SONY

HD COLOR CAMERA

HDC2000

Digital HDVS

OPERATION MANUAL English

1st Edition (Revised 5)

Table of Contents

Overview

The HDC2000 is a 2/3-type high-definition large-size studio video camera equipped with CCD for 2,200,000 pixels.

Features

High picture quality and high performance

HDC2000 features a 2/3-type wide progressive IT CCD for 2,200,000 pixels and a signal processing LSI, both newly developed to help achieve a high level of image quality via improved S/N, high resolution, and low smear compared to previous models. A 16-bit AD converter allows for optimal picture quality and enhanced black reproduction.

Slow motion via 2× speed recording

1080/50i-59.94i and 720/50P-59.94P formats are supported, as well as 1080/23.98PsF-24PsF-25PsF-29.97PsF and 1080/50P-59.94P progressive formats, and 1080/100i-119.88i and 720/100P-119.88P slow-motion 2× speed recording formats.

Digital extender function

The central part of the viewfinder picture is digitally magnified to twice its size.
The digital extender function prevents the decrease in sensitivity (F-drop) that occurs when the lens extender function is used.

Note

This function does not operate when a 2x slow motion format is selected.
This function also reduces the resolution of images to one-half.

Aberration correction function

This camera features ALAC 2.0 (Auto Lens Aberration Compensation).
When an achromatic lens is used, this function reduces chromatic aberration of magnification automatically.

For details on achromatic lenses, contact a Sony sales representative or Sony service representative.

Standard 3G optical digital transmission unit

3G optical digital transmission of signals between the camera and camera control unit (CCU) is included, and allows the following kinds of video signal transmission and system configurations:

- 1080/50P-59.94P progressive video signal transmission
- Transmission of 2× speed recording signals such as 1080/100i-119.88i for production of slow-motion video
- Transmission of HD prompter, HD TRUNK, and network TRUNK signals that utilize empty bands during 1080/50i-60i and 720/50P-59.94P operation
- Dual camera system for transmitting video signals from two HDC2000 cameras to two CCUs using just one optical fiber/multi-cable
- Subcamera system for transmitting video signals from both an HDC2000 and another subcamera—such as the HDC-P1—using just one optical fiber/multi-cable and outputting their signals from one CCU

Various color-reproduction functions

Adaptive-matrix function

This function accurately controls calculation factors for performing accurate color conversion when shooting. This makes precise color conversion possible even when shooting under conditions that would otherwise exceed the color conversion range of traditional matrix functions, such as under strong monochromatic blue light sources.

Multimatrix color correction

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

Knee saturation

Change of hue and decrease in chroma that occur in highlighted areas can be compensated.
This enables reproduction of natural skin tones under strong lighting.

Low-key saturation

Saturation in low-key zones can be compensated. Thus, compensation for color reproduction in all zones is enabled in combination with matrix color compensation and knee saturation functions.

Selection of multiple gamma tables

Seven types of standard and 4 types of hyper gamma tables are provided with this camera. The hyper gamma values enable cinemalike image creations with wide dynamic range, which are different from those achieved with conventional video gamma.

Note

When <CAM MODE> is set to 4K/HDR MODE, only VF images will be fixed to the ITU-R 709-equivalent gamma.

User gamma

Gamma tables created with CvpFileEditor™ can be saved to a “Memory Stick”, or registered to HDC2000 from the MSU-1000/1500 or RCP-1500 series.

Versatile detail control functions

Skin-tone detail function/Natural skin detail function

Like HDC1000R, this function allows control (emphasis or suppression) of the detail level for specific hues or chroma areas in the image by creating a detail gate signal from color components of your specified hue, such as skin tones. The detail levels of three kinds of hues can be adjusted independently at the same time.
HDC2000 features the natural skin detail function, which allows for adjustment of the detail gate signal, allowing even more vivid distinction of areas like skin that you want to make smooth while selectively keeping areas like eyebrows that don’t require smoothing.

Detail boost-frequency control

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

H/V ratio control

The ratio between horizontal and vertical detail can be adjusted.

White/black limiter

The white and black details can be limited independently.

Focus assist functions

The VF detail function and focus assist indicator function facilitate focusing.

VF detail

Various functions are provided for the VF detail signal, which can be added only on images on the viewfinder screen in order to facilitate focusing in various situations: Functions for coloring the VF detail signal, flickering the VF detail signal by adding modulation, and changing the VF detail level according to the zoom position.

Focus assist indicator

The focusing level indicator on the viewfinder screen provides a guide for focusing. The best focus setting can be easily determined by observing fluctuation of the level indicator as a guide.

VF dynamic contrast

The VF contrast signal can be added only to images on the viewfinder screen, and facilitate focusing in situations with high brightness areas and low contrast levels.

Numerous viewfinder functions

Wide variety of viewfinder display options

Along with items such as operation messages, a zebra pattern, a safety-zone marker, and a center marker, camera settings may also be displayed on the viewfinder screen. Furthermore, there are other indicators arranged above and below the viewfinder, such as a tally lamp, battery warning indicator, and a warning indicator to tell you that one or more settings are other than standard.

Menu-based setting operation function

Selections and settings for viewfinder display items, a safety-zone marker or center marker, screen size marker, etc. can be made quickly and easily using setup menus displayed on the viewfinder screen or an external monitor.

VF operation assignable switch

Assignable switches for operating the viewfinder are located on the rear panel of the camera. These switches are linked to viewfinder assignable switches, such as those featured on HDVF-EL70, and allow for using the camera's buttons to perform functions like image zooming within the viewfinder.

PinP function

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

Note

The PinP function cannot be used during stand-alone operation, and cannot be used with the HD TRUNK FRAME SYNCHRO function simultaneously.

Wide variety of input/output interfaces

In addition to 3G/HD/SD-SDI output and HD/SD-SDI input, HDC2000 features a wide variety of input/output interfaces, including the following:

Network TRUNK function

The network TRUNK function (LAN port) allows for data transmission between the camera and CCU at speeds of up to 1 Gbps. This allows for a multitude of new system configurations, such as connecting several IP transmission cameras as subcameras.

Note

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

HD TRUNK function

The new HD TRUNK function uses 3G optical transmission to send HD-SDI-equivalent digital data (not an HD-SDI video signal) from the HDC2000 to an HDCU2000/2500.

Note

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

HD prompter function

The new HD prompter function on HDC2000 supports sending HD-SDI-equivalent digital data (not an HD-SDI signal) separate from the return video signal from an HDCU2000/2500 to the HDC2000.

Note

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

User-friendly operation

Unit-body with low center of gravity

Featuring a stylish exterior with a low overall height, the viewfinder's position is kept as low as possible, bringing it closer to the optical axis of the lens.

Assignable switches

The camera has a switch to which various functions can be assigned on the rear panel. You can activate your desired function, such as electronic color-temperature conversion, instantly when shooting by assigning it to the switch in advance.

USB connector

Connect a USB drive to the USB connector to save and load setup menu setting data.

Function for prevention of electrical shock

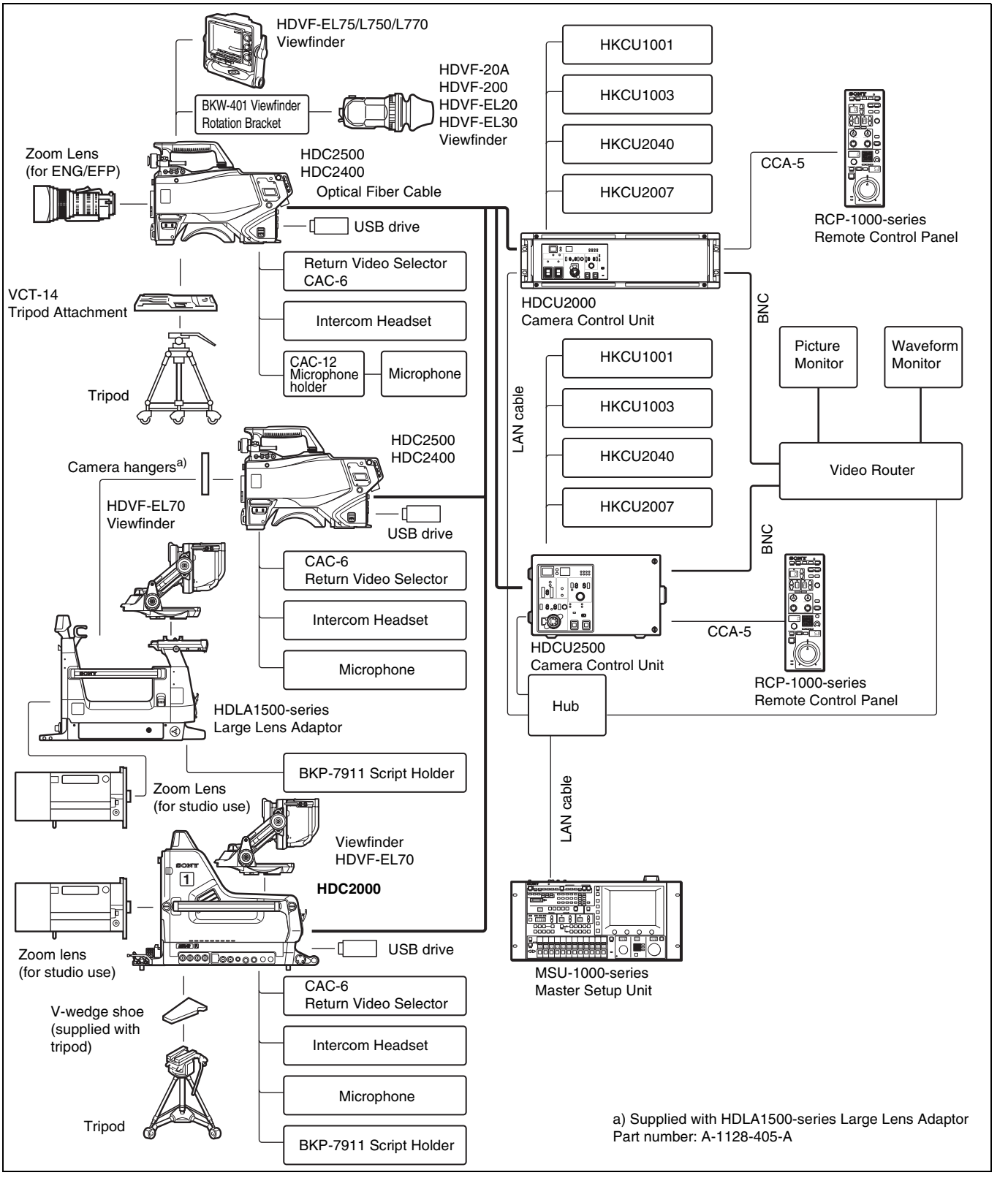
When the power connection is unsafe, this shuts off the power supply from the connected Camera Control Unit.

System Configuration

Note

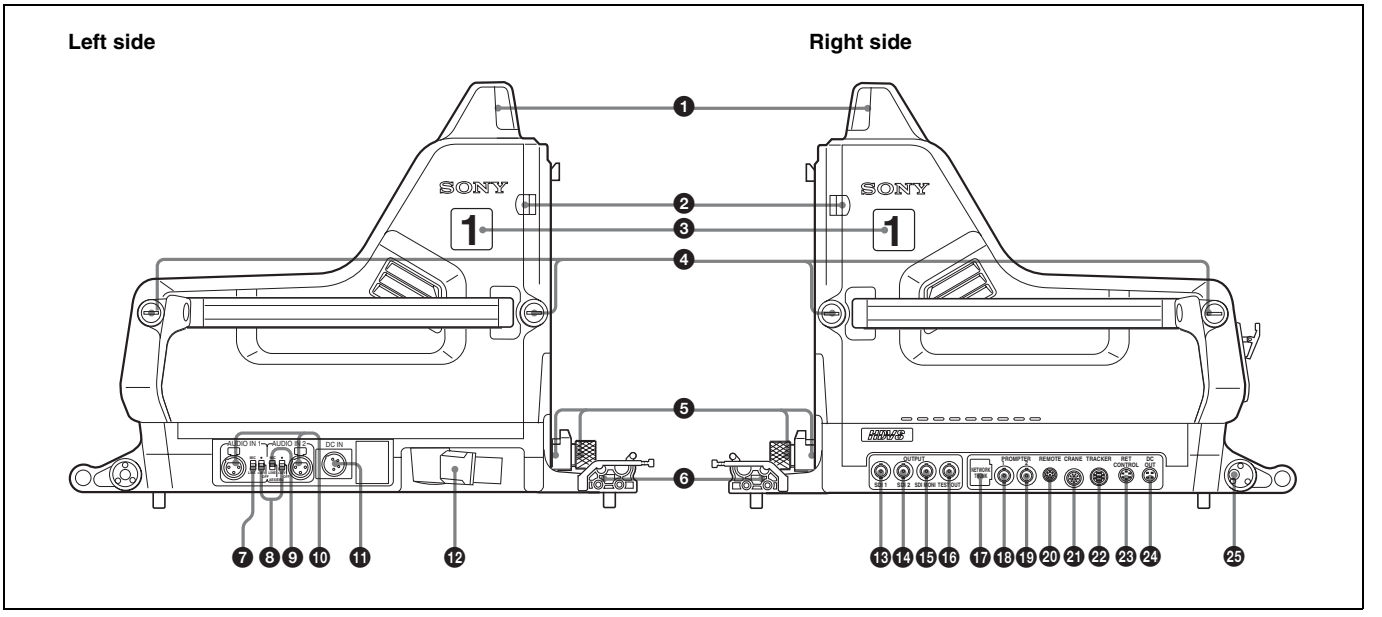
Production of some of the peripherals and related devices shown in the figures has been discontinued. For advice on choosing devices, please contact your Sony dealer or a Sony sales representative.

Connection example



Locations and Functions of Parts

Right Side and Left Side



❶ Up tally lamp
Lights when the camera receives a red tally signal.
When the CALL button on the MSU-1000/1500 Master Setup Unit or the RCP-1000/1500-series Remote Control Panel is pressed, the lamp lights if previously off or goes off if previously on. The brightness of the lamp can be adjusted by menu operation. Setting the UP TALLY switch on the rear panel to OFF will keep the lamp from lighting.
To display the camera number, attach a supplied number plate (0 to 9) or select the desired number on the menu.

❷ Safety lock
Locks the side panel to prevent accidental opening. To open the side panel, loosen the side panel lock screws, slide the safety lock towards the lens, and open the panel.
The side panel locks automatically when closed.

❸ Camera number plate
Attach a light gray number plate (supplied) to display the camera number.

❹ Side panel lock screws
These screws secure the side panel. Turn clockwise until tight to lock the panel.

❺ Lens lock and knob
These lock the lens. To attach or remove a lens, turn the knob counterclockwise until the lens lock is horizontal. To secure the lens, turn the knob clockwise until the lens lock is vertical.

Note

To attach a large lens, remove the pin from the bayonet mount of the lens.

❻ Cable clamp
To secure the fiber optic cable.

❼ AUDIO IN 1 switch
Set this switch according to the device connected to the AUDIO IN 1 connector.
MIC: When connecting a microphone
LINE: When connecting the signal of line level (0 dBu)

❽ Microphone power switches
For the microphones connected to the AUDIO IN 1 and 2 connectors, respectively.
OFF: When the connected microphone requires no external power.
+48 V: When the connected microphone requires an external power source. A power of +48 V is supplied to the microphone.
(No function has been assigned to the uppermost position. No power is supplied to the microphone.)

Note

When supplying a power of +12 V, contact a Sony service representative or a Sony representative.

❾ AUDIO IN 2 switch
Set this switch according to the device connected to the AUDIO IN 2 connector.
MIC: When connecting a microphone
AES/EBU: When connecting a digital audio signal synchronized with a camera signal
LINE: When connecting the signal for line level (0 dBu)

⑩ AUDIO IN 1 and 2 connectors (XLR 3-pin)
To input microphone or line signals.

⑪ DC IN connector (4-pin)
Connect to a DC power source (10.5 V to 17 V) when using the camera as a standalone unit.

Note

In standalone status, power supply from this unit is limited to 6.5 A. Check the power consumption of the device to be connected.

⑫ CCU (camera control unit) connector (electro-optical multi-connector)
Connect to the CAMERA connector of the HDCU2000/2500 Camera Control Unit using an electro-optical composite cable. Power, video, audio, and control signals are passed between the camera and HDCU2000/2500 using just one cable.

⑬ SDI 1 (serial digital interface 1) connector (BNC type)
For 3G-SDI, HD-SDI or HD PROMPTER signal output.

Note

HD PROMPTER signal output only when <CAM MODE> is set to 4K/HDR MODE. Set <CAM MODE> to NORMAL as necessary.

For details on output signals, see "Setting the Camera Outputs" (page 19).

⑭ SDI 2 (serial digital interface 2) connector (BNC type)
For HD-SDI signal output or HD TRUNK signal input. During stand-alone operation, also used for inputting an HD-SDI return signal. When RET (return) is set to 1, this is displayed in the viewfinder.

Note

This connector is disabled when <CAM MODE> is set to 4K/HDR MODE. Set <CAM MODE> to NORMAL as necessary.

For details on the output signals, see "Setting the Camera Outputs" (page 19).

⑮ SDI-MONI (serial digital interface) connector (BNC-type)
To output HD-SDI or SD-SDI signals.

For details on the output signals, see "Setting the Camera Outputs" (page 19).

⑯ TEST OUT (test signal output) connector (BNC type)
To output analog signals.
This also supplies the VBS signal, an HD signal nearly equal to the signal output from the VF connector, an HD-SYNC signal, or an SD-SYNC signal depending on which of these you have selected on the menu.

For details on the output signals, see "Setting the Camera Outputs" (page 19).

⑰ NETWORK TRUNK connector (RJ-48 8-pin)
Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

⑱ PROMPTER 1 connector (BNC type)
To output the signal input from the camera control unit's PROMPTER INPUT connector. If the connected camera control unit has two prompter inputs, a signal of prompter 1 is output. In standalone status, this is used for GENLOCK input.

⑲ PROMPTER 2 connector (BNC type)
To output the signal input from the camera control unit's PROMPTER 2 INPUT connector. This is enabled only for the unit which has the PROMPTER 2 input. In standalone status, this is used for VBS RET input.

⑳ REMOTE connector (8-pin)
To connect the camera to an optional MSU-1000/1500 Master Setup Unit, RCP-1000/1500-series Remote Control Panel, or RM-series Remote Control Unit via a CCA cable. The connected unit may then control the camera.

Note

When the camera is connected to a CCU, do not connect any device to this connector.

㉑ CRANE connector (12-pin)
For external interface with a viewfinder or external data.

㉒ TRACKER connector (10-pin)
For communication between the camera operator and the tracker, and also for intercom channels 1 and 2. It also supplies the up tally signal and the program audio signal.

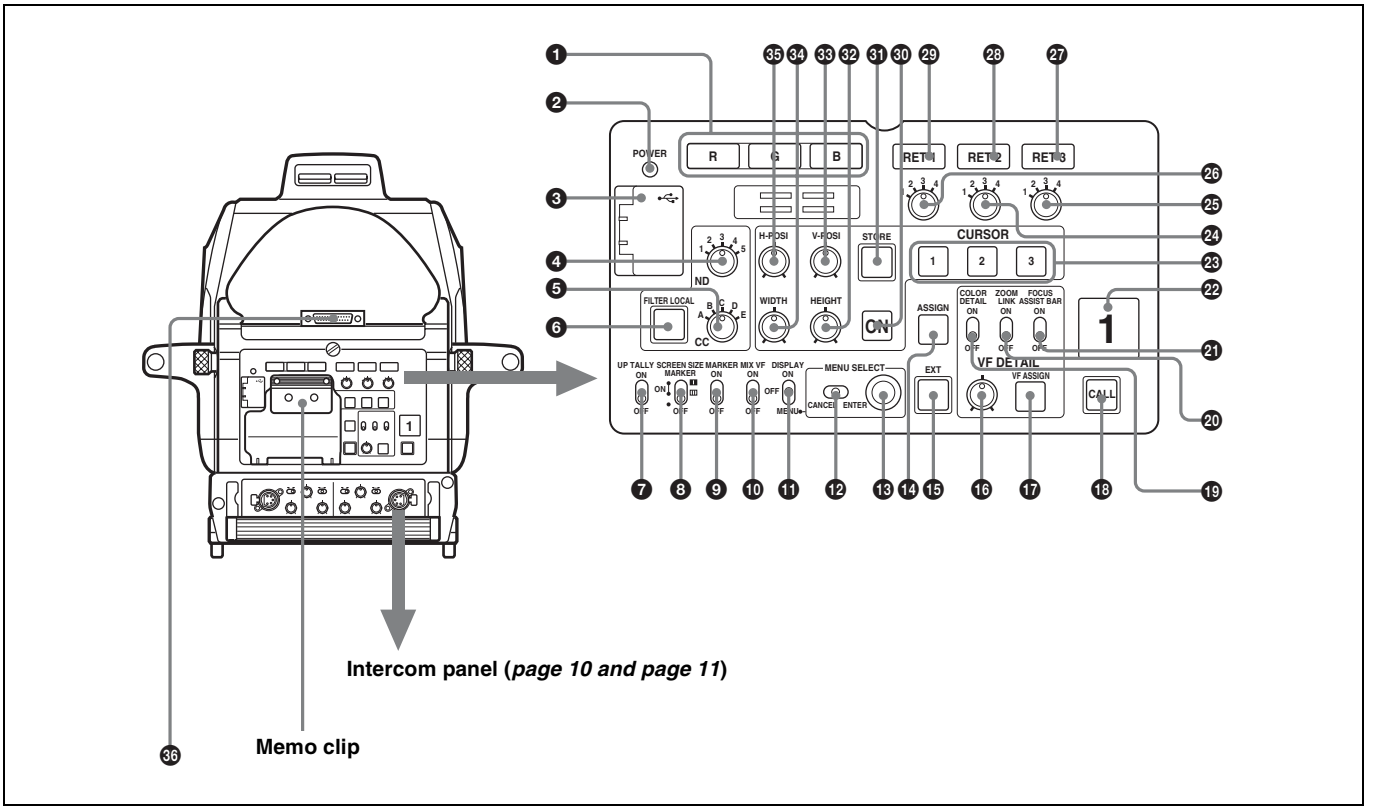
㉓ RET (return video) CONTROL connector (6-pin)
To connect a CAC-6 Return Video Selector.

㉔ DC OUT connector (4-pin)
To supply power to a script light of the BKP-7911 Script Holder.

㉕ Accessory bracket
To secure optional accessories such as the BKP-7911 Script Holder.

For more information on attaching an accessory, see the accessory's operation manual.

Rear Panel



❶ Video signal select buttons

Select the video output signal (R, G, or B) to the viewfinder. The R, G, and B buttons may be pressed individually or in combination. The signal corresponding to each pressed button will be output. When two buttons are pressed, the output will consist of those two signals mixed together. When all three buttons are pressed, the output to the viewfinder will be the Y signal.

When no buttons is pressed, the output will be a color signal if the viewfinder is a color model, and it will be the Y signal if the viewfinder is a monochrome model.

The video output to the monitor connected to the TEST OUT connector of the camera will also depend on the setting of these buttons (however, this output is in monochrome in all situations).

❷ POWER indicator

This indicator lights up or goes off as follows to indicate the power supply status:

Green: Power is being supplied to the camera.

Red: Power is being supplied to the camera, but the CAM PW button of the MSU-1000/1500 Master Setup Unit or RCP-1000/1500-series Remote Control Panel is set to OFF.

Yellow: Power is being supplied to the camera, but the VF PW button of the MSU-1000/1500 Master Setup Unit or RCP-1000/1500-series Remote Control Panel is set to OFF, and power is not being supplied to the viewfinder.

Off: Power is not being supplied to the camera.

❸ USB connector (for connecting a USB drive)

You can connect a USB drive to save/load a setting data file.

For details, see "Using a USB Drive" (page 57)

❹ ND filter selector

When the FILTER LOCAL button is lit up, this selector may be used to select an ND filter.

Selector position	Selected filter
1	Clear
2	1/4ND
3	1/8ND
4	1/16ND
5	1/64ND

❺ CC (color temperature conversion) filter selector

When the FILTER LOCAL button is lit up, this selector may be used to select a color temperature conversion filter appropriate to the light source illuminating the subject.

Selector position	Selected filter
A	Cross filter
B	3200K (clear)
C	4300K
D	6300K
E	8000K

❻ FILTER LOCAL (filter local control) button

Pressing this button enables selecting of a color temperature conversion filter using the CC filter selector or an ND filter using the ND filter selector. Pressing the button again gives control of the filters to the MSU-1000/1500 Master Setup Unit or RCP-1000/1500-series Remote Control Panel.

❼ UP TALLY switch
Set whether or not the camera's Up Tally lamp and the lens's tally lamp will light when the camera receives a red tally signal.
ON: The tally lamps will light.
OFF: The tally lamps will not light.

❽ SCREEN SIZE MARKER switch
To control the display of the screen size marker as follows:
ON (▮): Areas outside the specified ratio area will be darkened.
ON (▯): The screen size marker (white lines) will be displayed.
OFF: The screen size marker will not be displayed.

❾ MARKER switch
To control the display of the marker as follows:
ON: A marker selected from the menu will be displayed on the viewfinder screen.
OFF: The marker will not be displayed.

❿ MIX VF (mix viewfinder) switch
You can see the mixed signal of the camera's output signal and the return video signal on the viewfinder screen.
ON: This function is enabled. You can see the mixed signal of the camera's output signal and the selected return video signal (return video 1 or 2) on the viewfinder screen when you press the RET 1 or RET 2 button.
OFF: This function is disabled.

⓫ DISPLAY switch
The functions of the DISPLAY switch are as follows:
ON: Text and messages describing 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.

⓬ MENU SELECT switch
The functions of the MENU SELECT switch are as follows:
ENTER: Confirm the menu or page selected using the MENU SELECT control, or confirm setting values.
You can change the ECS frequency by pressing the MENU SELECT switch to the ENTER position 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.
CANCEL: Cancel menu setting values or return to the previous menu.

⓭ MENU SELECT control
To select menu items or change setting values in the menus displayed on the viewfinder screen.

⓮ ASSIGN switch
You can assign a function, such as digital extender ON/OFF, using the menu.

⓯ EXT switch
Set the lens extender to ON/OFF.

⓰ VF DETAIL (viewfinder detail) control
Adjust the amount of detail of the picture on the viewfinder screen. This has no effect on the output signal of the camera.

⓱ VF ASSIGN switch
With a viewfinder such as HDVF-EL70, you can assign a function, such as VF MAG, using the menu.

⓲ CALL button
- Press to call the operator of the HDCU2000/2500 Camera Control Unit, the MSU-1000/1500 Master Setup Unit, or the RCP-1000/1500-series Remote Control Panel.
- When the CALL button on the RCP-1000/1500-series Remote Control Panel or the MSU-1000/1500 is pressed, this button will light up.

⓳ COLOR DETAIL switch
You can set the color detail function to ON/OFF.
ON: This function is enabled.
OFF: This function is disabled.

⓴ ZOOM LINK switch
Set the VF detail level at the full WIDE position to ON/OFF.
ON: This function is enabled.
OFF: This function is disabled.

㉑ FOCUS ASSIST BAR switch
Set the focus indicator to ON/OFF.
ON: You can see the focus indicator on the viewfinder screen.
OFF: The focus indicator is not displayed.

㉒ Back tally lamp
This lamp lights red when a red tally signal is applied.
The lamp lights green when a green tally signal is applied.
You can display the camera number selected with the menu.
When red and green tally signals are applied simultaneously, the left half lights red and the right half lights green.

㉓ CURSOR (cursor memory) 1, 2, and 3 buttons
To store the size and position of the box cursor displayed on the viewfinder screen.
Three different box cursor settings may be stored in memory using buttons 1, 2, and 3. Pressing one of these buttons will cause a cursor of the stored size to be displayed in the stored position.

Note

When one of the CURSOR buttons is lit up, the H-POSI, V-POSI, WIDTH, and HEIGHT buttons will be disabled.

㉔ RET 2 knob
This knob selects from the four return signals from the CCU. By pressing in the RET 2 button, you can monitor the selected return video signal in the viewfinder.

㉕ RET 3 knob
This knob selects from the four return signals from the CCU. By pressing the RET 3 button, you can monitor the selected return video signal in the viewfinder.

㉖ RET 1 knob
This knob selects from the four return signals from the CCU. By pressing in the RET 1 button, you can monitor the selected return video signal in the viewfinder. The signal supplied from the TEST OUT connector will also be switched.

㉗ RET 3 button
By pressing this button, you can view the return video signal selected by the RET 3 knob in the viewfinder. Pressing this button again will switch the viewfinder and monitor screen display back to the camera's video signal.

㉘ RET 2 button
By pressing this button, you can view the return video signal selected by the RET 2 knob in the viewfinder. Pressing this button again will switch the viewfinder and monitor screen display back to the camera's video signal.

㉙ RET 1 button
By pressing this button, you can view the return video signal selected by the RET 1 knob in the viewfinder. Pressing this button again will switch the viewfinder and monitor screen display back to the camera's video signal.

Note

Priority is given in the following order: RET 1, RET 2, RET 3. When a menu in the RETURN page of the OPERATION menu is set, pressing the RET 1 and RET 2 buttons will activate RET 3.

㉚ ON button
When this button is pressed, the button will light up and the box cursor will be displayed on the viewfinder screen. When the button is pressed again, the light will go off and the box cursor will disappear. This can also be used to switch to the cross cursor.

㉛ STORE (cursor store) button
Press this button to store the size and position of the box cursor in memory.

Notes

- If the ON button is not lit, box cursor information will not be stored.
- The cross cursor information cannot be stored.

㉜ HEIGHT control
Adjust the height of the box cursor displayed on the viewfinder screen within the effective resolution area.

㉝ V-POSI (vertical position) control
Adjust the vertical position of the box cursor displayed on the viewfinder screen within the effective resolution area.

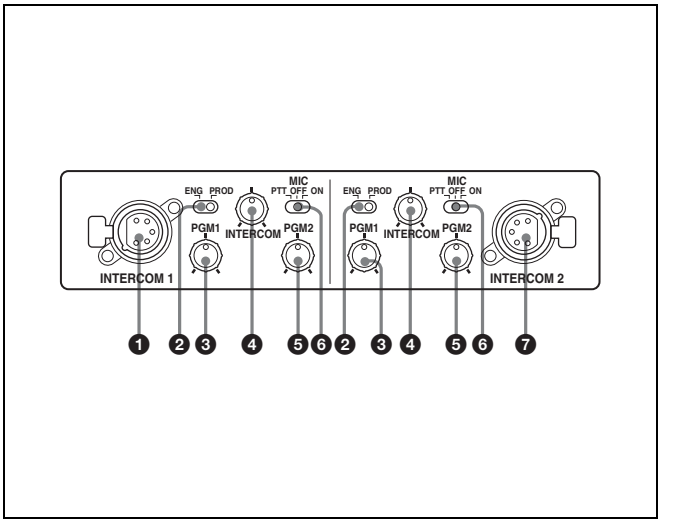
㉞ WIDTH control
Adjust the width of the box cursor displayed on the viewfinder screen within the effective resolution area.

㉟ H-POSI (horizontal position) control
Adjust the horizontal position of the box cursor displayed on the viewfinder screen within the effective resolution area.

㊱ VF (viewfinder) connector (D-sub 25-pin)
Connect to the CAMERA connector on the viewfinder.

Intercom Panel

For JN (USA, Canada, and other countries) models



❶ INTERCOM 1 connector (XLR 5-pin)
Connects to an XLR 5-pin headset. The INTERCOM 1 connector can be used for communication via the engineer line even when the power to the camera has been turned off from the HDCU2000/2500 Camera Control Unit and the POWER indicator is lit in red.

❷ ENG/PROD (intercom engineer/producer line select) switch
To switch intercom channel 1 or 2 between producer and engineer lines.
ENG: Use the engineer line.
PROD: Use the producer line.

❸ PGM (program audio) 1 control
Adjust the program audio 1 output level.

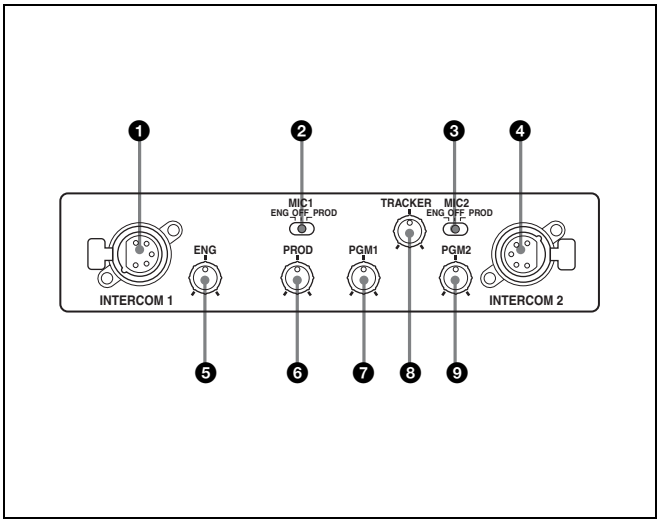
❹ INTERCOM control
Adjust the intercom output level.

❺ PGM (program audio) 2 control
Adjust the program audio 2 output level.

❻ MIC (microphone) switch
Set the headset microphone to ON/OFF.
PTT: While the switch is flipped to this position, the headset microphone is turned on.
ON: The headset microphone is turned on.
OFF: The headset microphone is turned off.

❼ INTERCOM 2 connector (XLR 5-pin)
Connects to an XLR 5-pin headset.

For CE (Europe) model



❶ INTERCOM 1 connector (XLR 5-pin)
Connects to an XLR 5-pin headset. The INTERCOM 1 connector can be used for communication via the engineer line even when the power to the camera has been turned off from the HDCU2000/2500 Camera Control Unit and the POWER indicator is lit in red.

❷ MIC1 (intercom microphone 1) switch
Select the talk line for intercom 1.
ENG: To talk over the engineer line
OFF: To turn off the headset microphone for intercom line 1
PROD: To talk over the producer line

❸ MIC2 (intercom microphone 2) switch
Select the talk line for intercom 2.
ENG: To talk over the engineer line
OFF: To turn off the headset microphone for intercom line 2
PROD: To talk over the producer line

❹ INTERCOM 2 connector (XLR 5-pin)
Connects to an XLR 5-pin headset.

❺ ENG (engineer line) control
Adjust the intercom audio level of the engineer line.

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

❼ PGM (program audio) 1 control
Adjust the program audio 1 output level.

❽ TRACKER control
Adjust the intercom audio level at the TRACKER connector (*page 7*) on the connector panel when using the connector for intercom.

❾ PGM (program audio) 2 control
Adjust the program audio 2 output level.

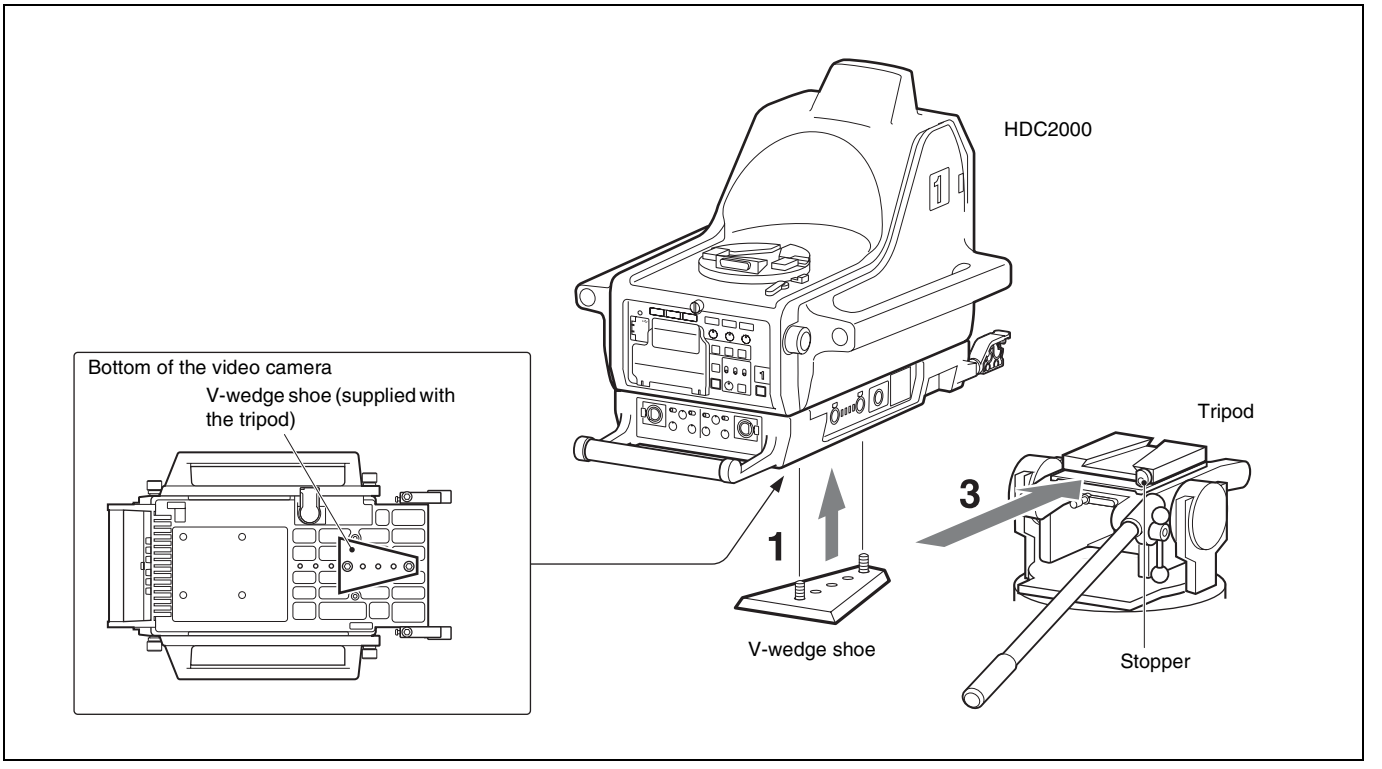
Attaching Accessories

Mounting the Camera to the Tripod

Several types of tripods are available. Select an appropriate tripod according to the type of lens to be used, and mount the camera to the tripod as described below. For details, refer to the instruction manual of the tripod.
For detailed information on choosing an appropriate tripod for different camera and lens combinations, contact a Sony service representative, a Sony representative or a tripod manufacturer. The instructions below give an example of just one type of attachment. Before attaching, choose a tripod cam plate appropriate for your lens type and lens weight.

Caution

Firmly attach the V-wedge shoe to the camera, and mount the camera to the tripod securely. Otherwise the camera may fall down.

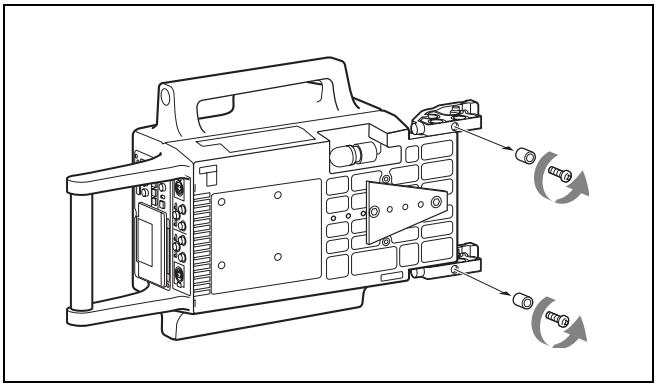


1 **Attach the V-wedge shoe (supplied with the tripod) to the bottom of the camera with the two screws.**
The position where the shoe should be attached is decided considering the balance of the weight of the camera and lens.

2 **Check that the pan-lock and tilt-lock levers of the tripod are securely locked.**

3 **Mount the camera to the tripod holding it by the handles on each side.**

4 **Lock the camera to the tripod with the stopper on the tripod.**



Note

If the feet on the bottom of the camera interfere with mounting the tripod, remove them as illustsrated.

Attaching the Lens to the Camera

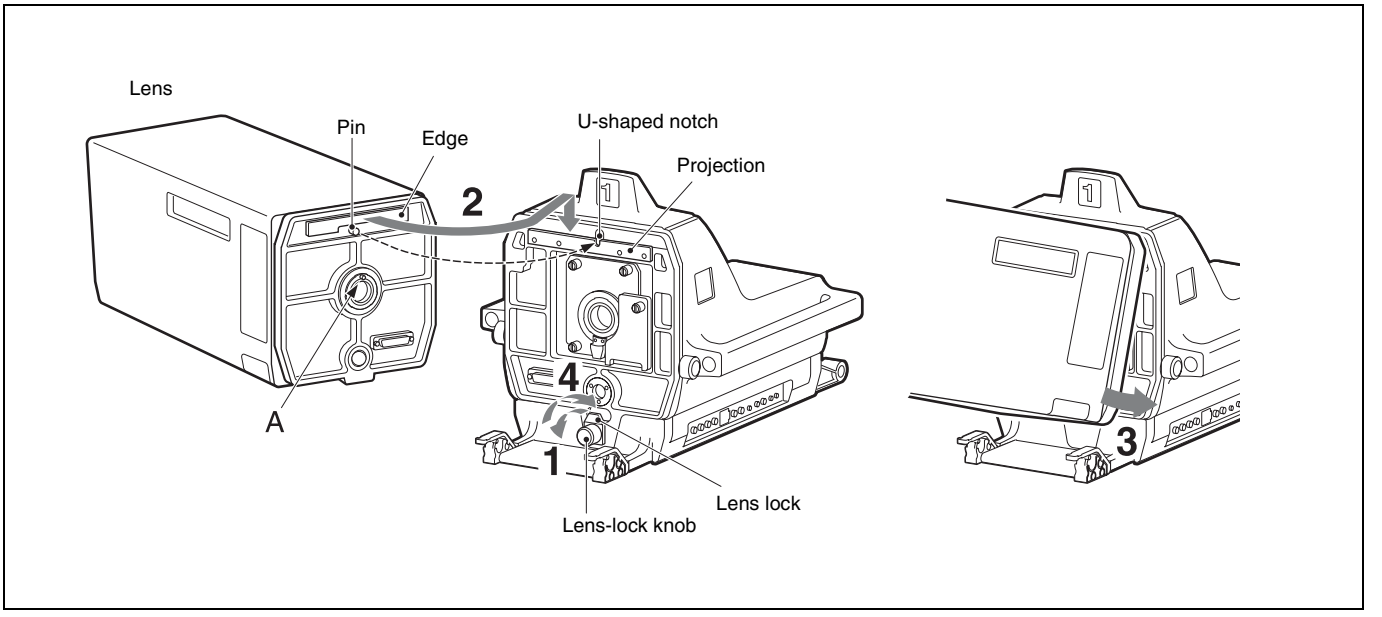
Attach a hanger-mount-type lens recommended by Sony. For details on the lens, refer to the instruction manual supplied with the lens.

To attach, proceed as follows:

Note

Be sure to check the following two points before attaching the lens:

- That the pan-lock and tilt-lock levers on the tripod are fixed.
- That there is not a pin at part A on the lens shown in the figure below (if there is, remove it). If the pin cannot be removed, consult your Sony representative.



1 Loosen the lens-lock knob and turn the lens lock counterclockwise to the horizontal position.

2 Align the pin on the lens with the U-shaped notch, then hook the edge of the lens on the projection of the camera.

3 Couple the lens to the camera.

4 Turn the lens lock clockwise, then fasten the lens-lock knob.

Attaching the 7.4-Type Viewfinder

For details on attaching a viewfinder, refer to the operating instructions supplied with the viewfinder.

Proceed as follows:

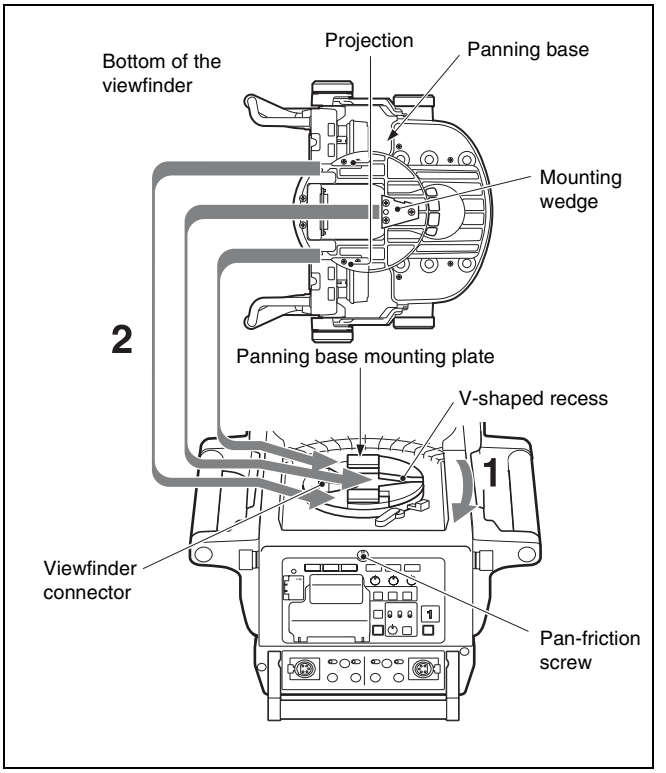
Notes

- Before attaching the viewfinder, be sure that the VF connector on the viewfinder mount is positioned at a right angle to the control panel of the camera as shown below.
- 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.

For how to change the position of the viewfinder attached to the camera, refer to the operating instructions of the viewfinder.

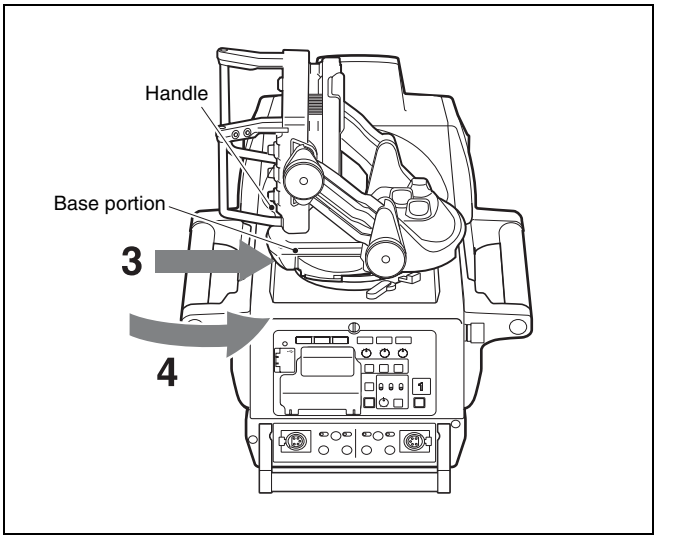
1 **Turn the panning base mounting plate of the camera fully to the right, as illustrated in the figure below.**

2 **Hold the viewfinder so that the projection of the panning base located at the bottom is positioned as illustrated and insert the mounting wedge of the viewfinder into the V-shaped recess of the camera's panning base mounting plate.**



3 **Press the base portion and insert the viewfinder fully into the panning base mounting plate.**
Pull the handle and check to ensure that the viewfinder is securely locked.

4 **Turn the viewfinder to a random position.**



Note

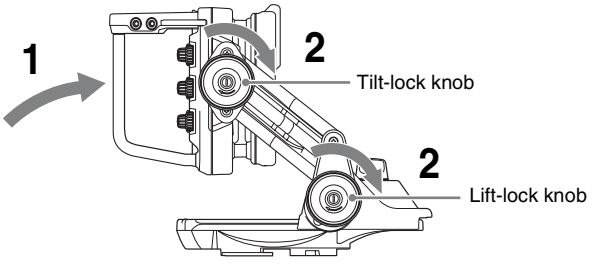
Make sure that the viewfinder is securely locked. If the viewfinder is not properly attached to the camera, it may fall and cause injuries.

To remove the viewfinder

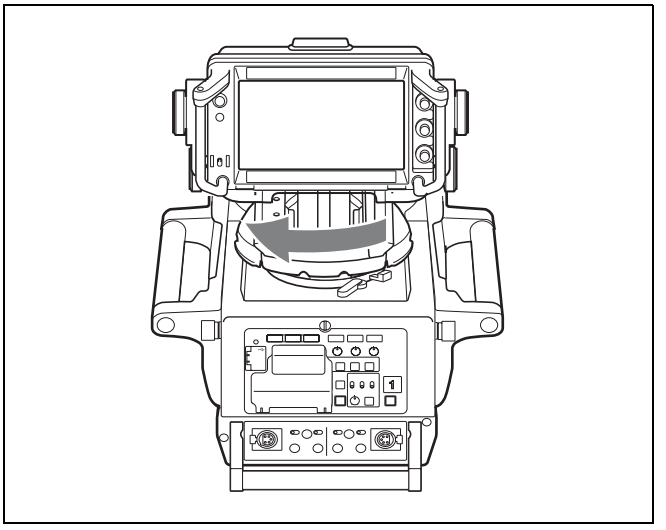
1 **Return the viewfinder screen to the standard position.**

2 **Fix the viewfinder screen in the standard position by turning the tilt-lock knob and lift-lock knob in the direction of the arrow indicated on each knob (toward the lock position).**

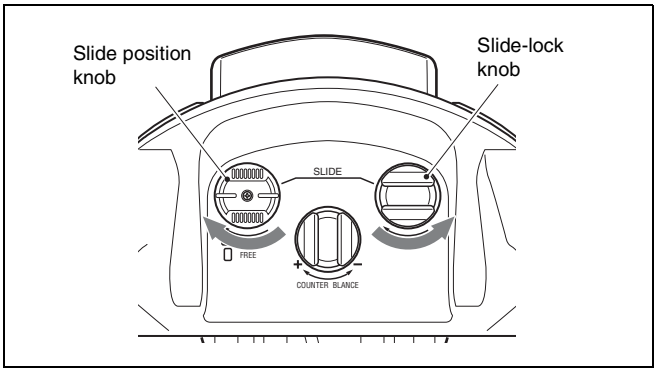
Standard position: The screen's height and position are fixed fully back, as illustrated.



3 **Turn the viewfinder fully clockwise.**

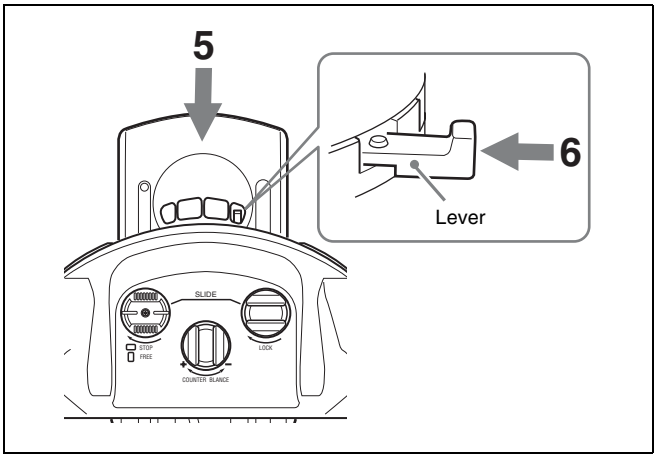


4 **Turn the slide position knob clockwise to ▯ FREE, and turn the slide-lock knob counterclockwise to release the lock of the slide position.**



5 **Slide the viewfinder so that the lever is seen through the slit in the panning base mounting plate (see illustration in step 6). Then turn the slide position knob counterclockwise to ▭ STOP to secure the slide position.**

6 **While pressing the lever, pull the handle of the viewfinder toward you then lift the viewfinder to remove it.**



Setting the Focus Assist Function

Using the OPERATION menu, you can activate the assist functions for easier focusing on the viewfinder.

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. COLOR DETAIL and ZOOM LINK can also be set to ON/OFF via the switches on the back panel.

1 **Turn on the camera.**

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

3 **Rotate the MENU SELECT knob to align the arrow marker (➡) to “TOP,” then press the MENU SELECT switch toward ENTER.**
The TOP MENU screen is displayed.

```
<TOP MENU>

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

4 **Rotate the MENU SELECT knob to align the arrow marker (➡) to OPERATION, then press the MENU SELECT switch toward ENTER.**
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.<VF DYNAMIC CONTRAST>
 09.<ZEBRA>
 10.<CURSOR>
```

5 **Rotate the MENU SELECT knob to align the arrow marker (➡) to <VF DETAIL>, then press the MENU SELECT switch toward ENTER.**
The <VF DETAIL> page is displayed.

```
<VF DETAIL>          ➡ 04 TOP

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

6 Rotate the MENU SELECT knob to align the arrow marker (➡) to the item to be set, then press the MENU SELECT switch toward ENTER.

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 thicken the detail signal.

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.) This can also be set to ON/OFF via the switch on the back panel.

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.

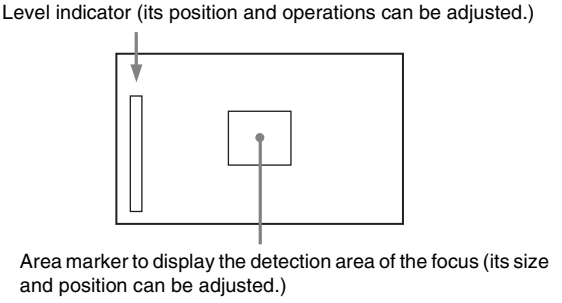
CHROMA LEVEL: To reduce the chroma components of the video signal (only for video signals on the viewfinder).

7 Rotate the MENU SELECT knob to display the desired setting, then press the MENU SELECT switch toward ENTER.

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. This can be set to ON/OFF via the switch on the back panel.



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 SELECT knob to align the arrow marker (➡) to <FOCUS ASSIST>, then press the MENU SELECT switch toward ENTER.

The <FOCUS ASSIST> page is displayed.

```
<FOCUS ASSIST>     ➡ 08 TOP

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

3 Rotate the MENU SELECT knob to align the arrow marker (➡) to the item to be set, then press the MENU SELECT switch toward ENTER.

To use the level indicator

Setting INDICATOR to ON displays the level indicator—which shows a guide for focusing—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 SELECT knob to display the desired setting, then press the MENU SELECT switch toward ENTER.

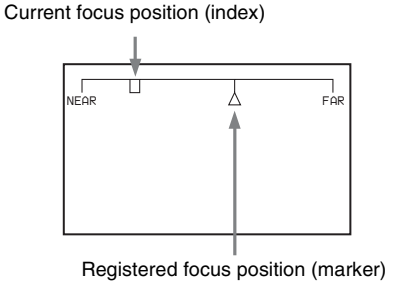
5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.

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.

Displaying the Focus Position Meter

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.

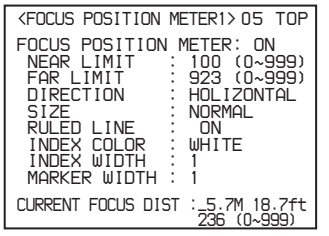


You can set the focus to the registered point easily by adjusting the focus until the index position overlaps the marker position (adjusted state). In the adjusted state, you can display a color frame and marker name on the viewfinder screen.

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 SELECT knob to align the arrow marker (➡) to <FOCUS POSITION METER1> or <FOCUS POSITION METER2>, and press the MENU SELECT switch.

The <FOCUS POSITION METER1> page or <FOCUS POSITION METER2> page is displayed.



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

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

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 the Video signal select buttons. Marker 1 is registered using the R switch, marker 2 by the G switch, and marker 3 by the B switch. Setting a switch to ON registers a marker at the current index position (same function as REG on the <FOCUS POSITION METER2> page). Setting a switch to OFF turns the marker display off (same as setting DISP on the <FOCUS POSITION METER2> page to OFF).

To register a marker for the focus position meter using the VF OUT switch

Set VF OUT SW to FOCUS POSITION METER on the <SWITCH ASSIGN1> page in the OPERATION menu.

Setting the VF Dynamic Contract 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. The function of ON/OFF can also be operated via the switches on the back panel.

1 Turn on the camera.

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

3 Rotate the MENU SELECT knob to align the arrow marker (➡) to "TOP" and push on the MENU SELECT switch.
The TOP MENU screen is displayed.

```
<TOP MENU>

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

4 Rotate the MENU SELECT knob to align the arrow marker (➡) to OPERATION and push on the MENU SELECT switch.
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.<VF DYNAMIC CONTRAST>
 09.<ZEBRA>
 10.<CURSOR>
```

5 Rotate the MENU SELECT knob to align the arrow marker (➡) to <VF DYNAMIC CONTRAST> and push on the MENU SELECT switch.
The <VF DYNAMIC CONTRAST> page is displayed.

```
<VF DYNAMIC CONTRAST>  08➡TOP

 DYNAMIC CONTRAST: OFF
  GAIN     :   0%
  FILTER   : WIDE
  MODE     : HIGHLIGHT
```

6 Rotate the MENU SELECT knob to align the arrow marker (➡) to the item to be set and push on the MENU SELECT switch.

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. HIGHLIGHT emphasizes the contrast of the high brightness range. FOGGY emphasizes the contrast of the image which is hazy and in low contrast.

7 Rotate the MENU SELECT knob to display the desired setting and push on the MENU SELECT switch.

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

Setting the Camera Outputs

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

Notes

- The MAIN (camera picture), RET (return signal), or VF (the same picture as that displayed on the viewfinder) setting is common to SD-SDI and VBS. Different signals cannot be output.
- When <CAM MODE> is set to 4K/HDR MODE, DOWN CONVERTER is not available.
  Only the CHARACTER information is displayed when <CAM MODE> is set to 4K/HDR MODE and SD-SDI or VBS is selected.

The menu pages used for the output settings have been registered to the USER menu at the factory.
- <OUTPUT FORMAT>
- <TEST OUT>
- <SDI OUT>

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

For details on menu operations and the USER menu, see "Menu Operations" on page 21.

Outputting the signal being shot by the camera

The same textual information as those displayed on the viewfinder 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 signal

- When a camera control unit is connected, one of the signals being supplied to the camera control unit can be selected and output it from the camera.
- The last selected return signal is output.
- The same textual information as those displayed on the viewfinder 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

- With HD-SDI, you can obtain a signal that includes the same information as that being displayed on the viewfinder 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. Switching between Y, R, G, and B is not supported. 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, 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 via 3G

The SDI-1 output becomes 3G output.

Note

The 3G output is not available when the format is 4K/HDR.

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 OUT	3G-SDI

Outputting via Dual Link

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

Note

The Dual Link output is not available when the format is 4K/HDR.

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

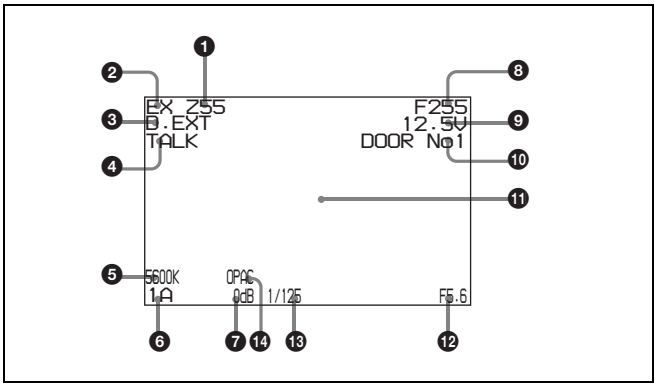
Menu page	Item	Setting
<OUTPUT FORMAT>	ACTIVE LINE	1080
	(Format)	59.94P or 50P
SDI-OUT	SDI-1 OUT	MAIN/ LINK-A
	SDI-2 OUT/IN	MAIN/ LINK-B

Viewfinder Screen Status Display

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

When the DISPLAY switch is set to ON

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



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

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

❸ Digital extender
“D.EXT” 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, or 5) indicates the ND filter, and the letter (A, B, C, D, or E) is for the CC filter.

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

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

Note

This is only displayed when a lens supporting serial data communication is attached.

❾ Battery voltage
Displays the input voltage.

❿ Marker name of the focus position meter
Displays the marker name of the focus position meter.

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

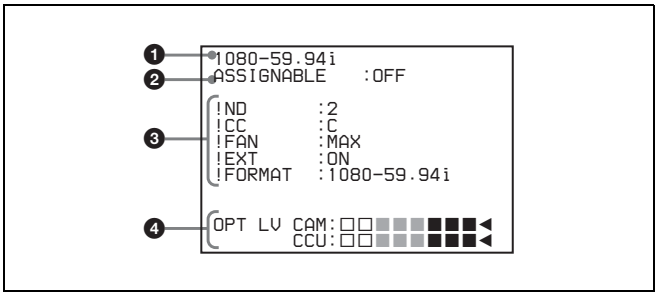
⓬ F value
Indicates the lens F (iris opening) value.

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

⓮ Optical axis compensation (OPAC) mode
Displays when optical axis compensation is set to ON.

When you set the MENU SELECT switch to CANCEL

The status display is changed to show the following items:



❶ Format indication
The current video format is displayed.

❷ Assignable switch indication
The function assigned to the ASSIGN (assignable) switch *(page 9)* is indicated.

For the functions that can be assigned, see OPERATION menu <SWITCH ASSIGN1> (page 38).

❸ '!' indication area
This area can be used to display abnormal statuses using the <'!' IND> function.

For details, see OPERATION menu <'!' IND> (page 34).

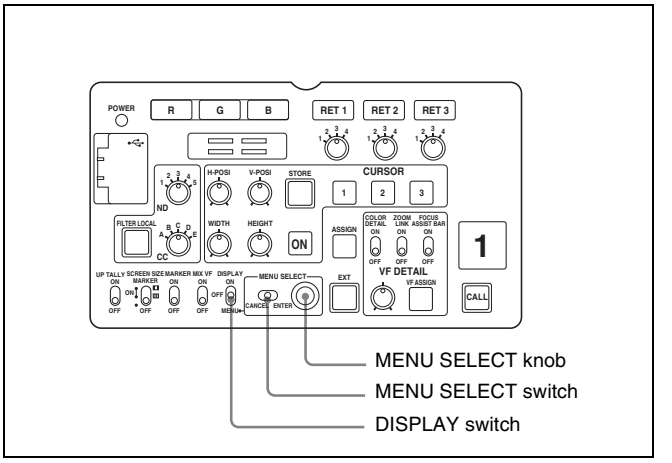
❹ Light-receiving level indications
This area shows the light-receiving levels in segments.
CHU: Light-receiving level at the CCU connector *(page 7)* of the camera
CCU: Light-receiving level at the CAMERA connector of the CCU

Note

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

Menu Operations

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



Starting Menu Operations

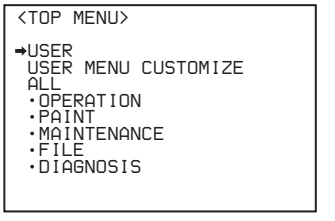
To display a menu page

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

To display the TOP MENU screen

While pressing the MENU SELECT switch toward ENTER, set the DISPLAY switch from OFF to MENU, and "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



To disable the "TOP" indication
Turn the power once off then on again, or set the DISPLAY switch from OFF to MENU while pressing the MENU SELECT switch toward CANCEL. This disables the TOP selection.

Available menus

USER menu

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

USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

For details, see "Editing the USER Menu" (page 23).

ALL menu

This menu permits you to control all items of the OPERATION menu, PAINT menu, MAINTENANCE menu, FILE menu and DIAGNOSIS menu as one 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, this 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

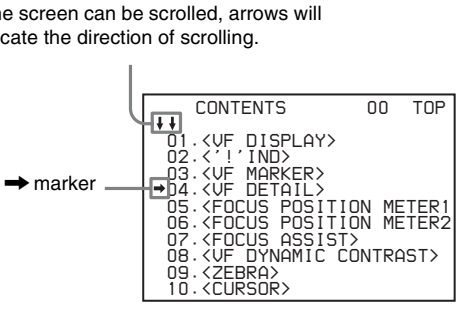
1 **Rotate the MENU SELECT knob to align the arrow marker (➡) with the desired menu.**

2 **Press the MENU SELECT switch toward ENTER.**
The CONTENTS page or the last operated page of the selected menu is displayed.

Selecting Pages

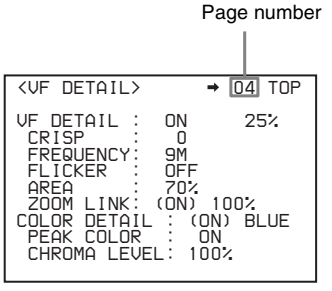
When selecting a page from a CONTENTS page

Example: CONTENTS page of the OPERATION menu



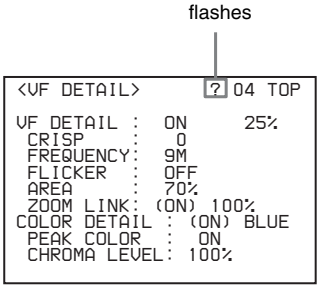
Rotate the MENU SELECT knob to align the arrow marker (➡) with the desired page, then press the MENU SELECT switch toward ENTER.

The selected page is displayed.



To change the displayed page

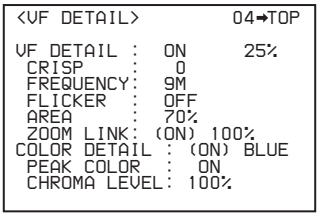
1 **Check that the arrow marker (➡) is located at the left of the page number, then press the MENU SELECT switch toward ENTER.**
The arrow marker (➡) changes to a flashing "**?**" mark.



2 **Rotate the MENU SELECT knob to flip the pages.**

3 **When the page you want to set is displayed, press the MENU SELECT switch toward ENTER.**
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, and press the MENU SELECT switch toward ENTER.



The TOP MENU screen is displayed.

Setting the Menu Items

If a “**?**” mark is flashing at the left of the page number, press the MENU SELECT switch toward ENTER to change the arrow marker (➡). Setting on the displayed page is enabled.

1 **Rotate the MENU SELECT knob to align the arrow marker (➡) with the desired item.**

2 **Press the MENU SELECT switch toward ENTER.**
The arrow marker (➡) will change to a flashing “**?**” mark.

3 **Rotate the MENU SELECT knob 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 MENU SELECT switch toward CANCEL, before pressing the MENU SELECT switch toward ENTER, 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 can be restarted by setting the DISPLAY switch back to MENU.

4 **Press the MENU SELECT switch toward ENTER.**
The “**?**” mark will change back to the arrow marker (➡), and the new setting will be saved.

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

1 **Set the cursor to the position where you wish to enter a character, then press the MENU SELECT switch toward ENTER.**
Another cursor appears on the character list.

2 **Set the cursor to the character to be entered and press the MENU SELECT switch toward ENTER.**
Repeat steps **1** and **2**.

By selecting INS on the line below the character list, you can enter a space at the cursor position.
Selecting DEL deletes the character at the cursor position.
You can return to step **1** without changing the character by selecting RET.

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

To register the new string you have set, select END and press the MENU SELECT switch toward ENTER.

To restore the previous string, select ESC and press the MENU SELECT switch toward ENTER.

To return a menu item to its standard value

Select the menu item to be returned to its standard value then press the MENU SELECT switch toward ENTER and hold it for 3 seconds while the arrow marker (➡) is displayed.
If “10 SEC CLEAR” has been set to ON on the <FILE CLEAR> page of the FILE menu, you can return the setting in the reference file for the item being selected to the factory-set value by pressing the MENU SELECT switch toward ENTER and holding it for another 10 seconds.

To end menu operations

Set the DISPLAY switch to OFF.

Editing the USER Menu

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

The following pages are included in 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	10
<ZEBRA>	U08	OPERATION	09
<SWITCH ASSIGN1>	U09	OPERATION	13
<HEADSET MIC>	U10	OPERATION	16

Menu page title	USER menu No.	Source menu / page No.
<OUTPUT FORMAT>	U11	MAINTENANCE M10
<TEST OUT>	U12	MAINTENANCE M11
<SDI OUT>	U13	MAINTENANCE M12
<ROM VERSION>	U14	DIAGNOSIS D03

For the items on each page, see the corresponding source menu page in the table in "Menu List" (page 27).

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

Editing by items

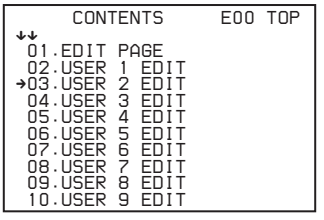
The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.
While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each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

To add items to a page

Proceed as follows:

1 **While pressing the MENU SELECT switch toward ENTER, move the DISPLAY switch from OFF to MENU.**
The TOP MENU screen appears.

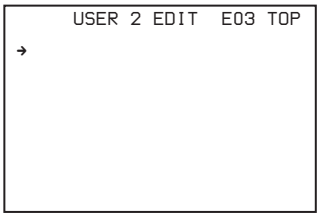
2 **Turn the MENU SELECT knob to move the arrow marker (➞) to "USER MENU CUSTOMIZE", then press the MENU SELECT switch toward ENTER.**
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.



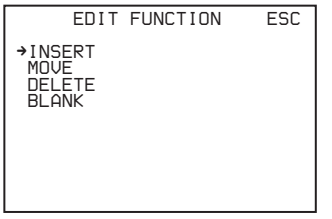
If the USER MENU CUSTOMIZE menu has been used before, the last accessed page appears.

3 **If the CONTENTS page is displayed, turn the MENU SELECT knob to move the arrow marker (➞) to one of USER 1 EDIT to USER 19 EDIT, then press the MENU SELECT switch toward ENTER to display the page.**
If a different page is displayed, turn the MENU SELECT knob until the desired page appears, then press the MENU SELECT switch toward ENTER.

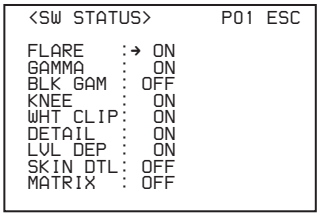
Example: When you select the USER 2 EDIT page



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 press the MENU SELECT switch toward ENTER.**
The EDIT FUNCTION screen appears.



5 **Move the arrow marker (➞) to "INSERT", and press the MENU SELECT switch toward ENTER.**
The page for the last added item appears.



6 **Add the items.**

① Turn the MENU SELECT knob until the page that has the desired items appears, then press the MENU SELECT switch toward ENTER.

② Turn the MENU SELECT knob to move the arrow marker (➞) to the desired item, then press the MENU SELECT switch toward ENTER.

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

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

To delete items from a page

Proceed as follows:

1 **Move the arrow marker (➞) to the item to be deleted, and press the MENU SELECT switch toward ENTER.**
The EDIT FUNCTION screen appears.

2 **Select "DELETE," and press the MENU SELECT switch toward ENTER.**

The previously displayed screen appears again, and the message “DELETE OK? YES➡NO” appears at the upper right.

3 To delete, turn the MENU SELECT knob to move the arrow marker (➡) to “YES,” and press the MENU SELECT switch toward ENTER.

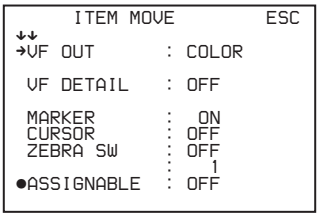
To change the order of items on a page

Proceed as follows:

1 Turn the MENU SELECT knob to move the arrow marker (➡) to the item to be moved, then press the MENU SELECT switch toward ENTER.
The EDIT FUNCTION screen appears.

2 Select MOVE, then press the MENU SELECT switch toward ENTER.
The previously displayed page appears again.

3 Turn the MENU SELECT knob to move the arrow marker (➡) to the position where you want to move the item, then press the MENU SELECT switch toward ENTER.



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 SELECT knob to move the arrow marker (➡) to the item above which you want to insert a blank line.
The EDIT FUNCTION screen appears.

2 Select “BLANK”, and press the MENU SELECT switch toward ENTER.
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

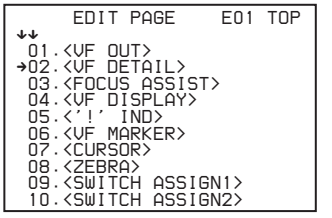
You can add a new page to the USER menu, delete a page from the USER menu or replace pages, using the EDIT PAGE of the USER MENU CUSTOMIZE menu.

To add a page

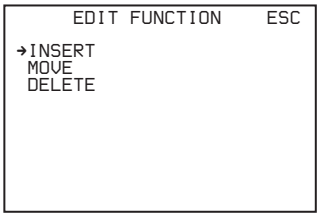
Proceed as follows:

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.

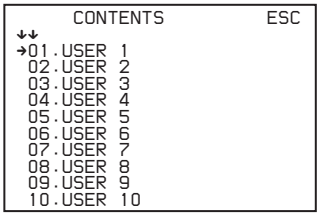
2 If the CONTENTS page is displayed, turn the MENU SELECT knob to move the arrow marker (➡) to “EDIT PAGE”, then press the MENU SELECT switch toward ENTER to display the EDIT PAGE screen.
If a different page is displayed, turn the MENU SELECT knob until the EDIT PAGE screen appears, then press the MENU SELECT switch toward ENTER to select the page.



3 Turn the MENU SELECT knob to move the arrow marker (➡) to where you want to add the page, then press the MENU SELECT switch toward ENTER.
The EDIT FUNCTION screen appears.



4 Select INSERT, and press the MENU SELECT switch toward ENTER.
The selection screen appears.



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

To cancel adding a page

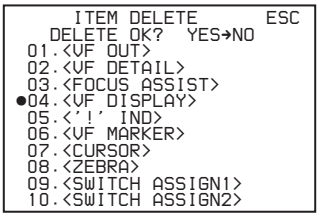
Before pressing the MENU SELECT switch toward ENTER in step **5**, turn the MENU SELECT knob to move the arrow marker (➡) to “ESC” at the top right of the screen, then press the MENU SELECT switch toward ENTER.
The EDIT PAGE screen appears again.

To delete a page

Proceed as follows:

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

2 **Select DELETE, and press the MENU SELECT switch toward ENTER.**
The previously displayed screen appears again, and the message “DELETE OK? YES➡NO” appears at the upper right.



3 **To delete, turn the MENU SELECT knob to move the arrow marker (➡) to “YES”, and press the MENU SELECT switch toward ENTER.**

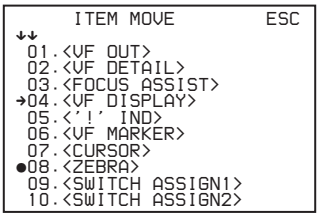
To move a page

Proceed as follows:

1 **Display the EDIT PAGE screen of the USER MENU CUSTOMIZE menu. Turn the MENU SELECT knob to move the arrow marker (➡) to the page that you want to move.**
The EDIT FUNCTION screen appears.

2 **Select MOVE, then press the MENU SELECT switch toward ENTER.**
The EDIT PAGE screen appears again.

3 **Turn MENU SELECT knob to move the arrow marker (➡) to the position to where you want to move the page selected in step 1.**



4 **Press the MENU SELECT switch toward ENTER.**
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.

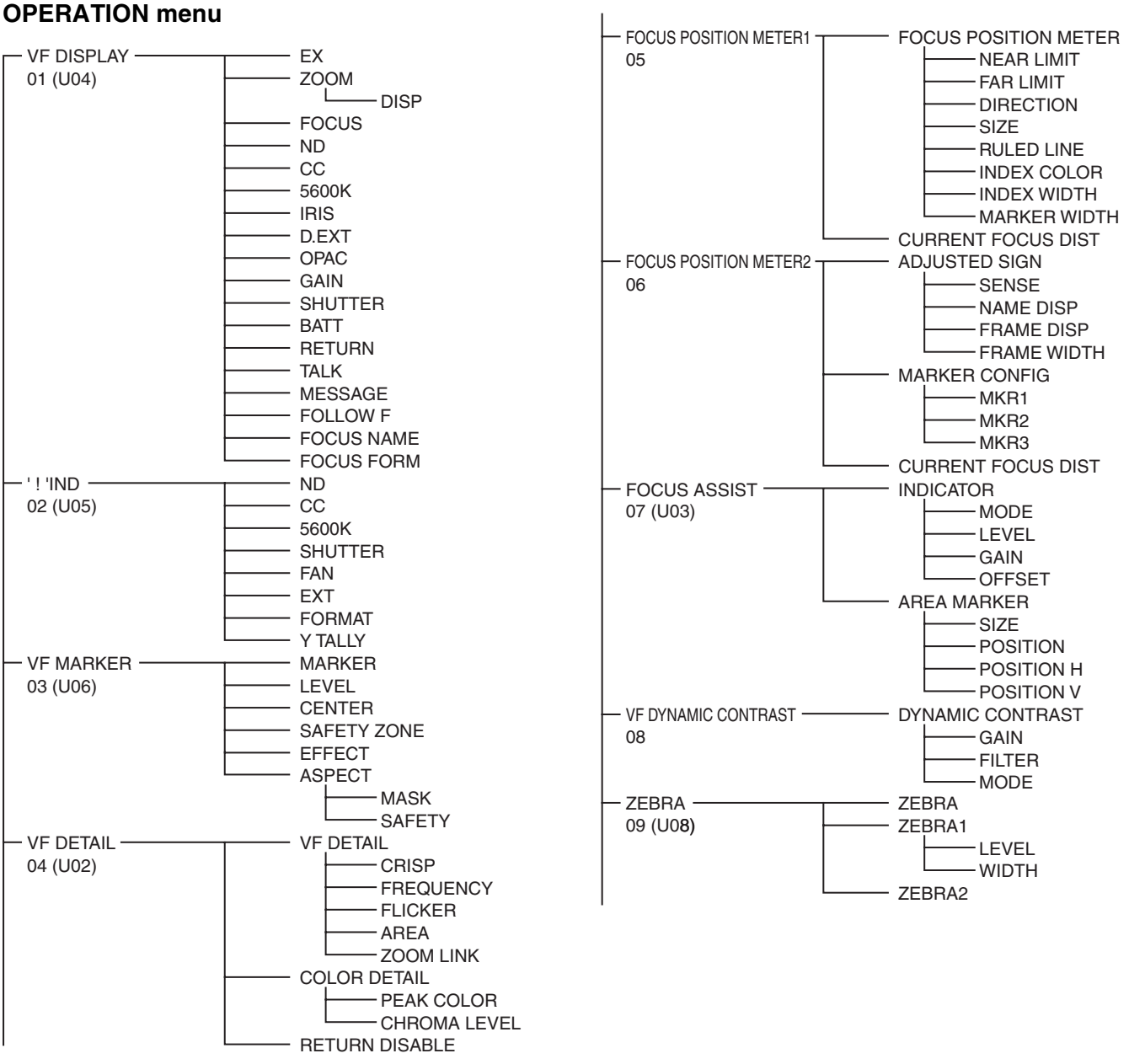
- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

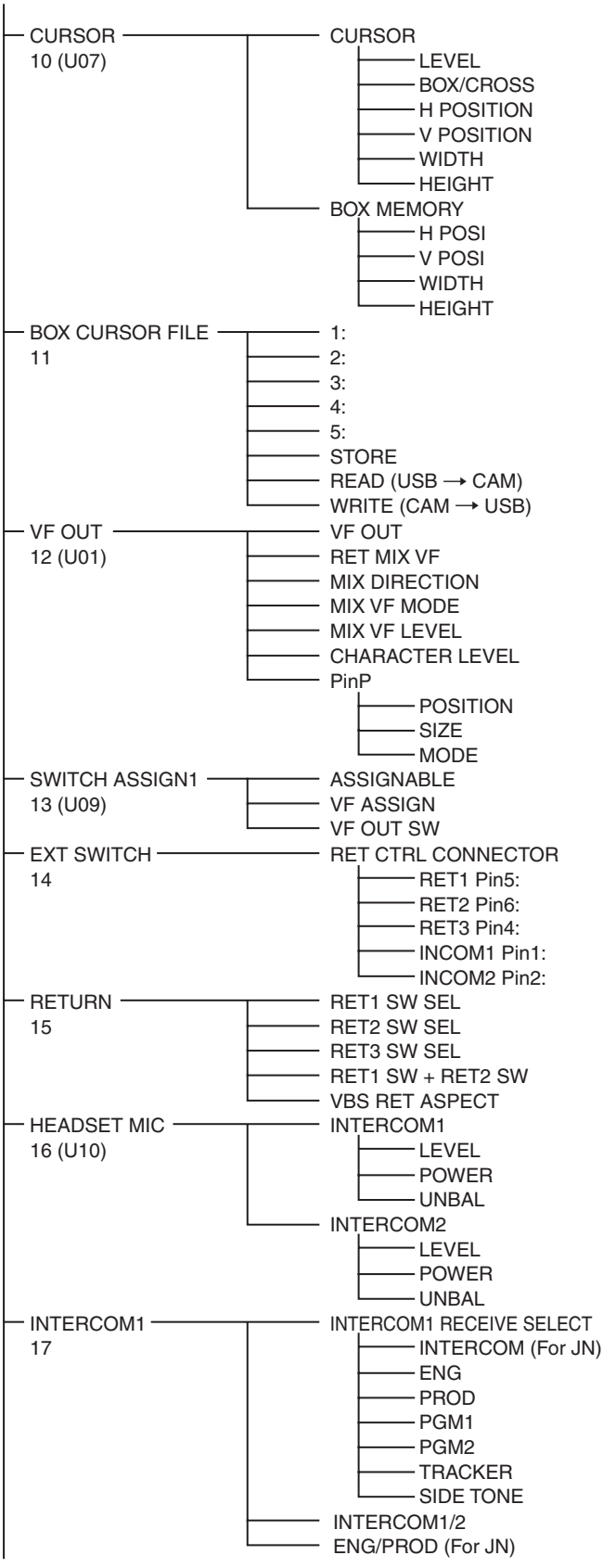
Notes

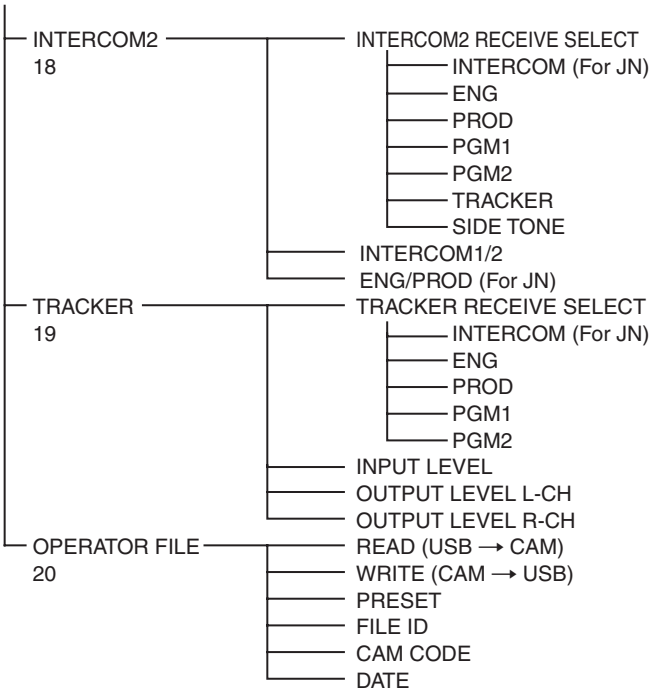
CCU: HDCU2000/2500 Camera Control Unit
Bold values (e.g. ON, OFF, 0): Default settings
Execute via ENTER: Execute by pressing the MENU SELECT switch toward ENTER.

Menu Tree

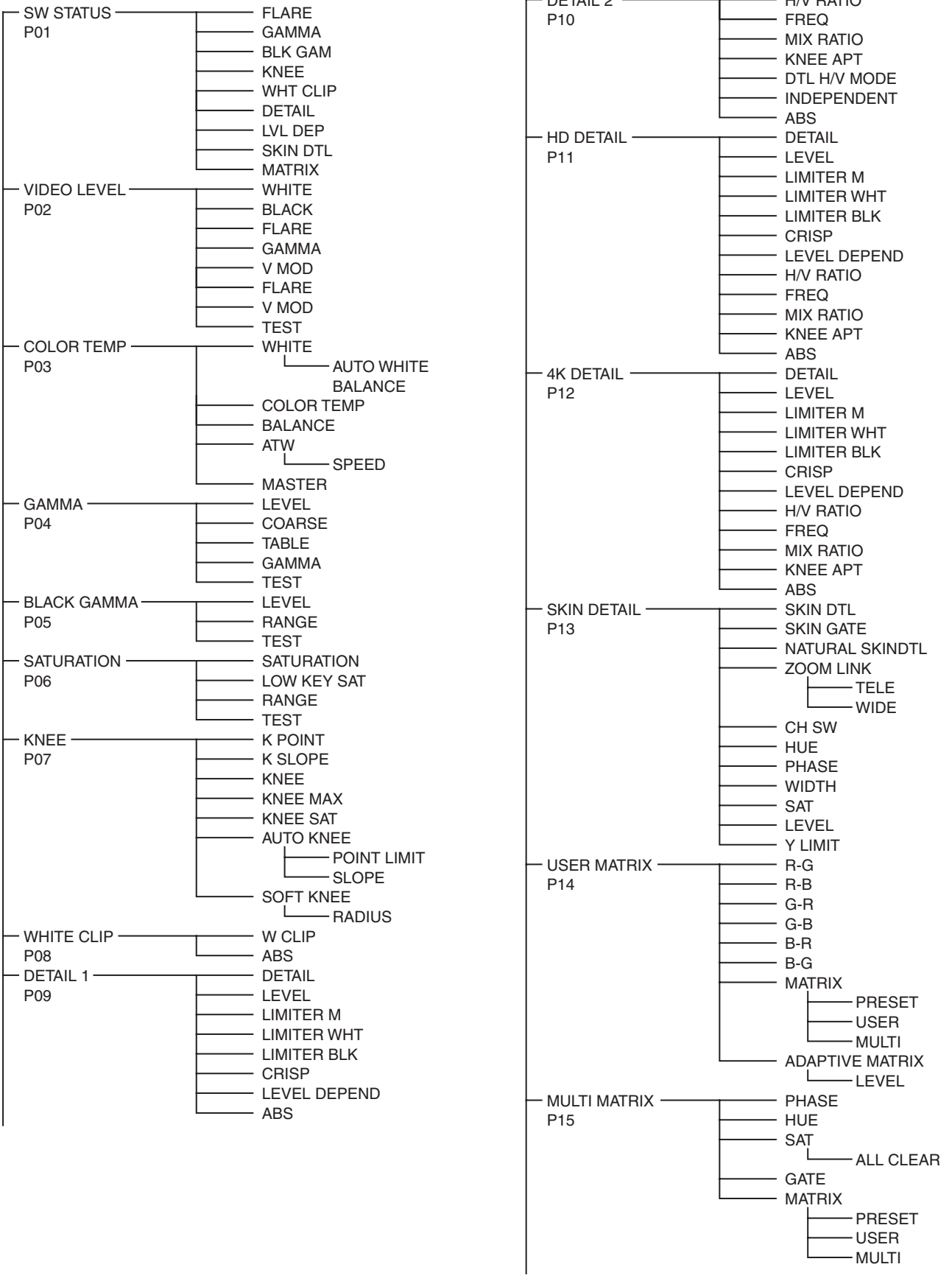
OPERATION menu

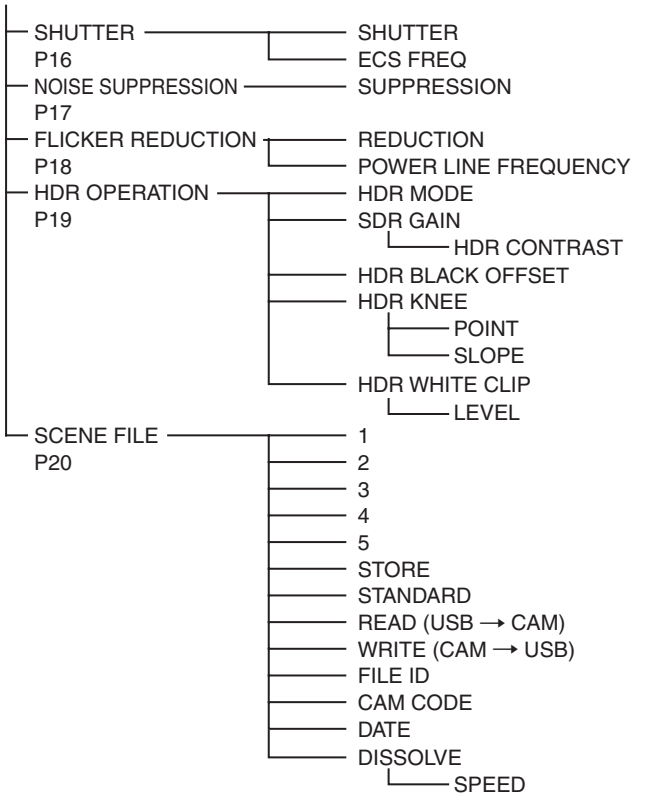



CURSOR
10 (U07)
CURSOR
LEVEL
BOX/CROSS
H POSITION
V POSITION
WIDTH
HEIGHT
BOX MEMORY
H POSI
V POSI
WIDTH
HEIGHT
BOX CURSOR FILE
11
1:
2:
3:
4:
5:
STORE
READ (USB → CAM)
WRITE (CAM → USB)
VF OUT
12 (U01)
VF OUT
RET MIX VF
MIX DIRECTION
MIX VF MODE
MIX VF LEVEL
CHARACTER LEVEL
PinP
POSITION
SIZE
MODE
SWITCH ASSIGN1
13 (U09)
ASSIGNABLE
VF ASSIGN
VF OUT SW
EXT SWITCH
14
RET CTRL CONNECTOR
RET1 Pin5:
RET2 Pin6:
RET3 Pin4:
INCOM1 Pin1:
INCOM2 Pin2:
RETURN
15
RET1 SW SEL
RET2 SW SEL
RET3 SW SEL
RET1 SW + RET2 SW
VBS RET ASPECT
HEADSET MIC
16 (U10)
INTERCOM1
LEVEL
POWER
UNBAL
INTERCOM2
LEVEL
POWER
UNBAL
INTERCOM1
17
INTERCOM1 RECEIVE SELECT
INTERCOM (For JN)
ENG
PROD
PGM1
PGM2
TRACKER
SIDE TONE
INTERCOM1/2
ENG/PROD (For JN)

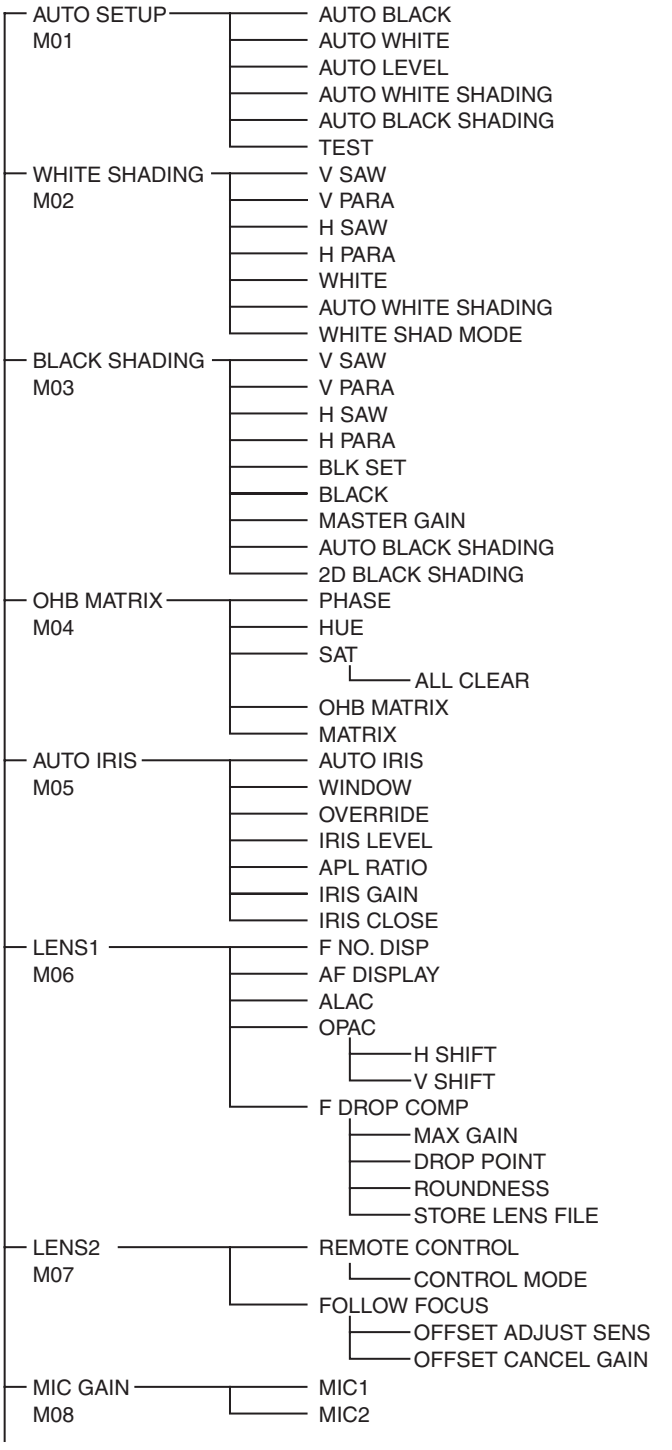

INTERCOM2
18
INTERCOM2 RECEIVE SELECT
INTERCOM (For JN)
ENG
PROD
PGM1
PGM2
TRACKER
SIDE TONE
INTERCOM1/2
ENG/PROD (For JN)
TRACKER
19
TRACKER RECEIVE SELECT
INTERCOM (For JN)
ENG
PROD
PGM1
PGM2
INPUT LEVEL
OUTPUT LEVEL L-CH
OUTPUT LEVEL R-CH
OPERATOR FILE
20
READ (USB → CAM)
WRITE (CAM → USB)
PRESET
FILE ID
CAM CODE
DATE

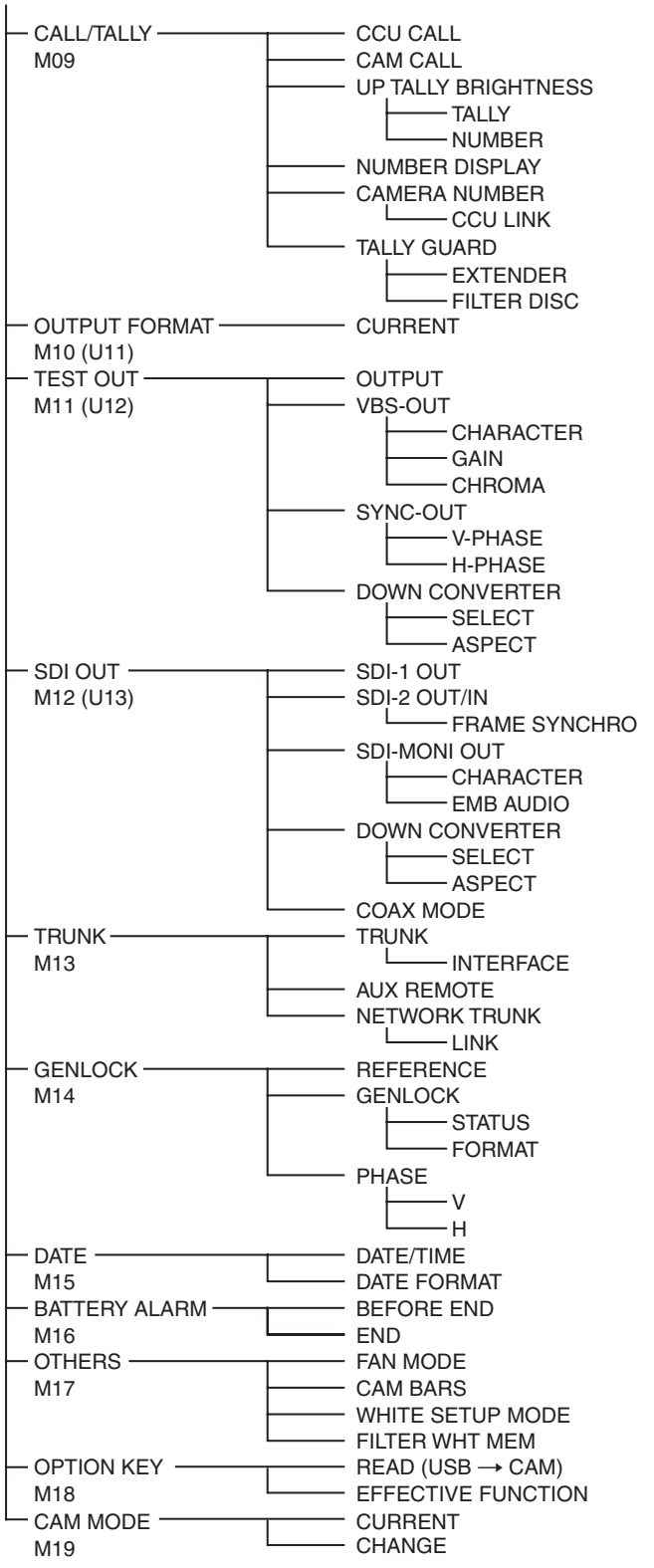
PAINT menu


SW STATUS
P01
FLARE
GAMMA
BLK GAM
KNEE
WHT CLIP
DETAIL
LVL DEP
SKIN DTL
MATRIX
VIDEO LEVEL
P02
WHITE
BLACK
FLARE
GAMMA
V MOD
FLARE
V MOD
TEST
COLOR TEMP
P03
WHITE
AUTO WHITE BALANCE
COLOR TEMP
BALANCE
ATW
SPEED
MASTER
GAMMA
P04
LEVEL
COARSE
TABLE
GAMMA
TEST
BLACK GAMMA
P05
LEVEL
RANGE
TEST
SATURATION
P06
SATURATION
LOW KEY SAT
RANGE
TEST
KNEE
P07
K POINT
K SLOPE
KNEE
KNEE MAX
KNEE SAT
AUTO KNEE
POINT LIMIT
SLOPE
SOFT KNEE
RADIUS
WHITE CLIP
P08
W CLIP
ABS
DETAIL 1
P09
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
ABS
DETAIL 2
P10
H/V RATIO
FREQ
MIX RATIO
KNEE APT
DTL H/V MODE
INDEPENDENT
ABS
HD DETAIL
P11
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
H/V RATIO
FREQ
MIX RATIO
KNEE APT
ABS
4K DETAIL
P12
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
H/V RATIO
FREQ
MIX RATIO
KNEE APT
ABS
SKIN DETAIL
P13
SKIN DTL
SKIN GATE
NATURAL SKINDTL
ZOOM LINK
TELE
WIDE
CH SW
HUE
PHASE
WIDTH
SAT
LEVEL
Y LIMIT
USER MATRIX
P14
R-G
R-B
G-R
G-B
B-R
B-G
MATRIX
PRESET
USER
MULTI
ADAPTIVE MATRIX
LEVEL
MULTI MATRIX
P15
PHASE
HUE
SAT
ALL CLEAR
GATE
MATRIX
PRESET
USER
MULTI

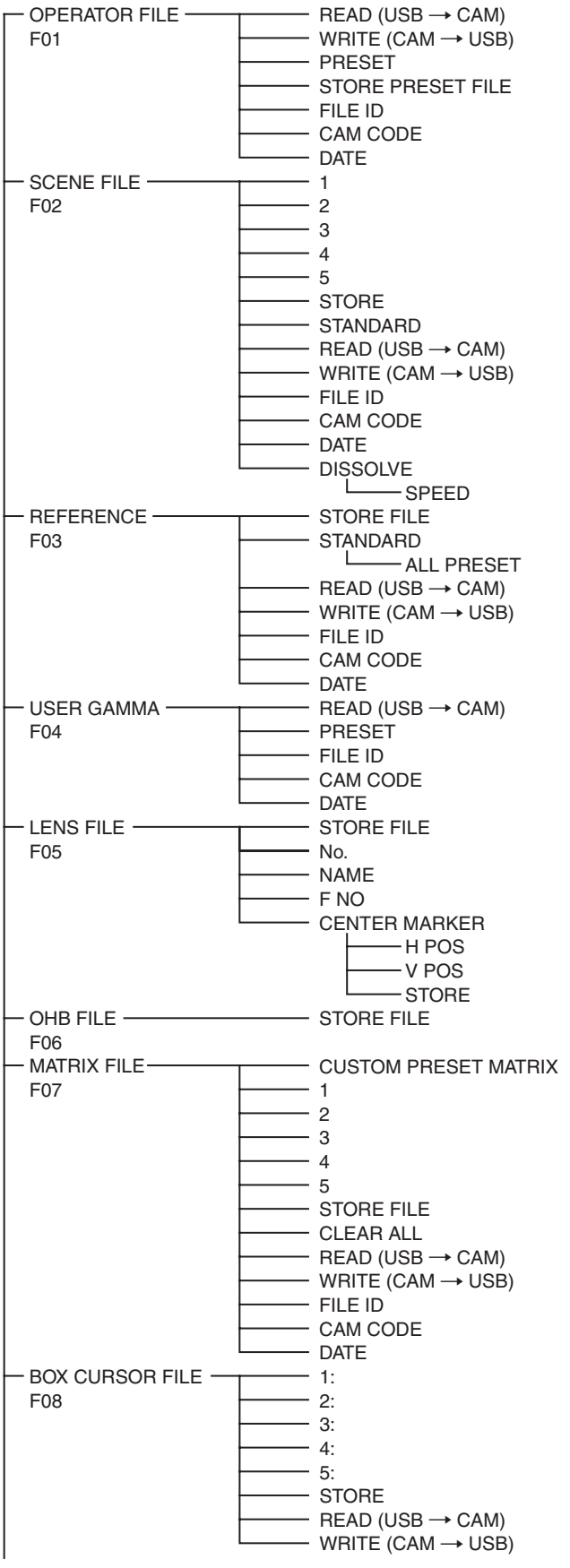


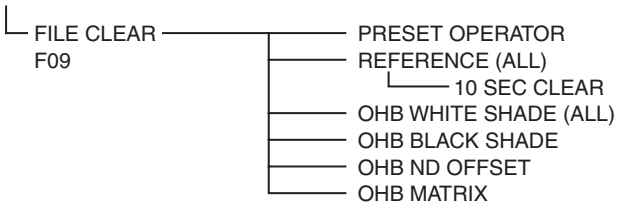
MAINTENANCE menu



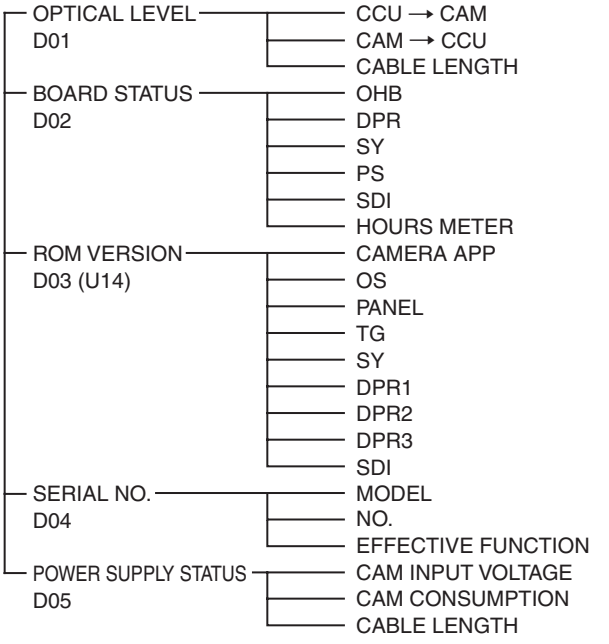

CALL/TALLY
M09
CCU CALL
CAM CALL
UP TALLY BRIGHTNESS
TALLY
NUMBER
NUMBER DISPLAY
CAMERA NUMBER
CCU LINK
TALLY GUARD
EXTENDER
FILTER DISC
OUTPUT FORMAT
M10 (U11)
CURRENT
TEST OUT
M11 (U12)
OUTPUT
VBS-OUT
CHARACTER
GAIN
CHROMA
SYNC-OUT
V-PHASE
H-PHASE
DOWN CONVERTER
SELECT
ASPECT
SDI OUT
M12 (U13)
SDI-1 OUT
SDI-2 OUT/IN
FRAME SYNCHRO
SDI-MONI OUT
CHARACTER
EMB AUDIO
DOWN CONVERTER
SELECT
ASPECT
COAX MODE
TRUNK
M13
TRUNK
INTERFACE
AUX REMOTE
NETWORK TRUNK
LINK
GENLOCK
M14
REFERENCE
GENLOCK
STATUS
FORMAT
PHASE
V
H
DATE
M15
DATE/TIME
DATE FORMAT
BATTERY ALARM
M16
BEFORE END
END
OTHERS
M17
FAN MODE
CAM BARS
WHITE SETUP MODE
FILTER WHT MEM
OPTION KEY
M18
READ (USB → CAM)
EFFECTIVE FUNCTION
CAM MODE
M19
CURRENT
CHANGE

FILE menu


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



DIAGNOSIS menu



OPERATION Menu

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<VF DISPLAY> 01 (U04)	EX	**ON**, OFF, 3S	
	ZOOM	ON, **OFF**, 3S	
	DISP	**LEFT**, RIGT	
	FOCUS	ON, **OFF**, 3S	Valid only when a serial lens is used.
	ND	**ON**, OFF, 3S	
	CC	**ON**, OFF, 3S	
	5600K	**ON**, OFF, 3S	
	IRIS	**ON**, OFF, 3S	
	D.EXT	**ON**, OFF, 3S	
	OPAC	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 information and higher.
	FOLLOW F	ON, **OFF**, 3S	
	FOCUS NAME	OFF, 1S, 3S, 5S, **ON**	Displays/hides Marker Name, and sets the display time.
	FOCUS FORM	**NORMAL**, ABS(AUTO), ABS(m), ABS(ft)	Sets the FOCUS display format. **NORMAL:** Displayed in the range 0 to 255 (no units). **ABS(AUTO):** Displayed in the units (meters or feet) set on the lens. **ABS(m):** Displayed in meters. **ABS(ft):** Displayed in feet.

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<‘ ! ’IND> 02 (U05)	ND	**ON**, OFF	[IND]: Sets whether to be included in the status indications on the viewfinder screen *(see page 21)*. [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.) e.g.: 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 (combination allowed)	
	CC	**ON**, OFF	
		A, **B**, C, D, E (combination allowed)	
	5600K	**ON**, OFF, ---	
		ON, **OFF**	
	SHUTTER	**ON**, OFF, ---	
		ON, **OFF**	
	FAN	**ON**, OFF	
		AUTO1, AUTO2, MIN, MAX	
	EXT	**ON**, OFF	
	FORMAT	**ON**, OFF	
		1080-59.94i, 1080-29.97PsF, 1080-50i, 1080-25PsF, 1080-24PsF, 1080-23.98PsF, 1080-59.94P, 1080-50P, 720-59.94P, 720-50P, 1080-59.94i (2×), 1080-50i (2×), 720-59.94P (2×), 720-50P (2×)	
	Y TALLY	**ON**, OFF	
<VF MARKER> 03 (U06)	MARKER	**(ON)**, (OFF)	Settings in ( ): Display only
		WHITE, BLACK, DOT	
	LEVEL	0 to 100%, **40%**	
	CENTER	ON, **OFF**	
		1, 2, 3, 4	**1**: Entire cross **2**: Entire 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**, (OFF(ASSIST IND))	**(OFF(ASSIST IND))**: Displayed when INDICATOR of <FOCUS ASSIST> is ON.
	ASPECT	(ON), **(OFF)**	Settings in ( ): Display only
		16:9, 15:9, 14:9, 13:9, **4:3**	
	MASK	(ON), **(OFF)**	Settings in ( ): Display only
		0 to 15, **12**	Sets the level to darken outside the aspect area.
	SAFETY	ON, **OFF**, (AREA)	For the safety marker in Aspect mode.
		80.0, **90.0**, 92.5, 95.0%	**(AREA)**: Displayed when AREA MARKER of <FOCUS ASSIST> is ON.

OPERATION				
Page title PageNo.	**Item**		**Settings**	**Description**
<VF DETAIL> 04 (U02)	VF DETAIL		**ON**, OFF	
			(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)	Settings in ( ): Display only
			0 to 100%, **50%**	
	COLOR DETAIL		(ON), **(OFF)**	Settings in ( ): Display only
			BLUE, RED, YELLOW	
		PEAK COLOR	ON, **OFF**	
		CHROMA LEVEL	100%, 50%, **25%**, 0%	
	RETURN DISABLE		ON, **OFF**	Selects whether to set VF DETAIL to OFF for RETURN display.
<FOCUS POSITION METER1> 05	FOCUS POSITION METER		**OFF**, ON	Displays/hides the focus position meter.
		NEAR LIMIT	**0** to 999	Sets the NEAR limit of the focus position meter.
		FAR LIMIT	0 to **999**	Sets the FAR limit of the focus position meter.
		DIRECTION	**HORIZONTAL**, VERTICAL	Sets the display direction of the focus position meter. **HORIZONTAL**: Displayed horizontally on the top of the screen. **VERTICAL**: Displayed vertically on the right of the screen.
		SIZE	**NORMAL**, HALF	Sets the display size of the focus position meter.
		RULED LINE	**OFF**, ON	Displays/hides Ruled Line.
		INDEX COLOR	BLACK, **WHITE**	Sets the color of Index.
		INDEX WIDTH	**1** to 5	Sets the width of Index.
		MARKER WIDTH	**1** to 9	Sets the width for an axle of the marker.
	CURRENT FOCUS DIST			Displays the current focus distance (display only).

OPERATION				
Page title PageNo.	**Item**		**Settings**	**Description**
<FOCUS POSITION METER2> 06	ADJUSTED SIGN			
		SENSE	1 to 5, **2**	Sets the sensitivity for the ADJUST decision. The higher the value, the higher the sensitivity.
		NAME DISP	OFF, 1S, 3S, 5S, **ON**	Displays/hides Marker Name, and sets the display time.
		FRAME DISP	OFF, 1S, 3S, 5S, **ON**	Displays/hides Adjust Frame, and sets the display time.
		FRAME WIDTH	1 to 5, **2**	Sets the width of Adjust Frame.
	MARKER CONFIG			
		[REG] MKR1, 2, 3	Execute via ENTER.	Registers the marker on the current focus position. (This item is not available when the marker registering operation is assigned to the dedicated switch.)
		[DISP] MKR1, 2, 3	**OFF**, ON	Displays/hides the marker. (This item is not available when the marker registering operation is assigned to the dedicated switch.)
		[COLOR] MKR1, 2, 3	**RED**, GREEN, BLUE, YELLOW, ORANGE, PURPLE, GRAY, BLACK, WHITE	Sets the color for the triangular area of the marker. (This item is not available when the marker registering operation is assigned to the dedicated switch.)
		[NAME] MKR1, 2, 3	Up to 8 characters (default setting: MARKER 1 to 3)	Sets the character of Marker Name. *See "To specify a character string" on page 23.*
		[POS] MKR1, 2, 3	**0** to 999	Sets the position of Marker.
	CURRENT FOCUS DIST			Displays the current focus distance (display only).
<FOCUS ASSIST> 07 (U03)	INDICATOR		(ON), **(OFF)**, OFF(EFFECT)	(ON), (OFF): Display only **OFF(EFFECT)**: Displayed when EFFECT of <VF MARKER> is ON.
		MODE	**BOX**, B&W, COL	
			BTM, LEFT, TOP, RIGHT	
		LEVEL	0 to 100%, **40%**	
			QUICK, SMOOTH	
		GAIN	0 to 99, **50**	
		OFFSET	0 to 99, **50**	
	AREA MARKER		ON, **OFF**, (ASPECT)	**(ASPECT)**: Displayed when ASPECT SAFETY of <VF MARKER> is ON.
		SIZE	SMALL, **MIDDLE**, LARGE	
		POSITION	LEFT, **CENTER**, RIGHT	
		POSITION H	0 to 99, **50**	
		POSITION V	0 to 99, **50**	
<VF DYNAMIC CONTRAST> 08	DYNAMIC CONTRAST		ON, **OFF**, (OFF)	<CAM MODE> The menu screen is only displayed when in 4K/HDR MODE. The menu screen is not displayed when in NORMAL MODE. <OUTPUT FORMAT> Display (OFF) except when in 1080/50P (4K/HDR) or 1080/59.94P (4K/HDR)
		GAIN	0 to 100%, **25%**	
		FILTER	**WIDE**, NARROW	
		MODE	**HIGHLIGHT**, FOGGY	

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<ZEBRA> 09 (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> 10 (U07)	CURSOR	(ON), **(OFF)**	Settings in ( ): Display only
	LEVEL	**WHITE**, BLACK, DOT	
		0 to 100%, **40%**	
	BOX/CROSS	**BOX**, CROSS	
	H POSITION	(0 to 99), **(50)**	Settings in ( ): Display only
	V POSITION	(0 to 99), **(50)**	
	WIDTH	(0 to 99), **(50)**	
	HEIGHT	(0 to 99), **(50)**	
	BOX MEMORY	1/2/3: **(OFF)**, (ON)	Settings in ( ): Display only
	H POSI	1/2/3: (0 to 99), **(50)**	
	V POSI	1/2/3: (0 to 99), **(50)**	
	WIDTH	1/2/3: (0 to 99), **(50)**	
	HEIGHT	1/2/3: (0 to 99), **(50)**	
<BOX CURSOR FILE> 11	1:		Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name. Sets the cursor to the left of the number when you select BOX CURSOR FILE. Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name. *See "To specify a character string" on page 23.*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	READ (USB → CAM)		Transfers BOX CURSOR FILE from a USB drive to the camera.
	WRITE (CAM → USB)		Transfers BOX CURSOR FILE from the camera to a USB drive.

OPERATION

Page title PageNo.	Item	Settings	Description
<VF OUT> 12 (U01)	VF OUT	**(COLOR)**, (Y), (R), (G), (B)	Settings in ( ): Display only
	RET MIX VF	(ON), **(OFF)**	Settings in ( ): Display only
	MIX DIRECTION	MAIN, **RET**	
	MIX VF MODE	**Y-MIX**, Y/C-MIX, WIRE(W), WIRE(B)	
	MIX VF LEVEL	0 to **99%**	
	CHARACTER LEVEL	1 to 5, **4**	
	PinP	**OFF**, RETURN, HD PROMPTER	
	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 **Pin P: OFF** **Pin P: RETURN** **Pin P: HD PROMPTER** Cannot be used during stand-alone operation. Not available when HD TRUNK FRAME SYNCHRO is set to ON.
<SWITCH ASSIGN1> 13 (U09)	ASSIGNABLE	**OFF**, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP, FLAG	**Note** When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction. D.EXTENDER does not operate when a 2x speed motion format is selected.
	VF ASSIGN	**VF ASSIGN1**, VF ASSIGN2, PinP	
	VF OUT SW	**VF OUT RGB**, FOCUS POSITION METER	

Pin P: OFF

Mode	RET SW OFF	RET SW ON
---		

Pin P: RETURN

Mode	RET SW OFF	RET SW ON
1		
2		
3		
4		

Pin P: HD PROMPTER

Mode	RET SW OFF	RET SW ON
1		
2		

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<EXT SWITCH> 14	RET CTRL CONNECTOR		
	RET1 Pin5:	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	This function works when each pin of the RET CTRL connector contacts with GND (Pin3). TALLY R, G, Y are available only when using the camera as a standalone device, and make the tally lamp light. VTR S/S is available only when using the camera as a standalone device, and makes the R tally lamp light. VTR S/S signal is embedded in the video.
	RET2 Pin6:	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	RET3 Pin4:	OFF, RETURN1 SW, RETURN2 SW, **RETURN3 SW**, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	INCOM1 Pin1:	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, **INCOM 1**, INCOM 2, EXTENDER, D.EXTENDER, 5600K, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	INCOM2 Pin2:	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, INCOM 1, **INCOM 2**, EXTENDER, D.EXTENDER, 5600K, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
<RETURN> 15	RET1 SW SEL	(CCU RET1), (CCU RET2), (CCU RET3), (CCU RET4)	Varies based on the RET1 button setting. Settings in ( ): Display only
	RET2 SW SEL		Varies based on the RET2 button setting. Settings in ( ): Display only
	RET3 SW SEL	(CCU RET1), (CCU RET2), **(CCU RET3)**, (CCU RET4)	Settings in ( ): Display only
	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**: The two buttons function as the RET1 button. **RET3 SW**: The two buttons function as the RET3 button.
	VBS RET ASPECT	**EC**, SQ	Sets the Aspect mode of the VBS RET when the camera is used in standalone operation. **EC**: Edge Crop **SQ**: SQeeze

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<HEADSET MIC> 16 (U10)	INTERCOM1	**DYNAMIC**, CARBON, MANUAL	
	LEVEL	–60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		–6, **0**, 6 dB	Input gain
	POWER	ON, OFF, (ON), **(OFF)**	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
	UNBAL	ON, OFF, **(ON)**, (OFF)	Settings in ( ): With CARBON (cannot be changed)
	INTERCOM2	**DYNAMIC**, CARBON, MANUAL	
	LEVEL	–60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		–6, **0**, 6 dB	Input gain
	POWER	ON, OFF, (ON), **(OFF)**	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
	UNBAL	**ON**, OFF, (ON), (OFF)	Settings in ( ): With CARBON (cannot be changed)
<INTERCOM1> 17	INTERCOM1 RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	--- , **LEFT**, RIGHT, BOTH	JN model only When ENG/PROD is set to MIX, ENG and PROD appears instead of this item (the setting values are same as this item).
	ENG	--- , **LEFT**, RIGHT, BOTH	
	PROD	--- , **LEFT**, RIGHT, BOTH	
	PGM1	--- , LEFT, **RIGHT**, BOTH	
	PGM2	--- , LEFT, **RIGHT**, BOTH	
	TRACKER	--- , **LEFT**, RIGHT, BOTH	
	SIDE TONE	MU, 1 to 99, **50**	
	INTERCOM1/2	**SEPARATE**, MIX	
	ENG/PROD	**SEPARATE**, MIX	JN model only
<INTERCOM2> 18	INTERCOM2 RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	--- , **LEFT**, RIGHT, BOTH	JN model only When ENG/PROD is set to MIX, ENG and PROD appears instead of this item (the setting values are same as this item).
	ENG	--- , **LEFT**, RIGHT, BOTH	
	PROD	--- , **LEFT**, RIGHT, BOTH	
	PGM1	--- , LEFT, **RIGHT**, BOTH	
	PGM2	--- , LEFT, **RIGHT**, BOTH	
	TRACKER	**---** , LEFT, RIGHT, BOTH	
	SIDE TONE	MU, 1 to 99, **50**	
	INTERCOM1/2	**SEPARATE**, MIX	
	ENG/PROD	**SEPARATE**, MIX	JN model only

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<TRACKER> 19	TRACKER RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	--- , **LEFT**, RIGHT, BOTH	JN model only When ENG/PROD is set to MIX, ENG and PROD appears instead of this item (the setting values are same as this item).
	ENG	--- , **LEFT**, RIGHT, BOTH	
	PROD	--- , **LEFT**, RIGHT, BOTH	
	PGM1	--- , LEFT, **RIGHT**, BOTH	
	PGM2	--- , LEFT, **RIGHT**, BOTH	
	INPUT LEVEL	20 dBu, **0 dBu**	
		–6 dB, **0 dB**, 6 dB	
	OUTPUT LEVEL L-CH / R-CH	**0 dBu**, –6 dBu, –12 dBu, –18 dBu, –20 dBu, –24 dBu	
<OPERATOR FILE> 20	READ (USB → CAM)	Execute via ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM → USB)	Execute via ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute via ENTER.	Sets the operator file items to the preset values in internal memory.
	FILE ID	alphanumerics (max.14 characters)	Enters a comment for the operator file to be written to a USB drive. *See "To specify a character string" (page 23).*
	CAM CODE	Camera code	Display only
	DATE		Display only

PAINT Menu

PAINT			
Page title PageNo.	**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**	
	FLARE	R/G/B/M: –99 to +99, **0**	
	GAMMA	R/G/B/M: –99 to +99, **0**	
	V MOD	R/G/B/M: –99 to +99, **0**	
	FLARE	**ON**, OFF	
	V MOD	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<COLOR TEMP> P03	WHITE	R/G/B: –99 to +99, **0**	
	AUTO WHITE BALANCE	Execute via ENTER.	
	COLOR TEMP	0K to 65535K, **3200K**	
	BALANCE	–99 to +99, **0**	
	ATW	ON, **OFF**	
	SPEED	1, **2**, 3, 4, 5	
	MASTER	–3.0 to +12.0 dB, **0.0 dB**	
<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**: gain ×4.5 **3**: gain ×3.5 **4**: equivalent to SMPTE-240M **5**: equivalent to ITU-R709 **6**: gain ×5.0 **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	
<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	
	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.
	SOFT KNEE	ON, **OFF**	Gives a smooth curve for KNEE.
	RADIUS	**0** to 99	Adjusts the range of starting a smooth curve using SOFT KNEE.

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<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.
	LIMITER [M]	–99 to +99, **0**	
	LIMITER [WHT]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	CRISP	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, OFF	
	ABS		Highlighted: ABS (Absolute) mode
<DETAIL 2> P10	H/V RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	FREQ	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	MIX RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	KNEE APT	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, **OFF**	
	DTL H/V MODE	**H/V**, V only	
	INDEPENDENT	ON, **OFF**	Selects whether to link to DETAIL. Displayed when <CAM MODE> is 4K/HDR MODE.
	ABS		Highlighted: ABS (Absolute) mode
<HD DETAIL> P11 Displayed when <CAM MODE> is 4K/HDR MODE.	DETAIL	**ON**, OFF	
	LEVEL	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [M]	–99 to +99, **0**	
	LIMITER [WHT]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	CRISP	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, OFF	
	H/V RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	FREQ	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	MIX RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	KNEE APT	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, **OFF**	
	ABS		Highlighted: ABS (Absolute) mode

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<4K DETAIL> P12 Displayed when <CAM MODE> is 4K/HDR MODE.	DETAIL	**ON**, OFF	
	LEVEL	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [M]	–99 to +99, **0**	
	LIMITER [WHT]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	CRISP	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, OFF	
	H/V RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	FREQ	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	MIX RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	KNEE APT	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, **OFF**	
	ABS		Highlighted: ABS (Absolute) mode
<SKIN DETAIL> 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 via 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	
<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**	

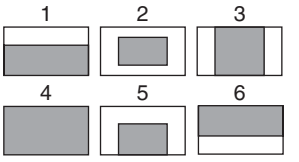
PAINT

Page title PageNo.	Item	Settings	Description
<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 to be made, and set 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 via ENTER.	
	GATE	ON, **OFF**, (1), (2), (3)	**(1)**, **(2)**, **(3)**: Displayed when SKIN GATE of <SKIN DETAIL> is ON.
	MATRIX	ON, **OFF**	
	PRESET	**---**, ON, OFF	
		---, SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5	
	USER	**---**, ON, OFF	
	MULTI	**---**, ON, OFF	
<SHUTTER> P16	SHUTTER	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
		59.94i: **1/100**, 1/125, 1/250, 1/500, 1/1000, 1/2000 50i: 1/60, **1/125**, 1/250, 1/500, 1/1000, 1/2000 29.97PsF: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000 25PsF: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 24PsF/23.98PsF: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 59.94P: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 50P: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000	Step shutter selection
	ECS FREQ	59.94i: **60.00** to 4300 Hz 50i: 50.00 to 4700 Hz 29.97PsF: 30.00 to 2700 Hz 25PsF: 25.00 to 2300 Hz 24PsF/23.98PsF: 24.00 to 2200 Hz 59.94P: 59.96 to 4600 Hz 50P: 50.03 to 4600 Hz	
<NOISE SUPPRESSION> P17	SUPPRESSION	**0** to 100%	
		ON, **OFF**	
<FLICKER REDUCTION> P18	REDUCTION	ON, **OFF**	**Note** When you turn REDUCTION ON or OFF, noise may be generated. This is not a malfunction.
	POWER LINE FREQUENCY	**50**, 60	

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<HDR OPERATION> P19 Displayed when <CAM MODE> is 4K/HDR MODE.	HDR MODE	OFF, LIVE HDR	Displays the CCU setting.
	SDR GAIN	**0.0** to –15 dB	Enabled only when LIVE HDR is selected. Gain setting applied to the SDR output.
	HDR CONTRAST	100 to 560 %	Enabled only when LIVE HDR is selected. HDR output contrast ensured by setting SDR GAIN (display only).
	HDR BLACK OFFSET	–99.9 to +99.9, **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	
	LEVEL	–99 to 99, **0**	
<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 via ENTER.	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB → CAM)	Execute via ENTER.	Loads 32 scene files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via 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 23).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switching a scene file seamlessly.
	SPEED	0.2 to 2.8 (0.2 step), 3 to 10 (1 step), **0.2**	

MAINTENANCE Menu

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<AUTO SETUP> M01	AUTO BLACK	Execute via ENTER.	
	AUTO WHITE	Execute via ENTER.	
	AUTO LEVEL	Execute via ENTER.	
	AUTO WHITE SHADING	Execute via ENTER.	
	AUTO BLACK SHADING	Execute via 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**	
	AUTO WHITE SHADING	Execute by ENTER.	
	WHITE SHAD MODE	RGB, **RB**	
<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/M: –99 to +99, **0**	
	MASTER GAIN	–6, –3, **0**, 3, 6, 9, 12 dB	
	AUTO BLACK SHADING	Execute via ENTER.	
	2D BLACK SHADING	**ON**, OFF	
<OHB MATRIX> M04	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 OHB matrix adjustment is to be made, and set 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 via ENTER.	Clears the HUE and SAT values for all PHASE settings.
	OHB MATRIX	ON, **OFF**	
	MATRIX	ON, **OFF**	

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<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**	
<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**, OFF(EFFECT), (OFF(ASSIST IND))	**OFF(EFFECT)**: Displayed when EFFECT of <VF MARKER> is ON. **OFF(ASSIST IND)**: Displayed when INDICATOR of <FOCUS ASSIST> is ON.
	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.
	OPAC	ON, **OFF**	Sets the optical axis compensation (OPAC) function to ON/OFF.
	H SHIFT	–5, –4, –3, –2, –1, **0**, 1, 2, 3, 4, 5	Sets the H-direction movement amount.
	V SHIFT	–3, –2, –1, **0**, 1, 2, 3	Sets the V-direction movement amount.
	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 attached.
	MAX GAIN	**0.0** to 24 dB	Maximum compensation value
	DROP POINT	0 to 99, **50**	Compensation start point
	ROUNDNESS	**0.0** to 12 dB	Roundness of the compensation curve.
	STORE LENS FILE	Execute using ENTER.	Saves settings to a lens file.

MAINTENANCE

Page title PageNo.	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.
<MIC GAIN> M08	MIC1	20, 30, 40, 50, **60** dB	Can be modified only in standalone operation.
	MIC2	20, 30, 40, 50, **60** dB	
<CALL/TALLY> M09	CCU CALL	OFF, **ON**	Selects whether TALLY lights for CALL signal.
	CAM CALL	**OFF**, ON	
	UP TALLY BRIGHTNESS		
	TALLY	0 to 100, **50**	
	NUMBER	0 to 100, **50**	
	NUMBER DISPLAY	**AUTO**, OFF, ON	
	CAMERA NUMBER	**---**, 1 to 96	
	CCU LINK	**OFF**, ON	ON sets CAMERA NUMBER to the same number as the CCU number.
	TALLY GUARD		Selects whether to prevent changes while TALLY is lit.
	EXTENDER	**OFF**, ON	
	FILTER DISC	**OFF**, ON	
<OUTPUT FORMAT> M10 (U11)	CURRENT	1080: 24PsF, 59.94i, 29.97PsF, 23.98PsF, 59.94P, 50i, 25PsF, 50P, 59.94i (2×), 50i (2×) 720: 59.94P, 50P, 59.94P (2×), 50P (2×)	Displays the current format.

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<TEST OUT> M11 (U12)	OUTPUT	SD-SYNC, HD-SYNC, VF, **VBS**	
	VBS-OUT		OUTPUT is displayed during VBS.
	CHARACTER	ON, **OFF**	
	GAIN	–99 to +99, **0**	
	CHROMA	–99 to +99, **0**	
	SYNC-OUT		OUTPUT is displayed during SD-SYNC and HD-SYNC.
	V-PHASE	–999 to +999, **0**	
	H-PHASE	–999 to +999, **0**	
	DOWN CONVERTER		OUTPUT is displayed for VBS.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	
<SDI OUT> M12 (U13)	SDI-1 OUT	OFF, **MAIN/LINK-A**, 3G-SDI, HD PROMPTER, (HD PROMPTER)	**(HD PROMPTER)**: Displayed when the format is 4K/HDR.
	SDI-2 OUT/IN	OFF, **MAIN/LINK-B**, HD TRUNK/ RET IN, (OFF)	**(OFF)**: Displayed when the format is 4K/HDR.
	FRAME SYNCHRO	ON, **OFF**	Displays this when SDI-2 OUT/IN is HD TRUNK.
	SDI-MONI OUT	MAIN, **VF**, LINK-B, RET, SD-SDI, OFF	
	CHARACTER	ON, **OFF**	
	EMB AUDIO	**OFF**, MIC, PGM	
	DOWN CONVERTER		SDI-MONI OUT is displayed for SD-SDI.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	
	COAX MODE	ON, **OFF**	Enables or disables COAX connection. Displayed only when no CCU connected.
<TRUNK> M13	TRUNK	**ON**, OFF	
	INTERFACE	**232c**, 422A	
	AUX REMOTE		Display only
	NETWORK TRUNK		Display only
	LINK		
<GENLOCK> M14	REFERENCE	Condition of synchronisation	Display only
	GENLOCK	**ENABLE**, DISABLE	Displayed only when no CCU connected.
	STATUS		
	FORMAT		
	PHASE		
	V	–1024 to 1023, **0**	
	H	–1700 to 1700, **0**	
<DATE> M15	DATE/TIME	2000 to 2099 / 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 (character string) **D**: Day
<BATTERY ALARM> M16	BEFORE END	**11.5** to 17.0 V	
	END	**11.0** to 11.5 V	

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<OTHERS> M17	FAN MODE	OFF, **AUTO1**, AUTO2 , MIN, MAX	**AUTO1**: Normal rotation **AUTO2**: Slow rotation
	CAM BARS	ON, **OFF**	
	WHITE SETUP MODE	AWB, **A.LVL**	
	FILTER WHT MEM	ON, **OFF**	Sets the function to use independent white memory at each CC filter position to ON/OFF.
<OPTION KEY> M18	READ (USB → CAM)	Execute via ENTER.	Reads the install key from a USB drive.
	EFFECTIVE FUNCTION	USER GAMMA, 4:4:4 FORMAT, PsF FORMAT, 1080P FORMAT, 2x FORMAT	
<CAM MODE> M19	CURRENT	NORMAL, 4K/HDR MODE (DOWNCONV INVALID)	Displays the current CAM MODE setting.
Note When <CAM MODE> is set to 4K/HDR MODE, DOWN CONVERTER is not available. Only the CHARACTER information is displayed when <CAM MODE> is set to 4K/HDR MODE and SD-SDI or VBS is selected.	CHANGE	4K/HDR MODE (DOWNCONV INVALID), NORMAL	Switches the CAM MODE setting.

FILE Menu

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

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

FILE			
Page title PageNo.	**Item**	**Settings**	**Description**
<OPERATOR FILE> F01	READ (USB → CAM)	Execute via ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM → USB)	Execute via ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute via ENTER.	Sets the operator file items to the preset values in internal memory.
	STORE PRESET FILE	Execute via ENTER.	Stores the current settings of the operator file items in the operator file in internal memory.
	FILE ID	Max.14 characters	Enters a comment for the operator file to be written to a USB drive. *See "To specify a character string" (page 23).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<SCENE FILE> F02	1		Stores and reads scene files (paint data): When storing a scene file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute via ENTER.	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB → CAM)	Execute via ENTER.	Loads 32 scene files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via ENTER.	Writes 32 scene files in the internal 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 23).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switching a scene file seamlessly.
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2**	
<REFERENCE> F03	STORE FILE	Execute via ENTER.	Stores the current settings of the reference file items in the reference file in internal memory.
	STANDARD	Execute via ENTER.	Reads the standard values in the reference file in internal memory.
	ALL PRESET	Execute via ENTER.	Resumes the factory-preset reference file.
	READ (USB → CAM)	Execute via ENTER.	Loads a reference file from a USB drive.
	WRITE (CAM → USB)	Execute via ENTER.	Writes the current settings of the reference file items as a reference file to a USB drive.
	FILE ID	Max.14 characters	Enters a comment for the reference file to be written to a USB drive. *See "To specify a character string" (page 23).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

FILE			
Page title PageNo.	**Item**	**Settings**	**Description**
<USER GAMMA> F04	READ (USB → CAM)	Execute via ENTER.	Reads the user gamma file from a USB drive.
	PRESET	Execute via ENTER.	Sets the user gamma file items to the preset values in internal memory.
	FILE ID	Max.14 characters	Enters a comment for the user gamma file to be written to a USB drive. *See "To specify a character string" (page 23).*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<LENS FILE> F05	STORE FILE	Execute via 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	–20 to +20, **0**	
	V POS	–20 to +20, **0**	
	STORE	Execute via ENTER.	
<OHB FILE> F06	STORE FILE	Execute via ENTER.	Stores the offset values of items specific to the CCD. (No repeated store operation is necessary even if the CCD is reattached)
<MATRIX FILE> F07	CUSTOM PRESET MATRIX		Stores and reads preset files: When storing a preset file in camera memory, specify the file number.
	1		
	2		
	3		
	4		
	5		
	STORE FILE	Execute via ENTER.	
	CLEAR ALL	Execute via ENTER.	Clears all the files.
	READ (USB → CAM)	Execute via ENTER.	Loads five preset files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via 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" on page 23.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<BOX CURSOR FILE> F08	1:		Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name. Sets the cursor to the left of the number when you select BOX CURSOR FILE. Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name. *See "To specify a character string" on page 23.*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	READ (USB → CAM)		Transfers BOX CURSOR FILE from a USB drive to the camera.
	WRITE (CAM → USB)		Transfers BOX CURSOR FILE from the camera to a USB drive.

FILE			
Page title PageNo.	**Item**	**Settings**	**Description**
<FILE CLEAR> F09	PRESET OPERATOR	Execute via ENTER.	
	REFERENCE (ALL)	Execute via ENTER.	
	10 SEC CLEAR	ON, **OFF**	Sets the function to clear the selected menu item to ON/OFF. *See "To return a menu item to its standard value" (page 23).*
	OHB WHITE SHADE (ALL)	Execute via ENTER.	
	OHB BLACK SHADE	Execute via ENTER.	
	OHB ND OFFSET	Execute via ENTER.	
	OHB MATRIX	Execute via ENTER.	

DIAGNOSIS Menu

This menu is only for viewing and no setting is made using this menu.

MAINTENANCE			
Page title PageNo.	**Item**	**Indication**	**Description**
<OPTICAL LEVEL> D01	CCU → CAM	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU is connected.
	CAM → CCU	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU is connected.
	CABLE LENGTH	x.x km	Displays the camera cable length. (Displayed only when a CCU is connected.)
<BOARD STATUS> D02	OHB	OK, NG	
	DPR	OK, NG	
	SY	OK, NG	
	PS	OK, NG	
	SDI	OK, NG	
	HOURS METER	xxxx H	Displays the total working time.
<ROM VERSION> D03 (U14)	CAMERA APP	Vx.xx	
	OS	Vx.xx	
	PANEL	Vx.xx	
	TG	Vx.xx	
	SY	Vx.xx	
	DPR1	Vx.xx	
	DPR2	Vx.xx	
	DPR3	Vx.xx	
	SDI	Vx.xx	
<SERIAL NO.> D04	MODEL	HDCxxxx	
	NO.	xxxxxxx	
	EFFECTIVE FUNCTION		Displayed if any option is installed.
<POWER SUPPLY STATUS> D05	CAM INPUT VOLTAGE	0% to 100%, 100% OVER	Displays the ratio of the input voltage for a camera to the output voltage for a CCU.
	CAM CONSUMPTION	xx.x A	Displays camera current consumption.
	CABLE LENGTH	x.x km	Displays the cable length that a CCU measured. (Displayed only when a CCU is connected.)

Note

This display has a margin of error for the display of the electric supply state of a camera. Use only as a guide.

Appendix

Precautions

Note on laser beams

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

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 you move the camera from a very cold place to a warm place, or use it in a damp location, condensation may form on the lens or inside the camera.
The camera has no built-in condensation indicator. If you find condensation on the body or lens, switch the camera off and wait for the condensation to disappear for about one hour.

Phenomena Specific to CCD Image Sensors

The following phenomena that may appear in images are specific to CCD (Charge Coupled Device) image sensors. They do not indicate malfunctions.

White flecks

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

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

This product has a compensation function and the problem may be alleviated by automatic black balance adjustment.

Smear

When an extremely bright object, such as a strong spotlight or flashlight, is being shot, vertical tails may be produced on the screen, or the image may be distorted.

Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

To prevent electromagnetic interference from portable communications devices

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

Error Messages

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

Note

To display a message, set the DISPLAY switch to ON.

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.
MSU RPN BUSY	RPN compensation was attempted using the camera menu while being operated from an external device. Consult Sony service personnel.
VF RPN BUSY	RPN compensation was attempted from an external device while being operated using the camera menu. Consult Sony service personnel.
NO USB FLASH DRIVE	A USB drive operation was attempted with no USB drive connected.
USB FLASH DRIVE ERROR	An error occurred during access to a USB drive.
FORMAT ERROR!	A USB drive operation was attempted with an unformatted USB drive.
WRITE PROTECTED	File writing was attempted with a write-protected USB drive.
FILE ERROR	An error occurred while reading a file from a USB drive.
OTHER MODEL'S FILE	You attempted to read a file of other models having no compatibility.
FILE NOT FOUND	The file you attempted to read does not exist in the USB drive.

Using a USB Drive

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

The following Sony USB drives are recommended. (As of April 2013)

Series	Model
Micro Vault P	USM32GP, USM16GP
Micro Vault M Series	USM32GM, USM16GM, USM8GM, USM4GM
Micro Vault R Series	USM32GR, USM16GR, USM8GR, USM4GR
Micro Vault Q Series	USM64GQ, USM32GQ, USM16GQ, USM8GQ

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

General	
Power requirements	AC 240 V, 1.7 A (max.) DC 180 V, 0.9 A (max.) DC 12 V, 10 A (max.)
Operating temperature	–20°C to +45°C (–4°F to +113°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Mass	Approx. 21 kg (46 lb 5 oz) (main unit only)
Dimensions	See *page 60*.
Imager	
Imager	2/3-type Progressive Scan CCD
Method	3-CCD, RGB
Effective resolution	1920 (horizontal) × 1080 (vertical)
Electrical characteristics	
Sensitivity	F10.0 with 1080/59.94i F11.0 with 1080/50i (at 2000 lx with 89.9% reflectivity)
Image S/N	Typical –60 dB/–64 dB (NS MAX)
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	F1.4 prism
Built-in filters	Color temperature conversion filters A: cross filter B: 3200K (clear) C: 4300K D: 6300K E: 8000K ND filters 1: clear 2: 1/4 ND 3: 1/8 ND 4: 1/16 ND 5: 1/64 ND
Input connectors	
DC IN	XLR 4-pin (1) 10.5 V to 17 V DC
RET CONTROL	6-pin (1)
AUDIO IN 1, AUDIO IN 2	XLR 3-pin, female (1 each) For MIC: –60 dBu (can be selected up to –20 dBu by menu or HDCU2000/2500 operations), balanced For LINE: 0 dBu, balanced
Output connectors	
TEST OUT	BNC type (1) 1.0 Vp-p, 75-ohm terminated
PROMPTER 1, PROMPTER 2	BNC type (1) 1.0 Vp-p, 75-ohm terminated
VF	D-sub 25-pin (1)
DC OUT	4-pin (1) 10.5 V to 17 V DC, 1.5 A maximum (This may be limited depending on the load and input conditions.)
SDI 1, SDI 2	BNC type (1 each)
SDI-MONI	BNC type (1)
Input/output connectors	
CCU	Electro-optical connector (1)
TRACKER	10-pin (1)
REMOTE	8-pin multi-connector (1)
INTERCOM 1, INTERCOM 2	XLR 5-pin female (1 each)
CRANE	12-pin multi-connector (1)
Lens	36-pin multi-connector (1)
USB	USB 2.0 Type A 4-pin (1) (for connecting USB drive)
NETWORK TRUNK	RJ-45 type 8-pin (1)
Supplied accessories	
Angle adjustment brackets (2)	
Front cover (1)	
Number plates for side panel (2 sets)	
Number plates for up-tally lamp (1 set)	
Cable clamp (2)	
Operation guide (1)	
Operation manual (CD-ROM) (1)	
Optional accessories	
HD Electronic Viewfinder	HDVF-EL70 (7.4-type, color)
BKP-7911 Script Holder (with script light)	
CAC-6 Return Video Selector	
Related equipment	
HDCU2000/2500 HD Camera Control Unit	
MSU-1000/1500 Master Setup Unit	
RCP-1000/1500-series Remote Control Panel	
VCS-700 Video Selector	
CNU-700 Camera Command Network Unit	
HZC-CSM10 Camera System Management Software	
CNA-1 Camera Control Network Adaptor	

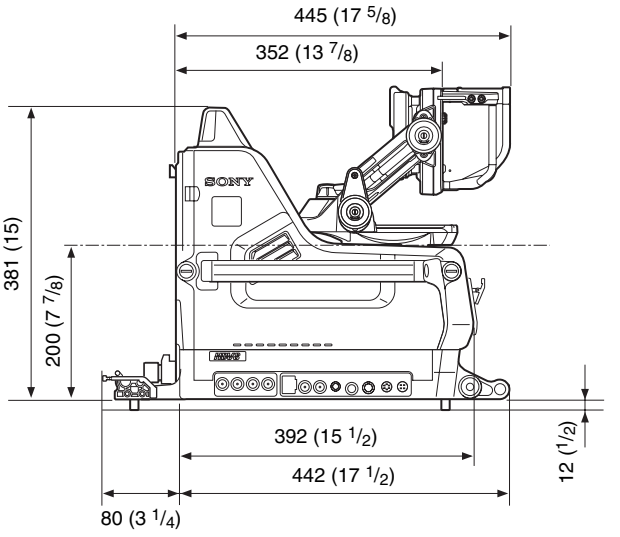
Design and specifications are subject to change without notice.

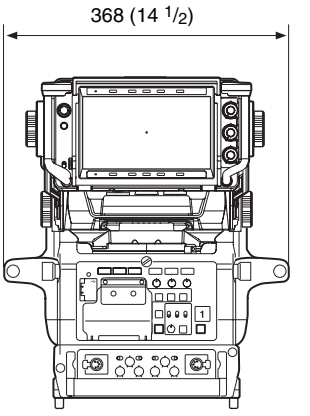
Note

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.

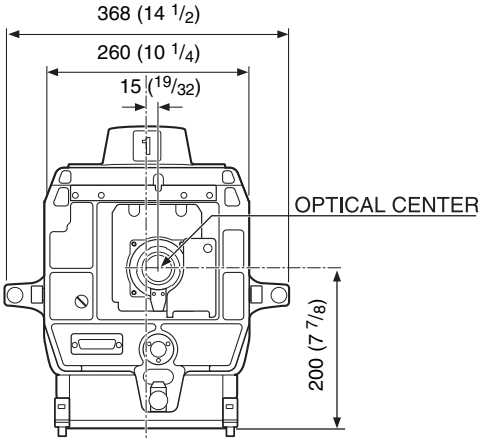
Dimensions

Unit: mm (inches)

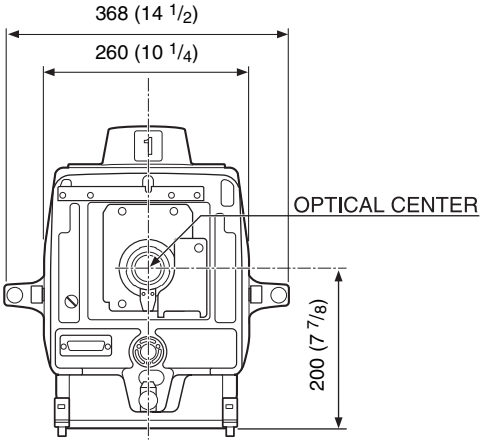




Offset mount



Center mount



Sony Corporation

HDC2000 (CE/JN)
4-427-017-**06**(1)