

**SONY®**

MULTI PURPOSE CAMERA

**HDC-P43**

***SUPER MOTION***

OPERATION MANUAL  
1st Edition (Revised 1)

English

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# Overview

The HDC-P43 is a camera unit equipped with a 2/3-inch, 9.8 megapixel, 3-chip CMOS image sensor for Super Motion video camera systems.

In addition to standard HD and HD high frame rate (HD-HFR) imaging, it also supports 4K multi-format imaging.

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## Features

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

The HDC-P43 features the latest 2/3-inch 9.8 megapixel CMOS image sensor and wide color gamut prism block, and a high performance digital signal processor LSI. It connects to a HDCU4300 <sup>1)</sup>, or a BPU4000/4500 <sup>1)</sup> Baseband Processor Unit and HDCU2000/2500 <sup>1)</sup> Camera Control Unit via a single-mode fiber cable (ST connector) and HKCU-SM100 CCU Extension Adapter, and supports various formats from HD high-speed imaging to 4K imaging, enabling the reproduction of high image quality, high-definition images. (The addition of image formats is supported using options.)

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

### High-speed imaging

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

### 4K image shooting

4K/23.98P, 24P, 25P, 29.97P, 50P, and 59.94P are supported using an option package. When a BPU4000/4500 is connected, 2-times speed shooting (100, 119.88) is also supported using a combination of option packages. In addition to pure 4K high-definition imaging using the 4K 3-chip RGB-Full image sensor, it is equipped with the latest wide gamut prism to achieve color reproduction that covers the 2020 color gamut, and HDR technology to achieve high-brightness and high-contrast image reproduction.

### Compact, box-shaped case

The compact, lightweight, slim casing with width of 119 mm supports operation in a variety of applications. ND/CC dual optical servo filters are also incorporated in the compact case.

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## Main Functions

### Various color-reproduction adjustment functions

#### Adaptive-matrix function

This function controls the matrix calculation coefficients for more accurate color conversion when shooting. It provides

accurate color conversion, even when shooting under conditions that would otherwise exceed the color conversion range of traditional matrix functions, such as under strong monochromatic blue light sources.

#### Multimatrix color correction

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

#### Knee saturation

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

#### Low key saturation

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

#### Selectable gamma table

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

#### User gamma

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

### Versatile detail control functions

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

Similar to the HDC4300, this function allows control (emphasis or suppression) of the detail level for a certain hue or chroma area in the image, by creating a detail gate signal from color components of your specified hue, such as skin tones. The detail levels of three hues can be adjusted independently at the same time.

The camera features a natural skin detail function that adjusts the detail gate signal in order to distinguish clearly between parts of skin you want to smooth from the parts you do not want to smooth, such as eyebrows.

#### Detail boost-frequency control

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

#### H/V ratio control

Adjusts the ratio between the applied horizontal and vertical detail.

#### White/black limiter

The white and black details can be limited independently.

## Focus assist functions

The focus assist functions can be used when a monitor is connected to the SDI 1 connector and the output setting is set to VF.

*For details, see “Setting the Focus Assist Functions” (page 12).*

### VF detail

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

### Focus assist indicator

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

### Focus position meter

Displays the lens focus control position as a meter on a monitor, when a supported lens <sup>1)</sup> is attached. This allows you to place a marker for any focus value which acts as a guide for focus control.

<sup>1)</sup> Lenses that support serial, lens command control.

### Follow focus function

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

<sup>1)</sup> Lenses that support serial, lens command control Ver. 1.04 or later.

## Various monitor functions

### Wide variety of monitor display options

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

### Menu-based operation function

You can make selections and settings related to monitor display items, safety zone marker, center marker, and screen size marker, etc. quickly and easily while viewing the setup menu.

### PinP function

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

#### Note

The PinP function cannot be used during standalone operation.

## Variety of input/output interfaces

In addition to 3G/HD-SDI output and HD-SDI input, the HDC-P43 features a variety of input/output interfaces, including the following.

### Network TRUNK function

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

#### Note

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

### HD prompter function

The HDC-P43 supports an HD prompter function where HD-SDI equivalent digital data is sent from the HDCU4300 or HDCU2000/2500 to the HDC-P43, separate from the return video signal.

#### Note

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

## Options

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

*For details about installing options, please contact your Sony dealer or a Sony sales representative.*

*For specifications or more detailed information on options, refer to the manual of each option.*

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

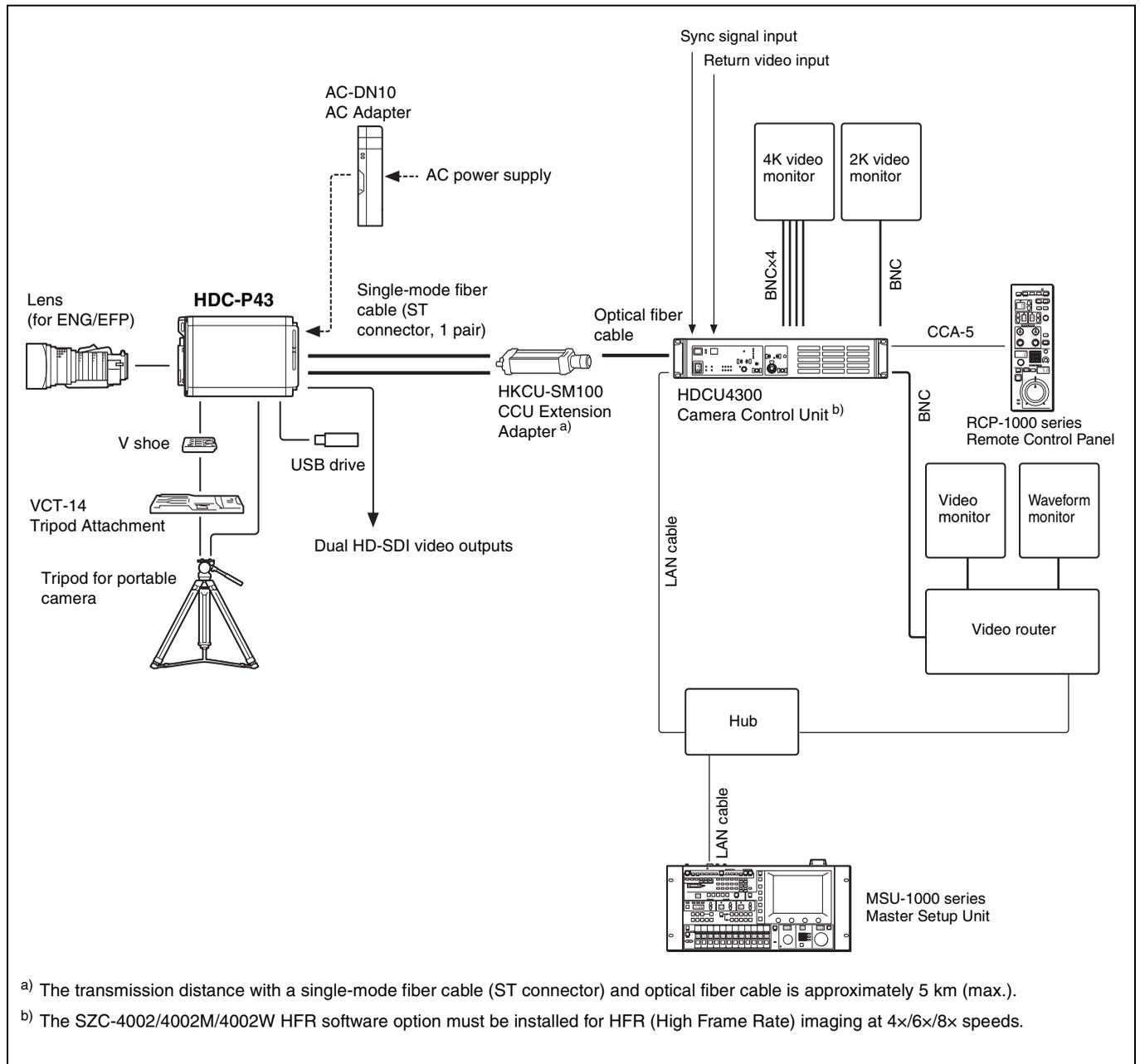
Enables shooting of 4K images.

# System Configuration

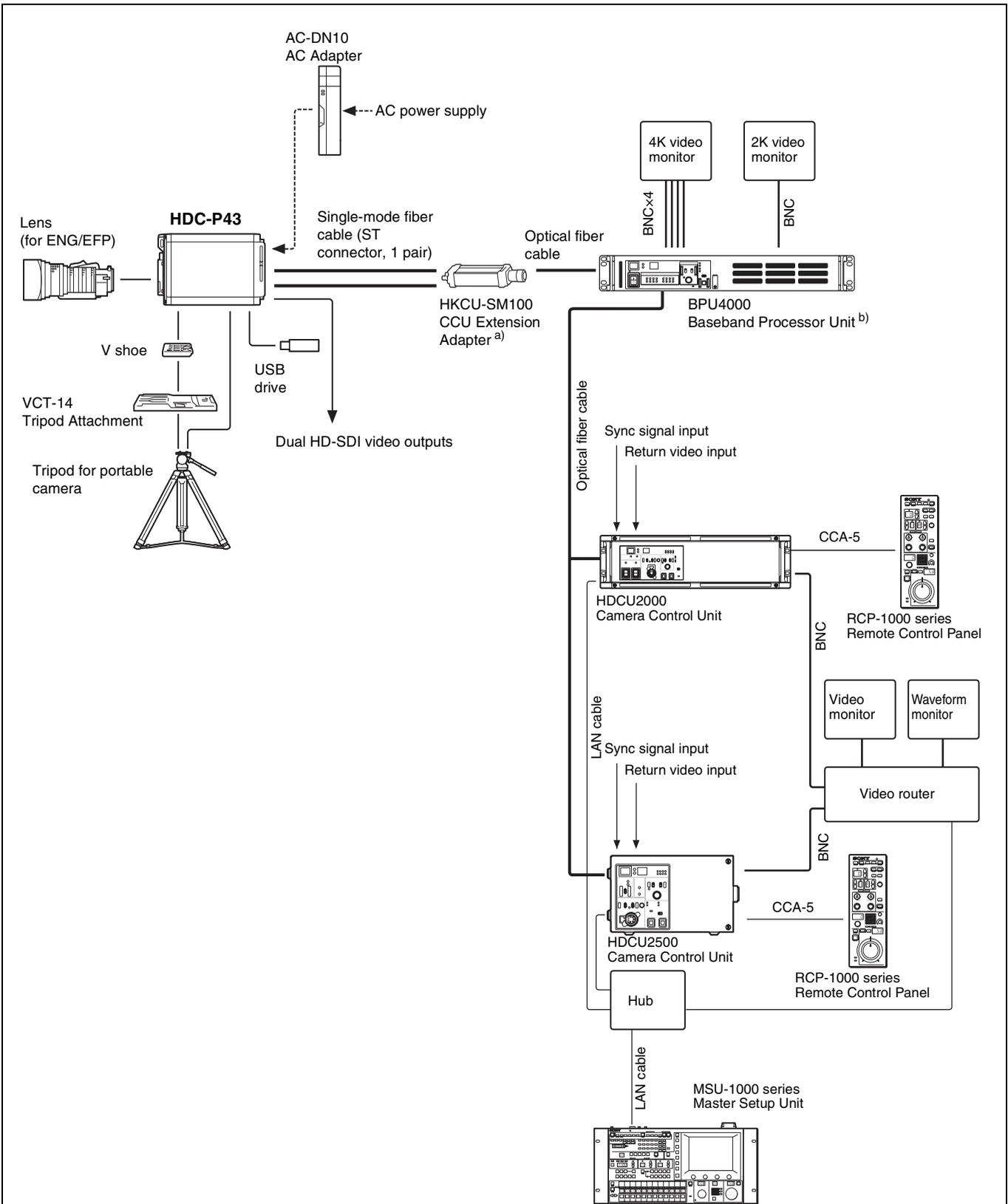
## Note

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

## HDCU4300 connection example



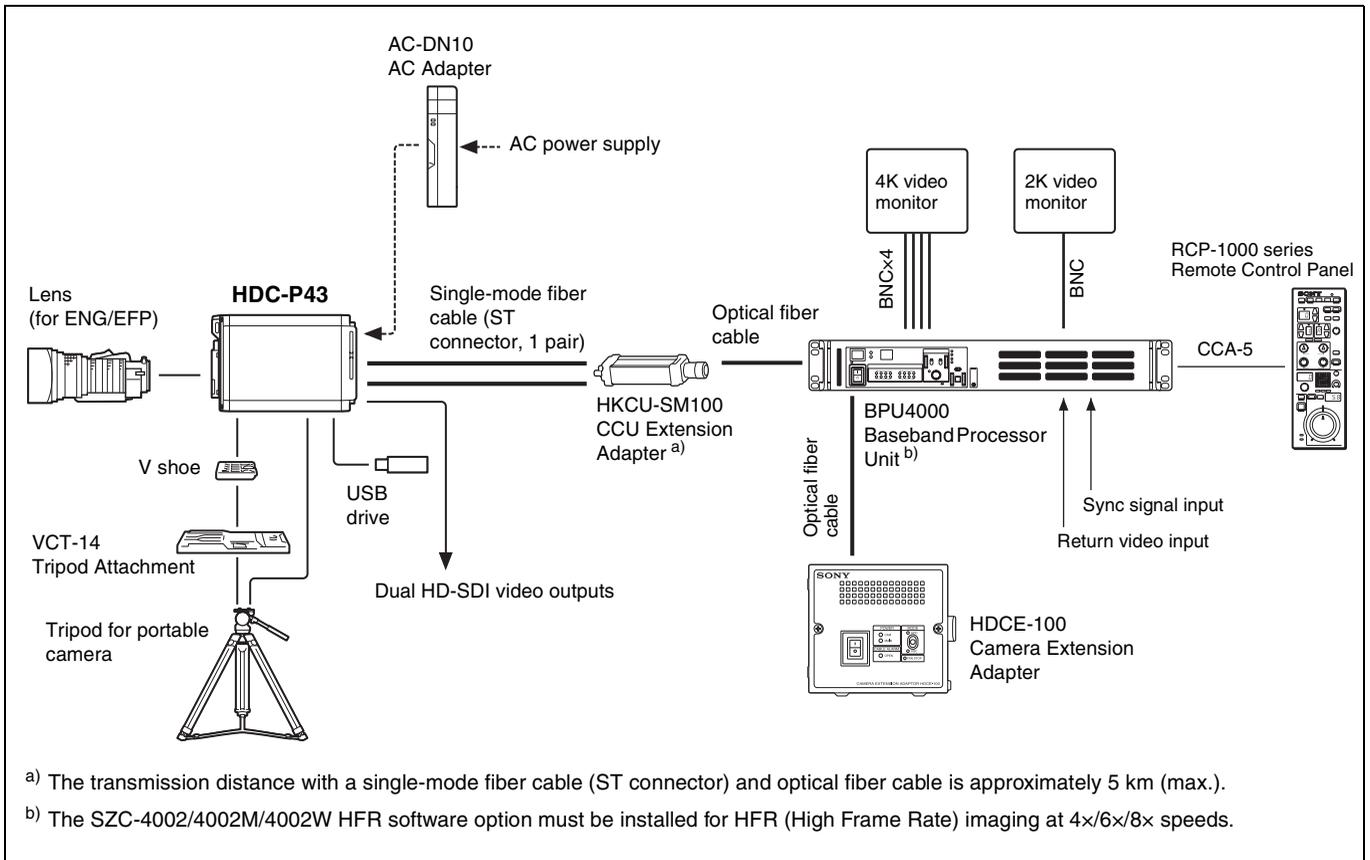
# BPU4000/4500 connection example



<sup>a)</sup> The transmission distance with a single-mode fiber cable (ST connector) and optical fiber cable is approximately 5 km (max.).

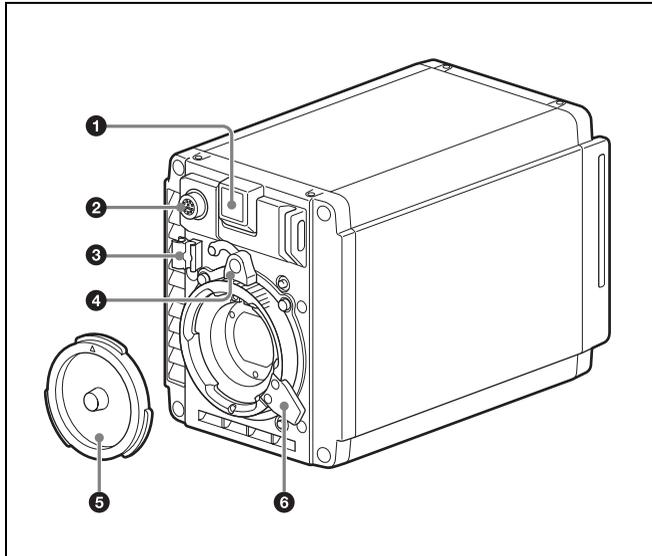
<sup>b)</sup> The SZC-4002/4002M/4002W HFR software option must be installed for HFR (High Frame Rate) imaging at 4x/6x/8x speeds.

## BPU4000/4500 connection example (extension mode)



# Locations and Functions of Parts

## Front



### 1 Front tally lamp

The tally lamp lights when a call signal is generated in response to the pressing of a CALL button or a tally signal input to the EXT I/O connector.

You can attach the supplied number plate to display the camera number.

### Note

The front tally function cannot be operated during a battery alarm operation.

### 2 LENS connector (12-pin)

Connect the lens cable. The camera can control the lens functions through this cable.

Connect the lens cable so that ▲ is at the top.

### 3 Lens cable clamp

To secure the cable of the lens (not supplied).

### 4 Lens mount stopper rubber

After attaching a lens, attach the rubber to prevent the lens from becoming loose.

Before removing the lens, remove this rubber from the boss on the front panel.

### 5 Lens mount cap

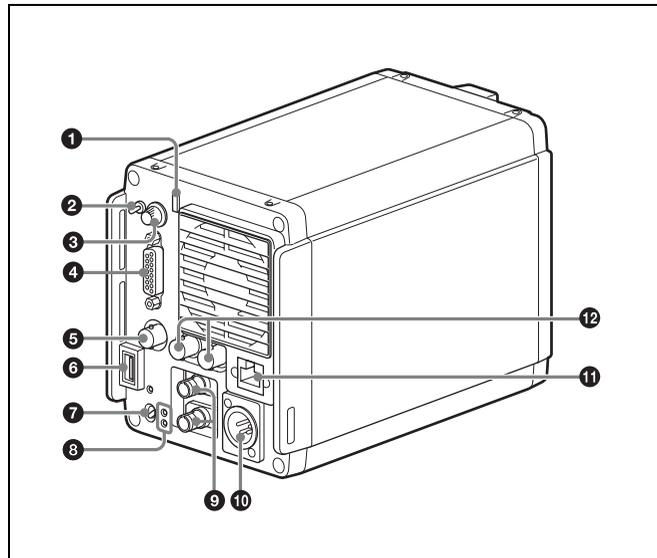
The cover can be removed by moving the lens fixing lever upwards.

Always keep the lens mount covered with this cap when a lens is not attached.

### 6 Lens fixing lever

Move the lever down to secure the lens in the lens mount.

## Rear



### 1 Rear tally lamp

The tally lamp lights when a call signal is generated in response to the pressing of a CALL button or a tally signal input to the EXT I/O connector.

The rear tally lamp also serves as a battery alarm function. If the voltage of the XLR input connected to the camera decreases, the rear tally lamp flashes. If the voltage approaches the limit, the rear tally lamp switches to high-speed flashing.

The alarm voltage for starting flashing can be set in the BEFORE END item of the BATTERY ALARM page of the MAINTENANCE menu, and the alarm voltage for switching to high-speed flashing can be set in the END item.

If you want to give priority to the tally function and call function, set the BATTERY ALARM item of the BATTERY ALARM page of the MAINTENANCE menu to OFF.

For details, see "MAINTENANCE Menu" (page 38).

### 2 DISPLAY/MENU switch

Select the display on the monitor connected to the SDI 1 connector.

**DISPLAY:** Displays various textual information and markers, such as messages showing the camera settings and operating status, the center marker, and the safety zone marker, in addition to camera images.

**● (OFF):** Displays images only.

**MENU:** Displays menus for camera settings, in addition to camera images.

### 3 MENU SEL (menu select) knob/ENTER button (rotary encoder)

Turn the knob to select items and settings in the menu displayed on the monitor, and press the knob to apply (confirm) the selection.

### 4 EXT I/O (external input/output) connector (D-sub, 15-pin)

Connect an external device.

For details about pin assignment, see "Pin Assignment" (page 48).

### 5 PROMPTER OUT connector (BNC type)

Outputs a prompter 1 signal when connected to a camera control unit.

When a camera control unit having two prompter inputs is connected, the signal of input 1 is output from this connector.

### 6 USB connector (for connecting a USB drive)

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

For details, see "Using a USB Drive" (page 46).

### 7 CAMERA POWER switch and indicator

Turns the power ON/OFF.

**ON:** Set the switch to the I side. The indicator lights green.

**OFF:** Set the switch to the ⏻ side.

### 8 CONDITION indicators

Displays the status of the IN connector optical power level.

Indication	Meaning
Both top and bottom lit green	State is very good.
Only bottom lit green	State is fairly good.
Only top lit yellow	State has deteriorated
Only bottom lit red	State is extremely poor (the connection between the camera and CCU (or BPU) needs to be checked).

### 9 IN/OUT connectors (ST connectors for single-mode fiber cables)

Connect to an HDCU4300 Camera Control Unit or BPU4000/4500 Baseband Processor Unit via an HKCU-SM100 CCU Extension Adapter. Connect the IN/OUT connectors of the camera to the OUT/IN connectors of the HKCU-SM100 CCU Extension Adapter using single-mode fiber cables (ST connector, 1 pair).

#### Note

Always connect cables between the unit and the HDCU4300 Camera Control Unit or BPU4000/4500 Baseband Processor Unit with the devices turned off. Do not disconnect and then reconnect cables while devices are turned on.

### 10 DC IN (DC power supply input) connector (XLR 4-pin)

Used for connection to the AC-DN10 AC Adapter to supply power to the camera.

### 11 NETWORK TRUNK connector (RJ-45 8-pin)

Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

### 12 SDI 1 (serial digital interface) connector and SDI 2 connector (BNC type)

The SDI 1 connector outputs the display selected using the DISPLAY/MENU switch as an HD-SDI signal. Various output signals can also be selected in the menu.

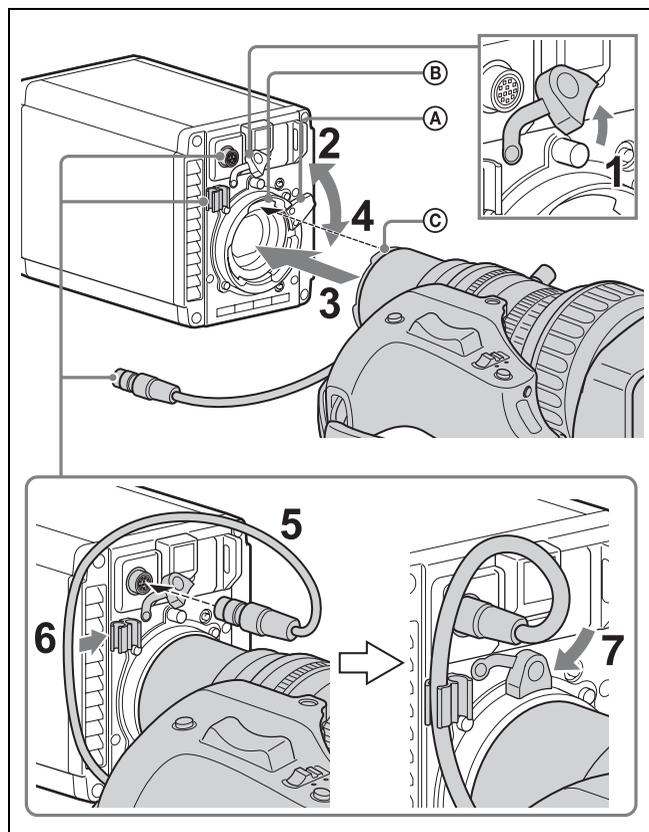
The SDI 2 connector outputs various output signals that can be selected in the menu as a 3G-SDI signal or HD-SDI signal, and can also be used as a HD-Trunk signal input.

For details about output signal settings, see "Setting Camera Input/Outputs" (page 12).

## Preparations

### Attaching a Lens

For information about handling lenses, refer to the operation manual for the lens.



- 1 Remove the lens mount stopper rubber.
- 2 Push the lens fixing lever **A** upwards and remove the lens mount cap from the lens mount.
- 3 Align the lens alignment pin **C** with the notch **B** in the upper part of the lens mount and insert the lens into the mount.
- 4 While supporting the lens, push the lens fixing lever **A** downwards to secure the lens.
- 5 Connect the lens cable to the LENS connector.
- 6 Secure the lens cable with the cable clamp.
- 7 Reattach the lens mount stopper rubber.

### Adjusting the Flange Focal Length

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

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

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

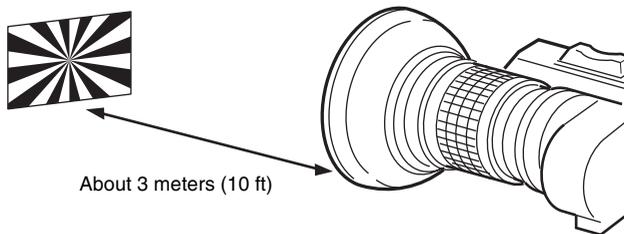
For details about focus assist indicators, see “Displaying the focus assist indicators” (page 13).

**Note**

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

**Adjustment procedure**

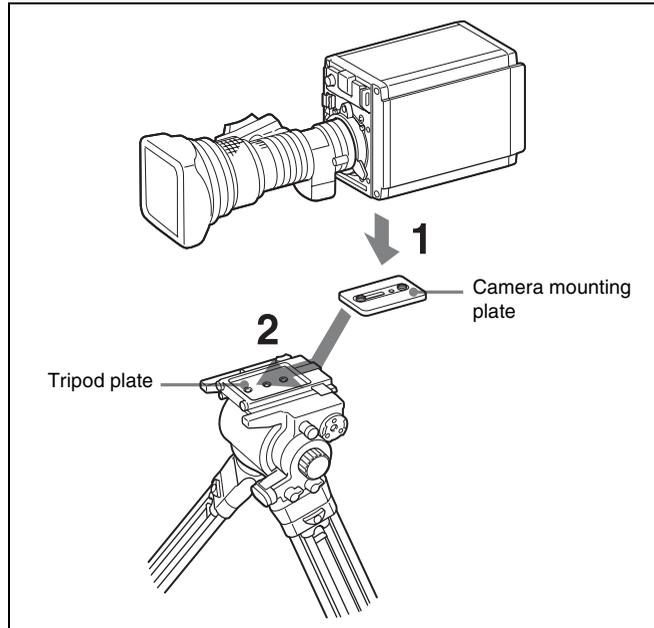
- 1** Set the iris control to manual, and open the iris fully.
- 2** Place a flange focal length adjustment chart approximately 3 meters from the camera and adjust the lighting to get an appropriate video output level.



- 3** Loosen the Ff (flange focal length) ring lock screw.
- 4** With either manual or power zoom, set the zoom ring to telephoto.
- 5** Aim at the flange focal length adjustment chart and turn the focus ring to focus the image.
- 6** Set the zoom ring to wide angle.
- 7** Turn the Ff ring to bring the chart into focus. Take care not to move the distance ring.
- 8** Repeat steps 4 to 7 until the image is in focus at both telephoto and wide angle.
- 9** Tighten the Ff ring lock screw.

**Mounting the Camera to a Tripod**

**When using the supplied camera mounting plate**



- 1** Attach the camera mounting plate directly to the camera.  
(Two 3/8-inch tripod screws: screw depth of 10 mm (13/32 inches) or less)
- 2** Place the camera on the tripod and mount the camera by sliding it forward along the groove of the tripod plate until it clicks into place.
- 3** Make sure that the camera is securely attached by moving it back and forth.

**Note**

If the screws of the camera mounting plate are 1/4-inch tripod screws, use inch conversion screws (Sony Part No.: 4-170-419-02) to attach the plate. For details on purchasing inch conversion screws, and other information, contact a Sony service representative or Sony sales representative.

**When using V shoe and VCT-14 tripod attachment**

Use an optional V shoe (Sony Part No.: A-8279-993-D) and VCT-14 tripod attachment to mount the camera to the tripod.

**Notes**

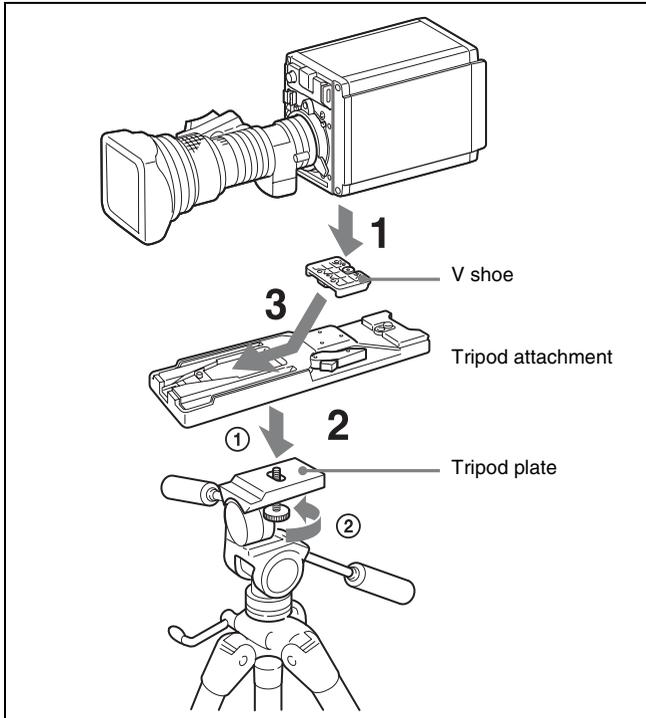
- Select an appropriate hole from among those at the bottom of the tripod attachment, taking into consideration the balance of the weight of the camera and the tripod attachment. If an inappropriate hole is selected, the center of gravity may be off center, which may cause the camera to fall over and may cause an injury.
- Check that the size of the selected hole matches that of the screw of the tripod. If they do not match, the tripod

attachment cannot be attached to the tripod securely, which may cause the camera to fall off and may cause an injury.

- Use the following screws when attaching an optional V shoe.

Attachment screws: Four Alok + K4 × 8 screws  
(Sony Part No.: 3-729-072-02)

Do not use screws that are 5 mm or longer for the camera.  
For details about purchasing parts, contact a Sony service representative or Sony sales representative.



**1** Attach the V shoe to the camera with the attachment screws.

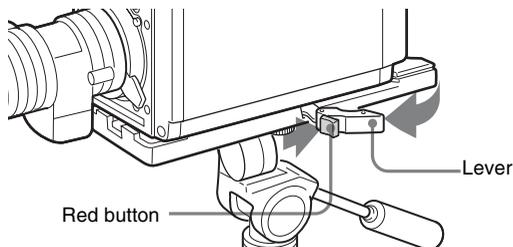
**2** ① Attach the tripod attachment to the tripod, and ② secure it with the screw.

**3** Place the camera on the tripod attachment and mount the camera by sliding it forward along the groove of the tripod attachment until it clicks into place.

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

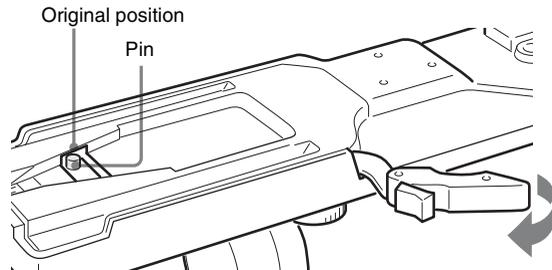
#### To remove the camera from the tripod attachment

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



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

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



# Adjustments and Settings for Shooting

## Setting Camera Input/Outputs

You can change the input/output settings of the video signals on the SDI 1 and SDI 2 connectors of the camera using the menu.

### Notes

- The display selected by the DISPLAY/MENU switch is always output on the SDI 1 connector.
- The camera image that is output in standalone mode is a temporary HD image for checking operation.

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

- <SYSTEM FORMAT>
- <SDI OUT>

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

For details about menu operations and the USER menu, see “Menu Operations” (page 16).

## Outputting the signal being shot (camera picture)

The camera signals from the SDI 1 and SDI 2 connectors are output temporarily as HD video for checking camera signal operation.

Menu page	Page No.	Item	Setting
<SDI OUT>	M11	SDI-1 OUT	MAIN(i)
		SDI-2 OUT/IN	MAIN(i) OUT 3G-SDI OUT 1 a)

a) The SDI 2 connector supports 3G-SDI (Level-B) output when SYSTEM FORMAT is 59.94P or 50P.

## Constantly outputting a return video

When a camera control unit is connected, one of the signals being supplied to the camera control unit can be output from the camera. The last selected return signal is output.

For details about selecting/switching the return signal, see <SWITCH ASSIGN> (page No. 12) (page 32) in the OPERATION menu.

Menu page	Page No.	Item	Setting
<SDI OUT>	M11	SDI-1 OUT	RET
		SDI-2 OUT/IN	RET OUT

## Outputting the same image as a viewfinder

When the output setting of the SDI 1 connector of the camera is set to VF, you can obtain a signal that includes the same information as that displayed in a viewfinder according to the settings of the VF MARKER, CHARACTER, VF DETAIL, ZEBRA, etc.

### Note

With the settings for outputting the same image as a viewfinder, the output is 1080i, even if the format setting is 720P.

Menu page	Page No.	Item	Setting
<SDI OUT>	M11	SDI-1 OUT	VF

## Outputting an HD prompter image

When a camera control unit is connected to the SDI 1 and SDI 2 connectors of the camera, you can output the HD prompter signal that is input to the camera control unit.

### Note

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

Menu page	Page No.	Item	Setting
<SDI OUT>	M11	SDI-1 OUT	HD-PROMPTER a)
		SDI-2 OUT/IN	HD-PROMPTER OUT

a) When the output from the SDI 1 connector is set to HD PROMPTER, the output image may not be displayed correctly if a camera HD prompter signal whose format does not match the camera format is input from the camera control unit. In this case, use the SDI 2 connector as the HD PROMPTER output.

## Inputting an HD-TRUNK signal

When a camera control unit is connected, you can output an HD-TRUNK signal that is input on the SDI 2 connector of the camera to the camera control unit.

Menu page	Page No.	Item	Setting
<SDI OUT>	M11	SDI-2 OUT/IN	HD-TRUNK IN

## Setting the Focus Assist Functions

Using the OPERATION menu, the assist functions for easier focusing can be displayed on a monitor connected to the SDI 1 connector (VF setting).

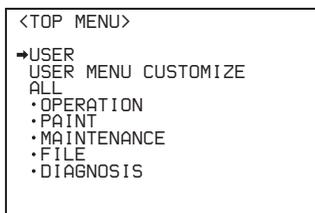
### Adding the VF detail signal

Adding the VF detail signal to sharp edges in the image on a monitor screen makes it easier to check the focusing condition by observing changes in the detail signal or in the color converted from the detail signal (color detail).

The focus setting where the detail signal becomes strongest is the best focus setting.

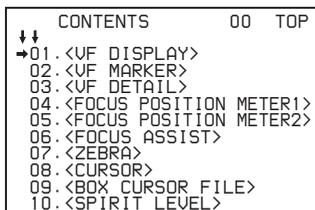
- 1 Turn on the camera.
- 2 Set the DISPLAY/MENU switch to MENU while holding the MENU SEL knob/ENTER button pressed.  
The camera enters Menu mode, and “TOP” is displayed at the upper right corner of the screen.
- 3 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to TOP and press the MENU SEL knob/ENTER button.

The TOP MENU screen appears.



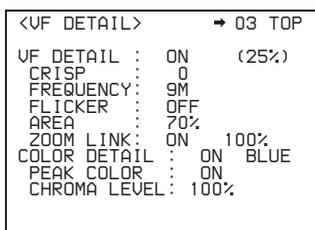
- Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to OPERATION and press the MENU SEL knob/ENTER button.

The CONTENTS page of the OPERATION menu is displayed.



- Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <VF DETAIL> and press the MENU SEL knob/ENTER button.

The <VF DETAIL> page is displayed.



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

**To use the VF detail signal**

Set VF DETAIL to ON to activate the VF detail function to add the detail signal to sharp edges in the image. You can adjust the signal level (strength) in the range of 0 to 100% (default: 25%).

You can adjust the characteristics of the detail signal with the menu items below.

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

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

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

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

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

**To use the color detail**

Set COLOR DETAIL to ON to convert the VF detail signal to a specified color. This makes it easier to check the

signal on an LCD screen, including a color viewfinder screen. The display color can be selected in 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 a viewfinder).

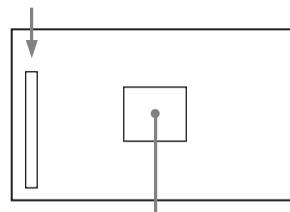
- Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ENTER button.

- To finish the adjustment, set the DISPLAY/MENU 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.

Level indicator (its position and operations can be adjusted.)



Area marker to display the detection area of the focus (its size and position can be adjusted.)

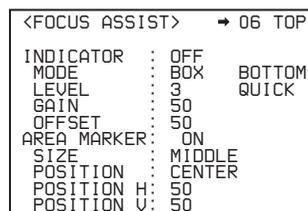
The focus setting where the indicator shows the maximum level is the best focus setting.

(The range of the indicator substantially changes depending on picture elements or shooting environments. Adjust it with GAIN and OFFSET as required.)

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

- Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <FOCUS ASSIST> and press the MENU SEL knob/ENTER button.

The <FOCUS ASSIST> page is displayed.



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

**To use the level indicator**

Setting INDICATOR to ON displays the level indicator on a 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. <sup>1)</sup>

**OFFSET:** Set the offset of the focus detection value. <sup>2)</sup>

<sup>1)</sup> 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.

<sup>2)</sup> 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 a viewfinder screen.

You can set the size and position of the detection area with the menu items below.

**SIZE:** Changes the detection area size. (If the area size is too large, both the subject and the background are included in the area, making the indicator display susceptible to deviate from the subject.)

**POSITION:** Roughly set the position of the detection area.

**POSITION H:** Finely adjust the position of the detection area in the horizontal direction.

**POSITION V:** Finely adjust the position of the detection area in the vertical direction.

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

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

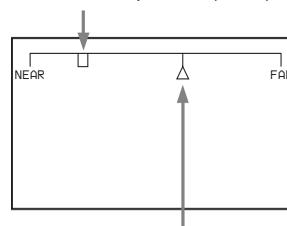
#### Notes

- The level indicator and the effect area marker cannot be displayed simultaneously. Whichever you set to ON last is preferentially displayed.
- The area marker and the aspect safety marker cannot be displayed simultaneously. Whichever you set to ON last is preferentially displayed.
- When displaying the focus assist indicators, check that the flange focal length has been precisely adjusted.  
*For details about the flange focal length, see "Adjusting the Flange Focal Length" (page 9).*

#### 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.

Current focus position (index)



Registered focus position (marker)

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

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

**2** Turn the MENU SEL knob/ENTER button to align the arrow marker → to <FOCUS POSITION METER1> or <FOCUS POSITION METER2>, and press the MENU SEL knob/ENTER button.

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

```
<FOCUS POSITION METER1> 05 TOP
FOCUS POSITION METER: ON
NEAR LIMIT : 100 (0~999)
FAR LIMIT : 923 (0~999)
DIRECTION : HORIZONTAL
SIZE : NORMAL
RULED LINE : ON
INDEX COLOR : WHITE
INDEX WIDTH : 1
MARKER WIDTH : 1
CURRENT FOCUS DIST : 5.7M 18.7ft
                   236 (0~999)
```

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

#### To use the focus position meter

Setting FOCUS POSITION METER to ON displays the focus position meter on the viewfinder screen.

You can set the display format with the <FOCUS POSITION METER1> page items below.

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

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

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

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

**SIZE:** Sets the size of the meter.

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

**INDEX COLOR:** Sets the color of the index.

**INDEX WIDTH:** Sets the width of the index.

**MARKER WIDTH:** Sets the width of the marker.

### To set the adjustment sensitivity and display content

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

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

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

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

**FRAME WIDTH:** Sets the width of the adjustment frame.

### To configure the marker display settings

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

**REG:** Registers a marker at the index position.

**DISP:** Turns the marker display on/off.

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

**NAME:** Sets the name of the marker.

**POS:** Adjusts the marker position manually.

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

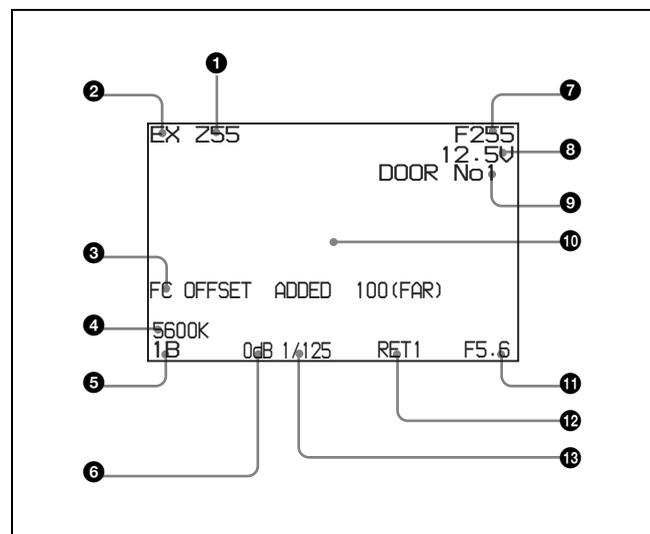
**5** To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.

## Monitor Screen Status Display

Besides the video image, a monitor connected to the SDI 1 connector (VF setting) 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/MENU switch is set to DISPLAY

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



#### 1 Zoom position

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

#### 2 Lens extender

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

#### 3 Follow focus indicator

Displayed if an offset is superimposed when follow focus is enabled.

#### 4 5600K mode

Displayed when 5600K is set to ON.

#### 5 Filter

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

#### 6 Gain value

Indicates the current gain setting (dB).

#### 7 Focus position

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

**Note**

Displayed only when a serial communication lens is connected.

**8 Battery voltage**  
Displays the input voltage.

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

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

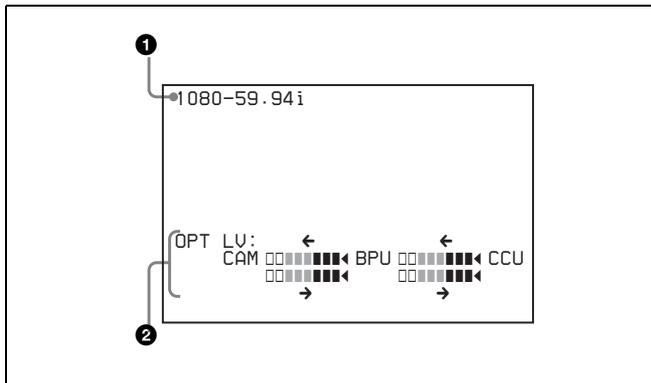
**11 F value**  
Indicates the lens F (iris opening) value.

**12 Return indicator**  
Displayed when a return image is being displayed. The number indicates the channel of the displayed return image.

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

**STATUS screen**

When the DISPLAY/MENU switch is set to DISPLAY and the MENU SEL knob/ENTER button is pressed, the following status screen is displayed.



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

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

**CAM ← BPU:** Light sensor level at the IN connector (page 9) of the camera

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

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

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

**Note**

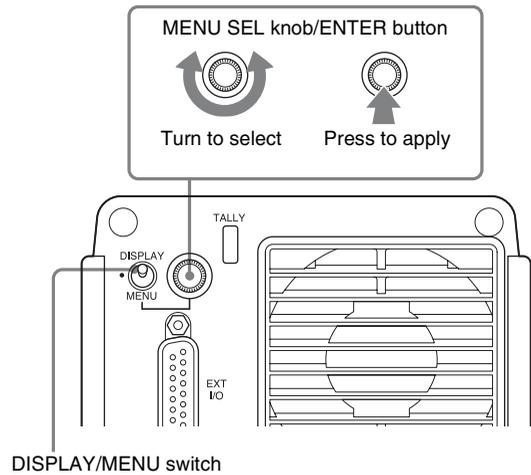
If a camera control unit other than an HDCU2000/2500 or HDCU4300 is connected, correct indications may not be obtained.

# Menu Operations

The menu displayed on a monitor connected to the SDI 1 connector enable various settings of the camera to be configured.

The following controls are used to operate the menus. Turn the MENU SEL knob/ENTER button on the rear panel to select menu items or values, and press the knob to apply (confirm) the selection.

**Rear**



## Starting Menu Operations

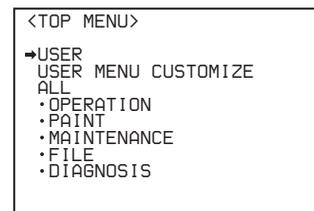
### To display a menu page

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

### To display the TOP MENU screen

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

**TOP MENU screen**



## Available menus

### USER menu

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

### USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

For details, see "Editing the USER Menu" (page 19).

### ALL menu

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

### OPERATION menu

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

### PAINT menu

This menu contains items for making detailed image adjustments while using a waveform monitor to monitor the waveforms output from the camera. Support of a video engineer is usually required to use this menu.

Although you can also use an external remote control panel or master setup unit to set the items on this menu, the menu is effective when using the camera by itself outdoors.

### MAINTENANCE menu

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

### FILE menu

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

### DIAGNOSIS menu

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

## To select a menu on the TOP MENU screen

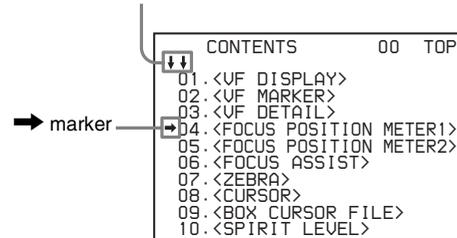
- 1 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired menu indication.
- 2 Press the MENU SEL knob/ENTER button.  
The CONTENTS page or the last operated page of the selected menu is displayed.

## Selecting Pages

### When selecting a page from a CONTENTS page

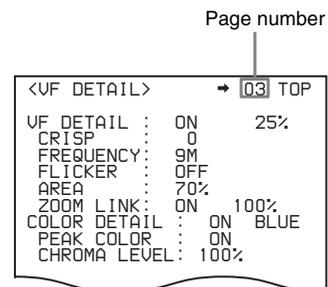
Example: CONTENTS page of the OPERATION menu

If the screen can be scrolled, arrows will indicate the direction of scrolling.



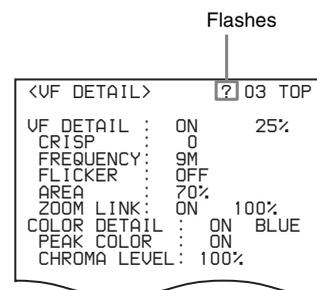
Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the page to set and press the MENU SEL knob/ENTER button.

The selected page is displayed.



## To change the displayed page

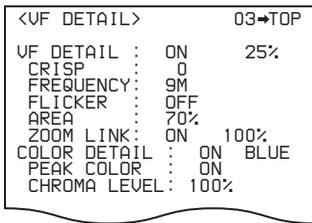
- 1 Check that the arrow marker (➡) is located at the left of the page number, then press the MENU SEL knob/ENTER button.  
The arrow marker (➡) will change to a flashing "?" mark.



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

### To return to the TOP MENU screen

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



The TOP MENU screen appears.

## Setting Menu Items

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

- 1 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired item.**
- 2 Press the MENU SEL knob/ENTER button.**  
The arrow marker (➡) will change to a flashing “?” mark.
- 3 Turn the MENU SEL knob/ENTER button to change the setting value.**  
When the knob is rotated quickly, the values will change quickly; when rotated slowly, the values will change slowly.  
**To interrupt settings**  
Set the DISPLAY/MENU switch to OFF to turn off the menu screen display.  
The setting operation can be restarted by setting the DISPLAY/MENU switch back to MENU.
- 4 Press the MENU SEL knob/ENTER button.**  
The “?” mark changes back to the arrow marker (➡), and the new setting will be registered.
- 5 To change other setting items on the same menu page, repeat steps 1 to 4.**

### To specify a character string

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

The displayed cursor can be moved by rotating the MENU SEL knob/ENTER button.

- 1 Set the cursor to the position where you wish to enter a character, then press the MENU SEL knob/ENTER button.**  
Another cursor appears on the character list.
- 2 Set the cursor to the character to be entered and press the MENU SEL knob/ENTER button.**  
Repeat steps 1 and 2.

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

Selecting DEL deletes the character at the cursor position.

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

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

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

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

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

Select the menu item to be returned to its standard value then hold the MENU SEL knob/ENTER button pressed for 3 seconds while the arrow marker (➡) is displayed.

If “10 SEC CLEAR” has been set to ON on the <FILE CLEAR> page of the FILE menu, you can return the setting in the reference file for the item being selected to the factory-set value by holding the MENU SEL knob/ENTER button pressed for another 10 seconds.

### To end menu operations

Set the DISPLAY/MENU switch to OFF.

## Editing the USER Menu

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

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

Menu page	USER menu No.	Source menu / page No.
<VF OUT>	U01	OPERATION 11
<VF DETAIL>	U02	OPERATION 03
<FOCUS ASSIST>	U03	OPERATION 06
<VF DISPLAY>	U04	OPERATION 01
<VF MARKER>	U05	OPERATION 02
<CURSOR>	U06	OPERATION 08
<ZEBRA>	U07	OPERATION 07
<SWITCH ASSIGN>	U08	OPERATION 12
<SYSTEM FORMAT>	U09	MAINTENANCE M10
<SDI OUT>	U10	MAINTENANCE M11
<ROM VERSION>	U11	DIAGNOSIS D03

For the items on each page, see the corresponding source menu page in the table in "Menu List" (page 22).

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

### Editing by items

The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.

While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each of these pages.

### To add items to a page

Proceed as follows.

- 1 Set the DISPLAY/MENU switch from OFF to MENU while holding the MENU SEL knob/ENTER button pressed.  
The TOP MENU screen appears.
- 2 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to USER MENU CUSTOMIZE then press the MENU SEL knob/ENTER button.  
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

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

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

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

If a different page is displayed, turn the MENU SEL knob/ENTER button until the desired page appears, then press the MENU SEL knob/ENTER button to select the page.

Example: When you select the USER 2 EDIT page

USER 2 EDIT		E03 TOP
➡		

- 4 Move the arrow marker (➡) to the 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 SEL knob/ENTER button.

The EDIT FUNCTION screen appears.

EDIT FUNCTION		ESC
➡	INSERT	
	MOVE	
	DELETE	
	BLANK	

- 5 Move the arrow marker (➡) to INSERT and press the MENU SEL knob/ENTER button.

The page with the last item added appears.

<SW STATUS>		P01 ESC
FLARE	: ➡	ON
GAMMA	:	ON
BLK GAM	:	OFF
KNEE	:	ON
WHT CLIP	:	ON
DETAIL	:	ON
LUL DEP	:	ON
SKIN DTL	:	OFF
MATRIX	:	OFF

- 6 Add the items.

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

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

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

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

### To delete items from a page

Proceed as follows.

- 1 Move the arrow marker (➡) to the item to be deleted, and press the MENU SEL knob/ENTER button.**  
The EDIT FUNCTION screen appears.
- 2 Select DELETE then press the MENU SEL knob/ENTER button.**  
The previously displayed page appears again, and the message "DELETE OK? YES ➡ NO" appears at the upper right.
- 3 To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to YES, and press the MENU SEL knob/ENTER button.**

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

Proceed as follows.

- 1 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item to be moved, then press the MENU SEL knob/ENTER button.**  
The EDIT FUNCTION screen appears.
- 2 Select MOVE, then press the MENU SEL knob/ENTER button.**  
The previously displayed page appears again.
- 3 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the position where you wish to move the item, then press the MENU SEL knob/ENTER button.**

ITEM	MOVE	ESC
↕		
➡	UF OUT	: COLOR
	UF DETAIL	: OFF
	MARKER	: ON
	CURSOR	: OFF
	ZEBRA SW	: OFF
		: 1
●	ASSIGNABLE	: OFF

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

### To insert a blank line

Proceed as follows.

- 1 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item above which you wish to insert a blank line.**  
The EDIT FUNCTION screen appears.
- 2 Select BLANK, then press the MENU SEL knob/ENTER button.**  
The previously displayed page appears again, and a blank line is inserted above the specified item.

### Note

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

### Editing by pages

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

### To add a page

Proceed as follows.

- 1 Select USER MENU CUSTOMIZE on the TOP MENU screen.**  
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.  
If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.
- 2 If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to EDIT PAGE, then press the MENU SEL knob/ENTER button to display the EDIT PAGE screen. If a different page is displayed, turn the MENU SEL knob/ENTER button until the EDIT PAGE screen appears, then press the MENU SEL knob/ENTER button to select the page.**

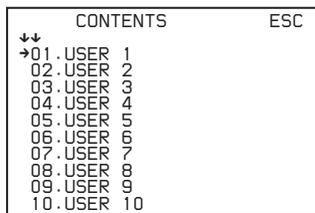
	EDIT PAGE	E01 TOP
↕		
01	<UF DISPLAY>	
➡02	<UF MARKER>	
03	<UF DETAIL>	
04	<FOCUS POSITION METER1>	
05	<FOCUS POSITION METER2>	
06	<FOCUS ASSIST>	
07	<ZEBRA>	
08	<CURSOR>	
09	<BOX CURSOR FILE>	
10	<SPIRIT LEVEL>	

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

	EDIT FUNCTION	ESC
➡	INSERT	
	MOVE	
	DELETE	

**4** Select INSERT then press the MENU SEL knob/ENTER button.

The selection screen appears.



**5** Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to the desired page, then press the MENU SEL knob/ENTER button.

This adds the new item above the item selected in step 3.

**To cancel addition of a page**

Before pressing the MENU SEL knob/ENTER button in step 5, turn the MENU SEL knob/ENTER button to move the arrow marker (→) to ESC at the top right of the screen, then press the MENU SEL knob/ENTER button.

The EDIT PAGE screen appears again.

**To delete a page**

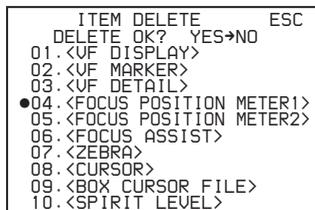
Proceed as follows.

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

The EDIT FUNCTION screen appears.

**2** Select DELETE, then press the MENU SEL knob/ENTER button.

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



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

**To move a page**

Proceed as follows.

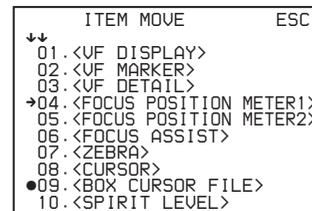
**1** Display the EDIT PAGE screen of the USER MENU CUSTOMIZE menu. Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to the page that you wish to move.

The EDIT FUNCTION screen appears.

**2** Select MOVE, then press the MENU SEL knob/ENTER button.

The EDIT PAGE screen appears again.

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



**4** Press the MENU SEL knob/ENTER button.

The page selected in step 1 is moved to the position selected in step 3.

In the above example, <BOX CURSOR FILE> moves to the “04” position, and the <FOCUS POSITION METER1> and following pages move down one line.

# Menu List

This section shows the menus displayed on a monitor connected to the SDI 1 connector.

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

## Legend

**CCU:** HDCU2000/2500 or HDCU4300 Camera Control Unit

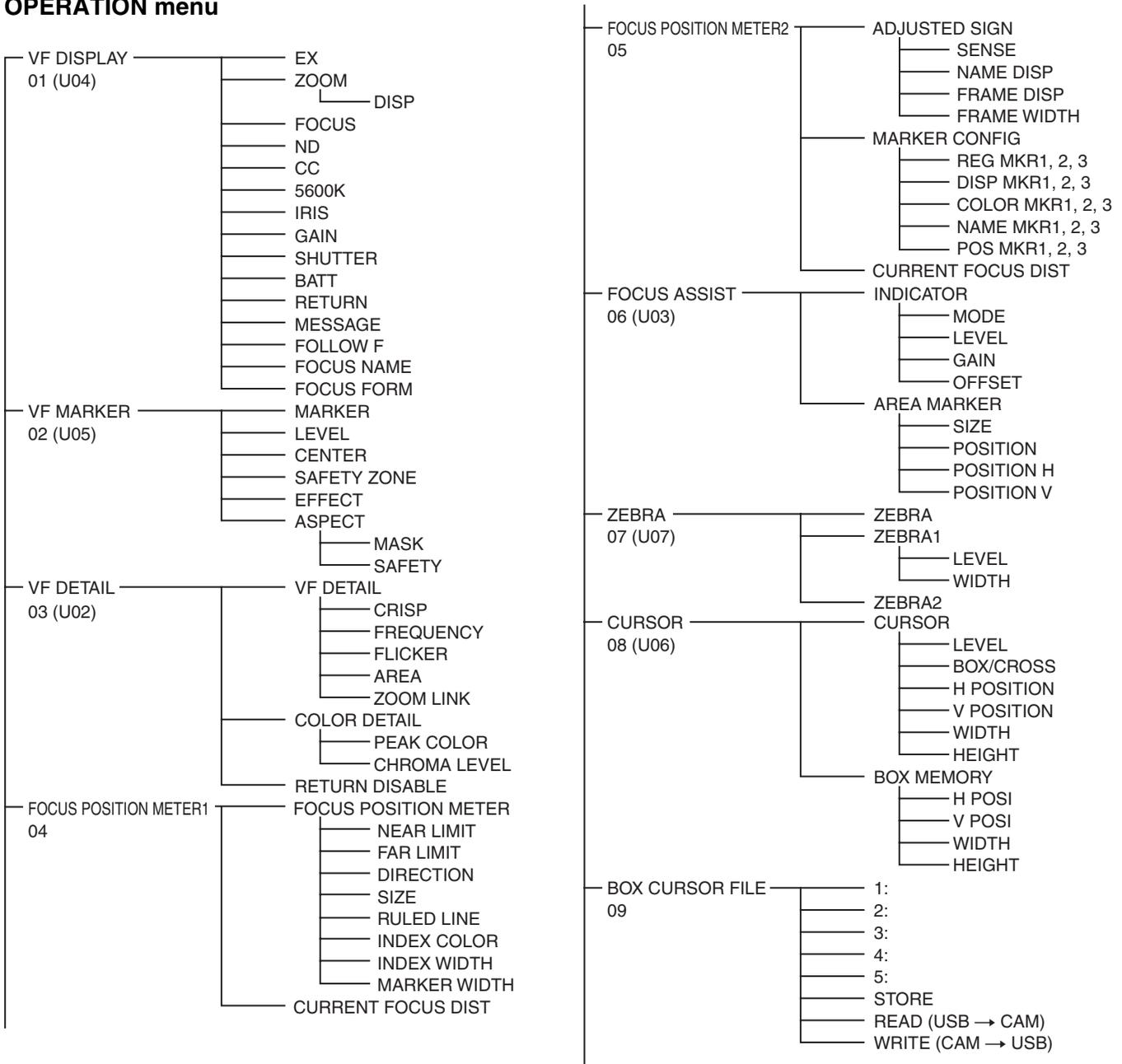
**BPU:** BPU4000/4500 Baseband Processor Unit

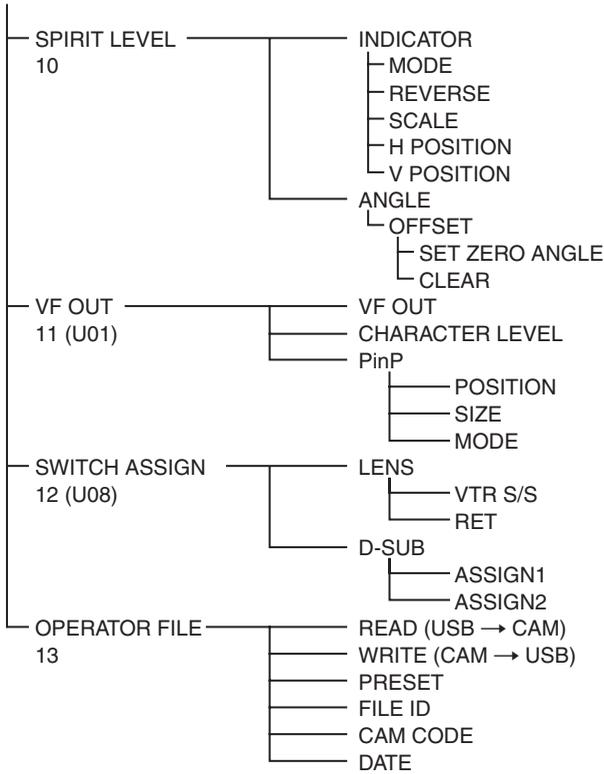
**Underlined values (e.g. ON, OFF, 0):** Default settings

**Execute using ENTER:** Execute by pressing the MENU SEL knob/ENTER button.

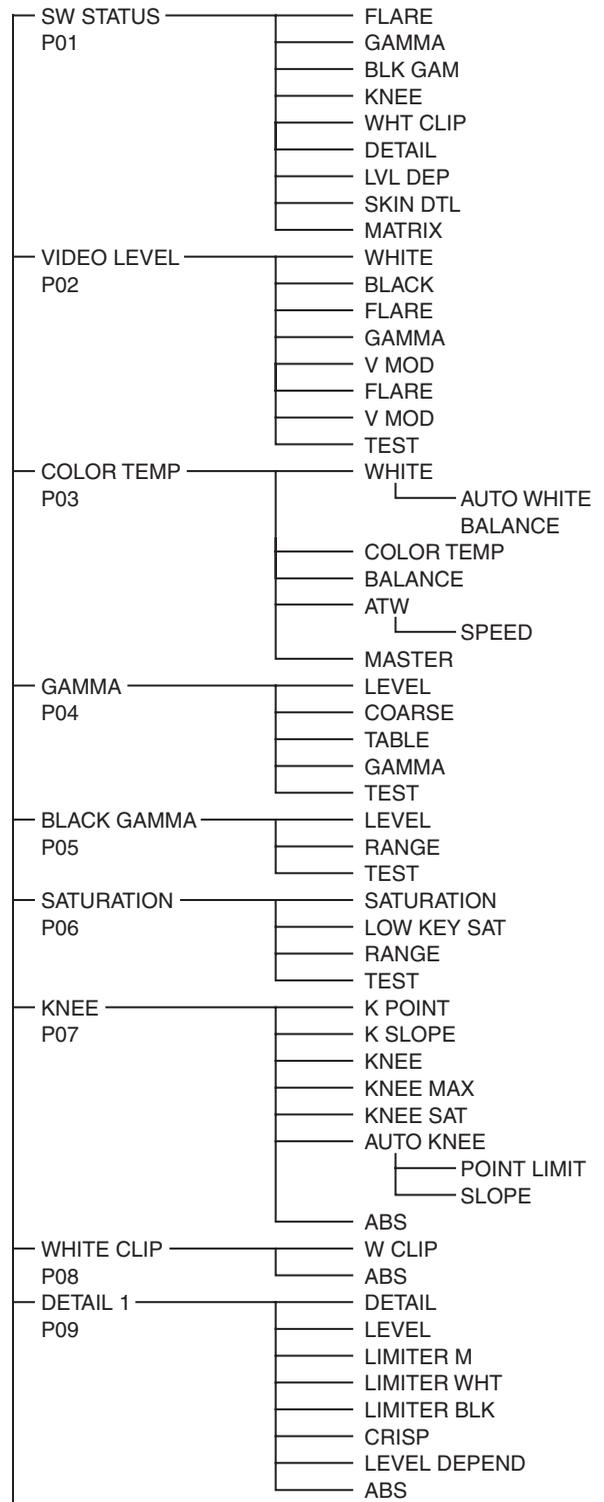
## Menu Tree

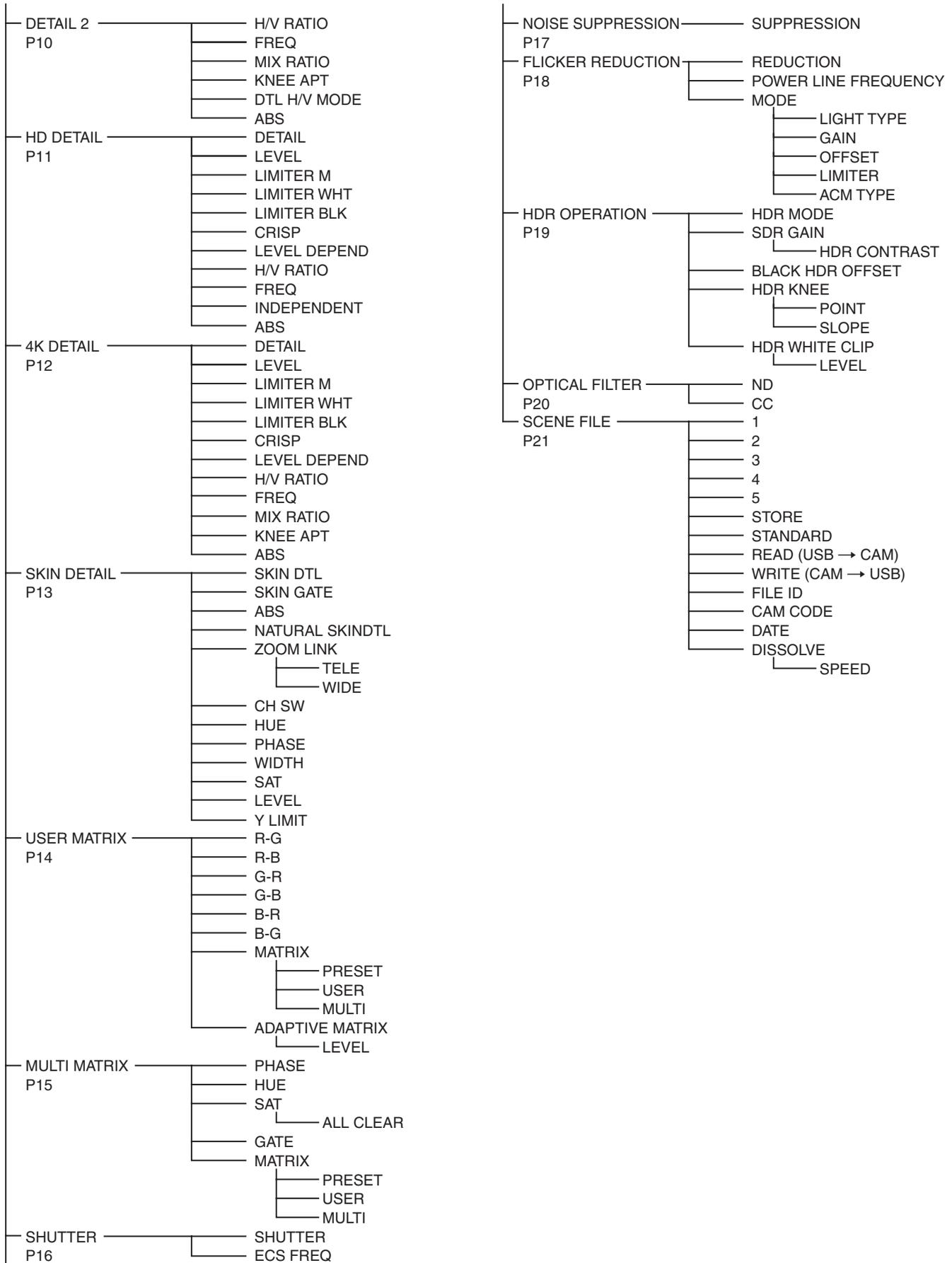
### OPERATION menu



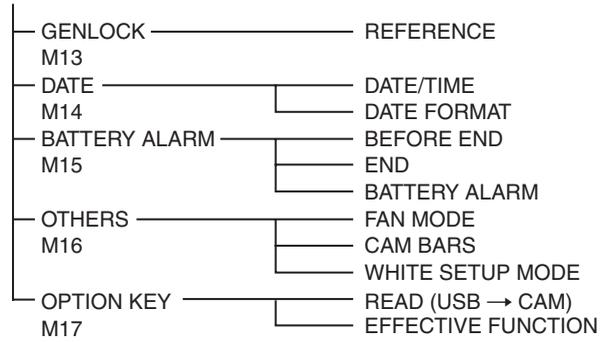
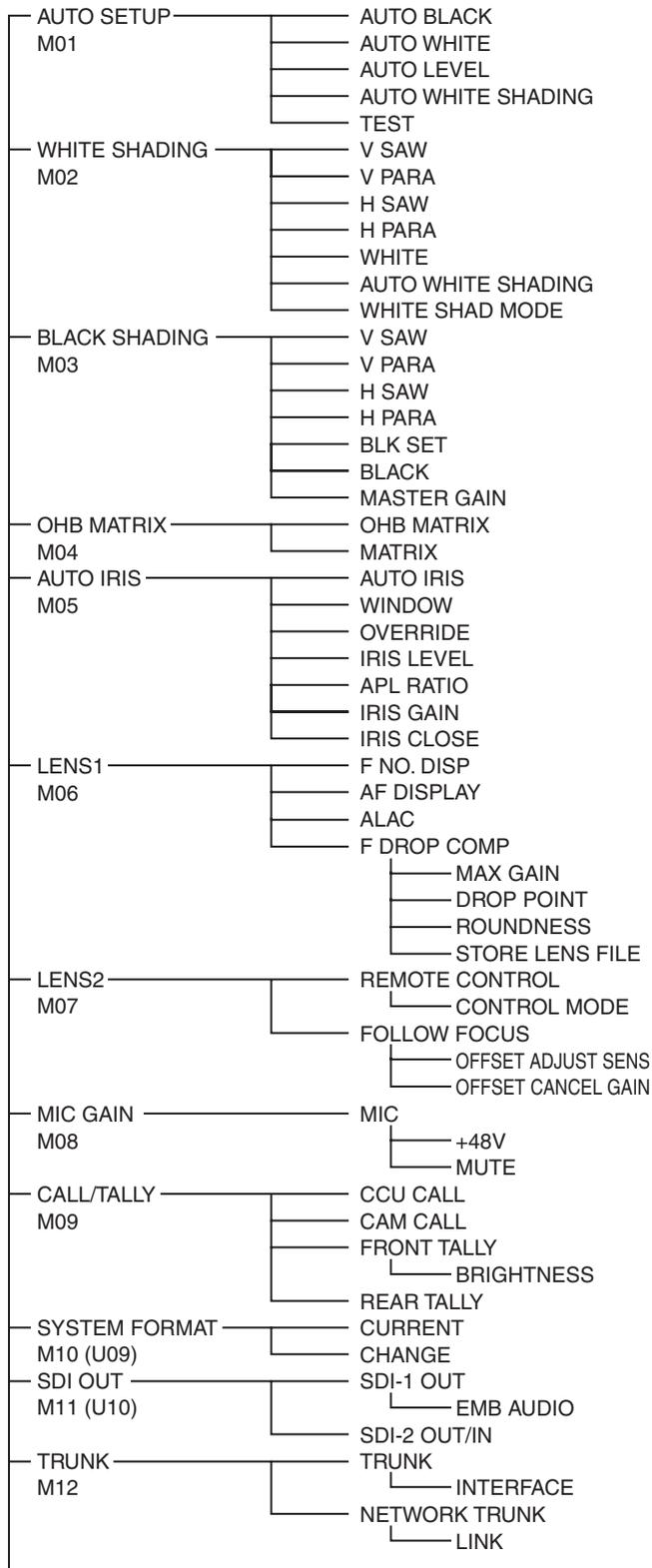


## PAINT menu

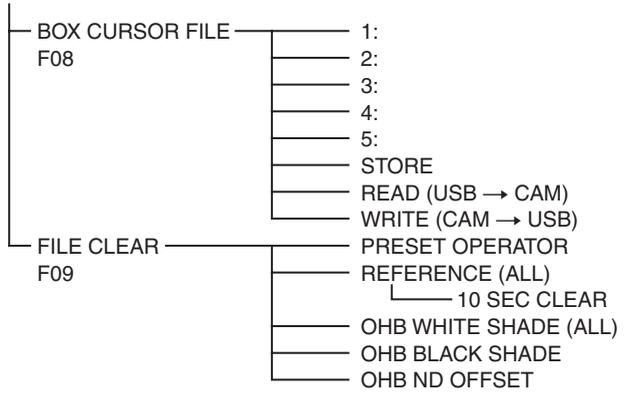
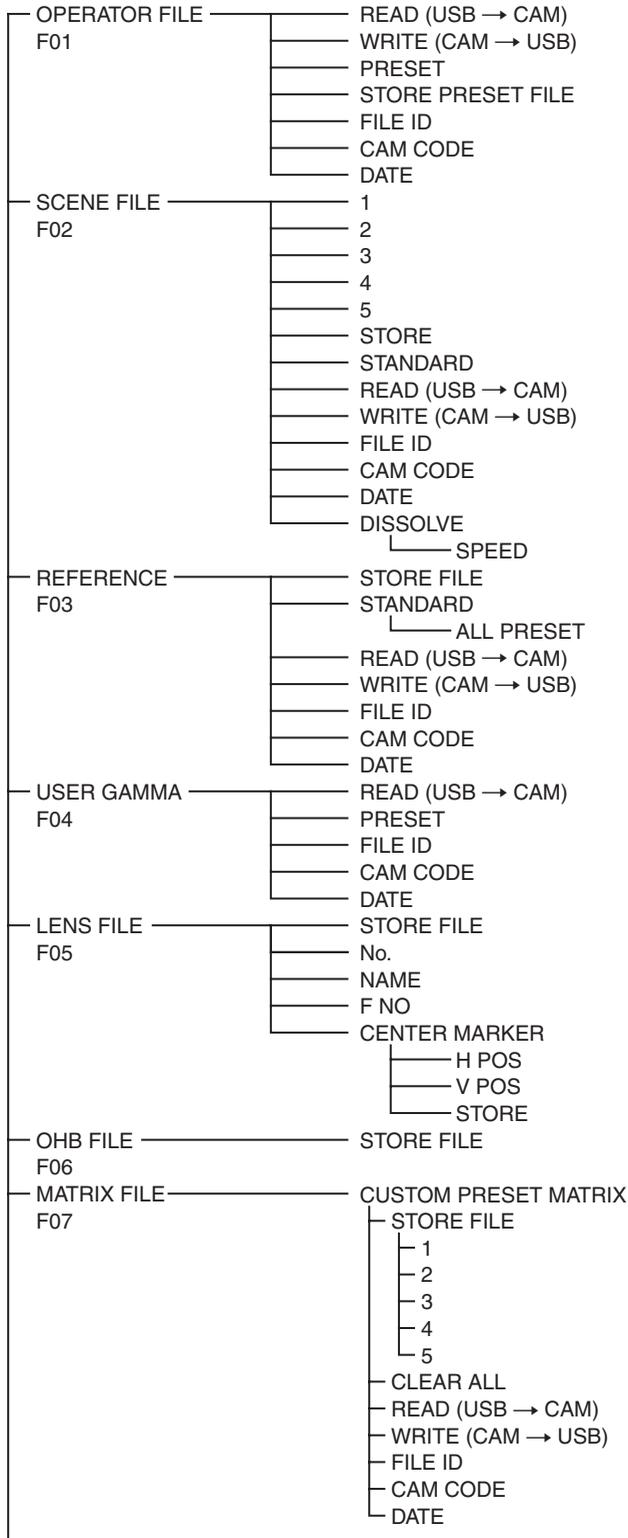




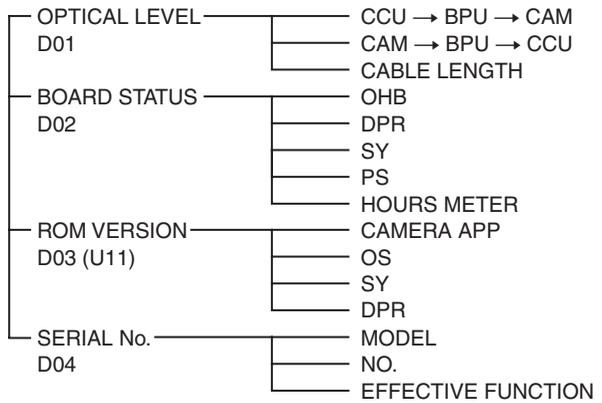
# MAINTENANCE menu



## FILE menu



## DIAGNOSIS menu



# OPERATION Menu

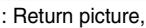
OPERATION			
Page name Page No.	Item	Settings	Description
<VF DISPLAY> 01 (U04)	EX	<b>ON</b> , OFF, 3S	
	ZOOM	ON, <b>OFF</b> , 3S	
	DISP	<b>LEFT</b> , RIGHT	
	FOCUS	ON, <b>OFF</b> , 3S	Valid only when a serial lens is used.
	ND	<b>ON</b> , OFF, 3S	
	CC	<b>ON</b> , OFF, 3S	
	5600K	<b>ON</b> , OFF, 3S	
	IRIS	<b>ON</b> , OFF, 3S	
	GAIN	<b>ON</b> , OFF, 3S	
	SHUTTER	<b>ON</b> , OFF, 3S	
	BATT	ON, <b>OFF</b> , 3S	
	RETURN	<b>ON</b> , OFF, 3S	
	MESSAGE	<b>ALL</b> , WRN, AT, OFF	<b>ALL</b> : Displays all messages. <b>WRN</b> : Displays warning messages and higher. <b>AT</b> : Displays Auto Setup messages and higher.
	FOLLOW F	ON, <b>OFF</b> , 3S	
	FOCUS NAME	OFF, 1S, 3S, 5S, <b>ON</b>	Sets whether to show/hide the marker name and sets the display time.
	FOCUS FORM	<b>NORMAL</b> , ABS(AUTO), ABS(m), ABS(ft)	Sets the FOCUS display format. <b>NORMAL</b> : Displayed in the range 0 to 255 (no units). <b>ABS(AUTO)</b> : Displayed in the units (meters or feet) set on the lens. <b>ABS(m)</b> : Displayed in meters. <b>ABS(ft)</b> : Displayed in feet.
	<VF MARKER> 02 (U05)	MARKER	<b>ON</b> , OFF <b>WHITE</b> , BLACK, DOT
LEVEL		0 to 100%, <b>40%</b>	
CENTER		ON, <b>OFF</b> <b>1</b> , 2, 3, 4	<b>1</b> : Full cross <b>2</b> : Full cross with a hole <b>3</b> : Center <b>4</b> : Center with a hole
SAFETY ZONE		ON, <b>OFF</b> 80.0, <b>90.0</b> , 92.5, 95.0%	
EFFECT		ON, <b>OFF</b> , OFF(ASSIST IND), OFF(AF DISP)	<b>OFF(ASSIST IND)</b> : Displayed when INDICATOR of <FOCUS ASSIST> is ON. <b>OFF(AF DISP)</b> : Displayed when AF DISPLAY of <LENS1> is ON.
ASPECT		ON, <b>OFF</b> 16:9, 15:9, 14:9, 13:9, <b>4:3</b>	
MASK		ON, <b>OFF</b> 0 to 15, <b>12</b>	Sets the darken level outside the aspect area.
SAFETY		ON, <b>OFF</b> , OFF(AREA) 80.0, <b>90.0</b> , 92.5, 95.0%	Sets the safety marker in Aspect mode. <b>OFF(AREA)</b> : Displayed when AREA MARKER of <FOCUS ASSIST> is ON.

OPERATION				
Page name Page No.	Item	Settings	Description	
<VF DETAIL> 03 (U02)	VF DETAIL	<b>ON</b> , OFF 0 to 100%, <b>25%</b>		
	CRISP	-99 to +99, <b>0</b>		
	FREQUENCY	<b>9M</b> , 14M, 18M		
	FLICKER	ON, <b>OFF</b>		
	AREA	<b>100%</b> , 70%, 60%, 50%, 40%, 30%, 20%, 10%		
	ZOOM LINK	<b>ON</b> , OFF 0 to 100%, <b>50%</b> (5% increments)		
	COLOR DETAIL	ON, <b>OFF</b> <b>BLUE</b> , RED, YELLOW		
	PEAK COLOR	ON, <b>OFF</b>		
	CHROMA LEVEL	100%, 50%, <b>25%</b> , 0%		
	RETURN DISABLE	ON, <b>OFF</b>		
	<FOCUS POSITION METER1> 04	FOCUS POSITION METER	<b>OFF</b> , ON	Shows/hides the focus position meter.
		NEAR LIMIT	<b>0</b> to 999	Sets the NEAR edge of the focus position meter.
		FAR LIMIT	0 to <b>999</b>	Sets the FAR edge of the focus position meter.
		DIRECTION	<b>HORIZONTAL</b> , VERTICAL	Sets the display direction of the focus position meter. <b>HORIZONTAL</b> : Horizontal display at the top of the screen. <b>VERTICAL</b> : Vertical display along the right edge of the screen.
	SIZE	<b>NORMAL</b> , HALF	Sets the display size of the focus position meter.	
	RULED LINE	<b>OFF</b> , ON	Shows/hides ruled lines.	
	INDEX COLOR	BLACK, <b>WHITE</b>	Sets the index color.	
	INDEX WIDTH	<b>1</b> to 5	Sets the index width.	
	MARKER WIDTH	<b>1</b> to 9	Sets the width of the marker axis portion.	
	CURRENT FOCUS DIST		Displays the current focus distance (display only).	

OPERATION				
Page name Page No.	Item	Settings	Description	
<FOCUS POSITION METER2> 05	ADJUSTED SIGN			
	SENSE	1 to 5, <b>2</b>	Sets the adjustment sensitivity. Increasing the value increases the sensitivity.	
	NAME DISP	OFF, 1S, 3S, 5S, <b>ON</b>	Sets whether to show/hide the marker name and sets the display time.	
	FRAME DISP	OFF, 1S, 3S, 5S, <b>ON</b>	Sets whether to show/hide the adjustment frame and sets the display time.	
	FRAME WIDTH	1 to 5, <b>2</b>	Sets the width of the adjustment frame.	
	MARKER CONFIG			
	[REG] MKR1, 2, 3	Execute using ENTER.	Registers a marker at the current focus position. (Cannot be registered here if marker registration has been assigned to a dedicated switch.)	
	[DISP] MKR1, 2, 3	<b>OFF</b> , ON	Shows/hides markers. (Cannot be registered here if marker registration has been assigned to a dedicated switch.)	
	[COLOR] MKR1, 2, 3	<b>RED</b> , GREEN, BLUE, YELLOW, ORANGE, PURPLE, GRAY, BLACK, WHITE	Sets the color of triangular parts of the marker. (Cannot be registered here if marker registration has been assigned to a dedicated switch.)	
	[NAME] MKR1, 2, 3	Max. 8 characters (Default value: MARKER 1 to 3)	Sets the text of the marker name. <i>See "To specify a character string" (page 18).</i>	
	[POS] MKR1, 2, 3	<b>0</b> to 999	Sets the position of the marker.	
	CURRENT FOCUS DIST		Displays the current focus distance (display only).	
	<FOCUS ASSIST> 06 (U03)	INDICATOR	ON, <b>OFF</b> , OFF(EFFECT), OFF(AF DISP)	<b>OFF(EFFECT)</b> : Displayed when EFFECT of <VF MARKER> is ON. <b>OFF(AF DISP)</b> : Displayed when AF DISPLAY of <LENS1> is ON.
		MODE	<b>BOX</b> , B&W, COL <b>BTM</b> , LEFT, TOP, RIGHT	
LEVEL		0 to 100%, <b>40%</b> <b>QUICK</b> , SMOOTH		
GAIN		0 to 99, <b>50</b>		
OFFSET		0 to 99, <b>50</b>		
AREA MARKER		ON, <b>OFF</b> , OFF(ASPECT)	<b>OFF(ASPECT)</b> : Displayed when ASPECT SAFETY of <VF MARKER> is ON.	
SIZE		SMALL, <b>MIDDLE</b> , LARGE		
POSITION		LEFT, <b>CENTER</b> , RIGHT		
POSITION H		0 to 99, <b>50</b>		
POSITION V		0 to 99, <b>50</b>		
<ZEBRA> 07 (U07)		ZEBRA	ON, <b>OFF</b> <b>1</b> , 2, 1&2	
		ZEBRA1		
		LEVEL	50 to 109%, <b>70%</b>	
		WIDTH	0 to 30%, <b>10%</b>	
	ZEBRA2	50 to 109%, <b>100%</b>		

OPERATION				
Page name Page No.	Item	Settings	Description	
<CURSOR> 08 (U06)	CURSOR	ON, <b>OFF</b>		
	LEVEL	0 to 100%, <b>40%</b> <b>WHITE</b> , BLACK, DOT		
	BOX/CROSS	<b>BOX</b> , CROSS		
	H POSITION	0 to 99, <b>50</b>		
	V POSITION	0 to 99, <b>50</b>		
	WIDTH	0 to 99, <b>50</b>		
	HEIGHT	0 to 99, <b>50</b>		
	BOX MEMORY	1/2/3: <b>OFF</b> , ON		
	H POSI	1/2/3: 0 to 99, <b>50</b>		
	V POSI	1/2/3: 0 to 99, <b>50</b>		
	WIDTH	1/2/3: 0 to 99, <b>50</b>		
	HEIGHT	1/2/3: 0 to 99, <b>50</b>		
	<BOX CURSOR FILE> 09	1:		Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name.
		2:		Sets the cursor to the left of the number when you select BOX CURSOR FILE.
3:			Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name.	
4:				
5:			<i>See "To specify a character string" on page 18.</i>	
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.		
<SPIRIT LEVEL> 10	INDICATOR	ON, <b>OFF</b>	When this is set to ON, BOX MEMORY for <CURSOR> does not function.	
	MODE	<b>1</b> , 2	Switches the display method of the indicator.	
	REVERSE	<b>OFF</b> , ON	Inverts the movement of the indicator horizontally.	
	SCALE	50% to 150%, <b>100%</b>	Adjusts the horizontal width of the indicator.	
	H POSITION	0 to 99, <b>50</b>		
	V POSITION	0 to 99, <b>97</b>		
	ANGLE		Displays the inclination angle (display only).	
	OFFSET	-90 to +90, <b>0</b>		
	SET ZERO ANGLE	Execute using ENTER.	Designates the current angle as level (0°).	
	CLEAR	Execute using ENTER.	Sets OFFSET to 0.	

OPERATION			
Page name Page No.	Item	Settings	Description

<VF OUT> 11 (U01)	VF OUT	<b>COLOR</b> , Y, R, G, B,	
	CHARACTER LEVEL	1 to 5, <b>4</b>	
	PinP	<b>OFF</b> , RETURN, HD PROMPTER	
	POSITION	<b>1</b> , 2, 3, 4	
	SIZE	1/2.5, <b>1/3</b> , 1/4	
	MODE	PinP OFF: --- PinP RETURN: 1, 2, 3, 4 PinP HD PROMPTER: 1, 2	 : Main picture,  : Return picture,  : HD Prompter picture

**PinP: OFF**

Mode	RET SW OFF	RET SW ON
---		

**PinP: RETURN**

Mode	RET SW OFF	RET SW ON
1		
2		
3		
4		

**PinP: HD PROMPTER**

Mode	RET SW OFF	RET SW ON
1		
2		

Cannot be used during standalone operation.

OPERATION			
Page name Page No.	Item	Settings	Description
<SWITCH ASSIGN> 12 (U08)	LENS		
	VTR S/S	OFF, RETURN1 SW, <b>RETURN2 SW</b> , RETURN3 SW, VF DETAIL, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VTR S/S, TALLY R, TALLY G, CALL	
	RET	OFF, <b>RETURN1 SW</b> , RETURN2 SW, RETURN3 SW, VF DETAIL, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VTR S/S, TALLY R, TALLY G, CALL	
	D-SUB		
	ASSIGN1	OFF, RETURN1 SW, <b>RETURN2 SW</b> , RETURN3 SW, VF DETAIL, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VTR S/S, TALLY R, TALLY G, CALL	This function works when each pin of the D-sub connector contacts with GND ( <i>see page 48</i> ). TALLY R and TALLY G are available only in standalone device or extension mode, and make the tally lamp light.
	ASSIGN2	OFF, RETURN1 SW, RETURN2 SW, <b>RETURN3 SW</b> , VF DETAIL, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, VTR S/S, TALLY R, TALLY G, CALL	
<OPERATOR FILE> 13	READ (USB → CAM)	Execute using ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM → USB)	Execute using ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute using ENTER.	Sets the operator file items to the preset values in internal memory.
	FILE ID	Max. 14 characters	Enters a comment for the operator file to be written to a USB drive.  <i>See "To specify a character string" (page 18).</i>
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

## PAINT Menu

PAINT			
Page name Page No.	Item	Settings	Description
<SW STATUS> P01	FLARE	<b>ON</b> , OFF	
	GAMMA	<b>ON</b> , OFF	
	BLK GAM	ON, <b>OFF</b>	
	KNEE	<b>ON</b> , OFF	
	WHT CLIP	<b>ON</b> , OFF	
	DETAIL	<b>ON</b> , OFF	
	LVL DEP	<b>ON</b> , OFF	
	SKIN DTL	ON, <b>OFF</b>	
	MATRIX	ON, <b>OFF</b>	

PAINT			
Page name Page No.	Item	Settings	Description
<VIDEO LEVEL> P02	WHITE	R/G/B: -99 to +99, <b>0</b>	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, <b>0</b>	
	FLARE	R/G/B/M: -99 to +99, <b>0</b>	
	GAMMA	R/G/B/M: -99 to +99, <b>0</b>	
	V MOD	R/G/B/M: -99 to +99, <b>0</b>	
	FLARE	<b>ON</b> , OFF	
	V MOD	<b>ON</b> , OFF	
	TEST	<b>OFF</b> , SAW, 10STEP	
<COLOR TEMP> P03	WHITE	R/G/B: -99 to +99, <b>0</b>	
	AUTO WHITE BALANCE	Execute using ENTER.	
	COLOR TEMP	0 K to 65535 K, <b>3200 K</b>	
	BALANCE	-99 to +99, <b>0</b>	
	ATW	ON, <b>OFF</b>	
	SPEED	1, <b>2</b> , 3, 4, 5	
	MASTER	-3.0 dB to +12.0 dB, <b>0.0 dB</b>	
<GAMMA> P04	LEVEL	R/G/B/M: -99 to +99, <b>0</b>	R, G, B, and M (master) values can be independently set.
	COARSE	0.35 to 0.90 (0.05 steps), <b>0.45</b>	
	TABLE	<b>STANDARD</b> , HYPER, USER	
		1, 2, 3, 4, <b>5</b> , 6, 7	With STANDARD or USER selected (only 1 to 5 are available for USER) <b>1</b> : Equivalent to a camcorder <b>2</b> : x4.5 gain <b>3</b> : x3.5 gain <b>4</b> : Equivalent to SMPTE-240M <b>5</b> : Equivalent to ITU-R709 <b>6</b> : x5.0 gain <b>7</b> : x5.0 - 709
		1, 2, 3, <b>4</b>	With HYPER selected <b>1</b> : 325% to 100% <b>2</b> : 460% to 100% <b>3</b> : 325% to 109% <b>4</b> : 460% to 109%
	GAMMA	<b>ON</b> , OFF	
TEST	<b>OFF</b> , SAW, 10STEP		
<BLACK GAMMA> P05	LEVEL	R/G/B/M: -99 to +99, <b>0</b>	R, G, B, and M (master) values can be independently set.
	RANGE	LOW, L.MID, H.MID, <b>HIGH</b>	
	TEST	<b>OFF</b> , SAW, 10STEP	
<SATURATION> P06	SATURATION	-99 to +99, <b>0</b>	
	LOW KEY SAT	-99 to +99, <b>0</b>	
	RANGE	LOW, L.MID, H.MID, <b>HIGH</b>	
	TEST	<b>OFF</b> , SAW, 10STEP	

PAINT			
Page name Page No.	Item	Settings	Description
<KNEE> P07	K POINT	R/G/B/M: -99 to +99, <u>0</u>	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, <u>0</u>	
	KNEE	<u>ON</u> , OFF	
	KNEE MAX	ON, <u>OFF</u>	
	KNEE SAT	-99 to +99, <u>0</u>	
		<u>ON</u> , <u>OFF</u>	
	AUTO KNEE	<u>OFF</u> , AUTO	
	POINT LIMIT	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	SLOPE	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	ABS		Highlighted: ABS (Absolute) mode
	<WHITE CLIP> P08	W CLIP	-99 to +99, <u>0</u>
		<u>ON</u> , OFF	
ABS			Highlighted: ABS (Absolute) mode
<DETAIL 1> P09	DETAIL	<u>ON</u> , OFF	
	LEVEL	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LIMITER [M]	-99 to +99, <u>0</u>	
	LIMITER [WHT]	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	CRISP	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
		<u>ON</u> , OFF	
<DETAIL 2> P10	ABS		Highlighted: ABS (Absolute) mode
	H/V RATIO	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	FREQ	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	MIX RATIO	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	KNEE APT	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
		<u>ON</u> , <u>OFF</u>	
	DTL H/V MODE	<u>H/V</u> , V only	
ABS		Highlighted: ABS (Absolute) mode	
<HD DETAIL> P11	DETAIL	<u>ON</u> , OFF	
	LEVEL	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LIMITER [M]	-99 to +99, <u>0</u>	
	LIMITER [WHT]	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	CRISP	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
		<u>ON</u> , OFF	
	H/V RATIO	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	FREQ	-99 to +99, <u>0</u>	Absolute value is displayed in ABS mode.
	INDEPENDENT	ON, <u>OFF</u>	Selects whether to link to DETAIL.
ABS		Highlighted: ABS (Absolute) mode	

PAINT			
Page name Page No.	Item	Settings	Description
<4K DETAIL> P12	DETAIL	<b>ON</b> , OFF	
	LEVEL	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	LIMITER [M]	-99 to +99, <b>0</b>	
	LIMITER [WHT]	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	CRISP	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
		<b>ON</b> , OFF	
	H/V RATIO	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	FREQ	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	MIX RATIO	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
	KNEE APT	-99 to +99, <b>0</b>	Absolute value is displayed in ABS mode.
		<b>ON</b> , <b>OFF</b>	
	ABS		Highlighted: ABS (Absolute) mode
<SKIN DETAIL> P13	SKIN DTL	<b>ON</b> , <b>OFF</b>	
	SKIN GATE	<b>OFF</b> , 1, 2, 3, (MAT)	<b>1, 2, 3:</b> The skin gate function can be turned on for the specified channel only. <b>(MAT):</b> Displayed when GATE of <MULTI MATRIX> is ON.
	ABS		Highlighted: ABS (Absolute) mode
	NATURAL SKINDTL	<b>OFF</b> , ON	
	ZOOM LINK	<b>OFF</b> , ON	
	TELE	0 to <b>99</b>	
	WIDE	<b>0</b> to 99	
	CH SW	1: (ON), 2/3: ON, <b>OFF</b>	Sets the skin tone detail function independently for each channel. (Channel 1 is always set to ON.)
	HUE	1/2/3: Execute using ENTER.	
	PHASE	1/2/3: <b>0</b> to 359	Absolute values are indicated for LEVEL only in ABS mode.
	WIDTH	1/2/3: 0 to 90, <b>29</b>	
	SAT	1/2/3: -99 to +99, <b>-89</b>	
	LEVEL	1/2/3: -99 to +99, <b>0</b>	
	Y LIMIT	1/2/3: <b>0</b> to 99	
<USER MATRIX> P14	R-G	-99 to +99, <b>0</b>	
	R-B	-99 to +99, <b>0</b>	
	G-R	-99 to +99, <b>0</b>	
	G-B	-99 to +99, <b>0</b>	
	B-R	-99 to +99, <b>0</b>	
	B-G	-99 to +99, <b>0</b>	
	MATRIX	<b>ON</b> , <b>OFF</b>	
	PRESET	<b>---</b> , ON, OFF	
		<b>---</b> , SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5	
	USER	<b>---</b> , ON, OFF	
	MULTI	<b>---</b> , ON, OFF	
	ADAPTIVE MATRIX	<b>OFF</b> , ON	
	LEVEL	0 to 7, <b>0</b>	

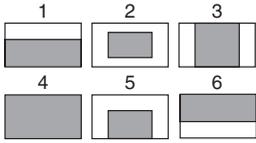
PAINT				
Page name Page No.	Item	Settings	Description	
<MULTI MATRIX> P15	PHASE	<b>0</b> , 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338	Selects an axis (angle) at PHASE for which the multimatrix adjustment is to be made, and set HUE and SAT (HUE and SAT can be set individually for each of 16 axes).	
	HUE	-99 to +99, <b>0</b>		
	SAT	-99 to +99, <b>0</b>		
		ALL CLEAR	Execute using ENTER.	
		GATE	ON, <b>OFF</b> , (SKN)	<b>(SKN)</b> : Displayed when SKIN GATE of <SKIN DETAIL> is ON.
		MATRIX	ON, <b>OFF</b>	
		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, <b>OFF</b> , (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)	
		29.97P: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS	Step shutter selection	
		25P: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS		
		24P/23.98P: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS		
		59.94P: <b>1/100</b> , 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS		
		50P: 1/60, <b>1/125</b> , 1/250, 1/500, 1/1000, 1/2000, ECS		
	ECS FREQ	29.97P: 30.00 to 2700 Hz 25P: 25.00 to 2300 Hz 24P/23.98P: 24.00 to 2200 Hz 59.94P: <b>59.96</b> to 4600 Hz 50P: <b>50.03</b> to 4600 Hz		
<NOISE SUPPRESSION> P17	SUPPRESSION	<b>0</b> to 100%		
		ON, <b>OFF</b>		

PAINT			
Page name Page No.	Item	Settings	Description
<FLICKER REDUCTION> P18	REDUCTION	ON, <b>OFF</b>	<b>Note</b> When you turn REDUCTION ON or OFF, noise may be generated. This is not a malfunction.
	POWER LINE FREQUENCY	<b>50</b> , 60	Specifies the frequency of the lighting power source.
	MODE	<b>STANDARD</b> , ACM	Enabled in HD format. <b>STANDARD:</b> Corrects flicker without adding an image. <b>ACM:</b> Corrects flicker by adding images.
	LIGHT TYPE	<b>1</b> , 2, 3	Enabled only when STANDARD is selected. Selects the type of lighting.
	GAIN	-99 to +99, <b>0</b>	Enabled only when STANDARD is selected. Sets the correction gain.
	OFFSET	<b>0</b> to 99	Enabled only when STANDARD is selected. Sets the brightness level that invokes correction.
	LIMITER	ON, <b>OFF</b>	Enabled only when STANDARD is selected. Turns the over-correction limiter on/off.
	ACM TYPE	<b>1</b> , 2, 3, 4	Enabled only when ACM is selected. Selects the combination of frames to add. More frames are added as the value increases.
<HDR OPERATION> P19	HDR MODE	OFF, LIVE HDR, CINEMA	Displays the BPU setting.
	SDR GAIN	<b>0.0</b> 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).
	BLACK HDR OFFSET	-99.9 to +99.9, <b>0</b>	Enabled only when LIVE HDR is selected. HDR output black offset
	HDR KNEE	<b>OFF</b> , ON	Enabled only when LIVE HDR is selected.
	POINT	-99 to +99, <b>0</b>	KNEE setting applied for HDR
	SLOPE	-99 to +99, <b>0</b>	
	HDR WHITE CLIP	<b>OFF</b> , ON	
LEVEL	-99 to +99, <b>0</b>		
<OPTICAL FILTER> P20	ND	<b>1</b> , 2, 3, 4, 5	<b>1:</b> Clear <b>2:</b> 1/4ND <b>3:</b> 1/8ND <b>4:</b> 1/16ND <b>5:</b> 1/64ND
	CC	A, <b>B</b> , C, D	<b>A:</b> Cross filter <b>B:</b> 3200K <b>C:</b> 4300K <b>D:</b> 6300K

PAINT			
Page name Page No.	Item	Settings	Description
<SCENE FILE> P21	1		Saving and loading a scene file (paint data): When storing a file in camera memory, specify the number after executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute using ENTER.	
	STANDARD	Execute using ENTER.	Reads the standard paint data.
	READ (USB → CAM)	Execute using ENTER.	Loads five scene files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute using ENTER.	Writes five 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.  <i>See "To specify a character string" (page 18).</i>
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	<b>OFF</b> , ON	Switches scene files seamlessly.
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), <b>0.2</b>	

## MAINTENANCE Menu

MAINTENANCE			
Page name Page No.	Item	Settings	Description
<AUTO SETUP> M01	AUTO BLACK	Execute using ENTER.	
	AUTO WHITE	Execute using ENTER.	
	AUTO LEVEL	Execute using ENTER.	
	AUTO WHITE SHADING	Execute using ENTER.	
	TEST	<b>OFF</b> , SAW, 10STEP	
<WHITE SHADING> M02	V SAW	R/G/B: -99 to +99, <b>0</b>	R, G, and B values can be independently set.
	V PARA	R/G/B: -99 to +99, <b>0</b>	
	H SAW	R/G/B: -99 to +99, <b>0</b>	
	H PARA	R/G/B: -99 to +99, <b>0</b>	
	WHITE	R/G/B: -99 to +99, <b>0</b>	
	AUTO WHITE SHADING	Execute using ENTER.	
	WHITE SHAD MODE	RGB, <b>RB</b>	
<BLACK SHADING> M03	V SAW	R/G/B: -99 to +99, <b>0</b>	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, <b>0</b>	
	H SAW	R/G/B: -99 to +99, <b>0</b>	
	H PARA	R/G/B: -99 to +99, <b>0</b>	
	BLK SET	R/G/B: -99 to +99, <b>0</b>	
	BLACK	R/G/B/M: -99 to +99, <b>0</b>	
	MASTER GAIN	-6, -3, <b>0</b> , 3, 6, 9, 12 dB	
<OHB MATRIX> M04	OHB MATRIX	<b>ON</b> , OFF	
	MATRIX	ON, <b>OFF</b>	

MAINTENANCE			
Page name Page No.	Item	Settings	Description
<AUTO IRIS> M05	AUTO IRIS	ON, <b>OFF</b> , (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, <b>0</b> , ---	Sets to temporarily change the reference value for brightness of the automatic iris level in the range of $\pm 2$ 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, <b>0</b>	$\pm 4$ steps
	APL RATIO	-99 to +99, <b>65</b>	
	IRIS GAIN	-99 to +99, <b>0</b>	
	IRIS CLOSE	ON, <b>OFF</b>	
	<LENS1> M06	F NO. DISP	<b>CONTROL</b> , RETURN
AF DISPLAY		ON, <b>OFF</b> , OFF(EFFECT), OFF(ASSIST IND)	<b>OFF(EFFECT)</b> : Displayed when EFFECT of <VF MARKER> is ON. <b>OFF(ASSIST IND)</b> : Displayed when INDICATOR of <FOCUS ASSIST> is ON.
ALAC		<b>AUTO</b> , OFF	With AUTO selected, the status is displayed at the right. (ACTIVE): Compensation is in progress. (WAIT): Waiting for completion of lens initialization. (STOP): Compensation is turned off for a non-applicable lens.
F DROP COMP		<b>OFF</b> , ON, (OFF)	Turns F drop compensation on/off. During compensation, the compensation gain is displayed on the right. (OFF): For when a serial lens is not attached.
MAX GAIN		<b>0.0</b> to 24 dB	Maximum compensation value
DROP POINT		0 to 99, <b>50</b>	Compensation start point
ROUNDNESS		<b>0.0</b> to 12 dB	Roundness of the compensation curve.
STORE LENS FILE		Execute using ENTER.	Saves settings to a lens file.

MAINTENANCE			
Page name Page No.	Item	Settings	Description
<LENS2> M07	REMOTE CONTROL	ON, <b>OFF</b> , (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	<b>ZOOM &amp; FOCUS</b> , FOCUS, FOLLOW FOCUS	<b>ZOOM &amp; FOCUS</b> : Control ZOOM and FOCUS from an MSU/RCP (control by lens demand is not supported) <b>FOCUS</b> : Control FOCUS from an MSU/RCP. ZOOM is controlled by lens demand. <b>FOLLOW FOCUS</b> : FOCUS is controlled by lens demand, but can be adjusted (offset fine adjustment) from an MSU/RCP. ZOOM is controlled by lens demand.
	<b>Note</b>		
	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, <b>3</b> , 4, 5	Sets the sensitivity of superimposing the offset of the MSU.
	OFFSET CANCEL GAIN	1, 2, <b>3</b> , 4, 5	Sets the sensitivity of canceling the offset on the demand side.
<MIC GAIN> M08	MIC	20, 30, 40, 50, <b>60</b> dB	Enabled in standalone mode.
	+48V	ON, <b>OFF</b>	
	MUTE	ON, <b>OFF</b>	
<CALL/TALLY> M09	CCU CALL	OFF, <b>ON</b>	
	CAM CALL	<b>OFF</b> , ON	
	FRONT TALLY	OFF, <b>ON</b>	
	BRIGHTNESS	0 to 100, <b>50</b>	
	REAR TALLY	OFF, <b>ON</b>	
<SYSTEM FORMAT> M10 (U09)	CURRENT	1080/50P (2x), 50P (3x), 50P (4x), 50P (6x), 50P (8x), 59.94P (2x), 59.94P (3x), 59.94P (4x), 59.94P (6x), 59.94P (8x)  720/50P (2x), 50P (3x), 50P (4x), 50P (6x), 50P (8x), 59.94P (2x), 59.94P (3x), 59.94P (4x), 59.94P (6x), 59.94P (8x)  4096x2160/23.98P, 24P, 25P, 29.97P, 50P, 59.94P, 50P (2x), 59.94P (2x)	Displays the current format. When a BPU is connected.
		1080/59.94P, 29.97PsF, 23.98PsF, 50P, 25PsF, 24PsF	In standalone mode.
	CHANGE	1080/59.94P, 29.97PsF, 23.98PsF, 50P, 25PsF, 24PsF	Displayed only in standalone operation. Changes the format.
<SDI OUT> M11 (U10)	SDI-1 OUT	<b>VF</b> , MAIN(i), RET, HD PROMPTER	
	EMB AUDIO	<b>OFF</b> , MIC, PGM	
	SDI-2 OUT/IN	3G-SDI OUT, <b>MAIN(i) OUT</b> , RET OUT, HD PROMPTER OUT, HD-TRUNK IN	

MAINTENANCE			
Page name Page No.	Item	Settings	Description
<TRUNK> M12	TRUNK	<b>ON</b> , OFF	
	INTERFACE	<b>232c</b> , 422A	
	NETWORK TRUNK LINK		Display only
<GENLOCK> M13	REFERENCE	Synchronization status	Display only
<DATE> M14	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, <b>5 M/D/Y</b> , 6 M/D	<b>Y</b> : Year <b>Mn</b> : Month (numeric) <b>M</b> : Month (English abbreviation) <b>D</b> : Day
<BATTERY ALARM> M15	BEFORE END	<b>11.5</b> to 17.0 V	
	END	<b>11.0</b> to 11.5 V	
	BATTERY ALARM	OFF, <b>ON</b>	
<OTHERS> M16	FAN MODE	OFF, <b>AUTO1</b> , AUTO2, MIN, MAX	<b>AUTO1</b> : Normal rotation <b>AUTO2</b> : Slow rotation
	CAM BARS	ON, <b>OFF</b>	Enabled in standalone mode.
	WHITE SETUP MODE	AWB, <b>A.LVL</b>	
<OPTION KEY> M17	READ (USB → CAM)	Execute using ENTER.	Reads the install key from a USB drive.
	EFFECTIVE FUNCTION		Displays only installed items.

## FILE Menu

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

customized USER menu in the Operator file. *For the specific items included in these files, refer to the Maintenance Manual.*

FILE			
Page name Page No.	Item	Settings	Description
<OPERATOR FILE> F01	READ (USB → CAM)	Execute using ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM → USB)	Execute using ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute using ENTER.	Sets the operator file items to the preset values in internal memory.
	STORE PRESET FILE	Execute using ENTER.	Stores the current settings of the operator file items in the operator file in internal memory.
	FILE ID	Max. 14 characters	Enters a comment for the operator file to be written to a USB drive. <i>See "To specify a character string" (page 18).</i>
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

FILE				
Page name Page No.	Item	Settings	Description	
<SCENE FILE> F02	1		Saving and loading a scene file (paint data): When storing a file in camera memory, specify the number after executing STORE. When reading, only specify the number.	
	2			
	3			
	4			
	5			
	STORE	Execute using ENTER.		
	STANDARD	Execute using ENTER.	Reads the standard paint data.	
	READ (USB → CAM)	Execute using ENTER.	Loads five scene files from a USB drive to internal memory.	
	WRITE (CAM → USB)	Execute using ENTER.	Writes five 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.  <i>See "To specify a character string" (page 18).</i>	
	CAM CODE	Camera code	Display only	
	DATE	Date	Display only	
	DISSOLVE	<b>OFF, ON</b>	Switches scene files seamlessly.	
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), <b>0.2</b>		
	<REFERENCE> F03	STORE FILE	Execute using ENTER.	Stores the current settings of the reference file items in the reference file in internal memory.
STANDARD		Execute using ENTER.	Reads the standard values in the reference file in internal memory.	
ALL PRESET		Execute using ENTER.	Resumes the factory-preset reference file.	
READ (USB → CAM)		Execute using ENTER.	Loads a reference file from a USB drive.	
WRITE (CAM → USB)		Execute using ENTER.	Writes the current settings of the reference file items as a reference file to a USB drive.	
FILE ID		Max. 14 characters	Enters a comment for the reference file to be written to a USB drive.  <i>See "To specify a character string" (page 18).</i>	
CAM CODE		Camera code	Display only	
DATE		Date	Display only	
<USER GAMMA> F04		READ (USB → CAM)	Execute using ENTER.	Reads the user gamma file from a USB drive.
		PRESET	Execute using ENTER.	Sets the user gamma file items to the preset values in internal memory.
	FILE ID	Max. 14 characters	Enters a comment for the user gamma file to be written to a USB drive.  <i>See "To specify a character string" (page 18).</i>	
	CAM CODE	Camera code	Display only	
	DATE	Date	Display only	

FILE				
Page name Page No.	Item	Settings	Description	
<LENS FILE> F05	STORE FILE	Execute using ENTER.	The center marker is not included.	
	No.	1 to 17, <b>1</b>	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, <b>F1.7</b>	Changeable only when using a non-serial lens.	
	CENTER MARKER		Sets and stores the center marker position:	
	H POS	-20 to +20, <b>0</b>	H POS: Increasing the value moves the position to the right.	
	V POS	-20 to +20, <b>0</b>	V POS: Increasing the value moves the position downwards.	
	STORE	Execute using ENTER.		
	<OHB FILE> F06	STORE FILE	Execute using ENTER.	Stores the offset values of items specific to the CMOS image sensor (once stored, the values do not need to be stored again if the sensor is reinstalled).
	<MATRIX FILE> F07	CUSTOM PRESET MATRIX		Stores matrix preset files: Saved files can be loaded by setting PRESET of <USER MATRIX> to CUSTOM 1 to 5.
STORE FILE				
1		Execute using ENTER.		
2		Execute using ENTER.		
3		Execute using ENTER.		
4		Execute using ENTER.		
5		Execute using ENTER.		
CLEAR ALL		Execute using ENTER.	Clears all the files.	
READ (USB → CAM)		Execute using ENTER.	Loads five preset files from a USB drive to internal memory.	
WRITE (CAM → USB)		Execute using ENTER.	Writes five preset files in the camera's memory to a USB drive.	
FILE ID		Max. 14 characters	Enters a comment for the preset files to be written to a USB drive. <i>See "To specify a character string" (page 18).</i>	
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.	
	2:		Sets the cursor to the left of the number when you select BOX CURSOR FILE.	
	3:		Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name.	
	4:			
	5:		<i>See "To specify a character string" on page 18.</i>	
	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 name Page No.	Item	Settings	Description
<FILE CLEAR> F09	PRESET OPERATOR	Execute using ENTER.	
	REFERENCE (ALL)	Execute using ENTER.	
	10 SEC CLEAR	ON, <b>OFF</b>	Sets the function to clear the selected menu item to ON/OFF.  <i>See "To return a menu item to its standard value" (page 18).</i>
	OHB WHITE SHADE (ALL)	Execute using ENTER.	
	OHB BLACK SHADE	Execute using ENTER.	
	OHB ND OFFSET	Execute using ENTER.	

## DIAGNOSIS Menu

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

DIAGNOSIS			
Page name Page No.	Item	Indication	Description
<OPTICAL LEVEL> D01	CCU → BPU → CAM	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU or BPU is connected.
	CAM → BPU → CCU	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU or BPU is connected.
	CABLE LENGTH	x.x km	Displays the camera cable length. (Displayed only when a CCU is connected.)
<BOARD STATUS> D02	OHB	OK, NG	
	DPR	OK, NG	
	SY	OK, NG	
	PS	OK, NG	
	HOURS METER	xxxx H	Displays the total working time.
<ROM VERSION> D03 (U11)	CAMERA APP	Vx.xx	
	OS	Vx.xx	
	SY	Vx.xx	
	DPR	Vx.xx	
<SERIAL No.> D04	MODEL	HDC-P43	
	NO.	xxxxxxx	
	EFFECTIVE FUNCTION		Displayed if any option is installed.

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# Appendix

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## Precautions

### Note on laser beams

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

### Do not subject to severe shocks

Damage to the case or internal components may result.

### When finished using

Set the power switch to OFF.

### Operation and storage environment

Store in a level place with air conditioning.

If the unit gets wet, make sure it is completely dry before storage.

Avoid use or storage in the following places:

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

### Condensation

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

### Components with limited service life

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

## Camera CMOS image sensor phenomena

### Note

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

### White flecks

Although the image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc.

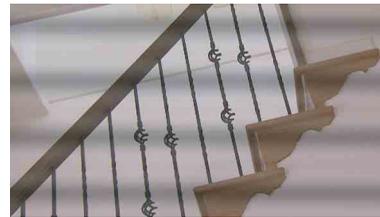
This is related to the principle of image sensors and is not a malfunction.

The white flecks especially tend to be seen in the following cases:

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

### Flicker

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



### Focal plane

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

### Flash band

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

### To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this camera can result in malfunctions and interference with audio and video signals.

It is recommended that the portable communications devices near this camera be powered off.

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## Error Messages

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

### Note

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

Message	Meaning
TEMP WARNING	The internal temperature is abnormally high.
FAN STOP	The built-in fan is not rotating properly.

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

## Using a USB Drive

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

The following Sony USB drives are recommended.

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

### Notes

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

# Specifications

## HDC-P43

General	
Power requirements	10.5 V to 17 V DC, 6.4 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. 2.0 kg (4 lb 6.6 oz) (Unit only)
Dimensions	See <i>page 48</i> .
Imaging element	
Imaging element	2/3-inch, 9.8 megapixel, CMOS image sensor
Method	3-chip, RGB
Effective resolution	4K: 4096 (horizontal) × 2160 (vertical) QFHD: 3840 (horizontal) × 2160 (vertical) HD: 1920 (horizontal) × 1080 (vertical)
Electrical characteristics	
Sensitivity	F8.0 (at 2000 lx with 89.9% reflectance. 4K/59.94P or HD/59.94P (4x))
Image S/N	HD/59.94i: 62 dB
Horizontal resolution	2000 TVL (4K: screen centered) 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 --: --  ND filters 1: Clear 2: 1/4ND 3: 1/8ND 4: 1/16ND 5: 1/64ND
Input/output connectors	
IN/OUT	ST connectors for single-mode fiber cables (2)
LENS	12-pin (1)
DC IN	XLR 4-pin (1), 10.5 to 17 V DC
SDI 1, SDI 2	BNC-type (1 each)
PROMPTER OUT	BNC-type (1), 1 Vp-p, 75 ohm
EXT I/O	D-sub 15-pin, female (1)
USB	USB 2.0 Type A 4-pin (1) (for connecting USB drive)
NETWORK TRUNK	RJ-45 type 8-pin (1)
Supplied accessories	
Operation guide (1 set)	

Operation manual (CD-ROM) (1)

Camera number label (1)

Design and specifications are subject to change without notice.

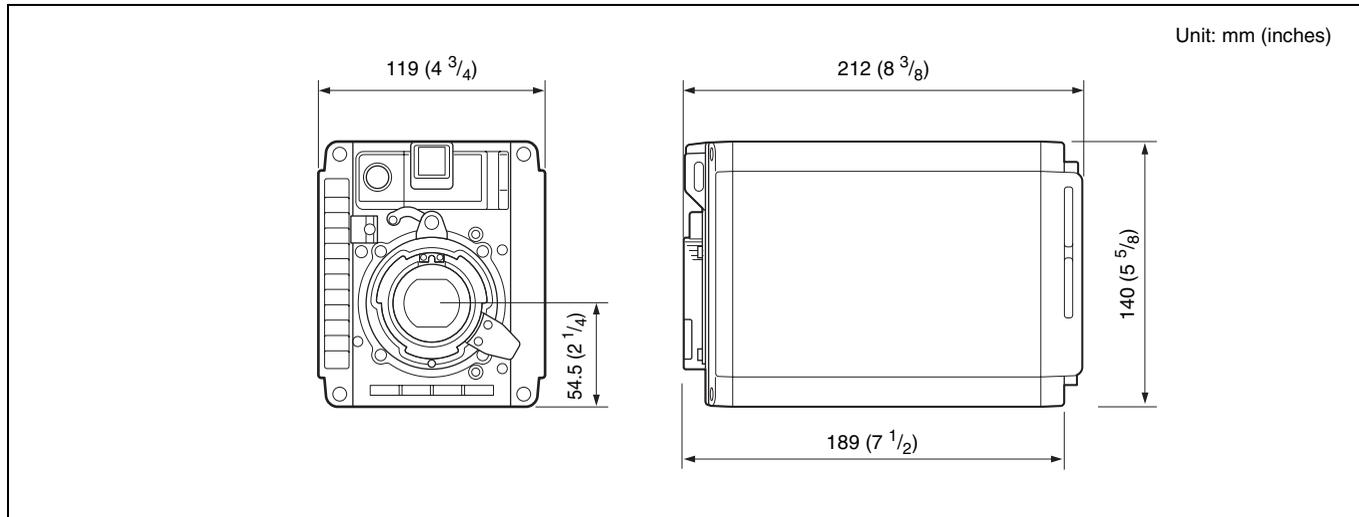
## Optional Accessories/Related Equipment

Optional Accessories	
Tripod Attachment	VCT-14
4K Upgrade Software	SZC-4001/4001M/4001W
Related Equipment	
BPU4000/4500 Baseband Processor Unit	
HDCU2000-series, HDCU4300 HD Camera Control Unit	
RCP-1000 series Remote Control Panel	
MSU-1000 series Master Setup Unit	
PWS-4400/4500 Multi Port AV Storage Unit	
PWS-100PR1 Production Control Station	
PWSK-4403 USB Control Device	
HZC-CSM10 Camera System Management Software	
CNA-1 Camera Control Network Adapter	

### Notes

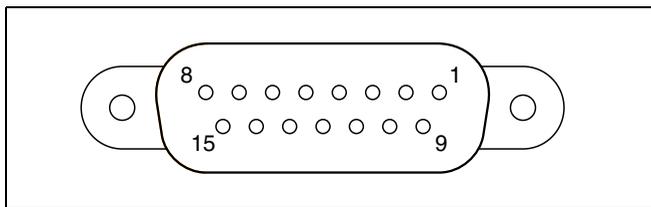
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER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

## Dimensions



## Pin Assignment

### EXT I/O connector



No.	Signal	I/O	Specifications
1	UNREG	OUT	10.5 V to 17 V, 1.5 A (max.)
2	UNREG GND	-	-
3	G-TALLY	OUT	Open Collector (max. 10 mA)
4	RX0(-) for RS-422A RX0 for RS-232C	IN	TRUNK Data IN
5	RX0(+) for RS-422A RX1 for RS-232C	IN	TRUNK Data IN
6	ASSIGN1	IN	IN: Contact, Low Active (GND)
7	GND	-	-
8	MIC(X)	IN	-60 to -20 dBu/Balanced
9	R-TALLY	OUT	Open Collector (max. 10 mA)
10	GND	-	-
11	TX0(-) for RS-422A TX0 for RS-232C	OUT	TRUNK Data OUT
12	TX0(+) for RS-422A TX1 for RS-232C	OUT	TRUNK Data OUT
13	ASSIGN2	IN	IN: Contact, Low Active (GND)
14	MIC GND	-	-
15	MIC(Y)	IN	-60 to -20 dBu/Balanced

