SONY

4-745-633-**14** (1)

Fiber Color Camera
HDC3100

Triax Color Camera
HDC3170

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Table of Contents

Overview

The HDC3100/3170 are color cameras equipped with a newly developed 2/3 inch CMOS sensor with global shutter for F12 (1080/59.94i)/F13 (1080/50i) high sensitivity and 62 dB high signal-to-noise ratio.
The HDC3100 supports operation as a studio camera when connected with an HDCU3100 a), HDCU3170 b), HDCU3500, HDCU2000-series c), or HDCU5000 Camera Control Unit (CCU) using a fiber cable.
The HDC3170 supports operation as a studio camera when connected with an HDCU3170 using a triax cable.

a) Use HDCU3100 software version 2.00 or later.

b) Install the HKCU-FB30 Optical Fiber Connector Kit (option).

c) Use HDCU2000-series software version 3.30 or later.

Note

Before starting system operation, check that the software version and ROM version of the unit and system devices meet the version requirements.

Supported Formats

The unit supports 1920×1080/59.94i, 50i and 1280×720/59.94P, 50P as standard.
(The HDC3170 supports 1920×1080/59.94P, 50P and HDR formats as standard.)
You can extend the formats that are supported by installing the following camera operating software (option).

For details, contact a Sony service or sales representative.

	Camera operating software		
Extended formats	**HZC-PRV50**	**HZC-PSF50**	**HZC-UG50**
1920×1080/59.94P *1	○ *2		
1920×1080/50P	○ *2		
1920×1080/59.94P (HDR) *1	○ *2		
1920×1080/50P (HDR)	○ *2		
1920×1080/23.98PsF		○ *3	
1920×1080/24PsF		○ *3	
1920×1080/29.97PsF		○	
1920×1080/25PsF		○	
HD(RGB444)			○ *3

○: Required camera operating software

*1 60P is also supported when 60.00Hz is set to ENABLE.

*2 Supported as standard on the HDC3170

*3 Not supported on the HDC3170

Limited subscription licenses are available for each software, with the period of validity of the license indicated by the last character of the name. If a character that does not denote a license period of validity is the last character, the license will not expire (indefinite).

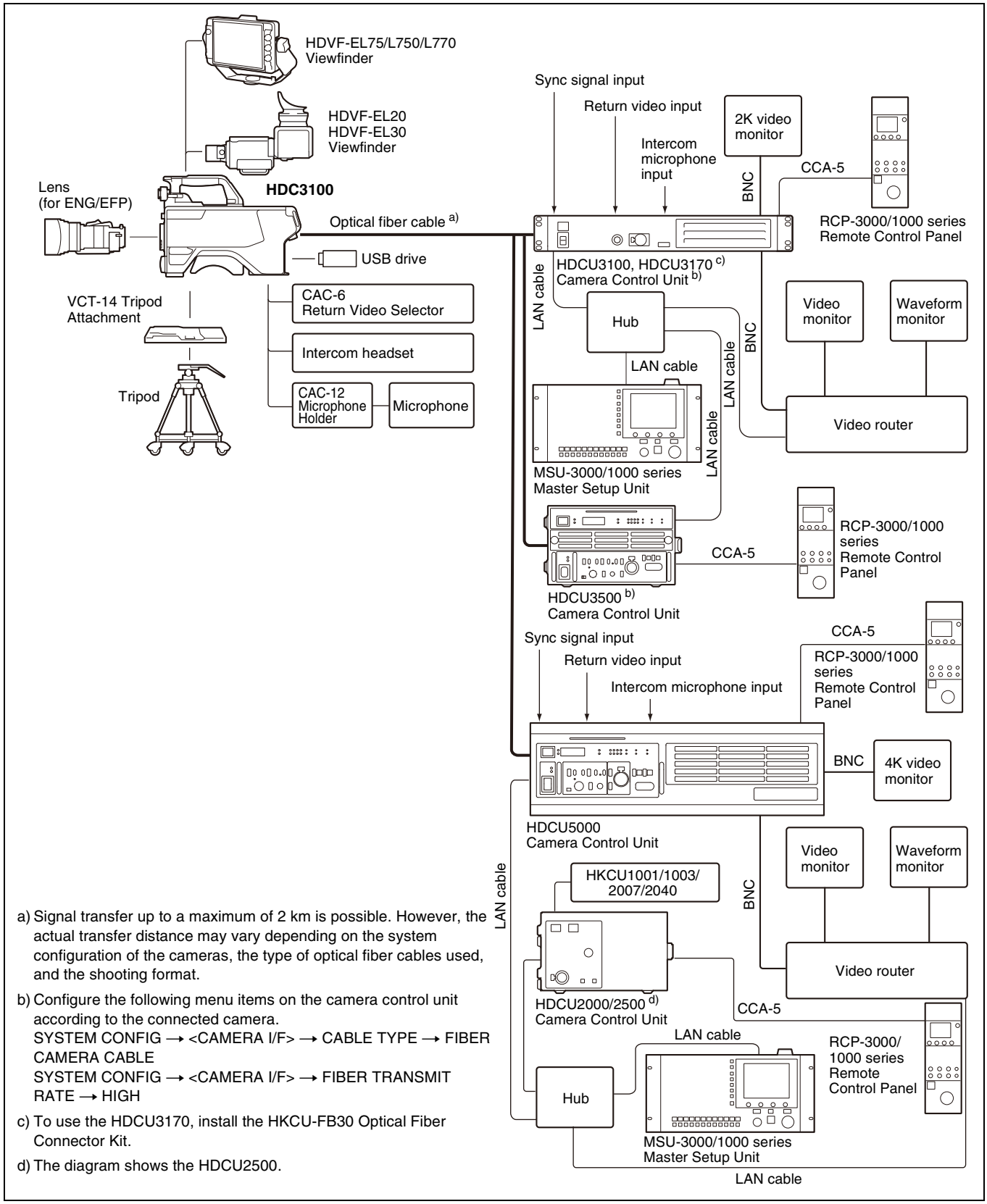
- M: Valid for 30 days
- W: Valid for 7 days

System Configuration

Note

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

Connection example (optical fiber transmission)



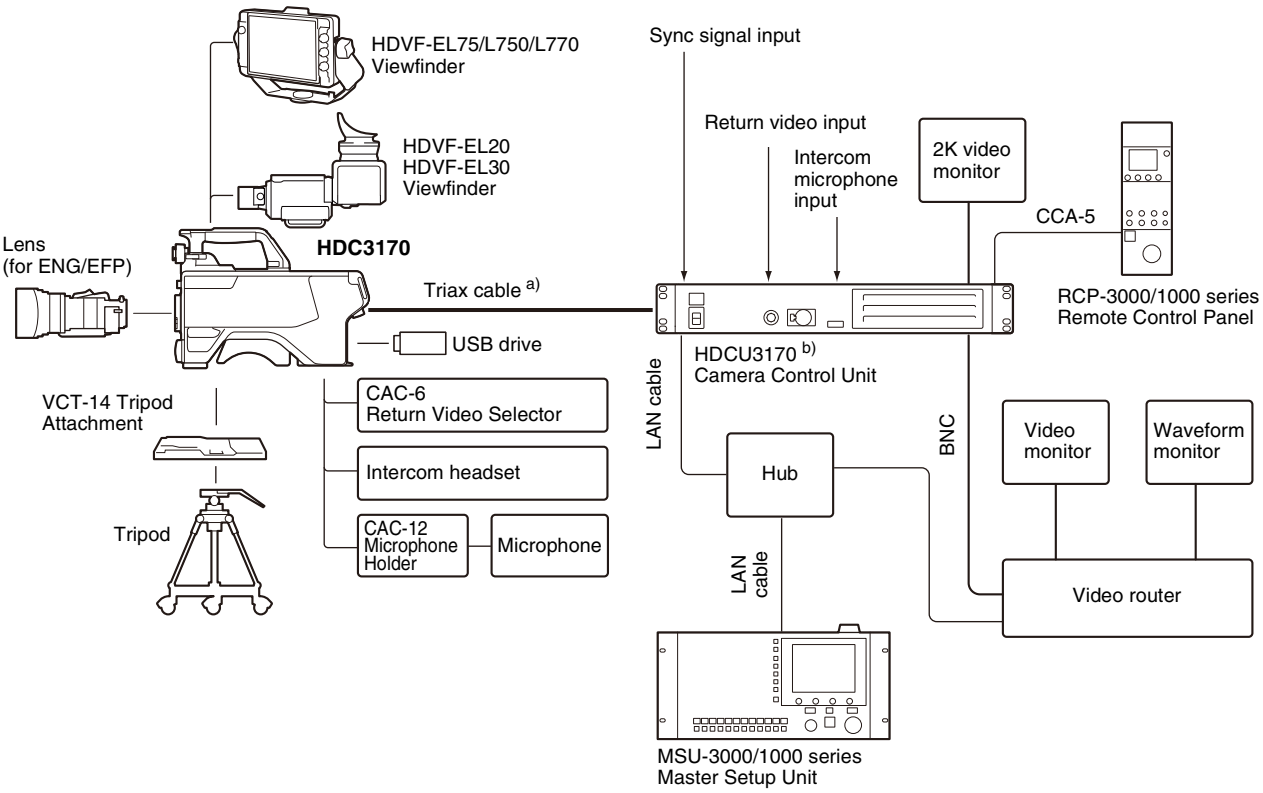
a) Signal transfer up to a maximum of 2 km is possible. However, the actual transfer distance may vary depending on the system configuration of the cameras, the type of optical fiber cables used, and the shooting format.

b) Configure the following menu items on the camera control unit according to the connected camera.
SYSTEM CONFIG → <CAMERA I/F> → CABLE TYPE → FIBER CAMERA CABLE
SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE → HIGH

c) To use the HDCU3170, install the HKCU-FB30 Optical Fiber Connector Kit.

d) The diagram shows the HDCU2500.

Connection example (digital triax transmission)

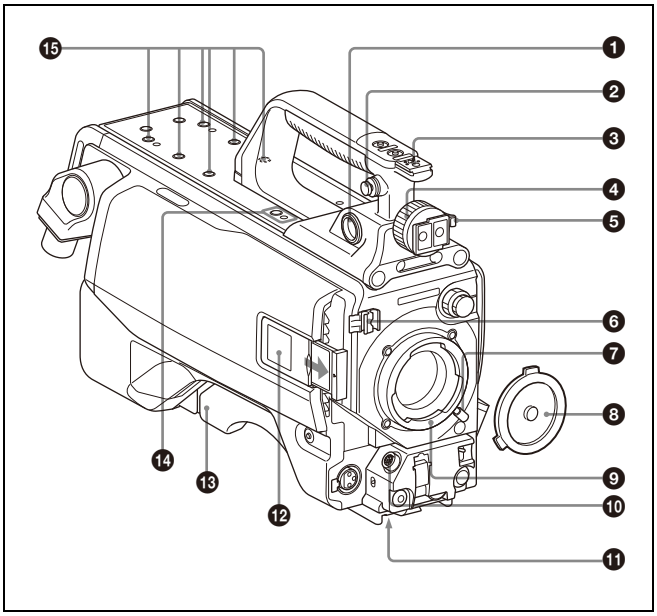


a) Signal transfer up to a maximum of 1.8 km is possible. However, the actual transfer distance may vary depending on the system configuration of the cameras, the type of triax cables used, and the shooting format.
For details, see *page 69*.

b) Configure the following menu item on the camera control unit.
SYSTEM CONFIG → <CAMERA I/F> → CABLE TYPE → TRIAX CABLE
For details, refer to the operation manual of the camera control unit.

Locations and Functions of Parts

Accessory Attachments



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

2 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.

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

4 Viewfinder left-right positioning ring
Loosen this ring to adjust the viewfinder position towards the left or right.

5 Viewfinder front-rear positioning lever
Unlock the front-rear positioning lever to adjust the viewfinder position towards the front or rear, then lock in the desired position.

For details on adjusting the viewfinder position, see "Attaching an Eyepiece Viewfinder" on page 11.

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

7 Lens fixing lever
To secure the lens in the lens mount.

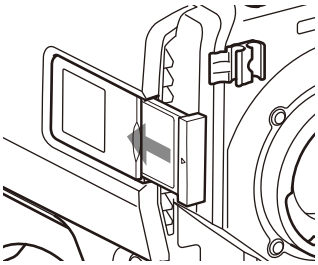
8 Lens mount cap
The cover can be removed by moving the lens fixing lever upwards. Always keep the lens mount covered with this cap when a lens is not attached.

9 Lens mount
To attach a lens.

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

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

12 Camera number
Insert the supplied camera number label to display the camera number.



13 Shoulder pad
You can adjust the position so that you can get the best balance for shooting with the camera on your shoulder.

For details, see "Adjusting the Shoulder Pad Position" on page 14.

14 Microphone holder attachment
Use to attach a CAC-12 Microphone Holder.

For details, refer to the microphone holder operation manual.

15 V-wedge shoe attachment points
Attach a V-wedge shoe here to mount an HDVF-EL75/L750/L770 Viewfinder.

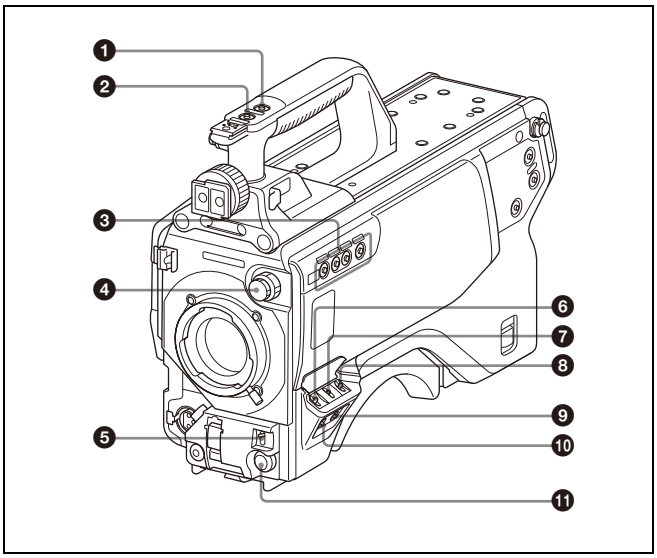
Note

Select either the front or rear V-wedge shoe attachment points to attach the V-wedge shoe. If the front position is used, it may restrict the tilt/pan angle available for the viewfinder.

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

Controls and Connectors

Front right



❶ INCOM (intercom) button
The intercom 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 function the same as the RET 1 button on the side *(page 8)* and RET/ASSIGNABLE button A on the operation panel on the rear of the camera *(page 9)*.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❸ ASSIGN (assignable) A, B, C, D switches
You can assign a function using the menu displayed on the viewfinder screen.
You can also display the assigned function name by attaching the corresponding label (supplied) for the assigned function.

❹ Filter select control
Turn the knob to select the internal filter setting.

❺ 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.

❻ GAIN switch
To select the 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.

❼ 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 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.

❽ 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): White balance is adjusted to a preset value corresponding to a color temperature of 3200K.
A or B: Selects memory A or B.

❾ 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.

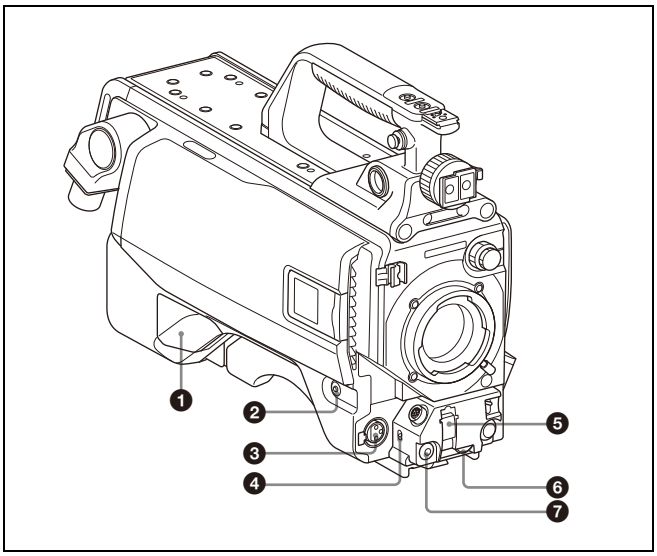
❿ STATUS/CANCEL switch
STATUS: When no menu is displayed on the viewfinder screen, the status information of this camera is displayed.
CANCEL: When a menu is displayed on the viewfinder screen, you can cancel any changed settings or return the display to the previous menu.

⓫ MENU SEL (menu select) knob/ENTER button (rotary encoder)
To select settings from menus displayed on the viewfinder screen (by rotating the knob) and to confirm settings (by pushing the button).
You can change the ECS frequency by pushing the ENTER button when no menu is displayed on the viewfinder screen. Make sure that the camera is used in standalone status without connecting a camera control unit, and the shutter mode is set to ECS. When the camera is used in standalone status and the shutter mode is set to other than ECS, the VF DETAIL function can be adjusted.

Note

When a camera control unit or a remote control device, such as an MSU or RCP-series Remote Control Panel, is connected, the functions of ❺ to ❽ are controlled from the external control device and the controls on the camera are disabled.

Front left



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

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 function the same as the RET 1 button on the handle *(page 7)* and RET/ASSIGNABLE button A on the operation panel on the rear of the camera *(page 9)*.
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 CH-1 connector *(page 10)* on the operation panel on the rear of the camera are alternately activated with the CH1 audio input select switch *(page 10)*.

❹ MIC (microphone) power switch
+48V: To supply a power of +48 V to the connected microphone.
OFF: Not to supply a power to the connected microphone.

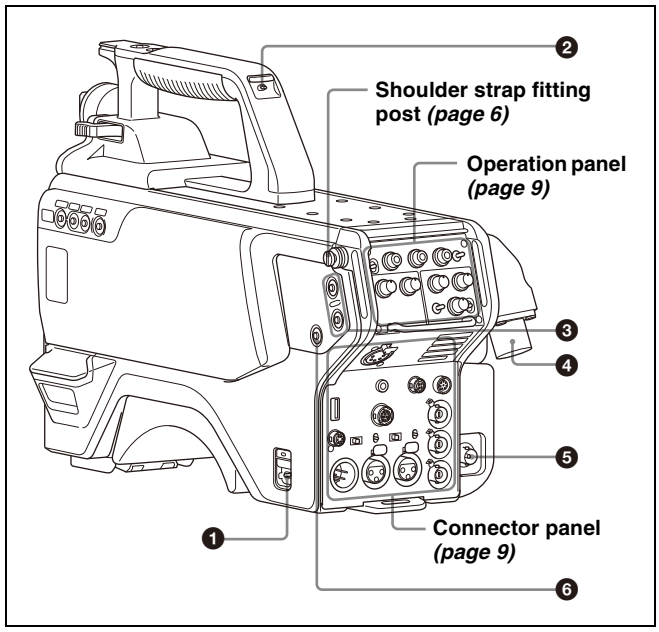
❺ SHUTTER switch
For setting the electronic shutter functions when the camera is used in standalone status without connecting a camera control unit.
OFF: The electronic shutter does not function.
ON: The electronic shutter is activated.
SEL: The shutter speed and shutter mode change each time the switch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

For details, see “Setting the Electronic Shutter” on page 17.

❻ INTERCOM LEVEL control
To adjust the intercom/earphone volume level.
The intercom level adjustment is enabled when the INTERCOM LEVEL switch *(page 9)* on the rear of the camera is set to “FNT.”

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 using RET/ASSIGNABLE button A, B, or C on the operation panel on the rear of the camera or using the menu.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

Rear



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

❷ 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 of a CALL button.
OFF: The tally lamp is prevented from lighting.

❸ RET 1/2 (return video 1/2) buttons
When pressed, the picture on the viewfinder screen changes to the return video signal selected using the operation panel on the rear of the camera or using the menu.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

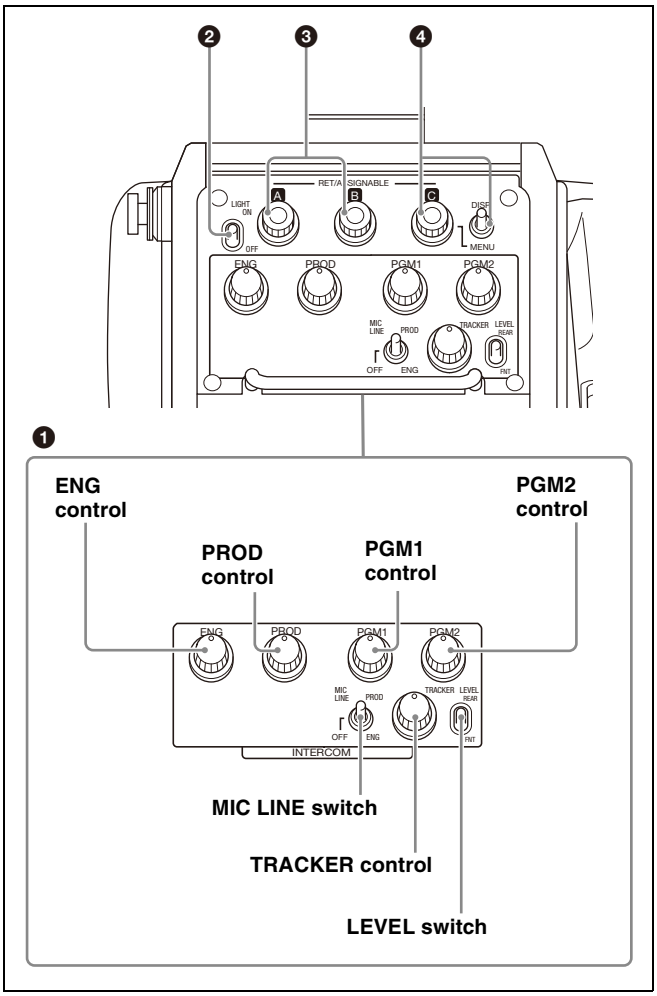
❹ CCU (camera control unit) connector
HDC3100: Connect a camera control unit using an optical electrical multi cable.
HDC3170: Connect a camera control unit using a triax cable.

❺ SDI 1 (serial digital interface 1) connector (BNC-type)
For 3G-SDI or HD-SDI signal output.
On the HDC3100, in addition to the above signals, HD PROMPTER signal output and HD TRUNK signal input are supported.

For details on the output signals, see “Setting the Camera Outputs” (page 21).

❻ CALL button
When this button is pressed, the red tally lamp of the RCP-3000/1000 series Remote Control Panel or the MSU-1000-series Master Setup Unit will light. Use to call the operator of the RCP or MSU.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

Operation panel



❶ INTERCOM controls and switches
ENG control, PROD control, PGM1 control, PGM2 control, MIC LINE switch, TRACKER control, and LEVEL switch for the intercom.

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.

MIC LINE (intercom microphone line) switch
Select the intercom line.

PROD: Use the producer line.

ENG: Use the engineer line.

OFF: Turn the intercom headset microphone off.

TRACKER control
Adjust the intercom audio listening level of an intercom connected to the TRACKER connector *(page 10)*.

LEVEL switch

REAR: The intercom audio listening level is adjusted with the controls on the operation panel.

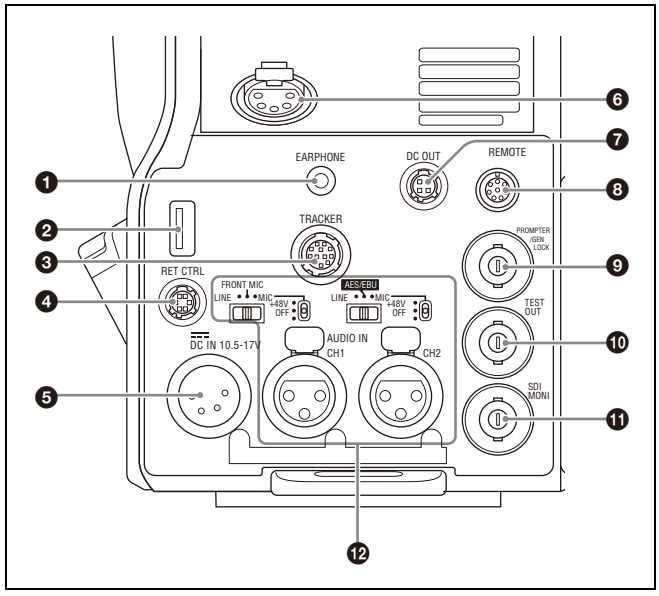
FNT: The intercom audio listening level is adjusted with the adjustment knobs on the operation panel and the INTERCOM LEVEL control *(page 8)* on the front of the camera.

❷ LIGHT switch
Set to ON to illuminate the operation panel.

❸ RET/ASSIGNABLE button A, B
Press the button to switch the function assigned to the button on the <REAR FUNCTION ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.

❹ RET/ASSIGNABLE button C / DISP/MENU switch
Press the button to switch the function assigned to the button on the <REAR FUNCTION ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.
When the DISP/MENU switch is set to the MENU position to display the MENU screen, you can perform menu operations using RET/ASSIGNABLE button C.

Connector panel



❶ EARPHONE jack (4-pole mini jack)
Connect to a headset, or earphones with microphone (3-pole/4-pole earphones), to input/output the intercom audio signal. For 4-pole earphones, the intercom line is linked to the INTERCOM setting.
Turn the microphone function on/off using HEADSET MIC *(page 45)* in the OPERATION menu. When set to ON, the microphone can be turned on/off in conjunction with the INTERCOM setting using the MIC LINE switch on the operation panel. The default setting is OFF.

❷ 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” (page 71).

❸ TRACKER connector (12-pin)
For external interface, such as intercom and tally.

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

❺ DC IN (DC power supply input) connector (XLR 4-pin)
Used for connection to the AC-DN10A AC Adaptor to supply power to the camera.

❻ INTERCOM connector (XLR 5-pin)
Used for input and output of intercom audio signals if an XLR 5-pin headset is connected.
The INTERCOM 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.

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

❽ REMOTE connector (8-pin)
For connection to an RCP-3000/1000 series Remote Control Panel, or MSU-1000/1500 Master Setup Unit.

Note

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

❾ PROMPTER/GENLOCK (prompter 1 signal output/ external gen-lock signal input) connector (BNC-type)
The PROMPTER OUT function is enabled when a camera control unit is connected. The GENLOCK IN function is enabled when a camera control unit is not connected.

GENLOCK IN: For input of an external gen-lock signal (VBS or 3-level sync) during stand-alone operation.

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.

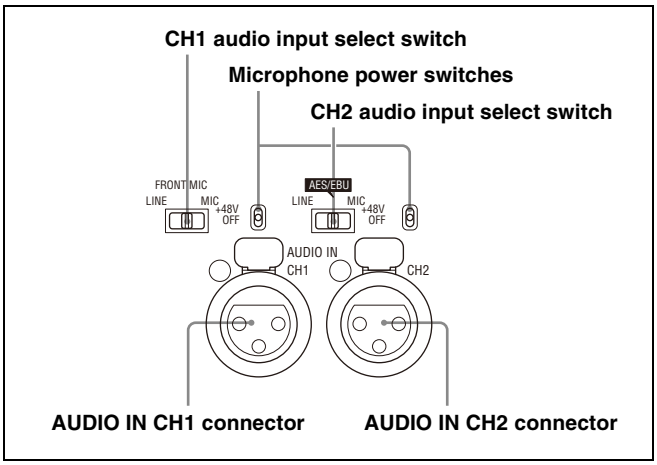
❿ TEST OUT connector (BNC-type)
To output the analog signal.
This can also output a VBS signal, HD-SYNC signal, or SD-SYNC signal, whichever is selected in the menu.

For details on the output signals, see “Setting the Camera Outputs” (page 21).

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

For details on the output signals, see “Setting the Camera Outputs” (page 21).

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

Note

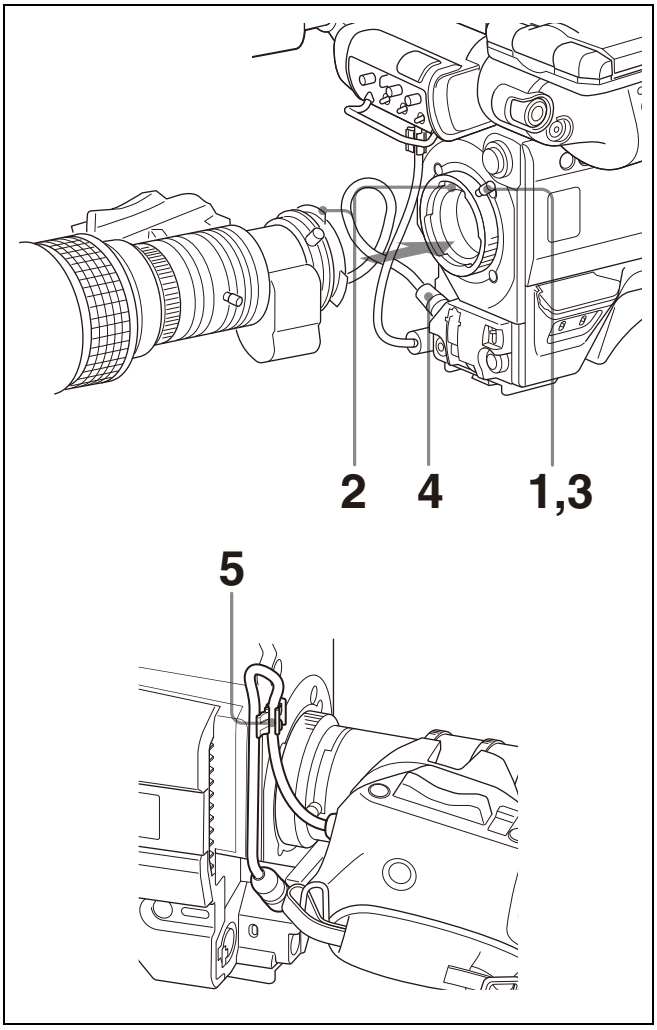
To supply +12 V power, contact a Sony sales representative or Sony service representative.

Preparations

Attaching a Lens

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

Attaching 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.

See "Displaying the focus assist indicators" on page 19 for the focus assist indicators.

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.

Adjusting procedure

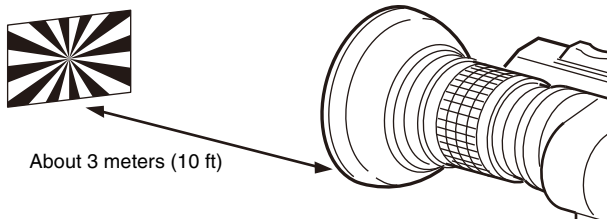
1 **Set the iris control to manual, and open the iris fully.**

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 an Eyepiece Viewfinder

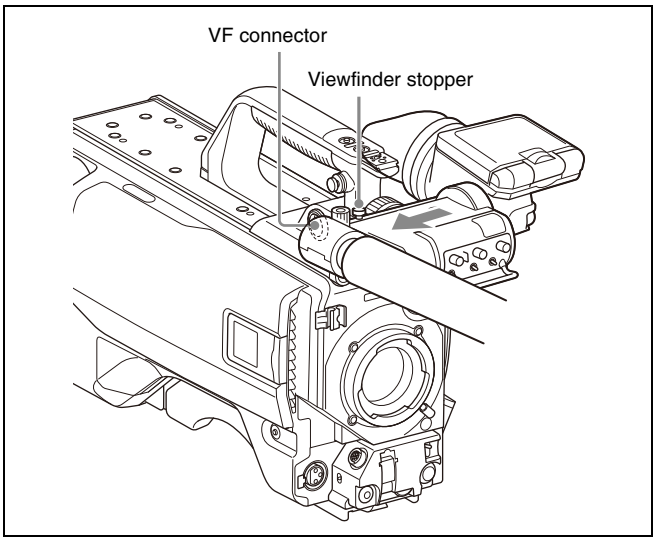
Warning

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

This section describes using a HDVF-20A/200/EL20/EL30 (the HDVF-EL30 is shown in the diagrams).

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.

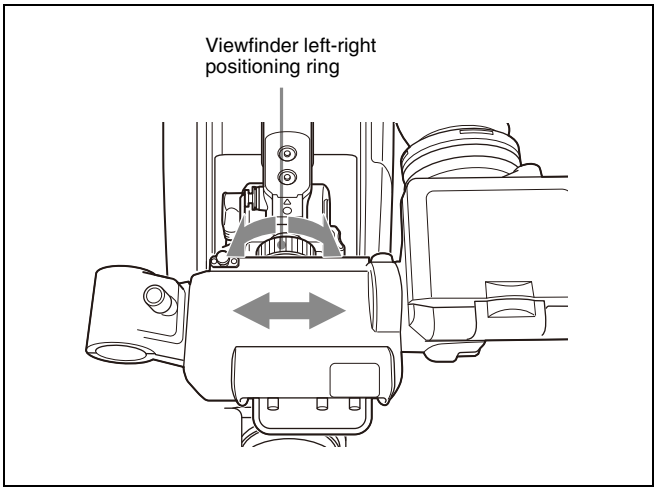
2 **Set the viewfinder left-right position, then tighten the left-right positioning ring (see *"To adjust the position to the left or right"* below).**

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

Adjusting the viewfinder position

The viewfinder position may be adjusted towards the front and rear and to the left and right to make it easier to view.

To adjust the position to the left or right

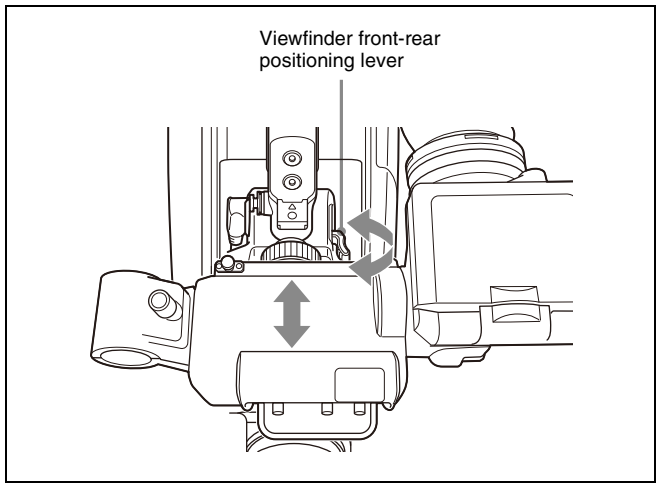


1 **Loosen the viewfinder left-right positioning ring.**

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 **Set the viewfinder front-rear positioning lever to the unlocked position.**

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

3 **Set the viewfinder front-rear positioning lever to the lock position to secure the viewfinder.**

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.

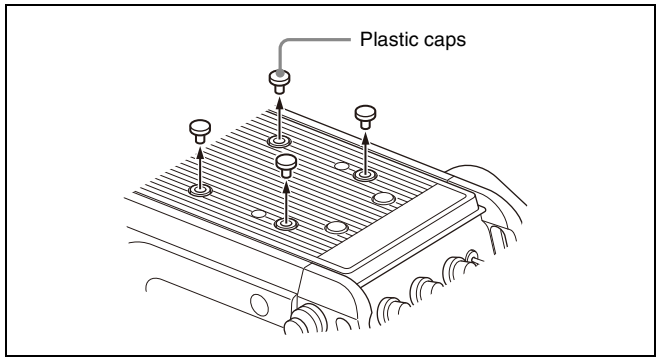
Attaching an Electronic Viewfinder

Attach the V-wedge shoe attachment (supplied with the viewfinder) to the camera and attach the viewfinder to the attachment.

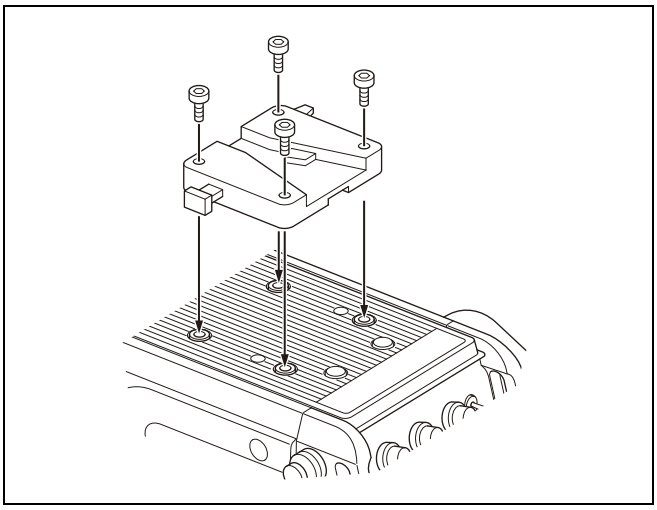
Notes

- When attaching the viewfinder to the camera or removing it from the camera, be sure to lock the viewfinder in its standard position.
- When removing the viewfinder from the camera, be sure to secure the tripod with its tilt-lock mechanism and hold the viewfinder firmly. Be careful not to fall or drop the viewfinder and camera.
- When attaching the V-wedge shoe attachment, be sure to use the supplied hexagonal screws.

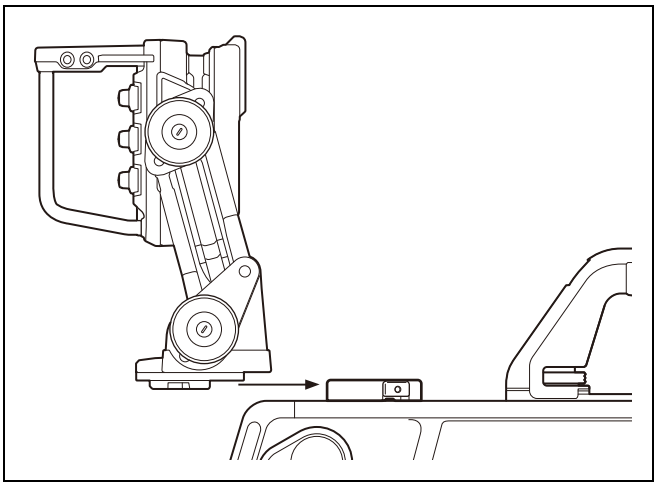
1 **Remove the four plastic caps from the camera.**



2 Attach the V-wedge shoe attachment to the camera using the supplied hexagonal wrench and four hexagonal screws (4×12).



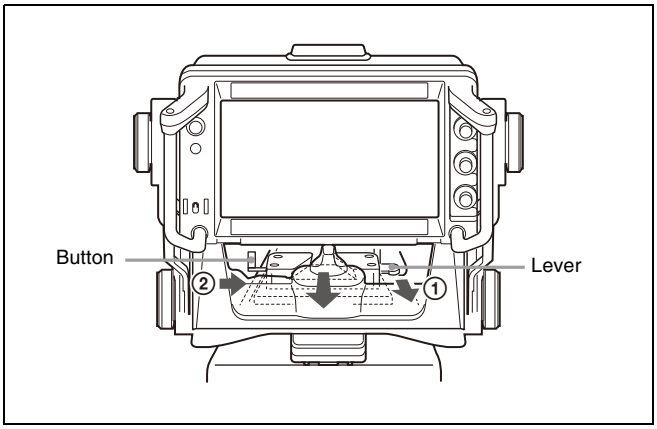
3 Insert the viewfinder firmly into the V-wedge shoe attachment.
There is an audible click when the viewfinder snaps into the attachment.



4 Connect the camera connector of the viewfinder to the VF connector of the camera.

Detaching the viewfinder

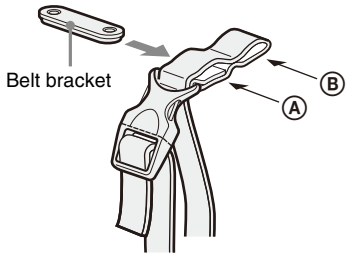
Pull the lever and push down the button while pulling the viewfinder toward you, as shown in the figure below.



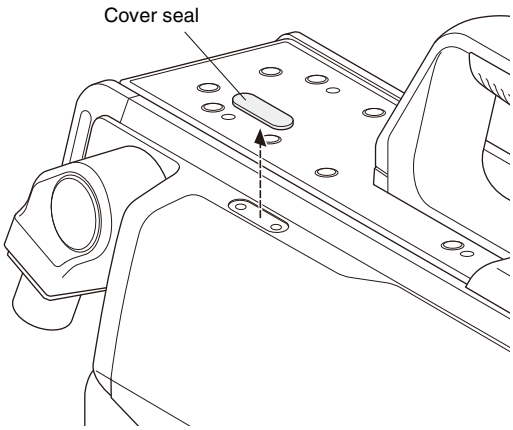
Attaching the Cable Clamp Belt (Supplied)

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

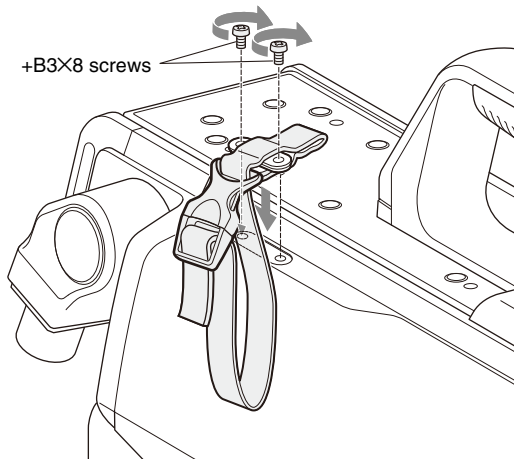
1 Insert the belt bracket into hole Ⓐ or Ⓑ of the cable clamp belt.



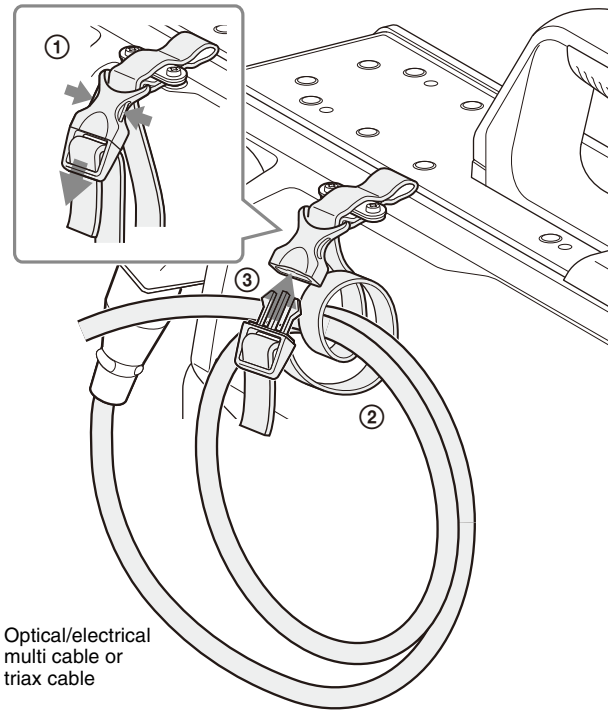
2 Peel off the cover seal from the camera as shown in the following diagram.



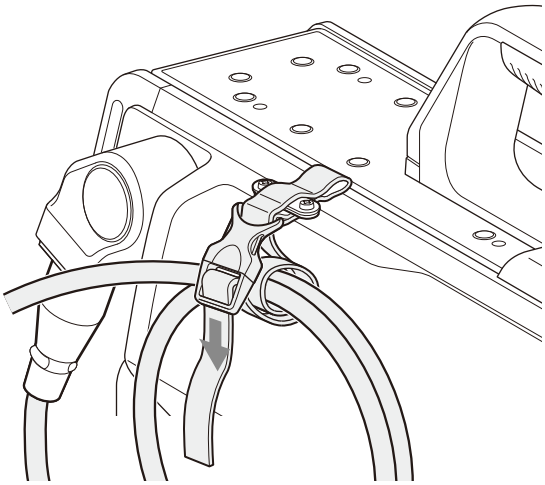
3 Secure the cable clamp belt to the camera, using the two supplied +B3×8 screws.



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



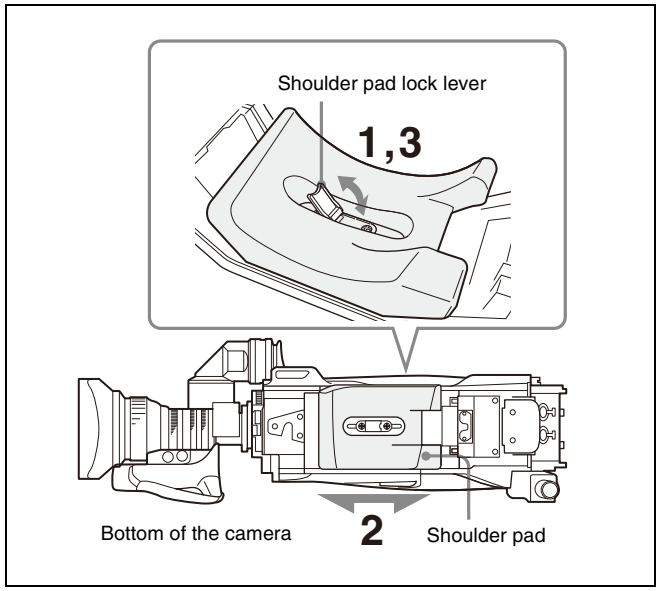
5 **Adjust the length by pulling down the end of the belt.**



Adjusting the Shoulder Pad Position

You can shift the shoulder pad from its center position (factory setting) backward by up to 10 mm (3/8 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.

Adjusting 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

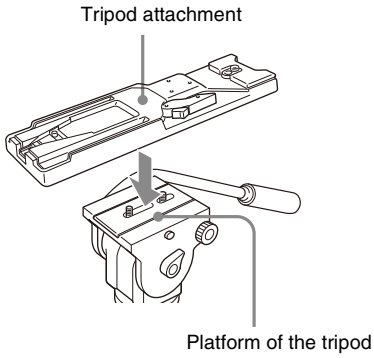
Mount the camera to a tripod using a VCT-14 Tripod Attachment.

Caution

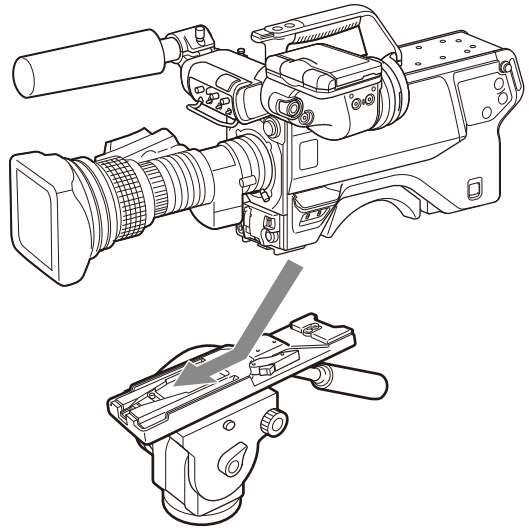
- Select an appropriate hole from among those at the bottom of the tripod attachment considering the balance of the weight of the camera and the tripod attachment. If an inappropriate hole is selected, the camera may fall over.
- Check that the size of the selected hole matches that of the screw of the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

Mounting procedure

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



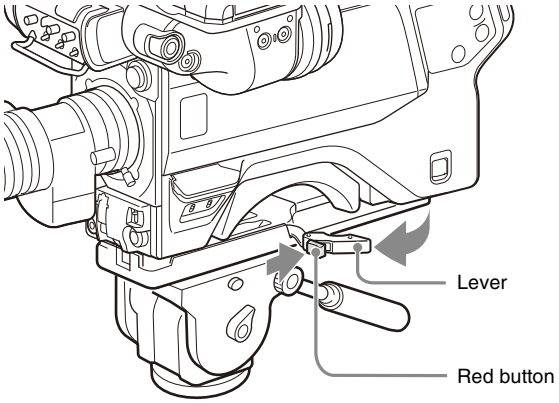
2 Place the camera on the tripod attachment, and slide forward it along the groove of the tripod attachment until it clicks.



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

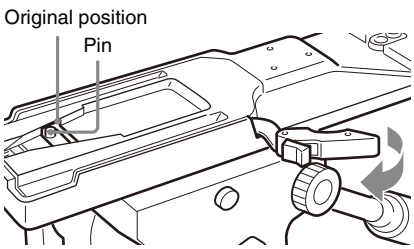
To remove the camera from the tripod attachment

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

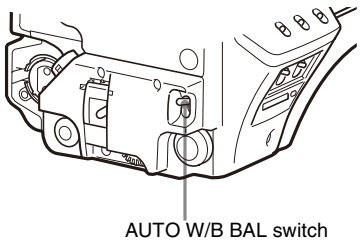
After the process of adjusting the black balance or white balance begins, messages about the progress and results of the adjustment will be displayed on the viewfinder screen.

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.

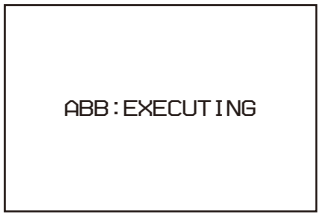
Adjusting the black balance

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

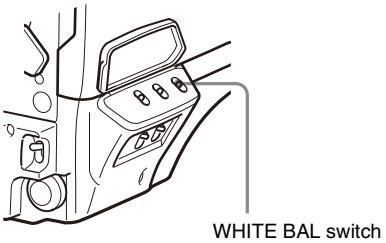
If the automatic black balance adjustment process does not end successfully, the error message “ABB: NG” will be displayed on the viewfinder screen for approximately three seconds.
If this error message is displayed, try black balance adjustment again.
If the error message continues to be displayed after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

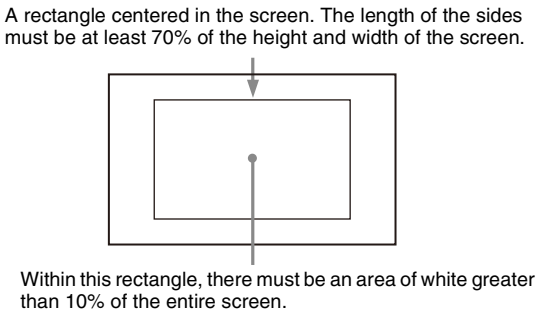
Adjusting the white balance

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



2 **Select the filter setting using the filter select control according to the lighting conditions.**

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.

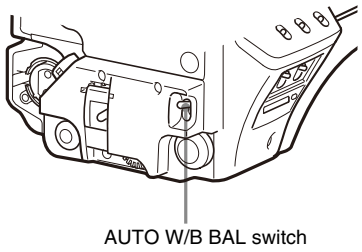


Note

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 and release the switch.**



The switch will return to the center position, and adjustment will be performed.

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 4300 Hz	Use to obtain images on video monitors without horizontal striping

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

Note

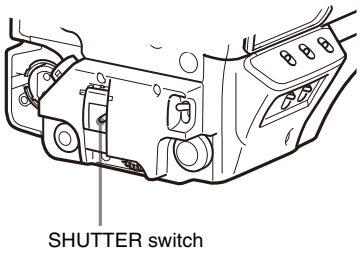
With artificial lighting, particularly fluorescent lights and mercury vapor lamps, the brightness appears to be constant, but in fact the strength of the red, green, and blue components varies with the power supply frequency. This phenomenon is known as "flicker." When using the electronic shutter under these lighting conditions, there are certain cases in which the flicker is more noticeable. In particular, color flicker is evident when the power frequency is 60 Hz. In areas where the power frequency is 50 Hz, setting the shutter speed to 1/100 second will reduce the flicker.

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

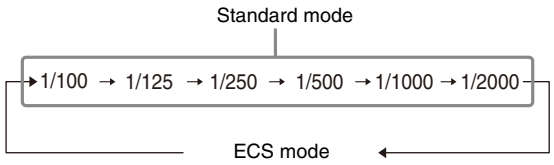
1 Push the SHUTTER switch from the ON position to the SEL position.



The current shutter setting will be displayed in the setting change/adjustment process message display area of 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:

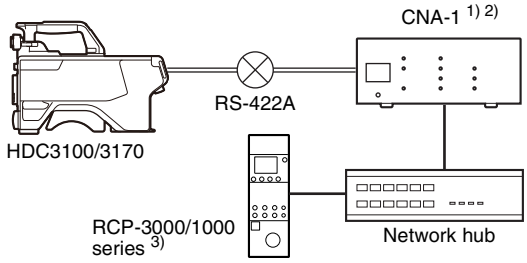
Example: with 59.94i



Setting the Transport Conversion Function

This function converts the communications protocol from the camera network system protocol to the simple protocol internally in the HDC3100/3170.
Using the simple protocol for communication between the HDC3100/3170 and CNA-1 enables camera control using transmission lines or networks that do not support the camera network system protocol or which have high latency, such as wireless networks.
You can toggle this function on/off on the <SIMPLE PROTOCOL> page *(page 59)*.

For details about configuring the CNA-1, refer to the operation manual of the CNA-1.



1) Connect the RS-422A cable to the I/O connector of the CNA-1.

2) Set CNS Mode to Bridge, and Emulation Mode to CAM.

3) Set CNS Mode to Bridge.

Transmission lines/networks that support the simple protocol

Transmission lines/networks that meet the following conditions are supported.

- Latency: 1 second or lower (one way)
- Bandwidth: 100 kbps or higher

Connectors used for simple protocol communication

Use the following connector on the HDC3100/3170.

- REMOTE connector on the connector panel

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 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to “TOP” and push on the MENU SEL knob/ENTER button.**
The TOP MENU screen is displayed.

```
<TOP MENU>

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

4 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to OPERATION and push on 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.<FOCUS POSITION METER1
 06.<FOCUS POSITION METER2
 07.<FOCUS ASSIST>
 08.<ZEBRA>
 09.<CURSOR>
 10.<BOX CURSOR FILE>
 11.<VF DYNAMIC CONTRAST>
 12.<SPIRIT LEVEL>
 13.<VF OUT>
```

5 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to <VF DETAIL> and push on 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         : 100%
 ZOOM LINK    :   ON    50%
COLOR DETAIL  : OFF
 COLOR        : BLUE
 PEAK COLOR   : OFF
 CHROMA LEVEL:  25%
RETURN DISABLE : OFF
DYNAMIC FOCUS: (OFF)
```

6 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and push on 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 full 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 at the column next to 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.

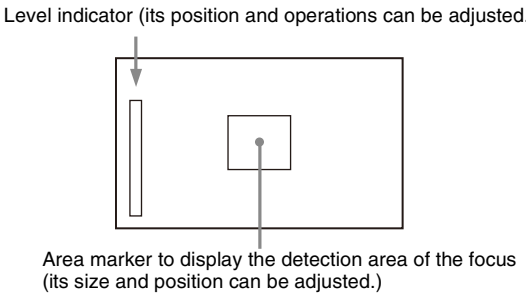
CHROMA LEVEL: To reduce the chroma components of the video signal (only for video signals on the viewfinder).

7 Rotate the MENU SEL knob/ENTER button to display the desired setting and push on 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 step 1 to 4 in "Adding the VF detail signal").

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

```
<FOCUS ASSIST>    ➡ 07 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 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and push on 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: The size of the detection area can be changed. (If the area size is too large, both the subject and the background are included in the area, making the indicator display may easily 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 Rotate the MENU SEL knob/ENTER button to display the desired setting and push on the MENU SEL knob/ ENTER button.

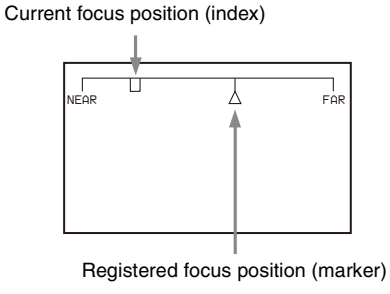
5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.

Notes

- The level indicator and the effect area marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.
- The area marker and the aspect safety marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.
- When displaying the focus assist indicators, check that the flange focal length has been precisely adjusted.
  See "Adjusting the Flange Focal Length" on page 11 for the flange focal length.

Setting the Focus Position Meter Function

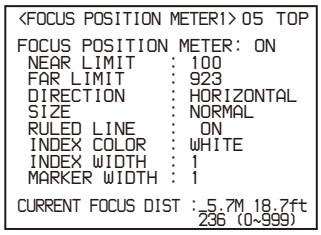
The focus position meter function allows you to graphically display the registered focus position (marker) and the current focus position (index) graphically on the viewfinder screen.



You can set the focus to the registered point easily by adjusting the focus until the index position overlaps the marker position (adjusted state). In the adjusted state, you can display a color frame and marker name on the viewfinder screen.

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 POSITION METER1> or <FOCUS POSITION METER2>, and press the MENU SEL knob/ENTER button.**
The <FOCUS POSITION METER1> page or <FOCUS POSITION METER2> 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 the focus position meter
Setting FOCUS POSITION METER to ON displays the focus position meter on the viewfinder screen.
You can set the display format with the <FOCUS POSITION METER1> page items below.

NEAR LIMIT: Sets the NEAR edge of the focus position meter.

FAR LIMIT: Sets the FAR edge of the focus position meter.

The focus position range to display varies depending on the NEAR LIMIT and FAR LIMIT settings. The full range is displayed by setting NEAR LIMIT to 0 and FAR LIMIT to 999.

DIRECTION: Selects whether to display the meter horizontally at the top of the screen or vertically on the right edge of the screen.

SIZE: Sets the size of the meter.

RULED LINE: Turns the display of guide lines on the meter on/off.

INDEX COLOR: Sets the color of the index.

INDEX WIDTH: Sets the width of the index.

MARKER WIDTH: Sets the width of the marker.

To set the adjustment sensitivity and display content
You can set the adjustment sensitivity and configure the display in the adjusted state using ADJUSTED SIGN on the <FOCUS POSITION METER2> page.

SENSE: Sets the adjustment sensitivity. Increasing the value increases the sensitivity (making determination of adjusted state more precise).

NAME DISP: Turns the display of the marker name in the adjusted state on/off (DISPLAY screen only).

FRAME DISP: Turns the display of a color frame (adjustment frame) on the screen in the adjusted state on/off.

FRAME WIDTH: Sets the width of the adjustment frame.

To configure the marker display settings
You can set the marker display using MARKER CONFIG on the <FOCUS POSITION METER2> page.

REG: Registers a marker at the index position.

DISP: Turns the marker display on/off.

COLOR: Sets the color of the marker. This also sets the color of the adjustment frame.

NAME: Sets the name of the marker.

POS: Adjusts the marker position manually.

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.**

Marker registration

You can register a marker for the focus position meter using RET/ASSIGNABLE buttons A, B, and C.

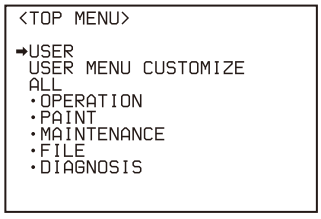
Setting the VF Dynamic Contrast Function

Emphasizing the contrast in the image on the viewfinder screen makes it easier to check the focusing condition for high brightness areas and for subjects with low contrast levels.

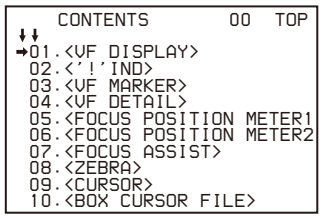
1 **Turn on the camera.**

2 **Set the DISPLAY switch to MENU while holding the MENU SELECT knob pressed.**
The camera enters Menu mode, and “TOP” is displayed at the upper right corner of the screen.

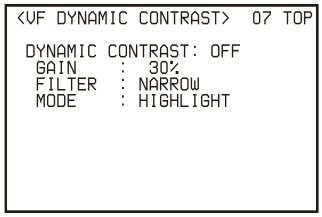
3 **Turn the MENU SELECT knob to align the arrow marker (➡) to “TOP” and press the MENU SELECT knob.**
The TOP MENU screen appears.



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



5 **Turn the MENU SELECT knob to align the arrow marker (➡) to <VF DYNAMIC CONTRAST> and press the MENU SELECT knob.**
The <VF DYNAMIC CONTRAST> page is displayed.



6 **Turn the MENU SELECT knob to align the arrow marker (➡) to the item to be set and press the MENU SELECT knob.**

To use the VF dynamic contrast signal
Set DYNAMIC CONTRAST to ON to add the contrast signal in the image. You can adjust the GAIN in the range of 0 to 100%.
You can adjust the characteristics of the contrast signal with the menu items below.

FILTER: Adjust the selection range of the contrast extraction target pixel.

MODE: Selection of contrast signal addition mode. LINEAR adjusts the contrast of the entire image. HIGHLIGHT emphasizes the contrast of the high brightness range. FOGGY emphasizes the contrast of the image which is hazy and in low contrast.

7 **Turn the MENU SELECT knob to display the desired setting and press the MENU SELECT switch.**

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

Setting the HDR Look Function

This function allows you to select the Look (image creation) setting when outputting the image captured by the camera as an HDR image on a display using the following three options.

Live: Vivid HDR image with wide dynamic range, high contrast and color development, while maintaining the Look affinity of an SDR image.

Mild: HDR image with more subdued contrast and color development than Live.

Natural: HDR image with HLG original Look (lower sensitivity setting, less noise, and moderate coloring). (This setting can be selected only when the output signal OETF setting is HLG)

The function is configured on the <OUTPUT FORMAT> page.

Setting the Camera Outputs

You can specify video signals directly output from the camera, with menu operations.
You can display the signal name by attaching a label (supplied) for the configured output signal name to the connector label area.

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 output from the SDI MONI connector is 1080i, even if the format setting is 720P.

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	Item	Setting
<SDI OUT>	SDI-MONI OUT	MAIN

To output as SD-SDI

Menu page	Item	Setting
<SDI OUT>	SDI-MONI OUT	SD-SDI
	DOWN CONVERTER SELECT	MAIN

To output as VBS

Menu page	Item	Setting
<TEST OUT>	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	Item	Setting
<SDI OUT>	SDI-MONI OUT	RET

To output as SD-SDI

Menu page	Item	Setting
<SDI OUT>	SDI-MONI OUT	SD-SDI
	DOWN CONVERTER SELECT	RET

To output as VBS

Menu page	Item	Setting
<TEST OUT>	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	Item	Setting
<SDI OUT>	SDI-MONI OUT	VF

To output as SD-SDI

Menu page	Item	Setting
<SDI OUT>	SDI-MONI OUT	SD-SDI
	DOWN CONVERTER SELECT	VF

To output as VBS

Menu page	Item	Setting
<TEST OUT>	OUTPUT	VBS
	DOWN CONVERTER SELECT	VF

Outputting 3G-SDI

The SDI 1 output forms 3G-SDI output.

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

Menu page	Item	Setting
<OUTPUT FORMAT>	ACTIVE LINE	1080
	(Format)	59.94P or 50P
<SDI OUT>	SDI-1	HD/3G-A/SDR HD/3G-B/SDR, etc. *See the SDI output format tables (page 60).*

Note

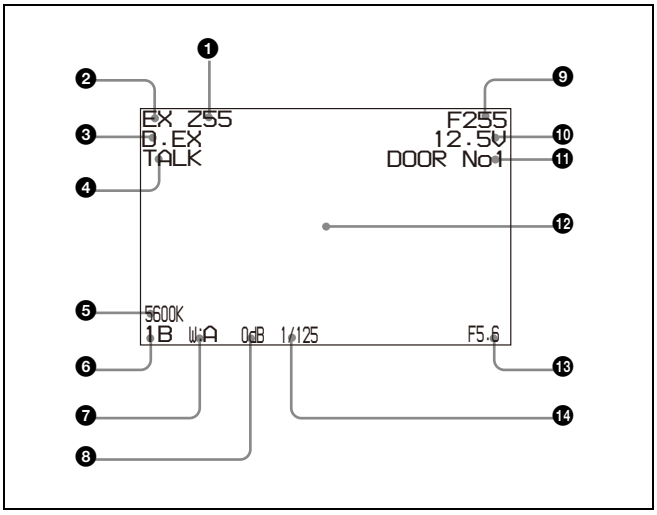
On the HDC3100, HZC-PRV50/PRV50M/PRV50W camera operating software (option) is required for 3G-SDI output.

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). Shows how close it is to the telephoto side.

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

❸ Digital extender
“D.EX” is displayed when a digital extender is in use.

❹ TALK indication
Displayed when the intercom microphone is set to ON.

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) indicates the ND filter, and the letter (B, C, D) indicates 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 Marker name of the focus position meter
Displays the marker name of the focus position meter.

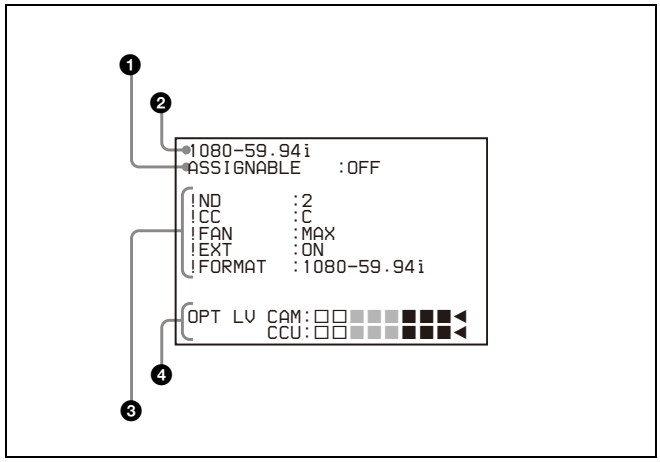
⓬ Setting change / adjustment process message area
This area is only used when the MESSAGE item of the menu is set to other than OFF.

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 STATUS/CANCEL switch toward STATUS

The status display is changed to show the following items:



❶ Assignable switch indication
The function assigned to ASSIGN switch D *(page 7)* is indicated.

For the functions that can be assigned, see OPERATION menu <SWITCH ASSIGN1> (page 40).

❷ Format indication
The current video format is displayed.

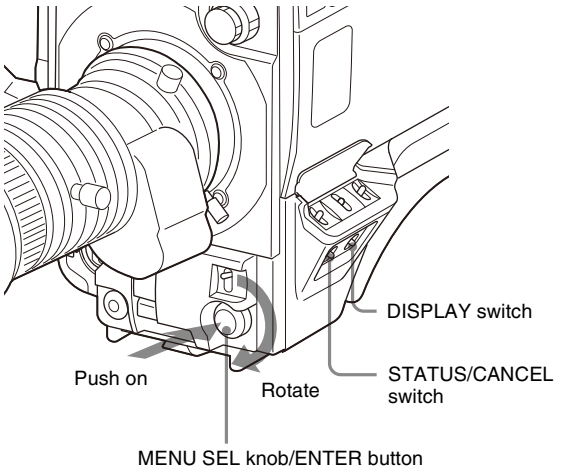
❸ ‘!’ indication area
This area is used to display abnormal statuses, using the <‘!’IND> function. Display options can be set, using the menu.

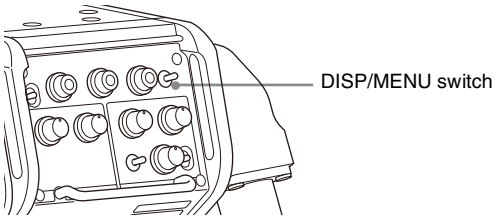
For details, see OPERATION menu <‘!’ IND> (page 35).

❹ Light sensor level indicators (HDC3100 only)
This area shows the light-receiving levels in segments.
CAM: Light-receiving level at the CCU connector *(page 8)* of the camera
CCU: Light-receiving level at the CAMERA connector of the CCU

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.
You can also display the menu by setting the DISP/MENU switch on the rear side 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 STATUS/CANCEL switch pressed toward 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 on the USER menu, see “Editing the USER Menu” on page 26.

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

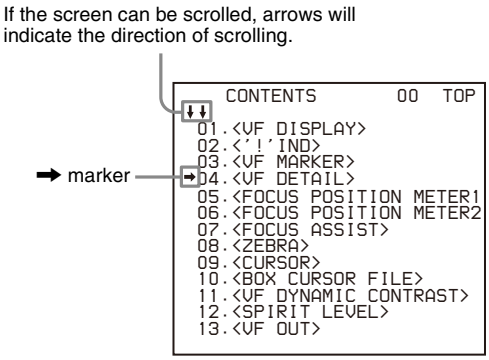
1 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired menu indication.**

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

Selecting Pages

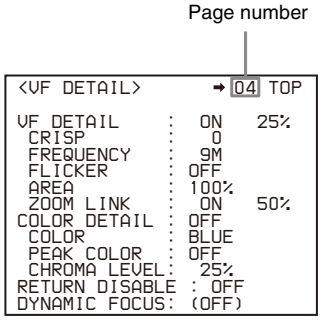
When selecting a page from a CONTENTS page

Example: CONTENTS page of the OPERATION menu



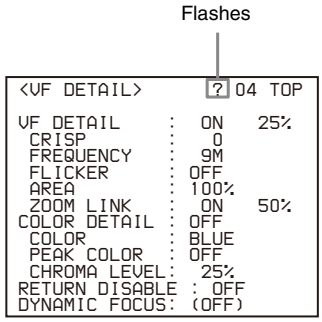
Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired page indication, then push on the MENU SEL knob/ENTER button.

The selected page is displayed.



To change the displayed page

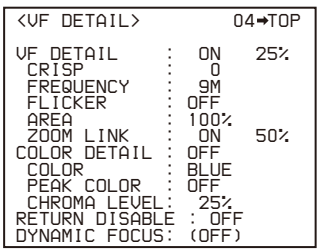
1 Check that the arrow marker (➡) is located at the left of the page number, then push on the MENU SEL knob/ENTER button.
The arrow marker (➡) changes to a flashing question (**?**) mark.



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

3 When the desired page is displayed, push on the MENU SEL knob/ENTER button.
The "**?**" mark will change 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 is resumed.

Setting the Menu Items

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

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

2 Push on the MENU SEL knob/ENTER button.
The arrow marker (➡) will change to a flashing "**?**" mark.

3 Rotate 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 STATUS/CANCEL 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 Push on the MENU SEL knob/ENTER button.
The "**?**" mark will change 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 enter a character, then push on the MENU SEL knob/ENTER button.
Another cursor appears on the character list.

2 **Set the cursor to the character to be entered and push on 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 push on the MENU SEL knob/ENTER button.

To restore the previous string, select ESC and push on 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.

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 title	USER menu No.	Source menu / page No.	
<VF OUT>	U01	OPERATION	12
<VF DETAIL>	U02	OPERATION	04
<FOCUS ASSIST>	U03	OPERATION	07
<VF DISPLAY>	U04	OPERATION	01
<'!' IND>	U05	OPERATION	02
<VF MARKER>	U06	OPERATION	03
<CURSOR>	U07	OPERATION	09
<ZEBRA>	U08	OPERATION	08
<SWITCH ASSIGN1>	U09	OPERATION	14
<SWITCH ASSIGN2>	U10	OPERATION	15
<HEADSET MIC>	U11	OPERATION	19
<OUTPUT FORMAT>	U12	MAINTENANCE	M11
<TEST OUT>	U13	MAINTENANCE	M12
<SDI OUT>	U14	MAINTENANCE	M13
<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 29.

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

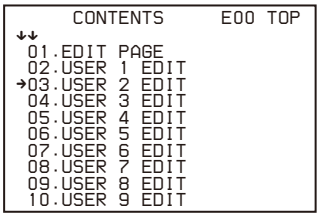
The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.
While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each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

To add items to a page

Proceed as follows.

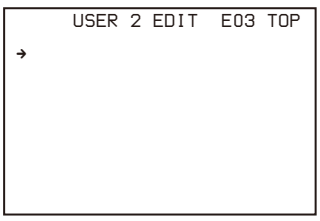
1 **Set the DISPLAY switch from the OFF position to the MENU position while holding the MENU SEL knob/ ENTER button pressed.**
The TOP MENU screen appears.

2 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "USER MENU CUSTOMIZE" then push on 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.

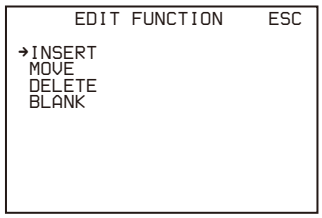


If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.

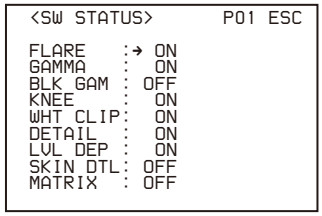
3 **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to any of USER 1 EDIT to USER 19 EDIT then push on the MENU SEL knob/ENTER button to display the page.**
If a different page is displayed, turn the MENU SEL knob/ENTER button until the desired page appears, then push on the MENU SEL knob/ENTER button to select the page.
Example: When you select the USER 2 EDIT page



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



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



6 **Add the items.**

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

② Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired item then push on 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 push on the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

2 **Select "DELETE," and push on 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 push on the MENU SEL knob/ENTER button.**

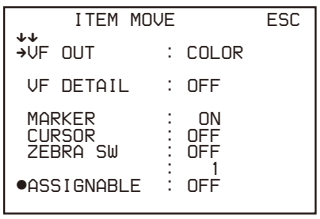
To change the order of items on a page

Proceed as follows:

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

2 **Select MOVE then push on 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 push on the MENU SEL knob/ENTER button.**



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 push on 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

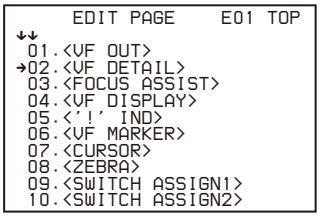
You can add a page to the USER menu, delete a page from the USER menu, or replace pages, using the EDIT PAGE of the USER MENU CUSTOMIZE menu.

To add a page

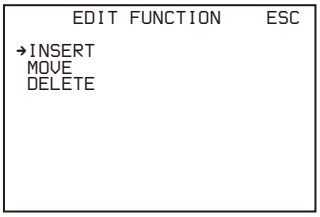
Proceed as follows:

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 menu has been used before, the last accessed page appears.

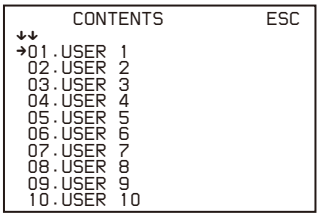
2 **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "EDIT PAGE" then push on the MENU SEL knob/ENTER button to display the EDIT PAGE screen. If a different page is displayed, turn the MENU SEL knob/ENTER button until the EDIT PAGE screen appears,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



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



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



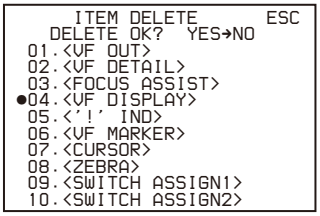
5 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired page, then push on the MENU SEL knob/ENTER button.**
This adds the number and name of the selected page above the item selected in step **3**.

To cancel addition of a page
Before pushing 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 push on 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 push on the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

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



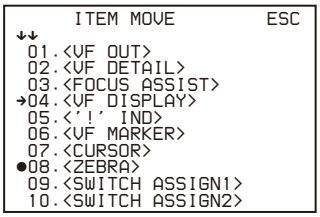
3 **To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to “YES,” then push on the MENU SEL knob/ENTER button.**

To move a page
Proceed as follows:

1 **Display 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.**
The EDIT FUNCTION screen appears.

2 **Select “MOVE” then push on the MENU SEL knob/ENTER button.**
The EDIT PAGE screen appears again.

3 **Turn MENU SEL knob/ENTER button to move the arrow marker (➡) to the position to which you wish to move the page selected in step 1.**



4 **Push on 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.

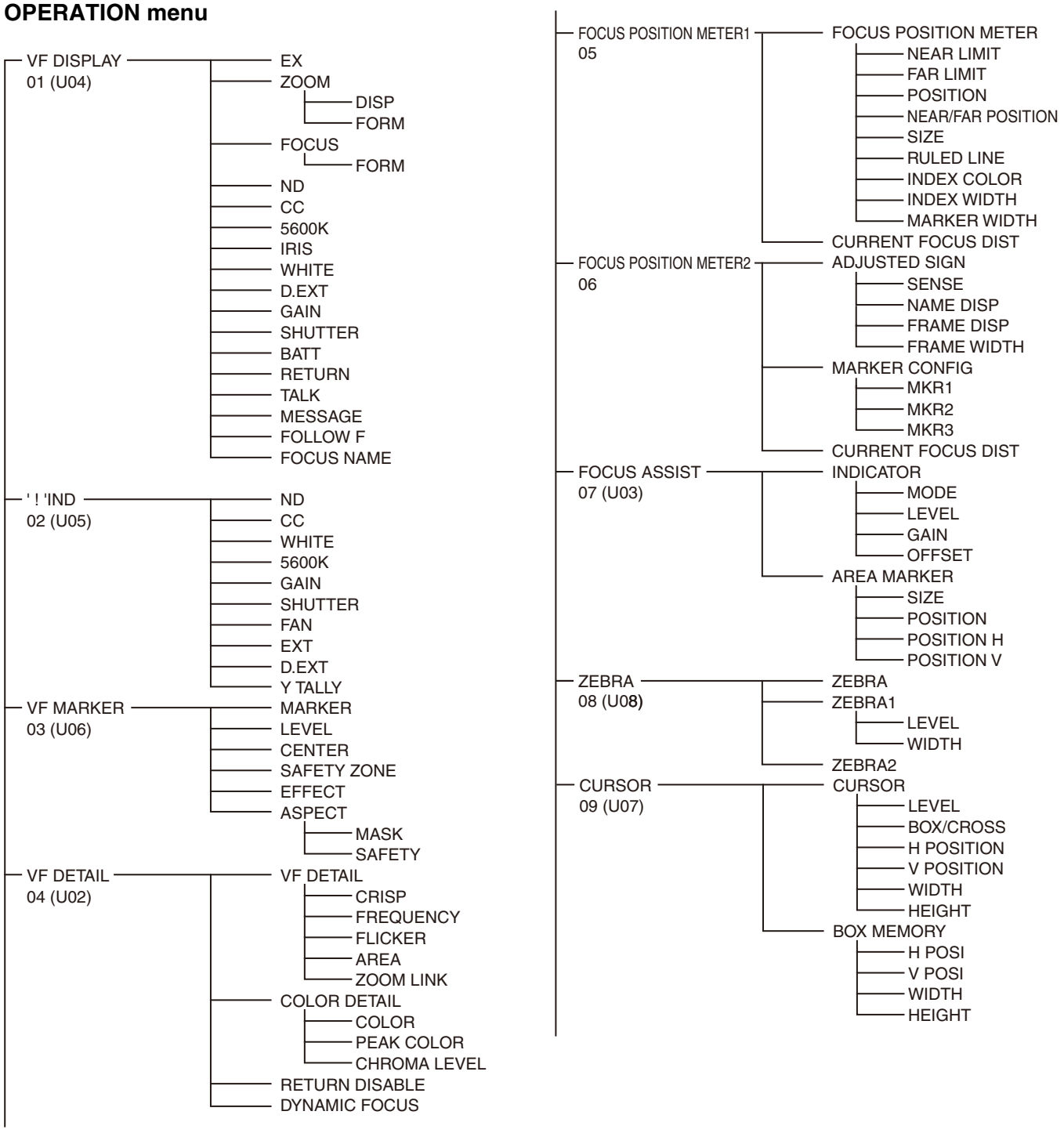
- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

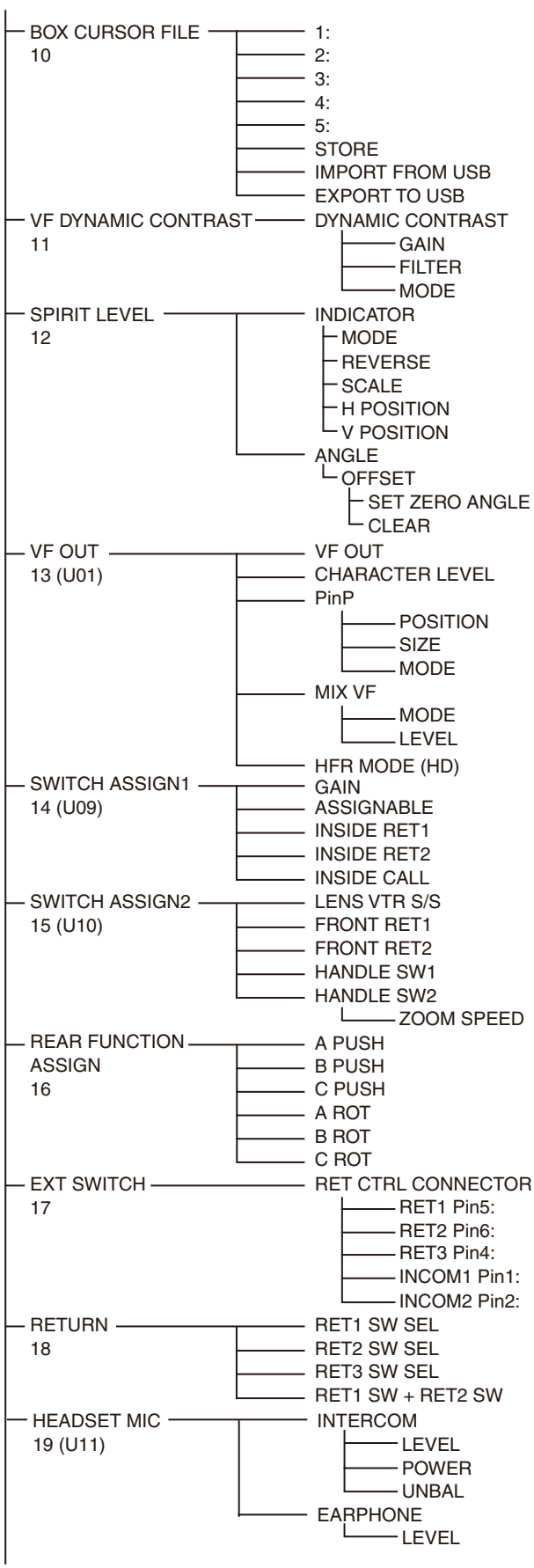
Notes

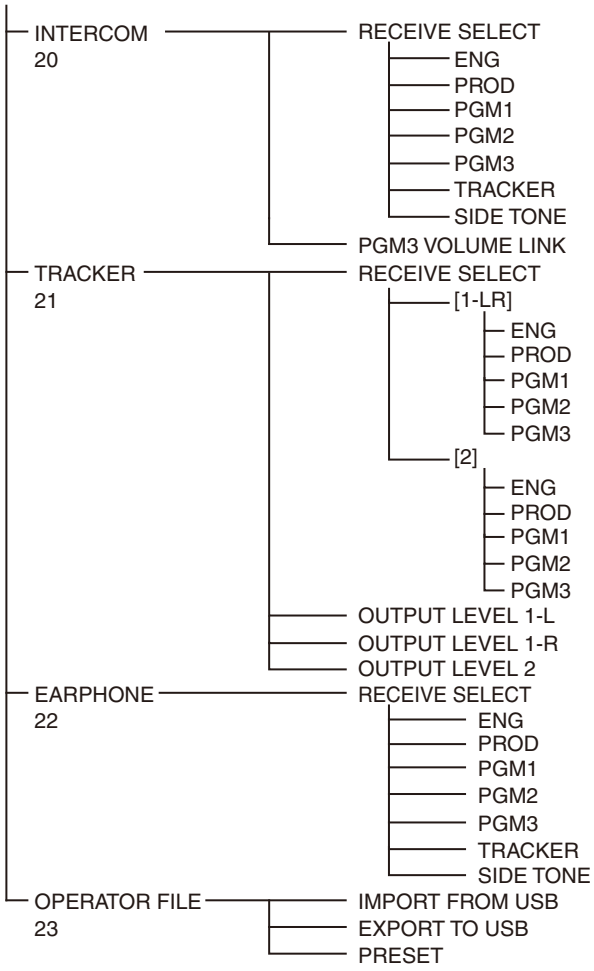
CCU: HDCU3100/3170/3500/2000/2500 Camera Control Unit
Bold values (e.g. ON, OFF, 0): Default settings
Execute using ENTER: Execute by pushing on the MENU SEL knob/ENTER button.

Menu Tree

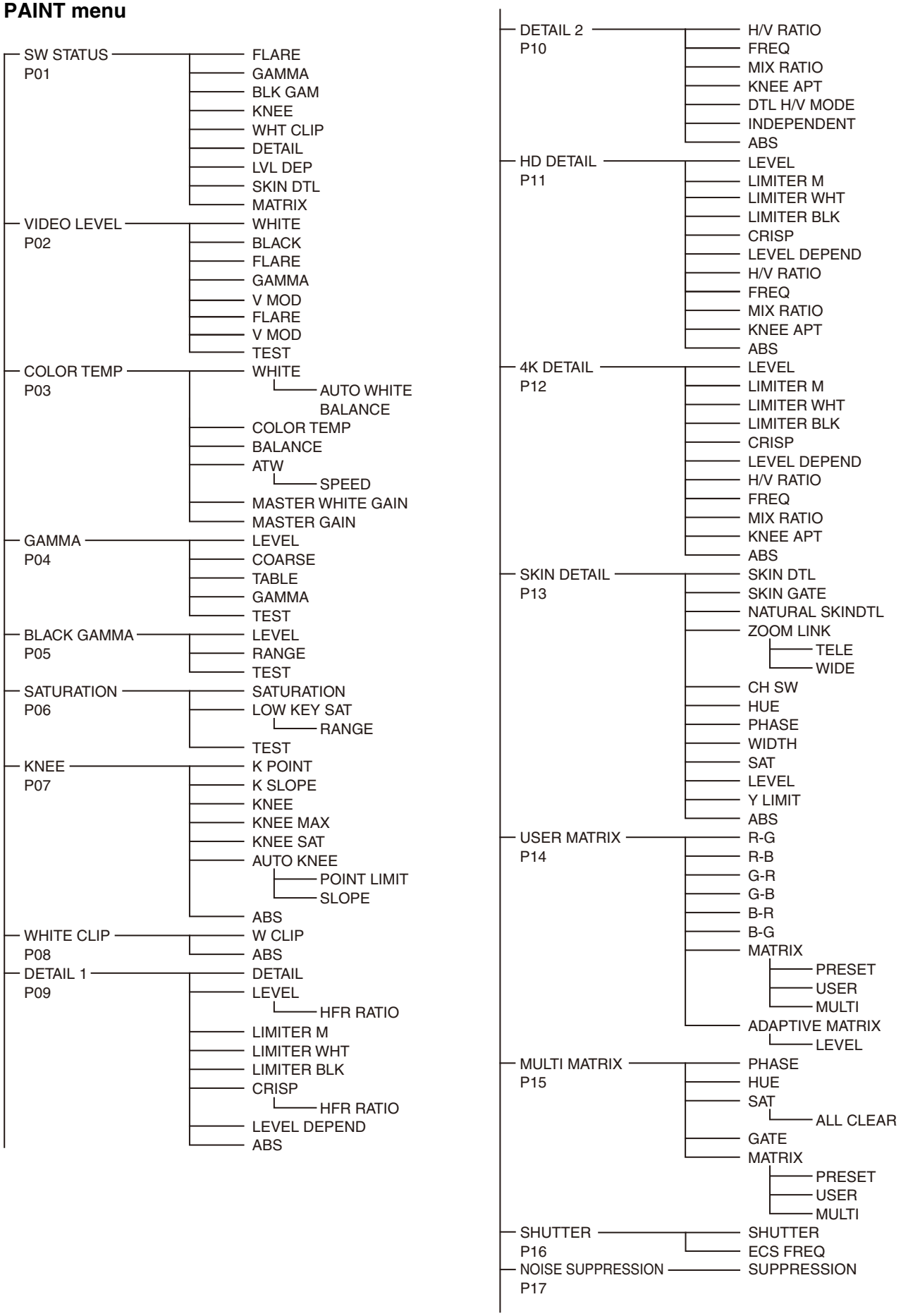
OPERATION menu

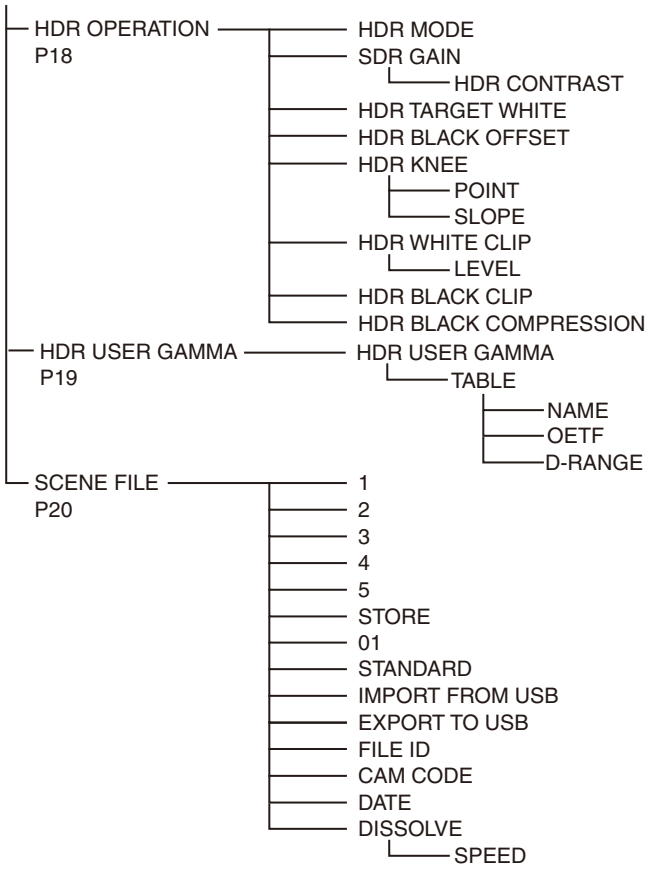



BOX CURSOR FILE
10
1:
2:
3:
4:
5:
STORE
IMPORT FROM USB
EXPORT TO USB
VF DYNAMIC CONTRAST
11
DYNAMIC CONTRAST
GAIN
FILTER
MODE
SPIRIT LEVEL
12
INDICATOR
MODE
REVERSE
SCALE
H POSITION
V POSITION
ANGLE
OFFSET
SET ZERO ANGLE
CLEAR
VF OUT
13 (U01)
VF OUT
CHARACTER LEVEL
PinP
POSITION
SIZE
MODE
MIX VF
MODE
LEVEL
HFR MODE (HD)
SWITCH ASSIGN1
14 (U09)
GAIN
ASSIGNABLE
INSIDE RET1
INSIDE RET2
INSIDE CALL
SWITCH ASSIGN2
15 (U10)
LENS VTR S/S
FRONT RET1
FRONT RET2
HANDLE SW1
HANDLE SW2
ZOOM SPEED
REAR FUNCTION ASSIGN
16
A PUSH
B PUSH
C PUSH
A ROT
B ROT
C ROT
EXT SWITCH
17
RET CTRL CONNECTOR
RET1 Pin5:
RET2 Pin6:
RET3 Pin4:
INCOM1 Pin1:
INCOM2 Pin2:
RETURN
18
RET1 SW SEL
RET2 SW SEL
RET3 SW SEL
RET1 SW + RET2 SW
HEADSET MIC
19 (U11)
INTERCOM
LEVEL
POWER
UNBAL
EARPHONE
LEVEL

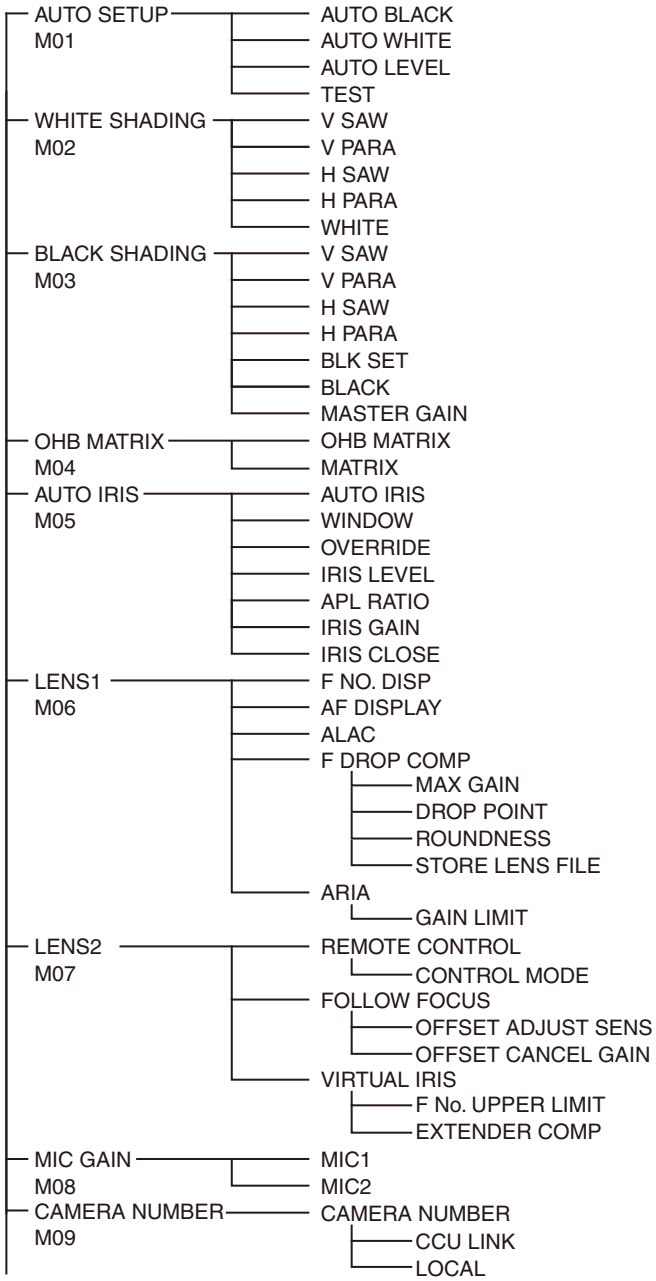

INTERCOM
20
RECEIVE SELECT
ENG
PROD
PGM1
PGM2
PGM3
TRACKER
SIDE TONE
PGM3 VOLUME LINK
TRACKER
21
RECEIVE SELECT
[1-LR]
ENG
PROD
PGM1
PGM2
PGM3
[2]
ENG
PROD
PGM1
PGM2
PGM3
OUTPUT LEVEL 1-L
OUTPUT LEVEL 1-R
OUTPUT LEVEL 2
EARPHONE
22
RECEIVE SELECT
ENG
PROD
PGM1
PGM2
PGM3
TRACKER
SIDE TONE
OPERATOR FILE
23
IMPORT FROM USB
EXPORT TO USB
PRESET

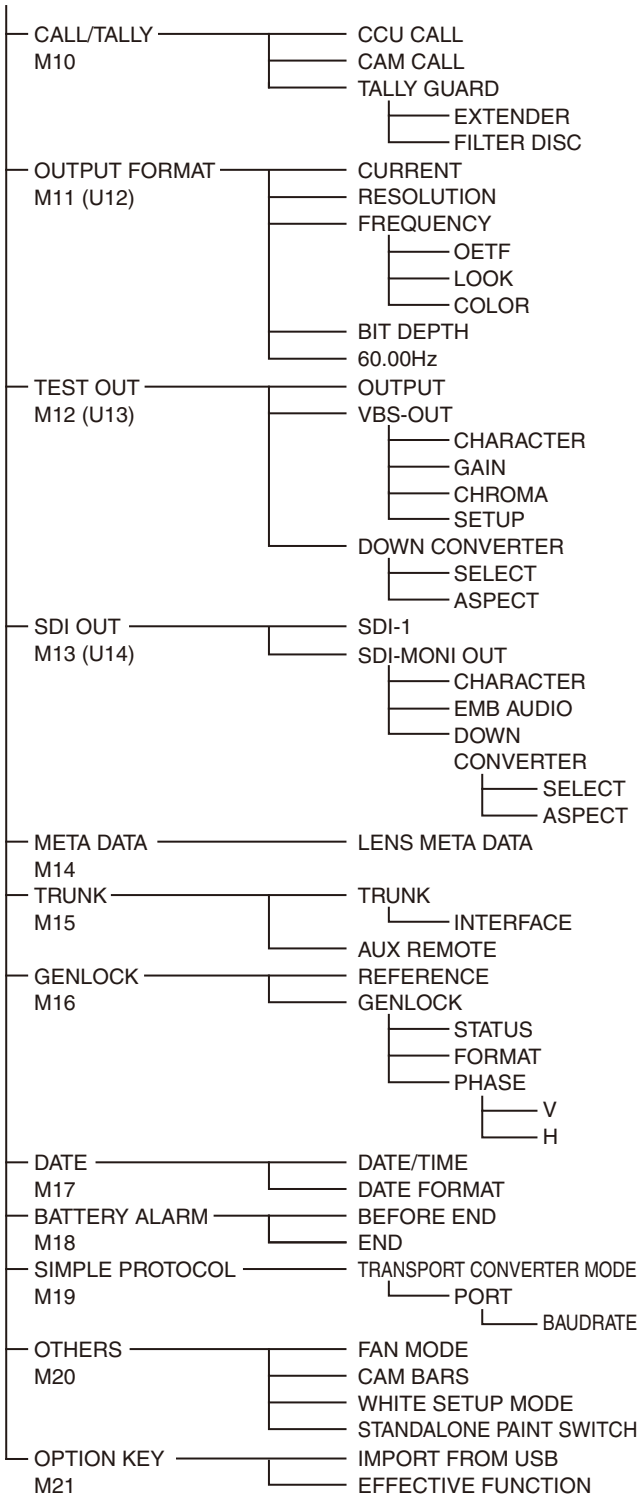
PAINT menu


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
TEST
COLOR TEMP
P03
WHITE
AUTO WHITE BALANCE
COLOR TEMP
BALANCE
ATW
SPEED
MASTER WHITE GAIN
MASTER GAIN
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
HFR RATIO
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
HFR RATIO
LEVEL DEPEND
ABS
DETAIL 2
P10
H/V RATIO
FREQ
MIX RATIO
KNEE APT
DTL H/V MODE
INDEPENDENT
ABS
HD DETAIL
P11
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
H/V RATIO
FREQ
MIX RATIO
KNEE APT
ABS
4K DETAIL
P12
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
NATURAL SKINDTL
ZOOM LINK
TELE
WIDE
CH SW
HUE
PHASE
WIDTH
SAT
LEVEL
Y LIMIT
ABS
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
NOISE SUPPRESSION
P17
SUPPRESSION

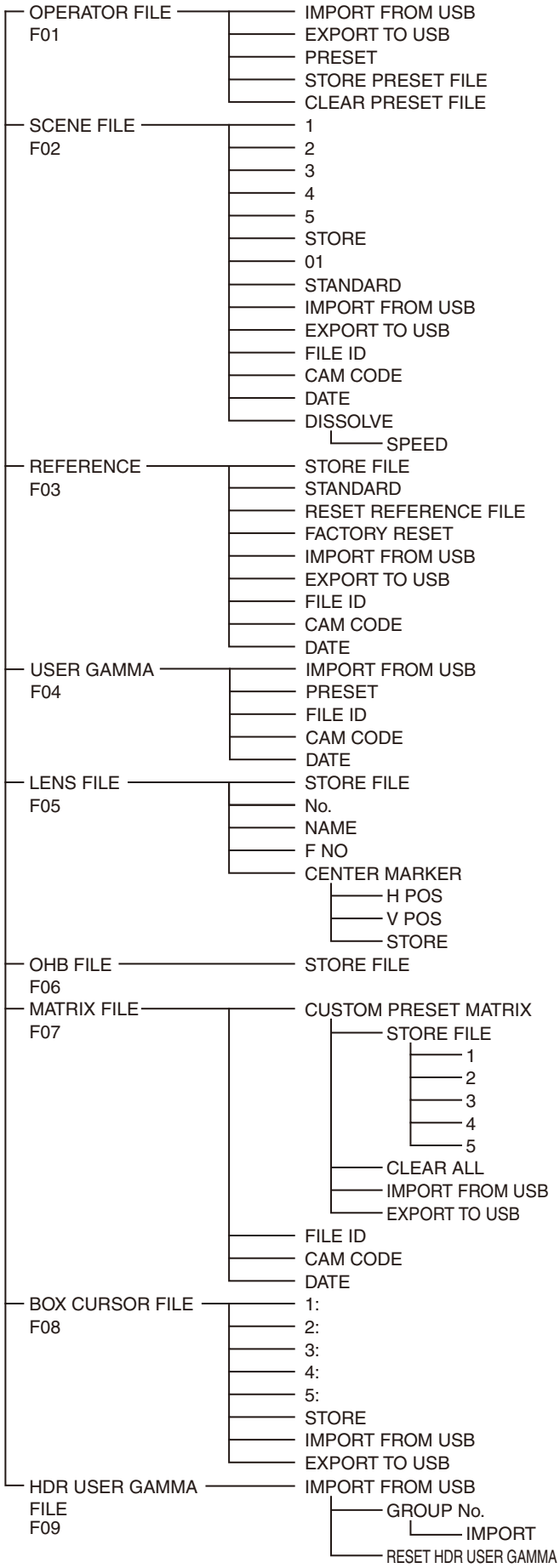


MAINTENANCE menu



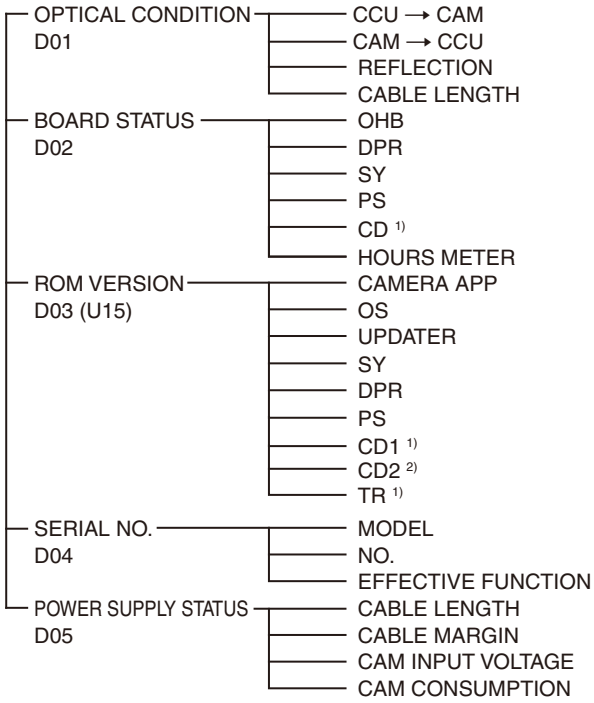

CALL/TALLY
M10
CCU CALL
CAM CALL
TALLY GUARD
EXTENDER
FILTER DISC
OUTPUT FORMAT
M11 (U12)
CURRENT
RESOLUTION
FREQUENCY
OETF
LOOK
COLOR
BIT DEPTH
60.00Hz
TEST OUT
M12 (U13)
OUTPUT
VBS-OUT
CHARACTER
GAIN
CHROMA
SETUP
DOWN CONVERTER
SELECT
ASPECT
SDI OUT
M13 (U14)
SDI-1
SDI-MONI OUT
CHARACTER
EMB AUDIO
DOWN CONVERTER
SELECT
ASPECT
META DATA
M14
LENS META DATA
TRUNK
M15
TRUNK
INTERFACE
AUX REMOTE
GENLOCK
M16
REFERENCE
GENLOCK
STATUS
FORMAT
PHASE
V
H
DATE
M17
DATE/TIME
DATE FORMAT
BATTERY ALARM
M18
BEFORE END
END
SIMPLE PROTOCOL
M19
TRANSPORT CONVERTER MODE
PORT
BAUDRATE
OTHERS
M20
FAN MODE
CAM BARS
WHITE SETUP MODE
STANDALONE PAINT SWITCH
OPTION KEY
M21
IMPORT FROM USB
EFFECTIVE FUNCTION

FILE menu


OPERATOR FILE
F01
IMPORT FROM USB
EXPORT TO USB
PRESET
STORE PRESET FILE
CLEAR PRESET FILE
SCENE FILE
F02
1
2
3
4
5
STORE
01
STANDARD
IMPORT FROM USB
EXPORT TO USB
FILE ID
CAM CODE
DATE
DISSOLVE
SPEED
REFERENCE
F03
STORE FILE
STANDARD
RESET REFERENCE FILE
FACTORY RESET
IMPORT FROM USB
EXPORT TO USB
FILE ID
CAM CODE
DATE
USER GAMMA
F04
IMPORT FROM USB
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
IMPORT FROM USB
EXPORT TO USB
FILE ID
CAM CODE
DATE
BOX CURSOR FILE
F08
1:
2:
3:
4:
5:
STORE
IMPORT FROM USB
EXPORT TO USB
HDR USER GAMMA FILE
F09
IMPORT FROM USB
GROUP No.
IMPORT
RESET HDR USER GAMMA

DIAGNOSIS menu

[1] HDC3170



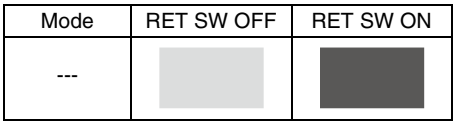
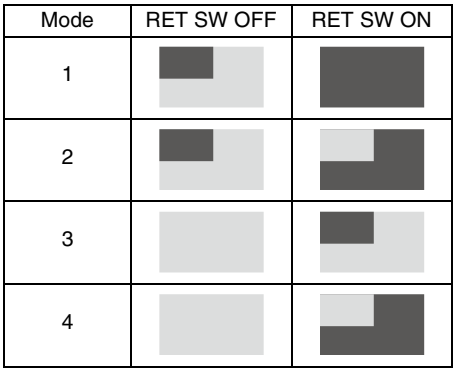
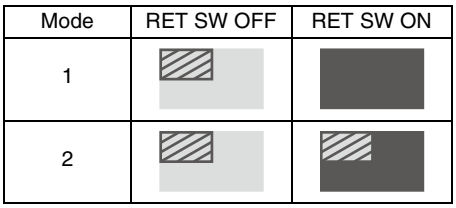
OPERATION Menu

OPERATION Page name Page No.	Item	Settings	Description
<VF DISPLAY> 01 (U04)	EX	**ON**, OFF, 3S	
	ZOOM	ON, **OFF**, 3S	
	DISP	**LEFT**, RIGT	
	FORM	**999**, mm	Sets the ZOOM display format. **999:** Displayed in the range 0 to 999 (no units). **mm**: Displayed in millimeters.
	FOCUS	ON, **OFF**, 3S	Valid only when a serial lens is used.
	FORM	**999**, m, ft	Sets the FOCUS display format. **999:** Displayed in the range 0 to 999 (no units). **m**: Displayed in meters. **ft**: Displayed in feet.
	ND	**ON**, OFF, 3S	
	CC	**ON**, OFF, 3S	
	5600K	**ON**, OFF, 3S	
	IRIS	**ON**, OFF, 3S	
	WHITE	ON, **OFF**, 3S	
	D.EXT	**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. **WRN:** Displays warning messages and higher. **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.
<'!' IND> 02 (U05)	ND	**ON**, OFF	[IND]: Turns the '!' display area *(see page 23)* on/off. [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.) Example: With the default setting of ND, the '!' indication is displayed when an ND filter other than 1 is selected. ---: When a CCU is connected (cannot be changed)
		1, 2, 3, 4, 5, 6, 7, 8, 9 (combination allowed)	
	CC	**ON**, OFF	
		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	
	D.EXT	**ON**, OFF	
	Y TALLY	**ON**, OFF	

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<VF MARKER> 03 (U06)	MARKER	**ON**, OFF	Sets the display of all markers on/off.
		WHITE, BLACK, DOT	
	LEVEL	MIN, 1 to 10, **4**	
	CENTER	ON, **OFF**	
		1, 2, 3, 4	**1:** Full cross **2:** Full cross with a hole **3:** Center **4:** Center with a hole
	SAFETY ZONE	ON, **OFF**	
		80.0, **90.0**, 92.5, 95.0%	
	EFFECT	ON, **OFF**	
	ASPECT	ON, **OFF**	
		16:9, 15:9, 14:9, 13:9, **4:3**	**(4:3):** If VF SCAN is set to 4:3 on the HDLA side when HDLA is attached (cannot be changed)
	MASK	ON, **OFF**	**(ON):** If VF SCAN is set to 4:3 on the HDLA side when HDLA is attached (cannot be changed)
		0 to 15, **12**	Sets the darken level outside the aspect area.
	SAFETY	ON, **OFF**	For the safety marker in Aspect mode.
		80.0, **90.0**, 92.5, 95.0%	
<VF DETAIL> 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	10 to 100%, **100%**	
	ZOOM LINK	**ON**, OFF	
		0 to 100%, **50%**	
	COLOR DETAIL	ON, **OFF**	
		YELLOW, RED, **BLUE**	
	COLOR	ON, **OFF**	
	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	**OFF**, ON, (OFF)	

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<FOCUS POSITION METER1> 05	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.
	POSITION	**TOP**, RIGHT, BOTTOM, LEFT	Sets the display position of the focus position meter. **TOP:** Displayed at the top of the screen. **RIGHT:** Displayed on the right side of the screen. **BOTTOM:** Displayed at the bottom of the screen. **LEFT:** Displayed on the left side of the screen.
	NEAR/FAR POSITION	**NORMAL**, REVERSE	Sets the near/far display orientation of the focus position meter. Set to REVERSE to flip the NEAR edge and FAR edge.
	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> 06	ADJUSTED SIGN		
	SENSE	1 to 5, **2**	Sets the adjustment sensitivity. 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. (Cannot be registered here if marker registration has been assigned to a dedicated switch.)
	[DISP] MKR1, 2, 3	**OFF**, ON	Shows/hides markers. (Cannot be changed 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 the triangular part of the marker. MKR1 default value is RED, MKR2 default value is GREEN, and MKR3 default value is BLUE.
	[NAME] MKR1, 2, 3	Max. 8 characters (Default value: MARKER 1 to 3)	Sets the text of the marker name. *See "To specify a character string" (page 25).*
	[POS] MKR1, 2, 3	**0** to 999	Sets the position of the marker.
	CURRENT FOCUS DIST		Displays the current focus distance (display only).
<FOCUS ASSIST> 07 (U03)	INDICATOR	ON, **OFF**	
	MODE	**BOX**, B&W, COL	
		BTM, LEFT, TOP, RIGHT	
	LEVEL	MIN, 1 to 10, **4**	
		QUICK, SMOOTH	
	GAIN	0 to 99, **50**	
	OFFSET	0 to 99, **50**	
	AREA MARKER	ON, **OFF**	
	SIZE	SMALL, **MIDDLE**, LARGE	
	POSITION	LEFT, **CENTER**, RIGHT	
	POSITION H	0 to 99, **50**	
	POSITION V	0 to 99, **50**	

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<ZEBRA> 08 (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> 09 (U07)	CURSOR	**OFF**, ON	Displayed only if HDLA attached.
	LEVEL	**WHITE**, BLACK, DOT	
		MIN, 1 to 10, **4**	
	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	1/2/3/4: **OFF**, ON	
	H POSI	1/2/3/4: 0 to 99, **50**	
	V POSI	1/2/3/4: 0 to 99, **50**	
	WIDTH	1/2/3/4: 0 to 99, **50**	
	HEIGHT	1/2/3/4: 0 to 99, **50**	
<BOX CURSOR FILE> 10	1:		BOX CURSOR FILE selection FILE name input. Align the cursor to the left of the number to select the BOX CURSOR FILE. Align the cursor to the right of the number to enter the BOX CURSOR FILE name. *See "To specify a character string" (page 25).*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	IMPORT FROM USB		Transfers BOX CURSOR FILE from a USB drive to the camera.
	EXPORT TO USB		Transfers BOX CURSOR FILE from the camera to a USB drive.
<VF DYNAMIC CONTRAST> 11	DYNAMIC CONTRAST	**OFF**, ON	Turns on/off the contrast adjustment function for the picture displayed in the viewfinder.
	GAIN	0 to 100%, **30%**	Sets the intensity of contrast enhancement.
	FILTER	**NARROW**, MIDDLE, WIDE	Sets the frequency response of the filter for enhancing contrast.
	MODE	LINEAR, **HIGHLIGHT**, FOGGY	Sets the mode for contrast enhancement. **LINEAR:** Enhances overall brightness. **HIGHLIGHT:** Enhances high-brightness areas. **FOGGY:** Enhances low-brightness areas.
<SPIRIT LEVEL> 12	INDICATOR	ON, **OFF**	
	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	–90 to +90, **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 Page No.	**Item**	**Settings**	**Description**
<VF OUT> 13 (U01)	VF OUT	**COLOR**, Y, R, G, B, (COLOR), (Y), (R), (G), (B), (R+G), (R+B), (G+B)	Settings in ( ): When HDLA is attached (cannot be changed)
	CHARACTER LEVEL	1 to 5, **4**	
	PinP	**OFF**, RETURN, HD PROMPTER	Only OFF and RETURN displayed on the HDC3170.
	POSITION	**1**, 2, 3, 4	
	SIZE	1/2.5, **1/3**, 1/4	
	MODE	PinP OFF: --- PinP RETURN: 1, 2, 3, 4 PinP HD PROMPTER: 1, 2	: Main picture, : Return picture, : HD Prompter picture **PinP: OFF**  **PinP: RETURN**  **PinP: HD PROMPTER**  Cannot be used during standalone operation.
	MIX VF	**OFF**, ON	Turns on/off the function that makes the return video semi-transparent and displays it together with the camera image in the viewfinder.
	MODE	**MAIN&RET**, MAIN, RET	**MAIN&RET:** Displays semi-transparent return video when displaying the camera image. Displays semi-transparent camera image when displaying the return video. **MAIN:** Displays semi-transparent return video when displaying the camera image. No mixing is applied when displaying the return video. **RET:** Displays semi-transparent camera image when displaying the return video. No mixing is applied when displaying the camera image.
	LEVEL	0 to 99, **10**	Percentage mix of return video and camera image (%)
	HFR MODE (HD)	**ACCUMULATE**, SINGLE	Output images as follows to the viewfinder when in HD HFR format. **ACCUMULATE:** Accumulated image **SINGLE:** Single image

OPERATION			
Page name **Page No.**	**Item**	**Settings**	**Description**
<SWITCH ASSIGN1> 14 (U09) *1 *1: See *page 46*.	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, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP, FLAG **Notes** • When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction. D.EXTENDER does not operate when 4K or 2× speed format is selected. • TALLY R, TALLY G, TALLY Y are displayed only in standalone operation.
	INSIDE RET1	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	Assigns functions executed when you press the RET 1 button.
	INSIDE RET2	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	Assigns functions executed when you press the RET 2 button.
	INSIDE CALL	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, **CALL**, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	Assigns functions executed when you press the CALL button.

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<SWITCH ASSIGN2> 15 (U10) *1 *1: See *page 46*.	LENS VTR S/S	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	Assigns a function to the VTR START/STOP switch on the mounted lens.

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<SWITCH ASSIGN2> 15 (U10) *1 *1: See *page 46*.	FRONT RET1	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	VTR S/S is available only when using the camera as a standalone device, and adds the REC signal to the SDI signal. Pressing this button repeatedly toggles recording on/off. While recording, the tally lamp lights in red.
	FRONT RET2	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	
	HANDLE SW1	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	
	HANDLE SW2	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, **ENG**, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	
	ZOOM SPEED	0 to 99, **20**	

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<REAR FUNCTION ASSIGN> 16	A PUSH B PUSH C PUSH	OFF, **RETURN1 CAM SW**, RETURN1 CAM SW TOGGLE, **RETURN2 CAM SW**, RETURN2 CAM SW TOGGLE, **RETURN3 CAM SW**, RETURN3 CAM SW TOGGLE, VF DETAIL, MIX VF, FOCUS POSITION METER, FOCUS POSITION METER MKR1 REG, FOCUS POSITION METER MKR2 REG, FOCUS POSITION METER MKR3 REG, FOCUS ASSIST INDICATOR, DIGITAL EXTENDER, VF DYNAMIC CONTRAST, DYNAMIC FOCUS	Assigns functions executed when you press RET/ASSIGNABLE buttons A, B, and C. Default values: When A PUSH is selected: RETURN1 CAM SW. When B PUSH is selected: RETURN2 CAM SW. When C PUSH is selected: RETURN3 CAM SW.
	A ROT B ROT C ROT	OFF, **RET CCU CH SEL**, VF DETAIL LEVEL, VF DETAIL CRISP, FOCUS ASSIST IND GAIN	Assigns functions executed when you turn RET/ASSIGNABLE buttons A, B, and C. The items that can be selected vary depending on the A PUSH, B PUSH, and C PUSH settings. When the PUSH function is OFF: OFF When RETURN1 CAM SW, RETURN1 CAM SW TOGGLE, RETURN2 CAM SW, RETURN2 CAM SW TOGGLE, RETURN3 CAM SW, RETURN3 CAM SW TOGGLE, FOCUS POSITION METER, FOCUS POSITION METER MKR1 REG, FOCUS POSITION METER MKR2 REG, FOCUS POSITION METER MKR3 REG, DIGITAL EXTENDER is selected: RET CCU CH SEL When VF DETAIL is selected: VF DETAIL LEVEL or VF DETAIL CRISP When FOCUS ASSIST INDICATOR is selected: FOCUS ASSIST IND GAIN When VF DYNAMIC CONTRAST is selected: DYNAMIC CONTRAST GAIN When DYNAMIC FOCUS is selected: DYNAMIC FOCUS CRISP

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<EXT SWITCH> 17 *1 *1: See *page 46*.	RET CTRL CONNECTOR		
	RET1 Pin5:	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, DYNAMIC FOCUS, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	This function works when each pin of the RET CTRL connector contacts with GND (pin 3). TALLY R, TALLY G, and TALLY 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. VTR S/S signal is embedded in the video.
	RET2 Pin6:	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, DYNAMIC FOCUS, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	
	RET3 Pin4:	OFF, RETURN1 SW, RETURN2 SW, **RETURN3 SW**, ENG, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, DYNAMIC FOCUS, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	

OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<EXT SWITCH> 17 *1 *1: See *page 46*.	INCOM1 Pin1:	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, **ENG**, PROD, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, DYNAMIC FOCUS, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	This function works when each pin of the RET CTRL connector contacts with GND (pin 3). TALLY R, TALLY G, and TALLY 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. VTR S/S signal is embedded in the video.
	INCOM2 Pin2:	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, ENG, **PROD**, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, MIX VF, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VF ASSIGN SW1, VF ASSIGN SW2, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, VTR S/S, TALLY R, TALLY G, TALLY Y, FAN MAX, CURSOR ALL OFF, DYNAMIC FOCUS, FLAG, AWB, CALL, ZOOM(T), ZOOM(W), DYNAMIC CONTRAST, FOCUS POSITION METER	
<RETURN> 18	RET1 SW SEL	**CCU RET1**, **CCU RET2**, **CCU RET3**, CCU RET4, CCU RET5, CCU RET6, CCU RET7, CCU RET8	Sets the return video to display when a return switch is pressed. The settings that are available increase according to the connected CCU units. RET1 SW SEL default value is CCU RET1, RET2 SW SEL default value is CCU RET2, and RET3 SW SEL default value is CCU RET3.
	RET2 SW SEL		
	RET3 SW SEL		
	RET1 SW + RET2 SW	**RET1 SW**, RET3 SW	Changes operation when you press both the RET1 button and RET2 button at the same time. **RET1 SW:** Function as the RET1 button. **RET3 SW:** Function as the RET3 button.
<HEADSET MIC> 19 (U11)	INTERCOM	**DYNAMIC**, CARBON, MANUAL	
	LEVEL	–60 dBu, –50 dBu, –40 dBu, –30 dBu, –20 dBu, **(–60 dBu)**, (–20 dBu)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed) For DYNAMIC, set to –60 dBu (fixed). For CARBON, set to –20 dBu (fixed).
		–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)
	EARPHONE	ON, **OFF**	
	LEVEL	–34 dBu, **–40 dBu**, –46 dBu	

OPERATION			
Page name **Page No.**	**Item**	**Settings**	**Description**
<INTERCOM> 20	RECEIVE SELECT	**SEPARATE**, MIX	Sets the headset audio. **SEPARATE:** Set L and R separately. **MIX:** Set L and R to the same settings.
	ENG	---, **LEFT**, RIGHT, BOTH	
	PROD		
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	TRACKER	---, **LEFT**, RIGHT, BOTH	
	SIDE TONE	MUTE, 1 to 99, **50**	
	PGM3 VOLUME LINK	**PGM1**, PGM2, MENU	Sets the method for controlling PGM volume. **PGM1:** Determined by the PGM1 control of intercom 1. **PGM2:** Determined by the PGM2 control of intercom 1. **MENU:** Determined by menu setting.
	(Blank)	0% to **50%** to 100%	Displayed only when PGM3 VOLUME LINK is set to MENU.
<TRACKER> 21	RECEIVE SELECT	**SEPARATE**, MIX	Sets the headset audio. **SEPARATE:** Set L and R separately. **MIX:** Set L and R to the same settings.
	[1-LR]		
	ENG	---, **LEFT**, RIGHT, BOTH	
	PROD	---, **LEFT**, RIGHT, BOTH	
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	[2]		
	ENG	ON, **OFF**	
	PROD	ON, **OFF**	
	PGM1	ON, **OFF**	
	PGM2	ON, **OFF**	
	PGM3	ON, **OFF**	
	OUTPUT LEVEL 1-L	**0 dBu**, –6 dBu, –12 dBu, –18 dBu, –20 dBu, –24 dBu	
	OUTPUT LEVEL 1-R		
	OUTPUT LEVEL 2		
<EARPHONE> 22	RECEIVE SELECT	**SEPARATE**, MIX	Sets the headset audio. **SEPARATE:** Set L and R separately. **MIX:** Set L and R to the same settings.
	ENG	---, **LEFT**, RIGHT, BOTH	
	PROD		
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	TRACKER	---, **LEFT**, RIGHT, BOTH	
	SIDE TONE	MUTE, 1 to 99, **50**	
<OPERATOR FILE> 23	IMPORT FROM USB	Execute using ENTER.	Reads the operator file from a USB drive.
	EXPORT TO 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.

*1 Observe the following points.
- When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction. D.EXTENDER does not operate when 4K or 2× speed format is selected.
- TALLY R, TALLY G, and TALLY Y are enabled only in standalone mode.

- VTR S/S is available only when using the camera as a standalone device, and adds the REC signal to the SDI signal. Pressing this button repeatedly toggles recording on/off. While recording, the tally lamp lights in red.
- An “:N/A” suffix is displayed for disabled items.

PAINT Menu

PAINT Page name Page No.	Item	Settings	Description
<SW STATUS> 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> P02	WHITE	R/G/B: –99 to +99, **0**	R, G, B, and M (master) values can be independently set. (M cannot be set for WHITE.)
	BLACK	R/G/B/M: –99 to +99, **0.0**	
	FLARE	R/G/B: –99 to +99, **0**	
	GAMMA	M: –99.9 to +99.9, **0**	
	V MOD		
	FLARE	**ON**, OFF	
	V MOD	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	
<COLOR TEMP> 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, 5	
	MASTER WHITE GAIN	–6 dB to +12 dB, **0.0 dB**	Sets gain using continuous variable control.
	MASTER GAIN	–6, –3, **0**, 3, 6, 9, 12 dB	Sets gain in step value changes.
<GAMMA> 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) **1:** Equivalent to a camcorder **2:** ×4.5 gain **3:** ×3.5 gain **4:** Equivalent to SMPTE-240M **5:** Equivalent to ITU-R709 **6:** ×5.0 gain **7:** ×5.0–709
		1, 2, 3, **4**	With HYPER selected **1:** 325% to 100% **2:** 460% to 100% **3:** 325% to 109% **4:** 460% to 109%
	GAMMA	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	
<BLACK GAMMA> 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, 10STEP	

PAINT			
Page name Page No.	**Item**	**Settings**	**Description**
<SATURATION> 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, 10STEP	
<KNEE> P07	K POINT	R/G/B/M: –99 to +99, **0**	R, G, B, and M (master) values can be independently set. 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, (OFF)	**(OFF):** Displayed only for 4K/HDR format.
	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> P08	W CLIP	–99 to +99, **0**	
		ON, OFF	
	ABS		Highlighted: ABS (Absolute) mode
<DETAIL 1> P09	DETAIL	**ON**, OFF	
	LEVEL	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	HFR RATIO	0 to 199%, **100%**	Adjustment value in HFR format 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.
	HFR RATIO	0 to 199%, **100%**	Adjustment value in HFR format mode
	LEVEL DEPEND	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, OFF	
	ABS		Highlighted: ABS (Absolute) mode
<DETAIL 2> 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**	
	ABS		Highlighted: ABS (Absolute) mode

PAINT			
Page name Page No.	**Item**	**Settings**	**Description**
<HD DETAIL> P11	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> P12	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> 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. **(MAT):** Displayed when GATE of <MULTI MATRIX> is ON.
	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.) 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	
	ABS		Highlighted: ABS (Absolute) mode

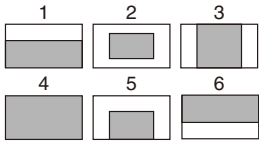
PAINT			
Page name Page No.	**Item**	**Settings**	**Description**
<USER MATRIX> P14	R-G	–99 to +99, **0**	
	R-B	–99 to +99, **0**	
	G-R	–99 to +99, **0**	
	G-B	–99 to +99, **0**	
	B-R	–99 to +99, **0**	
	B-G	–99 to +99, **0**	
	MATRIX	ON, **OFF**	
	PRESET	**---**, ON, OFF	
		---, SMPTE-240M, ITU-709, 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> 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 sets HUE and SAT. (HUE and SAT can be adjusted independently for 16 axes.)
	HUE	–99 to +99, **0**	
	SAT	–99 to +99, **0**	
	ALL CLEAR	Execute using ENTER.	
	GATE	ON, **OFF**, (SKIN)	**(SKIN):** 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	

PAINT			
Page name **Page No.**	**Item**	**Settings**	**Description**
<SHUTTER> P16	SHUTTER	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
		When imaging frequency is 60.00 Hz or 59.94 Hz: **1/100**, 1/125, 1/250, 1/500, 1/1000, 1/2000 When imaging frequency is 50 Hz: 1/60, **1/125**, 1/250, 1/500, 1/1000, 1/2000 When imaging frequency is 30.00 Hz or 29.97 Hz: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000 When imaging frequency is 25 Hz: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 When imaging frequency is 24 Hz or 23.98 Hz: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000	Step shutter selection
	ECS FREQ	When imaging frequency is 60.00 Hz: 60.13 Hz to 4600 Hz When imaging frequency is 59.94 Hz: **60.07** Hz to 4600 Hz When imaging frequency is 50 Hz: 50.12 Hz to 4600 Hz When imaging frequency is 30.00 Hz: 30.02 Hz to 2700 Hz When imaging frequency is 29.97 Hz: 29.99 Hz to 2700 Hz When imaging frequency is 25 Hz: 25.02 Hz to 2300 Hz When imaging frequency is 24 Hz: 24.02 Hz to 2200 Hz When imaging frequency is 23.98 Hz: 23.99 Hz to 2200 Hz	
<NOISE SUPPRESSION> P17	SUPPRESSION	**0** to 100%	
		ON, **OFF**	

PAINT			
Page name Page No.	**Item**	**Settings**	**Description**
<HDR OPERATION> P18	HDR MODE	**OFF**, LIVE HDR, CINEMA	Displays the CCU setting. **Note** When set to CINEMA, there are restrictions on items that can be configured. "(--)" is displayed for functions that cannot be configured.
	SDR GAIN	0.0 to –15.0 dB, **–6.0 dB**	Enabled only when LIVE HDR is selected. Gain setting applied to the SDR output.
	HDR CONTRAST	100 to 566%, **200%**	Enabled only when LIVE HDR is selected (display only). Sets the percentage in HDR which is equivalent to 100% brightness in SDR. Varies depending on SDR GAIN.
	HDR TARGET WHITE	99 to 765nit, **228nit**	Enabled only when LIVE HDR is selected (display only). Sets the number of nits in HDR which is equivalent to 100% brightness in SDR. Varies depending on SDR GAIN and HDR LOOK.
	HDR BLACK OFFSET	–30.0 to 30.0, **0.0**	Enabled only when LIVE HDR is selected. HDR output black offset
	HDR KNEE	**OFF**, ON	Enabled only when LIVE HDR is selected. KNEE setting applied for HDR
	POINT	–99 to 99, **0**	
	SLOPE	–99 to 99, **0**	
	HDR WHITE CLIP	**OFF**, ON	Enabled only when LIVE HDR is selected.
	LEVEL	–99 to 99, **0**	
	HDR BLACK CLIP	**OFF**, ON	Enabled only when LIVE HDR is selected. Sets whether to clip at 0% and lower in the HDR output. Set to OFF (fixed) when <OUTPUT FORMAT> → FREQUENCY → OETF is set to S-Log3.
	HDR BLACK COMPRESSION	**OFF**, ON	Enabled only when LIVE HDR is selected. Sets whether to compress low-luminance areas in the HDR output.
<HDR USER GAMMA> P19	HDR USER GAMMA	**OFF**, ON	Turns the HDR user gamma function on/off (function which allows you to apply a user-created curve to HDR output).
	TABLE	**1** to 5	Selects the number of the curve to apply to HDR output.
	NAME		Displays the name of the selected curve.
	OETF		Displays the OETF corresponding to the selected curve. If this does not match the configured OETF, the intended picture will not be obtained.
	D-RANGE		Displays the dynamic range corresponding to the selected curve.

PAINT			
Page name **Page No.**	**Item**	**Settings**	**Description**
<SCENE FILE> P20	1		Stores and reads scene files (paint data): When storing a file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute using ENTER.	
	01	**01** to 32	
	STANDARD	Execute using ENTER.	Reads the standard paint data.
	IMPORT FROM USB	Execute using ENTER.	Loads 32 scene files from a USB drive to internal memory.
	EXPORT TO 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. *See "To specify a character string" (page 25).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switches scene files seamlessly.
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2**	

MAINTENANCE Menu

MAINTENANCE			
Page name Page No.	**Item**	**Settings**	**Description**
<AUTO SETUP> M01	AUTO BLACK	Execute using ENTER.	
	AUTO WHITE	Execute using ENTER.	
	AUTO LEVEL	Execute using ENTER.	
	TEST	**OFF**, SAW, 10STEP	
<WHITE SHADING> 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**	
<BLACK SHADING> M03	V SAW	R/G/B: –99 to +99, **0**	R, G, and B values can be independently set. 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: –99 to +99, **0** M: –99.9 to +99.9, **0.0**	
	MASTER GAIN	–6, –3, **0**, 3, 6, 9, 12 dB	Sets gain in step value changes.
<OHB MATRIX> M04	OHB MATRIX	**ON**, OFF	
	MATRIX	ON, **OFF**	
<AUTO IRIS> M05	AUTO IRIS	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
	WINDOW	**1**, 2, 3, 4, 5, 6	Selects the auto iris windows:  The shaded parts indicate the area where light detection occurs.
	OVERRIDE	–99 to 99, **0**, ---	Sets the override to temporarily change the reference value for brightness of the automatic iris level in the range of ±2 steps: –99: Two steps to fully closed iris. 99: Two steps to fully opened iris. ---: OFF 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**	

MAINTENANCE			
Page name Page No.	**Item**	**Settings**	**Description**
<LENS1> M06	F NO. DISP	**CONTROL**, RETURN	Selects the iris indication on the panel when AUTO IRIS is off: **CONTROL:** Displays the value from the camera. **RETURN:** Displays the value returned from the lens. (When AUTO IRIS is on, the value returned from the lens is always displayed.)
	AF DISPLAY	ON, **OFF**	
	ALAC	**AUTO**, OFF	With AUTO selected, the status is displayed at the right. (ACTIVE): Compensation is in progress. (WAIT): Waiting for completion of lens initialization. (STOP): Compensation is turned off for a non-applicable lens.
	F DROP COMP	**OFF**, ON, (OFF)	Turns F drop compensation on/off. During compensation, the compensation gain is displayed on the right. (OFF): For when a serial lens is not attached.
	MAX GAIN	**0.0** to 24.0 dB	Maximum compensation value
	DROP POINT	0 to 99, **50**	Compensation start point
	ROUNDNESS	**0.0** to 12.0 dB	Roundness of the compensation curve.
	STORE LENS FILE	Execute using ENTER.	Saves settings to a lens file.
	ARIA	AUTO, **OFF**	With AUTO selected, the status is displayed at the right. (ACTIVE): Compensation is in progress. (WAIT): Waiting for completion of lens initialization. (STOP): Compensation is turned off for a non-applicable lens.
	GAIN LIMIT	0 to 12 dB, **OFF**	Sets the maximum gain to compensate for F drop (No limit when set to OFF).

MAINTENANCE			
Page name Page No.	**Item**	**Settings**	**Description**
<LENS2> M07	REMOTE CONTROL	**OFF**, ON, (OFF)	Lens remote control from MSU/RCP on/off setting. Same function as the Active button on the Zoom/ Focus Control screen of the MSU/RCP. (OFF): When lens is not supported
	CONTROL MODE	**ZOOM&FOCUS**, FOCUS, FOLLOW FOCUS	**ZOOM&FOCUS:** Control ZOOM and FOCUS from an MSU/RCP (control by lens demand is not supported) **FOCUS:** Control FOCUS from an MSU/RCP. ZOOM is controlled by lens demand. **FOLLOW FOCUS:** FOCUS is controlled by lens demand, but can be adjusted (offset fine adjustment) from an MSU/RCP. ZOOM is controlled by lens demand. **Note** Settings other than FOLLOW FOCUS cannot be modified when the offset is not 0 and REMOTE CONTROL is OFF. To change settings, set REMOTE CONTROL to ON.
	FOLLOW FOCUS		
	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.
	VIRTUAL IRIS	ON, **OFF**	Turns the following function on/off. • If you attempt to open the lens higher than the F value set using F No. UPPER LIMIT, the iris is locked in position and the image is brightened using digital gain instead.
	F No. UPPER LIMIT	F2.0 to **F4.0** to F5.6	Sets the maximum position for opening the lens (F value).
	EXTENDER COMP.	ON, **OFF**	• When the built-in lens extender function of a lens is turned on, the lens automatically sets the F value of the iris to 1/2. Set the lens extender compensation to ON if the lens supports compensation that will maintain the same brightness as before the extender function was turned on. Consequently, the F value set using F No. UPPER LIMIT is also applied when the lens extender function is turned on. • If a lens is attached that does not support compensation as described above, set the lens extender compensation to OFF.
<MIC GAIN> M08	MIC1	20, 30, 40, 50, **60** dB	Can be modified only in standalone operation.
	MIC2	20, 30, 40, 50, **60** dB	
<CAMERA NUMBER> M09	CAMERA NUMBER	**---**, 1 to 96	Sets the camera number. **Note** During system operation (when configured to send SYSCAM number using the MSU) or CCU operation, the value is displayed in parentheses and cannot be changed.
	CCU LINK	**OFF**, ON	Turns the link with the CCU No. on/off. When on, you can set the camera number from the CCU.
	LOCAL	**OFF**, ON	Sets number not linked to a system.
<CALL/TALLY> M10	CCU CALL	OFF, **ON**	Selects whether TALLY lights for CALL signal.
	CAM CALL	**OFF**, ON	
	TALLY GUARD		Selects whether to prevent changes while TALLY is lit.
	EXTENDER	**OFF**, ON	
	FILTER DISC	**OFF**, ON	

MAINTENANCE			
Page name Page No.	**Item**	**Settings**	**Description**
<OUTPUT FORMAT> M11 (U12)	CURRENT	Display only	Displays the current format.
	RESOLUTION	3840×2160, **1920×1080**	Not displayed when a CCU is connected. System format settings (The selectable system formats vary depending on camera operating software options.)
	FREQUENCY	60.00P, **59.94P**, 50P, 30P, 29.97P, 25P, 24P, 23.98P, 59.94i(444), 50i(444), 29.97PsF(444), 25PsF(444), 24PsF(444), 23.98PsF(444)	
	OETF	**SDR**, S-Log3, HLG, S-Log3(Cinema)	Not displayed when a CCU is connected. Sets the camera OETF. When S-Log3(Cinema) is selected, functions in cinema mode with the following set to OFF (fixed): • DETAIL, SKIN DETAIL, SATURATION, MATRIX, OHB MATRIX, LOW KEY SATURATION, AUTO KNEE, BLACK GAMMA, WHITE CLIP, HDR BLACK OFFSET, HDR KNEE, HDR WHITE CLIP, HDR BLACK CLIP, HDR BLACK COMPRESSION BLACK setting is not applied to S-Log3 output, only to SDR.
	LOOK	-----, Live, Mild, Natural	Not displayed when a CCU is connected. Sets the Look of the HDR output. "----" when OETF is set to SDR or S-Log3(Cinema).
	COLOR	**BT.709**, BT.2020, S-Gamut3, S-Gamut3.Cine	Not displayed when a CCU is connected. Camera color space setting Set to BT.709 (fixed) when OETF is set to SDR. BT.709 or BT.2020 can be selected when OETF is set to S-Log3 or HLG. BT.2020, S-Gamut3, or S-Gamut3.Cine can be selected when OETF is set to S-Log3(Cinema).
	BIT DEPTH	**10bit**, 12bit	Not displayed when a CCU is connected. Can be selected for RGB 444 only.
	60.00Hz	**DISABLE**, ENABLE	Not displayed when a CCU is connected. Sets whether to enable formats for shooting at 60.00 Hz. Not displayed on the HDC3170.
<TEST OUT> M12 (U13)	OUTPUT	Display only	Displays the current format.
	VBS-OUT		Displayed when OUTPUT is set to VBS.
	CHARACTER	ON, **OFF**	
	GAIN	–99 to +99, **0**	
	CHROMA	–99 to +99, **0**	
	SETUP	**OFF**, ON	
	DOWN CONVERTER		Displayed when OUTPUT is set to VBS.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	Displayed when OUTPUT is set to VBS (NTSC).
	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**	
<SDI OUT> M13 (U14)	SDI-1	*See "SDI output format with master frequency of 1/1.001" (page 60).*	Sets the output format.
	SDI-MONI OUT	MAIN, **VF**, RET, SD-SDI, OFF	
	CHARACTER	ON, **OFF**	Displayed when SDI-MONI OUT is not set to VF.
	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 Page No.	**Item**	**Settings**	**Description**
<META DATA > M14	LENS META DATA	ON, OFF	Select whether to embed lens information in SDI OUT.
<TRUNK> M15	TRUNK	**ON**, OFF	
	INTERFACE	**232c**, 422A	
	AUX REMOTE		Display only
<GENLOCK> M16	REFERENCE	Synchronization status	Display only
	GENLOCK	**ENABLE**, DISABLE	Not displayed when a CCU is connected.
	STATUS		
	FORMAT		
	PHASE		
	V	–1024 to 1023, **0**	
	H	–1700 to 1700, **0**	
<DATE> M17	DATE/TIME	2000 to 2035/01 to 12/00 to 31 00 to 23 : 00 to 59	
	DATE FORMAT	1 Y/Mn/D, 2 Mn/D, 3 D/M/Y 4 D/M, **5 M/D/Y**, 6 M/D	**Y:** Year **Mn:** Month (numeric) **M:** Month (English abbreviation) **D:** Day
<BATTERY ALARM> M18	BEFORE END	**11.5** to 17.0 V	
	END	**11.0** to 11.5 V	
<SIMPLE PROTOCOL> M19 Displayed only in standalone operation.	TRANSPORT CONVERTER MODE	**DISABLE**, ENABLE	Enables transport conversion mode to enable camera control using transmission lines/networks with high latency, such as wireless transmission. **Note** When transport conversion mode is enabled, the WHITE BAL and other switches on the unit do not function.
	PORT	**REMOTE(RS-422A)**	Sets the port to enable for transport conversion mode.
	BAUDRATE	9.6kbps to 843.75kbps, **115.2kbps**	Communication speed
<OTHERS> M20	FAN MODE	OFF, **AUTO1**, AUTO2, MIN, MAX	**AUTO1:** Normal rotation **AUTO2:** Slow rotation
	CAM BARS	ON, **OFF**, (OFF)	**(OFF):** Displayed only for 4K/HDR format.
	WHITE SETUP MODE	AWB, **A.LVL**	
	STANDALONE PAINT SWITCH	**OFF**, ON	When set to ON, disables operation of the unit's switches, such as the WHITE BAL switch, even when a CCU or control panel is not connected.
<OPTION KEY> M21	IMPORT FROM USB	Execute using ENTER.	Reads the install key from a USB drive.
	EFFECTIVE FUNCTION		Displayed only when option function is installed.

SDI output format with master frequency of 1/1.001

1. HDC3100

<Standard format>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	59.94i	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/59.94i – –
1280×720	59.94P	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1280×720/59.94P – –

<When HZC-PSF50/PSF50M/PSF50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	29.97PsF	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/29.97PsF – –
	23.98PsF	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/23.98PsF – –
	29.97P(4K/HDR) *1	(Set by CCU)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/29.97PsF – –
	23.98P(4K/HDR) *1	(Set by CCU)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/23.98PsF – –
	29.97PsF(444) (HZC-UG50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/29.97PsF(444) – –
	23.98PsF(444) (HZC-UG50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/23.98PsF(444) – –

*1 Can be selected only when a CCU is connected.

<When HZC-UG50/UG50M/UG50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	59.94i(444)	SDR (fixed)	**OFF**	–
			HD/3G-B/SDR	1920×1080/59.94i(444)
			HD TRUNK IN	–
			HD PROMPTER	–
	29.97PsF(444) (HZC-PSF50 is required)	SDR (fixed)	**OFF**	–
			HD/3G-B/SDR	1920×1080/29.97PsF(444)
			HD TRUNK IN	–
			HD PROMPTER	–
	23.98PsF(444) (HZC-PSF50 is required)	SDR (fixed)	**OFF**	–
			HD/3G-B/SDR	1920×1080/23.98PsF(444)
			HD TRUNK IN	–
			HD PROMPTER	–

<When HZC-PRV50/PRV50M/PRV50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	59.94P	S-Log3 or HLG *1	**OFF**	–
			HD/3G-A/HDR	1920×1080/59.94P
			HD/3G-B/HDR	1920×1080/59.94P
			HD TRUNK IN	–
			HD PROMPTER	–
		SDR	**OFF**	–
			HD/3G-A/SDR	1920×1080/59.94P
			HD/3G-B/SDR	1920×1080/59.94P
			HD TRUNK IN	–
			HD PROMPTER	–
	59.94P(4K/HDR) *2	(Set by CCU)	**OFF**	–
			HD/3G-A/SDR	1920×1080/59.94P
			HD/3G-B/SDR	1920×1080/59.94P
			HD TRUNK IN	–
			HD PROMPTER	–

*1 Can be selected only in standalone operation.

*2 Can be selected only when a CCU is connected.

2. HDC3170

<Standard format>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	59.94P	S-Log3 or HLG *1	**OFF** HD/3G-A/HDR HD/3G-B/HDR	– 1920×1080/59.94P 1920×1080/59.94P
		SDR	**OFF** HD/3G-A/SDR HD/3G-B/SDR	– 1920×1080/59.94P 1920×1080/59.94P
	59.94P(4K/HDR) *2	(Set by CCU)	**OFF**	–
	59.94i *1	SDR (fixed)	**OFF** HD/1.5G/SDR	– 1920×1080/59.94i
1280×720 *1	59.94P	SDR (fixed)	**OFF** HD/1.5G/SDR	– 1280×720/59.94P

*1 Can be selected only in standalone operation.

*2 Can be selected only when a CCU is connected.

<When HZC-PSF50/PSF50M/PSF50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	29.97PsF	SDR (fixed)	**OFF** HD/1.5G/SDR	– 1920×1080/29.97PsF
	29.97P(4K/HDR) *1	(Set by CCU)	**OFF**	–

*1 Can be selected only when a CCU is connected.

SDI output format with master frequency of 1/1.000

1. HDC3100

<Standard format>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	50i	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/50i – –
1280×720	50P	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1280×720/50P – –

<When HZC-PSF50/PSF50M/PSF50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	25PsF	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/25PsF – –
	24PsF	SDR (fixed)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/24PsF – –
	25P(4K/HDR) *1	(Set by CCU)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/25PsF – –
	24P(4K/HDR) *1	(Set by CCU)	**OFF** HD/1.5G/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/24PsF – –
	25PsF(444) (HZC-UG50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/25PsF(444) – –
	24PsF(444) (HZC-UG50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/24PsF(444) – –

*1 Can be selected only when a CCU is connected.

<When HZC-UG50/UG50M/UG50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	50i(444)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/50i(444) – –
	25PsF(444) (HZC-PSF50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/25PsF(444) – –
	24PsF(444) (HZC-PSF50 is required)	SDR (fixed)	**OFF** HD/3G-B/SDR HD TRUNK IN HD PROMPTER	– 1920×1080/24PsF(444) – –

<When HZC-PRV50/PRV50M/PRV50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	50P	S-Log3 or HLG *1	**OFF**	–
			HD/3G-A/HDR	1920×1080/50P
			HD/3G-B/HDR	1920×1080/50P
			HD TRUNK IN	–
			HD PROMPTER	–
		SDR	**OFF**	–
			HD/3G-A/SDR	1920×1080/50P
			HD/3G-B/SDR	1920×1080/50P
			HD TRUNK IN	–
			HD PROMPTER	–
	50P(4K/HDR) *2	(Set by CCU)	**OFF**	–
			HD/3G-A/SDR	1920×1080/50P
			HD/3G-B/SDR	1920×1080/50P
			HD TRUNK IN	–
			HD PROMPTER	–

*1 Can be selected only in standalone operation.

*2 Can be selected only when a CCU is connected.

2. HDC3170

<Standard format>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	50P	S-Log3 or HLG *1	**OFF**	–
			HD/3G-A/HDR	1920×1080/50P
			HD/3G-B/HDR	1920×1080/50P
		SDR	**OFF**	–
			HD/3G-A/SDR	1920×1080/50P
			HD/3G-B/SDR	1920×1080/50P
	50P(4K/HDR) *2	(Set by CCU)	**OFF**	–
	50i *1	SDR (fixed)	**OFF**	–
			HD/1.5G/SDR	1920×1080/50i
1280×720 *1	50P	SDR (fixed)	**OFF**	–
			HD/1.5G/SDR	1280×720/50P

*1 Can be selected only in standalone operation.

*2 Can be selected only when a CCU is connected.

<When HZC-PSF50/PSF50M/PSF50W is installed>

SYSTEM FORMAT		HDR/SDR	OUTPUT FORMAT	
			SDI-1	
RESOLUTION	FREQUENCY	OETF	Settings	Output formats
1920×1080	25PsF	SDR (fixed)	**OFF**	–
			HD/1.5G/SDR	1920×1080/25PsF
	25P(4K/HDR) *1	(Set by CCU)	**OFF**	–

*1 Can be selected only when a CCU is connected.

FILE Menu

Seven types of files can be used for easy adjustments of the camera: Operator, Scene, Reference, Lens, OHB, Matrix, and BOX cursor files.
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 Page No.	**Item**	**Settings**	**Description**
<OPERATOR FILE> F01	IMPORT FROM USB	Execute using ENTER.	Reads the operator file from a USB drive.
	EXPORT TO 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.
	CLEAR PRESET FILE	Execute using ENTER.	Restores the operator file items stored in memory in the unit to the preset values.
<SCENE FILE> F02	1		Stores and reads scene files (paint data): When storing a file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute using ENTER.	
	01	**01** to 32	
	STANDARD	Execute using ENTER.	Reads the standard paint data.
	IMPORT FROM USB	Execute using ENTER.	Loads 32 scene files from a USB drive to internal memory.
	EXPORT TO 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. *See "To specify a character string" (page 25).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switches scene files seamlessly.
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2**	
<REFERENCE> 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.
	RESET REFERENCE FILE	Execute using ENTER.	Resumes the factory-preset reference file.
	FACTORY RESET	Execute using ENTER.	Resets all settings to the factory defaults.
	IMPORT FROM USB	Execute using ENTER.	Loads a reference file from a USB drive.
	EXPORT TO 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 in the reference file to be written to a USB drive. *See "To specify a character string" (page 25).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

FILE			
Page name Page No.	**Item**	**Settings**	**Description**
<USER GAMMA> F04 Displayed only when HZC-UG50 is installed	IMPORT FROM USB	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	Inserted in the user gamma file to be written to a USB drive. Enter a comment. *See "To specify a character string" (page 25).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<LENS FILE> 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.) 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: H POS: Increasing the value moves the position to the right. V POS: Increasing the value moves the position downwards.
	H POS	–48 to +48, **0**	
	V POS	–27 to +27, **0**	
	STORE	Execute using ENTER.	
<OHB FILE> 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> F07	CUSTOM PRESET MATRIX		Stores and reads preset files: When storing a preset file in camera memory, specify the file number.
	STORE FILE	Execute using ENTER.	
	1		
	2		
	3		
	4		
	5		
	CLEAR ALL	Execute using ENTER.	Clears all the files.
	IMPORT FROM USB	Execute using ENTER.	Loads five preset files from a USB drive to internal memory.
	EXPORT TO 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. *See "To specify a character string" (page 25).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<BOX CURSOR FILE> F08	1:		BOX CURSOR FILE selection FILE name input. Align the cursor to the left of the number to select the BOX CURSOR FILE. Align the cursor to the right of the number to enter the BOX CURSOR FILE name. *See "To specify a character string" (page 25).*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	IMPORT FROM USB		Transfers BOX CURSOR FILE from a USB drive to the camera.
	EXPORT TO USB		Transfers BOX CURSOR FILE from the camera to a USB drive.

FILE			
Page name Page No.	**Item**	**Settings**	**Description**
<HDR USER GAMMA FILE> F09	IMPORT FROM USB		
	GROUP No.		Insert a USB drive into the unit to display the HDR user gamma group files on the USB drive, then select the file you want to import.
	IMPORT		Imports the selected HDR user gamma group file.
	RESET HDR USER GAMMA		Resets HDR user gamma curves (1 to 5) to the defaults.

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 Page No.	Item	Indication	Description
<OPTICAL CONDITION> D01	CCU → CAM	GREEN, YELLOW, RED, NG, NO SIGNAL	Not displayed on the HDC3170.
	CAM → CCU	GREEN, YELLOW, RED, NG, NO SIGNAL	**NO SIGNAL:** When CCU is not connected
	REFLECTION	OK, NG, --	Not displayed on the HDC3170. **--:** When CCU is not connected
	CABLE LENGTH	x.x km	Displays the camera cable length. (Displayed only when a CCU is connected.) Not displayed on the HDC3170.
<BOARD STATUS> D02	OHB	OK, NG	
	DPR	OK, NG	
	SY	OK, NG	
	PS	OK, NG	
	CD	OK, NG	Displayed only on the HDC3170.
	HOURS METER	xxxx H	Displays the total working time.
<ROM VERSION> D03 (U15)	CAMERA APP	Vx.xx	
	OS	Vx.xx	
	UPDATER	Vx.xx	
	SY	Vx.xx	
	DPR	Vx.xx	
	PS	Vx.xx	
	CD1	OK, NG	Displayed only on the HDC3170.
	CD2	OK, NG	
	TR	OK, NG	
<SERIAL NO.> D04	MODEL	xxxxxxx	Displays the model name.
	NO.	xxxxxxx	Displays the serial number.
	EFFECTIVE FUNCTION		Displayed if any option is installed.
<POWER SUPPLY STATUS> D05 **Note** This display has a margin of error for the display of the electric supply state of the camera. Use only as a guide.	CAM LENGTH	x.x km	Displays the cable length that a CCU measured. (Displayed only when a CCU is connected.) Not displayed on the HDC3170.
	CABLE MARGIN	x.x m	Displays the possible cable length extension. (Displayed only when a CCU is connected.) Not displayed on the HDC3170.
	CAM INPUT VOLTAGE	0% to 100%	Displays the ratio of the input voltage on the camera to the output voltage on the CCU.
	CAM CONSUMPTION	0% to 100%	Displays camera power consumption.

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.

About consumable parts

- 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 shooting under lighting produced by fluorescent lights, sodium lamps, mercury-vapor lamps, or LEDs, the screen may flicker or colors may vary.

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.

Care of the unit

If the body of the unit is dirty, clean it with a soft, dry cloth.
In extreme cases, use a cloth moistened in a little neutral detergent, then wipe dry.
Do not use organic solvents such as alcohol or thinners, as these may cause discoloration or other damage to the finish of the unit.
Refrain from cleaning using pressurized air devices, such as an air duster, as these may cause dust to enter the optical parts and damage the interior of the unit.

Digital Triax Transmission (HDC3170)

A powerful error-correction function is incorporated for the transmission between the camera and CCU. However, if an error occurs on long-distance transmission because of external noise or for some other reason, the compensation by interpolation that partially uses the previous picture may operate.

In digital triax transmission, the following video delay in transmission may occur.

- The video delay in transmission between the camera and the CCU is approx. 9 ms to 12 ms.
- A delay of about 1 frame occurs on the viewfinder display if a camera image is sent back from the CCU to the camera as a return signal.
- An appropriate delay is applied to the MIC 1 and 2 audio signals from the CCU to match the video delay.
- A certain time is required for the video signal transmitted between the camera and the CCU to stabilize after power is applied. This is not a malfunction.

Transmission Distances

The maximum and minimum transmission distances allowed for triax cable connection are shown in the table below. The distances may vary according to the conditions, such as the total power requirements (including the power supply to the camera from the CCU) and cable degradation.
Allowable transmission range when using triax cables with the following characteristics:

Attenuation: 3.8 to 68.4 dB at 100 MHz (including the connector loss)

Cable type (example)		Max. distance	Min. distance
Fujikura	Ø8.5 mm	900 m (2953 ft)	50 m (164 ft)
Fujikura	Ø14.5 mm	1800 m (5906 ft)	100 m (328 ft)
Belden 9232	Ø13.2 mm	1300 m (4265 ft)	75 m (246 ft)

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.
OHB BLOCK NG!	A problem is detected in the optical block.
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.
ZOOM/FOCUS CONTROL:RCP/MSU	Zoom and focus controlled from RCP/MSU. Zoom and focus demand for lens control is disabled.

Using a USB Drive

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

Series	Product
USM-QX series	USM8GQX, USM16GQX, USM32GQX, USM64GQX, USM128GQX
USM-T series (Japan only)	USM8GT, USM16GT, USM32GT, USM64GT, USM128GT
USM-U series	USM4GU, USM8GU, USM16GU, USM32GU, USM64GU, USM128GU
USM-X series (discontinued)	USM8X, USM16X, USM32X, USM64X
USM-W3 series (discontinued)	USM8W3, USM16W3, USM32W3, USM64W3, USM128W3
USM-R series	USM4GR, USM8GR, USM16GR, USM32GR, USM64GR
USM-W series	USM8W, USM16W, USM32W, USM64W
USM-M1 series	USM8M1, USM16M1, USM32M1, USM64M1
USM-SA3 series	USM16SA3, USM32SA3, USM64SA3
USM-SA2 series	USM16SA2, USM32SA2, USM64SA2
USM-SA1 series (discontinued)	USM8SA1, USM16SA1, USM32SA1, USM64SA1
USM-CA1 series (discontinued)	USM16CA1, USM32CA1, USM64CA1
USM-L series (discontinued)	USM1GL, USM2GL, USM4GL, USM8GL, USM16GL, USM32GL
USM-LX series (discontinued)	USM1GLX, USM2GLX, USM4GLX, USM8GLX, USM16GLX, USM32GLX, USM64GLX
USM-N series (discontinued)	USM4GN, USM8GN, USM16GN, USM32GN
USM-P series (discontinued)	USM4GP, USM8GP, USM16GP, USM32GP, USM64GP
USM-M series (discontinued)	USM4GM, USM8GM, USM16GM, USM32GM
USM-Q series (discontinued)	USM8GQ, USM16GQ, USM32GQ, USM64GQ
USM-S series (discontinued)	USM4GS, USM8GS, USM16GS
USM-V series (discontinued)	USM4GV, USM8GV

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

HDC3100/3170

General		
Power requirements	AC 240 V, 1.4 A (max.) DC 12 V, 9.5 A (max.) DC 240 V, 1.05 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	HDC3100: Approx. 4.8 kg (10 lb 9 oz) HDC3170: Approx. 5.0 kg (11 lb 0.4 oz)	
Dimensions	See *page 74*.	
Imager		
Imager	2/3 inch CMOS sensor with global shutter	
Method	3-chip, RGB	
Electrical characteristics		
Sensitivity	F12.0 (at 2000 lx with 89.9% reflectance)	
Noise level	–62 dB	
Horizontal resolution	1000 TV lines (at center of screen) 5% or higher modulation	
Geometric distortion	Negligible (not including lens distortion)	
Optical system specifications		
Spectral system	3-board prism	
Built-in filters	1: CLEAR 2: 1/4ND 3: 1/16ND 4: 1/64ND	
Input/output connectors		
CCU	HDC3100: Optical/electrical multi-connector (1)	
	HDC3170: Triax 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) AUDIO switch for MIC: –60 dBu (can be selected up to –20 dBu in the menu), balanced AUDIO switch for LINE: 0 dBu, balanced	
INTERCOM	XLR 5-pin, female (1)	
EARPHONE	4-pole mini jack (1) (2-polo mono, 3-pole stereo, 4-pole CTIA standard, 4-pole OMTP standard)	
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 (This may be limited by the imposed load or inputs.)	
	2-pin (1), DC 10.5 V to 17 V, max. 2.5 A (This may be limited by the imposed load or inputs.)	
SDI 1	BNC-type (1)	
SDI MONI	BNC-type (1)	
TEST OUT	BNC-type (1)	
PROMPTER/ GENLOCK	BNC-type (1)	
	PROMPTER	1 Vp-p, 75 ohms
	GENLOCK	HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 ohms SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/ PAL: 0.3 Vp-p, 75 ohms)
RET CTRL	6-pin (1)	
REMOTE	8-pin (1)	
TRACKER	12-pin (1)	
USB	USB 2.0 Type A 4-pin (1) (for connecting USB drive)	
Supplied accessories		
Before Using This Unit (1)		
Operating Instructions (CD-ROM) (1)		
Cable clamp belt (1 set)		
Screws (+B3×8) (2)		
Attached label (1)		
Camera number label (1)		

Optional Accessories/Related Equipment

Optional accessories	
Camera operating software	HZC-PRV50/PRV50M/PRV50W HZC-PSF50/PSF50M/PSF50W HZC-UG50/UG50M/UG50W
HD Electronic Viewfinder	HDVF-EL20 (0.7-type, color) HDVF-EL30 (0.7-type, color) HDVF-EL75 (7.4-type, color) HDVF-L750 (7-type, color) HDVF-L770 (7-type, color)
Microphone Holder	CAC-12
Return Video Selector	CAC-6
Tripod Attachment	VCT-14
Low-repulsion Shoulder Pad	A-8286-346-A
Related equipment	
HDCU5000/3500/3100/3170 Camera Control Unit	
HDCU2000-series HD Camera Control Unit	
RCP-3000/1000 series Remote Control Panel	
MSU-3000/1000 series Master Setup Unit	
CNA-1 Camera Control Network Adaptor	

Design and specifications are subject to change without notice.

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.
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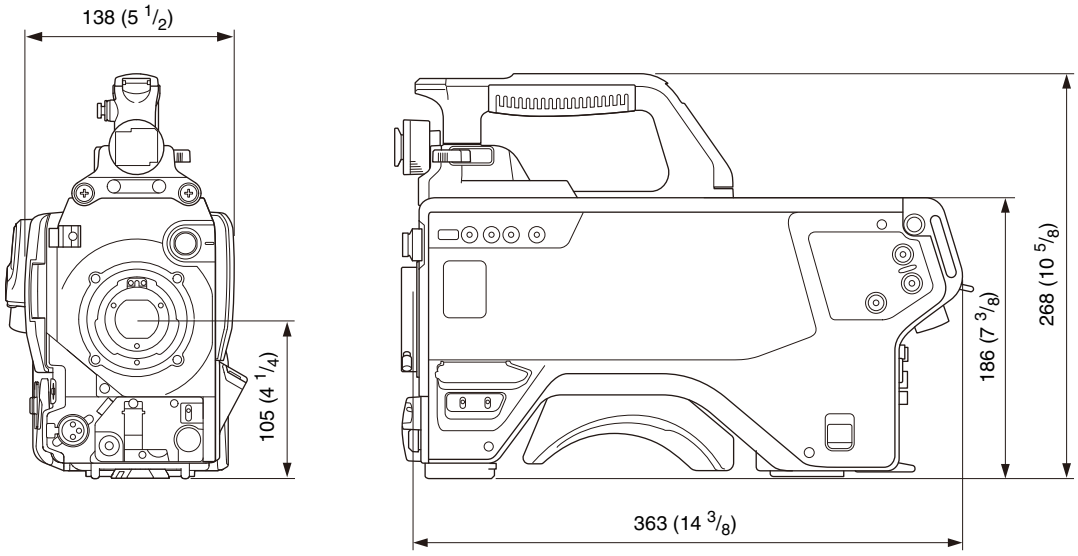
Dimensions

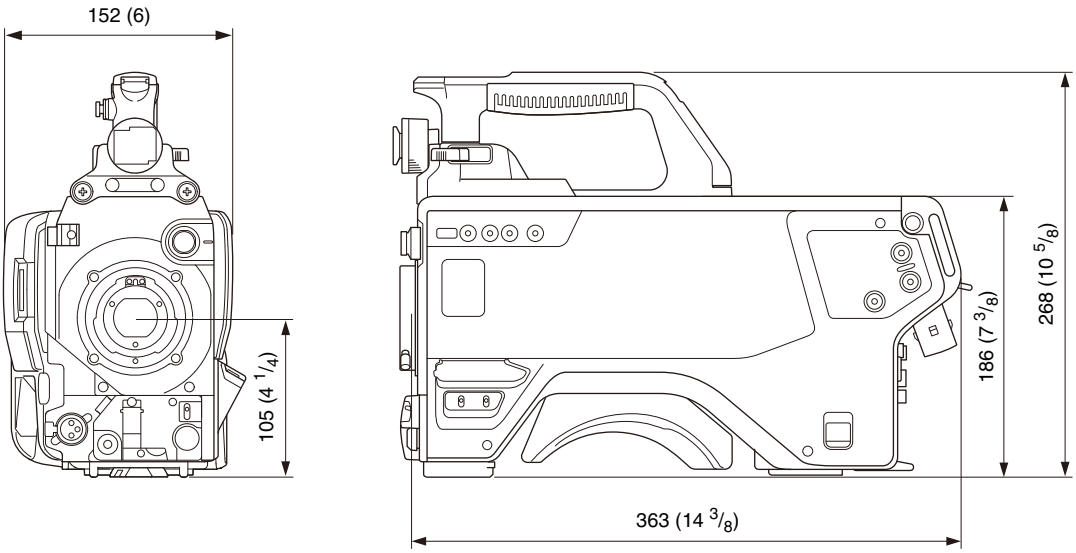
HDC3100

Unit: mm (inches)



HDC3170

Unit: mm (inches)



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