



Ultra Compact HDMI 2.0 SDVoE Fiber AV Over IP Transmitter

VLIP-SDFR-TX



User Manual

VER 1.0

Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



6. Clean this apparatus only with dry cloth.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

Warnings of FCC

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 decoder.
- Connect the equipment into an outlet on a circuit different from that to which the decoder is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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1. Introduction

VLIP-SDFR-TX comes with the compact size and economical, flexible SDVoE solution. They allow uncompressed true 4K@60Hz video to be switched and distributed over standard 10GbE Ethernet networks with zero frame latency over 300 meters.

4K IP Delivery

Employed with IP protocol exchanging technology, the encoders can communicate with decoders via the switch to realize point (multipoint) to point (multipoint) matrix switching flexibly as required. Also, an encoder can connect to a decoder directly with an Ethernet cable, serving as an HDMI 2.0 extender set.

HDMI 2.0 and HDCP 2.2 Distribution with Zero Frame Latency

With HDMI 2.0 and HDCP 2.2 compliance, they support all HDMI 2.0 timing envelope of 594 MHz, e.g., 4K/60 8-bit 4:4:4, 4K/60 10-bit 4:2:2 and 4K/60 12-bit 4:2:0 (HDR). Light compression technology allows them to deliver video at lower compression ratios for keeping picture quality identical to the original source when the raw data exceeds the Ethernet bandwidth. Furthermore, the video is delivered with zero frame latency.

Compact design and Cost-Effective Solution

The compact size design is suitable for installation in tight space. Also, they are compatible with other SDVoE series products, providing a cost effective, flexible solution for system deployment.

2. Features

- ☆ Compact size and economical design
- ☆ HDMI 2.0 and HDCP 2.2 compliant
- ☆ Lossless distribution of most timing formats
- ☆ Light compression with the raw data rate exceeding 10Gb Ethernet bandwidth
- ☆ Supports input and output resolutions up to 4096x2160@60Hz 8-bit 4:4:4, 4096x2160@60Hz 10-bit 4:4:4 and 4096x2160@60Hz 12-bit 4:2:0 HDR
- ☆ Supports point-to-point transmission of 4K signal at the distance up to 300m
- ☆ Supports point-to-multipoint, multipoint-to-multipoint transmission via 10GbE switch at the distance of up to 300m (between a device and the switch)
- ☆ Zero-frame latency
- ☆ Compatible with all ProITAV SDVoE products
- ☆ Required bandwidth: 6~8 Gbps for 4K, 3.2 Gbps for 1080P
- ☆ Compatible with Semtech BlueRiver AV Manager

3. Package Contents

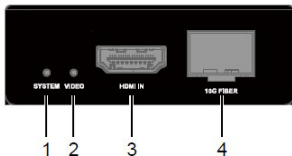
- ① 1 x VLIP-SDFR-TX
- ② 1 x 5VDC 2A Power Adapter (with US Pins)
- ③ 1 x Optical transceiver
- ④ 2 x Mounting Brackets (with Screws)

4. Specifications

Video	
Input Video Port	1 x HDMI
End-to-End Time Latency	Zero-frame latency
Output Video Port	1 x SFP+ (10GBase-SR)
Input/Output Video Resolutions	<p>640x480⁸, 800x600⁸, 1024x768⁸, 1280x1024⁸, 1360x768⁸, 1440x900⁸, 1440x1050⁸, 1600x1200⁸, 720x480⁷ (480i59), 720x480⁷ (480p59), 720x576⁶ (576i50), 720x576⁶ (576p50), 1280x720⁵ (720p50), 1280x720⁷ (720p59), 1280x720⁸ (720p60), 1920x1080⁶ (1080i50), 1920x1080⁷ (1080i59), 1920x1080⁸ (1080i60), 1920x1080¹ (1080p23), 1920x1080² (1080p24), 1920x1080³ (1080p25), 1920x1080⁴ (1080p29), 1920x1080⁵ (1080p30), 1920x1080⁶ (1080p50), 1920x1080⁷ (1080p59), 1920x1080⁸ (1080p60), 3840x2160¹ (2160p23), 3840x2160² (2160p24), 3840x2160³ (2160p25), 3840x2160⁴ (2160p29), 3840x2160⁵ (2160p30), 3840x2160⁸ (2160p60), 4096x2160⁵, 4096x2160⁸</p> <p>1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz</p>
Audio	
Input Audio Port	1 x HDMI
Output Audio Port	1 x SFP+ (10GBase-SR)
Input/Output Audio Format	<p>LPCM, 2.0/5.1/7.1 channel, 44.1/48/96/192 kHz Dolby True HD, up to 7.1, 192kHz DTS-HD Master, up to 7.1, 192kHz Dolby Digital AC-3 (DVD format) DTS version 1 (DVD format)</p>
Control	
Control Method	Semtech BlueRiver AV Manager
Mechanical	
Transmission Distance	300m with OM-3 multimode optical fiber cable

ESD Protection	Human body model: • ±8kV (air-gap discharge) • ±4kV (contact discharge)
Dimensions	64mm x 22mm x 87mm (2.52" x 0.87" x 3.43")
Weight	0.35lb (0.16kg)
Power Supply	5V 2 A DC
Power Consumption	4.26W
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C) 10% ~ 90%, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C) 10% ~ 90%, non-condensing

5. Operation Controls and Functions

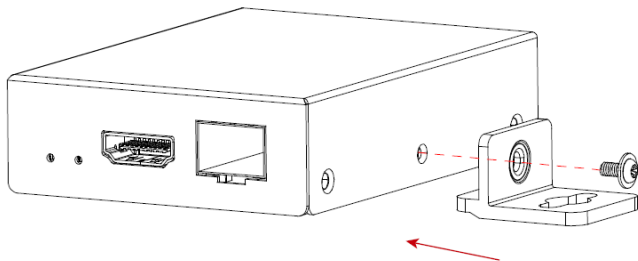


NO.	Name	Function Description
1	SYSTEM LED	<ul style="list-style-type: none"> On: The device is connected to a display, but doesn't receive any streams. Blinking quickly: The device is connected to a display and a 10G network, and is receiving streams. Blinking slowly: The device is connected to a 10G network but not connected to a display. Off: The device is connected to neither a display nor a network.
2	VIDEO LED	<ul style="list-style-type: none"> On: Video signal is being transmitted to the connected display. Off: No video signal is transmitted.
3	HDMI	Connect to an HDMI display.
4	10G FIBER	Connect to an optical fiber cable using the optical transceiver provided.
5	Reset Button (Recessed)	<p>Use a pointed stylus to press this button to restart or reset the device.</p> <ul style="list-style-type: none"> Short press: To restart the device. Long press for more than 5 seconds: To reset the device to factory defaults. <p>Note: When you reset the device, your custom data is lost. Therefore, exercise caution in using this button.</p>
6	5V	Connect to the power adapter provided for DC 5V power input.

6. Installation

The device can be installed on a flat surface as the following:

1. Position and install the mounting brackets using the mounting screws provided.



2. Repeat above step for the other side of the device.
3. Attach the brackets to the desired location using screws (not included in the package).

7. Using BlueRiver AVManager for Device Control

The BlueRiver AV Manager is a simple intuitive software to manage and control SDVoE compatible endpoints and edge devices. For more information about obtaining the software, contact us

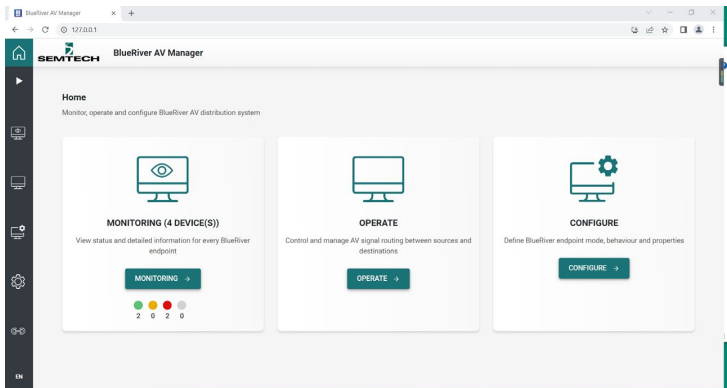
Installation

1. Before installation, ensure that your PC, TX, RX are on the same subnet.
2. Download and install the BlueRiver AV Manager file (*.exe) on your computer. After installation, the application GUI is accessed through a browser by simply entering the "127.0.0.1" or "localhost".

Getting Started

BlueRiver AV Manager includes three tools for managing and controlling

the devices – Monitoring, Operate and Configure, which are accessed from the Home page.



Device Monitoring and Configuration

The **Monitoring** tool is used to display device list and view device information, including details of device identity and capabilities, video and audio streams, device model in the original JSON format, network settings, etc.

The **Configure** Tool is used to set and define device behavior and properties. It includes definition of devices alias name, initial configuration of IP address mode, video output mode, etc.

Enter either Monitoring or Configure page, all devices are shown in device cards. To access device details or configuration, simply select a card.

SEMTECH BlueRiver AV Manager

← BACK MONITORING Device Status. Click on device card to view more information. Sort By Name View RX TR TX

1 RX 0016C04E77C3 AVP1000 / 2.0.0.0 GL	TX 0016C04E93C5 AVP1000 / 2.0.0.0 V A	0 RX RX1 AVP1000 / 2.0.0.0 GL	TX TRX-1 AVP2000T / 2.0.0.0 V A
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RX

0016C04E77C3

DETAILS

CONFIG

Identity

Capabilities

Network

Streams

Subscriptions

Video IO

Audio IO

RS-232 ports

IDENTITY

Chipset : AVP1000	Vendor ID : 103
Type : RX	Product ID : 49
Device ID : 0016c04e77c3	FW version : 2.0.0.0
Name : 0016C04E77C3	Golden version : 2.0.0.0

CAPABILITIES

<p>VIDEO</p> <p>HDMI inputs : 0</p> <p>HDMI outputs : 1</p>	<p>CONTROL</p> <p>RS-232 : 1</p> <p>IR inputs : 0</p> <p>IR outputs : 0</p> <p>USB-HID : <input type="checkbox"/></p> <p>USB-Icron : <input type="checkbox"/></p>
<p>AUDIO</p> <p>Multichannel audio inputs : 0</p> <p>Multichannel audio outputs : 0</p> <p>Stereo audio inputs : 0</p> <p>Stereo audio inputs/outputs : 0</p> <p>Stereo audio outputs : 0</p>	<p>PROCESSING</p> <p>Input scaler : <input type="checkbox"/></p> <p>Native stream loopout : <input type="checkbox"/></p> <p>Video output processing : <input type="checkbox"/></p> <p>Frame rate divider : <input type="checkbox"/></p>

GENERAL

Device name: 0016C04E77C3

Pictogram: Receiver

SAVE GENERAL CANCEL

NETWORK

NETWORK

Mode: DHCP

Mask: 255.255.0.0

IP address: 169.254.196.119

Gateway: 0.0.0.0

Video Routing

OPERATE VIDEO AND WALL

Condensed grid view START ALL STOP ALL

TX DEFACTO67003 RX 0016C04E77C3

TX6.1 RX1

The **Operate** tool is for video routing between sources and displays. Endpoints connected to sources or displays are shown as device cards and form a routing grid where devices connected to sources appear on the grid vertical axis and

devices connected to displays are shown horizontally.

To route the video from a source to a display, simply press the intersection point between the two. To remove the route, just press the intersection point again.

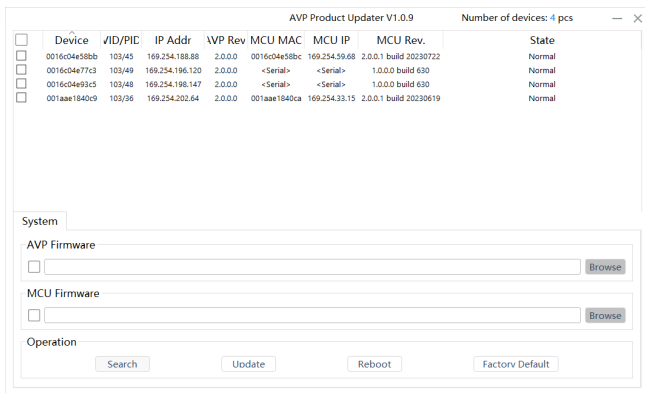
Using AVP Product Updater for Firmware Upgrade

Before performing firmware upgrade, ensure that your PC, TX, RX are on the same subnet.

Getting Started

WARNING: DO NOT disconnect the device from its power supply and the network during the upgrade process.

1. Contact your supplier for the device's latest firmware files – an AVP firmware file (*.apz) and a MCU firmware file, and the latest compressed AVPUpdater package file.
2. Extract the compressed AVPUpdater package file on your PC, and double click AVPUpdater.exe to launch the AVP Product Updater software.
3. A window opens as follows. Click Search in the Operation area to find the encoders and decoders.



Note: The AVP Product Updater is applicable to all IP6000 AVP products; while for a IP6000LASF series unit since its MCU doesn't include a network port and is upgraded through a serial port, its "MCU MAC" and "MCU IP" are displayed as "<Serial>".

4. Select the desired devices for upgrade, and choose the corresponding AVP firmware and MCU firmware to upload in the AVP Firmware and MCU Firmware field. Click Update to Proceed.

AVP Product Updater V1.0.9 Number of devices: 4 pcs

<input type="checkbox"/>	Device	VID/PIC	IP Addr	VVP Rev	MCU MAC	MCU IP	MCU Rev.	State
<input type="checkbox"/>	0016c04e58bb	103/45	169.254.188.88	2.0.0.0	0016c04e58bc	169.254.59.68	2.0.0.1 build 20230722	Normal
<input type="checkbox"/>	0016c04e77c3	103/49	169.254.196.120	2.0.0.0	<Serial>	<Serial>	1.0.0.0 build 630	Normal
<input checked="" type="checkbox"/>	0016c04e93c5	103/48	169.254.198.147	2.0.0.0	<Serial>	<Serial>	1.0.0.0 build 630	Normal
<input type="checkbox"/>	001aae1840c9	103/36	169.254.202.64	2.0.0.0	001aae1840ca	169.254.33.15	2.0.0.1 build 20230619	Normal

System

AVP Firmware
 C:/Users/Chelsea/Desktop/IP6000LASF-001-2000-20230823.apz

MCU Firmware
 C:/Users/Chelsea/Desktop/IP6000LASF-P8102-V1.0.0.0.bin

Operation

5. The upgrade process takes about 1-2 minutes. A prompt of "MCU updated successfully" appears after the upgrade is completed.

AVP Product Updater V1.0.9 Number of devices: 4 pcs

<input type="checkbox"/>	Device	VID/PIC	IP Addr	VVP Rev	MCU MAC	MCU IP	MCU Rev.	State
<input type="checkbox"/>	0016c04e58bb	103/45	169.254.188.88	2.0.0.0	0016c04e58bc	169.254.59.68	2.0.0.1 build 20230722	Normal
<input type="checkbox"/>	0016c04e77c3	103/49	169.254.196.120	2.0.0.0	<Serial>	<Serial>	1.0.0.0 build 630	Reboot device successfully.
<input checked="" type="checkbox"/>	0016c04e93c5	103/48	169.254.198.147	2.0.0.0	<Serial>	<Serial>	1.0.0.0 build 630	MCU updated successfully.
<input type="checkbox"/>	001aae1840c9	103/36	169.254.202.64	2.0.0.0	001aae1840ca	169.254.33.15	2.0.0.1 build 20230619	Normal

System

AVP Firmware
 C:/Users/Chelsea/Desktop/IP6000LASF-001-2000-20230823.apz

MCU Firmware
 C:/Users/Chelsea/Desktop/IP6000LASF-P8102-V1.0.0.0.bin

Operation

8. Application Diagram

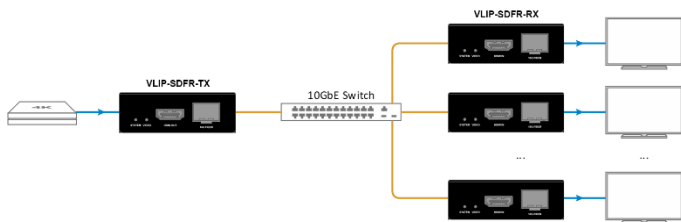
1. HDMI 2.0 Extender



Features:

- 4K Video transmission
- Zero latency from end to end
- Maximum extension distance is 300m through an optical fiber cable.

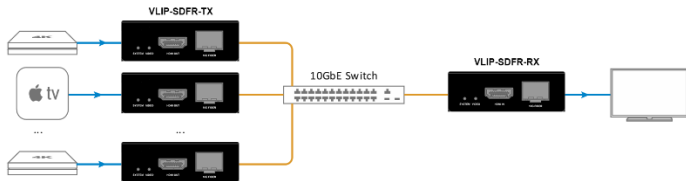
2. IP-based HDMI 2.0 Splitter



Features:

- 4K Video transmission
- Zero latency from end to end
- Suitable for commercial point-to-multipoint applications, for example shopping malls and gymnasiums.

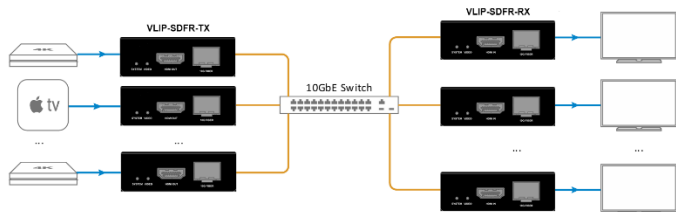
3. IP-based HDMI 2.0 Switcher



Features:

- 4K Video transmission
- Zero latency from end to end
- Multipoint-to-point matrix switching

4. IP-based HDMI 2.0 matrix



Features:

- 4K Video transmission
- Zero latency from end to end
- Multipoint-to-multipoint matrix switching