SONY

HD CAMERA CONTROL UNIT

HDCU1000
HDCU1080
HDCU1500

SD ENCODER UNIT
HKCU1001

MULTI INTERFACE UNIT
HKCU1003

SDI OUTPUT EXPANSION UNIT
HKCU1005

Digital HDVS

INSTALLATION MANUAL
1st Edition (Revised 1)
Serial No. 10001 and Higher : HDCU1000 (UC)
Serial No. 30001 and Higher : HDCU1000 (J)
Serial No. 40001 and Higher : HDCU1000 (CE)
Serial No. 50001 and Higher : HDCU1080 (CN)
Serial No. 10001 and Higher : HDCU1500 (SY)
Serial No. 30001 and Higher : HDCU1500 (J)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. **Install the equipment while taking the operating temperature of the equipment into consideration**
   For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

Table of Contents

Manual Structure

1. Installation Overview

2. System Setup

3. Menu Settings

Manual Structure

Purpose of this manual

This manual is the installation manual of the following models :

HD Camera Control Unit	HDCU1000/HDCU1080/HDCU1500
SD Encoder Unit	HKCU1001
Multi Interface Unit	HKCU1003
SDI Output Expansion Unit	HKCU1005

This manual is intended for use by trained system and service engineers, and describes the information regarding the installation of the unit and the information that premises the service based on components replacement.

Related manuals

Beside this Installation Manual, the following manuals are available for the unit.

- **Operation Manual (Supplied with HDCU1000/1500)**
  This manual describes how to operate the HDCU1000/1500.

- **Operation Manual (Supplied with HDCU1080)**
  This manual describes how to operate the HDCU1080.

- **Maintenance Manual (Available on request)**
  This manual intended for use by trained system and service engineers describes (service overview and the circuit overview, the main part replacements, electrical alignment, parts list, semiconductor pin assignments, block diagrams, schematic diagrams, board layouts.) required for parts-level service.
  For obtaining, contact your local Sony Sales Office/Service Center.
  Part number : 9-968-208-0X

- **“Semiconductor Pin Assignments” CD-ROM (Available on request)**
  This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in Broadcast and Professional equipment.
  This manual contains a complete list of semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Trademarks

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- Clear-Com is a registered trademark of Clear-Com Intercom Systems.
- Accuride is a registered trademark of Accuride International Corporation.

Section 1
Installation Overview

1-1. Checking the ROM and Software Version

When connecting the following peripheral equipment to the unit, confirm the versions of the ROMs and software which are installed in each model. If the version is lower than the following one, the ROM needs to be replaced and the software needs to be upgraded.
In this case, contact your local Sony Sales Office/Service Center.

ROM

Peripheral equipment	Board	Ref. No.	ROM version
MSU-700A/750	CPU-293/CPU-286	IC5, IC6/IC5, IC6	Ver.1.30 or higher
MSU-900	CPU-396	IC18, IC31	Ver.1.02 or higher
CNU-700	AT-89 or AT-89A	IC4, IC5	Ver.3.20 or higher
CNU-500	AT-100	IC4, IC5	Ver.2.80 or higher
RCP-720/721	MPU-79	IC10	Ver.2.90 or higher
RCP-730/731	MPU-79	IC10	Ver.2.90 or higher
RCP-740/741	MPU-79	IC10	Ver.2.90 or higher
RCP-700/701	MPU-92	IC6	Ver.2.90 or higher

Software

Peripheral equipment	Board	Software version
RCP-750/751	MPU-123	Ver.1.21 or higher
RM-B750	MPU-124	Ver.1.00 or higher

1-2. Connectors and Cables

1-2-1. Connector Input/Output Signal

BNC connector

HDCU1000/1080

SDI OUTPUT (1-4) : BNC
Conforms to BTA-S004B, 0.8 V p-p, 75 Ω, 1.485 Gbps/1.4835 Gbps
SMPTE 292M
Or
Component serial signal : 0.8 V p-p, 75 Ω, 270 Mbps
SMPTE 259M

RETURN INPUT

- **HD SDI (1-4)** : BNC
  Conforms to BTA-S004B, 1.485 Gbps/1.4835 Gbps
  SMPTE 292M

- **SD SDI (1-4)** : BNC
  Component serial signal : 270 Mbps
  SMPTE 259M

- **VBS (1-4)** : BNC
  Analog composite signal : 1.0 V p-p, 75 Ω

INPUT

- **REFERENCE** : BNC
  ±0.3 V, ternary SYNC, 75 Ω
  Or 0.286 V p-p, black burst signal, 75 Ω

- **PROMPTER (1-2)** : BNC
  1.0 V p-p, 75 Ω

OUTPUT

- **SYNC** : BNC
  ±0.3 V, ternary SYNC, 75 Ω
  0.3 V p-p, SD SYNC, 75 Ω selectable

- **CHARACTER** : BNC
  1.0 V p-p, 75 Ω

- **AES/EBU** : BNC
  AES/EBU format

HDCU1500

SDI OUT (1-3) : BNC
Conforms to BTA-S004B, 0.8 V p-p, 75 Ω, 1.485 Gbps/1.4835 Gbps
SMPTE 292M
Or
Component serial signal : 0.8 V p-p, 75 Ω, 270 Mbps
SMPTE 259M

RET (1-3) IN : BNC
Conforms to BTA-S004B, 1.485 Gbps/1.4835 Gbps
SMPTE 292M
Or
Component serial signal : 270 Mbps
SMPTE 259M
Or
Analog composite signal : 1.0 V p-p, 75 Ω selectable

REFERENCE IN : BNC
±0.3 V, ternary SYNC, 75 Ω
Or 0.286 V p-p, black burst signal, 75 Ω

PROMPTER IN : BNC
1.0 V p-p, 75 Ω

CHARACTER/SYNC OUT : BNC
1.0 V p-p, 75 Ω
Or
±0.3 V, ternary SYNC, 75 Ω
0.3 V p-p, SD SYNC, 75 Ω selectable

HKCU1001/1003

VBS (1-2) OUT : BNC
1.0 V p-p, 75 Ω

PIX OUT : BNC
1.0 V p-p, 75 Ω

WF OUT : BNC
0.714 V p-p, 75 Ω
ENC : 1.0 V p-p

HKCU1003

FRAME REF IN : BNC
0.3 V p-p FRAME SYNC pulse, 75 Ω
Or
±0.3 V, ternary SYNC, 75 Ω
Or 0.286 V p-p, black burst signal, 75 Ω

FRAME REF OUT : BNC
THROUGH OUT/0.3 V p-p FRAME SYNC pulse, 75 Ω

PIX OUT : BNC
1.0 V p-p, 75 Ω

WF OUT : BNC
0.714 V p-p, 75 Ω (NTSC)
0.7 V p-p, 75 Ω (PAL)
ENC : 1.0 V p-p

VBS OUT : BNC
1.0V p-p, 75 Ω

R-Y/R OUT : BNC
R-Y : 0.7 V p-p, 75 Ω (NTSC, SETUP : ON, when outputting 75% color bar)
0.525 V p-p, 75 Ω (PAL, when outputting 75% color bar)
R : 0.7 V p-p, 75 Ω

Y/G OUT : BNC
Y : 1.0 V p-p (Video : 0.714 V, synchronous 0.286 V, NTSC), 75 Ω
1.0 V p-p (Video : 0.7 V, synchronous 0.3 V, PAL), 75 Ω
G : 0.7 V p-p, 75 Ω

B-Y/B OUT : BNC
B-Y : 0.7 V p-p, 75 Ω (NTSC, SETUP : ON, when outputting 75% color bar)
0.525 V p-p, 75 Ω (PAL, when outputting 75% color bar)
B : 0.7 V p-p, 75 Ω

HKCU1005

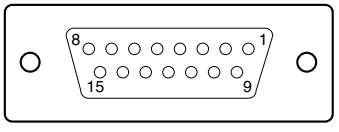
SDI OUT (1-4) : BNC
Conforms to BTA-S004B, 0.8 V p-p, 75 Ω, 1.485 Gbps/1.4835 Gbps
SMPTE 292M
Or
Component serial signal : 0.8 V p-p, 75 Ω, 270 Mbps
SMPTE 259M

CAMERA connector (optical/electrical composite connector)

VIDEO	$Y/P_B/P_R$ Conforms to BTA-S004B, 1.485 Gbps/1.4835 Gbps serial SMPTE 292M
RET VIDEO	$Y/P_B/P_R$ Conforms to BTA-S004B, 1.485 Gbps/1.4835 Gbps serial SMPTE 292M
INCOM	2ch
MIC	2ch

DIGITAL AUDIO (AES/EBU)
CAMERA COMMAND
PROMPTER

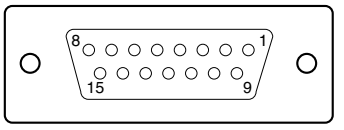
WF REMOTE (D-sub 15P, Female) (HDCU1000/1080)



– EXT VIEW –

No.	Signal	Specifications
1	NC	No connection
2	NC	No connection
3	NC	No connection
4	NC	No connection
5	RECALL2 (G)	LOW ACTIVE
6	RECALL3 (B)	
7	RECALL1 (R)	
8	RECALL4 (SEQ)	
9	GND	
10	NC	No connection
11	NC	No connection
12	RECALL5 (ENC)	LOW ACTIVE
13	RECALL6 (R+B)	
14	RECALL7 (R+G)	
15	RECALL8 (G+B)	

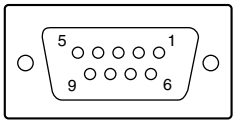
I/O PORT (D-sub 15P, Female) (HDCU1000/1080)



– EXT VIEW –

No.	Signal	Specifications
1	IN1	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
2	IN2	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
3	IN3	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
4	IN4	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
5	IN5	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
6	IN6	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
7	IN7	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
8	IN8	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
9	GND	
10	OUT1	0/+5 V (1 kΩ)
11	OUT2	0/+5 V (1 kΩ)
12	OUT3	0/+5 V (1 kΩ)
13	OUT4	0/+5 V (1 kΩ)
14	OUT5	0/+5 V (1 kΩ)
15	OUT6	0/+5 V (1 kΩ)

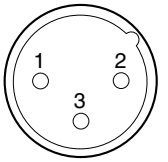
TRUNK LINE (D-sub 9P, Female) (HDCU1000/1080)



– EXT VIEW –

No.	Signal	Specifications
1	NC	No connection
2	EXT-CMD0-IN (RXD IN)	
3	EXT-CHD0-OUT (TXD OUT)	
4	NC	No connection
5	GND	
6	NC	No connection
7	EXT-CMD1-OUT (RTS OUT)	
8	EXT-CHD1-IN (CTS IN)	
9	NC	No connection

MIC1/MIC2 (XLR 3P, Male)

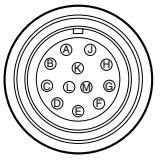


– EXT VIEW –

(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	MIC OUT (G)	0 dBu/–20 dBu
2	MIC OUT (X)	(Selectable with S500,
3	MIC OUT (Y)	S501/AVP-6 board)

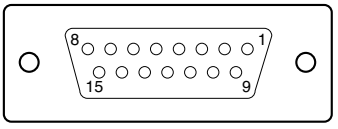
TRUNK A (12P, Female)



– EXT VIEW –

No.	Signal		Specifications
	RS422A	RS232C	
A	TX1 (X)	–	TRUNK Data out
B	TX1 (Y)	–	
C	NC	NC	No connection
D	TX0 (Y)	TX1	TRUNK Data out
E	TX0 (X)	TX0	
F	RX0 (X)	RX0	TRUNK Data in
G	RX0 (Y)	RX1	
H	RX1 (Y)	–	
J	RX1 (X)	–	
K	GND	GND	GND for command
L	NC	NC	No connection
M	NC	NC	No connection

MIC REMOTE (D-sub 15P, Female)



– EXT VIEW –

No.	Signal		Specifications
1	+5.5 V OUT		Max. 250 mA
2	TALLY GND		GND for TALLY
3	G TALLY OUT		ON (GND) : Max. 30 mA IN
4	R TALLY OUT		ON (GND) : Max. 30 mA IN
5	CHU MIC AMP GAIN IN	CONT2	∗1 Refer to the right column.
6		CONT1	
7		CONT0	
8	MIC1 GAIN ON/OFF IN	CONT	∗2 Refer to the right column.
9	GND		GND for +5.5 V
10	TALLY OUT		R/G TALLY OUT ON (GND) : Max. 30 mA IN
11	NC		No connection
12	ASPECT REMOTE ON/OFF		L : REMOTE
13	ASPECT CTL	CONT1	∗3 Refer to the right column.
14		CONT2	
15	MIC2 GAIN ON/OFF IN	CONT	∗2 Refer to the right column.

∗1 : CHU MIC 1/2 AMP GAIN

CONT0	CONT1	CONT2	CHU MIC AMP GAIN
H	H	H	60 dB
L	H	H	50 dB
H	L	H	40 dB
L	L	H	30 dB
H	H	L	20 dB

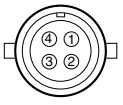
∗2 :

8pin	15pin	MIC GAIN CONT
L	L	MIC 1 and 2 ON
L	H	MIC 1 ON
H	L	MIC 2 ON
H	H	INTERNAL set

∗3 :

CONT1	CONT2	ASPECT
L	H	SQ (16 : 9)
H	H	EC (4 : 3)
L	L	INTERNAL set
H	L	LB (4 : 3)

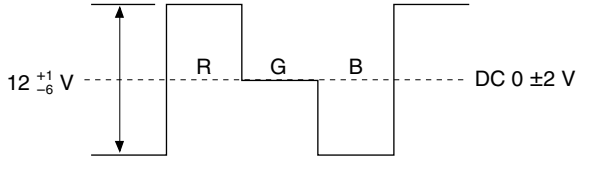
WF MODE (4P, Female)



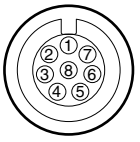
– EXT VIEW –

No.	Signal	Specifications
1	SEQ CONT OUT (G)	OPEN COLLECTOR +(PNP)/–(NPN)
2	SEQ CONT OUT (X)	(Selectable with S411/AT board)
3	STAIR CASE OUT (X)	∗6
4	STAIR CASE OUT (G)	GND for STAIR CASE

∗6 : Stair Case signal



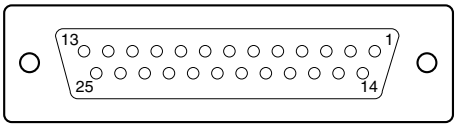
RCP/CNU (8P, Female)



– EXT VIEW –

No.	Signal	Specifications
1	TX (+)	SERIAL DATA OUT
2	TX (–)	
3	RX (+)	SERIAL DATA IN
4	RX (–)	
5	TX GND	GND for TX
6	POWER (+) OUT	+26 V, 200mA (max)
7	POWER (–) OUT	GND for POWER
8	VIDEO (X)	75Ω, 1.0 V p-p
	CHASSIS GND	CHASSIS GND

INTERCOM/TALLY/PGM (D-sub 25P, Female)

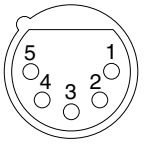


– EXT VIEW –

(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	ENG (R) (X) OUT	ENG SYSTEM RECEIVE
2	ENG (R) (Y) OUT	0 dBu BALANCED
3	ENG (G)	GND for ENG
4	ENG (T) (X) IN	ENG SYSTEM TALK
5	ENG (T) (Y) IN	0 dBu BALANCED
6	PGM1 (X) IN	–20 dBu/0 dBu
7	PGM1 (Y) IN	(Selectable with
8	PGM1 (G) IN	S301/AT board)
9	GND	GND for AUX
10	AUX3	
11	R TALLY (X) IN	ON : 24 Vdc, TTL (H), SHORT
12	R TALLY (Y) IN	OFF : 0 Vdc, TTL (L), OPEN
13	GND	CHASSIS GND
14	PROD (R) (X) OUT	PROD SYSTEM
15	PROD (R) (Y) OUT	RECEIVE 0 dBu BALANCED
16	PROD (G)	GND for PROD
17	PROD (T) (X) IN	PROD SYSTEM TALK
18	PROD (T) (Y) IN	0 dBu BALANCED
19	PGM2 (X) IN	–20 dBu/0 dBu
20	PGM2 (Y) IN	(Selectable with
21	PGM2 (G) IN	S302/AT board)
22	AUX4	
23	AUX5	
24	G TALLY (X) IN	ON : 24 Vdc, TTL (H), SHORT
25	G TALLY (Y) IN	OFF : 0 Vdc, TTL (L), OPEN

INTERCOM (5P, Female)



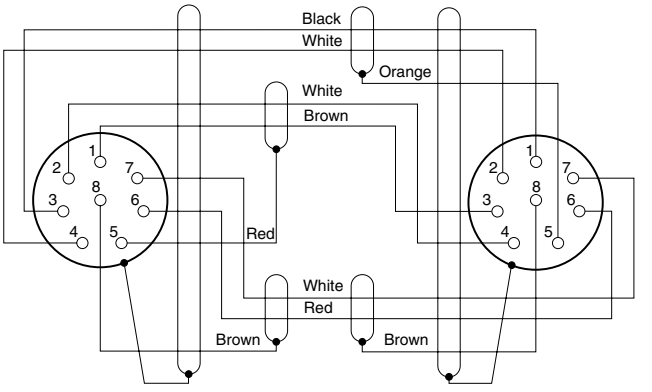
– EXT VIEW –

(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	INCOM (T) IN (Y)	–20 dBu
		(CARBON MIC)
2	INCOM (T) IN (X)	–60 dBu
		(DYNAMIC MIC)
3	INCOM (T) IN (G)	GND for INCOM
4	INCOM (R) OUT (X)	Max. 12 dBu
5	NC	No connection

1-2-2. Cable Wiring Diagram

CCA-5 cable (RCP/CNU connector)



– 8P CONNECTOR (MALE) –
(WIRING SIDE)

1-2-3. Connection Connectors

When connecting cables to each connector of the connector panel during installation or service, connect the following connectors or equivalent to the tip.

Connector	Connector/cable
HDCU1000/1080/1500	
CAMERA	• LEMO® PUW. 3K. 93C. TLCC96 ∗1
(HDC1000/1100/1500/1580/1600 side)	
CCU	• LEMO® FUW. 3K. 93C. TLMC96 ∗1
HDCU1000/1080	1-564-742-11 PLUG, BNC
VBS (1-4)	Or B-B Cable assembly
PROMPTER (1-2)	(1.5 m, optional)
REFERENCE	
SYNC	
CHARACTER	
AES/EBU	
HDCU1500	
REFERENCE	
PROMPTER	
CHARACTER/SYNC	
HKCU1001/1003	
VBS (1-2)	
PIX OUT	
WF OUT	
HKCU1003	
FRAME REF IN	
FRAME REF OUT	
PIX OUT	
WF OUT	
VBS	
R-Y/R	
Y/G	
B-Y/B	
(BNC)	

Connector	Connector/cable
HDCU1000	1-569-370-12 PLUG, BNC or
SLOT1 (1-4)	BELDEN8281 Cable or
SLOT2 (1-4)	equivalent
HD SDI (1-4)	
SD SDI (1-4)	

Connector	Connector/cable
HDCU1080	1-569-370-12 PLUG, BNC or
SLOT1 (1-4)	BELDEN8281 Cable or
HD SDI (1-4)	equivalent
SD SDI (1-4)	
HDCU1500	
SDI (1-3)	
RET (1-3)	
(BNC)	
HKCU1005	
SDI OUT (1-4)	
MIC 1/2	1-508-083-00 XLR 3P Female
(3P, Male)	or CANNON XLR-3-11C
	equivalent
WF REMOTE/MIC REMOTE	1-506-582-11 D-sub 15P, Male
I/O PORT	or JAE DA-CI-J10 equivalent
(D-sub 15P, Female)	
INTERCOM/TALLY/PGM	D-sub 25P, Male
(D-sub 25P, Female)	JAE DA-25PF-N equivalent
WF MODE	1-560-155-00 PLUG, 4P Male
(4P, Female)	(supplied)
RCP/CNU	1-766-848-11 PLUG, 8P Male
(8P, Female)	or CCA cable assembly (optional)
	CCA-5-10 (10 m), CCA-5-3 (3 m)
INCOM	1-508-370-11 XLR 5P, Male
(5P, Female)	or CANNON XLR-5-12C
	equivalent
TRUNK LINE	1-560-651-00 D-sub 9P, Male
(D-sub 9P, Female)	or JAE DE-9PF-N equivalent
	1-561-749-00 JUNCTION SHELL

∗1 : Caution in making the optical/electric signal composite cable:
When making the optical/electric signal composite cable used for this camera system, the connection connectors specified in this manual must be used in order to comply with the limits for EMC regulations.

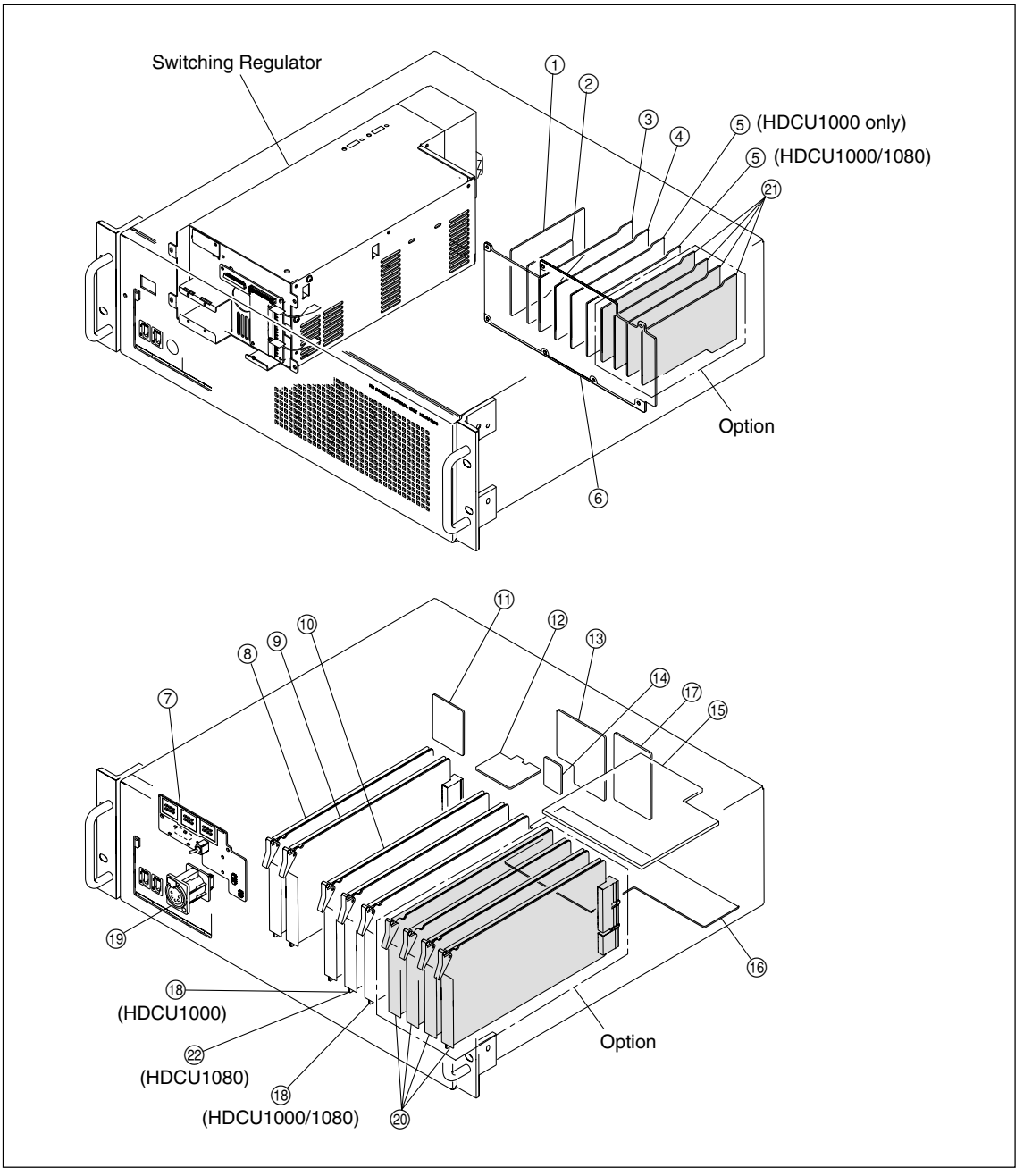
1-2-4. Note when Connecting CAMERA Connector

Before connecting the unit to the camera adaptor, clean the following optical contact blocks.
For the cleaning procedure, refer to Section 1-12, “Cleaning of Connector/Cable”.

- CAMERA connector of the unit
- CCU connector of the camera side
- Optical/electric signal composite cable

1-3. Circuit Boards and Main Parts Layouts

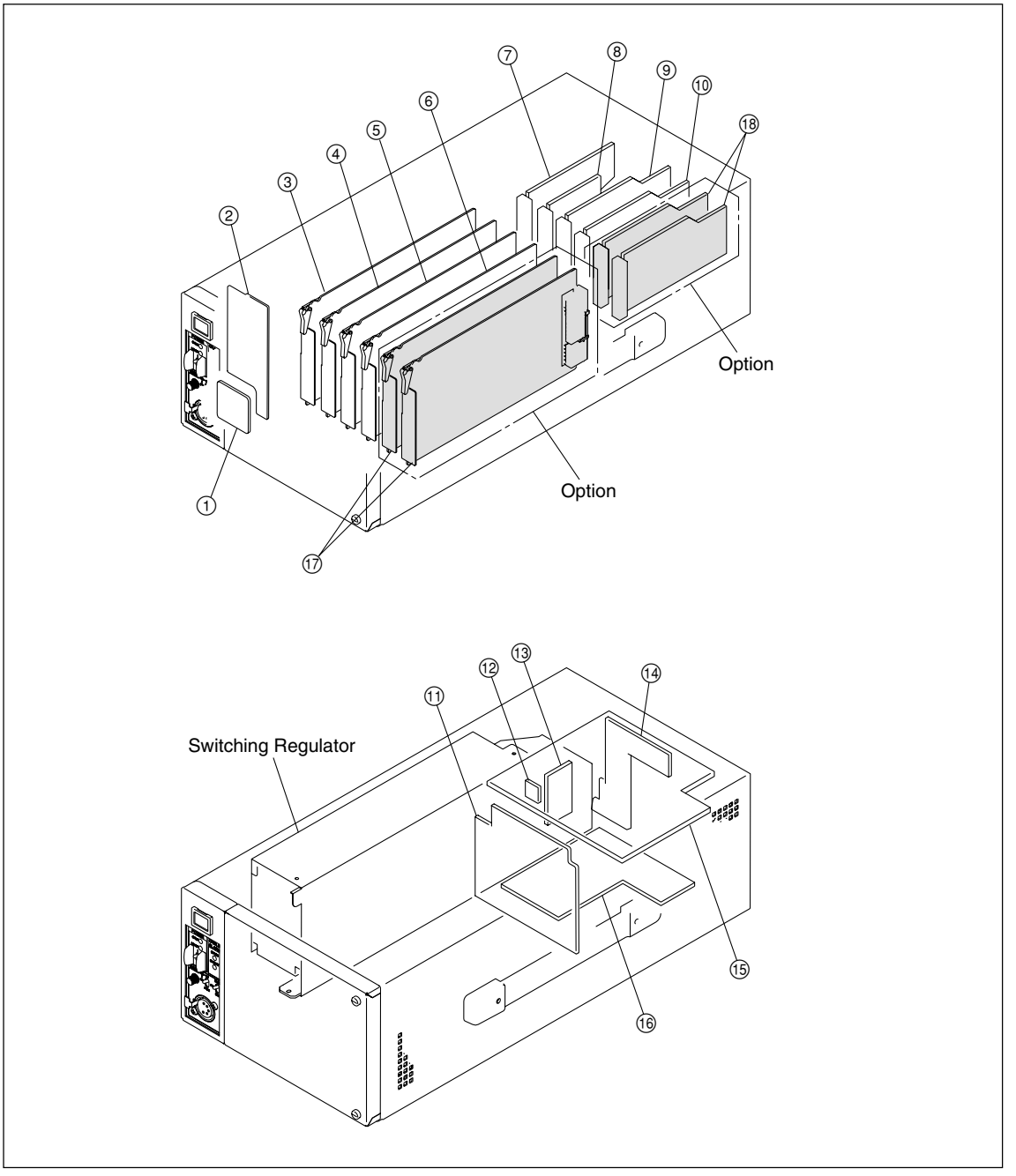
1-3-1. Circuit Boards and Main Parts Layouts (HDCU1000/1080)



① VIF-34/34G board
② ADO-10/10G board
③ SDI-86/86G board
④ SDI-85 board
⑤ HIF-25 board
⑥ MB-1071 board
⑦ AU-302 board
⑧ AT-167 board
⑨ AVP-6 board
⑩ DTX-5 board
⑪ CN-2718 board
⑫ CN-2673 board
⑬ CN-2672/2672G board
⑭ CN-2805/2805G board
⑮ SDP-12 board
⑯ CBN-21/21G board
⑰ CN-2674/2674G board
⑱ DRX-5 board
⑲ CN-2700 board
⑳ EN-159A board (HKCU1001)
EN-159B board (HKCU1003)*
DRX-5 board (HKCU1005)
㉑ VDA-64A board (HKCU1001)
VDA-64A board (HKCU1003)*
VDA-64B board (HKCU1003)*
VDA-64C board (HKCU1003)*
HIF-26 board (HKCU1005)
㉒ DU-390 board (HDCU1080 only)

∗ : HKCU1003 is the option board for HDCU1000. It is not used for HDCU1080.

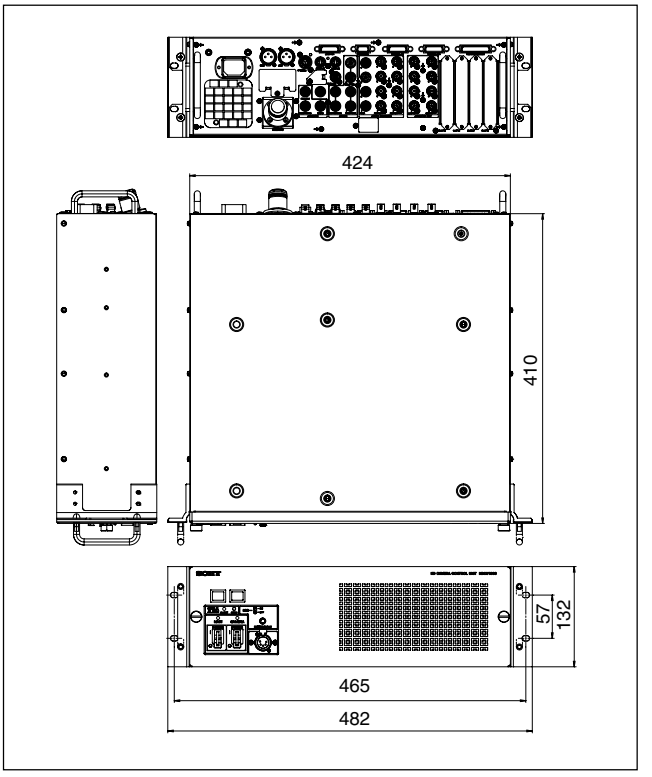
1-3-2. Circuit Boards and Main Parts Layouts (HDCU1500)



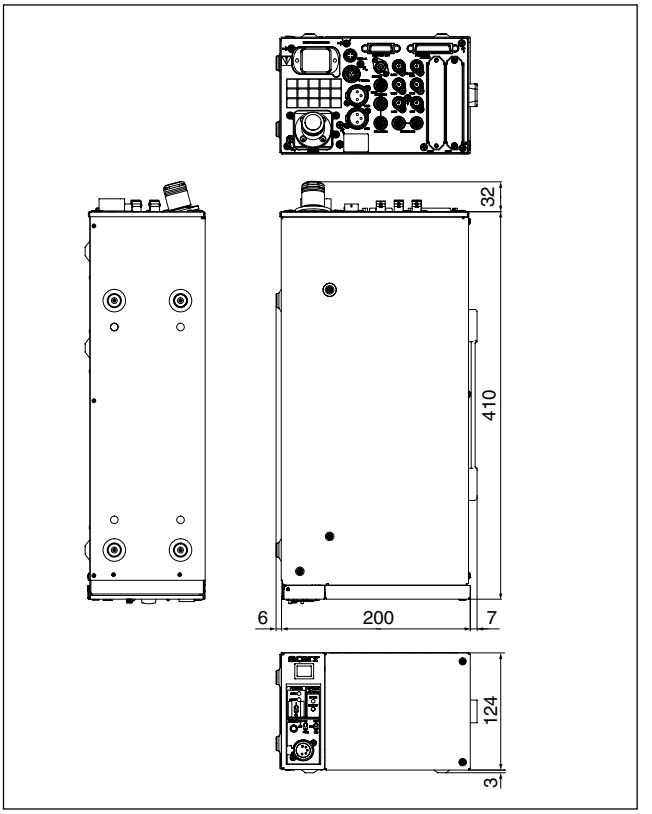
① CN-2678 board
② AU-303/303G board
③ AT-167 board
④ AVP-6 board
⑤ DTX-5 board
⑥ DRX-5 board
⑦ VIF-34B/34BG board
⑧ ADO-10/10G board
⑨ SDI-87/87G board
⑩ HIF-27 board
⑪ MB-1072/1072G board
⑫ CN-2677/2677G board
⑬ CN-2676 board
⑭ CN-2675/2675G board
⑮ SDP-12 board
⑯ CNB-22/22G board
⑰ EN-159A board (HKCU1001)
EN-159B board (HKCU1003)
DRX-5 board (HKCU1005)
⑱ VDA-64A board (HKCU1001)
VDA-64A board (HKCU1003)
VDA-64B board (HKCU1003)
VDA-64C board (HKCU1003)
HIF-26 board (HKCU1005)

1-4. External Dimensions

1-4-1. HDCU1000/1080



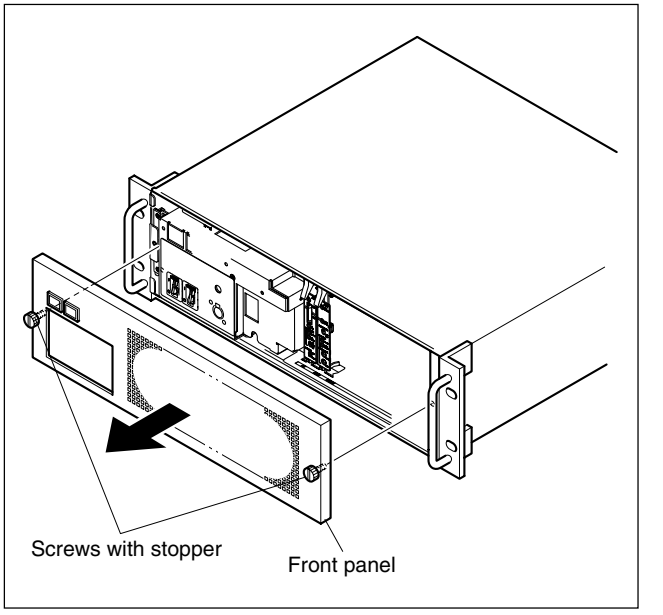
1-4-2. HDCU1500



1-5. Removing/Installing the Front Panel

1-5-1. Removing/Installing the Front Panel (HDCU1000/1080)

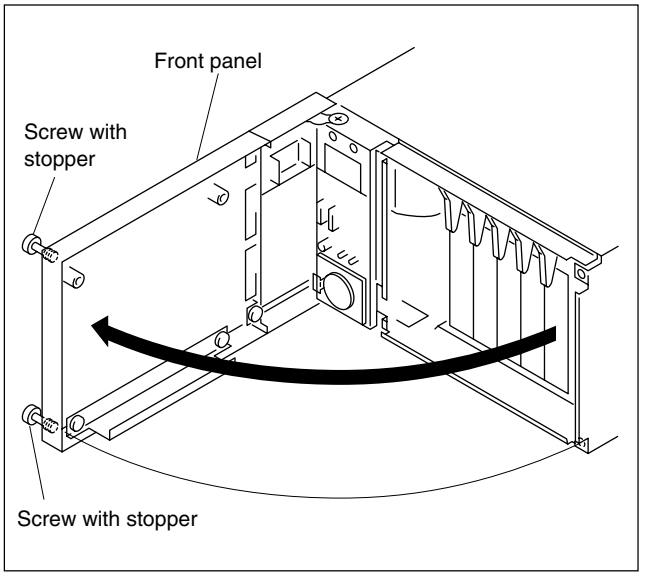
1. Fully loosen the two screws with stopper and remove the front panel in the direction of the arrow.



2. Reattach the front panel in reverse order of step 1.

1-5-2. Removing/Installing the Front Panel (HDCU1500)

1. Loosen the two screws with stopper and open the front panel in the direction of the arrow.



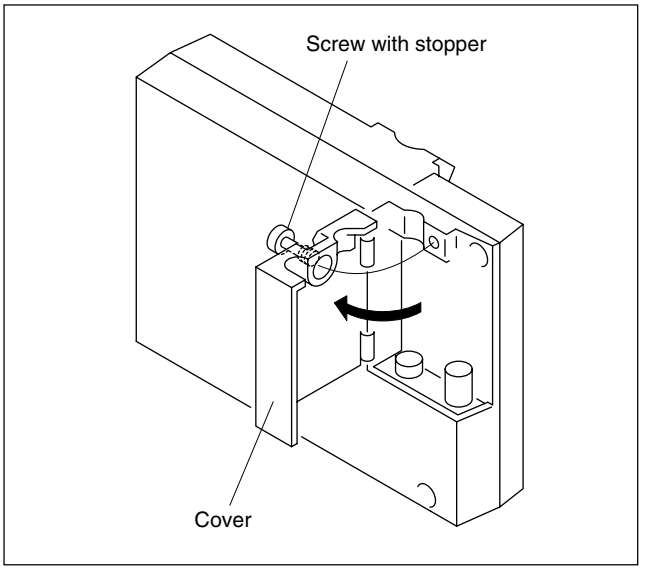
2. Reattach the front panel in reverse order of step 1.

1-6. Installing the RM-B750

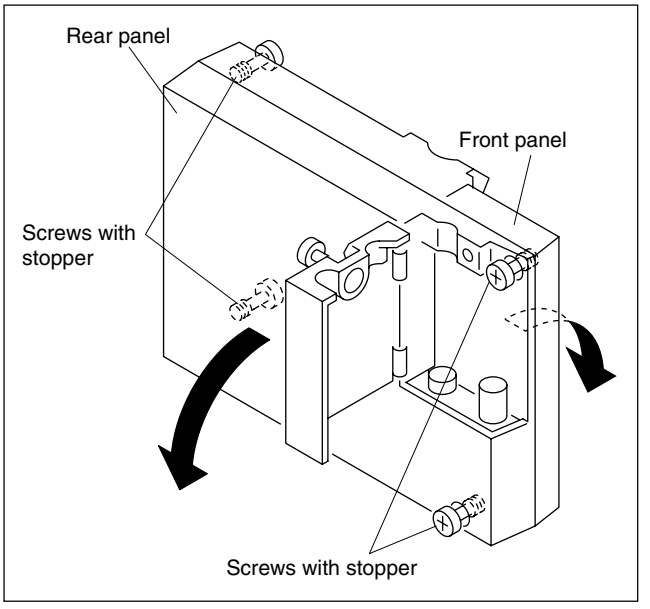
This section describes the installation procedure when the front panel of the remote control unit RM-B750 is used by being installed to HDCU1500.

Removing the Front Panel from the RM-B750

1. Loosen the screw with stopper of the RM-B750 and open the cover in the direction of the arrow.



2. Loosen the four screws with stopper and open the front panel and the rear panel in the direction of the respective arrows.

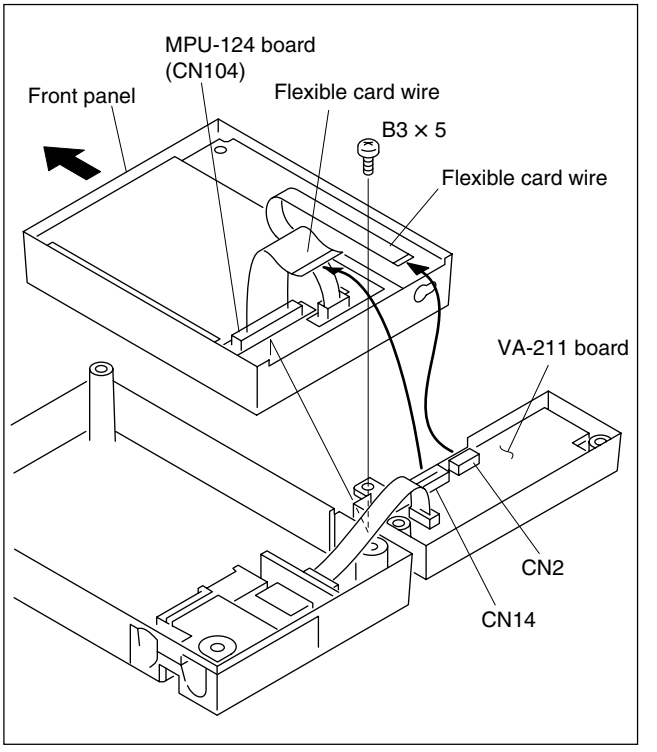


3. Disconnect the flexible card wires from the connectors CN2, CN14 on the VA-211 board.

Note

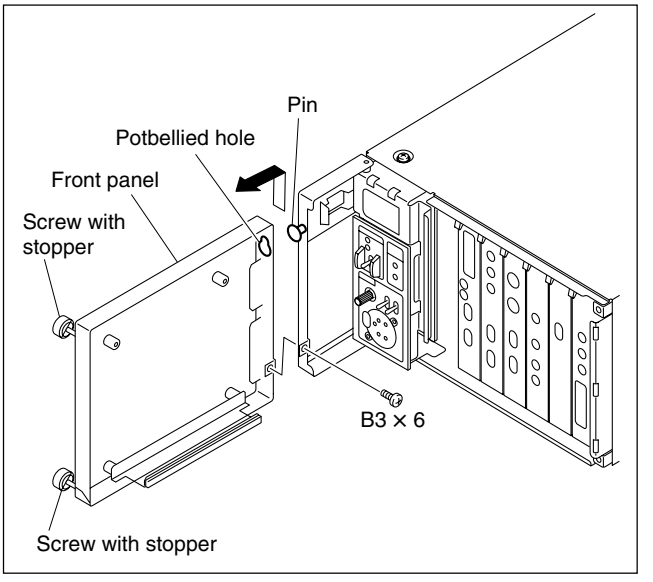
Be careful not to bend the flexible card wires. This shortens the wire life.

4. Remove the screw and remove the front panel in the direction of the arrow.



Installing the Front Panel to the Unit

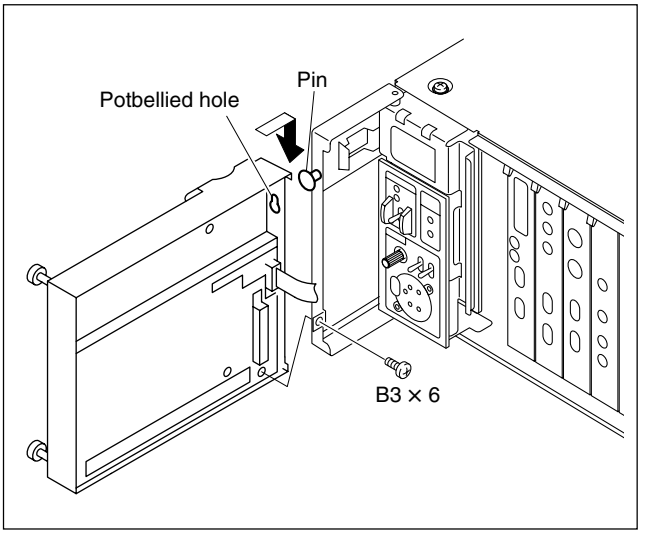
5. Turn off the power and disconnect the plug from the outlet.
6. Open the front panel of the unit. (Refer to Section 1-5-2.)
7. Remove the screw.
8. Slide the front panel in the direction of the arrow to extract the pin from the potbellied hole and remove the front panel.



9. Insert the pin into the potbellied hole of the front panel of the RM-B750 removed in step 4 and slide the pin in the direction of the arrow.

   Note

   Confirm that the pin is hooked to the potbellied hole so that front panel does not drop.
10. Secure the front panel of the RM-B750 with the screw removed in step 7.



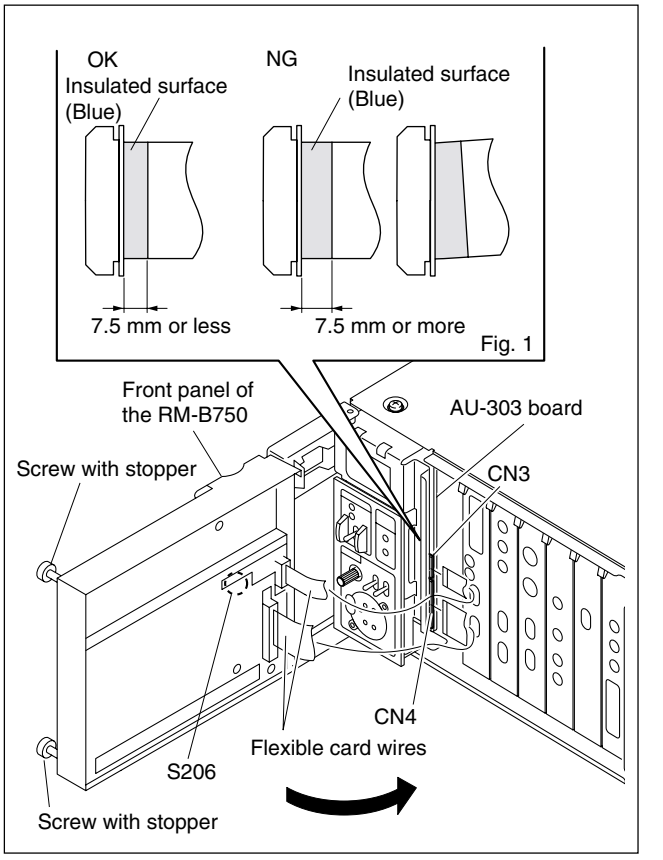
11. Connect the flexible card wires to the connectors CN3, CN4 on the AU-303 board.

    Notes

    - Do not insert the flexible card wire sideways. Insert it securely to the deep end as shown in the Fig 1. If the connection is not performed correctly, it may cause an failure.
    - Be careful not to bend the flexible card wires. This shortens the wire life.
12. Close the front panel of the RM-B750 in the direction of the arrow and secure it with the two screws with stopper.

    Note

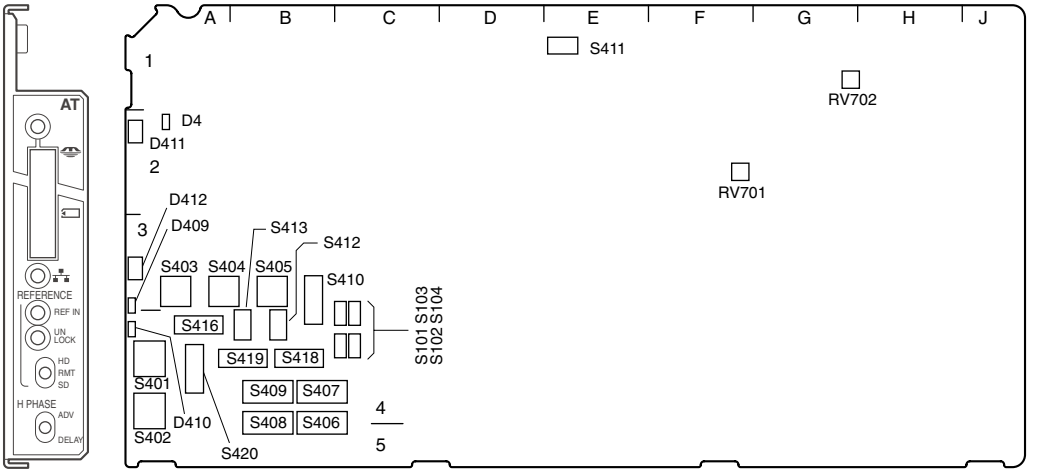
    When closing the front panel, be careful not to give excessive force on the flexible card wires or the connectors.



13. Upon completion of front panel installation, check that the switch S206 (CCU-PW) on the MPU-124 board of the RM-B750 is ON.

1-7. On-board Indicator/Switch/Volume Functions

AT-167 board



AT-167 (Side A)

Ref.No.	Name	Function	Factory default setting
D4	POWER	(Green) Illuminates when the power inside the AT board starts up correctly.	–
D409	REF IN	(Green) Illuminates when the reference signal is input and the external synchronous mode is established.	–
D410	UNLOCK	(Red) Illuminates when CCU cannot lock the external reference signal in the external synchronous mode.	–
D411	MS-LED	(Red/green) Displays the access status to the Memory Stick. Red light: Accessing the Memory Stick. Do not remove the Memory Stick. Green light: The inserted Memory Stick can be removed.	–
D412	LAN-LED	(Red/green) Not in operation.	–
S101	PRTCT	Factory use	ON
S102	DEBUG	Factory use	OFF
S103	URA	Factory use	OFF
S104	DEBUG	Factory use	OFF
S401	REFERENCE	Select the type of the synchronous signal to be connected to the REFERENCE terminal of this unit with this switch. HD : Synchronizes (SYNC) with the HD reference signal. (Input frame frequency is automatically adjusted.) REMOTE : Controls from the remote panel such as that on MSU. SD : Synchronizes (SYNC) with the SD reference signal (BB). The VBS OUT signal synchronizes (SC) when HKCU1001/1003 is installed. When the setting of the switch and the type of the input synchronous signal does not match, the LED of D410 (UNLOCK) illuminates.	REMOTE
S402	H-PHASE	Adjusts the H-phase.	
S403	H-Phase (STEP)	Adjusts the level phase for the reference signal in steps.	8
S404	V-Phase	Adjusts the vertical phase for the reference signal in line steps.	8

Ref.No.	Name	Function	Factory default setting
S405	V-DLY	Video phase setting between HD and SD Sets the phase difference (delay time) between the HD signal and the SD signal output from CCU. The phase can be advanced as follows based on the delay time set with S410. HD standard: 128ck (27 MHz) increment SD standard: 256ck (74 MHz) increment	0

S407	REFERENCE HD Reference (advance amount of SD)	REFERENCE SD Reference (advance amount of HD)
0	0	0
1	–4.74 usec	–3.45 µsec
2	–9.48 usec	–6.70 µsec
3	–14.2 usec	–10.3 µsec
4	–19.0 usec	–13.8 µsec
5	–23.7 usec	–17.2 µsec
6	–28.4 usec	–20.7 µsec
7	–33.2 usec	–24.1 µsec
8	–37.9 usec	–27.6 µsec
9	–42.7 usec	–31.0 µsec
A	–47.7 usec	–34.5 µsec
B	–52.1 usec	–37.9 µsec
C	–56.9 usec	–41.4 µsec
D	–61.6 usec	–44.8 µsec
E	–66.3 usec	–48.3 µsec
F	–71.1 usec	–51.7 µsec

1H 525 : 63.5 µsec 1125-60i : 29.6 µsec 750-60P : 22.2 µsec
625 : 64.0 µsec 1125-50i : 35.6 µsec 750-50P : 26.7 µsec
1125-24 PsF : 37.0 µsec

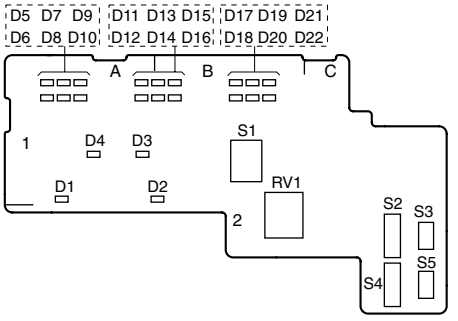
S406	MODE1			
	1	MIC-GT 1&2/1,2	Sets whether controlling MIC1 and MIC2 independently or by interlocking them. ON: MIC1, MIC2 independent control OFF: MIC1, MIC2 interlocked control	OFF
	2	MIC-G7 STD/700	For switching the interface specification of MIC-Remote (D-SUB-15P) ON: Old interface (700 mode) OFF: Standard-I/F	OFF
	3	D-SUB MIC/WFM	For switching the D-SUB-15P function on HDCU1500 ON: WFM-Remote OFF: MIC-Remote	OFF
	4	ASPECT RMT/PNL	ON: Accepts the switching command last input from MSU when the ASPECT switching from outside (D-Sub) is valid. OFF: Does not accept the command input from MSU when the ASPECT switching from outside (D-Sub) is valid.	OFF
	5		Not used	
	6	CNU/RM	For setting the priority of remote device on HDCU1500 when the Front-PNL-RM (RM-B750) is installed ON: Front-PNL-RM has priority. OFF: Device connected to the Rear-RM-CMD connector has priority.	OFF
	7	RCP-PX ENB/DIS	Sets the monitor selection control method for PIX OUT by RCP. ON : Only WF can be controlled from RCP. OFF : Both PIX and WF can be controlled from RCP.	OFF
	8	MONI-S M&R/RCP	Sets the monitor selection control method for PIX/WF OUT. ON : Can only be controlled from RCP (PIX/WF 1 system). When there is PIX/WF 2 system, it can be controlled from MSU. OFF : Can be controlled from either MSU or RCP. (Latest priority)	OFF

Ref.No.	Name	Function	Factory default setting
S407	TEST	Factory use	OFF
S408	MODE2		
	1 NP-SEL AUTO/N	SD-Format setting ON: Forced into NTSC (525). OFF: For AUTO, follows the setting of 1.000 (=PAL) /1.001 (=NTSC).	OFF
	2	Not used	
	3 GRAY LINE/ON	Gray signal output setting ON: During Gray signal output, when turning CB ON/OFF, the Gray image disappears, leaving only the Line signal. OFF: During Gray signal output, even when turning CB ON/OFF, the Gray signal is output.	OFF
	4 MONI/SYNC	For switching signals between the CHARACTER/SYNC output in HDCU1500 ON: Outputs SYNC. (Switch between HD and SD with S412) OFF: Outputs a character monitor signal.	OFF
	5	Not used	–
	6	Not used	–
	7	Not used	–
	8 CO-AX DIS/ENB	Factory use	OFF
S409	CCU-NO	CCU No. setting	–
	1 to 4	S409-4 to 1: 1' digit (BCD)	OFF (ALL)
	5 to 8	S409-8 to 5: 10' digit (BCD)	OFF (ALL)
S410	HD-SD DLY	Video phase setting between HD and SD Sets the phase difference (delay time) between HD signal and SD signal output from CCU. Can switch the delay settings among 0-DLY, LINE-DLY, and FRAME-DLY. 0-DLY : Same-phase mode of HD-SD (excluding 24PsF) LINE-DLY : Sets the minimum delay amount of D/C. SD signal delays as much as 90H (1080i) or 120H (720P). FRAME-DLY : Sets the frame delay amount. SD signal delays as much as 1 frame (1080i) or 2 frames (720P). * 90H is the level frequency of 1125-60i/50i, and 120H is that of 720-60P/50P. **Note** If the format setting of the camera is set to 24PsF when the 0-DLY mode is set, the setting is treated as Frame-DLY. The phase difference between the HD-60 signal that underwent 2-3 Pull-Down and the SD signal that underwent D/C from that is 1 frame (2 frames for 720P).	90 H
S411	SEQ1&SEQ2	Switch depending on the waveform monitor to be used. + :PNP : PNP open collector output – :PNP : NPN open collector output	(+)

Ref.No.	Name	Function	Factory default setting
S412	SYNC	Sets the SYNC signal output from the SYNC terminal to HD or SD. HD : HD-SYNC signal output SD : SD-SYNC signal output	SD
S413	Factory use		OFF
S416	Co-AX/D-S-F1	Not used	Fiber
S418	48V/50V/60V	Multi-Format setting (Camera transmission format) When the operation clock frequency setting switch (S420) is set to Local, the main video format of CCU is set as in the following table. The output transmission format of CHU is also set in the same way. (Refer to the table below.)	60
S419	720/Psf/I	Multi-Format setting (Camera transmission format) When the operation clock frequency setting switch (S420) is set to Local, the main video format of CCU is set as in the following table. The output transmission format of CHU is set in the same way. (Refer to the table below.)	INTR
S420	1001/RMT/1000	Operation clock frequency setting 1.001 : Sets the field frequency of CCU to 59.94, 29.97, 23.98 Hz. 1.000 : Sets the field frequency of CCU to 60, 50, 25, 24 Hz. REMOTE : Can be set from MSU. ∗ Can also perform remote/local setting of video output format from CCU.	REMOTE
RV701	27M FREQ	Volume that adjusts the free-run frequency of 27M-VCO (X701). Must be readjusted when replacing X701.	
RV702	CK-DUTY	Volume that adjusts the clock duty of the 74 MHz clock.	

FORMAT	S420	S418	S419
1080-60 (or 59.94) i	1.000 (or 1.001)	60 V	Intr
1080-30 (or 29.97) PsF	1.000 (or 1.001)	60 V	PsF
1080-50 i	1.000	50 V	Intr
1080-25 PsF	1.000	50 V	PsF
1080-24 (or 23.98) PsF	1.000 (or 1.001)	48 V	PsF
720-60 (or 59.94) P	1.000 (or 1.001)	60 V	720 P
720-50 P	1.000	50 V	720 P

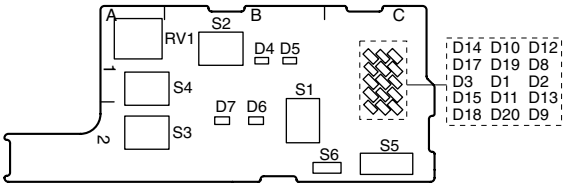
AU-302 board



AU-302 (Side A)

Ref.No.	Name	Function	Factory default setting
D1	MAIN POWER	Refer to the Operation Manual.	–
D2	CAMERA POWER	Refer to the Operation Manual.	–
D3	CABLE ALARM OPEN	Refer to the Operation Manual.	–
D4	CABLE ALARM SHORT	Refer to the Operation Manual.	–
D5-D10	RED TALLY	Refer to the Operation Manual.	–
D11-D16	GREEN TALLY	Refer to the Operation Manual.	–
S1	MIC	Refer to the Operation Manual.	–
S2	INCOM	Selects the line to which the INCOM connector on the front panel is connected. PROD : Producer line PRIV: Private (When the unit is disconnected from the producer line or engineer line, only the intercom between the unit and the camera is possible.) ENG : Engineer line	PROD
S3	INCOM-RECEIVE	For switching between a voice and PGM for the front intercam reception. PGM-OFF: The FP-INCOM reception becomes a voice. PGM-ON : The FP-INCOM reception becomes PGM. ∗ Switching of receipt is valid when the INCOM MIX switch is set to OFF.	OFF
S4	FRONT MIC	Sets the microphone input level according to the type of headset microphone to be connected to the INCOM connector on the front panel. DYNAMIC : Dynamic microphone (–60 dB) - The power is not supplied. ECM : Electret condenser microphone (–40 dB) - The power is supplied. CARBON : Carbon microphone (–20 dB) - The power is supplied.	CARBON
S5	UNBALANCE	Select ON/OFF according to the headset microphone type connected to the INCOM connector on the front panel. ON: For the unbalanced type (UNBALANCE) OFF: For the balanced type	OFF
RV1	INTERCOM	Refer to the Operation Manual.	

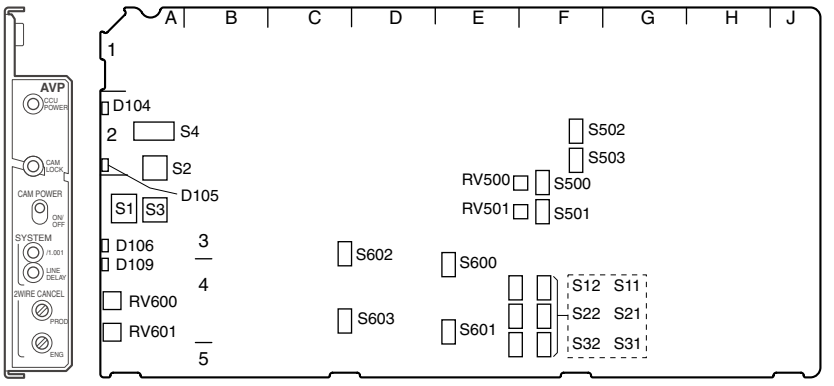
AU-303 board



AU-303 (Side A)

Ref.No.	Name	Function	Factory default setting
D4	MAIN POWER	Refer to the Operation Manual.	–
D5	CAM POWER	Refer to the Operation Manual.	–
D6	CABLE ALARM OPEN	Refer to the Operation Manual.	–
D7	CABLE ALARM SHORT	Refer to the Operation Manual.	–
D1 - D3 D8 - D20	R/G TALLY	Refer to the Operation Manual.	–
S1	POWER	Refer to the Operation Manual.	–
S2	MAIN POWER SWITCH	Turns ON/OFF the main power of HDCU.	OFF
S3	INCOM	Selects the line to which the INCOM connector on the front panel is connected. PROD : Producer line PRIV: Private (When the unit is disconnected from the producer line or engineer line, only the intercom between the unit and the camera is possible.) ENG : Engineer line	PROD
S4	MIC	Performs the switching operations between ON/OFF of the headset microphone connected to the INCOM connector on the front panel and receiving audio/PGM (program audio) of the producer line (or engineer line). MIC-ON : Turns ON the headset microphone. MIC-OFF : Turns OFF the headset microphone. PGM : The program audio is output to the INCOM connector on the front panel.	MIC-OFF
S5	FRONT MIC	Sets the microphone input level according to the type of headset microphone to be connected to the INCOM connector on the front panel. DYNAMIC: Dynamic microphone (–60dB) - The power is not supplied. ECM : Electret condenser microphone (–40dB) - The power is supplied. CARBON : Carbon microphone (–20dB) - The power is supplied.	CARBON
S6	UNBALANCE	Select ON/OFF according to the headset microphone type connected to the INCOM connector on the front panel. ON: For the unbalanced type (UNBALANCE) OFF: For the balanced type	OFF
RV1	INCOM	Refer to the Operation Manual.	–

AVP-6 board



AVP-6 (Side A)

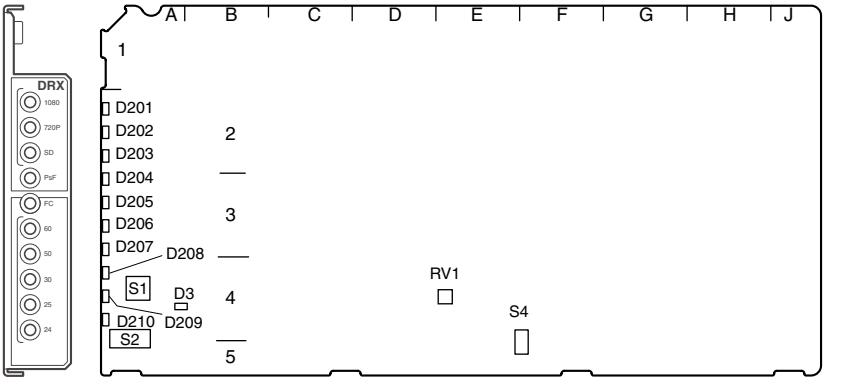
Ref.No.	Name		Function	Factory default setting
D104	CCU POWER		(Green) Illuminates when the power to the boards in the whole CCU is functioning properly.	–
D105	CAM LOCK		(Green) Illuminates when the communication with CHU is normal.	–
D106	/1001		(Green) Illuminates when the operation clock frequency of SG is 74.17582 MHz. (When the frame frequency of the video signal is integer 1/1.001.)	–
D107	90H		(Yellow) Illuminates when the SD signal delay time at down-conversion is set to 90H.	–
D109	LINE DELAY			–
S1	CAM POWER		Toggle switch that turns on the power to the camera head when it is off, and turns off when it is on.	
S2			Not used	0
S3			Not used	0
S4	MODE	1-7	Factory use	OFF (ALL)
		8	Set this to ON when upgrading the PLD (IC208, IC409) version of the SDP-12 board. (Be sure to set the switch to OFF after the upgrade is completed.)	OFF
S11	R-TALLY (POWER/CONTACT)		Set according to the signal standard of the R-TALLY signal input to the INTERCOM/TALLY/PGM connector on the rear panel. For the relationship between the signal and the switch setting, refer to the table below.	CONTACT
S12	R-TALLY (POWER/TTL)			TTL
S21	G-TALLY (POWER/CONTACT)		Set according to the signal standard of the G-TALLY signal input to the INTERCOM/TALLY/PGM connector on the rear panel. For the relationship between the signal and the switch setting, refer to the table below.	CONTACT
S22	G-TALLY (POWER/TTL)			TTL
S31	U-TALLY (POWER/CONTACT)		Not used	CONTACT

Tally system setting

	Red tally		Green tally	
Switch	**S11**	**S12**	**S21**	**S22**
Signal standard	POWER/CONTACT	POWER/TTL	POWER/CONTACT	POWER/TTL
Contact supply	CONTACT	–	CONTACT	–
24 V power supply	POWER	POWER	POWER	POWER
5 V power supply	POWER	TTL	POWER	TTL

<table>
<tr><th>Ref.No.</th><th>Name</th><th>Function</th><th>Factory default setting</th></tr>
<tr><td>S32</td><td>U-TALLY
(POWER/TTL)</td><td>Not used
Tally system setting
<table>
<tr><th></th><th colspan="2">U tally</th></tr>
<tr><th>Switch</th><th>S31</th><th>S32</th></tr>
<tr><td>Signal standard</td><td>POWER/
CONTACT</td><td>POWER/TTL</td></tr>
<tr><td>Contact supply</td><td>CONTACT</td><td>–</td></tr>
<tr><td>24 V power supply</td><td>POWER</td><td>POWER</td></tr>
<tr><td>5 V power supply</td><td>POWER</td><td>TTL</td></tr>
</table></td><td>TTL</td></tr>
<tr><td>S500</td><td>MIC1 LEV</td><td>Sets the output level of MIC.
0dB : When the input level on the system is 0 dBu.
–20dB: When the input level on the system is –20 dBu.</td><td>0 dB</td></tr>
<tr><td>S501</td><td>MIC2 LEV</td><td>Sets the output level of MIC.
0dB : When the input level on the system is 0 dBu.
–20dB: When the input level on the system is –20 dBu.</td><td>0 dB</td></tr>
<tr><td>S502</td><td>PGM1 IN</td><td>Sets the input level of the system PGM (analog).
0dB : When the input level of the system is 0 dBu.
–20dB: When the input level of the system is –20 dBu.</td><td>0 dB</td></tr>
<tr><td>S503</td><td>PGM2 IN</td><td>Sets the input level of the system PGM (analog).
0dB : When the input level of the system is 0 dBu.
–20dB: When the input level of the system is –20 dBu.</td><td>0 dB</td></tr>
<tr><td>S602</td><td>PROD SEL</td><td>Selects the intercom system of the producer line.</td><td>4W</td></tr>
<tr><td>S600</td><td>PROD SEL2</td><td><table>
<tr><th></th><th>S602</th><th>S600</th></tr>
<tr><td>4-Wire</td><td>4W</td><td>*</td></tr>
<tr><td>RTS</td><td>RTS</td><td>RTS</td></tr>
<tr><td>Clear-Com</td><td>RTS</td><td>CC</td></tr>
</table>* When 4-Wire is selected, S600 can be set to RTS or CC.</td><td>RTS</td></tr>
<tr><td>S603</td><td>ENG SEL</td><td>Selects the intercom system of the engineer line.</td><td>4W</td></tr>
<tr><td>S601</td><td>ENG SEL2</td><td><table>
<tr><th></th><th>S603</th><th>S601</th></tr>
<tr><td>4-Wire</td><td>4W</td><td>*</td></tr>
<tr><td>RTS</td><td>RTS</td><td>RTS</td></tr>
<tr><td>Clear-Com</td><td>RTS</td><td>CC</td></tr>
</table>* When 4-Wire is selected, S601 can be set to RTS or CC.</td><td>RTS</td></tr>
<tr><td>RV500</td><td>MIC1 LEV</td><td></td><td></td></tr>
<tr><td>RV501</td><td>MIC2 LEV</td><td></td><td></td></tr>
<tr><td>RV600</td><td>PROD 2WIRE CANCEL</td><td></td><td></td></tr>
<tr><td>RV601</td><td>ENG 2WIRE CANCEL</td><td></td><td></td></tr>
</table>

DRX-5 board

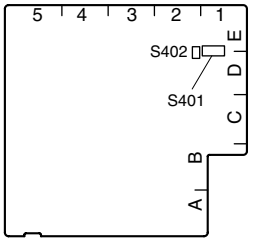


DRX-5 (Side A)

Ref.No.	Name	Function	Factory default setting
D201	1080	(Green) Illuminates when the Active-Line of the Main output is 1080-Format. (*)	–
D202	720P	(Green) Illuminates when the Active-Line of the Main output is 720P-Format. (*)	–
D203	SD	(Green) Illuminates when the Main output is SD-Format. (*)	–
D204	PsF	(Orange) Illuminates when the Main output is Progressive video. (*)	–
D205	FC	(Orange) Illuminates when the signal of which Frame frequency is converted is output from the Main output. (*)	–
D206	60	(Green) Illuminates when the Main output is 1080-60i/59.94i or 720-60P/59.94P. (*)	–
D207	50	(Green) Illuminates when the Main output is 1080-50i or 720-50P. (*)	–
D208	30	(Green) Illuminates when the Main output is 1080-30PsF/29.97PsF. (*)	–
D209	25	(Green) Illuminates when the Main output is 1080-25PsF. (*)	–
D210	24	(Green) Illuminates when the Main output is 1080-24PsF/23.98PsF. (*) (*) : Blinks when the format setting is defective.	–
D3	POWER	Illuminates when the power to the DRX board has correctly started.	–
S1	MODE2	Not used	0
S2	MODE1		
	1 CLEAN	Turns on or off the character MIX function of SDI monitor output (3, 4). OFF: Normal SDI monitor output. ON: Keeps the characters and the markers of the SDI monitor output (3, 4) turned off. **Note** Settings are for each DRX board. The settings are invalid for the third and the later DRX boards. (Always Clean.)	OFF
	2 INTERLOC	Format interlock function of the SDI output (3, 4). OFF: Does not interlock the format of the SDI output (3, 4) to (1, 2). ON: Interlocks the format of the SDI output (3, 4) to (1, 2). **Note** Settings are for each DRX board. The settings are invalid for the third and the later DRX boards. (Always format-interlocked.)	OFF
	3 to 8	Not used	OFF

Ref.No.	Name	Function	Factory default setting
S4	MONI	Sets the signal output to the character monitor (SD analog) output. The character signal from each DRX board is connected directly to the character monitor output, so only one character signal must be turned on, and the character signals from the rest of the DRX boards must be turned off. Set only the first DRX board to ON, and the rest of the DRX boards to OFF. ∗ : Set only the first board to ON, and the rest to OFF.	∗
RV1	MONI LEV	Adjusts the output level of the character monitor signal.	

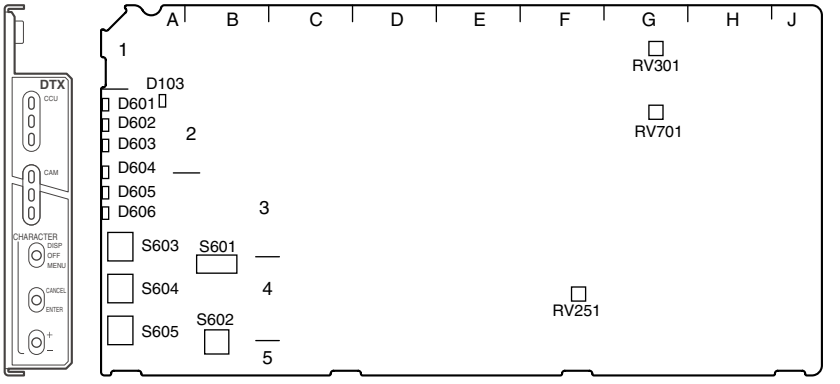
SDP-12 board



SDP-12 (Side A)

Ref.No.	Name	Function	Factory default setting
S401 1-8	Factory Use Only	–	OFF (ALL)
S402	Factory Use Only	–	OFF

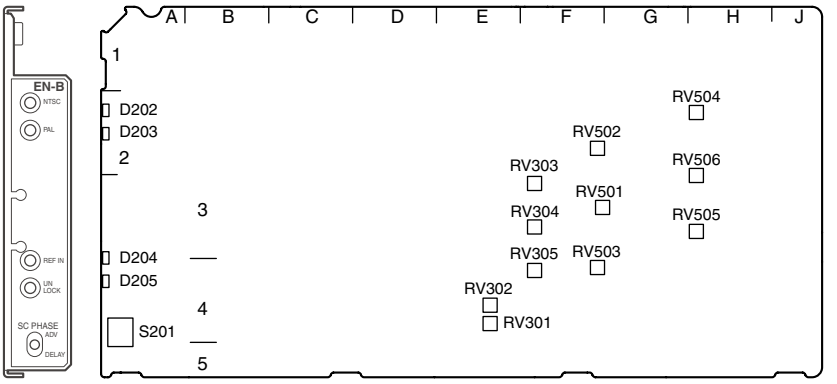
DTX-5 board



DTX-5 (Side A)

Ref.No.	Name	Function	Factory default setting
D103	POWER	Illuminates when the power to the DTX board has correctly started. OPTICAL CONDITION -CCU (The received light level is displayed on CCU.)	–
D601	CCU Opt-Condition	(Green) −17 ±1 dBm or more	–
D602	CCU Opt-Condition	(Yellow) −17 ±1 dBm to −20 ±1 dBm	–
D603	CCU Opt-Condition	(Red) −20 ±1 dBm or less OPTICAL CONDITION - CAM (The received light level is displayed on CHU.)	–
D604	CAM Opt-Condition	(Green) −17 ±1 dBm or more	–
D605	CAM Opt-Condition	(Yellow) −17 ±1 dBm to −20 ±1 dBm	–
D606	CAM Opt-Condition	(Red) −20 ±1 dBm or less	–
S601	1 - 8	Not used	ALL OFF
S602		Not used	0
S603	CHARACTER	Controls whether to turn on or off the mixing of characters to the Monitor output. DISP : Displays the DISP page that displays the CCU status. OFF :Turn off the mixing of characters. MENU : Displays the CCU-MENU page.	OFF
S604	CHARACTER	Cancels or executes MENU operations while CCU-MENU is displayed. CANCEL: Use to cancel. ENTER: Use to execute the content.	–
S605	CHARACTER	Changes the page setting of the character (DISP or MENU) mixed to the Monitor output with Up/Down Page 0 is a blank page.	–
RV251	D1 ADJ	Adjusts the free-run frequency of the IC that converts the SD-SDI return signal from serial to parallel.	
RV301	PROMPT1 LEV	Adjusts the video level of prompter 1 system.	
RV701	PROMPT2 LEV	Adjusts the video level of prompter 2 system.	

EN-159A/159B board



EN-159A/159B (Side A)

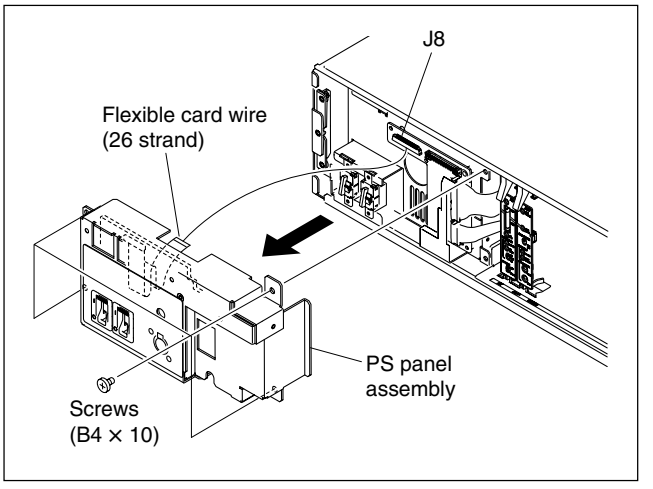
Ref.No.	Name	Function	Factory default setting
D202	NTSC	Illuminates when set to NTSC (525).	
D203	PAL	Illuminates when set to PAL (625).	
D204*	REF IN	Illuminates when the SUB-Ref signal is input.	
D205*	UNLOCK	Illuminates when the right Sub-Ref signal is not input, so Frame-Lock cannot be enabled.	
S201	SC PHASE	The VBS-SC phase can be varied when the external synchronism setting is Local. DELAY: Delays. ADV: Advances.	Center (momentary SW)
RV301	DC (Position)	In the 3-waveform display on the waveform monitor, the display position can be adjusted horizontally.	
RV302	LEVEL (Interval)	In the 3-waveform display on the waveform monitor, the display interval can be adjusted.	
RV303	VBS GAIN	Adjusts the video level of the VBS output.	
RV304	PIX GAIN	Adjusts the video level of the PIX output.	
RV305	WF GAIN	Adjusts the video level of the WF output.	
RV501*	Y GAIN (UC)	Adjusts the video level of the Y output.	
RV502*	R-Y GAIN	Adjusts the video level of the R-Y output.	
RV503*	B-Y GAIN	Adjusts the video level of the B-Y output.	
RV504*	R-Y/R LEVEL	Adjusts the video level of the R (R-Y) output.	
RV505*	B-Y/B LEVEL	Adjusts the video level of the B (B-Y) output.	
RV506*	Y/G LEVEL	Adjusts the video level of the G (Y) output.	

* The EN-159A board does not have this function.

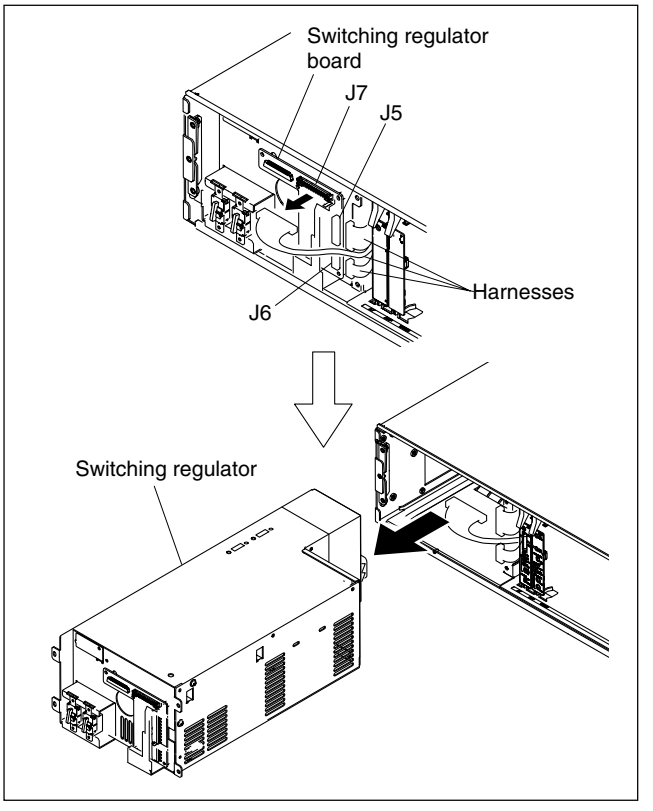
1-8. Setting the Power Voltage (HDCU1000/1080)

Set the voltage according to the power voltage.
Voltage setting is performed by combinations of the two switches of the switching regulator.

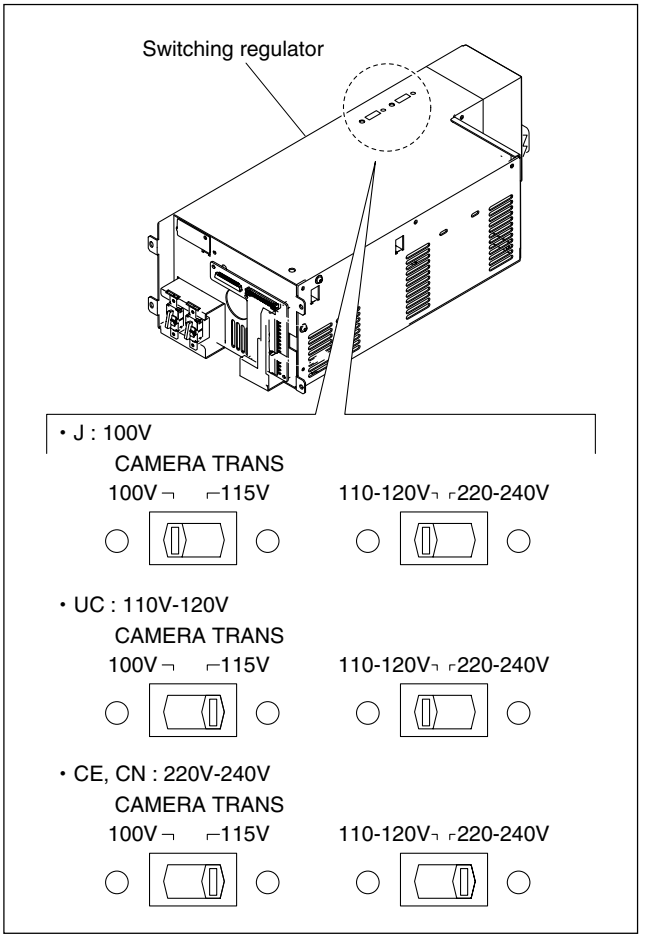
1. Remove the front panel.
2. Remove the four screws and remove the flexible card wire from the power connector J8.
3. Remove the PS panel assembly.



4. Disconnect the harnesses from the switching regulator board connectors J5, J6, and J7.
5. Remove the switching regulator from HDCU in the direction of the arrow.



6. Set the two voltage selectors on the new switching regulator to the settings shown in the diagram.



7. Install the new switching regulator in the reverse order that it was removed.

1-9. Installation Position of the Option Board

The following optional boards can be available for HDCU. Use different slots for each board and set the switches respectively.
For the details, refer to Section 2-1, “Setting the System Format”.

Model	Board (slot in the front)	Board (slot in the rear)
HKCU1001: SD Analog Interface Unit	EN-159A	VDA-64A
HKCU1003: MULTI Interface Unit*	EN-159B	VDA-64A
		VDA-64B
		VDA-64C
HKCU1005: SDI Output Expansion Unit	DRX-5	HIF-26

* : HKCU1003 is the option board for HDCU1000. It is not used for HDCU1080.

1-9-1. HDCU1000/1080

• When installing one option board

No	Front side slot	Board name	Rear side slot*1	Board name
1	3	DRX-5	3 (2)	HIF-26
	4		4 (3)	
	5		5 (4)	
	6		6 (5)	
2	3	EN-159A	3 (2)	VDA-64A
	4		4 (3)	
	5		5 (4)	
	6		6 (5)	
3-1*2	3	EN-159B	3	VDA-64A
	4		4	
	5		5	
	6		6	
3-2*2	3	EN-159B	3	VDA-64B
	4		4	
	5		5	
	6		6	
3-3*2	3	EN-159B	3	VDA-64A
	4		4	VDA-64C
	5		5	
	6		6	
3-4*2	3	EN-159B	3	VDA-64B
	4		4	VDA-64C
	5		5	
	6		6	

*1 : The number in parentheses in the rear side slot column indicates the slot number for HDCU1080.
*2 : This is the installation procedure of the option board for HDCU1000.

• When installing two option boards

No	Front side slot	Board name	Rear side slot*1	Board name
4	3	DRX-5	3 (2)	HIF-26
	4	DRX-5	4 (3)	HIF-26
	5		5 (4)	
	6		6 (5)	
5	3	DRX-5	3 (2)	HIF-26
	4	EN-159A	4 (3)	VDA-64A
	5		5 (4)	
	6		6 (5)	
6-1*2	3	DRX-5	3	HIF-26
	4	EN-159B	4	VDA-64A
	5		5	
	6		6	
6-2*2	3	DRX-5	3	HIF-26
	4	EN-159B	4	VDA-64B
	5		5	
	6		6	
6-3*2	3	DRX-5	3	HIF-26
	4	EN-159B	4	VDA-64A
	5		5	VDA-64C
	6		6	
6-4*2	3	DRX-5	3	HIF-26
	4	EN-159B	4	VDA-64B
	5		5	VDA-64C
	6		6	
7	3	EN-159A	3 (2)	VDA-64A
	4	EN-159A	4 (3)	VDA-64A
	5		5 (4)	
	6		6 (5)	
8-1*2	3	EN-159A	3	VDA-64A
	4	EN-159B	4	VDA-64A
	5		5	
	6		6	
8-2*2	3	EN-159A	3	VDA-64A
	4	EN-159B	4	VDA-64B
	5		5	
	6		6	
8-3*2	3	EN-159A	3	VDA-64A
	4	EN-159B	4	VDA-64A
	5		5	VDA-64C
	6		6	
8-4*2	3	EN-159A	3	VDA-64A
	4	EN-159B	4	VDA-64B
	5		5	VDA-64C
	6		6	

Notes

When installing the option board, keep the following points in mind:

• For HDCU1000, install the option board from slot 3 in order.
For HDCU1080, install the option board from slot 3 in order for the front side, and from slot 2 in order for the rear side.

• Three rear boards VDA-64A/64B/64C of HKCU1003 cannot be installed simultaneously.
When using VDA-64A/64B/64C simultaneously, use them together with HKCU1001.

• HKCU1003 is the option board for HDCU1000. It is not used for HDCU1080.

• When installing three option boards

No	Front side slot	Board name	Rear side slot*1	Board name
9	3	DRX-5	3 (2)	HIF-26
	4	DRX-5	4 (3)	HIF-26
	5	EN-159A	5 (4)	VDA-64A
	6		6 (5)	
10-1*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159B	5	VDA-64A
	6		6	
10-2*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159B	5	VDA-64B
	6		6	
10-3*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159B	5	VDA-64A
	6		6	VDA-64B
10-4*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159B	5	VDA-64B
	6		6	VDA-64C
11	3	DRX-5	3 (2)	HIF-26
	4	EN-159A	4 (3)	VDA-64A
	5	EN-159A	5 (4)	VDA-64A
	6		6 (5)	
12-1*2	3	DRX-5	3	HIF-26
	4	EN-159A	4	VDA-64A
	5	EN-159B	5	VDA-64A
	6		6	
12-2*2	3	DRX-5	3	HIF-26
	4	EN-159A	4	VDA-64A
	5	EN-159B	5	VDA-64B
	6		6	
12-3*2	3	DRX-5	3	HIF-26
	4	EN-159A	4	VDA-64A
	5	EN-159B	5	VDA-64A
	6		6	VDA-64C
12-4*2	3	DRX-5	3	HIF-26
	4	EN-159A	4	VDA-64A
	5	EN-159B	5	VDA-64B
	6		6	VDA-64C

• When installing four option boards

No	Front side slot	Board name	Rear side slot*1	Board name
13	3	DRX-5	3 (2)	HIF-26
	4	DRX-5	4 (3)	HIF-26
	5	EN-159A	5 (4)	VDA-64A
	6	EN-159A	6 (5)	VDA-64A
14-1*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159A	5	VDA-64A
	6	EN-159B	6	VDA-64A
14-2*2	3	DRX-5	3	HIF-26
	4	DRX-5	4	HIF-26
	5	EN-159A	5	VDA-64A
	6	EN-159B	6	VDA-64B

∗1 : The number in parentheses in the rear side slot column indicates the slot number for HDCU1080.
∗2 : This is the installation procedure of the option board for HDCU1000.

Notes

When installing the option board, keep the following points in mind:

- For HDCU1000, install the option board from slot 3 in order.
  For HDCU1080, install the option board from slot 3 in order for the front side, and from slot 2 in order for the rear side.
- Three rear boards VDA-64A/64B/64C of HKCU1003 cannot be installed simultaneously.
  When using VDA-64A/64B/64C simultaneously, use them together with HKCU1001.
- HKCU1003 is the option board for HDCU1000. It is not used for HDCU1080.

1-9-2. HDCU1500

• When installing one option board

No	Front side slot	Board name	Rear side slot	Board name
1	2	DRX-5	2	HIF-26
	3		3	
2	2	EN-159A	2	VDA-64A
	3		3	
3-1	2	EN-159B	2	VDA-64A
	3		3	
3-2	2	EN-159B	2	VDA-64B
	3		3	
3-3	2	EN-159B	2	VDA-64A
	3		3	VDA-64C
3-4	2	EN-159B	2	VDA-64B
	3		3	VDA-64C

• When installing two option boards

No	Front side slot	Board name	Rear side slot	Board name
4	2	DRX-5	2	HIF-26
	3	DRX-5	3	HIF-26
5	2	DRX-5	2	HIF-26
	3	EN-159A	3	VDA-64A
6-1	2	DRX-5	2	HIF-26
	3	EN-159B	3	VDA-64A
6-2	2	DRX-5	2	HIF-26
	3	EN-159B	3	VDA-64B
7	2	EN-159A	2	VDA-64A
	3	EN-159A	3	VDA-64A
8-1	2	EN-159A	2	VDA-64A
	3	EN-159B	3	VDA-64A
8-2	2	EN-159A	2	VDA-64A
	3	EN-159B	3	VDA-64B

Note

When installing the option board, keep the following points in mind:

• Install the option board from slot 2 in order.

1-10. Installing the Option Boards

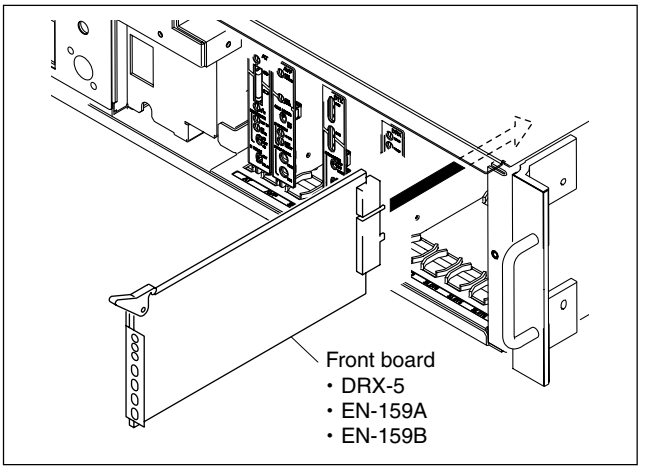
1-10-1. HDCU1000

Front side

1. Turn off the power, and unplug the power cord from the outlet.
2. Remove the front panel. (Refer to Section 1-5-1.)
3. Insert the option board into the blank slot.

   Note

   Check that the option board is securely connected to the motherboard (MB-1071 board).

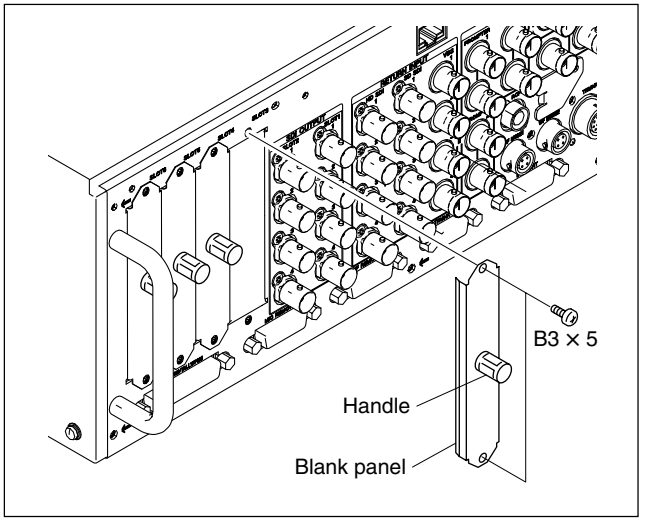


Rear side

1. Remove the two screws, and remove the blank panel by the handle.

   Note

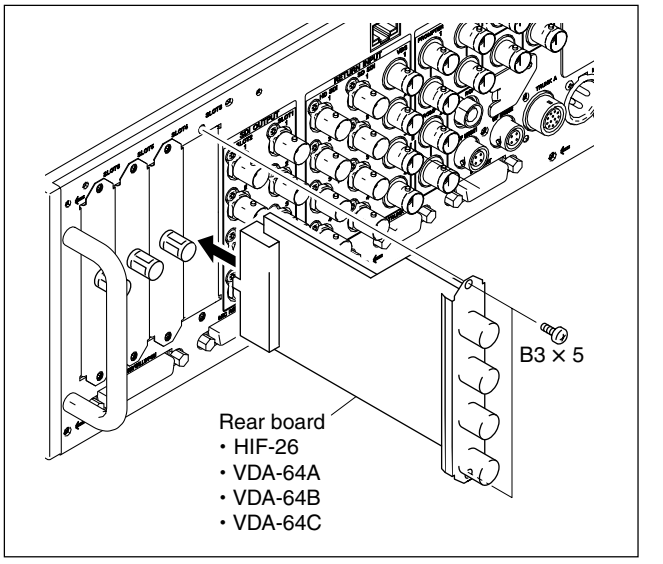
   Store the removed blank panel in a safe place.



2. Insert the option board into the slot.

   Notes

   • Insert the board into the lower grooves, and then push the board straight into the slot.
   • Check that the option board is securely connected to the motherboard (MB-1071 board).
3. Fix the option board with the two screws removed at step 1.



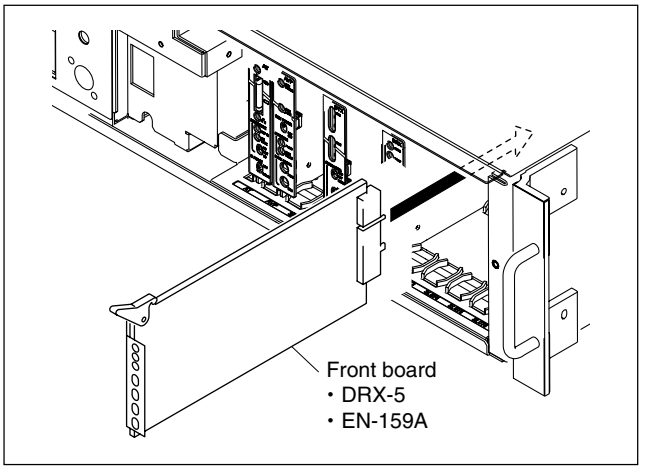
1-10-2. HDCU1080

Front side

1. Turn off the power, and unplug the power cord from the outlet.
2. Remove the front panel. (Refer to Section 1-5-1.)
3. Insert the option board into the blank slot.

   Note

   Check that the option board is securely connected to the motherboard (MB-1071 board).

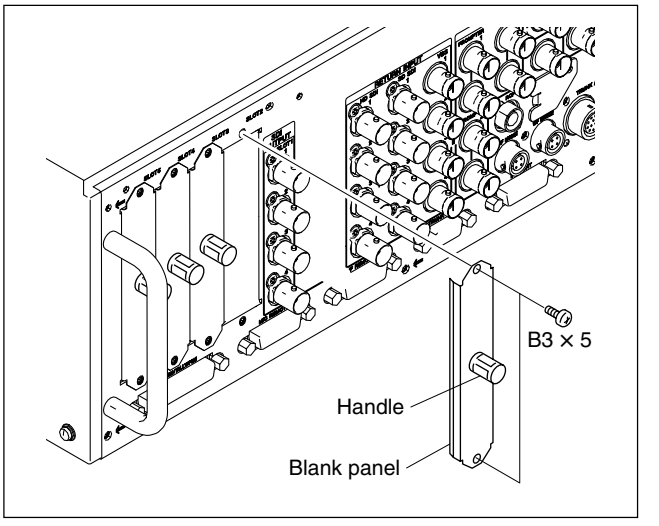


Rear side

1. Remove the two screws, and remove the blank panel by the handle.

   Note

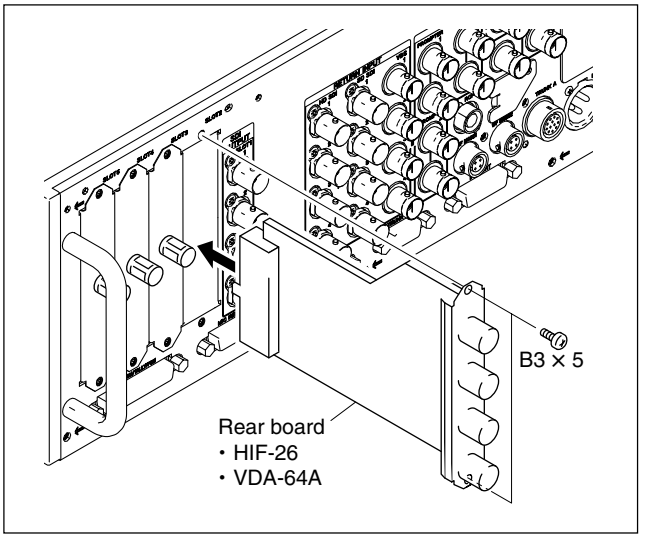
   Store the removed blank panel in a safe place.



2. Insert the option board into the slot.

   Notes

   - Insert the board into the lower grooves, and then push the board straight into the slot.
   - Check that the option board is securely connected to the motherboard (MB-1071 board).
3. Fix the option board with the two screws removed at step 1.



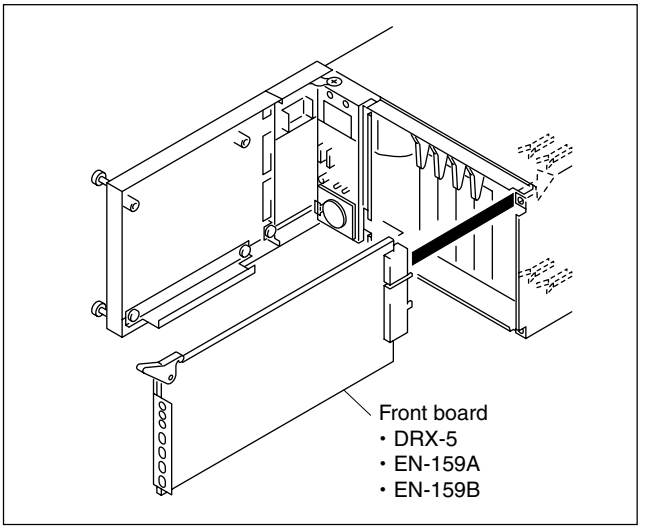
1-10-3. HDCU1500

Front side

1. Turn off the power, and unplug the power cord from the outlet.
2. Open the front panel. (Refer to Section 1-5-2.)
3. Insert the option board into the blank slot.

Note

Check that the option board is securely connected to the motherboard (MB-1072 board).

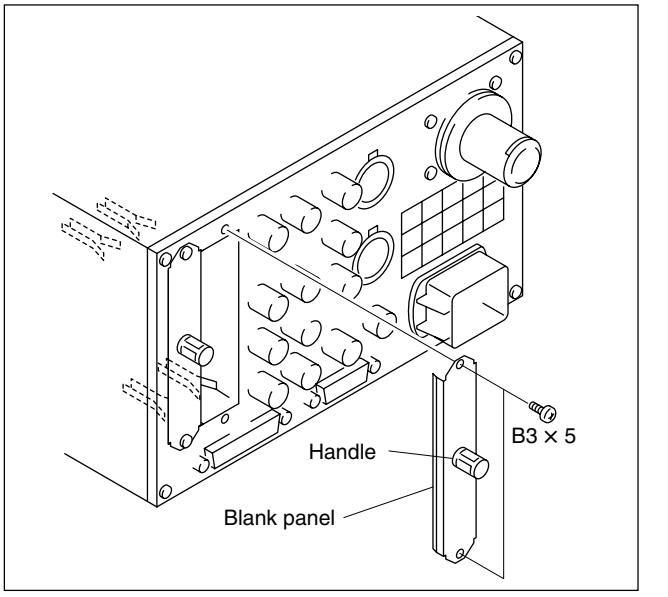


Rear side (HDCU1500)

1. Remove the two screws, and remove the blank panel by the handle.

Note

Store the removed blank panel in a safe place.

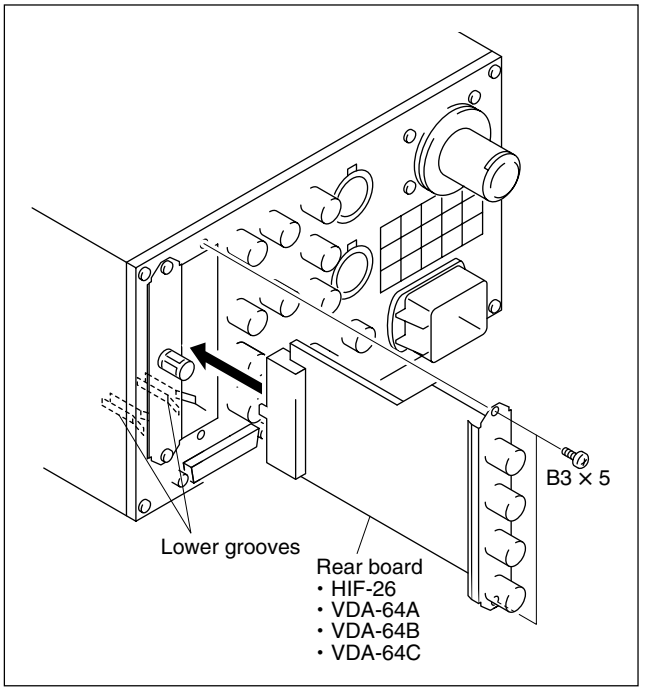


2. Insert the option board into the slot.

Notes

- Insert the board into the lower grooves, and then push the board straight into the slot.
- Check that the option board is securely connected to the motherboard (MB-1072 board).

3. Fix the option board with the two screws removed at step 1.



1-11. Installing in 19-inch Rack

The unit can be mounted in a 19-inch EIA standard rack (height: three unit).

WARNING

- Fix the rack on the floor.
  If the rack falls due to the weight of the equipment, it may cause death or serious injury.
  To prevent the rack from falling or moving, be sure to fix the rack on the floor.
- Do not install at a height of 1 m or higher from the floor.
  If the rack falls, it may cause death or serious injury.
  When installing the unit, be sure to fix the rack on the floor and be careful not to install at a height of 1 m or higher from the floor.

Required Parts

CAUTION

Use the specified rack mount rail.
If not, the unit drops because the strength of rail may not be sufficient, that may cause injury.

- Slide rail : 1 set
  Accuride No.305A-18 (457 mm)
- Front brackets : 2 pcs
  Sony P/N 2-142-214-01
- Rear brackets : 2 pcs
  Sony P/N 2-142-215-01
- Screws (B4 × 8) : 14 pcs
- Screws (B5 × 8) : 8 pcs
- Plate nut : 1 pc
  Sony P/N 3-651-812-00
- Screws for rack mounting (RK5 × 14) : 4 pcs
- Washers for rack mounting : 4 pcs
  Sony P/N 2-297-913-01

Manufacturer :

UNITED STATES

- **Accuride**
  12311 Shoemaker Avenue
  Santa Fe Springs, CA 90670
  TEL 213-903-0200
  FAX 213-903-0208
- **Accuride**
  Quality Drive
  Charlotte, NC 28217
  TEL 704-588-5880
  FAX 704-588-6316
- **Accuride**
  1930 Parco Avenue
  Ontario, CA 91761
  TEL 714-923-9922
  FAX 714-947-8586

WEST GERMANY

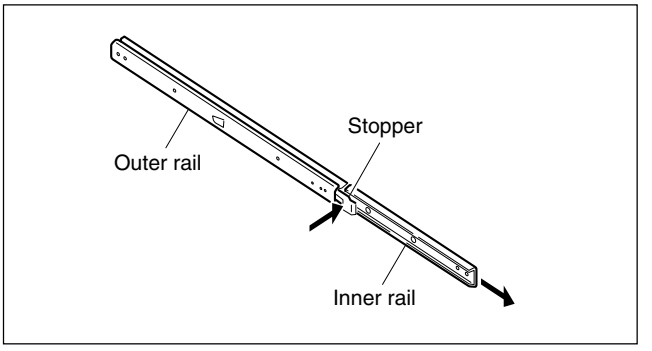
- **Standard-Praezision GmbH**
  Postfach 1464
  Werner-von-Siemens-Strasse 16-18
  6252 Diez/Lahn West Germany
  TEL 6432-6080
  FAX 6432-60820

UNITED KINGDOM

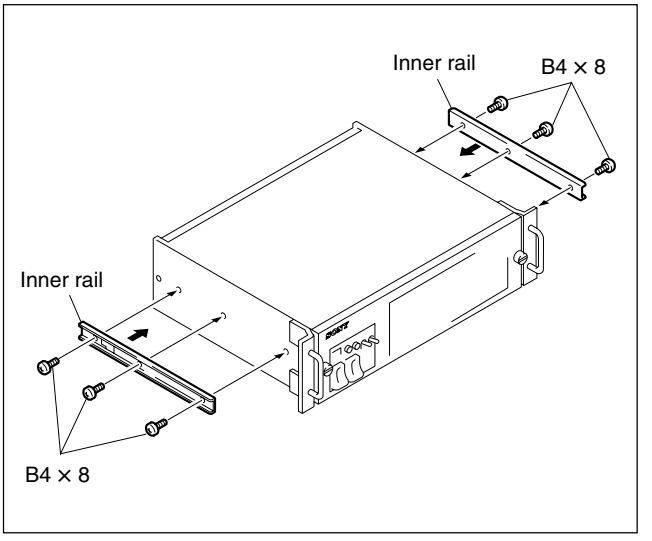
- **Accuride Limited**
  Lilliput Road
  Brackmills Industrial Estate
  Northampton, NN4 OAR
  United Kingdom
  TEL 604-761111
  FAX 604-767190

Rack Mount Procedure

1. Pull out the inner rail while pressing the stopper of the rail.



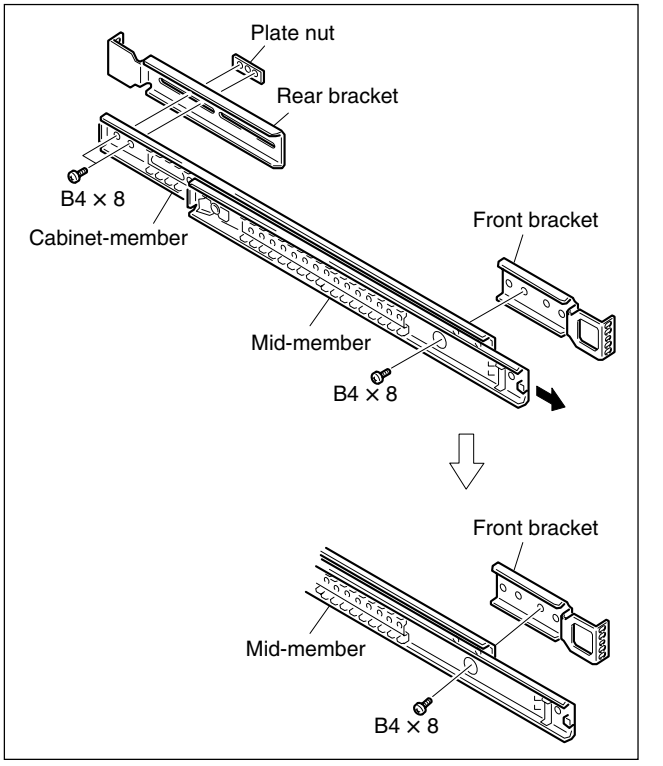
2. Attach the inner rails to the unit using the six screws (B4 × 8).



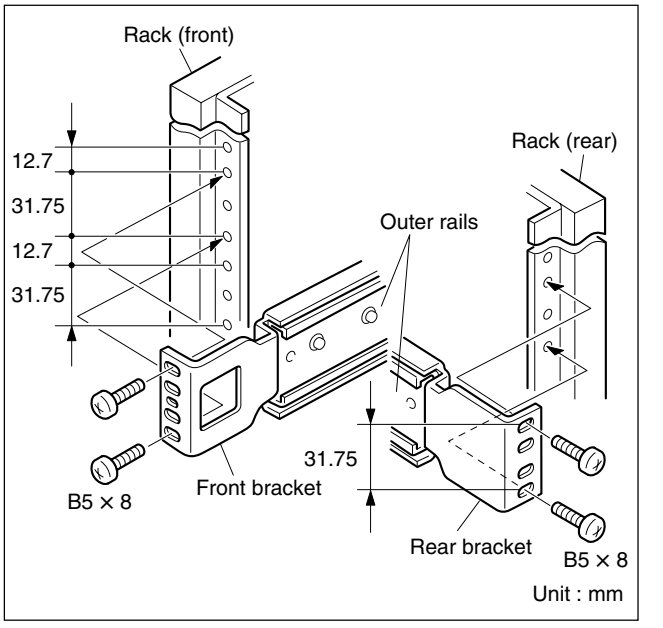
3. Attach the front and rear brackets to the outer rails using the eight screws (B4 × 8).

Notes

- When attaching the front bracket, slide the mid-member until the screw holes in the cabinet-member are visible through the hole in the mid-member as shown below.
- When attaching the rear bracket, adjust the position of the bracket with the rack depth.



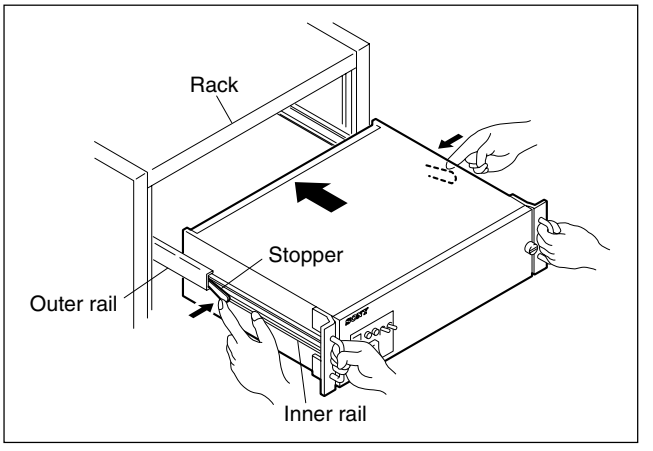
4. Attach the front and rear brackets to the outside of the rack temporarily using the eight screws (B5 × 8).



CAUTION

- Mount the unit by two persons or more.
  A one-man job may cause injury.
- If you forget to fasten the screws of the rack angle, the unit may slip and fall, causing injury.
  After rack mounting, be sure to fasten the screws.
- Be careful not to get your finger or hand caught in rack mount rail. Injury could occur by drop of the unit in unbalance condition of installation or removal. Install in a posture of stability and carefully.

5. While pressing the stoppers of the inner rails, slide the inner rails fully into the outer rails, and push the unit into the rack slowly.

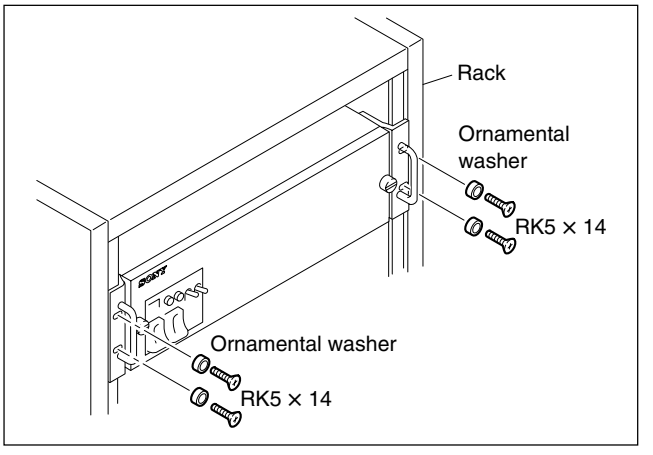


6. After confirming that the unit can be moved smoothly, tighten the screws (B5 × 8) secured temporarily in the step 4.

   Note

   When securing the front brackets to the rack by screws, pull the unit out of the rack about 20 cm (8 inches), and fasten the screws of the front brackets to the rack.

7. After installing the unit in the rack, fix the unit to the rack using the four screws (RK5 × 14) and four ornamental washers.



1-12. Cleaning of Connector/Cable

Before connecting the unit to the camera, it is recommended to clean the following optical contact portions.

- CAMERA connector of the unit
- CCU connector of the camera side
- Optical/electrical cable

Cleaning of the Standard Connector/Cable

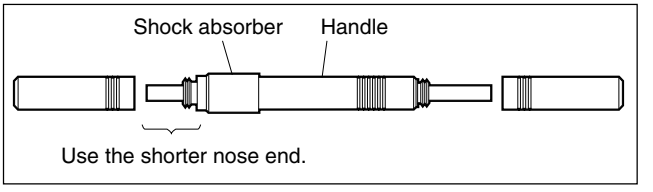
Clean the standard connector/cable (manufactured by LEMO) in the following steps.

Tools Required

- Alignment sleeve remover HC-001
  (for female connector)
  Sony P/N : J-6480-010-A or
  DCC.91.312.5LA manufactured by Lemo, or equivalent

  Note

  Insert the shorter nose end when removing/installing the alignment sleeve.
  Grasp not the shock absorber portion of the remover but the handle in use.



- Alcohol
- Cotton swabs (commercially available)

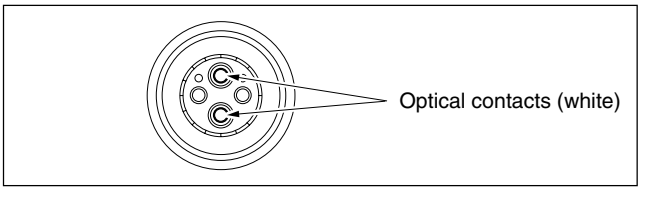
  Note

  Use a cotton swab whose diameter is about 4 mm.
  If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Cleaning

[Male connector]

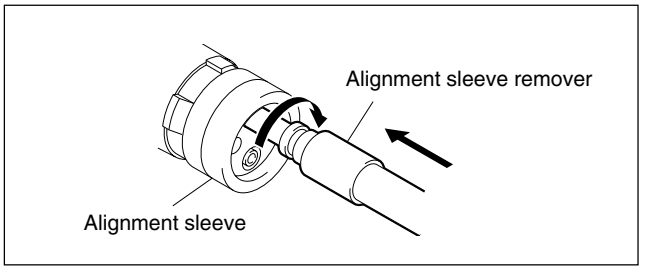
Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



[Female connector]

The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the alignment sleeve in advance. Proceed as follows.

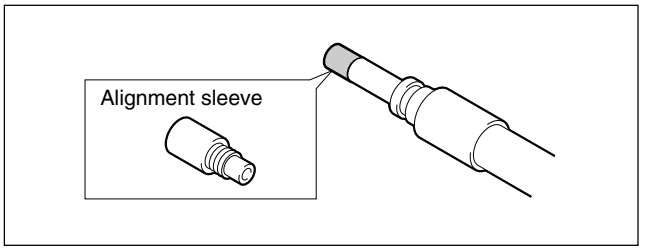
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



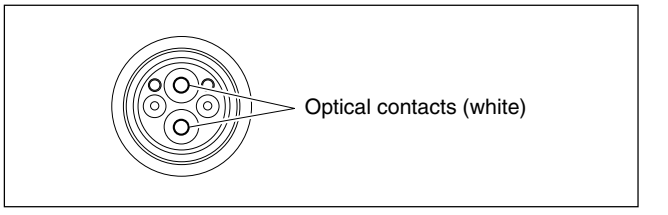
2. When the turn stops, pull out the remover in the straight line forcedly.

   Note

   The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover. Great care should be taken so as not to lose or damage the alignment sleeve.
   (Alignment sleeve: Sony P/N 9-980-074-01)



3. Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.
4. Insert the remover with the alignment sleeve attached to its tip, and push it until it clicks.
5. Rotate the remover counterclockwise to install the alignment sleeve, and extract the remover.



Section 2
System Setup

2-1. System Connection

HDCU1000/1080/1500 can support input and output of multiple formats. It can also support various types of user's format by installing the optional circuit boards.
The slots to be used and the switch setting on each board vary depending on the system to be used.
For the installation procedure, refer to "1-9. Installing the Optional Boards".

List of optional boards

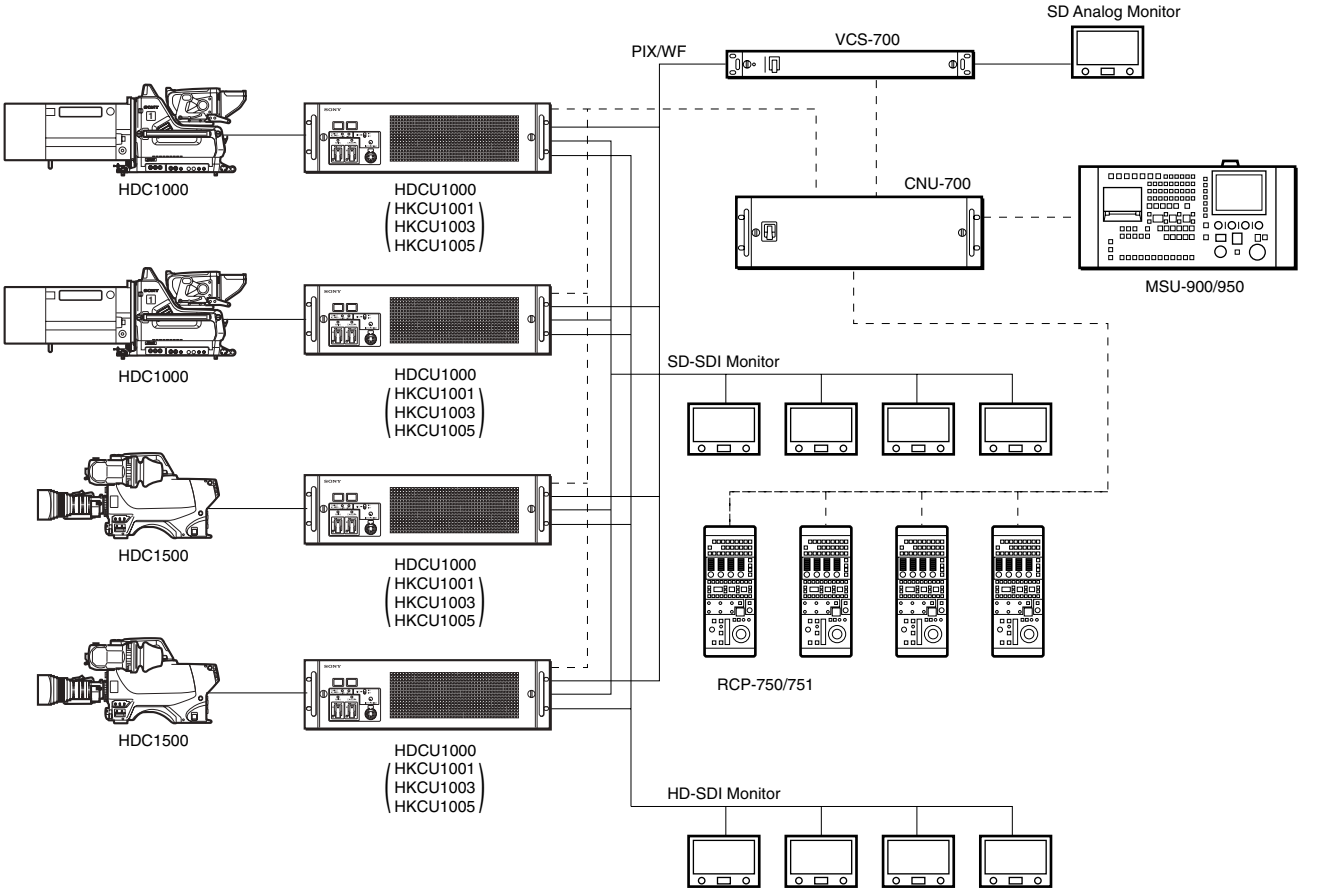
Optional name	Function	Front side board	Rear side board
HKCU1001	SD Encoder Unit	EN-159A	
	• Composite video signal output		VDA-64A
HKCU1003*	Multi Interface Unit	EN-159B	
	• Composite video signal output		VDA-64A
	• Frame reference input/output		VDA-64B
	• Component video signal output		VDA-64C
HKCU1005	SDI Output Expansion Unit	DRX-5	
	• SDI Output		HIF-26

* : HKCU1003 is the option board for HDCU1000. It is not used for HDCU1080.

Note

Regarding the installation of the optional boards, refer to 1-9 in INSTALLATION MANUAL.

2-1-1. HDCU1000

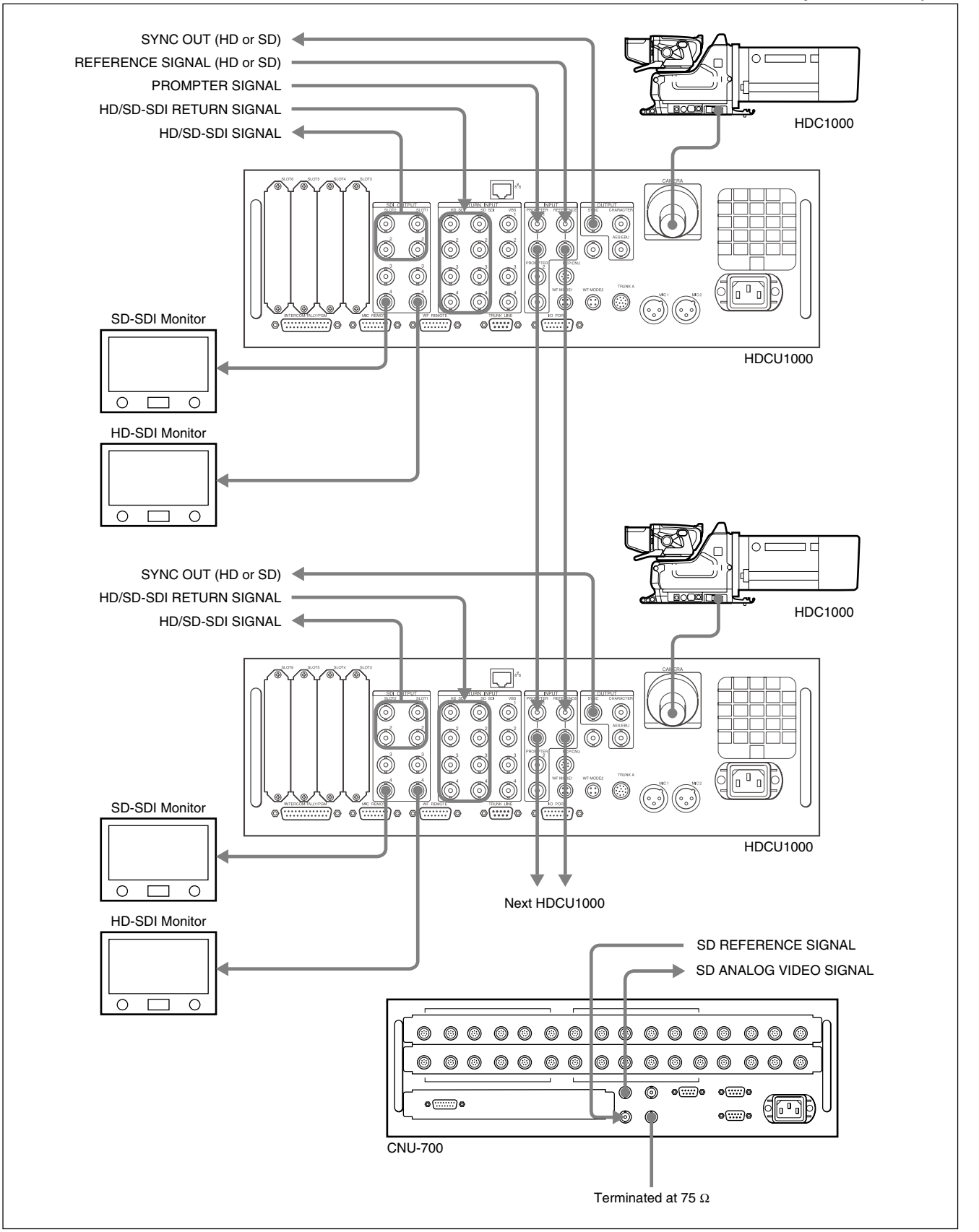


Example of board combinations

System configuration	Front side slot	Board name	Rear side slot	Board name
1. Standard HD/SD system	3	–	3	–
	4	–	4	–
	5	–	5	–
	6	–	6	–
2. Standard HD/SD system	3	EN-159A	3	VDA-64A
⊕ SD analog encoder	4	–	4	–
(HKCU1001)	5	–	5	–
[SD analog I/F added]	6	–	6	–
3. Standard HD/SD system	3	DRX-5	3	HIF-26
⊕ Multi interface	4	EN-159B	4	VDA-64A
⊕ SDI output expansion	5	–	5	–
(HKCU1003/1005)	6	–	6	–
[HD/SD Film Like system]				
4. Standard HD/SD system	3	EN-159B	3	VDA-64A
⊕ Multi interface	4	–	4	VDA-64C
(HKCU1003)	5	–	5	–
[Analog NTSC/PAL system]	6	–	6	–

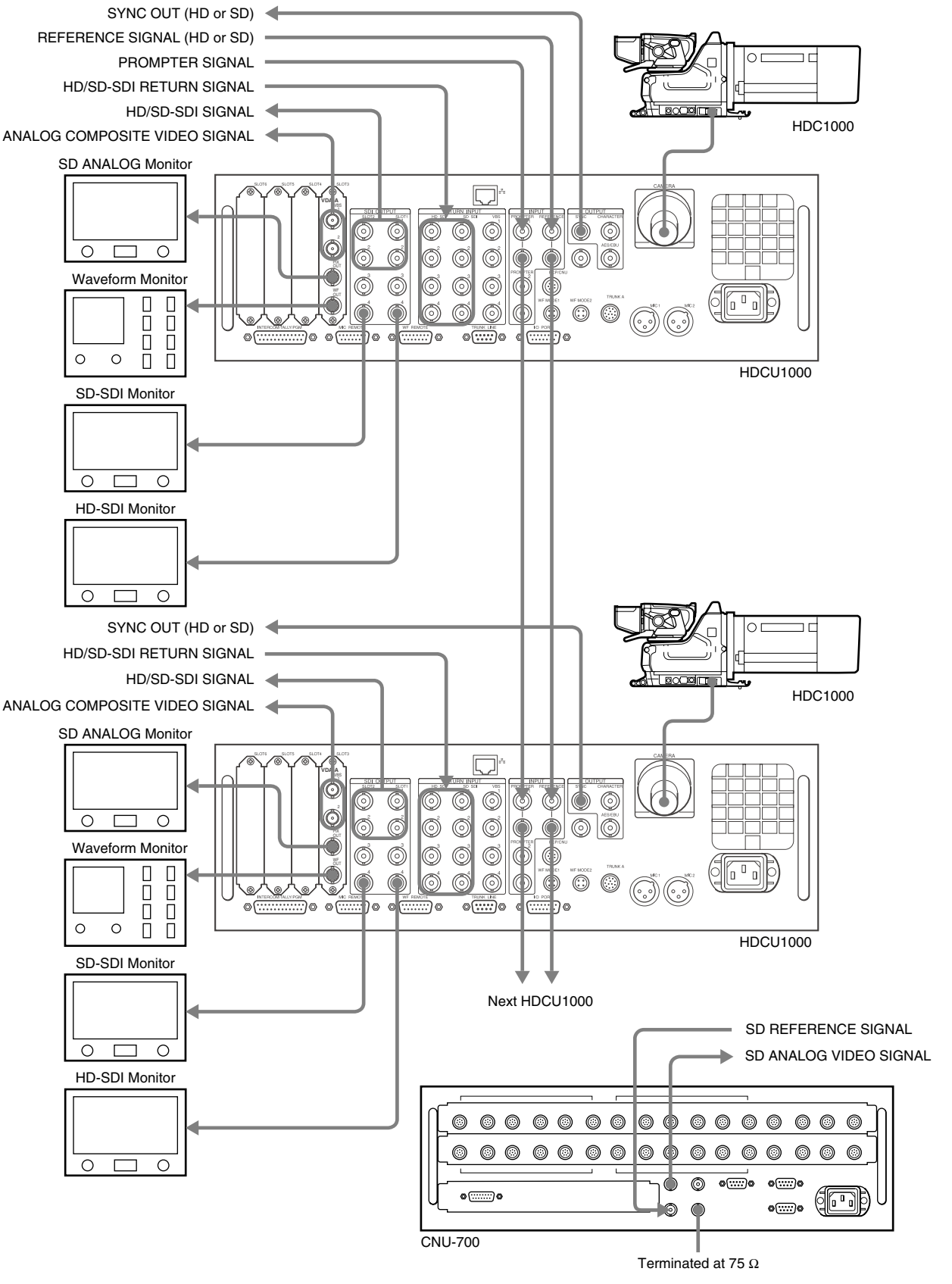
1. Standard HD/SD system

Standard system without option



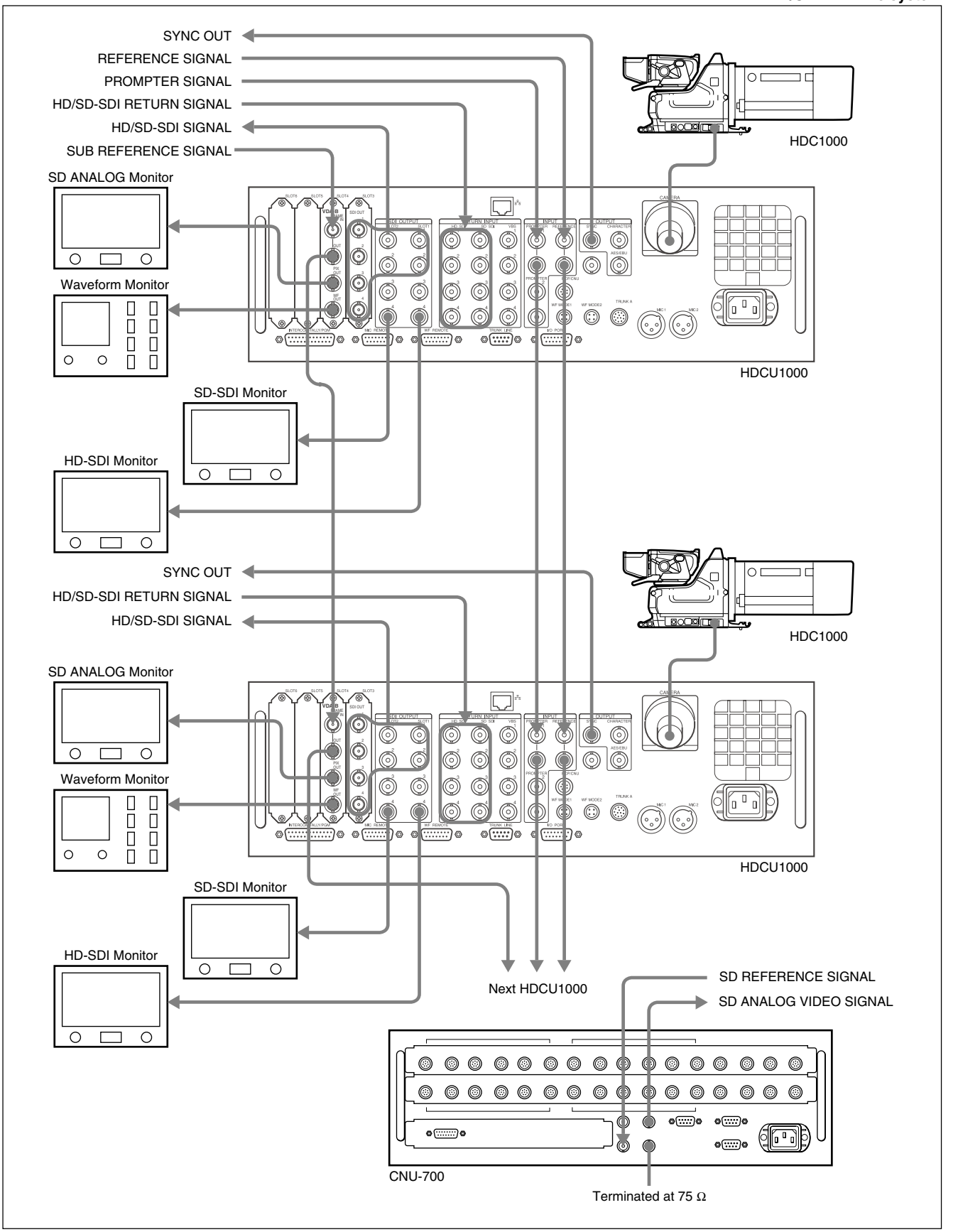
2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

SD analog I/F added (VBS, PIX, WF outputs)



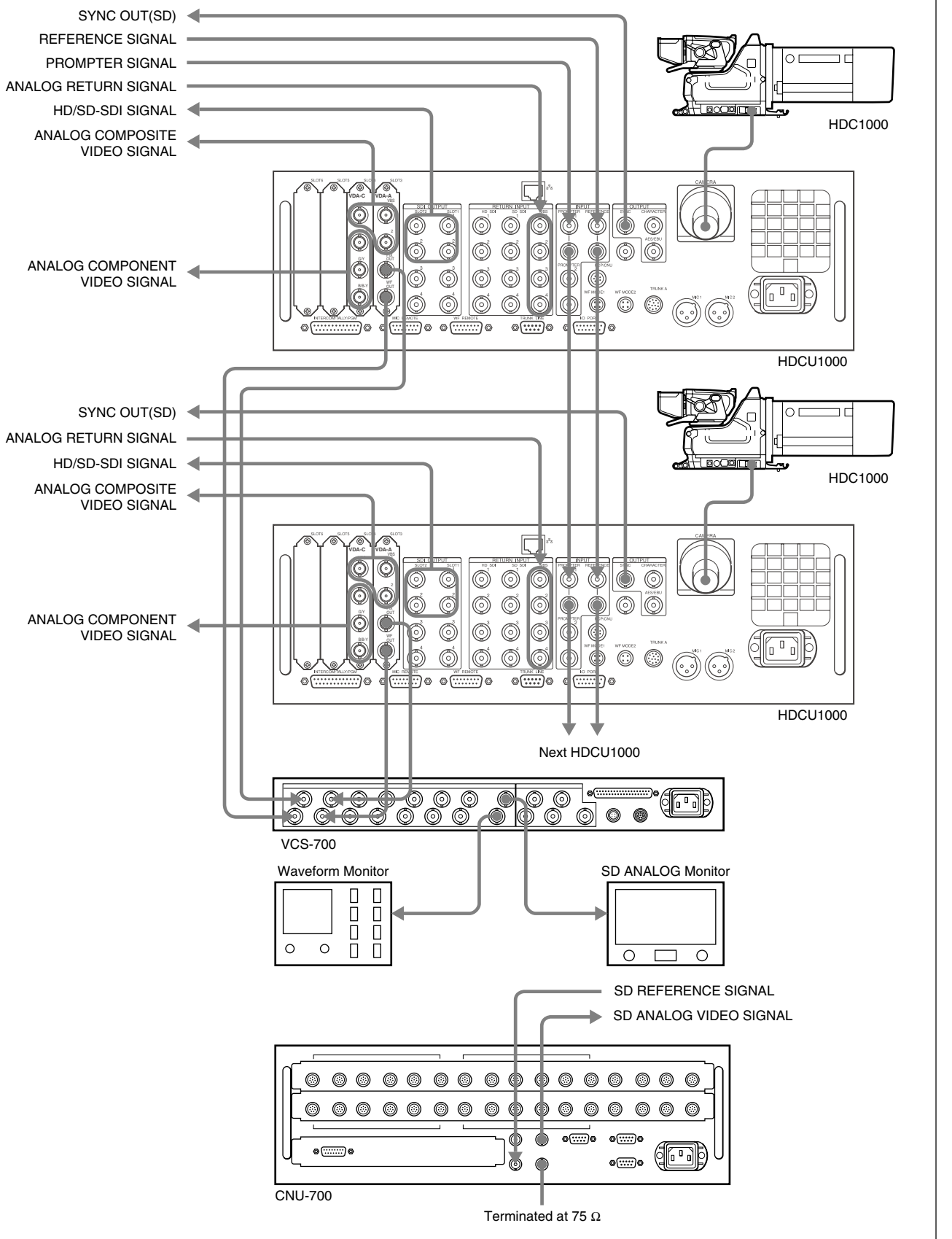
3. Standard HD/SD system ⊕ multi interface unit (HKCU1003) ⊕ SDI output expansion unit (HKCU1005)

HD/SD Film Like system

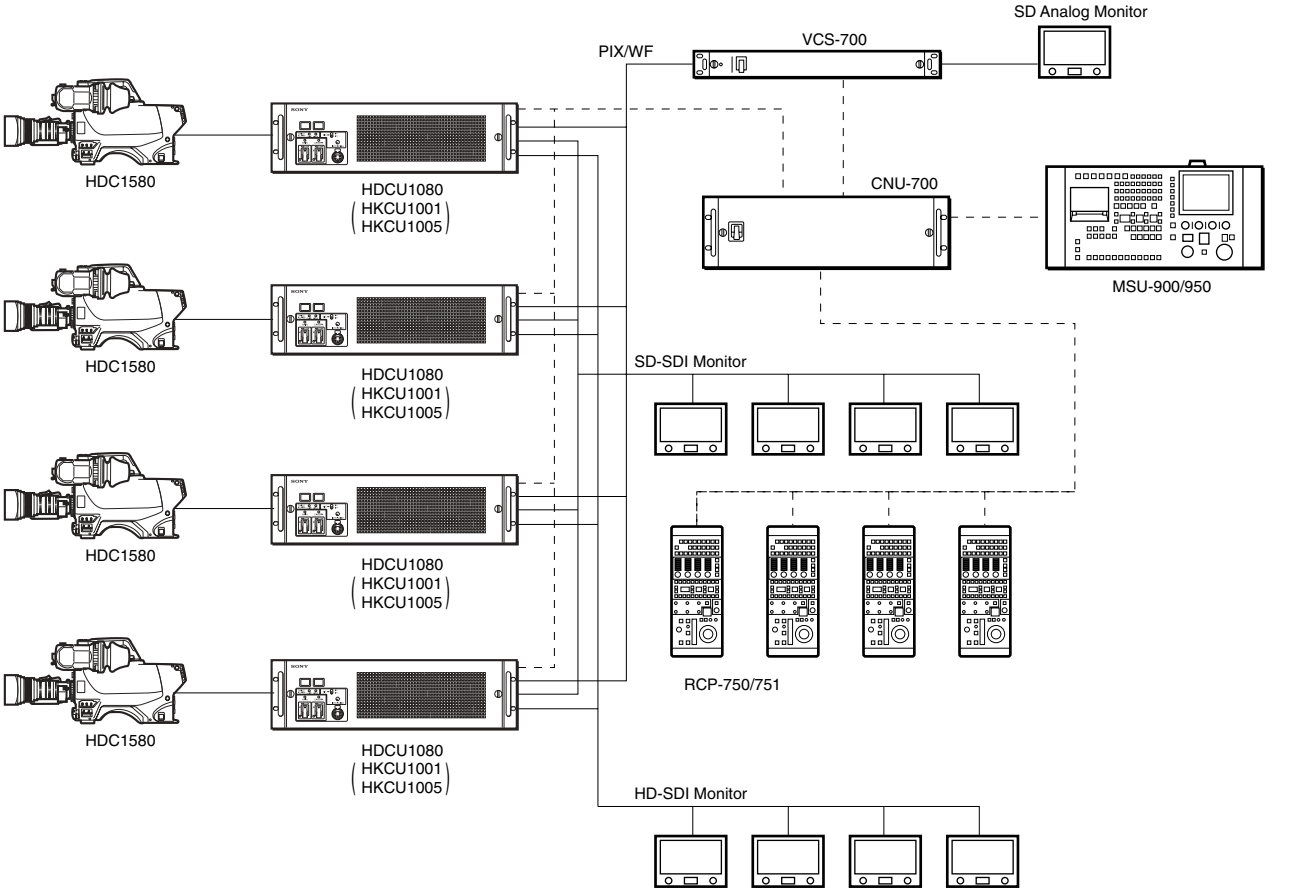


4. Standard HD/SD system ⊕ multi interface unit (HKCU1003)

Analog NTSC/PAL system



2-1-2. HDCU1080

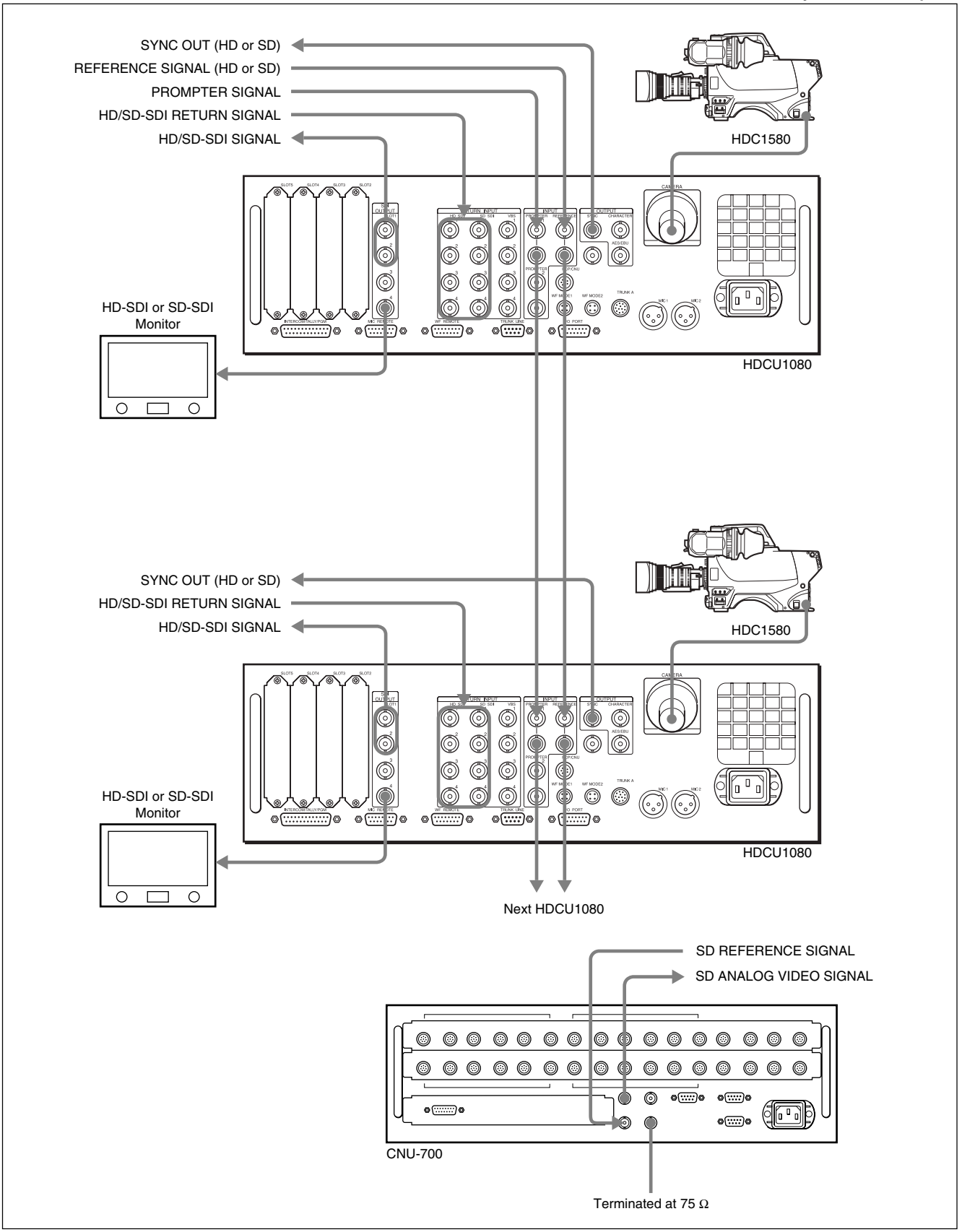


Example of board combinations

System configuration	Front side slot	Board name	Rear side slot	Board name
1. Standard HD/SD system	3	–	2	–
	4	–	3	–
	5	–	4	–
	6	–	5	–
2. Standard HD/SD system	3	EN-159A	2	VDA-64A
⊕ SD analog encoder	4	–	3	–
(HKCU1001)	5	–	4	–
[SD analog I/F added]	6	–	5	–
3. Standard HD/SD system	3	DRX-5	2	HIF-26
⊕ SDI output expansion	4	–	3	–
(HKCU1005)	5	–	4	–
[HD/SD Film Like system]	6	–	5	–

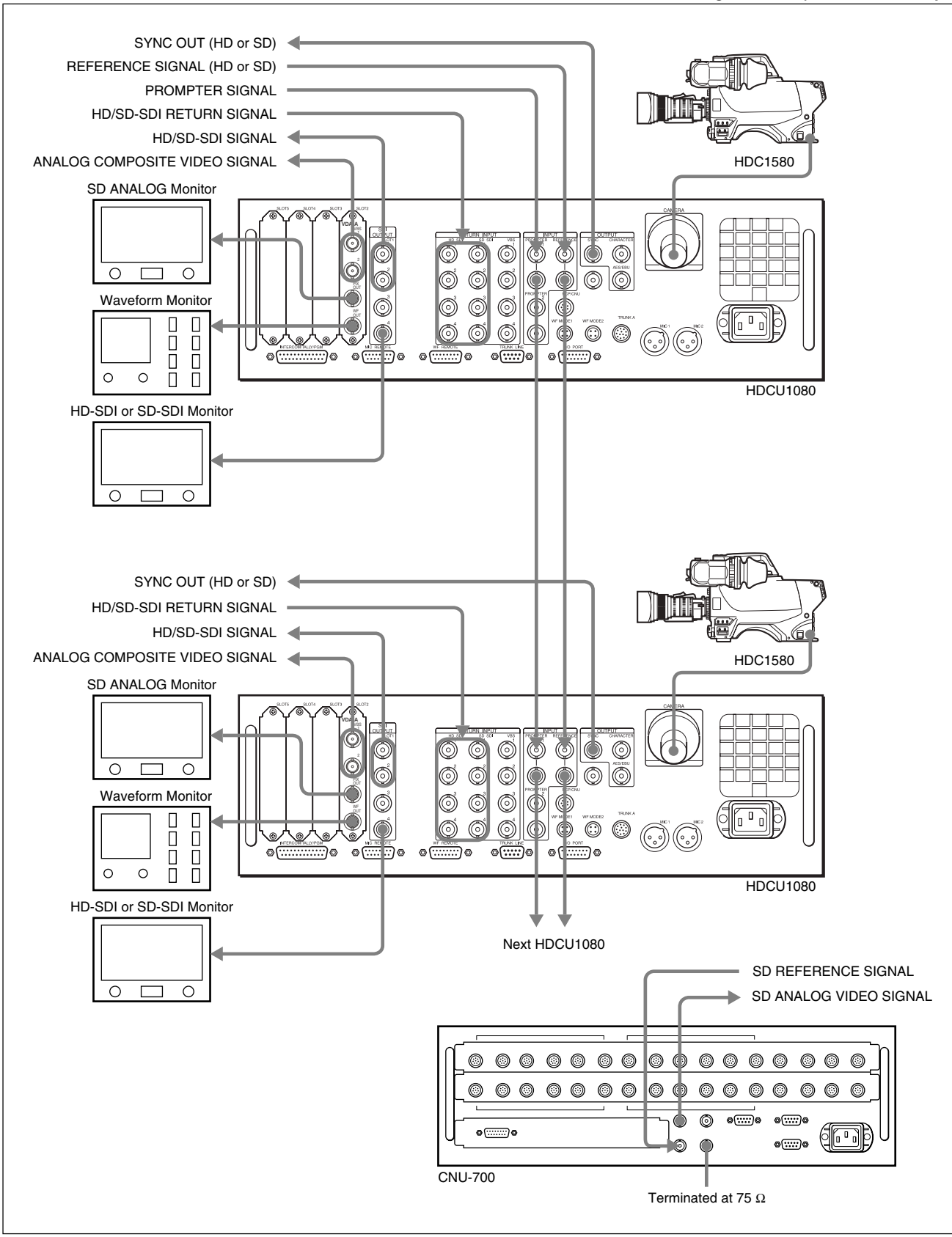
1. Standard HD/SD system

Standard system without option



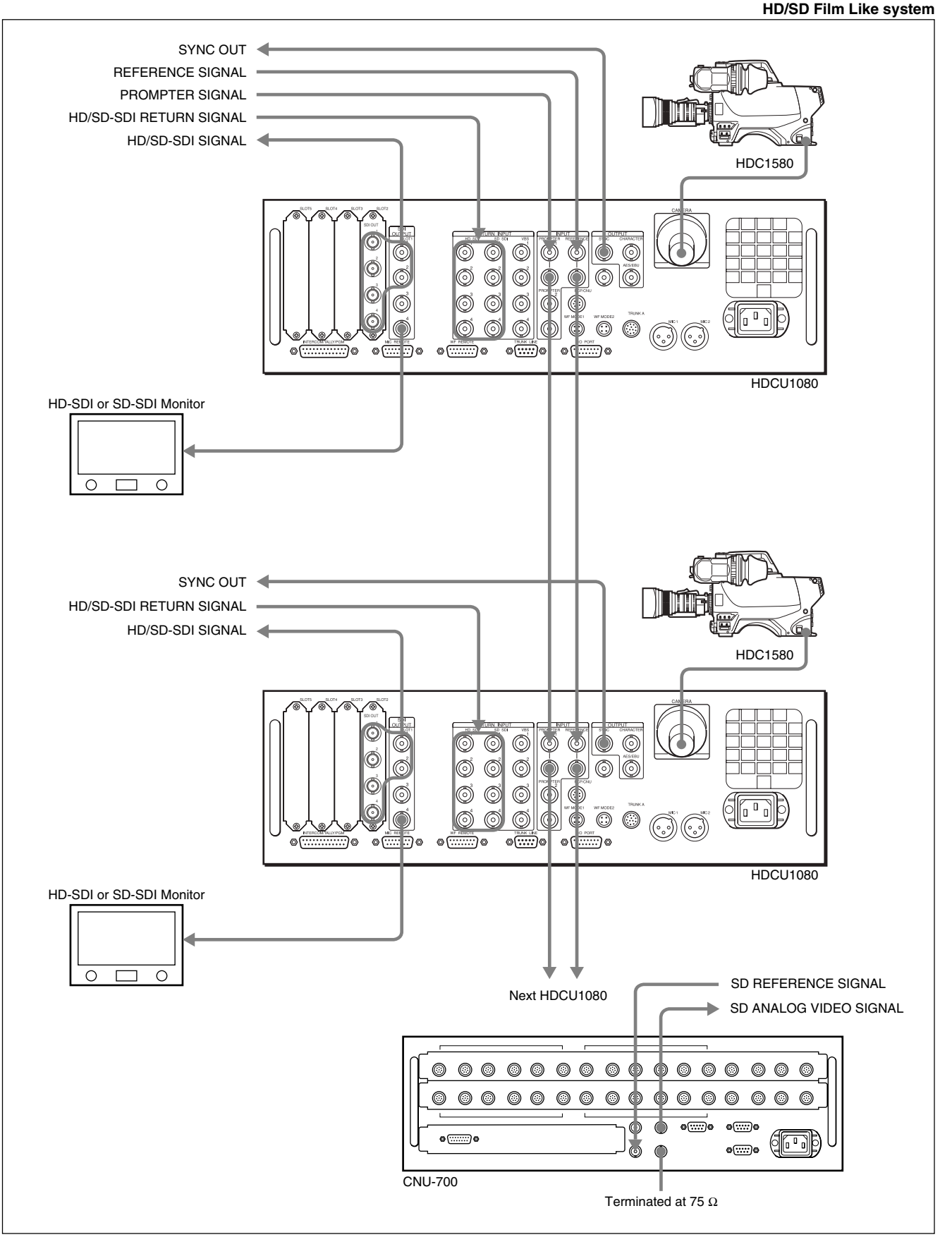
2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

SD analog I/F added (VBS, PIX, WF outputs)

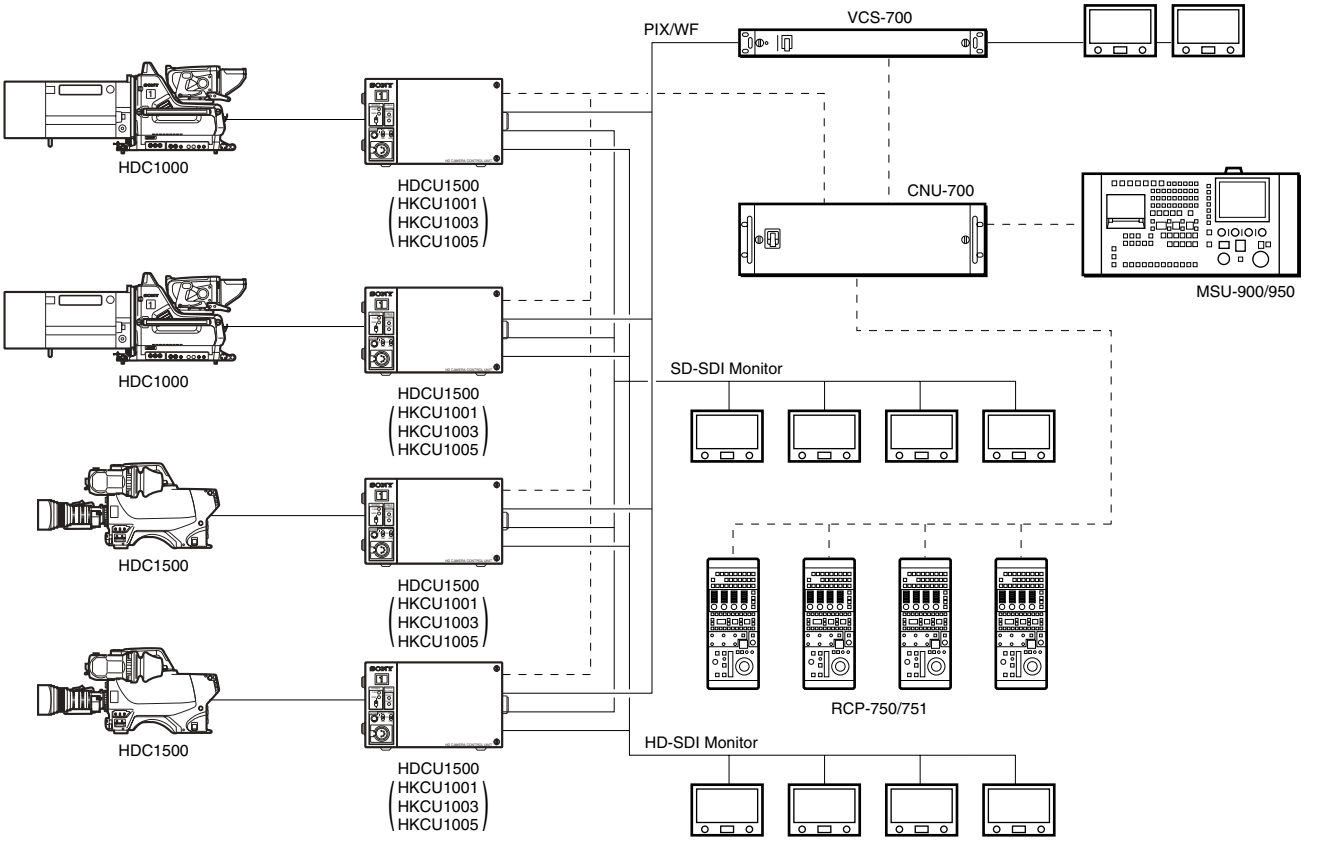


3. Standard HD/SD system ⊕ SDI output expansion unit (HKCU1005)

HD/SD Film Like system



2-1-3. HDCU1500

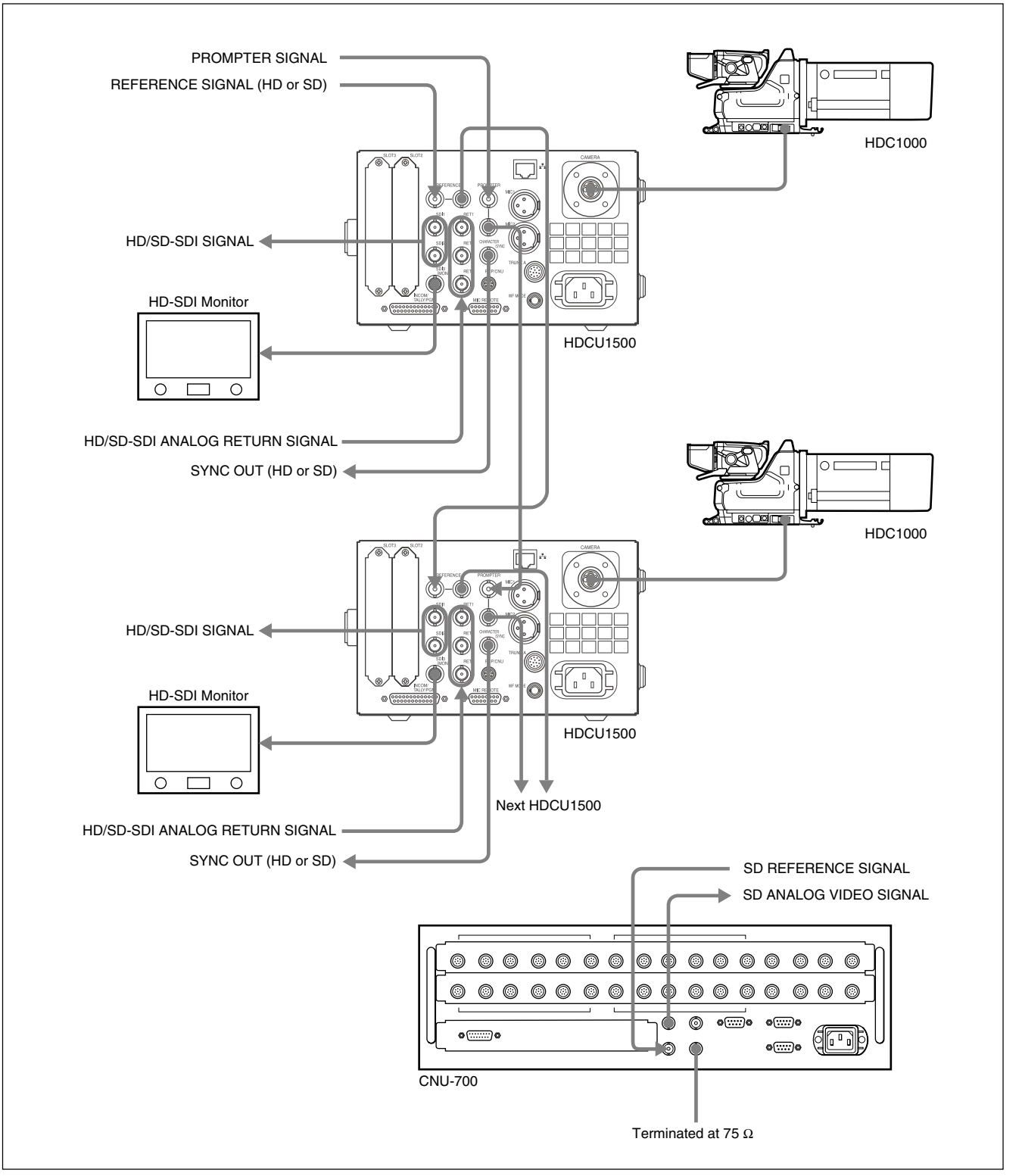


Example of board combinations

System configuration	Front side slot	Board name	Rear side slot	Board name
1. Standard HD/SD system	2	–	2	–
	3	–	3	–
2. Standard HD/SD system	2	DRX-5	2	HIF-26
⊕ SD analog encoder	3	EN-159A	3	VDA-64A
(HKCU1001)				
[SD analog I/F added]				
3. Standard HD/SD system	2	DRX-5	2	HIF-26
⊕ Multi interface	3	EN-159B	3	VDA-64B
⊕ SDI output expansion				
(HKCU1003/1005)				
[HD/SD Film Like system]				
4. Standard HD/SD system	2	EN-159B	2	VDA-64A
⊕ Multi interface	3	–	3	VDA-64C
(HKCU1003)				
[Analog NTSC/PAL system]				

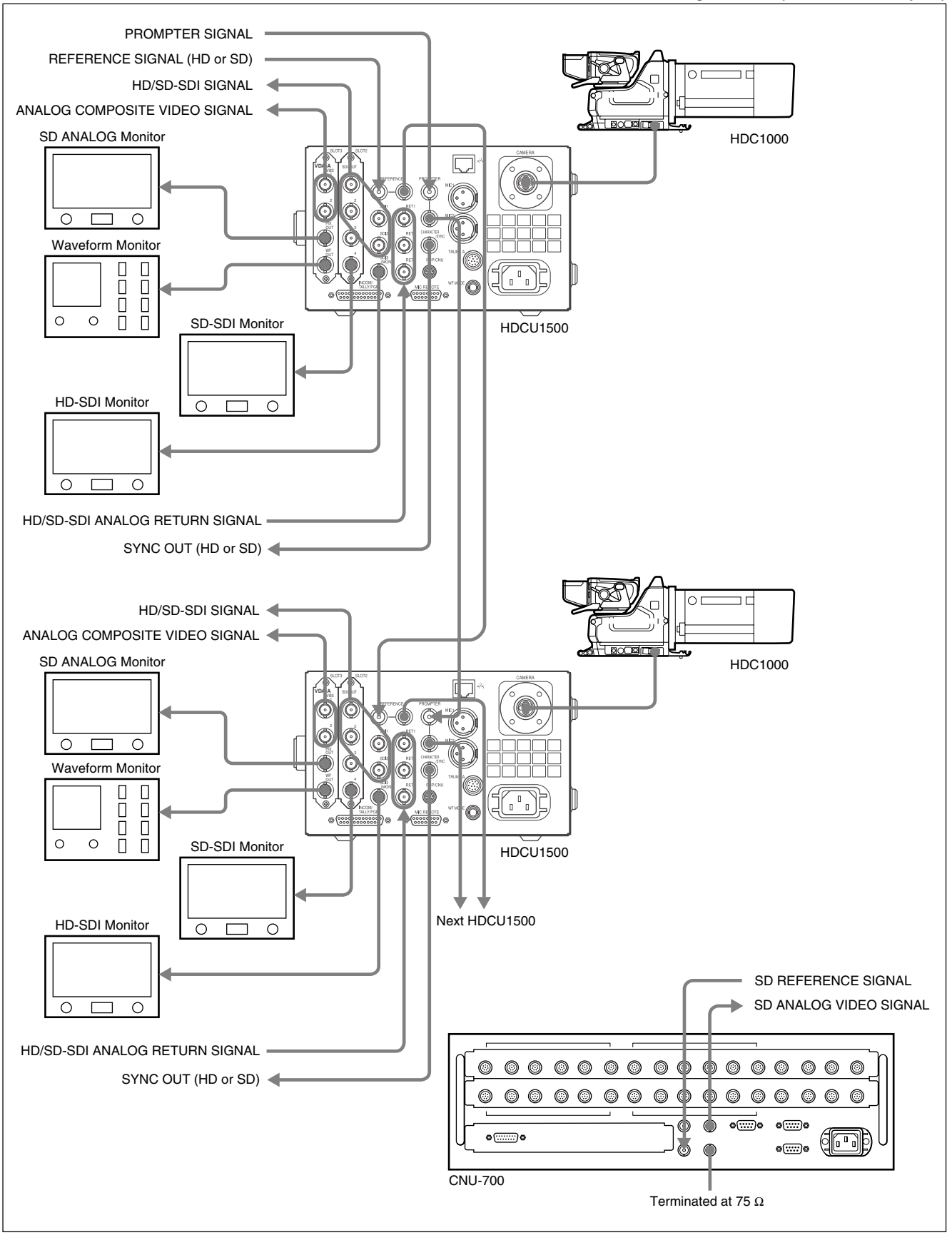
1. Standard HD/SD system

Standard system without option



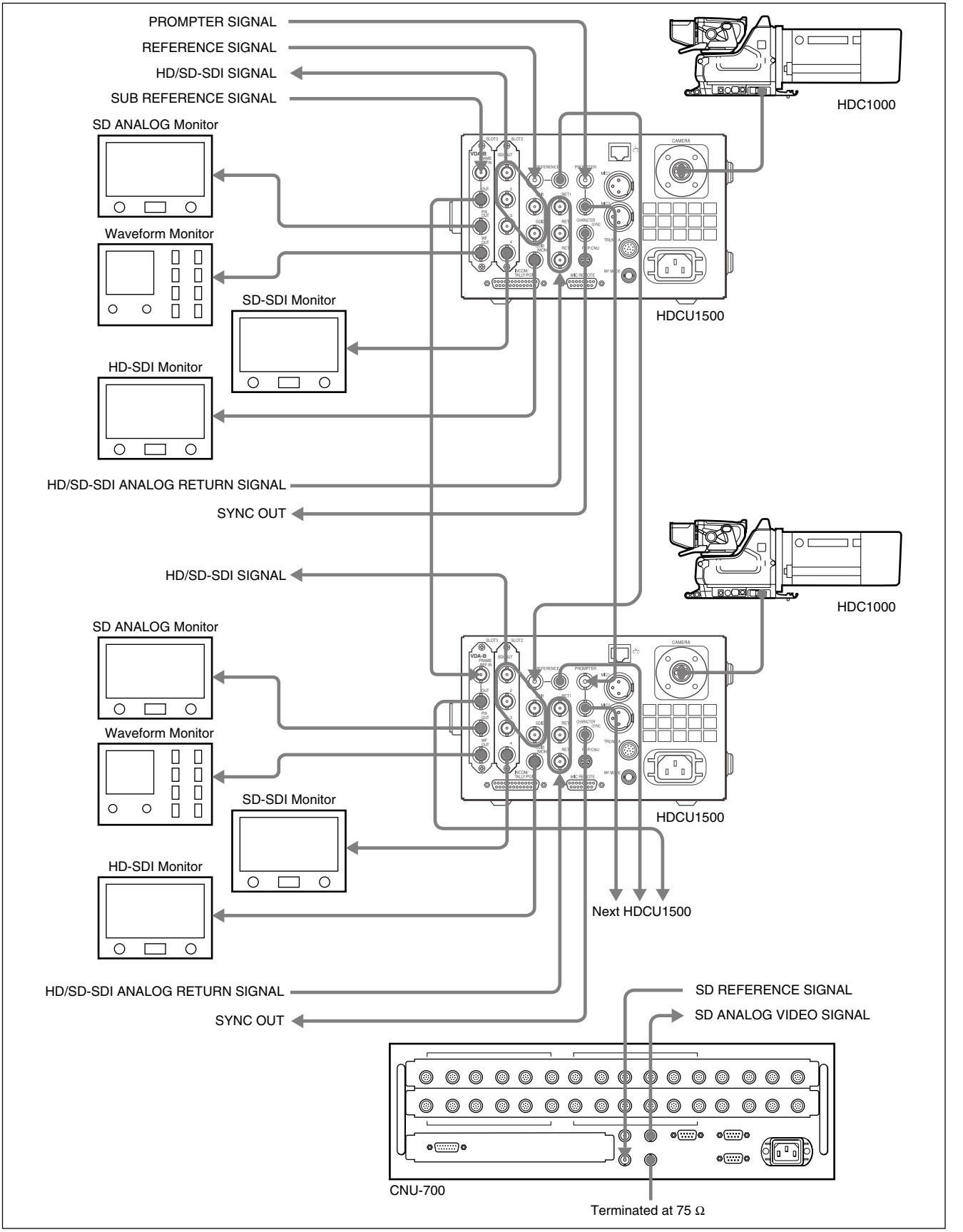
2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

SD analog I/F added (VBS, PIX, WF outputs)



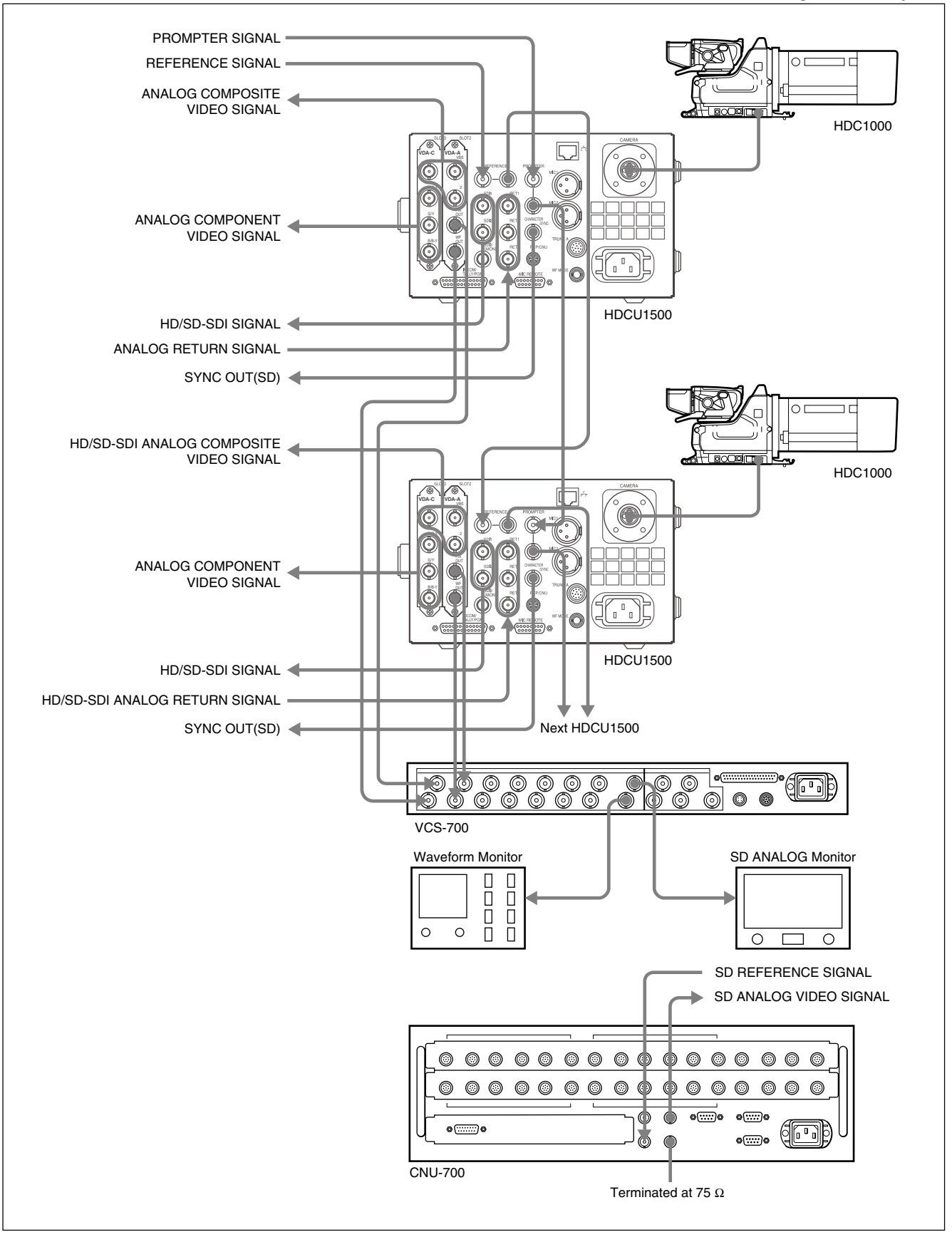
3. Standard HD/SD system ⊕ multi interface unit (HKCU1003) ⊕ SDI output expansion unit (HKCU1005)

HD/SD Film Like system



4. Standard HD/SD system ⊕ multi interface unit (HKCU1003)

Analog NTSC/PAL system



2-2. Setting the System Format

2-2-1. Setting the Multi-Format

Sets the format of the signal that is output from HDCU1000/1080/1500.
Normally the format is set from the MSU connected outside or from MULTI FORMAT on page "S02" of the system menu in the HDCU1000/1080/1500. However, it can also be set with the switches on the AT-167 board.

1. Setting the HD-SDI output

Sets the format of the signal that is output as the HD-SDI signal. At the same time, this setting becomes the shooting mode of the camera.

(1) Set the field frequency coefficient.
Setup switch : S420 on the AT-167 board (Factory setting : REMOTE)
- 1.001 : Set the field frequency to 1/1.001 times (Set the field frequency to 1.001 when using NTSC (525/60) signal in the SD system.)
- 1.000 : Set the field frequency to 1 time. (Set the field frequency to 1.000 when using PAL (625/50) signal in the SD system.)
- REMOTE : Set from the MSU connected outside or from MULTI FORMAT on page "S02" of the system menu in the HDCU1000/1080/1500.

(2) Set the field frequency.
Setup switch: S418 on the AT-167 board (Factory setting: 60 V)
- 60 V : When the 60 field HD signal or the NTSC SD (525/60) signal is used.
- 50 V : When the 50 field HD signal or the PAL SD (625/50) signal is used.
- 48 V : Only the 24PsF progressive system is supported.

(3) Set the shooting mode of the camera.
Setup switch : S419 on the AT-167 board (Factory setting : INTR)
- I : When shooting with interlacing system.
- PsF : When shooting with progressive (PsF) system.
- 720 : When shooting with 720P system.

2-2-2. Setting the Reference Input

Normally the reference input is set from MSU connected outside. However, it can also be set by the switch on the AT-167 board.

1. Setting the reference input signal format

Setup switch : REFERENCE switch (S401) on the AT-167 panel (Factory setting : REM)
- HD : When the HD analog ternary SYNC is used. (This unit supports the frame frequency automatically.)
- SD : When the BB (black burst) signal of SD is used.
- REM : When the reference is set from GEN-LOCK PHASE on page "S01" of the system menu in the HDCU1000/1080/1500 or from the MSU connected outside.

Note

When a position other than REM is set, all of the REFERENCE settings including the phase adjustment must be locally set.

2. Inputting the sub reference signal (when the HKCU1003/VDA-64B is installed) (HDCU1000/1500 only)

When the EN-159B board and VDA-64B board of the HKCU1003 are installed in the optional slots, the sub reference signal is input and the frame sequences of the 24PsF signal and the 60i signal can be locked.
Input the frame frequency signal that is different from the main reference signal for the sub reference signal.

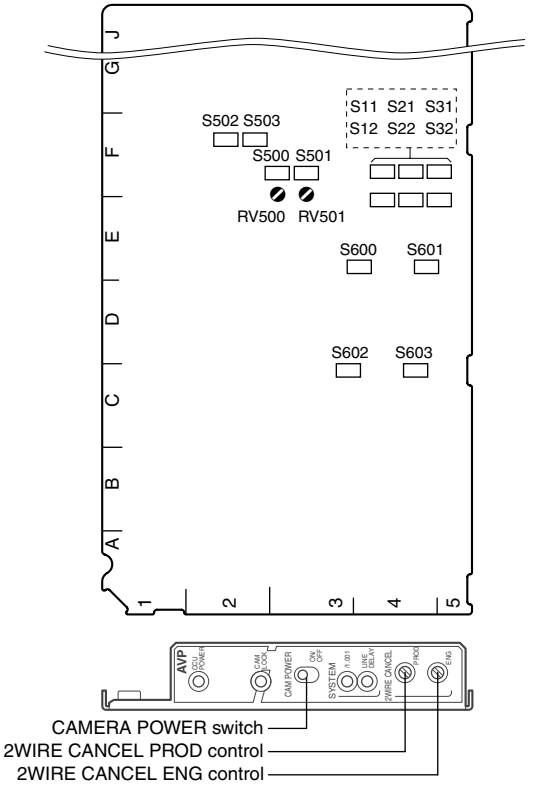
Note

When the sub reference is not input, the pulse gate signal of the frame sync is output from the loop-through output terminal.
The frame sequence between multiple CCUs can be locked if you connect this signal to the sub reference input of other CCUs.

2-3. Audio System

2-3-1. Setting the Intercom System

HDCU1000/1080/1500 can be connected to the intercom lines (producer line and engineer line) of the two independent systems and can switch them.
The intercom systems conforming to HDCU1000/1080/1500 are 4W, RTS and Clear-Com. The internal switches of the unit need to be set according to the system used.



AVP-6 board (A side/panel side)

1. Selecting the intercom system

Select a system (4W, RTS or Clear-Com) respectively for the engineer line and the producer line according to the system used. Then, select the number of intercom line systems (1CH or 2CH).

- **Selecting the producer line** :
  Set switches S602/600 (PROD SELECT) on the AVP-6 board according to the system used.
  Factory setting : 4W (S602)
  RTS (S600)
- **Selecting the engineer line** :
  Set switches S603/601 (ENG SELECT) on the AVP-6 board according to the system used.
  Factory setting : 4W (S603)
  RTS (S601)
- **When the intercom line is 1 channel** :
  Set 1CH at INCOM-CH on page "C05" of the configuration menu. In this setting, the intercom line is connected to the producer line of HDCU1000/1080/1500.
  When the switch is set in this position, connection of the intercom line of the unit is fixed to the producer line regardless of the setting of the INCOM PROD/ENG switch of the HDC1000 series and the INCOM SELECT switch on the front panel of the unit.
- **When the intercom line is 2 channels** :
  Set 2CH at INCOM-CH on page "C05" of the configuration menu.
  Factory setting : 2CH

Adjusting the RTS cancel

When the RTS intercom system is used, the following adjustment also needs to be made.

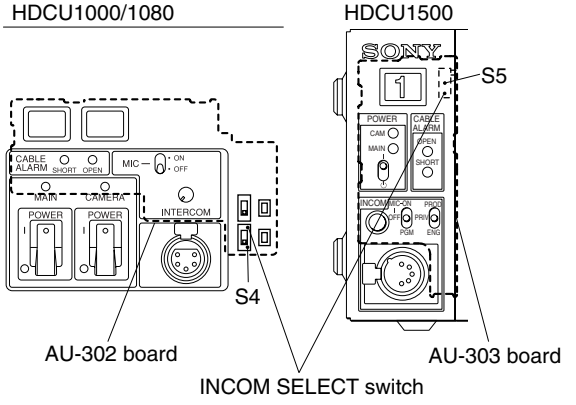
(1) Connect a headset to the INCOM connector on the front and perform the procedure described in the following paragraph "2. Setting the headset microphone".
(2) Set −99 for the value of SIDE TONE on page "C05" of the configuration menu.
(3) Set the INCOM SELECT switch on the front panel to PROD.
(4) Speak into the microphone of the headset and adjust the 2WIRE CANCEL PROD control of the AVP-6 board panel to minimize the side tone.
(5) Set the INCOM SELECT switch on the front panel to ENG.
(6) Speak into the microphone of the headset and adjust the 2WIRE CANCEL ENG control of the AVP-6 board panel to minimize the side tone.
(7) Return the value of SIDE TONE on page "C05" of the configuration menu to its original value or to the desired value of user.

Note

When setting S602 and S603 to RTS, be sure to connect them to the RTS system. Otherwise, they oscillate and have adverse effects on the peripheral circuits.

2. Setting the headset microphone

Set switch S4 (FRONT MIC) on the AU-302 board/ HDCU1000/1080 and switch S5 (FRONT MIC) on the AU-303 board/HDCU1500 according to the type of headset microphone to be connected to the front INCOM connector.
When using a carbon microphone : CARBON
(Sensitivity −20 dB, power is supplied.) (factory setting)
When using a electric condenser microphone : ECM
(Sensitivity −40 dB, power is supplied.)
When using a dynamic microphone : DYNAMIC
(Sensitivity −60 dB, power is not supplied.)



- **Adjusting the side tone level**
  From SIDE TONE on page "C05" of the configuration menu, adjust the side tone level of the headset to be connected to the front INCOM connector according to user's preference.

3. Setting the input level of the PGM audio signal

Set switches S502 (PGM1 IN) and S503 (PGM2 IN) on the AVP-6 board to 0 dBu or −20 dBu according to each level of audio 1 and 2 of the system.
Factory setting : 0 dBu

- **Selecting the PGM audio signal**
  From PGM-SEL on page "C05" of the configuration menu, set the PGM audio signal of the headset connected to the front INCOM connector according to user's preference.
  Selecting PGM 1 : PGM 1 (Factory setting)
  Selecting mix of PGM 1 and PGM 2 : Mix
  Selecting PGM 2 : PGM 2
- **Adjusting the mix amount of the PGM audio signal**
  From PGM1, 2 on page "C05" of the configuration menu, adjust the mix amount of the PGM audio signal of the headset connected to the front INCOM connector according to user's preference.

4. Selecting an intercom line to be connected to the INCOM connector

Use the switch on the front panel to select the intercom line to be connected to the INCOM connector on the front as follows.

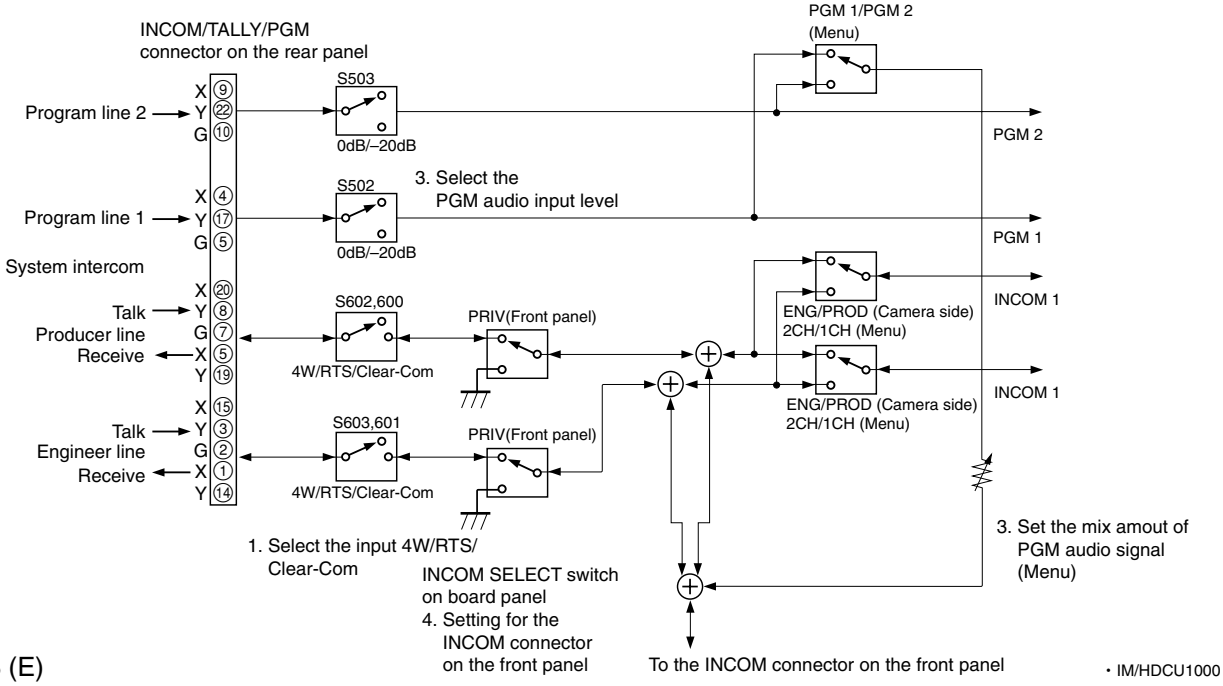
- **When connecting to the producer line** :
  Set the INCOM SELECT switch to PROD.
- **When connecting to the engineer line** :
  Set the INCOM SELECT switch to ENG.
- **When connecting only a camera** :
  Set the INCOM SELECT switch to PRIV. When this position is set, the intercom from outside is cut and the system consists of the intercom and camera.

Note

When INCOM-CH on page "C05" of the configuration menu is set to 1CH, the INCOM SELECT switches on the front panel of HDCU1000/1080/1500 and the camera are fixed to the producer line regardless of the setting.

5. Setting the AVP-6 board switch

The flow of the switch setting on the AVP-6 board and the intercom signals is as follows.



2-3-2. Setting the Microphone

HDCU1000/1080/1500 can output the two independent microphone lines (MIC 1, MIC 2) of video camera HDC1000 series as it receives these MIC signals.

Controlling the Microphone Input Gain Using the Remote Control

HDCU1000/1080/1500 can adjust the input gain of the MIC connector of camera HDC1000 series using the remote control in the range of 60 dB to 20 dB in 10 dB steps using either of the following methods.

1. Adjusting the microphone input gain to be set from MENU

When the MIC REMOTE connector on the rear panel is connected to nothing or the levels of pin-8 (MIC 1) and pin-15 (MIC 2) of the MIC REMOTE connector are High, the microphone input gain can be adjusted from CHU MIC GAIN on page "C04" of the configuration menu.
Factory setting : (60 dB)

2. Adjusting the microphone input gain using the MIC REMOTE connector

Set the microphone input gain control to ON or OFF with pin-8 and pin-15 of the MIC REMOTE connector on the rear as shown below. The input gain can be controlled via pin-5, pin-6 and pin-7 as shown below.

Setting the microphone input control of the video camera

Pin No.		Microphone connector	
8	**15**	**MIC IN CH-1**	**MIC IN CH-2**
L	L	ON	ON
L	H	ON	OFF
H	L	OFF	ON
H	H	Internal setup (Menu page "C04")	

Setting the microphone input gain of the video camera

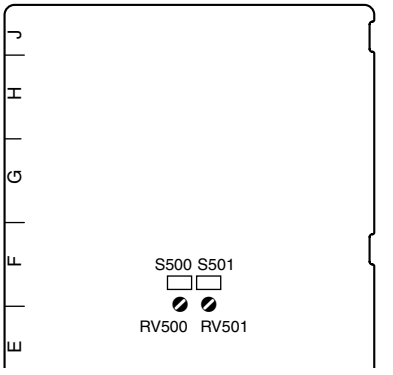
	Pin No.		
Input gain	**7**	**6**	**5**
60 dB	H	H	H
50 dB	L	H	H
40 dB	H	L (H)	H (L)
30 dB	L	L (H)	H (L)
20 dB	H	H (L)	L (H)

H : +5 V or OPEN
L : GND
Input resistance : Pulled-up 100 kΩ +5 V
The setup for the HDCU-700A mode is shown in parenthesis ( ):
S406-2/AT-167 → ON

3. Adjusting the MIC signal phase

When the microphone signal phase is ahead of the video signal phase to be used, adjust the amount of audio delay from MIC OUT DELAY on page "C04" of the configuration menu.
Example 7 : 1 FRAME DELAY (30 FRAME/SEC)
8 : 1 FRAME DELAY (25 FRAME/SEC)
Factory setting : 0 Fs

Setting the Microphone Output Level



AVP-6 board (A side)

Select the microphone output signal level (0 dB, −20 dBu) from the MIC 1, 2 connector on the rear using the switches on the AVP-6 board.

- Setting the output level of MIC 1 :
  Switch S500 (MIC 1 OUT LEVEL)
- Setting the output level of MIC 2 :
  Switch S501 (MIC 2 OUT LEVEL)
- Factory setting : 0 dBu (both S500 and S501)

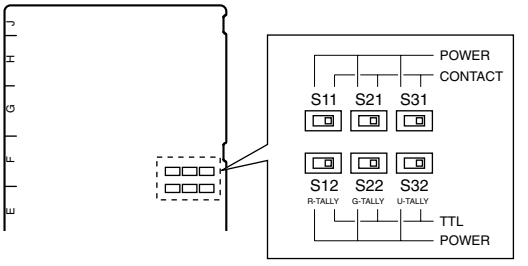
The microphone output signal level from the MIC 1, 2 connector on the rear can be adjusted using the volume on the AVP-6 board.

- Setting the output level of MIC 1 :
  ⊘RV500 (MIC 1 OUT LEVEL)
- Setting the output level of MIC 2 :
  ⊘RV501 (MIC 2 OUT LEVEL)

2-4. Systems

2-4-1. Setting the Tally System

HDCU1000/1080/1500 supports the red tally and the green tally. It also supports the MAKING CONTACT and supplying power (24 V/TTL). Set the switches on the AVP-6 board according to the system used as follows :



AVP-6 board (A side)

Set the tally system as shown in the following table.

Setting the tally system

	Red tally		Green tally	
Switch	**S11**	**S12**	**S21**	**S22**
MAKING CONTACT	CONTACT	–	CONTACT	–
Supplying 24 V power	POWER	POWER	POWER	POWER
Supplying 5 V power	POWER	TTL	POWER	TTL

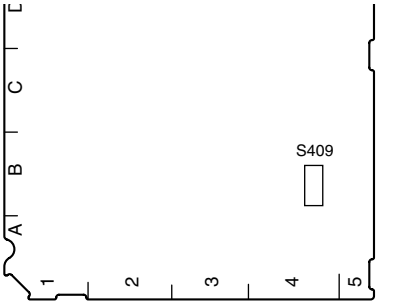
Switches S11 and S12 are set to CONTACT when the unit is shipped from the factory.

2-4-2. Setting the Camera Number

System that does not use CNU-700/500

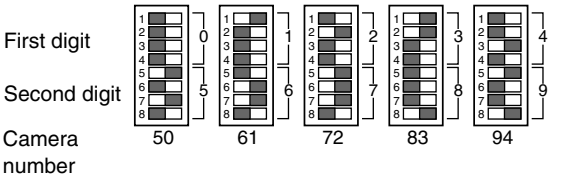
Use switch S409 on the AT-167 board to set the camera number.

Use switches 1 to 4 to set the first digit and use switches 5 to 8 to set the second digit. “0” to “f” can be set as each digit, but “a” to “f” are invalid. Camera numbers 1 to 96 can be set.



AT-167 board (A side)

(Example of setting)

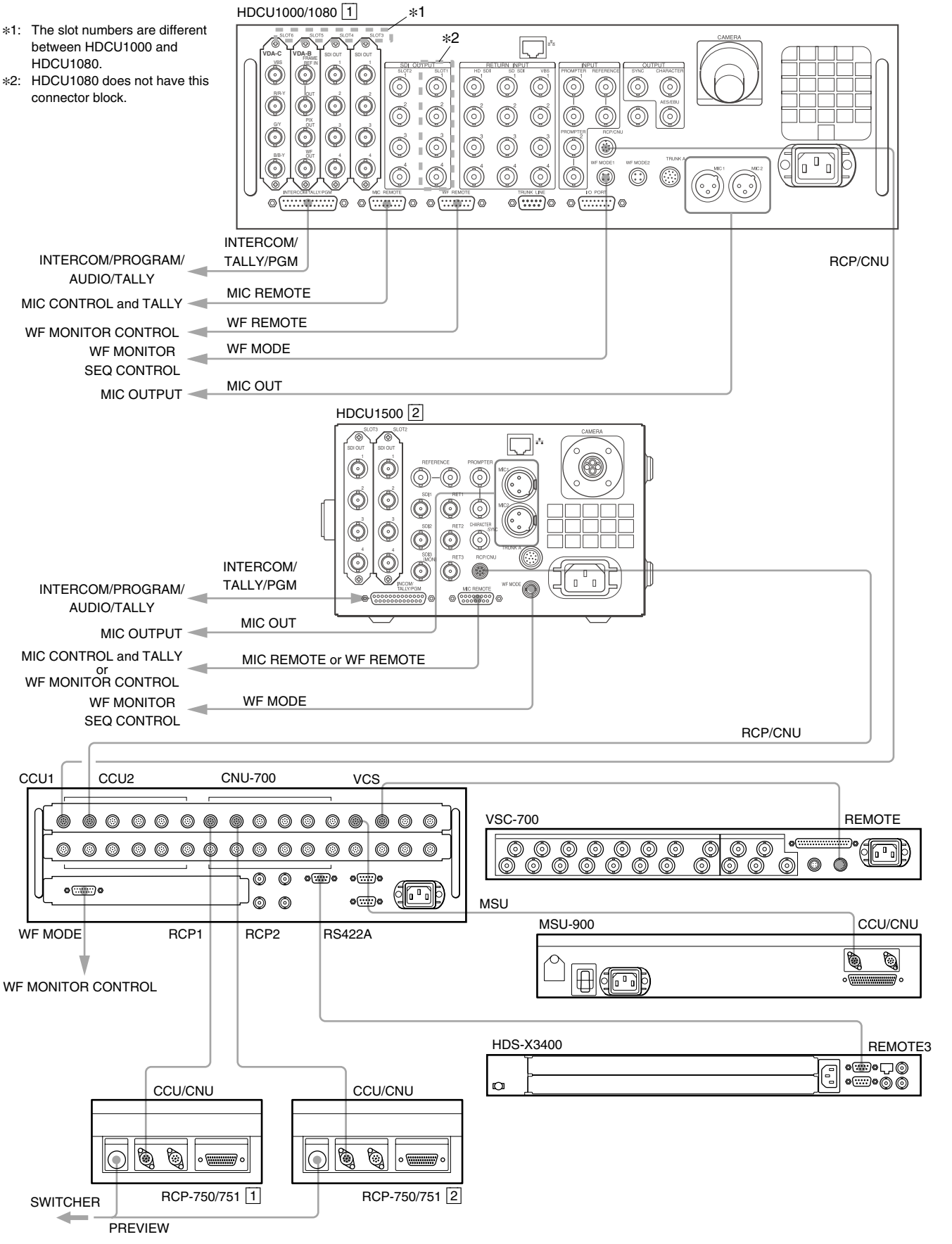


System that uses CNU-700/500

The CCU connector number on the rear of the CNU-700/500 is the camera number. For example, the camera number of the CCU video camera that is connected to the CCU 1 connector is 1.

2-4-3. Connecting the Control, Intercom, Tally and Audio Signals

∗1: The slot numbers are different between HDCU1000 and HDCU1080.
∗2: HDCU1080 does not have this connector block.



2-5. Video Signal System

The equipment that is used for HDCU1000/1080/1500 and the HDC1000 series camera system were set to the specified level when shipped from the factory. Before operating, check the signal levels between each equipment and adjust them if required. Some adjustments can be performed using the maintenance menu of the MSU-900/950 besides using the control or switches on the board. Perform the basic adjustments on the board and perform the fine adjustments on the maintenance menu.

2-5-1. Selecting the Input/Output Signal

Select the input/output terminal signal of the rear panel according to the video system to be installed.

2-5-2. Adjusting the Signal Phase

Adjust the signal phase of HDCU1000/1080/1500. Before adjustment, input the next sync signal to the unit and each of the equipment used.

HDCU1000/1080/1500

REFERENCE
HD ternary SYNC : 0.6 V p-p
Or
black burst signal : 40 IRE (0.3 V p-p)
(SMPTE318M (10F-BB) is also acceptable.)

Note

When the VBS signal of HKCU1001/1003 is used (when SC phase lock is required), use the black burst signal.

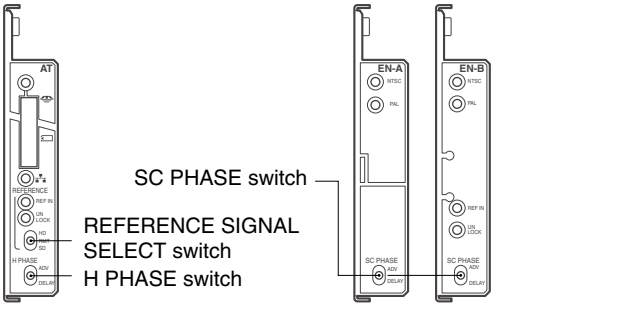
HKCU1003 (Using VDA-64B)
(HDCU1000/1500 onlly)

FRAME REFERENCE
HD ternary SYNC : 0.6 V p-p
Or
black burst signal : 40 IRE (0.3 V p-p)
sequence pulse : 40 IRE (0.3 V p-p)

Adjusting the Phase of the Sync Signal

Adjust the phase of the output signal to match it with that of the reference signal. Perform the adjustment using the switch on the AT-167 and EN-159 board (HKCU1001/1003) panel of HDCU1000/1080/1500. The adjustment also can be performed on the maintenance menu of the MSU-900/950.

How to adjust on the AT-167 board and EN-159A/159B board (HKCU1001/1003) of the unit



1. Select the type of external sync signal using the REFERENCE SIGNAL selector switch on the AT-167 board panel.
   HD : HD ternary SYNC
   SD : BB (black burst) signal
   REM : Control is perfomed by MSU, etc,. connected outside.
   Factory setting : REM
2. When setting HD in step 1 :
   1) Coarse-adjust the H phase using H-STEP on page "S01" of the system menu, then fine-adjust it using the H PHASE switch on the AT-167 board panel.

   When selecting SD in step 1 :
   1) Coarse-adjust the H phase using H-STEP on page "S01" of the system menu, then fine-adjust it using the H PHASE switch on the AT-167 board panel.
   2) Adjust the SC phase using switch SC PHASE on the EN-159A/159B board (HKCU1001/1003) panel (when the BB signal is selected as a reference).

2-5-3. Setting Aspect Ratio Conversion during Down-convert

In the HDC1000 series camera system, the aspect ratio can be switched by using the HDCU1000/1080/1500 and MSU-900/950 according to the system during HD-SD down-convert. Set the desired aspect ratio using the MIC REMOTE connector at the rear panel of the HDCU1000/1080/1500, or SD ASPECT on page "S04" of the system menu in the HDCU1000/1080/1500.
The aspect ratio also can be set on the maintenance menu or the configuration menu of the MSU-900/950. The aspect ratio of the following four types can be switched in this system.

Squeeze :	The HD video signal of 16 : 9 is converted to the SD signal as it is. (16 : 9)
Edge-crop :	Video signal as large as 4 : 3 is cut from the HD video signal and is converted to the SD signal. (4 : 3)
Letter box :	The HD video signal of 16 : 9 is inserted into the picture frame of 4 : 3 as it is and converted to the SD signal. (4 : 3) (The black level is inserted into the top and bottom of the picture.)
Semi-letter box :	Video signal as large as 15 : 9, 14 : 9 or 13 : 9 is cut from the HD video signal, is inserted into the picture frame of 4 : 3 and is converted to the SD signal. (4 : 3) (The black level is inserted into the top and bottom of the picture.)

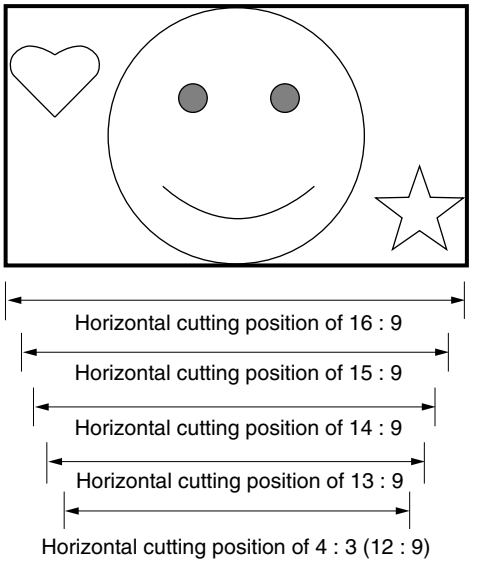
How to set using the MIC REMOTE connector at the rear of the unit

1. Set switch S406-3 (MIC REMOTE/WF REMOTE) on the AT-167 board to MIC REMOTE (OFF). (HDCU1500 only)
2. Set pin-12 (ASPECT REMOTE ON/OFF) of the MIC REMOTE connector at the rear to L.
3. Set pin-13 (ASPECT CTL CONT1) and pin-14 (ASPECT CTL CONT2) of the MIC REMOTE connector at the rear according to the desired aspect ratio referring to the following table.

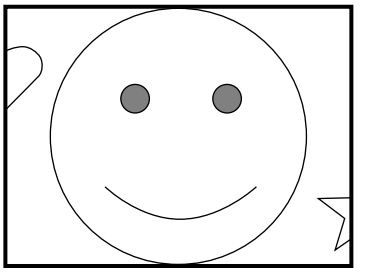
Pin-13 (ASPECT CTL CONT1)	Pin-14 (ASPECT CTL CONT2)	Aspect ratio
L	H	Squeeze (16 : 9)
H	H	Edge-crop (4 : 3)
L	L	Setting mode from Menu
H	L	Letter box (4 : 3)

Examples of display

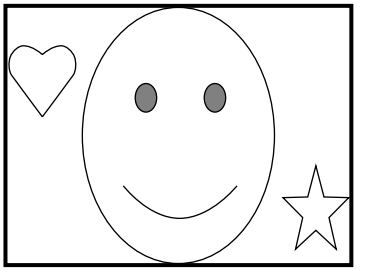
16 : 9 picture (picture from camera)



Picture whose aspect ratio is converted (SD SDI output)

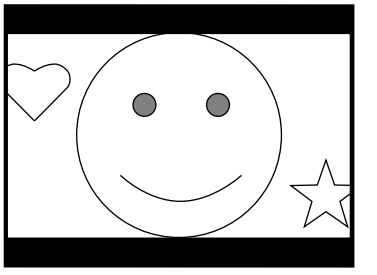


Edge-crop
CROP POSITION can be changed.

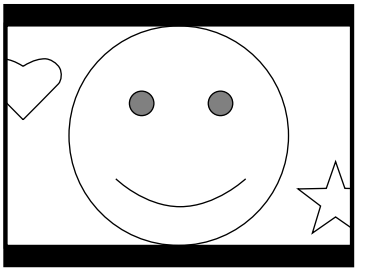


Squeeze
The 16 : 9 ratio picture is output in the SD SDI format without changing the ratio.

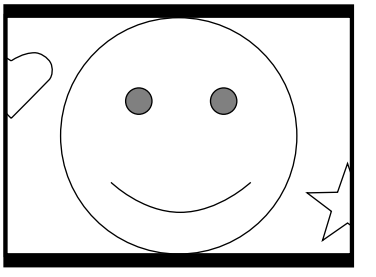
Letter box (16 : 9)
The 16 : 9 ratio picture is inserted into the 4 : 3 ratio picture without changing the ratio and is output in the SD SDI format.



Semi-letter box (15 : 9)
The picture that is cut out with the aspect ratio of 15 : 9, is inserted into the 4 : 3 ratio picture and is output in the SD SDI format.



Semi-letter box (14 : 9)
The picture that is cut out with the aspect ratio of 14 : 9, is inserted into the 4 : 3 ratio picture and is output in the SD SDI format.

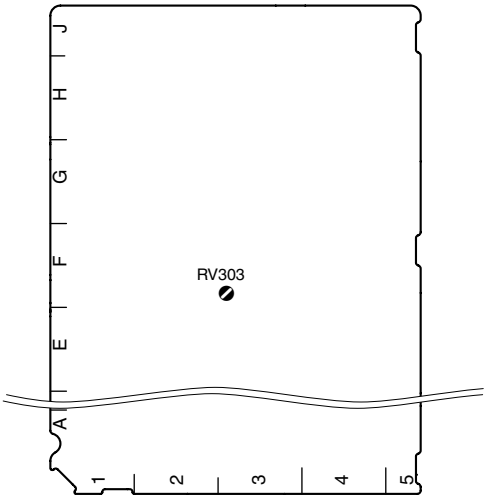


Semi-letter box (13 : 9)
The picture that is cut out with the aspect ratio of 13 : 9, is inserted into the 4 : 3 ratio picture and is output in the SD SDI format.

2-5-4. Adjusting the Level of the VBS Signal (only when HKCU1001/1003 is installed)

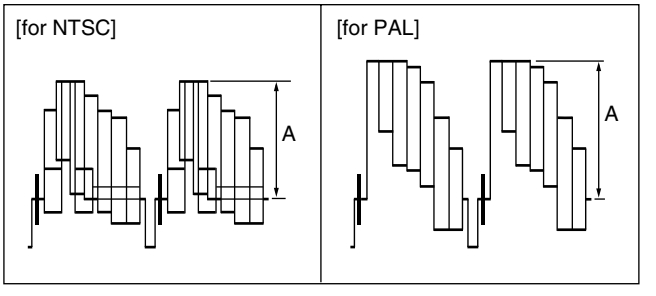
Adjust the level of the VBS signal output from HDCU1000/1080/1500 using the color bar signal.
Use the switch on the EN-159A/159B board (HKCU1001/1003) and the control on the panel of the unit for adjustment.

How to adjust using the EN-159A/159B board (HKCU1001/1003) of the unit



EN-159A/159B board (A side)

1. Press the BARS button of the MSU-900/950, RCP-750/751, etc. to display the color bars on the waveform monitor.
2. Adjust the color bar signal using control RV303 (VBS LEVEL) on the EN-159A/159B board so that it is within the specified level.
   Measurement point : VBS OUT connector on the HDCU rear panel
   Specifications : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mV p-p [for PAL]
   (VBS LEVEL control)

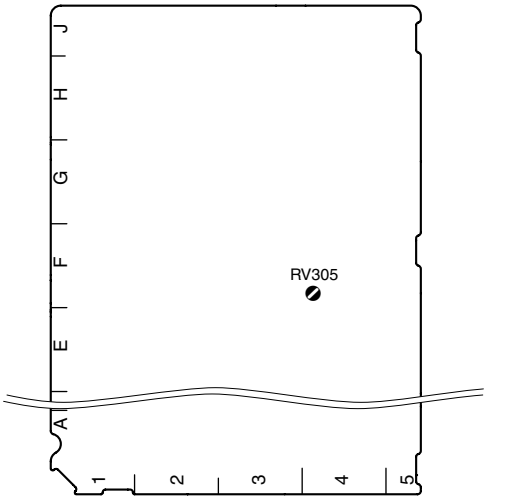


2-5-5. Adjusting the Level of Signals for Waveform Monitor

The video output signal of HDCU1000/1080/1500 can be checked on the waveform monitor connected to the WF OUT connector. Adjust the WF output signal level using the color bar signal.
In the system with the MSU-900/950, CNU-700 or VCS-700, the video output signal can be checked on the waveform monitor connected to the VCS-700.

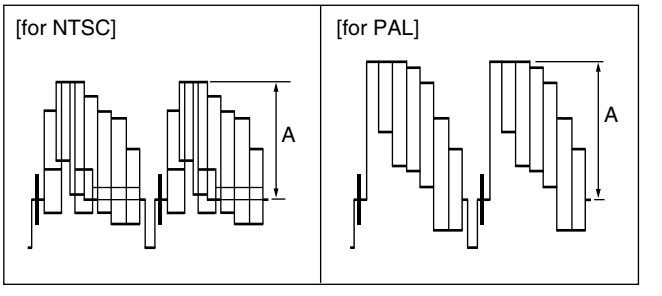
Adjusting the WF Output Signal Level

How to adjust on the EN-159A/159B board of the unit



EN-159A/159B board (A side)

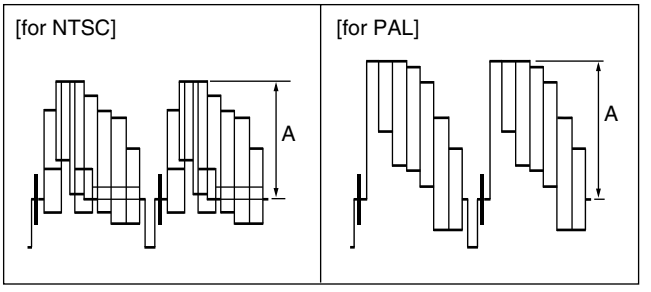
1. Press the BARS button of the MSU-900/950, RCP-750/751, etc., or press the ENC button of the WAVEFORM MONITOR buttons (or MONITOR SELECT buttons) to display the color bars on the waveform monitor.
2. Adjust the color bar signal using control RV305 (WFM GAIN) on the EN-159A/159B board so that it is within the specified level.
   Measurement point : WF OUT connector on the HDCU rear panel
   Specification : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mVp-p [for PAL]



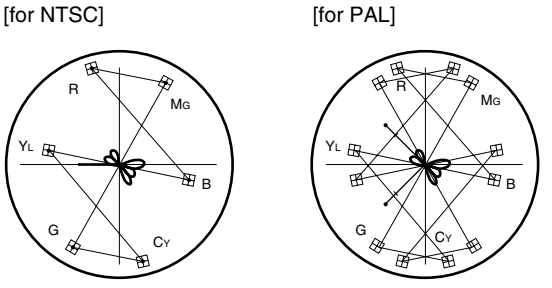
How to adjust using the VCS-700

In the system with the MSU-900/950, CNU-700 or VCS-700, the video output signal of HDCU1000/1080/1500 can be checked on the waveform or vector monitor connected to the WF A OUTPUT connector and the WF B OUTPUT connector of the VCS-700.
Connect the WF OUT connector of the VDA-64A/64B board to the WF 1 connector of the VCS-700 and connect the PIX OUT connector to the PIX 1 connector. Then adjust the signal level using the color bar signal.

1. Press the BARS button of the MSU-900/950, RCP-750/751, etc., or press the ENC button of the WAVEFORM MONITOR buttons (or MONITOR SELECT buttons) to display the color bars on the waveform or vector monitor.
2. Set the CONTROL switch of the VCS-700 to RESET.
3. Adjust the color bars signal using the WFM 1 LEVEL and WFM 1 CHROMA controls of the VCS-700 so that it is within the specified level.
   Measurement point : PIX OUT connector on the VCS-700
   Specification : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mV p-p [for PAL]
   (WFM 1 LEVEL control)



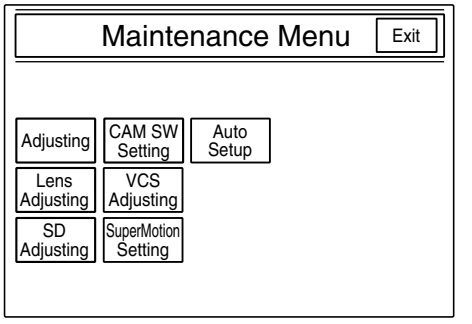
Each luminescent spot on the vector monitor must be within the "⊞" range.
(WFM 1 CHROMA control)



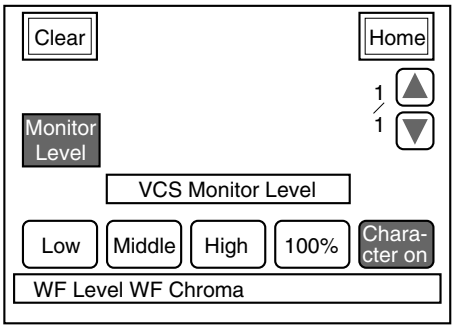
How to adjust using the MSU-900/950

The signal level can be adjusted by using the MSU-900/950 instead of using the controls of the VCS-700.

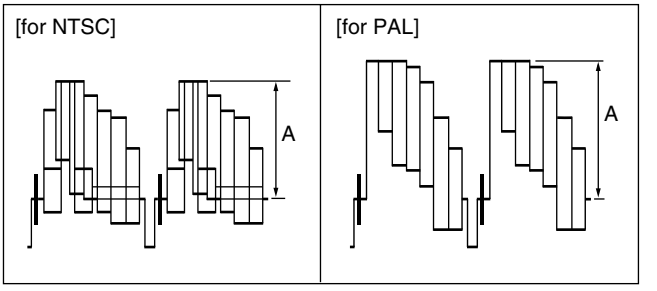
1. Press the MAINTENANCE button of the MODE block of the MSU-900/950 so that the button lights. The maintenance menu is displayed.



2. Press VCS Adjusting.
   The VCS monitor level adjustment item menu is displayed.

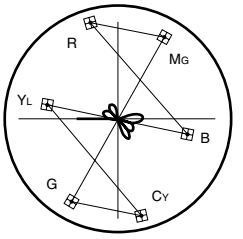


3. Adjust the color bars signal of the WF Level and WF Chroma so that it is within the specified level.
   Measurement point : PIX OUT connector on the VCS-700
   Specification : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mV p-p [for PAL]
   (WF Level)

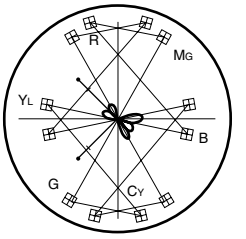


Each luminescent spot on the vector monitor must be within the "⊞" range.
(WF Chroma)

[for NTSC]

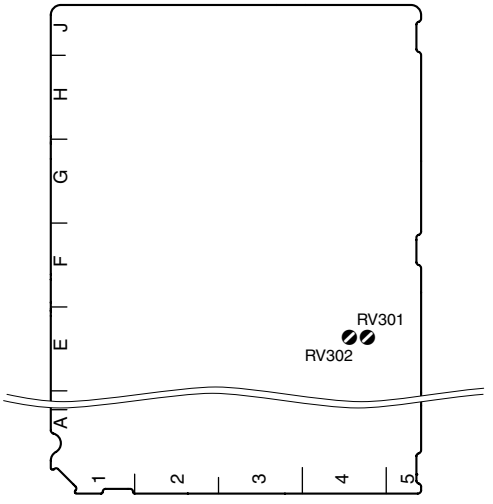


[for PAL]



Adjusting the Staircase Signal

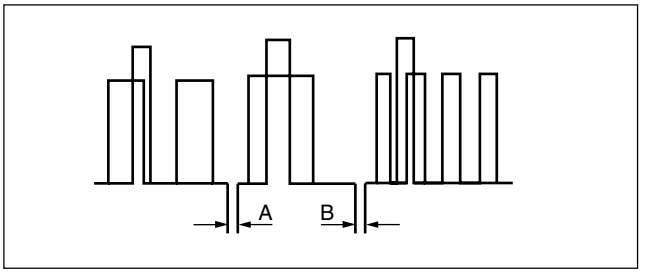
Adjust the staircase signal to display signals in the sequential mode on the waveform monitor. If the signal of the sequential mode is not normally displayed on the waveform monitor, perform this adjustment.
When the waveform monitor is connected to HDCU1000/1080/1500, perform the adjustment using controls RV301 (STAIR STEP POSITION) and RV302 (STAIR STEP LEVEL) on the EN-159A/159B board of the HKCU1001/1003. When the VCS-700 is connected, refer to the VCS-700 Maintenance Manual.



EN-159A/159B board (A side)

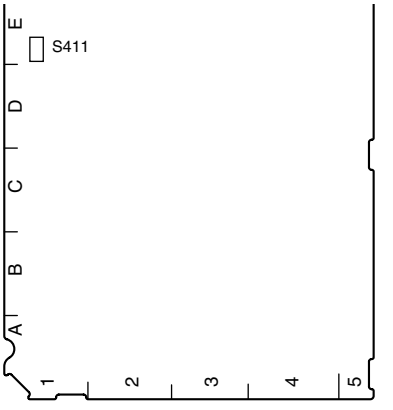
1. Press the SEQ button of the WAVEFORM MONITOR buttons (or MONITOR SELECT buttons) of the MSU-900/950, RCP-750/751, etc.
2. Adjust the position of the signal to be displayed using control RV301 (STAIR STEP POSITION) on the EN-159A/159B board.
3. Use control RV302 (STAIR STEP LEVEL) on the EN-159A/159B board so that the intervals of signals A and B to be displayed are almost equal.

Press the SEQ button of the WAVEFORM MONITOR buttons (or the MONITOR SELECT buttons) of the MSU-900/950, RCP-750/751, etc., to output the waveform monitor control signal of the unit, synchronizing with the output signal of the WF OUT connector.



Note

The control method of the sequential mode depends on the waveform monitor used. If required, change the polarity of the control from the setting of switch S411 (SEQ) on the AT-167 board.
If adjustment is not possible even after the polarity is changed, perform the adjustment on the waveform monitor side.

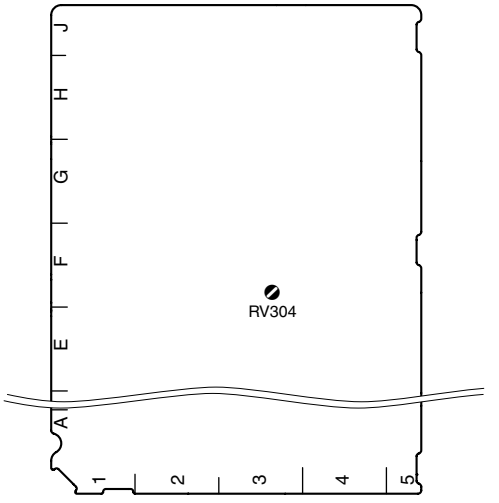


AT-167 board (A side)

2-5-6. Adjusting the Level of Signals for Picture Monitor

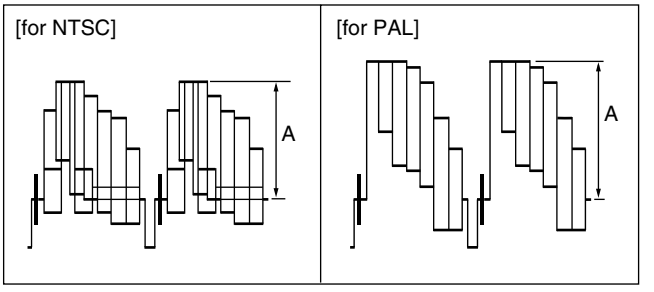
The video output signal can be checked on the waveform or vector monitor connected to the PIX OUT connector. Use the color bars to adjust the level of the PIX output signal.
In addition, in the system with the MSU-900/950, CNU-700 or VCS-700, the video signal of HDCU1000/1080/1500 can be checked on the waveform or vector monitor connected to the VCS-700.

How to adjust on the EN-159A/159B board (HKCU1001/1003) of the unit



EN-159A/159B board (A side)

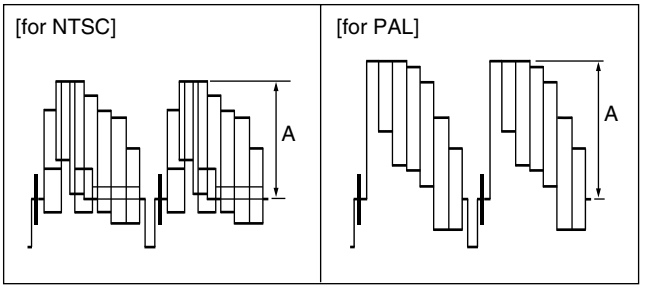
1. Press the BARS button of the MSU-900/950, RCP-750/751, etc., and press the ENC button of the PICTURE MONITOR buttons (or MONITOR SELECT buttons) to display the color bars on the waveform monitor.
2. Adjust the color bar signal using control RV304 (PIX GAIN) on the EN-159A/159B board so that it is within the specified level.
   Measurement point : PIX OUT connector on the HDCU rear panel
   Specification : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mV p-p [for PAL]



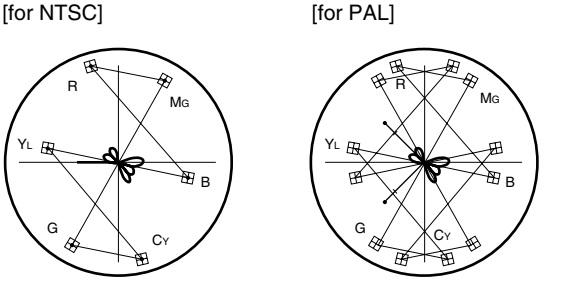
How to adjust using the VCS-700

In the system with the MSU-900/950, CNU-700 or VCS-700, the video output signal of the unit can be checked on the waveform or vector monitor connected to the PIX A OUTPUT and PIX OUTPUT connectors of the VCS-700. Connect the PIX OUT connector of the VDA-64A/64B board to the PIX 1 connector of the VCS-700.
Then perform adjustment using the color bars signal.

1. Press the BARS button of the MSU-900/950, RCP-750/751, etc., or press the ENC button of the WAVEFORM MONITOR buttons (or MONITOR SELECT buttons) to display the color bars on the waveform or vector monitor.
2. Adjust the color bars signal using the PIX 1 LEVEL and PIX 1 CHROMA controls on the VCS-700 so that it is within the specified level.
   Measurement point : PIX OUT connector on the VCS-700
   Specification : A = 100 ±1 IRE [for NTSC]
   A = 700 ±7 mV p-p [for PAL]
   (PIX 1 LEVEL control)



Each luminescent spot on the vector monitor must be within the "⊞" range.
(PIX 1 CHROMA control)



2-5-7. Setting the RET Input

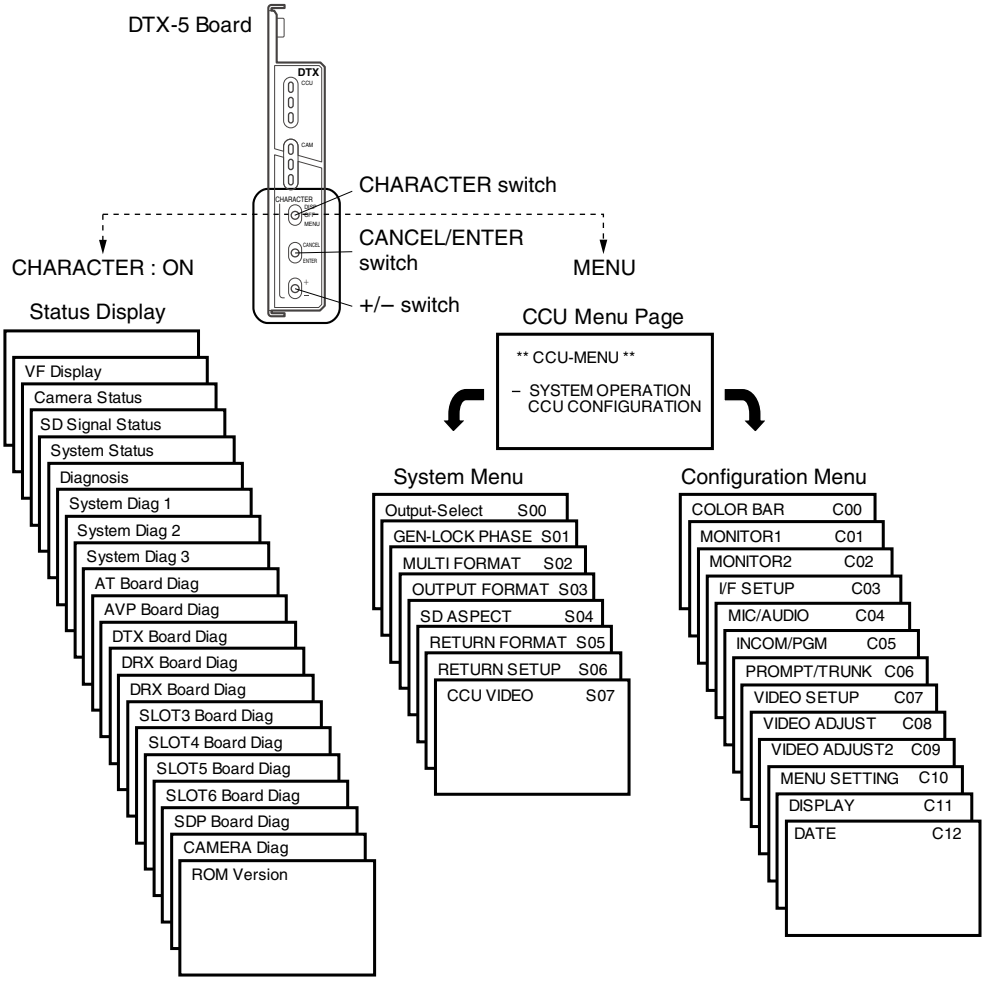
Set the format of the return signal to be input to the RET1 to RET4 (HDCU1000/1080) connectors, or the RET 1 to RET 3 (HDCU1500) connectors on the rear panel of the HDCU1000/1080/1500.
Configure the setting using RETURN FORMAT on page "S05" of the maintenance menu in MSU-900/950 or the system menu of the HDCU1000/1080/1500.

Note (HDCU1500 only)

Although the HDCU1500 only allows RET inputs (RET1 to 3), the signal input to the PROMPTER connector on the rear panel can be used as the RET4 signal. (However, the input format is VBS only.)

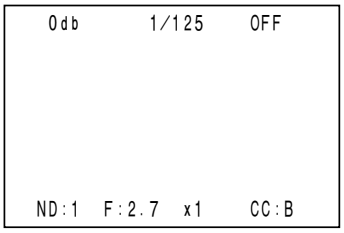
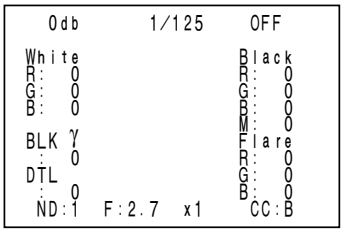
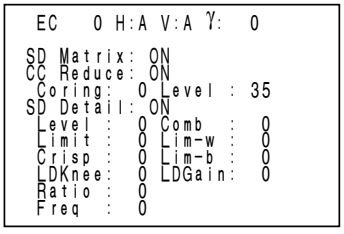
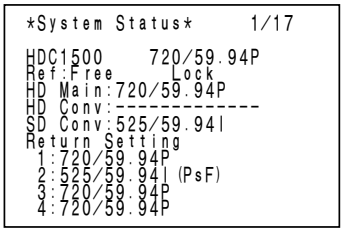
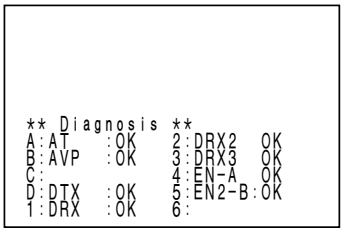
Section 3
Menu Settings

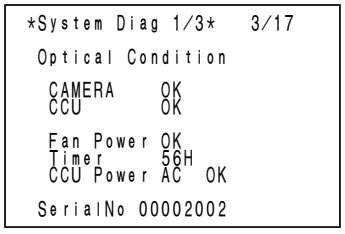
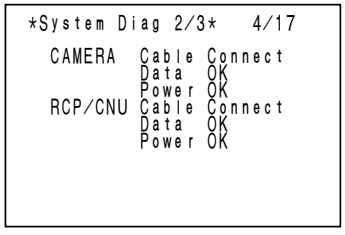
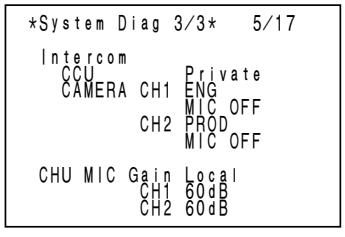
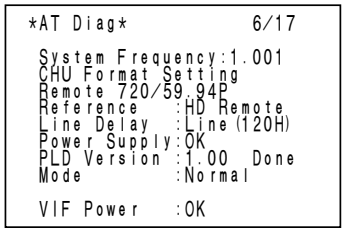
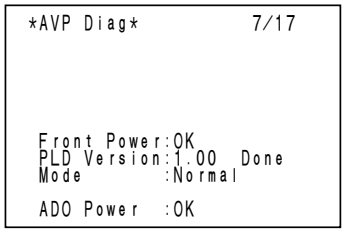
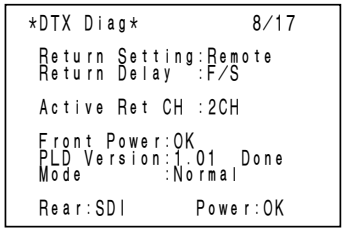
3-1. Menu Operation

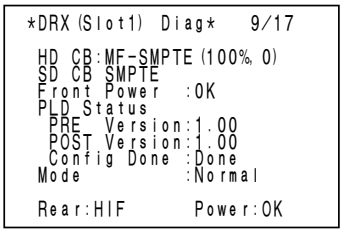
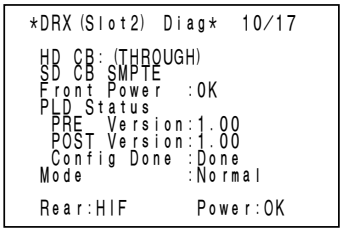
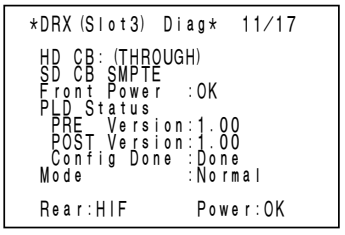
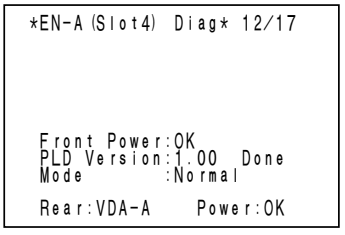
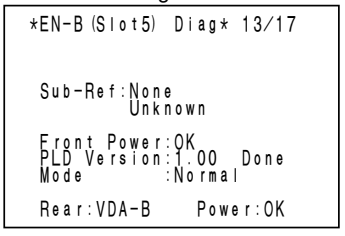
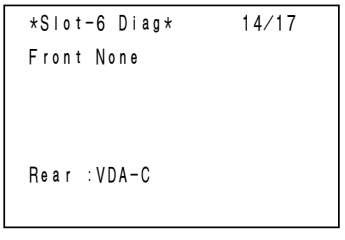


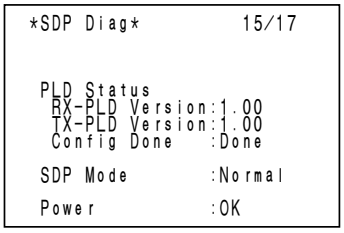
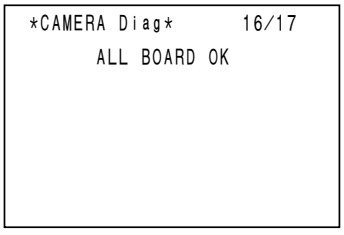
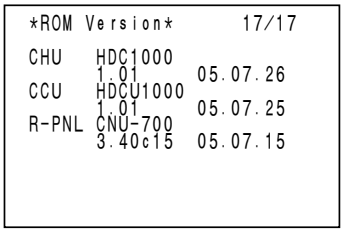
1. To operate the menu of CCU, open the front panel of HDCU1000/1080/1500, and use the CHARACTER switch, CANCEL/ENTER switch, and +/− switch on the DTX-5 board.
2. Pressing the CHARACTER switch upward displays the “status display menu” of CCU.
   Pressing the +/− switch upward (+) or downward (−) changes the pages and another screen is displayed. The page number zero is a blank page with no character.
3. Pressing the CHARACTER switch downward displays CCU-MENU. CCU-MENU consists of the “system menu” and the “configuration menu”.
   When the +/− switch is pressed upward (+) or downward (−) on the CCU-MENU screen, “→” on the screen moves.
   Place “→” beside the desired item, and press the CANCEL/ENTER switch downward (ENTER) to move to the menu you want to select.
   To change each item on the CCU-MENU, select the page to be changed, and press the CANCEL/ENTER switch downward (ENTER) once to confirm the selected page.
   Use the +/− switch to place “→” beside the item you want to change, and press the CANCEL/ENTER switch downward (ENTER) once to confirm the item.
   Use the +/− switch to configure the setting of the item that has “?” beside it, and press the CANCEL/ENTER switch downward (ENTER) once to confirm the setting.
4. To complete the “status display” and the CCU-MENU operation, set the CHARACTER switch to OFF.

3-2. Status Display

Page	Menu / Menu Image	Item	Description
1	VF Display 	MASTER GAIN EVS ON/OFF SHUTTER SETTING SHUTTER ON/OFF ND FILTER IRIS EXTENDER CC FILTER	Displays the camera SW status on the viewfinder of the connected camera.
2	Camera Status 	White R/G/B Black R/G/B BLK γ DTL Flare R/G/B	Displays the white balance, black balance, gamma, DTL, and flare status for the camera in addition to the information displayed above for VF Display.
3	SD Signal Status 	SD MATRIX CC Reduce SD Detail	Displays the SD signal status for CCU.
4	System Status 	CHU Model Name Format Ref Condition HD/SD out Format Return Setting	Displays the model name and format settings for the connected camera, the output format settings from the CCU, the external synchronization settings, and the Return signal format status.
5	Diagnosis 	HDCU1000 Slot A to D Slot 1 to 6 HDCU1080 Slot A to E Slot 1 to 5 HDCU1500 Slot A to C Slot 1 to 3	Displays the names of the boards inserted into the front card slot and the results of the automatic diagnostics for those boards.

Page	Menu / Menu Image	Item	Description
6	System Diag 1 	Optical Condition CAMERA CCU Fan Power Timer CCU POWER Serial No.	Displays the levels of received light from the optical signals of the camera and HDCU, the status of the power unit, and the serial number.
7	System Diag 2 	CAMERA Cable Data Power RCP/CNU Cable Data Power	Displays the connection status and power status for the connected camera and HDCU, and for the devices connected to remote connectors of HDCU and HDCU.
8	System Diag 3 	Intercom CCU setting CAMERA Setting CHU MIC Gain Setting	Displays the setting of the intercom and camera microphone.
9	AT Board Diag 	System Frequency CHU Format Setting Reference Line Delay Power Supply PLD Version Mode VIF Power	Displays the PLD Version and the status of the AT board. Displays the status of the power supplied to the VIF board.
10	AVP Board Diag 	Front Power PLD Version Mode ADO Power	Displays the PLD Version and the status of the AVP board. Displays the status of the power supplied to the ADC board.
11	DTX Board Diag 	Return Setting Return Delay Active Return CH Front Power PLD Version Mode Rear Power	Displays the PLD Version and the status of the DTX board. Displays the status of the power supplied to the SDI board.

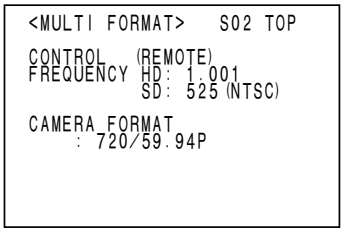
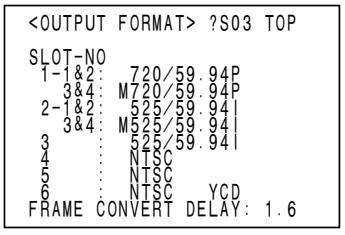
Page	Menu / Menu Image	Item	Description
12	DRX (Slot 1) Board Diag 	HD CB SD CB Front Power PLD Version Mode Rear Power	Displays the PLD Version and the status of the DRX board. Displays the status of the power supplied to the HIF board. The display content varies depending on the board installed in the optional slot.
13	DRX (Slot 2) Board Diag 	HD CB SD CB Front Power PLD Version Mode Rear Power	HDCU1000 Displays the PLD Version and the status of the (second) DRX board. Displays the status of the power supplied to the (second) HIF board. HDCU1500/1080 Displays the status of the board attached to the optional board for Slot 2 (front/rear). The display content varies depending on the board installed in the optional slot.
14	Slot 3 Board Diag 	HD CB SD CB Front Power PLD Version Mode Rear Power	Displays the status of the board attached to the optional board for Slot 3 (front/rear). The display content varies depending on the board installed in the optional slot.
15	Slot 4 Board Diag 	POWER PLD MODE Rear POWER	HDCU1000/1080 only Displays the status of the board attached to the optional board for Slot 4 (front/rear). The display content varies depending on the board installed in the optional slot.
16	Slot 5 Board Diag 	Sub-Ref POWER PLD MODE Rear POWER	HDCU1000/1080 only Displays the status of the board attached to the optional board for Slot 5 (front/rear). The display content varies depending on the board installed in the optional slot.
17	Slot 6 Board Diag 	POWER PLD MODE Rear POWER	HDCU1000 only Displays the status of the board attached to the optional board for Slot 6 (front/rear). The display content varies depending on the board installed in the optional slot.

Page	Menu / Menu Image	Item	Description
18	SDP Board Diag 	PLD Version Mode Power	Displays the PLD Version and the status of the SDP board.
19	Camera Diag 	(Camera Board Diag Display)	Displays the results of the automatic diagnostics for each board of the camera. “ALL BOARD OK” is displayed if there are no abnormalities in the automatic diagnostics.
20	ROM Version 	CHU Version CCU Version R-PNL Version F-PNL Version	ROM version information for the connected camera. ROM version information for the main unit. Information about the equipment connected to the rear panel port (RCP/CNU). Information about the equipment connected to the front panel port.

3-3. System Menu

Page	Menu / Menu Image	Item	Setting	Description
S00	OUTPUT-SELECT			
	<OUTPUT SELECT> ?S00 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	OUTPUT	∗CAMERA	Select the output signal.
			BAR	∗ Signal display is output.
			TEST1	
			TEST2	
		PIX	∗ENC	Select the output signal from PIX terminal.
			R	∗ Signal display is output.
			G	
			B	
			R&G	
			G&B	
			R&B	
			RGB	
		WFM	∗ENC	Select the output signal from WFM terminal.
			R	∗ Signal display is output.
			G	
			B	
			SEQ	
			R&G	
			G&B	
			R&B	
			RGB	
S01	GEN-LOCK PHASE			
	<GEN-LOCK PHASE> S01 TOP CONTROL (REMOTE) REFERENCE (NOME) GEN-LOCK: HD (OK) H-STEP : 0.00µsec COARSE: 0 SC-PHASE: 0 SUB-REF : (NONE) UNKNOWN	CONTROL	(LOCAL/[REMOTE])	Displays Local/Remote status for Gen-Lock Control.
		REFERENCE	(EXT-in/[NONE])	Displays the sub-reference signal input detection.
		GEN-LOCK	[HD]/SD	Sets the format of the reference signal. (When the AT board SW setting is REM)
		H-STEP	(OK/NG)	Displays the Ref Lock status. (OK: Locked, NG: Unlocked)
			−3.01 to [0.00] to +3.45 µsec	Adjusts the lock phase: H-step
		COARSE	−99 to [0] to +99	Adjusts the lock phase: H-step fine adjustment
		SC-PHASE	−99 to [0] to +99	Adjusts the lock phase: SC-phase
		SUB-REF	(EXT-in/NONE) (UNKNOWN/ FrameGate/HD/SD)	Displays the sub-reference signal input detection. Displays the format of the sub-reference signal.

[ ] : The settings in the box are default values.

Page	Menu / Menu Image	Item	Setting	Description
S02	MULTI FORMAT			
		CONTROL	(LOCAL/REMOTE)	Displays Local/Remote status for the format setting.
		FREQUENCY HD	[1001]/1000	Sets SYSTEM frequency. (Set 1001 when the SD format is NTSC, and 1000 when PAL.) 1001/[1000] for HDCU1080
		SD	[525]/625	Displays SD format. 525/[625] for HDCU1080
		CAMERA FORMAT	CAMERA Format (∗1)	Selects the camera format.
S03	OUTPUT FORMAT			
		SLOT-NO 1-1&2 3&4 2-1&2 3&4 3 4 5 6	 OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2) OUTPUT Format (∗2)	Sets the format of the output signal from each output terminal SLOT. • This is an example in HDCU1000. • Only Slots 1 to 3 are available in HDCU1500. • Only Slots 1 to 5 are available in HDCU1080.
		FRAME CONVERT DELAY	0.8/1.2/[1.6]	Output delay time setting for the signal whose frame rate is converted. (Only when SYSTEM FREQUENCY is 1001.)

[ ] : The settings in the box are default values.

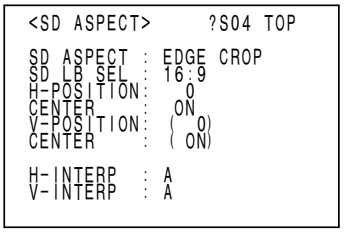
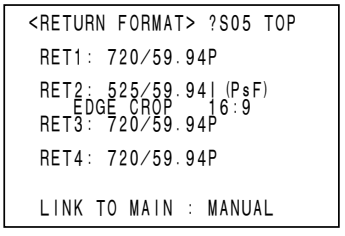
(∗1) CAMERA Format
(When HDC1000/1080/1500 series connected)
The following formats can be selected according to the system frequency setting.
When SYSTEM FREQUENCY=1001
[1080/59.94I]
1080/29.97PsF
1080/23.98PsF
720/59.94P
When SYSTEM FREQUENCY=1000
1080/50I
1080/25PsF
1080/24PsF
720/50P

(∗2)
OUTPUT Format (The following settings are possible according to the camera format. The setting content varies depending on the board installed in the optional slot.)

CAMERA Format

Output terminal	In 1080/59.94I	In 1080/29.97PsF	In 1080/23.98PsF	In 720/59.94P	In 1080/50I	In 1080/25PsF	In 1080/24PsF	In 720/50P
1-1&2	1080/59.94I	1080/29.97PsF	1080/23.98PsF	720/59.94P	1080/50I	1080/25PsF	1080/24PsF	720/50P
3&4	M1080/59.94I	M1080/29.97PsF	M1080/23.98PsF	M720/59.94P	M1080/50I	M1080/25PsF	M1080/24PsF	M720/50P
2-1&2	525/59.94I	525/29.97PsF	1080/59.94I	525/59.94I	625/50I	625/25PsF	1080/50I	525/50I
3&4	M525/59.94I	M525/29.97PsF	M1080/59.94I	M525/59.94I	M625/50I	M625/25PsF	M1080/50I	M525/50I
3	NTSC	NTSC	525/59.94I	NTSC	PAL	PAL	625/50I	PAL
4	–	–	M525/59.94I	–	–	–	M625/50I	–
5	–	–	NTSC	–	–	–	PAL	–

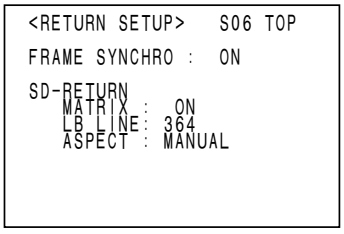
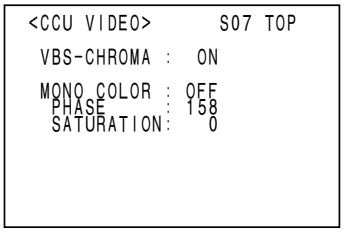
For the output format that starts with an “M”, the signal with a character of HDCU is output.

Page	Menu / Menu Image	Item	Setting	Description
S04	SD ASPECT 	SD ASPECT	SQUEEZE [EDGE CROP] LETTER BOX	Sets ASPECT for the SD output of the main unit.
		SD LB SEL	[16:9]/15:9/14:9/13:9	Sets edge cropping when LETTER BOX is selected in the SD output.
		H-POSITION CENTER	–99 to [0] to +99 OFF/[ON]	Sets the horizontal crop position for LB. Turns ON/OFF centering for the horizontal crop position.
		V-POSITION CENTER	–99 to [0] to +99 OFF/[ON]	Sets the vertical crop position for LB. Turns ON/OFF centering for the vertical crop position.
		H-INTERP	[A]/B/C/D/E	Sets the horizontal filter for the down converter.
		V-INTERP	[A]/B/C/D/E	Sets the vertical filter for the down converter.
S05	RETURN FORMAT 	RET1	RET FORMAT (∗3) ASPECT/LB SEL	Sets the input format for the return signal. Sets Format/Aspect/Letter Box mode.
		RET2	RET FORMAT (∗3) ASPECT/LB SEL	
		RET3	RET FORMAT (∗3) ASPECT/LB SEL	
		RET4	RET FORMAT (∗3) ASPECT/LB SEL	
		LINK TO MAIN	[MANUAL]/AUTO	Selects the mode for how the main signal links with the return signal.

[ ] : The settings in the box are default values.

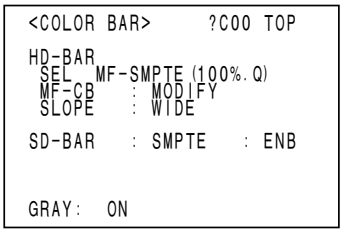
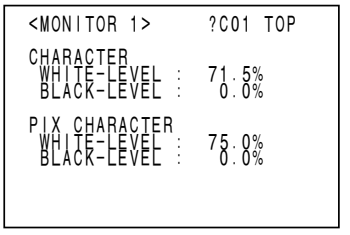
(∗3)
RET Format

In SYSTEM FREQUENCY=1001		[1080/59.94I (PsF)]
		1080/23.97PsF
		720/59.94P
		525/59.94I (PsF)
		NTSC
In SYSTEM FREQUENCY=1000		[1080/50I (PsF)]
		1080/24PsF
		720/50P
		625/50I (PsF)
		PAL
	ASPECT	[SQUEEZE]
		EDGE CROP
		LETTER BOX
	LB SEL	[16:9]
		15:9
		14:9
		13:9

Page	Menu / Menu Image	Item	Setting	Description
S06	RETURN SETUP			
		FRAME SYNCHRO	OFF/[ON]	Turns ON/OFF the delay function for the return signal.
		SD-RETURN		
		MATRIX	OFF/[ON]	Turns ON/OFF the HD-Matrix to the SD return signal.
		LB LINE	360/[364]	Sets the number of valid lines for LETTER BOX mode.
		ASPECT	[MANUAL]/AUTO	Selects the automatic linking function of SD-Return ASPECT setting.
S07	CCU VIDEO			
		VBS-CHROMA	OFF/[ON]	Turns ON/OFF the CHROMA signal for the VBS output signal.
		MONO COLOR	[OFF]/ON	Turns ON/OFF the MONO COLOR function.
		PHASE	[0] to 358	Adjusts the phase of MONO COLOR.
		SATURATION	–99 to [0] to +99	Adjusts the saturation of MONO COLOR.

[ ] : The settings in the box are default values.

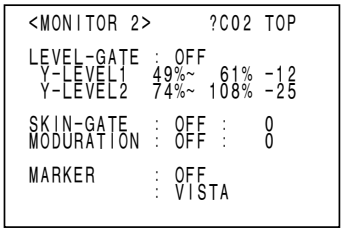
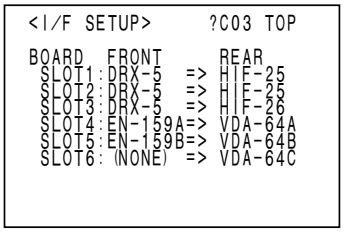
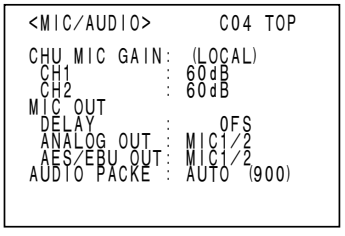
3-4. Configuration Menu

Page	Menu / Menu Image	Item	Setting	Description
C00	COLOR BAR			
		HD-BAR SEL MF-CB	 HD-BARS FORMAT (∗4) [MODIFY]/EVEN	Sets the color bar for the HD output. Sets the type of color bar signal. Selects MF-CB width.
		SLOPE	[WIDE]/NARROW	Sets the slope (width) of the color bar signal.
		SD-BAR	SD-BARS FORMAT (∗5)	Sets the color bar for the SD output.
			[ENB]/DSB	ENB : Outputs CB for SD. DSB : Changes HD-CB to SD signal and outputs it.
		GRAY	OFF/[ON]	Turns ON/OFF the GRAY function. ON : Outputs a gray screen when there is a signal error, or when the power to the camera is off. OFF : Outputs the CB signal.
C01	MONITOR1			
		CHARACTER WHITE-LEVEL BLACK-LEVEL	 0.0% to 107% [71.5%] 0.0% to 107% [0.0%]	Sets white/black level for the character of the MONITOR output.
		PIX CHARACTER WHITE-LEVEL BLACK-LEVEL	 0.0% to 107% [71.5%] 0.0% to 107% [0.0%]	Sets white/black level for the character of the PIX output. Displays only when the analog encoder board (HKCU1001/1003) is attached.

[ ] : The settings in the box are default values.

(∗4) HD-BARS FORMAT
[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

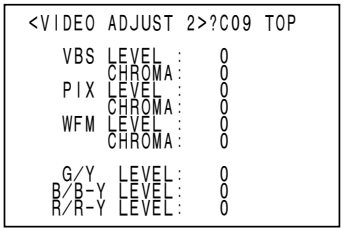
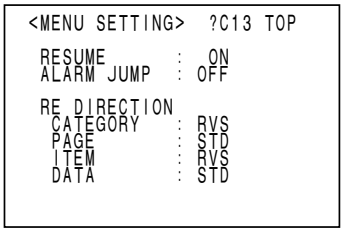
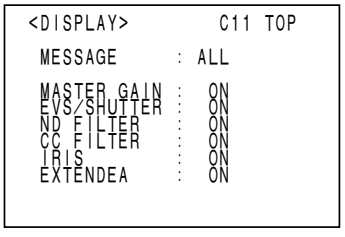
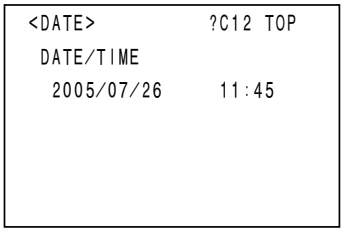
(∗5) SD-BARS FORMAT
[SMPTE]
EIA
FULL
95%
NTSC100%
Y/C-RAMP
Y -RAMP

Page	Menu / Menu Image	Item	Setting	Description
C02	MONITOR2			
		LEVEL-GATE	[OFF]/1/2/1&2	Sets the mode for the CCU Y-LEVEL-GATE function.
		Y-LEVEL1	0% to [49%] to [64%] to 108%	Sets upper and lower levels for Level-Gate 1 detection.
			−99 to [−25] to +99	Sets the Zebra levels added to the Level-Gate 1 detection width.
		Y-LEVEL2	0% to [74%] to [108%] to 108%	Sets upper and lower levels for Level-Gate 2 detection.
			−99 to [−25] to +99	Sets the Zebra levels added to the Level-Gate 2 detection width.
		SKIN GATE	[OFF]/ON	Turns ON/OFF Gate display for SkinTone Detail detection.
			−99 to [0] to +99	Sets SKIN GATE level.
		MODURATION	[OFF]/ON	Mask function ON/OFF switch at EDGE CROP mode.
			−99 to [0] to +99	Sets the image level of the mask portion.
		MARKER	[OFF]/ON	Turns ON/OFF the MARKER signal.
			[4:3] 13:9 14:9 EU VISTA VISTA CINEMA FOLLOW DC	
C03	I/F SETUP			
		BOARD SLOT1 SLOT2 SLOT3 SLOT4 SLOT5 SLOT6	FRONT / REAR BOARD NAME DISPLAY BOARD NAME DISPLAY BOARD NAME DISPLAY BOARD NAME DISPLAY BOARD NAME DISPLAY BOARD NAME DISPLAY	Detects and displays the board attached to front/rear of Slots 1 to 6 (HDCU1000) or Slots 1 to 3 (HDCU1500) or Slots 1 to 5 (HDCU1080).
		D-SUB15	(WFM-REMOTE)/ (MIC-REMOTE)	Displays the D-SUB 15-pin connector settings. (HDCU1500)
		CHARA/SYNC	(CHARACTER)/(SYNC)	Displays the CHARA/SYNC terminal output settings. (HDCU1500)
C04	MIC/AUDIO			
		CHU MIC GAIN	(REMOTE/LOCAL)	Displays local/remote for the camera microphone amplifier settings.
		CH1	20/30/40/50/[60dB]	Sets amplifier gain for MIC-1 circuit.
		CH2	20/30/40/50/[60dB]	Sets amplifier gain for MIC-2 circuit.
		MIC OUT DELAY	0 to 1280Fs	Sets audio output phase for the camera microphone.
		ANALOG OUT	[MIC1/2]/AES/EBU	Selects the MIC OUT ANALOG output.
		AES/EBU OUT	[MIC1/2]/AES/EBU	Selects the MIC OUT DIGITAL output.
		AUDIO PACKET	[AUTO]/700/900	Selects the Audio Packet operation mode.

[ ] : The settings in the box are default values.

Page	Menu / Menu Image	Item	Setting	Description
C05	INCOM/PGM			
	<INCOM/PGM> C05 TOP FP-INCOM (MIC ON) (PRIVATE) PGM-MODE : OFF PGM-SEL : MIX PGM1 : 0 PGM2 : 0 SIDE TONE: 0 INCOM-CH : 2CH	FP-INCOM	(MIC ON/OFF/PGM ON) (PROD/ENG/PRIVATE)	Displays the FRONT INCOM MIC SW settings. Displays the FRONT INCOM line settings.
		PGM-MODE	SEP/MIX/[OFF]	Sets the PGM-MODE output.
		PGM-SEL	MIX/[PGM1]/PGM2/OFF	Selects the PGM-MODE.
		PGM1	–99 to [0] to +99	Sets PGM1 level.
		PGM2	–99 to [0] to +99	Sets PGM2 level.
		SIDE TONE	–99 to [0] to +99	Sets SIDE TONE level.
		INCOM-CH	1CH/[2CH]	Selects INCOME CHANNEL.
C06	PROMPT/TRUNK			
	<PROMPT/TRUNK> ?C06 TOP PROMPTER: 1CH TRUNK SETTING CH : 2CH SAMPLE : AUTO (768k) IF : 232C	PROMPTER	[1CH]/2CH	Sets line number for Prompter (Only 1 channel is available at this moment. Valid when 2 channels are supported in the future.)
		TRUNK SETTING CH IF	 1CH/[2CH] [232C]/422A	Sets line for TRUNK. Sets the channel number used. Sets the communication line mode.
C07	VIDEO SETUP			
	<VIDEO SETUP> ?C07 TOP SETUP : OFF Q FILTER : WD G/Y SYNC : OFF VCS RELAY : ON	SETUP	[OFF]/ON	Turns ON/OFF the SETUP.
		Q FILTER	[WD]/NA	Sets width of Q-Filter. (Only when the EN board is attached)
		G/Y SYNC	OFF/[ON]	Turns ON/OFF Gch-SYNC for the R/G/B component signal. (Only when the EN board is attached)
		VCS RELAY	OFF/[ON]	Sets PIX/WFM terminal output mode. (Only when the EN board is attached)
C08	VIDEO ADJUST (When using EN-159 board)			
	<VIDEO ADJUST 1> C08 TOP VBS LEVEL : 0 CHROMA: 0 PIX LEVEL : 0 CHROMA: 0 WFM LEVEL : 0 CHROMA: 0	VBS LEVEL CHROMA	 –99 to [0] to +99 –99 to [0] to +99	Adjusts the VBS output video level.
		PIX LEVEL CHROMA	 –99 to [0] to +99 –99 to [0] to +99	Adjusts the PIX output video level.
		WFM LEVEL CHROMA	 –99 to [0] to +99 –99 to [0] to +99	Adjusts the WFM output video level.

[ ] : The settings in the box are default values.

Page	Menu / Menu Image	Item	Setting	Description
C09	VIDEO ADJUST 2 (When using two EN-159 boards)  When the VDA-64C board is used in the rear optional slot.	When two EN boards are used in the HDCU1000, the following video level adjustment menus are displayed as with the first board.		
		VBS		Adjusts the VBS output video level.
		LEVEL	−99 to [0] to +99	
		CHROMA	−99 to [0] to +99	
		PIX		Adjusts the PIX output video level.
		LEVEL	−99 to [0] to +99	
		CHROMA	−99 to [0] to +99	
		WFM		Adjusts the WFM output video level.
		LEVEL	−99 to [0] to +99	
		CHROMA	−99 to [0] to +99	
		G/Y LEVEL	−99 to [0] to +99	Adjusts the G/Y output video level.
		B/B-Y LEVEL	−99 to [0] to +99	Adjusts the B/B-Y output video level.
		R/R-Y LEVEL	−99 to [0] to +99	Adjusts the R/R-Y output video level.
C10	MENU SETTING  	RESUME	OFF/[ON]	Turns ON/OFF the function that displays the page previously opened when you open the menu.
		ALARM JUMP	[OFF]/ON	Turns ON/OFF the function that displays pages related to current errors when you open the menu.
		RE DIRECTION		Sets the SW operating direction of the menu settings SW.
		CATEGORY	STD/[RVS]	
		PAGE	[STD]/RVS	
		ITEM	STD/[RVS]	
		DATA	[STD]/RVS	
C11	DISPLAY  	MESSAGE	[ALL]/OFF/WARNING	Turns ON/OFF SW settings and camera messages displayed on the VF display screen.
		MASTER GAIN	OFF/[ON]	
		EVS/SHUTTER	OFF/[ON]	
		ND FILTER	OFF/[ON]	
		CC FILTER	OFF/[ON]	
		IRIS	OFF/[ON]	
		EXTENDER	OFF/[ON]	
C12	DATE  	DATE/TIME	2005/07/26 11:45	Sets the clock (date, time) for the unit.

[ ] : The settings in the box are default values.

HDCU1000 (UC)
HDCU1000 (J)
HDCU1000 (CE)
HDCU1080 (CN)
HDCU1500 (SY)
HDCU1500 (J)
HKCU1001 (SY)
HKCU1003 (SY)
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