# WOXCON

# SUH4E-8K

## HDMI V2.1 1x4 Splitter with Down-scaling



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**Version: SUH4E-8K_2024V1.8**

## Statement

Thanks for purchasing this product, please read this user manual carefully before using this product. The functions described in this version are updated till January 23, 2024. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation.

## Safety Precaution

- Do not dismantle the housing or modify the module to avoid electrical shock or burn.
- Using supplies not meeting the products' specifications may cause damage, deterioration or malfunction.
- Do not expose the unit to rain, moisture or install this product near water.
- Install the device in a place with fine ventilation.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit.
- Always unplug the power to the device before cleaning.
- Unplug the power when not used for a long period of time.
- Refer all servicing to qualified service personnel.

## After-sales Service

We provide limited warranty for the product within three years.

# **Table of Contents**

# 1. Product Introduction

Thanks for choosing the HDMI V2.1 1x4 Splitter, which can distribute one HDMI input to four outputs. The splitter supports HDMI video resolution up to 8K@60Hz 4:4:4 and DTS/Dolby audio formats. Besides passing EDID information from the display, there are multiple built-in EDID settings can be selected by the 4-pin DIP switch on the front panel. Moreover, the splitter supports convenient firmware upgrade through type-C port.

# 2. Features

- Supports HDMI V2.1 and the video resolution up to 8K@60Hz 4:4:4.
- HDMI input supports HDCP 2.3 and the outputs support HDCP Active or HDCP Passive mode.
- Supports video resolution down-scaling, the 8K/4K input can be automatically degraded to 1080p output for compatibility with 1080p display.
- 48Gbps high bandwidth.
- Advanced EDID management: multiple built-in EDID and user defined settings can be selected.
- Supports ALLM, VRR and audio de-embedding
- Supports CEC pass-through.
- Provides LEDs to indicate the current operating status.
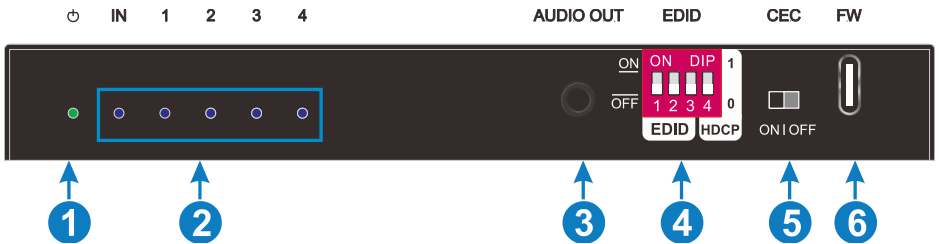- Firmware upgrade by USB-C port.

# 3. Packing List

- 1x SUH4E-8K
- 4x Rubber feet
- 1x Power Adapter (12V DC 1A)
- 1x Mount Kit
- 1x User Manual

**Note:** *Please contact your distributor immediately if any damage or defect in the components is found.*

# 4. Panel Description

## 4.1 Front Panel



① **POWER LED:** The LED illuminates green when power is applied.

② **INPUT and OUTPUT LEDS:** The LED illuminates blue when there is HDMI input or HDMI output on the corresponding channel.

③ **AUDIO OUT :** Output de-embedded audio from HDMI IN.

④ **EDID:** 4-pin DIP switch for EDID setting and HDCP mode selection. Please refer to the ___EDID Management___ for more details.

⑤ **CEC:** Used for CEC on/off.

⑥ **FW:** USB-C port for firmware upgrade.

## 4.2 Rear Panel
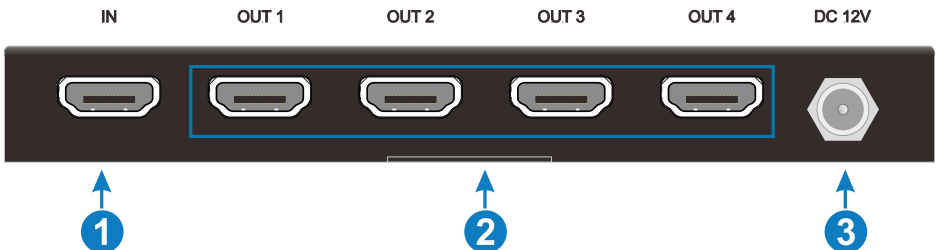


① **INPUT:** Type-A female HDMI input port to connect a HDMI source.

② **OUTPUTS:** Four type-A female HDMI output ports to connect HDMI displays.

③ **DC 12V:** DC port to connect DC power adapter.

# 5. DIP Switch Operation

## 5.1 EDID Management

The Extended Display Identification Data (EDID) is used by the source device to match its video resolution with the connected display. By default, the source device obtains its EDID from the first connected display. Meanwhile, since the displays with different capabilities are connected to the splitter, the DIP switch on the front panel can be used to set the EDID to a fixed value to ensure the compatibility in video resolution.

The switch represents "**0**" when in the lower (**OFF**) position, and it represents "**1**" while putting the switch in the upper (**ON**) position.



Switch 1~3 are used for EDID setting. The DIP switch status and its corresponding setting are shown at the back of the product.
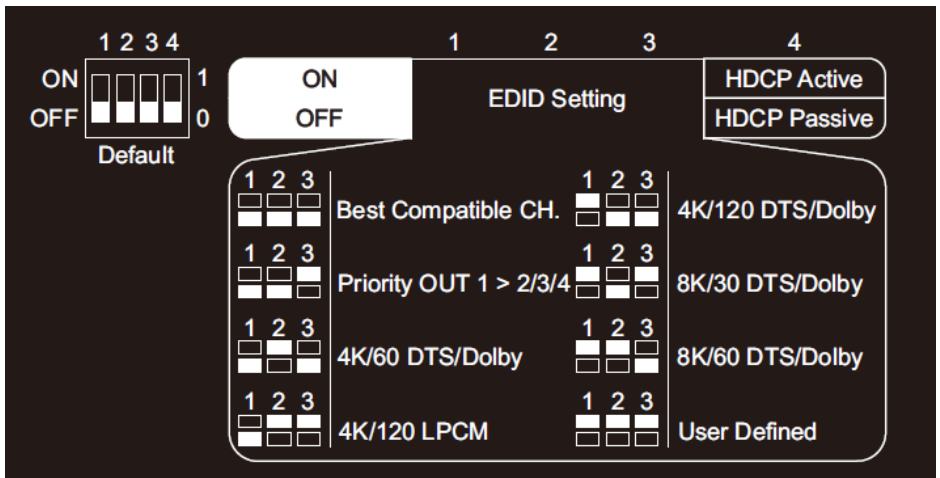


| Switch Status | Video Resolution | Audio Format |
|---|---|---|
| 000 | Obtain the EDID of output 1 - 4, then combine EDIDs and output the best compatible EDID. | |
| 001 | Priority the EDID of output 1, when the output 1 EDID can't read, combine the output 2 - 4 EDIDs and then output best compatible | |

| | EDID. | |
|---|---|---|
| 010 | 4K@60Hz 4:4:4 HDR | DTS/Dolby |
| 011 | 4K@120Hz 4:2:0 HDR | LPCM |
| 100 | 4K@120Hz 4:4:4 HDR | DTS/Dolby |
| 101 | 8K@30Hz 4:4:4 HDR | DTS/Dolby |
| 110 | 8K@60Hz 4:4:4 HDR | DTS/Dolby |
| 111 | User Defined | |

**EDID Upgrade**

1. Connect the FW port on the front panel of the machine to be tested to the computer with a USB Type-A to Type-C cable, and power on the machine to be tested;

2. Open the serial port tool on the computer, select the correct serial port number and baud rate 115200, and power on the device under test;

3. Send the command > EDIDUpgrade first, and then select the EDID file to be uploaded

4. Click Upload. When you receive a successful feedback, it means that the EDID has been uploaded successfully. Otherwise, please repeat the above steps.

## 5.2 HDCP Mode

Put switch 4 on "**ON**" position to select **HDCP Active** mode, or to "**OFF**" for **HDCP Passive** mode.

| Switch Status | Mode | HDCP |
|---|---|---|
| **OFF (0)** | Passive (Default) | Automatically follows the Display's HDCP version. |
| **ON (1)** | Active | Inform the source that displays don't support HDCP and request the source to send a signal stream without HDCP |

## 6. Firmware Upgrade

Please follow the below steps to upgrade firmware by the FW port:

1.  Connect the FW port on the front panel of the machine to the computer with an appropriate USB cable, and power on the machine;

2.  Open the stm32_upgrade.exe upgrade tool on the computer, select the correct serial port number and baud rate 115200;

3.  Click the Open button first, and then click the Connect button. The Connect button turns green to indicate that it is connected, and the button turns to red to indicate that the connection is not successful;

4.  Click the OpenFile button to load the application layer corresponding to the machine, and click the Upgrade button to start the upgrading procedure.

***Note: 08009000 must be added after the firmware name to be recognized by this software.***

## 7. Technical Specification

| Video Input | |
| --- | --- |
| Input | (1) HDMI |
| Input Connector | (1) Type-A female HDMI |
| HDMI Input Resolution | Up to 8K@60Hz 4:4:4 8bit |
| HDMI Standard | 2.1 |
| HDCP Version | 2.3, 2.2, 1.4 compliant |
| CEC | Supported |
| **Video Output** | |
| Output | (4) HDMI |
| Output Connector | (4) Type-A female HDMI |
| HDMI Output Resolution | Up to 8K@60Hz 4:4:4 8bit |
| HDMI Standard | 2.1 |
| HDCP Version | 2.3, 2.2, 1.4 compliant |
| CEC | Supported |
| **Control** | |
| Control Part | (1) EDID 4-pin DIP switch, (1) USB-C port |
| **General** | |
| Bandwidth | 48Gbps |
| HDMI V2.0 Cable Length | 8K@60Hz 4:4:4≤ 3m, 4K@60Hz 4:4:4 ≤ 5m, 4K@60Hz 4:2:0 ≤ 10m,1080p ≤ 15m |
| Operation Temperature | -5 to +55℃ (+23° to +131°F) |
| Storage Temperature | -25 to +70℃ (-13° to +158°F) |
| Relative Humidity | 10% to 90%, Non-condensing |
| Power Supply | DC 12V 1A |
| Power Consumption | 5W (Max) |
| Dimension (W*H*D) | 142.0mm x 17.6mm x 70.4mm |
| Net Weight | 225g |

***Note:** Please adopt high-qualified HDMI cable fully compliant with HDMI V2.1 for reliable transmission and connection.*

## 8. System Connection

The following diagram illustrates the typical input and output connection of the splitter:
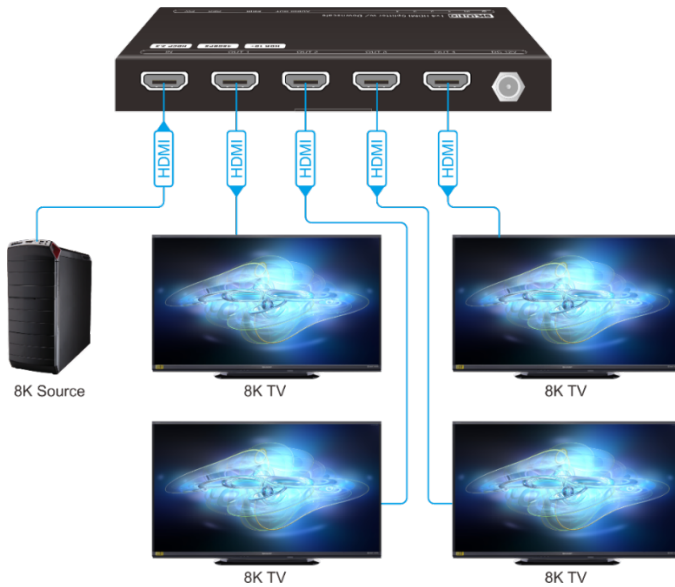


*Note: When connecting, there may be over-edge problems. At this time, you need to set over-scanning in the graphics card settings.*

## 9. Command

Baud rate: 115200     Data bit: 8     Stop bit: 1     Parity bit: none

Note: The commands need to be ended with <CR><LF>

| Command | Description | Example and Feedback |
|---|---|---|
| >EDIDUpgrade | Upload user defined EDID | >EDIDUpgrade |
| | | <Please Upload the EDID File Through RS232 In 10s … |
| | | <EDID CheckSum Error. |
| | | <EDID Upgrade Fail. |
| | | <Saved Successfully, User EDID is Ready. |
| >Reset | Factory reset | >Reset |
| | | <Factory Reset |
| >Reboot | Restart the machine | >Reboot |
| | | <Reboot |
| >HDCP_[Param1] | Param1=ON, DIP<br>ON = Force output HDCP V1.4<br>DIP = Manage HDCP via DIP switch | >HDCP_ON |
| | | >HDCP_DIP |
| | | <All Output HDCP use V1.4 |
| | | <All Output HDCP use DIP |
| >STA_HDCP | Query the Outputs' HDCP status | >STA_HDCP |
| | | <State: Output HDCP ON |
| | | <State: Output HDCP Passive(0) |
| | | <State: Output HDCP Active(1) |