

HD Camera Control Unit

Operating Instructions

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

HXCU-D70

HDMI

Owner's Record

The model and serial numbers are located at the rear.
Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

THIS APPARATUS MUST BE EARTHED.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.

If used in USA, use the UL LISTED power cord specified below.
DO NOT USE ANY OTHER POWER CORD.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord	Type SJT, three 16 or 18 AWG wires
Length	Minimum 1.5 m (4 ft. 11in.), Less than 2.5 m (8 ft. 3 in.)
Rating	Minimum 10A, 125V

Using this unit at a voltage other than 120V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

WARNING: THIS WARNING IS APPLICABLE FOR OTHER COUNTRIES.

1. Use the approved Power Cord (3-core mains lead)/Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord/ Appliance Connector/Plug, please consult a qualified service personnel.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For the customers in Canada

This Class A digital apparatus complies with Canadian ICES-003.

For the customers in Europe

This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European standards:

- EN55103-1: Electromagnetic Interference(Emission)
- EN55103-2: Electromagnetic Susceptibility(Immunity)

This product is intended for use in the following Electromagnetic Environment: E4 (controlled EMC environment, ex. TV studio).

For the customers in Europe, Australia and New Zealand

WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

For the customers in Europe

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

This apparatus shall not be used in the residential area.

For the State of California, USA only

Perchlorate Material - special handling may apply, See

www.dtsc.ca.gov/hazardouswaste/perchlorate

Perchlorate Material : Lithium battery contains perchlorate.

For the customers in Taiwan only



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Overview

The HXCU-D70 Camera Control Unit (CCU) connects to the Sony HXC-D70 HD Color Camera. It performs signal processing, provides an interface for external equipment, and supplies power to the camera.

The CCU can be combined with an RCP-1000-series Remote Control Panel (optional) to form a camera control system.

Features

The HXCU-D70 can be connected with a single multi-core cable

A camera control system with the HXC-D70 high resolution HD color camera can be built up using just one Sony-standard multi-core cable (CCZ-A).

Easy-to-use control panel

The HXCU-D70 has a fully-functional, ergonomically-designed front panel that includes basic adjustment of the monitor image.

Multi-system input/output interface

The HXCU-D70 includes the following input and output signal connectors to manage various system setups.

Video outputs

- SDI (main), 2-system (HD/SD selectable, embedded audio)
- SDI (monitor), 2-system (HD/SD selectable, embedded audio, superimposed character and marker display)
- HDMI¹⁾, 1-system (monitor)
- Analog composite (VBS 2-system, PIX 1-system)
- Analog component, 1-system (HD Y/Pb/Pr, HD R/G/B, SD Y/R-Y/B-Y, SD R/G/B 4-format selectable)
- S-VIDEO, 1-system
- Sync, 1-system (HD/SD selectable)

1) HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

Video inputs

- Reference input (HD/SD auto-select)
- VBS return input, 2-system
- VBS teleprompter input, 1-system

Audio inputs/outputs

- Audio output, 2-system (XLR-3-pin)
- Intercom headset input/output (XLR-5-pin)
- System intercom input/output (D-sub 25-pin)
 - Intercom input/output, 2-system (PROD, ENG, 4W/RTS/CC selectable)
 - PGM (program audio) input, 1-system

Other inputs/outputs

- TRUNK (RS-232C, D-sub 9-pin)
- REMOTE (8-pin, round)
- LAN (RJ-45, 8-pin)

- D-sub 25-pin inputs/outputs (shared with the system intercom input/output connector)
 - Tally input, 2-system (R/G)
 - Tally output, 2-system (R/G)
 - PREVIEW output

External sync signal input

The CCU can be locked to an external sync signal. Either an HD tri-level sync signal or an SD sync (black burst) signal can be used as the sync signal.

Low-loss digital transmission via multi-core cable

The camera unit can be connected with the Sony-standard multi-core camera cable (CCZ-A). The camera and CCU are equipped with the latest Sony-developed digital transmission technology to transmit high-resolution pictures between one another, regardless of the cable length.

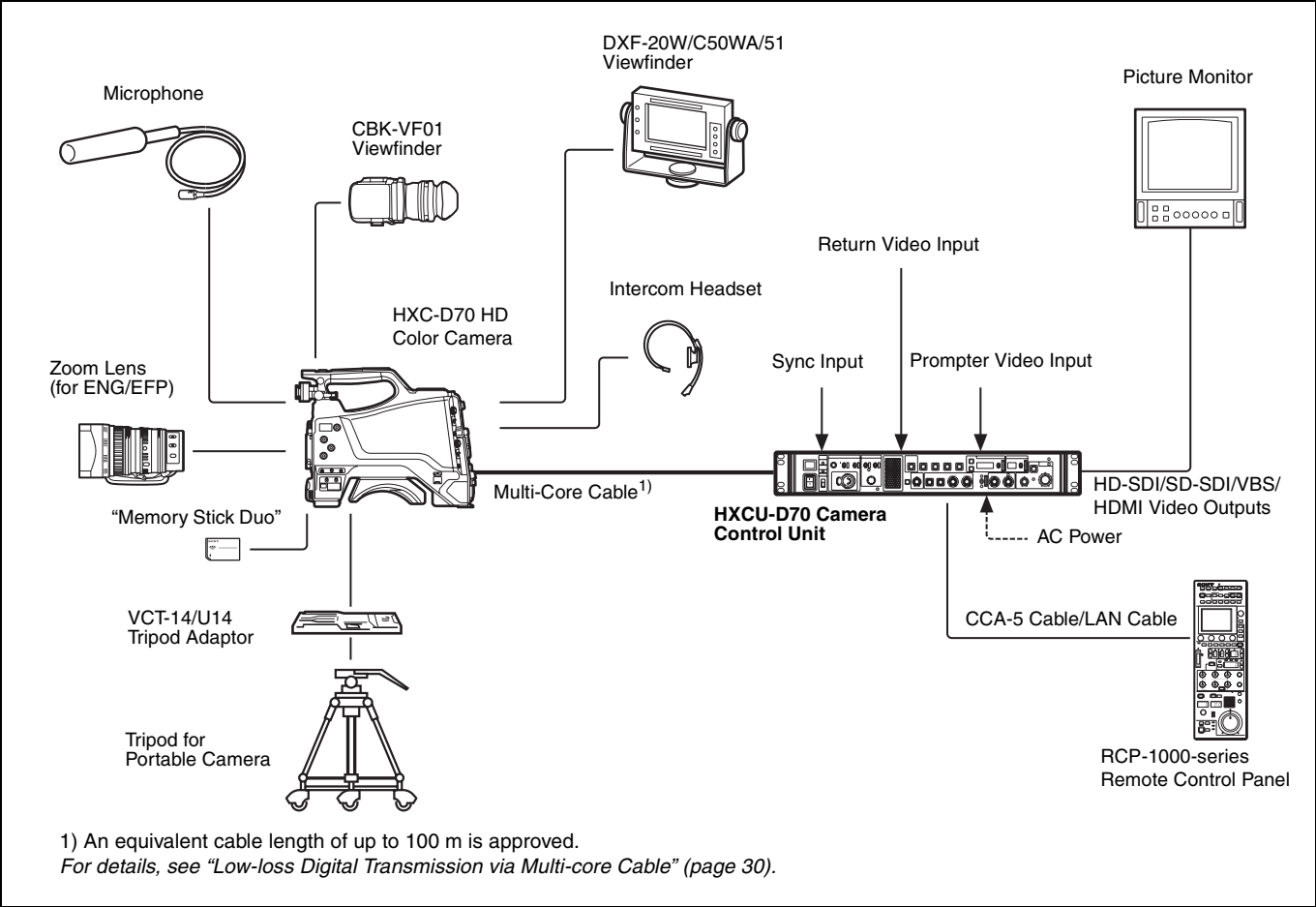
Built-in wideband down converter

HD signals from the camera can be converted to high-resolution SD component SDI output signals using the wideband down converter. The output signal aspect ratio can be set to 4:3 edge crop, 16:9 squeeze, or letterbox.

Rack mountable

The CCU can be installed in a standard EIA 19-inch rack. The height of the unit is 1.5U.

System Configuration Example



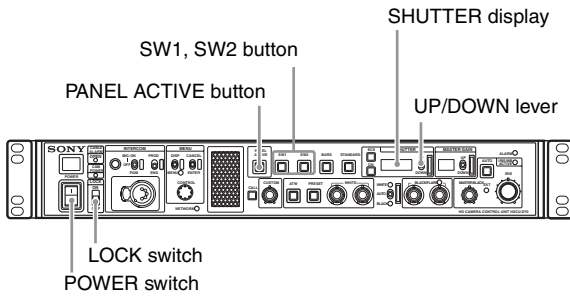
Preparations

Area Settings

Before using the unit

There is no default area setting. Set the area where you intend to use this unit first.

Setting the area



- 1 Turn the power on.**
The camera does not need to be connected to perform this setting.
- 2 Set the LOCK switch to OFF and make sure that the PANEL ACTIVE button is not illuminated.**
If the PANEL ACTIVE button lights up, press the button to turn the light off.
- 3 Press and hold down the SW1 and SW2 buttons at the same time for more than two seconds.**
The unit switches to setting mode and selectable setting values appear in the SHUTTER display.
- 4 Release the buttons after the unit switches to setting mode.**
- 5 Select the desired area, using the UP/DOWN lever, within five seconds after the unit switches to setting mode.**

Settings	Areas
60, 5	NTSC (except Japan) ^{a)}
60,	NTSC (Japan) ^{b)}
50,	PAL ^{c)}

a) NTSC composite video signal output with a black setup (7.5 IRE). System frequency: 59.94i

b) NTSC composite video signal output with no black setup. System frequency: 59.94i

c) PAL composite video signal output. System frequency: 50i

Note

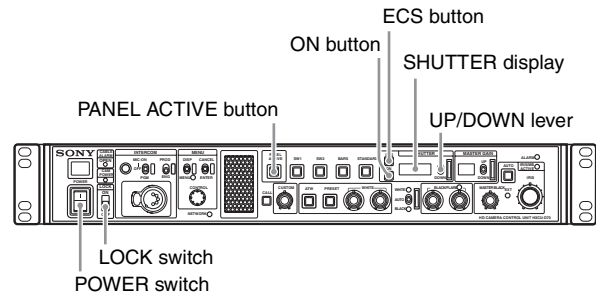
The setting mode is deactivated unless setting starts within five seconds after the unit switches to setting mode. Follow step 3 again to activate setting mode.

“ - - - ” appears in the SHUTTER display five seconds after setting. Area settings are stored and the units switches to normal mode.

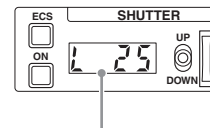
CABLE COMPENSATION Settings

You can set cable compensation according to the multi-core cable length between the camera and CCU. A built-in cable compensation circuit compensates for the frequency losses in the cable. This way, losses in return video and prompter video inputs are minimized.

Setting the CABLE COMPENSATION function



- 1 Turn the power on.**
The camera does not need to be connected to perform this setting.
- 2 Set the LOCK switch to OFF and make sure that the PANEL ACTIVE button is not illuminated.**
If the PANEL ACTIVE button lights up, press the button to turn the light off.
- 3 Press and hold down the SHUTTER ECS and ON buttons at the same time for more than two seconds.**
The unit switches to setting mode and setting values appear in the SHUTTER display.



Displayed numbers indicate cable length (unit: m).

- 4 Release the buttons after the unit switches to setting mode.**
- 5 Adjust the setting value according to the cable length, using the UP/DOWN lever, within five seconds after the unit switches to setting mode.**

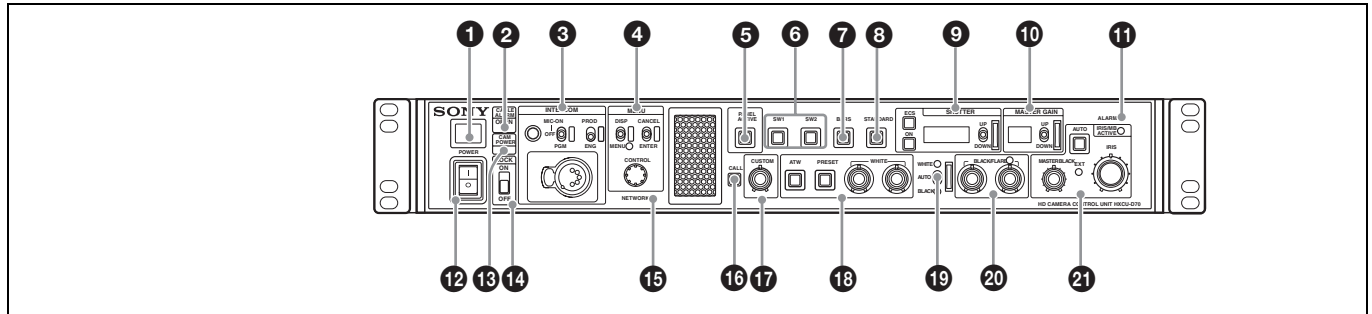
Note

The setting mode is deactivated unless setting starts within five seconds after the unit switches to setting mode. Follow step 3 again to activate setting mode.

“ - - - ” appears in the SHUTTER display five seconds after setting. Cable compensation settings are stored and the units switches to normal mode.

Locations and Functions of Parts

Front Panel

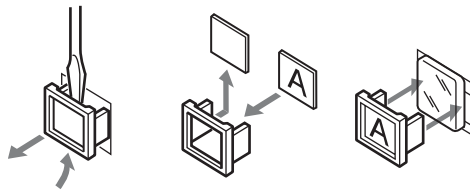


1 Tally light

Turns on red to indicate a red tally signal is being received (such as when the picture from the camera connected to the CCU is being used). When the CALL button on the camera or the RCP-1000- series Remote Control Panel is pressed, the light turns off if lit or turns on if not lit.

Turns on green to indicate a green tally signal is being received.

A number plate supplied with the CCU can be attached here (see the following figure).

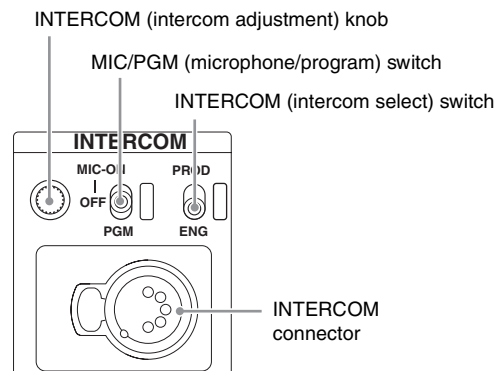


2 CABLE ALARM indicators

OPEN: Turns on when a camera is not connected (open circuit) to the CAMERA connector on the rear panel via a multi-core cable. While on, the CCU does not supply any power to the camera.

It flashes when there is a problem with the transmission between the camera and the CCU.

3 INTERCOM audio input/output and control block



• INTERCOM (intercom adjustment) knob

Adjusts the receiver audio level of the intercom.

• MIC/PGM (microphone/program) switch

ON: Turns the headset microphone on.

OFF: Turns the headset microphone off.

PGM: Selects program audio output. In this mode, the INTERCOM knob adjusts the headset program audio level.

• 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.

ENG: Connects the engineer line.

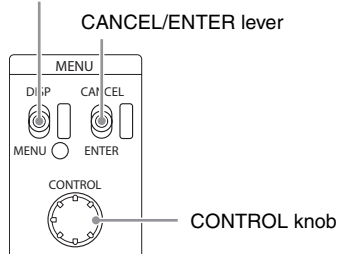
• INTERCOM connector (XLR 5-pin)

Connects the intercom headset.

For information on pin assignment, see "INTERCOM" in "Pin assignment" on page 32.

4 MENU control block

DISP/MENU (display/menu) lever and indicator



• DISP/MENU (display/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. Pressing the CONTROL knob performs the same function as setting the CANCEL/ENTER lever to the ENTER position.

5 PANEL ACTIVE button

Activates the control panel to control the camera connected to the CCU (panel active state). When the button is lit, the IRIS/MB ACTIVE indicator also turns on simultaneously. When the button is not lit, the panel is deactivated (panel lock state) to prevent inadvertent operation.

6 SW1, SW2 (assignable switch 1, 2) buttons

Controls the function assigned to each button on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. The button light turns on/off as the assigned function is switched on/off.

See "ASSIGNABLE/CUSTOM" on <FRONT PANEL 1> on page 26.

7 BARS (color bars) button

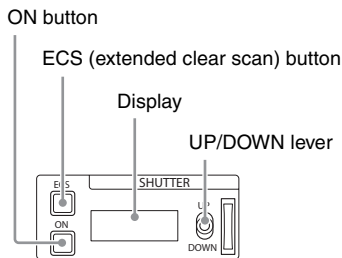
Switches on the color bar signal output to the monitor connected to the CCU (button light turns on). Pressing the button again restores the previous signal output.

8 STANDARD button

Stores the current camera settings as the reference file data values in the camera (button light turns on for a few seconds). While the button is lit, pressing the button again cancels the operation and restores the previous data values.

9 SHUTTER control block

Controls the shutter settings.



• ON button

Switches the normal shutter function or extended clear scan function on/off (button light turns on/off).

• ECS (extended clear scan) button

Switches the extended clear scan mode on/off (button light turns on/off).

• Display

When the ECS button is lit: Displays the clear scan frequency. When the ECS button is not lit: Displays the shutter speed.

• UP/DOWN lever

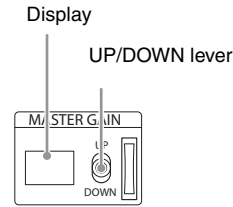
When the ECS button is lit: Adjusts the clear scan frequency. UP increases the frequency, and DOWN decreases the frequency.

When the ECS button is not lit: Adjusts the shutter speed. UP increases the shutter speed, and DOWN decreases the shutter speed.

Holding the lever UP or DOWN advances the setting in that direction.

10 MASTER GAIN control block

Controls the video output signal gain in response to the lighting of the subject.



• Display

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

• UP/DOWN lever

Adjusts the video output signal gain setting (dB units).

UP increases the gain, and DOWN decreases the gain.

Holding the lever UP or DOWN advances the setting in that direction.

11 ALARM indicator

Lights up red to indicate an error in the CCU or camera system.

12 POWER switch

Switches the power for the entire system on and off, including the CCU, camera, and the RCP-1000-series Remote Control Panel connected to the REMOTE connector on the rear panel. Pressing the "I" side turns the camera system on, and pressing the "O" side turns it off.

13 CAM POWER indicator

Turns on when power is supplied to the camera.

14 LOCK switch

Locks the buttons on the front panel. Select the desired buttons to be locked on the <FRONT PANEL 3> page in the CCU CONFIGURATION menu.

See "(LOCK TARGET)" on <FRONT PANEL 3> on page 28.

15 NETWORK indicator

Displays the network system connection status.

On: Indicates that external control equipment (RCP-1000-series Remote Control Panel or other device) is connected.

Flashing: Indicates a connection problem with the external control equipment (RCP-1000-series Remote Control Panel or other device).

Off: Indicates that a LAN cable is not connected or that the network system connection parameters have not been set.

See "Network diagnostics" on page 14 and NETWORK SETTINGS menu on page 28.

16 CALL button

Sends a call signal to the camera connected to the CCU and any external controller (such as the RCP-1000-series Remote Control Panel).

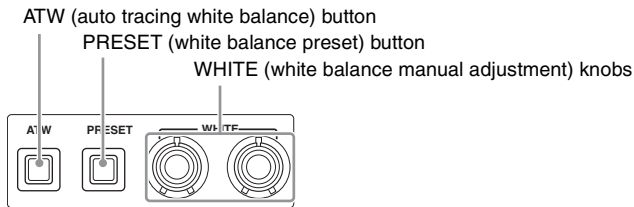
The CALL button is commonly used to raise the camera operator or external control equipment operators on the intercom.

17 CUSTOM (custom volume) knob

Controls the function assigned to the knob on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. Turning the knob adjusts the assigned function.

See "VOLUME" on <FRONT PANEL 1> on page 26 and "CUSTOM" on <FRONT PANEL 2> on page 27.

18 White balance adjustment control block



• ATW (auto tracing white balance) button

The white balance is automatically adjusted in response to the lighting conditions while this button is turned on and lit.

• PRESET (white balance preset) button

The white balance is automatically adjusted with a 3200K color temperature preset value while this button is turned on and lit.

• WHITE (white balance manual adjustment) knobs

Adjusts the white balance manually. The left knob adjusts the R coefficient, and the right knob adjusts the B coefficient. The adjustment can be set to relative or absolute value mode on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. The default value is relative value mode.

See "R/B WHITE" on <FRONT PANEL 1> on page 26 and "R/B WHITE" on <FRONT PANEL 2> on page 27.

Note

When the ATW button is lit, the WHITE knobs are deactivated.

19 AUTO WHITE/BLACK (white balance/black balance auto adjustment) lever

Initiates the white balance or black balance auto adjustment function.

WHITE automatically adjusts the white balance, and BLACK automatically adjusts the black balance.

20 BLACK/FLARE (black balance/flare balance manual adjustment) knobs and indicator

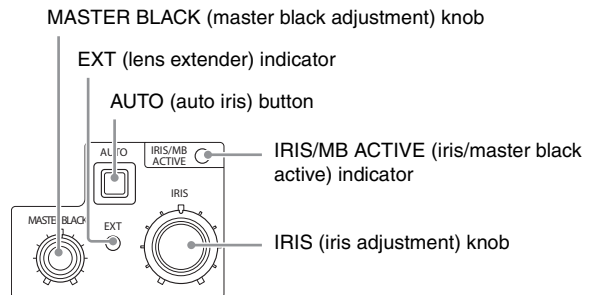
Adjusts the black balance and flare balance manually. When the indicator is not lit, the knobs adjust the black balance. When the indicator is lit, the knobs adjust the flare balance. The left knob adjusts the R coefficient, and the right knob adjusts the B coefficient.

The indicator operating mode (on/off function) can be set on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu.

The adjustment can be set to black balance or flare balance adjustment in relative or absolute value mode on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. The default value is black balance adjustment in relative value mode.

See "R/B BLACK" on <FRONT PANEL 1> on page 26 and "R/B BLACK" on <FRONT PANEL 2> on page 27.

21 IRIS/MASTER BLACK adjustment control block



• MASTER BLACK (master black adjustment) knob

Adjusts the master black manually.

The adjustment can be set to relative or absolute value mode on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. The default value is relative value mode.

See "M BLACK" on <FRONT PANEL 1> on page 26 and "M BLACK" on <FRONT PANEL 2> on page 27.

• EXT (lens extender) indicator

Turns on to indicate that the lens extender is in-use on the camera.

• AUTO (auto iris) button

Switches the lens auto iris adjustment function on/off (button light turns on/off). The iris is automatically adjusted in response to the input light level.

When the button is not lit, the iris is adjusted manually.

• IRIS/MB ACTIVE (iris/master black active) indicator

Indicates, when lit, that the iris and master black controls are active (in panel active state set by the PANEL ACTIVE button). When the indicator is lit, the iris and master black can be adjusted from the CCU.

Note

The indicator is not lit when the iris and master black controls in the RCP-1000-series Remote Control Panel are active.

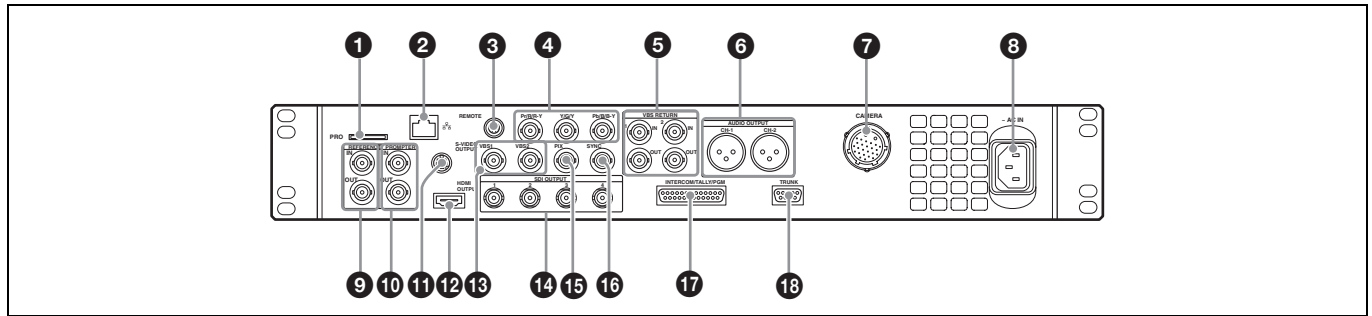
• IRIS (iris adjustment) knob

When the AUTO button is not lit: Adjusts the lens iris manually. When the AUTO button is lit: Finely adjusts the auto adjusted iris value.

The adjustment can be set to relative or absolute value mode on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. The default value is absolute value mode.

See "IRIS" on <FRONT PANEL 1> on page 26 and "IRIS" on <FRONT PANEL 2> on page 27.

Rear Panel



1 “Memory Stick” slot

For service use only.

2 LAN jack (RJ-45, 8-pin)

Connects to a LAN hub (10BASE-T/100BASE-TX), when using a network connection, via a LAN cable (shielded type, category 5 or higher).

CAUTION

- For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.
- When you connect the LAN cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.

3 REMOTE connector (8-pin)

Transmits and receives control signals from the RCP-1000-series Remote Control Panel via a CCA-5 cable (optional). It also supplies power when connected to an RCP-1000-series Remote Control Panel.

4 Pr/R/R-Y, Y/G/Y, Pb/B/B-Y (component signals) connectors (BNC type)

Outputs the HD component signals, SD component signals, HD RGB signals, or SD RGB signals from the corresponding connectors.

5 VBS RETURN 1, 2 (VBS return video 1, 2) connectors (BNC type)

IN: Inputs the VBS return video signals (2-system).

OUT: The input signal is output from the other connector as-is (loop-through output). If the loop-through output is not used, it is automatically connected to a 75 Ω terminator.

6 AUDIO OUTPUT CH-1, CH-2 connectors (XLR 3-pin)

Outputs audio signals from the camera AUDIO 1 IN and AUDIO 2 IN connectors.

7 CAMERA connector (multi-core connector)

Connects to the camera via a multi-core cable. The camera sends all video and audio signals to the CCU, and the CCU sends control signals, return video, audio signals and power to the camera over a single multi-core cable.

CAUTION

CAMERA connector is non LPS (Limited Power Source) circuit. This connector is connected to the HXC-D70.

8 AC supply input connector

Connects to the AC supply via the specified power cord (optional). A plug holder (optional) can be used to secure the power cord to the CCU.

9 REFERENCE (reference input) connectors (BNC type)

IN: Inputs an HD tri-level reference sync signal or SD reference sync signal (black burst signal) for external sync.

OUT: The input signal is output from the other connector as-is (loop-through output). If the loop-through output is not used, it is automatically connected to a 75 Ω terminator.

10 PROMPTER (teleprompter input) connectors (BNC type)

IN: Inputs the VBS signal for the teleprompter.

OUT: The input signal is output from the other connector as-is (loop-through output). If the loop-through output is not used, it is automatically connected to a 75 Ω terminator.

11 S-VIDEO OUTPUT connector (4-pin)

Outputs S-VIDEO signal.

12 HDMI OUTPUT connector (19-pin)

Outputs HDMI signal for a video monitor compatible with HDMI input.

Notes

- When connecting a household television with HDMI input, set its high-resolution function to off to avoid image artifacts.
- Use a Sony high-speed HDMI cable.

13 VBS 1, 2 (composite video signal 1, 2) connectors (BNC type)

Outputs (2-system) the camera signals in composite signal format.

14 SDI OUTPUT 1 to 4 connectors (BNC type)

Outputs the camera signals in HD SDI or SD SDI signal format.

The SDI OUTPUT 3 and SDI OUTPUT 4 connectors can also output signals with superimposed character or marker display.

15 PIX (picture monitor output) connector (BNC type)

Outputs a video signal for a picture monitor. It can also output a signal with superimposed character display.

16 SYNC (sync signal output) connector

Outputs a sync signal for connection to the sync signal input connector of a waveform monitor or picture monitor.

17 INTERCOM/TALLY/PGM (intercom/tally/program audio) connector (D-sub 25-pin)

Transmits and receives the various intercom, tally, and program audio signals. It connects to the intercom/tally/program audio connector of the intercom system.

For information on pin assignment, see “INTERCOM/TALLY/PGM” in “Pin assignment” on page 32.

Note

Depending on the PGM MIX LEVEL settings of the camera, PGM signal may leak into the INTERCOM output. Turn the PGM MIX LEVEL settings down to reduce the signal interference.

18 TRUNK connector (D-sub 9-pin, RS-232C standard)

Connects to an external device to provide a communication path via the CCU between that device and another external device connected to the TRUNK connector on the camera.

For information on pin assignment, see "TRUNK" in "Pin assignment" on page 33.

Status Display

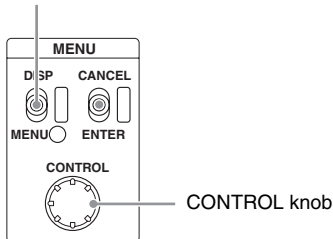
The CCU system status can be monitored using a picture monitor connected to the PIX output.

For information on monitoring and changing settings, see “Setup Menu” on page 16.

Displaying the Status Screen

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

DISP/MENU lever and indicator



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.

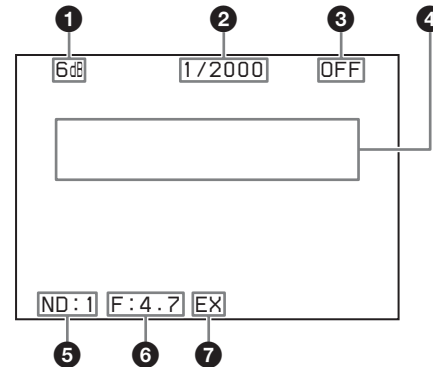
Status Display Screen

The following information is displayed on the status display screen.

- Camera settings
- System status
- CCU hardware diagnostics
- Camera system diagnostics
- Network diagnostics
- CCU AT board diagnostics
- CCU DPR board diagnostics
- Front panel diagnostics
- Camera hardware diagnostics
- ROM version information for major components

Camera settings

Page 1



1 Master gain value

Video output signal gain (dB units)

2 Shutter speed/Clear scan frequency

Shutter speed value. When ECS is on, the clear scan frequency is displayed.

3 Shutter/ECS

Shutter/ECS on/off indicator

4 Camera auto control information area

Top: Displays the Auto Setup category and execution status

Bottom: Displays the execution item

5 ND filter

Current ND filter selection

6 F-stop value

Lens F-stop value (iris value)

7 EX (lens extender)

Lens extender indicator

Notes

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

Page 2

6dB	1/2000	OFF
White		Black
R: 0		R: 0
G: 0		G: 0
B: 0		B: 0
		M: 0
BLK γ		Flare
: 0		R: 0
DTL		G: 0
: 0		B: 0
ND:1	F:4.7	EX

White: White balance R/G/B value

Black: Black balance R/G/B/Master value

BLK γ: Black gamma value

Flare: Flare balance R/G/B value

DTL: Detail level

Note

The items along the bottom edge are common to both pages 1 and 2.

System status

```
*System Status*      1/13

HXC-D70      1080/59.94I
Reference:Free Lock

SDI-1/2      :1080/59.94I
SDI-3/4      :525/59.94I
Component:SD YCD
```

The camera model name and signal format are displayed at the top of the page (a “-” mark is displayed instead when a camera is not connected).

Reference: Reference signal format and lock status

SDI-1/2: SDI OUTPUT 1/2 connector output format setting

SDI-3/4: SDI OUTPUT 3/4 connector output format setting

Component: Component signal connector output format setting

CCU hardware diagnostics

```
*Diagnosis*          2/13

DPR   :OK
AT    :OK
Front Panel : OK
```

The camera Auto Setup category, and the corresponding setup item and status are displayed at the top of the page.

DPR: DPR board status

AT: AT board status

Front Panel: Front panel status

Camera system diagnostics

Page 1

```
*System Diag 1/3*    3/13

Multi Type Digital
Cable Connect
Comp. 50m
Step 0~50m

Fan Power OK
Timer 96H
CCU Power OK
SerialNo 100001
```

Multi Type: Multi-core cable transmission mode

Multi Cable: CCU multi-core cable connection status

Multi Comp.: Multi-core cable compensation mode selection

Multi Step: Multi-core cable length display

Fan Power: CCU power supply fan status

Timer: Elapsed time since power-on

CCU Power: CCU power supply status

SerialNo: CCU serial number

Page 2

```
*System Diag 2/3*    4/13

CAMERA Cable Connect
Data OK
Power OK
REMOTE Cable Connect
Data OK
Power OK
```

CAMERA Cable: Camera cable connection status

CAMERA Data: Camera data transmission status

CAMERA Power: Camera power supply status

REMOTE Cable: Remote device cable connection status

REMOTE Data: Remote device data transmission status

REMOTE Power: Remote device power supply status

Page 3

```
*System Diag 3/3*    5/13

Intercom
CCU FRONT PROD
MIC ON
CAMERA ENG+PROD
MIC OFF

CAM MIC Gain
CH1 (FRONT) 60dB
CH2 (REAR) 60dB
```

Intercom CCU FRONT: CCU intercom selection

Intercom CAMERA: Camera intercom channel 1 selection and microphone status

CAM MIC Gain CH1 (FRONT): Amplifier gain for a microphone connected to the camera AUDIO 1 IN connector.

CAM MIC Gain CH2 (REAR): Amplifier gain for a microphone connected to the camera AUDIO 2 IN connector.

Network diagnostics

Page 1

```
*Network Diag 1/3*    6/13

MacAddress:000000-000000
Auto Negotiation: ON
Connection Speed:100M
Duplex Mode :HALF

Link Status :OK
```

MacAddress: MAC address stored in CCU EEPROM

Auto Negotiation: Auto negotiation setting

Connection Speed: Connection speed setting

Duplex Mode: Communication method setting

Link Status: Network connection status

Page 2

```
*Network Diag 2/3* 7/13
CNS Mode      :BRIGDE
CCU No.       :1
```

CNS Mode: REMOTE and LAN connectors mode setting
CCU No.: CCU number setting

Page 3

```
*Network Diag 3/3* 8/13
IP Address
0. 0. 0. 0
Subnet Mask
0. 0. 0. 0
Default Gateway
0. 0. 0. 0
```

IP Address: CCU IP address setting
Subnet Mask: CCU subnet mask setting
Default Gateway: CCU default gateway setting

CCU AT board diagnostics

```
*AT Diag* 9/13
Reference :HD
PLD Status :OK
AT :1.00

AT POWER:OK
```

Reference: Reference signal setting
PLD Status: PLD status
PLD AT: AT-PLD version
AT POWER: AT board power supply status

CCU DPR board diagnostics

```
*DPR Diag* 10/13
HD CB :BAR 16:9(100%)
SD CB :SMPTE
HDMI Firmware:1.00
PLD Status:OK
DE-MUX:1.00
SY :1.00
POST :1.00
HDMI :1.00
IIC :OK
DPR POWER:OK
```

HD CB: HD color bar setting
SD CB: SD color bar setting
HDMI Firmware: HDMI firmware version
PLD Status: PLD status

PLD DE-MUX: DEMUX-PLD version
PLD SY: SY-PLD version
PLD POST: POST-PLD version
PLD HDMI: HDMI-PLD version
IIC: IIC bus control status
DPR POWER: DPR board power supply status

Front panel diagnostics

```
*Front Panel Diag* 11/13
Assignable/Custom
SW1 :CAM POWER
SW2 :5600K
VOLUME :SD DTL Level

SW Bright:Normal
IIC :OK
```

Assignable/Custom SW1: Function assigned to the SW1 button
Assignable/Custom SW2: Function assigned to the SW2 button
Assignable/Custom VOLUME: Function assigned to the CUSTOM knob
SW Bright: Button lights LED brightness setting
IIC: IIC bus control status

Camera hardware diagnostics

```
*CAMERA Diag* 12/13
ALL BOARD OK
```

Displays the camera hardware status.

ROM Version Information

```
*ROM Version* 13/13
CAMERA HXC-D70
1.00 11.08.01
CCU HXCU-D70
1.00 11.08.01
```

CAMERA: Camera model name and ROM version
CCU: CCU model name and ROM version

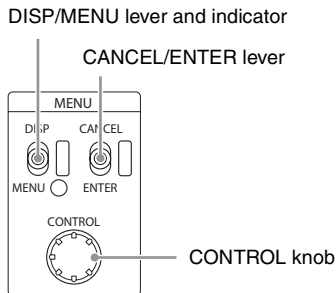
Setup Menu

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

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.



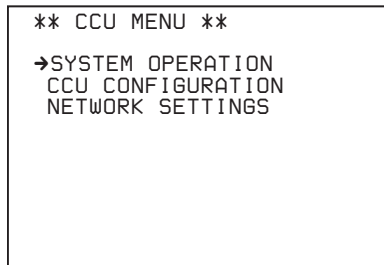
To display a menu page

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

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.



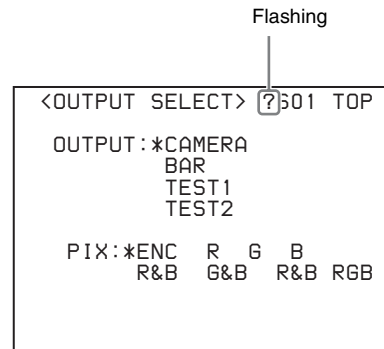
Menu name	Description
SYSTEM OPERATION	Input/output signal format and system-related settings
CCU CONFIGURATION	CCU configuration settings
NETWORK SETTINGS	Network-related settings

To select an item in the CCU MENU

Turn the CONTROL knob to move the pointer (➡) up/down 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:

- CCU CONFIGURATION 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

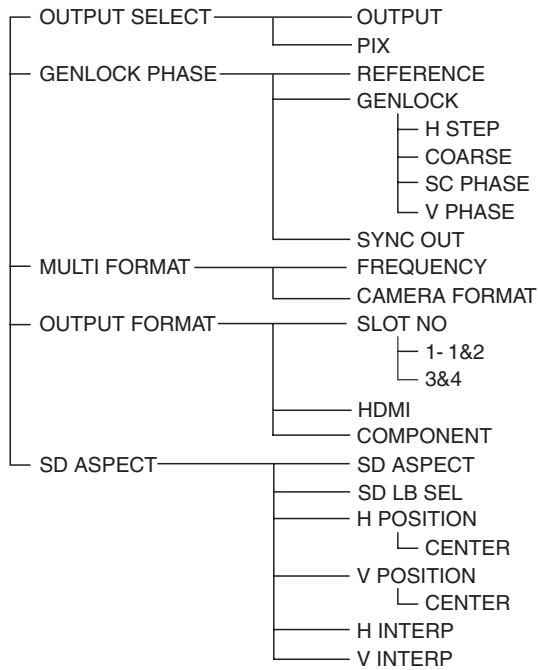
Turn the CONTROL knob to move the cursor to ESC, then press the CONTROL knob.

To exit the menu display

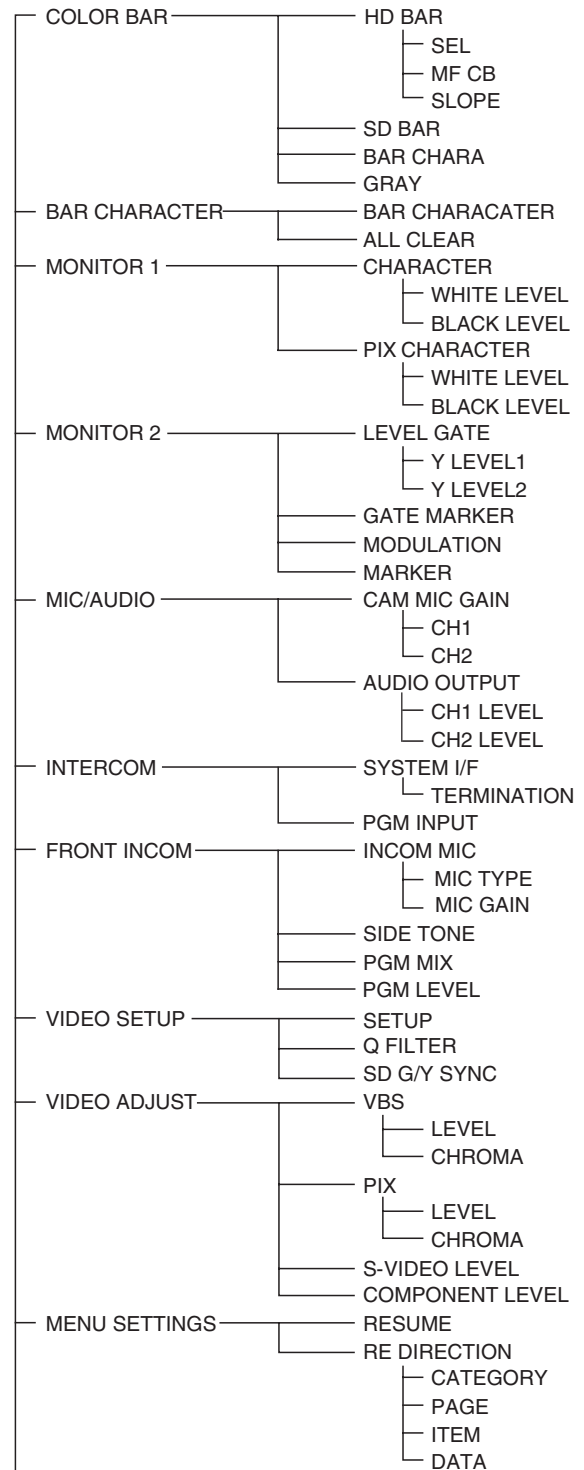
In menu display mode, set the DISP/MENU lever to the MENU position.

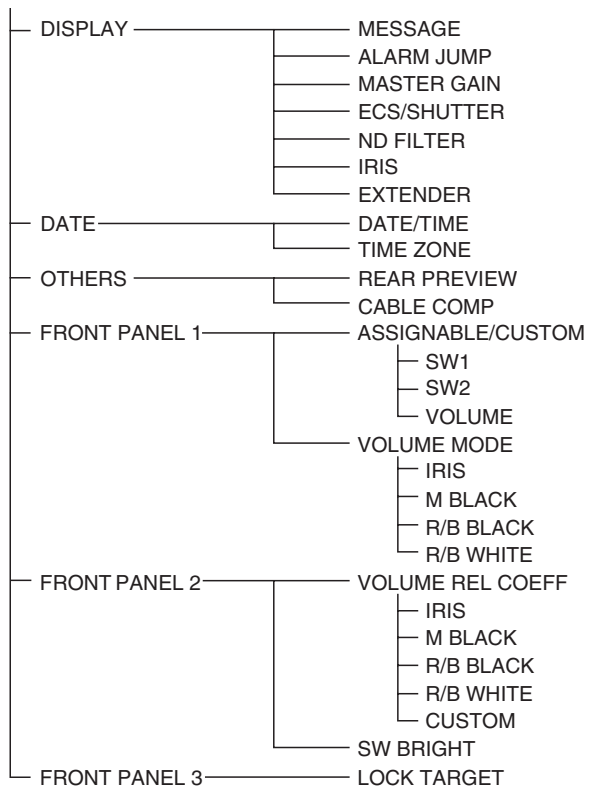
Menu Tree

SYSTEM OPERATION menu

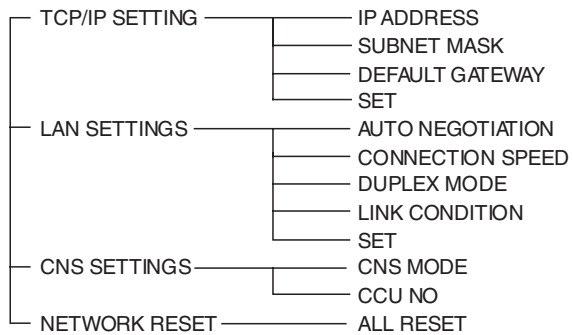


CCU CONFIGURATION menu





NETWORK SETTINGS menu



Menu List

Note

The following conventions are used in the menu list table.

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

Execute by ENTER: Press the CONTROL knob or move the CANCEL/ENTER lever to the ENTER position to execute.

SYSTEM OPERATION menu

SYSTEM OPERATION			
Page name Page No.	Item	Settings	Description
<OUTPUT SELECT> S01	OUTPUT	CAMERA , BAR, TEST1, TEST2	Output signal selection TEST1 and TEST2 are not selectable if there is no communication with the camera.
	PIX	ENC , R, G, B, R&G, G&B, R&B, RGB	PIX connector output signal selection
<GENLOCK PHASE> S02	REFERENCE	(NONE), (EXT IN)	Reference signal input status (display only)
	GENLOCK	(HD), (SD)	CCU GENLOCK mode, lock status, and signal format (HD): HD (SD): SD
		(OK), (NG)	External reference signal lock status (OK): Locked (NG): Unlocked
		External reference signal format	Displayed only when a reference signal is present.
			Reference signal lock phase adjustments
	H STEP	When GENLOCK mode is HD: –3.01 to 3.45 μ s 0.00 When GENLOCK mode is SD: –8.29 to 9.48 μ s 0.00	Horizontal phase (STEP)
	COARSE	–99.9 to 99.9 0.0	Horizontal phase
	SC PHASE	0 to 359	Subcarrier phase
	V PHASE	0 to 7	Vertical phase (line)
	SYNC OUT	HD SYNC, SD SYNC	SYNC connector output signal selection
<MULTI FORMAT> S03	FREQUENCY	59.94 Hz , 50 Hz (525 NTSC), (625 PAL)	Operating frequency selection
	CAMERA FORMAT	When FREQUENCY is set to 59.94 Hz: 1080/59.94i , 720/59.94P When FREQUENCY is set to 50 Hz: 1080/50i, 720/50P	Transmission format selection

Note

FREQUENCY or CAMERA FORMAT mode setting changes take effect only after the CCU power supply is turned off and then on again.

SYSTEM OPERATION

Page name Page No.	Item	Settings	Description
<OUTPUT FORMAT> S04	SLOT NO		
	1-1&2	When CAMERA FORMAT is 1080/59.94i: 1080/59.94i , 525/59.94i When CAMERA FORMAT is 720/59.94P: 720/59.94P, 525/59.94i When CAMERA FORMAT is 1080/50i: 1080/50i, 625/50i When CAMERA FORMAT is 720/50P: 720/50P, 625/50i	SDI OUTPUT 1/2 connector output format selection Sequence of format options: 1: HD 2: SD
	3&4	When CAMERA FORMAT is 1080/59.94i: M1080/59.94i, M525/59.94i When CAMERA FORMAT is 720/59.94P: M720/59.94P, M525/59.94i When CAMERA FORMAT is 1080/50i: M1080/50i, M625/50i When CAMERA FORMAT is 720/50P: M720/50P, M625/50i	SDI OUTPUT 3/4 connector output format selection Sequence of format options: 1: HD 2: SD
	HDMI		HDMI connector output format selection (display only)
	COMPONENT	HD RGB, HD YPbPr, SD RGB, SD YCD	Component signal connector output format selection
<SD ASPECT> S05	SD ASPECT	SQUEEZE, EDGE CROP , LETTER BOX	SD output aspect selection
	SD LB SEL	16:9 , 15:9, 14:9, 13:9	LETTER BOX aspect ratio selection
	H POSITION	-99 to 99, (-99) to (99) 0	Horizontal position setting Settings in (): Displayed when SQUEEZE or LETTER BOX is selected in SD ASPECT (display only)
	CENTER	ON , OFF, (ON), (OFF)	Horizontal centering selection Settings in (): Displayed when SQUEEZE or LETTER BOX is selected in SD ASPECT (display only)
	V POSITION	-99 to 99, (-99) to (99) (0)	Vertical position setting Settings in (): Displayed when SQUEEZE or EDGE CROP is selected in SD ASPECT (display only)
	CENTER	ON, OFF, (ON) , (OFF)	Vertical centering selection Settings in (): Displayed when SQUEEZE or EDGE CROP is selected in SD ASPECT (display only)
	H INTERP	A , B, C, D, E	Down converter horizontal filter selection
	V INTERP	A , B, C, D, E	Down converter vertical filter selection

CCU CONFIGURATION menu

CCU CONFIGURATION			
Page name			
Page No.	Item	Settings	Description
<COLOR BAR> C01	HD BAR		
	SEL	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	HD output color bar settings
	MF CB	MODIFY , EVEN	Multi-format color bar settings
	SLOPE	WIDE , NARROW	Chroma band settings for color bars
	SD BAR	For NTSC: SMPTE , EIA, FULL, 95%, NTSC100%, Y/C-RAMP, Y-RAMP For PAL: SMPTE , EIA, EBU, 95%, PAL100%, Y/C-RAMP, Y-RAMP	SD output color bar setting
	BAR CHARA	ON, OFF	Character superimposed on color bar signal
	GRAY	ON , OFF	ON : Gray screen output when camera power supply is off OFF : Color bar signal output when camera power supply is off
<BAR CHARACTER> C02	BAR CHARACTER		Settings for strings 1 to 12 that are superimposed on the color bar signal
	<ALL CLEAR>		Execute to clear all character strings (Execute by ENTER)
<MONITOR 1> C03	CHARACTER		Bar character settings
	WHITE LEVEL	0.0 to 107.0% 71.5	White level settings for bar character strings
	BLACK LEVEL	0.0 to 107.0%	Black (font border color) level settings for bar character strings
	PIX CHARACTER		PIX output character settings
	WHITE LEVEL	75.0 to 107.0%	White level settings for PIX output character strings
	BLACK LEVEL	0.0 to 25.0%	Black (font border color) level settings for PIX output character strings

CCU CONFIGURATION			
Page name Page No.	Item	Settings	Description
<MONITOR 2> C04	LEVEL GATE	---, 1&2, 1, 2, OFF	1&2: Displays level gate 1&2 1: Displays level gate 1 2: Displays level gate 2 ---: Displayed when camera not connected, video output not set to CAMERA, or video output is set to CAMERA and GATE MARKER is ON (display only)
	Y LEVEL1	0 to 108% 49 61	Level gate 1 minimum and maximum detection levels settings
		–99 to 99 –25	Level gate 1 zebra range settings
	Y LEVEL2	0 to 108% 74 108	Level gate 2 minimum and maximum detection levels settings
		–99 to 99 –25	Level gate 2 zebra range settings
	GATE MARKER	---, ON, OFF	Gate signal display on/off settings ---: Displayed when camera not connected (display only)
		–99 to 99 0	Gate signal level settings
	MODULATION	---, ON, OFF	4:3 aspect ratio mask function on/off settings when EDGE CROP is ON ---: Displayed when camera not connected (display only)
		–99 to 99 0	Mask video level settings
	MARKER	ON, OFF	Marker signal on/off settings
		4:3 , 13:9, 14:9, EU VISTA, VISTA, CINEMA, FOLLOW DC	Superimposed marker signal selection
<MIC/AUDIO> C05	CAM MIC GAIN		Microphone gain settings
	CH1	---, 20, 30, 40, 50, 60 dB	Settings vary depending on microphones
	CH2	---, 20, 30, 40, 50, 60 dB	---: Displayed when camera not connected (display only)
	AUDIO OUTPUT		Audio output level settings
	CH1 LEVEL	–20, 0 , +4 dBu	CH1 output level settings
	CH2 LEVEL	–20, 0 , +4 dBu	CH2 output level settings
<INTERCOM> C06	SYSTEM I/F	4WIRE , RTS, CLEAR COM	Intercom interface (D-sub 25-pin) settings
	TERMINATION	(OFF), ON, OFF	Connects to a 200 Ω terminator, if ON is selected while 2-wire intercom interface (RTS or CLEAR COM) is used (OFF): Displayed when 4WIRE is selected in SYSTEM I/F (display only)
	PGM INPUT	–20, 0 , +4 dBu	PGM input level settings

CCU CONFIGURATION

Page name Page No.	Item	Settings	Description
<FRONT INCOM> C07		(MIC ON), (MIC OFF), (PGM ON)	CCU front panel MIC/PGM switch position (display only)
		(PROD), (ENG)	CCU front panel INTERCOM switch position (display only)
	INCOM MIC	CARBON, ECM, DYNAMIC	Headset microphone type connected to INTERCOM 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)
	MIC TYPE	BALANCE, UNBALANCE	Headset microphone type connected to INTERCOM on the front panel BALANCE : Balanced microphone UNBALANCE : Unbalanced microphone
	MIC GAIN	−6dB, 0dB , +6dB	Input gain setting
	SIDE TONE	0 to 99 50	Side tone level settings
	PGM MIX	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 LEVEL	0 to 99 50	PGM level settings
<VIDEO SETUP> C08	SETUP	ON, OFF , --	ON : Adds a setup signal to VBS and SD YCD component signal Ych-SYNC OFF : No setup signal is added. --: Displayed when format is PAL (display only)
	Q FILTER	NARROW , WIDE, --	Q FILTER bandwidth setting --: Displayed when format is PAL (display only)
	SD G/Y SYNC	ON , OFF	SD RGB component signal Gch-SYNC or SD YCD component signal Ych-SYNC on/off
<VIDEO ADJUST> C09	VBS		VBS output settings
	LEVEL	−99 to 99 0	VBS output level settings
	CHROMA	−99 to 99 0	Chroma settings for VBS output
	PIX		PIX output settings
	LEVEL	−99 to 99 0	PIX output level settings
	CHROMA	−99 to 99 0	Chroma settings for PIX output
	S-VIDEO LEVEL	−99 to 99 0	S-VIDEO signal level settings
	COMPONENT LEVEL	−99 to 99 0	Component signal level settings

CCU CONFIGURATION			
Page name Page No.	Item	Settings	Description
<MENU SETTINGS> C10	RESUME	<u>ON</u> , OFF	In menu mode, resume display of previously displayed page function
	RE DIRECTION		CONTROL knob operating mode settings
	CATEGORY	<u>STD</u> , RVS	STD : CONTROL knob clockwise rotation moves the CCU MENU pointer (➡) down RVS : CONTROL knob counterclockwise rotation moves the CCU MENU pointer (➡) down
	PAGE	<u>STD</u> , RVS	STD : CONTROL knob clockwise rotation displays the next page in the menu RVS : CONTROL knob counterclockwise rotation displays the next page in the menu
	ITEM	<u>STD</u> , RVS	STD : CONTROL knob clockwise rotation moves the pointer (➡) down to the next item on the page RVS : CONTROL knob counterclockwise rotation moves the pointer (➡) down to the next item on the page
	DATA	<u>STD</u> , RVS	STD : CONTROL knob clockwise rotation selects the next data option RVS : CONTROL knob counterclockwise rotation selects the next data option
<DISPLAY> C11 Camera messages and switch settings on/off. Displayed on the camera diagnostics screen.	MESSAGE	<u>ALL</u> , WARNING, OFF	ALL : Displays all messages WARNING : Displays system warning messages and menu control messages OFF : Displays only menu control messages
	ALARM JUMP	ON, <u>OFF</u>	In menu mode, jump to display page if an error occurs function
	MASTER GAIN	<u>ON</u> , OFF	Displays or hides the master gain indication
	ECS/SHUTTER	<u>ON</u> , OFF	Displays or hides the ECS/shutter indication
	ND FILTER	<u>ON</u> , OFF	Displays or hides the ND filter indication
	IRIS	<u>ON</u> , OFF	Displays or hides the IRIS indication
	EXTENDER	<u>ON</u> , OFF	Displays or hides the EXTENDER indication
<DATE> C12	DATE/TIME	20YY/MM/DD hh:mm Time displayed in 24-hour format	Date and time settings
	TIME ZONE	hh:mm –11h59m to +11h59m	Time zone setting
<OTHERS> C13	REAR PREVIEW	<u>MOMENTARY</u> , TOGGLE	REMOTE device preview operation switching MOMENTARY : Display preview while PREVIEW button on REMOTE device is pressed TOGGLE : Toggle preview on/off when the PREVIEW button on REMOTE device is pressed
	CABLE COMP	<u>25m</u> , 50m, 75m, 100m	Cable compensation settings for frequency losses in return video and prompter video inputs

CCU CONFIGURATION

Page name Page No.	Item	Settings	Description
<FRONT PANEL 1> C14	ASSIGNABLE/CUSTOM		
	SW1	NOT ASSIGN , GAMMA OFF, HD DTL OFF, SD DTL OFF, BLK GAMMA, KNEE OFF, AUTO KNEE, 5600K, CAM POWER	Front Panel SW1 button assignment NOT ASSIGN : Not assigned (indicator always off) GAMMA OFF : Gamma off when indicator on HD DTL OFF : HD detail off when indicator on SD DTL OFF : SD detail off when indicator on BLK GAMMA : Black gamma on when indicator on KNEE OFF : Knee off when indicator on AUTO KNEE : Auto knee on when indicator on 5600K : 5600K on when indicator on CAM POWER : Camera power on when indicator on
	SW2	NOT ASSIGN , GAMMA OFF, HD DTL OFF, SD DTL OFF, BLK GAMMA, KNEE OFF, AUTO KNEE, 5600K, CAM POWER	Front Panel SW2 button assignment NOT ASSIGN : Not assigned (indicator always off) GAMMA OFF : Gamma off when indicator on HD DTL OFF : HD detail off when indicator on SD DTL OFF : SD detail off when indicator on BLK GAMMA : Black gamma on when indicator on KNEE OFF : Knee off when indicator on AUTO KNEE : Auto knee on when indicator on 5600K : 5600K on when indicator on CAM POWER : Camera power on when indicator on
	VOLUME	NOT ASSIGN , HD GAMMA, SD GAMMA, HD DTL LEVEL, SD DTL LEVEL, BLK GAMMA	Front Panel CUSTOM knob assignment NOT ASSIGN : Not assigned (knob deactivated) HD GAMMA : HD M-gamma setting SD GAMMA : SD M-gamma setting HD DTL LEVEL : HD detail level setting SD DTL LEVEL : SD detail level setting BLK GAMMA : Black gamma setting
	VOLUME MODE		
	IRIS	REL , ABS	IRIS knob operating mode REL : Relative value mode ABS : Absolute value mode
	M BLACK	REL , ABS	MASTER BLACK knob operating mode REL : Relative value mode ABS : Absolute value mode
	R/B BLACK	REL/BLACK , ABS/BLACK , REL/FLARE , ABS/FLARE	BLACK/FLARE knob function and operating mode REL/BLACK : BLACK (relative value mode) ABS/BLACK : BLACK (absolute value mode) REL/FLARE : FLARE (relative value mode) ABS/FLARE : FLARE (absolute value mode)
	R/B WHITE	REL , ABS	WHITE knob operating mode REL : Relative value mode ABS : Absolute value mode

CCU CONFIGURATION

Page name Page No.	Item	Settings	Description
<FRONT PANEL 2> C15	VOLUME REL COEFF		
	IRIS	1/1, <u>1/2</u> , 1/4	Relative coefficient when the IRIS knob is set to relative value mode 1/1: Variable range roughly 100% of total variation 1/2: Variable range roughly 50% of total variation 1/4: Variable range roughly 25% of total variation
	M BLACK	1/1, 1/2, <u>1/4</u>	Relative coefficient when the MASTER BLACK knob is set to relative value mode 1/1: Variable range roughly 100% of total variation 1/2: Variable range roughly 50% of total variation 1/4: Variable range roughly 25% of total variation
	R/B BLACK	1/1, <u>1/2</u> , 1/4, (FLARE)	Relative coefficient when the BLACK/FLARE knob is set to relative value mode 1/1: Variable range roughly 100% of total variation 1/2: Variable range roughly 50% of total variation 1/4: Variable range roughly 25% of total variation (FLARE): Displayed when the BLACK/FLARE knob is assigned to the FLARE function (display only)
	R/B WHITE	1/1, 1/2, <u>1/4</u>	Relative coefficient selection when the WHITE knob is set to relative value mode 1/1: Variable range roughly 100% of total variation 1/2: Variable range roughly 50% of total variation 1/4: Variable range roughly 25% of total variation
	CUSTOM	1/1, <u>1/2</u> , 1/4	Relative coefficient when the CUSTOM knob is set to relative value mode 1/1: Variable range roughly 100% of total variation 1/2: Variable range roughly 50% of total variation 1/4: Variable range roughly 25% of total variation
	SW BRIGHT	NORMAL , LOW	Front panel button lights LED brightness

CCU CONFIGURATION			
Page name Page No.	Item	Settings	Description
<FRONT PANEL 3> C16	(LOCK TARGET)	AWB: ON , OFF ABB: ON , OFF ATW: ON , OFF BARS: ON , OFF CALL: ON, OFF PANEL: ON, OFF A-SW1: ON , OFF A-SW2: ON , OFF INCOM: ON , OFF STANDARD: ON , OFF IRIS AT: ON , OFF SHUT-ECS: ON , OFF SHUT: ON , OFF GAIN-U/D: ON , OFF SHUT-U/D: ON , OFF PRST WHT: ON , OFF VOLUME: ON , OFF MENU: ON , OFF	Allows you to specify buttons on the front panel to be locked.

NETWORK SETTINGS menu

NETWORK SETTINGS			
Page name Page No.	Item	Settings	Description
<TCP/IP SETTING> N01	IP ADDRESS	0.0.0.0 to 255.255.255.255	Displays IP address
	SUBNET MASK	0.0.0.0 to 255.255.255.254	Displays subnet mask
	DEFAULT GATEWAY	0.0.0.0 to 255.255.255.255	Displays default gateway
	SET		A "SET OK?" message is displayed. Press ENTER again to confirm the change. (Execute by ENTER)
<LAN SETTINGS> N02	AUTO NEGOTIATION	ON , OFF	Select whether to automatically set the connection speed and communication system according to the device connected.
	CONNECTION SPEED	10M, 100M	Connection speed selection 10M : 10BASE-TX 100M : 100BASE-TX Available only when OFF is selected in AUTO NEGOTIATION
	DUPLEX MODE	HALF, FULL	Communication system selection HALF : Half-duplex communication FULL : Full-duplex communication Available only when OFF is selected in AUTO NEGOTIATION
	LINK CONDITION	(DOWN), (UP)	Displays connection status (display only) (DOWN) : Connection failure (UP) : Connection successful
	SET		A "SET OK?" message is displayed. Press ENTER again to confirm the change. (Execute by ENTER)

NETWORK SETTINGS			
Page name Page No.	Item	Settings	Description
<CNS SETTINGS> N03	CNS MODE	<u>LEGACY</u> , BRIDGE	Network connection mode selection LEGACY: External controller connected using CCA-5 cable only BRIDGE: External controller connected using point-to-point LAN cable
	CCU NO	<u>0</u> to 96, A to Z	CCU number settings
<NETWORK RESET> N04	ALL RESET		A "NET SETTINGS RESET OK?" message is displayed. Press ENTER again to reset NETWORK SETTINGS menu items to factory default values. (Execute by ENTER)

Appendix

Notes on Use

Use and storage locations

Avoid using or storing the unit in the following places:

- Where it is subject to extremes of temperature (operating temperature: 5 °C to 40 °C (41 °F to 104 °F)). Note that in summer the temperature in a car with the windows closed can reach 50 °C (122 °F).
- Very damp or dusty places.
- Where rain is likely to reach the unit.
- Places subject to severe vibration.
- Near strong magnetic fields.
- Near transmitting stations generating strong radio waves.

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 on the CCU 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.

Low-loss Digital Transmission via Multi-core Cable

Digital data transmission between the camera and CCU minimizes image degradation regardless of transmission distance. However, some errors, for example errors due to external noise in long-distance transmission, may be corrected by partial image interpolation of images in frame store.

Multi-core transmission distances

The transmission distance allowed for Sony CCZ-A multi-core cable¹⁾ connections is between 5 m and 100 m²⁾. The distance may decrease depending on the conditions, such as cable degradation.

1) CCZ-A5/10/25/50/100 cable

2) Based on a single CCZ-A100 cable used. Transmission range may vary when more than one cable is used.

Notes on using cable extension connectors (CCZZ-1E, CCZZ-1B):

Avoid using more than three connectors at the same time. Transmission range may decrease by 10 m when one cable connector is used.

Examples of cable connection

An equivalent cable length of up to 100 m is approved. With a length of more than 100 m, losses in the cable will not be compensated properly.

Cable length	Connections	Approved/Disapproved
100 m	100 m cable (×1)	Approved
	50 m cables (×2)	Disapproved Equivalent cable length: 50 + 50 + 10 (connector) = 110 m
	50 m cable (×1) and 25 m cables (×2)	Disapproved Equivalent cable length: 50 + 25 + 25 + 10 + 10 (2 connectors) = 120 m
	25 m cables (×4)	Disapproved Equivalent cable length: 25 + 25 + 25 + 25 + 10 + 10 + 10 (3 connectors) = 130 m
85 m	50 m cable (×1) and 25 m cable (×1) and 10 m cable (×1)	Disapproved Equivalent cable length: 50 + 25 + 10 + 10 + 10 (2 connectors) = 105 m
75 m	50 m cable (×1) and 25 m cable (×1)	Approved Equivalent cable length: 50 + 25 + 10 (connector) = 85 m
	25 m cables (×3)	Approved Equivalent cable length: 25 + 25 + 25 + 10 + 10 (2 connectors) = 95 m
50 m	50 m cable (×1)	Approved
	25 m cables (×2)	Approved Equivalent cable length: 25 + 25 + 10 (connector) = 60 m

Error Messages

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

Error message	Indication
CCU: GEN LOCK NG	External reference sync error
CCU: DPR NG	Front DPR board power supply, PLD error
CCU: PS FAN NG	Power supply block fan error
CCU: PS CABLE OPEN	CAMERA connector camera open circuit error
CCU: PS RCP PWR SUPPLY NG	Remote control panel (connected to REMOTE connector) power supply error

Error message	Indication
CCU: AT NG	Front AT board power supply, PLD error
CCU:RX WARNING	Transmission losses between camera and CCU or disapproved cable length for compensation

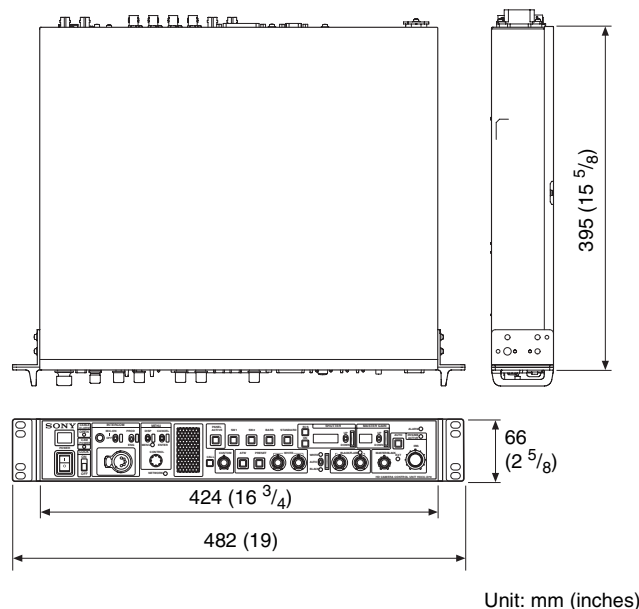
Specifications

HXCU-D70

General	
Power supply	AC 100 to 240 V, 50/60 Hz
Current consumption	2.2 A (max)
Inrush current	(1) Maximum possible inrush current at initial switch-on (Voltage changes caused by manual switching): 50A peak, 9.5A r.m.s. (240V AC) (2) Inrush current after a mains interruption of five seconds (Voltage changes caused at zero-crossing): 15A peak, 5A r.m.s. (240V AC)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Weight	Approx. 6.5 kg (14 lb 5.3 oz)
Input/output connectors	
CAMERA	Multiconnector (1)
INTERCOM	XLR 5-pin (1)
INTERCOM/TALLY/PGM	D-sub 25-pin, female (1) • INTERCOM (PROD, ENG), 4W/RTS/CC, 0 dBu • PGM 1 system, –20/0/+4 dBu • TALLY (R, G) • PREVIEW
REMOTE	8-pin multiconnector (1)
TRUNK	D-sub 9-pin, female (1), RS-232C 1 system
LAN	8-pin (1)
Input connectors	
AC IN	(1), AC 100 to 240 V
VBS RETURN	BNC type (4), loop-through output, 1.0 Vp-p, 75 Ω, 2 systems
REFERENCE	BNC type (2), loop-through output HD: SMPTE 274M, tri-level sync, 0.6 Vp-p, 75 Ω SD: Black burst (NTSC: 0.286 Vp-p, 75 Ω; PAL: 0.3 Vp-p, 75Ω)
PROMPTER	BNC type (2), loop-through output, VBS signal, 1.0 Vp-p, 75 Ω, 1 system
Output connectors	
SDI OUTPUT 1 to 4	BNC type (4) HD SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gbps bit rate SD SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mbps bit rate HD SDI/SD SDI selectable

Pr/R/R-Y, Y/G/Y, Pb/B/B-Y	BNC type (3) • HD component video Y (100% white): 0.7 Vp-p Pr/Pb (75% color bar): 0.7 Vp-p, 75 Ω • HD RGB video R/G/B (100% white): 0.7 Vp-p, 75 Ω • SD RGB video R/G/B (100% white): 0.7 Vp-p, 75 Ω • SD component video Y (100% white): 0.714 Vp-p Pr/Pb (75% color bar): 0.756 Vp-p, 75 Ω
VBS1, 2	BNC type (2), VBS 1.0 Vp-p, 75 Ω
PIX	BNC type (1), VBS/R/G/B (VBS 1.0 Vp-p, 75 Ω)
SYNC	BNC type (1) HD: BTA-S001A, tri-level sync, 0.6 Vp-p, 75 Ω SD: composite sync, 0.3 Vp-p, 75 Ω HD SYNC/SD SYNC selectable
AUDIO OUTPUT CH-1, CH-2	XLR 3-pin, male (2), 0/–20 dBu
S-VIDEO OUTPUT	4-pin
HDMI OUTPUT	Type A, 19-pin
Supplied accessories	
Number plates (1 set)	
Operating Instructions: Japanese (1) / English (1)	
Warranty booklet (1)	
CD-ROM (1)	
Optional accessories	
United States and Canada: Plug holder B (2-990-242-01) Other areas: Plug holder C (3-613-640-01)	
United States and Canada: Power cord set (1-551-812-XX) Other areas: Power cord set (1-782-929-XX)	
CCA-5-3 (3 m), CCA-5-10 (10 m) connection cables	
CCZ-A5/10/25/50/100 multi-core cable	
CCZZ-1B, CCZZ-1E cable extension connectors	
Service manual	
Related equipment	
HD Color Camera HXCU-D70	
RCP-1000-series Remote Control Panel	

Dimensions



Design and specifications are subject to change without notice.

Note

Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

Pin assignment

INTERCOM

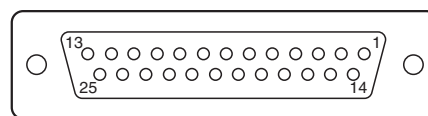


- EXT VIEW -

No.	Signal	Specifications
1	INTERCOM MIC IN (Y)/ (GND)*	-20 dBu (CARBON) -40 dBu (ECM)
2	INTERCOM MIC IN (X)	-60 dBu (DYNAMIC, BALANCE/ UNBALANCE)
3	GND	GND
4	INTERCOM L OUT	
5	INTERCOM R OUT	

* When the signal is unbalanced, connect the GND signal of the microphone to pin 1.

INTERCOM/TALLY/PGM

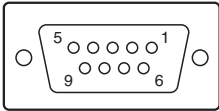


- EXT VIEW -

No.	Signal	Specifications
1	ENG (R) (X) OUT	ENG SYSTEM RECEIVE
2	ENG (R) (Y) OUT	0 dBu BALANCED
3	ENG (G)	GND for ENG
4	ENG (T) (X) IN	ENG SYSTEM TALK
5	ENG (T) (Y) IN	0 dBu BALANCED
6	PGM1 (X) IN	-20 dBu/0 dBu/+4 dBu
7	PGM1 (Y) IN	(Selectable with CCU Menu)
8	PGM1 (G) IN	
9	GND	GND for TALLY OUT
10	PREVIEW OUT	OPEN COLLECTOR (Max. 30 mA)
11	R TALLY (X) IN	ON: SHORT
12	R TALLY (G) IN	OFF: OPEN
13	GND	CHASSIS GND
14	PROD (R) (X) OUT	PROD SYSTEM RECEIVE
15	PROD (R) (Y) OUT	0 dBu BALANCED
16	PROD (G)	GND for PROD
17	PROD (T) (X) IN	PROD SYSTEM TALK
18	PROD (T) (Y) IN	0 dBu BALANCED
19	NC	
20	NC	
21	GND	CHASSIS GND

No.	Signal	Specifications
22	R-TALLY OUT	OPEN COLLECTOR (Max. 30 mA)
23	G-TALLY OUT	
24	G TALLY (X) IN	ON: SHORT
25	G TALLY (G) IN	OFF: OPEN

TRUNK



- EXT VIEW -

No.	Signal	Specifications
1	NC	
2	RX IN	TRUNK Data in
3	TX OUT	TRUNK Data out
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	

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