SONY

HD CAMERA CONTROL UNIT

HDCU2000
HDCU2500

3G/HD SDI OUTPUT EXPANSION UNIT

HKCU2007

SD ENCODER UNIT

HKCU1001

MULTI INTERFACE UNIT

HKCU1003

Digital HDVS

OPERATION MANUAL English

1st Edition (Revised 2)

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Overview

The HDCU2000/2500 Camera Control Unit is connected to a Sony HD-series high-definition video camera. It carries out signal processing and provides an interface for external equipment.
This unit features standard 3G optical transmission, and when used with an HDC2000/2500 series camera, can standard slow motion play via 2× recording speed, a 1080/59.94P, 50P-recording subcamera system and more.

This unit may be combined with an MSU-1000 series Master Setup Unit (optional) or an RCP-1000 series Remote Control Panel (optional) to form a camera control system. Further, a system capable of controlling multiple video cameras can be configured by adding a CNU-700 Camera Command Network Unit.

The HDCU2000/2500 has the following major features.

Front panel for increased usefulness

The HDCU2000/2500 features a design that places menu operation switches and status LEDs related to optical transmission, etc., on the front panel. These were moved from under the cover of the HDCU1000/1500's front panel, providing even greater convenience.

Multiple video inputs and outputs

The HDCU2000/2500 features the following standard-feature signal input/output ports.

HDCU2000

- Eight SDI outputs (Four 3G/HD switchable outputs, four HD/SD switchable outputs)
- Four 3G/HD/SD-SDI return inputs
- Four SD analog return inputs
- Two teleprompter inputs
- One HD TRUNK output
- One HD prompter input

HDCU2500

- Seven SDI outputs (Three 3G/HD switchable outputs, four HD/SD switchable outputs)
- Three 3G-SDI/HD-SDI/SD-SDI/SD analog return inputs
- One teleprompter input
- One HD TRUNK output
- One HD prompter input

In addition, a variety of input/output interfaces are offered via optional installable boards.

HKCU2007 3G/HD SDI Output Expansion Unit

This provides four 3G-SDI or HD-SDI outputs.
With multiple boards of this type installed, the HDCU2000/2500 outputs up to 16 (HDCU2000) or seven (HDCU2500) 3G-SDI/HD-SDI signals.

HKCU1001 SD Encoder Unit

Installing this board makes it possible to output SD analog composite signals (NTSC/PAL), SD picture monitor signals and SD waveform monitor signals.

HKCU1003 Multi Interface Unit

This board consists of 3 types of VDA boards, and makes the following input/output signals possible:

- Frame reference input and output to lock 2-3 pull-down sequence
- SD analog component signal (RGB or Y/R-Y/B-Y) or SD analog composite signal output
- SD analog composite signal (NTSC/PAL) output, SD picture monitor signal output, SD waveform monitor signal output

External reference signals

The HDCU2000/2500 can be locked to an external reference signal. Either an HD tri-level sync signal or an SD sync (black burst) signal may be used as the reference signal.

Built-in down converter

When the system is operating at a 59.94/50 Hz field frequency, HD signals can be converted to SD component SDI signals using the down converter. The output signal aspect ratio may be set to 4:3 edge crop, 16:9 squeeze, or letter box. The down converter has image enhancement, gamma control, and matrix ON/OFF features, and can be controlled externally.

Built-in simplified up converter

The HDCU2000/2500 has a simplified up converter to allow monitoring of SD signal return video using an HD viewfinder. The aspect ratio of the return video signal may be set to 4:3 edge crop, 16:9 squeeze, or letter box.

3G Digital Optical Transfer

The HDCU2000/2500 may be connected to a camera using an optical fiber cable (two single-mode optical fiber lines, two power lines and two control lines) for the transmission of digital video, audio, and control signals. By connecting together optical fiber cables, signals may be transmitted up to a maximum of 4,000 meters (13,100 feet) (HDCU2000)/2,000 meters (6,600 feet) (HDCU2500). The maximum length of the cable supplying power varies with the camera system configuration and with the type of optical fiber cable.
The HDCU2000/2500 supports standard 3G digital optical transfer, and when used with an HDC2000/2500 series camera, can support standard slow motion play via 2× recording speed, 1080/59.94P, 50P recording and more via just one optical cable.
The HDCU2000/2500 can also be connected to the HDC1000/1500 series cameras.

Network TRUNK function

The HDCU2000/2500 can transmit data at up to 1 gigabit using the network TRUNK function (via the LAN port). Network-controllable camera peripheral devices connected to the HDC2000/2500 series camera can communicate with the HDCU2000/2500-connected network controller, as well as utilize IP network cameras as sub-cameras. This function

allows for current and future compatibility with a multitude of applied system configurations.

HD TRUNK function

The new HD TRUNK function uses 3G optical transmission. HD-SDI-equivalent digital data separate from an HD-SDI video signal can be sent from an HDC2000/2500 series camera to the HDCU2000/2500.

Available only when set to single link format.

HD prompter function

The new HD prompter function uses 3G optical transmission. HD-SDI-equivalent digital data separate from a return video signal can be sent from the HDCU2000/2500 to an HDC2000/2500 series camera.

Safety-oriented power supply

The HDCU2000/2500 is designed for safety. When the power is turned on, a low voltage is supplied at first. Only after it has been verified that an appropriate camera is attached, the normal 240 V AC (HDCU2000) or 180 V DC (HDCU2500) power supply is activated. The power is not supplied unless a camera is connected via an optoelectric cable.
Also, the HDCU2000/2500 is equipped with an alarm indicator to warn of open or short circuits in the cable.

Wide range of audio functions

This unit has connectors for two-channel analog audio outputs, a digital audio output (only for the HDCU2000), and a program audio input. Further, the HDCU2000/2500 can use 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.

Remote control

The level and phases of this unit's output signals can be controlled remotely by an MSU-1000 series Master Setup Unit.

Microphone volume control

The camera's microphone volume can be controlled via the MIC REMOTE/MSU/RCP connectors.

Character monitor signal output

The results of the HDCU2000/2500 self-diagnosis and setup menu can be obtained with a text display by character signal output.

Rack mountable

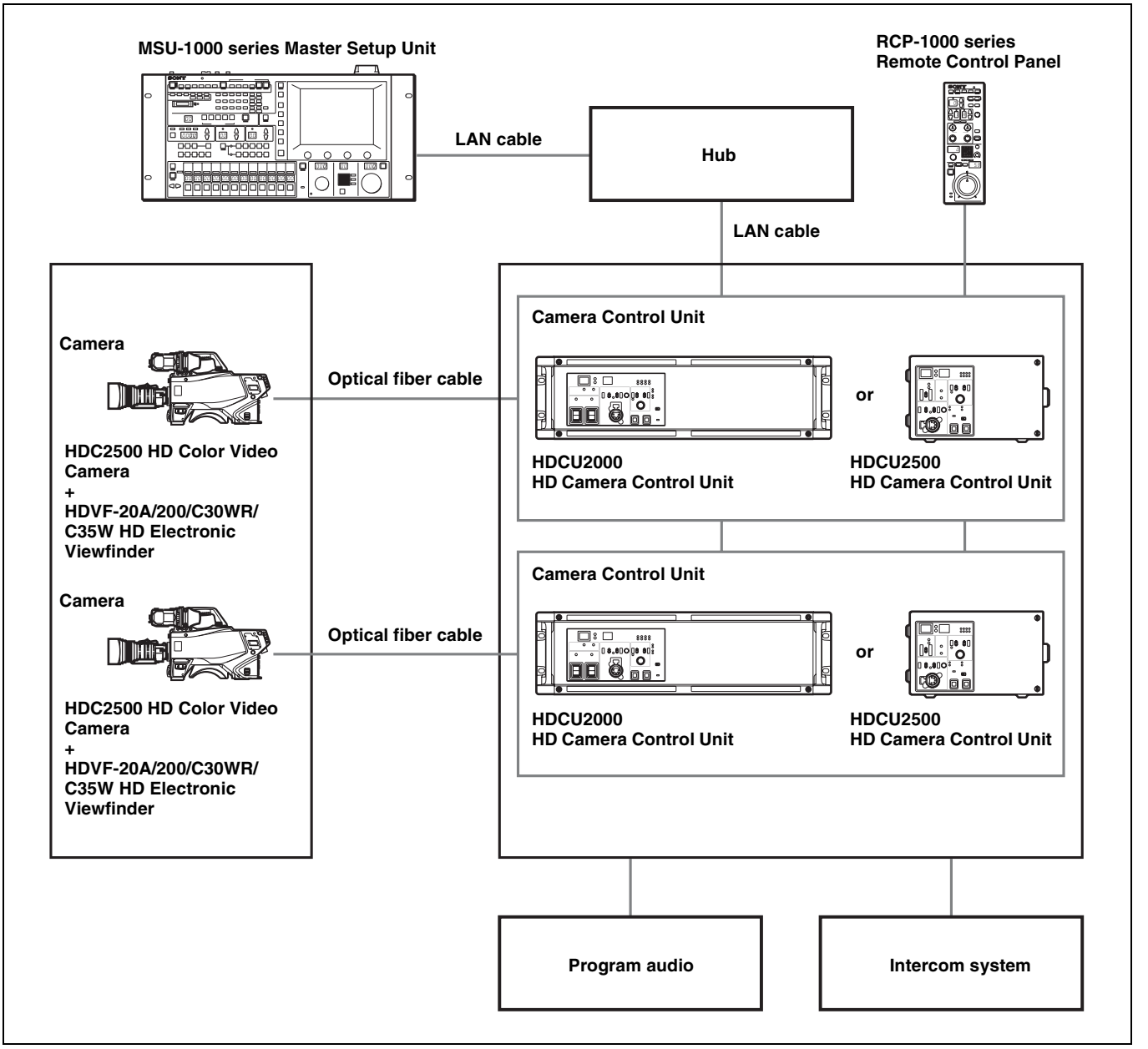
This unit may be installed in a standard EIA 19-inch rack (three units high). (The HDCU2500 needs the RMM-301 Rack Mount Adaptor (optional).)

Plug-in unit configuration

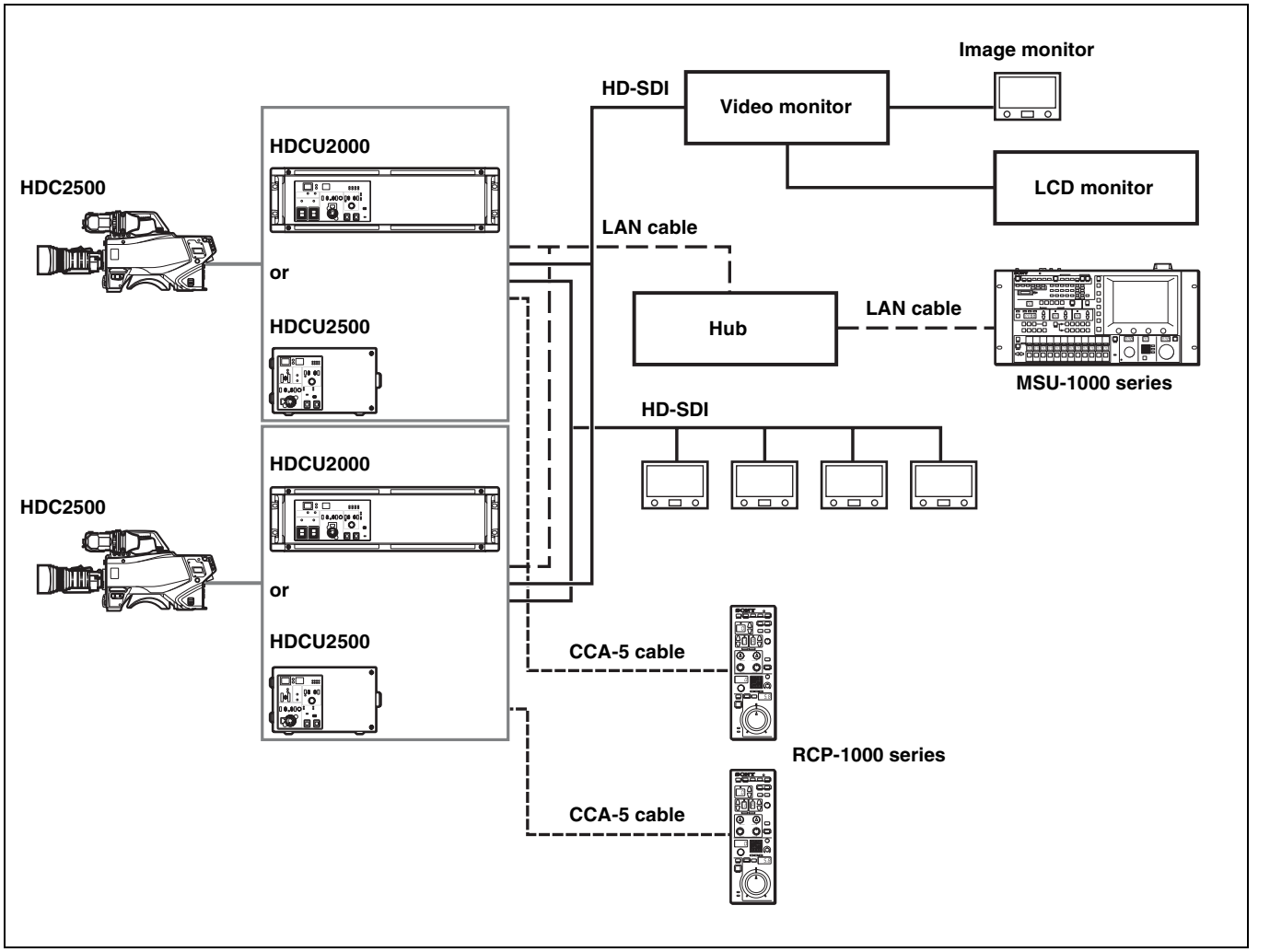
Internal printed circuit boards are designed for easy plug-in and removal, which makes it easy to inspect and maintain the unit.

System Configuration

Basic System Components

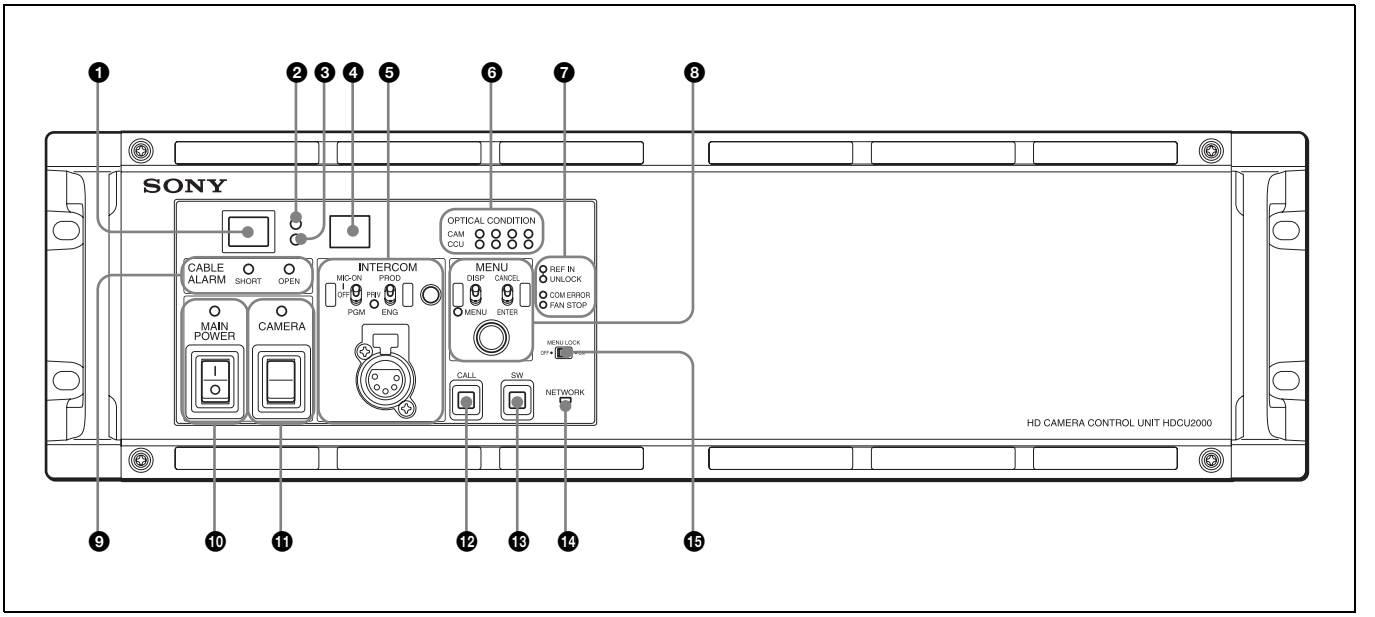


System Operation Example

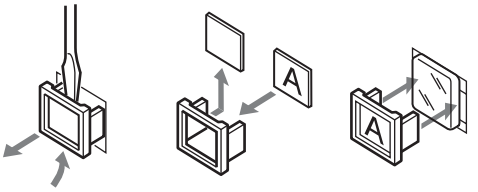


Locations and Functions of Parts

HDCU2000 Front Panel



❶ Red tally indicator
Lights in red when this unit receives a red tally signal. When the CALL button on the MSU-1000 series Master Setup Unit, RCP-1000 series Remote Control Panel, etc., is pressed, this indicator will go out if previously lit, and light up if previously off. You can attach the supplied number plate here.

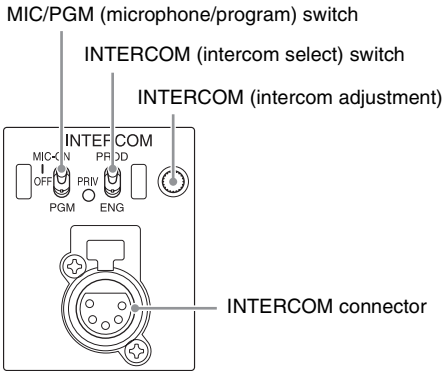


❷ Yellow tally indicator
Lights in yellow when this unit receives a yellow tally signal.

❸ Green tally indicator
Lights in green when this unit receives a green tally signal.

❹ CCU number display
The camera number set via the CCU menu is displayed.

❺ INTERCOM audio input/output and control block



- **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.
PRIV: Blocks the connection to the producer line or engineer line, allowing private intercom talk between the CCU and the camera.
ENG: Connects the engineer line.

- **PRIV (Private) indicator**

Lights when the intercom is in private mode.

- **INTERCOM (intercom adjustment) knob**

Adjusts the receiver audio level of the intercom.

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

Connects the intercom headset.

To use a headset with a plug other than an XLR 5-pin plug, consult a Sony service or sales representative.

❻ Optical signal reception status indicator

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.

❼ Status display indicator

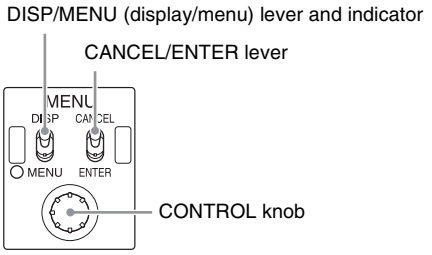
REF IN (Green): REFERENCE is being input.

UNLOCK (Red): The input REFERENCE is not locked.

COM ERROR (Red): There is a communication failure with the camera or other external control equipment (such as the RCP-1000 series Remote Control Panel).

FAN STOP (Red): The power fan is stopped.

❽ MENU control block



- **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.

❾ CABLE ALARM indicators

SHORT (red): Lights in red when the power supply cord of an optical fiber cable is short to external, or two power supply cords are short. Power isn't input to the camera when this indicator lights.

OPEN (red): Lights in red when a camera isn't connected to the CAMERA connector on the rear panel of this unit via an optical fiber cable. Flashes when the connection status of an optical fiber cable is bad.

❿ MAIN POWER switch and indicator

Turns the entire camera system on and off, including this unit, the video camera, and the RCP-1000 series Remote Control Panel connected to the REMOTE connector of this unit.

Press the "**I**" side to turn the camera system on, and the "○" side to turn it off. The indicator lights when the power switch is turned on.

⓫ CAMERA POWER switch and indicator

Turns the video camera on and off when the MAIN POWER switch is turned on. Press the top side to turn on the video camera and the bottom side to turn it off.

When the CAM PW button of the remote control panel connected to this unit is set to off, this switch alone cannot be used to turn on the video camera.

⓬ Call button

When pressed, this outputs a call signal to the camera and external control device (the RCP-1000 series, etc.) that are connected to this unit. Use this when you want to call and speak with the camera operator or external control device operator via intercom.

⓭ Assignable button

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

⓮ Network indicator

Displays the network system connection status.

On: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates that external control equipment (MSU-1000/1500 Master Setup Unit, RCP-1000-series Remote Control Panel, or other device) is connected.

Flashing: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates a connection problem with the external control equipment (MSU-1000/1500 Master Setup Unit, RCP-1000-series Remote Control Panel, or other device).

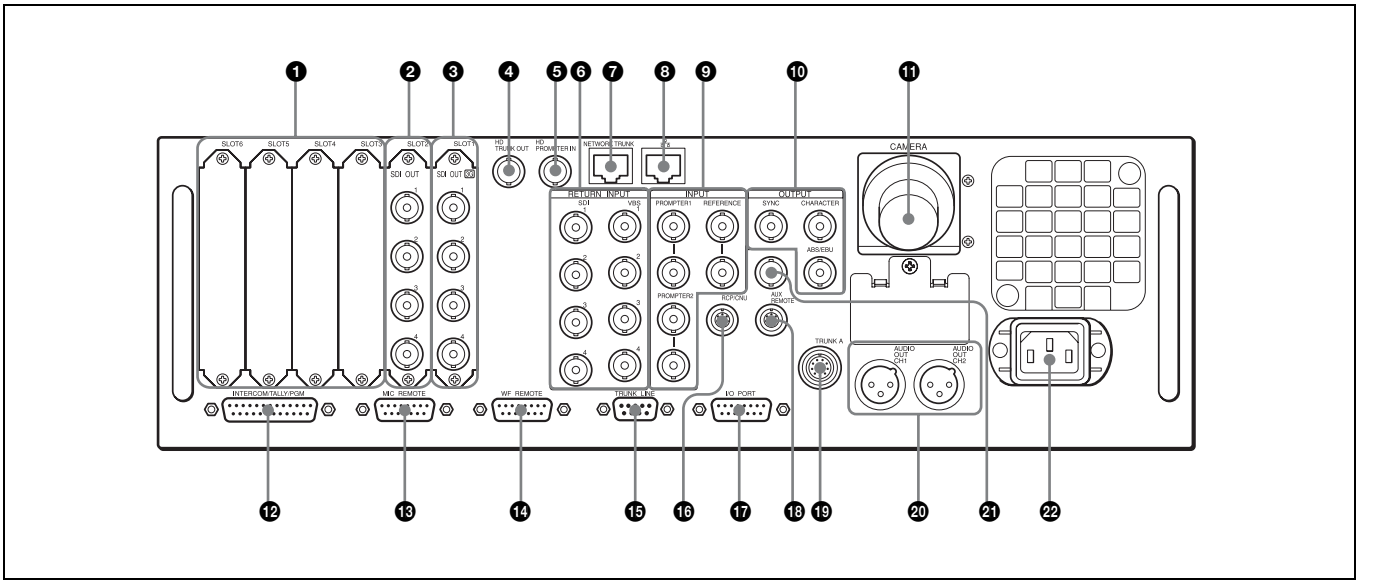
Off: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates that a LAN cable is not connected or that the network system connection parameters have not been set.

When the CNS SETTING in the NETWORK SETTING menu is set to LEGACY, this remains turned off.

⓯ Menu lock switch

This locks out operation of the front panel menu operation area.

HDCU2000 Rear Panel



❶ Expansion slots
For installation of an optional HKCU2007 3G/HD SDI Output Expansion Unit, HKCU1001 SD Encoder Unit, or HKCU1003 Multi Interface Unit.

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

❷ HD/SD SDI OUTPUT (SDI output connectors) area (BNC-type)
The signal from the video camera may be output as two HD-SDI signals or two SD-SDI signals. The signals output from the OUTPUT3 and OUTPUT4 connectors can be superimposed character and marker signals.
Signals of the same format are output from the SDI 1 and SDI 2 connectors; similarly, signals of another format can be output from the SDI 3 and SDI 4 connectors.

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

❸ 3G/HD SDI OUTPUT (SDI output connectors) area (BNC-type)
The signal from the video camera may be output as two 3G-SDI signals or two HD-SDI signals. The signals output from the OUTPUT3 and OUTPUT4 connectors can be superimposed character and marker signals.
Signals of the same format are output from the SDI 1 and SDI 2 connectors; similarly, signals of another format can be output from the SDI 3 and SDI 4 connectors.

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

❹ HD TRUNK OUT connector (BNC-type)
When an HD TRUNK function-compatible camera is connected to the CAMERA connector, the HD-SDI signal input to the camera's HD TRUNK IN connector is output from the HD TRUNK OUT connector.

❺ HD PROMPTER IN connector (BNC-type)
When an HD prompter function-compatible camera is connected to the CAMERA connector, the HD-SDI signal input to the HD PROMPTER IN connector is output from the camera's SDI connector.

Notes

- Input an HD-SDI signal with a frequency synchronized to the camera control unit.
- The NETWORK TRUNK function and either the HD TRUNK/HD PROMPTER function cannot be used at the same time.

❻ RETURN INPUT area

① SDI 1 to 4 (3G/HD/SD-SDI return video 1/2/3/4 input) connectors (BNC-type)
Four different 3G/HD/SD-SDI return video input signals may be received independently.
The selection of RET 1, 2, 3, or 4 is made by the return switch of the video camera.
The type of input signal on RET 1, 2, 3, and 4 may be set individually using the setup menu, or using the MSU-1000 series Master Setup Unit. The aspect ratio can also be selected for an SD signal.

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

Refer also to the Master Setup Unit manual.

② VBS 1 to 4 (VBS return video 1/2/3/4 input) connectors (BNC-type)
Four different VBS return video input signals may be received independently.
The selection of RET 1, 2, 3, or 4 is made by the return switch of the video camera.
The type of input signal on RET 1, 2, 3, and 4 may be set individually using the setup menu, or using the MSU-1000 series Master Setup Unit.
An aspect ratio may also be selected for SD signals.

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

Refer also to the Master Setup Unit manual.

❼ NETWORK TRUNK connector (RJ-45 8-pin)
Used for connecting the NETWORK TRUNK connector of the device connected to the camera with the network connection device.

❽ (LAN) connector (RJ-45 8-pin)
For LAN connection. Connect a LAN HUB (10BASE-T/100BASE-TX), using a LAN cable (shielded type of category 5 or more).

❾ INPUT area

① PROMPTER 1, 2 (tele-prompter input) connectors (BNC-type)
Input a teleprompter signal to either of the two connectors. The input signal is output from the other connector as is (loop-through output). If loop-through output is not used, terminate the unused connector at 75 ohms. If the signal used is a 1.0 Vp-p, 75-ohm signal, it may be output from the PROMPTER OUT connector of the video camera with a frequency bandwidth of 5 MHz, regardless of signal format.

② REFERENCE connectors (BNC-type)
Input an HD tri-level reference sync signal or SD reference sync signal (black burst signal, or black burst signal with 10 Field ID) to either of the two connectors.
The input signal is output from the other connector as is (loop-through output). If loop-through output is not used, terminate the unused connector at 75 ohms.
The type of reference signal is selected using the setup menu, or using the MSU-1000 series Master Setup Unit.

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

Note

To use the VBS signal of the HKCU1001 SD Encoder Unit or the HKCU1003 Multi Interface Unit (when SC phase lock is required), use an SD reference sync signal (black burst signal).
When black burst signal with 10 Field ID is input, REF 10F BB of OTHERS (C18) must be set to ON.

❿ OUTPUT area

① SYNC (sync signal output) connector (BNC-type)
Used for output of SD composite sync signal or an HD tri-level sync signal from the internal sync signal generator. (Factory setting: SD composite sync)

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

② CHARACTER (character output) connector (BNC-type)
Outputs the self-diagnostic results or the setup menu as an SD monochrome analog video signal.

③ AES/EBU connector (BNC-type)
Outputs an AES/EBU format digital audio signal input to a video camera.

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

Note

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

⓬ INTERCOM/TALLY/PGM (intercom/tally/program audio) connector (D-sub 25-pin)
Used for input and output of intercom, tally, and program audio signals. Connect to the intercom/tally/program audio connector of the intercom system.

⓭ MIC REMOTE (microphone remote) connector (D-sub 15-pin)
Using this connector, the video camera's microphone input level may be set by external equipment such as an audio mixer, in five level (–60, –50, –40, –30, and –20 dB).
When shooting, set the volume to a level appropriate for the audio conditions.
This connector also outputs red, green and yellow tally signals.

The microphone input level may also be set using the setup menu or an RCP. For details on the setup menu, contact a Sony service or sales representative.

⓮ WF REMOTE (waveform monitor remote) connector (D-sub 15-pin)
Used to attach to the appropriate connector on a recall-type waveform monitor when operating the waveform monitor display using an MSU-1000 series Master Setup Unit or an RCP-1000 series Remote Control Panel. On the recall-type waveform monitor, set/preset the display mode to waveform monitor, and then select (recall) that mode externally.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

⓯ TRUNK LINE connector (D-sub 9-pin, RS-232C standard)
Used to connect to the CCU connector on a video camera via an RS-232C interface. Used mainly for communication with equipment on the camera side.
Communication with up to two channels is available.

⓰ RCP/CNU connector (round 8-pin)
Used to connect to an MSU-1000 series Master Setup Unit, CNU-700 Camera Command Network Unit, or RCP-1000 series Remote Control Panel via a CCA-5 Connection Cable. Control signals are sent and received via this connector. When using an RCP-1000 series unit, power is also supplied.

⓱ I/O PORT connector (D-sub 15-pin)
Used for remote control using an external control device.

Note

Use of a D-sub case wider than 42 mm can cause interference at connectors ②, ④, ⑤.
It is recommended that you use a JAE-made DA-C1-J10.

⑱ AUX REMOTE connector (round 8-pin)
This is used to connect a sub-camera RCP for operating a sub-camera.

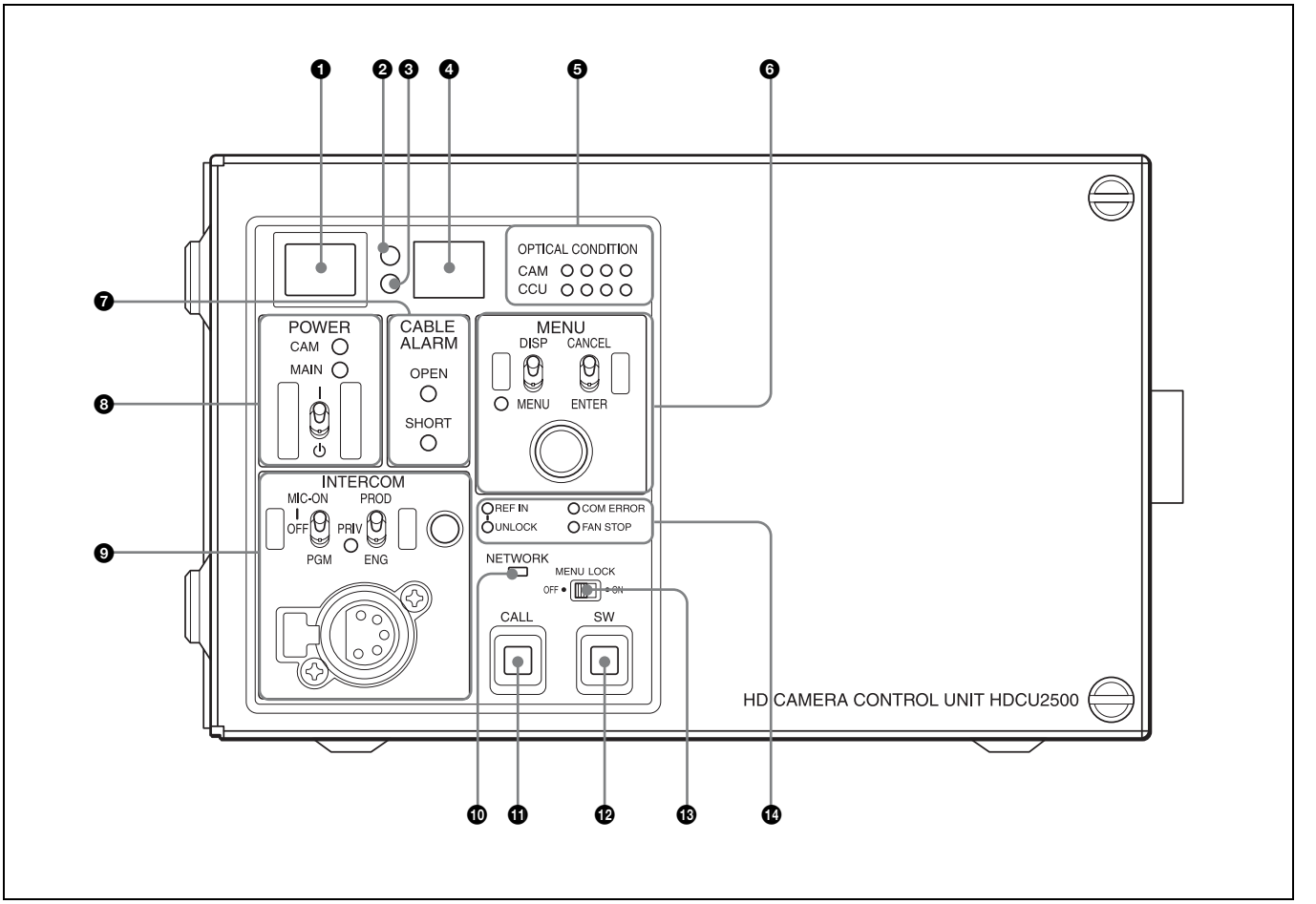
⑲ TRUNK A connector (round 12-pin)
Used to connect to the CCU connector on a video camera via an RS-232C or RS-422A interface.
Communication with up to two channels is available.

⑳ AUDIO OUT CH1, CH2 (audio output 1, 2) connectors (XLR 3-pin)
Used for output of the audio signal to the AUDIO IN connectors of the video camera.

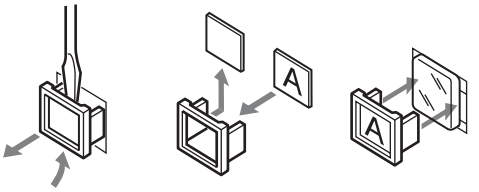
㉑ SPARE connector (BNC-type)
Reserved for future use.

㉒ AC IN (AC power input) connector
Use the specified AC power cord to connect to an AC power supply. The AC power cord can be secured to this unit, using the plug holder (optional).

HDCU2500 Front Panel



❶ Red tally indicator
Lights in red when this unit receives a red tally signal. When the CALL button on the MSU-1000 series Master Setup Unit, RCP-1000 series Remote Control Panel, etc., is pressed, this indicator will go out if previously lit, and light up if previously off. You can attach the supplied number plate here.



❷ Yellow tally indicator
Lights in yellow when this unit receives a yellow tally signal.

❸ Green tally indicator
Lights in green when this unit receives a green tally signal.

❹ CCU number display
The camera number set via the CCU menu is displayed.

❺ Optical signal reception status indicator
This indicates the camera and CCU's optical signal reception status when performing optical transmissions.

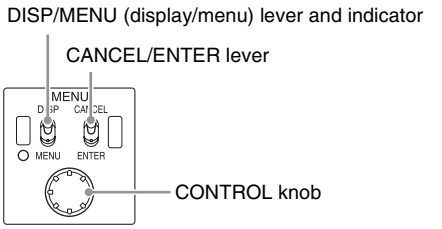
When the two lamps on the right (green) are lighted: Reception status is excellent.

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.

❻ MENU control block



- **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.

❼ CABLE ALARM indicators

OPEN (red): Lights in red when a camera isn't connected to the CAMERA connector on the rear panel of this unit via an optical fiber cable. Flashes when the connection status of an optical fiber cable is bad.

SHORT (red): Lights in red when the power supply cord of an optical fiber cable is short to external, or two power supply cords are short. Power isn't input to the camera when this indicator lights.

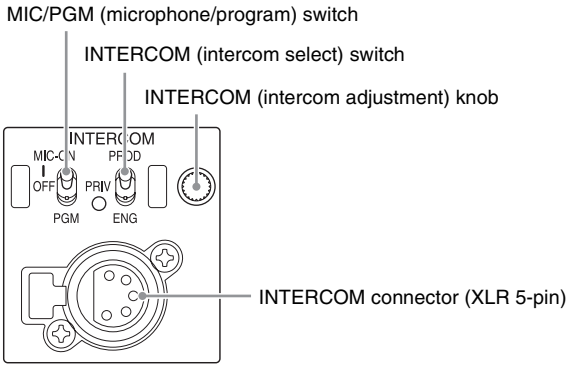
❽ POWER switch and indicators

Turns the entire system on and off, including this unit, the video camera, and the RCP-1000 series Remote Control Panel connected to the REMOTE connector of this unit. The MAIN indicator and the CAM indicator light when the power switch is turned on. Pressing the CAM PW button of the master setup unit and the remote control panel turns off the video camera only, and only the CAM indicator turns off.

Note

In order for the power supply to supply the unit with the necessary power to start up, energy is consumed even when this switch is set to OFF.

❾ INTERCOM audio input/output and control block



- **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.

PRIV: Blocks the connection to the producer line or engineer line, allowing private intercom talk between the CCU and the camera.

ENG: Connects the engineer line.

- **PRIV (Private) indicator**

Lights when the intercom is in private mode.

- **INTERCOM (intercom adjustment) knob**

Adjusts the receiver audio level of the intercom.

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

Connects the intercom headset.

To use a headset with a plug other than an XLR 5-pin plug, consult a Sony service or sales representative.

❿ Network indicator

Displays the network system connection status.

On: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates that external control equipment (MSU-1000/1500 Master Setup Unit, RCP-1000-series Remote Control Panel, or other device) is connected.

Flashing: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates a connection problem with the external control equipment (MSU-1000/1500 Master Setup Unit, RCP-1000-series Remote Control Panel, or other device).

Off: When CNS SETTING in the NETWORK SETTING menu is set to either BRIDGE or MCS, this indicates that a LAN cable is not connected or that the network system connection parameters have not been set.
When the CNS SETTING in the NETWORK SETTING menu is set to LEGACY, this remains turned off.

⓫ Call button

When pressed, this outputs a call signal to the camera and external control device (the RCP-1000 series, etc.) that are connected to this unit. Use this when you want to call and speak with the camera operator or external control device operator via intercom.

⓬ Menu lock switch

This locks out operation of the front panel menu operation area.

⓭ Assignable button

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

⓮ Status display indicator

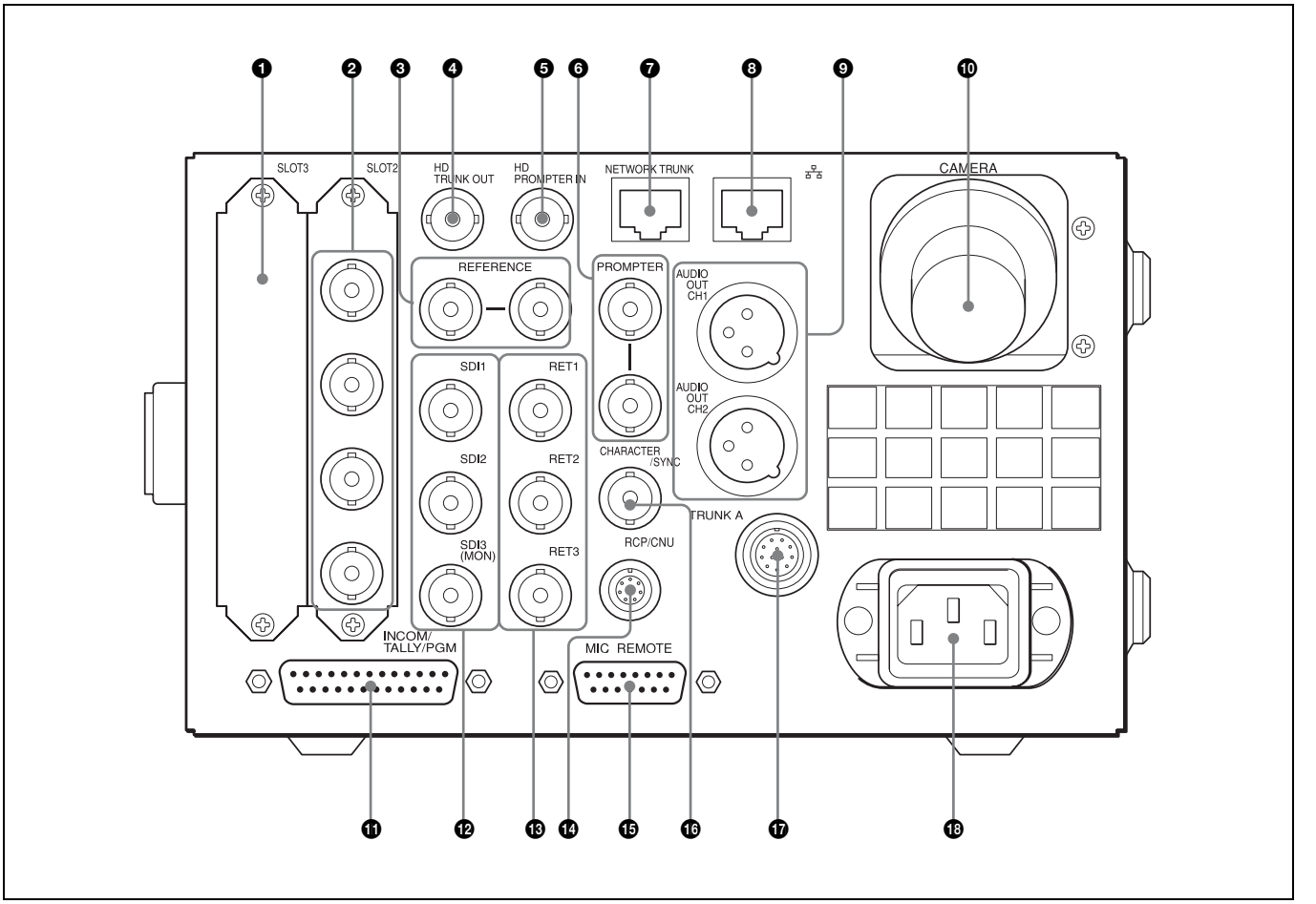
REF IN (Green): REFERENCE is being input.

UNLOCK (Red): The input REFERENCE is not locked.

COM ERROR (Red): There is a communication failure with the camera or other external control equipment (such as the RCP-1000 series Remote Control Panel).

FAN STOP (Red): The power fan is stopped.

HDCU2500 Rear Panel



❶ Expansion slots
For installation of an optional HKCU2007 3G/HD SDI Output Expansion Unit, HKCU1001 SD Encoder Unit, or HKCU1003 Multi Interface Unit.

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

❷ HD/SD SDI OUTPUT (SDI output connectors) area (BNC-type)
The signal from the video camera may be output as two HD-SDI signals or two SD-SDI signals. The signals output from the OUTPUT3 and OUTPUT4 connectors can be superimposed character and marker signals.
Signals of the same format are output from the SDI 1 and SDI 2 connectors; similarly, signals of another format can be output from the SDI 3 and SDI 4 connectors.

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

❸ REFERENCE connectors (BNC-type)
Input an HD tri-level reference sync signal or SD reference sync signal (black burst signal, or black burst signal with 10 Field ID) to either of the two connectors.
The input signal is output from the other connector as is (loop-through output). If loop-through output is not used, terminate the unused connector at 75 ohms.
The type of reference signal is selected using the setup menu, or using the MSU-1000 series Master Setup Unit.

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

Note

To use the VBS signal of the HKCU1001 SD Encoder Unit or the HKCU1003 Multi Interface Unit (when SC phase lock is required), use an SD reference sync signal (black burst signal).
When black burst signal with 10 Field ID is input, REF 10F BB of OTHERS (C18) must be set to ON.

❹ HD TRUNK OUT connector (BNC-type)
When an HD TRUNK function-compatible camera is connected to the CAMERA connector, the HD-SDI signal input to the camera's HD TRUNK IN connector is output from the HD TRUNK OUT connector.

❺ HD PROMPTER IN connector (BNC-type)
When an HD prompter function-compatible camera is connected to the CAMERA connector, the HD-SDI signal input to the HD PROMPTER IN connector is output from the camera's SDI connector.

Note

Input an HD-SDI signal with a frequency synchronized to the camera control unit.

❻ PROMPTER (tele-prompter) connectors (BNC-type)
Input a teleprompter signal to either of the two connectors. The input signal is output from the other connector as is (loop-through output). If loop-through output is not used, terminate the unused connector at 75 ohms. If the signal used is a 1.0 Vp-p, 75-ohm signal, it may be output from the PROMPTER OUT connector of the video camera with a frequency bandwidth of 5 MHz, regardless of signal format.

RET4 (return video input 4)
When required, either of the PROMPTER connectors can be assigned for the fourth return video input, exclusively for analog VBS signals.

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

❼ NETWORK TRUNK connector (RJ-45 8-pin)
Used for connecting the NETWORK TRUNK connector of the device connected to the camera with the network connection device.

❽ (LAN) connector (RJ-45 8-pin)
For LAN connection. Connect a LAN HUB (10BASE-T/100BASE-TX), using a LAN cable (shielded type of category 5 or more).

❾ AUDIO OUT CH1, CH2 (audio output 1, 2) connectors (XLR 3-pin)
Used for output of the audio signal to the AUDIO IN connectors of the video camera.

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

Note

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

⓫ INTERCOM/TALLY/PGM (intercom/tally/program audio) connector (D-sub 25-pin)
Used for input and output of intercom, tally, and program audio signals. Connect to the intercom/tally/program audio connector of the intercom system.

⓬ SDI1, SDI2, SDI3 (serial digital interface output 1, 2, 3) connectors (BNC-type)
The signal from the video camera may be output as two 3G-SDI or HD-SDI signals. The SDI1 connector and the SDI2 connector output the same format signal. The signal output from the SDI3 (MON) connector can be a superimposed character or marker signal.

⓭ RET1, RET2, RET3 (return video input 1, 2, 3) connectors (BNC-type)
- Three different return video input signals may be received independently.
- The selection of the return video input signal is made by the return video switch of the video camera.
- The input signal may be set to 3G-SDI, HD-SDI, SD-SDI, or analog VBS, using the setup menu, or using the MSU-1000 series Master Setup Unit.

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

Refer also to the Master Setup Unit manual.

⓮ RCP/CNU connector (round 8-pin)
Used to connect to an MSU-1000 series Master Setup Unit, CNU-700 Camera Command Network Unit, or RCP-1000 series Remote Control Panel via a CCA-5 Connection Cable. Control signals are sent and received via this connector. When using an RCP-1000 series unit, power is also supplied.

⓯ MIC REMOTE (microphone remote) connector (D-sub 15-pin)
Using this connector, the video camera's microphone input level may be set by external equipment such as an audio mixer, in five level (–60, –50, –40, –30, and –20 dB). When shooting, set the volume to a level appropriate for the audio conditions. This connector also outputs red, yellow and green tally signals.
When DSUB-15 in the CCU CONFIGURATION menu is set to WF REMOTE and an MSU-1000 series Master Setup Unit or an RCP-1000 series Remote Control Panel is used to remotely control a waveform monitor display, use a connector that is compatible with recall-type waveform monitors. On the recall-type waveform monitor, set/preset the display mode to waveform monitor, and then select (recall) that mode externally.

The microphone input level may also be set using the setup menu. For details on the setup menu, contact a Sony service or sales representative.

⓰ CHARACTER/SYNC connector (BNC-type)
Outputs the self-diagnostic results or the setup menu as an SD monochrome analog video signal.
When CHARA/SYNC in the CCU CONFIGURATION menu is set to SYNC, this can also be used as a SYNC connector. SD composite sync or an HD3 synchronous signal will be output from the internal sync signal generator. (The default is set to SD composite sync.)

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

⓱ TRUNK A connector (round 12-pin)
Used to connect to the CCU connector on a video camera via an RS-232C or RS-422A interface. Communication with up to two channels is available.

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

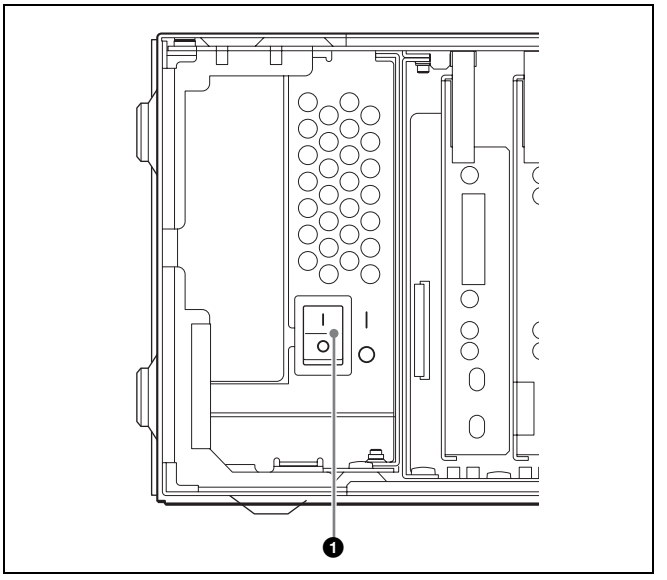
Internal Switches

Note

To reduce the risk of electric shock, fire or injury, do not open the cabinet. To adjust the internal settings, refer to qualified service personnel.
There are no internal switches on HDCU2000.

HDCU2500 Internal Switches

The following switches are located inside the unit, behind the front panel:



1 Internal main power switch
When an abnormality has occurred, and power cannot be cut off with the POWER switch on the front panel, you may turn off the unit using the internal main power switch. When the switch is set to OFF, setting the POWER switch on the front panel to ON doesn't turn on the unit.

HKCU2007 3G/HD SDI Output Expansion Unit (optional)

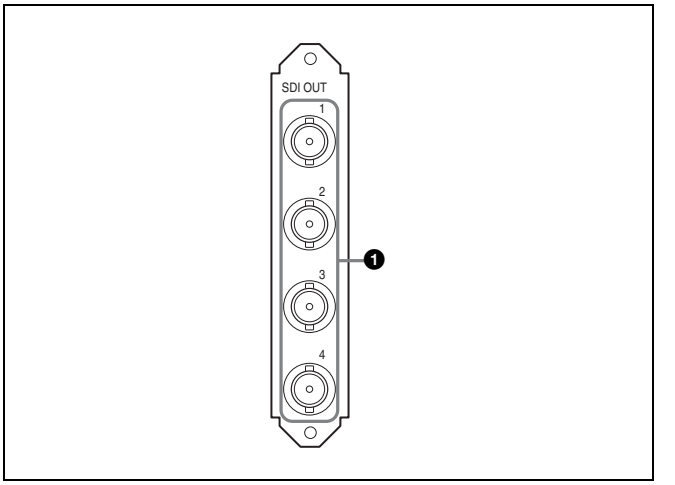
Note

To reduce the risk of electric shock, fire or injury, do not open the cabinet. To adjust the internal settings, refer to qualified service personnel.

The HKCU2007 3G/HD SDI Output Expansion Unit consists of a DRX front board and an HIF rear board.
When these boards are installed in the front and rear expansion slots of the unit, the number of 3G/HD-SDI output connectors increases by four. These can also be installed on HDCU2000/2500's expansion slots.
The format of SDI signals output via each upper/lower pair of connectors on the HIF board can be set.

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

HIF-57 Board



1 SDI OUT 1, 2, 3, 4 (3G/HD serial digital interface output 1-4) connectors (BNC-type)
The signal from the video camera may be output as four 3G-SDI or HD-SDI signals.

HKCU1001 SD Encoder Unit (optional)

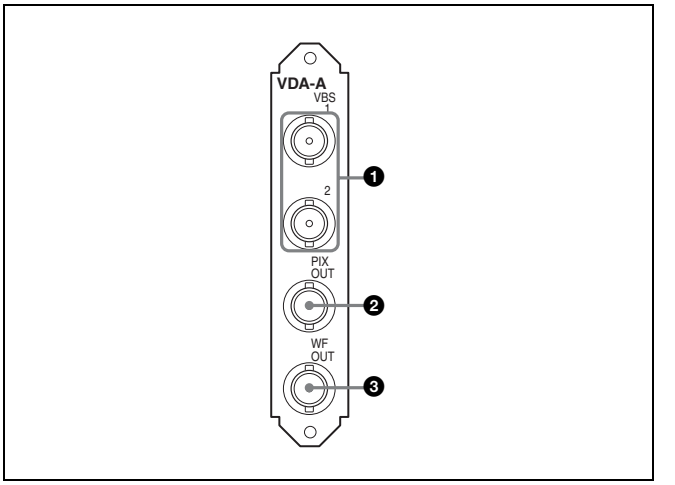
Note

To reduce the risk of electric shock, fire or injury, do not open the cabinet. To adjust the internal settings, refer to qualified service personnel.

The HKCU1001 consists of an EN-A front board and a VDA-A rear board.
When these boards are installed in the front and rear expansion slots of the unit, the unit outputs SD composite signals, waveform monitor output signals, and picture monitor output signals through the VDA-A board's connectors.

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

VDA-A Board



❶ VBS 1, 2 (composite video output 1, 2) connectors (BNC-type)
The signal from the video camera may be output as two analog composite signals.

❷ PIX OUT (picture monitor output) connector (BNC-type)
Outputs the video signal for a picture monitor selected with the PICTURE MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit. Character signals or marker signals can be superimposed on the video signal output through this connector.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

❸ WF OUT (waveform monitor output) connector (BNC-type)
Outputs the video signal for a waveform monitor selected with the WF MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

HKCU1003 Multi Interface Unit (optional)

Note

To reduce the risk of electric shock, fire or injury, do not open the cabinet. To adjust the internal settings, refer to qualified service personnel.

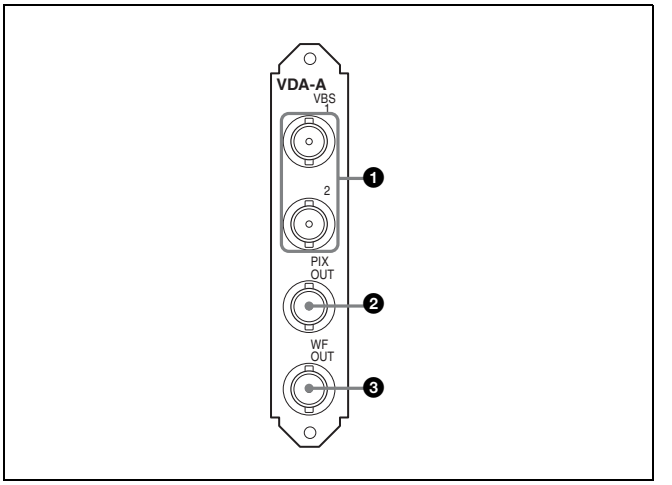
The HKCU1003 consists of an EN-B front board and three VDA rear boards (A/B/C).
When the EN-B board and one of the VDA rear boards are installed in the front and rear expansion slots of the unit, the unit inputs or outputs the following signals.

- Outputs SD composite signals, waveform monitor output signals, and picture monitor output signals through a VDA-A board.
- Inputs/outputs the frame sequence signal when operating a 24P system through a VDA-B board.
- Outputs analog component signals or analog composite signals through a VDA-C board.

When you use either the VDA-A board or the VDA-B board, insert the EN-B board in the corresponding expansion slot on the front of the HDCU2000/2500. When either the VDA-A board or the VDA-B board is installed, you can insert the VDA-C board in an expansion slot on the rear panel of the HDCU2000/2500. Don't insert any board in the corresponding expansion slot on the front of the HDCU2000/2500.

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

VDA-A Board



❶ VBS 1, 2 (composite video output 1, 2) connectors (BNC-type)
The signal from the video camera may be output as two analog composite signals.

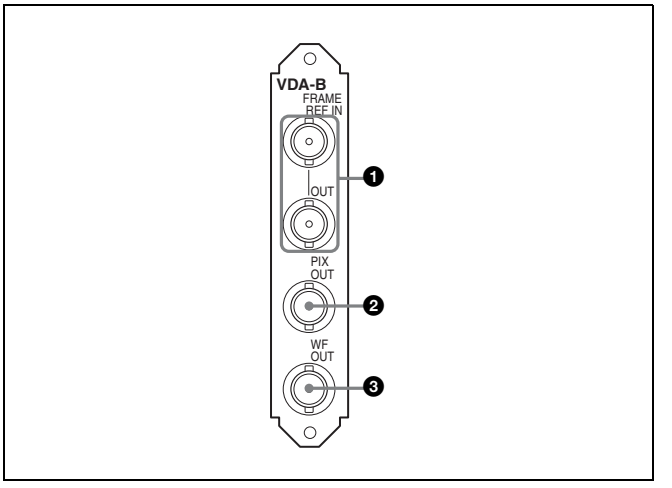
❷ PIX OUT (picture monitor output) connector (BNC-type)
Outputs the video signal for a picture monitor selected with the PICTURE MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit. Character signals or marker signals can be superimposed on the video signal output through this connector.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

❸ WF OUT (waveform monitor output) connector (BNC-type)
Outputs the video signal for a waveform monitor selected with the WF MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

VDA-B Board



❶ FRAME REF IN, OUT (frame reference input/output) connectors (BNC-type)

Input an HD tri-level reference sync signal or SD reference sync signal (black burst signal) for the sequence-lock between the camera control units, to the upper of the two connectors. The input signal is output from the lower connector as is (loop-through output).
When not using the OUT connector, terminate it at 75 ohms.

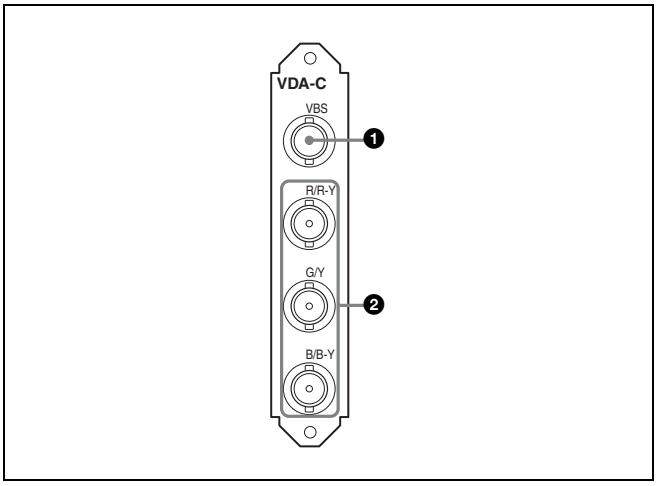
❷ PIX OUT (picture monitor output) connector (BNC-type)
Outputs the video signal for a picture monitor selected with the PICTURE MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

❸ WF OUT (waveform monitor) connector (BNC-type)
Outputs the video signal for a waveform monitor selected with the WF MONITOR button of an RCP-1000 series Remote Control Panel or MSU-1000 series Master Setup Unit.

For details on these operations, refer to the Master Setup Unit or Remote Control Panel manuals.

VDA-C Board



❶ VBS (composite video signal output) connector (BNC-type)
The signal from the video camera may be output as an analog composite signal.

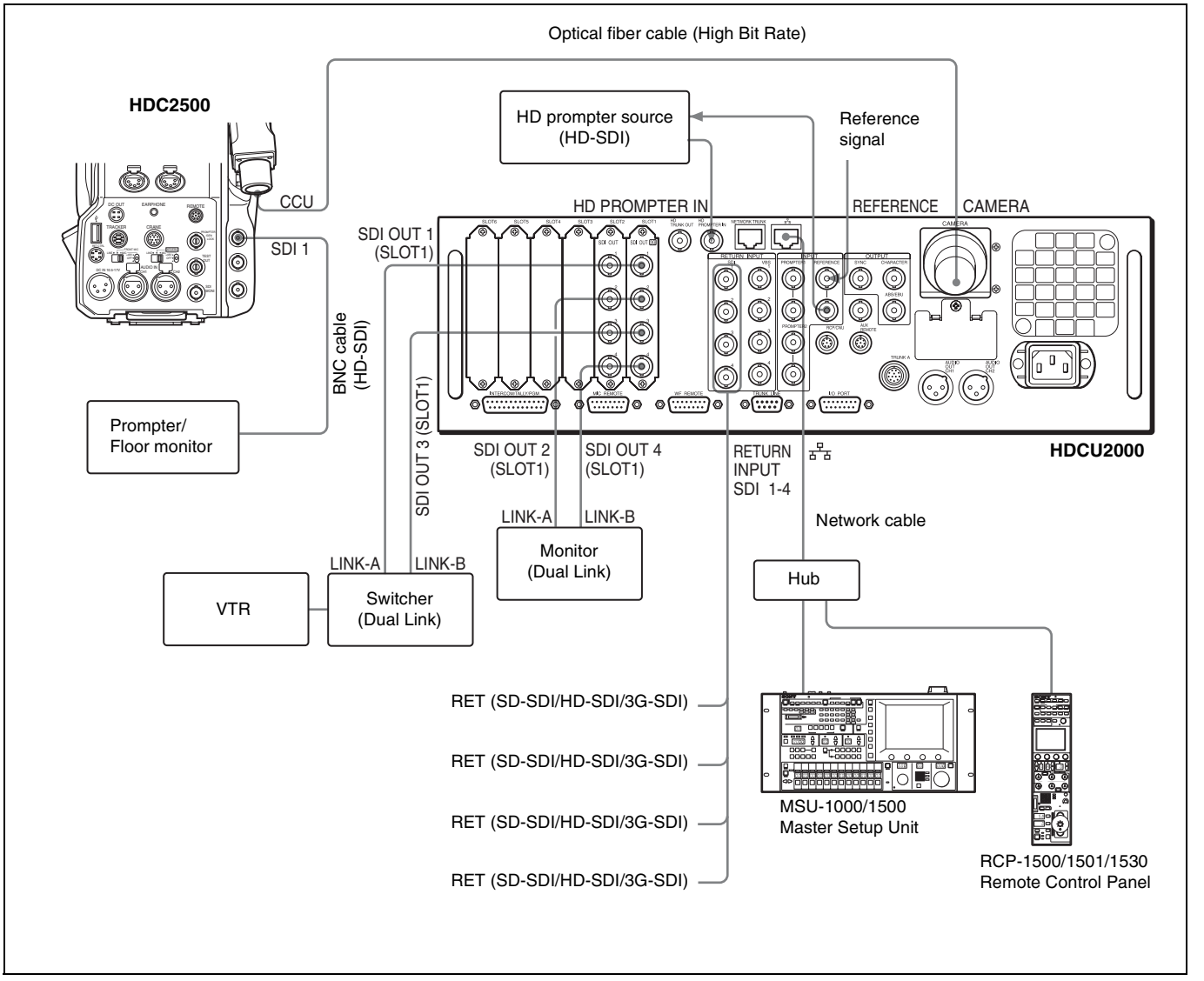
❷ R/R-Y, G/Y, B/B-Y (component video signal output) connectors (BNC-type)
The signal from the video camera may be output as a R/R-Y, G/Y, B/B-Y component signal or an RGB component signal.

Connections and Settings

Fiber Transmission System of Dual Link Format

The camera and the camera control unit are connected via a single optical fiber cable, and transmission is achieved at "High Bit Rate."

Connection example 1



Settings

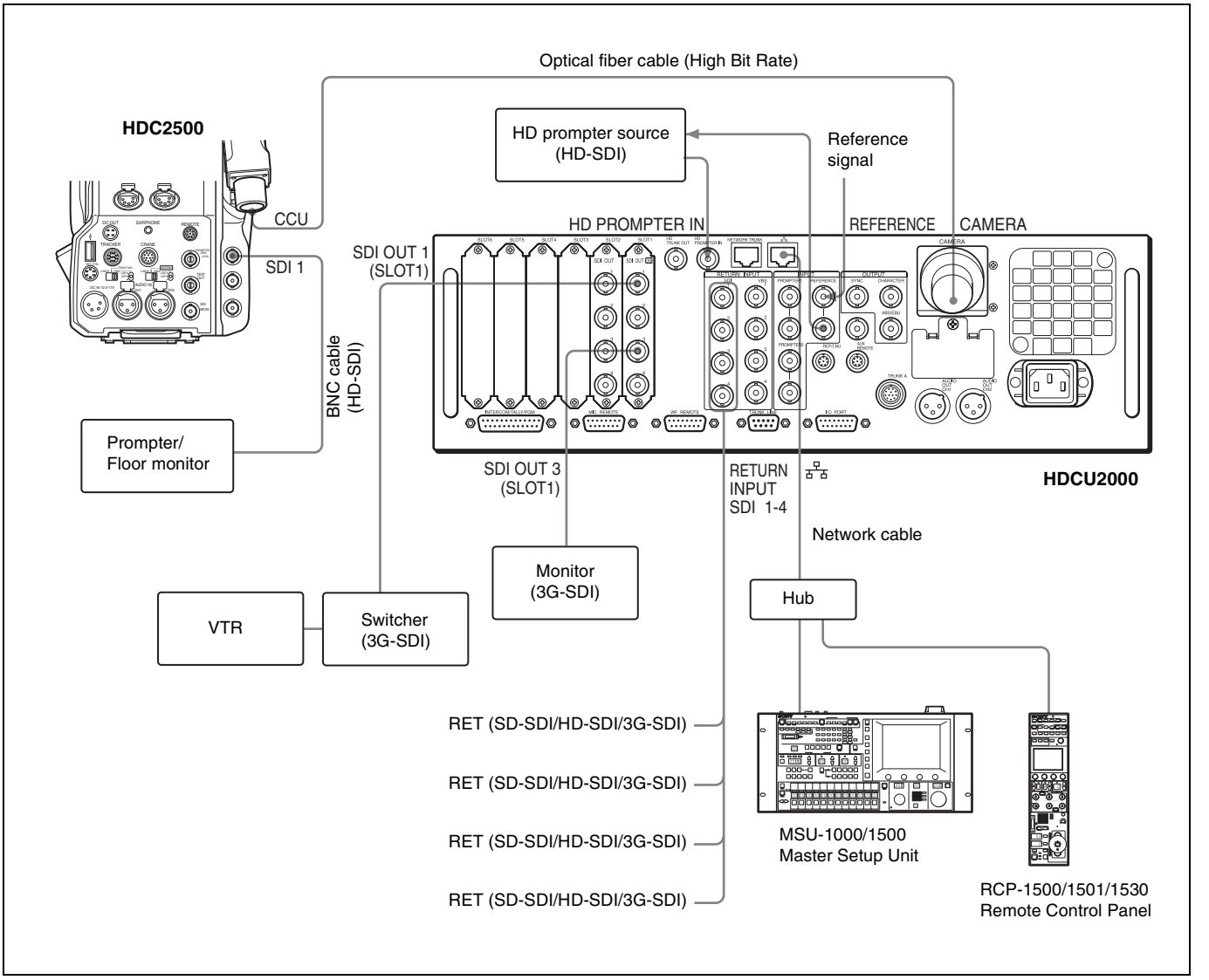
Camera

MAINTENANCE menu, <SDI OUT> page:
Set SDI-1 OUT to HD PROMPTER.

Camera control unit

Format: Select a Dual Link format of 1080/59.94P or 1080/50P.

Connection example 2



Settings

Camera

MAINTENANCE menu, <SDI OUT> page:
Set SDI-1 OUT to HD PROMPTER.

Camera control unit

Format: Select a Dual Link format of 1080/59.94P or 1080/50P.

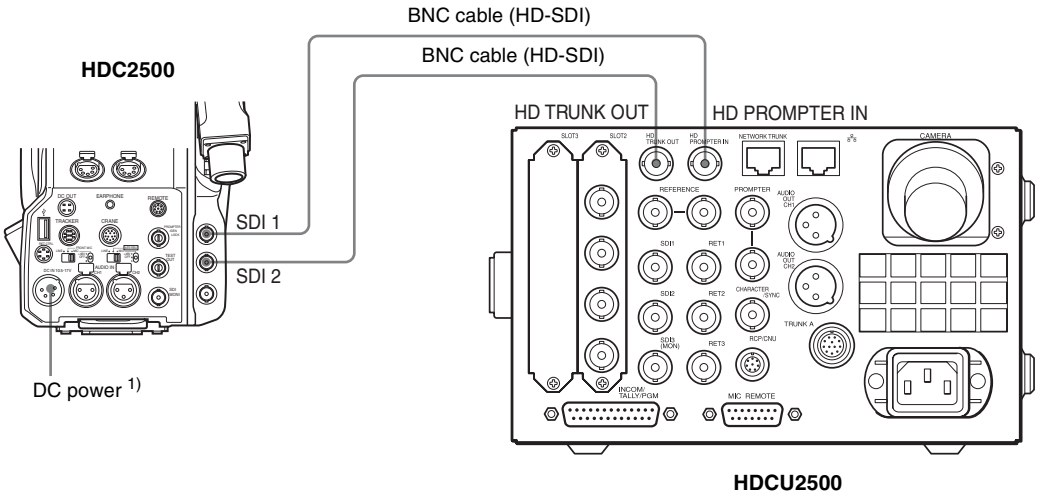
COAXIAL Connection System

The camera and the camera control unit is connected via two coaxial cables in place of an optical fiber cable, and transmission is achieved with HD-SDI.
Unlike fiber transmission, Dual Link formats cannot be used.

Note

Do not connect an optical fiber cable in a COAXIAL connection system. If an optical fiber cable is connected, the SHORT LED of the CABLE ALARM indicators will flash on the front panel of the camera control unit.

Connection example



1) A dedicated power source is required for the camera. No power is supplied from the camera control unit.

Settings

Camera

MAINTENANCE menu, <SDI OUT> page:
Set COAX MODE to ON.
Set SDI-2 OUT/IN to HD TRUNK/RET IN.

Camera control unit

Format: Select a Single Link format.
CCU CONFIGURATION menu, <TRANSMIT> page: Set CABLE to COAX.

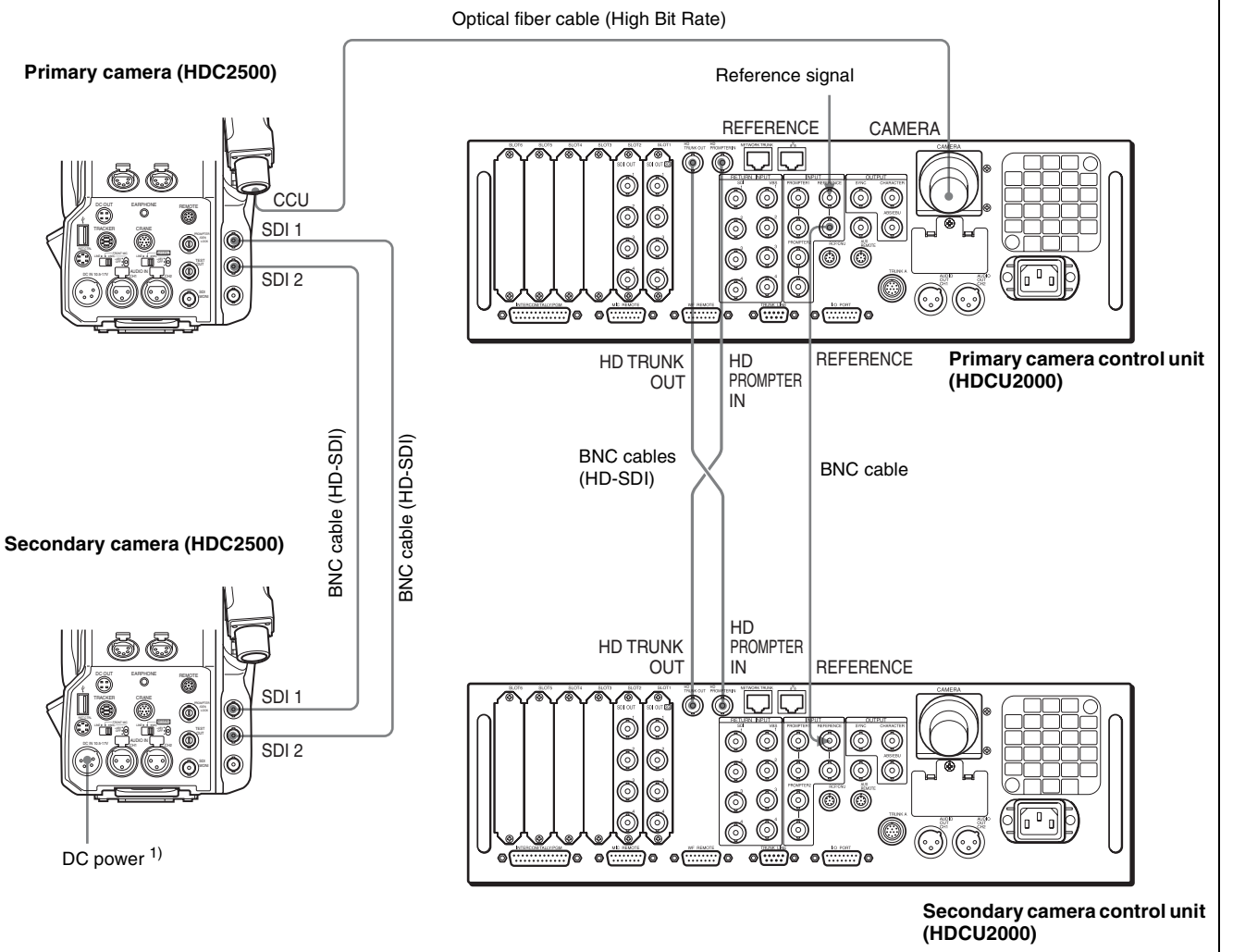
Dual-Camera System

Two pairs of cameras and camera control units are connected via an optical fiber cable for “High Bit Rate” transmission.

Notes

- The primary camera and the secondary camera must be in genlock status.
- Do not connect any optical fiber cable to the secondary system.

Connection example



1) A dedicated power source is required for the secondary camera. No power is supplied from the camera control unit.

Settings

Primary camera

MAINTENANCE menu, <SDI OUT> page:
Set SDI-1 OUT to HD PROMPTER.
Set SDI-2 OUT/IN to HD TRUNK/RET IN.

Secondary camera

MAINTENANCE menu, <SDI OUT> page:
Set COAX MODE to ON.
Set SDI-2 OUT/IN to HD TRUNK/RET IN.

Primary camera control unit

Format: Set it to a Single Link format.
CCU CONFIGURATION menu, <TRANSMIT> page: Set CABLE to CAMERA CABLE.

Secondary camera control unit

Format: Set it to a Single Link format.
CCU CONFIGURATION menu, <TRANSMIT> page: Set CABLE to COAX.

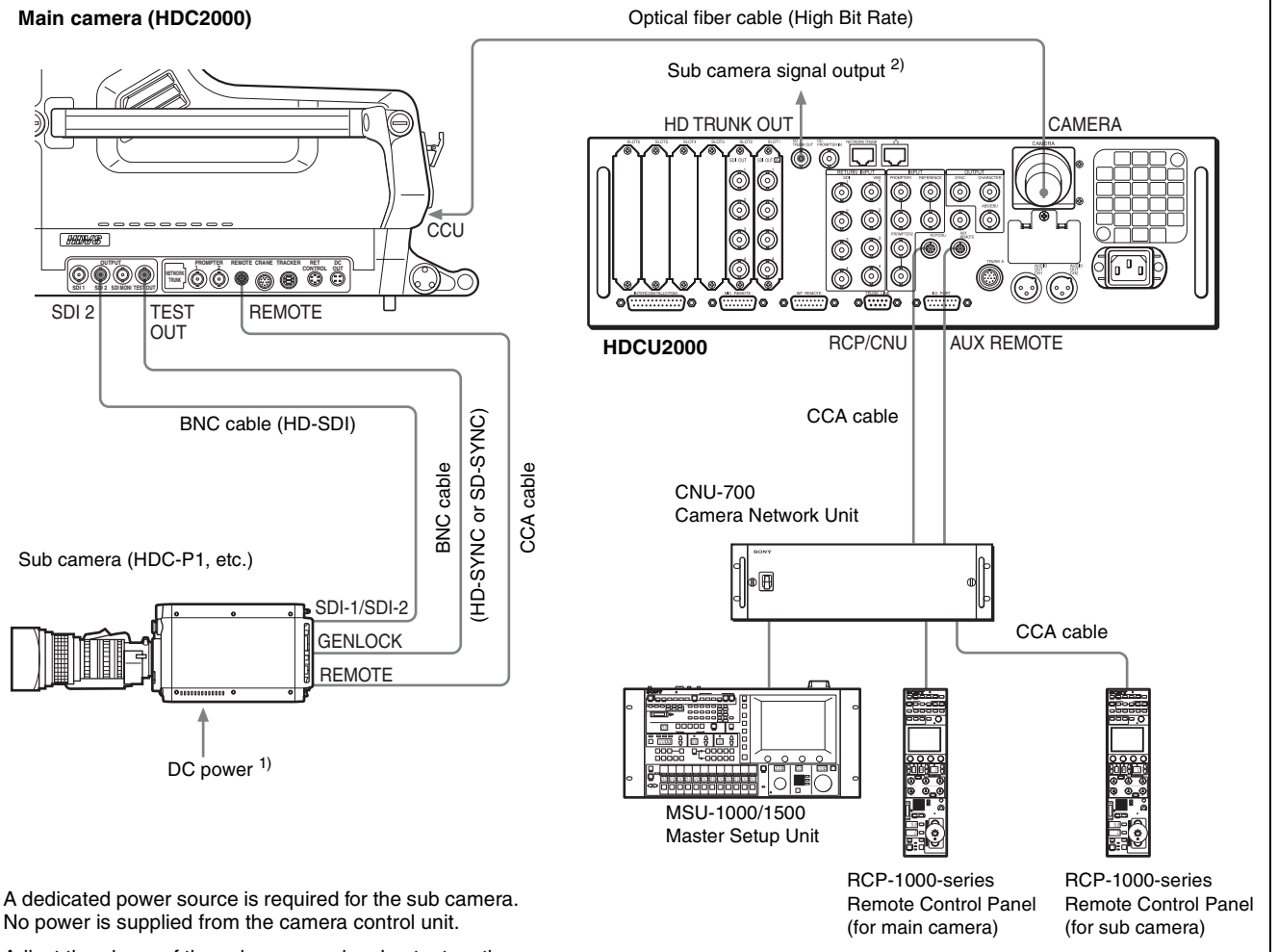
Sub-Camera System

Use an HDC-P1, etc. as the sub camera, which can be controlled via the AUX REMOTE connector of the HDCU2000.

Note

AES/EBU signal cannot be used between the camera and camera control unit.

Connection example



1) A dedicated power source is required for the sub camera. No power is supplied from the camera control unit.

2) Adjust the phase of the sub camera signal output on the sub camera.

Settings

Main camera

MAINTENANCE menu, <TEST OUT> page:
Set OUTPUT to HD-SYNC or SD-SYNC.
<SDI OUT> page: Set SDI-2 OUT/IN to HD TRUNK/RET IN.

Sub camera

Enable the genlock function.

Note

To use the tally function of the sub camera, supply the tally signal directly to the sub camera.

Camera control unit

Format: Set it to a Single Link format.

CCU CONFIGURATION menu, <PROMPT/TRUNK 1> page:
Set AUX REMOTE to ENABLE.

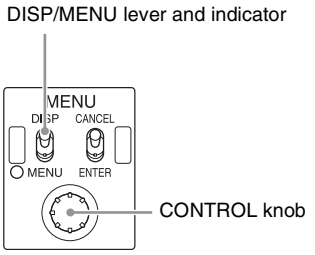
Status Display

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 29.

Displaying the Status Screen

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



To display the status screen

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

To exit the status screen display

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

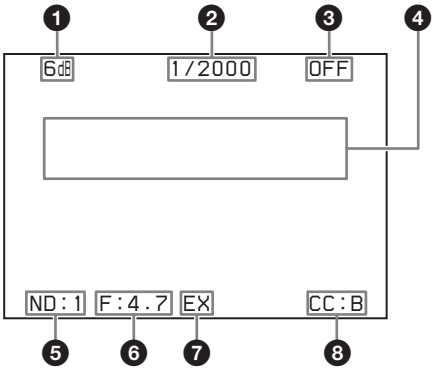
Status Display Screen

The following information is displayed on the status display screen.

- Camera settings
- System status
- CCU hardware diagnostics
- Camera system diagnostics
- Network diagnostics
- CCU AT board diagnostics
- CCU AVP board diagnostics
- CCU DTX board diagnostics
- Status of the boards inserted in Slot1 to 6
- CCU SDP board diagnostics
- Camera hardware diagnostics
- ROM version information for major components

Camera settings

Page 1



❶ Master gain value
Video output signal gain (dB units)

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

❸ Shutter/ECS
Shutter/ECS on/off indicator

❹ Camera auto control information area
Top: Displays the Auto Setup category and execution status
Bottom: Displays the execution item

❺ ND filter
Current ND filter selection

❻ F-stop value
Lens F-stop value (iris value)

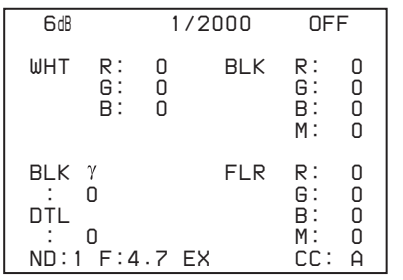
❼ EX (lens extender)
Lens extender indicator

❽ CC filter
Current CC filter selection

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.

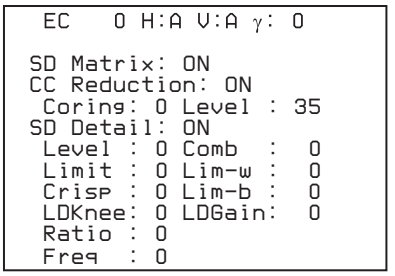
Page 2



WHT: White balance R/G/B value
BLK: Black balance R/G/B/Master value
BLK γ: Black gamma value

FLR: Flare balance R/G/B/Master value
DTL: Detail level

Page 3

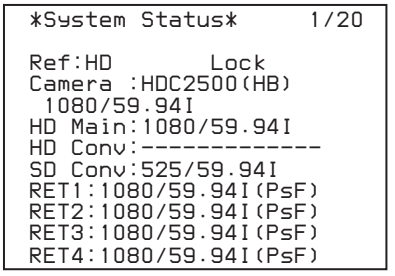


The setting status for CCU SD signals is displayed.
SD Matrix: Linear matrix correction for down converter output setting
SD Detail: Contour correction function for down converter output setting

Note

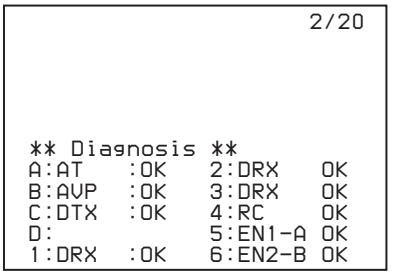
Items with no explanation are the same as those listed under "*Page 1*" in "*"Camera settings"*" above.

System status



The model name of the camera connected to the unit, the format setting, CCU output format setting, external reference setting and return signal format setting are displayed.
Ref: Reference signal format and lock status
Camera: Model name of the connected camera
HD Main: Return signal format
HD Conv: HD up convert setting status
SD Conv: SD up convert setting status
RET1: Return 1 return format selection status
RET2: Return 2 return format selection status
RET3: Return 3 return format selection status
RET4: Return 4 return format selection status

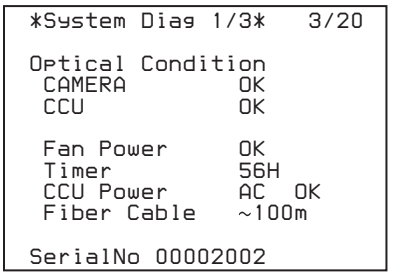
CCU hardware diagnostics



The name of the board connected to the unit's front panel and that board's self-diagnostic results are displayed.
HDCU 2000
Slot A to D
Slot 1 to 6
HDCU2500
Slot A to C
Slot 1 to 3

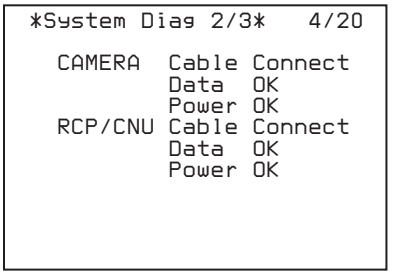
Camera system diagnostics

Page 1



CAMERA: Camera light sensor level
CCU: CCU light sensor level
Fan Power: CCU power supply fan status
Timer: Elapsed time since power-on
CCU Power: CCU power supply type and status
Fiber Cable: Cable length
SerialNo: CCU serial number

Page 2



CAMERA Cable: Camera cable connection status
CAMERA Data: Camera data transmission status
CAMERA Power: Camera power supply status
RCP/CNU Cable: This unit's REMOTE connector cable connection status
RCP/CNU Data: Data transmission status from a device connected to this unit's REMOTE connector
RCP/CNU Power: Power supply status to a device connected to this unit's REMOTE connector

Page 3

```
*System Diag 3/3*   5/20

Intercom
  CCU      System

Intercom MIC
  CAMERA  ENG     ON
          PROD    OFF

CAM MIC Gain      Local
          CH1     60dB
          CH2     60dB
```

Intercom CCU: CCU intercom selection status
Intercom MIC CAMERA ENG: Status for the camera microphone of the ENG line
(When 1CH is selected via the INTERCOM menu (C07), ---- is displayed.)
Intercom MIC CAMERA PROD: Status for the camera microphone of the PROD line
CAM MIC Gain: Camera microphone circuit control status
CAM MIC CH1: Camera microphone circuit 1 amp gain status
CAM MIC CH2: Camera microphone circuit 2 amp gain status

Network diagnostics

Page 1

```
*Network Diag 1/3*  6/20

MacAddress 00014A-xxxxxx
Auto Negotiation:  ON
Auto MDIX        :  ON
Connect Speed    :  100M
Duplex Mode      :  FULL
MDI/MDIX Select  :  MDIX

Link Status      :OK
```

MacAddress: CCU MAC address
Auto Negotiation: Auto negotiation setting status
Auto MDIX: Auto-MDIX setting status
Connect Speed: Connection speed setting status
Duplex Mode: Communication method setting status
MDI/MDIX Select: Communications port wiring configuration selection status
Link Status: LAN connection status

Page 2

```
*Network Diag 2/3*  7/20

CNS Mode   : MCS

CCU No.    : (1)
Master IP Address
     192.168.  0.100
```

CNS Mode: REMOTE and LAN connectors mode setting status
CCU No.: CCU number setting status
Master IP Address: Master device IP address

Page 3

```
*Network Diag 3/3*  8/20


IP Addr :192.168.  0.101
NetMask :255.255.255.  0
Def GW  :192.168.  0.254
```

IP Addr: CCU IP address setting status
NetMask: CCU subnet mask setting status
Def GW: CCU default gateway setting status

CCU AT board diagnostics

```
*AT Diag*           9/20

System Frequency:1.001
CAM Format Setting
       1080/59.94P

Reference   :HD Remote
Line Delay  :Line(90H)
Power Supply:OK
PLD Version :4.00 Done

VIF Power   :OK
```

System Frequency: System frequency
CAM Format Setting: Camera format setting status
Reference: Reference signal setting status
Line Delay: HD-SD delay setting status
Power Supply: Status of power supply to the AT board
PLD Version: AT board PLD version
VIF Power: Status of power supply to the VIF board

CCU AVP board diagnostics

```
*AVP Diag*          10/20




Front Power:OK

PLD Version:1.00  Done

ADO Power  :OK
```

Front Power: Status of power supply to the AVP board
PLD Version: AVP board PLD version
ADO Power: Status of power supply to the ADO board

CCU DTX board diagnostics

```
*DTX Diag*          11/20

Return Delay  :F/S
Active Ret CH :2CH
Front Power:OK
PLD Version:1.00  Done
Rear:SDI      Power:OK
```

Return Delay: Return delay setting status
Active Ret CH: The selected RET channel
Front Power: Status of power supply to the DTX board
PLD Version: DTX board PLD version
Rear: Name of the board installed in the rear expansion slot
Power: Status of power supply to the board installed in the rear expansion slot

Status of the board inserted in Slot1

```
*Slot1 Diag*        12/20

1&2: 1080/59.94I
3&4:M1080/59.94I
HD CB:BAR 16:9(100%)

Front:DRX       Power:OK
PLD Version:1.00  Done
Rear :HIF       Power:OK
```

1 & 2: Output format of Output 1 & 2
3 & 4: Output format of Output 3 & 4
HD CB: The output color bar signal
Front: Status of power supply to the board installed in option slot 1 and the board name
PLD Version: PLD version of the board installed in option slot 1 and the board name
Rear: Status of power supply to the rear board and board name

Note

The items displayed differ depending on board connected to the expansion slot.

Status of the board inserted in Slot2

```
*Slot2 Diag*        13/20

1&2: 1080/59.94I
3&4:M1080/59.94I
HD CB:BAR 16:9(100%)
SD CB:SMPTE

Front:RC        Power:OK
PLD Version:1.00  Done
Rear :HIF       Power:OK
```

1 & 2: Output format of Output 1 & 2
3 & 4: Output format of Output 3 & 4
HD CB: The output color bar signal
Front: Status of power supply to the board installed in option slot 2 and the board name
PLD Version: PLD version of the board installed in option slot 2 and the board name
Rear: Status of power supply to the rear board and board name

Note

The items displayed differ depending on board connected to the expansion slot.

Status of the board inserted in Slot3

```
*Slot3 Diag*        14/20

Front:None      Power:OK
PLD Version:1.00  Done
Rear :HIF       Power:OK
```

The setting status of the board installed in Slot3 (front/rear) is displayed.

Note

The items displayed differ depending on board connected to the expansion slot.

Status of the board inserted in Slot4 (HDCU2000 only)

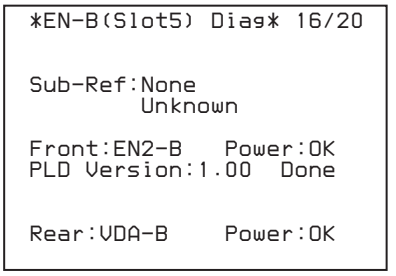
```
*EN-A(Slot4) Diag* 15/20

Front:EN1-A   Power:OK
PLD Version:1.00  Done
Mode        :Normal
Rear:VDA-A    Power:OK
```

The setting status of the board installed in Slot4 (front/rear) is displayed.

Note

The items displayed differ depending on board connected to the expansion slot.

Status of the board inserted in Slot5 (HDCU2000 only)

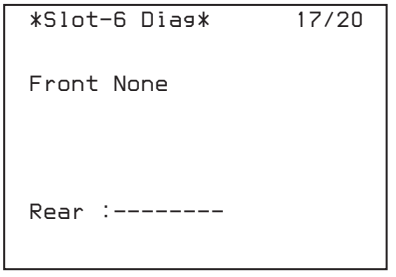


The setting status of the board installed in Slot5 (front/rear) is displayed.

Note

The items displayed differ depending on board connected to the expansion slot.

Status of the board inserted in Slot6 (HDCU2000 only)

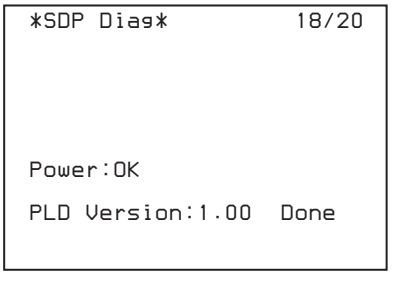


The setting status of the board installed in Slot6 (front/rear) is displayed.

Note

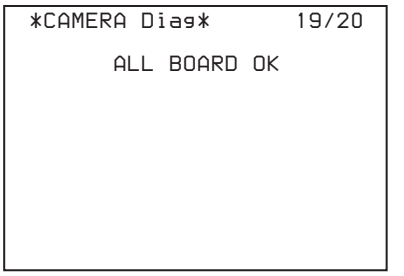
The items displayed differ depending on board connected to the expansion slot.

CCU SDP board diagnostics



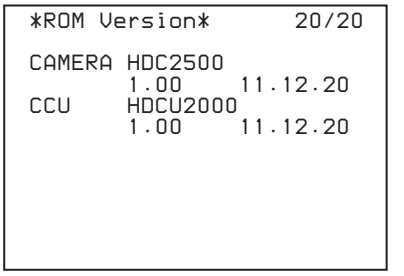
Power: Status of power supply to the SDP board
PLD Version: SDP board PLD version

Camera hardware diagnostics



Displays the camera hardware status.

ROM version information for major components



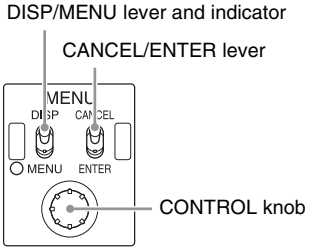
CAMERA: ROM version of the camera connected to this unit
CCU: ROM version of this unit

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.

```
** 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 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 (?).

Flashing

```
<OUTPUT SELECT> ?501 TOP

 OUTPUT:*CAMERA
        BAR
        TEST1
        TEST2

  PIX:*ENC  R  G  B
      R&G  G&B  R&B RGB
  WFM:*ENC  R  G  B SEQ
      R&G  G&B  R&B RGB
```

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.

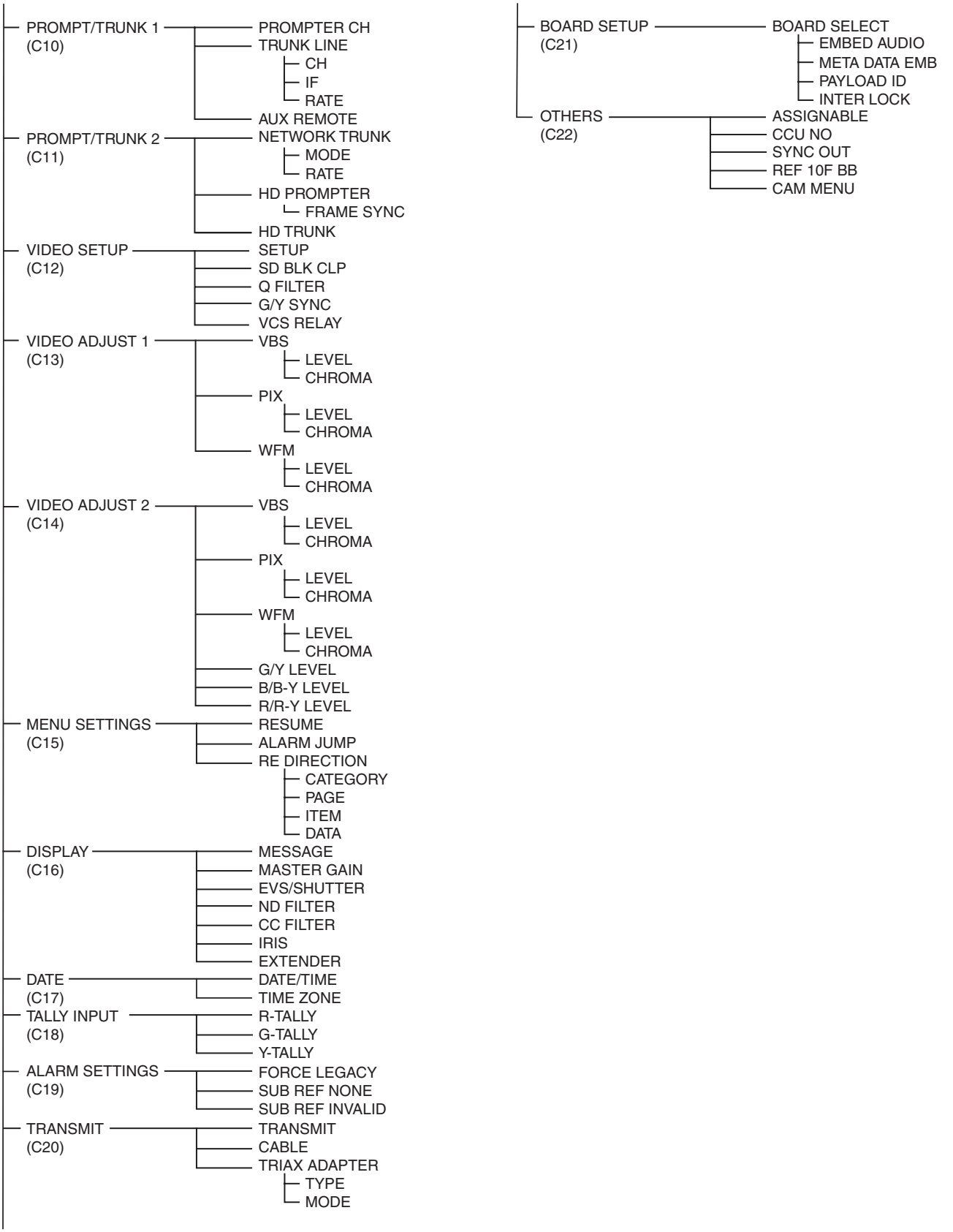
Menu Tree

SYSTEM OPERATION menu

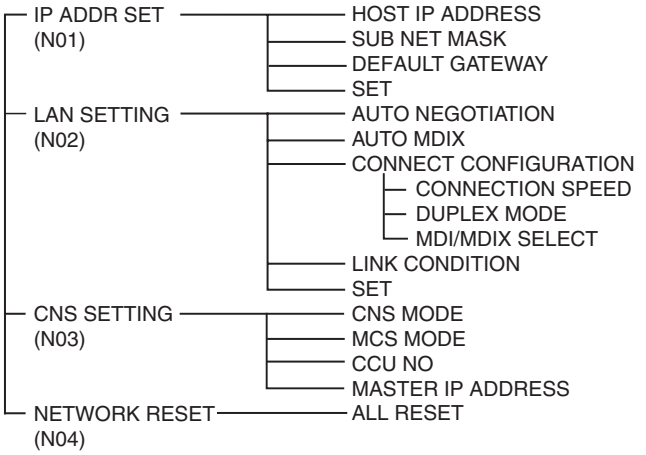
- OUTPUT SELECT (S01)
  - OUTPUT
  - PIX
  - WFM
- GENLOCK PHASE (S02)
  - CONTROL
  - REFERENCE
  - GENLOCK
    - H STEP
    - COARSE
    - V PHASE
    - SUB-REF
- MULTI FORMAT (S03)
  - FREQUENCY
    - HD
    - SD
  - CAMERA FORMAT
  - FRAME CONVERT DELAY
  - CCU VIDEO CONVERT
  - 2x MODE
  - BIT DEPTH
  - 3G-SDI
  - HD-SD DELAY
  - COMPONENT
- OUTPUT FORMAT (S04)
  - CAMERA TRANSMIT
  - SLOT1
    - 1&2
    - 3&4
  - SLOT2
    - 1&2
    - 3&4
  - SLOT3
  - SLOT4
  - SLOT5
  - SLOT6
- SD ASPECT (S05)
  - SD ASPECT
  - SD LB SEL
  - H-POSITION
    - CENTER
  - V-POSITION
    - CENTER
  - H-INTERP
  - V-INTERP
- RETURN FORMAT (S06)
  - RET1
  - RET2
  - RET3
  - RET4
  - AUTO SCAN
  - LINK TO MAIN
- RETURN SETUP (S07)
  - FRAME SYNCHRO
  - SD-RETURN
    - MATRIX
    - LB LINE
    - ASPECT
  - RETURN-TO-RETURN
    - MODE
- CCU VIDEO (S08)
  - VBS-CHROMA
  - MONO-COLOR
    - PHASE
    - SATURATION
- 3D SETTINGS (S09)
  - 3D MODE
  - 3D OUTPUT
  - 3D MONITOR
    - POSITION
    - MIX CHROMA
    - DIFF MODE
    - V SPLIT MODE
    - BORDER LINE
  - CHANNEL ID

CCU CONFIGURATION menu

- COLOR BAR (C01)
  - HD-BAR
    - SEL
    - MF CB
    - SLOPE
  - SD-BAR
  - BAR-CHARA
  - GRAY
  - MOVING SYMBOL
    - TYPE
    - SIZE
- BAR CHARACTER (C02)
  - BAR CHARACTER
  - ALL CLEAR
- MONITOR 1 (C03)
  - CHARACTER
    - WHITE-LEVEL
    - BLACK-LEVEL
  - PIX CHARACTER
    - WHITE-LEVEL
    - BLACK-LEVEL
- MONITOR 2 (C04)
  - LEVEL GATE
    - Y-LEVEL1
    - Y-LEVEL2
  - GATE-MARKER
  - MODULATION
  - MARKER
- I/F SETUP (C05)
  - BOARD
  - SLOT1
  - SLOT2
  - SLOT3
  - SLOT4
  - SLOT5
  - SLOT6
  - DSUB-15
  - CHARA/SYNC
  - REAR PREVIEW
- MIC GAIN (C06)
  - CAM MIC GAIN
    - CH1
    - CH2
- AUDIO OUT (C07)
  - DELAY
  - AES/EBU OUT
  - ANALOG OUT
  - CH1 LEVEL
    - ADJUST
  - CH2 LEVEL
    - ADJUST
- INTERCOM (C08)
  - INTERCOM CH
  - SYSTEM INTERFACE
  - PRODUCER
    - CANCEL LVL
    - TERMINATION
  - ENGINEER
    - CANCEL LVL
    - TERMINATION
  - PGM1 INPUT
  - PGM2 INPUT
- FRONT INCOM (C09)
  - INCOM MIC
    - MIC TYPE
    - MIC GAIN
  - SIDE TONE
  - PGM MIX
  - PGM SEL
    - PGM1 LVL
    - PGM2 LVL


PROMPT/TRUNK 1
(C10)
PROMPTER CH
TRUNK LINE
CH
IF
RATE
AUX REMOTE
PROMPT/TRUNK 2
(C11)
NETWORK TRUNK
MODE
RATE
HD PROMPTER
FRAME SYNC
HD TRUNK
VIDEO SETUP
(C12)
SETUP
SD BLK CLP
Q FILTER
G/Y SYNC
VCS RELAY
VIDEO ADJUST 1
(C13)
VBS
LEVEL
CHROMA
PIX
LEVEL
CHROMA
WFM
LEVEL
CHROMA
VIDEO ADJUST 2
(C14)
VBS
LEVEL
CHROMA
PIX
LEVEL
CHROMA
WFM
LEVEL
CHROMA
G/Y LEVEL
B/B-Y LEVEL
R/R-Y LEVEL
MENU SETTINGS
(C15)
RESUME
ALARM JUMP
RE DIRECTION
CATEGORY
PAGE
ITEM
DATA
DISPLAY
(C16)
MESSAGE
MASTER GAIN
EVS/SHUTTER
ND FILTER
CC FILTER
IRIS
EXTENDER
DATE
(C17)
DATE/TIME
TIME ZONE
TALLY INPUT
(C18)
R-TALLY
G-TALLY
Y-TALLY
ALARM SETTINGS
(C19)
FORCE LEGACY
SUB REF NONE
SUB REF INVALID
TRANSMIT
(C20)
TRANSMIT
CABLE
TRIAX ADAPTER
TYPE
MODE
BOARD SETUP
(C21)
BOARD SELECT
EMBED AUDIO
META DATA EMB
PAYLOAD ID
INTER LOCK
OTHERS
(C22)
ASSIGNABLE
CCU NO
SYNC OUT
REF 10F BB
CAM 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 via 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	Selects the output signal. 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	Selects the PIX connector output signal.
	WFM	**ENC**, R, G, B, SEQ, R&G, G&B, R&B, RGB	Selects the WFM connector output signal.
<GENLOCK PHASE> S02	CONTROL	(REMOTE), (LOCAL)	
	REFERENCE	(NONE), (EXT IN)	Displays the status of the reference signal input.
	GENLOCK	HD, **SD**	This unit's GEN LOCK mode: displays the lock status and format. **HD**: HD **SD**: SD
		(OK), (NG)	Sets the lock status of the external reference signal. **(OK)**: Locked **(NG)**: Unlocked
		External reference signal format	Displayed only when a reference signal is present.
	H STEP	When GENLOCK mode is HD: –3.01 to 3.45 µsec **0.00** When GENLOCK mode is SD: –8.29 to 9.48 µsec **0.00**	Horizontal phase (STEP) Displays the sub-reference signal format.
	COARSE	–99.9 to 99.9 **0**	Horizontal phase Displays the sub-reference signal format.
	V PHASE	**0** to 7	Vertical phase (line) Displays the sub-reference signal format.
	SUB-REF	(NONE), (EXT IN)	Displayed only when a sub-reference signal is present.
	Note Displayed only when HKCU1003 is connected	(UNKNOWN), (Frame Gate), (HD), (SD)	Sub-reference signal format display

SYSTEM OPERATION			
Page name **Page No.**	**Item**	**Settings**	**Description**
<MULTI FORMAT> S03 **Note** FREQUENCY or CAMERA FORMAT mode setting changes take effect only after the CCU power supply is turned off and then on again.	FREQUENCY		
	HD	**1.001**, 1.000	Selects the operating frequency.
	SD	**(525NTSC)**, (625PAL)	
	CAMERA FORMAT	When FREQUENCY is set to 1.001: **1080/59.94I**, 1080/29.97PsF, 1080/59.94P, 1080/23.98PsF, 720/59.94P, 1080/59.94I (RGB444), 1080/29.97PsF (RGB444), 1080/23.98PsF (RGB444), 1080/59I (2×), 720/59P (2×) When FREQUENCY is set to 1.000: 1080/50I, 1080/25PsF, 1080/50P, 1080/24PsF, 720/50P, 1080/50I (RGB444), 1080/25PsF (RGB444), 1080/24PsF (RGB444), 1080/50I (2×), 720/50P (2×)	Selects the transmission format.
	FRAME CONVERT DELAY	0.8, 1.2, **1.6**	Sets the output delay for framerate-converted signals. (Displayed only when FREQUENCY HD is set to 1.001.)
	CCU VIDEO CONVERT	**DSB**, ENB	Sets video conversion. When CAMERA FORMAT is set to 1080/59.94P or 1080/50P, set to ENB to convert/output 720/59.94P or 720/50P signal from the DRX board. To set to ENB, set FRAME SYNCHRO in RETURN SETUP (S07) to ON. **Tip:** When CCU VIDEO CONVERT is set to ENB, the CCU internal video conversion is delayed, so adjust the camera's signal by advancing it as necessary.
	2× MODE	0, **1**, 2	Sets the output format to 2× frame output. The CCU output format changes. **0:** Output by aligning with Horseshoe-shaped field. (Compatible with SR-R1000.) **1:** Output by aligning with field. (Compatible with servers manufactured by EVS.) **2:** Output by aligning with frame. (Compatible with SRW-1/5800.) Displayed only when CAMERA FORMAT is set to 1080/59.94I (2×), 1080/50I (2×), 720/59.94P (2×) or 720/50P (2×).
	BIT DEPTH	10bit, 12bit	Sets the output bit length to RGB 4:4:4. The CCU output format changes. Displayed only when CAMERA FORMAT is set to 1080/59.94I (RGB444), 1080/29.97PsF (RGB444), 1080/23.98PsF (RGB444), 1080/50I (RGB444), 1080/25PsF (RGB444) or 1080/24PsF (RGB444).
	3G-SDI	Level A, **Level B**	Selects SMPTE425 Level A or SMPTE425 Level B for 3G-SDI output.
	HD-SD DELAY	**Line (90H)**, Frame (1F), 0-Delay	Sets the phase output for SD signals down converted from this unit's HD signals.
	COMPONENT	RGB, **YCD**	Selects the component signal connector's output format. (Displayed only when HKCU1003 is installed.)

SYSTEM OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<OUTPUT FORMAT> S04	CAMERA TRANSMIT	When FREQUENCY HD is set to 1.001: **1080/59.94I**, 1080/29.97PsF, 1080/59.94P, 1080/23.98PsF, 720/59.94P, 1080/59.94I (RGB444), 1080/29.97PsF (RGB444), 1080/23.98PsF (RGB444), 1080/59I (2×), 720/59P (2×) When FREQUENCY HD is set to 1.000: 1080/50I, 1080/25PsF, 1080/50P, 1080/24PsF, 720/50P, 1080/50I (RGB444), 1080/25PsF (RGB444), 1080/24PsF (RGB444), 1080/50I (2×), 720/50P (2×)	Selects the output format. This setting works in conjunction with CAMERA FORMAT.
	SLOT1 (board name)		
	1&2	Output format*	Selects the output format for expansion slot 1's SDI OUT1/2 connector.
	3&4	Output format*	Selects the output format for expansion slot 1's SDI OUT3/4 connector.
	SLOT2 (board name)		
	1&2	Output format*	Selects the output format for expansion slot 2's SDI OUT1/2 connector.
	3&4	Output format*	Selects the output format for expansion slot 2's SDI OUT3/4 connector.
	SLOT3 (board name)	Output format*	Selects the output format for expansion slot 3's SDI OUT connector.
	SLOT4 (board name)	Output format*	Selects the output format for expansion slot 4's SDI OUT connector. (HDCU2000 only)
	SLOT5 (board name)	Output format*	Selects the output format for expansion slot 5's SDI OUT connector. (HDCU2000 only)
	SLOT6 (board name)	Output format*	Selects the output format for expansion slot 6's SDI OUT connector. (HDCU2000 only)

* Use the charts on the following as an example of how to configure these settings. The settings differ depending on the boards connected to the expansion slots.

	1080/59.94I	**1080/29.97PsF**	**1080/59.94P**	**1080/23.98PsF**	**720/59.94P**
Slot1 1&2	1080/59.94I	1080/29.97PsF	1080/59.94P (3G)	1080/23.98PsF	720/59.94P
Slot1 3&4	M1080/59.94I	M1080/29.97PsF	1080/59.94P (3G)	M1080/23.98PsF	M720/59.94P
Slot2 1&2	1080/59.94I	1080/29.97PsF	1080/59.94P (A)	1080/59.94I	720/59.94P
Slot2 3&4	M1080/59.94I	M1080/29.97PsF	C1080/59.94I (B)	M1080/59.94I	M720/59.94P
Slot3 1&2	525/59.94I	525/29.97PsF	1080/59.94I	525/59.94I	525/59.94I
Slot3 3&4	M525/59.94I	M525/29.97PsF	M525/59.94I	M525/59.94I	M525/59.94I
Slot4	NTSC	NTSC	NTSC	NTSC	NTSC

	1080/59.94I (RGB444)	**1080/29.97PsF (RGB444)**	**1080/23.98PsF (RGB444)**	**1080/59I (2×)**	**720/59P (2×)**
Slot1 1&2	1080/59.94I (RGB444) (3G)	1080/29.97PsF (RGB444) (3G)	1080/23.98PsF (RGB444) (3G)	1080/59I (2×) (3G)	720/59P (2×) (3G)
Slot1 3&4	M1080/59.94I (RGB444) (3G)	M1080/29.97PsF (RGB444) (3G)	C1080/23.98PsF (RGB444) (A)	C1080/59I (2×) (3G)	C720/59P (2×) (3G)
Slot2 1&2	1080/59.94I (RGB444) (A)	1080/29.97PsF (RGB444) (A)	1080/23.98PsF (RGB444) (B)	1080/59I (2×) (A)	720/59P (2×) (A)
Slot2 3&4	C1080/59.94I (RGB444) (B)	C1080/29.97PsF (RGB444) (B)	M1080/59.94I (RGB444) (3G)	C1080/59I (2×) (B)	C720/59P (2×) (B)
Slot3 1&2	1080/59.94I	1080/29.97PsF	1080/23.98PsF	1080/59.94I	720/59.94P
Slot3 3&4	M525/59.94I	M525/29.97PsF	M1080/59.94I	M525/59.94I	M525/59.94I
Slot4	NTSC	NTSC	NTSC	NTSC	NTSC

	1080/50I	**1080/25PsF**	**1080/50P**	**1080/24PsF**	**720/50P**
Slot1 1&2	1080/50I	1080/25PsF	1080/50P (3G)	1080/24PsF	720/50P
Slot1 3&4	M1080/50I	M1080/25PsF	1080/50P (3G)	M1080/24PsF	M720/50P
Slot2 1&2	1080/50I	1080/25PsF	1080/50P (A)	1080/50I	720/50P
Slot2 3&4	M1080/50I	M1080/25PsF	C1080/50P (B)	M1080/50I	M720/50P
Slot3 1&2	625/50I	625/25PsF	1080/50I	625/50I	625/50I
Slot3 3&4	M625/50I	M625/25PsF	M625/50I	M625/50I	M625/50I
Slot4	PAL	PAL	PAL	PAL	PAL

	1080/50I (RGB444)	**1080/25PsF (RGB444)**	**1080/24PsF (RGB444)**	**1080/50I (2×)**	**720/50P (2×)**
Slot1 1&2	1080/50I (RGB444) (3G)	1080/25PsF (RGB444) (3G)	1080/24PsF (RGB444) (3G)	1080/50I (2×) (3G)	720/50P (2×) (3G)
Slot1 3&4	M1080/50I (RGB444) (3G)	M1080/25PsF (RGB444) (3G)	C1080/24PsF (RGB444) (A)	C1080/50I (2×) (3G)	C720/50P (2×) (3G)
Slot2 1&2	1080/50I (RGB444) (A)	1080/25PsF (RGB444) (A)	1080/24PsF (RGB444) (B)	1080/50I (2×) (A)	720/50P (2×) (A)
Slot2 3&4	C1080/50I (RGB444) (B)	C1080/25PsF (RGB444) (B)	M1080/50I (RGB444) (3G)	C1080/50I (2×) (B)	C720/50P (2×) (B)
Slot3 1&2	1080/50I	1080/25PsF	1080/24PsF	1080/50I	720/50P
Slot3 3&4	M625/50I	M625/25PsF	M1080/50I	M625/50I	M625/50I
Slot4	PAL	PAL	PAL	PAL	PAL

An “M” next to the output format indicates that a cable’s character will be output with the signal.
A “C” next to the output format indicates that a character will not be added.

SYSTEM OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<SD ASPECT> S05	SD ASPECT	SQUEEZE, **EDGE CROP**, LETTER BOX	Selects the SD output aspect.
	SD LB SEL	**16:9**, 15:9, 14:9, 13:9	Selects the LETTER BOX aspect ratio.
	H-POSITION	–99 to 99, (–99) to (99) **0**	Sets the horizontal position. Settings in ( ): Displayed when SQUEEZE or LETTER BOX is selected in SD ASPECT. (Display only)
	CENTER	**ON**, OFF, (ON), (OFF)	Sets the horizontal centering position. Settings in ( ): Displayed when SQUEEZE or LETTER BOX is selected in SD ASPECT. (Display only)
	V-POSITION	–99 to 99, (–99) to (99) **0**	Sets the vertical position. Settings in ( ): Displayed when SQUEEZE or EDGE CROP is selected in SD ASPECT. (Display only)
	CENTER	ON, OFF, **(ON)**, (OFF)	Sets the vertical centering position. Settings in ( ): Displayed when SQUEEZE or EDGE CROP is selected in SD ASPECT. (Display only)
	H-INTERP	**A**, B, C, D, E	Selects the down converter horizontal filter.
	V-INTERP	**A**, B, C, D, E	Selects the down converter vertical filter.
<RETURN FORMAT> S06	RET1 RET2 RET3 RET4	When 1.001 is selected for FREQUENCY HD: 1080/59.94P, **1080/59.94I (PsF)**, 1080/23.97PsF, 720/59.94P, 525/59.94I (PsF), NTSC When 1.000 is selected for FREQUENCY HD: 1080/50P, **1080/50I (PsF)**, 1080/24PsF, 720/50P, 625/50I (PsF), PAL When 525/59.94I (PsF), NTSC, 625/50I (PsF) or PAL are selected, the following settings are available: **SQUEEZE**, EDGE CROP, LETTER BOX, **16:9**, 15:9, 14:9, 13:9	Sets the return signal input format. Sets input format, aspect ratio, and letterbox mode. The following page shows selectable RETURN FORMAT settings at various OUTPUT FORMAT settings. **Note** RET4 for HDCU2500 is locked to NTSC or PAL.
	AUTO SCAN	Execute via EXEC.	Automatically detects the return signal input format, and then executes. **Note** If the automatically detected result is invalid, the previous setting flashes for 5 seconds, and then the previous setting is maintained.
	LINK TO MAIN	**MANUAL**/AUTO	Sets the mode for linking the return signal to this signal.

OUTPUT FORMAT	RETURN FORMAT
1080/59.94I	1080/59.94I (PsF), 525/59.94I (PsF), NTSC
1080/29.97PsF	
1080/59.94P	1080/59.94P [2)], 1080/59.94I (PsF), 720/59.94P [3)], 525/59.94I (PsF), NTSC
1080/23.98PsF	1080/23.98PsF, 1080/59.94I (PsF), 525/59.94I (PsF), NTSC
720/59.94P	720/59.94P, 525/59.94I (PsF), NTSC
1080/59.94I (RGB444)	1080/59.94I (PsF) (RGB444) [1) 2)], 1080/59.94I (PsF), 525/59.94I (PsF), NTSC
1080/29.97PsF (RGB444)	
1080/23.98PsF (RGB444)	1080/23.98PsF (RGB444) [1) 2)], 1080/59.94I (PsF) (RGB444) [1) 2)], 1080/23.98PsF, 1080/59.94I (PsF), 525/59.94I (PsF), NTSC
1080/59.94I (2x)	1080/59.94I (PsF), 525/59.94I (PsF), NTSC
720/59.94P (2x)	720/59.94P, 525/59.94I (PsF), NTSC
1080/50I	1080/50I (PsF), 625/50I (PsF), PAL
1080/25PsF	
1080/50P	1080/50P [2)], 1080/50I (PsF), 720/50P [3)], 625/50I (PsF), PAL
1080/24PsF	1080/24PsF, 1080/50I (PsF), 625/50I (PsF), PAL
720/50P	720/50P, 625/50I (PsF), PAL
1080/50I (RGB444)	1080/50I (PsF) (RGB444) [1) 2)], 1080/50I (PsF), 525/50I (PsF), PAL
1080/25PsF (RGB444)	
1080/24PsF (RGB444)	1080/24PsF (RGB444) [1) 2)], 1080/50I (PsF) (RGB444) [1) 2)], 1080/24PsF, 1080/50I (PsF), 525/50I (PsF), PAL
1080/50I (2x)	1080/50I (PsF), 525/50I (PsF), PAL
720/50P (2x)	720/50P, 625/50I (PsF), PAL

1) Transfer after RGB converted to YCrCb.
2) Only 3G-SDI (SMPTE425M Level B) input is supported.
3) Selectable only when CCU VIDEO CONVERT in MULTI FORMAT (S03) is set to ENB.

SYSTEM OPERATION			
Page name Page No.	**Item**	**Settings**	**Description**
<RETURN SETUP> S07	FRAME SYNCHRO	OFF, **ON**	Set the FRAME SYNCHRO function for the return signal to on/off.
	SD-RETURN		
	MATRIX	OFF, **ON**	Turn the HD matrix to the SD return signal on/off.
	LB LINE	360, **364**	Set the effective line setting for letterbox.
	ASPECT	**MANUAL**, AUTO	Sets the auto-linking function for this unit's aspect setting.
	RETURN-TO-RETURN		
	MODE	**NORMAL**, SMOOTH	"SMOOTH" is available when the return signal is HD-SDI.
<CCU VIDEO> S08	VBS-CHROMA	OFF, **ON**	Turns the VBS output signal's cross signal on/off.
	MONO-COLOR	**OFF**, ON	Sets the MONO COLOR function on/off.
	PHASE	0 to 358, **0**	Adjusts the color phase for the MONO COLOR function.
	SATURATION	–99 to 99, **0**	Adjusts the color saturation for the MONO COLOR function.
<3D SETTINGS> S09	3D MODE	**OFF**, ON	Turns the 3D Mode setting ON/OFF. (Available only with the HDFA-200 expansion.)
	3D OUTPUT	**3D MONITOR**, RIGHT ONLY, LEFT ONLY	Sets 3D Monitor output.
	3D MONITOR	**SPLIT SCREEN**, SIDE BY SIDE, ANAGLYPH, 50% MIX, DIFFERENCE, DIFF Y ONLY, MIRROR, CROP SPLIT, V SPLIT, CHECKER BOARD, LINE BY LINE	Displays the format.
	POSITION	–99 to 99, **0**	Sets the WIPE division ratio and MIX mix ratio. (Displayed when 3D MODE is set to ON.)
	MIX CHROMA	**ON**, OFF	Selects whether to display chroma information when MIX is activated.
	DIFF MODE	**L-R**, R-L	Switches to the difference image calculation operation.
	V SPLIT MODE	**L/R**, R/L	Switches the left and right sides when splitting the display.
	BORDER LINE	**OFF**, ON	Selects whether or not to display the boundary line when splitting the display.
	CHANNEL ID	(OFF), (ON)	Selects whether to display the Channel ID with this line's output.

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	Sets an HD output color bar.
		MF CB	**MODIFY**, EVEN	Sets a multi-format color bar.
		SLOPE	**WIDE**, NARROW	Sets the chroma band for a color bar.
	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	Sets SD output for a color bar.
			DSB, **ENB**	**DSB:** Down convert and display the HD color bar. **ENB:** Display the set SD color bar.
	BAR-CHARA		ON, **OFF**	Turns the signal for characters superimposed on a color bar ON/OFF.
	GRAY		**ON**, OFF	**ON:** Gray screen output when camera power supply is off. **OFF:** Color bar signal output when camera power supply is off.
	MOVING SYMBOL		ON, **OFF**	Turns the moving symbol superimposed on the color bar ON/OFF.
		TYPE	**0**, 1, 2	Sets the symbol type.
		SIZE	**SMALL**, LARGE	Sets the symbol size.
<BAR CHARACTER> C02	BAR CHARACTER			Sets strings 1 to 12 that are superimposed on the color bar signal.
	ALL CLEAR			Execute to clear all character strings. (Execute via ENTER.)
<MONITOR 1> C03	CHARACTER			Sets the MONITOR output bar character.
		WHITE-LEVEL	0.0 to 107.0% **71.5**	Sets the MONITOR output bar character level.
		BLACK-LEVEL	**0.0** to 107.0%	Sets the MONITOR output bar character border black level.
	PIX CHARACTER			Sets the PIX output bar character. (Displayed only when HKCU1001/1003 is installed.)
		WHITE-LEVEL	0.0 to 107.0%, **75.0**	Sets the PIX output bar character level.
		BLACK-LEVEL	**0.0** to 107.0%	Sets the PIX output bar character border black level.

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**	Sets the level gate 1 minimum and maximum detection level.
		–99 to 99 **–25**	Sets the level gate 1 zebra range.
	Y-LEVEL2	0 to 108% **74** **108**	Sets the level gate 2 minimum and maximum detection level.
		–99 to 99 **–25**	Sets the level gate 2 zebra range.
	GATE-MARKER	---, ON, **OFF**	Sets the gate signal display to ON/OFF. ---: Displayed when a camera is not connected.
		–99 to 99 **0**	Sets the gate signal level.
	MODULATION	---, ON, **OFF**	Sets the 4:3 aspect ratio mask function to ON/OFF when EDGE CROP is set to ON. ---: Displayed when a camera is not connected.
		–99 to 99 **0**	Sets the mask video level.
	MARKER	ON, **OFF**	Sets the marker signal to ON/OFF.
		4:3, 13:9, 14:9, EU VISTA, VISTA, CINEMA, FOLLOW DC	Selects a superimposed marker signal.
<I/F SETUP> C05	BOARD	FRONT, REAR	Display only
	SLOT1	BOARD NAME DISPLAY	Detects and displays the boards installed to the front/rear of the CCU. (Display only)
	SLOT2	BOARD NAME DISPLAY	
	SLOT3	BOARD NAME DISPLAY	
	SLOT4	BOARD NAME DISPLAY	
	SLOT5	BOARD NAME DISPLAY	
	SLOT6	BOARD NAME DISPLAY	
	DSUB-15	**MIC-REMOTE**, WF-REMOTE	Sets the output for the MIC REMOTE connector. (HDCU2500 only)
	CHARA/SYNC	**CHARACTER**, SYNC	Sets the output for the CHARACTER/SYNC connector. (HDCU2500 only)
	REAR PREVIEW	**MOMENTARY**, TOGGLE	Selects the REAR PREVIEW output operating mode.
<MIC GAIN> C06	CAM MIC GAIN		Sets the microphone gain.
	CH1	---, 20, 30, 40, 50, **60** dB	Settings vary depending on microphones. **---:** Displayed when a camera is not connected. (Display only)
	CH2	---, 20, 30, 40, 50, **60** dB	
<AUDIO OUT> C07	DELAY	**0** to 3840FS	Sets the camera's microphone output phase.
	AES/EBU OUT	**MIC 1/2**, AES, EBU	Selects the MIC OUT DIGITAL output. (HDCU2000 only)
	ANALOG OUT	**MIC 1/2**, AES, EBU	Selects the MIC OUT ANALOG output.
	CH1 LEVEL	**0**, +4, –20	Sets the AUDIO CH1 output level.
	ADJUST	–99 to 99 **0**	
	CH2 LEVEL	**0**, +4, –20	Sets the AUDIO CH2 output level.
	ADJUST	–99 to 99 **0**	

CCU CONFIGURATION			
Page name Page No.	**Item**	**Settings**	**Description**
<INTERCOM> C08	INTERCOM CH	1CH, **2CH**	Selects the intercom channel number.
	SYSTEM INTERFACE		
	PRODUCER	**4WIRE**, RTS, CLEAR COM	Sets the producer line intercom system.
	CANCEL LVL	–99 to 99 **0**	Sets the side tone cancel level.
	TERMINATION	**(OFF)**, ON	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)
	ENGINEER	**4WIRE**, RTS, CLEAR COM	Sets the engineer line intercom system.
	CANCEL LVL	–99 to 99 **0**	Sets the side tone cancel level.
	TERMINATION	**(OFF)**, ON	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)
	PGM1 INPUT	–20, **0**, +4 dBu	Sets the PGM1 input level.
	PGM2 INPUT	–20, **0**, +4 dBu	Sets the PGM2 input level.
<FRONT INCOM> C09		(MIC ON), (MIC OFF), (PGM ON)	CCU front panel MIC/PGM switch position. (Display only)
		(PROD), (ENG), (PRIVATE)	CCU front panel INTERCOM switch position. (Display only)
	INCOM MIC	CARBON, ECM, **DYNAMIC**	Sets the headset microphone connected to the INTERCOM connector on the front panel. **CARBON:** Carbon microphone (power supply, 20dB gain) **ECM:** Electret condenser microphone (power supply, 40dB gain) **DYNAMIC:** Dynamic microphone (no power supply, 60dB gain)
	MIC TYPE	BALANCE, **UNBALANCE**	Sets the headset microphone connected to the INTERCOM connector on the front panel. **BALANCE:** Balanced microphone **UNBALANCE:** Unbalanced microphone
	MIC GAIN	–6dB, **0dB**, +6dB	Sets the input gain.
	SIDE TONE	0 to 99 **50**	Sets the side tone level.
	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 SEL	**PGM1**, PGM2, PGM1 + PGM2	Selects the PGM type.
	PGM1 LVL	0 to 99 **50**	Sets the PGM1 level.
	PGM2 LVL	0 to 99 **50**	Sets the PGM2 level.
<PROMPT/TRUNK 1> C10	PROMPTER CH	1CH, **2CH**	Sets the number of prompter lines. (HDCU2500 is locked to 1CH.)
	TRUNK LINE		
	CH	1CH, **2CH**	Sets the number of channels to be used.
	IF	**232C**, 422A	Sets the communication line mode.
	RATE	(38Kbps), (19Kbps), (75Kbps), (150Kbps)	Displays the TRUNK line. (Display only)
	AUX REMOTE	**DISABLE**, ENABLE	Sets whether or not AUX REMOTE is used.

CCU CONFIGURATION			
Page name Page No.	**Item**	**Settings**	**Description**
<PROMPT/TRUNK 2> C11	NETWORK TRUNK		
	MODE	(OFF), **OFF**, NETWORK, NETWORK + VIDEO	Sets the mode for the network trunk.
	RATE	---, (100Mbps), (1Gbps)	Sets the rate for the network trunk line.
	HD PROMPTER	(ENABLE), (DISABLE)	Displays “ENABLE” or “DISABLE” for HD PROMPTER.
	FRAME SYNC	**OFF**, ON, (ON)	Turns the frame sync function ON/OFF.
	HD TRUNK	(ENABLE), (DISABLE)	Displays “ENABLE” or “DISABLE” for HD TRUNK.
<VIDEO SETUP> C12	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 the format is PAL. (Display only)
	SD BLK CLP	OFF, **ON**	Y signals from SD SDI output that are less than 0% are clipped at 0%.
	Q FILTER	**WD**, NA	Sets the Q filter bandwidth. (Displayed only when HKCU1001 or HKCU1003 is installed.)
	G/Y SYNC	**OFF**, ON	Sets the R/G/B component signal’s G ch-SYNC to on/off. (Displayed only when HKCU1001 or HKCU1003 is installed.)
	VCS RELAY	OFF, **ON**	Sets the PIX/WFM connector output. (Displayed only when HKCU1001 or HKCU1003 is installed.)
<VIDEO ADJUST 1> C13 (Available when a HKCU1001 or HKCU1003 board is installed)	VBS		
	LEVEL	–99 to 99, **0**	Adjusts the VBS output video level.
	CHROMA	–99 to 99, **0**	
	PIX		
	LEVEL	–99 to 99, **0**	Adjusts the PIX output video level.
	CHROMA	–99 to 99, **0**	
	WFM		
	LEVEL	–99 to 99, **0**	Adjusts the WFM output video level.
	CHROMA	–99 to 99, **0**	
<VIDEO ADJUST 2> C14 (Available when two HKCU1001 or HKCU1003 boards are installed)	VBS		
	LEVEL	–99 to 99, **0**	Adjusts the VBS output video level.
	CHROMA	–99 to 99, **0**	
	PIX		
	LEVEL	–99 to 99, **0**	Adjusts the PIX output video level.
	CHROMA	–99 to 99, **0**	
	WFM		
	LEVEL	–99 to 99, **0**	Adjusts the WFM output video level.
	CHROMA	–99 to 99, **0**	
(Available when yet another VDA board from the HKCU1003 is installed to the option slot)	G/Y LEVEL	–99 to 99, **0**	Adjusts the G/Y output video level.
	B/B-Y LEVEL	–99 to 99, **0**	Adjusts the B/B-Y output video level.
	R/R-Y LEVEL	–99 to 99, **0**	Adjusts the R/R-Y output video level.

CCU CONFIGURATION			
Page name Page No.	**Item**	**Settings**	**Description**
<MENU SETTINGS> C15	RESUME	**ON**, OFF	Turns ON/OFF the menu mode resume page display function.
	ALARM JUMP	ON, **OFF**	Turns ON/OFF the error-related page display function for when an error occurs while in menu mode.
	RE DIRECTION		CONTROL knob operating mode settings
	CATEGORY	**STD**, RVS	**STD:** CONTROL knob clockwise rotation moves the CCU MENU pointer (➡) down. **RVS:** CONTROL knob counterclockwise rotation moves the CCU MENU pointer (➡) down.
	PAGE	**STD**, 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	**STD**, 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	**STD**, RVS	**STD:** CONTROL knob clockwise rotation selects the next data option. **RVS:** CONTROL knob counterclockwise rotation selects the next data option.
<DISPLAY> C16 Turn camera messages and switch settings ON/OFF for the camera's diagnostics screen.	MESSAGE	**ALL**, WARNING, OFF	**ALL:** Displays all messages. **WARNING:** Displays system warning messages and menu control messages. **OFF:** Displays only menu control messages.
	MASTER GAIN	**ON**, OFF	Displays or hides the master gain indication.
	EVS/SHUTTER	**ON**, OFF	Displays or hides the ECS/shutter indication.
	ND FILTER	**ON**, OFF	Displays or hides the ND filter indication.
	CC FILTER	**ON**, OFF	Displays or hides the CC indication.
	IRIS	**ON**, OFF	Displays or hides the IRIS indication.
	EXTENDER	**ON**, OFF	Displays or hides the EXTENDER indication.
<DATE> C17	DATE/TIME	20YY/MM/DD hh:mm	Sets the date and time.
	TIME ZONE	hh:mm –11h59m to +11h59m	Sets the time zone.
<TALLY INPUT> C18	R-TALLY	**CONTACT**, POWER (24V), POWER (TTL)	RED tally input setting
	G-TALLY	**CONTACT**, POWER (24V), POWER (TTL)	GREEN tally input setting
	Y-TALLY	**CONTACT**, POWER (24V), POWER (TTL)	YELLOW tally input setting
<ALARM SETTINGS> C19	FORCE LEGACY	OFF, **ON**	Set to OFF to not display the FORCE LEGACY alarm.
	SUB REF NONE	OFF, **ON**	Set to OFF to not display the REF NONE alarm.
	SUB REF INVALID	OFF, **ON**	Sets to OFF to not display the REF INVALID alarm.

CCU CONFIGURATION			
Page name Page No.	**Item**	**Settings**	**Description**
<TRANSMIT> C20	TRANSMIT	AUTO, HIGH BIT RATE, HD-SDI, (HD-SDI)	Sets the optical transmission rate between a camera and CCU.
	CABLE	**CAMERA CABLE**, COAX	Sets the transmission method between a camera and CCU.
	TRIAX ADAPTER		
	TYPE	**DISABLE**, A-TRIAX, D-TRIAX	Sets the TRIAX adapter type.
	MODE	AUTO TRIAX, FIBER SM	Sets the transmission method of the TRIAX adapter.
<BOARD SETUP> C21	BOARD SELECT	**DRX1**, DRX2, DRX3, DRX4, RC	Selects the board to set.
	EMBED AUDIO	**ON**, OFF	Sets superimposition of audio data to ON/OFF.
	META DATA EMB	**OFF**, ON	Sets superimposition of metadata to ON/OFF.
	PAYLOAD ID	**LATEST**, 2002, 2010, 2011	Sets the PAYLOAD ID of VIDEO.
	INTER LOCK	**OFF**, ON	SDI output (3, 4) format linking function
<OTHERS> C22	ASSIGNABLE	**NONE**, BARS, CLEAN, CAM POWER, FORCE LEGACY, REF LOCAL HD, REF LOCAL SD	Sets the function for the assignable button. **NONE:** No assignment. **BARS:** Sets the color bar output to ON/OFF. **CLEAN:** Sets character superimposition for all output slots to ON/OFF. **CAM POWER:** Sets camera power to ON/OFF. **FORCE LEGACY:** Forces the communication mode to LEGACY mode. **REF LOCAL HD:** Sets GENLOCK to LOCAL HD. **REF LOCAL SD:** Sets GENLOCK to LOCAL SD.
	CCU NO	**0**, 0 to 96, A to Z	Sets the CCU number.
	SYNC OUT	**SD SYNC**, HD SYNC	Sets the SYNC OUT connector.
	REF 10F BB	**OFF**, ON	Sets the 10F BB function.
	CAM MENU	**OFF**, ON	Displays the Camera menu. **Notes** • If CAM MENU is set to ON, CCU CONFIGURATION menu operations cannot be performed because only Camera menu operations are available. • The Camera menu is not displayed when SD signal is output.

NETWORK SETTINGS menu

NETWORK SETTINGS			
Page name Page No.	**Item**	**Settings**	**Description**
<IP ADDR SET> N01	HOST IP ADDRESS	**0.0.0.0** to 255.255.255.255	Displays the IP address.
	SUB NET MASK	**0.0.0.0** to 255.255.255.254	Displays the subnet mask.
	DEFAULT GATEWAY	**0.0.0.0** to 255.255.255.255	Displays the default gateway.
	SET		A “SET OK?” message is displayed. Press ENTER again to confirm the change. (Execute via ENTER.)

NETWORK SETTINGS			
Page name **Page No.**	**Item**	**Settings**	**Description**
<LAN SETTING> N02	AUTO NEGOTIATION	**ON**, OFF	Selects whether to automatically set the connection speed and communication system according to the device connected.
	AUTO MDIX	**ON**, OFF	Sets the communication line.
	CONNECT CONFIGURATION		
	CONNECTION SPEED	10M, **100M**	Selects the connection speed. **10M:** 10BASE-TX **100M:** 100BASE-TX Available only when OFF is selected in AUTO NEGOTIATION.
	DUPLEX MODE	HALF, **FULL**	Selects the communication system. **HALF:** Half-duplex communication. **FULL:** Full-duplex communication. Available only when OFF is selected in AUTO NEGOTIATION.
	MDI/MDIX SELECT	**MDI**, MDIX	Selects the communication line.
	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 via ENTER.)
<CNS SETTING> N03	CNS MODE	**LEGACY**, BRIDGE, MCS	Sets the communication mode.
	MCS MODE	(CLIENT)	Displays that the CCU is a CLIENT.
	CCU NO	blank, 1 to 96	Sets the CCU number.
	MASTER IP ADDRESS	**0.0.0.0** to 255.255.255.255	Sets the master device’s IP address for MCS mode.
<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 via 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 to +40°C (41 to 104°F) for HDCU2000, –10 to +40°C (14 to 104°F) for HDCU2500). 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 this unit 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.

Error Messages

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

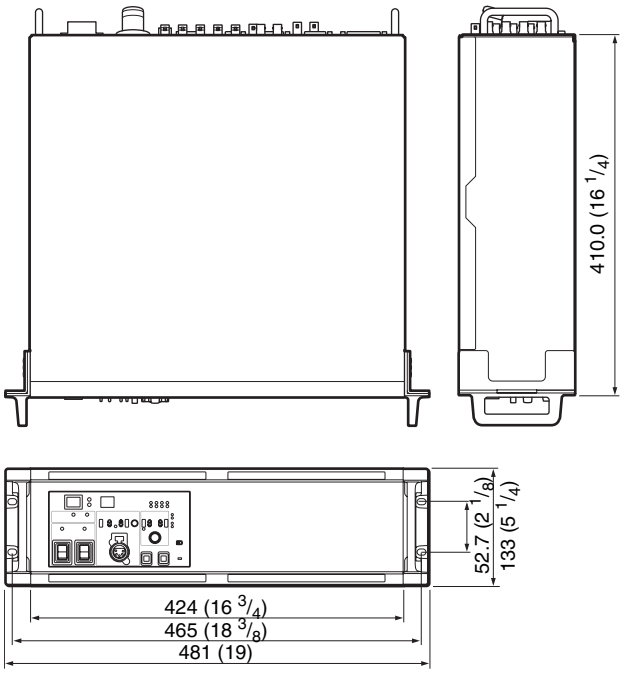
Error message	Indication
CCU:GEN LOCK NG	External reference sync error
CCU:DRX NG	Front DRX board power supply, PLD error
CCU:SDI NG	Rear SDI board power supply error
CCU:PS FAN NG	Power supply block fan error
CCU:PS CABLE SHORT	CAMERA connector optical fiber cable short circuit error
CCU:PS CABLE OPEN	CAMERA connector optical fiber cable open circuit error
CCU:PS RCP PWR SUPPLY NG	Remote control panel (connected to REMOTE connector) power supply error
CCU:RX WARNING	Transmission error between camera and CCU
CCU: CAM INVALID FORMAT	An invalid format is selected.

Specifications

HDCU2000

General	
Power supply	100/120/220-240 V AC, 50/60 Hz (To change to a different power supply, contact a Sony service or sales representative.)
Current consumption	5.4 A (max.)
Operating temperature	+5°C to +40°C (+41°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Mass	Approx. 17.5 kg (38 lb 9 oz)

Dimensions (Unit: mm (inches))



Input/Output connectors	
CAMERA	Optical fiber connector (1) 240 V AC power supply
INTERCOM/TALLY/ PGM	D-sub 25-pin connector (1) • INTERCOM (PROD/ENG), 4W/RTS/CC, 0 dBu • PGM, 2 systems, 0 dBu/–20 dBu • TALLY (R, G, Y)
RCP/CNU	8-pin multi-connector (1)
AUX REMOTE	8-pin multi-connector (1)
TRUNK A	12-pin (1)
TRUNK LINE	D-sub 9-pin, female (1), RS-232C, for CHU transmission or system expansion
I/O PORT	D-sub 15-pin, female (1) (JAE-made DA-C1-J10 recommended)
LAN	8-pin (1)
NETWORK TRUNK	8-pin (1)

Input connectors	
AC IN	(1), 100/120/220-240 V (To change to a different power supply, contact a Sony service or sales representative.)
SDI RET IN	BNC-type (4) 3G-SDI: SMPTE 424M/425M, 2.970 Gbps/ 2.967 Gbps HD-SDI: SMPTE 292M, 1.485 Gbps/ 1.4835 Gbps SD-SDI: SMPTE 259M, 270 Mbps
VBS RET IN	BNC-type (4), analog signal, 1.0 V p-p, 75 ohms
REFERENCE	BNC-type (2), loop-through output HD: SMPTE 274M, tri-level sync, 0.6 Vp-p, 75 ohms SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/PAL: 0.3 Vp-p, 75 ohms) or NTSC 10F-BB
PROMPTER 1, 2	BNC-type (4), loop-through output, analog signal, 1.0 Vp-p, 75 ohms
MIC REMOTE	D-sub 15-pin (1) (JAE-made DA-C1-J10 recommended)
HD PROMPTER IN	BNC-type (1), SMPTE 292M, 75 ohms, 1.485 Gbps/1.4835 Gbps

Output connectors	
AUDIO OUT CH1, CH2	XLR 3-pin, male (2), 0 dBu/–20 dBu/+4 dBu
AES/EBU	BNC-type (1), AES/EBU format
CHARACTER	BNC-type (1), VBS, 1 Vp-p, 75 ohms, character on/off switchable
WF REMOTE	D-sub 15-pin, female (1) (JAE-made DA-C1-J10 recommended)
3G/HD SDI OUTPUT	BNC-type (2) 3G-SDI: SMPTE 424M/425M, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3D-SDI/HD-SDI selectable.
3G/HD SDI OUTPUT (MONI)	BNC-type (2) 3G-SDI: SMPTE 424M/425M, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI and character ON/OFF selectable
HD/SD SDI OUTPUT	BNC-type (2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 ohms, 270 Mbps HD-SDI/SD-SDI selectable.

HD/SD SDI OUTPUT (MONI)	BNC-type (2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 ohms, 270 Mbps HD-SDI/SD-SDI and character ON/OFF selectable
SYNC	BNC-type (1) HD: BTA-S001, tri-level sync, 0.6 Vp-p, 75 ohms SD: composite sync, 0.3 Vp-p, 75 ohms HD SYNC/SD SYNC selectable
HD TRUNK OUT	BNC-type (1) SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps (Available only when camera single link format is selected.)

Supplied accessories

Number plates (1 set)

Fuses (1 set)

Operation guide (1)

Operation manual (CD-ROM) (1)

Optional accessories

AC power cord:
USA and Canada: 1-551-812-XX
Other countries: 1-782-929-XX

Power cord plug holder
USA and Canada: 2-990-242-01
Other countries: 3-613-640-01

HKCU2007 3G/HD SDI Output Expansion Unit

HKCU1001 SD Encoder Unit

HKCU1003 Multi Interface Unit

CCA-5-3 Connection Cable (3 meters/10 feet)
CCA-5-10 Connection Cable (10 meters/33 feet)

Expansion Board

Maintenance manual

Related devices

HDC2000/2500 series Color Video Camera

RCP-1000 series Remote Control Panel

MSU-1000 series Master Setup Unit

CNU-700 Camera Command Network Unit

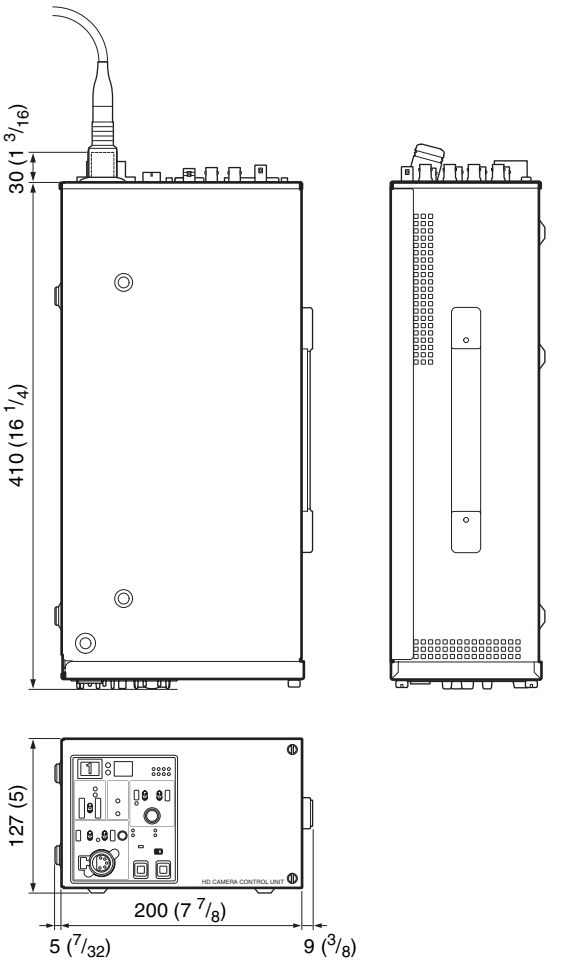
HZC-CSM10 Camera System Management Software

Design and specifications are subject to change without notice.

HDCU2500

General	
Power supply	100 to 240 V AC, 50/60 Hz
Current consumption	4.1 A (max.)
Standby power	Approx. 5 W
Operating temperature	–10°C to +40°C (+14°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Mass	Approx. 6.7 kg (14 lb 12 oz)

Dimensions (Unit: mm (inches))



Input/Output connectors	
CAMERA	Optical fiber connector (1) 180 V DC power supply
INTERCOM/TALLY/ PGM	D-sub 25-pin connector (1) • INTERCOM (PROD/ENG), 4W/RTS/CC, 0 dBu • PGM, 2 systems, 0 dBu/–20 dBu • TALLY (R, G, Y)
RCP/CNU	8-pin multi-connector (1)
TRUNK A	12-pin (1)
LAN	8-pin (1)
NETWORK TRUNK	8-pin (1)

Input connectors	
AC IN	(1), 100 to 240 V AC
RET 1, 2, 3	BNC-type (3) 3G-SDI: SMPTE 424M/425M, 2.970 Gbps/ 2.967 Gbps HD-SDI: SMPTE 292M, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 270 Mbps VBS: 1.0 Vp-p, 75 ohms
REFERENCE	BNC-type (2), loop-through output HD: SMPTE 274M, tri-level sync, 0.6 Vp-p, 75 ohms SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/PAL: 0.3 Vp-p, 75 ohms) or NTSC 10F-BB
PROMPTER	BNC-type (2), loop-through output, analog signal, 1.0 Vp-p, 75 ohms
MIC REMOTE	D-sub 15-pin (1) (JAE-made DA-C1-J10 recommended) (switchable to WF REMOTE by an internal setting)
HD PROMPTER IN	BNC-type (1), SMPTE 292M, 75 ohms, 1.485 Gbps/1.4835 Gbps
Output connectors	
AUDIO OUT CH1, CH2	XLR 3-pin, male (2), 0 dBu/–20 dBu/+4 dBu
3G/HD SDI OUTPUT	BNC-type (2) 3G-SDI: SMPTE 424M/425M, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable
3G/HD SDI OUTPUT (MONI)	BNC-type (1) 3G-SDI: SMPTE 424M/425M, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI and character ON/OFF selectable
HD/SD SDI OUTPUT	BNC-type (2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 ohms, 270 Mbps HD-SDI/SD-SDI selectable
HD/SD SDI OUTPUT (MONI)	BNC-type (2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 ohms, 270 Mbps HD-SDI/SD-SDI and character ON/OFF selectable
CHARACTER/SYNC	BNC-type (1) HD SYNC: HD, BTA-S001, tri-level sync, 0.6 Vp-p, 75 ohms SD SYNC: SD, composite sync, 0.3 Vp-p, 75 ohms CHARACTER: VBS, 1 Vp-p, 75 ohms, character ON/OFF selectable CHARACTER/HD SYNC/SD SYNC selectable
HD TRUNK OUT	BNC-type (1) SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps (Available only when camera single link format is selected.)

Supplied accessories
Number plates (1 set)
Operation guide (1)
Operation manual (CD-ROM) (1)

Optional accessories
AC power cord: USA and Canada: 1-551-812-XX Other countries: 1-782-929-XX
Power cord plug holder USA and Canada: 2-990-242-01 Other countries: 3-613-640-01
HKCU2007 3G/HD SDI Output Expansion Unit
HKCU1001 SD Encoder Unit
HKCU1003 Multi Interface Unit
CCA-5-3 Connection Cable (3 meters/10 feet) CCA-5-10 Connection Cable (10 meters/33 feet)
RMM-301 Rack Mount Adaptor
Expansion Board
Maintenance manual

Related devices
HDC2000/2500 series Color Video Camera
RCP-1000 series Remote Control Panel
MSU-1000 series Master Setup Unit
CNU-700 Camera Command Network Unit
HZC-CSM10 Camera System Management Software

Design and specifications are subject to change without notice.

HKCU2007 (optional)

General	
Power supply	5.5 W
Operating temperature	–10°C to +40°C (+14°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Dimensions (w/h/d)	DRX board: Approx. 19 × 110 × 226 mm (3/4 × 4 3/8 × 8 7/8 inches) HIF board: Approx. 19 × 98 × 159 mm (3/4 × 3 7/8 × 6 1/4 inches)
Mass	DRX board: Approx. 0.24 kg (8 oz) HIF board: Approx. 0.09 kg (3 oz)
Output connectors	
HIF board	
SDI OUT	BNC-type (4) 3G-SDI: SMPTE 424M/425M, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable Character ON/OFF selectable (connectors 3/4)

Design and specifications are subject to change without notice.

HKCU1001 (optional)

General	
Power supply	2.5 W
Operating temperature	–10°C to +40°C (+14°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Dimensions (w/h/d)	EN-A board: Approx. 19 × 110 × 226 mm (3/4 × 4 3/8 × 8 7/8 inches) VDA-A board: Approx. 19 × 98 × 159 mm (3/4 × 3 7/8 × 6 1/4 inches)
Mass	EN-A board: Approx. 0.22 kg (7.8 oz) VDA-A board: Approx. 0.10 kg (3.5 oz)
Output connectors	
VDA-A board	
VBS	BNC-type (2), 1.0 Vp-p, 75 ohms, VBS
PIX OUT	BNC-type (1), VBS/R/G/B (VBS 1.0 Vp-p, 75 ohms)
WF OUT	BNC-type (1), VBS/R/G/B/SEQ (VBS 1.0 Vp-p, 75 ohms)
Supplied accessories	
4-pin connector (1)	

Design and specifications are subject to change without notice.

HKCU1003 (optional)

General	
Power supply	3.6 W
Operating temperature	–10°C to +40°C (+14°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Dimensions (w/h/d)	EN-B board: Approx. 19 × 110 × 226 mm (3/4 × 4 3/8 × 8 7/8 inches) VDA-A/B/C board: Approx. 19 × 98 × 159 mm (3/4 × 3 7/8 × 6 1/4 inches)
Mass	EN-B board: Approx. 0.22 kg VDA-A/B/C board: Approx. 0.10 kg
Output connectors	
VDA-A board	
VBS	BNC-type (2), 1.0 Vp-p, 75 ohms, VBS
PIX OUT	BNC-type (1), VBS/R/G/B (VBS 1.0 Vp-p, 75 ohms)
WF OUT	BNC-type (1), VBS/R/G/B/SEQ (VBS 1.0 Vp-p, 75 ohms)
VDA-B board	
FRAME REF IN	BNC-type (1) HD: SMPTE 274M, tri-level sync input, 0.6 Vp-p, 75 ohms SD: Black burst input, 0.286 Vp-p, 75 ohms
FRAME REF OUT	BNC-type (1) Loop-through output or frame sync pulse output, 0.3 Vp-p, 75 ohms, switchable
PIX OUT	BNC-type (1), VBS/R/G/B (VBS 1.0 Vp-p, 75 ohms)
WF OUT	BNC-type (1), VBS/R/G/B/SEQ (VBS 1.0 Vp-p, 75 ohms)
VDA-C board	
VBS	BNC-type (2), 1.0 Vp-p, 75 ohms, VBS
R/R-Y, G/Y, B/B-Y	BNC-type (3) • RGB video R/G/B (100% white): 0.7 Vp-p, 75 ohms • Component video Y (100% white): 0.714 Vp-p R-Y/B-Y (75% color bar): 0.756 Vp-p, 75 ohms
Supplied accessories	
4-pin connector (1)	

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.

HDCU2000 (UC/CE/E)
HDCU2500 (SY)
4-413-603-**03**(1)

Sony Corporation

http://www.sony.net/