



## VAC-23SHU3

### SDI/HDMI Video to USB 3.0 Adapter

## User Manual

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1. Introduction

The Marshall VAC23-SHU3 advanced USB 3.0 adapter easily connects video and audio sources to a computer for video conferencing, video production and recording. Simple to use plug-and-play design seamlessly integrates professional video sources to your choice of PC-based applications.

Select either an HDMI or SDI video source with the flip of a switch. Active loop-through outputs keep sources available for other purposes such as feeding monitors, recorders, etc.

UVC protocol support allows the video application on the attached computer to control video format, frame rate and other settings independent of the original source format.

Setup couldn't be easier. The VAC-23SHU3 becomes fully functional within seconds after it is connected. Powered by the USB port on the host computer, there are no power adapters to fiddle with.

2. Features

- 3G SDI Input with active loop-through output. Supports formats up to 1080p50/60
- HDMI 2.0 Input with active loop-through output.
- USB 3.0 computer interface with UVC control and scaling (backwards compatible with USB 2.0)
- Efficient design – All power derived from USB port
- Plug-and-Play. Driver installation not required for most applications
- Compatible with popular applications such as: Zoom, Skype, OBS Studio and many more.

3. Package Contents

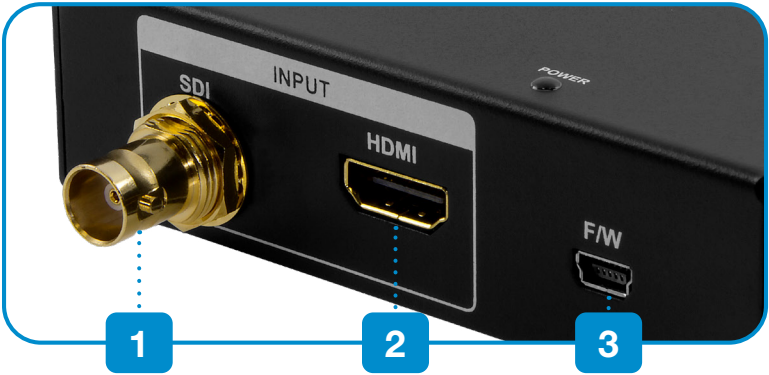
- (1) VAC-23SHU3 Unit
- (1) USB 3.0 “A - type” to “B - type” Cable
- (2) Mounting brackets with (4) attachment screws

4. System Requirements

- Host computer with recent operating system, such as Windows 10 or Mac OS X
- Available USB 3.0 port (supports up to 1080p60 to host computer) or,
- Available USB 2.0 port (supports up to 720p60 to host computer)

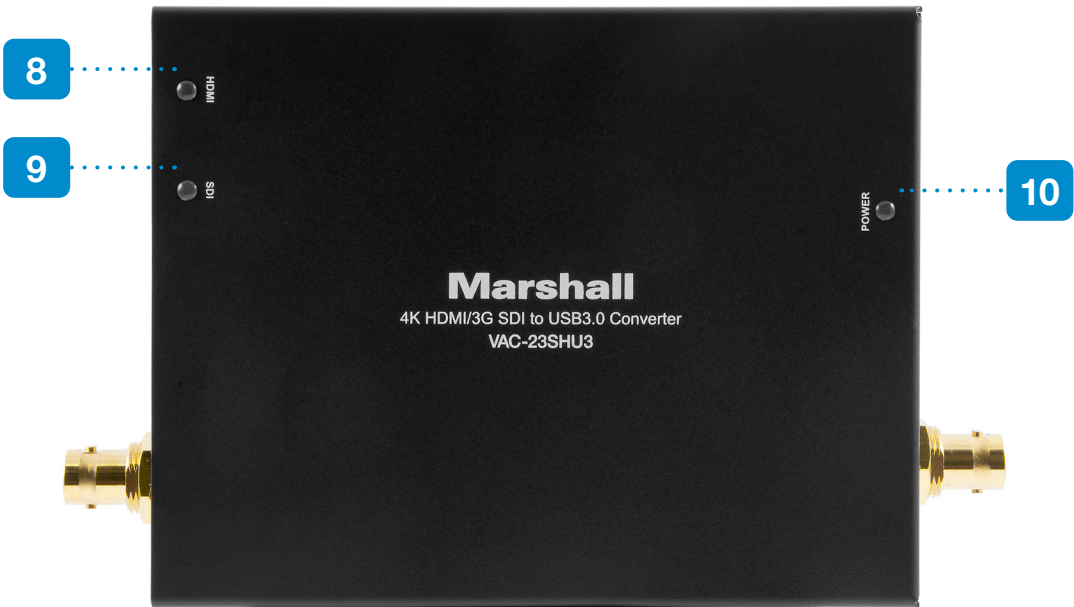
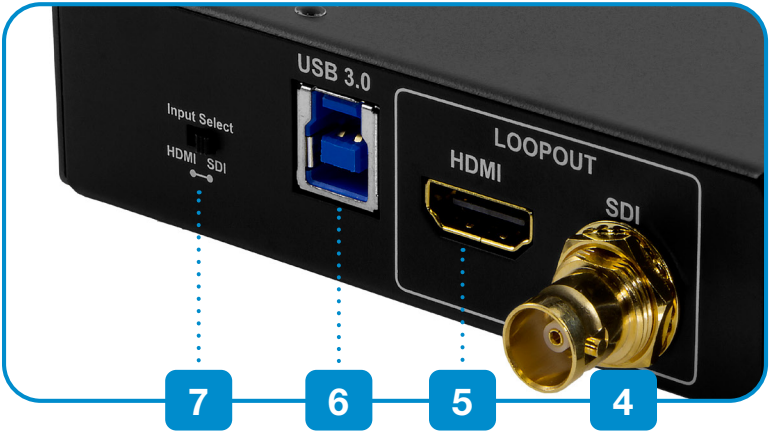
5. Connections and Indicators

Input Side



- 1. SDI Input
- 2. HDMI Input
- 3. Firmware Update USB 2.0 Connector
- 4. SDI Loop Output
- 5. HDMI Loop Output
- 6. USB 3.0 Output to Computer
- 7. Input Select Switch – HDMI/SDI
- 8. HDMI LED Shows HDMI is Selected
- 9. SDI LED Shows SDI is Selected
- 10. Power LED - USB Power Connected

Output Side



6. Setup and Quick Start

1. Computer should be powered and operating. Connect the VAC-23SHU3 to the host computer using the USB 3.0 cable provided. The first time the unit is used, please allow about one minute for the computer to identify the unit and setup the drivers. All three LED's on top of the unit will light after about 3 seconds. About 5 seconds later, one of the Input Selection lights will turn off.
2. Open an application such as Zoom, Skype, OBS Studio, etc. and select the Video and Audio devices. The VAC-23SHU3 adapter will identify itself as "MEI USB 3.0 Capture Device". Depending on the application used, the unit may appear as a Camera or a Capture Device.
3. Before the SDI or HDMI input is attached, a message similar to the one shown below will appear in the application's video preview window. This message will display until a video source is connected. (The Output format and frame rate may be different depending on the application software).



4. Next, slide the Input Select Switch to HDMI or SDI depending on the source type (an LED on top of the unit indicates the position of this switch). Connect a video source. The on-screen message will change like the one below. This message will disappear after about 8 seconds.



At this point, the VAC-23SHU3 is operating and ready to use! **Control of the VAC-23SHU3 depends on the capabilities of the software being used for conferencing, recording, streaming, etc.**

**Note:** Most conferencing applications will automatically set the USB output format to 720p. This does not affect the HDMI and SDI loop through outputs, they will be the same as the inputs.

7. Specifications

HDMI Input and Output

- HDMI Conforms to HDMI 2.0 standard
- HDCP 1.4 and 2.2 compliant
- Video Frame Rates from 23.98 to 60.00
- Video Formats from 480i/p, 576i/p to 1080p50/60

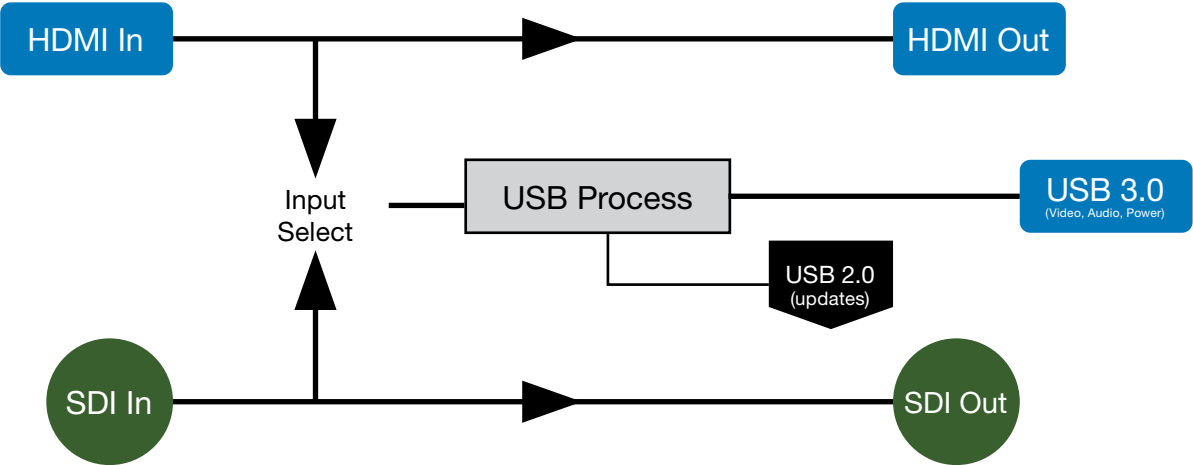
SDI Input and Loop Out

- SMPTE 296M, 274M, 259M, 425M (3G Level A)
- Video Frame Rates from 23.98 to 60.00
- Video Formats from 480i/p, 576i/p to 1080p 50/59/60

USB 3.0 Output backwards compatible to USB 2.0

- Connected via USB 3.0, formats up to 1080p60 sent to host computer
- Connected via USB 2.0, formats up to 720p60 sent to host computer
- When connected to a USB 2.0 port, recommended input video source 720p or below.

8. Block Diagram



VAC-23SHU3 Functional Block Diagram

9. Tips and Fixes

*My computer says, “the USB device is not recognized” or “the device does not support the required parameters”.*

First, be sure to use the USB cable that was supplied with the VAC-23SHU3. If it becomes lost or damaged, please replace it with a “USB 3.0 type A-to-B” cable which provides the power and bandwidth necessary for proper operation of the unit. When in doubt, try another cable.

Next, a message similar to the one above can also occur when the VAC-23SHU3 is connected to a USB 2.0 connector. This can be fixed by plugging into a USB 3.0 port on the host computer. USB 3.0 connections are usually identified by blue color inside the connector.

If only a USB 2.0 connection is available, lowering the source video format usually works. 720p is a good choice.

*The video source is 1080p50 (or 60) but the computer says the incoming video is different (760p for example). Why isn’t it the same as the source?*

The VAC-23SHU3 is compatible with the USB industry standard UVC control protocol. This allows the host computer to adjust the format and frame rate independently from the incoming source. Many applications have controls that allow changing these parameters. Video conferencing applications typically do not have these controls and simply force the settings that work best. Please consult the instructions that are provided with the application for more information.

*The VAC-12HU3 HDMI output is connected to a video recorder. The recorder is getting is a blank picture.*

OR.....

*The HDMI output is connected to a video monitor and the picture is perfect, but the picture on the computer is black with the message “Input: HDCP Content”. Can this be fixed?*



HDMI video contains a “copy protection” system called HDCP “High Bandwidth Digital Content Protection”. The principle behind HDCP is that copyrighted content should be seen and heard but not recorded or transmitted. What this boils down to is that material containing HDCP “flag” will be visible only on display devices, in other words, monitors, projectors and television sets. A common difficulty is that DVD players, Blue Ray players and set top boxes (cable and satellite) normally force HDCP on even when the material being played is not copyrighted. Video cameras, on the other hand, never use HDCP. Computer outputs may or may not use HDCP depending on the material being output. For details on HDCP, please visit [www.hdmi.org](http://www.hdmi.org).

**Note:** SDI inputs do not have content protection.

*I’m trying to use VLC to test the VAC-23SHU3 but the picture looks wrong and the video format is incorrect as well.*

To connect with VLC, follow these steps:

1. Select the MEDIA tab then select OPEN CAPTURE DEVICE
2. In the Window that appears, select MEI USB 3.0 CAPTURE DEVICE for the Video Device Name and Audio Device Name then click on ADVANCED OPTIONS.
3. In the next window, change Aspect Ratio to 16:9
4. If you are connected using USB 3.0, type YUY2 for Video Input Chroma Format. If you are connected using USB 2.0 type MJPG for Video Input Chroma Format. Now click OK. The window will close.
5. Click Play at the bottom of the remaining window. The incoming video and audio will appear. **The USB audio is not clear.**

This may occur when the input audio sampling rate does not match the USB audio sampling rate of 44.1 KHz.

Window 10 allows changing the default sample rate for incoming audio devices. Changing this rate can resolve many issues with buzzes, warbles, etc.

Follow these steps:

- Click on the Windows Icon on the lower left corner of the desktop
- Select the “gear” icon at the left edge of the window
- Click on System (upper left corner)
- Click on Sound (left column)
- Below Input heading, check that the MEI audio device has been selected
- Below that item, click on Device Properties
- In the upper right corner, click on Additional Device Properties
- The Microphone Properties pop up window will appear
- Click on the Advanced tab
- In the pulldown window, see the current audio format and sample rate. Select the one not currently in use.
  - - 2 Channel, 16-bit, 441000 Hz
  - - 2 Channel, 16-bit, 48000 Hz
- Click Apply and Click OK.
- It will likely be necessary to reselect the audio device in the application.
- Confirm that the sound has improved.



## Warranty

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Marshall warrants the VAC-23SHU3 HDMI to 3G/HD/SD-SDI Converter to be free from defects in the material and workmanship for 1 year from the date of purchase from an authorized Marshall dealer. Should this product fail to be in good working order within 1-year warranty period, Marshall will, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those specified above will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Cables are limited to a 30-day warranty and cable must be free from any markings or scratches.

The content of this manual has been carefully checked and is believed to be accurate. However, Marshall assumes no responsibility for any inaccuracies that may be contained in this manual. Marshall will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or -omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the VAC-23SHU3 features and specifications is subject to change without further notice.

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