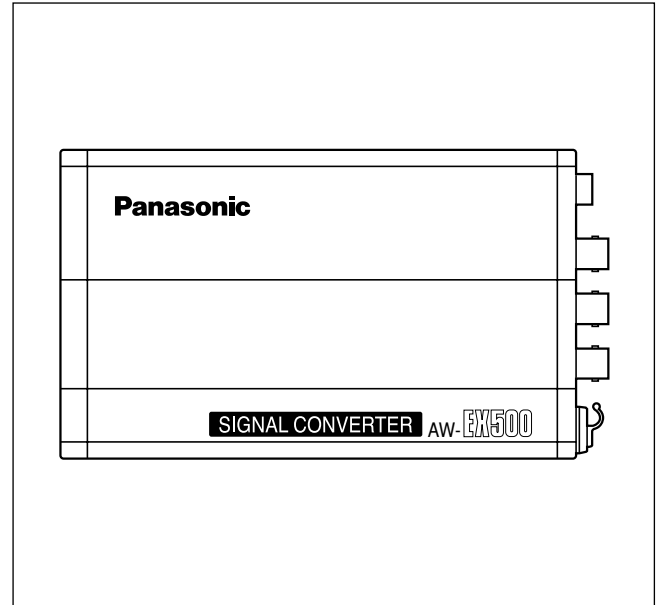


Signal Converter  
**AW-EX500N**

# Operating Instructions



**Panasonic**<sup>®</sup>

Before attempting to connect, operate or adjust this product,  
please read these instructions completely.



**CAUTION**  
**RISK OF ELECTRIC SHOCK**  
**DO NOT OPEN**



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,  
 DO NOT REMOVE COVER (OR BACK).  
 NO USER SERVICEABLE PARTS INSIDE.  
 REFER TO SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, 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.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

**WARNING:**

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

**CAUTION:**

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

**CAUTION:**

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER MOUNTING OF THE OPTIONAL INTERFACE BOARD TO QUALIFIED SERVICE PERSONNEL.**

**FCC Note:**

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

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.

For CANADA

This Class A digital apparatus complies with Canadian ICES-003.  
 Cet appareil numérique de la class A est conforme à la norme NMB-003 du Canada.

# Contents

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# Introduction

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The AW-EX500 signal converter can convert analog composite, analog Y/C, analog component and SDI (complying with SMPTE259M standard, 270Mbps) input signals into analog composite, analog Y/C, analog component and analog RGB signals. However, the analog composite and analog Y/C output signals cannot be used by externally synchronized systems (since color frame synchronization cannot be provided).

The AW-EX500 comes with an optional card slot for a convertible camera and an additional card slot, and it enables the output signals of various optional cards to be utilized by plugging an optional card into the optional card slot and or into the additional card slot using the AW-EX100.

Listed below are the optional cards which can be used:

- AW-PB302 RGB Card  
(Composite and Y/C output signals cannot be used.)
- AW-PB304 SDI Card
- AW-PB307 SVGA Card
- AW-PB309 WEB Card
- AW-PB310 IEEE 1394 Card
- AW-PB504 SDI Card  
(ZOOM/FOCUS connector cannot be used.)

# Precautions for use

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## • Power Off Before Connecting or Disconnecting Cables

Before plugging or unplugging the cables, be sure to switch power off.

## • Handle Carefully.

Do not drop the product, or subject it to strong shock or vibration. This is important to prevent trouble.

## • Avoid Humidity and Dust.

Avoid using the product at a humid, dusty place because much humidity and dust will cause damage to the parts inside.

## • Operating Temperature Range

Avoid using the product at a cold place below 14°F (-10°C) or at a hot place above 113°F (+45°C) because extremely low or high temperature will adversely affect the parts inside.

- The AW-EX500 generates various sync signals internally on the basis of the signals which are supplied to it. For this reason, it cannot output normal signals if no signals are supplied. To use this signal converter, therefore, signals must be supplied to it.
- The AW-EX500 does not come with a cable compensation circuit for the input signals. If the cable from the signal source is too long, use a cable compensator immediately in front of the AW-EX500 input.
- When signals with significantly high jitter such as from a VTR are used as the signal source, the output signals may be disrupted. Particularly when an SDI card is used, the jitter performance may not satisfy the standard. In a case like this, shape the sync signals using a TBC (time base corrector) or other such device at a stage prior to the AW-EX500 input.
- For further details on the settings and connections of an optional card, refer to the operating instructions accompanying the optional card concerned.
- If the AW-PB302 card is used, it will not be possible to use the composite video signals from the card's D-sub connector: therefore, leave the connector unconnected. Neither can Y/C signals be selected.

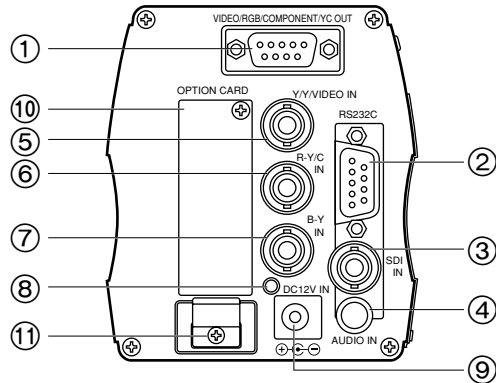
- When two optional cards are to be used in combination with the AW-EX100, remember that an AW-PB3\*\* card and an AW-PB5\*\* card cannot be used at the same time. Instead, use two PB3\*\* cards or two PB5\*\* cards.
- The approximate input/output time differences of the AW-EX500 are as shown below.

Analog composite input	—	AW-EX500 analog output	1H + approx. 7.6μsec
Analog composite input	—	AW-PB302 output	1H + approx. 5.6μsec
Analog component input	—	AW-EX500 analog output	1H + approx. 7.6μsec
Analog component input	—	AW-PB302 output	Approx. 0.4μsec
SDI signal input*	—	AW-EX500 analog output	Approx. 3.6μsec
SDI signal input*	—	AW-PB302 output	Approx. 2.3μsec

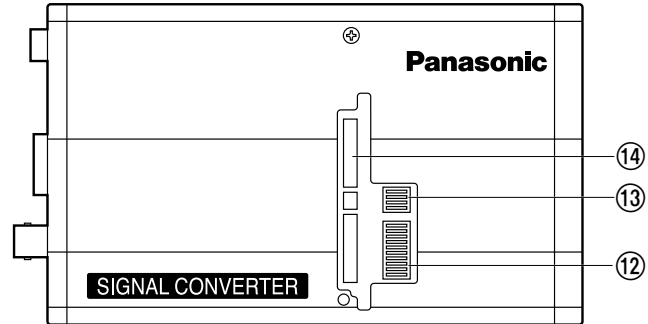
\*Signal source: AW-E650 + AW-PB504, time difference from AW-E650 video output

# Major operating controls and their functions

<Rear View>



<Side View>



**① Analog video output connector  
[VIDEO/RGB/COMPONENT/YC OUT]**

The analog video signals are output from this D-sub 9-pin connector.

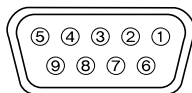
The video signal is always output from pin #6. Depending on the position of function setting switch 2 ⑬, RGB, COMPONENT or YC analog video signals are output from pins #3, #4 and #5. It is also possible to set whether to add a SYNC signal to the RGB signals.

The SYNC signal (4Vp-p) is output from pin #7.

WV-CA9T5 can be used as the connecting cable.

The pin layout is shown below.

Pin No.	Signal
1	VIDEO GND
2	RGB GND
3	R/R-Y/C
4	G/Y/Y
5	B/B-Y
6	VIDEO
7	SYNC
8	SYNC GND
9	NC



**Back of the connector**

**② RS-232C connector [RS232C]**

This enables RS-232C communication via the AW-EX500 between a PC or other device and a device which supports RS-232C communication and which is installed in the optional card slot or additional interface.

The position for either the optional slot or additional slot must be selected using function setting switch 1 ⑫ for the other party to the communication.

This connector cannot be used by AW-PB302, AW-PB304, AW-PB307, AW-PB309, AW-PB310 or AW-PB504.

**③ SDI input connector [SDI IN]**

The SDI signals are supplied to this connector which is terminated internally by a 75Ω resistance.

Connect 270Mbps signals which satisfy the SMPTE259M standard.

Switch the input signal setting to SDI input using function setting switch 1 ⑫.

When the output of the AW-PB504 is connected, the maximum cable length is 200 or so meters which is equivalent to BELDEN 8281.

# Major operating controls and their functions

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## ④ Audio input connector [AUDIO IN]

The audio signals are supplied to this connector. Input signals with a level of  $-20\text{dBV}$ .

This is a stereo mini plug jack.

The audio signals of the AW-PB310 can be supplied to it.

This connector cannot be used by AW-PB302, AW-PB304, AW-PB307, AW-PB309 or AW-PB504.

## ⑤ Analog video (Y/Y/VIDEO) input connector [Y/Y/VIDEO IN]

The analog video signals are supplied to this connector which is terminated internally by a  $75\Omega$  resistance.

Switch the setting to match the input signal using function setting switch 1 ⑫.

## ⑥ Analog video (R-Y/C) input connector [R-Y/C IN]

The analog video signals are supplied to this connector which is terminated internally by a  $75\Omega$  resistance.

Switch the setting to match the input signal using function setting switch 1 ⑫.

## ⑦ Analog video (B-Y) input connector [B-Y IN]

The analog video signals are supplied to this connector which is terminated internally by a  $75\Omega$  resistance.

Switch the setting to match the input signal using function setting switch 1 ⑫.

## ⑧ Power LED

This lights up red when DC power is supplied to the DC 12V input connector ⑨.

## ⑨ DC 12V input connector [DC12V IN]

Connect the DC 12V power supply (2A or more) here using the AW-CA4T1 DC power cable.

(Recommended AC adaptor: AW-PS505)



## ⑩ Optional card slot

This slot is used for optional cards. For further details, refer to the operating instructions accompanying the optional cards concerned.

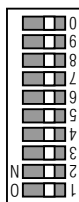
## ⑪ Cable clamp

This is used to clamp the AW-CA4T1 DC power cable connected to the DC 12V input connector ⑨ to prevent it from moving out of place.



## ⑫ Function setting switch 1

This is used to select the operations of the AW-EX500.  
Before changing a setting, the power must be turned off.  
The setting items are shown below.



ON	OFF	SW NO	
PB302	PB310	ADDITIONAL I/F SEL	0
PB302	PB310	OPTION I/F SEL	9
YR-YB-Y	RGB	PB302 OUT SEL (ADD)	8
YR-YB-Y	RGB	PB302 OUT SEL (OPT)	7
ADDITIONAL IF	OPTION IF	RS232C SEL	6
756mV	525mV	INPUT LEVEL R-YB-Y	5
714mV	700mV	INPUT LEVEL Y	4
YR-YB-Y	YC	INPUT SEL3	3
YR-YB-Y, YC	VIDEO	INPUT SEL2	2
SDI	ANALOG	INPUT SEL1	1

### 1: Input signal setting 1 <SDI/ANALOG>

(Factory setting: ANALOG)

Set this to match the input signals which will be used.

### 2: Input signal setting 2 <YR-YB-Y, YC/VIDEO>

(Factory setting: VIDEO)

### 3: Input signal setting 3 <YR-YB-Y/YC>

(Factory setting: YC)

Input signal settings 2 and 3 take effect when  
<ANALOG> has been selected as input signal setting 1.

Set as shown below to match the analog signals which are to be input to analog video input connectors ⑤, ⑥ and ⑦.

INPUT SEL2	INPUT SEL3	Input signal
VIDEO	Y/C	VIDEO
VIDEO	YR-YB-Y	VIDEO
YR-YB-Y, Y/C	Y/C	Y/C
YR-YB-Y, Y/C	YR-YB-Y	YR-YB-Y

### 4: Input signal level setting Y <714mV/700mV>

(Factory setting: 700mV)

When analog component signals have been selected as the input signals, select this setting by determining whether the white 100% signal level of the input signals is 714mV or 700mV.

When VIDEO signals or YC signals are to be input, set to 700mV.

### 5: Input signal level setting R-YB-Y <756mV/525mV>

(Factory setting: 525mV)

When analog component signals have been selected as the input signals, select this setting by determining whether the color signal level of the input signals is 756mV or 525mV.

When VIDEO signals or YC signals are to input, set to 525mV.

# ***Major operating controls and their functions***

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## **6: RS232C select <ADDITIONAL IF/OPTION IF>**

(Factory setting: OPTION IF)

This setting is used to select either the optional card slot or additional card slot as the destination for the connection of the RS-232C connector ② on the rear panel of the signal converter. At the <OPTION IF> setting, the connector is connected to the optional card which has been plugged into the optional card slot.

## **7: Optional card slot AW-PB302 output setting**

**<YR-YB-Y/RGB>** (Factory setting: RGB)

This setting is used to select the signal to be output from the connector on the AW-PB302 (RGB card) when the AW-PB302 has been plugged into the optional card slot.

The setting has no effect when a card other than the AW-PB302 has been plugged into the slot.

## **8: Additional card slot AW-PB302 output setting**

**<YR-YB-Y/RGB>** (Factory setting: RGB)

This setting is used to select the signal to be output from the connector on the AW-PB302 (RGB card) when the AW-PB302 has been plugged into the additional card slot using the AW-EX100.

The setting has no effect when a card other than the AW-PB302 has been plugged into the slot.

## **9: Optional card slot optional card setting**

**<PB302/PB310>** (Factory setting: PB310)

Set this to <PB302> for use when the AW-PB302 card is to be plugged into the optional card slot; alternatively, set it to <PB310> for use when the AW-PB310 is plugged in.

The setting has no effect when a card other than the AW-PB302 or AW-PB310 has been plugged into the slot.

## **0: Additional card slot optional card setting**

**<PB302/PB310>** (Factory setting: PB310)

Set this to <PB302> for use when using the AW-EX100 to plug the AW-PB302 card into the additional card slot; alternatively, set it to <PB310> for use when the AW-PB310 is to be plugged in.

The setting has no effect when a card other than the AW-PB302 or AW-PB310 has been plugged into the slot.

### ⑬ Function setting switch 2

This is used to select the operations of the AW-EX500.  
Before changing a setting, the power must be turned off.  
The setting items are shown below.



ON	OFF	SW NO	
—	—	NOT USE	4
SYNC ON	SYNC OFF	RGB OUT SYNC	3
RGB	YR-YB-Y	D-SUB OUT SEL 2	2
YC	RGB, YR-YB-Y	D-SUB OUT SEL 1	1

#### 1: Output signal setting 1 [D-SUB OUT SEL1] <YC/RGB, YR-YB-Y>

(Factory setting: RGB, YR-YB-Y)

#### 2: Output signal setting 2 [D-SUB OUT SEL2] <RGB/YR-YB-Y>

(Factory setting: YR-YB-Y)

These are used to select the signals to be output to pins #3, #4 and #5 of analog video output connector ①.

The switch combinations are shown below.

D-SUB OUT SEL1	D-SUB OUT SEL2	Output signal
RGB, YR-YB-Y	YR-YB-Y	Component
RGB, YR-YB-Y	RGB	RGB
Y/C	YR-YB-Y	Y/C
Y/C	RGB	Y/C

### 3: Analog RGB output SYNC addition setting <SYNC ON/SYNC OFF>

(Factory setting: SYNC OFF)

This is used to set whether to add the SYNC signal to the RGB signals when RGB has been selected as the analog video output setting.

At SYNC ON, the SYNC signal is added to the R, G and B signals.

### 4: Not used <ON/OFF>

(Factory setting: OFF)

Keep this at the factory setting.

### ⑭ Additional card slot

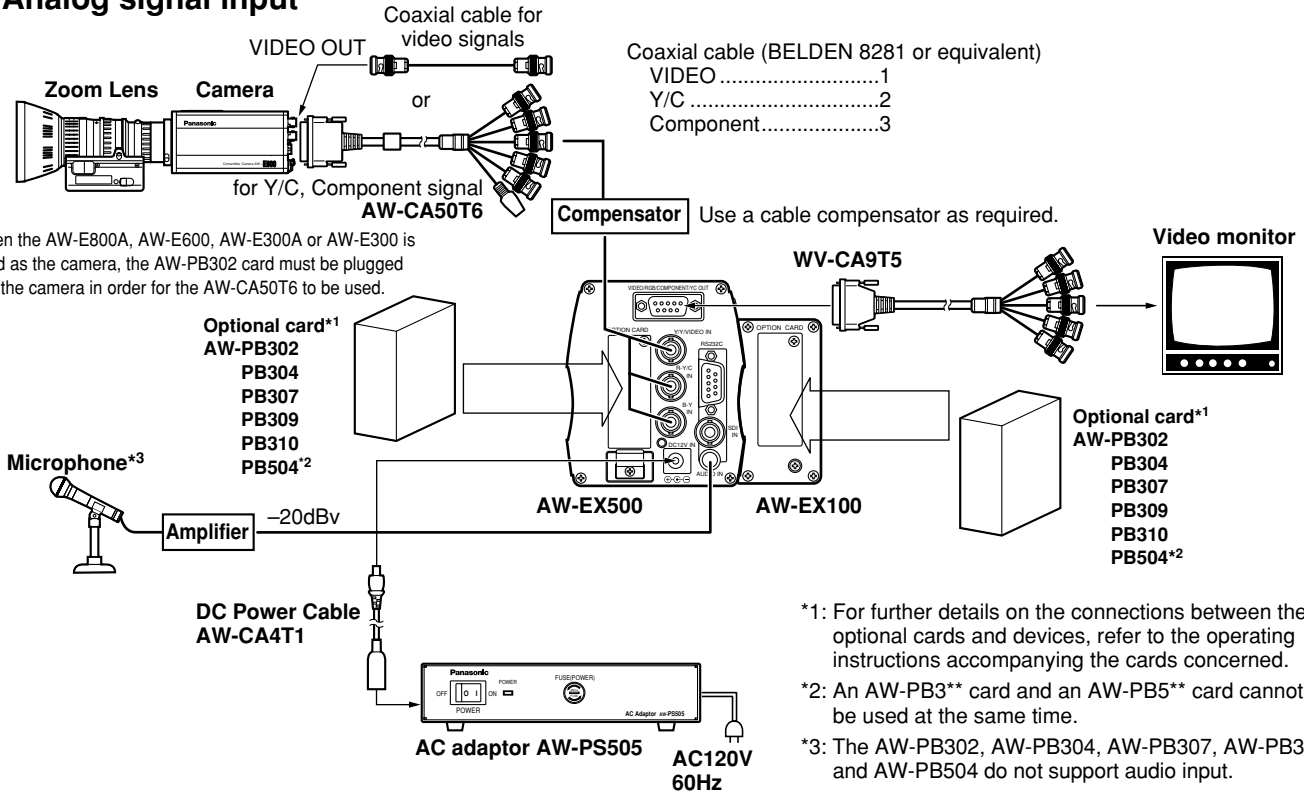
Remove the cover, and connect the AW-EX100 additional card box.

# ***Connections***

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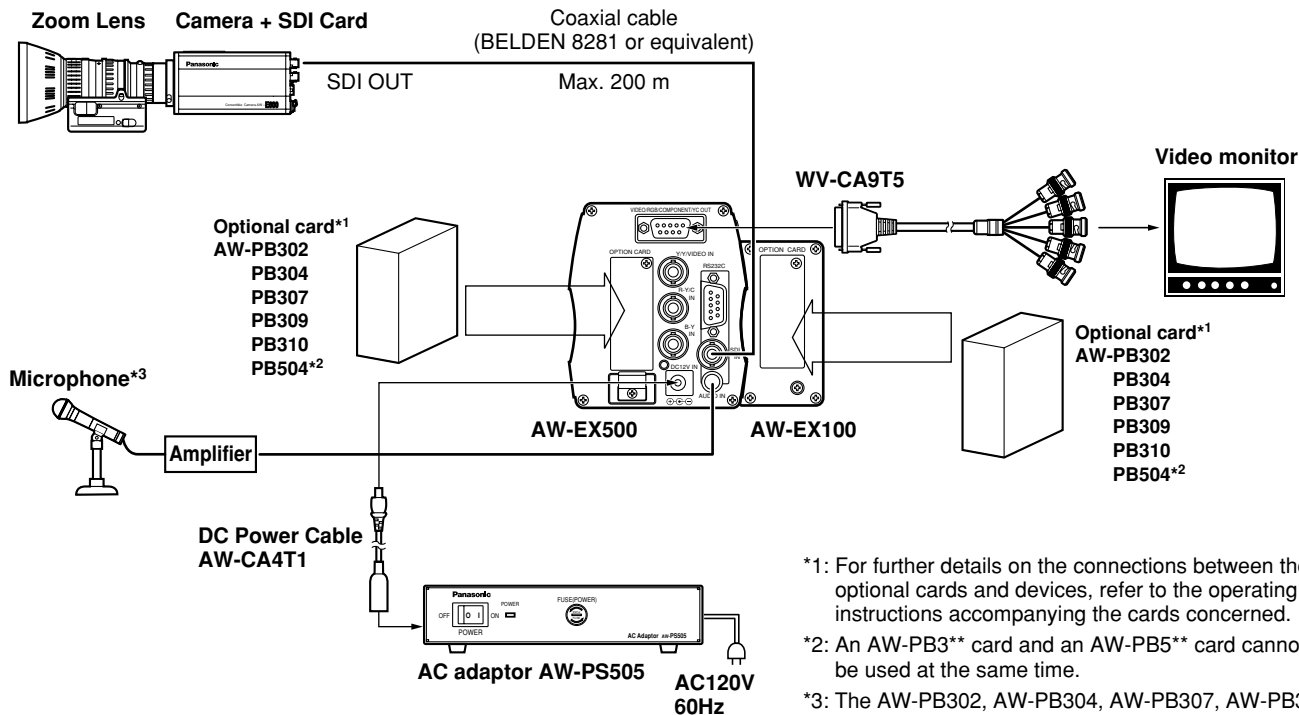
- Before proceeding with the connections, turn off the power.
- Use the AW-PS505 AC adaptor to supply the power.  
Use the AW-CA4T1 power cable.
- For further details on connecting the devices, refer to the operating instructions accompanying the devices concerned.
- For further details on operating the devices, refer to the operating instructions accompanying the devices concerned.

## ■ Analog signal input



# Connections

## ■ SDI signal input



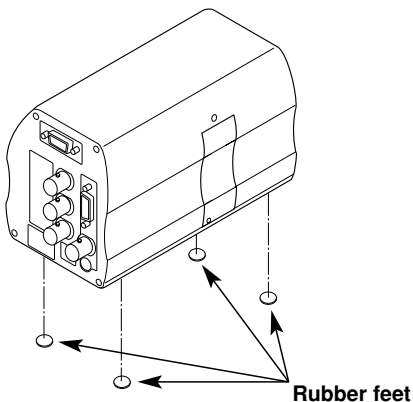
\*1: For further details on the connections between the optional cards and devices, refer to the operating instructions accompanying the cards concerned.

\*2: An AW-PB3\*\* card and an AW-PB5\*\* card cannot be used at the same time.

\*3: The AW-PB302, AW-PB304, AW-PB307, AW-PB309 and AW-PB504 do not support audio input.

## ***Attaching the rubber feet***

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- Adhere the accessory rubber feet to the bottom panel when the AW-EX500 is to be placed on the floor for use.

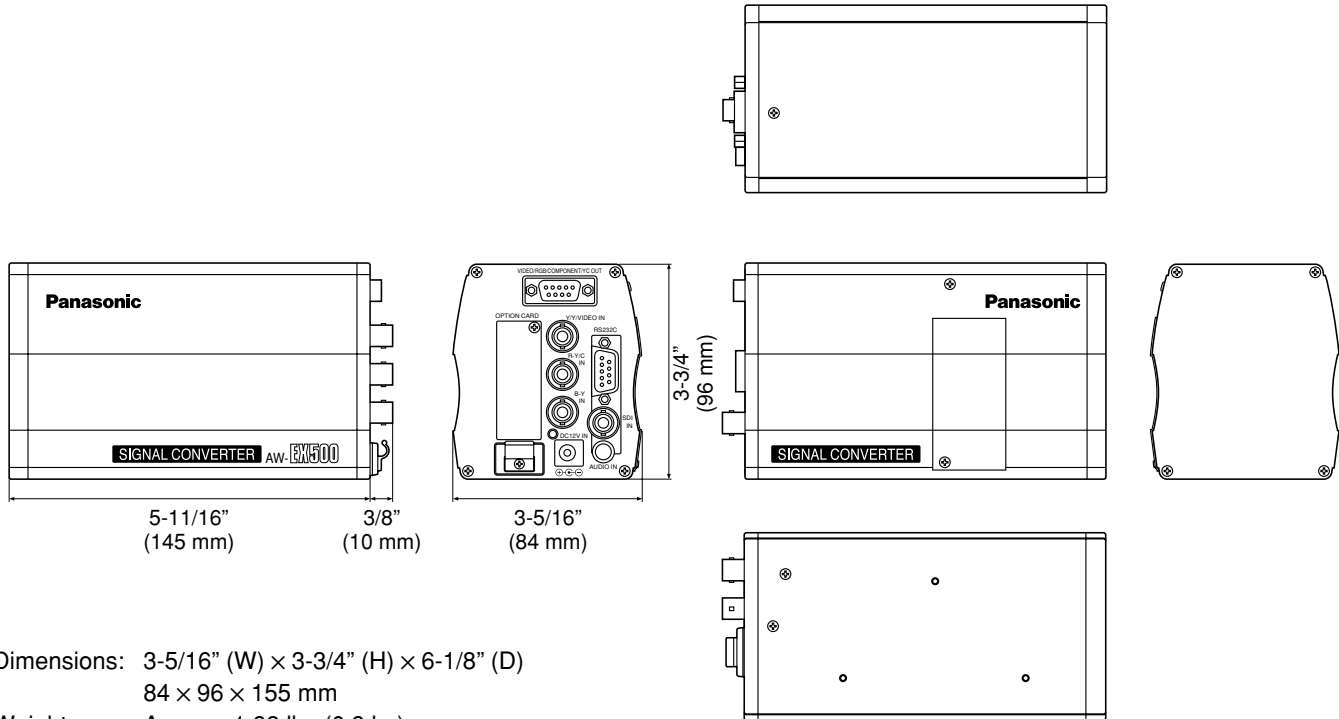
## ***Standard accessories***

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- Rubber feet ..... 4

# Appearance

Unit: inch (mm)



Dimensions: 3-5/16" (W) × 3-3/4" (H) × 6-1/8" (D)

84 × 96 × 155 mm

Weight: Approx. 1.98 lbs (0.9 kg)




# Specifications

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**Power requirements:** 12 V DC

**Power consumption:** 6.85 W

 indicates safety information.

## Input

DC 12V power input connector

270Mbps SDI (BNC) (SMPTE259M standard-compliant) Only video data supported

Analog composite (BNC) 1.0Vp-p (0% setup level)

Analog Y/C (BNC) Y: 1.0Vp-p (0% setup level)

(BNC) C: 0.286Vp-p

Analog component Y: 1.0Vp-p (0% setup level)

(BNC) (714/700mVp-p selectable by switch)

(BNC) R-Y, B-Y: 756/525mVp-p (selectable by switch)

Audio (stereo mini jack) -20dBV, 1 k $\Omega$  input impedance

## Output

Analog composite 1.0Vp-p (0% setup level)

Analog Y/C Y: 1.0Vp-p (0% setup level)

C: 0.286Vp-p

Analog component Y: 1.0Vp-p (0% setup level)

R-Y, B-Y: 756mVp-p

Analog RGB RGB: 0.7Vp-p

SYNC: 0.3Vp-p (SYNC ON/OFF selectable by switch)

SYNC 4Vp-p

# Specifications

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Input/output interface:	RS-232C
Operating temperature:	14°F to 113°F (−10°C to +45°C)
Operating humidity:	30 % to 90 % (without condensation)
Dimensions (W × H × D):	3-5/16" × 3-3/4" × 6-1/8" [84 × 96 × 155 mm]
Weight:	Approx. 1.98 lbs (0.9 kg)
Switch/control functions:	<ul style="list-style-type: none"><li>• INPUT SEL1 SDI/ANALOG</li><li>• INPUT SEL2 YR-YB-Y, YC/VIDEO</li><li>• INPUT SEL3 YR-YB-Y/YC</li><li>• INPUT LEVEL Y 714mV/700mV</li><li>• INPUT LEVEL R-YB-Y 756mV/525mV</li><li>• RS232C SEL ADDITIONAL IF/OPTION IF</li><li>• PB302 OUT SEL (OPT) YR-YB-Y/RGB</li><li>• PB302 OUT SEL (ADD) YR-YB-Y/RGB</li><li>• OPTION I/F SEL PB302/PB310</li><li>• ADDITIONAL I/F SEL PB302/PB310</li><li>• D-SUB OUT SEL1 YC/RGB, YR-YB-Y</li><li>• D-SUB OUT SEL2 RGB/YR-YB-Y</li><li>• RGB OUT SYNC SYNC ON/SYNC OFF</li></ul>

Weight and dimensions indicated are approximate.  
Specifications are subject to change without notice.



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# Panasonic

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