

# HD Camera Extension Unit

## Operating Instructions

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

### XDCU-50



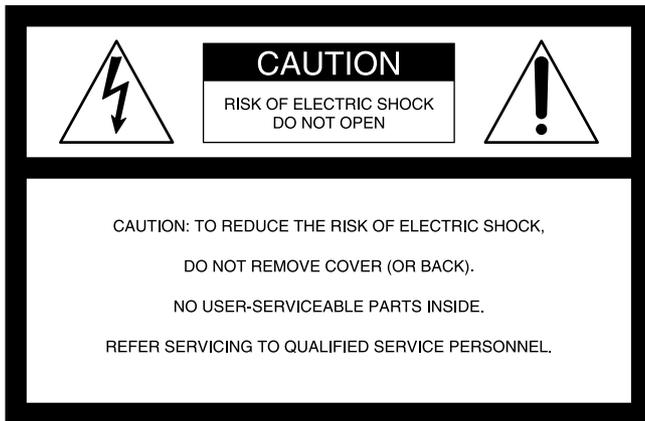
## WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

## THIS APPARATUS MUST BE EARTHED.

Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.



This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug

does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

### 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.
6. When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.

**Right, Left:** 4 cm (1.6 inches) or more

**Rear:** 10 cm (4 inches) or more

When installing the installation space must be secured in consideration of the ventilation and service operation.

- Do not block the ventilation slots at the left side and right side panels, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 cm of space in the rear of the unit to secure the operation area.

When the unit is installed on the desk or the like, leave at least 4 cm of space in the left and right sides. Leaving 40 cm or more of space above the unit is recommended for service operation.

**WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.**

If used in USA, use the UL LISTED power cord specified below.

DO NOT USE ANY OTHER POWER CORD.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord	Type SJT, three 16 or 18 AWG wires
Length	Minimum 1.5 m (4 ft. 11 in.), Less than 2.5 m (8 ft. 3 in.)
Rating	Minimum 10A, 125V

Using this unit at a voltage other than 120V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

**WARNING: THIS WARNING IS APPLICABLE FOR OTHER COUNTRIES.**

1. Use the approved Power Cord (3-core mains lead) / Appliance Connector / Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead) / Appliance Connector / Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord / Appliance Connector / Plug, please consult a qualified service personnel.

**WARNING**

1. Use the approved Power Cord (3-core mains lead) / Appliance Connector / Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead) / Appliance Connector / Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord / Appliance Connector / Plug, please consult a qualified service personnel.

**CAUTION**

The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the apparatus.

Do not install the appliance in a confined space, such as book case or built-in cabinet.

The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.

**IMPORTANT**

The nameplate is located on the bottom.

**WARNING**

Excessive sound pressure from a headset can cause hearing loss.

In order to use this product safely, avoid prolonged listening at excessive sound pressure levels.

The total current consumption on the camcorder and camera adapter (including peripheral equipment) to receive power from this unit must not exceed 70 W.

**For kundene i Norge**

Dette utstyret kan kobles til et IT-strømfordelingssystem.

**Suomessa asuville asiakkaille**

Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan

**For kundene i Norge**

Apparatet må tilkoples jordet stikkontakt

**För kunderna i Sverige**

Apparaten skall anslutas till jordat uttag

**For the customers in the U.S.A.**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**For the customers in Canada**

This Class A digital apparatus complies with Canadian ICES-003.

**For the customers in Europe**

This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European standards:

- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environments: E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors), E4 (controlled EMC environment, ex. TV studio).

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

## AVERTISSEMENT

**Afin de réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité. Afin d'écartier tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.**

**CET APPAREIL DOIT ÊTRE RELIÉ À LA TERRE.**

### AVERTISSEMENT

1. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/ fiche femelle/fiche mâle avec des contacts de mise à la terre conformes à la réglementation de sécurité locale applicable.
2. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/ fiche femelle/fiche mâle avec des caractéristiques nominales (tension, ampérage) appropriées.

Pour toute question sur l'utilisation du cordon d'alimentation/ fiche femelle/fiche mâle ci-dessus, consultez un technicien du service après-vente qualifié.

### IMPORTANT

La plaque signalétique se situe sous l'appareil.

### ATTENTION

Éviter d'exposer l'appareil à un égouttement ou à des éclaboussures. Ne placer aucun objet rempli de liquide, comme un vase, sur l'appareil.

Ne pas installer l'appareil dans un endroit confiné, par exemple une bibliothèque ou un placard encastré.

### ATTENTION

Cet appareil n'est pas déconnecté de la source d'alimentation secteur tant qu'il est raccordé à la prise murale, même si l'appareil lui-même a été mis hors tension.

### AVERTISSEMENT

Une pression acoustique excessive en provenance du casque peut provoquer une baisse de l'acuité auditive. Pour utiliser ce produit en toute sécurité, évitez l'écoute prolongée à des pressions sonores excessives.

### Pour les clients au Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### Pour les clients en Europe

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) émise par la Commission de la Communauté européenne.

La conformité à cette directive implique la conformité aux normes européennes suivantes :

- EN55103-1 : Interférences électromagnétiques (émission)
  - EN55103-2 : Sensibilité électromagnétique (immunité)
- Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants : E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé, ex. studio de télévision).

Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japon.

Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

## WARNUNG

**Um die Gefahr von Bränden oder elektrischen Schlägen zu verringern, darf dieses Gerät nicht Regen oder Feuchtigkeit ausgesetzt werden.**

**Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.**

**DIESES GERÄT MUSS GEERDET WERDEN.**

### WARNUNG

1. Verwenden Sie ein geprüftes Netzkabel (3-adriges Stromkabel)/einen geprüften Geräteanschluss/einen geprüften Stecker mit Schutzkontakten entsprechend den Sicherheitsvorschriften, die im betreffenden Land gelten.
2. Verwenden Sie ein Netzkabel (3-adriges Stromkabel)/einen Geräteanschluss/einen Stecker mit den geeigneten Anschlusswerten (Volt, Ampere).

Wenn Sie Fragen zur Verwendung von Netzkabel/ Geräteanschluss/Stecker haben, wenden Sie sich bitte an qualifiziertes Kundendienstpersonal.

### WICHTIG

Das Namensschild befindet sich auf der Unterseite des Gerätes.

### VORSICHT

Das Gerät ist nicht tropf- und spritzwassergeschützt. Es dürfen keine mit Flüssigkeiten gefüllten Gegenstände, z. B. Vasen, darauf abgestellt werden.

Das Gerät nicht an Orten aufstellen, z.B. in Bücherregalen oder Einbauschränken, wo keine ausreichende Belüftung gewährleistet ist.

#### **VORSICHT**

Solange das Netzkabel an eine Netzsteckdose angeschlossen ist, bleibt das Gerät auch im ausgeschalteten Zustand mit dem Stromnetz verbunden.

#### **WARNUNG**

Zu hoher Schalldruck von Headset kann Gehörschäden verursachen.

Um dieses Produkt sicher zu verwenden, vermeiden Sie längeres Hören bei sehr hohen Schalldruckpegeln.

#### **Für Kunden in Europa**

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt die EMV-Richtlinie der EG-Kommission.

Angewandte Normen:

- EN55103-1: Elektromagnetische Verträglichkeit (Störaussendung)
- EN55103-2: Elektromagnetische Verträglichkeit (Störfestigkeit)

Für die folgenden elektromagnetischen Umgebungen: E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtbereich im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

Der autorisierte Repräsentant für EMV und Produktsicherheit ist Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Deutschland. Bei jeglichen Angelegenheiten in Bezug auf Kundendienst oder Garantie wenden Sie sich bitte an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

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# Overview

The XDCU-50 HD Camera Extension Unit (called “the unit” below) can be combined with a camcorder fitted with a XDCA-53 or XDCA-55 HD Camera Adaptor and equipment such as a remote control unit to configure a recording and long-distance transmission system. The maximum transmission distance is 100 m (328 feet). (In this manual, a system that includes this unit is called “this system”.)

The following table lists the camcorder/camera adaptor combinations that can be used in the system.

Camcorder	Camera adaptor
PMW-EX3	XDCA-53
PMW-350K/350L <sup>a)</sup>	XDCA-55
PMW-320K/320L <sup>a)</sup>	
PMW-500 <sup>b)</sup>	

a) An optional CBK-CE01 50 Pin Interface and Digital Extender is required.

b) An optional CBK-HD02 SDI/COMPOSITE Input and 50 Pin Interface is required.

Before transmission, this unit can perform format conversion of video signals received from the camcorder via the camera adaptor. You can also supply power to the camcorder from this unit, by connecting this unit and the camera adaptor with a special power cable (CCZ-A cable).

# Features

## HD digital transmission

This unit supports bidirectional transmission of uncompressed HD digital signals between this unit and a camera adaptor.

The maximum transmission distance is 100 m (328 feet). You can transmit high-quality video signals regardless of cable length.

## Internal downconverter

You can convert HD signals received from the camera adaptor to SD output signals.

## Internal upconverter

When return video is SD signals, you can upconvert it to HD signals for transmission to the camera adaptor.

## External sync signals

You can genlock this unit to sync signals input from an external device.

As the external sync signals, you can use either HD tri-level sync or SD sync signals (black burst).

## Communication and control interfaces

- Intercom
- Tally (red and green)
- Trunk line (one line)
- Remote control line

## Rack mountable

You can mount this unit in an EIA standard 19-inch rack.

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# Using the CD-ROM

The supplied CD-ROM contains PDF-format Operating Instructions manuals (in English, Japanese, French, German, Italian, Spanish, and Chinese) for this unit and two camera adaptors (XDCA-53 and XDCA-55).

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## Reading the CD-ROM Manuals

### Preparations

The following program must be installed on your computer in order to read the documents contained on the CD-ROM. Adobe Reader Version 6.0 or higher

#### Memo

If Adobe Reader is not installed, you can download it from the following URL:

<http://www.adobe.com/>

Adobe and Adobe Reader are trademarks of Adobe Systems Incorporated in the United States and/or other countries.

### To read the documents

Do the following:

- 1** Insert the CD-ROM in your CD-ROM drive.  
  
A cover page appears automatically in your browser. If it does not appear automatically in the browser, double-click on the index.htm file on the CD-ROM.
- 2** Select and click on the manual that you wish to read.  
  
This opens the PDF file.

#### Memo

The files may not be displayed properly, depending on the version of Adobe Reader. In such a case, install the latest version you can download from the URL mentioned in “Preparations” above.

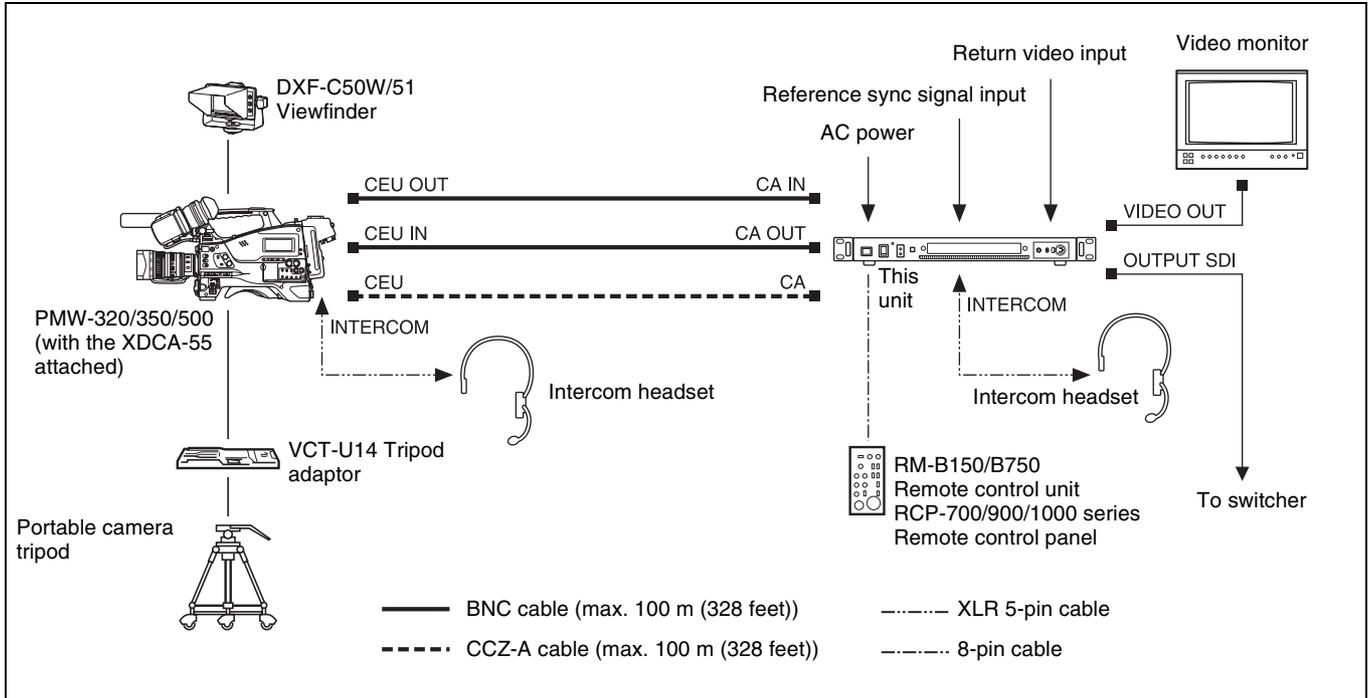
#### Note

If you have lost or damaged the CD-ROM, you can purchase a new one to replace it. Contact a Sony service representative.

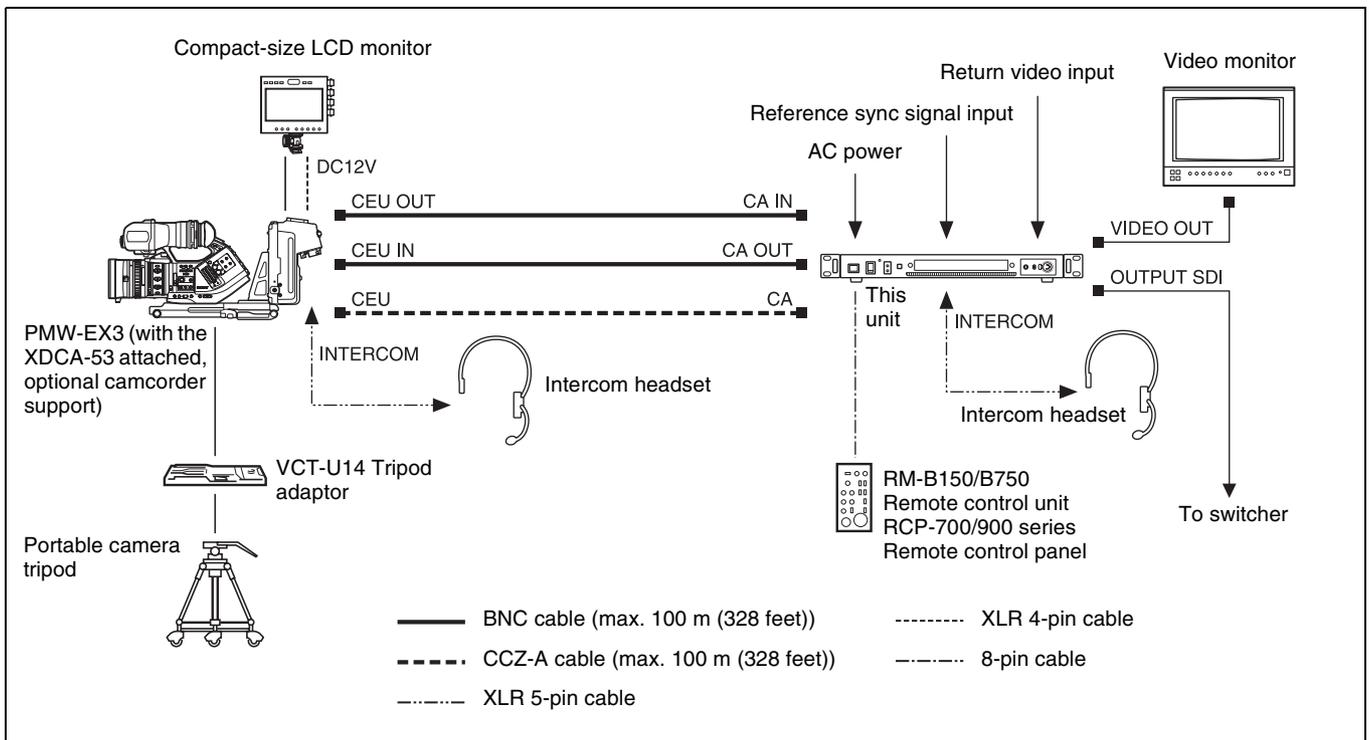
# Example System Configurations

The following sections provide examples to show how a system can be configured.

## System including the PMW-320/350/500 and XDCA-55



## System Including the PMW-EX3 and XDCA-53



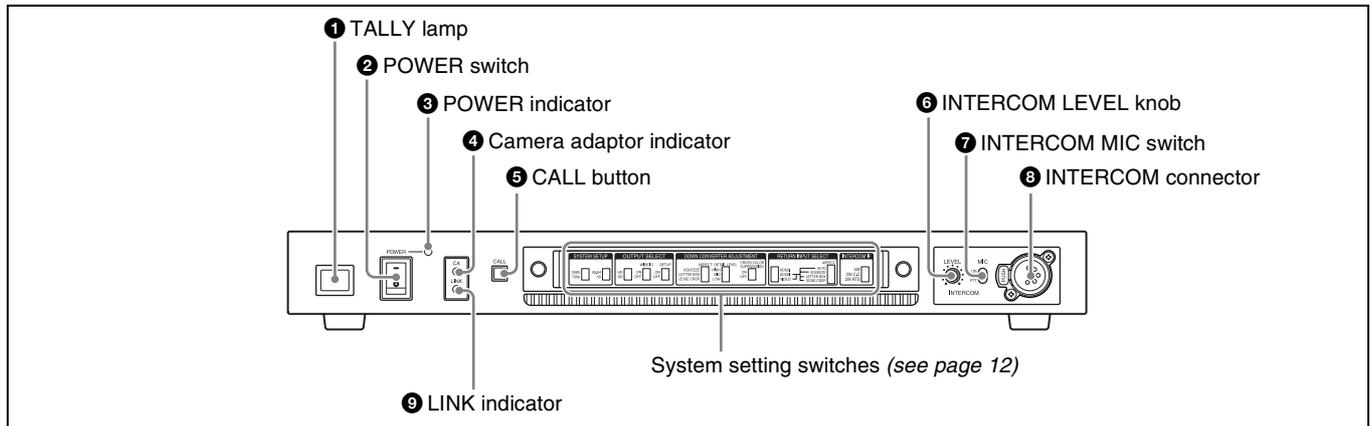
**Note**

To check return video signals on the PMW-EX3, you must mount a monitor on the PMW-EX3 or XDCA-53.

*For information about mountable monitors, contact your dealer or a Sony service representative.*

# Names and Functions of Parts

## Front Panel



### 1 TALLY lamp (red/green)

Lights in red when a red tally signal is received, and lights in green when a green tally signal is received. You can attach one of the supplied number plates above the lamp (page 18).

### 2 POWER switch

Powers the unit on when pressed on the “I” side, and powers the unit off when pressed on the “O” side.

### 3 POWER indicator

Lights in green when the unit is powered on. This unit is equipped with a cooling fan. If the fan fails, this indicator flashes. In this case, power the unit off immediately and contact your dealer or a Sony service representative.

### 4 Camera adaptor indicator

Lights in green when power is being supplied from this unit to a camera adaptor.

### 5 CALL button

Calls the operator of a camcorder or remote control panel. When pressed, this button lights in red. At the same time, the TALLY (red) or CALL lamps on devices in the system light.

This button also lights in red whenever the CALL button is pressed on any other device in the system.

### Note

When the CALL button is pressed, the behavior of TALLY (red) or CALL lamps on other devices depends on the specific devices and on the way that they are combined.

For details, refer to the instruction manuals of the other devices.

### 6 INTERCOM LEVEL knob

Adjusts the receiver volume level of the headset connected to the INTERCOM connector.

### 7 INTERCOM MIC switch

Controls the headset microphone connected to the INTERCOM connector, turning it on or off as required.

**ON:** Turns the headset microphone on.

**OFF:** Turns the headset microphone off.

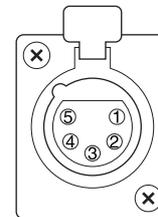
**PTT:** Turns the headset microphone on for as long as the switch is held in this position.

### 8 INTERCOM connector (XLR 5-pin)

Allows you to connect an XLR 5-pin type headset.

Dynamic microphones are supported.

The pin assignments are as follows.



Pin number	Signal name
1	INCOM MIC GND
2	INCOM MIC IN
3	INCOM RECEIVE GND
4	INCOM RECEIVE OUT
5	Not used

## 9 LINK indicator

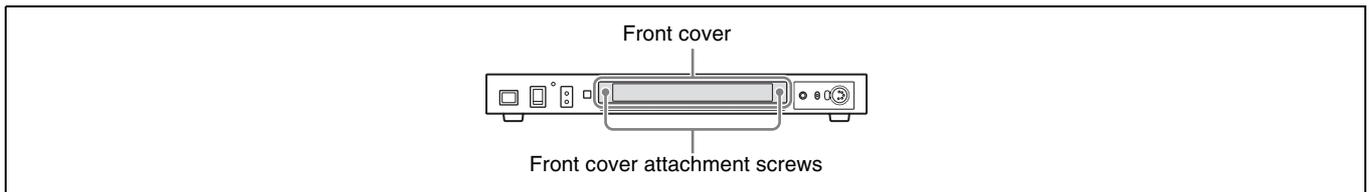
Lights in green when a data transfer link between this unit and a camera adaptor has been established, and when device authentication between the camera adaptor and the camcorder has been established.

## System setting switches

Use the supplied front cover to protect the system setting switches from misoperation.

Check the setting of the individual switches and change the switch setting as required, then attach the front cover to the

front panel of the unit with the supplied front cover attachment screws.



## SYSTEM SETUP switches

Set up the system format of this unit (number of system lines/frame rate) to match the system format of the camcorder.

	Switch name	Settings	Description
	1080i/720p	<b>1080i:</b> Interlace mode, 1080 lines <b>720p:</b> Progressive mode, 720 lines	Sets the number of system lines.
	59.94/50	<b>59.94:</b> 59.94 Hz (NTSC area) <b>50:</b> 50 Hz (PAL area)	Sets the system frequency.

For details, see “Setting the System Format” (page 19).

## OUTPUT SELECT switches

Make settings related to the output signals of this unit.

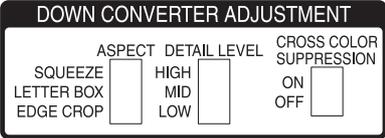
	Switch name	Settings	Description
	HD/SD	<b>HD:</b> HDSDI signals <b>SD:</b> SDSDI signals	Selects the type of signals output from the OUTPUT SDI connectors of this unit.
	WIDE ID	<b>ON:</b> Add a wide ID signal when the aspect ratio is 16:9, and do not add a wide ID signal when the aspect ratio is 4:3 <b>OFF:</b> Never add a wide ID signal	Specifies whether to add a wide ID signal to composite signals output from the VIDEO OUTPUT and REMOTE connectors, and to SDDSI signals output from the OUTPUT SDI connectors.
	SETUP (NTSC area only)	<b>ON:</b> Add setup <b>OFF:</b> Do not add setup	When you are using the unit in an NTSC area, specifies whether to add a 7.5% setup to the composite signals output from the VIDEO OUTPUT and REMOTE connectors.

## DOWN CONVERTER ADJUSTMENT switches

Specify the methods used to adjust down converted signals. These adjustments are applied to SDDSI signals output from the OUTPUT SDI connectors and to SD analog composite signals output from the VIDEO OUTPUT and REMOTE connectors.

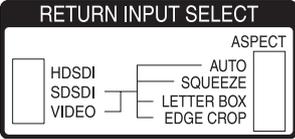
### Note

The settings of these switches do not affect the signals output from the OUTPUT SDI connectors when those signals are HDSDI signals.

	Switch name	Settings	Description
	ASPECT	<b>SQUEEZE:</b> Squeeze mode <b>LETTER BOX:</b> Letter box mode <b>EDGE CROP:</b> Edge crop mode	Specifies the conversion mode.
	DETAIL LEVEL	<b>HIGH:</b> High <b>MID:</b> Middle <b>LOW:</b> Low	Selects the detail level (the degree of edge emphasis applied to the shooting subject) from among three stages.
	CROSS COLOR SUPPRESSION	<b>ON:</b> Enabled <b>OFF:</b> Disabled	Enables or disables the cross color suppression function of the down converter.

### RETURN INPUT SELECT switches

Make settings related to return video signals.

	Switch name	Settings	Description
	HDS/SD/VIDEO	<b>HDS/SD:</b> Use the HDS/SD signal input from the RETURN INPUT SDI connector as the return video signal <b>SD:</b> Use the SD signal input from the RETURN INPUT SDI connector as the return video signal <b>VIDEO:</b> Use the SD analog composite signal input from the RETURN INPUT VIDEO connector as the return video signal	Selects the type of return video signal input to this unit.
	AUTO/SQUEEZE/LETTER BOX/EDGE CROP	<b>AUTO:</b> Determine the conversion mode automatically on the basis of the wide ID signal added to the input return video signal. When the input is 4:3, and when a wide ID signal cannot be detected, convert using Edge Crop. When the input is 16:9, convert using Squeeze. <b>SQUEEZE:</b> Use Squeeze (16:9) to process the input return video signal, and leave the signal as Squeeze. <b>LETTER BOX:</b> Use Letter Box to process the input return video signal. Convert the signal to 16:9, with the top and bottom sides cut. <b>EDGE CROP:</b> Use Edge Crop (4:3) to process the input return video signal. Convert the signal to 16:9, with black at both edges.	Specifies the conversion mode used to up convert SD return video signals input to this unit to HD signals.  <b>Note</b> When an HDS/SD signal is selected as the return video signal, the setting of this switch does not affect the return video signal input.

For details, see “Return Video Signal Input and Output” (page 21).

## INTERCOM IF switch

	Switch name	Settings	Description
	INTERCOM IF	<b>4W:</b> Select this when you are using a 4-wire system	Specifies the type of intercom system connected to the AUX connector of this unit.
		<b>2W C.C:</b> Select this when you are using a 2-wire Clear-Com system	
<b>2W RTS:</b> Select this when you are using a 2-wire RTS system			

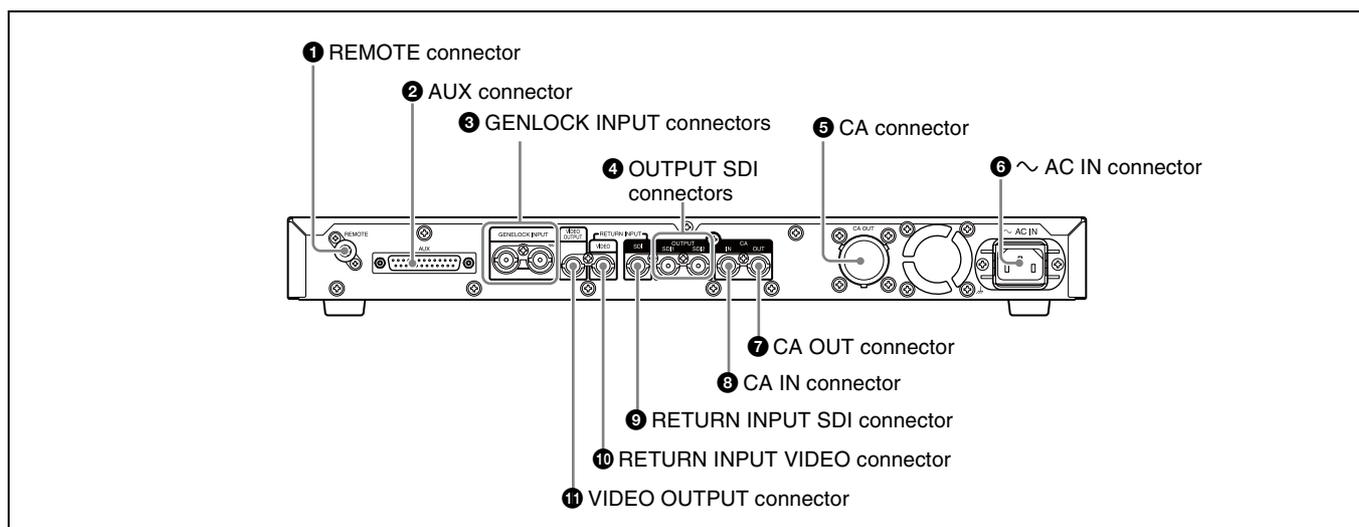
### Note

If you have not connected an intercom system to the AUX connector of this unit, always set this item to “4W”.

If you set it to anything other than “4W”, the intercom system may not operate properly.

*For information about connections to an intercom system, contact your dealer or a Sony service representative.*

## Rear Panel



### 1 REMOTE connector (8-pin round)

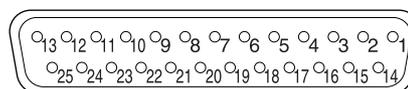
Connect to a remote control unit using a connection cable. This connector is used to exchange control signals with the camcorder.

Provides a trunk line connection to the trunk line of the camera adaptor via a RS-232C interface, for use as a communications line with external devices. Also equipped with general-purpose lines between this unit and the camera adaptor.

### 2 AUX connector (D-sub 25-pin)

Connect to an external system to input and output intercom signals, tally signals, trunk line signals, and timecode.

The pin assignments are as follows.



Pin number	Signal name	Description
1	GND	Ground
2	TRUNK TX	Trunk line (RS-232C, up to 38.4 kbps)
3	TRUNK RX	
6	TC IN	Timecode signal input
16	AUX1	General-purpose line 1 between this unit and the camera adaptor
17	AUX2	General-purpose line 2 between this unit and the camera adaptor
9	AUX VIDEO(X)	General-purpose analog video line between this unit and the camera adaptor
8	AUX VIDEO(G)	

Pin number	Signal name	Description
7	TALLY(GND)	Tally input <b>On:</b> GND <b>Off:</b> Open
14	G TALLY IN	
15	R TALLY IN	
11	4W(G)	4-wire interface system output
13	4W(X)OUT	
12	4W(Y)OUT	
18	4W(G)	4-wire interface system input
19	4W(X)IN	
21	4W(Y)IN	
10	CLEAR COM(X)IN/OUT	Clear-Com system interface (requires termination, recommended impedance 200 Ω)
23	CLEAR COM(G)	
25	RTS IN/OUT	RTS system interface (requires termination, recommended impedance 200 Ω)
24	RTS(G)	
20	NC	Not used
22	NC	
4	Reserved	Pins reserved for maintenance
5	Reserved	

### ③ GENLOCK INPUT connectors (BNC type)

Input an external sync signal, either an HD tri-level reference sync signal or an SD reference sync signal (black burst signal). The two connectors have a loop-through configuration. The signal input to the input side connector is output unchanged to the output side connector (↔). When nothing is connected to the output side connector, the input signal is terminated automatically (75Ω termination).

### ④ OUTPUT SDI connectors (BNC type)

Output video, audio, and timecode received from the camcorder via the camera adaptor is output as HDSDI or SDSDI signals.

### ⑤ CA (camera adaptor) connector (CCZ 26-pin)

Connect to the CEU connector of the camera adaptor with a optional CCZ-A cable. This cable supplies DC power to the camcorder via the camera adaptor. This connector also provides general-purpose lines between this unit and the camera adaptor.

*For details about the general purpose lines, see “AUX connector” (page 14).*

*For details about the pin assignments of the CA connector, contact a Sony service representative.*

### ⑥ ~ AC IN connector (3-pin)

Connect to an AC power source with the specified power cable.

### ⑦ CA OUT (camera adaptor output) connector (BNC type)

Connect to the CEU IN connector of the camera adaptor using a BNC cable.

### ⑧ CA IN (camera adaptor input) connector (BNC type)

Connect to the CEU OUT connector of the camera adaptor using a BNC cable.

### ⑨ RETURN INPUT SDI connector (BNC type)

Input HDSDI or SDSDI return video signals.

*For details, see “Return Video Signal Input and Output” (page 21).*

### ⑩ RETURN INPUT VIDEO connector (BNC type)

Input SD analog composite return video signals.

*For details, see “Return Video Signal Input and Output” (page 21).*

### ⑪ VIDEO OUTPUT connector (BNC type)

Output video signals received from the camcorder via the camera adaptor as SD analog composite signals. The following table lists the signal formats of the SD analog composite signals output from this connector.

System format (number of system lines/frame rate)	Signal format
1080/59.94i	NTSC (525/59.94i)
720/59.94P	

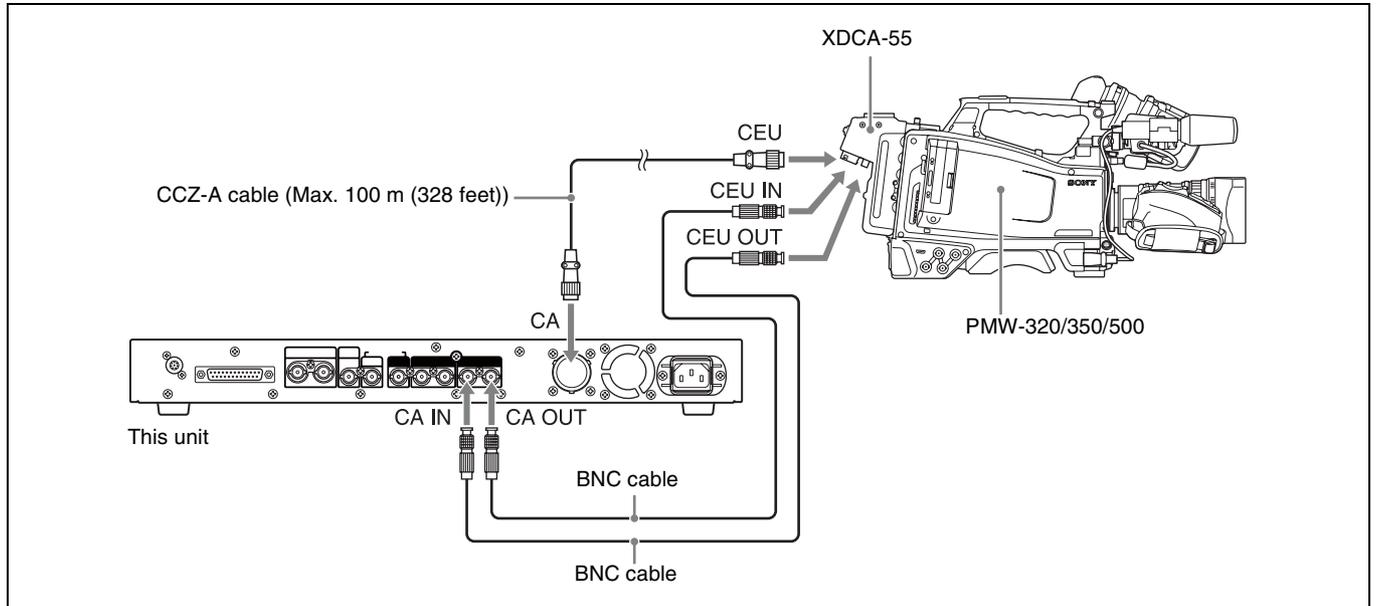
<b>System format (number of system lines/frame rate)</b>	<b>Signal format</b>
1080/50i	PAL (625/50i)
720/50P	

The SD analog composite signals output from this connector and the video output pin of the REMOTE connector, and the SDSDI signals output from the OUTPUT SDI connector, are SD signals that have been internally down converted from HD signals by this unit.

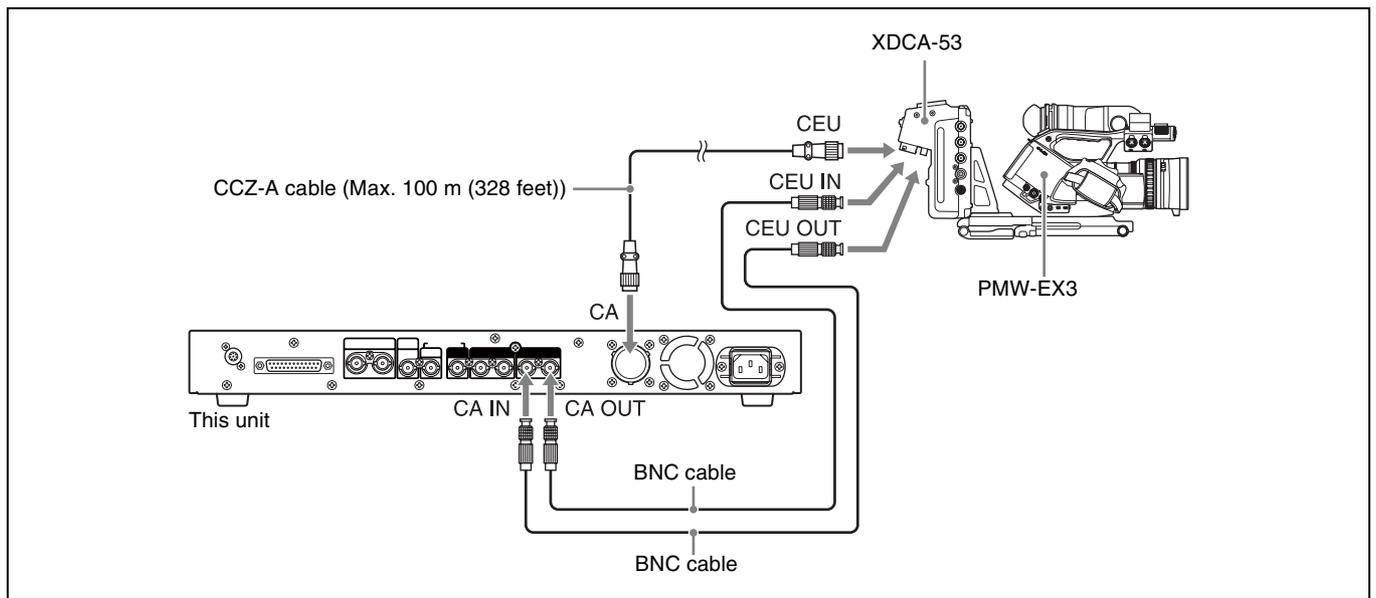
# Preparations and Settings

## Example Connections

### Connecting to the XDCA-55



### Connecting to the XDCA-53

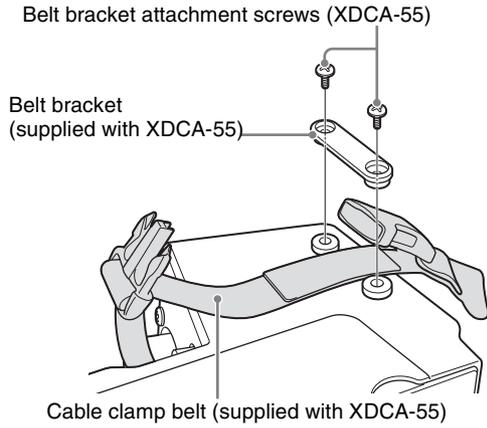


### To fix the connection cables using the cable clamp belt

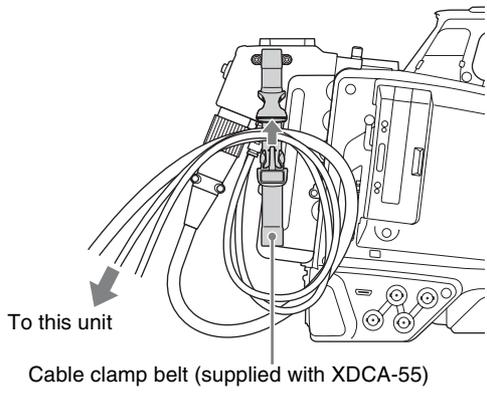
The cables to connect this unit and the camera adaptor can be fixed to the camera or plate by using the cable clamp belt supplied with the camera adaptor.

### When the camera adaptor is the XDCA-55

- 1 Attach the cable clamp belt (supplied with the XDCA-55) to the XDCA-55 using the belt bracket attachment screw holes at the side of XDCA-55.

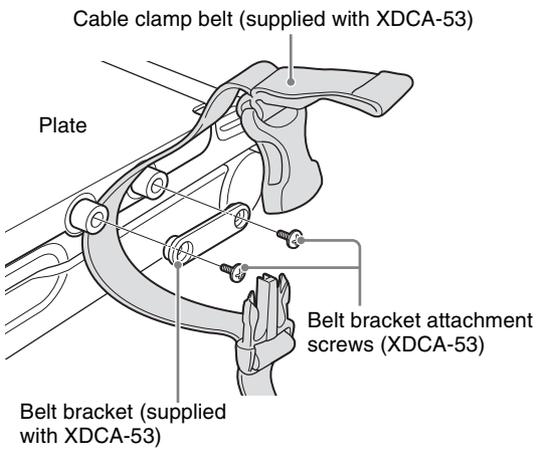


- 2** Bundle the three connection cables with the cable clamp belt. Pass the cables so as to make a loop as illustrated.
- 3** Adjust the tightening force of the belt to suit the diameters of the cables.

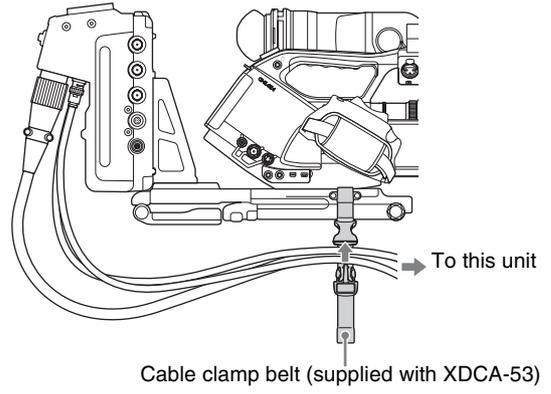


**When the camera adaptor is the XDCA-53**

- 1** Attach the cable clamp belt (supplied with the XDCA-53) to the right side (as viewed from the XDCA-53) of the plate.

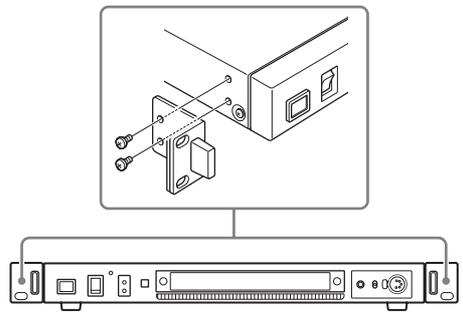


- 2** Bundle the three connection cables with the cable clamp belt. Pass the cables as illustrated.  
  
Adjust the tightening force of the belt to suit the diameters of the cables.



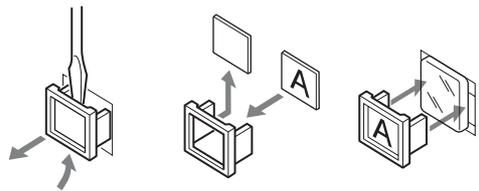
**Attaching Rack Mount Brackets**

You can attach the supplied rack mount brackets and mount this unit on a rack. This allows other devices to be mounted above and below this unit without impeding adequate heat dissipation.



**Exchanging the Number Plate of the Tally Lamp**

Using a flat-blade screwdriver, you can exchange the TALLY lamp number plate as shown in the figure below.



## Starting the System

### Notes

- After connecting the system with a CCZ-A and BNC cables, power on the devices as described below.
- Do not connect or disconnect the cables connecting this unit and the camera adaptor (CCZ-A and BNC cables) while the system is powered on. The excessive current protection function may be activated, cutting off power to the power circuits of this unit or the camera adaptor. If the power should be cut off, connect the cables again in the proper fashion and wait for a while before starting the system again.

### When using the XDCA-55 and PMW-320/350/500

Set the POWER switch of the PMW-320/350/500 to the ON position, and then press the “I” side of the POWER switch of this unit.

This unit starts.

Power is supplied from this unit to the XDCA-55, and the PMW-320/350/500 starts.

### When using the XDCA-53 and PMW-EX3

- 1 Set the power switch of the PMW-EX3 to the CAMERA side.
- 2 Press the “I” side of the POWER switch of the XDCA-53.
- 3 Press the “I” side of the POWER switch of this unit.

This unit starts.

Power is supplied from this unit to the XDCA-53, and the PMW-EX3 starts in camera mode.

### Note

Always start the PMW-EX3 in camera mode.

### To shut down the system

Press the “O” side of the POWER switch of this unit to power the entire system off.

## Setting the System Format

To record and transmit with this system, set the system format (number of system lines/frame rate) of this unit as shown in the table below to match the video format settings of the camcorder.

### Notes

- This unit designed for use with bi-directional HD digital transmission systems. It does not function if the camcorder side is set to SD mode.

In the same way, this unit does not function if the camcorder is set to HD mode with a frame rate of 23.98P but the SDI OUTPUT setting is SD.

*For details, refer to the operating instructions of your camcorder for details about operating mode settings.*

- This unit’s TALLY lamp flashes if the system format of this unit and that of the camcorder are different. Device authentication between the camera adaptor and the camcorder is not established, so the LINK indicator does not light.

*For details, see “Alarms (when the XDCA-55 is used)” (page 21).*

Camcorder		System format of this unit
Operating mode	Video format	
HD mode (HDSDI output)	1920×1080/59.94i	1080/59.94i
	1920×1080/29.97PsF	
	1280×720/59.94P	720/59.94P
	1920×1080/50i	1080/50i
	1920×1080/25P	
	1280×1080/50P	720/50P
SD mode (SDSDI output)	1920×1080/23.98P	Not supported
	720×486/59.94i	
	720×576/50i	

Set the system format of this unit by setting the SYSTEM SETUP switches as follows.

System format	59.94/50 switch setting	1080i/720P switch setting
1080/59.94i	59.94	1080i
720/59.94P		720P
1080/50i	50	1080i
720/50P		720P

## Genlocking the System

To genlock the system, input a reference sync signal to the input side GENLOCK INPUT connector of this unit. The reference sync signal can be an analog HD signal (tri-level sync) or an analog SD signal (bi-level sync).

The reference sync signal input to the input side GENLOCK INPUT connectors is output from the loop-through output side connector (⚡). When nothing is connected to the output side connector, the reference sync signal is terminated automatically (75Ω termination).

This unit detects the signal format of the input reference sync signal automatically and determines whether that signal can be used as reference sync signal, according to the current system format.

The following table lists the formats of usable reference sync signals.

System format	Reference sync signal formats (total number of system lines/frame rate)					
	1125/59.94i	750/59.94P	1125/50i	750/50P	525/59.94i	625/50i
1080/59.94i	○	–	–	–	○	–
720/59.94P	○	○	–	–	○	–
1080/50i	–	–	○	–	–	○
720/50P	–	–	○	○	–	○

○: Yes –: No

When reference sync signals are not input to this unit, the system operates with this unit as the master. The camcorder operates in synchronization to reference sync signals input from the camera adaptor.

### Note

The system is not synchronized when the camcorder is operating in a special recording mode or playback mode.

### To set the H phase of HD/SD output

When the system is genlocked, and the H phase of HD/SD output from the camcorder is set to ±0, the H phase of HDSDI or SDHDI signals output from the OUTPUT SDI connectors of this unit matches the phase of reference sync signals input to this unit.

The HD/SD switch (one of the OUTPUT SELECT switches) can be used to set the H phase of SD analog composite signals output from the video output pins of the VIDEO OUTPUT and REMOTE connectors, as shown in the following table.

HD/SD switch setting	Output signal	Phase difference with reference sync signal
HD	HDSDI	±0H
	SD analog composite	+90H
SD	SDSDI	±0H
	SD analog composite	±0H

# Appendix

## Return Video Signal Input and Output

Return video signals input to this unit are sent to the camera adaptor as HDSDI signals. The camera adaptor switches between the return video signal received from this unit and the signal received from the camcorder, and outputs the signal from the MONI.OUT connector. The XDCA-55 sends return video received from this unit to the camcorder via its camcorder connection connector (50-pin).

As return video signals, this unit accepts HDSDI signals, SDDSI signals, and SD analog composite signals. HDSDI and SDDSI return video signals are input from the unit's

RETURN INPUT SDI connector. SD analog composite return video signals are input from the unit's RETURN INPUT VIDEO connector. Use the HDSDI/SDDSI/VIDEO switch (one of the RETURN INPUT SELECT switches) to select which of these signals to use as the return video signal (*see page 13*).

The format of the return video signals that can be input to this unit varies as shown in the following table, according to the system format settings of this unit and the camcorder.

System format	Formats of return video signals that can be input to this unit							
	HDSDI				SDDSI		SD analog composite	
	1080/59.94i	720/59.94P	1080/50i	720/50P	486/59.94i	576/50i	525/59.94i	625/50i
1080/59.94i	○	–	–	–	○	–	○	–
720/59.94P	–	○	–	–	○	–	○	–
1080/50i	–	–	○	–	–	○	–	○
720/50P	–	–	–	○	–	○	–	○

○: Yes –: No

When a return video signal is input to this system, and that signal is not synchronized with this system, you can

synchronize it by using the internal frame synchronizer of this unit.

## Switching the Monitor Output of the XDCA-55/XDCA-53

The monitor output from the MONITOR OUT (SDI) connector of the XDCA-55 or MONITOR OUT connector and MONI.OUT (SDI) connector of the XDCA-53 can be switched between return video signals sent from this unit and the shooting or playback signals sent from the camcorder.

The monitor output from the XDCA-55/53 is switched as shown in the following table, according to the settings of the MONI. SEL switch and the RET button on the camera adaptor.

MONI. SEL switch	RET button state	Monitor output
RET	On (the RET button is pressed on one of the devices in the system)	Return video signal
	Off (the RET button is not pressed)	
CAM/RET	On (the RET button is pressed on one of the devices in the system)	Shooting or playback signals sent from the camera
	Off (the RET button is not pressed)	

## Alarms (when the XDCA-55 is used)

The TALLY lamp (red) flashes as an alarm if the system frequencies of this unit and the camcorder are different.

Even if the TALLY lamp is already lit, it changes to flashing if an alarm occurs.

*For details about the system frequency of this unit and that of the camcorder, see “Setting the System Format” (page 19).*

## Fan alarms

The POWER indicator flashes at a frequency of 4 Hz when the unit's cooling fan is not rotating during operation of the unit.

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# Important Notes on Operation

## Use and storage locations

Avoid using or storing the unit in the following places.

- In excessive heat or cold (operating temperature range: 5°C to 40°C (41°F to 104°F))
- Remember that in summer in warm climates the temperature inside a car with the windows closed can easily exceed 50°C (122°F).
- In damp or dusty locations
- Locations where the unit may be exposed to rain
- Locations subject to violent vibration
- Near strong magnetic fields
- Close to radio or TV transmitters producing strong electromagnetic fields
- In direct sunlight or close to heaters for extended periods

## Do not subject to strong shocks

Do not drop the unit or subject it to strong shocks. The unit may be damaged.

## Do not wrap in a cloth or other covering during operation

Internal temperatures may rise, causing malfunctions.

## Maintenance

Clean the cabinet and panels by wiping lightly with a soft, dry cloth. If they are very dirty, use a cloth dampened with a small amount of neutral detergent, then wipe dry. Avoid the use of volatile solvents such as thinners, alcohol, benzene, and insecticides. They may damage the surface finish or cause it to peel off.

# Specifications

## General

Power requirements	100 V to 240 V AC, 50/60 Hz
Power consumption	Max. 1.6 A (during operation of entire system, 100 V to 240 V AC)

### Note

The total current consumption on the camcorder and camera adapter (including peripheral equipment) to receive power from this unit must not exceed 70 W.

Peak inrush current	(1) Power ON, current probe method: 8 A (100 V), 40 A (240V) (2) Hot switching inrush current, measured in accordance with European standard EN55103-1: 14 A (230 V)
Operating temperature	5°C to 40°C (41°F to 104°F)
Operating humidity	20% to 90%
Storage temperature	-20°C to +55°C (-4°F to +131°F)
Dimensions (w/h/d, excluding projections)	424 × 44 × 290 mm (16 <sup>3</sup> / <sub>4</sub> × 1 <sup>3</sup> / <sub>4</sub> × 11 <sup>1</sup> / <sub>2</sub> inches)
Mass	Approx. 3.5 kg (7 lb 7.7 oz)

## Connectors

### Input connectors

RETURN INPUT SDI	BNC type, 0.8 Vp-p, 75 Ω
RETURN INPUT VIDEO	BNC type, VBS (1.0 Vp-p), 75 Ω
GENLOCK INPUT	BNC type (2), loop-through input, 75 Ω automatic termination HD tri-level sync or black burst

### Output connectors

VIDEO OUTPUT	BNC type (1), VBS: 1.0 Vp-p, sync negative, 75 Ω, unbalanced
OUTPUT SDI	BNC type (1 each), 0.8 Vp-p, 75 Ω

### Camera adaptor input/output connectors

CA IN/OUT	BNC type (1 each), 0.8 Vp-p, 75 Ω
CA	CCZ 26-pin (1), male

### Other connectors

INTERCOM	XLR 5-pin (1), female
AUX	D-sub 25-pin (1), female
REMOTE	8-pin round (1), female

## Supplied Accessories

Operating Instructions	Japanese (1) English (1)
CD-ROM	(1)
Rack mount brackets	(2)
Rack mount bracket attachment screws	(4)
Front cover	(1)
Front cover attachment screws	(2)
Numbr plates	(1 set)

## Accessories Not Supplied

United States and Canada:	Plug holder B (2-990-242-01)
Other areas:	Plug holder C (3-613-640-01)
United States and Canada:	Power cord set (1-551-812-XX)
Other areas:	Power cord set (1-782-929-XX)
CCZ-A cable	(CCZ-A5 (5 m), CCZ-A10 (10 m), CCZ-A25 (25 m), CCZ-A50 (50 m), CCZ-A100 (100 m))

Design and specifications are subject to change without notice.

### Note

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

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<http://pro.sony.com.cn>

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