

HD Camera Control Unit

Operating Instructions

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

HXCU-TX70

Table of Contents

Overview 3

 Features 3

 System Configuration Example 5

Locations and Functions of Parts 6

 Front Panel 6

 Rear Panel 7

 HKCU-FP2 CCU Control Panel (Optional) 9

Status Display 11

 Displaying the Status Screen 11

 Status Display Screen 11

Setup Menu 14

 Changing Menu Item Settings 14

 Menu Tree 16

 Menu List 18

Appendix 28

 Notes on Use 28

 Digital Triax Transmission 28

 Error messages 29

 License Declarations 29

 Specifications 29

Overview

The HXCU-TX70 HD Camera Control Unit (CCU) connects to the CA-TX70 HD Camera Adaptor that is attached to the HXC-D70 HD Color Camera or PMW-500/400/350/320 Solid-State Memory Camcorder.

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

Multi-system input/output interface

The CCU is equipped with the following input and output signal connectors as standard equipment.

Video outputs

- SDI (main), 2-system (HD/SD selectable, embedded digital audio)
- SDI (monitor), 2-system (HD/SD selectable, embedded digital audio, superimposed character and marker display)
- Analog composite (VBS 2-system, PIX 1-system, SYNC/WF 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)
- SYNC/WF 1-system (HD/SD selectable)

Note

The analog composite (WF1 system) and SYNC1 system share a single connector.

Video inputs

- Reference input (HD/SD support)
- SDI return input, 2-system (HD/SD selectable)
- VBS return input, 2-system
- VBS prompter input, 2-system

Audio input/outputs

- Microphone (analog) output, 2-system (XLR-3-pin)
- Intercom input/output, 2-system (D-sub 25-pin)
- PGM (program audio) input, 2-system (D-sub 25-pin)

Other input/outputs

- Tally (R/G) (D-sub 25-pin)
- Microphone remote (D-sub 25-pin)
- WF (waveform monitor) remote output (D-sub 25-pin)
- WF (waveform monitor) mode output (D-sub 25-pin)
- Trunk (D-sub 25-pin)
- REMOTE (8-pin)
- LAN (RJ-45, 8-pin)

Note

The WF remote output, WF mode output, trunk, and microphone remote share a common 25-pin connector.

External sync signals

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.

Digital Triax Transmission

The CCU and camera are connected using the industry-standard double-shielded triaxial camera cable (commonly referred to as triax). The camera and CCU are equipped with the latest Sony-developed digital transmission technology which can transmit high-resolution pictures between the camera and CCU.

Built-in 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. The down converted SD signal has independent image enhancement, gamma, and matrix functions that can be controlled externally.

Built-in simplified up converter

SD signal return video is displayed in the HD viewfinder using a simple up converter. The return video aspect ratio can be set to 4:3 edge crop, 16:9 squeeze, or letterbox.

Electric shock prevention

A safety function cuts the high-voltage supply from the CCU if the connection to the camera becomes unsafe.

When power is applied, low-voltage power is first supplied to the camera. After the connected camera is correctly identified using tone signal detection, the regular DC180 V high-voltage power is supplied to the camera. Power is not supplied to cameras not connected via a dedicated camera connection cable.

Alarm indicators are also fitted to indicate cable open-circuit and short-circuit conditions.

Wide range of audio functions

The CCU is fitted with two-channel microphone output, video signals with embedded audio, and PGM (program) audio input/output connectors. It also features an intercom system with two independent channels, and supports four-wire and RTS/Clear-Com intercom systems.

For information on support for RTS/Clear-Com systems, contact a Sony service or sales representative.

Microphone volume control

The camera's microphone volume can be controlled via the MIC REMOTE connector.

Character monitor signal output

The self-diagnosis status screens and setup menu can be output as a text character display on the video output signal. See "Video outputs" on page 3.

Rack mountable

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

Optional accessories

You can add new functions by incorporating the following optional accessories.

For information about installing optional accessories, contact a Sony service or sales representative.

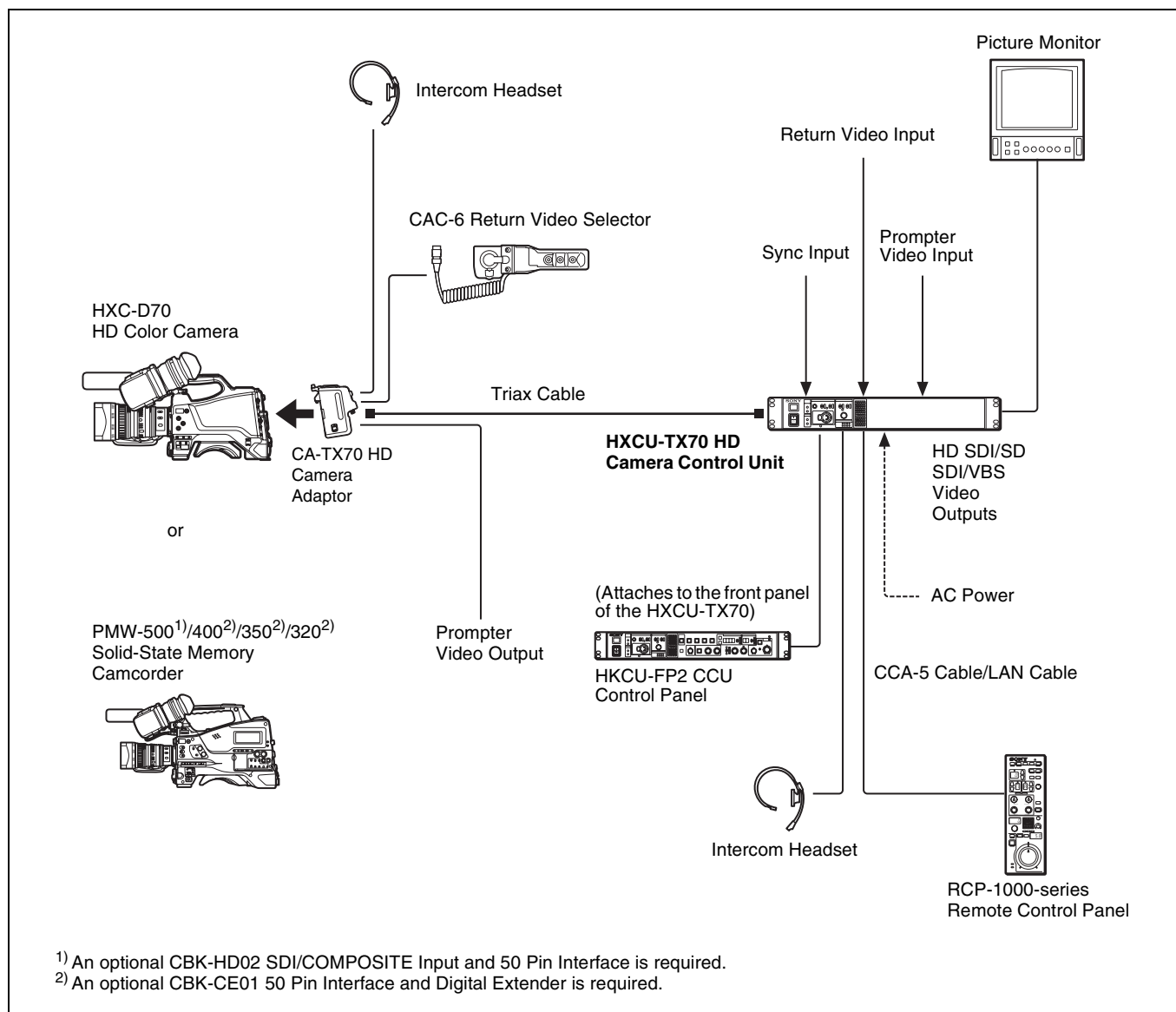
HKCU-FP2 CCU Control Panel

This control panel can be mounted on the CCU in place of the front panel.

It provides adjustment of basic functions using the operation switches and volume control.

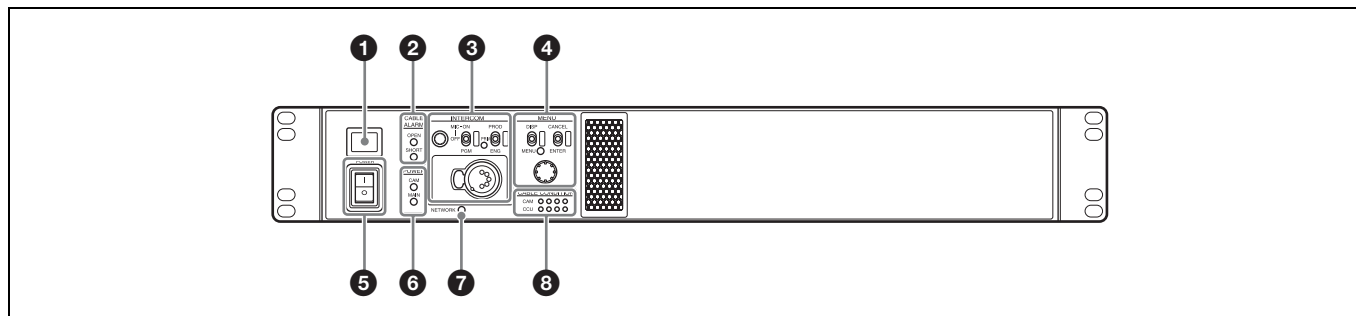
System Configuration Example

Examples of devices and parts that may be used with the HXCU-TX70 are shown below.



Locations and Functions of Parts

Front Panel

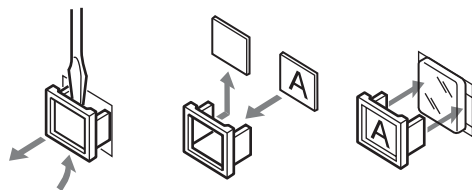


❶ Tally light

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 (see the following figure).



❷ CABLE ALARM indicators

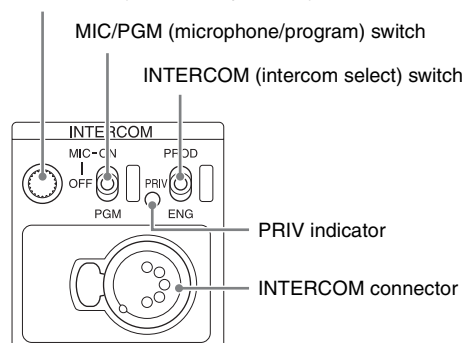
OPEN: Turns on when a camera is not connected (open circuit) to the CAMERA connector on the rear panel via a triax cable. While on, the CCU does not supply any power to the camera.

It flashes if there is a transmission error between the camera and CCU.

SHORT: Turns on when there is an overcurrent condition (short circuit) on the triax cable. While on, the CCU does not supply any power to the camera.

❸ INTERCOM audio input/output and control block

INTERCOM (intercom adjustment) knob



• 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 rear panel.

PROD: Connects the producer line.

PRIV: Disconnects both the producer line and engineer line, allowing private communication between CCU and camera only.

ENG: Connects the engineer line.

• PRIV indicator

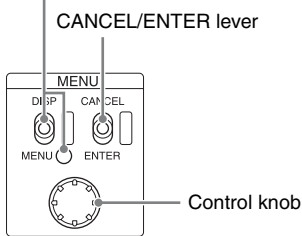
Turns on when the intercom is in private mode.

• INTERCOM connector (XLR 5-pin)

Intercom headset connection.

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 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.

6 POWER indicator

CAM: Turns on when power is supplied to the camera.

MAIN: Turns on when the CCU power supply is turned on. It flashes when there is a problem with the fan.

7 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 12 and “NETWORK SETTINGS menu” on page 27.

8 CABLE CONDITION indicators

Indicates the communication status of the camera (CAM) and camera control unit (CCU).

When the two lamps on the right (green) are lighted:

Reception status is excellent.

When the second lamp from the right (green) is lighted:

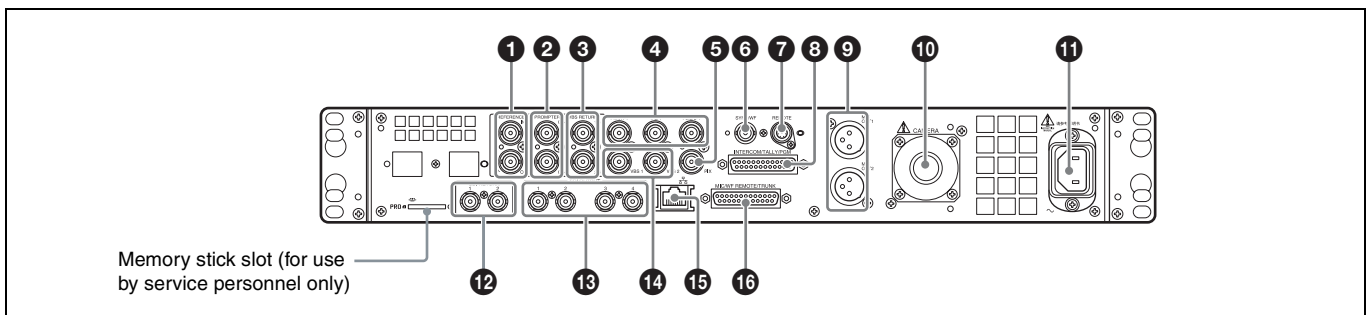
Reception status is good.

When the second lamp from the left (yellow) is lighted:

Reception status is low.

When the lamp on the left (red) is lighted: Reception status is at the lowest level.

Rear Panel



1 REFERENCE IN/OUT (reference input) connectors (BNC type)

Inputs an HD tri-level reference sync signal or SD reference sync signal (black burst signal) on either of the two connectors. The input signal is output from the other connector as-is (loop-through output). The signal is input on the upper connector. The lower connector is terminated automatically if no connector is connected.

2 PROMPTER 1, 2 (teleprompter input 1, 2) connectors (BNC type)

Inputs the VBS signals for the teleprompter.

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

Inputs the 2-system VBS return video signals.

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 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.

6 SYNC/WF (sync signal output/waveform monitor output) connector (BNC type)

Outputs a sync signal or video signal for a waveform monitor.

⑦ REMOTE connector (8-pin)

Transmits and receives control signals from an 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.

⑧ 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.

⑨ MIC OUT1, MIC OUT2 (microphone output 1, 2) connectors (XLR 3-pin)

Outputs the camera microphone signals.

⑩ CAMERA connector (triax connector)

Connects to the camera via a triax cable. The camera sends all video and audio signals to the CCU, and the CCU sends control signals, return video and audio signals, as well as power, to the camera over a single triax cable.

⑪ 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.

⑫ SDI RETURN 1, 2 (SDI return video 1, 2 input) connectors (BNC type)

Inputs the HD SDI return video signals or SD SDI return video signals (2-system).

⑬ 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.

⑭ VBS 1, 2 (composite video signal 1, 2) connectors (BNC type)

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

⑮ (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).

⑯ MIC/WF REMOTE/TRUNK (microphone/waveform monitor remote/trunk) connector (D-sub 25-pin)

Supports the following functions.

• Microphone remote

Connects to an external control device, such as an audio mixer, which can select the camera microphone gain to one of five values (20/30/40/50/60 dB) in response to the audio conditions when shooting.

This connector can also output a red tally signal and green tally signal.

• Waveform monitor remote

Connects to corresponding connector on a recall-type waveform monitor.

Outputs a signal used for remote control of the waveform monitor display by an RCP-1000 series Remote Control Panel.

For connection details, refer to the waveform monitor manual.

• Waveform monitor mode output

Connects to a waveform monitor and is used when monitoring each of the 3 R/G/B waveforms simultaneously in sequential mode.

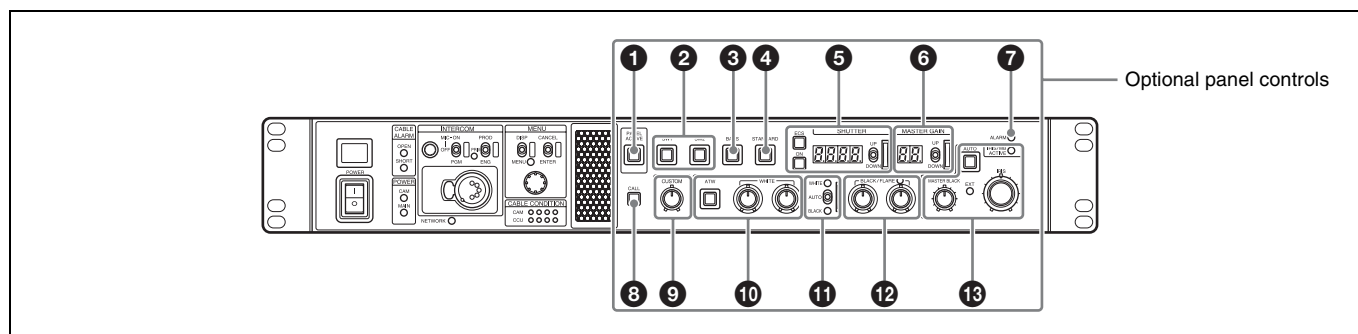
When the SEQ button on the RCP-1000-series Remote Control Panel is pressed, the video signal output from the WF connector changes to a sequence signal.

• Trunk

Connects to an external device to provide a communication path between it and the external device connected to the REMOTE connector on the camera.

HKCU-FP2 CCU Control Panel (Optional)

The switches and knobs not described below are identical to those on the front panel. See “Front Panel” (page 6).



1 PANEL ACTIVE button

Activates the optional HKCU-FP2 CCU 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 optional panel is deactivated (lock state) to prevent inadvertent operation.

2 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 page 25 on “<FRONT PANEL 1>”.

3 BARS (color bars) button

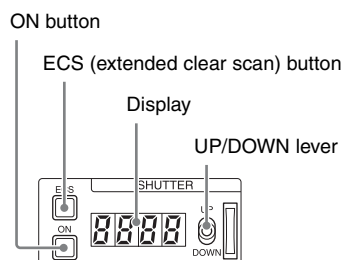
Switches on the color bar signal output to the monitor connected to the CCU (button light turns on). Pressing the button again restores the previous signal output.

4 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.

5 SHUTTER controls

Controls the shutter settings.



• ON button

Switches the normal shutter function on/off (button light turns on/off).

• ECS (extended clear scan) button

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

• Display

When the ECS button is lit: Displays the clear scan frequency. When the ON button is lit: Displays the shutter speed.

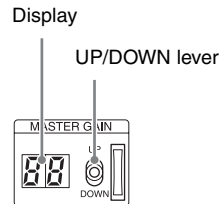
• UP/DOWN lever

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

When the ON button is 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.

6 MASTER GAIN controls

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.

7 ALARM indicator

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

8 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.

9 CUSTOM (custom volume) knob

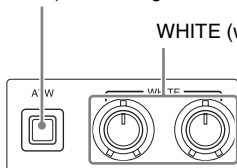
Controls the function assigned to the knob on the <FRONT PANEL 1> page in the CCU CONFIGURATION menu. Turning the knob adjusts the assigned function.

See “VOLUME” on page 25 on “<FRONT PANEL 1>” and “CUSTOM” on page 26 on “<FRONT PANEL 2>”.

10 White balance adjustment controls

ATW (auto tracing white balance) button

WHITE (white balance manual adjustment) knobs



• ATW (auto tracing white balance) button

Switches the white balance auto adjustment function on/off (button light turns on/off). The white balance is automatically adjusted in response to the lighting conditions.

• 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 page 25 on “<FRONT PANEL 1>” and “R/B WHITE” on page 26 on “<FRONT PANEL 2>”.

Note

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

11 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.

Notes

- When the WHITE knobs are set to absolute value mode, the white balance cannot be automatically adjusted using the AUTO WHITE/BLACK lever.
- When the BLACK/FLARE indicator is not lit and the BLACK/FLARE knobs are set to absolute value mode, the black balance cannot be automatically adjusted using the AUTO WHITE/BLACK lever.

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

Adjusts the black balance and flare balance manually.

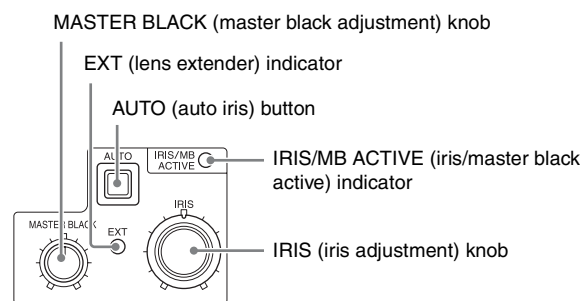
When the indicator is not lit, the knobs adjust the black balance. When the indicator is lit, the knobs adjust the flare balance. The left knob adjusts the R coefficient, and the right knob adjusts the B coefficient.

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 page 25 on “<FRONT PANEL 1>” and “R/B BLACK” on page 26 on “<FRONT PANEL 2>”.

13 IRIS/MASTER BLACK adjustment controls



• 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 page 25 on “<FRONT PANEL 1>” and “M BLACK” on page 26 on “<FRONT PANEL 2>”.

• 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.

• 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 relative value mode.

See “IRIS” on page 25 on “<FRONT PANEL 1>” and “IRIS” on page 26 on “<FRONT PANEL 2>”.

Status Display

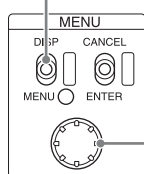
The CCU system status can be monitored using a picture monitor connected to the PIX output.

For information on monitoring and changing settings, see “Setup Menu” on page 14.

Displaying the Status Screen

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

DISP/MENU lever



Control knob

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.

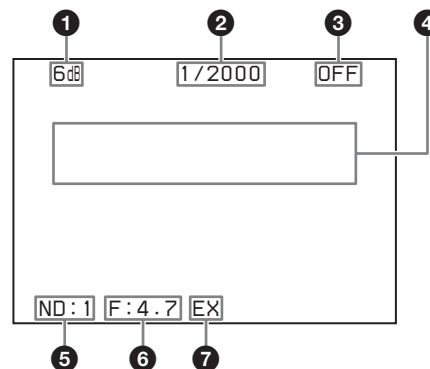
Status Display Screen

The following information is displayed on the status display screen.

- Camera settings
- System status
- CCU hardware diagnostics
- Camera system diagnostics
- Network diagnostics
- CCU DPR board diagnostics
- CCU DM board diagnostics
- Front panel diagnostics
- Camera hardware diagnostics
- ROM version Information

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		CC:A

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
Return1      :1080/59.94I
Return2      :525/59.94I
Return3      :NTSC
Return4      :NTSC
```

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

Return1: Return 1 return signal format setting

Return2: Return 2 return signal format setting

Return3: Return 3 return signal format setting

Return4: Return 4 return signal format setting

CCU hardware diagnostics

```
*Diagnosis*          2/13

DPR   :OK
DM     :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

DM: DM board status

Front Panel: HKCU-FP2 CCU control panel status (displayed only when HKCU-FP2 is mounted)

Camera system diagnostics

Page 1

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

TRIAX Type Digital
Cable Connect
Comp. Auto
Step 1

Fan Power OK
Timer      96H
CCU Power AC OK

SerialNo   100001
```

TRIAX Type: Triax transmission mode

TRIAX Cable: CCU triax cable connection status

TRIAX Comp.: Triax cable compensation mode selection

TRIAX Step: Triax cable compensation step (internal circuit step display)

Fan Power: CCU power supply fan status

Timer: Elapsed time since power-on

CCU Power: CCU power supply type and status

SerialNo: CCU serial number

Page 2

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

CAMERA Cable Connect
Data OK
Power OK
Tone Detect
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

CAMERA Tone: Camera identification tone detection 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 ENG
PGM
CAMERA CH1 ENG
MIC OFF
CH2 ENG
MIC OFF
CAM MIC Gain Local
CH1(FRONT) 60dB
CH2(REAR) 60dB
```

Intercom CCU FRONT: CCU intercom selection

Intercom CAMERA CH1: Camera intercom channel 1 selection and microphone status

Intercom CAMERA CH2: Camera intercom channel 2 selection and microphone status

CAM MIC Gain: Camera microphone circuit control selection

CAM MIC CH1 (FRONT): Camera microphone channel 1 amplifier gain

CAM MIC CH2 (REAR): Camera microphone channel 2 amplifier gain

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      :BRIDGE
CCU No.       :1
Target IP Address
0. 0. 0. 0
```

CNS Mode: REMOTE and LAN connectors mode setting

CCU No.: CCU number setting

Target IP Address: PC CONTROL-mode master device IP address

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 DPR board diagnostics

```
*DPR Diag* 9/13
HD CB :BAR 16:9(100%)
SD CB :SMPTE
Reference : HD
HD-SD Delay: 0-Delay
PLD Status:OK
POST :1.00
SY :1.00
IIC :OK
DPR POWER:OK
```

HD CB: HD color bar setting

SD CB: SD color bar setting

Reference: Reference signal setting

HD-SD Delay: HD to SD delay setting

PLD Status: PLD status

PLD POST: POST-PLD version

PLD SY: SY-PLD version

IIC: IIC bus control status

DPR POWER: DPR board power supply status

CCU DM board diagnostics

```
*SY Diag* 10/13
PLD Status :OK
DM :1.00
IIC :OK
DM POWER:OK
```

PLD Status: PLD status

PLD DM: DM-PLD version

IIC: IIC bus control status

DM POWER: DM board power supply status

Front panel diagnostics

This screen is displayed only when the HKCU-FP2 CCU Control Panel is fitted.

```
*Front Panel Diag* 11/13
Assignable/Custom
SW1 :CAM POWER
SW2 :5600K
VOLUME :SD DTL Level
SW Bright:Low
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	13.10.01
CCU HXCU-TX70	
1.00	13.10.01

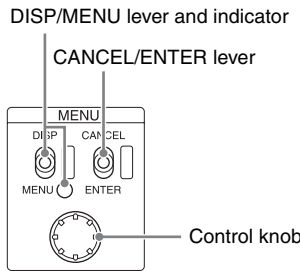
CAMERA: Camera model name and ROM version
CCU: CCU model name and ROM version

Setup Menu

The CCU system and peripheral settings can be 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 ➡ arrow 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 OPERATION
CCU CONFIGURATION
NETWORK SETTINGS

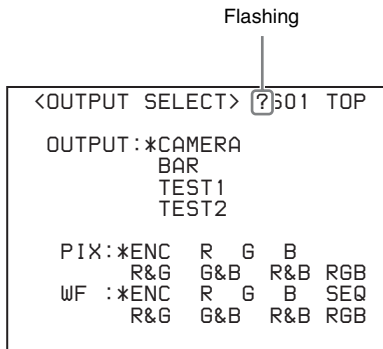
Menu name	Description
SYSTEM OPERATION	Input/output signal format and system-related settings
CCU CONFIGURATION	CCU configuration settings
NETWORK SETTINGS	Network-related settings

To select an item in the CCU MENU

Turn the control knob to move the ➡ arrow 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 ➡ arrow to the page number, then press the control knob.
The ➡ arrow 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 ➡ arrow. 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 ➡ arrow. Items on the page can now be selected and changed.

- 1 Turn the control knob to move the ➡ arrow to the desired item, then press the control knob.
The ➡ arrow 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 ➡ arrow, and the item setting is registered.
- 4 Repeat steps 1 to 3 to change other settings on the same page.

To change a menu item with multiple input fields

Some menus have items with multiple input fields. Moving the ➡ arrow to an item with multiple input fields and pressing the control knob displays the input fields. Each field needs to be set separately.

Turning the control knob moves the cursor between input fields.

The following menu item has multiple input fields:

- NETWORK SETTINGS menu → <CNS SETTINGS> page
→ TARGET IP ADDRESS

- 1 Turn the control knob to move the ➡ arrow to the desired item, then press the control knob.
The ➡ arrow changes to a flashing * asterisk. The input fields are displayed. A second ➡ arrow is displayed for the input fields.

- 2 Turn the control knob to move the ➡ arrow to the desired input field, then press the control knob.
The ➡ arrow changes to a flashing ? question mark.

- 3 Turn the control knob to change the setting.

To cancel a changed input field setting

Set the CANCEL/ENTER lever to the CANCEL position before pressing the control knob. The field is restored to its current setting. Other changed input fields are not restored to their previous 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.

- 4 Press the control knob.
The ? question mark changes back to the ➡ arrow, and the input field setting is registered.

- 5 Repeat steps 2 to 4 to change other input fields.

- 6 Turn the control knob to move the ➡ arrow to END, then press the control knob.
The * asterisk changes back to the ➡ arrow, and all item input field settings are registered.

To cancel all changed item settings

Turn the control knob to move the ➡ arrow to ESC, then press the control knob.

The * asterisk changes back to the ➡ arrow, and all changes are discarded.

To enter a character string

Some menu items require a character string input.

Moving the ➡ arrow 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

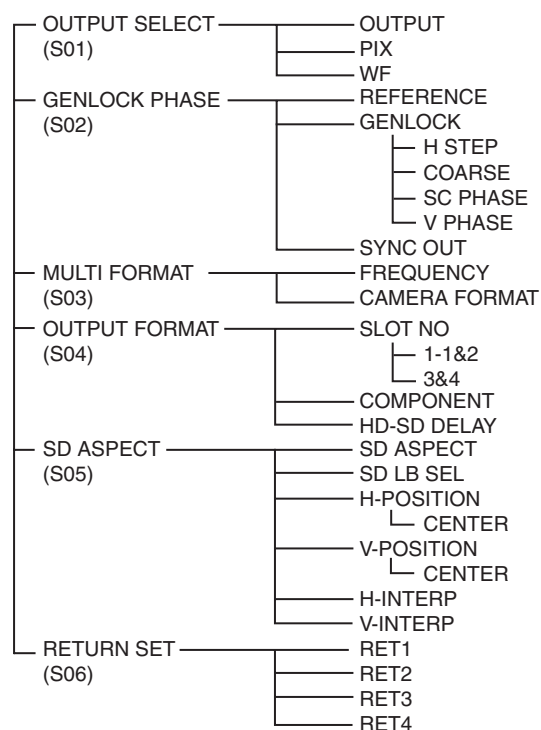
Turn the control knob to move the cursor to ESC, then press the control knob.

To exit the menu display

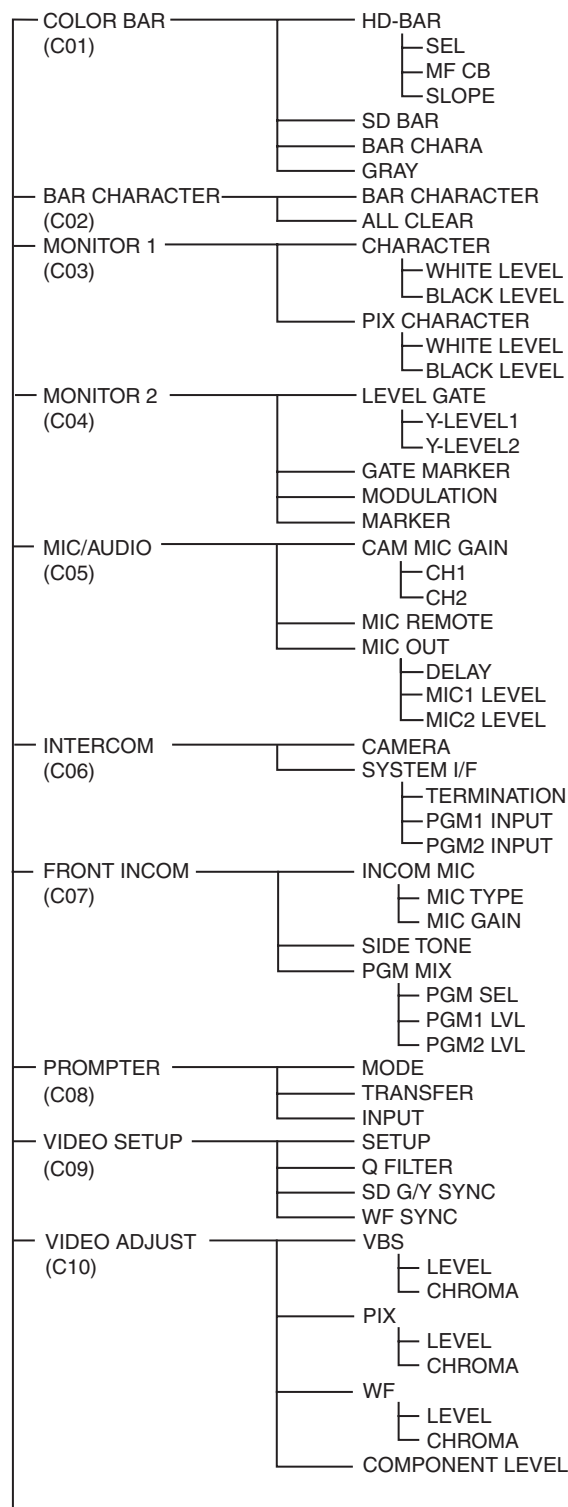
In menu display mode, set the DISP/MENU lever to the MENU position.

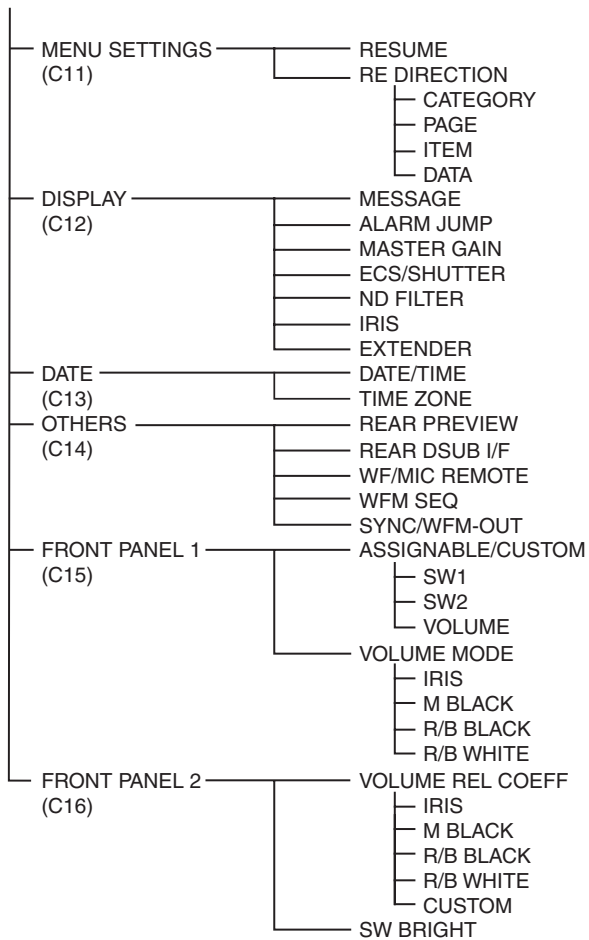
Menu Tree

SYSTEM OPERATION menu

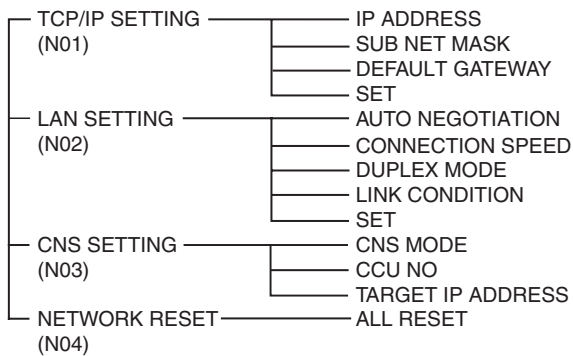


CCU CONFIGURATION menu





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

ENTER to execute: Press the control knob or move the CANCEL/ENTER lever to the ENTER position to execute.

SYSTEM OPERATION menu

Page name Page No.	Item	Settings	Indication
<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
	WF	ENC , R, G, B, SEQ, R&G, G&B, R&B, RGB	WF connector output signal selection
<GENLOCK PHASE> S02	REFERENCE	(NONE), (EXT IN)	Reference signal input status (read only)
	GENLOCK	HD, SD	External reference signal lock mode selection, lock status, and signal format
		(OK), (NG)	External reference signal lock status (read only) (OK): Locked (NG): Unlocked
		External reference signal format	Displayed only when a reference signal is present (read only)
	H STEP	When GENLOCK is HD: -3.01 to 3.45 μ sec 0.00 When GENLOCK is SD: -8.29 to 9.48 μ s 0.00	Reference signal lock phase adjustment (horizontal phase, step)
	COARSE	-99 to 99 0	Reference signal lock phase adjustment (horizontal phase)
	SC PHASE	0 to 359	Subcarrier phase adjustment
	V PHASE	0 to 7	Reference signal lock phase adjustment (vertical phase)
	SYNC OUT	HD SYNC, SD SYNC	SYNC connector output signal selection
<MULTI FORMAT> S03	FREQUENCY	1.001, 1.000	Operating frequency selection Note The default setting is different among the sales areas. United States and Canada: 1.001 Other areas: 1.000
		(525 NTSC), (625 PAL) (Read only) When FREQUENCY is 1.001: (525 NTSC) (625 PAL): When FREQUENCY is 1.000	Note The default setting is different among the sales areas. United States and Canada: (525 NTSC) Other areas: (625 PAL)
	CAMERA FORMAT	When FREQUENCY is 1.001: 1080/59.94i, 720/59.94P When FREQUENCY is 1.000: 1080/50i, 720/50P	Transmission format selection Note The default setting is different among the sales areas. United States and Canada: 1080/59.94i Other areas: 1080/50i

Page name Page No.	Item	Settings	Indication
<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 Note The default setting is different among the sales areas. United States and Canada: 1080/59.94i Other areas: 1080/50i
	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 Note The default setting is different among the sales areas. United States and Canada: M525/59.94i Other areas: M625/50i
	COMPONENT	HD RGB, HD YPbPr, SD RGB, SD YCD	Component signal connector output format selection
	HD-SD DELAY	When CAMERA FORMAT is 1080 system format: 0-Delay , Line (90H), Frame (1F) When CAMERA FORMAT is 720 system format: 0-Delay, Line (120H), Frame (2F) When GENLOCK is HD: 0 to -71.1 μs When GENLOCK is SD: 0 to -51.7 μs	HD signal to SD signal delay mode 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 () displayed when SD ASPECT is SQUEEZE or LETTER BOX (read only)
	CENTER	ON , OFF, (ON), (OFF)	Horizontal centering selection () displayed when SD ASPECT is SQUEEZE or LETTER BOX (read only)
	V POSITION	-99 to 99, (-99) to (99) (0)	Vertical position setting () displayed when SD ASPECT is SQUEEZE or EDGE CROP (read only)
	CENTER	ON, OFF, (ON) , (OFF)	Vertical centering selection () displayed when SD ASPECT is SQUEEZE or EDGE CROP (read 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

Page name Page No.	Item	Settings	Indication
<RETURN SET> S06	RET1	When CAMERA FORMAT is 1080/59.94i:	Return signal format, aspect, and letterbox aspect ratio selection
	RET2	1080/59.94i , 525/59.94i, NTSC	Sequence of format options: 1: HD SDI 2: SD SDI 3: VBS
	RET3	(RET3 and RET4 default setting is NTSC)	
	RET4	When CAMERA FORMAT is 720/59.94P: 720/59.94P, 525/59.94i, NTSC	
		When CAMERA FORMAT is 1080/50i: 1080/50i, 625/50i, PAL	<div>Note</div> If the return signal is not output correctly, check that the format matches the format setting of the input return signal.
		When CAMERA FORMAT is 720/50P: 720/50P, 625/50i, PAL	
		SQUEEZE , EDGE CROP, LETTER BOX	
		16:9 , 15:9, 14:9, 13:9	Not displayed for HD SDI signals

CCU CONFIGURATION menu

Page name Page No.	Item	Settings	Indication
<COLOR BAR> C01	HD BAR		HD output color bar settings
	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	
	MF CB	MODIFY , EVEN	Multi-format color bar setting
	SLOPE	WIDE , NARROW	Color bar chroma bandwidth setting
	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		Settings for strings 1 to 11 that are superimposed on the color bar signal
	ALL CLEAR	ENTER to execute	Execute to clear all character strings
	CHARACTER		Bar character settings
<MONITOR 1> C03	WHITE LEVEL	0.0 to 107.0% 71.5	Bar character level setting
	BLACK LEVEL	0.0 to 107.0%	Bar character border black level setting
	PIX CHARACTER		PIX output character settings
	WHITE LEVEL	75.0 to 107.0%	PIX output character level setting
	BLACK LEVEL	0.0 to 25.0%	PIX output character border black level setting

Page name Page No.	Item	Settings	Indication
<MONITOR 2> C04	LEVEL GATE	---, 1&2, 1, 2, OFF	---: Displayed when camera not connected, video output not set to CAMERA, or video output is set to CAMERA and GATE MARKER is ON (read only)
	Y LEVEL1	0 to 108% 49 61 -99 to 99 -25	Level gate 1 minimum and maximum detection levels and zebra range settings
	Y LEVEL2	0 to 108% 74 108 -99 to 99 -25	Level gate 2 minimum and maximum detection levels and zebra range settings
	GATE MARKER	---, ON, OFF -99 to 99 0	Gate signal display on/off and signal level setting ---: Displayed when camera not connected (read only)
	MODULATION	---, ON, OFF -99 to 99 0	4:3 aspect ratio mask function on/off when EDGE CROP is ON, and mask video level setting ---: Displayed when camera not connected (read only)
	MARKER	ON, OFF 4:3 , 13:9, 14:9, EU VISTA, VISTA, CINEMA, FOLLOW DC	Marker signal on/off and superimposed signal selection
<MIC/AUDIO> C05	CAM MIC GAIN	(REMOTE), (LOCAL)	Camera microphone gain settings (REMOTE): MIC REMOTE source (LOCAL): Not MIC REMOTE source
	CH1	---, 20, 30, 40, 50, 60 dB	Set to match the microphone used.
	CH2	---, 20, 30, 40, 50, 60 dB	---: Displayed when camera not connected (read only)
	MIC REMOTE	MIC 1&2, MIC 1.2	MIC REMOTE gain control method MIC 1&2: MIC 1, 2 common gain control MIC 1.2: MIC 1, 2 independent gain control
	MIC OUT		
	DELAY	0 , 256, 512, 768, 1024, 1280, 1536, 1792, 2048, 2304, 2560, 2816, 3072, 3328FS	MIC OUT 1, 2 delay setting
	MIC1 LEVEL	-20, 0 +4 dBu	
	MIC2 LEVEL	-20, 0 +4 dBu	
<INTERCOM> C06	CAMERA	(ENG/MIC ON), (---/MIC OFF), (PROD/MIC ON)	Camera settings
	SYSTEM I/F	CLEAR COM , 4 WIRE, RTS	D-sub 25-pin intercom interface settings
	TERMINATION	(OFF), ON, OFF	200 Ω , termination when 2WIRE is set to ON. (OFF): When SYSTEM I/F is 4WIRE (read only)
	PGM1 INPUT	-20, 0 , +4 dBu	PGM1 input level setting
	PGM2 INPUT	-20, 0 , +4 dBu	PGM2 input level setting

Page name Page No.	Item	Settings	Indication
<FRONT INCOM> C07		(MIC ON), (OFF), (PGM ON)	CCU front panel MIC/PGM switch position (read only)
		(PRIVATE), (PROD), (ENG)	CCU front panel INTERCOM switch position (read 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 setting
	PGM MIX	OFF , INCOM+PGM, L-INCOM/R-PGM	OFF: PGM MIX disabled INCOM+PGM: INCOM and PGM mixing L-INCOM/R-PGM: INCOM output on left and PGM output on right
	PGM SEL	PGM1 , PGM2, PGM1+PGM2	PGM output settings
	PGM1 LVL	0 to 99, 50	PGM1 level setting
	PGM2 LVL	0 to 99, 50	PGM2 level setting
<PROMPTER> C08	MODE	NORMAL , LOW LATENCY	Video resolution mode switch NORMAL: Color picture transmitted as-is in standard resolution with delay of approximately 5 frames LOW LATENCY: SD B&W picture transmitted as low resolution simplified images on the VBS Y line only with delay less than 1 frame
	TRANSFER	VBS , (VBS Y Only)	VBS: VBS signal from PROMPTER connector sent to camera as teleprompter (VBS Y Only): Displayed when MODE is LOW LATENCY (read only)
	INPUT	PROMPTER1, PROMPTER2	Number of prompter circuits setting
<VIDEO SETUP> C09	SETUP	ON, OFF , --	ON: Setup on VBS and SD YCD component signal Ych-SYNC OFF: Setup disabled --: Displayed when format is PAL (read only)
	Q FILTER	NARROW , WIDE, --	Q FILTER bandwidth setting --: Displayed when format is PAL (read only)
	SD G/Y SYNC	ON , OFF	SD RGB component signal Gch-SYNC or SD YCD component signal Ych-SYNC on/off
	WF SYNC	ON , OFF	WF signal SYNC on/off

Page name Page No.	Item	Settings	Indication
<VIDEO ADJUST> C10	VBS		VBS output video level adjustment
	LEVEL	-99 to 99 <u>0</u>	
	CHROMA	-99 to 99 <u>0</u>	
	PIX		PIX output video level adjustment
	LEVEL	-99 to 99 <u>0</u>	
	CHROMA	-99 to 99 <u>0</u>	
	WF		WF output video level adjustment
	LEVEL	-99 to 99 <u>0</u>	
	CHROMA	-99 to 99 <u>0</u>	
<MENU SETTINGS> C11	COMPONENT LEVEL	-99 to 99 <u>0</u>	Component signal level setting
	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 ➡ arrow down RVS: control knob counterclockwise rotation moves the CCU MENU ➡ arrow 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 ➡ arrow down to the next item on the page RVS: control knob counterclockwise rotation moves the ➡ arrow 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> C12 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	Master gain display on/off
	ECS/SHUTTER	<u>ON</u> , OFF	ECS/shutter display on/off
	ND FILTER	<u>ON</u> , OFF	ND filter display on/off
	IRIS	<u>ON</u> , OFF	IRIS display on/off
	EXTENDER	<u>ON</u> , OFF	EXTENDER display on/off
<DATE> C13	DATE/TIME	20YY/MM/DD hh:mm	Date and time settings Time displayed in 24-hour format
	TIME ZONE	hh:mm	Time zone setting -11h59m to +11h59m

Page name Page No.	Item	Settings	Indication
<OTHERS> C14	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
	REAR DSUB I/F	<u>MIC REM</u> , WF REM	MIC/WF REMOTE/TRUNK connector function selection MIC REM: MIC REMOTE function WF REM: WF REMOTE function
	WF/MIC REMOTE	<u>REMOTE</u> , OFF	MIC/WF REMOTE operation selection
	WFM SEQ	PNP, <u>NPN</u>	External waveform monitor output signal polarity selection
	SYNC/WFM-OUT	<u>SYNC</u> , WFM	SYNC/WF connector output signal selection

Page name Page No.	Item	Settings	Indication
<FRONT PANEL 1>	ASSIGNABLE/CUSTOM		
C15 Displayed only when the HKCU-FP2 CCU Control Panel is fitted	SW1	NOT ASSIGN , GAMMA OFF, HD DTL OFF, SD DTL OFF, BLK GAMMA, KNEE OFF, AUTO KNEE, 5600K, CAM POWER	HKCU-FP2 CCU front panel SW1 button function 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	HKCU-FP2 CCU front panel SW2 button function 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	HKCU-FP2 CCU front panel CUSTOM knob function 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

Page name Page No.	Item	Settings	Indication
<FRONT PANEL 2>	VOLUME REL COEFF		
C16 Displayed only when the HKCU-FP2 CCU Control Panel is fitted	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	<u>NORMAL</u> , LOW	Front panel button lights LED brightness

NETWORK SETTINGS menu

Page name Page No.	Item	Settings	Indication
<TCP/IP SETTING> N01	IP ADDRESS	<u>0.0.0.0</u> to 255.255.255.255	IP address setting
	SUBNET MASK	<u>0.0.0.0</u> to 255.255.255.255	Subnet mask display
	DEFAULT GATEWAY	<u>0.0.0.0</u> to 255.255.255.255	Default gateway display
	SET	ENTER to execute	A "SET OK?" message is displayed. Press ENTER again to confirm the change.
<LAN SETTINGS> N02	AUTO NEGOTIATION	<u>ON</u> , OFF	Auto negotiation on/off of connection speed and communication mode with connected device
	CONNECTION SPEED	10M, <u>100M</u>	Connection speed selection 10M: 10BASE-TX 100M: 100BASE-TX Configurable only when AUTO NEGOTIATION is off.
	DUPLEX MODE	HALF, <u>FULL</u>	Communication method selection HALF: Half-duplex communication FULL: Full-duplex communication Configurable only when AUTO NEGOTIATION is off.
	LINK CONDITION	(DOWN), (UP)	Communication mode display (read only) (DOWN): Not connected correctly (UP): Connected successfully
	SET	ENTER to execute	A "SET OK?" message is displayed. Press ENTER again to confirm the change.
<CNS SETTINGS> N03	CNS MODE	<u>LEGACY</u> , BRIDGE, PC CONTROL	Network connection mode selection LEGACY: External controller connected using CCA-5 cable only BRIDGE: External controller connected using point-to-point LAN cable PC CONTROL: HZC-RCP5 connected using LAN cable
	CCU NO	Default: <u>0</u>	When CNS MODE is LEGACY or BRIDGE: 1 to 96, A to Z
	TARGET IP ADDRESS	<u>0.0.0.0</u> to 255.255.255.255	PC's IP address display
<NETWORK RESET> N04	ALL RESET	ENTER to execute	A "NET SETTINGS RESET OK?" message is displayed. Press ENTER again to reset NETWORK SETTINGS menu items to factory default values.

Appendix

Notes on Use

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 dealer.

The life expectancy of the electrolytic capacitor is about 5 years under normal operating temperatures and normal usage (8 hours per day; 25 days per month). If usage exceeds the above normal usage frequency, the life expectancy may be reduced correspondingly.

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.

Digital Triax Transmission

Digital transmission between camera and CCU with powerful error correction function built-in. 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.

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

- The video delay in transmission between the camera and the CCU is approximately 9 to 12 msec.
- A delay of about 1 frame occurs on the viewfinder display if a camera image is sent back from the CCU to the camera as a return signal.
- A delay of about 5 frames occurs on the teleprompter video in standard mode (standard mode or low-latency mode using simplified images can be selected on the CCU).
- An appropriate delay is applied to the MIC 1 and 2 audio signals from the CCU to match the video delay.
- A certain time is required for the video signal transmitted between the camera and the CCU to stabilize after power is applied. This is not a malfunction.

Triax transmission distances

The maximum and minimum transmission distances allowed for triax cable connection are shown in the table below. The distances may vary according to the conditions, such as cable degradation.

Allowable transmission range when using triax cables with the following characteristics:

Attenuation: 3.8 to 45.6 dB at 100 MHz (including the connector loss)

Cable (for example)		Max. distance	Min. distance
Fujikura	8.5-mm dia.	600 m (1969 ft)	50 m (164 ft)
Fujikura	14.5-mm dia.	1,200 m (3937 ft)	100 m (328 ft)
Belden 9232	13.2 mm dia.	850 m (2789 ft)	75 m (246 ft)

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: DM NG	DM board power supply error
CCU: PS FAN NG	Power supply block fan error
CCU: PS CABLE SHORT	CAMERA connector triax cable short circuit error
CCU: PS CABLE OPEN	CAMERA connector triax cable open circuit error
CCU: PS RCP PWR SUPPLY NG	Remote control panel (connected to REMOTE connector) power supply error
CCU:RX WARNING	Transmission error between camera and CCU

License Declarations

The CCU teleprompter video circuit uses MPEG-2 technology.

MPEG-2 Video Patent Portfolio License

ANY USE OF THIS PRODUCT OTHER THAN CONSUMER PERSONAL USE IN ANY MANNER THAT COMPLIES WITH THE MPEG-2 STANDARD FOR ENCODING VIDEO INFORMATION FOR PACKAGED MEDIA IS EXPRESSLY PROHIBITED WITHOUT A LICENSE UNDER APPLICABLE PATENTS IN THE MPEG-2 PATENT PORTFOLIO, WHICH LICENSE IS AVAILABLE FROM MPEG LA, L.L.C., 250 STEELE STREET, SUITE 300, DENVER, COLORADO 80206.

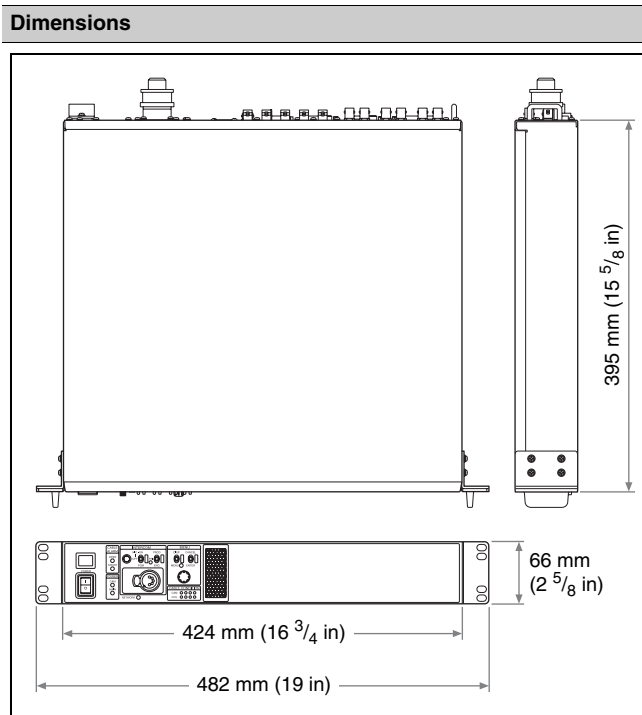
“PACKAGED MEDIA” means any storage media storing MPEG-2 video information such as DVD movie which are sold/distributed to general consumers. Disc replicators or sellers of the PACKAGED MEDIA need to obtain licenses for their own business from MPEG LA. Please contact MPEG LA for any further information. MPEG LA, L.L.C., 250 STEELE STREET, SUITE 300, DENVER, COLORADO 80206
<http://www.mpegla.com>

Specifications

HXCU-TX70

General	
Power supply	AC 100 to 240 V, 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)
Weight	Approx. 7.9 kg (17 lb 6.7 oz)
Input/output connectors	
CAMERA	Triax connector (1)
INTERCOM	XLR 5-pin (1)
INTERCOM/TALLY/PGM	D-sub 25-pin, female (1) <ul style="list-style-type: none">• INCOM (PROD/ENG), 4W/RTS/CC, 0 dBu• TALLY (R, G)• PGM 2-system, −20 dBu/0 dBu/+4 dBu
REMOTE	8-pin multiconnector (1)
MIC/WF REMOTE/TRUNK	D-sub 25-pin, female (1)
LAN	8-pin (1)
Input connectors	
AC IN	(1), AC 100 to 240 V
SDI RETURN 1, 2	BNC type (2) HD SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gbps bit rate SD SDI: SMPTE 259M, 270 Mbps bit rate
VBS RETURN 1, 2	BNC type (2), 1.0 Vp-p, 75 Ω
REFERENCE IN/OUT	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, 75 Ω)
PROMPTER 1, 2	BNC type (2), VBS signal, 1.0 Vp-p, 75 Ω 2 systems

Output connectors	
SDI OUTPUT 1, 2	BNC type (2) 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
SDI OUTPUT 3, 4 (MONITOR)	BNC type (2) 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) <ul style="list-style-type: none"> 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, VBS2	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/WF	BNC type (1) <ul style="list-style-type: none"> SYNC 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 WF VBS/R/G/B/SEQ (VBS 1.0 Vp-p, 75 Ω)
MIC OUT	XLR 3-pin, male (2), 0 dBu / -20 dBu
Supplied accessories	
Number plates (1 set)	
Before Using this Unit (1)	
Warranty booklet (1)	
Operating Instructions (CD-ROM) (1)	
Optional accessories	
HKCU-FP2 CCU Control Panel	
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	
Maintenance manual	
Related equipment	
RCP-1000-series Remote Control Panel	
CA-TX70 Camera Adaptor	



HKCU-FP2 CCU Control Panel (Optional)

General	
Current consumption	5 W (max) (supplied from the CCU)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions (W x H x D)	Approx. 424 x 66 x 50 mm (16 3/4 x 2 5/8 x 2 in.)
Weight	Approx. 0.4 kg (14 oz)
Supplied accessories	
Harness (1)	

Design and specifications are subject to change without notice.

Notes

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

The material contained in this manual consists of information that is the property of Sony Corporation and is intended solely for use by the purchasers of the equipment described in this manual.

Sony Corporation expressly prohibits the duplication of any portion of this manual or the use thereof for any purpose other than the operation or maintenance of the equipment described in this manual without the express written permission of Sony Corporation.

<http://www.sony.net/>

Sony Corporation