

BLACKBIRD™



Blackbird™ by Monoprice™ **4K PRO HDBaseT™ EXTENDER KIT**

P/N **21608**
User Manual

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using the Blackbird™ 4K Pro HDBaseT™ Extender Kit, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This Extender Kit is intended for indoor use only.
- Do not expose this Extender Kit to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the unit. If moisture does get in or on the device, immediately unplug it from the power source and allow it to fully dry before reapplying power.
- Do not touch this Extender Kit, the power cord, or any other connected cables with wet hands.
- Do not expose this Extender Kit to excessively high temperatures. Do not place it in, on, or near heat sources, like a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.
- Do not place or install this Extender Kit 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 Extender Kit 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.
- Do not use chemical cleaners or solvents to clean these mounts. Use only a soft cloth that's slightly moistened with warm water.
- This Extender Kit has no user-serviceable parts. Do not attempt to open, service, or modify it.

TABLE OF CONTENTS

SAFETY WARNINGS AND GUIDELINES	2
INTRODUCTION.....	3
FEATURES.....	3
PACKAGE CONTENTS	4
PRODUCT OVERVIEW.....	4
TWISTED PAIR CABLE DESCRIPTION	5
SYSTEM CONNECTION	6
TECHINICAL SPECIFICATIONS.....	7
TROUBLESHOOTING & MAINTENANCE	8
CUSTOMER SERVICE.....	9
TECHNICAL SUPPORT	9
REGULATORY COMPLIANCE.....	9
NOTICE FOR FCC	9
NOTICE FOR ISED CANADA.....	10
DISPOSAL AND RECYCLING INFORMATION.....	10

INTRODUCTION

Thank you for purchasing the Blackbird™ 4K Pro HDBaseT™ Extender Kit. This is an ultra-thin HDBaseT™ Extender set consisting of a transmitter and a receiver. It distributes HDMI® signal via a CATSe/CAT6a cable at 100 m/PoH and enables IR and RS232 pass-through to control remote displays. It also supports 4 Ethernet interfaces for the network. It provides the perfect long-range transmission solution for industries like computing, education, banking, and security.

FEATURES

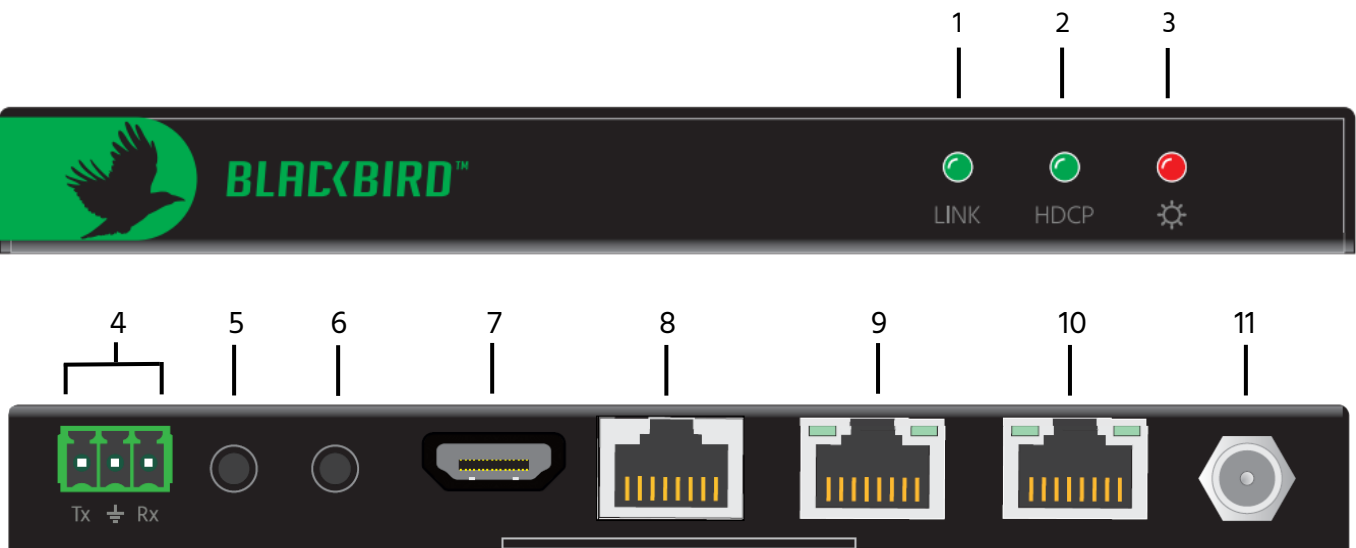
- Ultra-thin design
- The highest resolution is 4K x 2k / 60 Hz
- HDCP™ 2.2 compliant
- Maximum transmission distance is up to 70 m for 4K x 2K maximum
- Transmission distance is up to 100 m for 1080p
- Maximum extension distance is up to 100 m for Ethernet
- Supports bi-directional PoH
- High bandwidth: 10.2Gbps
- Supports IR/RS232 pass-through
- Uses HDBaseT™ technology
- LED indicators show work status

PACKAGE CONTENTS

Take an inventory of the package contents to make sure you have all the items listed below.
Please contact Monoprice Customer Service for a replacement if anything is missing or damaged.

- **1x** Transmitter
- **1x** Receiver
- **4x** Mounting Ears
- **8x** Black Plastic Cushions
- **4x** Screws
- **2x** RS232 cables
- **1x** Power Adapter (DC 24V / 1.25A)
- **1x** User Manual

PRODUCT OVERVIEW



1	LINK	HDBT Link status indicator Off: No link Green: Link successful Blinking Green: Link abnormal
2	HDCP™	HDCP™: HDCP™-compliant indicator Off: No HDMI® traffic (no picture) Green: Traffic with HDCP™ Blinking Green: Traffic without HDCP™
3	POWER	OFF: No power RED: DC power present
4	RS232	RS232 connector

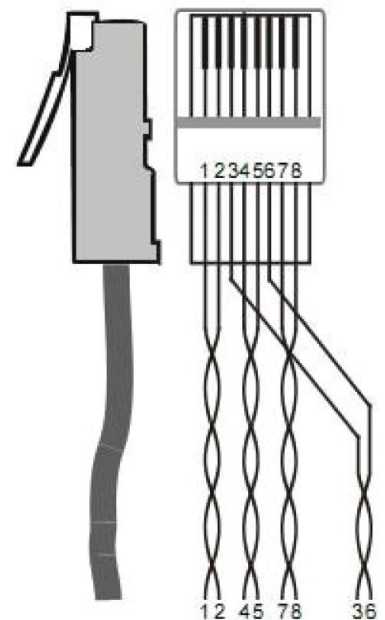
5	IR IN	Connect with 5V receiver to collect infrared signal, work with far-end IR OUT port.
6	IR OUT	Connect with 5V emitter to collect infrared signal, work with far-end IR IN port.
7	HDMI® IN	Connect with HDMI® source
8	HDBT OUT	Connect to the HDBT IN socket on Receiver via CAT5e / CAT6a cable, supports bi-directional PoH.
9-10	ETHERNET	100 m Ethernet interface. When needing to work on LAN, one of these 4 ports (both the Ethernet ports of Transmitter and Receiver) should be used for Internet access and the others can be connected with computers. If they are well-connected, the yellow LED indicators on the corresponding ports will keep blinking and the green ones will stay on when working.
11	DC 24V	Connect with DC 24V / 1.25A power adaptor (Not necessary if Receiver connects with power).

TWISTED PAIR CABLE DESCRIPTION

The twisted pair used for this unit **MUST** be a straight-through cable.

TIA / EIA T56A	
PIN	CABLE COLOR
1	Green White
2	Green
3	Orange White
4	Blue
5	Blue White
6	Orange
7	Brown White
8	Brown
1 st Ground	4 - 5
2 nd Ground	3 - 6
3 rd Group	1 - 2
4 th Group	7 - 8

68B	
PIN	CABLE COLOR
1	Orange White
2	Orange
3	Green White
4	Blue
5	Blue White
6	Green
7	Brown White
8	Brown
1 st Ground	4 - 5
2 nd Ground	1 - 2
3 rd Group	3 - 6
4 th Group	7 - 8

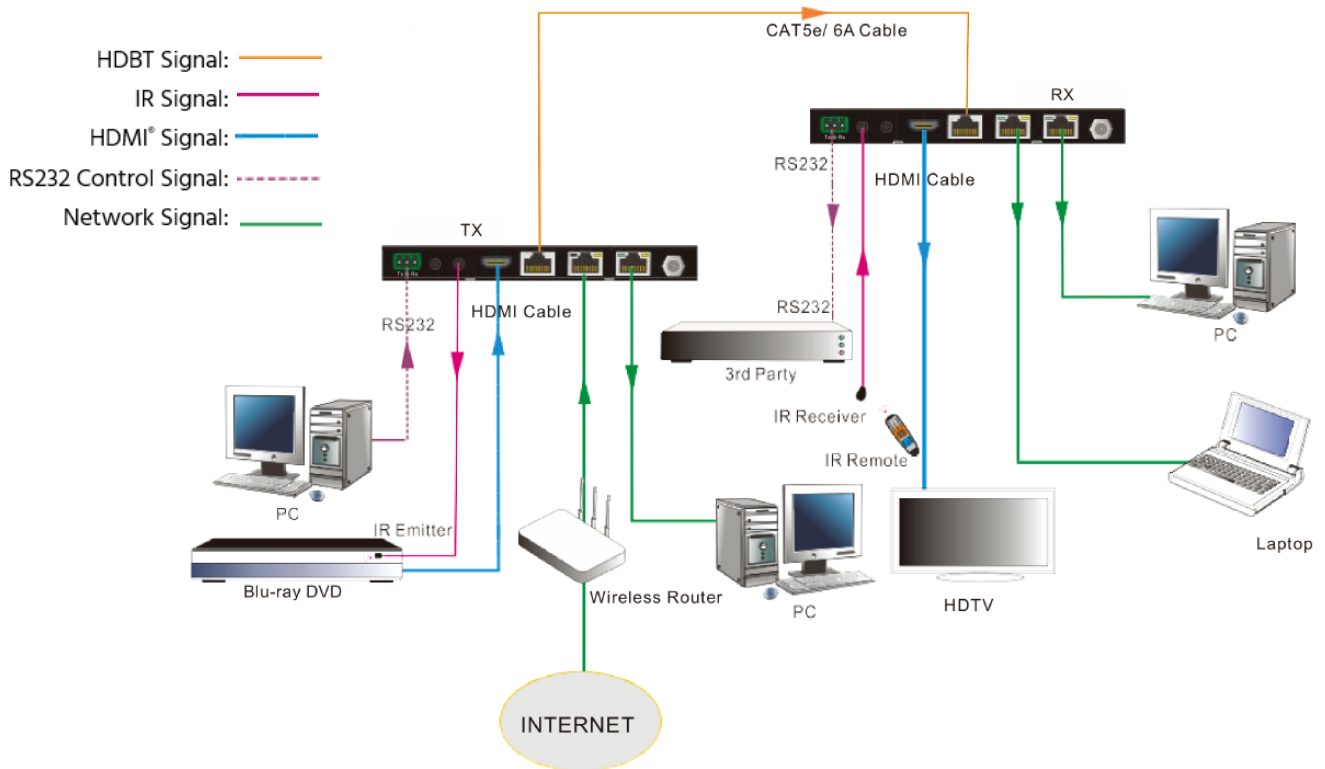


NOTE: The cable connectors **MUST** be metal, and the shielded layer of the cable **MUST** be connected to the connector's metal shell to make a better transmission.

SYSTEM CONNECTION

USAGE PRECAUTIONS

1. The system should be installed in a clean environment with the proper temperature and humidity.
2. All of the power switches, plugs, sockets, and power cords should be insulated and safe.
3. All devices must be connected before the power is turned on.
4. Use shielded straight-through CAT5e / CAT6a cable with TIA / EIA T568B terminations for good transmission effect.



CONNECTION PROCEDURES

1. Connect the HDMI® source (like a DVD Player) to the HDMI® IN port of the Transmitter using an HDMI® cable.
2. Connect the HDBT OUT port of the Transmitter and the HDBT IN port of the Receiver using a single CAT5e / CAT6a cable.
3. Connect the HDMI® display (like an HDTV) to the HDMI® OUT of the Receiver using an HDMI® cable.
4. Both the Transmitter and the Receiver have IR IN and IR OUT ports. When one model is used as an IR signal Receiver, the IR signal must be sent out by the other model. For example: When the "IR IN" of the Receiver connects with an IR Receiver, the IR Emitter must be connected to the "IR OUT" of the Transmitter.
5. To set as a LAN device, one of the four Ethernet ports of the Transmitter and the Receiver should be used for Internet access, and the others can be connected to computers.
6. Connect the RS232 port of the computer and the RS232 port of the Transmitter/Receiver (either one should work since the RS232 signal can be transmitted bi-directionally) using an RS232 cable.
7. Connect with DC 24V power adapter(s) separately or only connect the power adapter to the Transmitter or the Receiver.

TECHINICAL SPECIFICATIONS

	Transmitter	Receiver
INPUT		
Input Signal	1x HDMI®	1x IR In
	1x IR In	1x HDBaseT™
	1x RS232	1x RS232
Input Connector	1x HDMI® Female	1x 3.5 mm mini-Jack for IR In
	1x 3.5 mm mini-Jack for IR In	1x RJ45
	1x 3P Captive Connector	1x 3P Captive Connector
Video Signal	HDMI® 1.4	
Audio	Digital audio, transmit through HDMI® audio	
OUTPUT		
Output	1x HDBaseT™	1x HDMI®
	1x IR Out	1x IR Out
	1x RS232	1x RS232
Output Connector	1x RJ45	1x HDMI® Female
	1x 3.5 mm mini-Jack for IR Out	1x 3.5 mm mini-Jack for IR Out
	1x 3P Captive Connector	1x 3P Captive Connector
ETHERNET PORT		
Connector	2x Black RJ45 with dual color indicator (Green & Yellow)	
Ethernet Transmission Speed	Adaptive 10 m / 100 m (max), full duplex or half duplex	
GENERAL		
Transmission Mode	HDBaseT™	
Resolution	800x600 @ 60 Hz, 1024x768 @ 60 Hz, 1280x720 @ 60 Hz, 1280x1024 @ 60 Hz, 13660x768 @ 60 Hz, 1600x1200 @ 60 Hz, 1920x1080 @ 60 Hz, 1920x1200 @ 60 Hz, 3D, 4Kx2K	
Transmission Distance	1080P ≤ 100 m 4k x 2K ≤ 70 m	
Bandwidth	10.2 Gbps	
HDMI Standard	HDMI® 1.4 & HDCP™ 2.2	
Impedance	75Ω	
Temperature	0 °C ~ 50 °C	
Humidity	0% ~ 90%	
Power Consumption	15W	
Power Supply	Input: 100 VAC ~ 240 VAC, 50 Hz / 60 Hz Output: 24 VDC / 1.23A	
Dimensions	152 mm x 16.2 mm x 104 mm	
Net Weight	235 g	241 g

TROUBLESHOOTING & MAINTENANCE

Issue	Causes	Workaround
The output images in the display show ghosts/have visual delays.	Incorrect display settings.	Check the display's settings.
	A cable of bad quality.	Try a different high-quality cable.
No output image when switching.	No signal at the input/output end.	Check with the oscilloscope or the multi-meter if there is any signal at the input/output end.
	Failed or lost connection.	Make sure the connection is good.
	The extender is broken.	Send the broken extender to an authorized dealer for repairs.
Can't control the device using a PC through the RS232 port.	Wrong RS232 communication parameters.	Make sure the RS232 communication parameters are correct.
	The device is broken.	Contact Monoprice Support if within warranty.
Can't recognize the device that's connected to the Ethernet port.	The connected device has the same IP address as the extender.	Change the IP Address of the extender or the connected device.
Static becomes stronger when linking the video connectors.	Bad grounding.	Check the grounding and make sure it is connected properly.
Can't control the device using RS232 / IR.	The device is broken.	Send the broken device to an authorized dealer for repairs.

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 problems with your order, please allow us 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.

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 **21608** into the search bar. If available, support files are linked at the bottom of the product page.

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 to 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 ISED 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.

DISPOSAL AND RECYCLING INFORMATION



The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electrical and electronic products via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your unwanted product, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Monoprice™, Blackbird™, the Blackbird logo, and all Monoprice logos are trademarks of Monoprice Inc.

HDMI®, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

HDCP™ is a trademark of Digital Content Protection LLC.



TECHNOLOGY AT PRICES THAT MAKE SENSE

www.monoprice.com

Need Help? We're here for you!

Contact us: **www.monoprice.com/contactus**

Product pictures are for reference only.

Specifications described herein are subject to change without prior notification.

Monoprice™ and all Monoprice logos are trademarks of Monoprice Inc.

Copyright © 2023 Monoprice, Inc. All rights reserved.

Monoprice, Inc.

1 Pointe Drive, Suite 400

Brea, CA 92821 – USA

www.monoprice.com