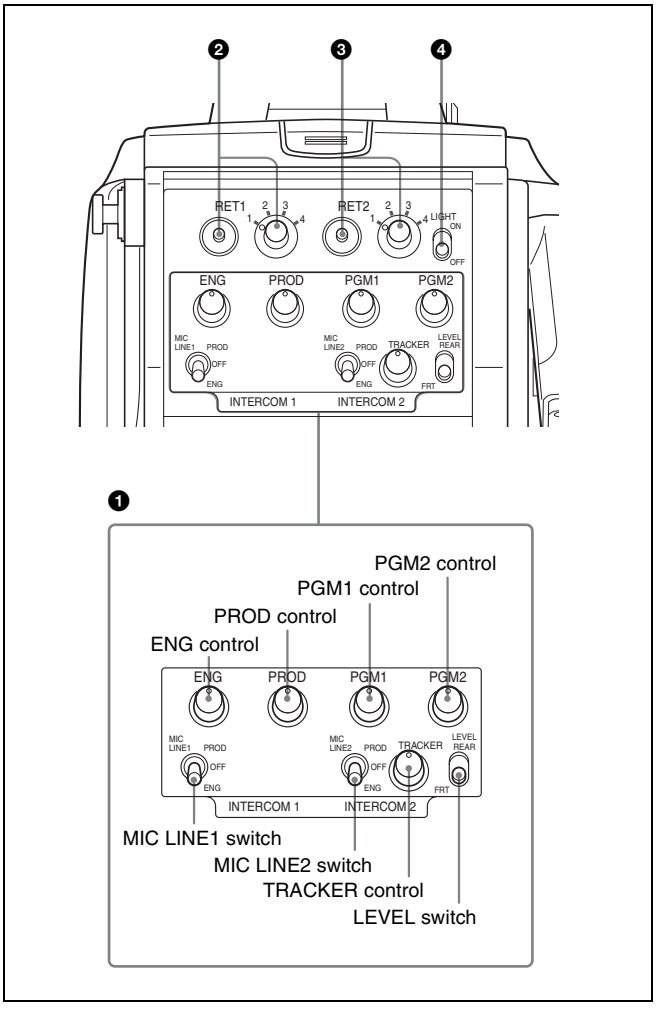
**❸ RET 2 (return video 2) button and select switch**
If you use an additional return video system in addition to return video 1, press the button to display the return video signal selected with the switch on the viewfinder screen.

**Note**

The RET 1 button has priority over the RET 2 button if both buttons are pressed.
If RET 1 and RET 2 buttons are pressed at the same time, the two buttons function as the RET 3 button according to the setting of the <RETURN> page in the OPERATION menu.

**❹ LIGHT switch**
Set to ON to illuminate the operation panel.

### CE and CN models (for PAL areas)




**❶ INTERCOM1 and INTERCOM2 controls and switches**
The reception level controls are common to intercom 1 and intercom 2. The talk lines can be set independently for intercom 1 and intercom 2.

**ENG (engineer line) control:**
Adjust the intercom audio listening level of the engineer line.

**PROD (producer line) control**
Adjust the intercom audio listening level of the producer line.

**PGM1 (program 1) control**
Adjust the audio listening level of program 1.

**PGM2 (program 2) control**
Adjust the audio listening level of program 2.

**TRACKER control**
Adjust the intercom audio listening level at the TRACKER connector *(page 14)* on the connector panel when using the connector for intercom.

**MIC LINE1 (intercom microphone line 1) switch**
Select the talk line for intercom 1.
**PROD:** To talk over the producer line
**OFF:** To turn off the headset microphone for intercom line 1
**ENG:** To talk over the engineer line

**MIC LINE2 (intercom microphone line 2) switch**
Select the talk line for intercom 2.
**PROD:** To talk over the producer line
**OFF:** To turn off the headset microphone for intercom line 2
**ENG:** To talk over the engineer line

**LEVEL switch**
**REAR:** The intercom audio listening level is adjusted with the controls on this panel.
**FRT:** The intercom audio listening level is adjusted with the INTERCOM LEVEL control *(page 11)* on the front of the camera.

**❷ RET 1 (return video 1) button and select switch**
The return video signal selected with the switch is displayed on the viewfinder screen while the button is pressed.

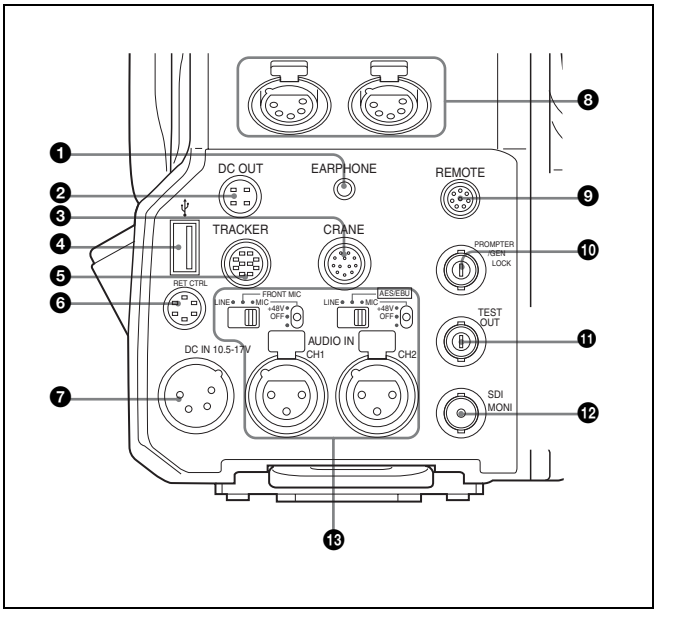
**❸ RET 2 (return video 2) button and select switch**
When other return video systems are used in addition to return video 1, you can monitor the signal selected with the switch on the viewfinder screen while pressing the button.

**Note**

The RET 1 button has priority over the RET 2 button if both buttons are pressed.
If RET 1 and RET 2 buttons are pressed at the same time, the two buttons function as the RET 3 button according to the setting of the <RETURN> page in the OPERATION menu.

**❹ LIGHT switch**
Set to ON to illuminate the operation panel.

## Connector panel




**❶ EARPHONE jack (stereo minijack)**
For connecting an earphone or headset to hear the intercom audio.

**❷ DC OUT (DC power supply output) connector (4-pin)**
To supply power to devices such as a wireless receiver (optional) (max. 0.5 A).

**❸ CRANE connector (12-pin)**
For external interface, such as viewfinder and external data.

**❹ USB connector (for connecting a USB drive)**
Connect a USB drive to save or load the settings data file.

*For details, see "Using a USB Drive" on page 66.*

**❺ TRACKER connector (10-pin)**
For external interface, such as intercom and tally.

**❻ RET CTRL (return control) connector (6-pin)**
For connection to a CAC-6 Return Video Selector.

**❼ DC IN (DC power supply input) connector (XLR 4-pin)**
Used for connection to the AC-DN10 AC Adaptor to supply power to the camera.

**❽ INTERCOM1 and 2 (intercom 1 and 2) connectors (XLR 5-pin)**
Used for input and output of intercom audio signals if an XLR 5-pin headset is connected.
The INTERCOM 1 connector can be used for communication over the engineer line even when the power is off, as long as the power LED is lit in red.

**❾ REMOTE connector (8-pin)**
For connection to an RCP-1000/1500-series Remote Control Panel, or MSU-1000/1500 Master Setup Unit.

**Note**

When the camera is connected to a camera control unit, do not connect any remote control device, such as RCP and MSU, to this connector.

**❿ PROMPTER/GENLOCK (prompter signal output/ external genlock signal input) connector (BNC-type)**
The PROMPTER function is available only when a camera control unit is connected. The GENLOCK IN function and RET IN function are available when a camera control unit is not connected.

**GENLOCK IN:** For input of an external genlock signal (VBS or 3-level sync) during standalone operation.

**RET IN:** For input of the return video signal during standalone operation.
The connector accepts analog HD signals only. SDI signals cannot be input. Supply a signal of 1080i (720P cannot be input).
The signal supplied to this connector cannot be fed as RET OUT from the TEST OUT or SDI OUT connector.
This is displayed in the viewfinder regardless of which RET is selected. CHARACTER will not be overlapped for the displayed RET 3 signal.

**PROMPTER:** For output of the prompter 1 signal (valid only when a camera control unit is connected). When a camera control unit having two prompter inputs is connected, the signal of input 1 is output from this connector.

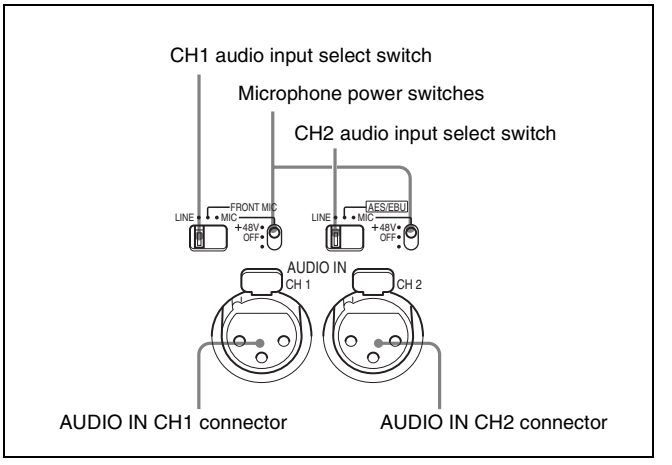
**⓫ TEST OUT connector (BNC-type)**
To output the analog signal.
This also supplies the VBS signal, an HD signal nearly equal to the signal output from the VF connector, an HD-SYNC signal, or an SD-SYNC signal depending on which of these you have selected on the menu.

*For details about signal settings, see "Setting the Camera Outputs" on page 26.*

**⓬ SDI-MONI (serial digital interface) connector (BNC-type)**
For HD-SDI or SD-SDI signal output.

*For details about signal settings, see "Setting the Camera Outputs" on page 26.*

**⓭ AUDIO IN CH1 and CH2 connectors (XLR 3-pin) and switches**
Connect audio signals. An input select switch and microphone power switch are provided for each channel.




**CH1 audio input select switch**
Set to the appropriate position according to the equipment connected to the AUDIO IN CH1 connector.

**LINE:** When a line-level (0 dBu) signal source is connected

**FRONT MIC:** When using the microphone connected to the MIC 1 IN connector

**MIC:** When an external microphone is connected

**CH2 audio input select switch**
Set to the appropriate position according to the equipment connected to the AUDIO IN CH2 connector.

**LINE:** When a line-level (0 dBu) signal source is connected

**AES/EBU:** When a digital audio signal is connected (The signal must be in synchronization with the camera output.)

**MIC:** When an external microphone is connected

**Microphone power switches**
When a microphone is connected to the corresponding AUDIO IN connector, set whether or not to supply a power to the microphone.

**+48V:** To supply a power of +48 V.

**OFF:** Not to supply power.

(No function has been assigned to the lowermost position. No power is supplied to the microphone.)

**Note**

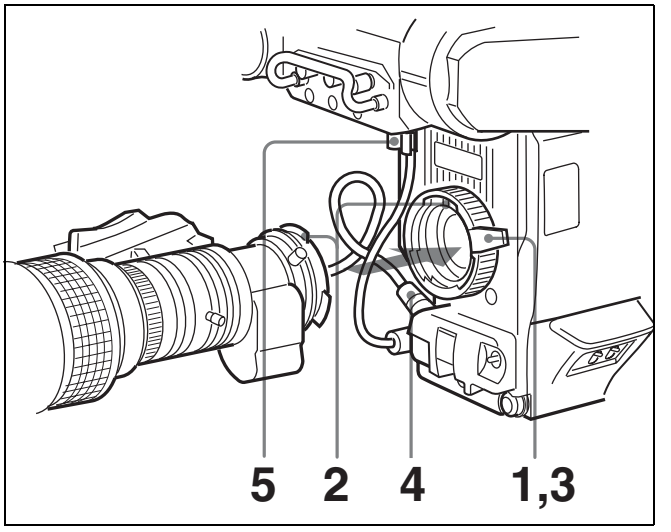
To supply +12 V power, contact a Sony sales representative or Sony service representative.

# Preparations

## Attaching a Lens

*For information on handling lenses, refer to the lens' operation manual.*

### Attachment procedure




**1** **Push the lens fixing lever upwards and remove the lens mount cap from the lens mount.**

**2** **Align the lens' alignment pin with the notch in the upper part of the lens mount and insert the lens into the mount.**

**3** **While supporting the lens, push the lens fixing lever downwards to secure the lens.**

**4** **Connect the lens cable to the LENS connector.**

**5** **Secure the lens cable with the cable clamp.**

## Adjusting the Flange Focal Length

Adjustment of the flange focal length (the distance between the lens mount attachment plane and the imaging plane) is necessary in the following situations:

- The first time a lens is attached
- When changing lenses
- If the focus is not sharp at both telephoto and wide angle when zooming

The flange focal length can be more precisely adjusted by using the focus assist indicators.

*For details about focus assist indicators, see "Displaying the focus assist indicators" on page 24.*

**Note**

The various parts of the lens used in adjusting the flange focal length are in different positions on different lenses. Refer to the operation manual for the particular lens.

### Adjustment procedure

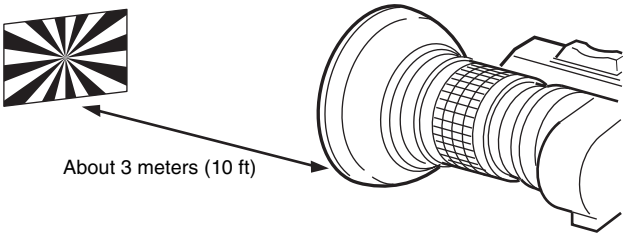
**1** **Set the iris control to manual, and open the iris fully.**

**2** **Place a flange focal length adjustment chart approximately 3 meters from the camera and adjust the lighting to get an appropriate video output level.**

**3** **Loosen the Ff (flange focal length) ring lock screw.**

**4** **With either manual or power zoom, set the zoom ring to telephoto.**

**5** **Aim at the flange focal length adjustment chart and turn the focus ring to focus the image.**




**6** **Set the zoom ring to wide angle.**

**7** **Turn the Ff ring to bring the chart into focus. Take care not to move the distance ring.**

**8** **Repeat steps 4 through 7 until the image is in focus at both telephoto and wide angle.**

**9** **Tighten the Ff ring lock screw.**

## Attaching a Viewfinder

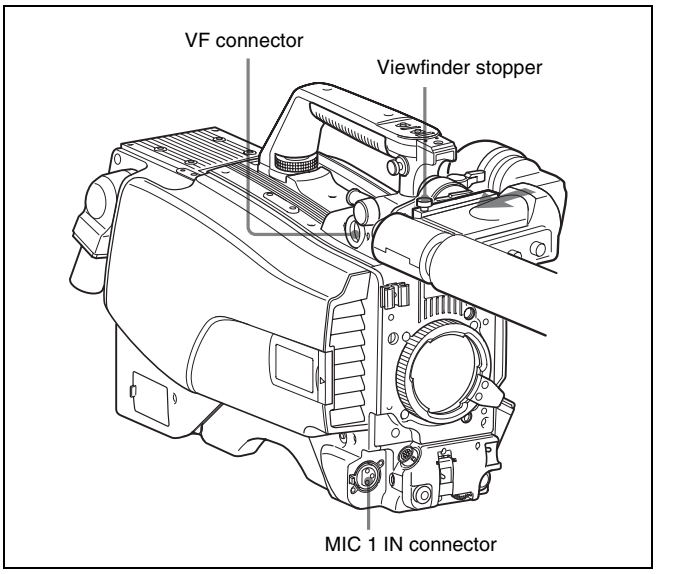
### WARNING

When the viewfinder is attached, do not leave the camera with the eyepiece facing the sun. Direct sunlight can enter through the eyepiece, be focused in the viewfinder and cause fire.

### Attaching a viewfinder

The instructions are made using the HDVF-20A/200 viewfinder as an example.

*For details about the viewfinder, refer to the operation manual of the viewfinder.*




**1** **Slide the viewfinder in the direction of the arrow.**
The viewfinder stopper automatically pops down.

**2** **Set the viewfinder left-right position, then tighten the left-right positioning ring (see "To adjust the position to the left or right" below).**

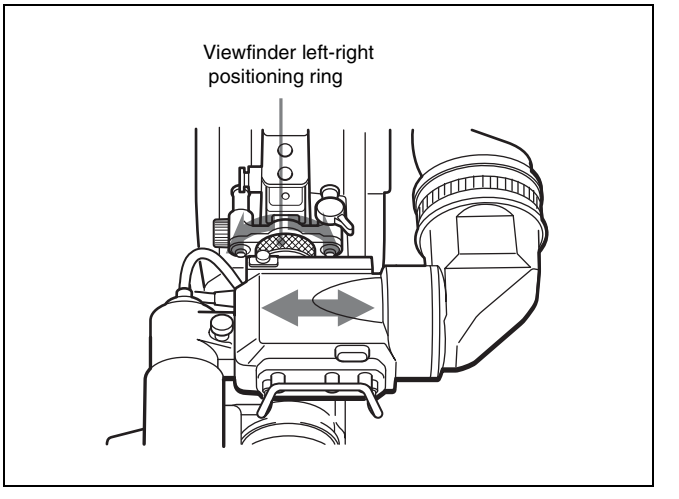
**3** **Connect the viewfinder cable to the VF connector of the camera.**

**4** **Connect the microphone cable to the MIC 1 IN connector of the camera.**

### Adjusting the viewfinder position

The viewfinder position may be adjusted towards the front and rear and to the left and right to make it easy to see into it.

#### To adjust the position to the left or right

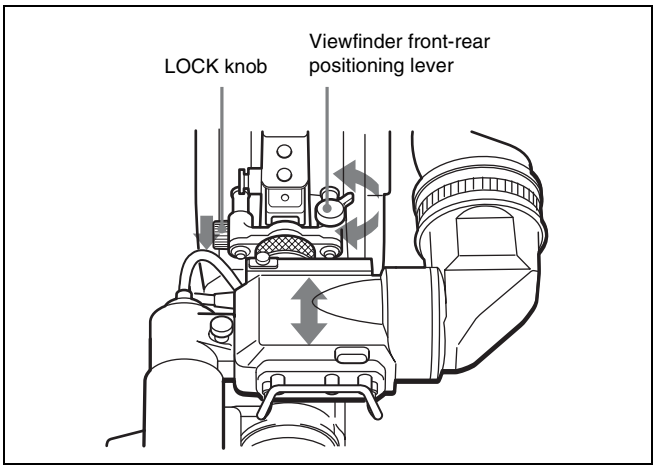



**1** **Loosen the viewfinder left-right positioning ring.**

**2** **Slide the viewfinder left or right to move it into a good viewing position.**

**3** **Tighten the viewfinder left-right positioning ring.**

### To adjust the position forward or backward




**1** **Loosen the viewfinder front-rear positioning lever and LOCK knob.**

**2** **Slide the viewfinder towards the front or rear of the camera to move it into a good viewing position.**

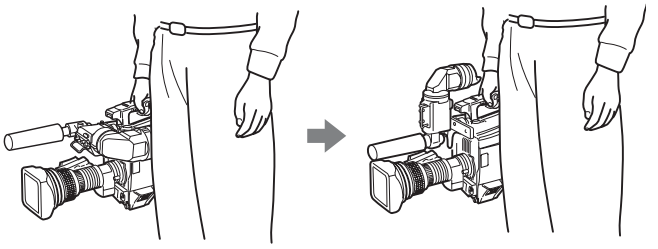
**3** **Tighten the viewfinder front-rear positioning lever and LOCK knob.**

## Detaching the viewfinder

Loosen the viewfinder left-right positioning ring, pull the viewfinder stopper, then pull out the viewfinder by sliding it in the direction opposite to that when attached.

## Keeping the viewfinder from hitting your leg (using BKW-401)

To keep the viewfinder from bumping your leg when carrying the camera, install the BKW-401 Viewfinder Rotation Bracket (optional) and rotate the viewfinder upwards.

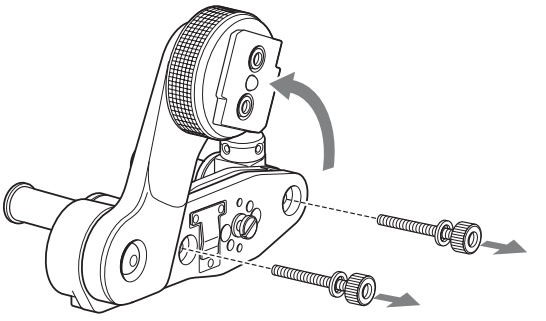


**Note**

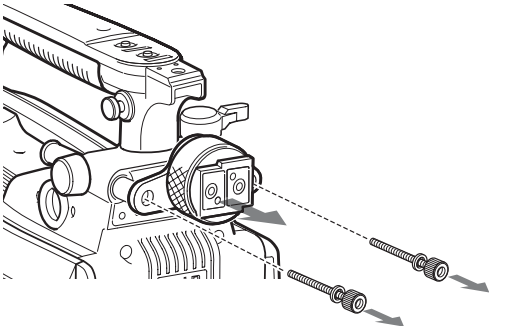
Lock the viewfinder in a slightly forward position before rotating it upwards. If the viewfinder is in its rearmost position, the arm of the viewfinder rotation bracket will strike the camera handle.

### Attaching procedure of the BKW-401

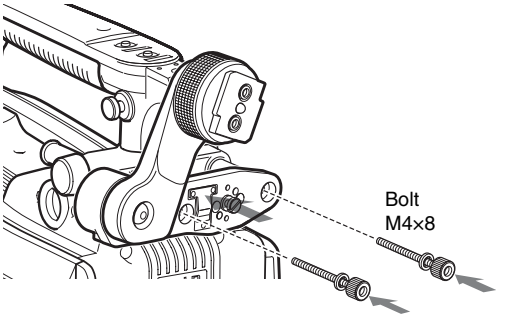
**1** **Turn the arm of the rotation mechanism assembly of the BKW-401 in the direction of the arrow in the following illustration.**
**Next, using a hexagonal wrench 3 mm across flats, remove the bolts (M4×8) together with the washers, to separate the rotation mechanism assembly from the viewfinder front-back positioning mechanism assembly.**



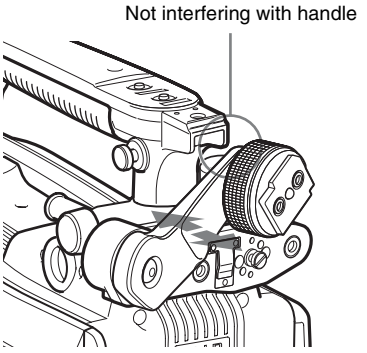
**2** **In the same manner as step 1, remove the viewfinder shoe of the camera from the front-rear positioning mechanism assembly.**



**3** **Using the two bolts (M4×8) and the washers removed from the camera in step 2, attach the rotation mechanism assembly of the BKW-401 to the camera.**



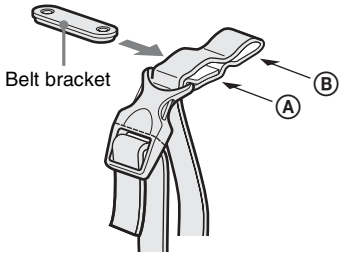
**4** **Adjust the front-rear position so that the camera handle does not interfere when you rotate the BKW-401 arm upwards.**



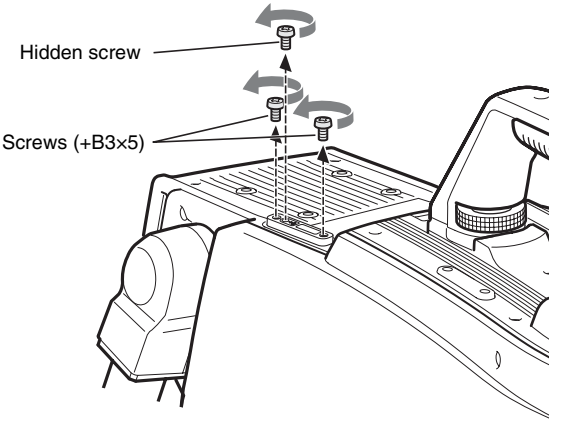

## Attaching the Cable Clamp Belt (Supplied)

You can secure the optical/electrical multi cable, connected to the BPU connector, to the side of the camera by attaching the supplied cable clamp belt.

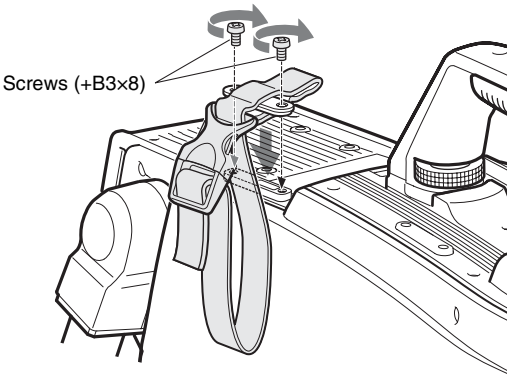
**1** **Insert the belt bracket into hole Ⓐ or Ⓑ of the cable clamp belt.**



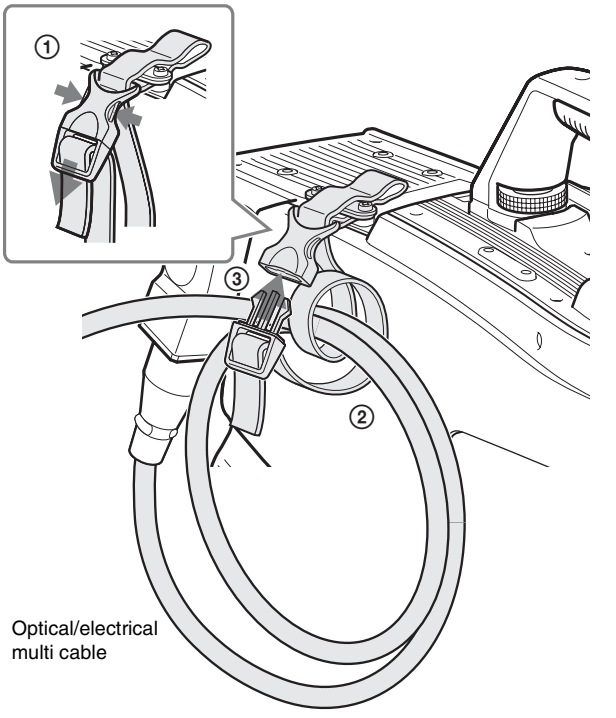

**2** **Remove two +B3×5 screws and a hidden screw shown in the figure below from the camera.**



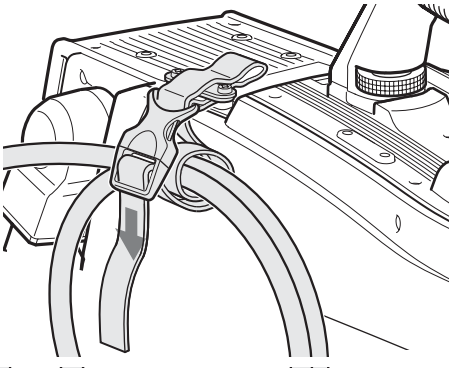

**3** **Secure the cable clamp belt to the camera, using the two supplied +B3×8 screws.**




**4** **① Release the buckle, ② bundle the cable with the belt, ③ then lock the buckle again.**



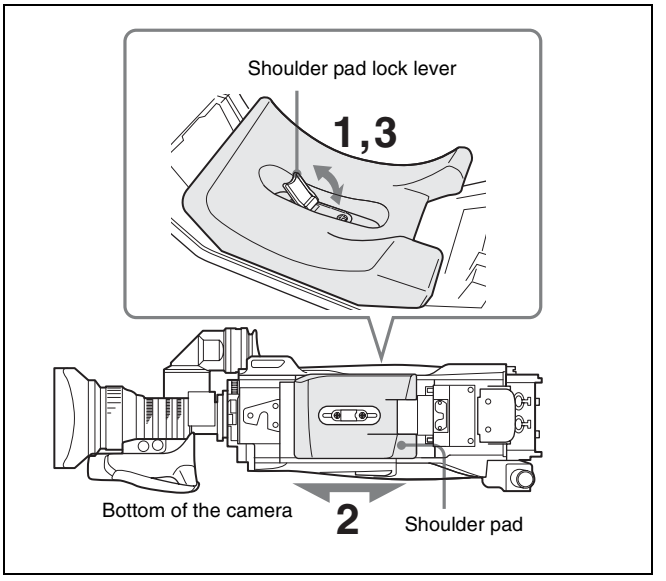

**5** **Adjust the length by pulling down the end of the belt.**



## Adjusting the Shoulder Pad Position

You can shift the shoulder pad from its center position (factory setting) backward by up to 10 mm (13/32 inch) or forward by up to 25 mm (1 inch). This adjustment helps you get the best balance for shooting with the camera on your shoulder.

### Adjustment procedure




**1** **Raise the lever in the center of the shoulder pad to unlock the shoulder pad.**

**2** **Slide the shoulder pad backward or forward until it is in the most convenient position.**

**3** **Move the lever down to lock the shoulder pad in the selected position.**

## Mounting the Camera to a Tripod

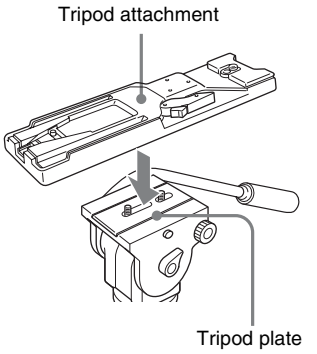
Mount the camera to a tripod using a VCT-14 Tripod Attachment.

**Notes**

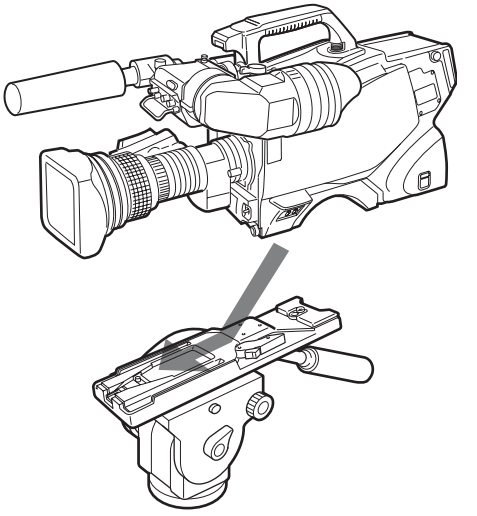
- Select an appropriate hole from among those at the bottom of the tripod attachment considering the balance of the weight of the camera and the tripod attachment. If an inappropriate hole is selected, the camera may fall over and may cause injury or damage.
- Check that the size of the selected hole matches that of the screw of the tripod. If they do not match, the tripod attachment cannot be attached to the tripod securely.

### Attachment procedure

**1** **Attach the tripod attachment to the tripod and secure it with the screw.**



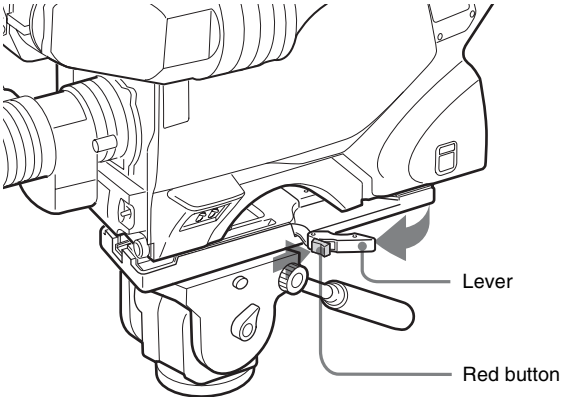

**2** **Place the camera on the tripod attachment, and slide forward it along the groove of the tripod attachment until it clicks.**



**3** **Make sure that the camera is securely attached by moving it back and forth.**

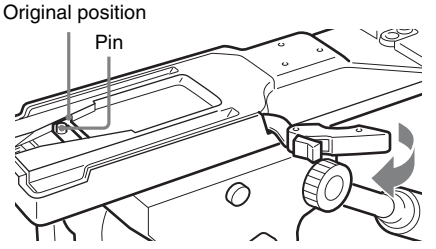
### Removing the camera from the tripod attachment

Hold down the red button and pull the lever in the direction of the arrow.




### If the pin of the tripod attachment does not return to its original position

After removing the camera, if the pin of the tripod attachment does not return to its original position, hold down the red button and move the lever in the direction of the arrow to return the pin to its original position. It is not possible to mount a camera with the pin not seated.




# Adjustments and Settings for Shooting

## Adjusting the Black Balance and White Balance

In order to maintain high picture quality, it is necessary to set the black balance and white balance appropriately for the conditions.

**Note**

When a camera control unit or a remote control device, such as the MSU or RCP series, is connected, control is performed from the RCP/MSU, and the switches on the camera are disabled.

### Black balance adjustment

The black balance needs adjustment in situations like the following:

- The first time the camera is used
- When the camera is used after a long period of disuse
- When the surrounding temperature changes greatly
- When the gain value is changed using the setup menus

Normally, there is no need to adjust the black balance every time the camera is turned on.

### White balance adjustment

Always readjust the white balance when lighting conditions change.

### About the viewfinder screen

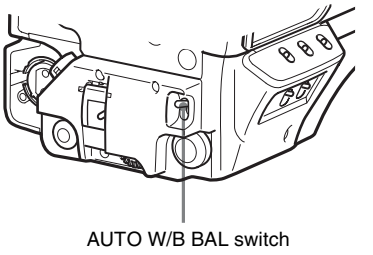
After the process of adjusting the black balance or white balance begins, messages about the progress and results of the adjustment will be displayed on the viewfinder screen.

**Note**

Adjusted values set through automatic adjustment, and other settings, are stored in the camera's memory and preserved even when the camera power is turned off.

### Adjusting the black balance

Push the AUTO W/B BAL switch toward BLK (downward).




Automatic adjustment of black balance begins.
In automatic adjustment of black balance, both the black set and black balance are adjusted.

During adjustment, a message like the one in the figure below will be displayed on the viewfinder screen.


When the adjustment process is completed, the message “ABB : OK” will be displayed. The adjusted value is automatically stored in memory.

**Notes**

- During black balance adjustment, the iris will be automatically closed.
- During black balance adjustment, the gain switching circuit will work automatically, and the viewfinder screen will flicker several times. This is not a malfunction.

### When automatic black balance adjustment fails

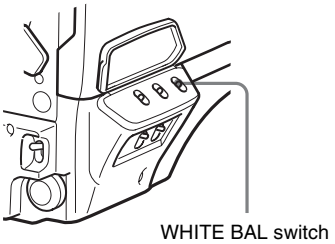
If the automatic black balance adjustment process does not end successfully, the error message “ABB : NG” will be displayed on the viewfinder screen for approximately three seconds.
If this error message is displayed, try black balance adjustment again.
If the error message continues to be displayed after several attempts, the camera requires internal inspection.

### About black balance memory

The black balance values stored in memory will be preserved even when the camera power is turned off.

## Adjusting the white balance

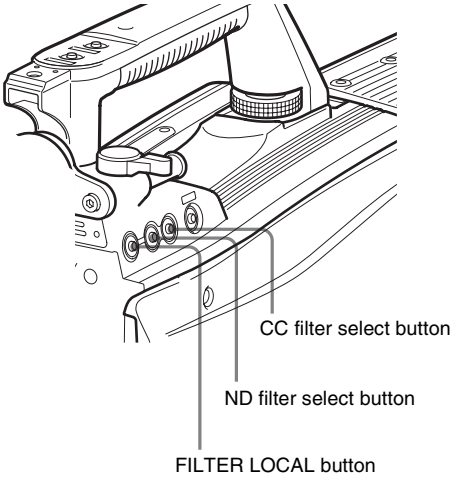
**1 Set the WHITE BAL switch to A or B.**




**2 Select the filter setting according to the lighting conditions.**

**To select the ND filter**
Press the ND filter select button while holding the FILTER LOCAL button depressed.
Each press of the select button switches the available ND filters (clear, 1/4ND, 1/8ND, 1/16ND,1/64ND) in sequence.

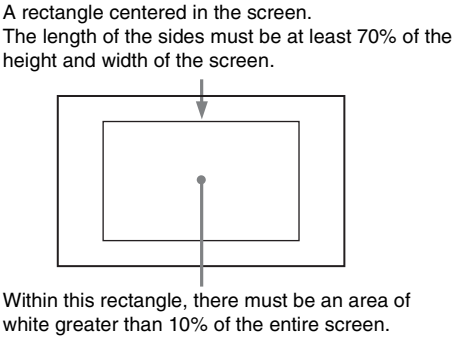
**To select the CC (color temperature conversion) filter**
Press the CC filter select button while holding the FILTER LOCAL button depressed.
Each press of the select button switches the available CC filters (cross filter[1)], 3200K, 4300K, 6300K) in sequence.




| ND filter | | Color temperature conversion filter | |
|---|---|---|---|
| 1 | Clear | A | Cross filter[1)] |
| 2 | 1/4ND | B | 3200K (clear) |
| 3 | 1/8ND | C | 4300K |
| 4 | 1/16ND | D | 6300K |
| 5 | 1/64ND | – | – |

1) The cross filter cannot be selected when shooting HD-HFR at 6× or 8× frame rate.

**3 Place a white pattern in the same lighting conditions as the subject, and zoom in on it so that a white area is obtained in the screen to satisfy the positional and quantitative requirements illustrated below.**
A white object (white cloth, a white wall, etc.) near the subject may be used in place of a white pattern.



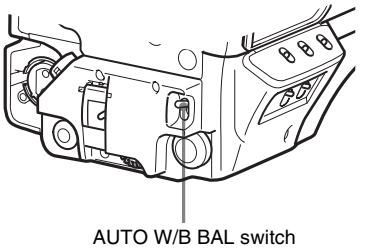

**Note**

Be careful not to have any spots of high illumination in the rectangle.

**4 Adjust the lens iris opening.**
**With a manually adjusted lens:** Set the opening to an appropriate value.

**With a lens which has automatic iris control:** Set the lens' automatic/manual iris control switch to automatic.

**5 Push the AUTO W/B BAL switch to WHT (up).**



AUTO W/B BAL switch

White balance automatic adjustment begins.

During adjustment, the message "AWB : EXECUTING" will be displayed on the viewfinder screen.
A message like the one in the figure below will be displayed, and the adjustment process will complete. The adjusted value will be automatically stored in the memory (A or B) selected in step **1**.


**Note**

When using a zoom lens with automatic iris control capability, hunting[1)] may occur. Adjust the lens' iris gain control (labeled IG, IS, S, etc.).

1) Hunting: The automatic iris responds over and over, and the image repeatedly darkens and lightens.

*For more information, refer to the lens' operation manual.*

### When automatic white balance adjustment fails

If the white balance adjustment process does not end successfully, the error message "AWB : NG" will be displayed on the viewfinder screen for approximately three seconds.
If this error message is displayed, try white balance adjustment again.
If the error message continues to be displayed after several attempts, the camera requires internal inspection.

### When there is no time to adjust the white balance

Set the WHITE BAL switch to PRST. The white balance will be set automatically according to the filter settings.

### About white balance memory

The white balance values stored in memory will be preserved even when the camera power is turned off.
There are two white balance memories, A and B. When the AUTO W/B BAL switch is pushed to the WHT side, the white balance will be adjusted automatically according to the filter settings. The adjusted value will be stored in the selected memory. Each memory can store up to five adjusted values, for a total of 10.

## Setting the Electronic Shutter

This section explains the different modes which can be used for the electronic shutter and gives the procedures for setting the shutter mode and shutter speed.

**Note**

When a camera control unit or a remote control device, such as the MSU or RCP series, is connected, control is performed from the RCP/MSU, and the switches on the camera are disabled.

### About the shutter modes

The shutter modes that can be used with the electronic shutter of the camera and the shutter speeds that may be selected are as follows:

**Shutter modes and speeds**

| Shutter mode | Shutter speeds* | Usage |
|---|---|---|
| Standard | 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (seconds) | Use to obtain clear images of quickly moving subjects |
| ECS (Extended Clear Scan) | Continuously variable in the range of 59.96 Hz to 4600 Hz | Use to obtain images on video monitors without horizontal striping |

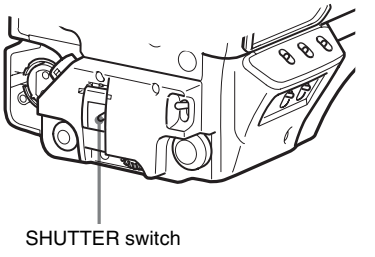
* The values in the table are those with 59.94P. With other formats, the available values are different.

### Selecting the shutter mode and speed

The shutter mode, and the shutter speed in standard mode, are set using the SHUTTER switch.

#### Setting the shutter mode, and shutter speed in Standard mode

**1 Push the SHUTTER switch from the ON position to the SEL position.**

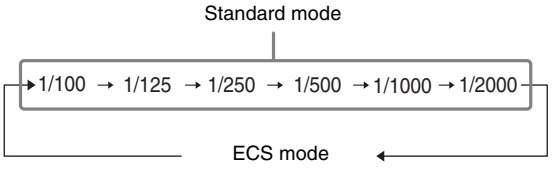


SHUTTER switch

The current shutter setting will be displayed on the viewfinder screen for about three seconds.
Example: "SHUTTER: 1/250"

**2 Push the SHUTTER switch to the SEL position again before the display disappears. Repeat this action until the desired mode or speed is displayed.**
When all modes and speeds are displayed, they will be displayed in the following order:

**Example: with 59.94P**




## Setting the Focus Assist Functions

Using the OPERATION menu, the assist functions for easier focusing on the viewfinder, can be activated.

### Adding the VF detail signal

Adding the VF detail signal to sharp edges in the image on the viewfinder screen makes it easier to check the focusing condition by observing changes in the detail signal or in the color converted from the detail signal (color detail).
The focus setting where the detail signal becomes strongest is the best focus setting.

**1** **Turn on the camera.**

**2** **Set the DISPLAY switch to MENU while holding the MENU SEL knob/ENTER button pressed.**
The camera enters Menu mode, and "TOP" is displayed at the upper right corner of the screen.

**3** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to TOP and press the MENU SEL knob/ENTER button.**
The TOP MENU screen appears.

```
<TOP MENU>

➡USER
 USER MENU CUSTOMIZE
 ALL
 ·OPERATION
 ·PAINT
 ·MAINTENANCE
 ·FILE
 ·DIAGNOSIS
```

**4** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to OPERATION and press the MENU SEL knob/ENTER button.**
The CONTENTS page of the OPERATION menu is displayed.

```
   CONTENTS        00  TOP
↓↓
➡01.<VF DISPLAY>
 02.<'!'IND>
 03.<VF MARKER>
 04.<VF DETAIL>
 05.<DYNAMIC FOCUS>
 06.<KINETIC FOCUS>
 07.<FOCUS POSITION METER1>
 08.<FOCUS POSITION METER2>
 09.<FOLLOW FOCUS>
 10.<FOCUS ASSIST>
```

**5** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <VF DETAIL> and press the MENU SEL knob/ENTER button.**
The <VF DETAIL> page is displayed.

```
<VF DETAIL>          ➡ 04 TOP

VF DETAIL :  ON    (25%)
 CRISP    :   0
 FREQUENCY:  9M
 FLICKER  :  OFF
 AREA     :  70%
 ZOOM LINK:  ON   100%
COLOR DETAIL :  ON  BLUE
 PEAK COLOR  :  ON
 CHROMA LEVEL: 100%
DYNAMIC FOCUS:  ON
KINETIC FOCUS:  (OFF)
```

**6** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and press the MENU SEL knob/ENTER button.**

**To use the VF detail signal**
Set VF DETAIL to ON to activate the VF detail function to add the detail signal to sharp edges in the image. You can adjust the signal level (strength) in the range of 0% to 100% (default: 25%).
You can adjust the characteristics of the detail signal with the menu items below.

**CRISP:** Adjust to eliminate fine portions of the detail signal.

**FREQUENCY:** Change the detection band of sharp edges.

**FLICKER:** Turn ON/OFF the function to flicker the detail signal, which makes it easier to check the signal on a viewfinder screen.

**AREA:** To limit the area where to display the detail signal.

**ZOOM LINK:** Set the VF detail level at the WIDE position. (The VF detail level changes according to the zoom position.)

**To use the color detail**
Set COLOR DETAIL to ON to convert the VF detail signal to a specified color. This makes it easier to check the signal on an LCD screen, including the viewfinder screen. The display color can be selected in the column next to ON.
(The color detail function is turned OFF when either the dynamic focus function or the kinetic function is turned ON.)
You can adjust the coloring with the menu items below.

**PEAK COLOR:** Turn ON/OFF the function to change the color where the detail signal is strongest.

**CHROMA LEVEL:** To reduce the chroma components of the video signal (only for video signals on the viewfinder).

**DYNAMIC FOCUS:** Turn the DYNAMIC FOCUS indicator ON/OFF (detailed dynamic focus settings are set on the <DYNAMIC FOCUS> page). The dynamic focus function is enabled when shooting in 4K.

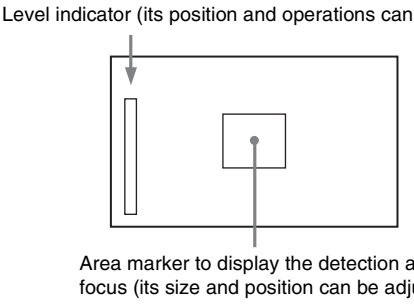
**KINETIC FOCUS:** Turn the KINETIC FOCUS indicator ON/OFF (detailed kinetic focus settings are set on the <KINETIC FOCUS> page). The kinetic focus function is enabled when shooting in HD High Frame Rate.

**7 Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ ENTER button.**

**8 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

### Displaying the focus assist indicators

The focus assist indicator function extracts the irregularities of a subject and converts the integrated values to a level indicator, which shows the focus condition.




The focus setting where the indicator shows the maximum level is the best focus setting.
(The range of the indicator substantially changes depending on picture elements or shooting environments. Adjust it with GAIN and OFFSET as required.)

**1 Display the CONTENTS page of the OPERATION menu (referring to steps 1 to 4 in "Adding the VF detail signal").**

**2 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <FOCUS ASSIST> and press the MENU SEL knob/ENTER button.**
The <FOCUS ASSIST> page is displayed.

```
<FOCUS ASSIST>    ➡ 10 TOP

INDICATOR   : OFF
 MODE       : BOX    BOTTOM
 LEVEL      : 3      QUICK
 GAIN       : 50
 OFFSET     : 50
AREA MARKER :  ON
 SIZE       : MIDDLE
 POSITION   : CENTER
 POSITION H: 50
 POSITION V: 50
```

**3 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and press the MENU SEL knob/ENTER button.**

**To use the level indicator**
Setting INDICATOR to ON displays the level indicator on the viewfinder.
You can set the display format with the menu items below.
**MODE:** Set the type and position of the indicator.
**LEVEL:** Set the density and the response speed of the indicator.
**GAIN:** Set the sensitivity of the indicator. [1)]
**OFFSET:** Set the offset of the focus detection value. [2)]

1) Normally, the sensitivity of the indicator is automatically set to the optimum value in conjunction with the AREA MARKER SIZE set value. Use this setting when an optimum sensitivity value cannot be obtained, depending on the shooting environment.

2) Normally, the optimum offset is automatically set in conjunction with the AREA MARKER SIZE and MASTER GAIN set values. Use this setting when the optimum offset cannot be obtained, depending on the shooting environment.

**To use the area marker**
Setting AREA MARKER to ON displays the detection area of the focus as a marker on the viewfinder screen.
You can set the size and position of the detection area with the menu items below.
**SIZE:** Changes the detection area size. (If the area size is too large, both the subject and the background are included in the area, making the indicator display susceptible to deviate from the subject.)
**POSITION:** Roughly set the position of the detection area.
**POSITION H:** Finely adjust the position of the detection area in the horizontal directions.
**POSITION V:** Finely adjust the position of the detection area in the vertical directions.

**4 Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ ENTER button.**

**5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

**Notes**

- The level indicator and the effect area marker cannot be displayed simultaneously. Whichever you set to ON last is preferentially displayed.
- The area marker and the aspect safety marker cannot be displayed simultaneously Whichever you set to ON last is preferentially displayed.
- When displaying the focus assist indicators, check that the flange focal length has been precisely adjusted.

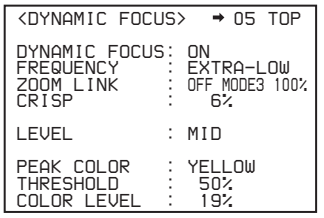
  *For details about the flange focal length, see "Adjusting the Flange Focal Length" on page 15.*

## Setting the Dynamic Focus Function Detail

This sets the detail of the dynamic focus indicator.
The dynamic focus function is enabled when shooting in 4K. The dynamic focus function adds a marking indicator, derived from the luminance signal and color signal, to the area where 4K resolution signal is being output. This is used for effectively displaying the 4K image focus point.

**1 Display the CONTENTS page of the OPERATION menu (referring to steps 1 to 4 in "Adding the VF detail signal").**

**2 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <DYNAMIC FOCUS> and press the MENU SEL knob/ENTER button.**
The <DYNAMIC FOCUS> page is displayed.




**3 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and press the MENU SEL knob/ENTER button.**

**To use dynamic focus**
Setting DYNAMIC FOCUS on the <VF DETAIL> page or this page to ON displays markings, derived from the luminance signal and color signal, in the region where a 4K resolution image is obtained.
You can set the marking detail with the menu items below.

**FREQUENCY:** Set the bandwidth of the 4K resolution high-frequency signal to detect to one of four options. It is set to (AUTO) when ZOOM LINK is ON.

**ZOOM LINK:** Automatically adjusts the dynamic focus function to appropriate characteristics according to the zoom position. Four modes are available for selection to match the lens being used. It also sets the level at the WIDE position mark.

**CRISP:** Adjust to eliminate fine portions of the detail signal.

**LEVEL:** Set the brightness level of the marking signal to add.

**PEAK COLOR:** Set the color added to the marking indicator where the detected value exceeds a fixed level.

**THRESHOLD:** Set the threshold value for displaying PEAK COLOR.

**COLOR LEVEL:** Set the saturation of the color of the PEAK COLOR indicator.

**4 Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ENTER button.**

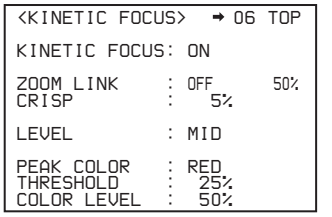
**5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

## Setting the Kinetic Focus Function Detail

This sets the detail of the kinetic focus indicator.
The kinetic focus function is enabled when shooting in HD High Frame Rate.
The kinetic focus function adds a marking indicator, derived from the luminance signal and color signal, to the area for focusing where there is movement in the image.
This is effective when the focus position is difficult to determine due to motion blur, for example.

**1 Display the CONTENTS page of the OPERATION menu (referring to steps 1 to 4 in "Adding the VF detail signal").**

**2 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <KINETIC FOCUS> and press the MENU SEL knob/ENTER button.**
The <KINETIC FOCUS> page is displayed.




**3 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and press the MENU SEL knob/ENTER button.**

**To use kinetic focus**
Setting KINETIC FOCUS on the <VF DETAIL> page or this page to ON displays markings, derived from the luminance signal and color signal, in the region for focusing where there is movement in the image.
You can set the marking detail with the menu items below.

**ZOOM LINK:** Set the kinetic focus level at the WIDE position. (The kinetic focus level changes according to the zoom position.) Enabled only for lenses that support the zoom position indicator.

**CRISP:** Adjust to eliminate fine portions of the detail signal.

**LEVEL:** Set the brightness level of the marking signal to add.

**PEAK COLOR:** Set the color added to the marking indicator where the detected value exceeds a fixed level.

**THRESHOLD:** Set the threshold value for displaying PEAK COLOR.

**COLOR LEVEL:** Set the saturation of the color of the PEAK COLOR indicator.

**4 Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ENTER button.**

**5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

# Setting the Camera Outputs

You can specify video signals directly output from the camera, with menu operations.

**Notes**

- The MAIN (camera picture), RET (return video), or VF (the same picture as that displayed on the viewfinder screen) setting is common to SD-SDI and VBS. Different signals cannot be output.
- The camera image that is output in standalone mode is a temporary HD image for checking operation.

The menu pages used for the output settings have been registered to the USER menu at the factory.

- <SYSTEM FORMAT>
- <TEST OUT>
- <SDI OUT>

Set the following menu items to the settings shown in the table.

*For details about menu operations and the USER menu, see "Menu Operations" on page 29.*

## Outputting the signal being shot (camera picture)

The same textual information as that displayed on the viewfinder screen can be added to the output signal by setting CHARACTER to "ON" on the <SDI OUT> or <TEST OUT> page.

### To output as HD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | MAIN |

### To output as SD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | SD-SDI |
| | | DOWN CONVERTER SELECT | MAIN |

### To output as VBS

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <TEST OUT> | M10 | OUTPUT | VBS |
| | | DOWN CONVERTER SELECT | MAIN |

## Constantly outputting a return video

- When a camera control unit is connected, one of the signals being supplied to the camera control unit can be output from the camera.
- The last selected return signal is output.
- The same textual information as that displayed on the viewfinder screen can be added to the output signal by setting CHARACTER to "ON" on the <SDI OUT> or <TEST OUT> page.

### To output as HD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | RET |

### To output as SD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | SD-SDI |
| | | DOWN CONVERTER SELECT | RET |

### To output as VBS

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <TEST OUT> | M10 | OUTPUT | VBS |
| | | DOWN CONVERTER SELECT | RET |

## Outputting the same image as that on the viewfinder screen

- With HD-SDI, you can obtain a signal that includes the same information as that being displayed on the viewfinder screen according to the settings of the VF MARKER, CHARACTER, VF DETAIL, ZEBRA, etc. The ON/OFF or other settings for adding information are common to those for the viewfinder. The output is synchronized with switching among Y, R, G, and B or switching to a return signal.
- With SD-SDI or VBS, the output is synchronized only with switching between a return signal and the camera image. It does not correspond to switching among Y, R, G, and B. Information other than CHARACTER (such as VF MARKER, VF DETAIL, ZEBRA) cannot be added to the output.

**Note**

With the settings for outputting the same image as that on the viewfinder screen, the output will be obtained in 1080i, even if the format setting is 720P.

### To output as HD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | VF |

### To output as SD-SDI

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SDI OUT> | M11 | SDI-MONI OUT | SD-SDI |
| | | DOWN CONVERTER SELECT | VF |

### To output as VBS

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <TEST OUT> | M10 | OUTPUT | VBS |
| | | DOWN CONVERTER SELECT | VF |

## Outputting via 3G-SDI

The SDI-1 output becomes 3G-SDI output.

### To output in 1080/59.94P or 1080/50P

| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SYSTEM FORMAT> | M09 | ACTIVE LINE | 1080 |
| | | (Format) | 59.94P or 50P |
| <SDI OUT> | M11 | SDI-1 OUT | 3G-SDI |

## Outputting via Dual Link

The SDI-1 output is assigned to Link A, SDI-2 output to Link B.

### To output in 1080/59.94P or 1080/50P

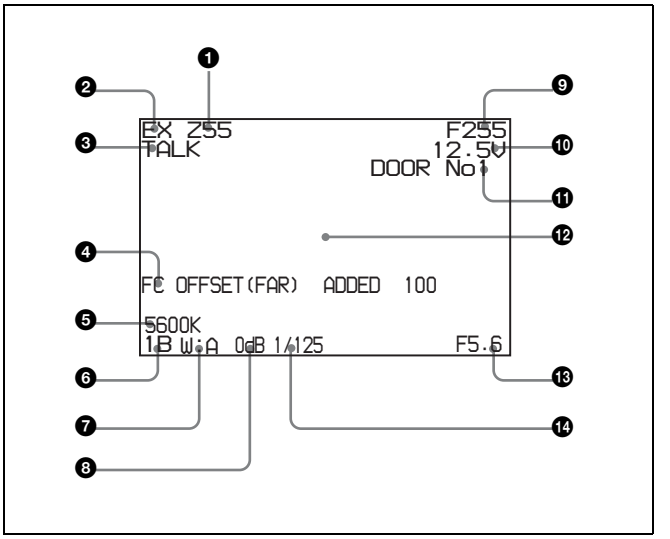
| Menu page | Page No. | Item | Setting |
|---|---|---|---|
| <SYSTEM FORMAT> | M09 | ACTIVE LINE | 1080 |
| | | (Format) | 59.94P or 50P |
| <SDI OUT> | M11 | SDI-1 OUT | MAIN/ LINK-A |
| | | SDI-2 OUT/IN | MAIN/ LINK-B |

# Viewfinder Screen Status Display

Besides the video image, the viewfinder can display text and messages showing the camera settings and operation status, as well as items such as a center marker or safety zone marker.

## When the DISPLAY switch is set to DISPLAY

Items set to ON using the menu or related switches will be displayed on the upper and lower edges of the screen.




**❶ Zoom position**
Indicates the approximate position of the zoom lens variator between wide angle (0) and telephoto (99).

**❷ Lens extender**
“EX” is displayed when a lens extender is in use.

**❸ TALK indicator**
Displayed when the intercom microphone is set to ON.

**❹ Follow focus indicator**
Displayed if an offset is superimposed when follow focus is enabled.

**❺ 5600K mode**
Displayed when 5600K is set to ON.

**❻ Filter**
Displays the type of filter currently selected. The number (1, 2, 3, 4, or 5) indicates the ND filter, and the letter (A, B, C or D) is for the CC filter selection.

**❼ White balance memory**
Displays the currently selected white balance automatic adjustment memory.
**W:A:** The WHITE BAL switch is set to A.
**W:B:** The WHITE BAL switch is set to B.
**W:P:** The WHITE BAL switch is set to PRST.

**❽ Gain value**
Displays the video gain value (dB) set with the GAIN switch.

**❾ Focus position**
Shows the focus position of a zoom lens as a numeric value (0 to 255 (infinity)).

**Note**

Displayed only when a serial communication lens is connected.

**❿ Battery voltage**
Displays the input voltage.

**⓫ Focus position meter marker name**
Displays the marker name of the focus position meter.

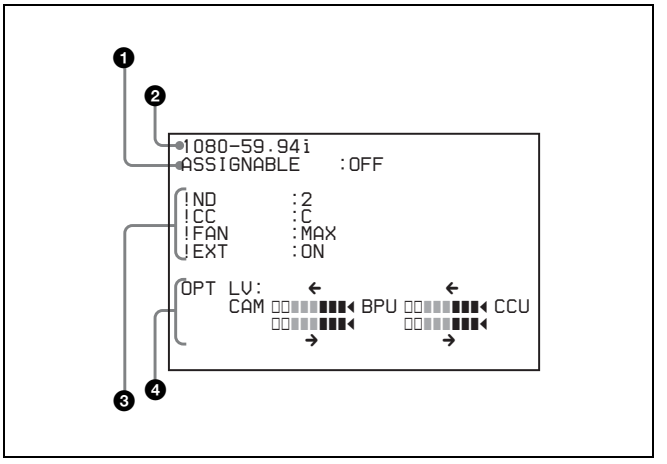
**⓬ Setting change / adjustment process message area**
This area is only used when the MESSAGE item of the menu is set to other than OFF.

**⓭ F value**
Indicates the lens F (iris opening) value.

**⓮ Shutter/ECS**
Displays the shutter/ECS status. Nothing is displayed if the electronic shutter is set to OFF.

## When you press the CANCEL/STATUS switch to STATUS

The status display is changed to show the following items.




**❶ Assignable switch indicator**
The function assigned to the assignable switch *(page 10)* is indicated.

*For the functions that can be assigned, see OPERATION menu <SWITCH ASSIGN1> 16 (U09) (page 47).*

**❷ Format indicator**
The current video format is displayed.

**❸ '!' display area**
This area is used to display non-standard status, using the <'!' IND> function. Display options can be set, using the menu.

*For details, see OPERATION menu <'!' IND> 02 (U05) (page 41).*

**❹ Light sensor level indicators**
This area shows the light sensor levels in segments.

**CAM ← BPU:** Light sensor level at the BPU connector *(page 11)* of the camera

**CAM → BPU:** Light sensor level at the CAMERA connector of the BPU

**BPU ← CCU:** Light sensor level at the CCU connector of the BPU

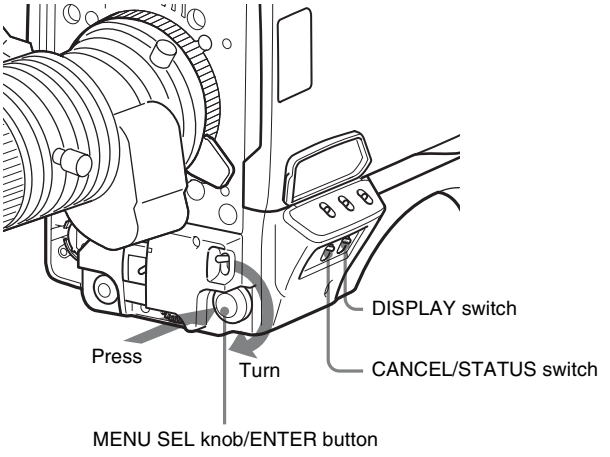
**BPU → CCU:** Light sensor level at the CAMERA connector of the CCU

**Note**

If a camera control unit other than an HDCU2000/2500 is connected, correct indications may not be obtained.

# Menu Operations

The menus displayed on the viewfinder screen enable various settings of the camera.
The following controls are used to operate the menus.




## Starting Menu Operations

### To display a menu page

Set the DISPLAY switch from OFF to MENU.
The menu page that last operated will be displayed.
(If it is the first time, the CONTENTS page of the OPERATION menu will be displayed.)

### To display the TOP MENU screen

If you set the DISPLAY switch from OFF to MENU while holding the MENU SEL knob/ENTER button pressed, “TOP” is displayed at the upper right corner of the screen. Selecting it displays the TOP MENU screen, which lists the available menus, and you can select the menus on this screen.

**TOP MENU screen**

```
<TOP MENU>

➡USER
 USER MENU CUSTOMIZE
 ALL
 ·OPERATION
 ·PAINT
 ·MAINTENANCE
 ·FILE
 ·DIAGNOSIS
```

**To disable the “TOP” indication**

Turn the power once off then on again, or set the DISPLAY switch from OFF to MENU while holding the CANCEL/STATUS switch pressed to CANCEL. This disables the TOP selection.

### Available menus

#### USER menu

This menu can include menu pages selected from among the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus, for convenience. Changing, adding, and deleting pages can be performed with the USER MENU CUSTOMIZE menu.

#### USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

*For details, see “Editing the USER Menu” on page 31.*

#### ALL menu

This menu permits you to control all items of the OPERATION menu, PAINT menu, MAINTENANCE menu, FILE menu, and DIAGNOSIS menu as a single menu.

#### OPERATION menu

This menu contains items for camera operators to operate the camera. It mainly permits viewfinder, intercom, and switch settings.

#### PAINT menu

This menu contains items for making detailed image adjustments while using a waveform monitor to monitor the waveforms output from the camera. Support of a video engineer is usually required to use this menu.
Although you can also use an external remote control panel or master setup unit to set the items on this menu, the menu is effective when using the camera by itself outdoors.

#### MAINTENANCE menu

This menu contains items for performing camera maintenance operations, such as changing the system or setting infrequently used “paint” items.

#### FILE menu

This menu is for performing file operations, such as writing or clearing the reference file.

#### DIAGNOSIS menu

This menu enables you to confirm the self-diagnostic information.

### To select a menu on the TOP MENU screen

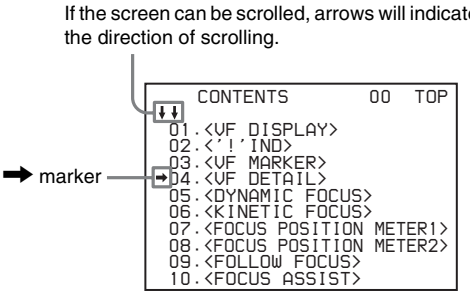
**1** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired menu indication.**

**2** **Press the MENU SEL knob/ENTER button.**
The CONTENTS page or the last operated page of the selected menu is displayed.

## Selecting Pages

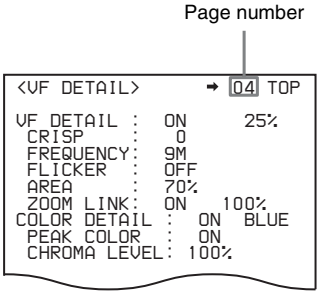
### When selecting a page from a CONTENTS page

**Example: CONTENTS page of the OPERATION menu**



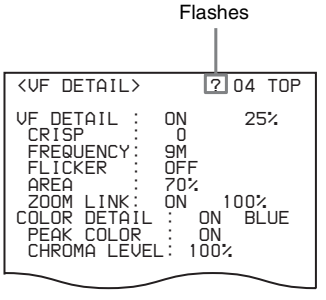

Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the page to be set and press the MENU SEL knob/ENTER button.

The selected page is displayed.




### To change the displayed page

**1** **Check that the arrow marker (➡) is located at the left of the page number, then press the MENU SEL knob/ENTER button.**
The arrow marker (➡) changes to a flashing question (?) mark.

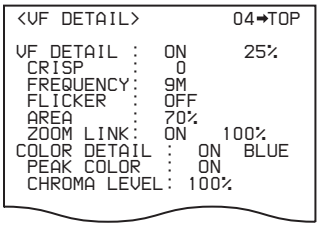



**2** **Turn the MENU SEL knob/ENTER button to flip through the pages.**

**3** **When the desired page is displayed, press the MENU SEL knob/ENTER button.**
The "?" mark changes back to the arrow marker (➡), and operations with the displayed page are enabled.

### To return to the TOP MENU screen

Align the arrow marker (➡) with "TOP" at the top right of the menu page then press the MENU SEL knob/ENTER button.




The TOP MENU screen appears.

## Setting Menu Items

If a "?" mark is flashing at the left of the page number, press the MENU SEL knob/ENTER button to change it to the arrow marker (➡). Setting on the displayed page is enabled.

**1** **Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired item.**

**2** **Press the MENU SEL knob/ENTER button.**
The arrow marker (➡) changes to a flashing question (?) mark.

**3** **Turn the MENU SEL knob/ENTER button to change the setting value.**
When the knob is rotated quickly, the values will change quickly; when rotated slowly, the values will change slowly.

**To reset a changed value**
If you press the CANCEL/STATUS switch toward CANCEL before pressing the MENU SEL knob/ENTER button, the setting will be returned to its previous value.

**To interrupt settings**
Set the DISPLAY switch to OFF to turn off the menu screen display.
The setting operation can be restarted by setting the DISPLAY switch back to MENU.

**4** **Press the MENU SEL knob/ENTER button.**
The "?" mark changes back to the arrow marker (➡), and the new setting will be registered.

**5** **To change other setting items on the same menu page, repeat steps 1 through 4.**

### To specify a character string

When you press the MENU SEL knob/ENTER button with the arrow marker (➡) pointing to an item for which a character string, such as a file ID, is to be specified, a cursor and the list of selectable characters are displayed.
The displayed cursor can be moved by rotating the MENU SEL knob/ENTER button.

**1** **Set the cursor to the position where you wish to enter a character, then press the MENU SEL knob/ENTER button.**
Another cursor appears on the character list.

**2** **Set the cursor to the character to be entered and press the MENU SEL knob/ENTER button.**
Repeat steps **1** and **2**.

By selecting INS on the line below the character list, you can enter a space at the cursor position.

Selecting DEL deletes the character at the cursor position.

You can return to step **1** without changing the character by selecting RET.

If you enter the permitted maximum number of characters (up to the stop mark at the right end of the line), the cursor moves to ESC on the line below the character list.

To register the new string you have set, select END and press the MENU SEL knob/ENTER button.

To restore the previous string, select ESC and press the MENU SEL knob/ENTER button.

### To return a menu item to its standard value

Select the menu item to be returned to its standard value then hold the MENU SEL knob/ENTER button pressed for 3 seconds while the arrow marker (➡) is displayed.
If "10 SEC CLEAR" has been set to ON on the <FILE CLEAR> page of the FILE menu, you can return the setting in the reference file for the item being selected to the factory-set value by holding the MENU SEL knob/ENTER button pressed for another 10 seconds.

### To end menu operations

Set the DISPLAY switch to OFF.

## Editing the USER Menu

You can select desired pages and items from the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus and register them to the USER menu. If you specify pages or items frequently used for the USER menu, you can easily call and use them.

The following pages are included on the factory-set USER menu:

| Menu page | USER menu No. | Source menu / page No. | |
|---|---|---|---|
| <VF OUT> | U01 | OPERATION | 15 |
| <VF DETAIL> | U02 | OPERATION | 04 |
| <FOCUS ASSIST> | U03 | OPERATION | 10 |
| <VF DISPLAY> | U04 | OPERATION | 01 |
| <'!' IND> | U05 | OPERATION | 02 |
| <VF MARKER> | U06 | OPERATION | 03 |
| <CURSOR> | U07 | OPERATION | 12 |
| <ZEBRA> | U08 | OPERATION | 11 |
| <SWITCH ASSIGN1> | U09 | OPERATION | 16 |
| <SWITCH ASSIGN2> | U10 | OPERATION | 17 |
| <HEADSET MIC> | U11 | OPERATION | 20 |
| <SYSTEM FORMAT> | U12 | MAINTENANCE | M09 |
| <TEST OUT> | U13 | MAINTENANCE | M10 |
| <SDI OUT> | U14 | MAINTENANCE | M11 |
| <ROM VERSION> | U15 | DIAGNOSIS | D03 |

*For the items on each page, see the corresponding source menu page in the table in "Menu List" on page 35.*

The USER MENU CUSTOMIZE menu allows you to configure a USER menu that consists only of pages and items that you need, by your adding, deleting or replacing pages.

### Editing by items

The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.
While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each of these pages.

#### To add items to a page

Proceed as follows.

**1** **Set the DISPLAY switch from OFF to MENU while holding the MENU SEL knob/ENTER button pressed.**
The TOP MENU screen appears.

**2** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to USER MENU CUSTOMIZE then press the MENU SEL knob/ENTER button.**
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

```
     CONTENTS     E00 TOP
↓↓
 01.EDIT PAGE
 02.USER 1 EDIT
→03.USER 2 EDIT
 04.USER 3 EDIT
 05.USER 4 EDIT
 06.USER 5 EDIT
 07.USER 6 EDIT
 08.USER 7 EDIT
 09.USER 8 EDIT
 10.USER 9 EDIT
```

If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.

**3** **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to any of USER 1 EDIT to USER 19 EDIT then press the MENU SEL knob/ENTER button to display the page.**
**If a different page is displayed, turn the MENU SEL knob/ENTER button until the desired page appears, then press the MENU SEL knob/ENTER button to select the page.**

**Example: When you select the USER 2 EDIT page**

```
     USER 2 EDIT  E03 TOP
→
```

**4** **Move the arrow marker (➡) to the location where you want to add the item (this operation is unnecessary if no item exists on the page, as shown in the figure for step 3) then press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

```
     EDIT FUNCTION    ESC

→INSERT
 MOVE
 DELETE
 BLANK
```

**5** **Move the arrow marker (➡) to INSERT and press the MENU SEL knob/ENTER button.**
The page with the last item added appears.

```
 <SW STATUS>      P01 ESC

 FLARE   :→ ON
 GAMMA   :  ON
 BLK GAM : OFF
 KNEE    :  ON
 WHT CLIP:  ON
 DETAIL  :  ON
 LVL DEP :  ON
 SKIN DTL: OFF
 MATRIX  : OFF
```

**6** **Add the items.**

① Turn the MENU SEL knob/ENTER button until the page that has the desired items appears then press the MENU SEL knob/ENTER button.

② Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired item then press the MENU SEL knob/ENTER button.

The USER 2 EDIT page appears again, displaying the newly added item.

**7** **Add the remaining items by repeating steps 4 to 6.**
You can add up to 10 items on one page.

### To delete items from a page

Proceed as follows.

**1** **Move the arrow marker (➡) to the item to be deleted, and press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

**2** **Select DELETE then press the MENU SEL knob/ENTER button.**
The previously displayed page appears again, and the message “DELETE OK? YES➡NO” appears at the upper right.

**3** **To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to YES, and press the MENU SEL knob/ENTER button.**

### To change the order of items on a page

Proceed as follows.

**1** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item to be moved then press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

**2** **Select MOVE then press the MENU SEL knob/ENTER button.**
The previously displayed page appears again.

**3** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the position where you wish to move the item then press the MENU SEL knob/ENTER button.**

```
     ITEM MOVE         ESC
↓↓
→VF OUT       : COLOR

 VF DETAIL    : OFF

 MARKER       :  ON
 CURSOR       : OFF
 ZEBRA SW     : OFF
                :   1
●ASSIGNABLE   : OFF
```

The item selected in step **1** moves to the position that you selected in step **3**.
In the above example, “ASSIGNABLE” is moved to the top and the other items are moved down one line.

### To insert a blank line

Proceed as follows.

**1** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item above which you wish to insert a blank line.**
The EDIT FUNCTION screen appears.

**2** **Select BLANK then press the MENU SEL knob/ENTER button.**
The previously displayed page appears again, and a blank line is inserted above the specified item.

**Note**

You cannot insert a blank line on a page where 10 items have already been registered.

## Editing by pages

You can add a page to the USER menu, delete a page from the USER menu, or replace pages, using the EDIT PAGE of the USER MENU CUSTOMIZE menu.

### To add a page

Proceed as follows.

**1** **Select USER MENU CUSTOMIZE on the TOP MENU screen.**
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.
If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.

**2** **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to EDIT PAGE then press the MENU SEL knob/ENTER button to display the EDIT PAGE screen.**
**If a different page is displayed, turn the MENU SEL knob/ENTER button until the EDIT PAGE screen appears, then press the MENU SEL knob/ENTER button to select the page.**

```
     EDIT PAGE    E01 TOP
↓↓
 01.<VF OUT>
→02.<VF DETAIL>
 03.<FOCUS ASSIST>
 04.<VF DISPLAY>
 05.<'!' IND>
 06.<VF MARKER>
 07.<CURSOR>
 08.<SPIRIT LEVEL>
 09.<ZEBRA>
 10.<SWITCH ASSIGN1>
```

**3** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to where you wish to add the page, then press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

```
     EDIT FUNCTION    ESC

→INSERT
 MOVE
 DELETE
```

**4** **Select INSERT then press the MENU SEL knob/ENTER button.**
The selection screen appears.

```
     CONTENTS         ESC
↓↓
→01.USER 1
 02.USER 2
 03.USER 3
 04.USER 4
 05.USER 5
 06.USER 6
 07.USER 7
 08.USER 8
 09.USER 9
 10.USER 10
```

**5** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired page, then press the MENU SEL knob/ENTER button.**
This adds the number and name of the selected page above the item selected in step **3**.

**To cancel addition of a page**

Before pressing the MENU SEL knob/ENTER button in step **5**, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to ESC at the top right of the screen, then press the MENU SEL knob/ENTER button.
The EDIT PAGE screen appears again.

### To delete a page

Proceed as follows.

**1** **On the EDIT PAGE screen of the USER MENU CUSTOMIZE menu, move the arrow marker (➡) to the page to be deleted, and press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

**2** **Select DELETE then press the MENU SEL knob/ENTER button.**
The previously displayed page appears again, and the message “DELETE OK? YES➡NO” appears at the upper right.

```
     ITEM DELETE      ESC
   DELETE OK?  YES→NO
 01.<VF OUT>
 02.<VF DETAIL>
 03.<FOCUS ASSIST>
●04.<VF DISPLAY>
 05.<'!' IND>
 06.<VF MARKER>
 07.<CURSOR>
 08.<SPIRIT LEVEL>
 09.<ZEBRA>
 10.<SWITCH ASSIGN1>
```

**3** **To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to YES, and press the MENU SEL knob/ENTER button.**

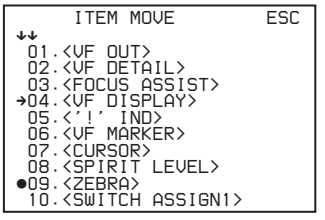
### To move a page

Proceed as follows.

**1** **On the EDIT PAGE screen of the USER MENU CUSTOMIZE menu, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the page that you wish to move and press the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

**2** **Select MOVE then press the MENU SEL knob/ENTER button.**
The EDIT PAGE screen appears again.

**3** **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the position to which you wish to move.**




**4** **Press the MENU SEL knob/ENTER button.**
The page selected in step **1** is moved to the position selected in step **3**.
In the above example, <ZEBRA> moves to the “04” position, and the <VF DISPLAY> and following pages move down one line.

# Menu List

This section shows the menus to be displayed on the viewfinder screen in tables.

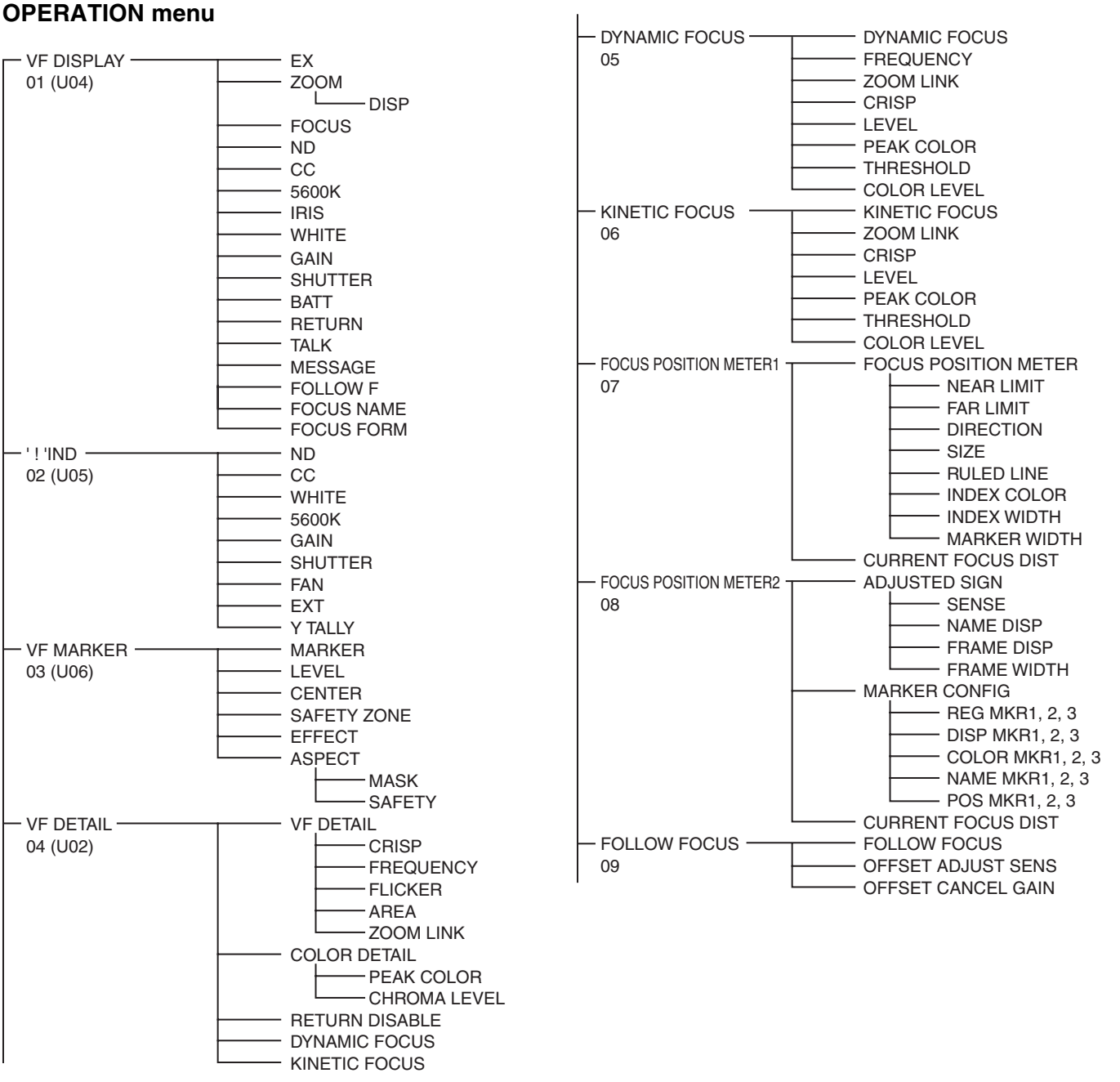
- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

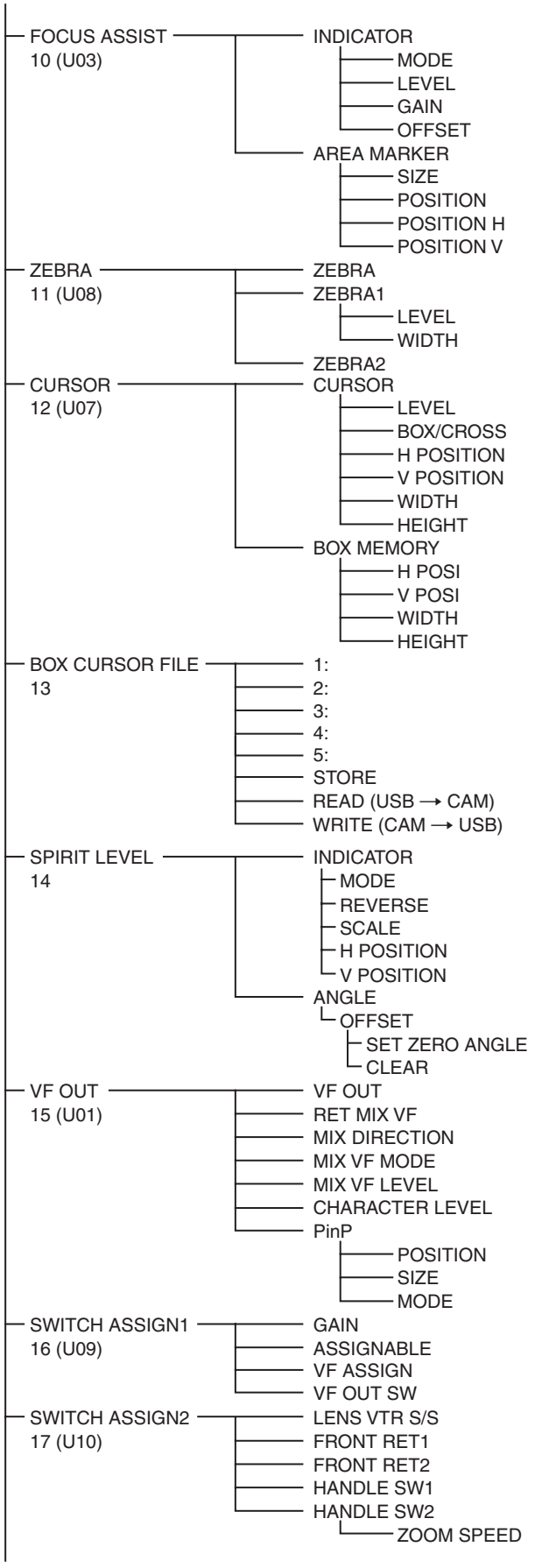
**Legend**

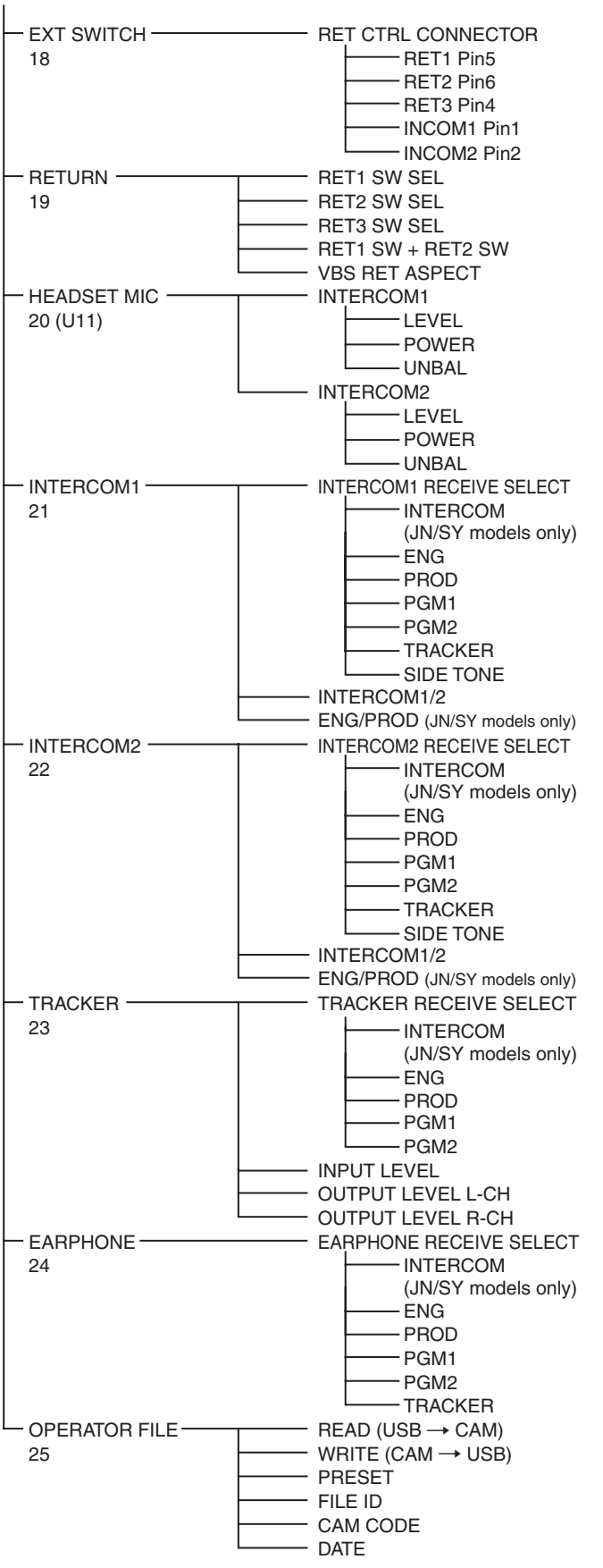
**HDLA:** HDLA1500-series Large Lens Adaptor
**CCU:** HDCU2000/2500/4300 Camera Control Unit
**BPU:** BPU4000/4500 Baseband Processor Unit
**Underlined values (e.g. ON, OFF, 0):** Default settings
**Execute using ENTER:** Execute by pressing the MENU SEL knob/ ENTER button.

## Menu Tree

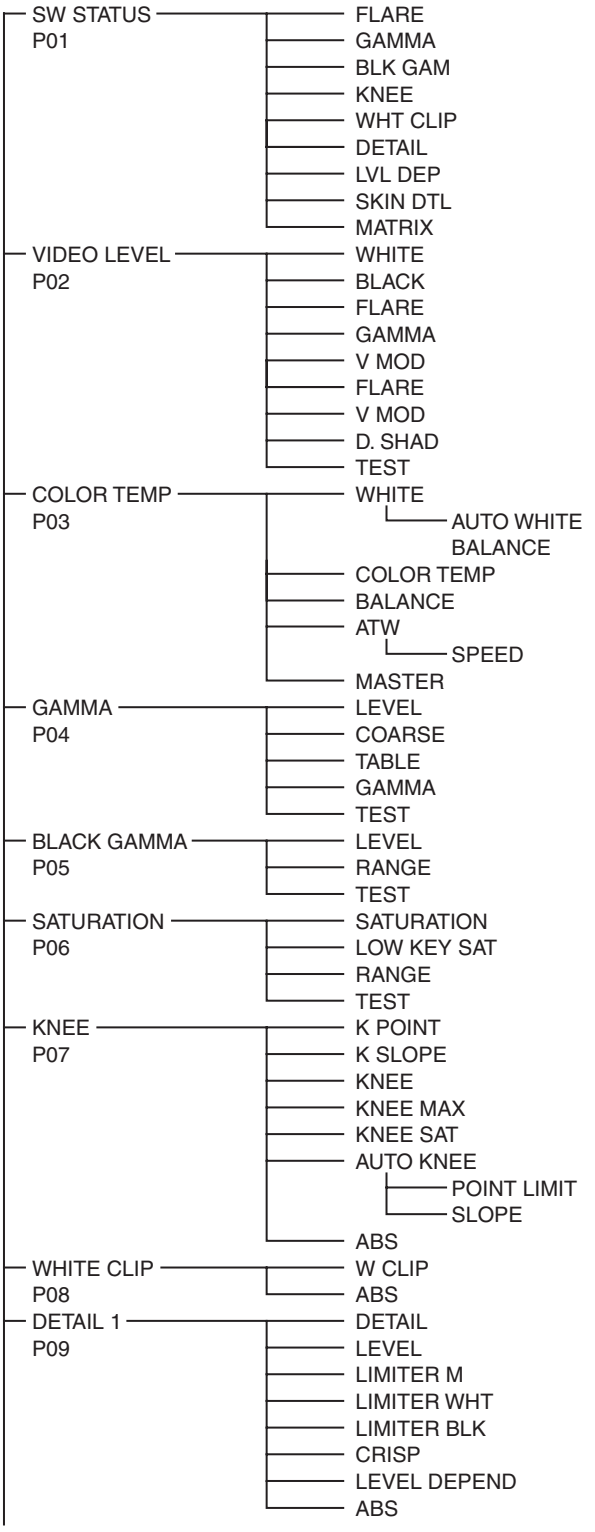
### OPERATION menu

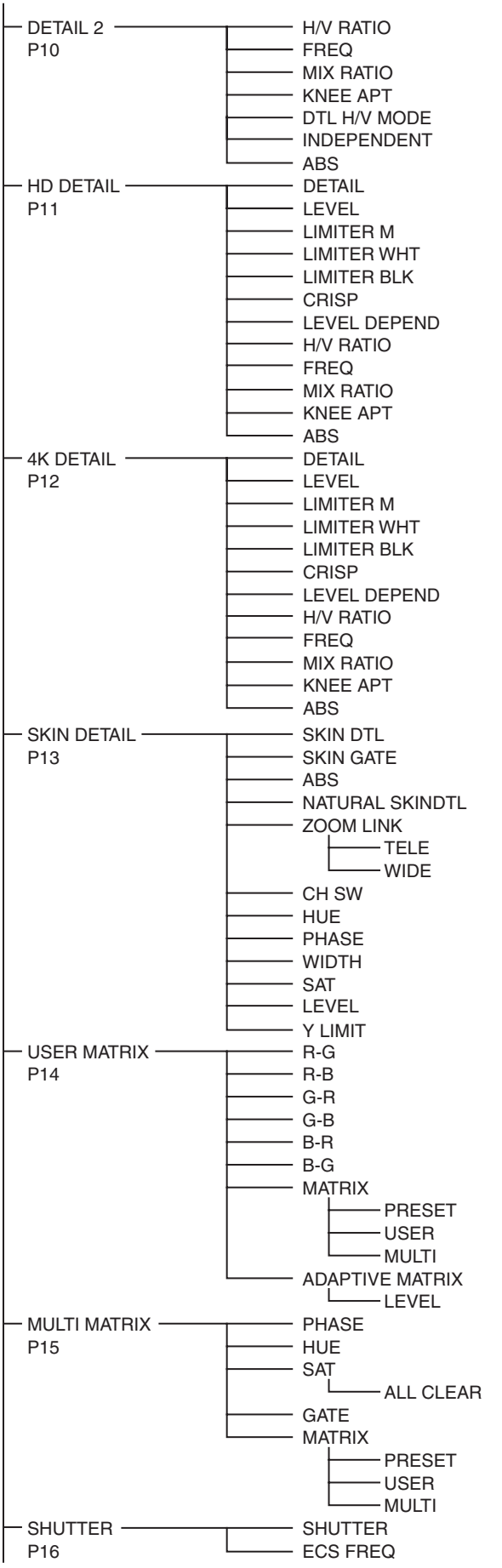


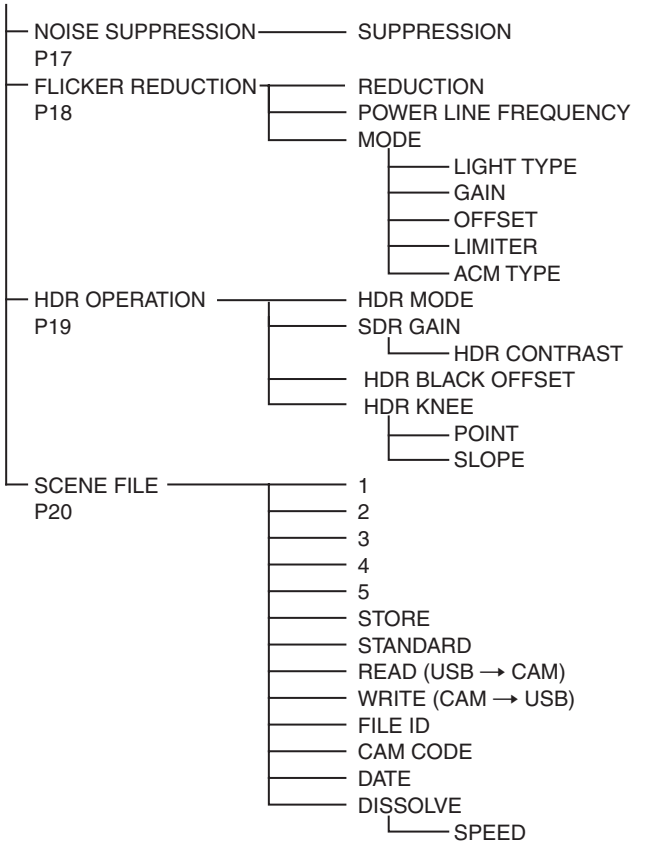

FOCUS ASSIST
10 (U03)
INDICATOR
MODE
LEVEL
GAIN
OFFSET
AREA MARKER
SIZE
POSITION
POSITION H
POSITION V
ZEBRA
11 (U08)
ZEBRA
ZEBRA1
LEVEL
WIDTH
ZEBRA2
CURSOR
12 (U07)
CURSOR
LEVEL
BOX/CROSS
H POSITION
V POSITION
WIDTH
HEIGHT
BOX MEMORY
H POSI
V POSI
WIDTH
HEIGHT
BOX CURSOR FILE
13
1:
2:
3:
4:
5:
STORE
READ (USB → CAM)
WRITE (CAM → USB)
SPIRIT LEVEL
14
INDICATOR
MODE
REVERSE
SCALE
H POSITION
V POSITION
ANGLE
OFFSET
SET ZERO ANGLE
CLEAR
VF OUT
15 (U01)
VF OUT
RET MIX VF
MIX DIRECTION
MIX VF MODE
MIX VF LEVEL
CHARACTER LEVEL
PinP
POSITION
SIZE
MODE
SWITCH ASSIGN1
16 (U09)
GAIN
ASSIGNABLE
VF ASSIGN
VF OUT SW
SWITCH ASSIGN2
17 (U10)
LENS VTR S/S
FRONT RET1
FRONT RET2
HANDLE SW1
HANDLE SW2
ZOOM SPEED


EXT SWITCH
18
RET CTRL CONNECTOR
RET1 Pin5
RET2 Pin6
RET3 Pin4
INCOM1 Pin1
INCOM2 Pin2
RETURN
19
RET1 SW SEL
RET2 SW SEL
RET3 SW SEL
RET1 SW + RET2 SW
VBS RET ASPECT
HEADSET MIC
20 (U11)
INTERCOM1
LEVEL
POWER
UNBAL
INTERCOM2
LEVEL
POWER
UNBAL
INTERCOM1
21
INTERCOM1 RECEIVE SELECT
INTERCOM
(JN/SY models only)
ENG
PROD
PGM1
PGM2
TRACKER
SIDE TONE
INTERCOM1/2
ENG/PROD (JN/SY models only)
INTERCOM2
22
INTERCOM2 RECEIVE SELECT
INTERCOM
(JN/SY models only)
ENG
PROD
PGM1
PGM2
TRACKER
SIDE TONE
INTERCOM1/2
ENG/PROD (JN/SY models only)
TRACKER
23
TRACKER RECEIVE SELECT
INTERCOM
(JN/SY models only)
ENG
PROD
PGM1
PGM2
INPUT LEVEL
OUTPUT LEVEL L-CH
OUTPUT LEVEL R-CH
EARPHONE
24
EARPHONE RECEIVE SELECT
INTERCOM
(JN/SY models only)
ENG
PROD
PGM1
PGM2
TRACKER
OPERATOR FILE
25
READ (USB → CAM)
WRITE (CAM → USB)
PRESET
FILE ID
CAM CODE
DATE

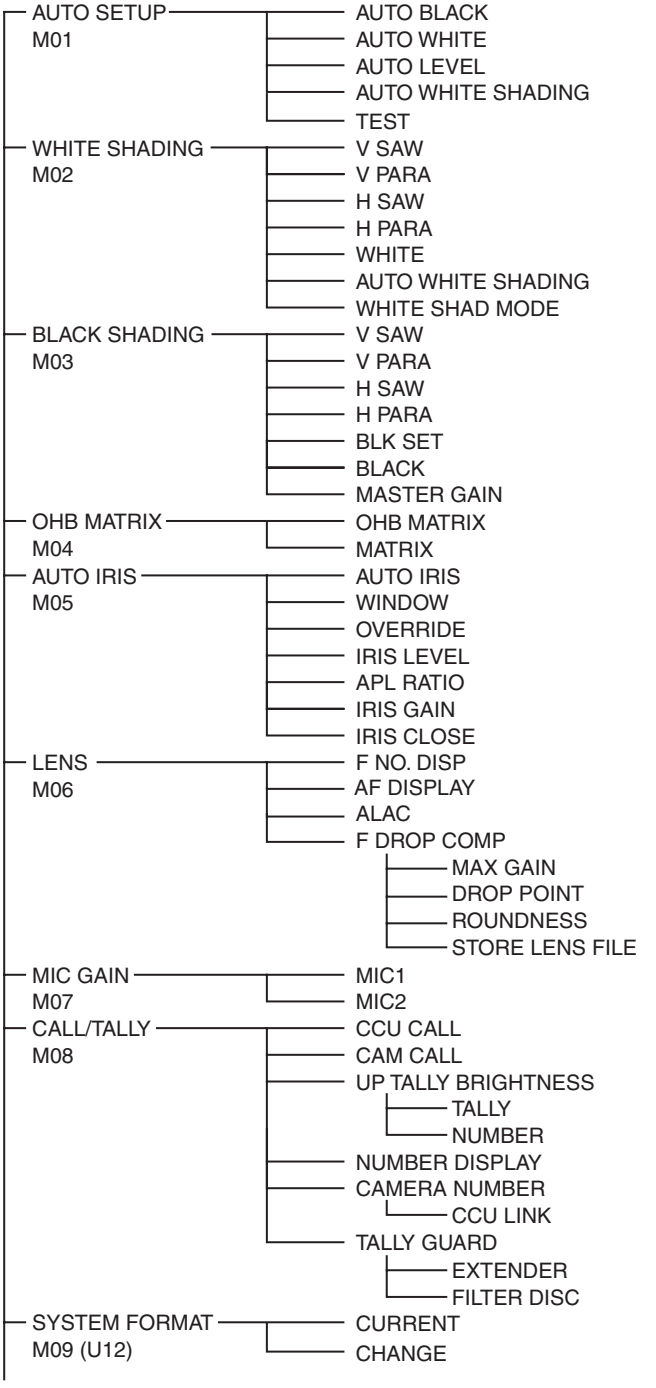
## PAINT menu

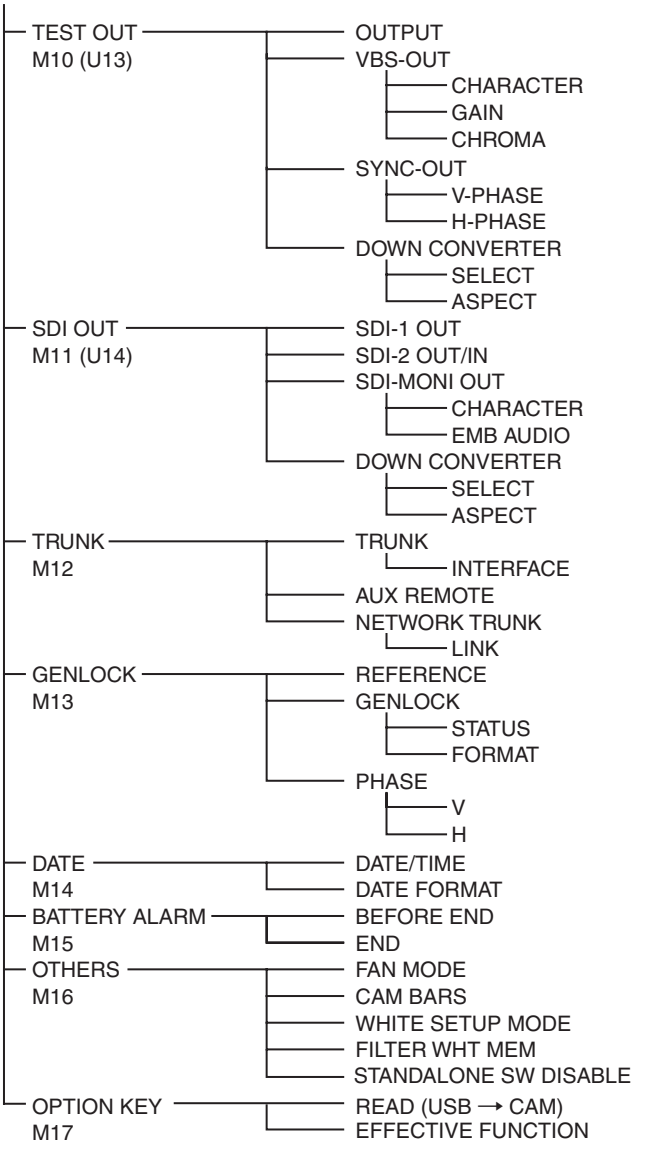

SW STATUS
P01
FLARE
GAMMA
BLK GAM
KNEE
WHT CLIP
DETAIL
LVL DEP
SKIN DTL
MATRIX
VIDEO LEVEL
P02
WHITE
BLACK
FLARE
GAMMA
V MOD
FLARE
V MOD
D. SHAD
TEST
COLOR TEMP
P03
WHITE
AUTO WHITE BALANCE
COLOR TEMP
BALANCE
ATW
SPEED
MASTER
GAMMA
P04
LEVEL
COARSE
TABLE
GAMMA
TEST
BLACK GAMMA
P05
LEVEL
RANGE
TEST
SATURATION
P06
SATURATION
LOW KEY SAT
RANGE
TEST
KNEE
P07
K POINT
K SLOPE
KNEE
KNEE MAX
KNEE SAT
AUTO KNEE
POINT LIMIT
SLOPE
ABS
WHITE CLIP
P08
W CLIP
ABS
DETAIL 1
P09
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
ABS


DETAIL 2
P10
H/V RATIO
FREQ
MIX RATIO
KNEE APT
DTL H/V MODE
INDEPENDENT
ABS
HD DETAIL
P11
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
H/V RATIO
FREQ
MIX RATIO
KNEE APT
ABS
4K DETAIL
P12
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
H/V RATIO
FREQ
MIX RATIO
KNEE APT
ABS
SKIN DETAIL
P13
SKIN DTL
SKIN GATE
ABS
NATURAL SKINDTL
ZOOM LINK
TELE
WIDE
CH SW
HUE
PHASE
WIDTH
SAT
LEVEL
Y LIMIT
USER MATRIX
P14
R-G
R-B
G-R
G-B
B-R
B-G
MATRIX
PRESET
USER
MULTI
ADAPTIVE MATRIX
LEVEL
MULTI MATRIX
P15
PHASE
HUE
SAT
ALL CLEAR
GATE
MATRIX
PRESET
USER
MULTI
SHUTTER
P16
SHUTTER
ECS FREQ

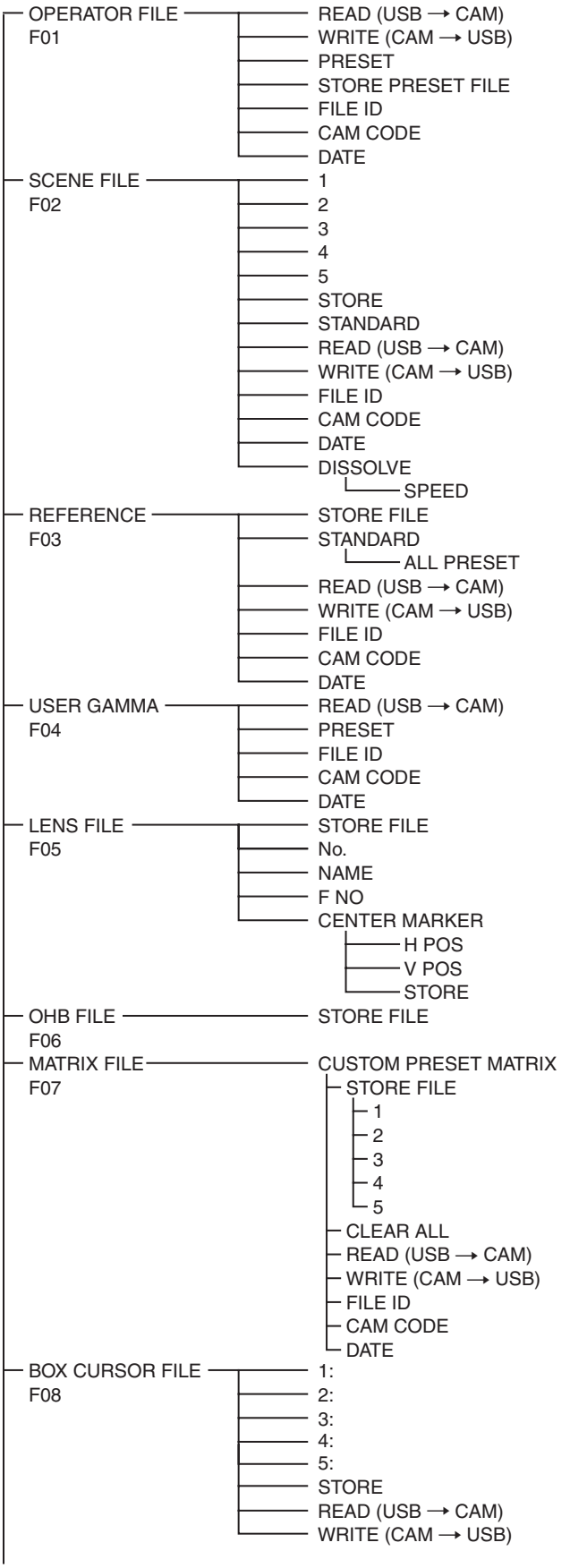


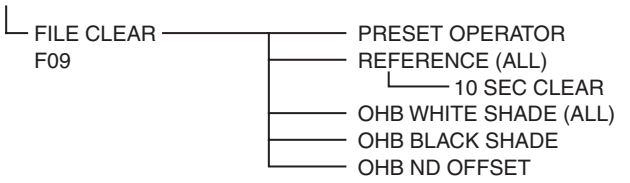

## MAINTENANCE menu



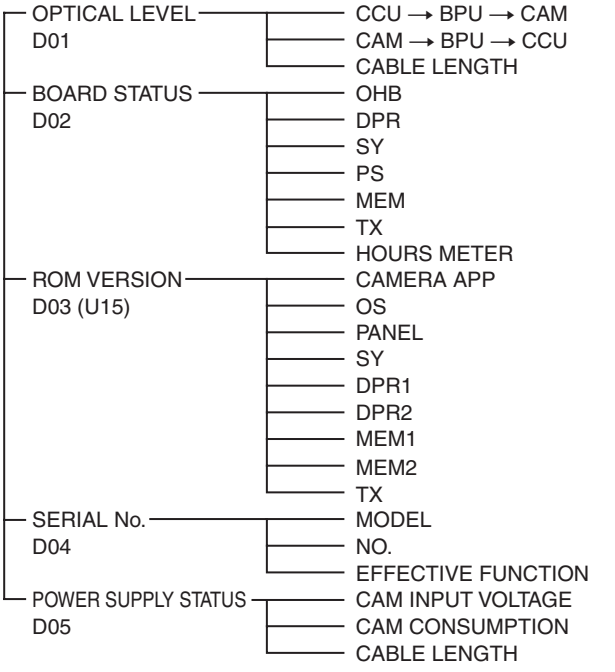

TEST OUT
M10 (U13)
OUTPUT
VBS-OUT
CHARACTER
GAIN
CHROMA
SYNC-OUT
V-PHASE
H-PHASE
DOWN CONVERTER
SELECT
ASPECT
SDI OUT
M11 (U14)
SDI-1 OUT
SDI-2 OUT/IN
SDI-MONI OUT
CHARACTER
EMB AUDIO
DOWN CONVERTER
SELECT
ASPECT
TRUNK
M12
TRUNK
INTERFACE
AUX REMOTE
NETWORK TRUNK
LINK
GENLOCK
M13
REFERENCE
GENLOCK
STATUS
FORMAT
PHASE
V
H
DATE
M14
DATE/TIME
DATE FORMAT
BATTERY ALARM
M15
BEFORE END
END
OTHERS
M16
FAN MODE
CAM BARS
WHITE SETUP MODE
FILTER WHT MEM
STANDALONE SW DISABLE
OPTION KEY
M17
READ (USB → CAM)
EFFECTIVE FUNCTION

## FILE menu


OPERATOR FILE
F01
READ (USB → CAM)
WRITE (CAM → USB)
PRESET
STORE PRESET FILE
FILE ID
CAM CODE
DATE
SCENE FILE
F02
1
2
3
4
5
STORE
STANDARD
READ (USB → CAM)
WRITE (CAM → USB)
FILE ID
CAM CODE
DATE
DISSOLVE
SPEED
REFERENCE
F03
STORE FILE
STANDARD
ALL PRESET
READ (USB → CAM)
WRITE (CAM → USB)
FILE ID
CAM CODE
DATE
USER GAMMA
F04
READ (USB → CAM)
PRESET
FILE ID
CAM CODE
DATE
LENS FILE
F05
STORE FILE
No.
NAME
F NO
CENTER MARKER
H POS
V POS
STORE
OHB FILE
F06
STORE FILE
MATRIX FILE
F07
CUSTOM PRESET MATRIX
STORE FILE
1
2
3
4
5
CLEAR ALL
READ (USB → CAM)
WRITE (CAM → USB)
FILE ID
CAM CODE
DATE
BOX CURSOR FILE
F08
1:
2:
3:
4:
5:
STORE
READ (USB → CAM)
WRITE (CAM → USB)




### DIAGNOSIS menu




## OPERATION Menu

| OPERATION<br>Page name<br>Page No. | Item | Settings | Description |
|---|---|---|---|
| <VF DISPLAY><br>01 (U04) | EX | **ON**, OFF, 3S | |
| | ZOOM | ON, **OFF**, 3S | |
| | DISP | **LEFT**, RIGT | |
| | FOCUS | ON, **OFF**, 3S | Valid only when a serial lens is used. |
| | ND | **ON**, OFF, 3S | |
| | CC | **ON**, OFF, 3S | |
| | 5600K | **ON**, OFF, 3S | |
| | IRIS | **ON**, OFF, 3S | |
| | WHITE | ON, **OFF**, 3S | |
| | GAIN | **ON**, OFF, 3S | |
| | SHUTTER | **ON**, OFF, 3S | |
| | BATT | ON, **OFF**, 3S | |
| | RETURN | **ON**, OFF, 3S | |
| | TALK | **ON**, OFF, 3S | |
| | MESSAGE | **ALL**, WRN, AT, OFF | **ALL**: Displays all messages.<br>**WRN**: Displays warning messages and higher.<br>**AT**: Displays Auto Setup messages and higher. |
| | FOLLOW F | ON, **OFF**, 3S | |
| | FOCUS NAME | OFF, 1S, 3S, 5S, **ON** | Sets whether to show/hide the marker name and sets the display time. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <VF DISPLAY><br>01 (U04) | FOCUS FORM | **NORMAL**, ABS(AUTO), ABS(m), ABS(ft) | Sets the FOCUS display format.<br>**NORMAL:** Displayed in the range 0 to 255 (no units).<br>**ABS(AUTO):** Displayed in the units (meters or feet) set on the lens.<br>**ABS(m):** Displayed in meters.<br>**ABS(ft):** Displayed in feet. |
| <'!' IND><br>02 (U05) | ND | **ON**, OFF | [IND]: Turns the '!' display area *(page 28)* on/off.<br>[NORMAL]: Specifies the conditions under which the '!' indication is not to be displayed even if [IND] is ON. (By specifying the standard or normal conditions here, non-standard or abnormal conditions can be found with the '!' indication on the viewfinder screen.)<br>e.g.: With the default setting of ND, the '!' indicator is displayed when an ND filter other than 1 is selected.<br>--- : When a BPU or CCU is connected (cannot be changed) |
| | | **1**, 2, 3, 4, 5 (combination allowed) | |
| | CC | **ON**, OFF | |
| | | A, **B**, C, D (combination allowed) | |
| | WHITE | **ON**, OFF, --- | |
| | | P, **A**, **B** (combination allowed) | |
| | 5600K | **ON**, OFF, --- | |
| | | ON, **OFF** | |
| | GAIN | **ON**, OFF, --- | |
| | | **L**, M, H (combination allowed) | |
| | SHUTTER | **ON**, OFF, --- | |
| | | ON, **OFF** | |
| | FAN | **ON**, OFF | |
| | | **AUTO1**, AUTO2, MIN, MAX | |
| | EXT | **ON**, OFF | |
| | Y TALLY | **ON**, OFF | |
| <VF MARKER><br>03 (U06) | MARKER | **ON**, OFF | Sets MARKER to ON/OFF. |
| | | **WHITE**, BLACK, DOT | |
| | LEVEL | 0 to 100%, **40%** | |
| | CENTER | ON, **OFF** | |
| | | **1**, 2, 3, 4 | **1**: Entire cross<br>**2**: Entire cross with a hole<br>**3**: Center<br>**4**: Center with a hole |
| | SAFETY ZONE | ON, **OFF** | |
| | | 80.0, **90.0**, 92.5, 95.0% | |
| | EFFECT | ON, **OFF**, OFF(ASSIST IND), OFF(AF DISP) | **OFF(ASSIST IND)**: Displayed when INDICATOR of <FOCUS ASSIST> is ON.<br>**OFF(AF DISP)**: Displayed when AF DISPLAY of <LENS> is ON. |
| | ASPECT | ON, **OFF** | |
| | | 16:9, 15:9, 14:9, 13:9, **4:3**, (4.3) | **(4.3)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed) |
| | MASK | ON, **OFF**, (ON) | **(ON)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed) |
| | | 0 to 15, **12** | Sets the darken level outside the aspect area. |
| | SAFETY | ON, **OFF**, OFF(AREA) | Sets the safety marker in Aspect mode.<br>**OFF(AREA)**: Displayed when AREA MARKER of <FOCUS ASSIST> is ON. |
| | | 80.0, **90.0**, 92.5, 95.0% | |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <VF DETAIL><br>04 (U02) | VF DETAIL | **ON**, OFF, (ON), (OFF) | Settings in ( ): When HDLA is attached (cannot be changed) |
| | | 0 to 100%, (0 to 100%), **25%** | |
| | CRISP | –99 to +99, **0** | |
| | FREQUENCY | **9M**, 14M, 18M | |
| | FLICKER | ON, **OFF** | |
| | AREA | **100%**, 70%, 60%, 50%, 40% | |
| | ZOOM LINK | **ON**, OFF | |
| | | 0%, 25%, **50%**, 75%, 100% | |
| | COLOR DETAIL | ON, **OFF** | |
| | | **BLUE**, RED, YELLOW | |
| | PEAK COLOR | ON, **OFF** | |
| | CHROMA LEVEL | 100%, 50%, **25%**, 0% | |
| | RETURN DISABLE | ON, **OFF** | Selects whether to set VF DETAIL to OFF for RETURN display. |
| | DYNAMIC FOCUS | ON, **OFF**, (OFF) | **(OFF)**: When shooting in HD-HFR |
| | KINETIC FOCUS | ON, **OFF**, (OFF) | **(OFF)**: When shooting in 4K |
| <DYNAMIC FOCUS><br>05 | DYNAMIC FOCUS | **OFF**, ON | |
| | FREQUENCY | **EXTRA-LOW**, LOW, MIDDLE, HIGH, (AUTO) | Sets the bandwidth of the 4K resolution high-frequency signal to detect.<br>**(AUTO)**: Displayed when ZOOM LINK is ON. |
| | ZOOM LINK | ON, **OFF** | |
| | | **MODE1**, MODE2, MODE3, MODE4 | Sets characteristics according to the zoom position. |
| | | 0%, 25%, 50%, 75%, **100%** | Sets the level at the WIDE position mark. |
| | CRISP | 0% to 99%, **6%** | Adjust to eliminate fine portions of the detected signal. |
| | LEVEL | **LOW**, MIDDLE, HIGH, VERY-HIGH | Sets the brightness level of the marking signal. |
| | PEAK COLOR | OFF, RED, BLUE, GREEN, BROWN, PURPLE, **YELLOW** | |
| | THRESHOLD | 0% to 99%, **50%** | Sets the threshold level for adding color specified using PEAK COLOR. |
| | COLOR LEVEL | 0% to 99%, **19%** | Sets the saturation of the color of the PEAK COLOR indicator. |
| <KINETIC FOCUS><br>06 | KINETIC FOCUS | **OFF**, ON | |
| | ZOOM LINK | ON, **OFF** | |
| | | 0%, 25%, 50%, 75%, **100%** | Sets the level at the WIDE position mark. |
| | CRISP | 0% to 99%, **6%** | Adjust to eliminate fine portions of the detected signal. |
| | LEVEL | **LOW**, MIDDLE, HIGH, VERY-HIGH | Sets the brightness level of the marking signal. |
| | PEAK COLOR | OFF, RED, BLUE, GREEN, BROWN, PURPLE, **YELLOW** | |
| | THRESHOLD | 0% to 99%, **50%** | Sets the threshold level for adding color specified using PEAK COLOR. |
| | COLOR LEVEL | 0% to 99%, **19%** | Sets the saturation of the color of the PEAK COLOR indicator. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <FOCUS POSITION METER1><br>07 | FOCUS POSITION METER | **OFF**, ON | Shows/hides the focus position meter. |
| | NEAR LIMIT | **0** to 999 | Sets the NEAR edge of the focus position meter. |
| | FAR LIMIT | 0 to **999** | Sets the FAR edge of the focus position meter. |
| | DIRECTION | **HORIZONTAL**, VERTICAL | Sets the display direction of the focus position meter.<br>**HORIZONTAL**: Horizontal display at the top of the screen.<br>**VERTICAL**: Vertical display along the right edge of the screen. |
| | SIZE | **NORMAL**, HALF | Sets the display size of the focus position meter. |
| | RULED LINE | **OFF**, ON | Shows/hides ruled lines. |
| | INDEX COLOR | BLACK, **WHITE** | Sets the index color. |
| | INDEX WIDTH | **1** to 5 | Sets the index width. |
| | MARKER WIDTH | **1** to 9 | Sets the width of the marker axis portion. |
| | CURRENT FOCUS DIST | | Displays the current focus distance (display only). |
| <FOCUS POSITION METER2><br>08 | ADJUSTED SIGN | | |
| | SENSE | 1 to 5, **2** | Sets the adjustment sensitivity.<br>Increasing the value increases the sensitivity. |
| | NAME DISP | OFF, 1S, 3S, 5S, **ON** | Sets whether to show/hide the marker name and sets the display time. |
| | FRAME DISP | OFF, 1S, 3S, 5S, **ON** | Sets whether to show/hide the adjustment frame and sets the display time. |
| | FRAME WIDTH | 1 to 5, **2** | Sets the width of the adjustment frame. |
| | MARKER CONFIG | | |
| | [REG] MKR1, 2, 3 | Execute using ENTER. | Registers a marker at the current focus position.<br>(Cannot be registered here if marker registration has been assigned to a dedicated switch.) |
| | [DISP] MKR1, 2, 3 | **OFF**, ON | Shows/hides markers.<br>(Cannot be registered here if marker registration has been assigned to a dedicated switch.) |
| | [COLOR] MKR1, 2, 3 | **RED**, GREEN, BLUE, YELLOW, ORANGE, PURPLE, GRAY, BLACK, WHITE | Sets the color of triangular parts of the marker.<br>(Cannot be registered here if marker registration has been assigned to a dedicated switch.) |
| | [NAME] MKR1, 2, 3 | Max. 8 characters<br>(Default value: MARKER 1 to 3) | Sets the text of the marker name.<br>*See "To specify a character string" on page 31.* |
| | [POS] MKR1, 2, 3 | **0** to 999 | Sets the position of the marker. |
| | CURRENT FOCUS DIST | | Displays the current focus distance (display only). |
| <FOLLOW FOCUS><br>09 | FOLLOW FOCUS | **OFF**, ON | |
| | OFFSET ADJUST SENS | 1, 2, **3**, 4, 5 | Sets the sensitivity of superimposing the offset of the MSU. |
| | OFFSET CANCEL GAIN | 1, 2, **3**, 4, 5 | Sets the sensitivity of canceling the offset on the demand side. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <FOCUS ASSIST><br>10 (U03) | INDICATOR | ON, **OFF**, OFF(EFFECT), OFF(AF DISP) | **OFF(EFFECT)**: Displayed when EFFECT of <VF MARKER> is ON.<br>**OFF(AF DISP)**: Displayed when AF DISPLAY of <LENS> is ON. |
| | MODE | **BOX**, B&W, COL | |
| | | **BTM**, LEFT, TOP, RIGHT | |
| | LEVEL | 0 to 100%, **40%** | |
| | | **QUICK**, SMOOTH | |
| | GAIN | 0 to 99, **50** | |
| | OFFSET | 0 to 99, **50** | |
| | AREA MARKER | ON, **OFF**, OFF(ASPECT) | **OFF(ASPECT)**: Displayed when ASPECT SAFETY of <VF MARKER> is ON. |
| | SIZE | SMALL, **MIDDLE**, LARGE | |
| | POSITION | LEFT, **CENTER**, RIGHT | |
| | POSITION H | 0 to 99, **50** | |
| | POSITION V | 0 to 99, **50** | |
| <ZEBRA><br>11 (U08) | ZEBRA | ON, **OFF** | |
| | | **1**, 2, 1&2 | |
| | ZEBRA1 | | |
| | LEVEL | 50 to 109%, **70%** | |
| | WIDTH | 0 to 30%, **10%** | |
| | ZEBRA2 | 50 to 109%, **100%** | |
| <CURSOR><br>12 (U07) | CURSOR | ON, **OFF** | Displayed only if HDLA attached. |
| | LEVEL | **WHITE**, BLACK, DOT | |
| | | 0 to 100%, **40%** | |
| | BOX/CROSS | **BOX**, CROSS | |
| | H POSITION | 0 to 99, **50** | Displayed only if HDLA attached. |
| | V POSITION | 0 to 99, **50** | |
| | WIDTH | 0 to 99, **50** | |
| | HEIGHT | 0 to 99, **50** | |
| | BOX MEMORY | 1/2/3: **OFF**, ON | |
| | H POSI | 1/2/3: 0 to 99, **50** | |
| | V POSI | 1/2/3: 0 to 99, **50** | |
| | WIDTH | 1/2/3: 0 to 99, **50** | |
| | HEIGHT | 1/2/3: 0 to 99, **50** | |
| <BOX CURSOR FILE><br>13 | 1: | | Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name.<br>Sets the cursor to the left of the number when you select BOX CURSOR FILE.<br>Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name.<br>*See “To specify a character string” on page 31.* |
| | 2: | | |
| | 3: | | |
| | 4: | | |
| | 5: | | |
| | STORE | | Stores a BOX CURSOR FILE name in the camera. |
| | READ (USB → CAM) | | Transfers BOX CURSOR FILE from a USB drive to the camera. |
| | WRITE (CAM → USB) | | Transfers BOX CURSOR FILE from the camera to a USB drive. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <SPIRIT LEVEL><br>14 | INDICATOR | ON, **OFF** | When this is set to ON, BOX MEMORY for <CURSOR> does not function. |
| | MODE | **1**, 2 | Switches the display method of the indicator. |
| | REVERSE | **OFF**, ON | Inverts the movement of the indicator horizontally. |
| | SCALE | 50% to 150%, **100%** | Adjusts the horizontal width of the indicator. |
| | H POSITION | 0 to 99, **50** | |
| | V POSITION | 0 to 99, **97** | |
| | ANGLE | | Displays the inclination angle (display only). |
| | OFFSET | –99 to +99, **0** | |
| | SET ZERO ANGLE | Execute using ENTER. | Designates the current angle as level (0°). |
| | CLEAR | Execute using ENTER. | Sets OFFSET to 0. |

**OPERATION**

| Page name<br>Page No. | Item | Settings | Description |
|---|---|---|---|
| <VF OUT><br>15 (U01) | VF OUT | **COLOR**, Y, R, G, B,<br>(COLOR), (Y), (R), (G), (B),<br>(RET), (R+G), (R+B), (G+B) | Settings in ( ): When HDLA is attached (cannot be changed) |
| | RET MIX VF | ON, **OFF**, (ON), (OFF) | Settings in ( ): When HDLA is attached (cannot be changed) |
| | MIX DIRECTION | MAIN, **RET** | |
| | MIX VF MODE | **Y-MIX**, Y/C-MIX, WIRE(W),<br>WIRE(B) | |
| | MIX VF LEVEL | 0 to **99%** | |
| | CHARACTER LEVEL | 0 to 5, **4** | |
| | PinP | **OFF**, RETURN, HD PROMPTER | |
| | POSITION | **1**, 2, 3, 4 | |
| | SIZE | 1/2.5, **1/3**, 1/4 | |
| | MODE | PinP OFF: ---<br>PinP RETURN: 1, 2, 3, 4<br>PinP HD PROMPTER: 1, 2 | : Main picture, : Return picture, : HD Prompter picture<br>**PinP: OFF**<br>Mode / RET SW OFF / RET SW ON<br>---<br>**PinP: RETURN**<br>Mode / RET SW OFF / RET SW ON<br>1<br>2<br>3<br>4<br>**PinP: HD PROMPTER**<br>Mode / RET SW OFF / RET SW ON<br>1<br>2<br>Cannot be used during standalone operation. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <SWITCH ASSIGN1><br>16 (U09) | GAIN | L: –6, –3, **0**, 3, 6, 9, 12 dB | |
| | | M: –6, –3, 0, 3, **6**, 9, 12 dB | |
| | | H: –6, –3, 0, 3, 6, 9, **12** dB | |
| | ASSIGNABLE | **OFF**, RETURN1 SW, RETURN2 SW, INCOM1, INCOM2, VF DETAIL, MIX VF, 5600K, FAN MAX, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, CURSOR ALL OFF, FLAG, DYNAMIC FOCUS, KINETIC FOCUS | JN/SY models only.<br>When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, PinP, FLAG, DYNAMIC FOCUS, KINETIC FOCUS |
| | | OFF, RETURN1 SW, RETURN2 SW, ENG, PROD, VF DETAIL, MIX VF, **5600K**, FAN MAX, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, CURSOR ALL OFF, FLAG, DYNAMIC FOCUS, KINETIC FOCUS | CE/CN models only.<br>When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, PinP, FLAG, DYNAMIC FOCUS, KINETIC FOCUS |
| | VF ASSIGN | OFF, **VF ASSIGN SW1**, VF ASSIGN SW2, PinP | Displayed only when HDLA is attached. |
| | VF OUT SW | **VF OUT RGB**, FOCUS POSITION METER | Displayed only when HDLA is attached.<br>(When set to FOCUS POSITION METER, VF OUT SW (R/G/B) can be used to register/display marker 1/2/3.) |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <SWITCH ASSIGN2><br>17 (U10) | LENS VTR S/S | OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2, VTR S/S<br>JN/SY models only. | Assigns a function to the VTR START/STOP switch on the mounted lens. |
| | | OFF, RETURN1 SW, **RETURN2 SW**, ENG, PROD, VTR S/S<br>CE/CN models only. | |
| | FRONT RET1 | OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2<br>JN/SY models only. | |
| | | OFF, **RETURN1 SW**, RETURN2 SW, ENG, PROD<br>CE/CN models only. | |
| | FRONT RET2 | OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2, VTR S/S<br>JN/SY models only. | |
| | | OFF, RETURN1 SW, **RETURN2 SW**, ENG, PROD, VTR S/S<br>CE/CN models only. | |
| | HANDLE SW1 | OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2, ZOOM(T), VTR S/S<br>JN/SY models only. | |
| | | OFF, **RETURN1 SW**, RETURN2 SW, ENG, PROD, ZOOM(T), VTR S/S<br>CE/CN models only. | |
| | HANDLE SW2 | OFF, RETURN1 SW, RETURN2 SW, **INCOM1**, INCOM2, ZOOM(W)<br>JN/SY models only. | |
| | | OFF, RETURN1 SW, RETURN2 SW, **ENG**, PROD, ZOOM(W)<br>CE/CN models only. | |
| | ZOOM SPEED | 0 to 99, **20** | |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <EXT SWITCH><br>18 | RET CTRL CONNECTOR | | |
| | RET1 Pin5 | OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y | This function works when each pin of the RET CTRL connector contacts with GND (Pin3).<br>TALLY R, G, Y are available only when using the camera as a standalone device, and make the tally lamp light. VTR S/S is available only when using the camera as a standalone device, and makes the R tally lamp light.<br>VTR S/S signal is embedded in the video. |
| | RET2 Pin6 | OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y | |
| | RET3 Pin4 | OFF, RETURN1 SW, RETURN2 SW, **RETURN3 SW**, INCOM 1, INCOM 2, EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y | |
| | INCOM1 Pin1 | OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, **INCOM 1**, INCOM 2, EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y | |
| | INCOM2 Pin2 | OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, INCOM 1, **INCOM 2**, EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y | |
| <RETURN><br>19 | RET1 SW SEL | CCU RET1, CCU RET2, CCU RET3, CCU RET4 | Varies based on the RET 1 button setting. |
| | RET2 SW SEL | | Varies based on the RET 2 button setting. |
| | RET3 SW SEL | CCU RET1, CCU RET2, **CCU RET3**, CCU RET4 | |
| | RET1 SW + RET2 SW | **RET1 SW**, RET3 SW | Changes operation when you press both the RET 1 button and RET 2 button at the same time.<br>**RET1 SW**: Functions as the RET 1 button.<br>**RET3 SW**: Functions as the RET 3 button. |
| | VBS RET ASPECT | **EC**, SQ | Sets the Aspect mode of the VBS RET when the camera is used in standalone operation.<br>**EC**: Edge Crop<br>**SQ**: SQueeze |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <HEADSET MIC><br>20 (U11) | INTERCOM1 | **DYNAMIC**, CARBON, MANUAL | |
| | LEVEL | –60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB) | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
| | | –6, **0**, 6 dB | Input gain |
| | POWER | ON, OFF, (ON), **(OFF)** | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
| | UNBAL | **ON**, OFF, (ON), (OFF) | Settings in ( ): With CARBON (cannot be changed) |
| | INTERCOM2 | **DYNAMIC**, CARBON, MANUAL | |
| | LEVEL | –60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB) | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
| | | –6, **0**, 6 dB | Input gain |
| | POWER | ON, OFF, (ON), **(OFF)** | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
| | UNBAL | **ON**, OFF, (ON), (OFF) | Settings in ( ): With CARBON (cannot be changed) |
| <INTERCOM1><br>21 | INTERCOM1 RECEIVE SELECT | **SEPARATE**, MIX | |
| | INTERCOM | ---, **LEFT**, RIGHT, BOTH | JN/SY models only.<br>When ENG/PROD is set to MIX, this item is split into ENG and PROD items (with same setting). |
| | ENG | ---, **LEFT**, RIGHT, BOTH | On JN/SY models, these items are displayed only when ENG/PROD is set to MIX. |
| | PROD | ---, **LEFT**, RIGHT, BOTH | |
| | PGM1 | ---, LEFT, **RIGHT**, BOTH | |
| | PGM2 | ---, LEFT, **RIGHT**, BOTH | |
| | TRACKER | ---, **LEFT**, RIGHT, BOTH | |
| | SIDE TONE | MU, 1 to 99, **50** | |
| | INTERCOM1/2 | **SEPARATE**, MIX | |
| | ENG/PROD | **SEPARATE**, MIX | JN/SY models only. |
| <INTERCOM2><br>22 | INTERCOM2 RECEIVE SELECT | **SEPARATE**, MIX | |
| | INTERCOM | ---, **LEFT**, RIGHT, BOTH | JN/SY models only.<br>When ENG/PROD is set to MIX, this item is split into ENG and PROD items (with same setting). |
| | ENG | ---, **LEFT**, RIGHT, BOTH | On JN/SY models, these items are displayed only when ENG/PROD is set to MIX. |
| | PROD | ---, **LEFT**, RIGHT, BOTH | |
| | PGM1 | ---, LEFT, **RIGHT**, BOTH | |
| | PGM2 | ---, LEFT, **RIGHT**, BOTH | |
| | TRACKER | **---**, LEFT, RIGHT, BOTH | |
| | SIDE TONE | MU, 1 to 99, **50** | |
| | INTERCOM1/2 | **SEPARATE**, MIX | |
| | ENG/PROD | **SEPARATE**, MIX | JN/SY models only. |

| OPERATION | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <TRACKER><br>23 | TRACKER RECEIVE SELECT | **SEPARATE**, MIX | |
| | INTERCOM | ---, **LEFT**, RIGHT, BOTH | JN/SY models only.<br>When ENG/PROD is set to MIX, this item is split into ENG and PROD items (with same setting). |
| | ENG | ---, **LEFT**, RIGHT, BOTH | On JN/SY models, these items are displayed only when ENG/PROD is set to MIX. |
| | PROD | ---, **LEFT**, RIGHT, BOTH | |
| | PGM1 | ---, LEFT, **RIGHT**, BOTH | |
| | PGM2 | ---, LEFT, **RIGHT**, BOTH | |
| | INPUT LEVEL | –20 dBu, **0 dBu** | |
| | | –6 dBu, **0 dBu**, 6 dBu | |
| | OUTPUT LEVEL L-CH<br>R-CH | **0 dBu**, –6 dBu, –12 dBu, –18 dBu, –20 dBu, –24 dBu | |
| <EARPHONE><br>24 | EARPHONE RECEIVE SELECT | **SEPARATE**, MIX | |
| | INTERCOM | ---, **LEFT**, RIGHT, BOTH | JN/SY models only.<br>When ENG/PROD is set to MIX, this item is split into ENG and PROD items (with same setting). |
| | ENG | ---, **LEFT**, RIGHT, BOTH | On JN/SY models, these items are displayed only when ENG/PROD is set to MIX. |
| | PROD | ---, **LEFT**, RIGHT, BOTH | |
| | PGM1 | ---, LEFT, **RIGHT**, BOTH | |
| | PGM2 | ---, LEFT, **RIGHT**, BOTH | |
| | TRACKER | ---, **LEFT**, RIGHT, BOTH | |
| <OPERATOR FILE><br>25 | READ (USB → CAM) | Execute using ENTER. | Reads the operator file from a USB drive. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes the current settings of the operator file items to a USB drive. |
| | PRESET | Execute using ENTER. | Sets the operator file items to the preset values in internal memory. |
| | FILE ID | Max. 14 characters | Enters a comment for the operator file to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |

# PAINT Menu

| PAINT<br>Page name<br>Page No. | Item | Settings | Description |
|---|---|---|---|
| <SW STATUS><br>P01 | FLARE | **ON**, OFF | |
| | GAMMA | **ON**, OFF | |
| | BLK GAM | ON, **OFF** | |
| | KNEE | **ON**, OFF | |
| | WHT CLIP | **ON**, OFF | |
| | DETAIL | **ON**, OFF | |
| | LVL DEP | **ON**, OFF | |
| | SKIN DTL | ON, **OFF** | |
| | MATRIX | ON, **OFF** | |
| <VIDEO LEVEL><br>P02 | WHITE | R/G/B: –99 to +99, **0** | R, G, B, and M (master) values can be independently set.<br>(M cannot be set for WHITE.) |
| | BLACK | R/G/B/M: –99 to +99, **0** | |
| | FLARE | R/G/B/M: –99 to +99, **0** | |
| | GAMMA | R/G/B/M: –99 to +99, **0** | |
| | V MOD | R/G/B/M: –99 to +99, **0** | |
| | FLARE | **ON**, OFF | |
| | V MOD | **ON**, OFF | |
| | D. SHAD | ON, **OFF** | Selectable only with a lens which supports dynamic shading. |
| | TEST | **OFF**, SAW, 10STEP | |
| <COLOR TEMP><br>P03 | WHITE | R/G/B: –99 to +99, **0** | |
| | AUTO WHITE BALANCE | Execute using ENTER. | |
| | COLOR TEMP | 0 K to 65535 K, **3200 K** | |
| | BALANCE | –99 to +99, **0** | |
| | ATW | ON, **OFF** | |
| | SPEED | 1, **2**, 3, 4 | |
| | MASTER | –3.0 dB to +12.0 dB, **0.0 dB** | |
| <GAMMA><br>P04 | LEVEL | R/G/B/M: –99 to +99, **0** | R, G, B, and M (master) values can be independently set. |
| | COARSE | 0.35 to 0.90 (0.05 steps), **0.45** | |
| | TABLE | **STANDARD**, HYPER, USER | |
| | | 1, 2, 3, 4, **5**, 6, 7 | With STANDARD or USER selected (only 1 to 5 are available for USER)<br>**1**: Equivalent to a camcorder<br>**2**: ×4.5 gain<br>**3**: ×3.5 gain<br>**4**: Equivalent to SMPTE-240M<br>**5**: Equivalent to ITU-R709<br>**6**: ×5.0 gain<br>**7**: ×5.0 – 709 |
| | | 1, 2, 3, **4** | With HYPER selected<br>**1**: 325% to 100%<br>**2**: 460% to 100%<br>**3**: 325% to 109%<br>**4**: 460% to 109% |
| | GAMMA | **ON**, OFF | |
| | TEST | **OFF**, SAW, 10 STEP | |

| PAINT | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <BLACK GAMMA><br>P05 | LEVEL | R/G/B/M: –99 to +99, **0** | R, G, B, and M (master) values can be independently set. |
| | RANGE | LOW, L.MID, H.MID, **HIGH** | |
| | | ON, **OFF** | |
| | TEST | **OFF**, SAW, 10 STEP | |
| <SATURATION><br>P06 | SATURATION | –99 to +99, **0** | |
| | | ON, **OFF** | |
| | LOW KEY SAT | –99 to +99, **0** | |
| | RANGE | LOW, L.MID, H.MID, **HIGH** | |
| | | ON, **OFF** | |
| | TEST | **OFF**, SAW, 10 STEP | |
| <KNEE><br>P07 | K POINT | R/G/B/M: –99 to +99, **0** | R, G, B, and M (master) values can be independently set.<br>Absolute values are displayed in ABS mode except for M (master). |
| | K SLOPE | R/G/B/M: –99 to +99, **0** | |
| | KNEE | **ON**, OFF | |
| | KNEE MAX | ON, **OFF** | |
| | KNEE SAT | –99 to +99, **0** | |
| | | ON, **OFF** | |
| | AUTO KNEE | **OFF**, AUTO | |
| | POINT LIMIT | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | SLOPE | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | ABS | | Highlighted: ABS (Absolute) mode |
| <WHITE CLIP><br>P08 | W CLIP | –99 to +99, **0** | |
| | | **ON**, OFF | |
| | ABS | | Highlighted: ABS (Absolute) mode |
| <DETAIL 1><br>P09 | DETAIL | **ON**, OFF | |
| | LEVEL | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [M] | –99 to +99, **0** | |
| | LIMITER [WHT] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [BLK] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | CRISP | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LEVEL DEPEND | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | **ON**, OFF | |
| | ABS | | Highlighted: ABS (Absolute) mode |
| <DETAIL 2><br>P10 | H/V RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | FREQ | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | MIX RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | KNEE APT | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | ON, **OFF** | |
| | DTL H/V MODE | **H/V**, V only | |
| | INDEPENDENT | ON, **OFF** | Selects whether to link to DETAIL. |
| | ABS | | Highlighted: ABS (Absolute) mode |

| PAINT | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <HD DETAIL><br>P11 | DETAIL | **ON**, OFF | |
| | LEVEL | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [M] | –99 to +99, **0** | |
| | LIMITER [WHT] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [BLK] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | CRISP | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LEVEL DEPEND | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | **ON**, OFF | |
| | H/V RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | FREQ | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | MIX RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | KNEE APT | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | ON, **OFF** | |
| | ABS | | Highlighted: ABS (Absolute) mode |
| <4K DETAIL><br>P12 | DETAIL | **ON**, OFF | |
| | LEVEL | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [M] | –99 to +99, **0** | |
| | LIMITER [WHT] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LIMITER [BLK] | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | CRISP | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | LEVEL DEPEND | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | **ON**, OFF | |
| | H/V RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | FREQ | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | MIX RATIO | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | KNEE APT | –99 to +99, **0** | Absolute value is displayed in ABS mode. |
| | | ON, **OFF** | |
| | ABS | | Highlighted: ABS (Absolute) mode |
| <SKIN DETAIL><br>P13 | SKIN DTL | ON, **OFF** | |
| | SKIN GATE | **OFF**, 1, 2, 3, (MAT) | **1**, **2**, **3**: The skin gate function can be turned on for the specified channel only.<br>**(MAT)**: Displayed when GATE of <MULTI MATRIX> is ON. |
| | ABS | | Highlighted: ABS (Absolute) mode |
| | NATURAL SKINDTL | **OFF**, ON | |
| | ZOOM LINK | **OFF**, ON | |
| | TELE | 0 to **99** | |
| | WIDE | **0** to 99 | |
| | CH SW | 1: (ON), 2/3: ON, **OFF** | Sets the skin tone detail function independently for each channel. (Channel 1 is always set to ON.)<br><br>Absolute values are indicated for LEVEL only in ABS mode. |
| | HUE | 1/2/3: Execute using ENTER. | |
| | PHASE | 1/2/3: **0** to 359 | |
| | WIDTH | 1/2/3: 0 to 90, **29** | |
| | SAT | 1/2/3: –99 to +99, **–89** | |
| | LEVEL | 1/2/3: –99 to +99, **0** | |
| | Y LIMIT | 1/2/3: **0** to 99 | |

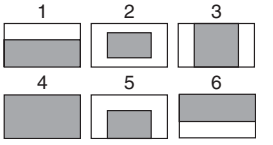
| PAINT | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <USER MATRIX><br>P14 | R-G | –99 to +99, **0** | |
| | R-B | –99 to +99, **0** | |
| | G-R | –99 to +99, **0** | |
| | G-B | –99 to +99, **0** | |
| | B-R | –99 to +99, **0** | |
| | B-G | –99 to +99, **0** | |
| | MATRIX | ON, **OFF** | |
| | PRESET | **---**, ON, OFF | |
| | | **---**, SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5 | |
| | USER | **---**, ON, OFF | |
| | MULTI | **---**, ON, OFF | |
| | ADAPTIVE MATRIX | **OFF**, ON | |
| | LEVEL | 0 to 7, **0** | |
| <MULTI MATRIX><br>P15 | PHASE | **0**, 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338 | Selects an axis (angle) at PHASE for which the multimatrix adjustment is to be made, and set HUE and SAT (HUE and SAT can be set individually for each of 16 axes). |
| | HUE | –99 to +99, **0** | |
| | SAT | –99 to +99, **0** | |
| | ALL CLEAR | Execute using ENTER. | |
| | GATE | ON, **OFF**, (SKN) | **(SKN)**: Displayed when SKIN GATE of <SKIN DETAIL> is ON. |
| | MATRIX | ON, **OFF** | |
| | PRESET | **---**, ON, OFF | |
| | | **---**, SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5 | |
| | USER | **---**, ON, OFF | |
| | MULTI | **---**, ON, OFF | |
| <SHUTTER><br>P16 | SHUTTER | ON, **OFF**, (ON), (OFF) | Settings in ( ): When a remote control unit/panel, a BPU or CCU is not connected (cannot be changed) |
| | | 29.97P: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS<br>25P: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS<br>24P/23.98P: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS<br>59.94P: **1/100**, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS<br>50P: 1/60, **1/125**, 1/250, 1/500, 1/1000, 1/2000, ECS | Step shutter selection |
| | ECS FREQ | 29.97P: 30.00 to 2700 Hz<br>25P: 25.00 to 2300 Hz<br>24P/23.98P: 24.00 to 2200 Hz<br>59.94P: **59.96** to 4600 Hz<br>50P: 50.03 to 4600 Hz | |

| PAINT | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <NOISE SUPPRESSION><br>P17 | SUPPRESSION | **0** to 100% | |
| | | ON, **OFF** | |
| <FLICKER REDUCTION><br>P18 | REDUCTION | ON, **OFF** | **Note**<br>When you turn REDUCTION ON or OFF, noise may be generated. This is not a malfunction. |
| | POWER LINE FREQUENCY | **50**, 60 | Specifies the frequency of the lighting power source. |
| | MODE | **STANDARD**, ACM | **STANDARD:** Corrects flicker without adding an image.<br>**ACM:** Corrects flicker by adding images. |
| | LIGHT TYPE | **1**, 2, 3 | Enabled only when STANDARD is selected.<br>Selects the type of lighting. |
| | GAIN | –99 to +99, **0** | Enabled only when STANDARD is selected.<br>Sets the correction gain. |
| | OFFSET | **0** to 99 | Enabled only when STANDARD is selected.<br>Sets the brightness level that invokes correction. |
| | LIMITER | ON, **OFF** | Enabled only when STANDARD is selected.<br>Turns the over-correction limiter on/off. |
| | ACM TYPE | **1**, 2, 3, 4 | Enabled only when ACM is selected.<br>Selects the combination of frames to add. More frames are added as the value increases. |
| <HDR OPERATION><br>P19 | HDR MODE | OFF, LIVE HDR, CINEMA | Displays the BPU setting. |
| | SDR GAIN | **0.0** to –15 dB | Enabled only when LIVE HDR is selected.<br>Gain setting applied to the SDR output. |
| | HDR CONTRAST | 100 to 560 % | Enabled only when LIVE HDR is selected.<br>HDR output contrast ensured by setting SDR GAIN (display only). |
| | HDR BLACK OFFSET | –99 to +99, **0** | Enabled only when LIVE HDR is selected.<br>HDR output black offset |
| | HDR KNEE | **OFF**, ON | Enabled only when LIVE HDR is selected.<br>KNEE setting applied for HDR |
| | POINT | –99 to +99, **0** | |
| | SLOPE | –99 to +99, **0** | |

| PAINT | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <SCENE FILE><br>P20 | 1 | | Saving or loading a scene file (paint data):<br>When storing a file in camera memory, specify the number after executing STORE.<br>When reading, only specify the number. |
| | 2 | | |
| | 3 | | |
| | 4 | | |
| | 5 | | |
| | STORE | Execute using ENTER. | |
| | STANDARD | Execute using ENTER. | Reads the standard paint data. |
| | READ (USB → CAM) | Execute using ENTER. | Loads 32 scene files from a USB drive to internal memory. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes 32 scene files in the camera's memory to a USB drive. |
| | FILE ID | Max. 14 characters | Enters a comment for the scene files to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |
| | DISSOLVE | **OFF**, ON | Switching a scene file seamlessly. |
| | SPEED | 0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2** | |

# MAINTENANCE Menu

| MAINTENANCE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <AUTO SETUP><br>M01 | AUTO BLACK | Execute using ENTER. | |
| | AUTO WHITE | Execute using ENTER. | |
| | AUTO LEVEL | Execute using ENTER. | |
| | AUTO WHITE SHADING | Execute using ENTER. | |
| | TEST | **OFF**, SAW, 10STEP | |
| <WHITE SHADING><br>M02 | V SAW | R/G/B: –99 to +99, **0** | R, G, and B values can be independently set. |
| | V PARA | R/G/B: –99 to +99, **0** | |
| | H SAW | R/G/B: –99 to +99, **0** | |
| | H PARA | R/G/B: –99 to +99, **0** | |
| | WHITE | R/G/B: –99 to +99, **0** | |
| | AUTO WHITE SHADING | Execute using ENTER. | |
| | WHITE SHAD MODE | RGB, **RB** | |
| <BLACK SHADING><br>M03 | V SAW | R/G/B: –99 to +99, **0** | R, G, and B values can be independently set.<br>M (master) value can also be set for BLACK. |
| | V PARA | R/G/B: –99 to +99, **0** | |
| | H SAW | R/G/B: –99 to +99, **0** | |
| | H PARA | R/G/B: –99 to +99, **0** | |
| | BLK SET | R/G/B: –99 to +99, **0** | |
| | BLACK | R/G/B/M: –99 to +99, **0** | |
| | MASTER GAIN | –6, –3, **0**, 3, 6, 9, 12 dB | |
| <OHB MATRIX><br>M04 | OHB MATRIX | ON, **OFF** | Sets hue compatible with HD color camera HDC2000 series |
| | MATRIX | ON, **OFF** | |

| MAINTENANCE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <AUTO IRIS><br>M05 | AUTO IRIS | ON, **OFF**, (ON), (OFF) | Settings in ( ): When a remote control unit/panel, a BPU or CCU is not connected (cannot be changed) |
| | WINDOW | **1**, 2, 3, 4, 5, 6 | Selects the auto iris windows:<br>  <br><br>The shaded parts indicate the area where light detection occurs. |
| | OVERRIDE | –99 to 99, **0**, --- | Sets to temporarily change the reference value for brightness of the automatic iris level in the range of ±2 steps:<br>–99: Two steps to fully closed iris.<br>99: Two steps to fully opened iris.<br>---: OFF<br>The setting returns to "---" when the power is turned off. |
| | IRIS LEVEL | –99 to +99, **0** | ±4 steps |
| | APL RATIO | –99 to +99, **65** | |
| | IRIS GAIN | –99 to +99, **0** | |
| | IRIS CLOSE | ON, **OFF** | |
| <LENS><br>M06 | F NO. DISP | **CONTROL**, RETURN | Selects the iris indication on the panel when AUTO IRIS is off:<br>**CONTROL**: Displays the value from the camera.<br>**RETURN**: Displays the value returned from the lens.<br>(When AUTO IRIS is on, the value returned from the lens is always displayed.) |
| | AF DISPLAY | ON, **OFF**, OFF(EFFECT), OFF(ASSIST IND) | **OFF(EFFECT)**: Displayed when EFFECT of <VF MARKER> is ON.<br>**OFF(ASSIST IND)**: Displayed when INDICATOR of <FOCUS ASSIST> is ON. |
| | ALAC | **AUTO**, OFF | With AUTO selected, the status is displayed at the right.<br>(ACTIVE): Compensation is in progress.<br>(WAIT): Waiting for completion of lens initialization.<br>(STOP): Compensation is turned off for a non-applicable lens. |
| | F DROP COMP | **OFF**, ON, (OFF) | Turns F drop compensation on/off.<br>During compensation, the compensation gain is displayed on the right.<br>(OFF): For when a serial lens is attached. |
| | MAX GAIN | **0.0** to 24 dB | Maximum compensation value |
| | DROP POINT | **0** to 99 | Compensation start point |
| | ROUNDNESS | **0.0** to 12 dB | Roundness of the compensation curve. |
| | STORE LENS FILE | Execute using ENTER. | Saves settings to a lens file. |
| <MIC GAIN><br>M07 | MIC1 | 20, 30, 40, 50, **60** dB | Can be modified only in standalone operation. |
| | MIC2 | 20, 30, 40, 50, **60** dB | |

| MAINTENANCE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <CALL/TALLY><br>M08 | CCU CALL | OFF, **ON** | Selects whether TALLY lights for CALL signal. |
| | CAM CALL | **OFF**, ON | |
| | UP TALLY BRIGHTNESS | | |
| | TALLY | 0 to 100, **50** | |
| | NUMBER | 0 to 100, **50** | |
| | NUMBER DISPLAY | **AUTO**, OFF, ON | |
| | CAMERA NUMBER | **---**, 1 to 96 | |
| | CCU LINK | **OFF**, ON | ON sets CAMERA NUMBER to the same number as the CCU number. |
| | TALLY GUARD | | Selects whether to prevent changes while TALLY is lit. |
| | EXTENDER | **OFF**, ON | |
| | FILTER DISC | **OFF**, ON | |
| <SYSTEM FORMAT><br>M09 (U12) | CURRENT | 1080/50P (2×), 50P (3×), 50P (4×), 50P (6×), 50P (8×), 59.94P (2×), 59.94P (3×), 59.94P (4×), 59.94P (6×), 59.94P (8×)<br>720/50P (2×), 50P (3×), 50P (4×), 50P (6×), 50P (8×), 59.94P (2×), 59.94P (3×), 59.94P (4×), 59.94P (6×), 59.94P (8×)<br>4096×2160/23.98P, 24P, 25P, 29.97P, 50P, 59.94P, 50P (2×), 59.94P (2×) | Displays the current format.<br>When a BPU or CCU is connected. |
| | | 1080/59.94P, 29.97PsF, 23.98PsF, 50P, 25PsF, 24PsF | In standalone mode. |
| | CHANGE | 1080/59.94P, 29.97PsF, 23.98PsF, 50P, 25PsF, 24PsF | Displayed only in standalone operation.<br>Changes the format. |
| <TEST OUT><br>M10 (U13) | OUTPUT | SD-SYNC, HD-SYNC, VF, **VBS** | |
| | VBS-OUT | | Displayed when OUTPUT is set to VBS. |
| | CHARACTER | ON, **OFF** | |
| | GAIN | –99 to +99, **0** | |
| | CHROMA | –99 to +99, **0** | |
| | SYNC-OUT | | Displayed when OUTPUT is set to SD-SYNC or HD-SYNC. |
| | V-PHASE | –999 to +999, **0** | |
| | H-PHASE | –999 to +999, **0** | |
| | DOWN CONVERTER | | Displayed when OUTPUT is set to VBS. |
| | SELECT | **MAIN**, RET, VF | |
| | ASPECT | **SQ**, EC | |
| <SDI OUT><br>M11 (U14) | SDI-1 OUT | OFF, **MAIN/LINK-A**, 3G-SDI, HD PROMPTER | |
| | SDI-2 OUT/IN | OFF, **MAIN/LINK-B OUT**, HD TRUNK/RET IN | FRAME SYNCHRO is fixed ON when HD TRUNK/ RET IN is selected. |
| | SDI-MONI OUT | OFF, **VF**, MAIN, RET, SD-SDI | |
| | CHARACTER | ON, **OFF** | |
| | EMB AUDIO | **OFF**, MIC, PGM | |
| | DOWN CONVERTER | | Displayed when SDI-MONI OUT is set to SD-SDI. |
| | SELECT | **MAIN**, RET, VF | |
| | ASPECT | **SQ**, EC | |

| MAINTENANCE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <TRUNK><br>M12 | TRUNK | **ON**, OFF | |
| | INTERFACE | **232c**, 422A | |
| | AUX REMOTE | | Display only |
| | NETWORK TRUNK | | Display only |
| | LINK | | |
| <GENLOCK><br>M13 | REFERENCE | Synchronization status | Display only |
| | GENLOCK | **ENABLE**, DISABLE | Not displayed when a BPU or CCU is connected. |
| | STATUS | | |
| | FORMAT | | |
| | PHASE | | |
| | V | –1024 to +1023, **0** | |
| | H | –1700 to 1700, **0** | |
| <DATE><br>M14 | DATE/TIME | 2000 to 2099/01 to 12/00 to 31<br>00 to 23 : 00 to 59 | |
| | DATE FORMAT | 1 Y/Mn/D, 2 Mn/D, 3 D/M/Y,<br>4 D/M, **5 M/D/Y**, 6 M/D | **Y**: Year<br>**Mn**: Month (numeric)<br>**M**: Month (English abbreviation)<br>**D**: Day |
| <BATTERY ALARM><br>M15 | BEFORE END | **11.5** to 17.0 V | |
| | END | **11.0** to 11.5 V | |
| <OTHERS><br>M16 | FAN MODE | OFF, **AUTO1**, AUTO2, MIN, MAX | **AUTO1**: Normal rotation<br>**AUTO2**: Slow rotation |
| | CAM BARS | ON, **OFF** | Displayed only in standalone operation. |
| | WHITE SETUP MODE | AWB, **A.LVL** | |
| | FILTER WHT MEM | ON, **OFF** | |
| | STANDALONE SW DISABLE | **OFF**, ON | When set to ON, disables operation of the unit's switches, such as the WHITE BAL switch, even when a BPU, CCU, or control panel is not connected. |
| <OPTION KEY><br>M17 | READ (USB → CAM) | Execute using ENTER. | Reads the install key from a USB drive. |
| | EFFECTIVE FUNCTION | | Only items that have been installed are displayed. |

# FILE Menu

Five types of files can be used for easy adjustments of the camera; Operator, Reference, Scene, OHB, and Lens. You can store the items set with the OPERATION menu and customized USER menu in the Operator file.

*For the specific items included in these files, refer to the Maintenance Manual.*

| FILE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <OPERATOR FILE><br>F01 | READ (USB → CAM) | Execute using ENTER. | Reads the operator file from a USB drive. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes the current settings of the operator file items to a USB drive. |
| | PRESET | Execute using ENTER. | Sets the operator file items to the preset values in internal memory. |
| | STORE PRESET FILE | Execute using ENTER. | Stores the current settings of the operator file items in the operator file in internal memory. |
| | FILE ID | Max. 14 characters | Enters a comment for the operator file to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |
| <SCENE FILE><br>F02 | 1 | | Saving and loading a scene file (paint data):<br>When storing a file in camera memory, specify the number after executing STORE.<br>When reading, only specify the number. |
| | 2 | | |
| | 3 | | |
| | 4 | | |
| | 5 | | |
| | STORE | Execute using ENTER. | |
| | STANDARD | Execute using ENTER. | Reads the standard paint data. |
| | READ (USB → CAM) | Execute using ENTER. | Loads 32 scene files from a USB drive to internal memory. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes 32 scene files in the camera's memory to a USB drive. |
| | FILE ID | Max. 14 characters | Enters a comment for the scene files to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |
| | DISSOLVE | **OFF**, ON | Switching a scene file seamlessly. |
| | SPEED | 0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2** | |
| <REFERENCE><br>F03 | STORE FILE | Execute using ENTER. | Stores the current settings of the reference file items in the reference file in internal memory. |
| | STANDARD | Execute using ENTER. | Reads the standard values in the reference file in internal memory. |
| | ALL PRESET | Execute using ENTER. | Resumes the factory-preset reference file. |
| | READ (USB → CAM) | Execute using ENTER. | Loads a reference file from a USB drive. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes the current settings of the reference file items as a reference file to a USB drive. |
| | FILE ID | Max. 14 characters | Enters a comment for the reference file to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |

| FILE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <USER GAMMA><br>F04 | READ (USB → CAM) | Execute using ENTER. | Reads the user gamma file from a USB drive. |
| | PRESET | Execute using ENTER. | Sets the user gamma file items to the preset values in internal memory. |
| | FILE ID | Max. 14 characters | Enters a comment for the user gamma file to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |
| <LENS FILE><br>F05 | STORE FILE | Execute using ENTER. | The center marker is not included. |
| | No. | 1 to 17, **1** | 1 to 16: When using a non-serial lens (When using a large lens, this setting depends on the internal setting of the lens.)<br>17: When using a serial lens |
| | NAME | | Changeable only when using a non-serial lens. |
| | F NO | F1.0 to F3.4, **F1.7** | Changeable only when using a non-serial lens. |
| | CENTER MARKER | | Sets and stores the center marker position:<br>H POS: Increasing the value moves the position to the right.<br>V POS: Increasing the value moves the position downwards. |
| | H POS | –20 to +20, **0** | |
| | V POS | –20 to +20, **0** | |
| | STORE | Execute using ENTER. | |
| <OHB FILE><br>F06 | STORE FILE | Execute using ENTER. | Stores the offset values of items specific to the CMOS image sensor (once stored, the values do not need to be stored again if the sensor is reinstalled). |
| <MATRIX FILE><br>F07 | CUSTOM PRESET MATRIX | | Stores matrix preset files:<br>Saved files can be loaded by setting PRESET of <USER MATRIX> to CUSTOM 1 to 5. |
| | STORE FILE | | |
| | 1 | Execute using ENTER. | |
| | 2 | Execute using ENTER. | |
| | 3 | Execute using ENTER. | |
| | 4 | Execute using ENTER. | |
| | 5 | Execute using ENTER. | |
| | CLEAR ALL | Execute using ENTER. | Clears all the files. |
| | READ (USB → CAM) | Execute using ENTER. | Loads five preset files from a USB drive to internal memory. |
| | WRITE (CAM → USB) | Execute using ENTER. | Writes five preset files in the camera's memory to a USB drive. |
| | FILE ID | Max. 14 characters | Enters a comment for the preset files to be written to a USB drive.<br>*See "To specify a character string" on page 31.* |
| | CAM CODE | Camera code | Display only |
| | DATE | Date | Display only |

| FILE | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Settings** | **Description** |
| <BOX CURSOR FILE><br>F08 | 1: | | Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name.<br>Sets the cursor to the left of the number when you select BOX CURSOR FILE.<br>Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name.<br>*See "To specify a character string" on page 31.* |
| | 2: | | |
| | 3: | | |
| | 4: | | |
| | 5: | | |
| | STORE | | Stores a BOX CURSOR FILE name in the camera. |
| | READ (USB → CAM) | | Transfers BOX CURSOR FILE from a USB drive to the camera. |
| | WRITE (CAM → USB) | | Transfers BOX CURSOR FILE from the camera to a USB drive. |
| <FILE CLEAR><br>F09 | PRESET OPERATOR | Execute using ENTER. | |
| | REFERENCE (ALL) | Execute using ENTER. | |
| | 10 SEC CLEAR | ON, **OFF** | Sets the function to clear the selected menu item to ON/OFF.<br>*See "To return a menu item to its standard value" on page 31.* |
| | OHB WHITE SHADE (ALL) | Execute using ENTER. | |
| | OHB BLACK SHADE | Execute using ENTER. | |
| | OHB ND OFFSET | Execute using ENTER. | |

## DIAGNOSIS Menu

This menu is for viewing only; camera settings cannot be made using this menu. However, some items set the conditions for viewing.

| DIAGNOSIS | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Indication** | **Description** |
| <OPTICAL LEVEL><br>D01 | CCU → BPU → CAM | GREEN, YELLOW, RED, NG, NO SIGNAL | Displayed only when a CCU or BPU is connected. |
| | CAM → BPU → CCU | GREEN, YELLOW, RED, NG, NO SIGNAL | Displayed only when a CCU or BPU is connected. |
| | CABLE LENGTH | x.x km | Displays the camera cable length. (Displayed only when a CCU is connected.) |
| <BOARD STATUS><br>D02 | OHB | OK, NG | |
| | DPR | OK, NG | |
| | SY | OK, NG | |
| | PS | OK, NG | |
| | MEM | OK, NG | |
| | TX | OK, NG | |
| | HOURS METER | xxxx H | Displays the total working time. |

| DIAGNOSIS | | | |
|---|---|---|---|
| **Page name<br>Page No.** | **Item** | **Indication** | **Description** |
| <ROM VERSION><br>D03 (U15) | CAMERA APP | Vx.xx | |
| | OS | Vx.xx | |
| | PANEL | Vx.xx | Displayed only when HDLA is attached. |
| | SY | Vx.xx | |
| | DPR1 | Vx.xx | |
| | DPR2 | Vx.xx | |
| | MEM1 | Vx.xx | |
| | MEM2 | Vx.xx | |
| | TX | Vx.xx | |
| <SERIAL No.><br>D04 | MODEL | HDC4300 | |
| | NO. | xxxxxxx | |
| | EFFECTIVE FUNCTION | | Displayed if any option is installed. |
| <POWER SUPPLY STATUS><br>D05 | CAM INPUT VOLTAGE | 0% to 100%, 100% OVER | Displays the ratio of the input voltage for a camera to the output voltage for a CCU. |
| | CAM CONSUMPTION | xx.x A | Displays camera current consumption. |
| **Note**<br>This display has a margin of error for the display of the electric supply state of a camera. Use only as a guide. | CABLE LENGTH | x.x km | Displays the cable length that a CCU measured. (Displayed only when a CCU is connected.) |

# Appendix

## Precautions

### Note on laser beams

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

### Do not subject to severe shocks

Damage to the case or internal components may result.

### When finished using

Set the power switch to OFF.

### Operation and storage environment

Store in a level place with air conditioning.
If the unit gets wet, make sure it is completely dry before storage.
Avoid use or storage in the following places:

- Extremely hot or cold places
- Places with high humidity
- Places with strong vibration
- Near strong magnetic fields
- In places where it receives much direct sunlight, or near heating equipment

### Condensation

If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

### Components with limited service life

- The fan and battery are consumable parts that will need periodic replacement.
  When operating at room temperature, a normal replacement cycle will be about 5 years.
  However, this replacement cycle represents only a general guideline and does not imply that the life expectancy of these parts is guaranteed. For details on parts replacement, contact your dealer.
- The life expectancy of the electrolytic capacitor is about 5 years under normal operating temperatures and normal usage (8 hours per day; 25 days per month).
  If usage exceeds the above normal usage frequency, the life expectancy may be reduced correspondingly.

### Camera CMOS image sensor phenomena

**Note**

The following phenomena that may occur in images are specific to image sensors. They do not indicate a malfunction.

#### White flecks

Although the image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc.
This is related to the principle of image sensors and is not a malfunction.
The white flecks especially tend to be seen in the following cases:

- When operating at a high environmental temperature
- When you have raised the gain (sensitivity)

#### Flicker

If recording is made under lighting produced by discharge tubes, such as fluorescent, sodium, or mercury-vapor lamps, the screen may flicker, colors may vary, or horizontal stripes may appear distorted.

#### Focal plane

Owing to the characteristics of the pickup elements (CMOS image sensors) for reading video signals, subjects that quickly move across the screen may appear slightly skewed.

#### Flash band

The luminance at the top and bottom of the screen may change when shooting a flashlight beam or a light source that quickly flashes.

### To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this camera can result in malfunctions and interference with audio and video signals.
It is recommended that the portable communications devices near this camera be powered off.

## Error Messages

If a problem occurs during operation, a warning message is displayed.

**Note**

To display a message, set the DISPLAY switch to DISPLAY or MENU.

| Message | Meaning |
|---|---|
| TEMP WARNING | The internal temperature is abnormally high. |
| FAN STOP | The built-in fan is not rotating properly. |
| SET CORRECT SYSTEM DATE | The time/date of the internal clock have not been set correctly. Set the correct date and time, then power the unit off and on again. |
| OHB BLOCK NG! | A problem is detected in the optical block. |
| MSU RPN BUSY | RPN compensation was attempted using the camera menu while being operated from an external device. Consult Sony service personnel. |
| VF RPN BUSY | RPN compensation was attempted from an external device while being operated using the camera menu. Consult Sony service personnel. |
| NO USB FLASH DRIVE | A USB drive operation was attempted with no USB drive connected. |
| USB FLASH DRIVE ERROR | An error occurred during access to a USB drive. |
| FORMAT ERROR! | A USB drive operation was attempted with an unformatted USB drive. |
| WRITE PROTECTED | File writing was attempted with a write-protected USB drive. |
| FILE ERROR | An error occurred while reading a file from a USB drive. |
| OTHER MODEL'S FILE | You attempted to read a file of other models having no compatibility. |
| FILE NOT FOUND | The file you attempted to read does not exist in the USB drive. |

# Using a USB Drive

You can connect a USB drive to the USB connector to save and load the settings data file.

The following Sony USB drives are recommended.

- USM512J
- USM1GL
- USM4GN
- USM4GL
- USM4GM
- USM8GJ
- USM8GN
- USM8GL
- USM8GQ
- USM16GLX
- USM32GL
- USM32GLX
- USM32GN
- USM32GR
- USM32GQ
- USM64GLX
- USM64GP
- USM64GQ
- USM4GS
- USM16GS
- USM16GR
- USM8GT
- USM16GU
- USM4GV
- USM8GR

**Notes**

- USB drives other than those recommended may not be recognized when connected to the USB connector.
- USB drives must be formatted with the FAT16 or FAT32 file system. Recommended Sony USB drives are preformatted, and can be used without any prior setup.

# Specifications

## HDC4300

| General | |
|---|---|
| Power requirements | AC 240 V, 1.4 A (max.)<br>DC 240 V, 1.0 A (max.)<br>DC 12 V, 9.5 A (max.) |
| Operating temperature | –20 °C to +45 °C (–4 °F to +113 °F) |
| Storage temperature | –20 °C to +60 °C (–4 °F to +140 °F) |
| Mass | Approx. 5.0 kg (11 lb 0.37 oz) (Unit only) |
| Dimensions | See *page 68*. |
| **Imaging element** | |
| Imaging element | 2/3-inch, 9.8 megapixel, CMOS image sensor |
| Method | 3-chip, RGB |
| Effective resolution | 4K: 4096 (horizontal) × 2160 (vertical)<br>QFHD: 3840 (horizontal) × 2160 (vertical)<br>HD: 1920 (horizontal) × 1080 (vertical) |
| **Electrical characteristics** | |
| Sensitivity | F8.0 (at 2000 lx, 89.9% reflectivity. 4K/59.94P or HD/59.94P (4×)) |
| Image S/N | HD/59.94i: 62 dB |
| Horizontal resolution | 2000 TV lines (4K: screen centered)<br>5% or higher modulation |
| Geometric distortion | Negligible (not including lens distortion) |
| **Optical system specifications** | |
| Spectral system | F1.4 prism |
| Built-in filters | Color temperature conversion filters<br>A: Cross filter<br>B: 3200K (clear)<br>C: 4300K<br>D: 6300K<br>–: –<br><br>ND filters<br>1: Clear<br>2: 1/4ND<br>3: 1/8ND<br>4: 1/16ND<br>5: 1/64ND |

| Input/output connectors | |
|---|---|
| BPU | Optical/electrical multi-connector (1) |
| LENS | 12-pin (1) |
| VF | 20-pin (1) |
| MIC 1 IN | XLR 3-pin, female (1) |
| AUDIO IN CH1, CH2 | XLR 3-pin, female (1 each)<br>When AUDIO switch is set to MIC:<br>–60 dBu (can be selected up to –20 dBu by menu or HDCU2000/2500/4300 operations), balanced<br>When AUDIO switch is set to LINE:<br>0 dBu, balanced |
| INTERCOM 1, INTERCOM 2 | XLR 5-pin, female (1 each) |
| EARPHONE | Stereo minijack (1) |
| DC IN | XLR 4-pin (1), DC 10.5 V to 17 V |
| DC OUT | 4-pin (1), DC 10.5 V to 17 V, max. 0.5 A<br>(This may be limited by the imposed load or inputs.) |
| | 2-pin (1), DC 10.5 V to 17 V, max. 2.5 A<br>(This may be limited by the imposed load or inputs.) |
| SDI 1, SDI 2 | BNC-type (1 each) |
| SDI-MONI | BNC-type (1) |
| TEST OUT | BNC-type (1) |
| PROMPTER/GENLOCK | BNC-type (1), 1 Vp-p, 75 ohm |
| PROMPTER2 | BNC-type (1), 1 Vp-p, 75 ohm |
| RET CTRL | 6-pin (1) |
| REMOTE | 8-pin (1) |
| TRACKER | 10-pin (1) |
| CRANE | 12-pin (1) |
| USB | USB 2.0 Type A 4-pin (1) (for connecting USB drive) |
| NETWORK TRUNK | RJ-45 type 8-pin (1) |
| **Supplied accessories** | |
| Operation guide (1 set) | |
| Operation manual (CD-ROM) (1) | |
| Cable clamp belt (1 set) | |
| Camera number label (1) | |
| Screws (+B3×8) (2) | |

Design and specifications are subject to change without notice.

# Optional Accessories/Related Equipment

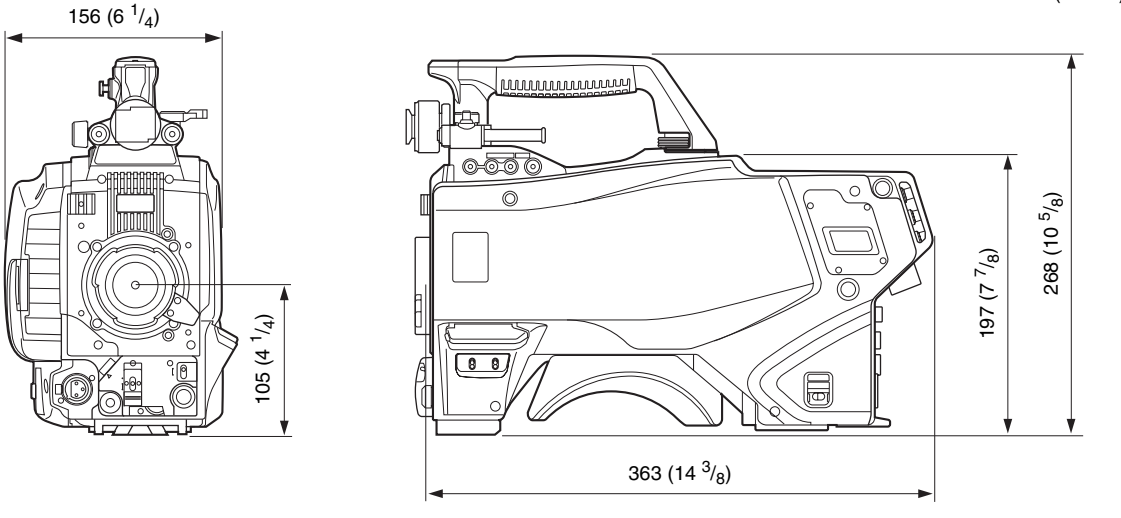
| Optional Accessories | |
|---|---|
| HD Electronic Viewfinder | HDVF-20A (2-type, monochrome)<br>HDVF-200 (2-type, monochrome)<br>HDVF-EL20 (0.7-type, color)<br>HDVF-EL30 (0.7-type, color)<br>HDVF-EL75 (7.4-type, color)<br>HDVF-L750 (7-type, color)<br>HDVF-L770 (7-type, color) |
| Large Lens Adaptor | HDLA1500/1505 |
| Large Viewfinder Adaptor | HDLA1507 |
| Microphone Holder | CAC-12 |
| Return Video Selector | CAC-6 |
| Viewfinder Rotation Bracket | BKW-401 |
| Tripod Attachment | VCT-14 |
| Low-repulsion Shoulder Pad | A-8286-346-A |
| 4K Upgrade Software | SZC-4001/4001M/4001W |
| **Related Equipment** | |
| BPU4000/4500 Baseband Processor Unit | |
| HDCU2000-series HD Camera Control Unit | |
| HDCU4300 Camera Control Unit | |
| RCP-1000 series Remote Control Panel | |
| MSU-1000 series Master Setup Unit | |
| PWS-4400/4500 Multi Port AV Storage Unit | |
| PWS-100PR1 Production Control Station | |
| PWSK-4403 USB Control Device | |
| HZC-CSM10 Camera System Management Software | |
| CNA-1 Camera Control Network Adaptor | |

**Notes**

- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.
- SONY WILL NOT BE LIABLE FOR CLAIMS OF ANY KIND MADE BY USERS OF THIS UNIT OR MADE BY THIRD PARTIES.
- SONY WILL NOT BE LIABLE FOR THE TERMINATION OR DISCONTINUATION OF ANY SERVICES RELATED TO THIS UNIT THAT MAY RESULT DUE TO CIRCUMSTANCES OF ANY KIND.

# Dimensions

Unit: mm
(inches)



Sony Corporation

HDC4300 (JN/SY/CE/CN)
4-570-716-**13** (1)

http://www.sony.net/