SONY

BASEBAND PROCESSOR UNIT

BPU4000

OPERATION MANUAL English

1st Edition (Revised 1)

Table of Contents

Overview

The BPU4000 Baseband Processor Unit connects to a CA4000 Camera System Adaptor, mounted on a PMW-F55 Solid-state Memory Camcorder[1)] or F65 Digital Motion Picture Camera[2)], via an optical fiber cable. It processes video signals from the camera and provides an interface with external devices.
It can also connect to an HDCU2000/2500 Camera Control Unit (hereinafter referred to as the "CCU") to form a 4K video multi-camera system, supplying power to the camera and transferring various signals (intercom, tally, prompter, audio, etc.).

1) Requires PMW-F55 software version 2.10 or later.
2) Requires the SKC-4065 F65 Adaptor.

Features

Note

For system camera operation, first check that the software and ROM version of this unit, PMW-F55, F65, F65 Adaptor, and CA4000 support this function.

4K and HD dual system support

Equipped with 4K video signal processing functions, and down-converter for conversion to HD format.
It can support a 4K camera system and HD camera system at the same time when used in combination with a CCU.
It can also be used as a camera (PMW-F55 or F65) extension unit when not connected to a CCU.

Slim enclosure

Houses high-performance signal processing circuits in a slim, 1.5U enclosure equipped with dual 2-system 4K signal output connectors, dual 2-system HD signal output connectors, one set of optical fiber connectors, and interface connectors on the rear panel.

Video output

Outputs

- 3G/HD-SDI (Quad-Link), 2-system (two outputs/system)
- 3G/HD-SDI (Single-Link), 1-system (two outputs/system)
- HD-SDI (Single-Link), 1-system (two outputs/system)

Inputs

- Reference signal (analog), 1-system[1)]
- 3G/HD-SDI return signal, 2-system[1)]

1) Available only when used as a camera extension unit.

External sync signal

When connected with a CCU, operation is synchronized with the CCU and an external sync signal is not required.
When not connected with a CCU (i.e. when used as a camera extension unit), operation can be synchronized to a sync signal (HD tri-level sync or SD black burst) from an external device.

4K/HD parallel processor built-in

Equipped with built-in 4K signal processor and HD signal processor (down-converted from 4K signal). The processors operate independently in parallel, allowing you to optimize functions, such as detail processing, for both the 4K and HD systems.

Optical digital transmission

Digital signal transmission over a single optical fiber cable (two single-mode optical fibers, two power supply lines, two control lines) connecting the unit and a camera adaptor for stable, high-capacity transfers.
The unit and a CCU are also connected using a single optical fiber cable.
When used in combination with an HDCU2000, data signals and power can be transferred distances up to 2,000 m (6,560 ft) (camera cable length). When used in combination with an HDCU2500, the maximum distance is 1,000 m (3,280 ft).
(The maximum distance power can be supplied varies with the camera peripheral system configuration and type of optical fiber cable).

Wide dynamic range

Supports S-Log2 gamma curve selection.

Optional accessories

Additional functionality can be added by incorporating the following optional accessories.

For details about installing optional accessories, please contact your Sony dealer or a Sony sales representative.

SZC-2001 HD CUTOUT software

Extracts a region, selected by the operator, from the 4K image as an HD image.

SZC-2002 HD HFR software

Transfers HFR (High Frame Rate) video and performs signal processing.
HD 239.76P/200P (4x) and HD 359.64P/300P (6x) are supported when a PMW-F55 is connected.
4K 119.88P/100P (2x) is supported when an F65 is connected.

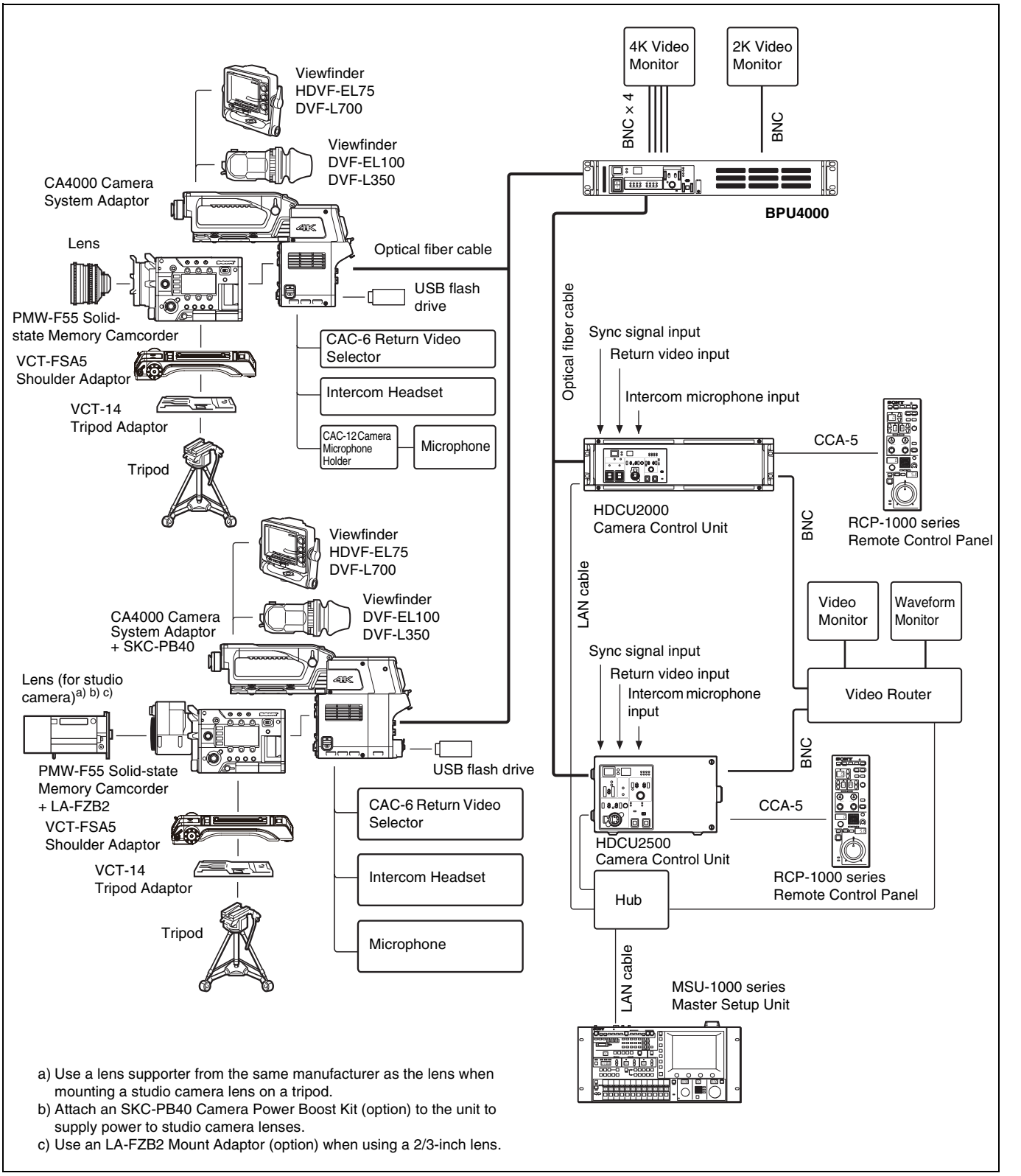
System Configuration

Note

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

Standard system connection example

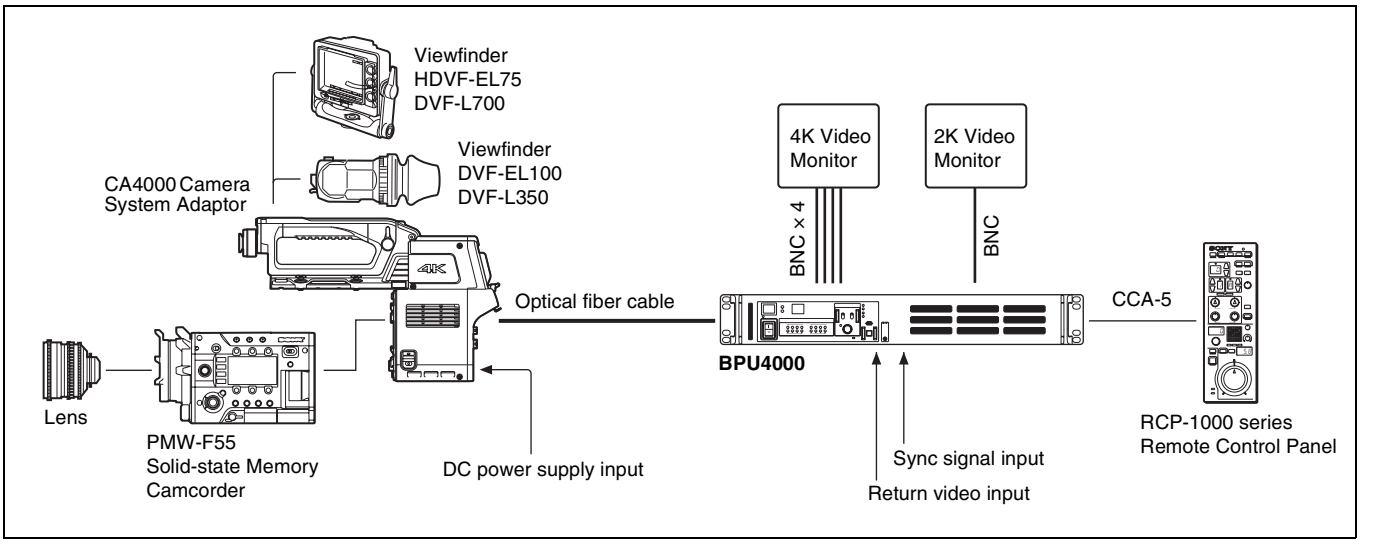
Connection example with HDCU2000/2500 via a BPU4000 for operation as system cameras.



a) Use a lens supporter from the same manufacturer as the lens when mounting a studio camera lens on a tripod.
b) Attach an SKC-PB40 Camera Power Boost Kit (option) to the unit to supply power to studio camera lenses.
c) Use an LA-FZB2 Mount Adaptor (option) when using a 2/3-inch lens.

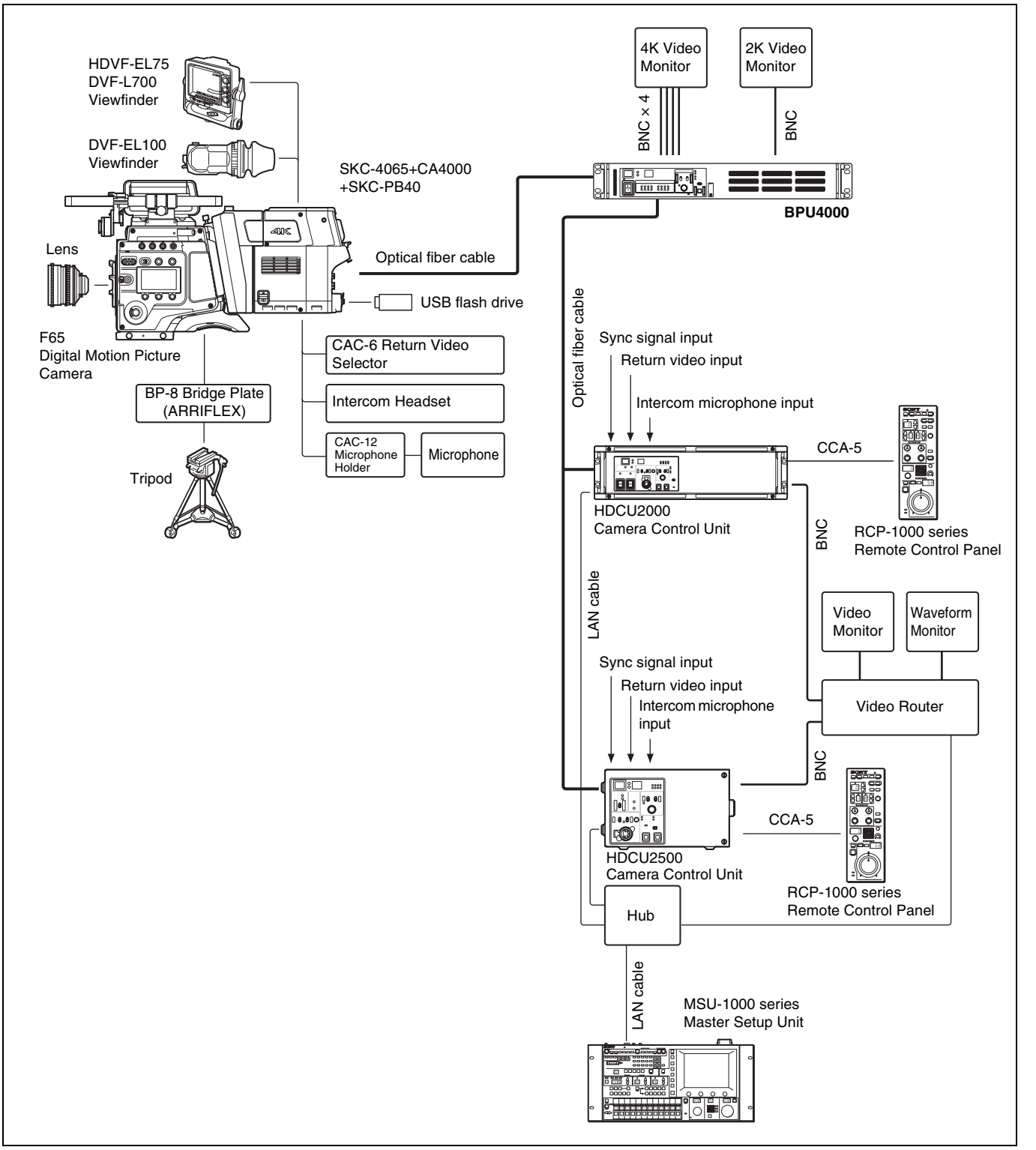
Extension mode connection example

Connection example without HDCU2000/2500 for operation as a camera extension unit.



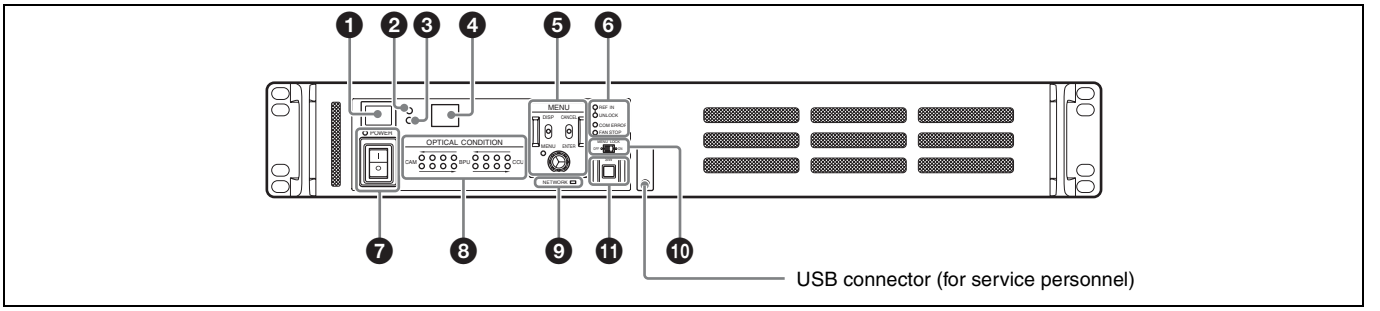
F65 connection example

Connection example of operation using an F65 as a system camera.

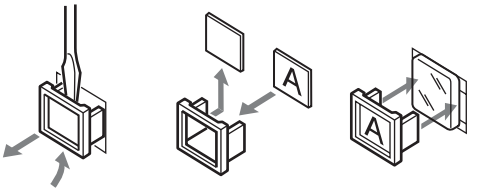


Name and Function of Parts

Front Panel



❶ Red tally light
Turns on when a red tally signal is received. When the CALL button on the video camera, the MSU-1000 Master Setup Unit, or the RCP-1000 series Remote Control Panel is pressed, the light turns off if lit or turns on if not lit.
A supplied number plate can be attached (see following diagram).

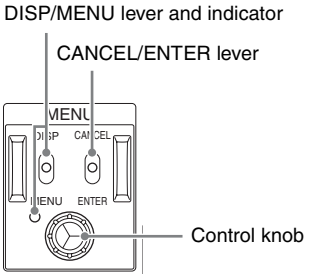


❷ Yellow tally light
Turns on when a yellow tally signal is received.

❸ Green tally light
Turns on when a green tally signal is received.

❹ CCU number display
Displays the camera number specified in the menu of the CCU for a system connection.
A number is not displayed when this unit is used as an extension unit.

❺ MENU control block



DISP/MENU lever and indicator: Used to display the status and menu. The indicator flashes when the menu is displayed.
CANCEL/ENTER lever: Used to cancel/enter settings when the menu is displayed.
Control knob (rotary encoder): Used to switch pages when the status screen is displayed. Used to move the cursor within a page and to change the setting of the selected item when the menu is displayed.
Pushing the control knob has the same function as setting the CANCEL/ENTER level to ENTER.

❻ Status display indicators
REF IN (green): Indicates presence of reference input signal.
UNLOCK (red): Indicates operation is not synchronized to input reference signal.
When connected to a CCU, REF IN and UNLOCK indicate the lock status for the CCU.
COM ERROR (red): Indicates a communications error with the video camera, CCU, or external control device (such as an RCP-1000 series Remote Control Panel).
FAN STOP (red): Indicates the internal fan has stopped.

❼ POWER switch and indicator
Turns the system power supply on/off to the unit, video camera, and RCP-1000 series Remote Control Panel or other device connected to the REMOTE connector. Switch to "**I**" to turn the power on, and switch to "○" to turn the power off.
The indicator lights up when power is turned on.

❽ Optical signal condition indicators
Displays the communications link optical signal level condition between the video camera, CCU, and the unit.
CAM←BPU: Signal level from the unit to the video camera
CAM→BPU: Signal level from the video camera to the unit
BPU←CCU: Signal level from the CCU to the unit
BPU→CCU: Signal level from the unit to the CCU

Indicates the receive signal status according to the following indicators.
Two green indicators (right): Receive signal condition is very good.
One green indicator (2nd from right): Receive signal condition is OK.
One yellow indicator (2nd from left): Receive signal level is weak.
One red indicator (left): Receive signal level is severely degraded.

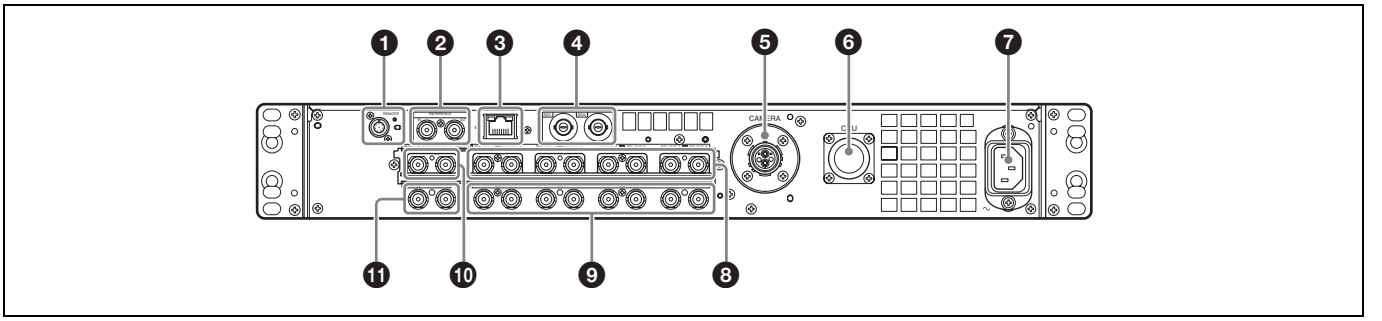
❾ NETWORK indicator
Displays the network system connection status.
On: Indicates that an external control device (MSU-1000 Master Setup Unit or RCP-1000 series Remote Control Panel) is connected when the CNS MODE setting in <CNS SETTING> is set to BRIDGE.
Flashing: Indicates that an external control device (MSU-1000 Master Setup Unit or RCP-1000 series Remote Control Panel) is not connected successfully when the CNS MODE setting in <CNS SETTING> is set to BRIDGE.
Off: Indicates that the LAN cable is not connected or network system connection parameters have not been set when the CNS MODE setting in <CNS SETTING> is set to BRIDGE. The indicator is always off when CNS MODE is set to LEGACY.

For details, see "<CNS SETTINGS>" (page 25).

❿ Menu lock switch
Locks the menu control block on the front panel.

⓫ Assignable buttons
You can assign functions to these buttons from the BPU menu.

Rear Panel



❶ REMOTE connector (round type, 8-pin)
Connects to an RCP-1000 series Remote Control Panel or MSU-1000 Master Setup Unit using a CCA-5 connection cable. Remote control signals are transmitted and received via this connector. It also supplies power when connected to an RCP-1000 series Remote Control Panel.

Note

When connected to a CCU, do not connect anything to this connector.

❷ REFERENCE IN/OUT (reference sync signal) connectors

- **IN connector (BNC type) (left)**

Inputs an external HD tri-level sync signal or SD reference sync signal (black burst signal).
The type of reference signal is detected automatically and can be checked in the setup menu.

Note

When connected to a CCU, do not connect anything to this connector.

- **OUT connector (BNC type) (right)**

When a reference sync signal is input on the IN connector or the unit is turned off, the signal input on the IN connector is output as-is (loop through). Otherwise, this connector outputs an SD composite sync signal or a HD tri-level signal from the internal sync signal generator (HD tri-level signal set by factory default).
Available only when used as a camera extension unit.

❸ 品 (LAN) connector (RJ-45 8-pin)
Connects to a LAN. Connect to a LAN hub (10BASE-T/100Base-TX) using a LAN cable (shielded type, category 5 or higher).

❹ SDI1 and SDI2 (return video input) connectors (BNC type)
Connects to 2-system, independent, 3G/HD-SDI return video signal inputs. The SDI1/SDI2 selection is made using the return switch on the video camera. The SDI2 connector becomes the HD prompter input connector by enabling HD PROMPTER on the <RETURN> page in the CONFIGURATION menu.
Available only when used as a camera extension unit.

❺ CAMERA connector (optical fiber connector)
Connects to a video camera using an optical fiber cable. All video camera signals (power supply, control signals, video signal, audio signal, etc.) can be transmitted and received via a single optical fiber cable.

❻ CCU (camera control unit) connector (optical fiber connector)
Connects to a camera control unit using an optical fiber cable. All video camera signals (power supply, control signals, video signal, audio signal, etc.) can be transmitted and received via a single optical fiber cable.

Note

A communications error may occur if there is any dust or other matter on the surface of the optical fiber cable connector. Always attach the connector cap when not in use.

❼ ∿AC IN (AC power supply) connector
Connects to the AC power supply using the specified power supply cord. The power supply cord can be attached to the unit using the optional plug holder.

❽ 3G/HD SDI OUTPUT connector (SLOT1) (BNC type)
Outputs video signals from the video camera using Multi-Link format comprising 3G-SDI signals and HD-SDI signals.

For details about assignments to each signal output connector in the Multi-Link interface, see “Relationship between Connection Type and BNC Connector Assignment” (page 17).

When using the HD CUTOUT option, the extracted cut-out signal is output from this connector.

❾ 3G/HD SDI OUTPUT connector (SLOT2) (BNC type)
Outputs video signals from the video camera using Multi-Link format comprising 3G-SDI signals and HD-SDI signals.

For details about assignments to each signal output connector in the Multi-Link interface, see “Relationship between Connection Type and BNC Connector Assignment” (page 17).

❿ 3G/HD SDI OUT connector (SLOT3) (BNC type)
Outputs 2-system video signals from the video camera as 3G-SDI signals or HD-SDI signals.
They can also output signals with overlaid text characters and markers.
The output signals from both connectors have the same format.

⓫ HD SDI OUT connector (SLOT4) (BNC type)
Outputs 2-system video signals from the video camera as HD-SDI signals.
They can also output signals with overlaid text characters and markers.
The output signals from both connectors have the same format.

Connection and Setup

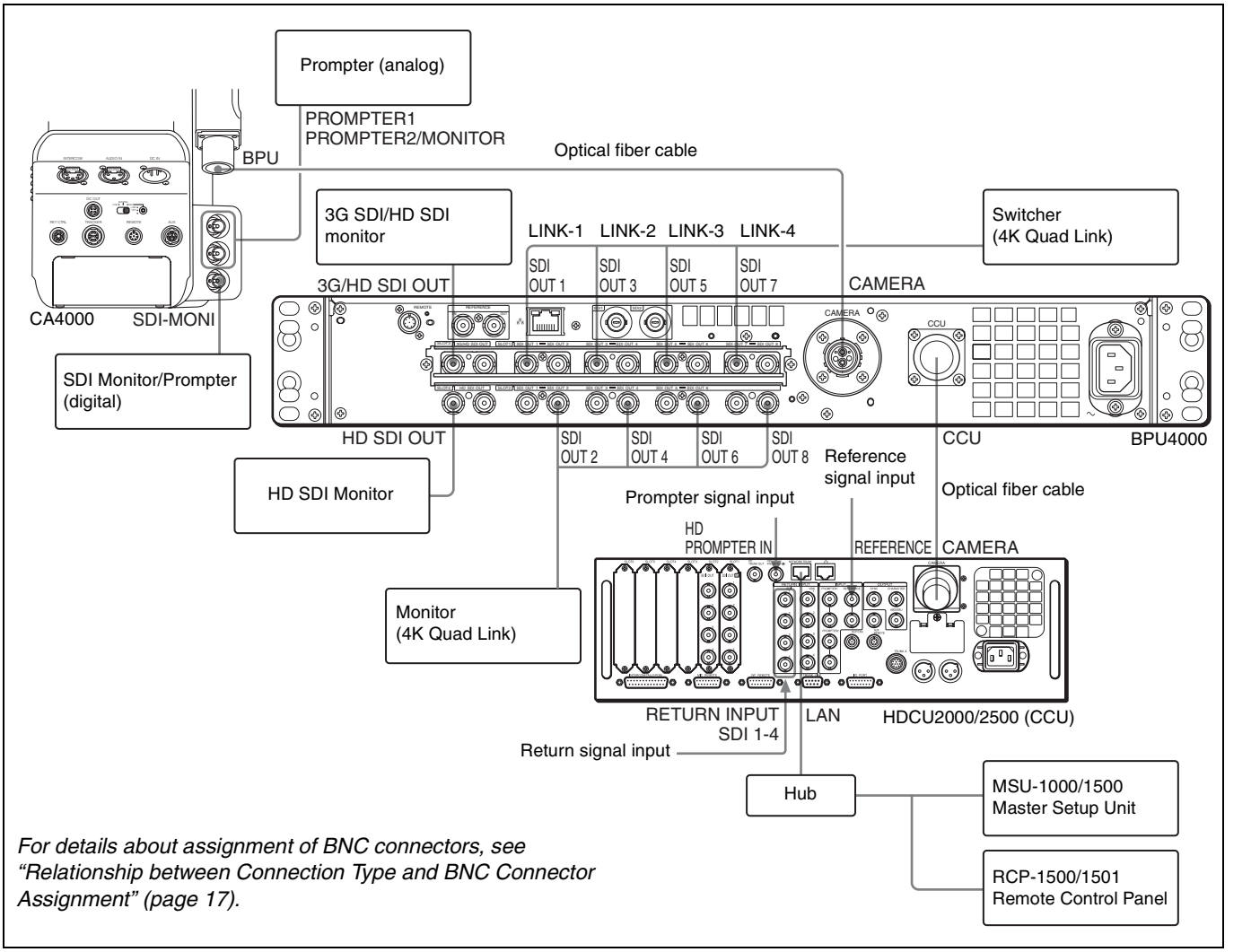
Standard System Connection

The standard system comprises a 4K format camera system formed by connecting the BPU to a video camera (F65[1)] or PMW-F55[2)] with CA4000) and HDCU2000/2500 Camera Control Unit (CCU) using optical fiber cables.

1) Requires the SKC-4065 F65 Adaptor.
2) Requires PMW-F55 software version 2.10 or later.

Functions provided by the CCU (genlock, power supply to the video camera, and various interface functions) can be used as-is.
HD signals down-converted from the 4K signal can be output from SLOT3, SLOT4, and the CCU.

Connection example



For details about assignment of BNC connectors, see "Relationship between Connection Type and BNC Connector Assignment" (page 17).

Settings

Device	Setting	Menu/Page	Item		Set value
BPU4000	Image format settings	CONFIGURATION/ <OUTPUT FORMAT>	SYSTEM FORMAT	RESOLUTION	4096x2160
				FREQUENCY	Displays value set on CCU.
	Video output connector settings	CONFIGURATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT4		Video output format of each slot

Device	Setting	Menu/Page	Item		Set value
HDCU2000/ 2500	Image format settings	SYSTEM OPERATION/ <MULTI FORMAT>	FREQUENCY	HD	Frame frequency
			HD-SD DELAY		0-Delay, Frame (1F)
	Video output connector settings	SYSTEM OPERATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT6		Video output format of each slot
	Transfer rate settings	CCU CONFIGURATION/ <PROMPT/TRUNK>	TRANSMIT		AUTO, HIGH BIT RATE
CA4000	Prompter output connector settings	MAINTENANCE/ <SDI-OUT>	SDI-MONI OUT		HD-PROMPT
		MAINTENANCE/ <PROMPTER2 OUT>	OUTPUT		PROMPTER2

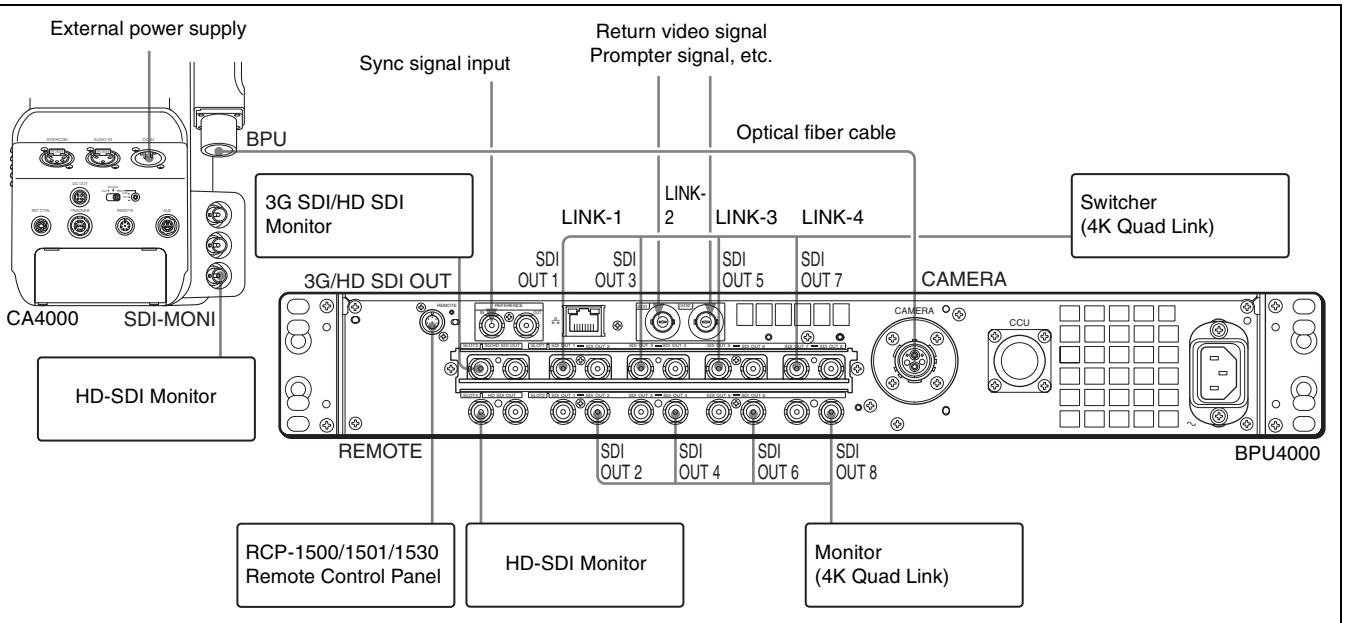
Extension Connection

The BPU can be used to form a video signal extension system by connecting it to a video camera (F65[1) 2)] or PMW-F55 with CA4000) using an optical fiber cable.
The system can be synchronized because using the external genlock function.
Intercom systems and multi-camera operation systems are not supported.

An external power supply is also required for the video camera, since the BPU does not supply power.
HD signals down-converted from the 4K signal can be output from the SLOT3 and SLOT4 outputs.

1) Requires an external power supply when the F65 is used in an extension connection.
2) Requires the SKC-4065 F65 Adaptor.

Connection example



For details about assignment of BNC connectors, see "Relationship between Connection Type and BNC Connector Assignment" (page 17).

Settings

Device	Setting	Menu/Page	Item		Set value
BPU4000	Image format settings	CONFIGURATION/ <OUTPUT FORMAT>	SYSTEM FORMAT	RESOLUTION	4K format
				FREQUENCY	Frame frequency
	Video output connector settings	CONFIGURATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT4		Video output format of each slot
CA4000	Prompter output connector settings	MAINTENANCE/ <SDI OUT>	SDI-MONI OUT		HD-PROMPT

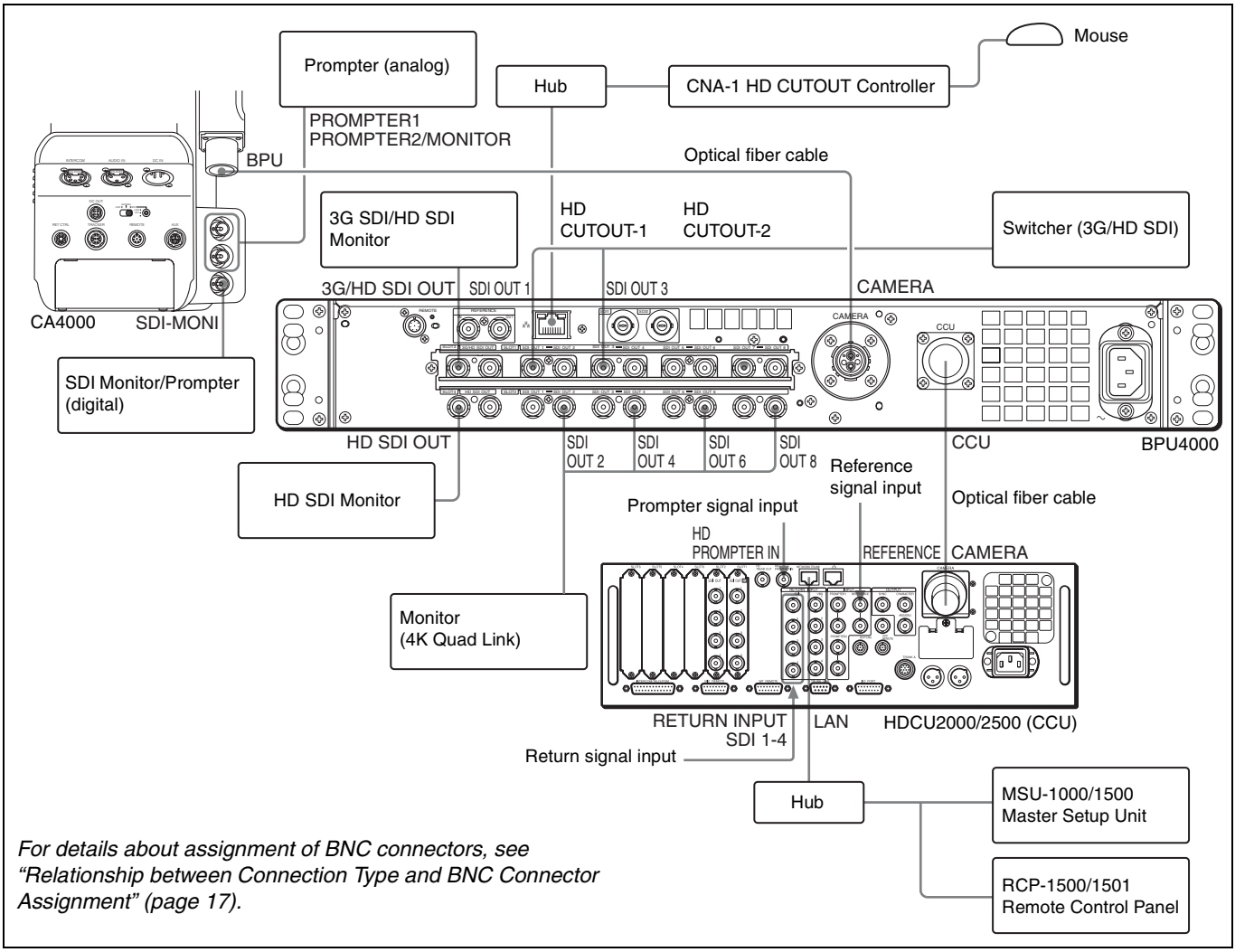
HD CUTOUT Video System

An HD signal can be extracted from the 4K signal by installing the optional SZC-2001 (HD CUTOUT software) in the BPU4000.
The region that is cut out can be controlled using a mouse or other device connected to the HD CUTOUT Controller.

For details about setup and operation, refer to the manual supplied with the SZC-2001.

The cut-out HD signal is output from SLOT1 and a 4K signal can also be output simultaneously from SLOT2.
HD signals down-converted from the 4K signal can be output from SLOT3, SLOT4, and the CCU.
Also, a wire frame indicating the cut-out region can be displayed on the signal from SLOT3.

Connection example



For details about assignment of BNC connectors, see "Relationship between Connection Type and BNC Connector Assignment" (page 17).

Settings

Device	Setting	Menu/Page	Item		Set value
BPU4000	Image format settings	CONFIGURATION/ <OUTPUT FORMAT>	SYSTEM FORMAT	RESOLUTION	4096x2160
				FREQUENCY	Displays value set on CCU.
	Video output connector settings	CONFIGURATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT4		Video output format of each slot
	HD CUTOUT settings	CONFIGURATION/<HD CUTOUT>	HD CUTOUT		ON

Device	Setting	Menu/Page	Item		Set value
HDCU2000/ 2500	Image format settings	SYSTEM OPERATION/ <MULTI FORMAT>	FREQUENCY	HD	Frame frequency
			HD-SD DELAY		0-Delay, Frame (1F)
	Video output connector settings	SYSTEM OPERATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT6		Video output format of each slot
	Transfer rate settings	CCU CONFIGURATION/ <PROMPT/TRUNK>	TRANSMIT		AUTO, HIGH BIT RATE
CA4000	Prompter output connector settings	MAINTENANCE/ <SDI-OUT>	SDI-MONI OUT		HD-PROMPT
		MAINTENANCE/ <PROMPTER2 OUT>	OUTPUT		PROMPTER2

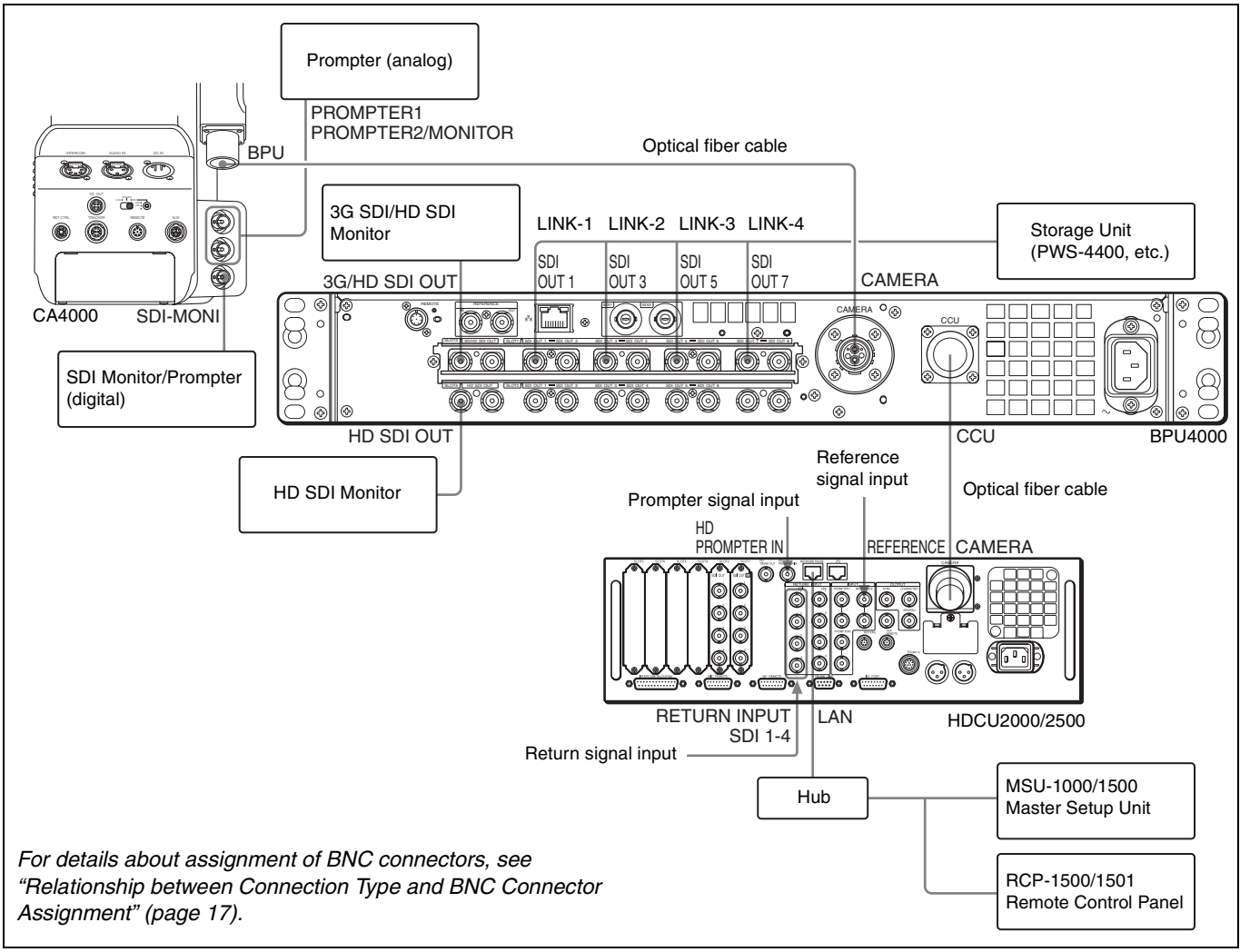
HD HFR Video System

Transfer and signal processing of PMW-F55 HD HFR video can be performed by installing the optional SZC-2002 (HD HFR software) in the BPU4000.
It supports HD 239.76P/200P (4x frame rate) and HD 359.64/300P (6× frame rate).
A 1x frame rate signal can be output at the same time from SLOT3, SLOT4, and the CCU.

Note

The HD HFR imaging function is dependent on the PMW-F55 software version. Before using this option, check the compatibility on the PMW-F55.

Connection example (4× frame rate)



For details about assignment of BNC connectors, see "Relationship between Connection Type and BNC Connector Assignment" (page 17).

Settings

Device	Setting	Menu/Page	Item		Set value
BPU4000	Image format settings	CONFIGURATION/ <OUTPUT FORMAT>	SYSTEM FORMAT	RESOLUTION	1920x1080
				FREQUENCY	Displays CCU 4x or 6× value.
	Video output connector settings	CONFIGURATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT4		Video output format of each slot

Device	Setting	Menu/Page	Item	Set value
HDCU2000/2500	Image format settings	SYSTEM OPERATION/ <MULTI FORMAT>	FREQUENCY HD	1x frame frequency
			HD-SD DELAY	0-Delay, Frame (1F)
	Video output connector settings	SYSTEM OPERATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT6	Video output format of each slot
	Transfer rate settings	CCU CONFIGURATION/ <PROMPT/TRUNK>	TRANSMIT	AUTO, HIGH BIT RATE
CA4000	Prompter output connector settings	MAINTENANCE/ <SDI-OUT>	SDI-MONI OUT	HD-PROMPT
		MAINTENANCE/ <PROMPTER2 OUT>	OUTPUT	PROMPTER2

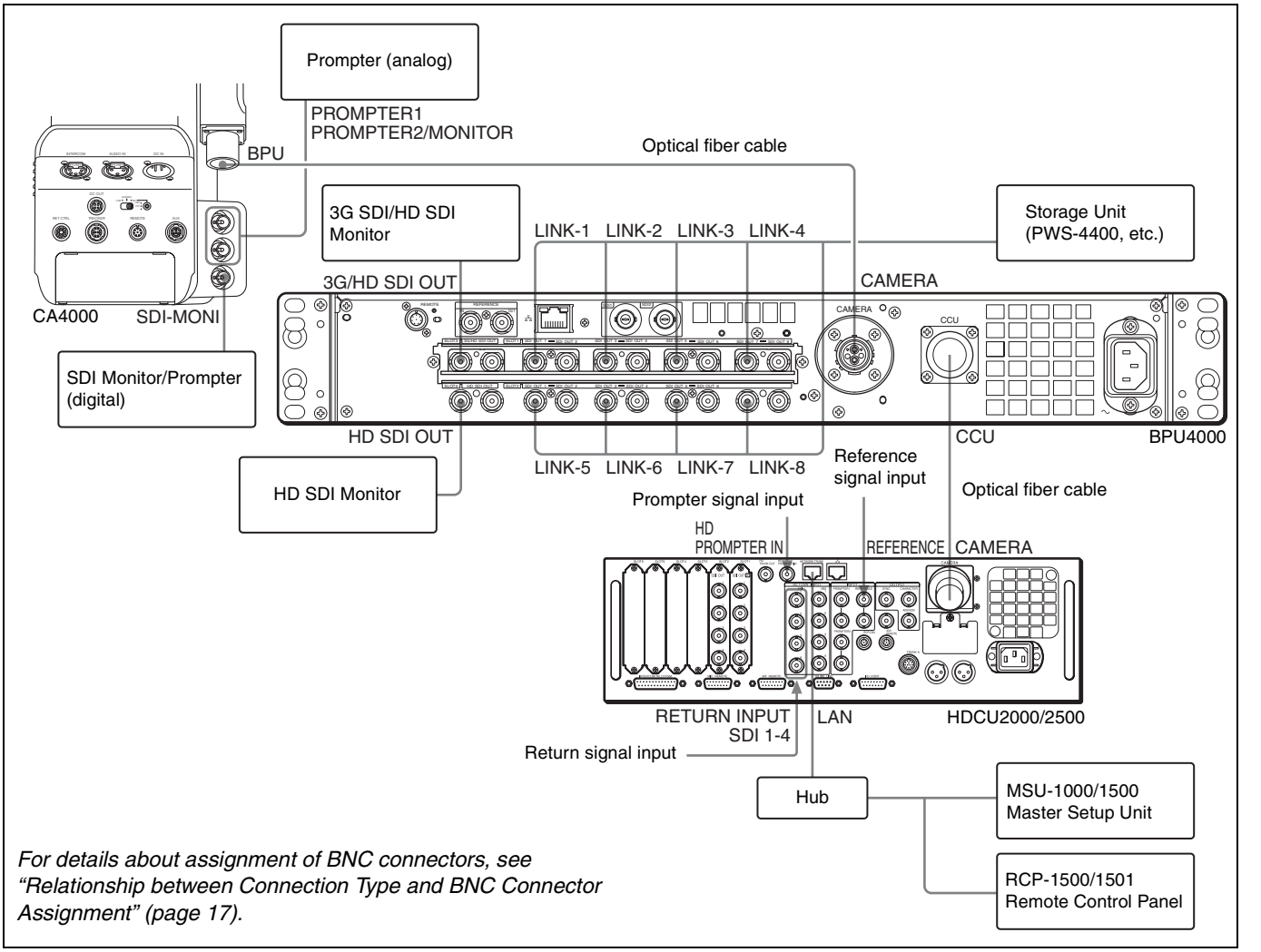
4K HFR Video System

A 4K HFR system supports 4K-119.88P/100P (2× frame rate). A 1× frame rate signal can be output at the same time from SLOT3, SLOT4, and the CCU.

Note

The 4K HFR imaging function is dependent on the software and ROM version of the F65, CA4000, and BPU4000. Check the compatibility of each device before use.

Connection example



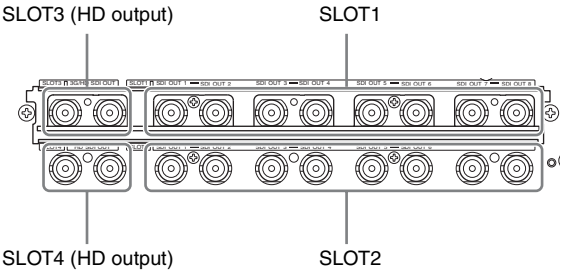
For details about assignment of BNC connectors, see "Relationship between Connection Type and BNC Connector Assignment" (page 17).

Settings

Device	Setting	Menu/Page	Item		Set value
BPU4000	Image format settings	CONFIGURATION/ <OUTPUT FORMAT>	SYSTEM FORMAT	RESOLUTION	4096x2160
				FREQUENCY	Displays CCU 2x value.
	Video output connector settings	CONFIGURATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT4		Video output format of each slot
HDCU2000/ 2500	Image format settings	SYSTEM OPERATION/ <MULTI FORMAT>	FREQUENCY	HD	1x frame frequency
	Video output connector settings	SYSTEM OPERATION/ <OUTPUT FORMAT> Can also be set using the control panel.	SLOT1 to SLOT6		Video output format of each slot
	Transfer rate settings	CCU CONFIGURATION/ <PROMPT/TRUNK>	TRANSMIT		AUTO, HIGH BIT RATE
CA4000	Prompter output connector settings	MAINTENANCE/ <SDI-OUT>	SDI-MONI OUT		HD-PROMPT
		MAINTENANCE/ <PROMPTER2 OUT>	OUTPUT		PROMPTER2

Relationship between Connection Type and BNC Connector Assignment

The type of video signal output from each BNC connector in each operation mode is given in the following table.
Connect devices while referring to the following table.



MAIN Output			4K / HD HFR / HD CUTOUT								HD Output	
			SLOT 1				SLOT 2				SLOT 3	SLOT4
Mode	Frame rate	Output format	SDI OUT 1-2[a]	SDI OUT 3-4[b]	SDI OUT 5- 6[c]	SDI OUT 7- 8[d]	SDI OUT 1-2[a]	SDI OUT 3-4[b]	SDI OUT 5- 6[c]	SDI OUT 7- 8[d]	3G/HD SDI OUT 1,2	HD SDI OUT 1,2
4K	59.94P/i	3G/1.5G (Quad-Link)	Link-1	Link-2	Link-3	Link-4	Link-1	Link-2	Link-3	Link-4	59.94P (3G)/ 59.94i (1.5G)[e]	59.94i (1.5G)[e]
	50P/i	3G/1.5G (Quad-Link)	Link-1	Link-2	Link-3	Link-4	Link-1	Link-2	Link-3	Link-4	50P (3G)/ 50i (1.5G)[f]	50i (1.5G)[f]
	29.97P/ 25P/24P /23.98P	3G[g] (Dual-Link)	Link-1	Link-2	Link-1	Link-2	Link-1	Link-2	Link-1	Link-2	29.97PsF/ 25PsF/ 24PsF/ 23.98PsF	29.97PsF /25PsF/ 24PsF/ 23.98PsF
		1.5G[h] (Quad-Link)	Link-1	Link-2	Link-3	Link-4	Link-1	Link-2	Link-3	Link-4		

MAIN Output			4K / HD HFR / HD CUTOUT								HD Output	
			SLOT 1				SLOT 2				SLOT 3	SLOT4
Mode	Frame rate	Output format	SDI OUT 1-2[a]	SDI OUT 3-4[b]	SDI OUT 5- 6[c]	SDI OUT 7- 8[d]	SDI OUT 1-2[a]	SDI OUT 3-4[b]	SDI OUT 5- 6[c]	SDI OUT 7- 8[d]	3G/HD SDI OUT 1,2	HD SDI OUT 1,2
HD HFR[i]	239.76P/i	3G/1.5G[k] (Quad-Link)	Link-1	Link-2	Link-3	Link-4	Link-1	Link-2	Link-3	Link-4	59.94P (3G) /59.94i (1.5G)[e]	59.94i (1.5G)[e]
	200P/i	3G/1.5G[l] (Quad-Link)	Link-1	Link-2	Link-3	Link-4	Link-1	Link-2	Link-3	Link-4	50P (3G)/ 50i (1.5G)[f]	50i (1.5G)[f]
	359.64P/i	3G/1.5G[m]	Link-1	Link-2	Link-3		Link-4	Link-5	Link-6		59.94P (3G) /59.94i (1.5G)[e]	59.94i (1.5G)[e]
	300P/i	3G/1.5G[n]	Link-1	Link-2	Link-3		Link-4	Link-5	Link-6		50P (3G)/ 50i (1.5G)[f]	50i (1.5G)[f]
HD CUTOUT	59.94P/i	PERSPECTIVE (3G/1.5G)[e]	CUTOUT	CUTOUT	CUTOUT	CUTOUT	–	–	–	–	59.94P (3G)/ 59.94i (1.5G)[e]	59.94i (1.5G)[e]
		SIMPLE HD (3G/1.5G)[e]	CUTOUT 1	CUTOUT 2	CUTOUT 1	CUTOUT 2						
		4K-3G/1.5G (Quad-Link)	–	–	–	–	Link-1	Link-2	Link-3	Link-4		
	50P/i	PERSPECTIVE (3G/1.5G)[f]	CUTOUT	CUTOUT	CUTOUT	CUTOUT	–	–	–	–	50P (3G) /50i (1.5G)[f]	50i (1.5G)[f]
		SIMPLE HD (3G/1.5G)[f]	CUTOUT 1	CUTOUT 2	CUTOUT 1	CUTOUT 2						
		4K-3G/1.5G (Quad-Link)	–	–	–	–	Link-1	Link-2	Link-3	Link-4		
4K HFR[j]	119.88P/i	3G/1.5G (Octa-Link)	Link-1	Link-2	Link-3	Link-4	Link-5	Link-6	Link-7	Link-8	119.88i (3G)/ 59.94P (3G) /59.94i (1.5G)[e]	59.94i
	100P/i	3G/1.5G (Octa-Link)	Link-1	Link-2	Link-3	Link-4	Link-5	Link-6	Link-7	Link-8	100i (3G)/ 50P (3G)/ 50i (1.5G)[f]	50i

a) SDI OUT 1 and SDI OUT 2 output the same data.
b) SDI OUT 3 and SDI OUT 4 output the same data.
c) SDI OUT 5 and SDI OUT 6 output the same data.
d) SDI OUT 7 and SDI OUT 8 output the same data.
e) The signal can be set to 59.94i (1.5G) or 720-59.94P format.
f) The signal can be set to 50i (1.5G) or 720-50P format.
g) In 2SI mode. P output. In SQD mode, PsF output.
h) PsF output
i) In combination with PMW-F55 only
j) In combination with F65 only
k) The signal can be set to 239.76i (1.5G) or 720-239.76P format.
l) The signal can be set to 200i (1.5G) or 720-200P format.
m) The signal can be set to 359.64i (1.5G) or 720-359.64P format.
n) The signal can be set to 300i (1.5G) or 720-300P format.

S-Log2 Compatibility

The S-Log2 output combinations that are supported are given below.

Frame rate (fps)	Output format		Notes
	SLOT1	SLOT2	
Up to 59.94	4K	–	• S-Log2 cannot be selected for SLOT3 or SLOT4. • S-Log2 cannot be selected when using HD CUTOUT function. • S-Log2 cannot be selected when using 720P.
	HD	–	
	HD	4K	
100 and higher	–	–	

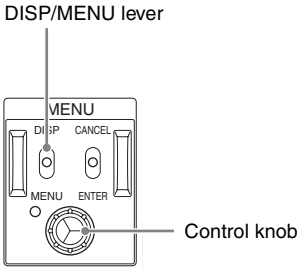
Status Display

The device and system status can be monitored using text characters superimposed on the output signal configured for the monitor output (M).

For details about checking and changing settings, see “Menu Settings” (page 20).

Displaying the Status Screen

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



To display the status screen

Set the DISP/MENU lever to the DISP position.
The most recently viewed status screen page is displayed. When first powered on, the video camera settings status is displayed.
Turn the control knob to change the displayed page.

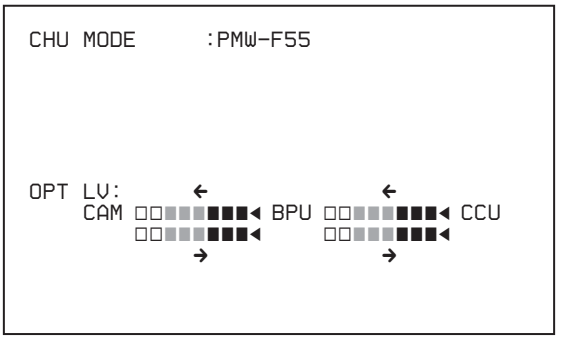
To exit the status screen

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

Status Display Screen

The optical level status can be monitored on the status display screen.

Optical level status



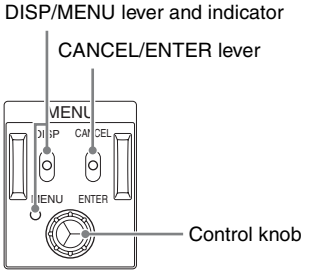
CAM ← BPU: Signal level on the BPU connector of CA unit.
CAM → BPU: Signal level on the CA connector of BPU unit.
BPU ← CCU: Signal level on the CCU connector of BPU unit.
BPU → CCU: Signal level on the CAMERA connector of CCU unit.

Menu Settings

The device and system status can be monitored and settings can be modified using the menu displayed in the video output configured for the monitor output (M).

Changing Settings using the Menu

The menu screen is controlled using the knob and levers in the MENU control block on the front panel.
Pushing the control knob and setting the CANCEL/ENTER level to ENTER have the same function.



To display a menu page

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

To display the TOP MENU screen

In menu display mode, turn the control knob to move the ➡ cursor to TOP in the upper right corner of the menu page, then press the control knob.
The TOP menu showing the menu configuration is displayed.

```
<TOP MENU>

➔CONFIGURATION
 DIAGNOSIS
```

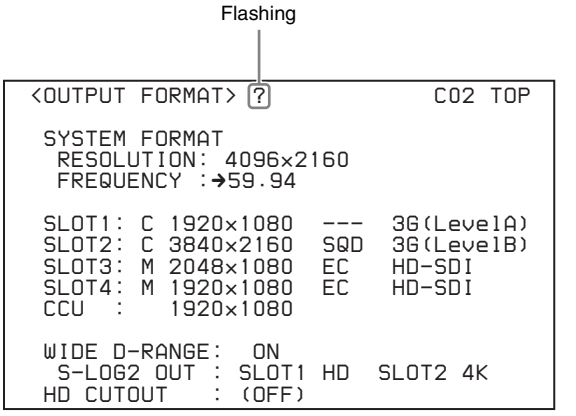
Menu	Description
CONFIGURATION	BPU configuration settings.
DIAGNOSIS	Displays the device status.

To select a menu from the TOP MENU

Turn the control knob to move the ➡ cursor to the desired menu and push the knob.
The last accessed page in the selected menu will be displayed.

To change page

1 **Check that the ➡ cursor is pointing to the page number then push the control knob.**
The ➡ cursor changes to a flashing ? (question mark).



2 **Turn the control knob to flip through the pages, and push the knob when the desired page is displayed.**
The ? (question mark) changes back to ➡. Items on the page can now be selected.

To set a menu item

If ? (question mark) is displayed to the left of the page number, push the control knob to change to the ➡ cursor. Settings on the displayed page can now be modified.

1 **Turn the control knob to move the ➡ cursor to the desired item and push the knob.**
The ➡ cursor 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 CANCEL before pushing the control knob to restore the original setting.

To suspend menu changes
Set the DISP/MENU switch to DISP to turn off the menu screen display.
The menu setting operation can be restarted by setting the DISP/MENU switch back to MENU.

3 **Push the control knob.**
The ? (question mark) changes back to ➡, and the item setting is registered.

4 **To change other settings on the same menu page, repeat steps 1 to 3.**

To set a menu item with multiple input fields

Some menus have items with multiple input fields.
If you press the control knob when the ➡ cursor is pointing to an item with multiple input fields, the input fields are displayed for setting each input field.
The cursor is moved by turning the control knob.

1 **Turn the control knob to move the ➡ cursor to the desired item and push the knob.**
The ➡ cursor changes to a flashing ∗ (asterisk). The input fields and ➡ cursor are displayed.

2 **Turn the control knob to move the ➡ cursor to the desired input field and push the knob.**
The ➡ cursor changes to a flashing ? (question mark).

3 **Turn the control knob to change the setting.**

To cancel a changed setting in an input field
Set the CANCEL/ENTER lever to CANCEL before pushing the control knob to restore the original setting of the input field. Other changed input fields for the item are not restored to their previous setting.

To suspend menu changes
Set the DISP/MENU switch to MENU to turn off the menu screen display.
The menu setting operation can be restarted by setting the DISP/MENU switch to MENU again.

4 **Push the control knob.**
The ? (question mark) changes back to ➡, and the input field setting changes.

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

6 **Turn the control knob to move the ➡ cursor to END and push the knob.**
The ∗ (asterisk) changes back to ➡, and all the changes for the item setting are applied.

To cancel all settings
Move the ➡ cursor to ESC and push the control knob.
The ∗ (asterisk) changes back to ➡, and all the changes for the item are discarded.

To exit the menu

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

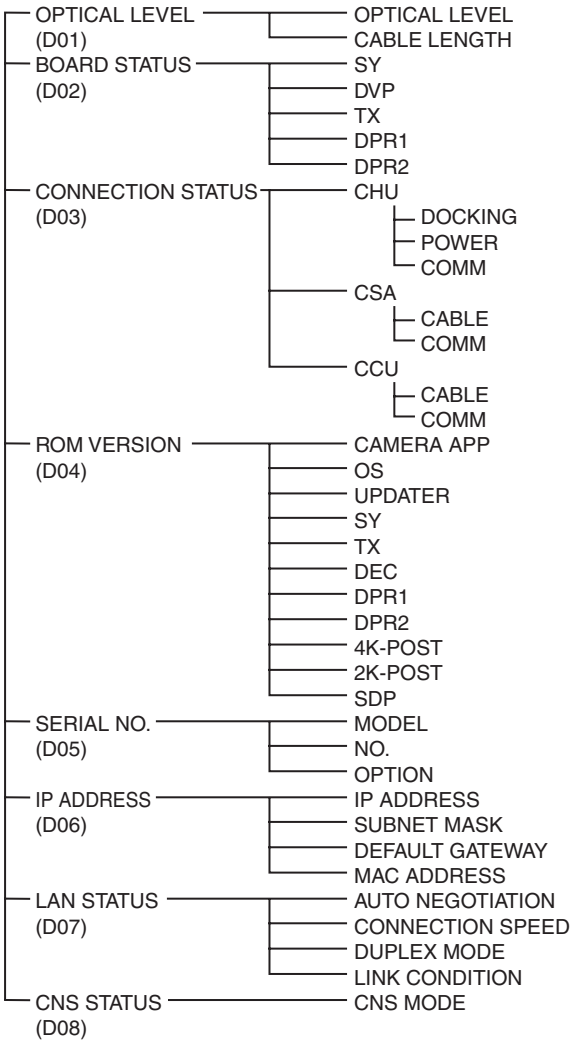
Menu Tree

CONFIGURATION menu

- BARS (C01)
  - BPU BARS
  - BARS TYPE
- OUTPUT FORMAT (C02)
  - SYSTEM FORMAT
    - RESOLUTION
    - FREQUENCY
  - SLOT1
  - SLOT2
  - SLOT3
  - SLOT4
  - CCU
  - WIDE D-RANGE
    - S-LOG2 OUT
  - HD CUTOUT
- GENLOCK (C03)
  - REFERENCE
  - GENLOCK [a]
    - GENLOCK STATUS [a]
    - GENLOCK FORMAT [a]
    - GENLOCK PHASE V [a]
    - GENLOCK PHASE H [a]
  - SYNC OUT
  - VIDEO OUT [b]
    - VIDEO OUT PHASE H [b]
- RETURN (C04)
  - SDI1
  - SDI2
  - FRAME SYNCHRO
  - HD PROMPTER
- IP ADDRESS SETTINGS (C05)
  - IP ADDRESS
  - SUBNET MASK
  - DEFAULT GATEWAY
  - SET
  - MAC ADDRESS
- CNS SETTINGS [a] (C06)
  - CNS MODE [a]
  - SET
- DATE (C07)
  - DATE/TIME
    - DATE
    - TIME
  - FILE TIMESTAMP FORMAT
    - FILE_TIMESTAMP
- CHU MODE (C08)
  - CURRENT
  - PMW-F55
  - F65(1x)
  - F65(2x)
- OTHERS (C09)
  - ASSIGNABLE SWITCH
  - HD DOWNCONV FILTER
  - CHARACTER LEVEL
  - 2x MODE(HD)
  - CLEAR BPU SETTINGS
- OPTION KEY (C10)
  - READ(USB→CAM)
  - INSTALLED OPTION
- HD CUTOUT (C11)
  - HD CUTOUT
  - MODE
  - CUTOUT POSITION
    - CH
    - CENTER H
    - CENTER V
    - ZOOM
  - CAMERA TILT
  - CAMERA ROLL
  - FOCAL LENGTH

a) Not displayed when a CCU is connected.
b) Displayed when a CCU is connected.

DIAGNOSIS menu



Menu List

Legend

The following conventions are used in the menu tables.
Settings ON, OFF, 0, etc.: Factory default settings shown underlined.
ENTER to execute: Execute by pushing the control knob or setting the CANCEL/ENTER lever to the ENTER position.

CONFIGURATION menu

Page name Page No.	Item	Set value	Meaning
<BARS> C01	BPU BARS	**OFF**, ON	BPU color bar output on/off setting
	BARS TYPE	**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	Color bar type When connected to a CCU, it is set by the CCU and cannot be modified from the BPU menu.
<OUTPUT FORMAT> C02	SYSTEM FORMAT		System format settings (The selectable system format options vary depending on the selected camera head setting.)
	RESOLUTION	**4096×2160**, 1920×1080	
	FREQUENCY	**59.94**, 50, 59.94(2x), 50(2x), 29.97, 25, 24, 23.98, 59.94(4×), 50(4×), 59.94P(6x), 50(6x)	
	SLOT1		SLOT1 output format settings
		3840×2160, 4096×2160, 1920×1080, 1280×720	SLOT1 output video resolution setting
		SQD, 2SI, ---	SLOT1 4K video division output method setting SQD: Square Division (quadrants) 2SI: 2-sample Interleave ---: HD mode
		HD-SDI, **3G(LevelB)**, 3G(LevelA)	SLOT1 video output system setting
	SLOT2		SLOT2 output format settings
		3840×2160, 4096×2160, 1920×1080, 1280×720	SLOT2 output video resolution setting
		SQD, 2SI, ---	SLOT2 4K video division output method setting SQD: Square Division (quadrants) 2SI: 2-sample Interleave ---: HD mode
		HD-SDI, **3G(LevelB)**, 3G(LevelA)	SLOT2 video output system setting
	SLOT3		SLOT3 output format settings
		C, **M** (M:Monitor, C:Clean)	When set to M, character text and markers are output on SLOT3.
		1920×1080, 1280×720	SLOT3 output video resolution setting
		EC, LB	Edge Crop (EC) and Letter Box (LB) setting. When CCU is set to 720P, this is fixed to EC (displayed in parentheses). Not displayed when CURRENT in <CHU MODE> (C08) is set to F65(2x).
		1x, 2x	SLOT3 output frame rate speed setting. Displayed when CURRENT in <CHU MODE> (C08) is set to F65(2x).
		HD-SDI, 3G(LevelB), 3G(LevelA)	SLOT3 video output system setting

Page name Page No.	Item	Set value	Meaning
<OUTPUT FORMAT> C02	SLOT4		SLOT4 output format settings
		1920x1080, 1280x720	SLOT4 output video resolution setting (Display only)
		EC, LB	Edge Crop (EC) and Letter Box (LB) setting. Linked to the setting for SLOT3 (Display only). Not displayed when CURRENT in <CHU MODE> (C08) is set to F65(2x).
	CCU		Displays the CCU output format.
		1920x1080, 1280x720	Video resolution setting for transfer to CCU (Display only)
	WIDE D-RANGE	**OFF**, ON	Wide dynamic range mode on/off setting
	S-LOG2 OUT	SLOT1 4K, SLOT1 HD, SLOT1 HD SLOT2 4K, ---	SLOT1 4K: 4K S-LOG2 is output from SLOT1. SLOT1 HD: HD S-LOG2 is output from SLOT1. SLOT1 HD SLOT2 4K: HD S-LOG2 is output from SLOT1, and 4K S-LOG2 is output from SLOT2. ---: WIDE D-RANGE is off.
	HD CUTOUT	**OFF**, ON	HD CUTOUT on/off setting. Displayed only when the SZC-2001 is installed.
<GENLOCK> C03	REFERENCE	CCU, INTERNAL, GENLOCK	Reference sync signal in use (Display only)
	GENLOCK		Setting and status of reference sync signal input on REFERENCE IN connector (not displayed when a CCU is connected)
	GENLOCK STATUS		Status of reference sync signal input on REFERENCE IN connector (Display only).
	GENLOCK FORMAT		Format of reference sync signal input on REFERENCE IN connector (Display only).
	GENLOCK PHASE V	–1024 to +1023, **0**	Output video V phase relative to the input reference sync signal (delay represented by positive values)
	GENLOCK PHASE H	–1700 to +1700, **0**	Output video H phase relative to the input reference sync signal (delay represented by positive values)
	SYNC OUT	**SD**, HD, (THROUGH)	SD composite sync signal and HD tri-level sync signal selector setting. (THROUGH is selected when a signal is input on the REFERENCE IN connector.)
	VIDEO OUT		Video output phase adjustment (displayed when connected to CCU). SLOT1 to SLOT4 output video H phase relative to the internal sync signal (delay represented by positive values)
	VIDEO OUT PHASE H	–256 to +255, **0**	
<RETURN> C04	SDI1	**1080/59.94i(PsF)**, 1080/59.94P, 1080/50i(PsF), 1080/50P, NO SIGNAL, ---	Format of video signal input on SDI1 connector. ---: When a CCU is connected Available only for extension connection.
	SDI2	**1080/59.94i(PsF)**, 1080/59.94P, 1080/50i(PsF), 1080/50P, NO SIGNAL, ---, HD PROMPTER	Format of video signal input on SDI2 connector. ---: When a CCU is connected HD PROMPTER: HD prompter is on. Available only for extension connection.
	FRAME SYNCHRO	**OFF**, ON, ---	Return signal frame synchronizer on/off setting
	HD PROMPTER	**OFF**, ON	HD prompter on/off setting Available only for extension connection.
<IP ADDRESS SETTINGS> C05	IP ADDRESS	**0.0.0.0** to 255.255.255.255	IP address setting
	SUBNET MASK	**0.0.0.0** to 255.255.255.255	Subnet mask setting
	DEFAULT GATEWAY	**0.0.0.0** to 255.255.255.255	Gateway IP address setting
	SET	ENTER to execute	
	MAC ADDRESS	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF	MAC address (Display only)

Page name Page No.	Item	Set value	Meaning
<CNS SETTINGS> C06 (Not available when a CCU is connected.)	CNS MODE	LEGACY, BRIDGE	Communications mode setting
	SET	ENTER to execute	
<DATE> C07	DATE/TIME		
	DATE	2013.**.** to 20**.**.**	Date setting and display
	TIME	00:00 to 23:59	Time setting and display
	FILE TIMESTAMP FORMAT		**Y**: Year **Mn**: Month (numeric) **Mn**: Month (English abbreviation) **D**: Day
	FILE_TIMESTAMP	1 Y/Mn/D, 2 Mn/D, 3 D/M/Y 4 D/M, **5 M/D/Y**, 6 M/D	
<CHU MODE> C08	CURRENT	**PMW-F55**, F65 (1x), F65 (2x)	Currently selected camera head setting
	PMW-F55	ENTER to execute	Sets camera head unit to PMW-F55.
	F65(1x)	ENTER to execute	Sets camera head unit to F65 (normal speed).
	F65(2x)	ENTER to execute	Sets camera head unit to F65 (2x frame rate). (available only when the SZC-2002 is installed)
<OTHERS> C09	ASSIGNABLE SWITCH	**OFF,** BPU BARS	Assignable button function select
	HD DOWNCONV FILTER	**1** to 4	4K video signal to HD signal down-converter filter type
	CHARACTER LEVEL	1 to **5**	Menu character contrast level
	2x MODE (HD)	0 (SRMASTER), **1 (EVS)**	Selects the output mode for 2x HD video (SLOT3). 0 (SRMASTER): Output aligned with horseshoe-shaped field (compatible with the SR-R1000). 1 (EVS): Output aligned with field (compatible with servers manufactured by EVS). Displayed only when CURRENT in <CHU MODE> (C08) is set to F65(2x).
	CLEAR BPU SETTINGS	ENTER to execute	Reset to factory default settings
<OPTION KEY> C10	READ (USB→CAM)	ENTER to execute	Read the install key from a USB flash drive.
	INSTALLED OPTION		Display a list of the installed options.
<HD CUTOUT> C11	HD CUTOUT	**OFF**, ON	HD CUTOUT function on/off setting (available only when the SZC-2001 is installed)
	MODE	**SIMPLE HD**, ZOOM-PERSPECTIVE	HD CUTOUT mode selection SIMPLE HD: HD image cut out as-is from 4K image. ZOOM-PERSPECTIVE: When HD image is cut out from 4K image, distortion is corrected. Zoom in/out is supported.
	CUTOUT POSITION		
	CH	**1**, 2	Specify the cut-out frame to control.
	CENTER H	–2048 to +2047, **0**	Center position of cut-out frame (H)
	CENTER V	–1080 to +1079, **0**	Center position of cut-out frame (V)
	ZOOM	1.0 to 4.0, **2.0**	Zoom factor
	CAMERA TILT	–45.0 to +45.0, **0**	Camera tilt angle
	CAMERA ROLL	–5.0 to +5.0, **0**	Camera roll angle
	FOCAL LENGTH	**7** to 500, ∞	Lens focal length (2.8x lens focal length when LA-FZB2 is connected). ∞: Equivalent to simple CUTOUT with zoom

DIAGNOSIS menu

Page name Page No.	Item		Set value	Meaning
<OPTICAL LEVEL> D01	OPTICAL LEVEL		Bar graph display	Bar graph display of optical signal level condition between the unit and the CCU.
	CABLE LENGTH		x.x km	Length of the optical fiber cable between the CCU and camera head
<BOARD STATUS> D02	SY		OK, NG	Internal board status
	DVP		OK, NG	
	TX		OK, NG	
	DPR1		OK, NG	
	DPR2		OK, NG	
<CONNECTION STATUS> D03	CHU	DOCKING	OK, NG, ---	Video camera connection status. ---: When camera system adaptor is not connected.
		POWER	OK, NG, ---	Power supply status of the video camera. ---: When DOCKING is NG or camera system adaptor is not connected.
		COMM	OK, NG, ---	Communications status of the video camera. ---: When DOCKING is NG or camera system adaptor is not connected.
	CSA	CABLE	OPEN, CONNECTED	Camera system adaptor connection status
		COMM	OK, NG, ---	Camera system adaptor communications status. ---: When CABLE is OPEN.
	CCU	CABLE	OPEN, CONNECTED	CCU connection status
		COMM	OK, NG, ---	CCU communications status. ---: When CABLE is OPEN.
<ROM VERSION> D04	CAMERA APP		Version number, date, device name	ROM version information installed on each device
	OS		OS version	
	UPDATER		Version of software updater	
	SY		Vx.xx	ROM version of SY board
	TX		Vx.xx	ROM version of TX board
	DEC		Vx.xx	ROM version of DVP board
	DPR1		Vx.xx	ROM version of DPR1 board
	DPR2		Vx.xx	ROM version of DPR2 board
	4K-POST		Vx.xx	ROM version of DVP board
	2K-POST		Vx.xx	ROM version of DVP board
	SDP		Vx.xx	ROM version of DVP board
<SERIAL NO> D05	MODEL		Model name	
	NO		Serial number	
	OPTION		Option name	Displays the installed options.
<IP ADDRESS> D06	IP ADDRESS		0.0.0.0 to 255.255.255.255	IP address of unit
	SUBNET MASK		0.0.0.0 to 255.255.255.255	Subnet mask
	DEFAULT GATEWAY		0.0.0.0 to 255.255.255.255	Gateway IP address
	MAC ADDRESS		00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF	Device MAC address
<LAN STATUS> D07	AUTO NEGOTIATION		OFF, ON	Auto negotiation setting
	CONNECTION SPEED		10M, 100M	Connection speed
	DUPLEX MODE		HALF, FULL	Duplex mode setting
	LINK CONDITION		DOWN, UP	LAN connection status
<CNS STATUS> D08	CNS MODE		LEGACY, BRIDGE	Communications mode setting

Appendix

Precautions

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

The fan and battery are consumable parts that will need periodic replacement.
When operating at room temperature, a normal replacement cycle will be about 5 years. However, this replacement cycle represents only a general guideline and does not imply that the life expectancy of these parts is guaranteed. For details on parts replacement, contact your dealer.

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

Do not push the mesh portion of the front panel with your fingers or sharp objects.

Operating environment

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

Avoid violent impacts

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

Do not cover with cloth

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

After use

Set the POWER switch to the OFF position.

Care

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

Error Messages

When an error is detected in the unit or video camera, the following messages may be displayed on the video output configured for the monitor output (M).

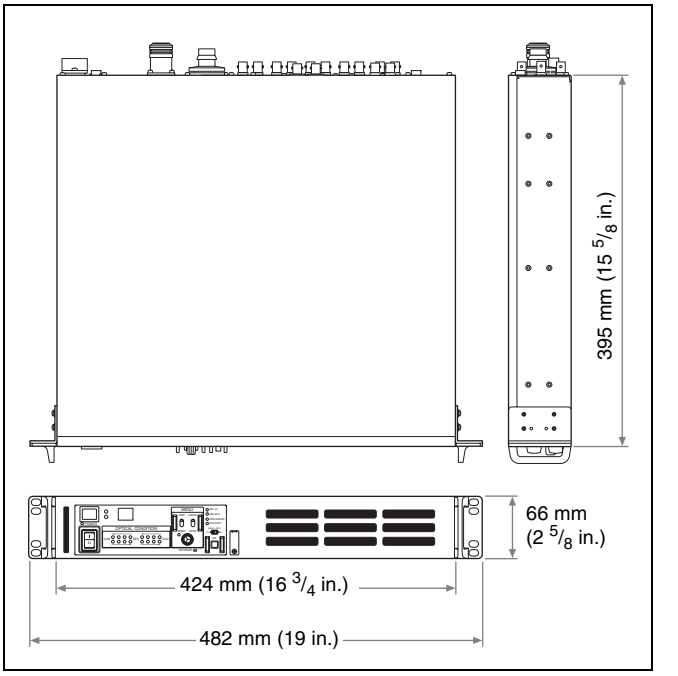
Note

Display the menu or status screen to view messages.

Error message	Meaning
TEMP WARNING	Internal temperature error.
PLD NG	Internal PLD error.
PLEASE CONFIRM CHU MODE ON CSA	The CSA camera head setting does not match the connected camera head.
PLEASE CONFIRM CHU MODE ON BPU	The BPU camera head setting does not match the connected camera head.
PLEASE UPDATE CSA SOFTWARE	The BPU and CSA software versions do not match.

Specifications

General	
Power requirement	100 V to 240 V AC, 50/60 Hz
Current consumption	1.4 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. 6.8 kg (15 lb)
Input/output connectors	
CAMERA	Optical fiber connector (1)
CCU	Optical fiber connector (1)
REMOTE	8-pin multi-connector (1)
LAN	8-pin (1)
Input connectors	
AC IN	100 V to 240 V AC (1)
SDI1, SDI2	BNC type (2) 3G-SDI: SMPTE ST424/425 Level-B, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps
REFERENCE IN	BNC type (1) HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 Ω SD: Black burst (NTSC: 0.286 Vp-p, 75 Ω/PAL: 0.3 Vp-p, 75 Ω)
Output connectors	
3G/HD SDI OUTPUT (SLOT1)	BNC type (8) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable
3G/HD SDI OUTPUT (SLOT2)	BNC type (8) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable
3G/HD SDI OUTPUT (SLOT3)	BNC type (2) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable
HD SDI OUTPUT (SLOT4)	BNC type (2) HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps
REFERENCE OUT	BNC type (1) HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 Ω SD: Composite sync, 0.3 Vp-p, 75 Ω HD SYNC/SD SYNC selectable
Supplied accessories	
Number plates (1 set)	
Operation Guide (1)	
OPERATION MANUAL (CD-ROM) (1)	
Optional accessories	
United States and Canada: Plug holder B (2-990-242-01) Other areas: Plug holder C (3-613-640-01)	
United States and Canada: Power cord set (1-551-812-XX) Other areas: Power cord set (1-782-929-XX)	
CCA-5-3 (3 m) and CCA-5-10 (10 m) connection cables	
Maintenance manual	
Related equipment	
CA4000 Camera System Adaptor	
HDCU2000/2500 HD Camera Control Unit	
SZC-2001 HD CUTOUT Software	
SZC-2002 HD HFR Software	
RCP-1000 series Remote Control Panel	
MSU-1000/1500 Master Setup Unit	
Dimensions	



Design and specifications are subject to change without notice.

Notes

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

Sony Corporation

BPU4000 (SY)
4-479-647-**12** (1)

http://www.sony.net/