

BLACKBIRD™

4K HDMI® 1x4 Splitter/Extender



P/N 42271

User's Manual

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This device is intended for indoor use only.
- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately remove it from its power source and allow it to fully dry before reapplying power.
- Do not touch the device, the power cord, or any other connected cables with wet hands.
- Do not expose this device to excessive vibration, extreme force, shock, or fluctuations in temperature or humidity.
- Do not expose this device to excessively high temperatures. Do not place it in, on, or near a heat source, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.
- Do not place or install this device in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.

- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.
- Before plugging the unit into a power outlet, ensure that the outlet provides the same type and level of power required by the device.
- Unplug this device from the power source when not in use.
- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.
- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.
- Ensure that power is turned off and disconnected before making any electrical connections.
- Remove the batteries from the controller if it will go unused for a lengthy period of time.
- Clean using a soft, dry cloth only. Do not use chemical cleaners, solvents, or detergents. For stubborn deposits, moisten the cloth with warm water.
- This device has no user serviceable parts. Do not attempt to open, service, or modify this device.

INTRODUCTION

This 4K HDMI® 1x4 Splitter/Extender allows you to distribute a single HDMI video source to up to four distant displays. It can extend 4K@60Hz signals to distances up to 114 feet (35 meters), 4K@30Hz signals to distances up to 164 feet (50 meters), and 1080p@60Hz signals to distances up to 196 feet (60 meters) over a single Cat6/6a/7 Ethernet cable. It supports up to 7.1-channel audio pass-through, can extract the audio for separate amplification, and features advanced EDID® management. It supports the Power over Cable (PoC) feature, allowing the receivers to be powered by the transmitter over the Ethernet cable.

FEATURES

- Supports video resolutions up to 4K@60Hz with YCbCr 4:4:4 color space
- Distributes a single HDMI® video source to four distant displays
- Compliant with the HDMI 2.0b and HDCP™ 2.2/1.x standards
- Provides up to 18Gbps video bandwidth

- Can extend 4K@60Hz signals to distances up to 114 feet (35 meters), 4K@30Hz signals to distances up to 164 feet (50 meters), and 1080p@60Hz signals to distances up to 196 feet (60 meters) over a single Cat6/6a/7 Ethernet cable
- Supports HDR10, HDR10+, Dolby Vision™, and Hyper Log-Gamma (HLG)
- Supports 7.1 high definition audio pass-through
- Can extract audio from HDMI® signal for distribution to digital coaxial and 3.5mm stereo analog audio outputs
- Supports one-way IR control signal pass-through
- Supports the Power over Cable (PoC) feature, allowing the receivers to be powered by the transmitter over the Ethernet cable
- Includes advanced EDID® management

CUSTOMER SERVICE

The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problem with your order, please give us an opportunity to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website www.monoprice.com or via email at support@monoprice.com. Check the website for support times and links.

PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Monoprice Customer Service for a replacement.

1x 4K HDMI® 1x4 Splitter/Extender

4x Receivers

4x IR Receivers

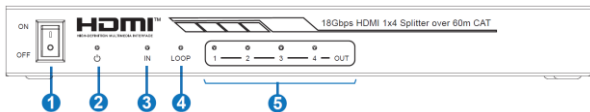
1x IR Transmitter

1x AC Power Adapter (12 VDC, 2.5A)

1x User's Manual

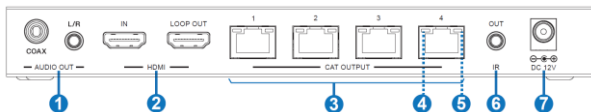
PRODUCT OVERVIEW

Transmitter Front Panel



1. **POWER:** Use the switch to turn the transmitter on or off.
2. **POWER LED:** The LED illuminates red when power is applied.
3. **IN:** The LED illuminates green when an active signal is detected on the input port.
4. **LOOP:** The LED illuminates green when an active display is detected on the **LOOP OUT** port.
5. **OUT:** The LEDs illuminate green when an active display is detected on the connected receivers.

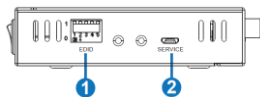
Transmitter Rear Panel



1. **AUDIO OUT:** Digital coaxial and 3.5mm stereo analog audio connectors for connecting an external amplifier or powered speakers for playback of audio extract from the HDMI® signal. Note that the **COAX** output supports up to 7.1-channel high definition audio, while the **L/R** out supports only 2-channel LPCM audio.
2. **HDMI:** **HDMI IN** port for connecting a video source device and **LOOP OUT** for connecting a local display.
3. **CAT OUTPUT:** RJ45 jacks for connecting Cat6/6a/7 Ethernet cables (not included) to the individual receivers.
4. **LINK LED:** The LED for each RJ45 jack illuminates green when there is a valid connection between the transmitter and the receiver.
5. **DATA LED:** The LED for each RJ45 jack flashes orange when data is being transmitted.
6. **IR OUT:** 3.5mm jack for connecting the included IR transmitter.

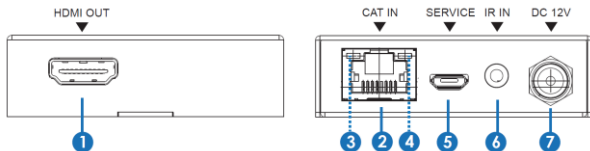
7. **DC 12V:** DC barrel connector for connecting the included AC power adapter.

Transmitter Side Panel



1. **EDID:** Five DIP switches used for setting the EDID®. Refer to the *EDID SETTINGS* section for details.
2. **SERVICE:** Micro USB port used for upgrading the firmware or to issue serial port commands. Refer to the *SERIAL CONTROL* section for details.

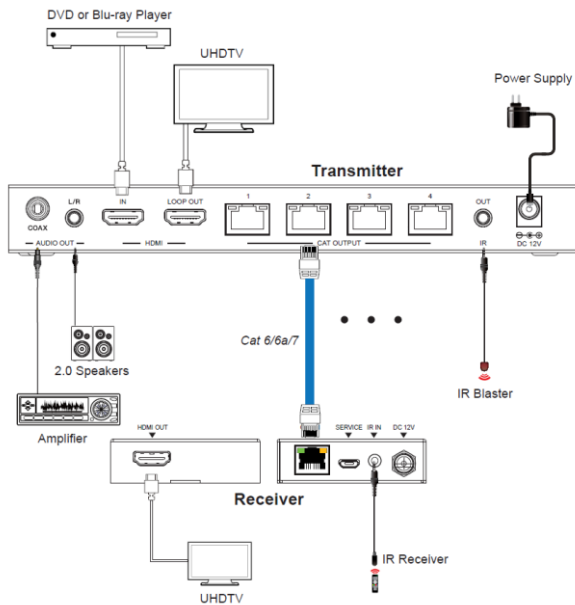
Receivers



1. **HDMI OUT:** HDMI® port for connecting an HDMI display.
2. **CAT IN:** RJ45 jack for connecting a Cat6/6a/7 Ethernet cable (not included) from the transmitter.

3. **LINK LED:** The LED illuminates green when there is a valid connection between the transmitter and the receiver.
4. **DATA LED:** The LED flashes orange when data is being transmitted.
5. **SERVICE:** Micro USB port for performing firmware upgrades.
6. **IR IN:** 3.5mm jack for connecting one of the included IR receivers.
7. **DC 12V:** DC barrel connector for connecting an AC power adapter. The system supports the Power over Cable (PoC) feature, which allows the receivers to be powered by the transmitter over the Ethernet cable, so an AC power adapter is not normally needed and only one is included.

SAMPLE CONNECTION DIAGRAM



EDID SETTINGS

The transmitter features five DIP switches on the side panel, which allow you to specify the EDID® (Extended Display Identification Data) settings, which tells the video source device the video resolution and audio formats that can be used by the connected displays. If the displays have different capabilities, you should use settings that are common to all displays. If one or more displays do not show video and/or play audio, the video and/or audio capabilities are beyond that display's capabilities and the EDID should be adjusted accordingly.

Note that a 1 in the DIP Switch Settings column indicates that the switch is ON. The switches are OFF when in the up position and ON when in the down position.

DIP Switch Settings	EDID Description
11111	1080p, Stereo Audio 2.0
11110	1080p, Dolby®/DTS® 5.1
11101	1080p, HD Audio 7.1
11100	1080i, Stereo Audio 2.0
11011	1080i, Dolby/DTS 5.1
11010	1080i, HD Audio 7.1
11001	1080p 3D, Stereo Audio 2.0

DIP Switch Settings	EDID Description
11000	1080p 3D, Dolby®/DTS® 5.1
10111	1080p 3D, HD Audio 7.1
10110	4K2K30Hz_444, Stereo Audio 2.0
10101	4K2K30Hz_444, Dolby/DTS 5.1
10100	4K2K30Hz_444, HD Audio 7.1
10011	4K2K60Hz_420, Stereo Audio 2.0
10010	4K2K60Hz_420, Dolby/DTS 5.1
10001	4K2K60Hz_420, HD Audio 7.1
10000	4K2K60Hz_444, Stereo Audio 2.0
01111	4K2K60Hz_444, Dolby/DTS 5.1
01110	4K2K60Hz_444, HD Audio 7.1
01101	4K2K60Hz_444, Stereo Audio 2.0 HDR
01100	4K2K60Hz_444, Dolby/DTS 5.1 HDR
01011	4K2K60Hz_444, HD Audio 7.1 HDR
01010	COPY_FROM_LOOP OUT
01001	COPY_FROM_CAT OUT1
01000	COPY_FROM_CAT OUT2

DIP Switch Settings	EDID Description
00111	COPY_FROM_CAT OUT3
00110	COPY_FROM_CAT OUT4
00101	1080p, Stereo Audio 2.0
00100	1080p, Stereo Audio 2.0
00011	1080p, Stereo Audio 2.0
00010	1080p, Stereo Audio 2.0
00001	1080p, Stereo Audio 2.0
00000	PC Control Mode

SERIAL CONTROL

This system can be controlled using a computer connected to the SERVICE port on the transmitter using a USB cable (not included) and serial command software (not included). The serial protocol to use is:

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

Following are some important notes about serial commands:

- All commands must be terminated with an exclamation mark (!). Any carriage return after the ! will be ignored.
- All spaces in the command are required.
- All response messages are terminated with a CR/LF sequence.
- When all outputs are requested by a command, the response will report each output on a separate line.
- The **x**, **y**, and **z** in the command are parameters.
- The default option is **bolded**.

Output Commands		
Command	Description	Feedback
r hdmi stream!	Reports the HDMI [®] LOOP OUT stream status.	Enable hdmi loop output stream
s hdmi stream z!	Sets the HDMI LOOP OUT stream on or off. x=0,1 (0=disable, 1=enable).	Enable hdmi loop output stream Disable hdmi loop output stream

r cat y stream!	Reports the CAT OUT y stream status, y=0~4 (0=all).	Enable cat output 1 stream
s cat y stream z!	Sets the CAT OUT y stream on or off, y=0~4 (0=all), z=0,1 (0=disable, 1=enable)	Enable cat output 1 stream Disable cat output 1 stream Enable cat output all stream Disable cat output all stream
r hdmi hdcp!	Reports the HDCP™ status of the HDMI® LOOP OUT.	hdmi loop out hdcp on
s hdmi hdcp z!	Sets the HDMI LOOP OUT HDCP status on or off, z=0,1 (0=off, 1=on)	hdmi loop out hdcp on hdmi loop out hdcp off
r cat y dsc mode!	Reports the dsc mode of CAT OUT y, y=0~4 (0=all)	cat out 1 dsc mode 2

s cat y dsc mode z!	Sets the dsc mode of CAT OUT y, y=0~4 (0=all), z=1~3 (1=Normal Ethernet cable length, 2=35m Ethernet cable length , 3=70m Ethernet cable length).	cat out 1 dsc mode 2
r audio mute!	Reports the audio output mute status.	audio mute 0
s audio mute z!	Sets the audio mute on or off, z=0,1 (0=off , 1=on).	audio mute 0
EDID® Commands		
r edid in!	Reports the EDID status on the input.	input EDID: 4K2K60_444, Stereo Audio 2.0
r edid in data!	Reports the EDID of the input in data form.	EDID data: 00 FF FF FF FF FF 00
s edid in from z!	Sets the EDID from default EDID z, z=1~26 as follows:	

	<ol style="list-style-type: none">1. 1080p, Stereo Audio 2.02. 1080p, Dolby/DTS 5.13. 1080p, HD Audio 7.14. 1080i, Stereo Audio 2.05. 1080i, Dolby/DTS 5.16. 1080i, HD Audio 7.17. 3D, Stereo Audio 2.08. 3D, Dolby/DTS 5.19. 3D, HD Audio 7.110. 4K2K30_444, Stereo Audio 2.011. 4K2K30_444, Dolby/DTS 5.112. 4K2K30_444, HD Audio 7.113. 4K2K60_420, Stereo Audio 2.014. 4K2K60_420, Dolby/DTS 5.115. 4K2K60_420, HD Audio 7.116. 4K2K60_444, Stereo Audio 2.0	
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	<p>17. 4K2K60_444, Dolby/DTS 5.1</p> <p>18. 4K2K60_444, HD Audio 7.1</p> <p>19. 4K2K60_444, Stereo Audio 2.0 HDR</p> <p>20. 4K2K60_444, Dolby/DTS 5.1 HDR</p> <p>21. 4K2K60_444, HD Audio 7.1 HDR</p> <p>22. copy from hdmi loop out</p> <p>23. copy from cat output 1</p> <p>24. copy from cat output 2</p> <p>25. copy from cat output 3</p> <p>26. copy from cat output 4</p>	
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TECHNICAL SUPPORT

Monoprice is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website **www.monoprice.com** or through email by sending a message to **tech@monoprice.com**. Check the website for support times and links.

To download the latest drivers, firmware, manuals, etc., go to **www.monoprice.com** and type the P/N into the search bar. If available, support files are linked at the bottom of the product page.

SPECIFICATIONS

P/N	42271
Transmitter Video Inputs	1x HDMI®
Transmitter Video Outputs	1x HDMI, 4x RJ45
Transmitter Audio Outputs	1x digital coaxial, 1x 3.5mm stereo analog

Receiver Video Inputs	1x RJ45
Receiver Video Outputs	1x HDMI®
Maximum Video Resolution	4K@60Hz 4:4:4
Video Bandwidth	Up to 18 Gbps
HDMI Version	2.0b
HDCP™ Version	2.2/1.x
Color Depths	8/10/12 bit: 1080p@60Hz, 4K@60Hz YCbCr 4:2:2/4:2:0 8-bit: 4K@60Hz YCbCr 4:4:4
Supported Color Spaces	RGB, YCbCr 4:4:4/4:2:2/4:2:0
High Dynamic Range Support	HDR10, HDR10+, Dolby Vision™, HLG
Supported HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital™, Dolby Digital Plus™, Dolby TrueHD™, DTS®, DTS-ES®, DTS HD-HRA, DTS Master Audio™, DTS:X®
Supported Coaxial Audio Formats	LPCM 2.0, Dolby Digital™, Dolby Digital Plus™, DTS® 2.0/5.1

Supported Analog Audio Formats	LPCM 2.0
Input Power	12 VDC, 2.5A
AC Adapter Input Power	100 ~ 240 VAC, 50/60 Hz
Maximum Power Consumption	14 watts
Operating Temperature	+32 ~ +104°F (0 ~ +40°C)
Storage Temperature	-4 ~ +140°F (-20 ~ +60°C)
Operating Humidity	20 ~ 90% RH, noncondensing
Transmitter Dimensions	8.3" x 3.9" x 1.0" (210 x 100 x 25 mm)
Receiver Dimensions	3.5" x 2.4" x 0.7" (88 x 61 x 18 mm)
Transmitter Weight	1.4 lbs. (617g)
Receiver Weight	5.5 oz. (155g)

REGULATORY COMPLIANCE

Notice for FCC



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.

Modifying the equipment without Monoprice's authorization may result in the equipment no longer complying with FCC requirements for Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

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.

Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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