

**SONY**<sup>®</sup>

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 4)

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 : HDCU1000 (E3)

Serial No. 60001 and Higher : HDCU1000 (E2)

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可能性があります。

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 angegebenen Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

## ⚠ AVERTISSEMENT

Ce manuel 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.

安全のために、周辺機器を接続する際は、過大電圧を持つ可能性があるコネクタを以下のポートに接続しないでください。

: Ethernetコネクタ

上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port(s).

: Ethernet connector

Follow the instructions for the above port(s).

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# Manual Structure

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## 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.

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## 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: 9-968-546-06

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## Trademarks

Trademarks and registered trademarks used in this manual are follows.

- 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
HDC-900/950	AT-130	Ver.1.20 or higher

## 1-2. Connectors and Cables

### 1-2-1. Connector Input/Output Signal

#### BNC connector

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#### HDCU1000/1080

##### SDI OUTPUT (1-4) : BNC

Conforms to BTA-S004B, 0.8 V p-p, 75  $\Omega$ , 1.485 Gbps/  
1.4835 Gbps  
SMPTE 292M  
or  
Component serial signal : 0.8 V p-p, 75  $\Omega$ , 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  $\Omega$

##### INPUT

- **REFERENCE : BNC**  
 $\pm 0.3$  V, ternary SYNC, 75  $\Omega$   
or 0.286 V p-p, black burst signal, 75  $\Omega$
- **PROMPTER (1-2) : BNC**  
1.0 V p-p, 75  $\Omega$

##### OUTPUT

- **SYNC : BNC**  
 $\pm 0.3$  V, ternary SYNC, 75  $\Omega$   
0.3 V p-p, SD SYNC, 75  $\Omega$  selectable
- **CHARACTER : BNC**  
1.0 V p-p, 75  $\Omega$
- **AES/EBU : BNC**  
AES/EBU format

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#### HDCU1500

##### SDI OUT (1-3) : BNC

Conforms to BTA-S004B, 0.8 V p-p, 75  $\Omega$ , 1.485 Gbps/  
1.4835 Gbps  
SMPTE 292M  
or  
Component serial signal : 0.8 V p-p, 75  $\Omega$ , 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  $\Omega$  selectable

##### REFERENCE IN : BNC

$\pm 0.3$  V, ternary SYNC, 75  $\Omega$   
or 0.286 V p-p, black burst signal, 75  $\Omega$

##### PROMPTER IN : BNC

1.0 V p-p, 75  $\Omega$

##### CHARACTER/SYNC OUT : BNC

1.0 V p-p, 75  $\Omega$   
or  
 $\pm 0.3$  V, ternary SYNC, 75  $\Omega$   
0.3 V p-p, SD SYNC, 75  $\Omega$  selectable

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**HKCU1001/1003****VBS (1-2) OUT** : BNC1.0 V p-p, 75  $\Omega$ **PIX OUT** : BNC1.0 V p-p, 75  $\Omega$ **WF OUT** : BNC0.714 V p-p, 75  $\Omega$ 

ENC : 1.0 V p-p

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**HKCU1003****FRAME REF IN** : BNC0.3 V p-p FRAME SYNC pulse, 75  $\Omega$ 

or

 $\pm 0.3$  V, ternary SYNC, 75  $\Omega$ or 0.286 V p-p, black burst signal, 75  $\Omega$ **FRAME REF OUT** : BNCTHROUGH OUT/0.3 V p-p FRAME SYNC pulse, 75  $\Omega$ **PIX OUT** : BNC1.0 V p-p, 75  $\Omega$ **WF OUT** : BNC0.714 V p-p, 75  $\Omega$  (NTSC)0.7 V p-p, 75  $\Omega$  (PAL)

ENC : 1.0 V p-p

**VBS OUT** : BNC1.0V p-p, 75  $\Omega$ **R-Y/R OUT** : BNCR-Y : 0.7 V p-p, 75  $\Omega$  (NTSC, SETUP : ON, when outputting 75% color bar)0.525 V p-p, 75  $\Omega$  (PAL, when outputting 75% color bar)R : 0.7 V p-p, 75  $\Omega$ **Y/G OUT** : BNCY : 1.0 V p-p (Video : 0.714 V, synchronous 0.286 V, NTSC), 75  $\Omega$ 1.0 V p-p (Video : 0.7 V, synchronous 0.3 V, PAL), 75  $\Omega$ G : 0.7 V p-p, 75  $\Omega$ **B-Y/B OUT** : BNCB-Y : 0.7 V p-p, 75  $\Omega$  (NTSC, SETUP : ON, when outputting 75% color bar)0.525 V p-p, 75  $\Omega$  (PAL, when outputting 75% color bar)B : 0.7 V p-p, 75  $\Omega$ 

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**HKCU1005****SDI OUT (1-4)** : BNCConforms to BTA-S004B, 0.8 V p-p, 75  $\Omega$ , 1.485 Gbps/

1.4835 Gbps

SMPTE 292M

or

Component serial signal : 0.8 V p-p, 75  $\Omega$ , 270 Mbps

SMPTE 259M

**CAMERA connector** (optical/electrical composite connector)VIDEO Y/P<sub>B</sub>/P<sub>R</sub>

Conforms to BTA-S004B, 1.485 Gbps/

1.4835 Gbps serial

SMPTE 297M

RET VIDEO Y/P<sub>B</sub>/P<sub>R</sub>

Conforms to BTA-S004B, 1.485 Gbps/

1.4835 Gbps serial

SMPTE 297M

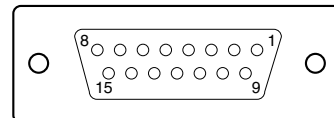
INCOM 2ch

MIC 2ch

DIGITAL AUDIO (AES/EBU)

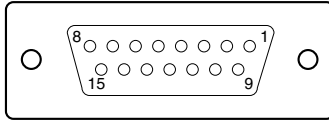
CAMERA COMMAND

PROMPTER

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

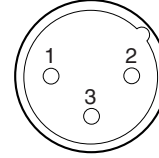
– EXT VIEW –

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 –

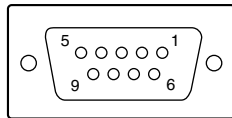
No.	Signal	Specifications
1	IN1	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
2	IN2	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
3	IN3	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
4	IN4	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
5	IN5	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
6	IN6	GND/+5 V, OPEN (47 kΩ +5 V PULL UP)
7	IN7	GND/+5 V, OPEN (47 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)

**MIC1/MIC2** (XLR 3P, Male)

– EXT VIEW –

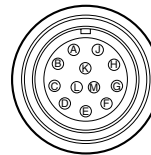
(0 dBu = 0.775 Vrms)

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

– EXT VIEW –

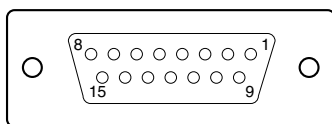
No.	Signal	Specifications
1	NC	No connection
2	EXT-CMD0-IN (RXD IN)	
3	EXT-CHD0-OUT (TXD OUT)	
4	NC	No connection
5	GND	
6	NC	No connection
7	NC	No connection
8	NC	No connection
9	NC	No connection

**TRUNK A** (12P, Female)

– EXT VIEW –

No.	Signal	Specifications	
	RS422A	RS232C	
A	TX1 (−)	−	TRUNK Data out
B	TX1 (+)	−	
C	NC	NC	No connection
D	TX0 (+)	TX1	TRUNK Data out
E	TX0 (−)	TX0	
F	RX0 (−)	RX0	TRUNK Data in
G	RX0 (+)	RX1	
H	RX1 (+)	−	
J	RX1 (−)	−	
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	CONT2 *1 Refer to the right column.
6	AMP	CONT1
7	GAIN IN	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	PREVIEW OUT	ON (GND) : 47 kΩ +5 V PULL UP
12	ASPECT REMOTE ON/OFF	L : REMOTE
13	ASPECT	CONT1 *3 Refer to the right column.
14	CTL	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

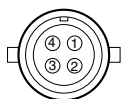
\*2 :

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)

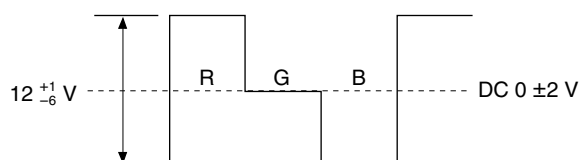
## WF MODE (4P, Female)



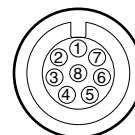
– EXT VIEW –

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



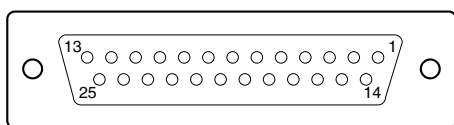
## RCP/CNU (8P, Female)



– 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	RCP POWER, +30 V
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)

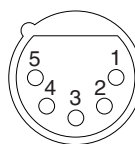


– EXT VIEW –

(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	ENG (R) (X) OUT	ENG <b>SYSTEM</b> RECEIVE
2	ENG (R) (Y) OUT	0 dBu BALANCED
3	ENG (G)	GND for ENG
4	ENG (T) (X) IN	ENG <b>SYSTEM</b> 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	S502/AVP 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 <b>SYSTEM</b>
15	PROD (R) (Y) OUT	RECEIVE 0 dBu BALANCED
16	PROD (G)	GND for PROD
17	PROD (T) (X) IN	PROD <b>SYSTEM</b> 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	S503/AVP 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)



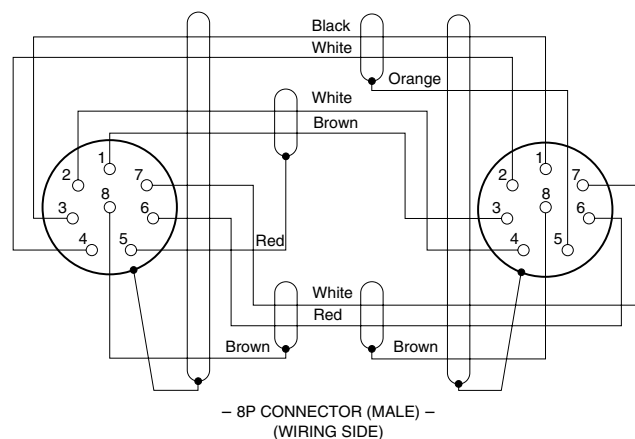
– EXT VIEW –

(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)



## 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
<b>HDCU1000/1080/1500</b>	
CAMERA	• LEMO® PUW. 3K. 93C. TLCC96 *1
<b>(HDC1000/1100/1400/1500/1580/1600 side)</b>	
CCU	• LEMO® FUW. 3K. 93C. TLMC96 *1
<b>HDCU1000/1080</b>	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	
<b>HDCU1500</b>	
REFERENCE	
PROMPTER	
CHARACTER/SYNC	
<b>HKCU1001/1003</b>	
VBS (1-2)	
PIX OUT	
WF OUT	
<b>HKCU1003</b>	
FRAME REF IN	
FRAME REF OUT	
PIX OUT	
WF OUT	
VBS	
R-Y/R	
Y/G	
B-Y/B	
(BNC)	
<b>HDCU1000</b>	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)	
(BNC)	

Connector	Connector/cable
<b>HDCU1080</b>	1-569-370-12 PLUG, BNC or
SLOT1 (1-4)	BELDEN8281 Cable or
HD SDI (1-4)	equivalent
SD SDI (1-4)	
<b>HDCU1500</b>	
SDI (1-3)	
RET (1-3)	
<b>HKCU1005</b>	
SDI OUT (1-4)	
(BNC)	
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
TRUNK A	1-819-261-11 12P, Male
(12P, Female)	TAJIMI ELECTRONICS CO., LTD.
	PRC07-P12M

\*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

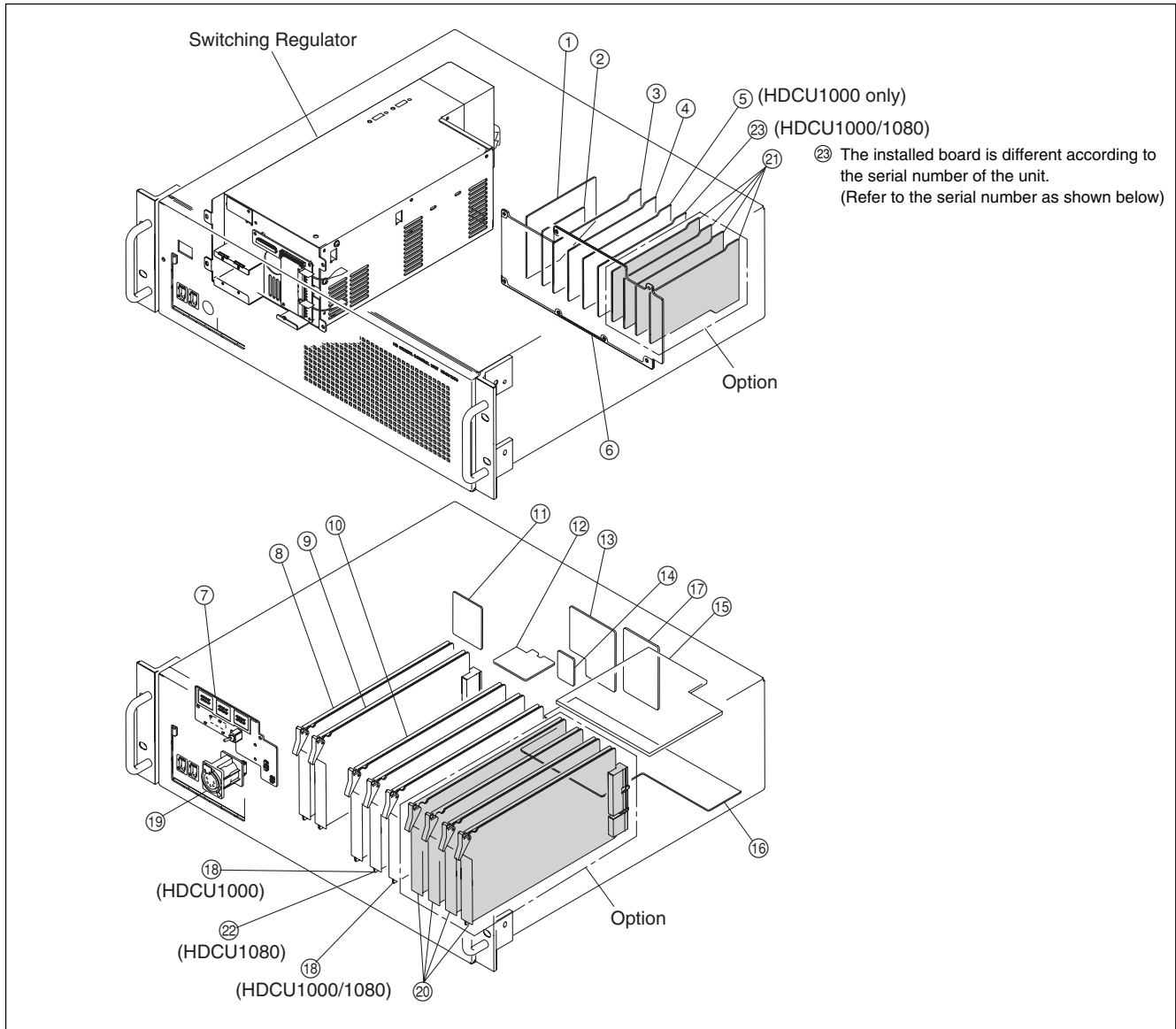
Before connecting the unit to the camera adaptor, clean the following optical contact blocks.

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

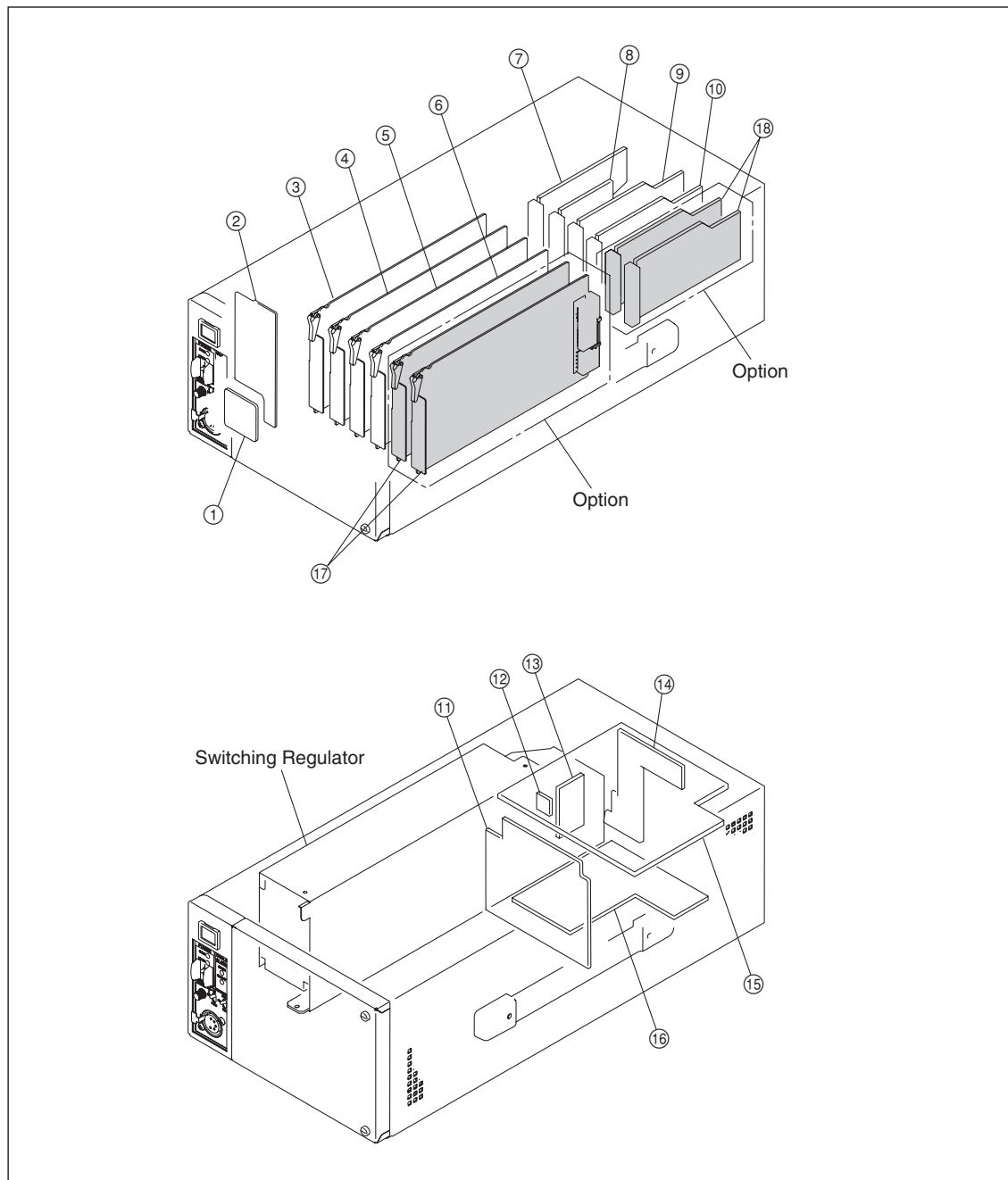
### 1-3-1. Circuit Boards and Main Parts Layouts (HDCU1000/1080)



- |                       |                       |                                |                                 |
|-----------------------|-----------------------|--------------------------------|---------------------------------|
| ① VIF-34/34G board    | ⑪ CN-2718 board       | ⑳ EN-159A board (HKCU1001)     | ㉓ HIF-25 board                  |
| ② ADO-10/10G board    | ⑫ CN-2673 board       | EN-159B board (HKCU1003)*      | 10001–13999 (HDCU1000: UC)      |
| ③ SDI-86/86G board    | ⑬ CN-2672/2672G board | DRX-5 board (HKCU1005)         | 40001–40999 (HDCU1000: CE)      |
| ④ SDI-85 board        | ⑭ CN-2805/2805G board | ㉑ VDA-64A board (HKCU1001)     | 50001–51999 (HDCU1080: CN)      |
| ⑤ HIF-25 board        | ⑮ SDP-12 board        | VDA-64A board (HKCU1003)*      | HIF-26 board                    |
| ⑥ MB-1071/1071A board | ⑯ CNB-21/21G board    | VDA-64B board (HKCU1003)*      | 14001 and Higher (HDCU1000: UC) |
| ⑦ AU-302 board        | ⑰ CN-2674/2674G board | VDA-64C board (HKCU1003)*      | 41001 and Higher (HDCU1000: CE) |
| ⑧ AT-167 board        | ⑱ CN-2700 board       | HIF-26 board (HKCU1005)        | 52001 and Higher (HDCU1080: CN) |
| ⑨ AVP-6 board         |                       | ㉒ DU-390 board (HDCU1080 only) | 50001 and Higher (HDCU1000: E3) |
| ⑩ DTX-5 board         |                       |                                | 60001 and Higher (HDCU1000: E2) |

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

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



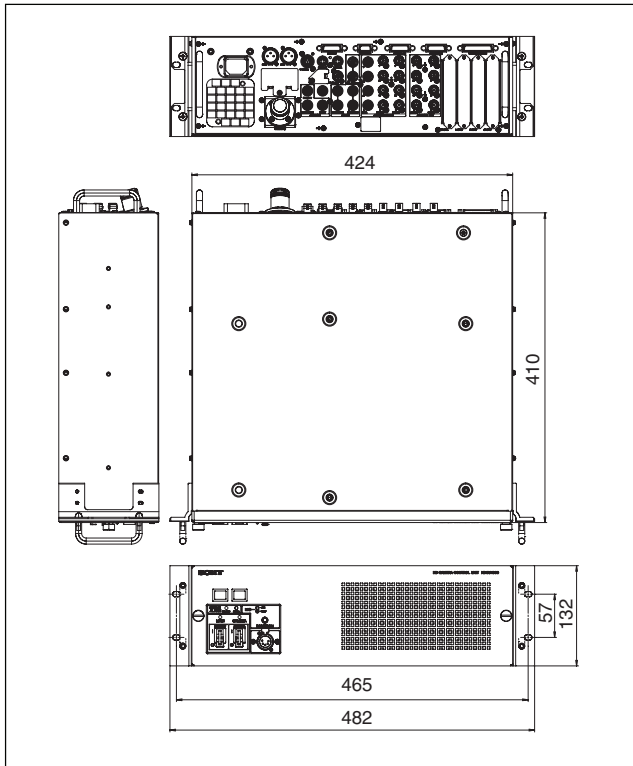
- ① CN-2678 board
- ② AU-303/303G board
- ③ AT-167 board
- ④ AVP-6 board
- ⑤ DTX-5 board
- ⑥ DRX-5 board
- ⑦ VIF-34B/34BG board
- ⑧ ADO-10/10G board

- 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

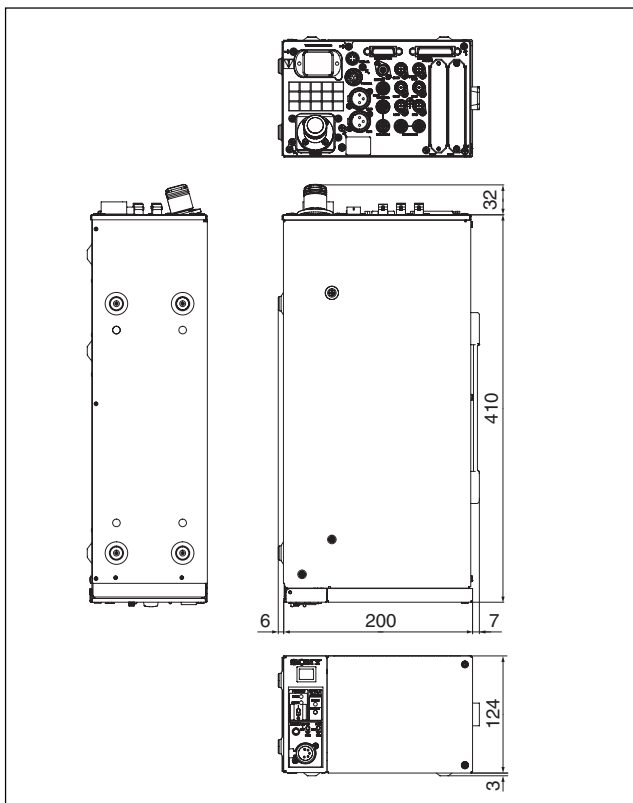
- ⑰ EN-159A board (HKCU1001)  
EN-159B board (HKCU1003)  
DRX-5 board (HKCU1005)
- ⑱ VDA-64A board (HKCU1001)  
VDA-64A board (HKCU1003)  
VDA-64B board (HKCU1003)  
VDA-64C board (HKCU1003)  
HIF-26 board (HKCU1005)

## 1-4. External Dimensions

### 1-4-1. HDCU1000/1080



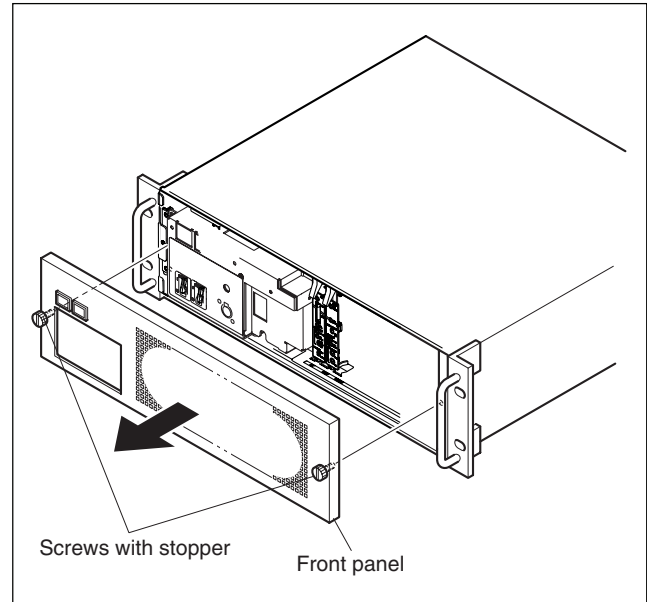
### 1-4-2. HDCU1500



## 1-5. Removing/Installing the Front Panel

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

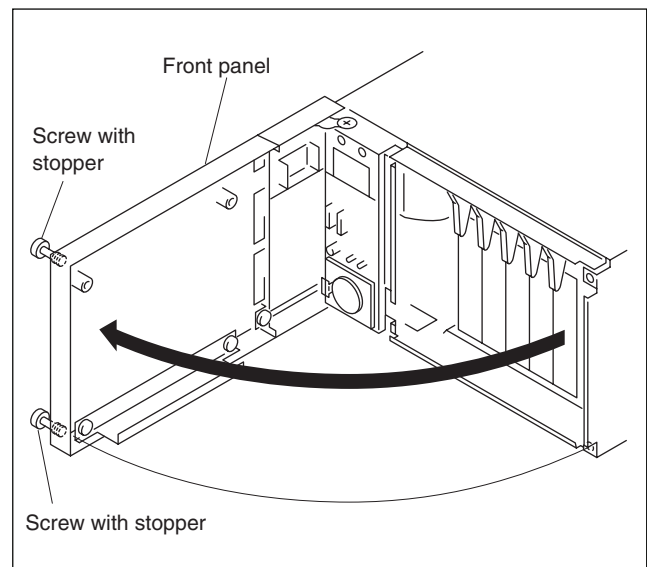
1. Fully loosen the two screws with stopper and remove the front panel in the direction of the arrow.



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.



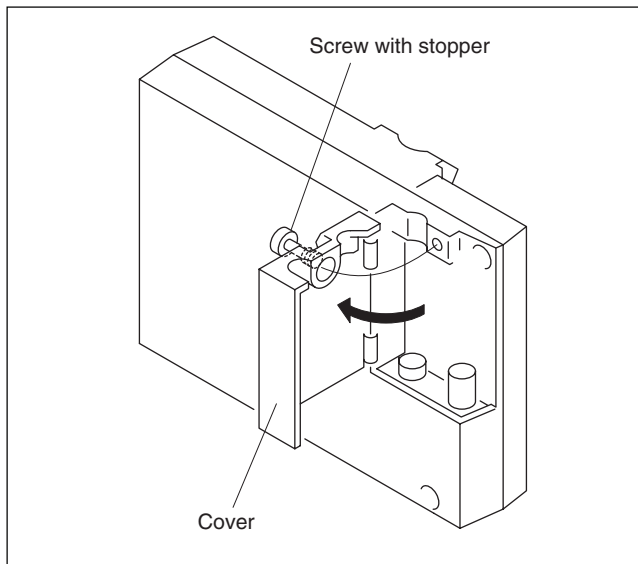
2. Reattach the front panel in reverse order of step 1.

## 1-6. Installing the RM-B750

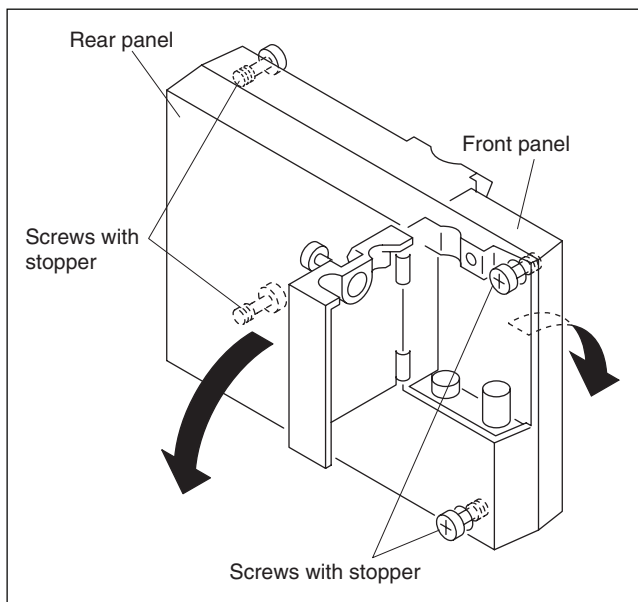
This section describes the installation procedure when the front panel of the remote control unit RM-B750 is used by being installed to HDCU1500.

### 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.

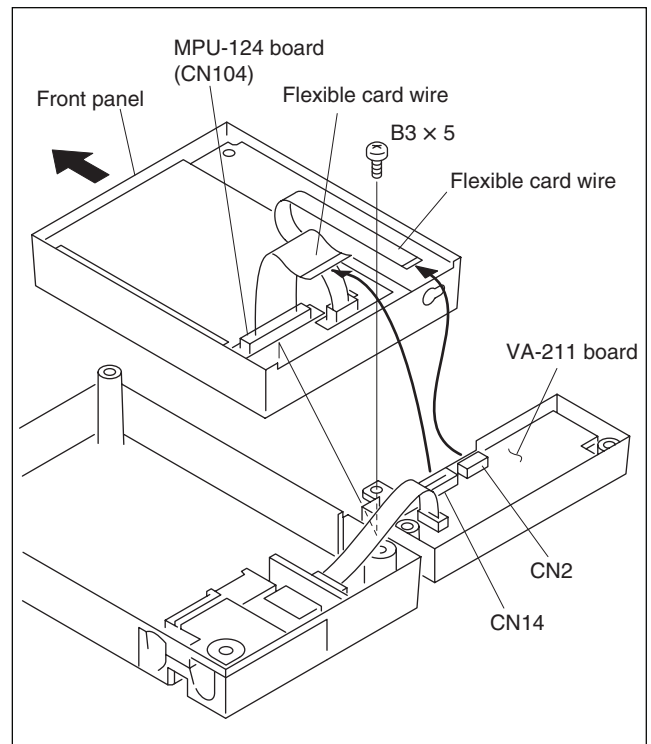


3. Disconnect the flexible card wires from the connectors CN2, CN14 on the VA-211 board.

#### Note

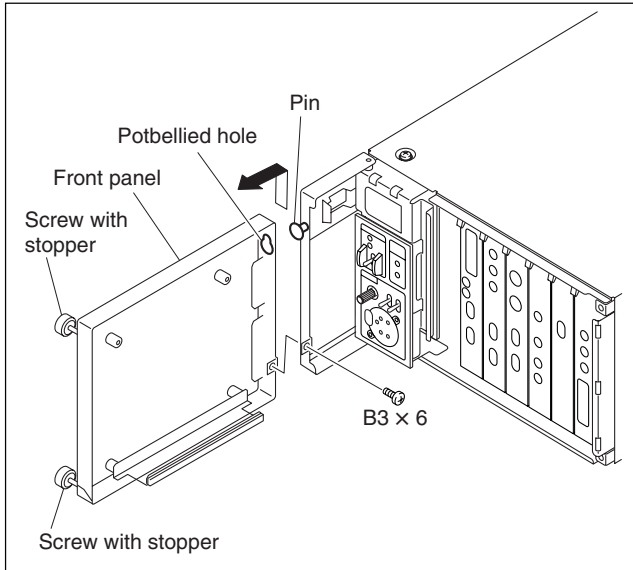
Be careful not to bend the flexible card wires. This shortens the wire life.

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.

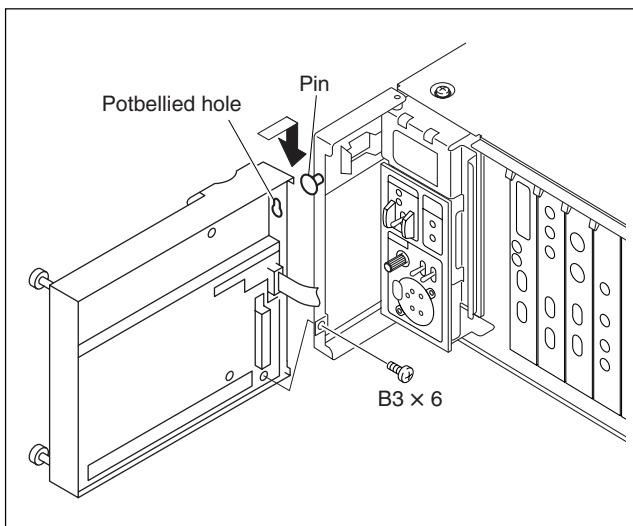


9. Insert the pin into the potbellied hole of the front panel of the RM-B750 removed in step 4 and slide the pin in the direction of the arrow.

### 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.

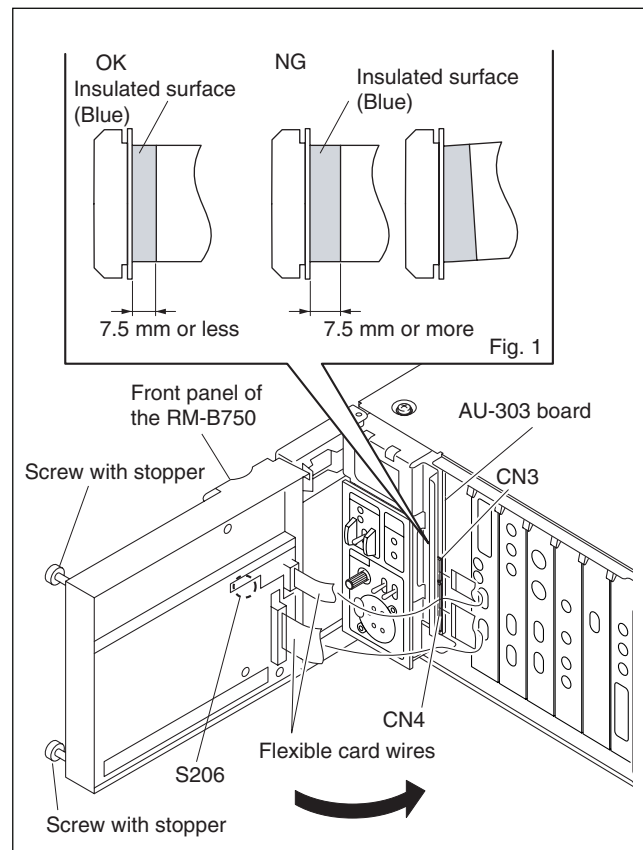
### Notes

- 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 a 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

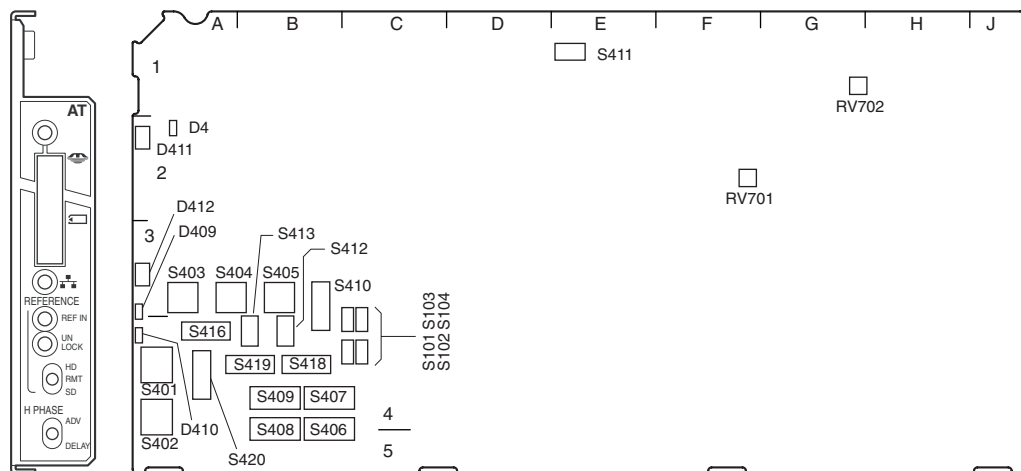
When closing the front panel, be careful not to give excessive force on the flexible card wires or the connectors.



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*	(green) Illuminates when communication is in progress via the Ethernet connector.	—
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

\* : This function has been added to software V1.10 and the later versions.

Ref.No.	Name	Function	Factory default setting																																																			
S405	V-DLY	<p>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</p> <table><thead><tr><th>S407</th><th>REFERENCE HD Reference (advance amount of SD)</th><th>REFERENCE SD Reference (advance amount of HD)</th></tr></thead><tbody><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>-4.74 usec</td><td>-3.45 μsec</td></tr><tr><td>2</td><td>-9.48 usec</td><td>-6.70 μsec</td></tr><tr><td>3</td><td>-14.2 usec</td><td>-10.3 μsec</td></tr><tr><td>4</td><td>-19.0 usec</td><td>-13.8 μsec</td></tr><tr><td>5</td><td>-23.7 usec</td><td>-17.2 μsec</td></tr><tr><td>6</td><td>-28.4 usec</td><td>-20.7 μsec</td></tr><tr><td>7</td><td>-33.2 usec</td><td>-24.1 μsec</td></tr><tr><td>8</td><td>-37.9 usec</td><td>-27.6 μsec</td></tr><tr><td>9</td><td>-42.7 usec</td><td>-31.0 μsec</td></tr><tr><td>A</td><td>-47.7 usec</td><td>-34.5 μsec</td></tr><tr><td>B</td><td>-52.1 usec</td><td>-37.9 μsec</td></tr><tr><td>C</td><td>-56.9 usec</td><td>-41.4 μsec</td></tr><tr><td>D</td><td>-61.6 usec</td><td>-44.8 μsec</td></tr><tr><td>E</td><td>-66.3 usec</td><td>-48.3 μsec</td></tr><tr><td>F</td><td>-71.1 usec</td><td>-51.7 μsec</td></tr></tbody></table> <p>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</p>	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	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																																																				
S406	MODE1																																																					
1	MIC-GT 1&2/1,2	Sets whether or not to control MIC1 and MIC2 of the MIC GAIN CONTROL pin of the MIC REMOTE connector independently or by interlocking the MIC1 and MIC2 controls. ON: MIC1, MIC2 independent control    MIC1 : 5 pin to 7 pin    MIC2 : 12 pin to 14 pin OFF: MIC1, MIC2 interlocked control    MIC1, MIC2 : 5 pin to 7 pin	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 hen 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																																																			

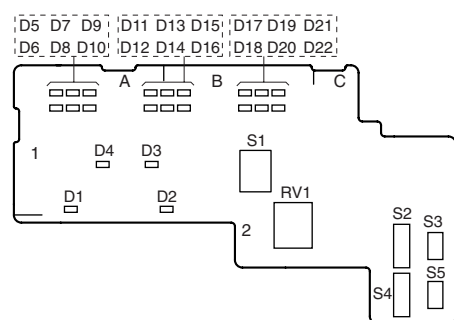
Ref.No.	Name	Function	Factory default setting
S407	TEST		
	1	Factory use	OFF
	2	Factory use	OFF
	3	Factory use	OFF
	4	Factory use	OFF
	5	<b>Ethernet*</b> Ethernet connection setting ON : Ethernet connection can be set. OFF : Ethernet connection cannot be set.	ON
	6	Factory use	OFF
	7	Factory use	OFF
	8	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	<b>GRAY LINE/ON</b> 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	CAM PWR BACKUP*1 ON: Creates a backup when the CAMERA POWER ON/OFF is operated from a remote control panel. OFF: Starts at CAMERA POWER ON.	OFF
	6	Not used	–
	7	Not used	–
S409	8	CO-AX DIS/ENB Factory use	OFF
	<b>CCU-NO</b>	CCU No. setting	–
	1 to 4	S409-4 to 1: 1' digit (BCD)	OFF (ALL)
S410	5 to 8	S409-8 to 5: 10' digit (BCD)	OFF (ALL)
	<b>HD-SD DLY</b>	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. <b>Note</b> 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).	LINE-DLY
S411	SEQ1&SEQ2	Switch depending on the waveform monitor to be used. + : PNP : PNP open collector output – : NPN : NPN open collector output	(+)

\* : This function has been added to software V1.10 and the later versions.

\*1 : This function has been added to software V1.20 and the later versions.

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																																
<table> <tr> <th>FORMAT</th><th>S420</th><th>S418</th><th>S419</th></tr> <tr> <td>1080-60 (or 59.94) i</td><td>1.000 (or 1.001)</td><td>60 V</td><td>Intr</td></tr> <tr> <td>1080-30 (or 29.97) PsF</td><td>1.000 (or 1.001)</td><td>60 V</td><td>PsF</td></tr> <tr> <td>1080-50 i</td><td>1.000</td><td>50 V</td><td>Intr</td></tr> <tr> <td>1080-25 PsF</td><td>1.000</td><td>50 V</td><td>PsF</td></tr> <tr> <td>1080-24 (or 23.98) PsF</td><td>1.000 (or 1.001)</td><td>48 V</td><td>PsF</td></tr> <tr> <td>720-60 (or 59.94) P</td><td>1.000 (or 1.001)</td><td>60 V</td><td>720 P</td></tr> <tr> <td>720-50 P</td><td>1.000</td><td>50 V</td><td>720 P</td></tr> </table>				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
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																																
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.																																	

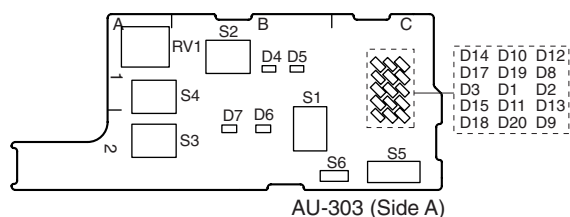
## AU-302 board



AU-302 (Side A)

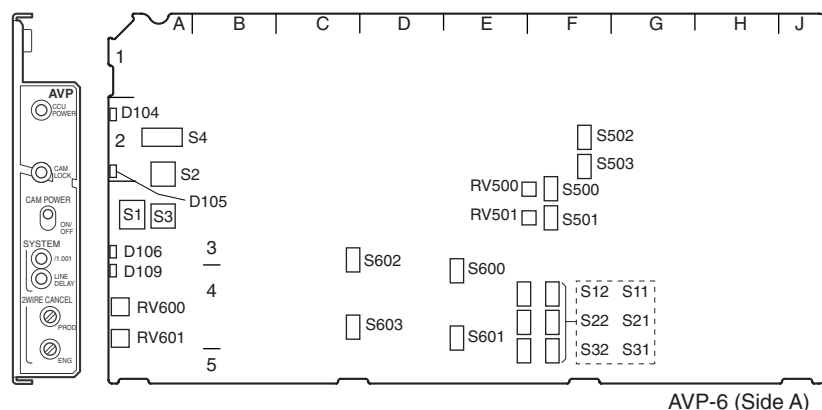
Ref.No.	Name	Function	Factory default setting
D1	MAIN POWER	Refer to the Operation Manual.	—
D2	CAMERA POWER	Refer to the Operation Manual.	—
D3	CABLE ALARM OPEN	Refer to the Operation Manual.	—
D4	CABLE ALARM SHORT	Refer to the Operation Manual.	—
D5-D10	RED TALLY	Refer to the Operation Manual.	—
D11-D16	GREEN TALLY	Refer to the Operation Manual.	—
S1	MIC	Refer to the Operation Manual.	—
S2	<b>INCOM</b>	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



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	<b>INCOM</b>	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.	—

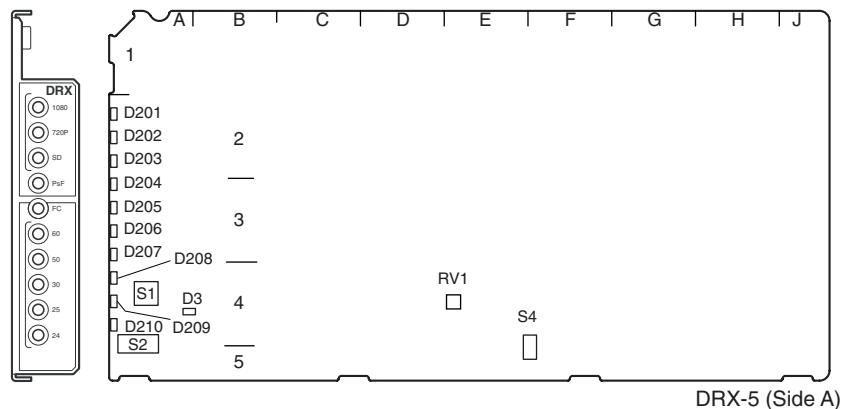
## AVP-6 board



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 camera head 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 (LINE DELAY)	(Yellow) Illuminates when the SD signal delay time at down-conversion is set to 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		
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
S31	U-TALLY (POWER/CONTACT)	Not used	CONTACT		

Ref.No.	Name	Function	Factory default setting																		
S32	U-TALLY (POWER/TTL)	Not used  <b>Tally system setting</b> <table><tr><td></td><td colspan="2">U tally</td></tr><tr><td>Switch</td><td>S31</td><td>S32</td></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>		U tally		Switch	S31	S32	Signal standard	POWER/ CONTACT	POWER/TTL	Contact supply	CONTACT	–	24 V power supply	POWER	POWER	5 V power supply	POWER	TTL	TTL
	U tally																				
Switch	S31	S32																			
Signal standard	POWER/ CONTACT	POWER/TTL																			
Contact supply	CONTACT	–																			
24 V power supply	POWER	POWER																			
5 V power supply	POWER	TTL																			
S500	MIC1 LEV	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.	0 dB																		
S501	MIC2 LEV	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.	0 dB																		
S502	PGM1 IN	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.	0 dB																		
S503	PGM2 IN	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.	0 dB																		
S602	PROD SEL	Selects the intercom system of the producer line.	4W																		
S600	PROD SEL2	<table><tr><td colspan="3">S602 S600</td></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.	S602 S600			4-Wire	4W	*	RTS	RTS	RTS	Clear-Com	RTS	CC	RTS						
S602 S600																					
4-Wire	4W	*																			
RTS	RTS	RTS																			
Clear-Com	RTS	CC																			
S603	ENG SEL	Selects the intercom system of the engineer line.	4W																		
S601	ENG SEL2	<table><tr><td colspan="3">S603 S601</td></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.	S603 S601			4-Wire	4W	*	RTS	RTS	RTS	Clear-Com	RTS	CC	RTS						
S603 S601																					
4-Wire	4W	*																			
RTS	RTS	RTS																			
Clear-Com	RTS	CC																			
RV500	MIC1 LEV																				
RV501	MIC2 LEV																				
RV600	PROD 2WIRE CANCEL																				
RV601	ENG 2WIRE CANCEL																				

## DRX-5 board

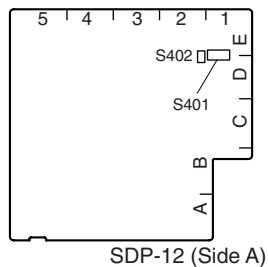


DRX-5 (Side A)

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	<b>CLEAN</b>	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. <b>Note</b> Settings are for each DRX board. The settings are invalid for the third and the later DRX boards. (Always Clean.)	OFF
2	<b>INTERLOC</b>	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). <b>Note</b> 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

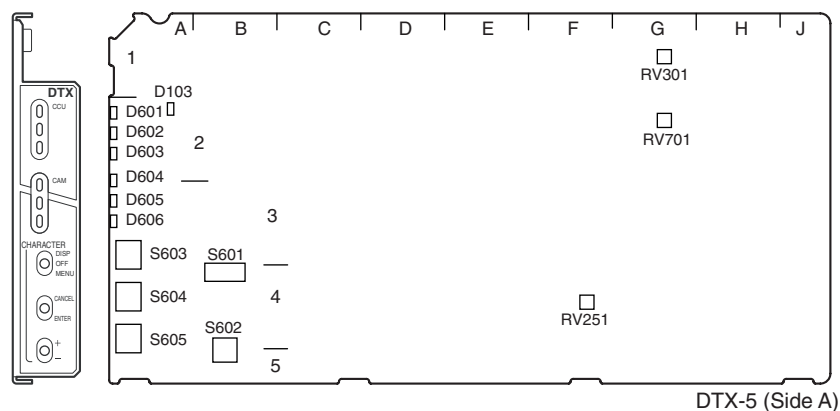
Ref.No.	Name	Function	Factory default setting
S4	MONI	Sets the signal output to the character monitor (SD analog) output. The character signal from each DRX board is connected directly to the character monitor output, so only one character signal must be turned on, and the character signals from the 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



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

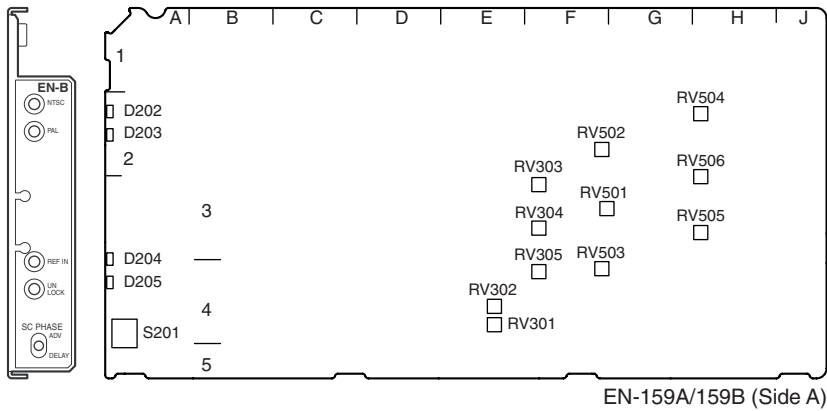
## DTX-5 board



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		(Green) $-17 \pm 1$ dBm or more	—
D602	CCU Opt-Condition	(Yellow) $-17 \pm 1$ dBm to $-20 \pm 1$ dBm	—
D603		(Red) $-20 \pm 1$ dBm or less	—
OPTICAL CONDITION - CAM (The received light level is displayed on camera head.)			
D604		(Green) $-17 \pm 1$ dBm or more	—
D605	CAM Opt-Condition	(Yellow) $-17 \pm 1$ dBm to $-20 \pm 1$ dBm	—
D606		(Red) $-20 \pm 1$ 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	—
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



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. Notes on Using the Power Supply Unit

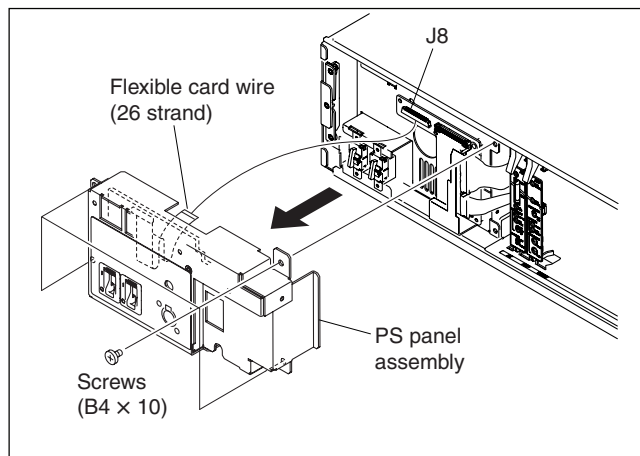
### 1-8-1. Setting the Power Voltage (HDCU1000/1080)

Set the voltage according to the power voltage.

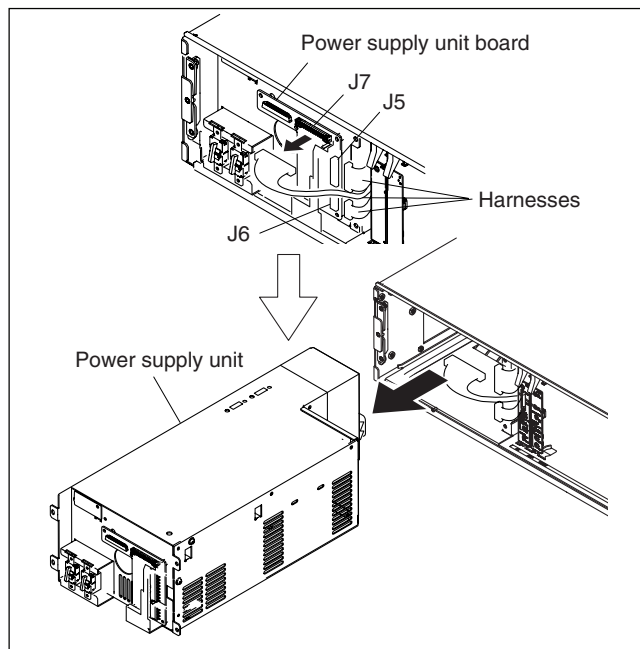
If the voltage setting is changed, the CAMERA fuse needs to be replaced as well. (Refer to Section 1-8-2.)

Voltage setting is performed by combinations of the two switches of the power supply unit.

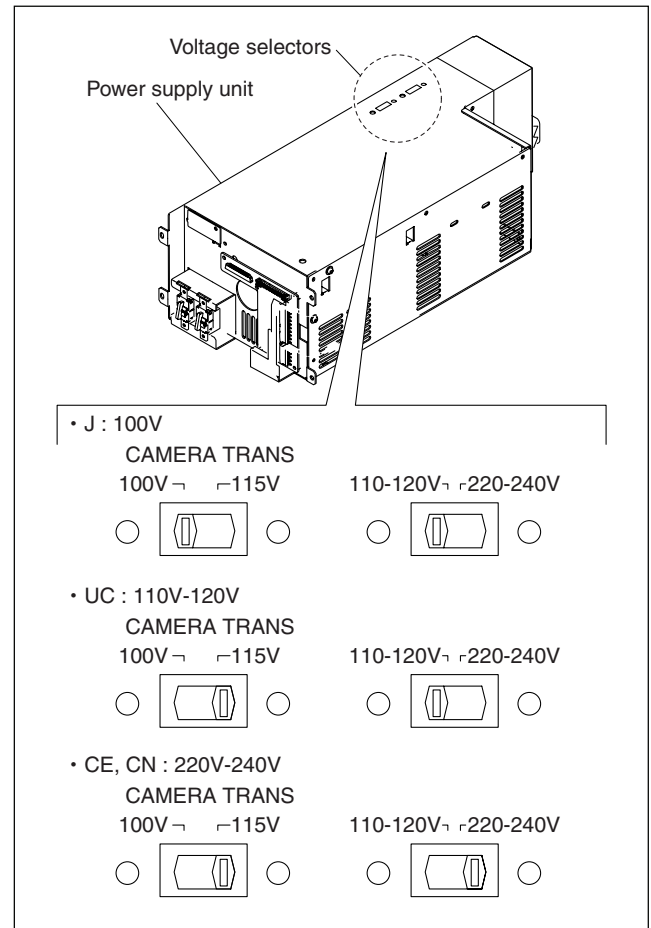
1. Remove the front panel.
2. Remove the four screws and remove the flexible card wire from the power connector J8.



3. Remove the PS panel assembly.
4. Disconnect the harnesses from the power supply unit board connectors J5, J6, and J7.
5. Remove the power supply unit from HDCU in the direction of the arrow.



6. Set the two voltage selectors on the new power supply unit to the settings shown in the diagram.



7. Confirm if the CAMERA fuse of the replacement power supply unit adapts to the working power supply voltage. If not, replace it with the one adapting to the working power supply voltage.

(Refer to Section 1-8-2.)

#### Note

If the rating of the fuse doesn't adapt to the working power supply voltage, the safety can not be ensured. So, the CAMERA fuse needs to be replaced with the one adapting to the working power supply voltage.

8. Install the new power supply unit in the reverse order that it was removed.

## 1-8-2. Replacing the Fuse (HDCU1000/1080)

### WARNING

The components marked  $\triangle$  are critical to safe operation. If you replace with parts other than the specified ones, a fire or electric shock may result from that.

### Replacement Part

#### MAIN fuse

Part : Fuse (3.15 A, 250 V)

Part No. :  $\triangle$  1-576-230-51

#### CAMERA fuse

For UC

100 to 120 V

Part : Fuse ( 6.3 A, 250 V)

Part No. :  $\triangle$  1-576-233-51

For CE, CN

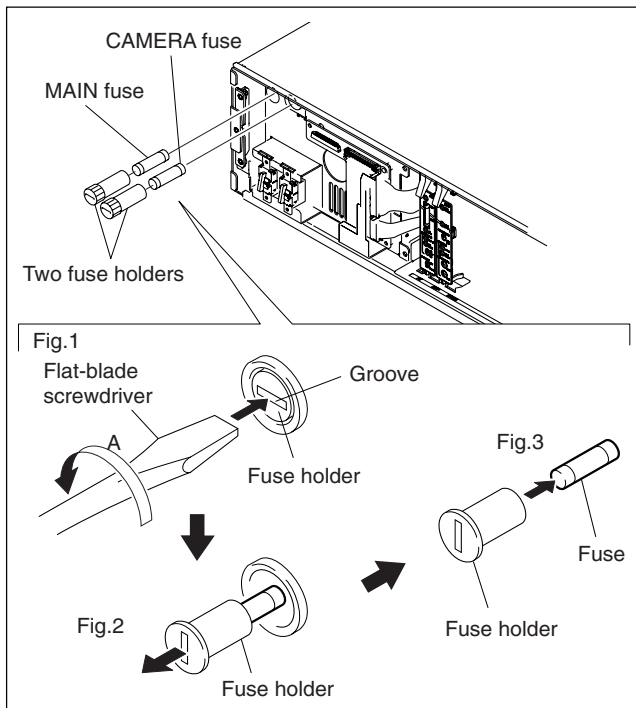
220 to 240 V

Part : Fuse (4 A, 250 V)

Part No. :  $\triangle$  1-576-231-51

### Replacement Procedure

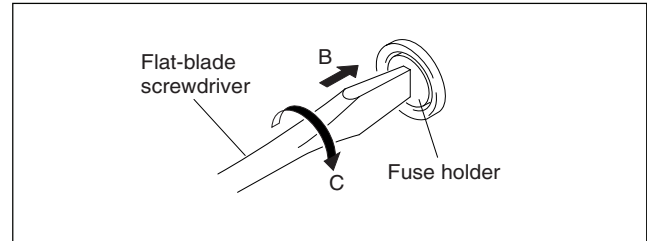
1. Remove the PS panel assembly.  
(Refer to Section 1-8-1.)
2. Insert a flat-blade screwdriver into the groove of the fuse holder, and rotate it in the direction of arrow A (by about 90°) to unlock. (Fig. 1)
3. Remove the fuse with the fuse holder. (Fig. 2)
4. Remove the fuse from the fuse holder. (Fig. 3)



5. Attach the fuse in the reverse order.

### Note

A spring is already attached in the fuse holder. When attaching a new fuse, rotate the flat-blade screwdriver in the direction of arrow C (by about 90°) while pressing it in the direction of arrow B to lock the fuse holder.



## 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, "System Connection".

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		4 (3)	HIF-26
	5		5 (4)	
	6		6 (5)	
5	3	DRX-5 EN-159A	3 (2)	HIF-26
	4		4 (3)	VDA-64A
	5		5 (4)	
	6		6 (5)	
6-1*2	3	DRX-5 EN-159B	3	HIF-26
	4		4	VDA-64A
	5		5	
	6		6	
6-2*2	3	DRX-5 EN-159B	3	HIF-26
	4		4	VDA-64B
	5		5	
	6		6	
6-3*2	3	DRX-5 EN-159B	3	HIF-26
	4		4	VDA-64A
	5		5	VDA-64C
	6		6	
6-4*2	3	DRX-5 EN-159B	3	HIF-26
	4		4	VDA-64B
	5		5	VDA-64C
	6		6	
7	3	EN-159A EN-159A	3 (2)	VDA-64A
	4		4 (3)	VDA-64A
	5		5 (4)	
	6		6 (5)	
8-1*2	3	EN-159A EN-159B	3	VDA-64A
	4		4	VDA-64A
	5		5	
	6		6	
8-2*2	3	EN-159A EN-159B	3	VDA-64A
	4		4	VDA-64B
	5		5	
	6		6	
8-3*2	3	EN-159A EN-159B	3	VDA-64A
	4		4	VDA-64A
	5		5	VDA-64C
	6		6	
8-4*2	3	EN-159A EN-159B	3	VDA-64A
	4		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 3	DRX-5	2 3	HIF-26
2	2 3	EN-159A	2 3	VDA-64A
3-1	2 3	EN-159B	2 3	VDA-64A
3-2	2 3	EN-159B	2 3	VDA-64B
3-3	2 3	EN-159B	2 3	VDA-64A VDA-64C
3-4	2 3	EN-159B	2 3	VDA-64B VDA-64C

- When installing two option boards

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

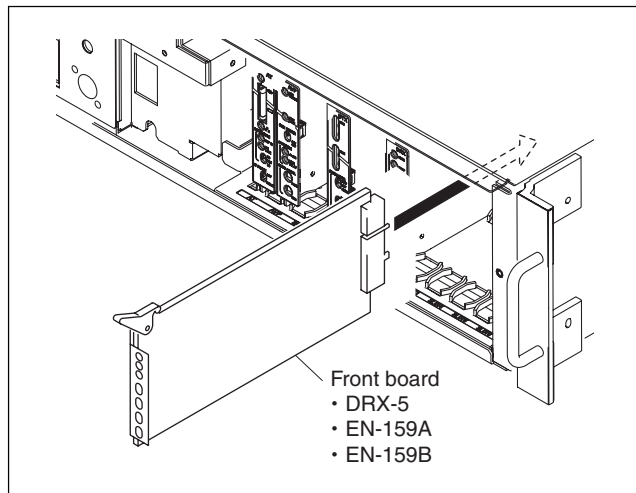
### 1-10-1. HDCU1000

#### 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.

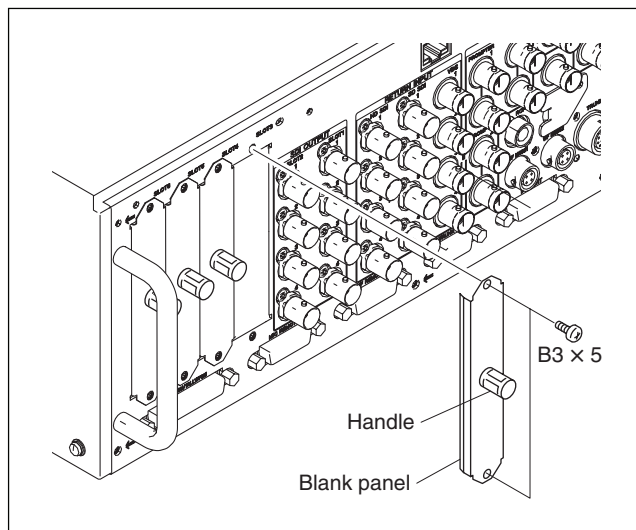
#### Note

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



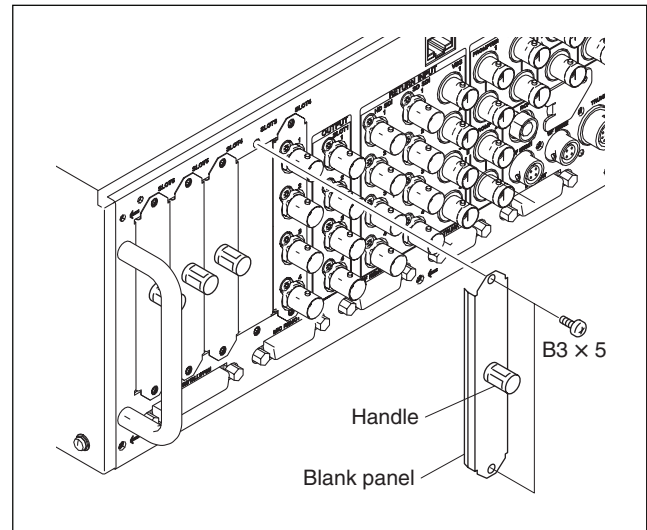
#### Rear side (When there are four slots)

- Remove the two screws, and remove the blank panel by the handle. (Store the removed blank panel in a safe place)



#### Rear side (When there are five slots)

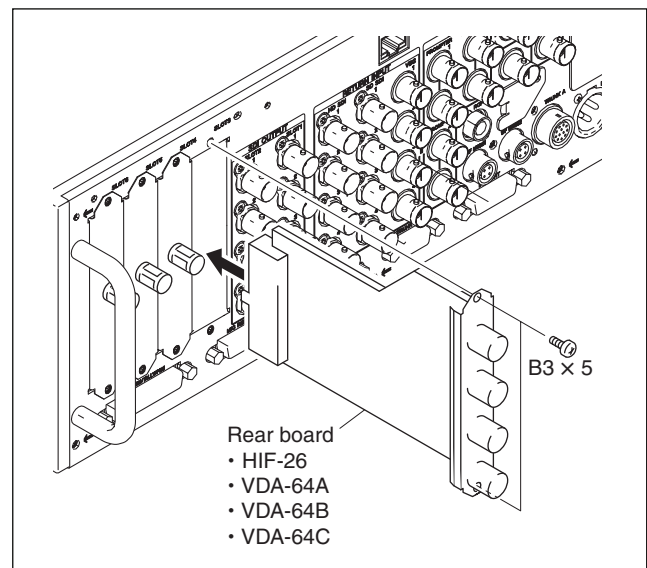
- Remove the two screws, and remove the blank panel by the handle. (Store the removed blank panel in a safe place)



1. 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).
2. After inserting the option board into the slot, fix the option board with two screws.



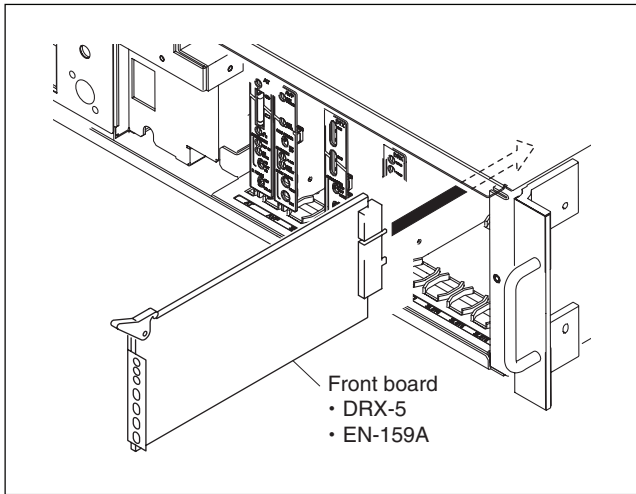
## 1-10-2. HDCU1080

### 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.

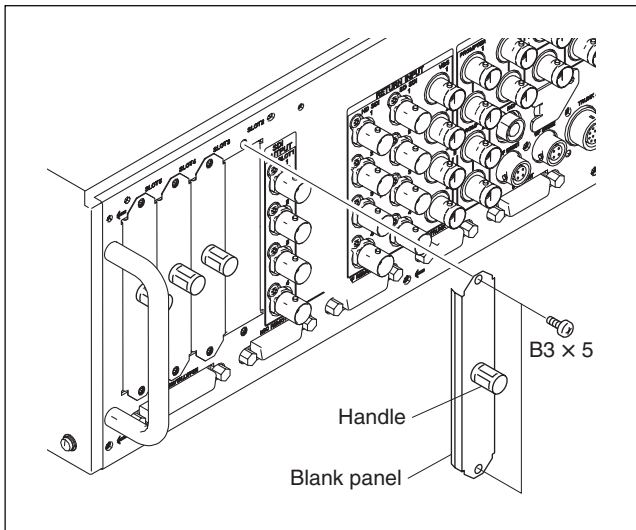
#### Note

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



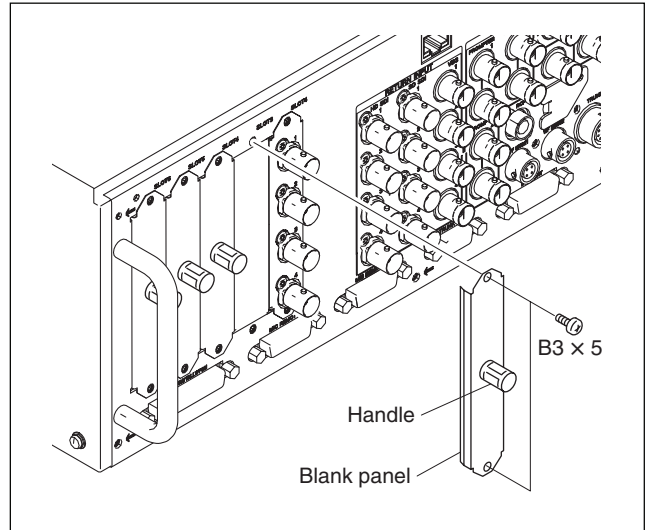
### Rear side (When there are four slots)

- Remove the two screws, and remove the blank panel by the handle. (Store the removed blank panel in a safe place)



### Rear side (When there are five slots)

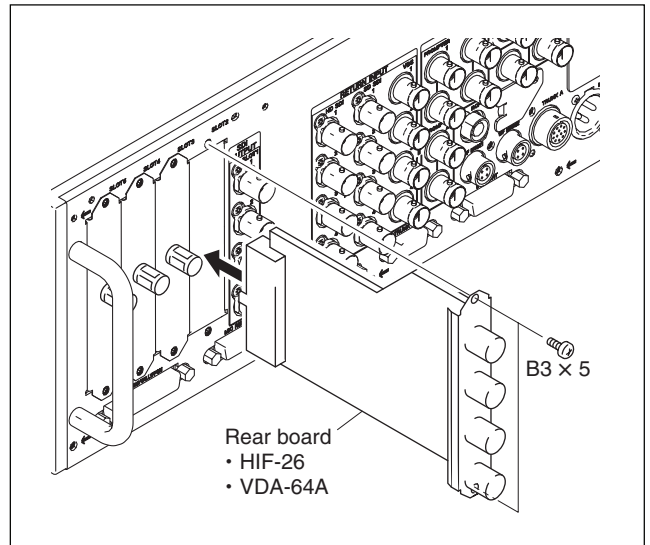
- Remove the two screws, and remove the blank panel by the handle. (Store the removed blank panel in a safe place)



1. 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).
2. After inserting the option board into the slot, fix the option board with two screws.



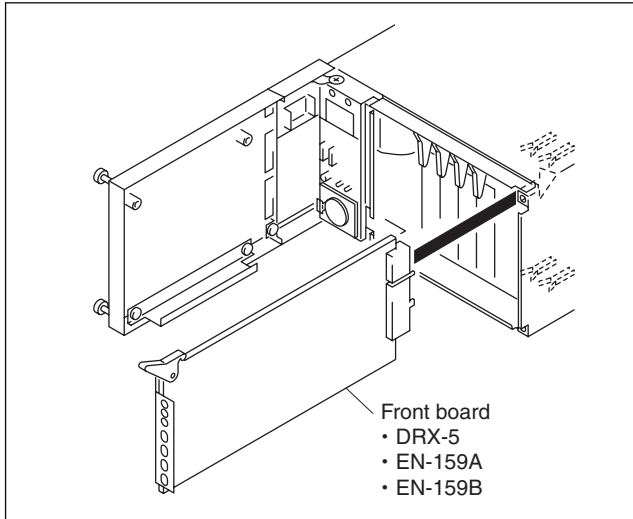
### 1-10-3. HDCU1500

#### 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).

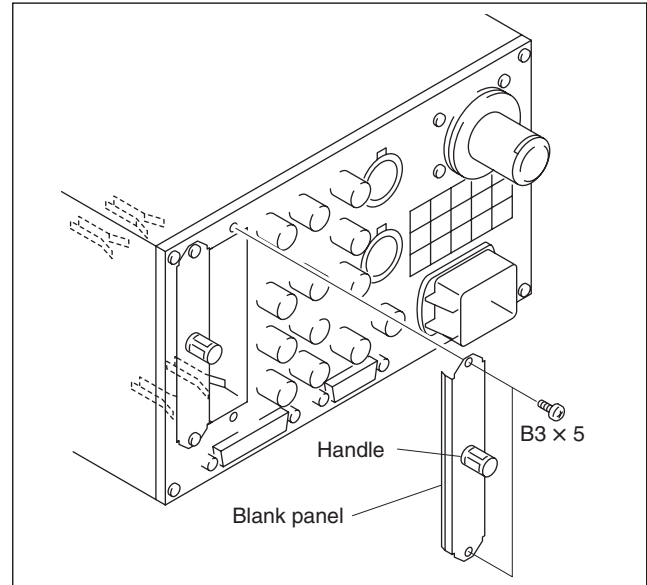


#### Rear side (HDCU1500)

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

#### Note

Store the removed blank panel in a safe place.

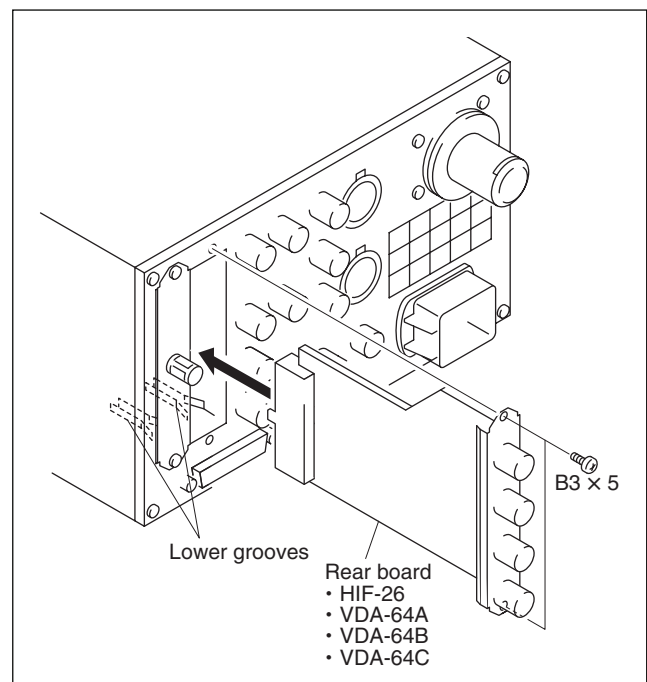


2. Insert the option board into the slot.

#### 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 (HDCU1000/1080)

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

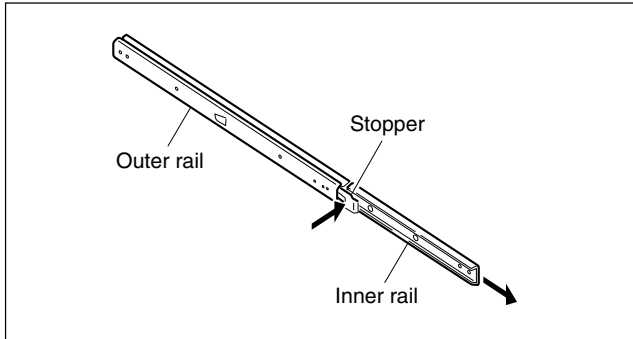
- **Standard-Præzision GmbH**  
Postfach 1464  
Werner-von-Siemens-Strasse 16-18  
6252 Diez/Lahn West Germany  
TEL 6432-6080  
FAX 6432-60820

### UNITED KINGDOM

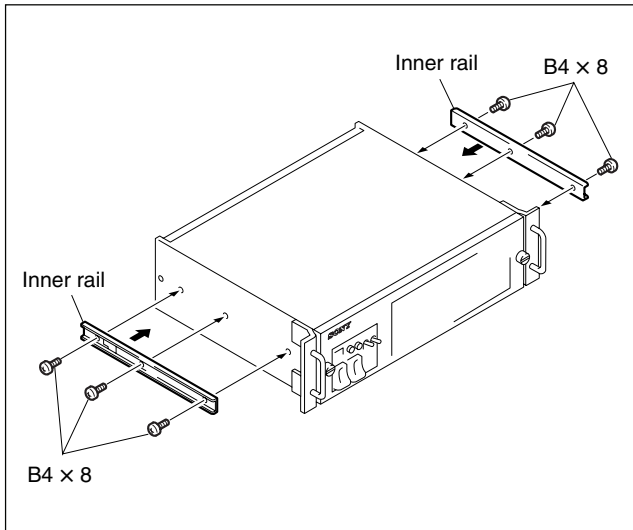
- **Accuride Limited**  
Lilliput Road  
Brackmills Industrial Estate  
Northampton, NN4 OAR  
United Kingdom  
TEL 604-761111  
FAX 604-767190

## Rack Mount Procedure

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



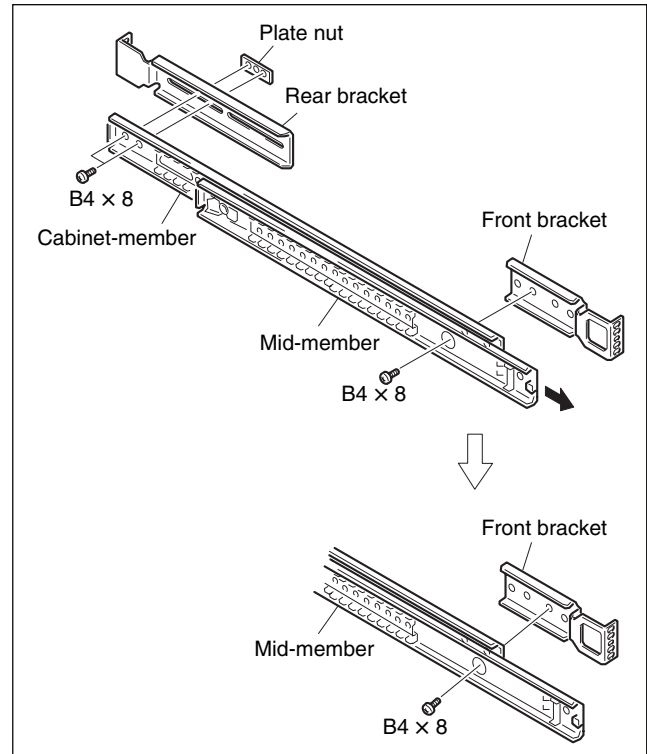
2. Attach the inner rails to the unit using the six screws (B4 × 8).



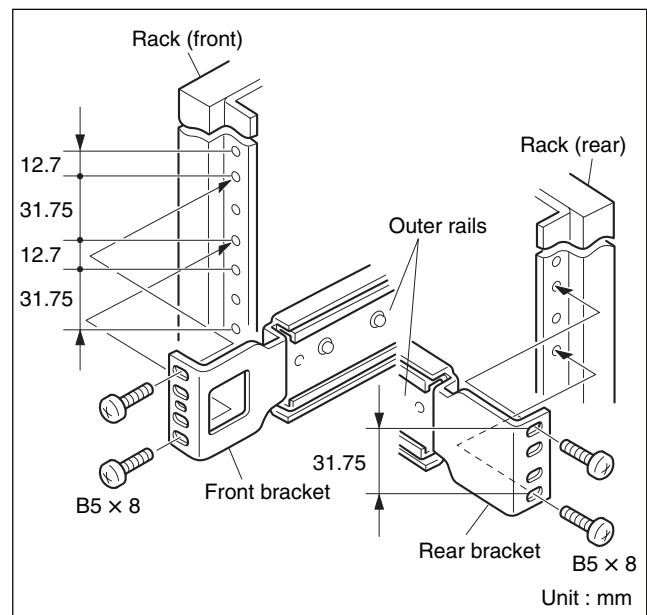
3. Attach the front and rear brackets to the outer rails using the eight screws (B4 × 8).

### 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.

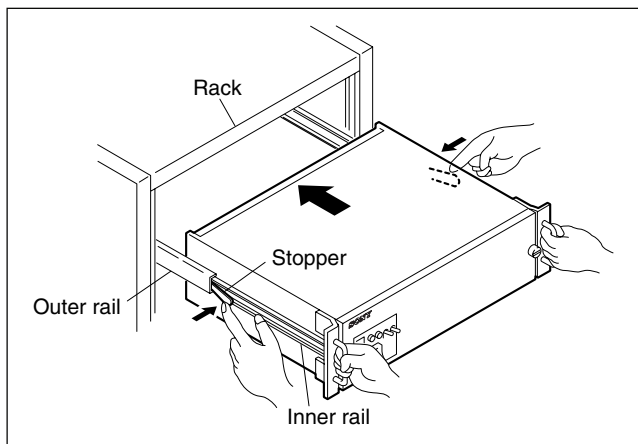


4. Attach the front and rear brackets to the outside of the rack temporarily using the eight screws (B5 × 8).



**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.

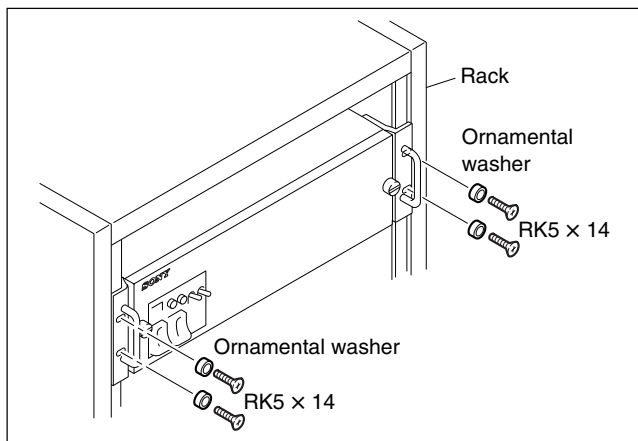


6. After confirming that the unit can be moved smoothly, tighten the screws (B5 × 8) secured temporarily in the step 4.

**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.

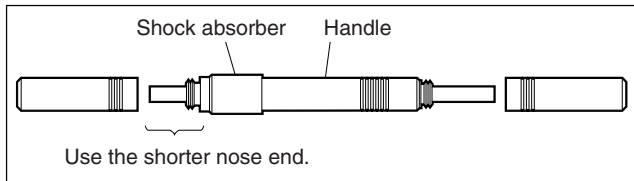
#### Tools Required

- 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

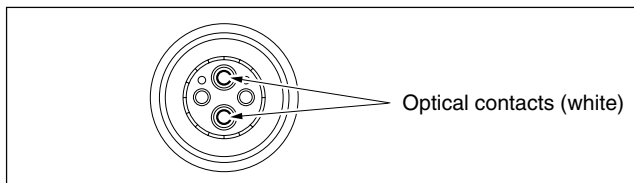
Use a cotton swab whose diameter is about 4 mm.

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]

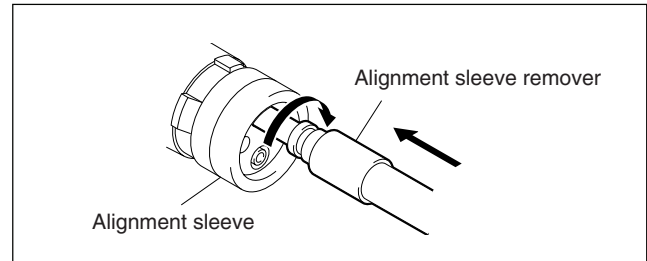
Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



##### [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.



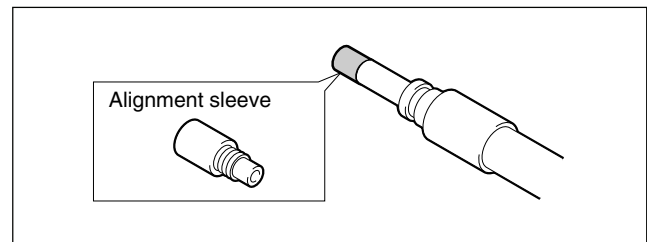
2. When the turn stops, pull out the remover in the straight line forcibly.

#### Note

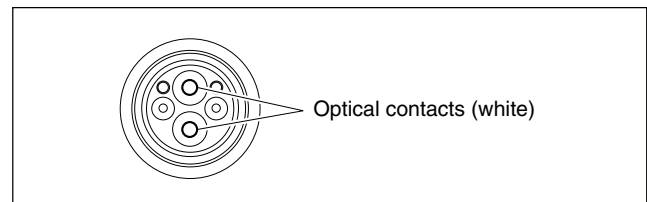
The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover.

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.

## Cleaning the Connector/Cable Made by Tajimi Electronics (HDCU1080)

Clean the connector/cable made by Tajimi Electronics Co., LTD. in the following steps.

### Tools Required

- Alcohol
- Cotton swabs (commercially available)

#### Note

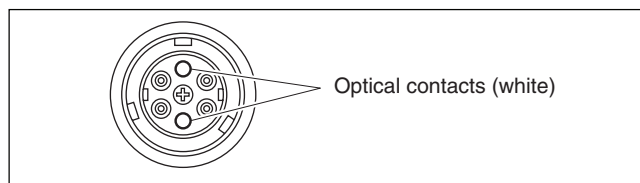
Use a cotton swab whose diameter is about 4 mm.

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.



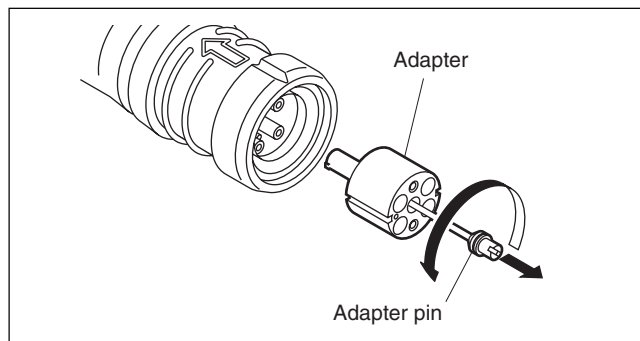
#### [Female connector]

The optical contacts for female connector are in an unexposed state. For cleaning, it is necessary expose the contacts by removing the adapter in advance. Proceed as follows.

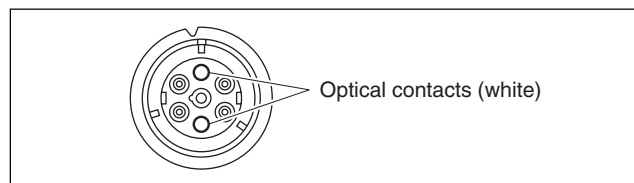
1. Loosen the adapter pin in the center of the connector by turning it counterclockwise with a screwdriver, and pull the adapter pin in the direction of the arrow to remove the adapter from the connector.

#### Note

If no screwdriver is available, use the plate supplied with the connector cap.



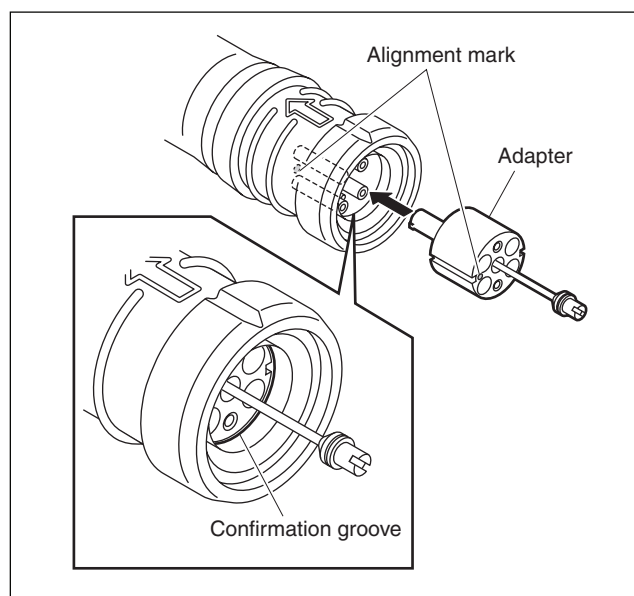
2. Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



3. Align the alignment mark on the adapter and that on the connector, and push the adapter into the connector.

#### Note

Push the adapter until the confirmation groove is visible as shown in the figure.



4. Tighten the adapter pin by turning it clockwise until it is lightly secured.

#### Note

Be careful not to tighten the adapter pin too much.



## 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.

##### List of optional boards

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

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

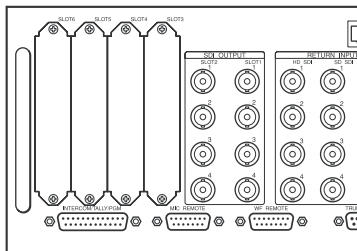
##### Note

Regarding the installation of the optional boards, refer to 1-10 in INSTALLATION MANUAL.

##### The difference of the rear panel and the system connections

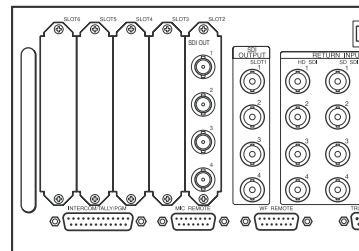
The rear panel is different according to the serial number of HDCU1000/1080, but the system connection is the same.

##### HDCU1000



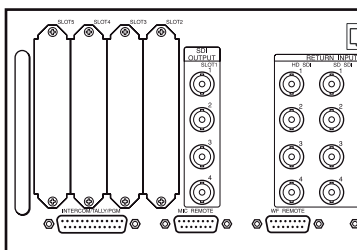
- 10001–13999 (HDCU1000: UC)
- 40001–40999 (HDCU1000: CE)

##### HDCU1000



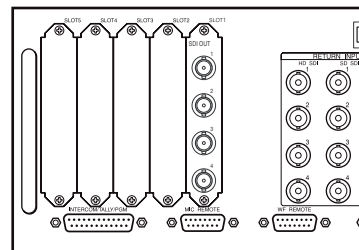
- 14001 and Higher (HDCU1000: UC)
- 41001 and Higher (HDCU1000: CE)
- 50001 and Higher (HDCU1000: E3)
- 60001 and Higher (HDCU1000: E2)

##### HDCU1080



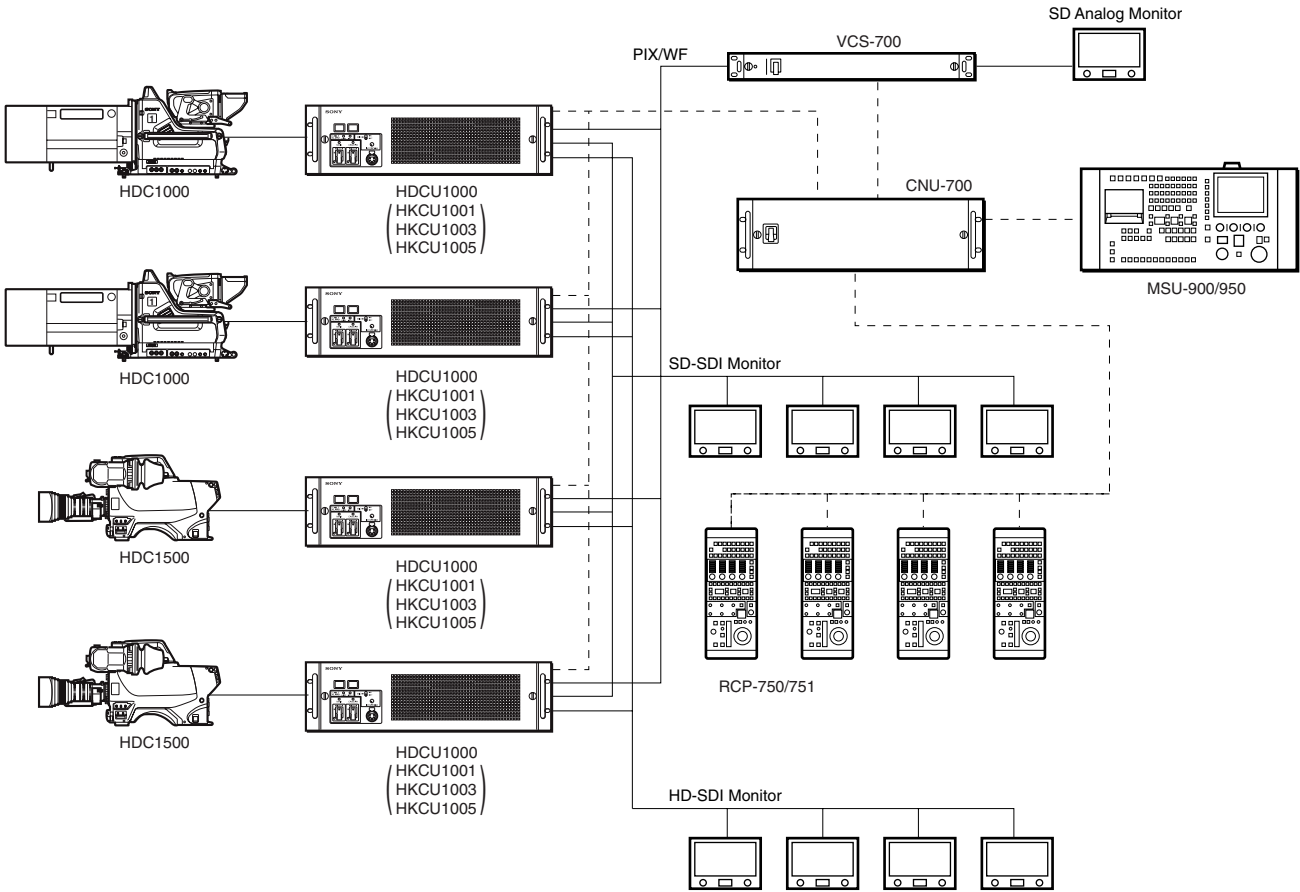
- 50001–51999 (HDCU1080: CN)

##### HDCU1080



- 52001 and Higher (HDCU1080: CN)

### 2-1-1. HDCU1000

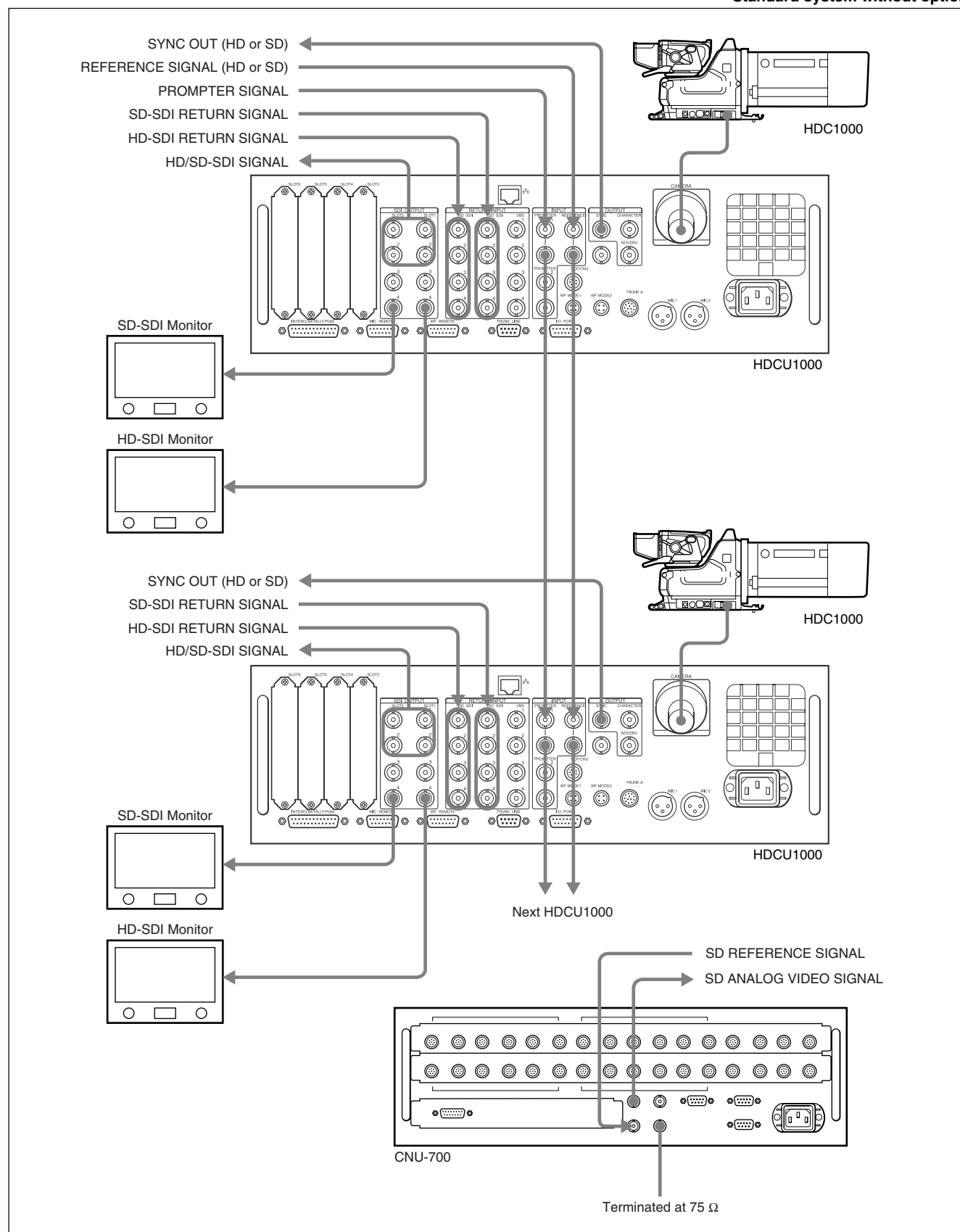


### Example of board combinations

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 ⊕ SD analog encoder (HKCU1001) [SD analog I/F added]	3	EN-159A	3	VDA-64A
	4	—	4	—
	5	—	5	—
	6	—	6	—
3. Standard HD/SD system ⊕ Multi interface ⊕ SDI output expansion (HKCU1003/1005) [HD/SD Film Like system]	3	DRX-5	3	HIF-26
	4	EN-159B	4	VDA-64B
	5	—	5	—
	6	—	6	—
4. Standard HD/SD system ⊕ Multi interface (HKCU1003) [Analog NTSC/PAL system]	3	EN-159B	3	VDA-64A
	4	—	4	VDA-64C
	5	—	5	—
	6	—	6	—

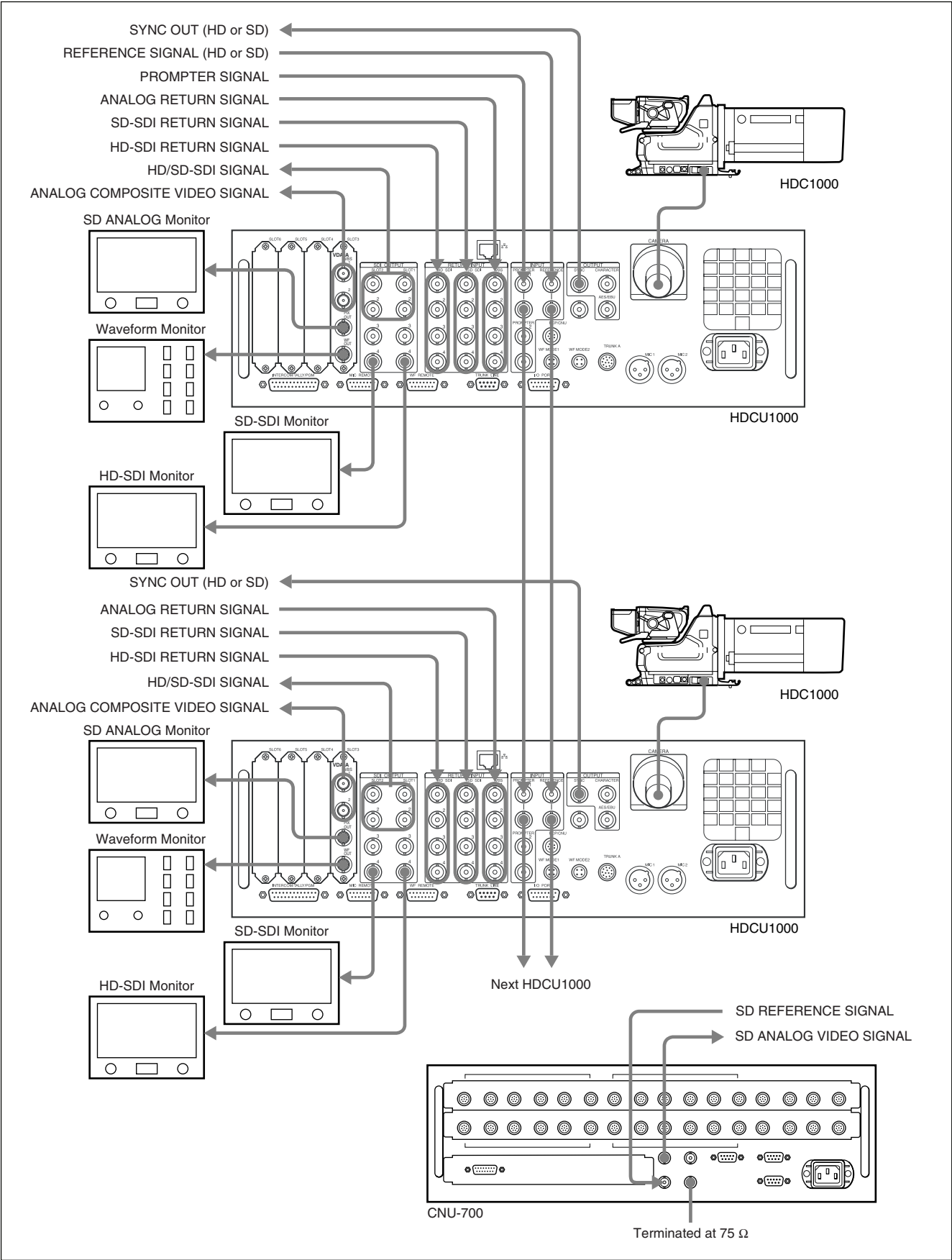
# 1. Standard HD/SD system

Standard system without option



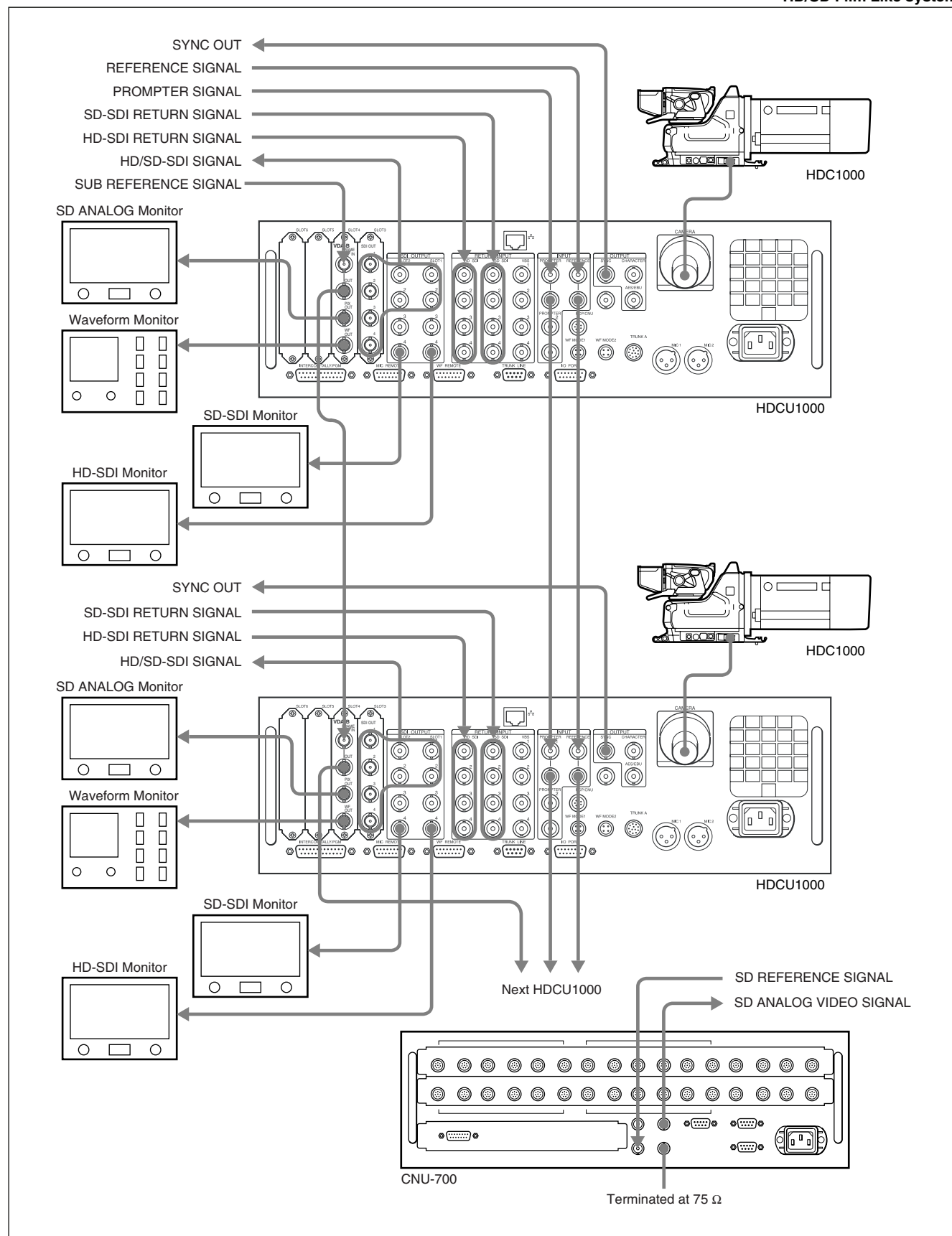
2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

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



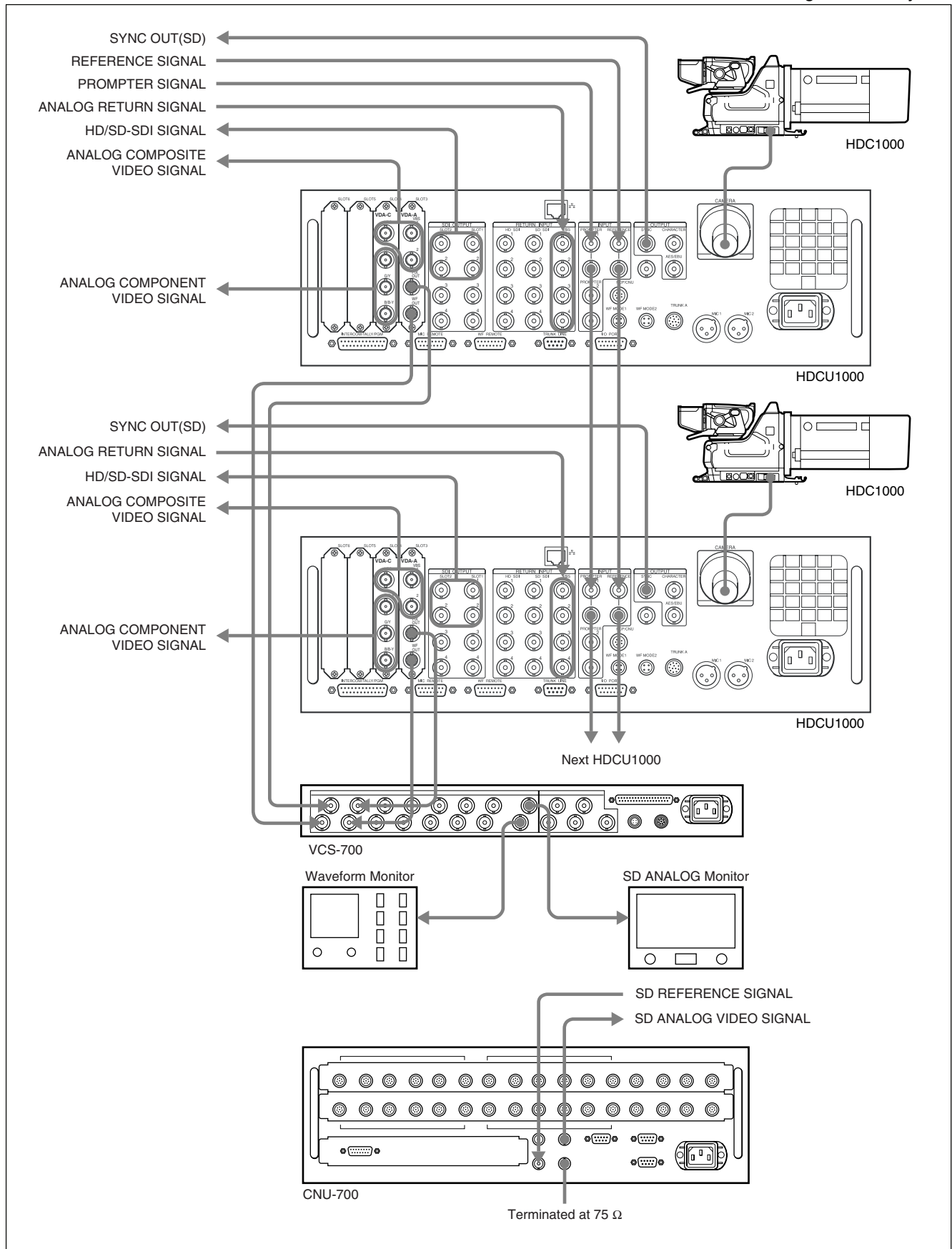
3. Standard HD/SD system ⊕ multi interface unit (HKCU1003)  
 ⊕ SDI output expansion unit (HKCU1005)

HD/SD Film Like system

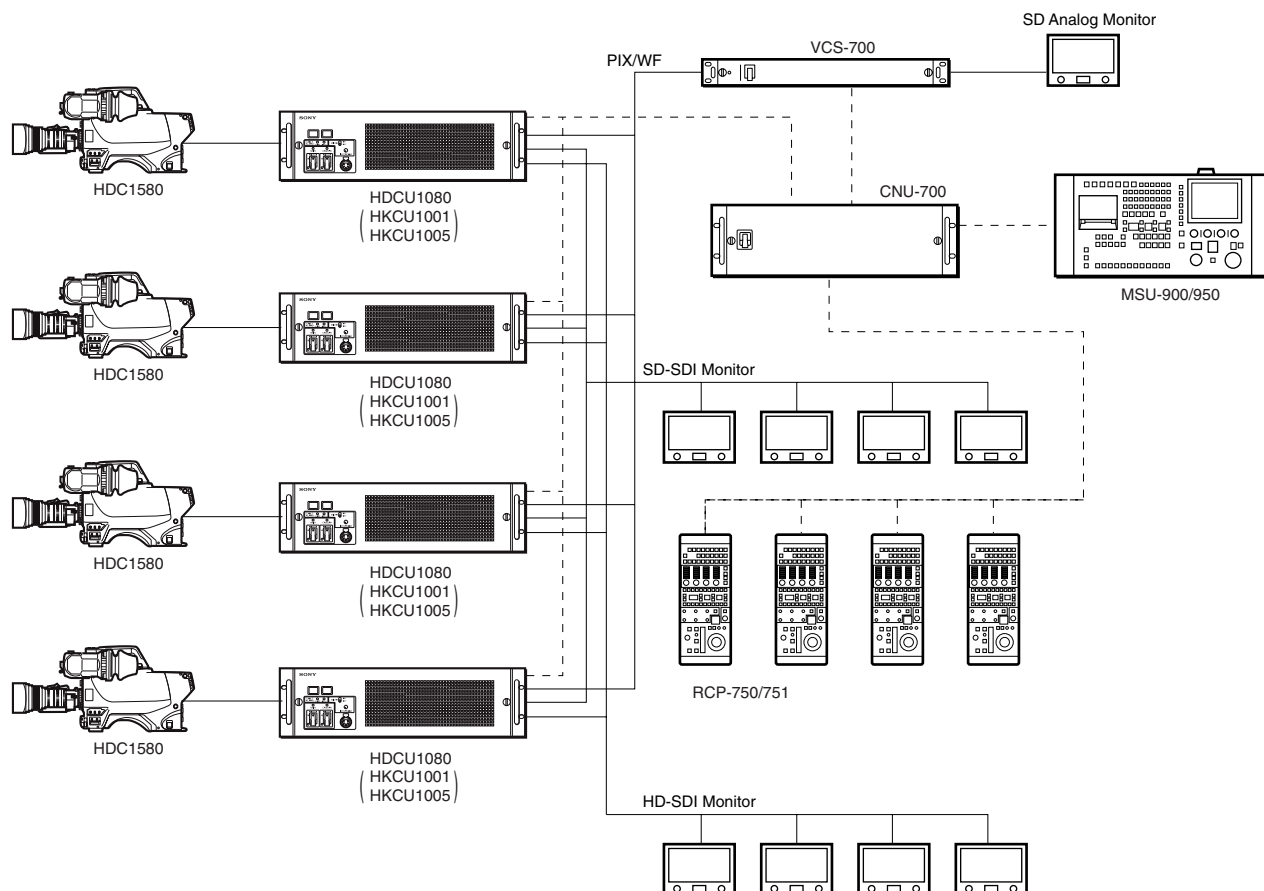


#### 4. Standard HD/SD system ⊕ multi interface unit (HKCU1003)

Analog NTSC/PAL system



## 2-1-2. HDCU1080

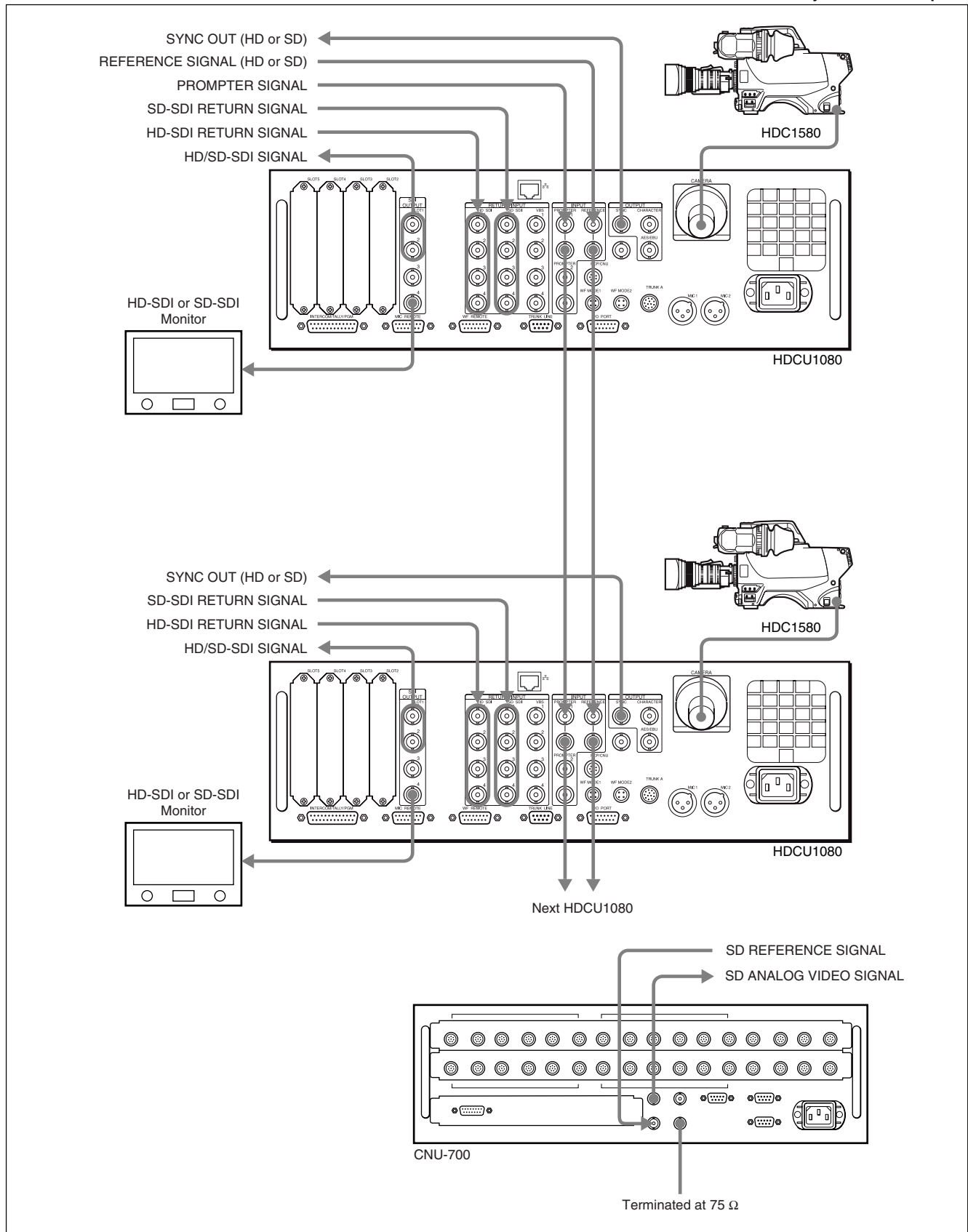


### Example of board combinations

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

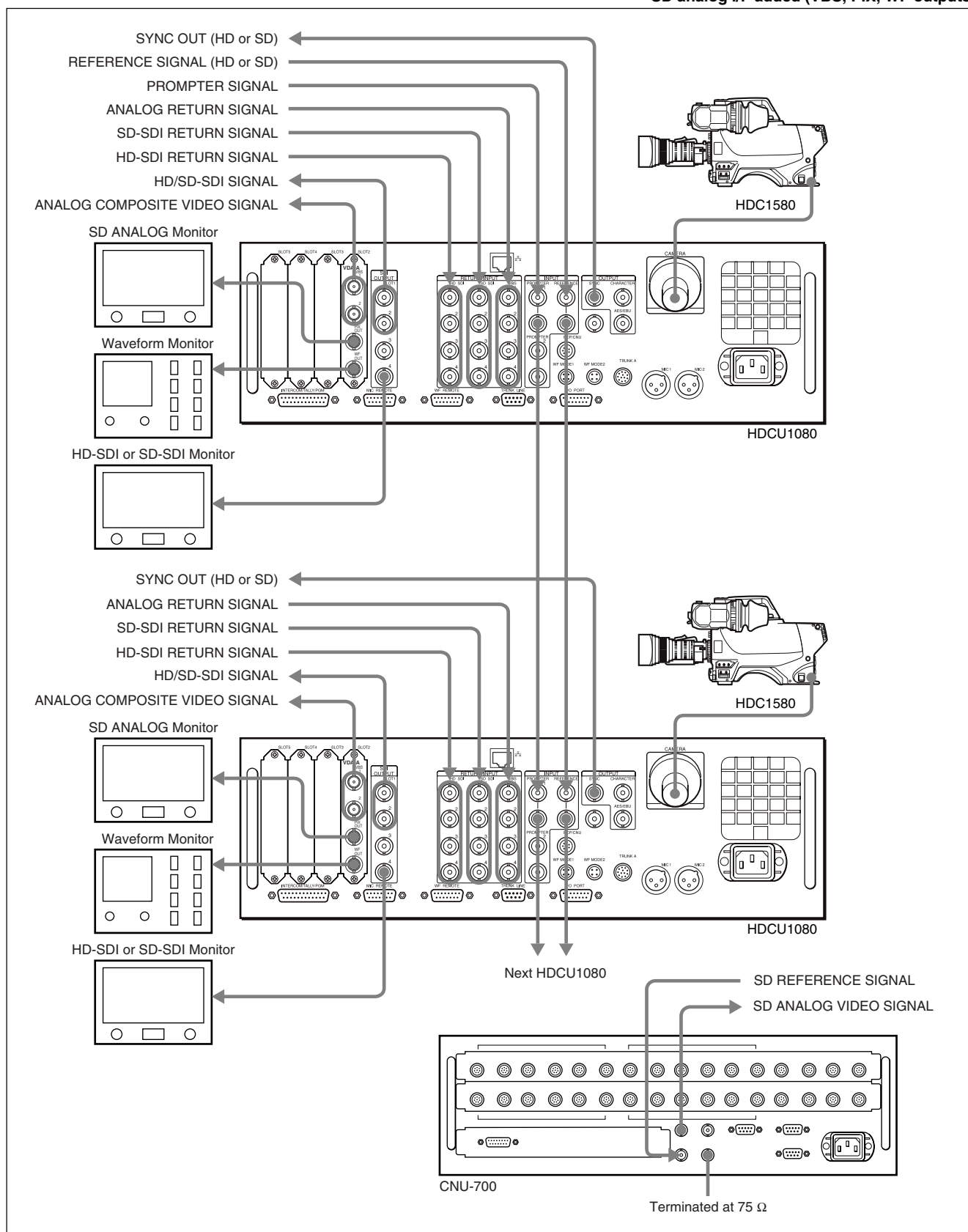
## 1. Standard HD/SD system

Standard system without option

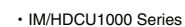


## 2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

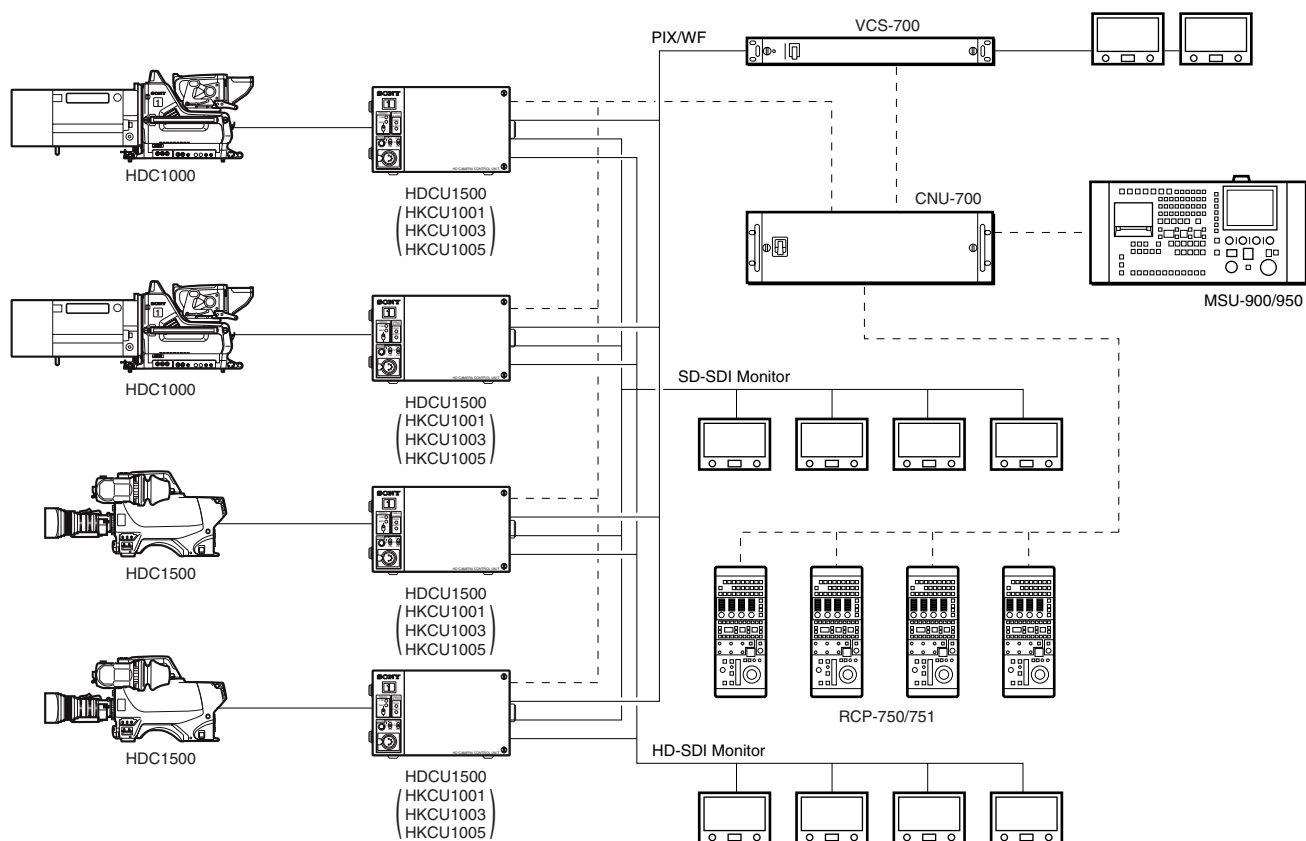
SD analog I/F added (VBS, PIX, WF outputs)



## HD/SD SDI system



## 2-1-3. HDCU1500

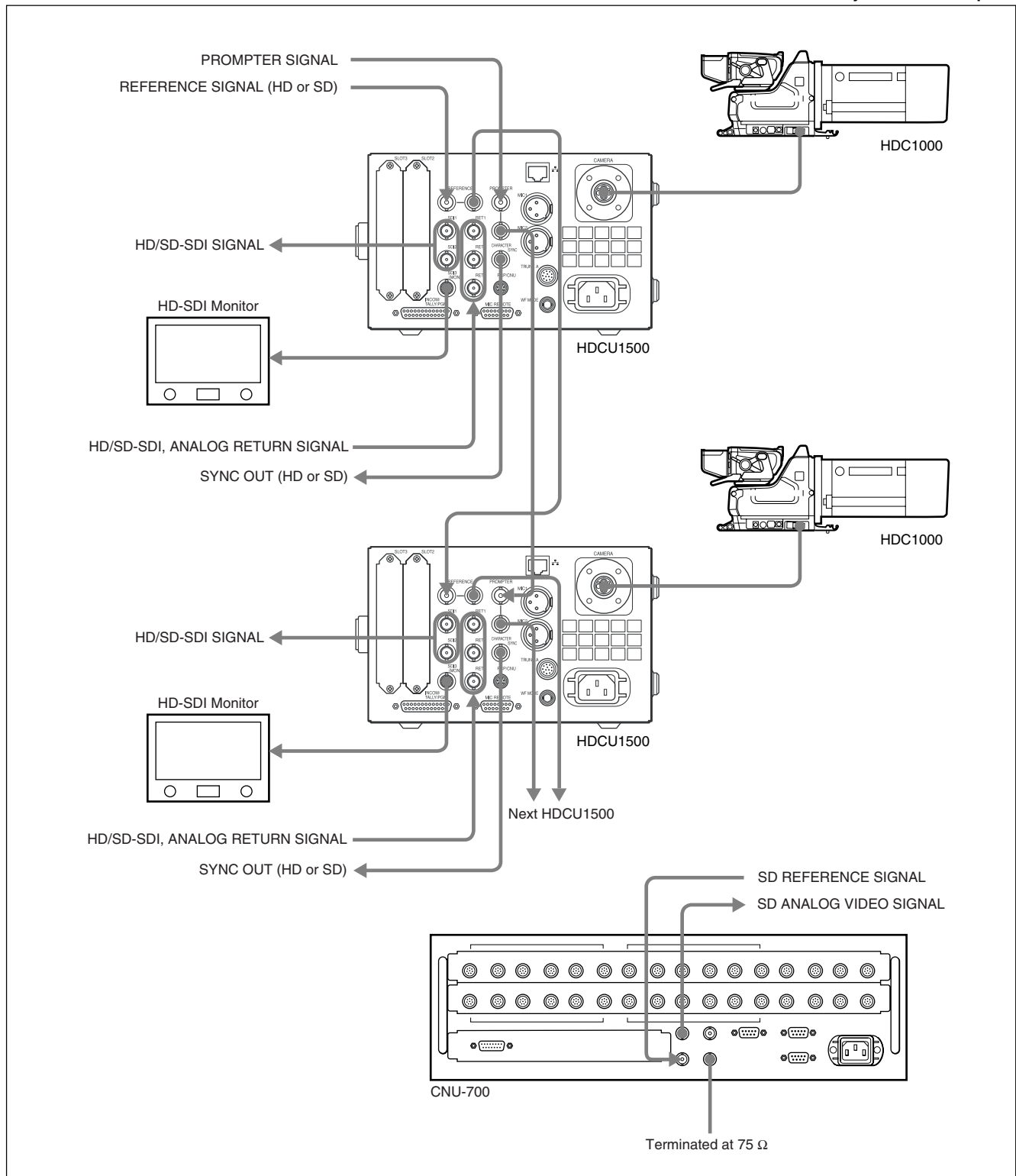


### Example of board combinations

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 (HKCU1001)	3	EN-159A	3	VDA-64A
[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 (HKCU1003)	3	—	3	VDA-64C
[Analog NTSC/PAL system]				

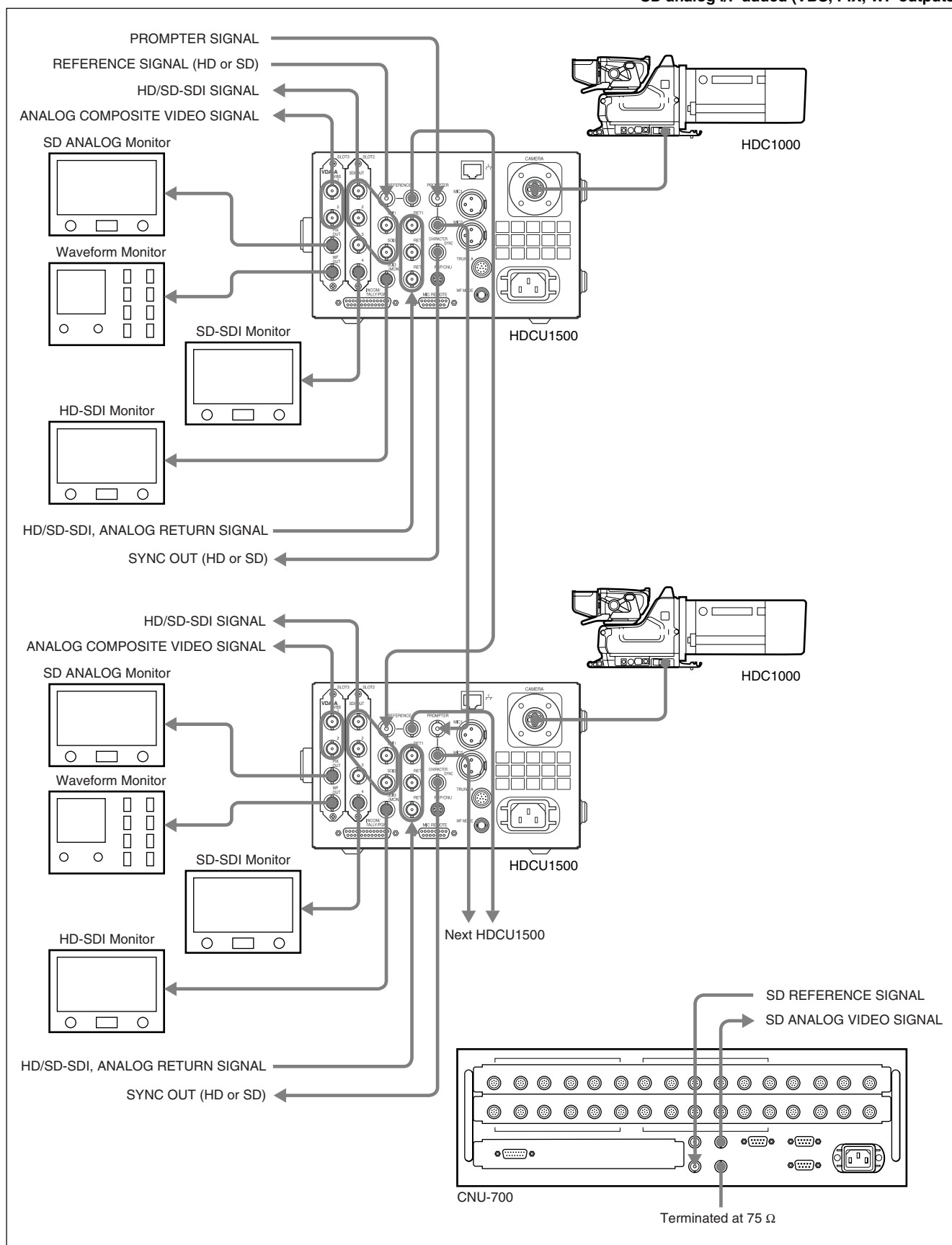
## 1. Standard HD/SD system

Standard system without option



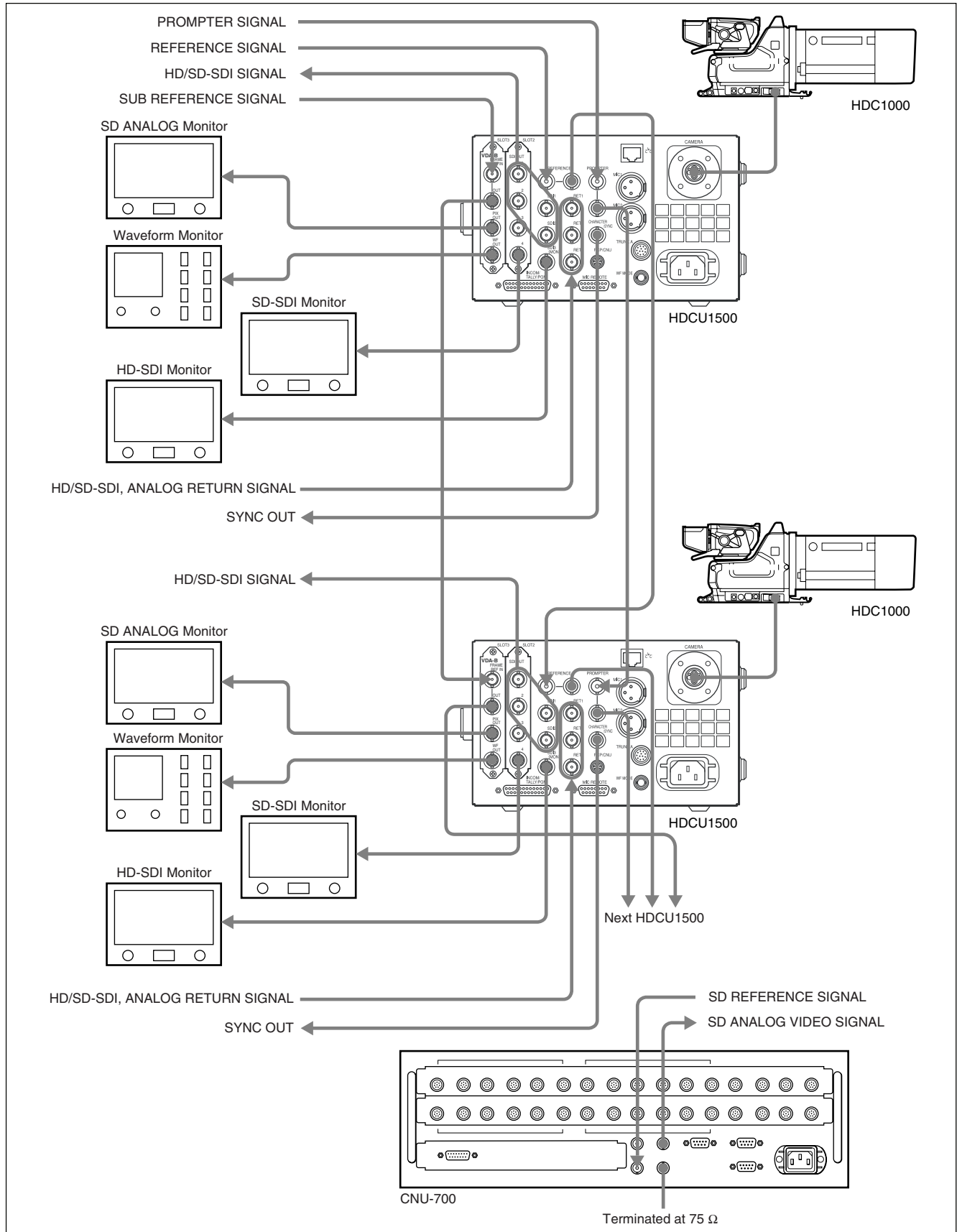
## 2. Standard HD/SD system ⊕ SD analog encoder (HKCU1001)

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



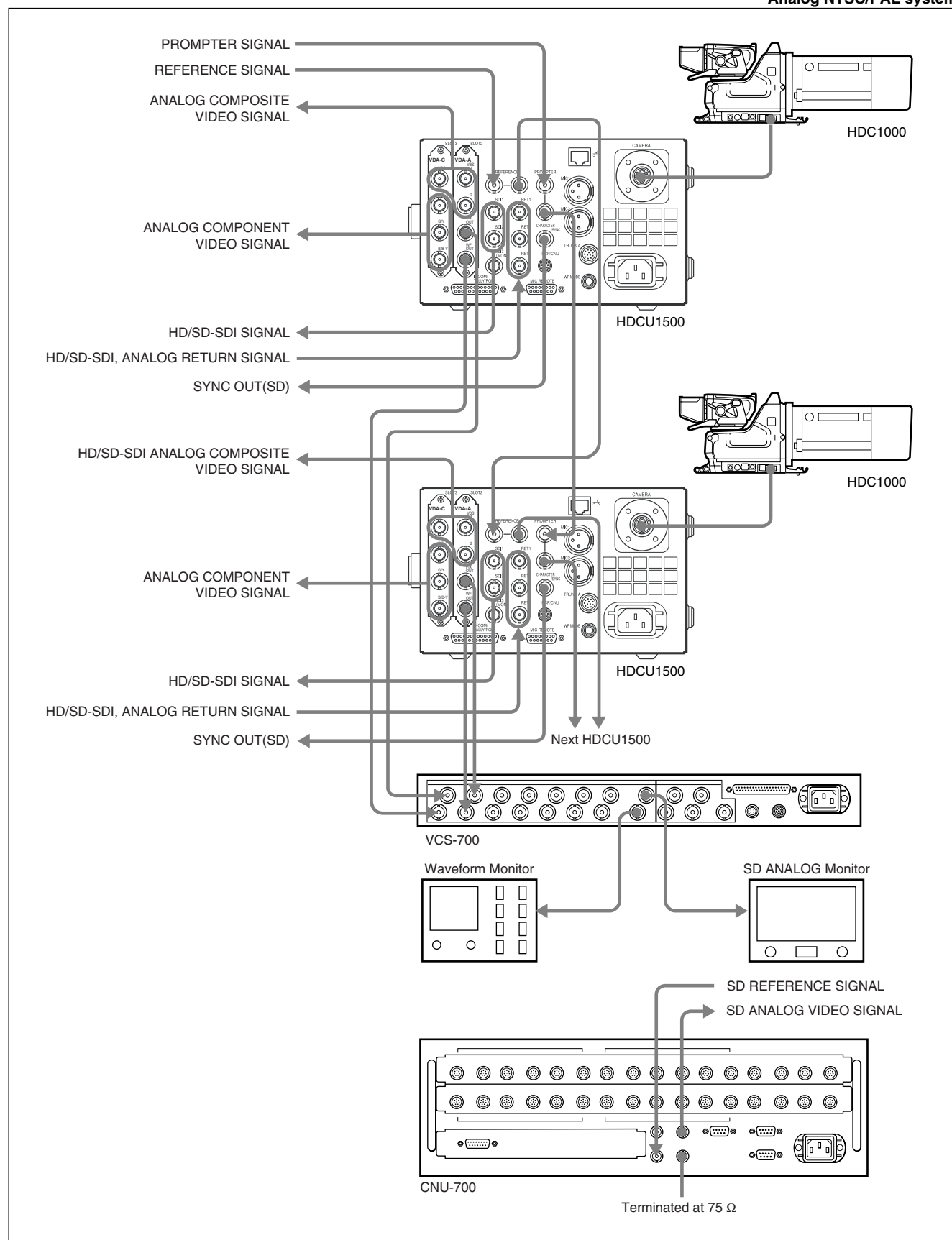
3. Standard HD/SD system ⊕ multi interface unit (HKCU1003)  
 ⊕ SDI output expansion unit (HKCU1005)

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.

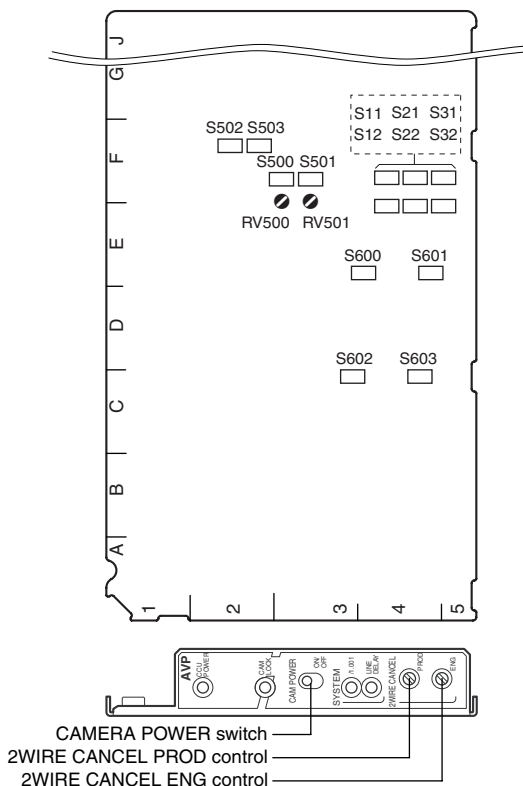
The frame sequence between multiple CCUs can be locked if you connect this signal to the sub reference input of other CCUs.

## 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.

\* : “C06” in software V1.10 or later

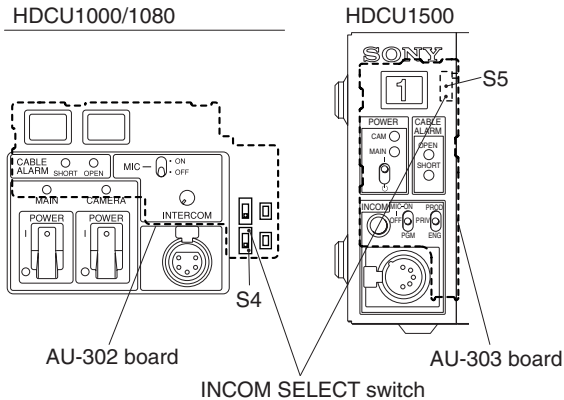
## 2. Setting the headset microphone

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.

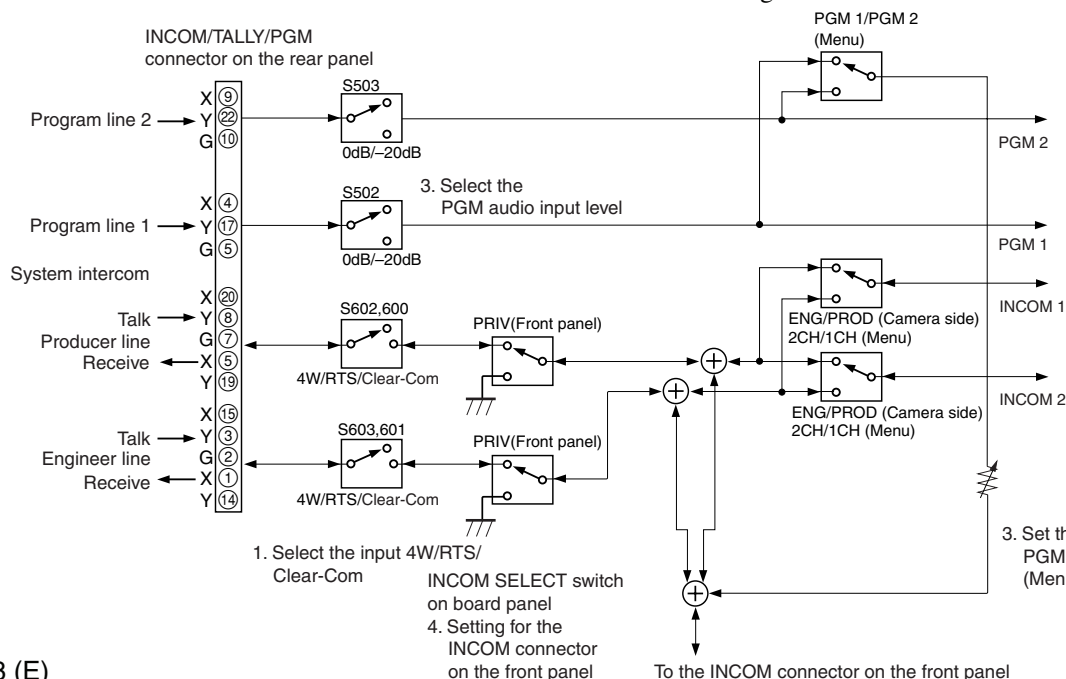
### Note

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.

\* : “C06” in software V1.10 or later

## 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

Input gain	Pin No.		
	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 ( ) :

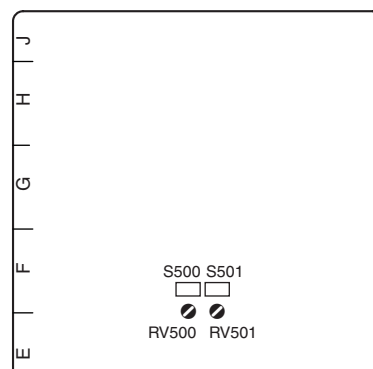
S406-2/AT-167 → ON

## 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.

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.

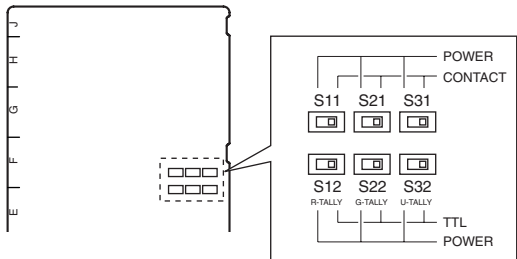
- Setting the output level of MIC 1 :  
●RV500 (MIC 1 OUT LEVEL)
- Setting the output level of MIC 2 :  
●RV501 (MIC 2 OUT LEVEL)

\* : “C05” in software V1.10 or later

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

Switch	Red tally		Green tally	
	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

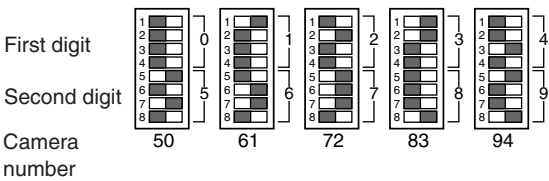
Use switch S409 on the AT-167 board to set the camera number.

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)



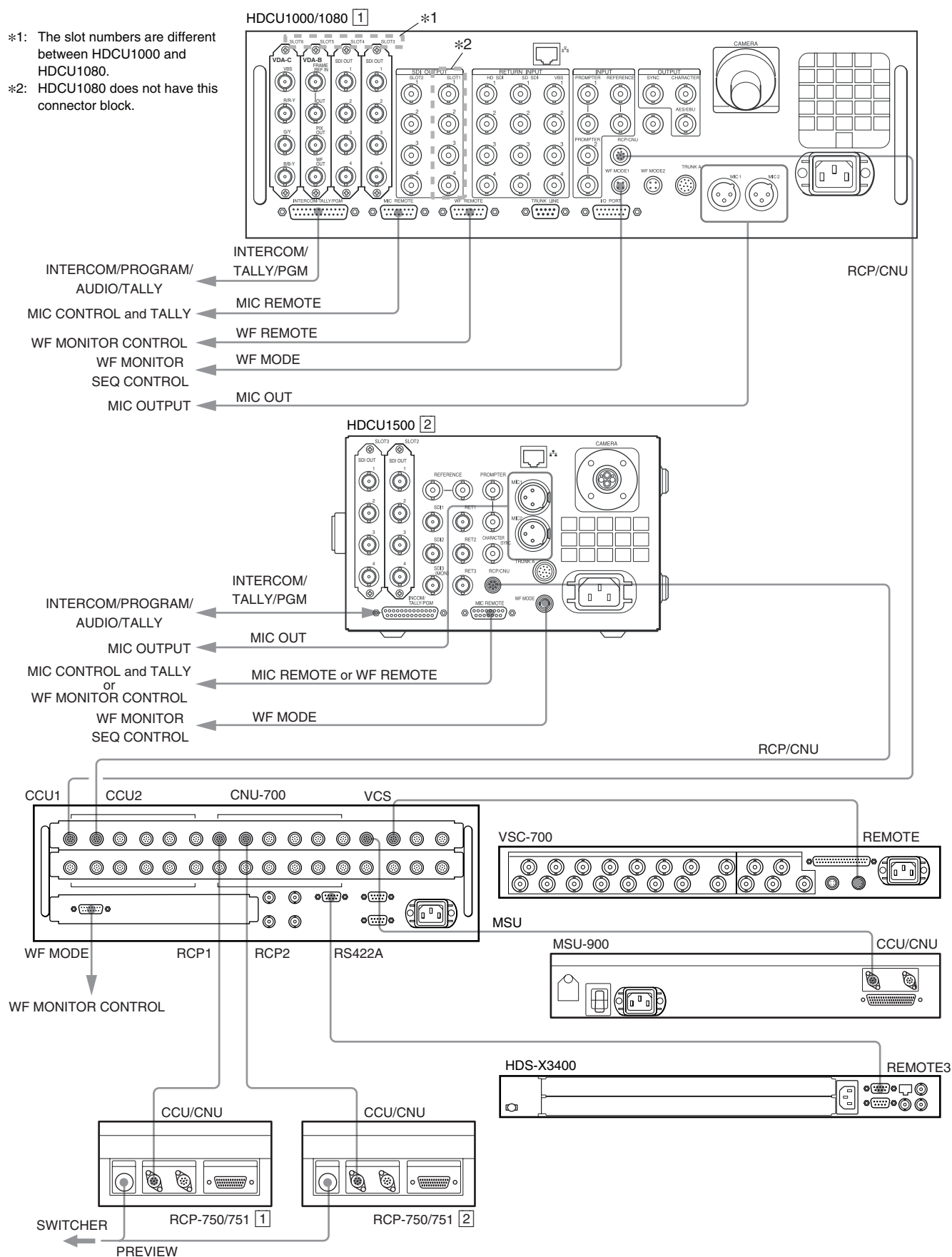
System that uses CNU-700/500

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 following sync signals 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 only)

##### FRAME REFERENCE

HD ternary SYNC : 0.6 V p-p

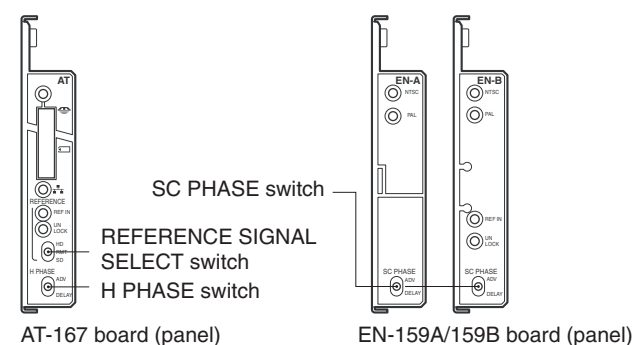
or

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 performed 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.)

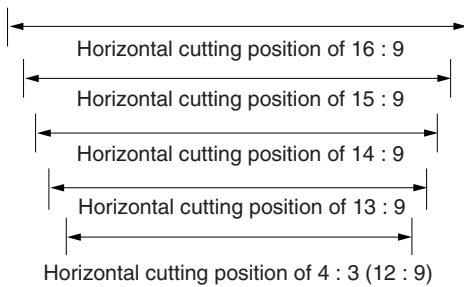
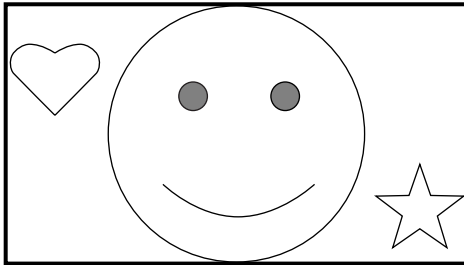
### How to set using the MIC REMOTE connector at the rear of the unit

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.

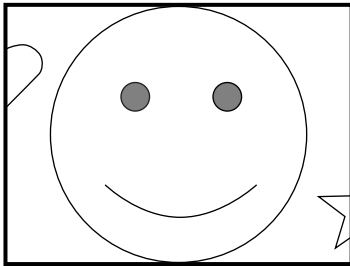
Pin-13 (ASPECT CTL CONT1)	Pin-14 (ASPECT CTL CONT2)	Aspect ratio
L	H	Squeeze (16 : 9)
H	H	Edge-crop (4 : 3)
L	L	Setting mode from Menu
H	L	Letter box (4 : 3)

## Examples of display

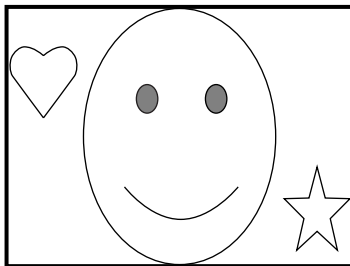
### 16 : 9 picture (picture from camera)



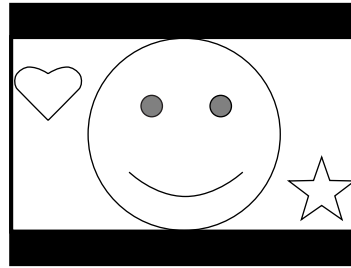
### Picture whose aspect ratio is converted (SD SDI output)



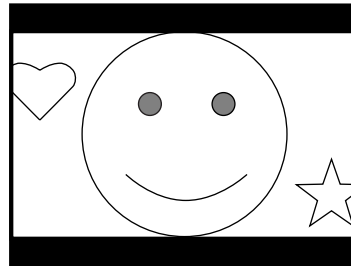
Edge-crop  
CROP POSITION can be changed.



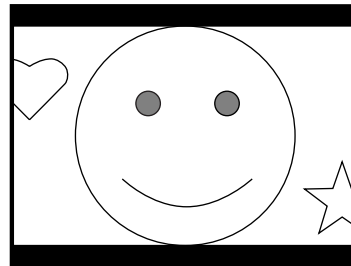
Squeeze  
The 16 : 9 ratio picture is output in the SD SDI format without changing the ratio.



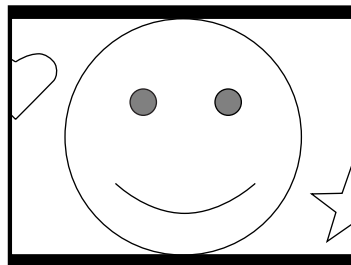
Letter box (16 : 9)  
The 16 : 9 ratio picture is inserted into the 4 : 3 ratio picture without changing the ratio and is output in the SD SDI format.



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.

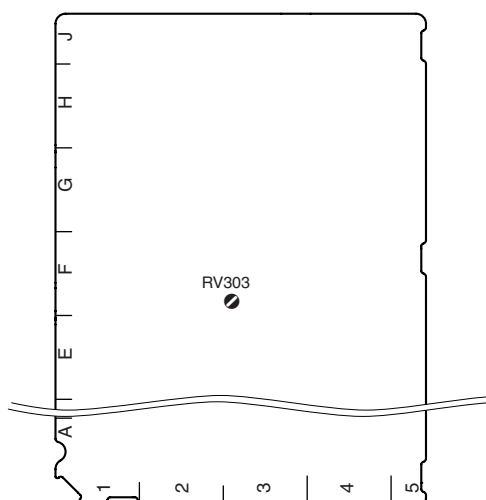


Semi-letter box (13 : 9)  
The picture that is cut out with the aspect ratio of 13 : 9, is inserted into the 4 : 3 ratio picture and is output in the SD SDI format.

## 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

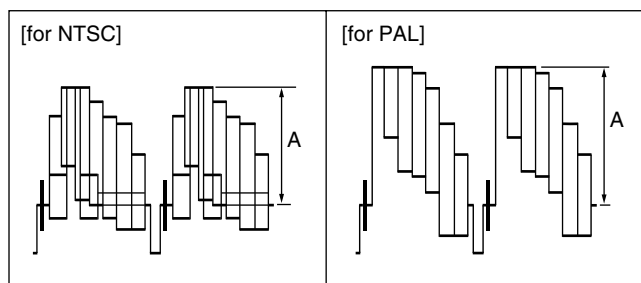


EN-159A/159B board (A side)

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 :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mV p-p [for PAL]  
(VBS LEVEL control)



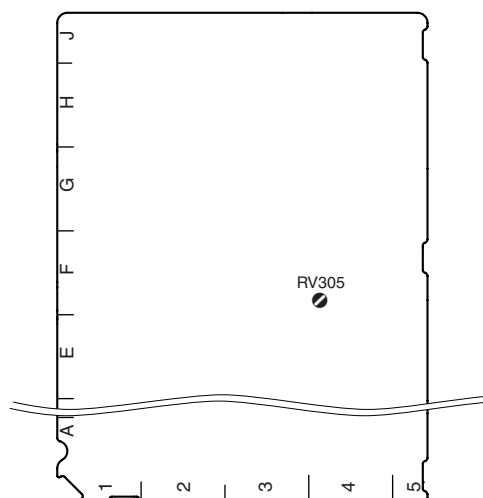
## 2-5-5. Adjusting the Level of Signals for Waveform Monitor

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

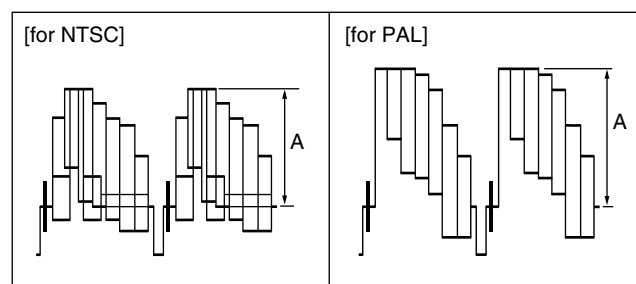


EN-159A/159B board (A side)

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 :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mVp-p [for PAL]



## How to adjust using the VCS-700

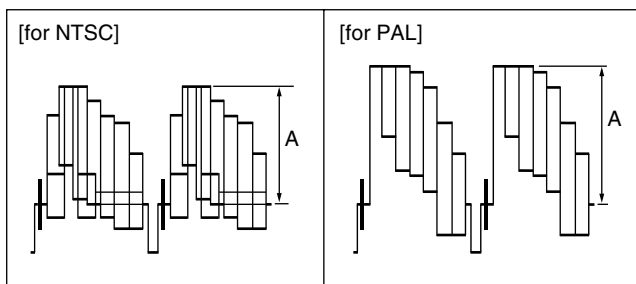
In the system with the MSU-900/950, CNU-700 or VCS-700, the video output signal of HDCU1000/1080/1500 can be checked on the waveform or vector monitor connected to the WF A OUTPUT connector and the WF B OUTPUT connector of the VCS-700.

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

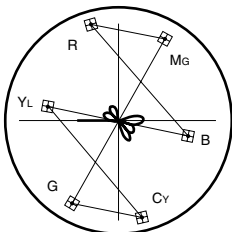
Specification :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mV p-p [for PAL]  
 (WFM 1 LEVEL control)



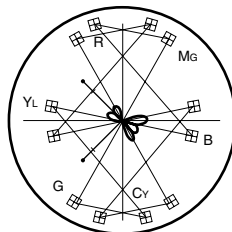
Each luminescent spot on the vector monitor must be within the “田” range.

(WFM 1 CHROMA control)

[for NTSC]



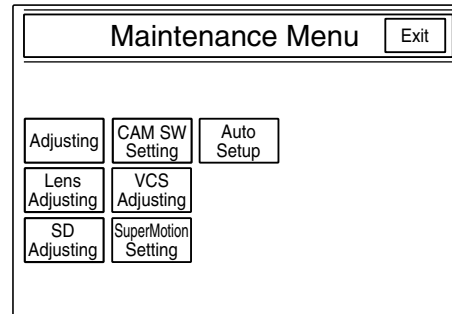
[for PAL]



## How to adjust using the MSU-900/950

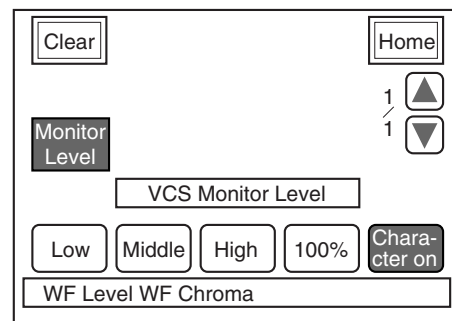
The signal level can be adjusted by using the MSU-900/950 instead of using the controls of the VCS-700.

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**.

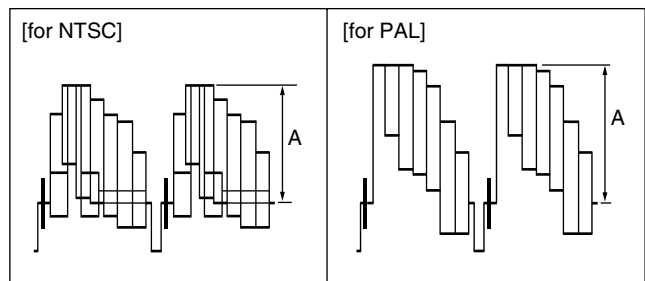
The VCS monitor level adjustment item menu is displayed.



3. Adjust the color bars signal of the WF Level and WF Chroma so that it is within the specified level.

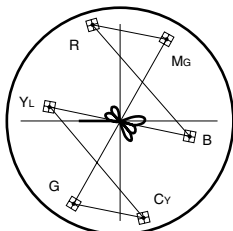
Measurement point : PIX OUT connector on the VCS-700

Specification :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mV p-p [for PAL]  
 (WF Level)

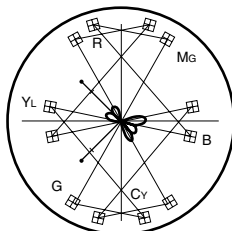


Each luminescent spot on the vector monitor must be within the “田” range.  
(WF Chroma)

[for NTSC]



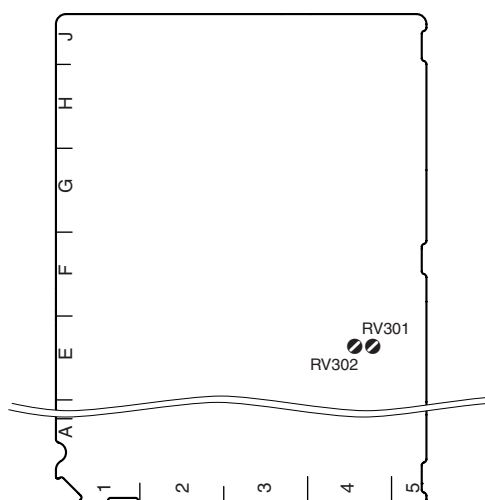
[for PAL]



## Adjusting the Staircase Signal

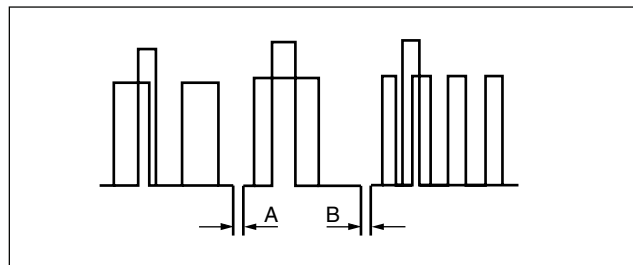
Adjust the staircase signal to display signals in the sequential mode on the waveform monitor. If the signal of the sequential mode is not normally displayed on the waveform monitor, perform this adjustment.

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)

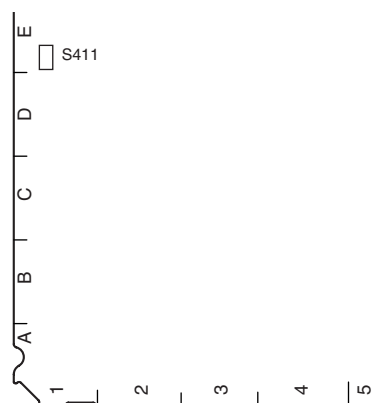
Press the SEQ button of the WAVEFORM MONITOR buttons (or the MONITOR SELECT buttons) of the MSU-900/950, RCP-750/751, etc., to output the waveform monitor control signal of the unit, synchronizing with the output signal of the WF OUT connector.



### 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)

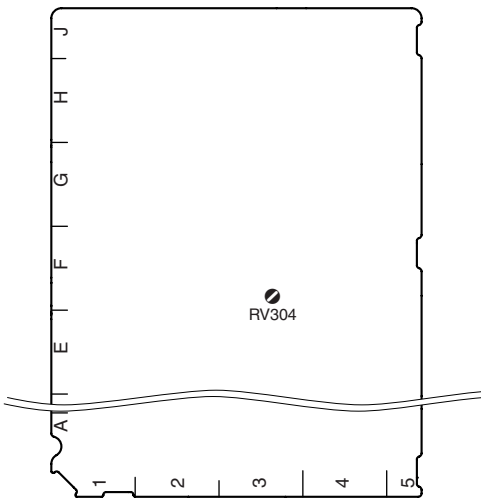
1. Press the SEQ button of the WAVEFORM MONITOR buttons (or MONITOR SELECT buttons) of the MSU-900/950, RCP-750/751, etc.
2. Adjust the position of the signal to be displayed using control RV301 (STAIR STEP POSITION) on the EN-159A/159B board.
3. Use control RV302 (STAIR STEP LEVEL) on the EN-159A/159B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

## 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

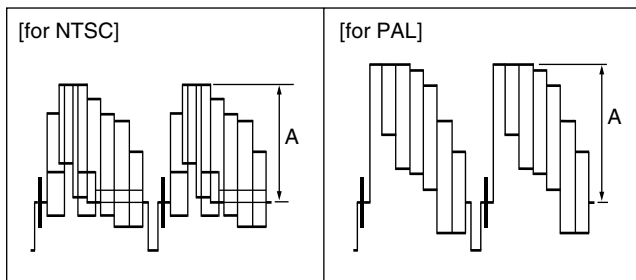


EN-159A/159B board (A side)

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 :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mV p-p [for PAL]



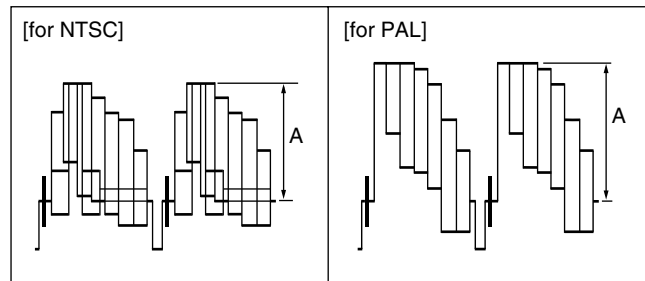
### How to adjust using the VCS-700

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

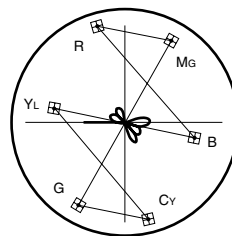
Specification :  $A = 100 \pm 1$  IRE [for NTSC]  
 $A = 700 \pm 7$  mV p-p [for PAL]  
 (PIX 1 LEVEL control)



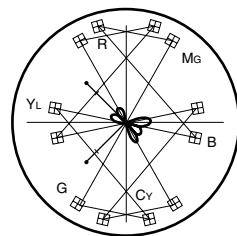
Each luminescent spot on the vector monitor must be within the "田" range.

(PIX 1 CHROMA control)

[for NTSC]



[for PAL]



## 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.)

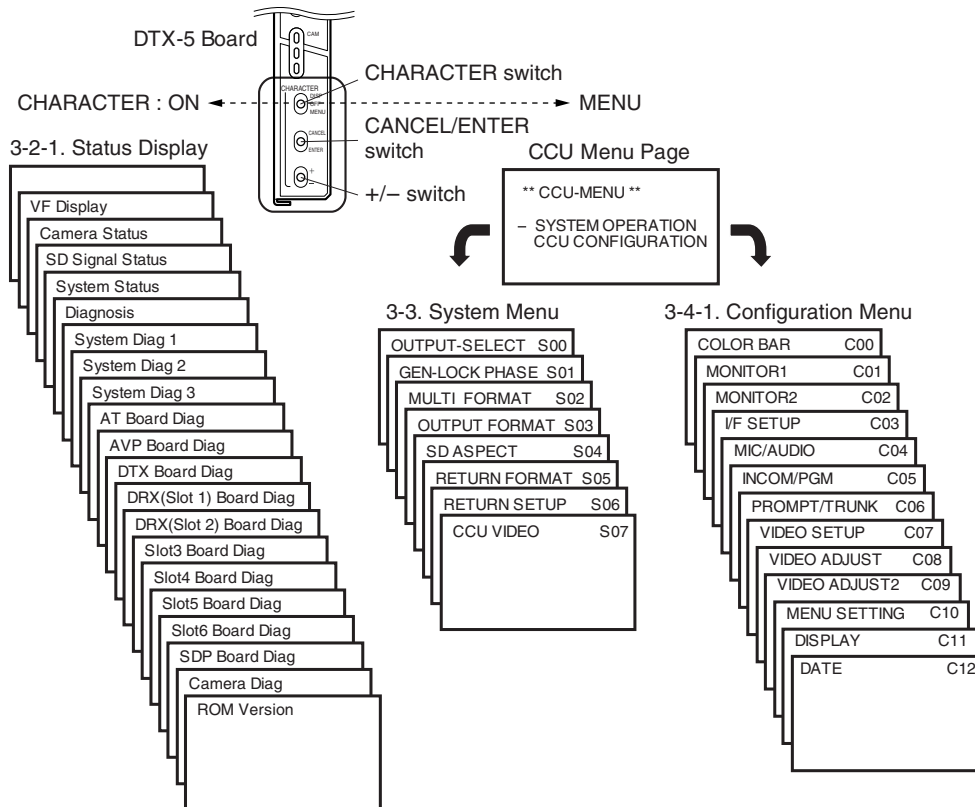


## Section 3

### Menu Settings

#### 3-1. Menu Operation

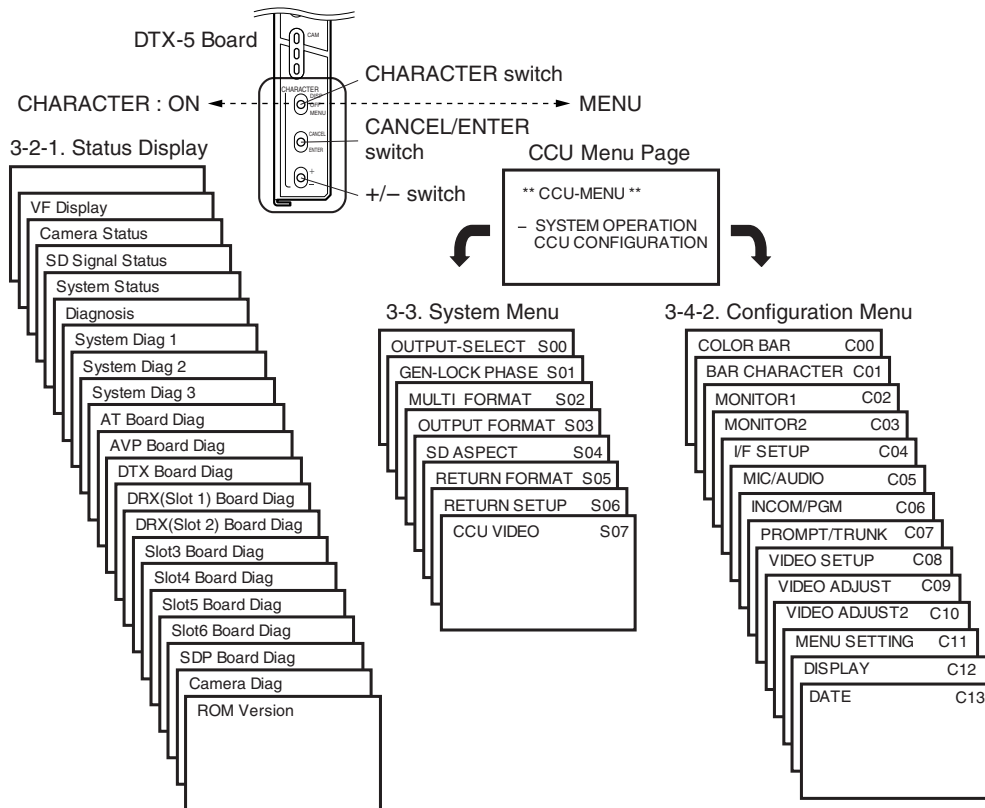
##### 3-1-1. When version of the software prior to V1.10



- 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.
- 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.
- 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.
- To cancel the “status display” and the “CCU-MENU” operation, set the CHARACTER switch to OFF.

### 3-1-2. When software V1.10 or later version is used without the system connection mode via Ethernet set

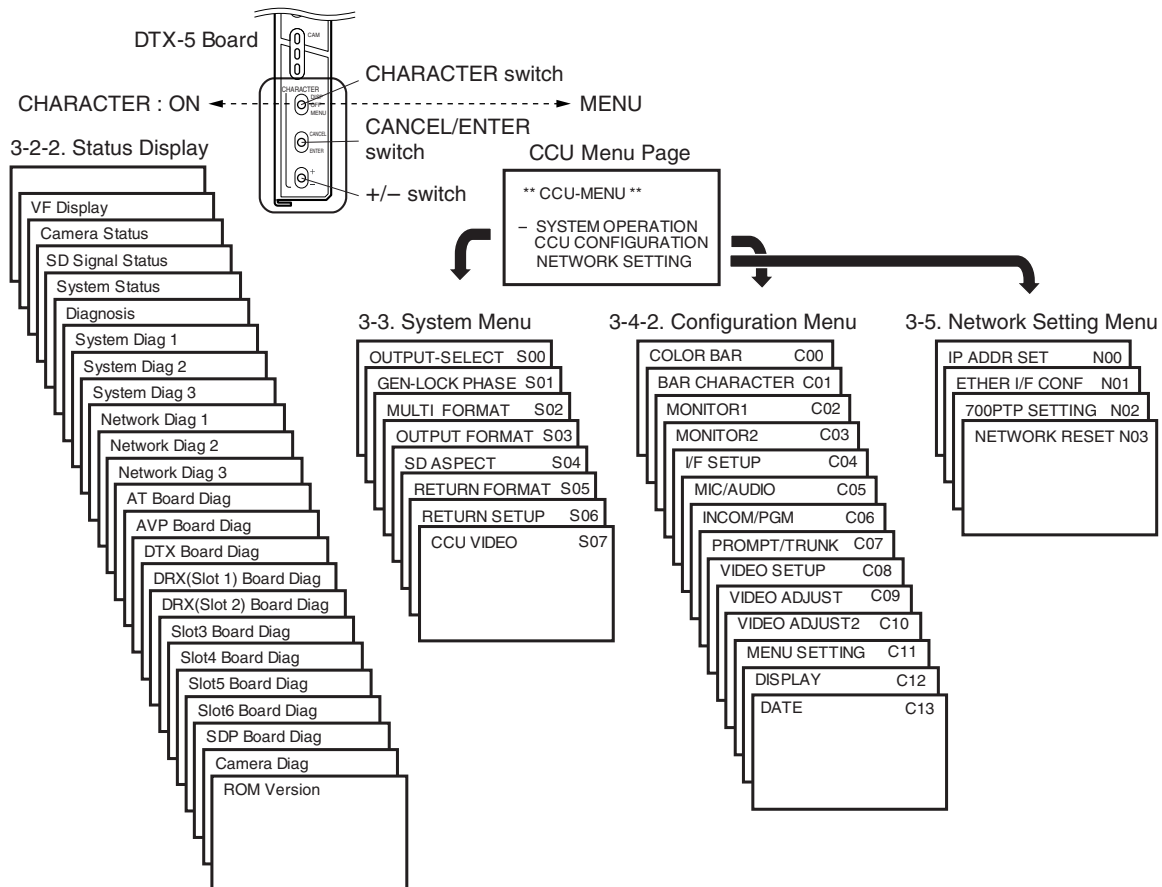
Sets the switch S407 (TEST-SW5) on the AT-167 board to OFF



- 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.
- 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.
- 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.
- To cancel the “status display” and the “CCU-MENU” operation, set the CHARACTER switch to OFF.

### 3-1-3. When software V1.10 or later version is used with the system connection mode via Ethernet set

Sets the switch S407 (TEST-SW5) on the AT-167 board to ON

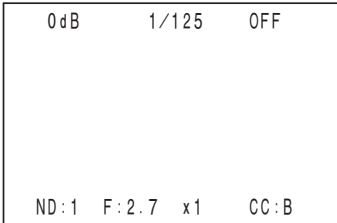
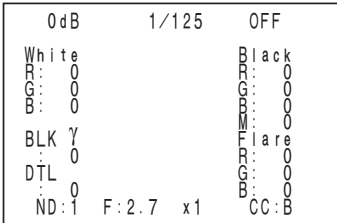
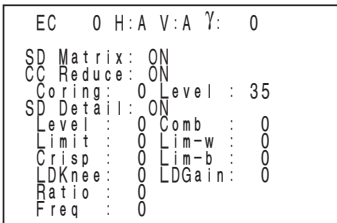
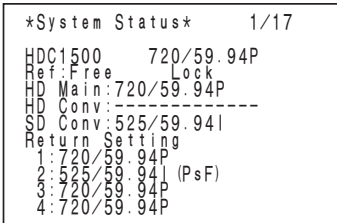
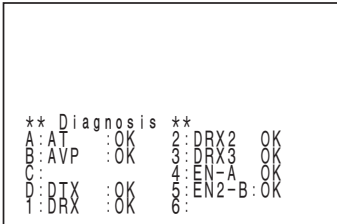


1. To operate the menu of CCU, open the front panel of HDCU1000/1080/1500, and use the CHARACTER switch, CANCEL/ENTER switch, and +/- switch on the DTX-5 board.
2. Pressing the CHARACTER switch upward displays the “status display menu” of CCU.  
Pressing the +/- switch upward (+) or downward (-) changes 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”, the “configuration menu” and the “network setting 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 cancel the “status display” and the “CCU-MENU” operation, set the CHARACTER switch to OFF.

## 3-2. Status Display

### 3-2-1. When software prior to V1.10 or V1.10 and later version is used without the system connection mode via Ethernet set

Sets the switch S407 (TEST-SW5) on the AT-167 board to OFF

Page	Menu / Menu Image	Item	Description
1	<b>VF Display</b> 	<b>MASTER GAIN</b> <b>EVS ON/OFF</b> <b>SHUTTER SETTING</b> <b>SHUTTER ON/OFF</b> <b>ND FILTER</b> <b>IRIS</b> <b>EXTENDER</b> <b>CC FILTER</b>	Displays the camera SW status on the viewfinder of the connected camera.
2	<b>Camera Status</b> 	<b>White R/G/B</b> <b>Black R/G/B</b> <b>BLK γ</b> <b>DTL</b> <b>Flare R/G/B</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	<b>SD Signal Status</b> 	<b>SD MATRIX</b> <b>CC Reduce</b> <b>SD Detail</b>	Displays the SD signal status for CCU.
4	<b>System Status</b> 	<b>CHU Model Name</b> <b>Format</b> <b>Ref Condition</b> <b>HD/SD out Format</b> <b>Return Setting</b>	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	<b>Diagnosis</b> 	<b>HDCU1000</b> <b>Slot A to D</b> <b>Slot 1 to 6</b>  <b>HDCU1080</b> <b>Slot A to E</b> <b>Slot 1 to 5</b>  <b>HDCU1500</b> <b>Slot A to C</b> <b>Slot 1 to 3</b>	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.
	<pre> *System Diag 1/3*   3/17 Optical Condition CAMERA   OK CCU      OK Fan Power OK Timer    56H CCU Power AC  OK SerialNo 00002002 </pre>		
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.
	<pre> *System Diag 2/3*   4/17 CAMERA Cable Connect Data    OK Power   OK RCP/CNU Cable Connect Data    OK Power   OK </pre>		
8	System Diag 3	Intercom CCU setting CAMERA Setting  CHU MIC Gain Setting	Displays the setting of the intercom and camera microphone.
	<pre> *System Diag 3/3*   5/17 Intercom CCU CAMERA CH1 Private ENG MIC OFF CH2 PROD MIC OFF CHU MIC Gain Local CH1 60dB CH2 60dB </pre>		
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.
	<pre> *AT Diag*           6/17 System Frequency:1.001 CHU Format Setting Remote 720/59.94P Reference :HD Remote Line Delay :Line (120H) Power Supply:OK PLD Version :1.00 Done Mode       :Normal VIF Power  :OK </pre>		
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 ADO board.
	<pre> *AVP Diag*           7/17 Front Power:OK PLD Version:1.00 Done Mode       :Normal ADO Power  :OK </pre>		
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.
	<pre> *DTX Diag*           8/17 Return Setting:Remote Return Delay  :F/S Active Ret CH :2CH Front Power:OK PLD Version:1.01 Done Mode       :Normal Rear:SDI      Power:OK </pre>		

Page	Menu / Menu Image	Item	Description
12	DRX (Slot 1) Board Diag <div> <pre> *DRX (Slot1) Diag*   9/17 HD CB:MF-SMPTE (100% 0) SD CB SMPTE Front Power :OK PLD Status PRE Version:1.00 POST Version:1.00 Config Done :Done Mode :Normal Rear:HIF      Power:OK </pre> </div>	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 <div> <pre> *DRX (Slot2) Diag*  10/17 HD CB: (THROUGH) SD CB SMPTE Front Power :OK PLD Status PRE Version:1.00 POST Version:1.00 Config Done :Done Mode :Normal Rear:HIF      Power:OK </pre> </div>	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 <div> <pre> *DRX (Slot3) Diag*  11/17 HD CB: (THROUGH) SD CB SMPTE Front Power :OK PLD Status PRE Version:1.00 POST Version:1.00 Config Done :Done Mode :Normal Rear:HIF      Power:OK </pre> </div>	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 <div> <pre> *EN-A (Slot4) Diag* 12/17  Front Power:OK PLD Version:1.00 Done Mode :Normal Rear:VDA-A      Power:OK </pre> </div>	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 <div> <pre> *EN-B (Slot5) Diag* 13/17  Sub-Ref:None Unknown Front Power:OK PLD Version:1.00 Done Mode :Normal Rear:VDA-B      Power:OK </pre> </div>	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 <div> <pre> *Slot-6 Diag*      14/17 Front None  Rear :VDA-C </pre> </div>	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.
	<div> <div>*SDP Diag* 15/17</div> <div>           PLD Status            RX-PLD Version:1.00            TX-PLD Version:1.00            Config Done :Done            SDP Mode :Normal            Power :OK         </div> </div>		
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.
	<div> <div>*CAMERA Diag* 16/17</div> <div>ALL BOARD OK</div> </div>		
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.
	<div> <div>*ROM Version* 17/17</div> <div>           CHU HDC1000 1.01 05.07.26            CCU HDCU1000 1.01 05.07.25            R-PNL CNU-700 3.40c15 05.07.15         </div> </div>		

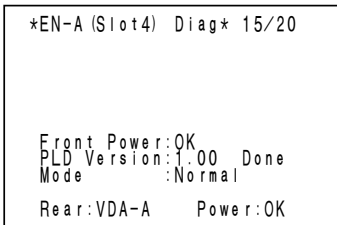
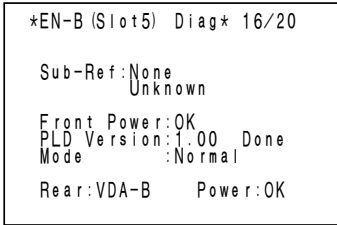
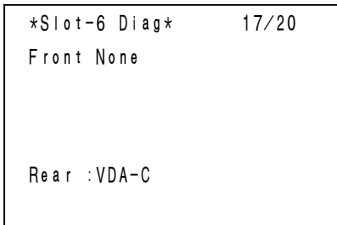
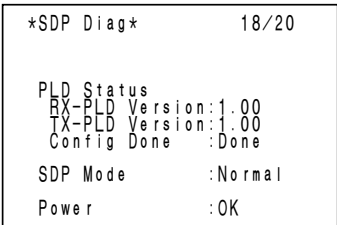
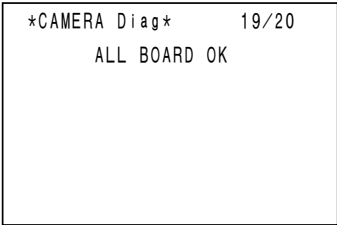
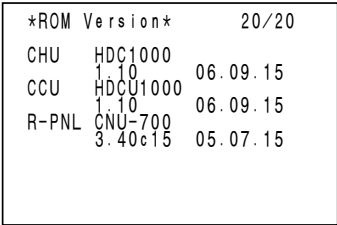
### 3-2-2. When software V1.10 or later version is used with the system connection mode via Ethernet set

Sets the switch S407 (TEST-SW5) on the AT-167 board to ON

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.
	<pre> *System Diag 1/3*   3/20 Optical Condition CAMERA   OK CCU      OK Fan Power OK Timer    56H CCU Power AC  OK SerialNo 00002002 </pre>		
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.
	<pre> *System Diag 2/3*   4/20 CAMERA Cable Connect Data    OK Power   OK RCP/CNU Cable Connect Data    OK Power   OK </pre>		
8	System Diag 3	Intercom CCU setting CAMERA Setting  CHU MIC Gain Setting	Displays the setting of the intercom and camera microphone.
	<pre> *System Diag 3/3*   5/20 Intercom CCU      Private CAMERA CH1 ENG MIC OFF CH2 PROD MIC OFF CHU MIC Gain Local CH1 60dB CH2 60dB </pre>		
9	Network Diag 1	MacAddress Auto Negotiation Auto Mdx Connect Speed Duplex Mode MDI/MDIX Select Link Status	MAC address of this unit. Sets auto negotiation. Sets auto MDIX. Sets the connection speed. Sets the duplex mode. Sets MDI/MDIX. Ethernet connection status.
	<pre> *Network Diag 1/3*   6/20 MacAddress 00014A-xxxxxx Auto Negotiation: ON Auto Mdx    : ON Connect Speed: 100M Duplex Mode  : FULL MDI/MDIX Select: MDIX Link Status  : OK </pre>		
10	Network Diag 2	NS Mode MCS Mode  CCU No. Master IP Address	Sets the remote connector and the Ethernet connector. Sets the superior-subordinate relationship for the Ethernet control. Sets the CCU number. IP address of the master device.
	<pre> *Network Diag 2/3*   7/20 NS Mode : MCS MCS Mode: CLIENT CCU No. : (1) Master IP Address 192.168. 0.100 </pre>		
11	Network Diag 3	IP Addr NetMask Def GW	Sets the IP address. Sets the netmask. Sets the default gateway.
	<pre> *Network Diag 3/3*   8/20 IP Addr :192.168. 0.101 NetMask :255.255.255. 0 Def GW  :192.168. 0.254 </pre>		

Page	Menu / Menu Image	Item	Description
12	AT Board Diag		
	<div> *AT Diag* 9/20  System Frequency:1.001  CHU Format Setting  Remote 720/59.94P  Reference :HD Remote  Line Delay :Line (120H)  Power Supply:OK  PLD Version :1.00 Done  Mode :Normal  VIF Power :OK </div>	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.
13	AVP Board Diag		
	<div> *AVP Diag* 10/20    Front Power:OK  PLD Version:1.00 Done  Mode :Normal  ADO Power :OK </div>	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 ADO board.
14	DTX Board Diag		
	<div> *DTX Diag* 11/20  Return Setting:Remote  Return Delay :F/S    Active Ret CH :2CH    Front Power:OK  PLD Version:1.01 Done  Mode :Normal  Rear:SDI Power:OK </div>	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.
15	DRX (Slot 1) Board Diag		
	<div> *DRX (Slot1) Diag* 12/20  HD CB:MF-SMPTE (100% 0)  SD CB SMPTE  Front Power :OK  PLD Status  PRE Version:1.00  POST Version:1.00  Config Done :Done  Mode :Normal  Rear:HIF Power:OK </div>	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.
16	DRX (Slot 2) Board Diag		
	<div> *DRX (Slot2) Diag* 13/20  HD CB:(THROUGH)  SD CB SMPTE  Front Power :OK  PLD Status  PRE Version:1.00  POST Version:1.00  Config Done :Done  Mode :Normal  Rear:HIF Power:OK </div>	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.
17	Slot 3 Board Diag		
	<div> *DRX (Slot3) Diag* 14/20  HD CB:(THROUGH)  SD CB SMPTE  Front Power :OK  PLD Status  PRE Version:1.00  POST Version:1.00  Config Done :Done  Mode :Normal  Rear:HIF Power:OK </div>	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.

Page	Menu / Menu Image	Item	Description
18	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.
19	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.
20	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.
21	SDP Board Diag 	PLD Version Mode Power	Displays the PLD Version and the status of the SDP board.
22	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.
23	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			
	<div> <pre> &lt;OUTPUT SELECT&gt; ?S00 TOP OUTPUT: *CAMERA         BAR         TEST1         TEST2  PIX: *ENC  R  G  B       R&amp;G  G&amp;B R&amp;B RGB WFM: *ENC  R  G  B  SEQ       R&amp;G  G&amp;B R&amp;B RGB </pre> </div>	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			
	<div> <pre> &lt;GEN-LOCK PHASE&gt; S01 TOP CONTROL (REMOTE) REFERENCE (NONE) GEN-LOCK: HD (OK)  H-STEP : 0.00µsec COARSE : 0 SC-PHASE: 0 SUB-REF : (NONE)           UNKNOWN </pre> </div>	CONTROL	(LOCAL/ <u>REMOTE</u> )	Displays Local/Remote status for Gen-Lock Control.
		REFERENCE	(EXT-in/ <u>NONE</u> )	Displays the sub-reference signal input detection.
		GEN-LOCK	<u>HD</u> /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 <u>0.00</u> to +3.45 µsec	Adjusts the lock phase: H-step
		COARSE	-99 to <u>0</u> to +99	Adjusts the lock phase: H-step fine adjustment
		SC-PHASE	-99 to <u>0</u> to +99	Adjusts the lock phase: SC-phase
		SUB-REF	(EXT-in/NONE)	Displays the sub-reference signal input detection.
			(UNKNOWN/ FrameGate/HD/SD)	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			
	<div> &lt;MULTI FORMAT&gt; S02 TOP  CONTROL (REMOTE)  FREQUENCY HD: 1001  SD: 525 (NTSC)  CAMERA FORMAT  : 720/59.94P </div>	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			
	<div> &lt;OUTPUT FORMAT&gt; ?S03 TOP  SLOT-NO  1-1&amp;2: 720/59.94P  3&amp;4: M720/59.94P  2-1&amp;2: 525/59.94P  3&amp;4: M525/59.94P  3: NTSC  4: NTSC  5: NTSC  6: NTSC  FRAME CONVERT DELAY: 1.6 </div>	SLOT-NO		Sets the format of the output signal from each output terminal SLOT.
		1-1&2	OUTPUT Format (*2)	
		3&4	OUTPUT Format (*2)	
		2-1&2	OUTPUT Format (*2)	
		3&4	OUTPUT Format (*2)	
		3	OUTPUT Format (*2)	
		4	OUTPUT Format (*2)	
		5	OUTPUT Format (*2)	
		6	OUTPUT Format (*2)	
		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

1080/59.94P

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			
	<div> <div>&lt;SD ASPECT&gt; ?S04 TOP</div> <div> SD ASPECT : EDGE CROP  SD LB SEL : 16:9  H-POSITION : 0  CENTER : ON  V-POSITION : ( 0 )  CENTER : ( ON )  H-INTERP : A  V-INTERP : A </div> </div>	SD ASPECT	SQUEEZE	Sets ASPECT for the SD output of the main unit.
			EDGE CROP	
			LETTER BOX	
		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			
	<div> <div>&lt;RETURN FORMAT&gt; ?S05 TOP</div> <div> RET1: 720/59.94P  RET2: 525/59.94I (PsF)  EDGE CROP 16:9  RET3: 720/59.94P  RET4: 720/59.94P    LINK TO MAIN : MANUAL </div> </div>	RET1	RET FORMAT (*3) ASPECT/LB SEL	Sets the input format for the return signal.
		RET2	RET FORMAT (*3) ASPECT/LB SEL	Sets Format/Aspect/Letter Box mode.
		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			
	<div> <div>&lt;RETURN SETUP&gt; S06 TOP</div> <div>FRAME SYNCHRO : ON</div> <div>SD-RETURN MATRIX : ON</div> <div>LB LINE : 364</div> <div>ASPECT : MANUAL</div> </div>	FRAME SYNCHRO	OFF/ <input type="checkbox"/> ON	Turns ON/OFF the delay function for the return signal.
		SD-RETURN MATRIX	OFF/ <input type="checkbox"/> ON	Turns ON/OFF the HD-Matrix to the SD return signal.
		LB LINE	360/ <input type="checkbox"/> 364	Sets the number of valid lines for LETTER BOX mode.
		ASPECT	<input type="checkbox"/> MANUAL/AUTO	Selects the automatic linking function of SD-Return ASPECT setting.
S07	CCU VIDEO			
	<div> <div>&lt;CCU VIDEO&gt; S07 TOP</div> <div>VBS-CHROMA : ON</div> <div>MONO COLOR : OFF</div> <div>PHASE : 158</div> <div>SATURATION : 0</div> </div>	VBS-CHROMA	OFF/ <input type="checkbox"/> ON	Turns ON/OFF the CHROMA signal for the VBS output signal.
		MONO COLOR	<input type="checkbox"/> OFF/ON	Turns ON/OFF the MONO COLOR function.
		PHASE	<input type="checkbox"/> 0 to 358	Adjusts the phase of MONO COLOR.
		SATURATION	-99 to <input type="checkbox"/> 0 to +99	Adjusts the saturation of MONO COLOR.

☐ : The settings in the box are default values.

## 3-4. Configuration Menu

### 3-4-1. When version of the software prior to V1.10

Page	Menu / Menu Image	Item	Setting	Description
C00	COLOR BAR			
	<div> <div>&lt;COLOR BAR&gt; ?C00 TOP</div> <div>           HD-BAR            SEL MF-SMPTE (100%.Q)            MF-CB : MODIFY            SLOPE : WIDE            SD-BAR : SMPTE : ENB            GRAY: ON         </div> </div>	HD-BAR SEL MF-CB SLOPE	HD-BARS FORMAT (*4) MODIFY/EVEN WIDE/NARROW	Sets the color bar for the HD output. Sets the type of color bar signal. Selects MF-CB width. Sets the slope (width) of the color bar signal.
		SD-BAR	SD-BARS FORMAT (*5) ENB/DSB	Sets the color bar for the SD output. 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			
	<div> <div>&lt;MONITOR 1&gt; ?C01 TOP</div> <div>           CHARACTER            WHITE-LEVEL : 71.5%            BLACK-LEVEL : 0.0%            PIX CHARACTER            WHITE-LEVEL : 75.0%            BLACK-LEVEL : 0.0%         </div> </div>	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		Sets white/black level for the character of the PIX output.
		WHITE-LEVEL	0.0% to 107% 71.5%	Displays only when the analog encoder board (HKCU1001/1003) is attached.
		BLACK-LEVEL	0.0% to 107% 0.0%	
	<div> <div> <input type="checkbox"/> : The settings in the box are default values.           </div> <div>           (*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         </div> </div>			
	<div> <div>           (*5) SD-BARS FORMAT            SMPTE            EIA            FULL            95%            NTSC100%            Y/C-RAMP            Y -RAMP         </div> </div>			

Page	Menu / Menu Image	Item	Setting	Description
C02	MONITOR2			
	<div> &lt;MONITOR 2&gt;      ?C02 TOP  LEVEL-GATE : OFF  Y-LEVEL1    49% ~ 61% -12  Y-LEVEL2    74% ~ 108% -25  SKIN-GATE    : OFF : 0  MODURATION : OFF : 0  MARKER       : OFF :                   : VISTA </div>	LEVEL-GATE	<input type="checkbox"/> OFF/1/2/1&2	Sets the mode for the CCU Y-LEVEL-GATE function.
		Y-LEVEL1	0% to <input type="text" value="49%"/> to <input type="text" value="64%"/> to 108%	Sets upper and lower levels for Level-Gate 1 detection.
			-99 to <input type="text" value="-25"/> to +99	Sets the Zebra levels added to the Level-Gate 1 detection width.
		Y-LEVEL2	0% to <input type="text" value="74%"/> to <input type="text" value="108%"/> to 108%	Sets upper and lower levels for Level-Gate 2 detection.
			-99 to <input type="text" value="-25"/> to +99	Sets the Zebra levels added to the Level-Gate 2 detection width.
		SKIN GATE	<input type="checkbox"/> OFF/ON	Turns ON/OFF Gate display for SkinTone Detail detection.
			-99 to <input type="text" value="0"/> to +99	Sets SKIN GATE level.
		MODURATION	<input type="checkbox"/> OFF/ON	Mask function ON/OFF switch at EDGE CROP mode.
			-99 to <input type="text" value="0"/> to +99	Sets the image level of the mask portion.
		MARKER	<input type="checkbox"/> OFF/ON	Turns ON/OFF the MARKER signal.
			<input type="text" value="4:3"/> 13:9 14:9 EU VISTA VISTA CINEMA FOLLOW DC	
C03	I/F SETUP			
	<div> &lt;I/F SETUP&gt;      ?C03 TOP  BOARD FRONT      REAR  SLOT1:DRX-5 =&gt; HIF-25  SLOT2:DRX-5 =&gt; HIF-25  SLOT3:DRX-5 =&gt; HIF-26  SLOT4:EN-159A=&gt; VDA-64A  SLOT5:EN-159B=&gt; VDA-64B  SLOT6:(NONE) =&gt; VDA-64C </div>	BOARD	FRONT / REAR	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).
		SLOT1	BOARD NAME DISPLAY	
		SLOT2	BOARD NAME DISPLAY	
		SLOT3	BOARD NAME DISPLAY	
		SLOT4	BOARD NAME DISPLAY	
		SLOT5	BOARD NAME DISPLAY	
		SLOT6	BOARD NAME DISPLAY	
		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			
	<div> &lt;MIC/AUDIO&gt;      C04 TOP  CHU MIC GAIN: (LOCAL)  CH1            : 60dB  CH2            : 60dB  MIC OUT  DELAY           : 0FS  ANALOG OUT : MIC1/2  AES/EBU OUT : MIC1/2  AUDIO PACKET : AUTO (900) </div>	CHU MIC GAIN	(REMOTE/LOCAL)	Displays local/remote for the camera microphone amplifier settings.
		CH1	20/30/40/50/ <input type="text" value="60dB"/>	Sets amplifier gain for MIC-1 circuit.
		CH2	20/30/40/50/ <input type="text" value="60dB"/>	Sets amplifier gain for MIC-2 circuit.
		MIC OUT		
		DELAY	0 to 3840FS	Sets audio output phase for the camera microphone.
		ANALOG OUT	<input type="text" value="MIC1/2"/> /AES/EBU	Selects the MIC OUT ANALOG output.
		AES/EBU OUT	<input type="text" value="MIC1/2"/> /AES/EBU	Selects the MIC OUT DIGITAL output.
		AUDIO PACKET	<input type="text" value="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	FP-INCOM	(MIC ON/OFF/PGM ON) (PROD/ENG/PRIVATE)	Displays the FRONT INCOM MIC SW settings. Displays the FRONT INCOM line settings.
	<div> <div>&lt;INCOM/PGM&gt; C05 TOP</div> <div> FP-INCOM (MIC ON) (PRIVATE) PGM-MODE : OFF PGM-SEL : MIX PGM1 : 0 PGM2 : 0 SIDE TONE : 0 INCOM-CH : 2CH </div> </div>	PGM-MODE	SEP/MIX/ <input type="checkbox"/> OFF	Sets the PGM-MODE output.
		PGM-SEL	MIX/ <input type="checkbox"/> PGM1/PGM2	Selects the PGM-MODE.
		PGM1	-99 to <input type="checkbox"/> 0 to +99	Sets PGM1 level.
		PGM2	-99 to <input type="checkbox"/> 0 to +99	Sets PGM2 level.
		SIDE TONE	-99 to <input type="checkbox"/> 0 to +99	Sets SIDE TONE level.
		INCOM-CH	1CH/ <input type="checkbox"/> 2CH	Selects INCOME CHANNEL.
C06	PROMPT/TRUNK	PROMPTER	<input type="checkbox"/> 1CH/2CH	Sets line number for Prompter (Only 1 channel is available for the software prior to V1.10.)
	<div> <div>&lt;PROMPT/TRUNK&gt; ?C06 TOP</div> <div>PROMPTER : 1CH</div> <div>TRUNK SETTING</div> <div>CH : 2CH</div> <div>IF : 232C</div> </div>	TRUNK SETTING		Sets line for TRUNK.
		CH	1CH/ <input type="checkbox"/> 2CH	Sets the channel number used.
		IF	<input type="checkbox"/> 232C/422A	Sets the communication line mode.
C07	VIDEO SETUP	SETUP	<input type="checkbox"/> OFF/ON	Turns ON/OFF the SETUP.
	<div> <div>&lt;VIDEO SETUP&gt; ?C07 TOP</div> <div> SETUP : OFF Q FILTER : WD G/Y SYNC : OFF VCS RELAY : ON </div> </div>	Q FILTER	<input type="checkbox"/> WD/NA	Sets width of Q-Filter. (Only when the EN board is attached)
		G/Y SYNC	OFF/ <input type="checkbox"/> ON	Turns ON/OFF Gch-SYNC for the R/G/B component signal. (Only when the EN board is attached)
		VCS RELAY	OFF/ <input type="checkbox"/> ON	Sets PIX/WFM terminal output mode. (Only when the EN board is attached)
C08	VIDEO ADJUST (When using EN-159 board)	VBS		Adjusts the VBS output video level.
	<div> <div>&lt;VIDEO ADJUST 1&gt; C08 TOP</div> <div> VBS LEVEL : 0 CHROMA : 0 PIX LEVEL : 0 CHROMA : 0 WFM LEVEL : 0 CHROMA : 0 </div> </div>	LEVEL	-99 to <input type="checkbox"/> 0 to +99	
		CHROMA	-99 to <input type="checkbox"/> 0 to +99	
		PIX		Adjusts the PIX output video level.
		LEVEL	-99 to <input type="checkbox"/> 0 to +99	
		CHROMA	-99 to <input type="checkbox"/> 0 to +99	
		WFM		Adjusts the WFM output video level.
		LEVEL	-99 to <input type="checkbox"/> 0 to +99	
		CHROMA	-99 to <input type="checkbox"/> 0 to +99	

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

: The settings in the box are default values.

### 3-4-2. When V1.10 or a later version of the software

Page	Menu / Menu Image	Item	Setting	Description
C00	COLOR BAR			
	<div> <div>&lt;COLOR BAR&gt;    ?C00 TOP</div> <div> <div>HD-BAR</div> <div>SEL MF-SMPTE (100%, Q)</div> <div>MF-CB : MODIFY</div> <div>SLOPE : WIDE</div> <div>SD-BAR : SMPTE : ENB</div> <div>BAR-CHARA: OFF</div> <div>GRAY: ON</div> </div> </div>	HD-BAR		Sets the color bar for the HD output.
		SEL	HD-BARS FORMAT (*4)	Sets the type of color bar signal.
		MF-CB	<u>MODIFY</u> /EVEN	Selects MF-CB width.
		SLOPE	<u>WIDE</u> /NARROW	Sets the slope (width) of the color bar signal.
		SD-BAR	SD-BARS FORMAT (*5)	Sets the color bar for the SD output.
			<u>ENB</u> /DSB	ENB : Outputs CB for SD. DSB : Changes HD-CB to SD signal and outputs it.
		BAR-CHARA	<u>OFF</u> /ON	Turns ON/OFF the BARS CHARACTERS function that superimposes characters on the color bar signal.
		GRAY	OFF/ <u>ON</u>	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.

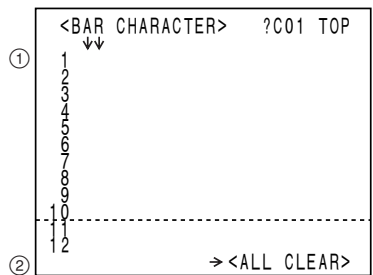
☐ : The settings in the box are default values.

(\*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

- Switch functions for editing
  - ENTER  
Enters the character input mode.
  - CANCEL  
Cancels the edit mode. (Same as ESC. The edited content is not reflected.)
  - UP  
Increments the cursor. (Moves to the right.)
  - DOWN  
Decrements the cursor. (Moves to the left.)

(1) Press UP to increment the cursor to the right.



- ① **BAR CHARACTER**  
Sets characters on the color bar.
- ② **ALL CLEAR**  
Clears all.

When the characters are entered to the right edge of the screen, ESC or END can be selected.

If you select END, the entry of the desired characters is complete.

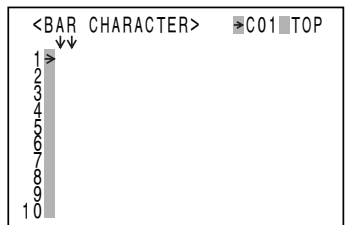
## Editing Procedure

This example shows how to edit the first line.

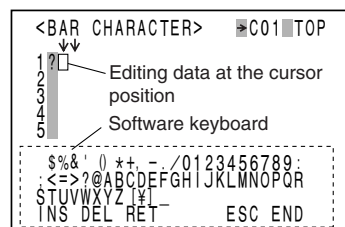
Switches use

- ENTER
- CANCEL
- UP
- DOWN

- ### 1. Initial state



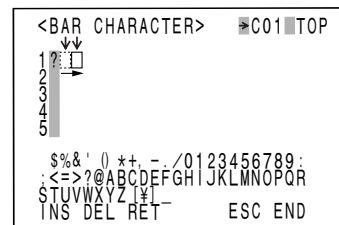
2. If you move the cursor to line number 1 and press ENTER, the screen changes to the edit mode.



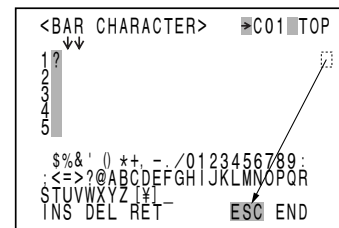
→ Switch functions for editing

- **ENTER**  
Enters the character input mode.
- **CANCEL**  
Cancels the edit mode. (Same as ESC. The edited content is not reflected.)
- **UP**  
Increments the cursor. (Moves to the right.)
- **DOWN**  
Decrements the cursor. (Moves to the left.)

- (1) Press UP to increment the cursor to the right.

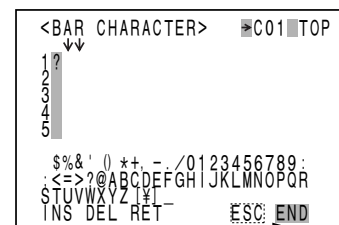


- a. If you press UP at the end of the data edit area



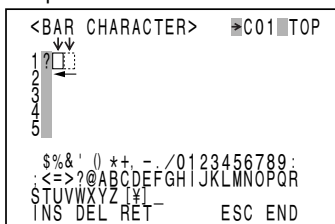
- \*1: If you press ENTER here, the edited content is canceled, and the edit mode is also canceled.
- \*2: If you press DOWN, the cursor returns to the end of the data edit area.

- b. If you press UP at ESC000



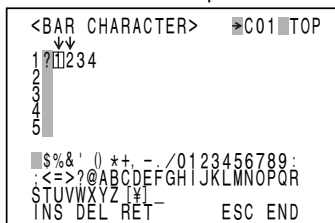
- \*1: If you press ENTER here, the edited content is canceled, and the edit mode is also canceled.
- \*2: If you press DOWN, the cursor returns to ESC.

- (2) Press DOWN to decrement the data edit position cursor to the left.



\*The cursor can no longer be decremented if it comes to the leftmost position (initial position).

3. Press ENTER in the edit mode to enter the character input mode.



\*The cursor appears on the software keyboard.

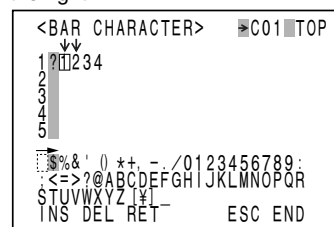
Switch functions in the character input mode

- ENTER  
Confirms the character. (Character input mode -> edit mode)
- CANCEL  
Cancels the character input mode. (Same as RET. The selected character is not reflected.)
- UP  
Increments the cursor on the software keyboard. (Moves to the right.)
- DOWN  
Decrements the cursor on the software keyboard. (Moves to the left.)

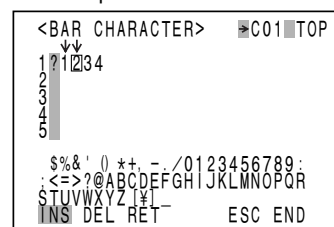
Special function on the software keyboard  
Move the cursor on the corresponding function, and press ENTER.

- INS  
Inserts a space in the place where the data edit cursor is located. (The mode stays the same.)
- DEL  
Deletes the character in the place where the data edit cursor is located, and the following characters are left-aligned. (The mode stays the same.)
- RET  
Cancels the character input mode. (Same as CANCEL. The selected character is not reflected.)

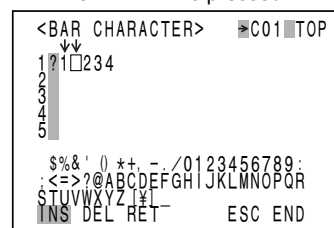
- ➔ (1) Press UP to increment the cursor to the right.



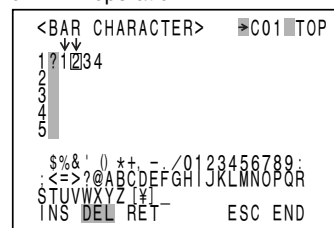
- a. INS operation



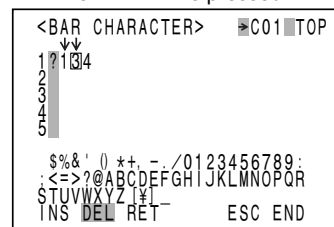
When ENTER is pressed



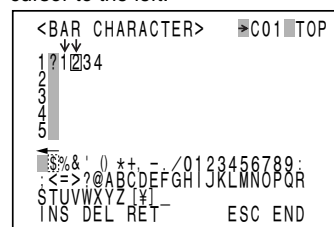
- b. DEL operation



When ENTER is pressed



- (2) Press DOWN to decrement the cursor to the left.



#### Note

The data entered in this page can be checked in the CCU configuration menu. On the <C00> COLOR BAR page, set "BAR-CHARA" to "ON".

Page	Menu / Menu Image	Item	Setting	Description
C02	MONITOR1			
	<div> <div>&lt;MONITOR 1&gt; ?C02 TOP</div> <div> <div>CHARACTER</div> <div>WHITE-LEVEL : 71.5%</div> <div>BLACK-LEVEL : 0.0%</div> </div> <div> <div>PIX CHARACTER</div> <div>WHITE-LEVEL : 75.0%</div> <div>BLACK-LEVEL : 0.0%</div> </div> </div>	CHARACTER		Sets white/black level for the character of the MONITOR output.
		WHITE-LEVEL	0.0% to 107% <input type="text" value="71.5%"/>	
		BLACK-LEVEL	0.0% to 107% <input type="text" value="0.0%"/>	
		PIX CHARACTER		Sets white/black level for the character of the PIX output.
		WHITE-LEVEL	0.0% to 107% <input type="text" value="71.5%"/>	Displays only when the analog encoder board (HKCU1001/1003) is attached.
		BLACK-LEVEL	0.0% to 107% <input type="text" value="0.0%"/>	
C03	MONITOR2			
	<div> <div>&lt;MONITOR 2&gt; ?C03 TOP</div> <div> <div>LEVEL-GATE : OFF</div> <div>Y-LEVEL1 49%~ 61% -12</div> <div>Y-LEVEL2 74%~ 108% -25</div> </div> <div> <div>SKIN-GATE : OFF : 0</div> <div>MODURATION : OFF : 0</div> </div> <div> <div>MARKER : OFF</div> <div>: VISTA</div> </div> </div>	LEVEL-GATE	<input type="text" value="OFF"/> /1/2/1&2	Sets the mode for the CCU Y-LEVEL-GATE function.
		Y-LEVEL1	0% to <input type="text" value="49%"/> to <input type="text" value="64%"/> to 108%	Sets upper and lower levels for Level-Gate 1 detection.
			-99 to <input type="text" value="-25"/> to +99	Sets the Zebra levels added to the Level-Gate 1 detection width.
		Y-LEVEL2	0% to <input type="text" value="74%"/> to <input type="text" value="108%"/> to 108%	Sets upper and lower levels for Level-Gate 2 detection.
			-99 to <input type="text" value="-25"/> to +99	Sets the Zebra levels added to the Level-Gate 2 detection width.
		SKIN GATE	<input type="text" value="OFF"/> /ON	Turns ON/OFF Gate display for SkinTone Detail detection.
			-99 to <input type="text" value="0"/> to +99	Sets SKIN GATE level.
		MODURATION	<input type="text" value="OFF"/> /ON	Mask function ON/OFF switch at EDGE CROP mode.
			-99 to <input type="text" value="0"/> to +99	Sets the image level of the mask portion.
		MARKER	<input type="text" value="OFF"/> /ON	Turns ON/OFF the MARKER signal.
			<input type="text" value="4:3"/>	
			13:9	
			14:9	
			EU VISTA	
			VISTA	
			CINEMA	
			FOLLOW DC	
C04	I/F SETUP			
	<div> <div>&lt;I/F SETUP&gt; ?C04 TOP</div> <div> <div>BOARD FRONT REAR</div> <div>SLOT1: DRX-5 =&gt; HIF-25</div> <div>SLOT2: DRX-5 =&gt; HIF-25</div> <div>SLOT3: DRX-5 =&gt; HIF-26</div> <div>SLOT4: EN-159A=&gt; VDA-64A</div> <div>SLOT5: EN-159B=&gt; VDA-64B</div> <div>SLOT6: (NONE) =&gt; VDA-64C</div> </div> <div>REAR PREVIEW : MOMENTARY</div> </div>	BOARD	FRONT / REAR	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).
		SLOT1	BOARD NAME DISPLAY	
		SLOT2	BOARD NAME DISPLAY	
		SLOT3	BOARD NAME DISPLAY	
		SLOT4	BOARD NAME DISPLAY	
		SLOT5	BOARD NAME DISPLAY	
		SLOT6	BOARD NAME DISPLAY	
		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)
		REAR PREVIEW	<input type="text" value="MOMENTARY"/> / TOGGLE	Selects the operation mode for the REAR PREVIEW output.
C05	MIC/AUDIO			
	<div> <div>&lt;MIC/AUDIO&gt; C05 TOP</div> <div> <div>CHU MIC GAIN: (LOCAL)</div> <div>CH1 : 60dB</div> <div>CH2 : 60dB</div> </div> <div> <div>MIC OUT</div> <div>DELAY : 0FS</div> <div>ANALOG OUT : MIC1/2</div> <div>AES/EBU OUT : MIC1/2</div> <div>AUDIO PACKET: AUTO (900)</div> </div> </div>	CHU MIC GAIN	(REMOTE/LOCAL)	Displays local/remote for the camera microphone amplifier settings.
		CH1	20/30/40/50/ <input type="text" value="60dB"/>	Sets amplifier gain for MIC-1 circuit.
		CH2	20/30/40/50/ <input type="text" value="60dB"/>	Sets amplifier gain for MIC-2 circuit.
		MIC OUT		
		DELAY	0 to 3840FS	Sets audio output phase for the camera microphone.
		ANALOG OUT	<input type="text" value="MIC1/2"/> /AES/EBU	Selects the MIC OUT ANALOG output.
		AES/EBU OUT	<input type="text" value="MIC1/2"/> /AES/EBU	Selects the MIC OUT DIGITAL output.
		AUDIO PACKET	<input type="text" value="AUTO"/> /700/900	Selects the Audio Packet operation mode.

: The settings in the box are default values.

Page	Menu / Menu Image	Item	Setting	Description
C06	INCOM/PGM	FP-INCOM	(MIC ON/OFF/PGM ON) (PROD/ENG/PRIVATE)	Displays the FRONT INCOM MIC SW settings. Displays the FRONT INCOM line settings.
	<div> <div>&lt;INCOM/PGM&gt; C06 TOP</div> <div> FP-INCOM (MIC ON) (PRIVATE) PGM-MODE : OFF PGM-SEL : MIX PGM1 : 0 PGM2 : 0 SIDE TONE : 0 INCOM-CH : 2CH </div> </div>	PGM-MODE	SEP/MIX/[OFF]	Sets the PGM-MODE output.
		PGM-SEL	MIX/[PGM1]/PGM2	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.
C07	PROMPT/TRUNK	PROMPTER	[1CH]/2CH	Sets line number for Prompter (Fixed to 1 channel for HDCU1500.)
	<div> <div>&lt;PROMPT/TRUNK&gt; ?C07 TOP</div> <div> PROMPTER: 1CH   TRUNK SETTING  CH : 2CH  IF : 232C </div> </div>	TRUNK SETTING		Sets line for TRUNK.
		CH	1CH/[2CH]	Sets the channel number used.
		IF	[232C]/422A	Sets the communication line mode.
C08	VIDEO SETUP	SETUP	[OFF]/ON	Turns ON/OFF the SETUP.
	<div> <div>&lt;VIDEO SETUP&gt; ?C08 TOP</div> <div> SETUP : OFF  Q FILTER : WD  G/Y SYNC : OFF  VCS RELAY : ON </div> </div>	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 SETUP*	SETUP	[OFF]/ON	Turns ON/OFF the SETUP.
	<div> <div>&lt;VIDEO SETUP&gt; ?C08 TOP</div> <div> SETUP : OFF  SD BLK CLP : OFF  Q FILTER : WD  G/Y SYNC : OFF  VCS RELAY : ON </div> </div>	SD BLK CLP	[OFF]/ON	Clips the Y signal of lower than 0% to be supplied from the SD SDI output connector, at 0%
		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)
C09	VIDEO ADJUST (When using EN-159 board)	VBS LEVEL	-99 to [0] to +99	Adjusts the VBS output video level.
	<div> <div>&lt;VIDEO ADJUST 1&gt; C09 TOP</div> <div> VBS LEVEL : 0  PIX LEVEL : 0  WFM LEVEL : 0  CHROMA : 0 </div> </div>	CHROMA	-99 to [0] to +99	
		PIX LEVEL	-99 to [0] to +99	Adjusts the PIX output video level.
		CHROMA	-99 to [0] to +99	
		WFM LEVEL	-99 to [0] to +99	Adjusts the WFM output video level.
		CHROMA	-99 to [0] to +99	

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

\* : This function has been added to software V1.20 and the later versions.



### 3-5. Network Setting Menu

Page	Menu / Menu Image	Item	Setting	Description
N00	IP ADDR SET			
	<div> <div>&lt;IP ADDR SET&gt; ?N00 TOP</div> <div> HOST IP ADDRESS : 192.168. 0.101  SUB NET MASK : 255.255.255. 0  DEFAULT GATEWAY : 192.168. 0.254  SET </div> </div>	HOST IP ADDRESS	<input type="text" value="0"/> to 255	Sets the host IP address.
		SUB NET MASK	<input type="text" value="0"/> to 255	Sets the subnet mask.
		DEFAULT GATEWAY	<input type="text" value="0"/> to 255	Sets the default gateway.
		SET		Reflects all the above settings.
N01	ETHER I/F CONF			
	<div> <div>&lt;ETHER I/F CONF&gt;?N01 TOP</div> <div> AUTO NEGOTIATION : ON  AUTO MDIX : ON  CONNECT CONFIGURATION  CONNECT SPEED : 100M  DUPLEX MODE : FULL  MDI/MDIX SELECT : MDT  LINK CONDITION : ( UP )  SET </div> </div>	AUTO NEGOTIATION	<input type="text" value="ON"/> /OFF	Sets auto negotiation.
		AUTO MDIX	<input type="text" value="ON"/> /OFF	Sets auto MDIX.
		CONNECT SPEED	<input type="text" value="100M"/> /10M	Sets the connection speed.
		DUPLEX MODE	<input type="text" value="FULL"/> /HALF	Sets the communication method.
		MDI/MDIX SELECT	<input type="text" value="MDI"/> /MDIX	Sets the communication line.
		LINK CONDITION	(UP) / (DOWN)	Displays the network communication status.
		SET		Reflects all the above settings.
N02	700PTP SETTING			
	<div> <div>&lt;700PTP SETTING&gt;?N02 TOP</div> <div> NS MODE : LEGACY  MCS MODE : (CLIENT)  CCU NO : (1)  MASTER IP ADDRESS : 192.168. 0.100 </div> </div>	NS MODE	<input type="text" value="LEGACY"/> / BRIDGE/MCS	Sets the communication mode.
		MCS MODE	(CLIENT)	Displays that the CCU is the client.
		CCU NO	( <input type="text" value="blank"/> , 1 to 96)	Displays the CCU number.
		MASTER IP ADDRESS	<input type="text" value="0"/> to 255	Sets the IP address of the master device in the MCS mode.
N03	NETWORK RESET			
	<div> <div>&lt;NETWORK RESET&gt; ?N03 TOP</div> <div>ALL RESET</div> </div>	ALL RESET		Returns the network-related information status to the factory default status.

: The settings in the box are default values.



HDCU1000 (UC)  
HDCU1000 (J)  
HDCU1000 (CE)  
HDCU1000 (E3)  
HDCU1000 (E2)  
HDCU1080 (CN)  
HDCU1500 (SY)  
HDCU1500 (J)  
HKCU1001 (SY)  
HKCU1003 (SY)  
HKCU1005 (SY) J, E  
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