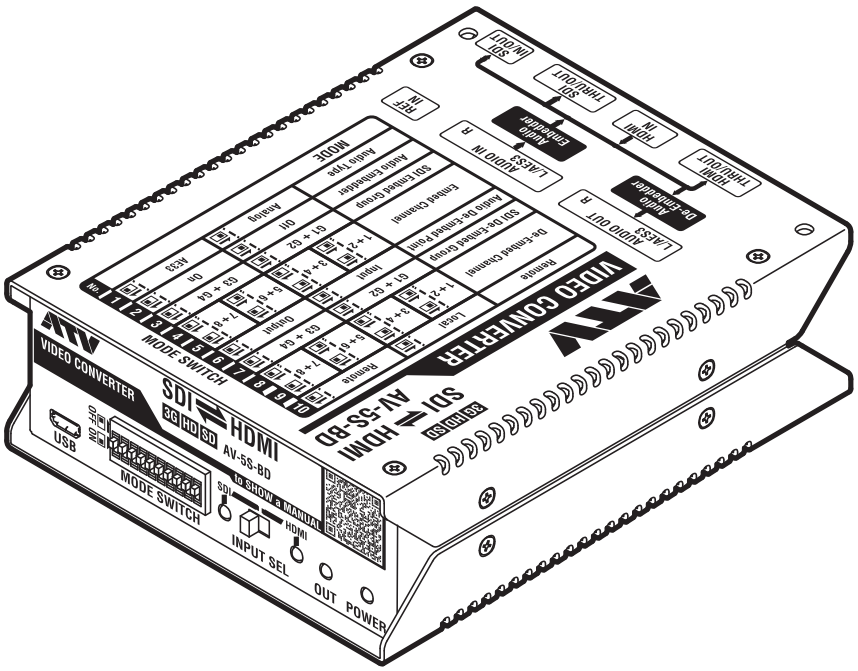
Converters
AV-5S series

AV-5S-BD
AV-5S-HS
AV-5S-SH

Setup and Operation Manual



AV-5S-BD

Please use your AV-5S series converter only after reading and understanding the content of this manual.
In particular, please be sure to read all precautions related to the safe use of this device.
Please be sure this manual is stored in a place where it is readily available to the operator for reference.

Precautions

Please be sure to follow all precautions related to the safe use of this device.

These precautions are intented to ensure that you use this device properly and to protect both you and others from personal injury as well as your property from damage.
Please read these precautions before using the device and store this manual in a safe place.

Please be sure to review and understand the meaning of the following terms and symbols before reading this manual.

⚠Warning	This symbol is used to indicate precautions which if ignored could potentially result in death or severe personal injury.
⚠Caution	This symbol is used to indicate precautions which, if ignored, could potentially result in either personal injury or property damage.

Meanings of pictorial symbols

	Caution	Caution: Indicates directions that must be followed, and is used to mark off a paragraph or illustration that provides detailed instructions.
	Prohibited:	Prohibited: Indicates an action that is prohibited, and is used to mark off a paragraph or illustration that provides detailed instructions.
	Mandatory	Mandatory: Indicates an action that must always be performed, and is used to mark off a paragraph or illustration that provides detailed instructions.
	The use of this device in shower stalls or bathtubs is prohibited.	The use of this product inside a shower stall or bathtub could result in fire or electrical shock and cause serious damage. Refer to the illustration for detailed instructions on prohibited actions.
	Touching this device is prohibited.	Touching this product could result in fire or electrical shock and cause serious damage. Refer to the illustration for detailed instructions on prohibited actions.
	Disassembly prohibited	Dissaembling this product could result in electrical shock or other cause of personal injury. Refer to the illustration for detailed instructions on prohibited actions.
	Unplug the adapter and cable	Indicates that the user should unplug the AC adapter from the wall socket or the USB cable from the computer. Refer to the illustration for detailed instructions.

⚠Warning

■ In the event that any of the following were to occur, immediately unplug the power cord from the wall socket and the USB cable from the computer.

In the event that the device emits smoke, a strange odor, or a strange sound:

Continued use of the device under these conditions could result in fire or electrical shock. Please contact us to arrange for repairs, once the device no longer emits smoke, strange odors, or sounds. Never attempt to repair the unit yourself. To do so is dangerous.

In the event that water or other liquid seeps into the device:

Please contact us immediately. Using the device as it is could result in fire or electrical shock.

In the event that foreign objects enter the device:

Please contact us immediately. Using the device as it is could result in fire or electrical shock. (In particular, be careful when this device is used near children.)

In the event that an abnormality, a malfunction, or a failure is found in the device, its AC adapter, or its electrical power cord:

Please contact us to arrange for repairs. Using the device as it is could result in fire or electrical shock.

■ Do not disassemble or modify the machine.

Doing so might lead to a fire and/or electric shock.

■ Be sure to use the plug-in AC adapter only for the device it came with.

Never use it with any other devices.

■ Be sure to use the plug-in AC adapter that came with the device only in the country where it was purchased.

Plug-in AC adapters are matched to the country in which the device is sold.

■ Do not place heavy objects on top of the plug-in AC adapter, and be sure that the device does not sit atop the electrical power cord.

Damage to the AC cord might lead to a fire and/or electric shock. If a carpet or rug is spread over the cord, a heavy object might inadvertently be placed on it.

■ Do not damage, rework, apply heat, or apply excessive force in bending, twisting, or pulling the plug-in AC adapter.

Damage to the electrical power cord could result in fire or electrical shock.

■ Do not connect many devices to a single power outlet.

Failure to do so might lead to fire.

■ Do not use the device in any of the following locations:

Places where the cause of fires, electrical shock, malfunction, discoloration, or deformation is present.

- Places where the temperature is extremely high due to causes such as being subject to direct sunlight or being in close proximity to a space heater or other device that emits heat.
- Baths, sinks, wet floors, and other places with considerable moisture or high humidity.
- Places subject to steam or smoke.
- Places subject to salt corrosion.
- Places exposed to rainfall.
- Places where dust and sand accumulate easily.
- Places subject to constant vibration or movement.
- Tables, benches, or other places that are off-level, wobbly, or otherwise unstable.

⚠Warning

- Do not place this device anywhere that water or foreign objects can penetrate it or in a container that contains any kind of fluid.
  Doing so might lead to a fire and/or electric shock.

- Do not subject the device to strong impact.
  To do so could result in damage or deformation of the device itself, in the device rupturing, or in the emission of fluid, heat, smoke, or flame.

⚠Caution

- If the unit is not to be used for a long period of time, unplug the plug-in AC adapter from the wall socket and the USB cable from the computer.
  Doing so might lead to a fire.

- Be sure the electrical power cord is plugged securely into a wall socket.
  Failure to do so could result in excessive heat or cause a fire if dust were to accumulate.
- Connect and layout the cables properly.
  Tripping on the cables or otherwise causing the device to fall over or fall to the floor could result in personal injury.

- When unplugging the plug-in AC adapter, do not pull on the electrical power cord.
  To do so could damage the electrical power cord and result in fire or electrical shock. Always grasp the plug-in AC adapter itself to unplug it.
- Keep the plug-in AC adapter away from hot objects.
  The AC cord insulation might be melted, possibly resulting in a fire and/or electric shock.
- Never attempt to unplug the plug-in AC adapter with wet hands.
  Doing so might lead to an electric shock.
- Never use a wall socket that does not support the electric power plug securely even when fully inserted.
  To do so could cause heat and result in fire or electrical shock. In such a case, please request that the retailer or an electrician replace the wall socket.

- Remove all connections before moving the device.
  Moving the device while external cables are connected could damage the electrical power cord and result in fire or electrical shock.

- Do not place your weight or heavy objects on the device.
  In particular, be careful when using this device near children. Falling over or breaking could result in personal injury.

- Take care to avoid burns.
  This device emits high heat, so take care to avoid burns.

Precautions for Use

■ Power supply

- Never connect AV-5S series converters to any electrical outlet that is used to power inverter-controlled devices or devices with an electric motor, such as refrigerators, washing machines, microwave ovens, or air conditioners. The use of other electrical devices in close proximity to AV-5S series converters could result in misoperation due to power noise or the generation of other electrical noise. In places where it would be difficult to provide the AV-5S series converter with an exclusive power outlet, please use an electrical power noise filter.
- The AC adapter will generate heat when used for long periods of time, but this is normal and does not indicate a malfunction.
- To prevent misoperation or malfunction, be sure that all power is turned off when connecting AV-5S series converters to other equipment.

■ Installation

- The installation of AV-5S series converters in close proximity to power amplifiers or other equipment with a large transformer could induce hum. If this happens, increase the separation between the devices or change their orientation to each other.
- The use of AV-5S series converters in close proximity to televisions or radios could interfere with the reception of audio or video signals. If this happens, increase the separation between the devices.
- The use of AV-5S series converters in close proximity to mobile phones or other wireless devices could result in noise or loss of image. If this happens, increase the separation between the devices or turn off the wireless devices.
- When using rack mounts, keep the rack-mounted units at least 1U apart. For individual units, always leave a clearance of at least 20 mm above each unit.
- Whenever AV-5S series converters are moved to a location where the ambient temperature differs to an extreme degree, moisture (condensation) could form inside. Using an AV-5S series converter in this condition could result in malfunctions. In which case, it is best to wait several hours for the condensation to evaporate before use.

■ Maintenance

- Ordinarily, you should keep an AV-5S series converter clean by wiping it down with a soft, dry cloth or a tightly wrung damp one. If the AV-5S series converter is heavily soiled, wipe it clean with a cloth dampened in a mild detergent and then wipe it down with a soft, dry cloth.
- Never use benzene, paint thinner, or alcohol-based solvents to clean AV-5S series converters. Doing so could result in discoloration or deformation.

■ Repair

- We cannot warranty the performance of any device or AC adapter that has been disassembled or modified by the user. Also, we reserve the right to refuse to repair devices or AC adapters.
- When repairing any device, the data stored in memory is sometimes lost. Be sure to back up your data prior to repair. Please understand that we can neither restore nor provide compensation for lost data.
- We retain an inventory of the functional parts needed to repair AV-5S series converters for a period of six years after discontinuation of manufacture. Repairs for AV-5S series converters are available only while repair parts are available. Please feel free to inquire about repairs, however, even after this period is past, since some repairs are still possible, depending upon the nature of the malfunction.

■ Other precautions

- Data stored in an AV-5S series converter's memory could be lost due to malfunction or misoperation. Be sure to back up your data prior to using an AV-5S series converter. Please understand that we can neither restore nor provide compensation for lost data.
- Never apply excessive force to the input and output connectors. To do so could result in malfunctions.
- Always adjust the volume settings so that you do not disturb people who are nearby.
- When transporting an AV-5S series converter, wrap it in packing material and place it in its box or otherwise provide equivalent protection.
- If you do dispose of the box and packing that came with the AV-5S series converter, be sure to follow all local regulations pertaining to the sorting of waste materials.
- Some audio connector cables contain resistors. The use of a cable containing a resistor could significantly reduce the volume of the sound or make it too soft to hear. Be sure to use audio connector cables without resistors. When using cables from other manufacturers, contact the manufacturer to verify the specifications.

■ Intellectual property rights

- The names of products and companies shown in this manual are the trademarks or registered trademarks of their respective owners.
- Never use AV-5S series converters for any application that violates the copyrights of a third party. We cannot be held responsible for instances in which AV-5S series converters are used to violate the copyrights of a third party.

For US

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

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.

COMPLIANCE INFORMATION STATEMENT (DECLARATION OF CONFORMITY)

Model Name: AV-5S-BD, AV-5S-HS, AV-5S-SH, AV-3-BD, AV-3-HS, AV-3-SH
Type of Equipment: Converter
Responsible Party: ATV Group Corp. USA
Address: 16901 S.Western Ave. #101 Gardena, CA 90247
Telephone: 310-283-1599

For EU Countries

This symbol on the product means that used electrical and electronic equipment should not be mixed with general household waste.

The correct disposal will help prevent potential negative effects on human health and the environment.

For proper treatment, recovery and recycling, please contact your city office, waste disposal servicer or the shop which you purchased the product.

For China

有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。
本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环保使用期限

此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的规定期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。
环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。
不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量

部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳（壳体）	×	○	○	○	○	○
电子部件（印刷电路板等）	×	○	×	○	○	○
附件（电源线、交流适配器等）	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T26572-2011 规定的限量要求以下。
×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572-2011 规定的限量要求。

For C.A. US (Proposition 65)

WARNING

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

■ Table of Contents

1 Introduction

Overview

AV-5S series converters are high performance devices that convert either SDI to HDMI or HDMI to SDI. The series comprises the AV-5S-BD, AV-5S-HS, and AV-5S-SH, each of which feature unique functionality. Please read the following to better understand how your model functions.

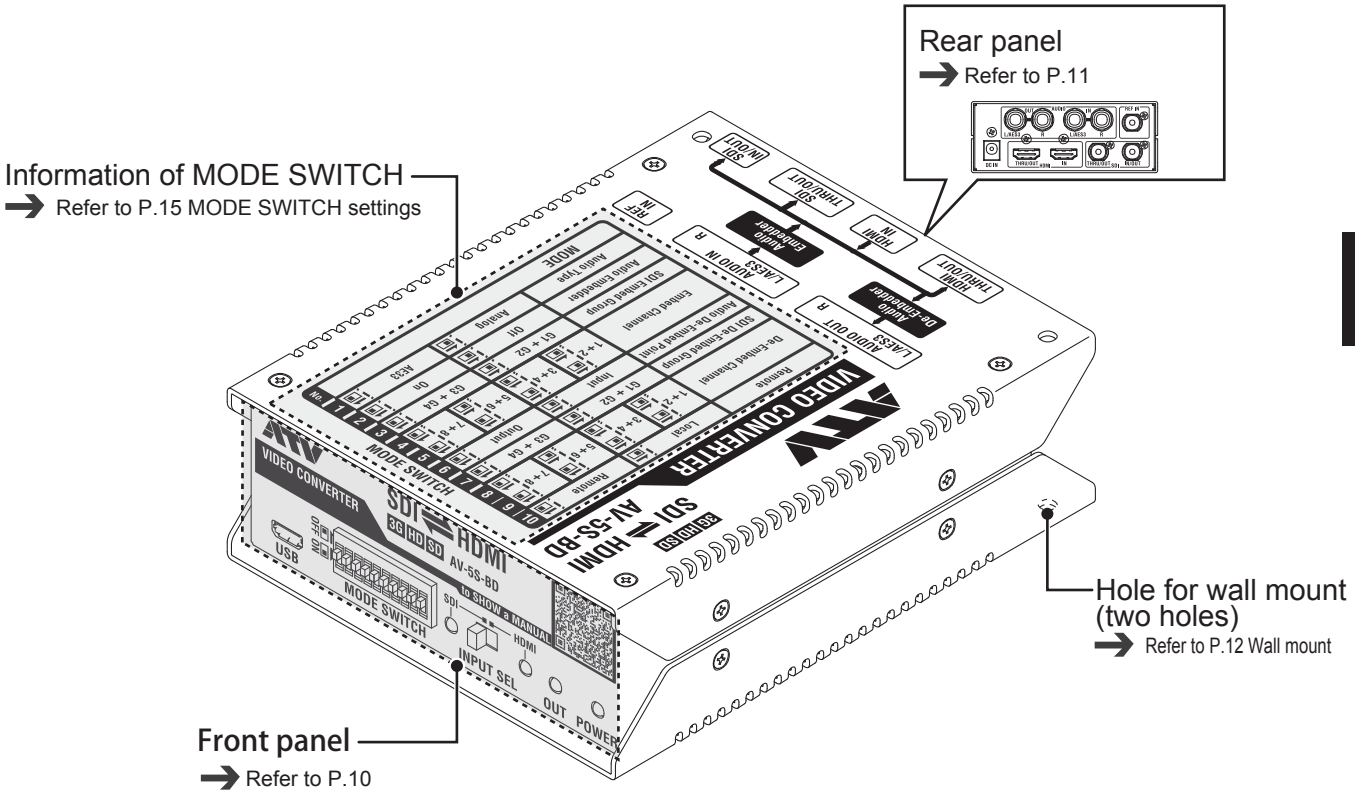
Features

Features	AV-5S-BD	AV-5S-HS	AV-5S-SH
Capable of converting SDI signals to HDMI signals.	✓	—	✓
Capable of converting HDMI signals to SDI signals.	✓	✓	—
Features two conversion modes: a Direct Conversion Mode, which permits conversion at low delay, and a Frame Sync Mode, which permits output of a stable signal through a frame buffer.	✓	✓	✓
The Frame Sync Mode features frame rate conversion that enables mutual conversion between 60-Hz and 59.94-Hz signals.	✓	✓	✓
Separate audio input and output connectors enable audio signals to be embedded in or de-embedded from the video signal.	✓	✓	✓
The SDI THRU connector can be switched to the SDI OUT connector or used for mutual conversion of 3G-SDI Level-A and Level-B as well as conversion from a progressive (P) signal to a segmented frame (PsF) signal.	✓	—	✓
The HDMI THRU connector allows EDID data from a connected device to pass through the HDMI IN connector, bypassing the AV-5S series converter and enabling operation identical to a direct connection.	✓	✓	—
In Frame Sync Mode, the HDMI input device is subject to plug-and-play requests when using a format identical to the output, thereby obviating the need for complicated setups when connecting to a PC.	✓	✓	—
The REF IN connector allows the AV-5S series converter to be used as a frame synchronizer with GENLOCK systems.	✓	✓	✓
The THRU connector features relock processing and can be used as a repeater for making extensions.	✓	✓	✓

2 Names and functions of parts

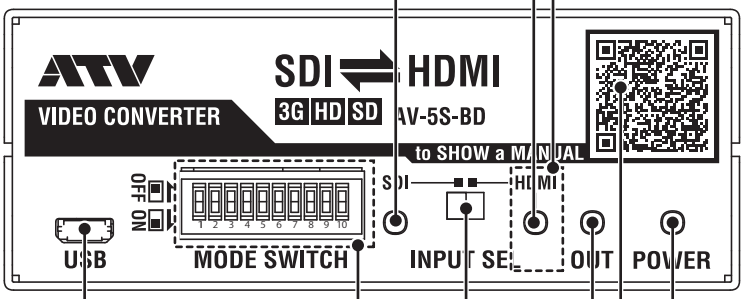
External View

The diagram shows an AV-5S-BD.



Front panel

The diagram shows an AV-5S-BD.



HDMI indicator (AV-5S-BD only)

Indicates status of video signal input to HDMI IN.

GREEN	: A normal video signal is being input.
FLASHING RED	: A normal video signal is not being input.
OFF	: The INPUT SEL is set to SDI.

IN indicator (AV-5S-SH, AV-5S-HS)

Indicates status of video signal input to the AV-5S series converter.

GREEN	: A normal video signal is being input.
FLASHING RED	: A normal video signal is not being input.

SDI indicator (AV-5S-BD only)

Indicates status of video signal input to SDI IN.

GREEN	: A normal video signal is being input.
FLASHING RED	: A normal video signal is not being input.
OFF	: The INPUT SEL is set to HDMI.

USB connector

Connect the AV-5S series converter to a PC in which the remote software has been installed.

→ Refer to P.16 Remote software

MODE SWITCH

Select parameters for embedding or de-embedding audio.

→ Refer to P.15 MODE SWITCH settings

INPUT SEL (AV-5S-BD only)

Select the connector to be used for input.

→ Refer to P.14 INPUT SEL settings (AV-5S-BD only)

OUT indicator

Indicates status of video signal output.

GREEN	: A normal video signal is being output.
ORANGE	: Free running operation in Frame Sync Mode.
FLASHING RED	: A normal video signal is not being output.

POWER indicator

Power on when lit.

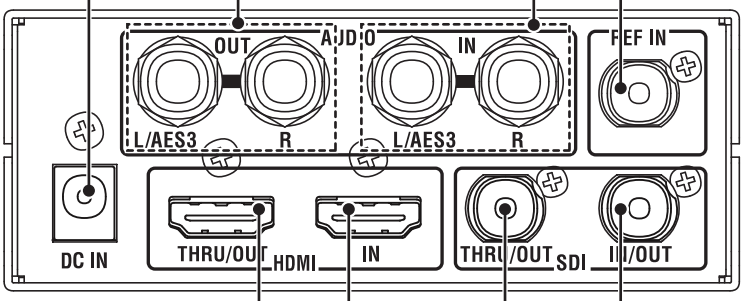
→ Refer to P.21 DC IN Warning Threshold

QR code

Read this QR code into your smartphone or other device to access our product support website.

Rear panel

The diagram shows an AV-5S-BD.



AUDIO OUT connector
Output the audio signal that was de-embedded from the video signal.
L/AES3 : Input an analog Lch or a digital AES3 signal.
R : Input an analog Rch signal.
➔ Refer to P.15 MODE SWITCH settings
➔ Refer to P.20 AUDIO OUT Analog Level

AUDIO IN connector
Input an audio signal to be embedded in the video signal.
L/AES3 : Input an analog Lch or a digital AES3 signal.
R : IInput an analog Rch signal.
➔ Refer to P.15 MODE SWITCH settings
➔ Refer to P.20 AUDIO IN Analog Level

DC IN connector
Connect the AC adapter that came with the AV-5S series converter.
➔ Refer to P.13 Turning the power on and off

REF IN connector
Frame Sync Mode : Input a reference signal for frame synchronization.
Direct Conversion Mode : Not used.
➔ Refer to P.22 Operating Modes

HDMI THRU/OUT connector (AV-5S-BD, AV-5S-HS)
Outputs an HDMI signal.
➔ Refer to P.19 THRU/OUT

HDMI OUT connector (AV-5S-SH)
Outputs an HDMI signal that was subject to internal processing.

SDI IN/OUT connector (AV-5S-BD)
When the INPUT SEL is set to SDI.
• Input SD/HD/3G-SDI signals.
When the INPUT SEL is set to HDMI.
• Outputs an SDI signal that was subject to internal processing.
➔ Refer to P.14 INPUT SEL settings (AV-5S-BD only)

SDI IN connector (AV-5S-SH)
Input SD/HD/3G-SDI signals.

SDI OUT connector (AV-5S-HS)
Outputs an SDI signal that was subject to internal processing.

HDMI IN connector (AV-5S-BD, AV-5S-HS)
Input HDMI signal.

SDI THRU/OUT connector (AV-5S-BD, AV-5S-SH)
Outputs an SD/HD/3G-SDI signals.
➔ Refer to P.19 THRU/OUT

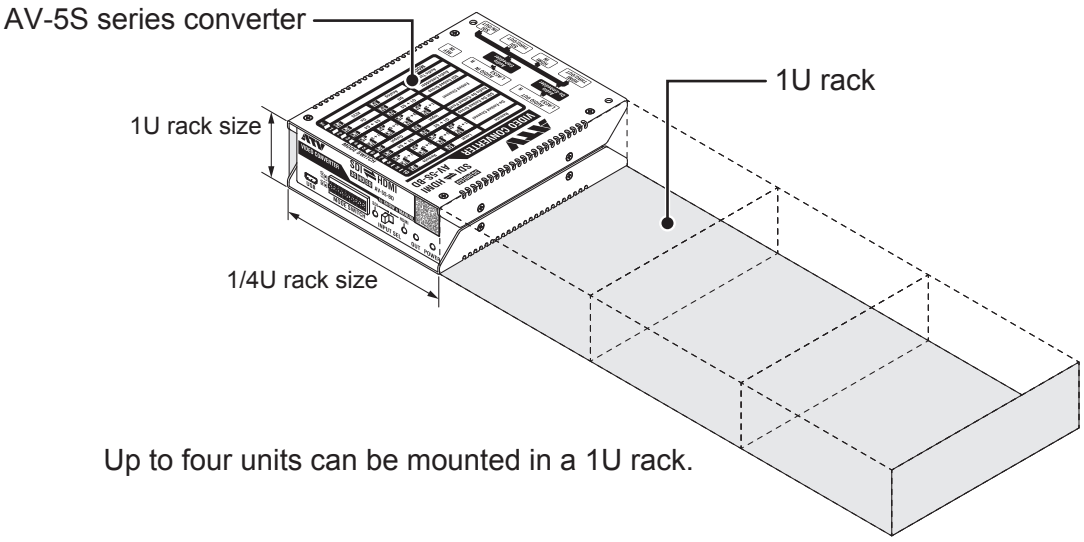
SDI OUT connector (AV-5S-HS)
Outputs an SDI signal that was subject to internal processing.

Installation and mounting

Rack mount

Warning Maintain at least a 1U clearance with all other rack-mounted devices.

The diagram shows an AV-5S-BD.

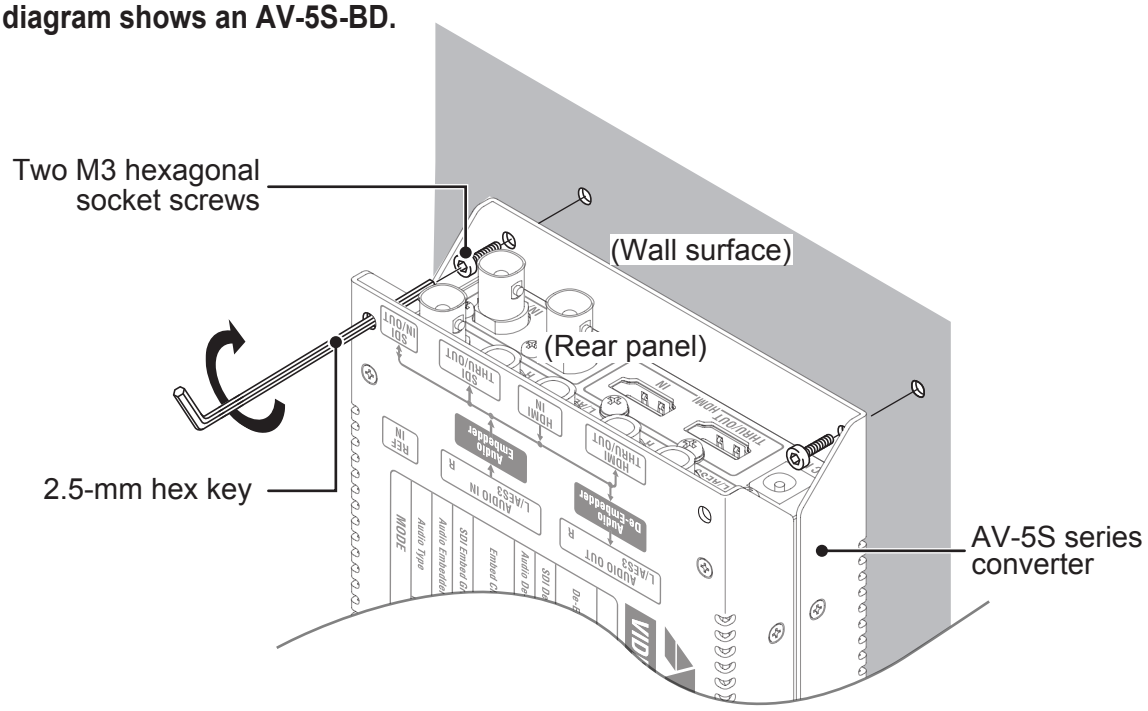


Up to four units can be mounted in a 1U rack.

Wall mount

Warning Maintain a clearance of at least 20 mm above the unit.

The diagram shows an AV-5S-BD.



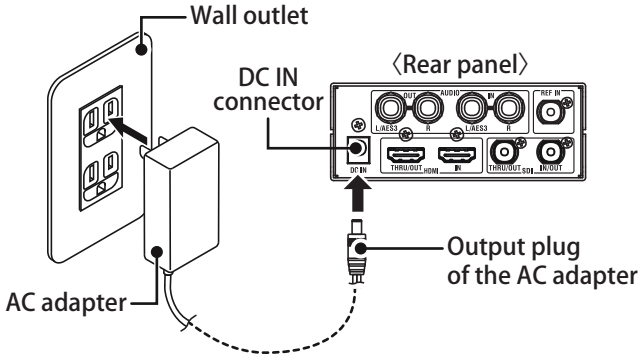
Turning the power on and off

Turning on the power

The diagram shows an AV-5S-BD.

1 Connect the output plug of the AC adapter to the DC IN connector of the AV-5S series converter.

2 Connect the power cord of the AC adapter to a wall outlet.

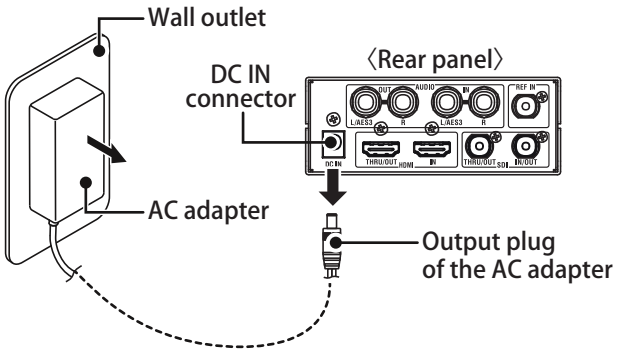


Turning off the power

The diagram shows an AV-5S-BD.

1 Remove the power cord of the AC adapter from the wall outlet.

2 Remove the output plug of the AC adapter from the DC IN connector of the AV-5S series converter.



AUTO OFF function

AV-5S series converters are equipped with an automatic power off function. (The default setting is OFF.)
(➔ Refer to P.21 Auto Power Off Enable)

The AUTO OFF function automatically turns off the electrical power source after 240 minutes under the following conditions.

- MODE SWITCH No. 10 is ON.
- The AV-5S series converter is not connected to a PC.
- There is no video or audio signal input.

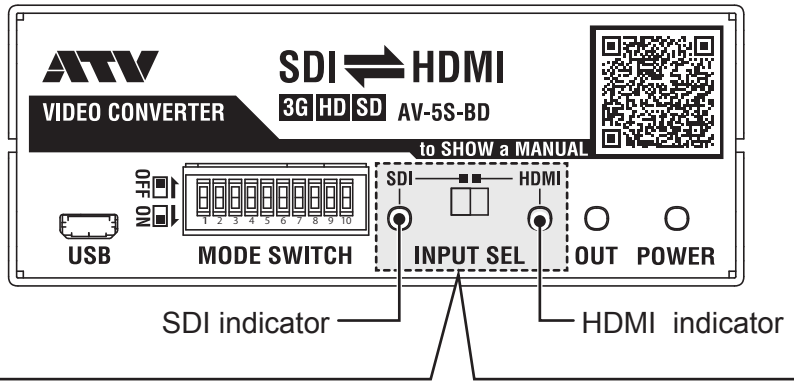
To turn the electrical power on again, unplug the AC adapter and then plug it in once more.
(➔ Refer to P.13 Turning the power on and off)

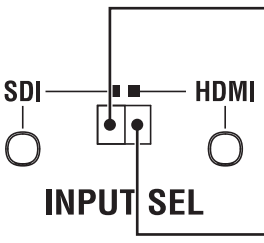
The AUTO OFF function can be turned off using the remote software.
(➔ Refer to P.16 Remote software and ➔ Refer to P.21 Auto Power Off Enable)

3 AV-5S series settings

INPUT SEL settings (AV-5S-BD only)

Specify the input connector as either SDI or HDMI.





When converting SDI to HDMI:

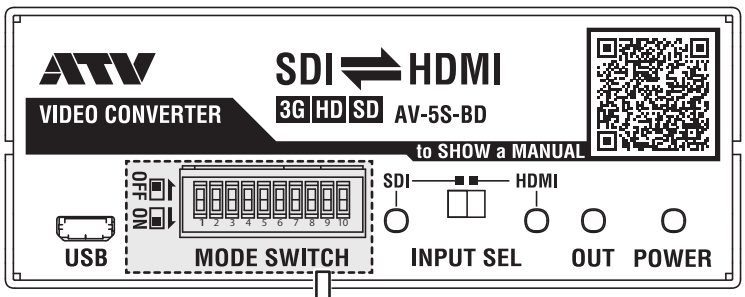
SDI IN/OUT connector	: Operates as an input connector.
HDMI IN connector	: Not available.
SDI indicator	: Green when a video signal is being input. Flashing red when a video signal is not being input.
HDMI indicator	: off

When converting HDMI to SDI:

SDI IN/OUT connector	: Operates as an output connector.
HDMI IN connector	: Operates as an input connector.
SDI indicator	: off
HDMI indicator	: Green when a video signal is being input. Flashing red when a video signal is not being input.

MODE SWITCH settings

The diagram shows an AV-5S-BD.



Embed Channel

Select the channel to which audio is embedded.

The channel for embedding audio	MODE SWITCH No.4-5
CH1+CH2 *SDI output : CH9+CH10	4 5
CH3+CH4 *SDI output : CH11 + CH12	4 5
CH5+CH6 *SDI output : CH13 + CH14	4 5
CH7+CH8 *SDI output : CH15 + CH16	4 5

*When MODE SWITCH No. 3 is on.

Audio De-Embed Point

Select the position from which embedded audio is to be de-embedded to the AUDIO OUT connector.

6
- OFF Input signal
- ON Output signal

SDI De-Embed Group (AV-5S-BD, AV-5S-SH)

Select the group from which audio is de-embedded from SDI.

7
- OFF Group 1 or Group 2 (Channels 1–8)
- ON Group 3 or Group 4 (Channels 9–16)

Remote

Toggle between using the MODE SWITCH settings and the remote software settings.

10
- OFF Use the MODE SWITCH settings.
- ON Use the remote software settings.

Audio Type

Toggle between analog and digital for AUDIO IN and AUDIO OUT.
When using digital, only L/AES3 is available. R is not available.

1
- OFF Analog input and output
- ON Digital AES3 input and output

Audio Embedder

Toggle whether to embed or not to embed the audio signal from the AUDIO IN connector into the video output.

2
- OFF Do not embed audio.
- ON Embed audio.

SDI Embed Group

Select the group to which audio is embedded to SDI.

3
- OFF Group 1 or Group 2 (Channels 1–8)
- ON Group 3 or Group 4 (Channels 9–16)

De-Embed Channel

Select the channel from which audio is de-embedded.

The channel for de-embedding audio	MODE SWITCH No.8-9
CH1+CH2 *SDI input : CH9+CH10	8 9
CH3+CH4 *SDI input : CH11 + CH12	8 9
CH5+CH6 *SDI input : CH13 + CH14	8 9
CH7+CH8 *SDI input : CH15 + CH16	8 9

*When MODE SWITCH No. 7 is on.

4 Remote software

Caution

The remote software must be installed to your computer beforehand.
Download the remote software from the website shown below and install it to your computer.
http://www.atvcorporation.com/

System requirements

Windows

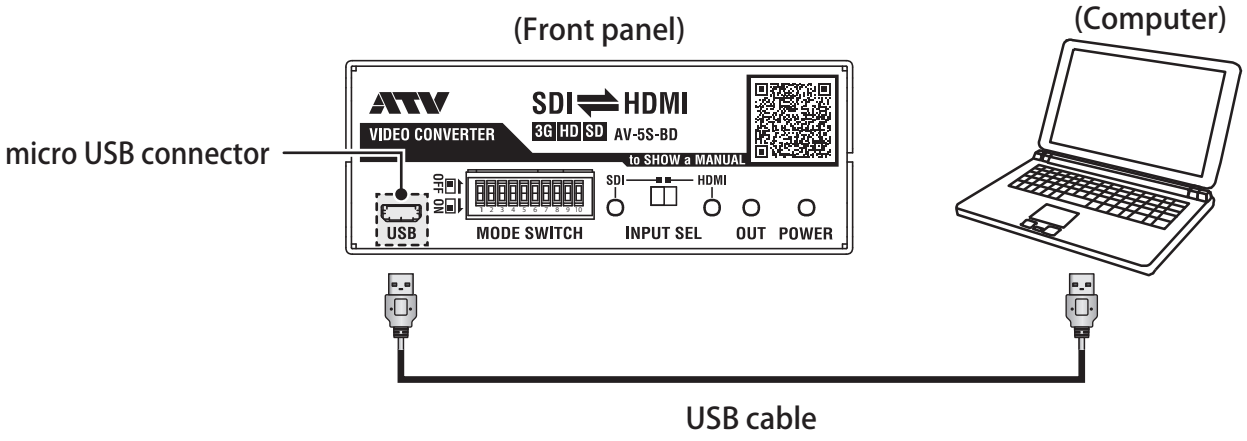
OS : Windows 7 / 8 / 8.1 / 10 (32bit/64 bit)
CPU : 1Ghz or greater
RAM : 32bit : 1GB or greater
64bit : 2GB or greater

Mac

OS : OSX10.10 or later
CPU : Intel CPU
RAM : 2GB or greater

Connecting to a computer

The diagram shows an AV-5S-BD.



Screen names and functions

The diagram shows an AV-5S-BD.

MODE SWITCH / REMOTE
Specify MODE SWITCH settings using the remote software.
➔ Refer to P.18 MODE SWITCH/REMOTE

INPUT SEL
Displays the INPUT SEL setting. (SDI / HDMI)

Input Format
Displays the format of the input signal.

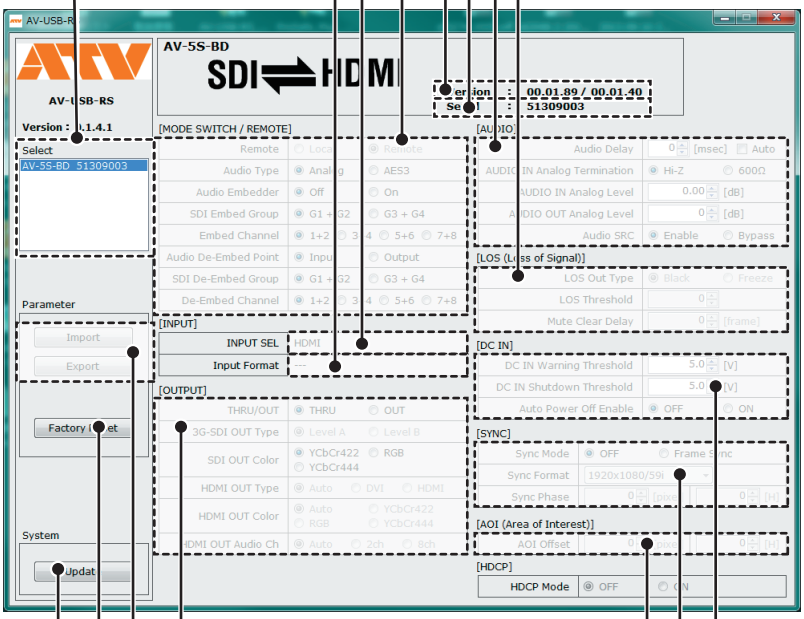
Select
Select which devices are to be controlled.
Up to eight devices can be controlled at once.

Version number
Displays the version of the firmware of the connected device.

Serial number
Displays the serial number of the connected device.

AUDIO
Specify settings for audio signals.
➔ Refer to P.20 AUDIO

LOS(Loss of Signal)
Specify actions during intermittent loss of input signal.
➔ Refer to P.20 LOS (Loss of Signal)



OUTPUT
Specify settings for output signals.
➔ Refer to P.19 OUTPUT

File Import / File Export
Save or load settings.

Factory Reset
Return all settings to their factory default values.

Firmware Update
Updates the firmware of the connected device.

DC IN
Specify settings for the electrical power source.
➔ Refer to P.21 DC IN

SYNC
Specify settings for synchronization.
➔ Refer to P.21 SYNC

AOI(Area of Interest)
Specify settings for video position.
➔ Refer to P.21 AOI (Area of Interest)

Parameter list

Item	Parameter	Value	Description	Model AV-5S BD	Model AV-5S HS	Model AV-5S SH
MODE SWITCH	Remote	**Local** Remote	Select whether to use the MODE SWITCH settings or the remote software settings. Local : Use the MODE SHITCH settings. Remote : Use the remote software settings.	✓	✓	✓
MODE SWITCH/ REMOTE	Audio Type	**Analog** AES3	Toggle between analog and digital for AUDIO IN and AUDIO OUT. When using digital, only L/AES3 is available. R is not available. Analog : Use analog input and output. AES3 : Use digital input and output.	✓	✓	✓
	Audio Embedder	**Off** On	Toggle whether to embed or not embed the audio signal from the AUDIO IN connector into the video output. Off : Do not embed audio. On : Embed audio.	✓	✓	✓
	SDI Embed Group	**G1+G2** G3+G4	Select the group to which audio is embedded to SDI. G1+G2 : Group 1 or Group 2 (Channels 1–8) G3+G4 : Group 3 or Group 4 (Channels 9–16)	✓	✓	✓
	Embed Channel	**1+2** 3+4 5+6 7+8	Select the channel to which audio is embedded. When the SDI Embed Group is set to G1+G2 1+2: Channels 1 and 2 3+4: Channels 3 and 4 5+6: Channels 5 and 6 7+8: Channels 7 and 8 When the SDI Embed Group is set to G3+G4 1+2: Channels 9 and 10 3+4: Channels 11 and 12 5+6: Channels 13 and 14 7+8: Channels 15 and 16	✓	✓	✓
	Audio De-Embed Point	**Input** Output	Select the position from which embedded audio is to be de-embedded to the AUDIO OUT connector. Input : Input signal Output: Output signal	✓	✓	✓
	SDI De-Embed Group	**G1+G2** G3+G4	Select the group from which audio is de-embedded from SDI. G1+G2: Group 1 or Group 2 (Channels 1–8) G3+G4: Group 3 or Group 4 (Channels 9–16)	✓	—	✓
	De-Embed Channel	**1+2** 3+4 5+6 7+8	Select the channel from which audio is de-embedded. When the SDI De-Embed Group is set to G1+G2 1+2: Channels 1 and 2 3+4: Channels 3 and 4 5+6: Channels 5 and 6 7+8: Channels 7 and 8 When the SDI De-Embed Group is set to G3+G4 1+2: Channels 9 and 10 3+4: Channels 11 and 12 5+6: Channels 13 and 14 7+8: Channels 15 and 16	✓	✓	✓

Item	Parameter	Value	Description	Model AV-5S BD	HS	SH
INPUT	INPUT SEL	—	Displays either SDI or HDMI per the INPUT SEL located on the front panel.	✓	—	—
	Input Format	—	Displays the format of the input signal.	✓	✓	✓
OUTPUT	THRU/OUT	**THRU** OUT	Select the signal to be output from the THRU/OUT connector. THRU : Stabilize and output the input signal. *1, 2 OUT : Process and output the signal.	✓	✓	✓
	3G-SDI OUT Type	**Level A** Level B	Select the output format for the 3G-SDI-compliant SDI OUT signal. Select a format suitable for the connected device. Level-A : Commonly used with video equipment. Level-B : Commonly used with broadcast equipment.	✓	✓	✓
	SDI OUT Color	**YCbCr422** RGB YCbCr444	Select the sampling configuration for the SDI OUT signal. YCbCr422 : Output at 10-bits YCC422. This configuration is ordinarily used. RGB : Output at 12-bits RGB444. This setting is valid only for some screen resolutions. YCbCr444 : Output at 12-bits YCC444. This setting is valid only for some screen resolutions. *Output resolutions for which the RGB, YCbCr444 settings are valid. (2048x1080) 30PsF/29.97PsF/25PsF/24PsF/23.98PsF (1920x1080) 60i/59.94i/50i/30PsF/29.97PsF/25PsF/24PsF/23.98PsF (1280x720) 60p/59.94p/50p	✓	✓	✓
	HDMI OUT Type	**Auto** DVI HDMI	Select the output format for the HDMI OUT signal. Auto : Automatically output the most suitable format for the connected device. DVI : Outputs as a DVI signal. (Does not output audio.) HDMI : Outputs as an HDMI signal.	✓	✓	✓
	HDMI OUT Color	**Auto** YCbCr422 RGB YCbCr444	Select the sampling configuration for the HDMI OUT signal. Auto : Automatically output the most suitable sampling configuration for the connected device. YCbCr422 : Output at 10-bits YCC422. RGB : Output at 8-bits RGB444. YCbCr444 : Output at 8-bits YCC444.	✓	✓	✓
	HDMI OUT Audio Ch	**Auto** 2ch 8ch	Specify the number of audio channels for the HDMI OUT signal. Auto : Automatically output the most suitable number of channels for the connected device. 2ch : Output as two channels. 8ch : Output as eight channels.	✓	✓	✓

*1 Always operates as an output during Frame Sync Mode.

*2 Always operates as an output during P/PsF or P/I conversion.

Item	Parameter	Value	Description	Model AV-5S BD	Model AV-5S HS	Model AV-5S SH
AUDIO	Audio Delay	**0** to 100msec Auto	Specify a delay for audio. 0 to 100 msec : Use this function to manually make fine adjustments (lip sync) to synchronization of the audio and video signals. Auto : Automatically determine the most suitable delay time with reference to the internal video latency. *Using the Auto function in Frame Sync Mode will introduce a ±0.5 frame discrepancy into the structure.	✓	✓	✓
	AUDIO IN Analog Termination	**Hi-Z** 600 ohms	Toggle the impedance of the analog audio input connector. Hi-Z : Specify the impedance as roughly 22 kohms. This configuration is ordinarily used. 600 ohms : Use this configuration when it is necessary to match the impedance of certain types of professional equipment.	✓	✓	✓
	AUDIO IN Analog Level	-12.75dB to **0dB** to +34.50dB (0.75dB step)	Adjust the analog audio input level. Adjust in increments of 0.75 dB across the range of -12.75 to +34.50dB. Recommended settings North America : 0 dB (+4 dBu = -20 dBFS) Europe : +6 dB (0 dBu = -18 dBFS) Consumer : +12 dB (-10 dBV = -20 dBFS)	✓	✓	✓
	AUDIO OUT Analog Level	-51dB to **0dB** to +12dB (1dB step)	Adjust the analog audio output level. Adjust in increments of 1 dB across the range of -51 to +12dB. Recommended settings North America : 0 dB (+4 dBu = -20 dBFS) Europe : -6 dB (0 dBu = -18 dBFS) Consumer : -12 dB (-10 dBV = -20 dBFS)	✓	✓	✓
	Audio SRC	**Enable** Bypass	Bypass the audio sampling rate converter (SRC). Enable : All output audio signals pass through the SRC. (Recommended) Bypass : Use this setting only for Dolby or other audio signal that must bypass the SRC. The input audio signal must be synchronized with the output signal.	✓	✓	✓
LOS (Loss of Signal)	LOS Out Type	**Black** Freeze	Select a video output when the input signal is lost while in Frame Sync Mode. Black : Output a black screen. Freeze : Output a still frame of the video output at the time the input signal was lost. *3	✓	✓	✓
	LOS Threshold	**0** to 10	Specify the sensitivity at which the input signal is considered lost. A small value provides sensitive response; a large value provides resilience to noise.	✓	✓	✓
	Mute Clear Delay	**0** to 10frame	Specify the waiting time until the audio starts to fade in once the input signal is recovered.	✓	✓	✓

*3 Causes tearing in still frames.

Item	Parameter	Value	Description	Model AV-5S BD	Model AV-5S HS	Model AV-5S SH
DC IN	DC IN Warning Threshold	**7.5V** to 15.0V	Specify a power supply voltage threshold value at which the power indicator lamp begins to flash. Refer to the user manual for the batteries in use to verify that you have specified a suitable threshold value.	✓	✓	✓
	DC IN Shutdown Threshold	**7.5V** to 11.5V	Specify a power supply voltage threshold value at which the AV-5S series converter is automatically shut down. Refer to the user manual for the batteries in use to verify that you have specified a suitable threshold value.	✓	✓	✓
	Auto Power Off Enable	**OFF** ON	Specify the parameters for the auto power off function. OFF : The AV-5S series converter does not power off automatically. ON : The AV-5S series converter automatically powers off after 240 minutes under the following conditions. ▪ When MODE SWITCH No. 10 is on. ▪ The AV-5S series converter is not connected to a PC. ▪ There is no video signal input. ▪ There is no audio signal input.	✓	✓	✓
SYNC	Sync Mode	**OFF** Frame Sync	Select an operation mode for the converter. OFF : Specify the Direct Conversion Mode (➔ Refer to P.22). Frame Sync : Specify the Frame Sync Mode (➔ Refer to P.22).	✓	✓	✓
	Sync Format	(2048x1080) 60p/59.94p/48p/ 47.95p/30P/29.97p/25p/ 24p/23.98p (1920x1080) 60p/59.94p/50p/60i/ 59.94i/50i/30p/ 29.97p/25p/ 24p/23.98p (1280x720) 60p/59.94p/50p (720x480) 59.94i (720x576) 50i	Specify an output format for the Frame Sync Mode. PsF format is output from the SDI OUT connector for low frame rates of 30p or less.	✓	✓	✓
	Sync Phase	-1375pixel to **0** to 1375pixel -562H to **0** to 563H	Specify a phase for the SDI OUT signal relative to the REF IN signal. Only if the frame frequency of the REF IN signal and SyncFormat matches it is available. pixel : Specify a pixel value for the horizontal phase. H : Specify an H value for the vertical phase.	✓	✓	✓
AOI (Area of Interest)	AOI Offset	-2048pixel to **0** to 2048pixel -1080H to **0** to 1080H	Adjust the horizontal position for output video in Frame Sync Mode. pixel : Adjust the horizontal position. H : Adjust the vertical position.	✓	✓	✓

*Factory default values are indicated in boldface type.

Operating Modes

The AV-5S series converter is equipped with two different operating modes.
➔ Refer to P.21 Sync Mode

Direct Conversion Mode

- The output signal is synchronized to the input signal.
- The output format is fixed to match the input format except in the following cases.
  *When a signal with a low frame rate of 30p or less is input, the SDI OUT signal is always output in PsF format.
  *When a PsF signal is input to the SDI IN connector, a progressive signal is output from the HDMI OUT connector.
- Conversion latency while in Direct Conversion Mode is as shown in the section on Latency. (➔ Refer to P.28 Latency)
- When the input signal is lost, the output signal is lost as well.
- The HDMI IN connector identification data (EDID information) contains information on all compliant formats.
  *When a device is connected to the HDMI THRU connector, the EDID information for the connected device is passed through the HDMI IN connector.
- The THRU output is stabilized (relocked) and can be used as a repeater for making extensions.
  *For HDMI THRU, only video and audio are passed through.
- The SDI THRU connector can be switched to the SDI OUT connector or used for mutual conversion of 3G-SDI Level-A and Level-B as well as conversion from a progressive (P) signal to a segmented frame (PsF) signal.

Frame Sync Mode

- The output signal is either synchronized to the REF IN signal or free running.
- Minimum conversion latency while in Frame Sync Mode is as shown in the section on Latency. (➔ Refer to P.28 Latency)
- The SDI output phase relative to the REF IN signal can be adjusted.
  *Only if the frame frequency of the REF IN signal and SyncFormat matches it is available.
- The output format is fixed to match the specified format. (➔ Refer to P.21 Sync Format)
- When the input signal is lost, the output signal either freezes or becomes a black screen. (➔ Refer to P.20 LOS Out Type)
- When the input signal is lost or recovered the audio fades out or fades in.
  *Fade out/fade in each require one frame's time.
- Even when the input and output have different resolutions, it is possible to output just a part of the input video. (There is no resolution conversion function.)
- The HDMI IN connector identification data (EDID information) contains information on the output format only.
  *When a device is connected to the HDMI THRU connector, the EDID information for the connected device is passed through the HDMI IN connector.
- When used as an automatic variable delay line (AVDL):
  Specify the Sync H Phase and Sync V Phase (➔ Refer to P.21 Sync Phase) to match the adjustment range plus the minimum conversion latency in Frame Sync Mode (➔ Refer to P.28 Latency).
  The maximum adjustment range in the GENLOCK system is 1 line in SD and 10 lines in HD/3G.
- When used as a frame synchronizer (FS):
  When using the audio fade in/fade out function in places where there are glitches, specify the Sync H Phase and Sync V Phase (➔ Refer to P.21 Sync Phase) to a value smaller than the minimum conversion latency in Frame Sync Mode (➔ Refer to P.28 Latency) so that 1 frame of latency is constantly created.
  Or, manually specify an audio delay of about 1 frame.
  *Without sufficient latency, the fade out will not be in time, and it will not be possible to mute noise in places where there are glitches.
- The Frame Sync Mode features frame rate conversion that enables mutual conversion between 60-Hz and 59.94-Hz signals.

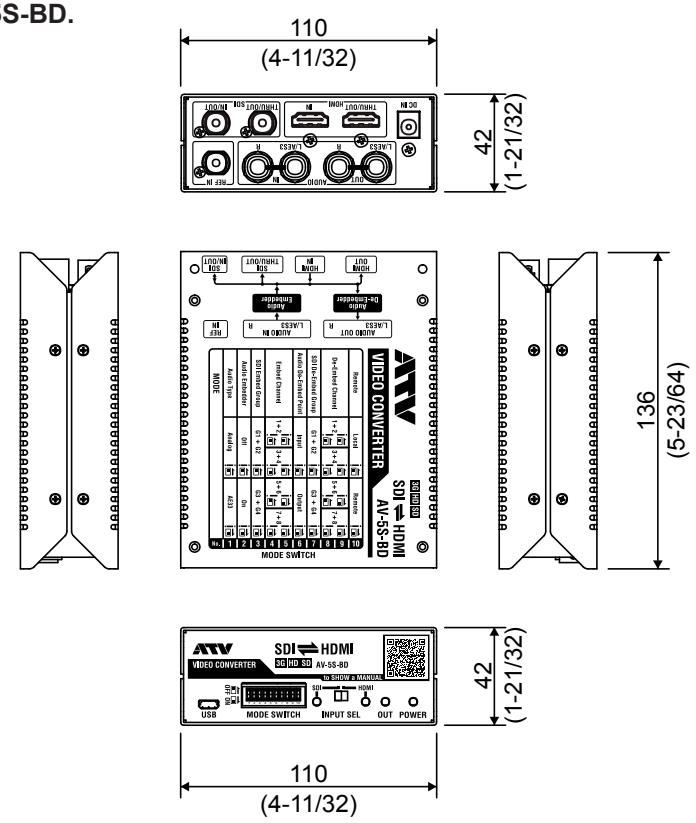
5 Specifications

Caution

Product specifications and appearance are constantly being improved and are subject to change without prior notification.

Product specifications

The diagram shows an AV-5S-BD.

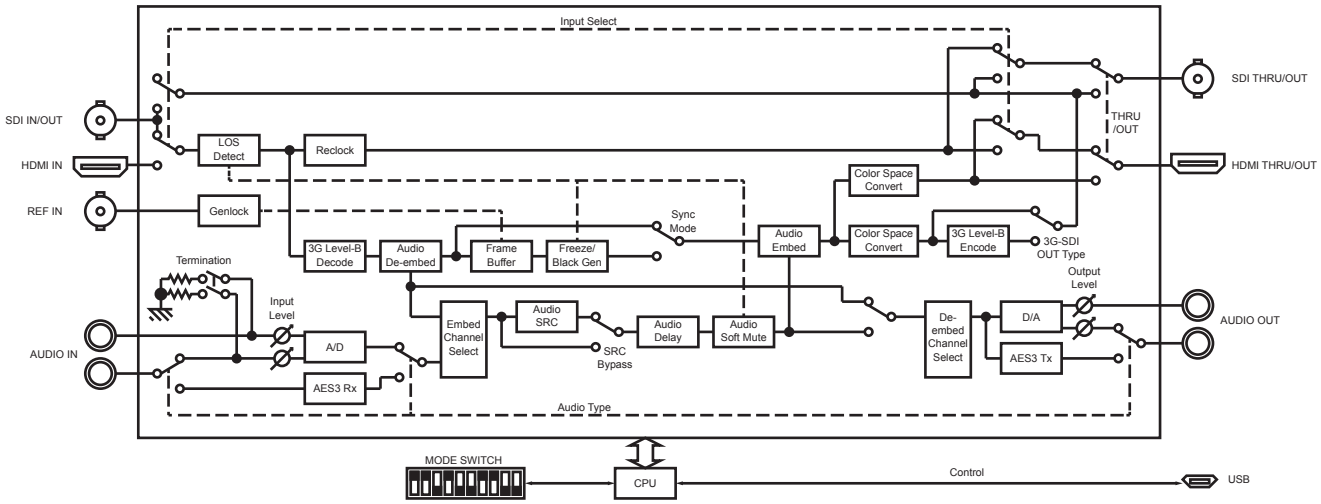


Item	Description
Power Supply	DC12V (AC adapter)
Power consumption	12W
Dimmension	110(W) x 136(D) x42(H) [mm] 4-11/32(W)x5-23/64(D)x1-21/32(H) [inches]
Weight	450g (without AC adapter)
Operation Temparature	+0 to +40 degrees Celsius +41 to +104 degrees Fahrenheit
Accessories	AC adapter Startup guide

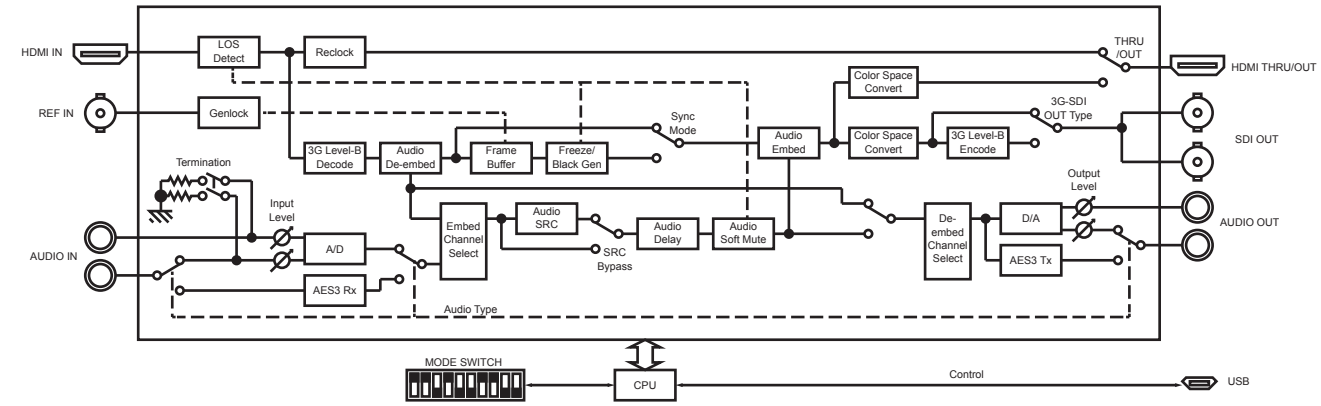
Connection specifications

Block Diagram

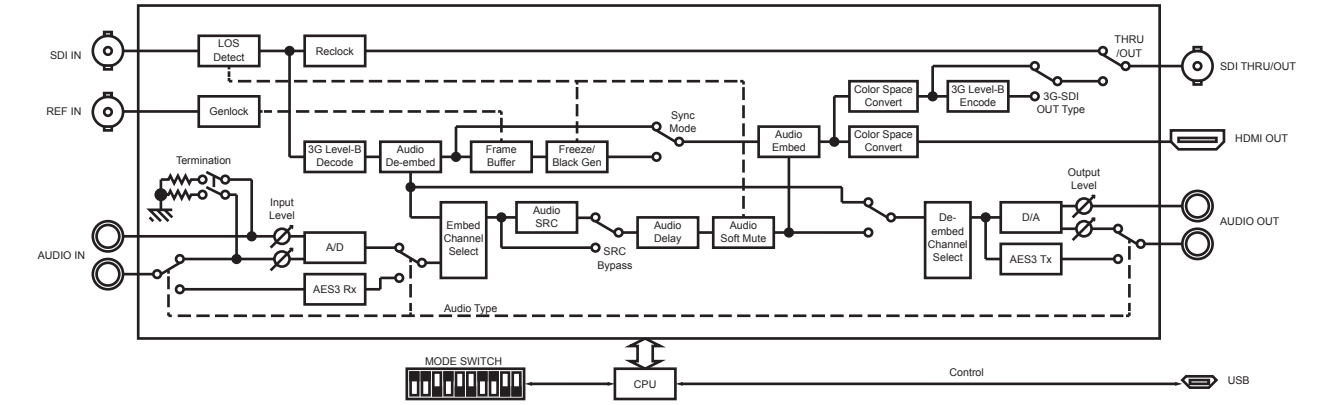
AV-5S-BD



AV-5S-HS



AV-5S-SH



Input Format

Item		Description	
SDI	Connector	BNC Type x1	
	Signal Standards	SMPTE ST424(SMPTE ST425-AB), SMPTE ST292, SMPTE ST259-C	
	Video Format	2048x1080	60p / 59.94p / 50p / 48p / 47.95p / 30p / 29.97p / 25p / 24p / 23.98p / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF (Conforms to SMPTE ST2048)
		1920x1080	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p / 23.98p / 60i / 59.94i / 50i / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF (Conforms to SMPTE ST274)
		1280x720	60p / 59.94p / 50p (Conforms to SMPTE ST296)
		720x487	59.94i (Conforms to ITU-R BT.601-5)
		720x576	50i (Conforms to ITU-R BT.601-5)
	Color Format	10bits YCC4:2:2, 12bits RGB4:4:4, 12bits YCC4:4:4 (10bits)	
	Audio Format	Linear PCM, 24 / 20bits, 48kHz, 16ch (Conforms to SMPTE ST299, ST272-C)	
HDMI	Connector	Type A (19pin)x1	
	Signal Standards	HDMI1.4b	
	Video Format	2048x1080	60p / 59.94p / 50p / 48p / 47.95p / 30p / 29.97p / 25p / 24p / 23.98p (SMPTE ST2048 or equivalent)
		1920x1080	60p / 59.94p / 50p / 60i / 59.94i / 50i / 30p / 29.97p / 25p / 24p / 23.98p (Conforms to CEA-861-F)
		1280x720	60p / 59.94p / 50p (Conforms to CEA-861-F)
		720x480	59.94p (Conforms to CEA-861-F)
		720x576	50p (Conforms to CEA-861-F)
		720(1440)x480	59.94i (Conforms to CEA-861-F)
		720(1440)x576	50i (Conforms to CEA-861-F)
	Color Format	10 / 12bits YCC4:2:2, 8bits RGB4:4:4, 8bits YCC4:4:4 (10bits)	
	Audio Format	Linear PCM, 16 to 24bits, 32 to 48kHz, 2 to 8ch	
Analog Audio	Connector	Type (balanced) x 1 pair (L / R) 1/4" TRS phone	
	Output Level	+4dBu	
	Maximum Input Level	+24dBu	
	Impedance	22k / 600 ohms selectable	
Digital Audio	Connector	Type (balanced) x 1 (common with analog audio output connector L) 1/4" TRS phone	
	Signal Standards	AES3, 16 to 24bits, 32 to 48kHz, 2ch	
	Impedance	110 ohms	
REF IN	Connector	BNC type x1	
	Signal Standards	B.B.(SMPTE ST318), Bi-level (ITU-R BT.1358-1), HD Tri-level (SMPTE ST274, ST296)	
	Signal formats	1920x1080	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p / 23.98p / 60i / 59.94i / 50i / 24PsF / 23.98PsF (Conforms to SMPTE ST274)
		1280x720	60p / 59.94p / 50p (Conforms to SMPTE ST296)
		720x480	59.94p (Conforms to ITU-R BT.1358-1)
		720x576	50p (Conforms to ITU-R BT.1358-1)
		720x480	59.94i (Conforms to SMPTE ST318)
		720x576	50i (Conforms to SMPTE ST318)

*0dBu=0.775Vrms

Output Format

Item		Description	
SDI	Connector	BNC type x2(One connector is common with SDI input connector.)	
	Signal Standards	SMPTE ST424(SMPTE ST425-AB), SMPTE ST292, SMPTE ST259-C	
	Video Format	2048x1080	60p / 59.94p / 50p / 48p / 47.95p / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF (Conforms to SMPTE ST2048)
		1920x1080	60p / 59.94p / 50p / 60i / 59.94i / 50i / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF (Conforms to SMPTE ST274)
		1280x720	60p / 59.94p / 50p (Conforms to SMPTE ST296)
		720x487,	59.94i (Conforms to ITU-R BT.601-5)
		720x576	50i (Conforms to ITU-R BT.601-5)
	Color Format	10bits YCC4:2:2, 12bits RGB4:4:4, 12bits YCC4:4:4 10bits	
	Audio Format	Linear PCM, 24 / 20bits, 48kHz, 16ch (Conforms to SMPTE ST299, ST272-C)	
HDMI	Connector	Type A (19pin) x1	
	Signal Standards	HDMI1.4b	
	Video Format	2048x1080	60p / 59.94p / 50p / 48p / 47.95p / 30p / 29.97p / 25p / 24p / 23.98p (SMPTE ST2048 or equivalent)
		1920x1080	60p / 59.94p / 50p / 60i / 59.94i / 50i / 30p / 29.97p / 25p / 24p / 23.98p (Conforms to CEA-861-F)
		1280x720	60p / 59.94p / 50p (Conforms to CEA-861-F)
		720x480	59.94p (Conforms to CEA-861-F)
		720x576	50p (Conforms to CEA-861-F)
		720(1440)x480	59.94i (Conforms to CEA-861-F)
		720(1440)x576	50i (Conforms to CEA-861-F)
	Color Format	10bits YCC4:2:2, 8bits RGB4:4:4, 8bits YCC4:4:4	
	Audio Format	Linear PCM, 24bits, 48kHz, 2 to 8ch	
Analog Audio	Connector	Type (balanced) x 1 pair(L / R) 1/4" TRS phone	
	Output Level	+4dBu	
	Maximum Input Level	+24dBu	
	Impedance	600 ohms	
	Output load impedance	20 kohms or greater	
Digital Audio	Connector	Type (balanced) x 1 (common with analog audio output connector L) 1/4" TRS phone	
	Signal Standards	AES3, 24bits, 48kHz, 2ch	
	Impedance	110 ohms	

*0dBu=0.775Vrms

*The THRU connector always outputs the same format as the input.

Signal processing

Item	Description
Audio Embed	2ch
Audio De-Embed	2ch
Frame synchronizer	Off/On (Can be specified using remote software.)
Phase adjustment	H=-0.5H to +0.5H, V=-0.5frame to +0.5frame
Minimum Latency	➔ Refer to P.28 Latency
Frame rate conversion	Frame skip/repeat type
Glitch reduction	With audio soft mute.
Audio Delay	0 to100 msec (Can be specified using remote software.)
3G-SDI Level conversion	Bidirectional enabled (Can be specified using remote software.)
Color format conversion	Can be specified using remote software.

Latency

Direct Mode		
Input Format	Output Format	Latency
SDI to SDI (OUT)		
480i	480i	13line
576i	576i	13line
720p	720p	13line
1080i	1080i	14line
1080PsF	1080PsF	564line
1080p LFR	1080PsF	564line
1080p HFR Level-A	1080p HFR Level-A	13line
1080p HFR Level-A	1080p HFR Level-B	16line
1080p HFR Level-B	1080p HFR Level-A	13line
1080p HFR Level-B	1080p HFR Level-B	16line

1080p HFR 2048x1080/60p/59.94p/50p/48p/47.95p, 1920x1080/60p/59.94p/50p
1080p LFR 2048x1080/30p/29.97p/25p/24p/23.98p, 1920x1080/30p/29.97p/25p/24p/23.98p
1080PsF 2048x1080/30PsF/29.97PsF/25PsF/24PsF/23.98PsF, 1920x1080/30PsF/29.97PsF/25PsF/24PsF/23.98PsF

*For 3G-SDI Level-B signals with high frame rates of 47.95 Hz or more, latency increases by one line for both input and output.
*In the case of interconversion of P/PsF, 0.5 frame delay occurs.

FS Mode		
Input Format	Output Format	Minimum Latency
SDI to SDI (OUT)		
480i	480i	13line
576i	576i	13line
720p	720p	28line
1080i	1080i	14line
1080PsF	1080PsF	1frame 60line
1080p LFR	1080PsF	1113line
1080p HFR Level-A	1080p HFR Level-A	25line
1080p HFR Level-A	1080p HFR Level-B	28line
1080p HFR Level-B	1080p HFR Level-A	27line
1080p HFR Level-B	1080p HFR Level-B	29line

1080p HFR 2048x1080/60p/59.94p/50p/48p/47.95p, 1920x1080/60p/59.94p/50p
1080p LFR 2048x1080/30p/29.97p/25p/24p/23.98p, 1920x1080/30p/29.97p/25p/24p/23.98p
1080PsF 2048x1080/30PsF/29.97PsF/25PsF/24PsF/23.98PsF, 1920x1080/30PsF/29.97PsF/25PsF/24PsF/23.98PsF

*For 3G-SDI Level-B signals with high frame rates of 47.95 Hz or more, latency increases by one line for both input and output.
*In the case of interconversion of P/PsF, 0.5 frame delay occurs.

6 Troubleshooting

In many of the following cases, the problem is not due to a malfunction. Please double check before requesting repairs to your device.
If you are still unable to get your device to work properly, please contact us for a consultation.(➔ Refer to P.31)

Video

What should you do if . . .	Double check these items.	Countermeasures	Reference
The HDMI indicator (IN indicator) is flashing and no video is output.	Is the video signal being input copyright protected?	AV-5S series converters are not compliant with HDCP and does not accept input of copyright-protected video signals.	
	Is the AV-5S series converter compliant with the format being input?	Review the specifications and input a format with which the AV-5S series converter is compliant. There are some non-compliant formats that can be displayed when in Frame Sync Mode.	➔ P.25 Input Format ➔ P.22 Frame Sync Mode
Even though the input/ output indicator is lit, no video is displayed from the SDI output.	Is the connected SDI device compliant with 3G-SDI.	Depending upon the input format, SDI output is 3G-SDI. Either connect to a 3G-SDI-compliant device or, if using an HD-SDI-compliant device, specify the Sync Format as either 1080i or 720p for Frame Sync Mode.	➔P.21 Sync Mode ➔P.21 Sync Format
	Have the 3G-SDI Out Type settings been specified correctly.	Depending upon the connected device, there are times when either Level-A or Level-B are available but not both. Specify the 3G-SDI Out Type settings to match the connected device.	➔ P.19 3G-SDI OUT Type

Audio

What should you do if . . .	Double check these items.	Countermeasures	Reference
Analog audio input volume is low.	Have the Audio In Analog Termination and the Audio In Analog Level settings been specified correctly?	When connecting to a consumer product, it is necessary to specify the Audio In Analog Termination as Hi-Z and adjust the Audio In Analog Level.	➔ P.20 AUDIO IN Analog Termination ➔ P.20 AUDIO IN Analog Level
Even after adjusting the Audio In Analog Level, the analog audio input is distorted.	Have the Audio In Analog Termination settings been specified correctly?	For certain types of professional equipment , it is necessary to specify the input impedance as 600 ohms.	➔ P.20 AUDIO IN Analog Termination
Analog audio output volume is high.	Is the connected device a consumer product?	Adjust the Audio Out Analog Level. AV-5S series converters output at professional levels. When connecting to an ordinary consumer product, it is necessary to adjust the Audio Out Analog Level.	➔ P.20 AUDIO OUT Analog Level

What should you do if . . .	Double check these items.	Countermeasures	Reference
Analog audio output volume is low.	Have you connected to a device with a low input impedance?	AV-5S series converters have an output load impedance of 20 kohms or greater. Adjust the impedance as necessary by connecting via a direct box or other device.	
No sound is output from either the HDMI OUT or the SDI OUT connector.	Is the audio data input from the SDI, HDMI, or AES3 connectors in linear PCM format?	AV-5S series converters are not compliant with Dolby or other non-PCM data. In cases where the input and output signals are synchronized, specifying the Audio SRC settings as Bypass will sometimes output sound.	→ P.20 Audio SRC

Other

What should you do if . . .	Double check these items.	Countermeasures	Reference
Touching the housing produces a mild electrical shock.		Depending upon the layout, connected devices sometimes impart a slight electrical charge to the housing. Attach a ground to the housing as necessary to countermeasure this problem.	
The MODE SWITCHES do not work.	Has MODE SWITCH No. 10 been set to on?	To use the MODE SWITCH settings, be sure that MODE SWITCH No. 10 is set to OFF.	
The video output appear the judder in Frame Sync Mode.	Do the input and output frame rates match?	In Frame Sync Mode, when the input and output frame rates do not match, frame rate conversion is performed by skipping or repeating frames. Be sure that the input and output frame rates match, unless you are actually performing frame rate conversion.	→ P.22 Frame Sync Mode
Even when the REF IN signal is input, the output indicator remains orange and locking is not performed.	Do the output and REF signal frame rates match?	Input a REF signal compliant with the output frame rate.	
	Is a composite video signal that incorporates the picture being input?	Synchronization sometimes becomes unstable, in which case input a REF IN signal comprising a B. B. , a two-value, or a three-value signal that does not incorporate a picture.	
When an HDMI signal is input from the HDMI selector, the glitch reduction function does not work when changing the HDMI selector setting.	Most HDMI selectors are compliant with plug and play when changing the selector setting, which sometimes results in transient instability in the output signal.	In cases where a signal is unstable to the point that the glitch reduction functionality is not capable of fully restoring it, a part of the screen could be distorted.	
When an SDI signal is input from the SDI selector, tearing occurs when changing the selector setting.	Tearing occurs when switching between two signals with different phases.	To avoid tearing, operate the GENLOCK system to match the input and output phases.	
When an SDI signal is input from the SDI selector, noise appears in the audio when changing the selector setting.	Is the Audio Delay setting too low? Is the latency in Frame Sync Mode small?	Adjust the Sync H Phase and Sync V Phase settings or the Audio Delay settings to create a latency of roughly one frame in the audio.	→ P.22 Frame Sync Mode

7 Support

The latest support information is available at the ATV Corporation website shown below.

■ ATV Corporation website
http://www.atvcorporation.com/

■ Product page

AV-5S-BD

http://products.atvcorporation.com/videos/av-5s-bd/

AV-5S-HS

http://products.atvcorporation.com/videos/av-5s-hs/

AV-5S-SH

http://products.atvcorporation.com/videos/av-5s-sh/