KONNEXLINQ



User Manual

Version: V1.0.0

KLQ-4KHS18

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Introduction

Overview

This product is a 1 to 8 splitter that supports HDMI 2.0b and HDCP 2.2 standards. It also supports distributing one 4K signal to eight different displays simultaneously. Each output of the splitter supports independent down-scaler function (from 4K to 1080P displays), which can be set to on/off individually through 8-pin DIP switch. It also features multiple functions such as S/PDIF and analog audio de-embedding, EDID management (through 4-pin DIP switch), API control and CEC function.

Features

- 1 HDMI input and 8 HDMI outputs.
- Supports transmitting 4K@60Hz 4:4:4 8bit or 4K@60Hz 4:2:2 12bit signal.
  • Compatible with latest HDR formats including HLG, HDR10, HDR10+ and Dolby Vision.
- 4 pins DIP Switch on front panel allows users to use a variety of EDID processing methods, including copy mode, fixed mode and customized mode.
- Supports S/PDIF and analog audio de-embedding from HDMI input, and can be connected to amplifiers or other audio DSP devices.
- Each HDMI output supports 4K to 1080P down-scaling to support mixed applications of 4K and 1080P display systems. And the down-scaler function of each output can be set to on/off independently through 8 pins DIP switch on front panel.
- Supports API control through RS232 port.
- Supports CEC function to turn on/off the connected displays.
- Compact structure design, small size, and can be installed in the rack through the provided mounting brackets.

Package Contents

- 1 x Splitter
- 1 x DC 12V Power Adapter with US Pin
- 2 x Phoenix Male Connector (3.5mm, 3 Pins)
- 2 x Mounting Brackets (with Screws)

Specifications

Technical	
Input/output ports	1 x HDMI IN, 8 x HDMI OUT, 1 x S/PDIF OUT (TOSLINK connector), 1 x AUDIO OUT (3-pin, 3.5mm phoenix connector), 1 x RS232 (3-pin, 3.5mm phoenix connector), 1 x DC 12V IN
Input/Output signal type	HDMI 2.0 up to 4K@60Hz 4:4:4 8-bit or 4K@60Hz 4:2:2 12-bit and HDCP 2.2
HDR	Supports all HDR formats, including HLG, HDR10, HDR10+ and Dolby Vision
Input/Output Resolution Supported	**VESA:** 800 x 600[8], 1024 x 768[8], 1280 x 768[8], 1280 x 800[8], 1280 x 960[8], 1280 x 1024[8], 1360 x 768[8], 1366 x 768[8], 1440 x 900[8], 1600 x 900[8], 1600 x 1200[8], 1680 x 1050[8], 1920 x 1200[8], 2048 x 1152[8], 3840 x 2160[2,3,5,6,8], 4096 x 2160[2,3,5,6,8] **SMPTE:** 1280 x 720P[6,7,8], 1920 x 1080P[2,3,5,6,7,8,9] 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, 9 = at 120 Hz
Maximum Data Rate	18 Gbps
Audio Format	**HDMI In/Out:** Fully supports audio formats in HDMI 2.0 specification, including PCM, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X **SP/DIF Out:** PCM 2.0, Dolby Digital and DTS 5.1 **AUDIO Out:** Stereo
Control	API Commands, DIP Switch, Front Panel Buttons

General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
General	

Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge)/ ±4kV (Contact discharge)
Power Supply	DC 12V 1A
Power Consumption (Max)	6.73W
Device Dimension (W x H x D)	270mm x 21mm x 120mm/8.66” x 0.83” x 4.72”
Product Weight	0.83kg/1.83lbs

Transmission Distance

Cable Type	Range	Supported Video
HDMI	Input/Output: 15m/50ft	1080P@60Hz
	Input/Output: 10m/33ft	4K@30Hz
	Input/Output: 5m/16ft	4K@60Hz

Panel Description

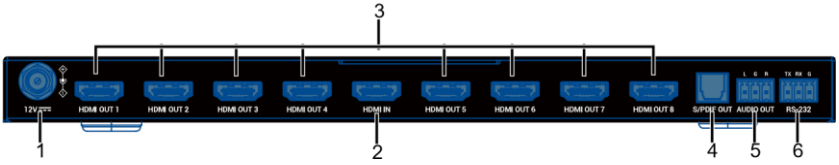
Front Panel



ID	Name	Description
1	POWER LED	**On:** The device is powered on. **Off:** The device is powered off.
2	HDMI IN LED	**On:** The input signal is detected. **Off:** No input signal is detected.

3	HDMI OUT LED (1~8)	**On:** The HDMI Output is connected to a display and signal is outputting. **Off:** The HDMI Output is not connected to a display or the signal isn't output.
4	EDID	Four pins DIP switch for EDID management. **Note:** Detail information, please refer to "EDID Management".
5	DOWNSCALER	For setting down-scaler function of each output to on/off. 1-8 pins are corresponding to HDMI output
ID	**Name**	**Description**
		1-8 respectively. **Up:** The down-scaler function of the corresponding output is set to off. **Down:** The down-scaler function of the corresponding output is set to on (default).
6	EDID COPY	The two buttons are used for copying EDID. When DIP switch is set to "Copy EDID" mode (See "EDID Management" section: **SELECT OUTPUT:** Press the button to select one output to copy EDID. The corresponding LED of the selected output will be blinking, and other LEDs will be off. By default, press the button, output 1 is selected, press again, output 2 is selected…, select output from 1 to 8 in sequence. **COPY OUTPUT:** After pressing SELECT button to select output, press this button to copy EDID of the selected output. Then the device will exit copy EDID mode and all LEDs will be back to previous status. **Note:** If Copy EDID failed, a default EDID (4K@60Hz 4:4:4 2.0CH with HDR) will be used.

Rear Panel



ID	Name	Description
1	DC 12V	DC 12V power input; connect the power adapter provided.
2	HDMI IN	Connect to an HDMI source.
3	HDMI OUT (1~8)	Connect to HDMI displays.
4	S/PDIF OUT	TOSLINK connector. Connect to an audio device for digital de-embedded audio output.
5	AUDIO OUT	3-pin 3.5mm phoenix connector. Connect to an
ID	**Name**	**Description**
		audio device for analog de-embedded audio output.
6	RS232	Connect to a RS232 enabled device for RS232 control.

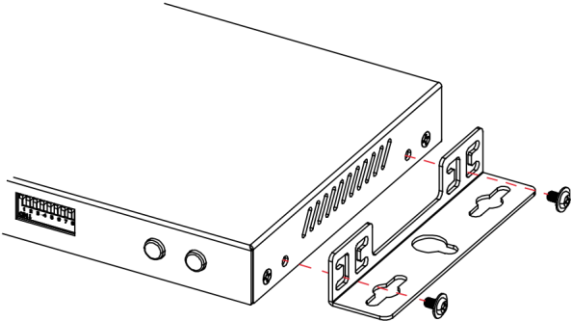
Installation and Wiring

Installation

Note: Before installation, please ensure the device is disconnected from the power source.

Steps to install the device on a suitable location:

1. Attach the installation bracket to the enclosure using the screws provided in the package separately.
2. The bracket is attached to the enclosure as shown.



3. Repeat steps 1-2 for the other side of the unit.
4. Attach the brackets to the surface you want to hold the unit against using the screws (provided by others).

Wiring

Warnings:

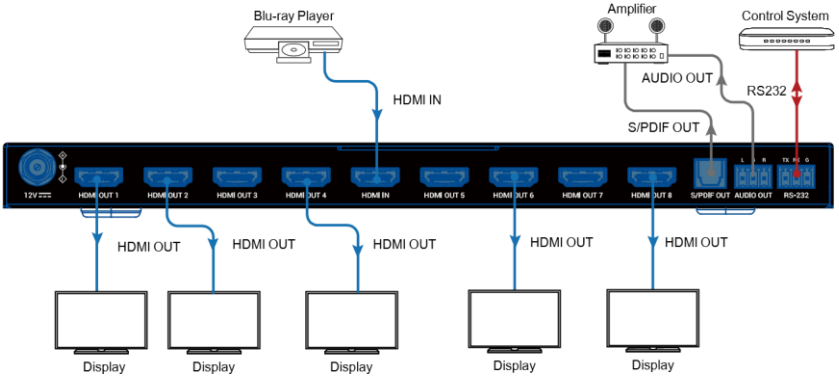
- Before wiring, disconnect the power from all devices.
- During wiring, connect and disconnect the cables gently.

Steps for device wiring:

1. Connect an HDMI source (such as Blu-ray player, laptop, etc.) to HDMI IN port of the device.
2. Connect HDMI displays (e.g., TV, LED/LCD display, projector, etc.) to HDMI OUT 1~8 ports of the device.
3. Connect for additional control options:

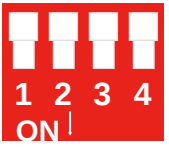
- Audio de-embedding output: Connect an audio receiver such as an amplifier to the S/PDIF OUT and AUDIO OUT ports of the device.
- RS232 Control: Connect a control PC or control system to RS232 port of the device.

4. Connect DC 12V power adapter provided to the device.
5. Power on all attached devices.



EDID Management

This device equips a 4-pin DIP switch for EDID management, including copy mode, fixed mode and customized mode.



The DIP Switch settings and the corresponding functions are as follows:

No	1	2	3	4	EDID	Descriptions

1	UP	UP	UP	UP	Copy mode (Default)	Default: Copy output 1. Users can use EDID COPY buttons or API commands to copy EDID of the displays connected with any output port in this mode.
2	UP	UP	UP	DOWN	Fixed EDID: 4K@60Hz 4:4:4 7.1CH with HDR	Support HLG and HDR10; Support PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X.
3	UP	UP	DOWN	UP	Fixed EDID: 4K@60Hz 4:4:4 5.1CH with HDR	Support HLG and HDR10; Support PCM 2.0/5.1, Dolby Digital and DTS 5.1.
4	UP	UP	DOWN	DOWN	Fixed EDID: 4K@60Hz 4:4:4 2.0CH with HDR	Support HLG and HDR10; Support PCM 2.0 only.
5	UP	DOWN	UP	UP	Fixed EDID: 4K@60Hz 4:2:0 7.1CH with HDR	Support HLG and HDR10; Support PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X
6	UP	DOWN	UP	DOWN	Fixed EDID: 4K@60Hz 4:2:0 5.1CH with HDR	Support HLG and HDR10; Support PCM 2.0/5.1, Dolby Digital and DTS 5.1.
7	UP	DOWN	DOWN	UP	Fixed EDID: 4K@60Hz 4:2:0 2.0CH with HDR	Support HLG and HDR10; Support PCM 2.0 only.
8	UP	DOWN	DOWN	DOWN	Fixed EDID: 1080P@60Hz	Support PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby
No	**1**	**2**	**3**	**4**	**EDID**	**Descriptions**
					7.1CH	Atmos, DTS-HD Master Audio and DTS:X.
9	DOWN	UP	UP	UP	Fixed EDID: 1080P@60Hz 5.1CH	Support PCM 2.0/5.1, Dolby Digital and DTS 5.1.

10	DOWN	UP	UP	DOWN	Fixed EDID: 1080P@60Hz 2.0CH	Support PCM 2.0 only.
11	DOWN	UP	DOWN	UP	Fixed EDID: 1080i@60Hz 7.1CH	Support PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X
12	DOWN	UP	DOWN	DOWN	Fixed EDID: 1080i@60Hz 5.1CH	Support PCM 2.0/5.1, Dolby Digital and DTS 5.1.
13	DOWN	DOWN	UP	UP	Fixed EDID: 1080i@60Hz 2.0CH	Support PCM 2.0 only.
14	DOWN	DOWN	UP	DOWN	Fixed EDID: DVI 1920x1200@60 no audio	No audio
15	DOWN	DOWN	DOWN	UP	Fixed EDID: DVI 1280x1024@60 no audio	No audio
16	DOWN	DOWN	DOWN	DOWN	Customized EDID	Users can upload their own EDID files through API commands or PC tools. If no EDID is uploaded, a default EDID (1080P@60Hz 2ch) will be used in this mode

Note:

- The settings of the DIP switch take effect immediately, and not need to reboot the device.
- The operations about Copy EDID through front panel buttons, please refer to "Panel Description" section.
- Copy EDID or write EDID through API commands, please refer to the separate document "*API Command Set_SP0108-N139-000*".

RS232 Control

Advanced users may need to control the splitter through RS232 serial communication. Connect a control PC or control system to the RS232 port of

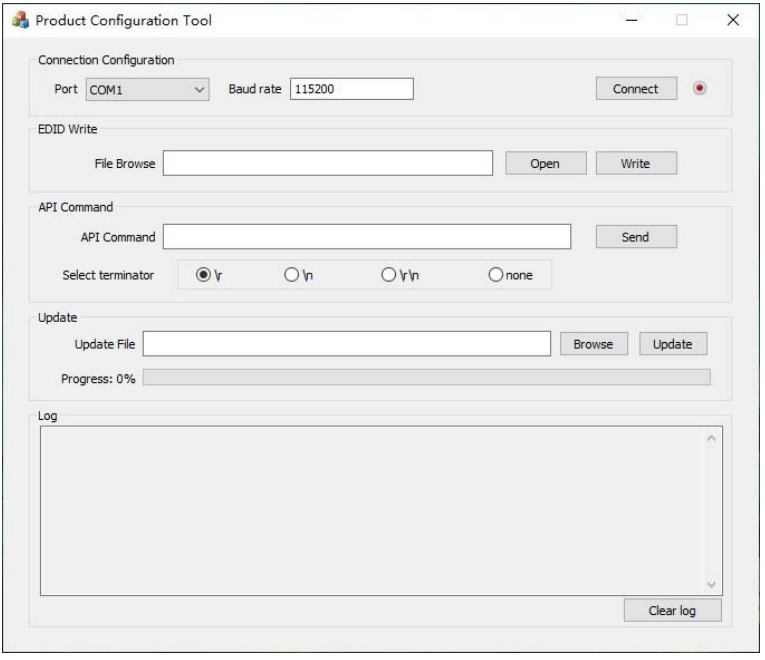
the receiver. API commands for RS232 control are available in the separate document "*API Command Set_SP0108-N139-000*". A professional RS232 serial interface software (e.g., Serial Assist) may be needed as well.

Before executing the API command through RS232 serial connection, please ensure RS232 interface of the device and the control PC are configured correctly.

Parameters	Value
Baud Rate	115200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

Product Configuration Tool

The Product Configuration Tool is one control tool running on PC to pro-loading the RS232 commands to control the splitter and upgrade firmware. Connect the splitter to a PC via a RS232 (3.5mm, 3 pins phoenix male connector)-to-USB cable, running the configuration tool to set the connection parameters correctly before send the pro-loading commands or upgrade firmware. The baud rate for the splitter is 115200.



Introduction of the Production Configuration Tool:

1. Connection Configuration:
   - Port: Select the correct COM Port number.
   - Baud Rate: Input the correct baud rate of the splitter. The baud rate of the splitter is 115200.
   - Connect/Disconnect: Click to connect/disconnect to the splitter. If the connection is successful, the light right on the button will light green. Disconnect with the device, the light will light red.
2. EDID Write:
   - Open: Click to upload an EDID bin file from the local PC.
   - Write: Click to write the uploaded EDID to the splitter.

Note: The written EDID can take effect when the DIP switch on front panel is set to “Customized EDID” (Down, Down, Down, Down) position (see “EDID management” section).

3. API Command:
   - API Command: Enter one API command in the box. API commands refer to the separate document “*API Command Set_SP0108-N139-000*”.
   - Send: Click to send the entered API command to the splitter.
   - Select terminator: If commands in string format require a terminator, choose the appropriate terminator here. The command in hex format doesn’t require for a terminator. The explanations of the terminator are as follows:
   - \r: Carriage Return<CR>
   - \n: Line Feed <LF>
   - \r\n: Carriage Return + Line Feed <CR><LF> • none: No terminator required.

   Note: The return information of API commands will be showed in the log box.
4. Update:
   - Browse: Click to upload the latest upgrade file from local PC.
   - Update: Click to upgrade the splitter.
   - Progress: Shows the upgrading process.

   Note: It will take 2-5 minutes to upgrade the splitter, don’t interrupt or power off the splitter during the upgrading process.
5. Log:
   - Log box: Shows the operation information in the box, and shows the return information of the sent API commands in “API Command” part.

- Clear log: Click to clear all the information in log box.