SONY

4-738-876-**11** (1)

Camera Control Unit

Operating Instructions

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

HDCU3100

© 2018 Sony Corporation

Table of Contents

Overview 3
System Configuration 4
Location and Function of Parts 5
Front Panel 5
Rear Panel 6
Status Display 9
Displaying the Status Screen 9
Status Display Screen 9
Menu Settings 11
Changing Menu Item Settings 11
Menu Tree 13
Menu List 16
Appendix 31
Precautions 31
Error Messages 31
Specifications 32

Overview

The HDCU3100 Camera Control Unit connects to a Sony HDC2000 Series [1] or HSC300RF/100RF HD Color Camera with an optical fiber cable, and performs signal processing, provides an interface with external equipment, and supplies power to the camera.
The unit is equipped with a down-converter for converting HD signals [2] transferred from the camera to SD signals [3] and an up-converter for converting SD signals to HD signals, which give the unit the flexibility to operate in both high-definition and standard-definition camera systems.

1) HDC2000 series: HDC2000/2580/2500/2400/1700
2) HD (high-definition) signals: Generic name for 1125-/750-line HDTV signals.
3) SD (standard-definition) signals: Generic name for NTSC/PAL signals, 525/625 component signals, and 525/625 composite signals.

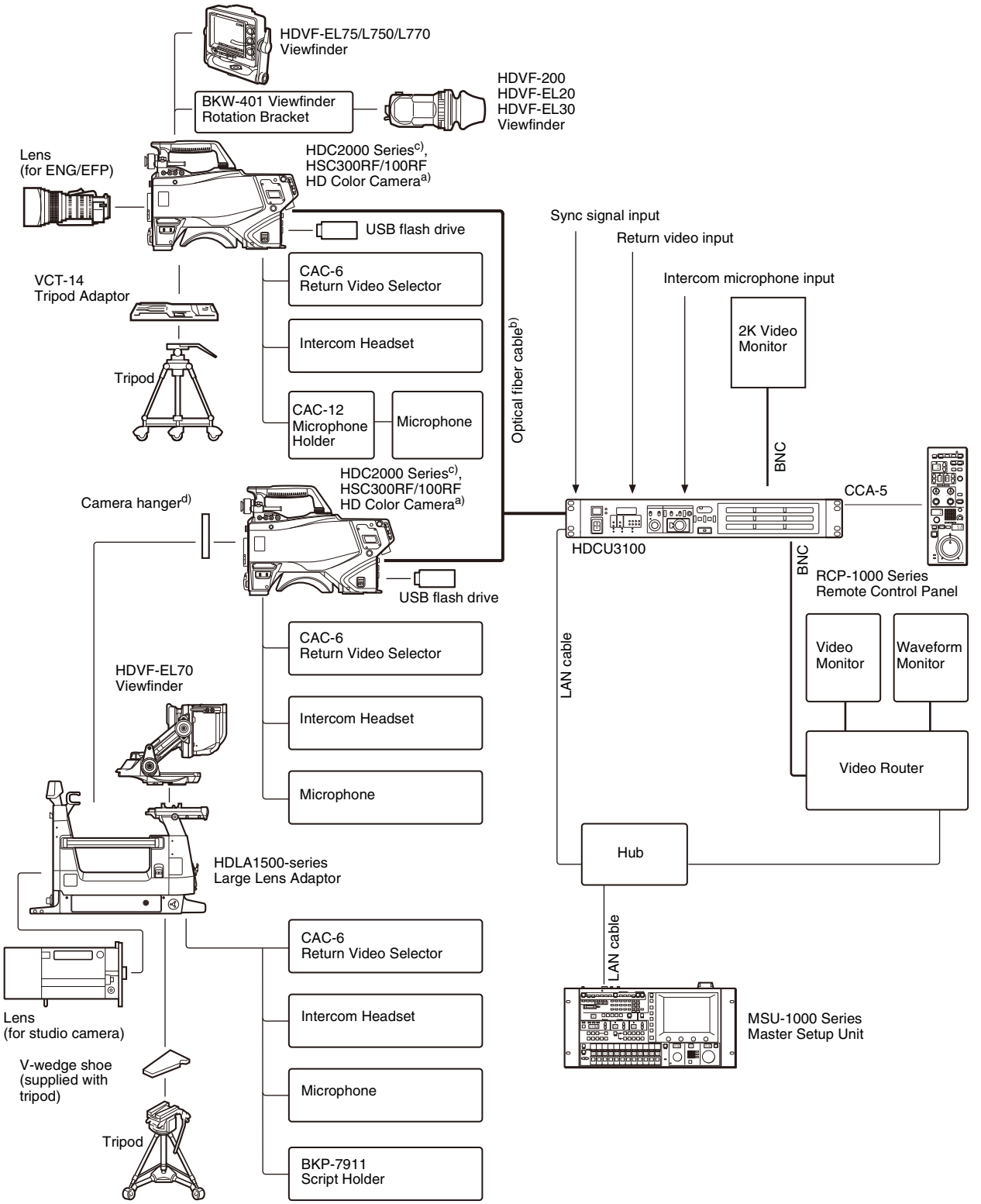
The unit may be combined with an RCP-1000 series Remote Control Panel (optional) to form a camera control system. In addition, by combining the unit with an MSU-1000/1500 Master Setup Unit (optional), you can form a system capable of controlling multiple cameras.

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 representative or dealer.

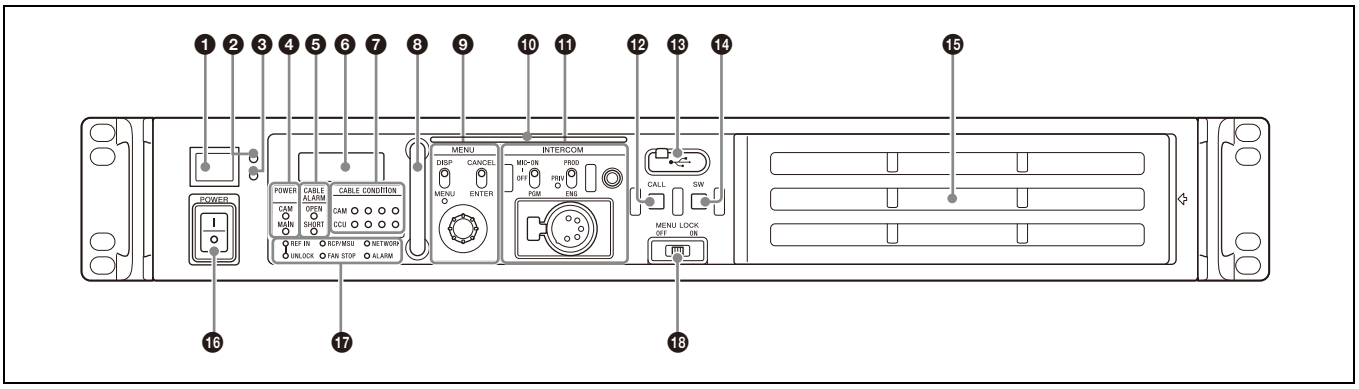
Connection example



a) Set the signal transfer rate according the connected camera with the following menu item.
SYSTEM CONFIG ⟶ <CAMERA I/F> ⟶ FIBER TRANSMIT RATE (page 16)
b) Signal transfer over a maximum of 2 km is possible. However, the actual transfer distance may vary depending on the system configuration of the cameras and the type of optical fiber cables used.
c) HDC2000 series: HDC2000/2580/2500/2400/1700
d) Supplied with HDLA1500 series (Part No.: A-1128-405-A)

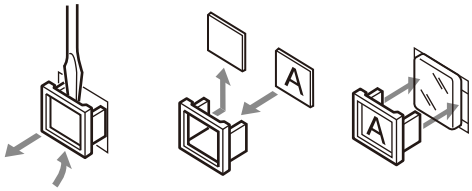
Location and Function of Parts

Front Panel



❶ Red tally indicator

Lights in red when this unit receives a red tally signal. You can attach the supplied number plate here.



❷ Yellow tally indicator

Lights in yellow when this unit receives a yellow tally signal.

❸ Green tally indicator

Lights in green when this unit receives a green tally signal.

❹ POWER indicators

CAM: Lights when power is being supplied to the camera.
MAIN: Lights when the unit is turned on. In addition, this flashes when a fan error occurs.

❺ CABLE ALARM indicators

OPEN: Lights when a camera is not connected to the CAMERA FIBER connector on the rear panel of the unit via an optical fiber cable. Power is not supplied to the camera when this indicator lights.
SHORT: Lights when a overcurrent flows through the optical fiber cable. Power is not supplied to the camera when this indicator lights.

❻ CCU number display

Displays the camera number set in the CCU menu.

❼ CABLE CONDITION (signal reception status) indicators

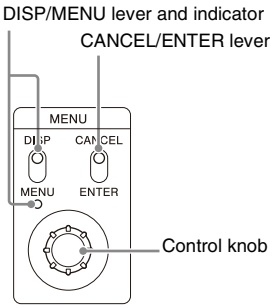
Indicate the communication status of the camera (CAM) and camera control unit (CCU).
When the two indicators on the right (green) are lit: Reception status is excellent.
When the second indicator from the right (green) is lit: Reception status is good.
When the second indicator from the left (yellow) is lit: Reception status is low.
When the indicator on the left (red) is lit: Reception status is at the lowest level.

❽ Guard bar

Note

Do not pull the guard bar with excessive force.

❾ MENU control block



- **DISP/MENU lever and indicator**

Selects the status display or setup menu display. In setup menu mode, the indicator turns on.

- **CANCEL/ENTER lever**

In setup menu mode, used to cancel and enter settings.

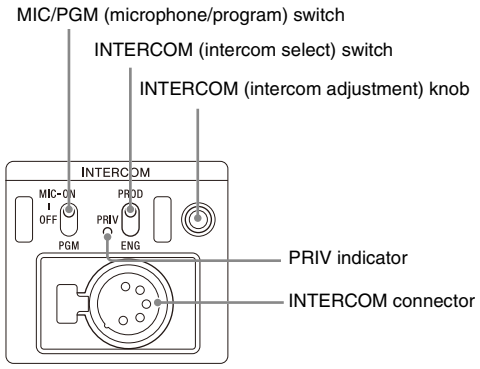
- **Control knob (rotary encoder)**

In status screen mode, used to change the displayed page. In setup menu mode, used to move the cursor on a page and to change menu settings.
Pushing the control knob has the same function as setting the CANCEL/ENTER level to ENTER.

❿ SIGNAL BAR indicator

Indicates the output status of the video signal.
During gray signal output: Off
During color bar output: Lights in the color specified with the MAINTENANCE → <FRONT PANEL> → SIGNAL BAR → READY COLOR menu item.
During camera video output: Lights in a white flowing pattern.

⓫ INTERCOM audio input/output and control block



- **INTERCOM (intercom adjustment) knob**

Adjusts the headset audio level.

- **MIC/PGM (microphone/program) switch**

ON: Turns the headset microphone on.
OFF: Turns the headset microphone off.
PGM: Selects program audio output.

- **INTERCOM (intercom select) switch**

Selects the intercom signal input/output connection source for the INTERCOM connector on the front panel.
PROD: Connects the producer line.
PRIV: Blocks the connection to the producer line or engineer line, allowing private intercom talk between the CCU and the camera.
ENG: Connects the engineer line.

- **PRIV (private) indicator**

Lights when the intercom is in private mode.

- **INTERCOM connector (XLR 5-pin)**

Connects the intercom headset.

⓬ Call button

When pressed, this outputs a call signal to the camera or external control device (the RCP-1000 series, etc.) that are connected to this unit. Use this when you want to call and speak with the camera operator or external control device operator via intercom. This button lights in red when it is pressed or the call button of other equipment is pressed.

⓭ USB port

Used to connect to a USB device.

⓮ Assignable button

You can set a function for this button via the CCU menu.

⓯ Filter cover

Press the filter cover in the direction of the arrow while pulling it to remove it.
The filter (black sponge) is placed under the cover. If the filter becomes dirty, you can remove it and clean it with cold or warm water. When using a detergent, use a neutral solution. Be sure to dry the filter thoroughly before replacing it on the unit.

⓰ POWER switch

Turns the entire camera system on and off, including the unit, the camera, and the RCP-1000 series Remote Control Panel connected to the REMOTE connector of this unit. Switch to **I** to turn the power on, and switch to ○ to turn the power off.

⓱ Status display indicators

REF IN (green): Indicates presence of reference input signal.
UNLOCK (red): The input reference is not locked.
RCP/MSU: Displays the status when there is a remote control panel connected.
On: Indicates that external control equipment (MSU-1000/1500 Master Setup Unit, RCP-1000 series Remote Control Panel, or other equipment) is connected.
Off: Indicates that the external control equipment is not connected.

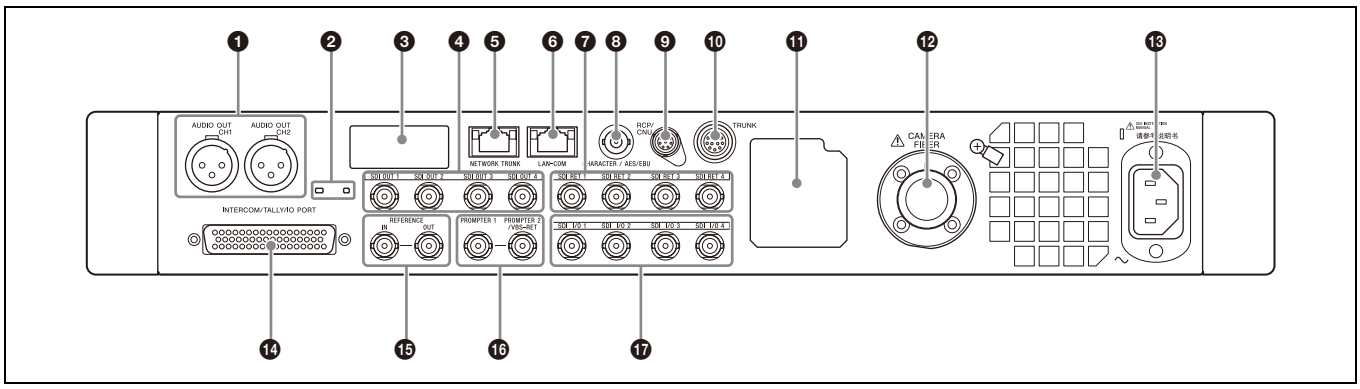
For details, see "NETWORK menu" (page 29).

NETWORK: Reserved for future use.
ALARM: Lights when various errors occur.
FAN STOP: Lights when the fan is stopped.

⓲ Menu lock switch

Locks out operation of the front panel menu operation area.

Rear Panel



❶ AUDIO OUT CH1, CH2 (audio output 1, 2) connectors (XLR 3-pin)

Used to output the audio signal to the AUDIO IN connectors of the video camera.

❷ Rear indicator

Displays calls and statuses.

❸ Expansion board mounting port

Reserved for future use.

❹ SDI OUT (3G/HD/SD-SDI output) 1/2/3/4 connectors

The signal from the video camera may be output as four 3G-SDI signals, HD-SDI signals or SD-SDI signals. They can output signals with superimposed text characters and markers.

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

❺ NETWORK TRUNK connector (RJ-45 8-pin)

Used to connect the NETWORK TRUNK connector of the device connected to the camera with the network connection device.

❻ LAN-COM connector (RJ-45 8-pin)

Used to connect to a LAN. Connect a LAN hub (10BASE-T/100BASE-TX), using a LAN cable (shielded type of category 5 or more).

❼ SDI RET (3G/HD/SD-SDI return video input) 1/2/3/4 connectors (BNC-type)

Four different 3G/HD/SD-SDI return video input signals may be received independently. The selection of RET 1 or 4 is made by the return switch of the video camera. The aspect ratio can also be selected for an SD signal.
The type of input signal on RET 1 to 4 may be set individually using the setup menu, or using the MSU-1000 series Master Setup Unit.

For details on the setup menu, contact a Sony service or sales representative.

Refer also to the Master Setup Unit manual.

❽ CHARACTER (character output) / AES/EBU connector (BNC-type)

CHARACTER: Outputs the self-diagnostic results or setup menu of the unit as an SD analog video signal.
AES/EBU: Outputs the AES/EBU format digital audio signal that is input to the video camera.

❾ RCP/CNU connector (round 8-pin)

Used to connect to an MSU-1000 series Master Setup Unit, CNU-700 Camera Command Network Unit, or RCP-1000 series Remote Control Panel via a CCA-5 Connection Cable. Control signals are sent and received via this connector. When using an RCP-1000 series unit, power is also supplied.

❿ TRUNK connector (round 12-pin)

Used to connect to the CCU connector on a camera via an RS-232C or RS-422A interface. Communication with up to two channels is available.

⓫ Expansion board mounting port

Reserved for future use.

⓬ CAMERA FIBER connector (optical fiber connector)

Used to connect a video camera, using an optical fiber cable. All video camera signals, including power supply, control, video, and audio, are sent and received over one optical fiber cable.

Note

Dust on the connection surface of the optical fiber cable may result in transmission errors. When not connected, always cover the end of the connector with the supplied cap.

⓭ ~ AC IN (AC power input) connector

Use the specified AC power cord to connect to an AC power supply. The AC power cord can be secured to this unit, using the plug holder (optional).

⓮ INTERCOM/TALLY/IO PORT (intercom / tally / input/output) connector (D-sub 50-pin)

Used to input and output intercom, tally, and program audio signals. Connect to the intercom/tally/program audio connector of the intercom system.
REAR PREVIEW function: 10-pin is assigned for the output pin of the REAR PREVIEW function.

⓯ REFERENCE IN/OUT connectors (BNC-type)

Input an HD tri-level reference sync signal or SD reference signal (black burst signal, or black burst signal with 10Field ID) to the RET IN connector.
The input signal is output from the RET OUT connector as is (loop-through output). When not using loop-through output, terminate the unused connector at 75 ohms.
When a sync signal is not input to the RET IN connector, an SD composite sync or HD tri-level sync signal generated by the internal sync signal generator will be output from the RET OUT connector.

⓰ INPUT area

① PROMPTER (tele-prompter input) 1/2 connectors (BNC-type)

Input the prompter signal of 1 channel or 2 channels depending on the setting of PROMPTER CHANNEL MODE on the <TRUNK/PROMPTER1> page of the MAINTENANCE menu. When 1 channel is set, the input signal is output from the other connector as is (loop-through). If loop-through output is not used, terminate the unused connector at 75 ohms.
When 2 channels are set, both connectors become inputs and they are terminated at 75 ohms inside the unit.
If the signal used is a 1.0 Vp-p, 75-ohm analog signal, it may be output from the PROMPTER OUT connector of the video camera with a frequency bandwidth of 5 MHz, regardless of signal format.

② VBS-RET (VBS return video input) connector* (BNC-type)

A single VBS return signal can be received independently.

* This connector doubles as the PROMPTER 2 connector.

The RET selection is made by the return switch of the video camera. The type of input signal on each line of RET may be set individually using the setup menu, or using the MSU-1000 series Master Setup Unit. An aspect ratio may also be selected for SD signals.

For details on setup menu operations, contact a Sony service or sales representative.

Refer also to the Master Setup Unit manual.

For details on how to select the signal, contact a Sony service or sales representative.

⓱ SDI I/O (3G/HD-SDI input/output) 1/2/3/4 connectors (BNC-type)

These can be used as return video inputs, HD prompter inputs, camera video signal outputs, and HD-TRUNK outputs. Set them in NETWORK TRUNK on the <TRUNK/PROMPTER> page of the MAINTENANCE menu according to the application.

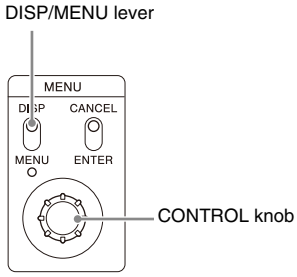
Status Display

The CCU system status can be monitored using a video monitor connected to the PIX connector.

For information on monitoring and changing settings, see “Menu Settings” (page 11).

Displaying the Status Screen

The menu screen is controlled using the knob and levers in the MENU control block on the front panel.



To display the status screen

Set the DISP/MENU lever to the DISP position. The most recently viewed status screen page is displayed. (When first powered on, the camera settings page is displayed.) Turning the CONTROL knob changes the displayed page.

To exit the status screen display

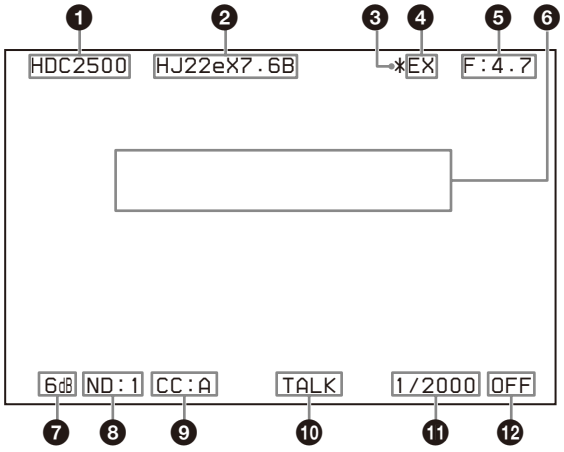
In status screen display mode, set the DISP/MENU lever to the DISP position.

Status Display Screen

The following information is displayed on the status display screen.

- System status
- Input/output signal format information of each SDI connector
- Camera and unit audio status
- Camera and unit intercom status
- Warning display

Camera settings



❶ Camera name indication

Displays the name of the connected camera.

❷ Lens file name indication

Displays the lens file name.

❸ F drop indication

Displayed when an F drop occurs.

❹ EX (lens extender) indication

Displayed during use of the lens extender.

❺ F-stop value indication

Displays the lens F-stop value (iris value).

❻ Camera auto control information area

Top: Displays the Auto Setup type and execution status.
Bottom: Displays the execution item.

❼ Gain value indication

Displays the video output signal gain setting value (dB).

❽ ND filter indication

Displays the currently selected ND filter type.

❾ CC filter indication

Displays the currently selected CC filter type.

❿ Camera microphone status indication

Displayed when the camera microphone is on.

⓫ Shutter speed/Clear scan frequency indication

Displays the shutter speed. When ECS is on, displays the clear scan frequency.

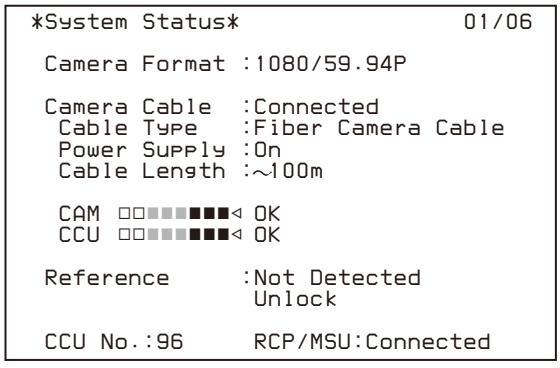
⓬ Shutter/ECS indication

Displays the on/off state of the shutter/ECS.

Note

- Items that are turned off using the <DISPLAY> page settings of the VIDEO/MONITOR menu are not displayed.
- A “-” mark is displayed for each item when a camera is not connected.

System status



Camera Format: Signal format of connected camera
Camera Cable: Camera cable connection status
Camera Type: Camera cable type

Power Supply: Camera power supply status
Cable Length: Cable length
CAM: Camera light sensor level
CCU: Unit light sensor level
Reference: Reference signal format used and genlock status (“Not Detected” is displayed when a reference signal is not input)
CCU No.: CCU number setting status
RCP/MSU: RCP/MSU connection status

Input/output signal format status of SDI connectors

SDI-OUT connectors

```
*Multi Format1*                    02/06

 SDI-OUT

 1:1080/59.94i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020

 2:1080/59.95i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020

 3:1080/59.95i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020

 4:1080/59.95i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020
```

SDI-I/O connectors

```
*Multi Format2*                    03/06

 SDI-I/O

 1:1080/59.94i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020

 2:1080/59.95i(PsF)/RGB444/3G
   OETF:HLG_BT.2100  Color:BT.2020

 3:(HD Trunk)


 4:(Disable)
```

Camera and unit audio status

```
*Audio*                            04/06

 Camera
  MIC Gain CH1 :60dB
           CH2 :60dB

 CCU
  AES/EBU Out  :AES/EBU
  Analog Out   :AES/EBU
```

Camera MIC Gain CH1: Camera microphone circuit 1 amp gain status
Camera MIC Gain CH2: Camera microphone circuit 2 amp gain status
CCU AES/EBU Out: Output format of the AES/EBU connector
CCU Analog Out: Output format of the analog output connector

Camera and unit intercom status

```
*Intercom*                         05/06

 Camera
  Engineer     :MIC On
  Producer     :MIC Off

 CCU
  MIC/PGM      :MIC Off
  Line         :System
```

Camera Engineer: Camera microphone status of the ENG line of the camera
Camera Producer: Camera microphone status of the PROD line of the camera
CCU MIC/PGM: Status of MIC/PGM switch on the front of the unit
CCU Line: Intercom system connection status

Warning display

```
*Alarm*                            06/06

 CCU:PS FAN STOP
 CCU:GENLOCK ERROR
```

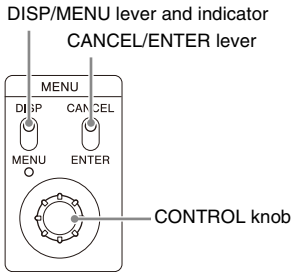
Displays any warning that occurs.

Menu Settings

The CCU system and peripheral settings can be checked and modified using a video monitor connected to the PIX connector.

Changing Menu Item Settings

The menu screen is controlled using the knob and levers in the MENU control block on the front panel. Setting the CANCEL/ENTER lever to the ENTER position and pressing the CONTROL knob perform the same function.



To display a menu page

Set the DISP/MENU lever to the MENU position.
When first powered on, the CCU MENU page is displayed.

When <OUTPUT FORMAT1> → SDI-OUIT4 → MONITOR is set to C (characters are not added), you can hold the DISP/MENU lever in the MENU position for 3 seconds to force display of the CCU MENU.

To display the CCU MENU page

In menu display mode, turn the CONTROL knob to move the pointer (➡) to TOP in the upper right corner of the menu page, then press the CONTROL knob. The CCU MENU showing the menu configuration is displayed.

```
** CCU MENU **

→SYSTEM CONFIG
 VIDEO/MONITOR
 AUDIO/INTERCOM
 MAINTENANCE
 FILE
 NETWORK
 DIAGNOSIS
```

Menu name	Description
SYSTEM CONFIG	Input/output signal format and system-related settings
VIDEO/MONITOR	Video-related settings
AUDIO/INTERCOM	Audio- and intercom-related settings
MAINTENANCE	CCU configuration settings
FILE	CCU file-related settings
NETWORK	Network-related settings
DIAGNOSIS	Displays the unit status.

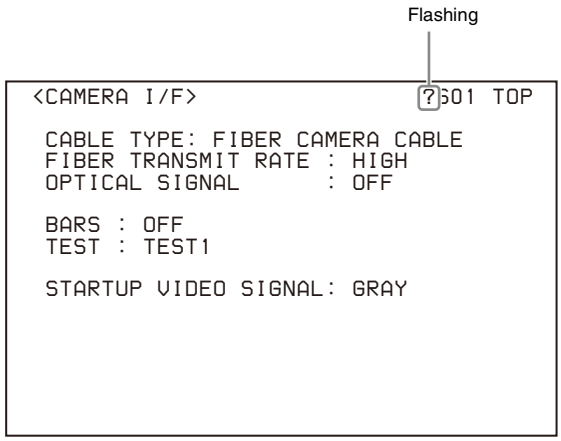
To select an item in the CCU MENU

Turn the CONTROL knob to move the pointer (➡) to the desired menu item, then press the CONTROL knob. The most recently viewed page in the selected menu is displayed.

To change the displayed page

1 Turn the CONTROL knob to move the pointer (➡) to the page number, then press the CONTROL knob.

The pointer (➡) changes to a flashing question mark (?).



2 Turn the CONTROL knob to change the displayed page to the desired page, then press the CONTROL knob.

The question mark (?) changes back to the pointer (➡). Items on the page can now be selected and changed.

To change a menu item setting

If a question mark (?) is displayed beside the page number, press the CONTROL knob to restore the pointer (➡). Items on the page can now be selected and changed.

1 Turn the CONTROL knob to move the pointer to the desired item, then press the CONTROL knob.

The pointer (➡) changes to a flashing question mark (?).

2 Turn the CONTROL knob to change the setting.

To cancel a changed setting
Set the CANCEL/ENTER lever to the CANCEL position before pressing the CONTROL knob. The item is restored to its current setting.

To suspend menu changes
Set the DISP/MENU lever to the MENU position to exit the menu screen.
The DISP/MENU lever can be set to the MENU position again to restart the operation.

3 Press the CONTROL knob.

The question mark (?) changes back to the pointer (➡), and the item setting is registered.

4 Repeat steps 1 to 3 to change other settings on the same page.

To enter a character string

Some menu items require a character string input.
Moving the pointer (➡) to an item with a character string input and pressing the CONTROL knob displays a rectangular cursor and a list of selectable characters.
Turning the CONTROL knob moves the cursor between characters. The following menu item has character strings:

- VIDEO/MONITOR menu → <BAR CHARACTER> page → BAR CHARACTER

1 Move the text cursor to the input position, then press the CONTROL knob.

A second cursor is displayed in the character list.

2 Turn the CONTROL knob to move the cursor to the desired character, then press the CONTROL knob.

Repeat steps 1 and 2 to enter other characters.

- Select INS to insert a space character at the cursor position.
- Select DEL to delete the character at the cursor position.
- Select RET to return to step 1 without changing the string.
- Entering the maximum number of characters (up to the right edge) moves the cursor to ESC on the lower right of the character list.

3 Turn the CONTROL knob to move the cursor to END, then press the CONTROL knob.

The new input string is registered.

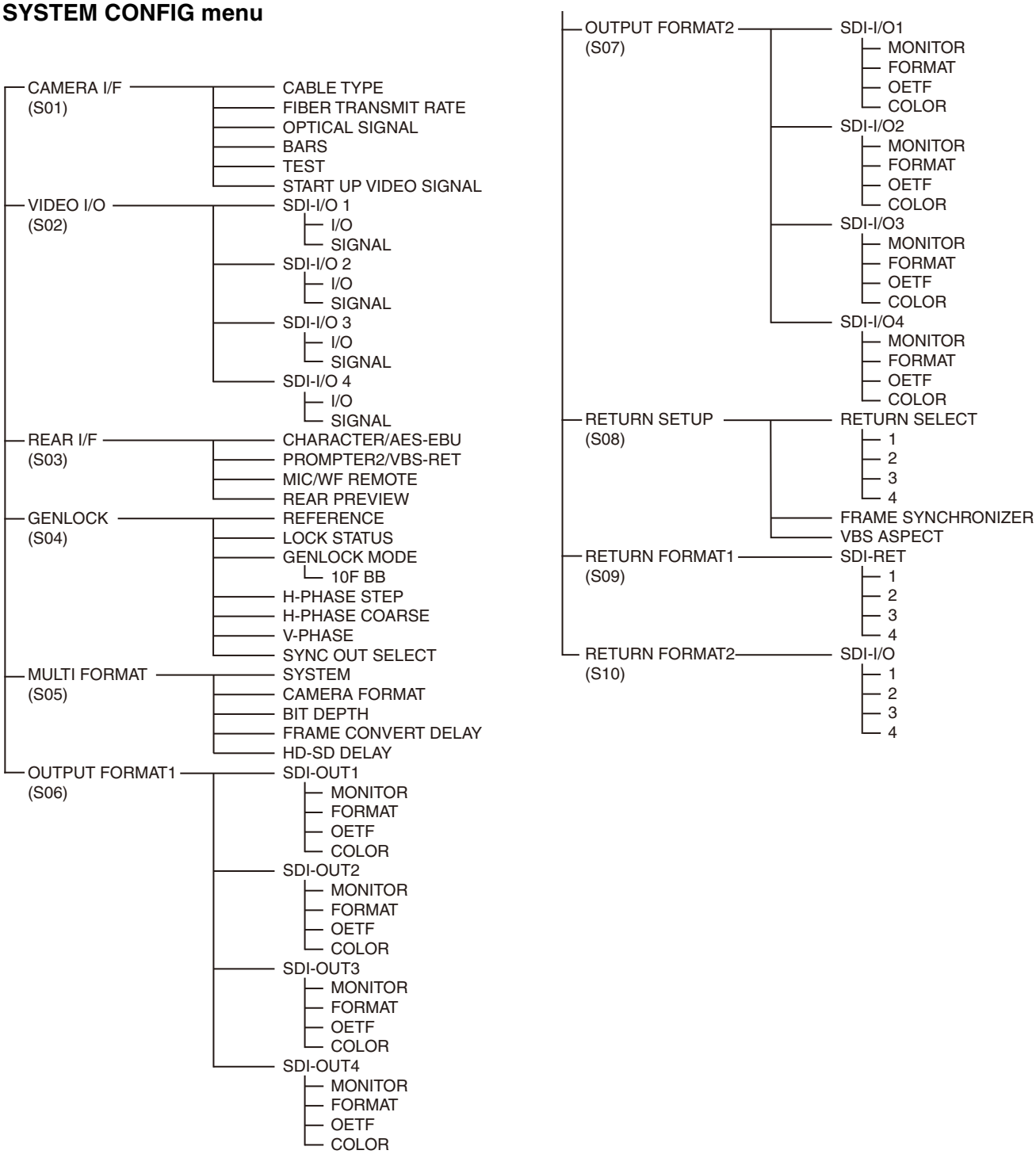
To cancel the character string setting
Turn the CONTROL knob to move the cursor to ESC, then press the CONTROL knob.

To exit the menu display

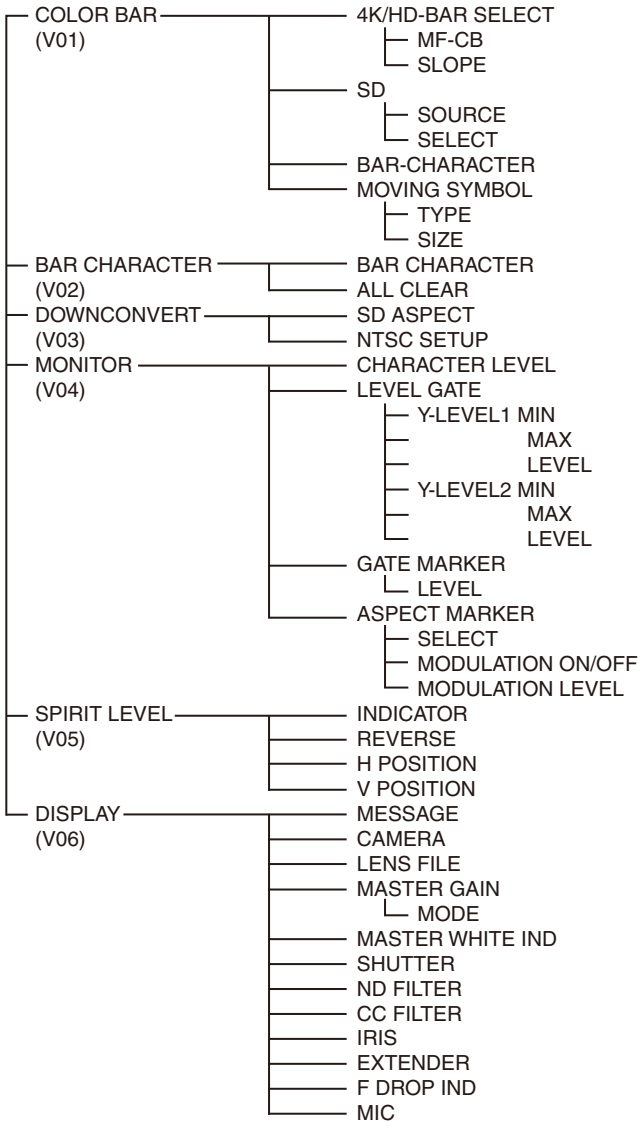
In menu display mode, set the DISP/MENU lever to the MENU position.

Menu Tree

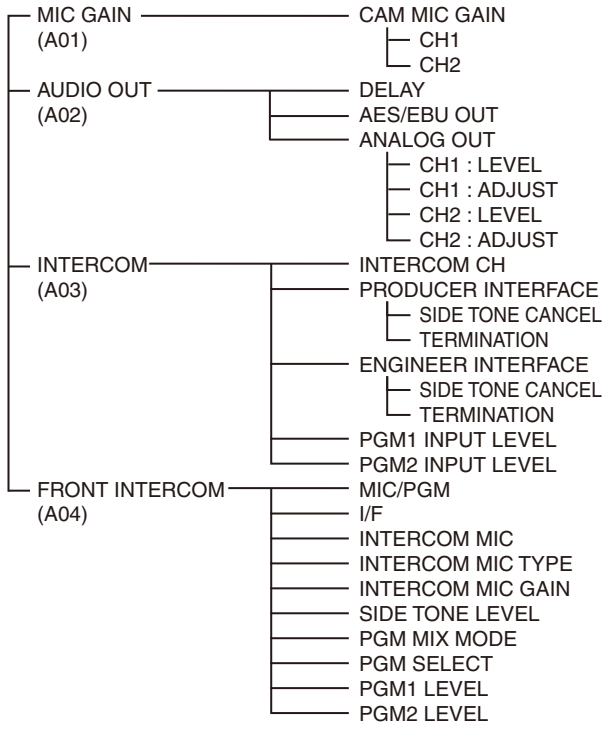
SYSTEM CONFIG menu



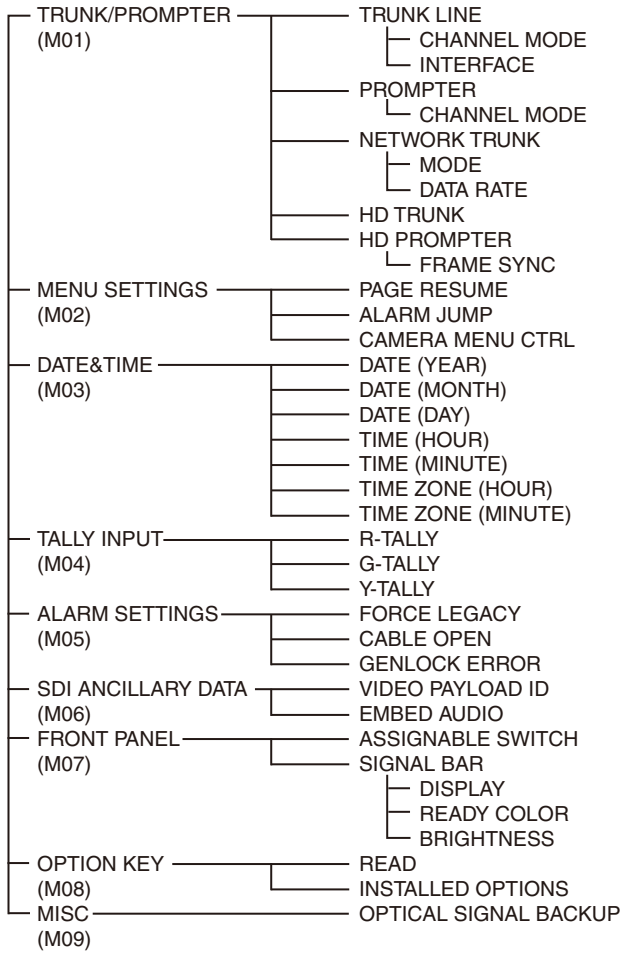
VIDEO/MONITOR menu



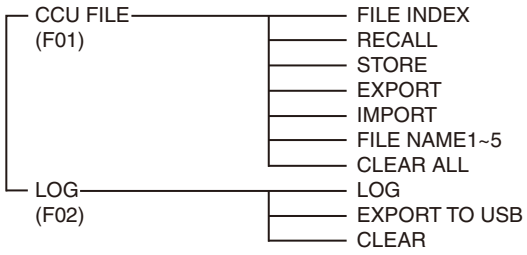
AUDIO/INTERCOM menu



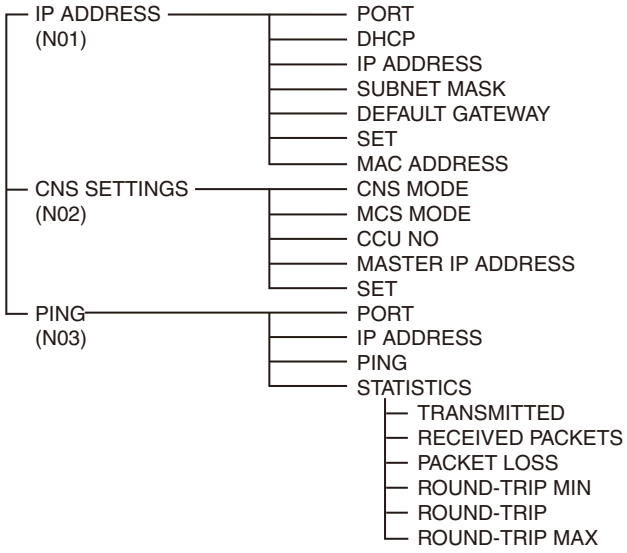
MAINTENANCE menu



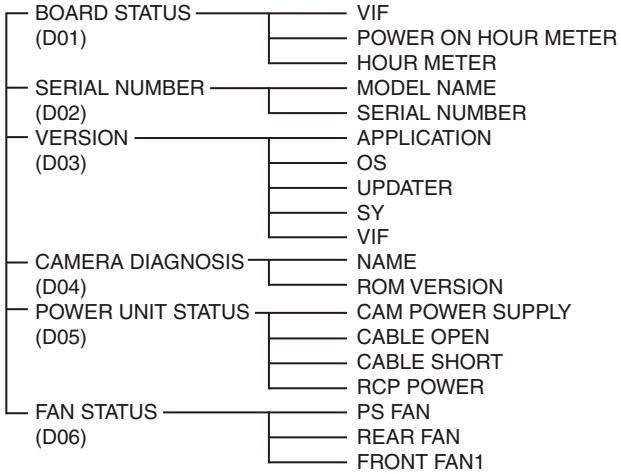
FILE menu



NETWORK menu



DIAGNOSIS menu



Menu List

Note

The following conventions are used in the menu list table.
Settings column values (e.g. ON, OFF, 0): Default settings are underlined
Execute via ENTER: Press the CONTROL knob or move the CANCEL/ENTER lever to the ENTER position to execute.

SYSTEM CONFIG menu

SYSTEM CONFIG			
Page name Page No.	**Item**	**Set value**	**Description**
<CAMERA I/F> S01	CABLE TYPE	**FIBER CAMERA CABLE**	Specifies the cable type used for connecting the camera.
	FIBER TRANSMIT RATE	**HIGH**, HD	Sets the transfer rate when an optical fiber cable is connected. **HIGH:** When the HDC2000 series is connected **HD:** When the HSC300RF/100RF is connected
	OPTICAL SIGNAL	ON, **OFF**	Turns the optical signal output from the CCU to the camera ON/OFF. (Displayed only when connected using optical fiber composite cable.)
	BARS	**OFF**, ON	Turns color bars ON/OFF.
	TEST	**OFF**, TEST1, TEST2	Turns TEST SAW ON/OFF.
	START UP VIDEO SIGNAL	**BARS**, GRAY	Selects the signal to output until the unit connects with the camera after power-on.
<VIDEO I/O> S02	SDI-I/O 1		Sets SDI-I/O 1.
	I/O	IN, **OUT**	Selects input or output.
	SIGNAL	When OUT is selected in I/O: **SDI-OUT** When IN is selected in I/O: SDI-RET	Sets the signal purpose.
	SDI-I/O 2		Sets SDI-I/O 2.
	I/O	IN, **OUT**	Selects input or output.
	SIGNAL	When OUT is selected in I/O: **SDI-OUT** When IN is selected in I/O: SDI-RET	Sets the signal purpose.
	SDI-I/O 3		Sets SDI-I/O 3.
	I/O	IN, **OUT**	Selects input or output.
	SIGNAL	When OUT is selected in I/O: SDI-OUT, **HD TRUNK** When IN is selected in I/O: SDI-RET	Sets the signal purpose.
	SDI-I/O 4		Sets SDI-I/O 4.
	I/O	IN, **OUT**	
	SIGNAL	When OUT is selected in I/O: SDI-OUT When IN is selected in I/O: SDI-RET, **HD PROMPTER**	Sets the signal purpose.

SYSTEM CONFIG			
Page name **Page No.**	**Item**	**Set value**	**Description**
<REAR I/F> S03	CHARACTER/AES-EBU	**CHARACTER**, AES-EBU	Sets the function to assign to the CHARACTER/AES-EBU connector. **CHARACTER:** Set to VBS output on which character superposition is performed. **AES-EBU:** Set to AES-EBU output.
	PROMPTER2/VBS-RET	**ENABLE**, DISABLE	Sets the function to assign to the PROMPTER2/VBS-RET connector. **ENABLE:** Set to both signal input for the second tele-prompter and VBS return signal input. **DISABLE:** The PROMPTER1 input signal is output as is (loop-through output). If loop-through output is not used, terminate the connector at 75 ohms.
	MIC/WF REMOTE	**MIC REMOTE**, WF REMOTE	Switches the function of pins 36 to 43 when a D-sub 50-pin board is mounted as the INTERCOM/TALLY/IO PORT connector.
	REAR PREVIEW	**MOMENTARY**, TOGGLE	Sets the operation mode of REAR PREVIEW connector output.
<GENLOCK> S04	REFERENCE	NOT DETECTED, EXT IN, 1080/59.94I, 1080/23.98PsF, 720/59.94P, 1080/50I, 1080/24PsF, 720/50P	Signal input of the Reference connector. (Display only)
	LOCK STATUS	When HD or SD is selected in GENLOCK MODE: LOCKED, NOT LOCKED	Lock status of the external reference signal. (Display only)
	GENLOCK MODE	HD, **SD**	Selects the lock mode of the external reference signal.
	10F BB	**OFF**, ON	Sets whether to use the 10Field ID added to the external reference signal. This can be selected when GENLOCK MODE is SD and <MULTI FORMAT> page → SYSTEM is 1.001 (525).
	H-PHASE STEP	When HD is selected in GENLOCK MODE: –3.01 to 3.45 µsec **0.00** When SD is selected in GENLOCK MODE: –8.29 to 9.48 µsec **0.00**	Adjusts the horizontal lock phase in relation to the reference signal (steps).
	H-PHASE COARSE	–99 to 99, **0**	Adjusts the horizontal lock phase in relation to the reference signal (fine adjustment).
	V-PHASE	**0** to 7	Adjusts the vertical lock phase in relation to the reference signal (line).
	SYNC OUT SELECT	**SD SYNC**, HD SYNC	Sets the output signal of the LOOP/SYNC OUT connector. This is enabled only when MAINTENANCE Menu → <I/F SETTINGS> page → LOOP/SYNC is SYNC.

SYSTEM CONFIG			
Page name Page No.	**Item**	**Set value**	**Description**
<MULTI FORMAT> S05	SYSTEM	**1.001(525)**, 1.000(625)	Selects the operating frequency of the system.
	CAMERA FORMAT	When 1.001(525) is selected in SYSTEM: 1080/59.94P, **1080/59.94I**, 1080/29.97PsF, 1080/23.98PsF, 720/59.94P, 1080/59.94I (RGB444), 1080/29.97PsF (RGB444), 1080/23.98PsF (RGB444), 1080/59.94I(2x), 720/59.94I(2x) When 1.000(625) is selected in SYSTEM: 1080/50P, **1080/50I**, 1080/25PsF, 1080/24PsF, 720/50P, 1080/50I (RGB444), 1080/25PsF (RGB444), 1080/24PsF(RGB444), 1080/50I(2x), 720/50I(2x)	Selects the format of the system.
	BIT DEPTH	10BIT, 12BIT	Sets the RGB4:4:4 output bit length, and changes the CCU output format. This can be selected only when CAMERA FORMAT is set to 1080/59.94I (RGB444), 1080/29.97PsF (RGB444), 1080/23.98PsF (RGB444), 1080/50I (RGB444), 1080/25PsF (RGB444), or 1080/24PsF (RGB444).
	FRAME CONVERT DELAY	0.8, 1.2, **1.6** F@23.98PsF	Sets the video delay time when 2-3 Pulldown. This is enabled only when SYSTEM is 1.001 (525).
	HD-SD DELAY	**LINE**, FRAME	Sets the phase output for SD signals down-converted from HD signals. The delay duration display will be as follows when CAMERA FORMAT is set to a 1080 format. **When LINE is selected:** 90H **When FRAME is selected:** 1FRAME The delay duration display will be as follows when CAMERA FORMAT is set to a 720 format. **When LINE is selected:** 120H **When FRAME is selected:** 2FRAME
<OUTPUT FORMAT1> S06	SDI-OUT1		Sets the output for the SDI-OUT 1 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-OUT 1 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-OUT1 video output. **BT709:** Sets the color output format to BT709.
	SDI-OUT2		Sets the output for the SDI-OUT 2 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-OUT 2 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-OUT2 video output. **BT709:** Sets the color output format to BT709.

SYSTEM CONFIG			
Page name Page No.	**Item**	**Set value**	**Description**
<OUTPUT FORMAT1> S06	SDI-OUT3		Sets the output for the SDI-OUT 3 connector.
	MONITOR	**C**, M	Sets whether to add characters to the output signal. **C:** Characters are not added. **M:** Characters are added.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-OUT 3 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-OUT3 video output. **BT709:** Sets the color output format to BT709.
	SDI-OUT4		Sets the output for the SDI-OUT 3 connector.
	MONITOR	C, M	Sets whether to add characters to the output signal. **C:** Characters are not added. **M:** Characters are added. **Note** When this is set to C (characters are not added), the CCU MENU will not be displayed. To display it, hold the DISP/MENU lever in the MENU position for 3 seconds.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-OUT 4 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-OUT4 video output. **BT709:** Sets the color output format to BT709.
<OUTPUT FORMAT2> S07	SDI-I/O1		Sets the output for the SDI-I/O 1 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-I/O 1 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-I/O1 video output. **BT709:** Sets the color output format to BT709.
	SDI-I/O2		Sets the output for the SDI-I/O 2 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-I/O 2 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-I/O2 video output. **BT709:** Sets the color output format to BT709.

SYSTEM CONFIG			
Page name Page No.	**Item**	**Set value**	**Description**
<OUTPUT FORMAT2> S07	SDI-I/O3		Sets the output for the SDI-I/O 3 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-I/O 3 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-I/O3 video output. **BT709:** Sets the color output format to BT709.
	SDI-I/O4		Sets the output for the SDI-I/O 4 connector.
	MONITOR	C	Sets whether to add characters to the output signal. **C:** Characters are not added. **Note** This is fixed at C.
	FORMAT	*See "Formats settable for the SDI OUT / SDI-I/O connectors" (page 21).*	Sets the output signal format for the SDI-I/O 4 connector.
	OETF	**SDR**	Sets the gamma curve of the video output.
	COLOR	BT709	Selects the color space of SDI-I/O4 video output. **BT709:** Sets the color output format to BT709.
<RETURN SETUP> S08	RETURN SELECT		Sets the format of the return signal to be input. For details on the selectable RETURN FORMAT options for each SYSTEM (system operating frequency) setting and CAMERA FORMAT (system format) setting in <MULTI FORMAT>, see *"Formats settable for RETURN FORMAT" (page 21).*
	1	**SDI-RET1**, SDI-RET2, SDI-RET3, SDI-RET4, SDI-I/O1, SDI-I/O2, SDI-I/O3, SDI-I/O4, VBS-RET	
	2	SDI-RET1, **SDI-RET2**, SDI-RET3, SDI-RET4, SDI-I/O1, SDI-I/O2, SDI-I/O3, SDI-I/O4, VBS-RET	
	3	SDI-RET1, SDI-RET2, **SDI-RET3**, SDI-RET4, SDI-I/O1, SDI-I/O2, SDI-I/O3, SDI-I/O4, VBS-RET	
	4	SDI-RET1, SDI-RET2, SDI-RET3, **SDI-RET4**, SDI-I/O1, SDI-I/O2, SDI-I/O3, SDI-I/O4, VBS-RET	
	FRAME SYNCHRONIZER	**OFF**, ON	Sets the frame synchronizer function for the return signal.
	VBS ASPECT	SQUEEZE, LETTER BOX, **EDGE CROP**	Sets the aspect of the VBS input signal.
<RETURN FORMAT1> S09	SDI-RET		
	1	1080/59.94P, 1080/50P, **1080/59.94I(PsF)**, 50I(PsF), 1080/23.98PsF, 24PsF, 720/59.94P, 50P, 525/59.94I(PsF), 625/50I(PsF)	Sets the format of the return signal to be input to the SDI-RET connector. When an SD signal is set (525, 625, NTSC, or PAL), set the aspect of the input signal. When 525/625 is selected, set the aspect of the input signal. SQUEEZE, LETTER BOX, **EDGE CROP**
	2		
	3		
	4		
<RETURN FORMAT2> S10	SDI-I/O		
	1	1080/59.94P, 1080/50P, **1080/59.94I(PsF)**, 50I(PsF), 1080/23.98PsF, 24PsF, 720/59.94P, 50P, 525/59.94I(PsF), 625/50I(PsF)	Sets the format of the return signal to be input to the SDI-I/O connector.
	2		
	3		
	4		

Formats settable for RETURN FORMAT

SYSTEM CONFIG → <MULTI FORMAT> page → SYSTEM settings	HDC2000 series [1] (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HIGH)	HSC300RF/100RF (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HD)
1001	1080/59.94P	**1080/59.94I**
	1080/59.94I	1080/29.97PsF
	1080/29.97PsF	1080/23.98PsF
	1080/23.98PsF	720/59.94P
	720/59.94P	
	1080/59.94I (RGB444)	
	1080/29.97PsF (RGB444)	
	1080/23.98PsF (RGB444)	
	1080/59.94I (2x)	
	720/59.94P (2x)	
1000	1080/50P	1080/50I
	1080/50I	1080/25PsF
	1080/25PsF	1080/24PsF
	1080/24PsF	720/50P
	720/50P	
	1080/50I (RGB444)	
	1080/25PsF (RGB444)	
	1080/24PsF (RGB444)	
	1080/50I (2x)	
	720/50P (2x)	

1) HDC2000 series: HDC2000/2580/2500/2400/1700

Formats settable for the SDI OUT / SDI-I/O connectors

SYSTEM CONFIG → <MULTI FORMAT> page → CAMERA FORMAT settings	HDC2000 series [1] (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HIGH)	HSC300RF/100RF (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HD)
1080/59.94P	1080/59.94P/3G-A	–
	1080/59.94P/3G-B	
	1080/59.94I	
	525/59.94I	
1080/59.94I	**1080/59.94I**	**1080/59.94I**
	525/59.94I	525/59.94I
1080/29.97PsF	1080/29.97PsF	1080/29.97PsF
	525/29.97PsF	525/29.97PsF
1080/23.98PsF	1080/23.98PsF	1080/23.98PsF
	1080/59.94I	1080/59.94I
	525/59.94I	525/59.94I
720/59.94P	720/59.94P	720/59.94P
	525/59.94I	525/59.94I
1080/59.94I(RGB444)	1080/59.94I (RGB444)/3G-B	–
	1080/59.94I	
	525/59.94I	
1080/29.97PsF(RGB444)	1080/29.97PsF (RGB444)/3G-B	–
	1080/29.97PsF	
	525/29.97PsF	
1080/23.98PsF(RGB444)	1080/23.98PsF (RGB444)/3G-B	–
	1080/23.98PsF	
	1080/59.94I	
	525/59.94I	

SYSTEM CONFIG → <MULTI FORMAT> page → CAMERA FORMAT settings	HDC2000 series [1)] (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HIGH)	HSC300RF/100RF (When SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE is set to HD)
1080/59.94I(2x)	1080/59.94I (2x)/3G-B 1080/59.94I (2x)/Link-A 1080/59.94I (2x)/Link-B 1080/59.94I 525/59.94I	–
720/59.94P(2x)	720/59.94I (2x)/3G-B 720/59.94I (2x)/Link-A 720/59.94I (2x)/Link-B 720/59.94P 525/59.94I	–
1080/50P	1080/50P/3G-A 1080/50P/3G-B 1080/50I 625/50I	–
1080/50I	1080/50I 625/50I	1080/50I 625/50I
1080/25PsF	1080/25PsF 625/25PsF	1080/25PsF 625/25PsF
1080/24PsF	1080/24PsF 1080/50I 625/50I	1080/24PsF 1080/50I 625/50I
720/50P	720/50P 625/50I	720/50P 625/50I
1080/50I(RGB444)	1080/50I (RGB444)/3G-B 1080/50I 625/50I	–
1080/25PsF(RGB444)	1080/25PsF (RGB444)/3G-B 1080/25PsF 625/25PsF	–
1080/24PsF(RGB444)	1080/24PsF (RGB444)/3G-B 1080/24PsF 1080/50I 625/50I	–
1080/50I(2x)	1080/50I (2x)/3G-B 1080/50I (2x)/Link-A 1080/50I (2x)/Link-B 1080/50I 625/50I	–
720/50P(2x)	720/50I (2x)/3G-B 720/50I (2x)/Link-A 720/50I (2x)/Link-B 720/50P 625/50I	–

1) HDC2000 series: HDC2000/2580/2500/2400/1700

VIDEO/MONITOR menu

VIDEO/MONITOR			
Page name **Page No.**	**Item**	**Set value**	**Description**
<COLOR BAR> V01	4K/HD-BAR SELECT	**BAR 16:9(100%)**, BAR 16:9(75%), SMPTE 16:9(BLACK), SMPTE 16:9(-I/Q), BAR 4:3(100%), BAR 4:3(75%), SMPTE 4:3(BLACK), SMPTE 4:3(-I/Q), MF-ARIB(75%), MF-ARIB(100%), MF-ARIB(+I), MF-SMPTE(-I,Q), MF-SMPTE(75%,Q), MF-SMPTE(100%,Q), MF-SMPTE(+I,Q), HD-CUSTOM, SDI CHECK FIELD, Y-RAMP, Y/C-RAMP, HD-CUSTOM2	Selects the color bar of 4K output/HD output.
	MF-CB	**MODIFY**, EVEN	Sets the stripe width for multi-format color bar output. **MODIFY:** Stripe width adjusted to prevent colors mixing when 4:3 Edge crop. **EVEN:** Stripe width in accordance with standard.
	SLOPE	**WIDE**, NARROW	Sets the color difference signal band of the color bar. **WIDE:** Band not limited. **NARROW:** Band is limited to prevent ringing.
	SD		
	SOURCE	4K/HD BAR, **SD BAR**	Selects the color bar signal source for output to SD. **4K/HD BAR:** Down converts the 4K/HD color bar and then outputs it. **SD BAR:** Outputs the SD color bar selected in SELECT.
	SELECT	When SYSTEM CONFIG menu → <MULTI FORMAT> page → SYSTEM is set to 1.001(525): **SMPTE**, EIA, FULL, 95%, NTSC100%, Y/C-RAMP, Y-RAMP When SYSTEM CONFIG menu → <MULTI FORMAT> page → SYSTEM is set to 1.000(625): **SMPTE**, EIA, FULL, 95%, PAL100%, Y/C-RAMP, Y-RAMP	Selects the SD color bar.
	BAR-CHARACTER	ON, **OFF**	Sets the character superposition on the color bar signal.
	MOVING SYMBOL	ON, **OFF**	Sets symbol moving on the color bar screen.
	TYPE	0, 1, 2	Selects the symbol type.
	SIZE	**SMALL**, LARGE	Selects the symbol size.
<BAR CHARACTER> V02	BAR CHARACTER		Sets the character string to be displayed on each of lines 1 to 16.
	ALL CLEAR		Clears all the character strings set for BAR CHARACTER.
<DOWNCONVERT> V03	SD ASPECT	SQUEEZE, **EDGE CROP**, LETTER BOX	Selects the aspect for SD output.
	NTSC SETUP	**7.5**, 0 IRE	Sets the NTSC signal setup level.

VIDEO/MONITOR				
Page name Page No.	**Item**		**Set value**	**Description**
<MONITOR> V04	CHARACTER LEVEL		1, 2, 3, 4, **5**	Sets the brightness of text in menus, etc.
	LEVEL GATE		**OFF**, 1&2, 1, 2, (---)	Sets level gate display. **OFF:** Level gate is not displayed. **1:** Displays level gate 1. **2:** Displays level gate 2. **1&2:** Displays level gate 1 & 2. **(---):** Displayed when a camera is not connected. (Display only)
	Y-LEVEL1	MIN	0 to 108% **49**	Sets the minimum detection levels for level gate 1 display.
		MAX	0 to 108% **61**	Sets the maximum detection levels for level gate 1 display.
		LEVEL	–99 to 99 **–25**	Sets the zebra display level to be added to the detection area.
	Y-LEVEL2	MIN	0 to 108% **74**	Sets the minimum detection levels for level gate 2 display.
		MAX	0 to 108% **108**	Sets the maximum detection levels for level gate 2 display.
		LEVEL	–99 to 99 **–25**	Sets the zebra display level to be added to the detection area.
	GATE MARKER		**OFF**, ON, (---)	Sets the display of the gate signal detected by the camera. **OFF:** Gate signal is not displayed. **ON:** Displays zebra in the area (skin gate, etc.) detected by the camera. **(---):** Displayed when a camera is not connected. (Display only)
	LEVEL		–99 to 99 **0**	Sets the zebra display level to be added to the detection area.
	ASPECT MARKER		**OFF**, ON	Sets aspect marker display.
	SELECT		**4:3**, 13:9, 14:9, EU VISTA, VISTA, CINEMA, FOLLOW DC	Selects the marker type.
	MODULATION ON/ OFF		**OFF**, ON	Sets the mask function for outside the marker frame.
	MODULATION LEVEL		–99 to 99 **0**	Sets the mask level.
<SPIRIT LEVEL> V05	INDICATOR		**OFF**, ON, ---	Sets spirit level display. This can be set when connected with a camera which has a lens that supports serial communication attached.
	REVERSE		**OFF**, ON	Selects the indicator move direction for tilting.
	H POSITION		0 to 99 **50**	Spirit level display position (horizontal)
	V POSITION		0 to 99 **50**	Spirit level display position (vertical)

VIDEO/MONITOR			
Page name Page No.	**Item**	**Set value**	**Description**
<DISPLAY> V06 Sets the items to be displayed on the camera setting status page of the status display screen.	MESSAGE	**ALL**, WARNING, OFF	Sets the display of messages for the camera auto setup operation status, warnings that occur in the system, etc. **ALL:** Displays all messages. **WARNING:** Displays system warning messages and menu control messages. **OFF:** Displays only menu control messages.
	CAMERA	**ON**, OFF	Displays or hides the model name of the connected camera.
	LENS FILE	**ON**, OFF	Displays or hides the LENS FILE name.
	MASTER GAIN	**ON**, OFF	Displays or hides the master gain setting value.
	MODE	**STEP GAIN**, MASTER WHITE, F DROP GAIN, TOTAL GAIN	Switches the MASTER GAIN display mode. **STEP GAIN:** Displays the STEP GAIN value. **MASTER WHITE:** Displays the MASTER WHITE GAIN value. **F DROP GAIN:** Displays the F DROP GAIN value. **TOTAL GAIN:** Displays the total value of the STEP GAIN, MASTER GAIN, and F DROP GAIN values combined.
	MASTER WHITE IND	**ON**, OFF	Displays or hides the enabled status of the master white gain.
	SHUTTER	**ON**, OFF	Displays or hides the shutter speed/ECS frequency setting value.
	ND FILTER	**ON**, OFF	Displays or hides the ND filter type.
	CC FILTER	**ON**, OFF	Displays or hides the CC filter type.
	IRIS	**ON**, OFF	Displays or hides the iris status.
	EXTENDER	**ON**, OFF	Displays or hides the lens extender/digital extender status.
	F DROP IND	**ON**, OFF	Display or hides the F-drop status.
	MIC	**ON**, OFF	Displays or hides the camera microphone switch status.

AUDIO/INTERCOM menu

AUDIO/INTERCOM			
Page name Page No.	**Item**	**Set value**	**Description**
<MIC GAIN> A01	CAM MIC GAIN		Sets the camera microphone gain.
	CH1	(---), 20, 30, 40, 50, **60** dB	Sets according to the microphone used.
	CH2	(---), 20, 30, 40, 50, **60** dB	**(---):** Displayed when a camera is not connected. (Display only)
<AUDIO OUT> A02	DELAY	0, 5, 11, 16, 21, 27, 32, 37, 43, 48, 53, 59, 64, 69, 75, 80 ms	Sets the camera microphone output phase.
	AES/EBU OUT	**MIC1/2**, AES/EBU	Selects the AES/EBU output. **MIC1/2:** Outputs the camera MIC1/2 input from the CCU MIC OUT connector. **AES/EBU:** Outputs the camera AES/EBU input from the CCU MIC OUT connector.
	ANALOG OUT	**MIC1/2**, AES/EBU	Selects the MIC OUT ANALOG output. **MIC1/2:** Outputs the camera MIC1/2 input from the CCU MIC OUT connector. **AES/EBU:** Outputs the camera AES/EBU input from the CCU MIC OUT connector.
	CH1: LEVEL	–20, **0**, +4 dBu	Sets the AUDIO CH1 output level.
	CH1: ADJUST	–99 to 99, **0**	
	CH2: LEVEL	–20, **0**, +4 dBu	Sets the AUDIO CH2 output level.
	CH2: ADJUST	–99 to 99, **0**	

AUDIO/INTERCOM			
Page name **Page No.**	**Item**	**Set value**	**Description**
<INTERCOM> A03	INTERCOM CH	1CH(PROD), **2CH(PROD&ENG)**	Selects the intercom channel number to be used.
	PRODUCER INTERFACE	CLEAR COM, **4WIRE**, RTS	Sets the producer line intercom system.
	SIDETONE CANCEL	–99 to 99 **0**	Sets the side tone cancel level. (Setting is possible when CLEAR COM or RTS)
	TERMINATION	**OFF**, ON	Sets termination resistance (200 ohms). (Setting is possible when CLEAR COM or RTS) **OFF:** Displayed when 4WIRE is selected in SYSTEM I/F. (Display only)
	ENGINEER INTERFACE	CLEAR COM, **4WIRE**, RTS	Sets the engineer line intercom system.
	SIDETONE CANCEL	0 to 99 **0**	Sets the side tone cancel level. (Setting is possible when CLEAR COM or RTS)
	TERMINATION	**OFF**, ON	Sets termination resistance (200 ohms). (Setting is possible when CLEAR COM or RTS) **OFF:** Displayed when 4WIRE is selected in SYSTEM I/F. (Display only)
	PGM1 INPUT LEVEL	–20, **0**, +4 dBu	Sets the PGM1 input level.
	PGM2 INPUT LEVEL	–20, **0**, +4 dBu	Sets the PGM2 input level.
<FRONT INTERCOM> A04	MIC/PGM	(PGM ON), (MIC OFF), (MIC ON)	CCU front panel MIC/PGM switch position. (Display only)
	I/F	(PROD), (ENG), (PRIV)	CCU front panel INTERCOM switch position. (Display only)
	INTERCOM MIC	**DYNAMIC**, ECM, CARBON	Sets the headset microphone connected to the INTERCOM connector on the front panel. **CARBON:** Carbon microphone (power supply, 20 dB gain) **ECM:** Electret condenser microphone (power supply, 40 dB gain) **DYNAMIC:** Dynamic microphone (no power supply, 60 dB gain)
	INTERCOM MIC TYPE	BALANCED, **UNBALANCED**	Sets the headset microphone connected to the INTERCOM connector on the front panel. **BALANCED:** Balanced microphone **UNBALANCED:** Unbalanced microphone
	INTERCOM MIC GAIN	–6, **0**, +6 dB	Sets the microphone input gain.
	SIDE TONE LEVEL	0 to 99 **50**	Sets the side tone level.
	PGM MIX MODE	**OFF**, INCOM+PGM, L-INCOM/R-PGM	**OFF:** Signals are not mixed. **INCOM+PGM:** INCOM and PGM signals are mixed. **L-INCOM/R-PGM:** Outputs an INCOM signal through the left channel and a PGM signal through the right.
	PGM SELECT	**PGM1**, PGM2, PGM1+PGM2	Selects the PGM audio output from the FRONT INTERCOM connector.
	PGM1 LEVEL	0 to 99 **50**	Sets the MIX level of PGM1.
	PGM2 LEVEL	0 to 99 **50**	Sets the MIX level of PGM2.

MAINTENANCE menu

MAINTENANCE			
Page name Page No.	**Item**	**Set value**	**Description**
<TRUNK/PROMPTER> M01	TRUNK LINE		
	CHANNEL MODE	When FIBER TRANSMIT RATE is set to HIGH: **2CH(MAX 75Kbps)**, 1CH(MAX 150Kbps) When FIBER TRANSMIT RATE is set to HD: 1CH(MAX 38Kbps)	Sets the number of channels to be used.
	INTERFACE	**232C**, 422A	Sets the communication line mode. When FIBER TRANSMIT RATE is set to HD, this is fixed at 422A.
	PROMPTER		
	CHANNEL MODE	**2CH**, 1CH	Sets the number of prompter lines.
	NETWORK TRUNK		
	MODE	**OFF**, NETWORK, NETWORK+VIDEO	Sets the mode for the network trunk. **OFF:** NETWORK TRUNK is not used. **NETWORK:** NETWORK TRUNK is used (maximum 1 Gbps). **NETWORK+VIDEO:** NETWORK TRUNK is used at the same time as HD TRUNK/HD PROMPTER (maximum 100 Mbps).
	DATA RATE	100Mbps, 1Gbps	Displays the data transfer rate. (Display only)
	CAMERA	(ENABLE), (DISABLE)	Displays “ENABLE” or “DISABLE” for CAMERA. (Display only)
	HD TRUNK	(ENABLE), (DISABLE)	Displays “ENABLE” or “DISABLE” for HD TRUNK. (Display only)
	HD PROMPTER	(ENABLE), (DISABLE)	Displays “ENABLE” or “DISABLE” for HD PROMPTER. (Display only)
	FRAME SYNC	OFF, ON, (ON)	Turns the frame synchronizer function ON/OFF.
<MENU SETTINGS> M02	PAGE RESUME	**ON**, OFF	Turns ON/OFF the menu mode resume page display function.
	ALARM JUMP	ON, **OFF**	Turns ON/OFF the error-related page display function for when an error occurs while in menu mode.
	CAMERA MENU CTRL	**OFF**, ON	Displays the Camera menu. **Note** • If CAM MENU is set to ON, CCU menu operations cannot be performed because only Camera menu operations are available. • The Camera menu is not displayed when SD signal is output.
<DATE&TIME> M03	DATE (YEAR)	15 to 99	Sets the date and time. **Note** When this is changed, all logs stored on the unit will be deleted.
	DATE (MONTH)	1 to 12	
	DATE (DAY)	1 to 31	
	TIME (HOUR)	0 to 23	
	TIME (MINUTE)	0 to 59	
	TIME ZONE (HOUR)	–23 to +23, **0**	Sets the time zone.
	TIME ZONE (MINUTE)	**0** to 59	
<TALLY INPUT> M04	R-TALLY	**CONTACT**, POWER(24V), POWER(TTL)	RED tally input setting
	G-TALLY	**CONTACT**, POWER(24V), POWER(TTL)	GREEN tally input setting
	Y-TALLY	**CONTACT**, POWER(24V), POWER(TTL)	YELLOW tally input setting

MAINTENANCE			
Page name Page No.	**Item**	**Set value**	**Description**
<ALARM SETTINGS> M05	FORCE LEGACY	OFF, **ON**	Set to OFF to not display the FORCE LEGACY alarm.
	CABLE OPEN	OFF, **ON**	Set to OFF to not display the CABLE OPEN alarm.
	GENLOCK ERROR	OFF, **ON**	Set to OFF to not display the GENLOCK ERROR alarm.
<SDI ANCILLARY DATA> M06	VIDEO PAYLOAD ID	**LATEST**, 2002, 2010, 2011, 2017	Selects the standard year of the payload ID to be added to the SDI VIDEO output.
	EMBED AUDIO	OFF, **ON**	Sets whether there is audio data superposition for the SDI VIDEO output.
FRONT PANEL M07	ASSIGNABLE SWITCH	**NONE**, BARS, CAM POWER, FORCE LEGACY, OPTICAL SIGNAL	Sets the function to be assigned to the assignable button on the front panel. **NONE:** No assignment. **BARS:** Sets the color bar output to ON/OFF. **CAM POWER:** Sets camera power to ON/OFF. **FORCE LEGACY:** Forces the communication mode to LEGACY mode. **OPTICAL SIGNAL:** Turns the optical signal output from the CCU to the camera ON/OFF.
	SIGNAL BAR		
	DISPLAY	OFF, **ON**	Switches the signal bar display on the front panel.
	READY COLOR	**WHITE**, GREEN, BARS	Sets the color for the ready status (during color bar output).
	BRIGHTNESS	LOW, MIDDLE, **HIGH**	Sets the signal bar brightness level.
<OPTION KEY> M08	READ	Execute with ENTER.	Reads the installation key from the USB flash drive.
	INSTALLED OPTIONS		List of installed options. (Display only)
<MISC> M09	OPTICAL SIGNAL BACKUP	ENABLE, **DISABLE**	Sets whether to save the state of the LASER DIODE setting on the <CAMERA I/F> page of the SYSTEM OPERATION menu for the next startup.

FILE menu

FILE			
Page name Page No.	**Item**	**Set value**	**Description**
<CCU FILE> F01	FILE INDEX	1 to 5, **1**	Selects the file number of the target for operation.
	RECALL		Loads the CCU file from the internal memory.
	STORE		Saves the CCU file to the internal memory.
	EXPORT		Exports the CCU file to the USB flash drive. The path for the USB flash drive is “/MSSONY/PRO/CAMERA/HDCU3100.”
	IMPORT		Imports the CCU file from the USB flash drive. The path for the USB flash drive is “/MSSONY/PRO/CAMERA/HDCU3100.”
	FILE NAME1 to 5	NO_FILE	Sets the CCU file name. ASCII code, 1 to 32 characters
	CLEAR ALL		Deletes all CCU files.

FILE			
Page name Page No.	**Item**	**Set value**	**Description**
<LOG> F02	LOG	ENABLE, **DISABLE**	Enables or disables saving of log files.
	EXPORT TO USB		Saves logs to the USB flash drive. (Execute via EXEC.) The path for the USB flash drive is "/MSSONY/PRO/CAMERA/HDCU3100."
	CLEAR		Deletes logs stored internally on the unit. (Execute via EXEC.) **Note** Logs for up to 30 days are stored. Logs are deleted when the 30-day maximum is reached, starting with the oldest.

NETWORK menu

NETWORK			
Page name Page No.	**Item**	**Set value**	**Description**
<IP ADDRESS> N01	PORT	LAN-COM	Selects the port for which to set the IP address.
	DHCP	**ON**, OFF	Enables or disables DHCP.
	IP ADDRESS	**0.0.0.0** to 255.255.255.255	Sets the IP address.
	SUBNET MASK	**0.0.0.0** to 255.255.255.255	Sets the subnet mask.
	DEFAULT GATEWAY	**0.0.0.0** to 255.255.255.255	Sets the default gateway.
	SET		A "SET OK?" message is displayed. Press ENTER again to confirm the change. (Execute via ENTER.)
	MAC ADDRESS	(xx:xx:xx:xx:xx:xx)	Displays the MAC address of the unit.
<CNS SETTINGS> N02	CNS MODE	**LEGACY**, BRIDGE, MCS	Sets the communication mode.
	MCS MODE	CLIENT	Indicates that the unit is the client when MCS mode is selected. (Display only)
	CCU NO	When MCS is selected in CNS MODE: Blank, 1 to 96 When LEGACY or BRIDGE is selected in CNS MODE: Blank, 1 to 96, A to Z	Sets the CCU number.
	MASTER IP ADDRESS	**0.0.0.0** to 255.255.255.255	Sets the master device IP address for MCS mode.
	SET		A "SET OK?" message is displayed. Press ENTER again to confirm the change. (Execute via ENTER.)
<PING> N03	PORT	**LAN-COM**	Selects the PING transmission destination port.
	IP ADDRESS	**0.0.0.0** to 255.255.255.255	Sets the IP address for the PING transmission destination port.
	PING		PING transmission. (Execute via EXEC.)
	STATISTICS		Displays the PING execution results.
	TRANSMITTED PACKETS	**0** to 5	Number of transmitted packets.
	RECEIVED PACKETS	**0** to 5	Number of received packets.
	PACKET LOSS	**0** to 100 %	Packet loss rate.
	ROUND-TRIP MIN	**0.0** to 1000000.0 ms	Minimum round-trip delay time.
	ROUND-TRIP AVARAGE	**0.0** to 1000000.0 ms	Average round-trip delay time.
	ROUND-TRIP MAX	**0.0** to 1000000.0 ms	Maximum round-trip delay time.

DIAGNOSIS menu

DIAGNOSIS			
Page name Page No.	**Item**	**Display**	**Description**
<BOARD STATUS> D01	VIF	OK, POWER ERROR, PLD ERROR, TEMP WARNING	VIF board self-diagnosis result
	POWER ON HOUR METER	99999 H	Accumulated power-on time from power on.
	HOUR METER	99999 H	Accumulated power-on time
<SERIAL NUMBER> D02	MODEL NAME		Unit model name
	SERIAL NUMBER		Serial number
<VERSION> D03	APPLICATION		Unit software version
	OS		Unit software version
	UPDATER		Unit software version
	SY		ROM version of SY PLD (SY board)
	VIF		ROM version of VIF PLD (VIF board)
<CAMERA DIAGNOSIS> D04	NAME		Model name of connected camera
	ROM VERSION	X.XX	ROM version of camera
<POWER UNIT STATUS> D05	CAM POWER SUPPLY	ON, OFF	Displays the status of power supply to the camera.
	CABLE OPEN	OK, OPEN	Displays the cable OPEN status.
	CABLE SHORT	OK, SHORT	Displays the cable SHORT status.
	RCP POWER	OK, ERROR	Displays the status of power supply to the RCP.
<FAN STATUS> D06	PS FAN	OK, STOP	Displays the power supply unit fan operation status.
	REAR FAN	OK, STOP	Displays the rear panel fan operation status.
	FRONT FAN1	OK, STOP	Displays the front panel fan operation status.

Appendix

Precautions

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.

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 Sony representative.

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.

Operating environment

- Avoid high-temperature rooms and near sources of heat.
- Do not place in locations with strong electric or magnetic field.
- Dry location with good ventilation.
- Avoid locations exposed to sunlight or strong lighting.

Avoid violent impacts

Dropping the unit, or otherwise imparting a violent shock to it, is likely to cause it to malfunction.

Do not cover with cloth

While the unit is in operation, do not cover it with a cloth or other material. This can cause the temperature to rise, leading to a malfunction.

After use

Set the POWER switch to the OFF position.

Care

If the body or panels of the unit become dirty, wipe them with a dry cloth. For severe dirt, use a soft cloth steeped in a small amount of neutral detergent, then wipe dry. Do not use volatile solvents such as alcohol or thinners, as these may damage the finish.

To prevent electromagnetic interference from portable communications devices

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

Error Messages

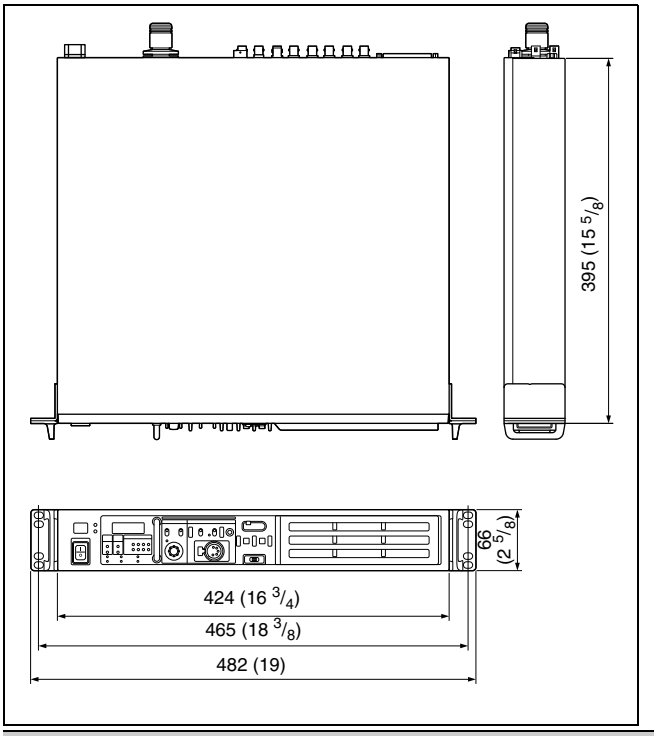
When an error is detected in this unit or the camera, the ALARM indicator turns on and an error message is displayed on this unit.

Error Messages	Description
CCU:XXX POWER ERROR	Board power supply error (XXX is the board name)
CCU:XXX PLD ERROR	PLD error (XXX is the board name)
CCU:XXX TEMP WARNING	Board temperature error (XXX is the board name)
CCU:OPTICAL CONDITION OK	Light sensor level on CCU side dropped
CCU:OPTICAL CONDITION WARNING	
CCU:OPTICAL CONDITION CARE	
CCU:OPTICAL CONDITION ERROR	
CCU:PS FAN STOP	Power supply block FAN error
CCU:PS CABLE SHORT	CAMERA connector optical fiber cable short circuit error
CCU:PS CABLE OPEN	CAMERA connector optical fiber cable open circuit error
CCU:PS RCP POWER SUPPLY ERROR	Remote control panel (connected to REMOTE connector) power supply error
CCU:PS TEMP WARNING	Power supply unit temperature error
CCU:PS POWER ERROR	Power supply unit input/output error
CCU:PS POWER WARNING	
CCU:FRONT FAN1 STOP	Front board FAN1 stop
CCU:PS REAR FAN STOP	Power supply block rear FAN error
CCU:GENLOCK ERROR	External reference sync error
CCU:FORCE LEGACY	FORCE LEGACY is set for CNS MODE
CCU:10FIELD-ID ERROR	10Field ID is not detected even though the 10F BB setting is On
CCU:SET DATE&TIME	Invalid date

Specifications

General	
Power requirements	100 V to 240 V AC, 50/60 Hz
Current consumption	4.5 A (max.)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Mass	Approx. 7.3 kg (16 lb. 1.5 oz.)

Dimensions (Unit: mm (inches))



Input/output connectors	
CAMERA FIBER	Optical fiber connector (1)
INTERCOM/TALLY/ IO PORT	D-sub 50-pin connector (1) • INTERCOM (PROD/ENG), 4W: 0 dBu, RTS: 0 dBu, CC: –14 dBu • PGM, 2 systems, 0 dBu/–20 dBu • TALLY (R, G, Y) • FLAG
RCP/CNU	8-pin multi-connector (1)
TRUNK	12-pin (1)
LAN-COM	8-pin (1)
NETWORK TRUNK	8-pin (1)
SDI I/O 1 to 4	3G/HD/SD SDI I/O BNC-type (4) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/ 2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE ST259, 0.8 Vp-p, 75 ohms, 270 Mbps 3G-SDI/HD-SDI/SD-SDI, character signal selectable
REFERENCE IN/OUT	BNC-type (2), loop-through output HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 ohms SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/PAL: 0.3 Vp-p, 75 ohms) or NTSC 10F-BB

Input connectors	
AC IN	100 V to 240 V AC (1)
SDI RET 1 to 4	BNC-type (4) 3G-SDI: SMPTE ST424/425, 2.970 Gbps/ 2.967 Gbps HD-SDI: SMPTE ST292, 1.485 Gbps/ 1.4835 Gbps SD-SDI: SMPTE ST259, 270 Mbps
PROMPTER 1 PROMPTER 2/VBS-RET	BNC-type (2), loop-through output during 1CH mode, terminate internally at 75 ohms during 2CH mode, analog signal, 1.0 Vp-p, 75 ohms

Output connectors	
AUDIO OUT CH1, CH2	XLR 3-pin, male (2), 0 dBu/–20 dBu/ +4 dBu
CHARACTER/ABS/ EBU	BNC-type (1), VBS, 1 Vp-p, 75 ohms HD SYNC: BTA-S001, tri-level sync, 0.6 Vp-p, 75 ohms SD SYNC: composite sync, 0.3 Vp-p, 75 ohms VBS/HD SYNC/SD SYNC selectable
SDI OUT 1 to 4	3G/HD/SD SDI OUTPUT BNC-type (4) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/ 2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE ST259, 0.8 Vp-p, 75 ohms, 270 Mbps 3G-SDI/HD-SDI/SD-SDI, character signal selectable

Supplied accessories
Number plates (1 set)
Before Using this Unit (1)
Operating Instructions (CD-ROM) (1)

Optional accessories
United States and Canada: Power cord set (1-551-812-XX) Other areas: Power cord set (1-782-929-XX)
United States and Canada: Plug holder B (2-990-242-01) Other areas: Plug holder C (3-613-640-01)
CCA-5-3 Connection Cable (3 meters), CCA-5-10 Connection Cable (10 meters)
Service Manual

Related devices
HDC2000 HD Color Camera
HDC2580/2500/2400/1700 HD Color Camera
HSC300RF/100RF HD Color Camera
BPU4000/4500 Baseband Processor Unit
RCP-1000 series Remote Control Panel
MSU-1000 series Master Setup Unit

Design and specifications are subject to change without notice.

- 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.

SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND RESULTING FROM A FAILURE TO IMPLEMENT PROPER SECURITY MEASURES ON TRANSMISSION DEVICES, UNAVOIDABLE DATA LEAKS RESULTING FROM TRANSMISSION SPECIFICATIONS, OR SECURITY PROBLEMS OF ANY KIND.

Depending on the operating environment, unauthorized third parties on the network may be able to access the unit. When connecting the unit to the network, be sure to confirm that the network is protected securely.

Open Software Licenses

On the basis of license contracts between Sony and the software copyright holders, this product uses open software. To meet the requirements of the software copyright holders, Sony is obligated to inform you of the content of these licenses.
For the content of these licenses, see “License1.pdf” in the “License” folder of the supplied CD-ROM.
Adobe Reader must be installed on your computer to view PDF files.
If Adobe Reader is not installed on your computer, you can download it by accessing the following URL.
http://get.adobe.com/reader