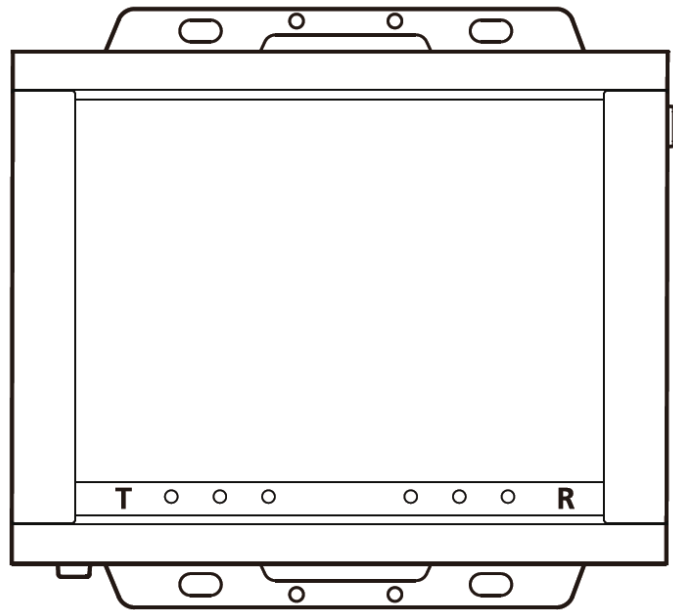


BLACKBIRD™



Blackbird™ by Monoprice™
TRUE 4K HDMI® USB HDBaseT™ 3.0 TRANSCEIVER

P/N **44559**
User Manual

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using the Blackbird™ True 4K HDMI® USB HDBaseT™ 3.0 Transceiver, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This transceiver is intended for indoor use only.
- Do not expose this transceiver to water or moisture. 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 transceiver, the power cord, or any other connected cables with wet hands.
- Do not expose this transceiver 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 the unit in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or explosive vapors.
- Before 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 transceiver 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 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 transceiver has no user-serviceable parts. Do not attempt to open, service, or modify it.

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INTRODUCTION

Thank you for purchasing the Blackbird™ True 4K HDMI® USB HDBase™ 3.0 Transceiver. This is Monoprice’s first video transceiver and integrates the functions of a transmitter and a receiver into one unit. This combination allows users to easily configure the unit to be a transmitter or receiver depending on their AV solution and to enjoy more flexible deployment and effective use with video matrix switches, video splitters, etc.

Designed with HDBase™ 3.0 technology, this transceiver not only extends True 4K uncompressed signals up to 100 m over a single Cat 6a cable (HDBase™ 3.0-certified Cat 6a cable with zero latency, but also transmits IR, RS-232, Ethernet, independent audio, and USB signals with the latest HDBase™ standards. For stable HDMI® signal transmission, this unit ensures high-quality visuals and reliable extension by supporting HDCP 2.2, 3D, Deep Color, and HDR. In addition, this transceiver is equipped with HDMI® audio embedded/de-embedded functions, enabling users to flexibly adapt suitable audio/video combinations based on different environments. To ensure nonstop operations, the fanless fin heat sink design prevents overheating and thus elevates its reliability.

Empowered by the above benefits, this transceiver increases the potential of AV applications while also streamlining complex installations. This makes the unit an ideal solution for conference halls, auditoriums, lecture halls, museums, exhibition rooms, and anywhere else that requires high-quality transmission and easy-to-use applications.

FEATURES

- Extends uncompressed True 4K HDMI® signals up to 100 m over a single HDBaseT™ 3.0-Certified Cat 6a cable with zero latency
- Flexible for deployment—can be configured as a transmitter or receiver depending on the AV solution
- Compliant with HDBaseT™ 3.0 standards—transmits high-quality video, full range IR, bi-directional RS-232, Gigabit Ethernet, independent stereo audio, and USB 2.0 signals channel bypass
- HDMI (3D, Deep Color, 4K/60Hz); HDCP 2.2 compliant
- Superior video quality—up to 4096 x 2160 @ 60 Hz (4:4:4); HDR-supported
- Supports HDMI® audio embedding / de-embedding functions
- Supports HDMI® local output
- Compliant with the USB 2.0 standard for a wide range of USB peripherals compatibility
- LED indication of HDBaseT™ and HDMI® signal status for easier recognition
- Fanless fin heat sink enclosure—elevates durability and reliability by preventing overheating, fan malfunctions, and noises
- Supports extremely high refresh rates of up to 240 Hz for the connected display
- Firmware upgradeable
- Built-in 8KV / 15KV ESD protection
- Plug-and-play
- Rack-mountable

PACKAGE CONTENTS

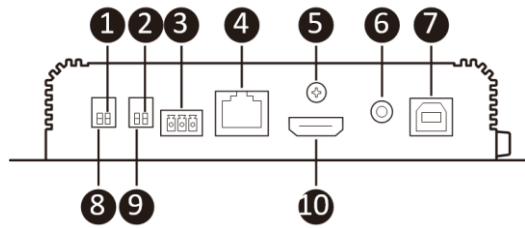
Take an inventory of the package contents to make sure you have all the items listed below.

Please contact Monoprice Customer Service for a replacement if anything is missing or damaged.

- **1x** Transceiver
- **1x** RS-232 Terminal Block
- **1x** Foot Pad Set (4 pcs)
- **1x** USB Type-B to USB Type-A Cable
- **1x** Power Adapter
- **1x** IR Emitter
- **1x** IR Receiver
- **1x** User Manual

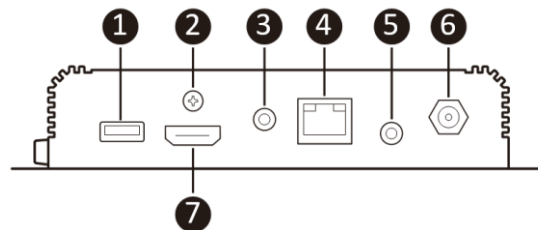
PRODUCT OVERVIEW

A. FRONT VIEW



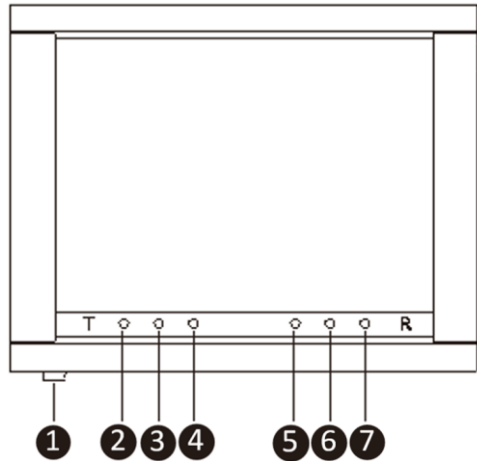
1	HDBaseT™ long reach mode switch (Reserved)	Sets to enable the long reach mode. This switch is currently reserved for future expansion.
2	HDMI® audio switch	Sets to enable the embed and de-embed functions.
3	RS-232 Port	Connects to an RS-232 serial controller (like a PC or a control system).
4	HDBaseT™ port	Connects with an HDBaseT™ 3.0-Certified Cat 6a cable with zero latency to transmit HDMI® and control signals to the connected receiver if the unit is set to a transmitter.
5	Cable Lock Screw (Reserved)	Universal HDMI® cable lock that provides the easiest way to secure an HDMI® cable to most HDMI® devices.
6	Audio IN	Connects to an audio source device, such as a PC.
7	USB Type-B port	Connects to the source device, such as a PC.
8	Firmware Upgrade Switch (Reserved)	This is reserved for Monoprice Technical Support. Should you like to do a firmware upgrade yourself, please contact your dealer.
9	Tx / Rx switch	Sets to define the unit as a transmitter or a receiver.
10	HDMI® IN	Connects to an HDMI® video source device using an HDMI® cable.

B. REAR VIEW



1	USB Type-A port	Connects to a peripheral device, such as a keyboard or mouse.
2	Cable Lock Screw (Reserved)	Universal HDMI® cable lock that provides the easiest way to secure an HDMI® cable to most HDMI devices.
3	Audio OUT	Connects to an audio output device, such as a set of speakers.
4	Ethernet Port	Connects to a network switch to provide Internet access for the connected source device using an RJ45 cable.
5	IR port	Connects to an IR emitter/receiver for IR remote control
6	Power Jack	Connects to a power adapter for power supply.
7	HDMI® OUT	Connects to a HDMI display device using an HDMI cable.

C. TOP VIEW



1	Grounding Terminal	Grounds the unit to a suitable grounded object.
Transmitter LEDs		
2	Power LED	Green Static: The unit is receiving power. OFF: The unit is powered off.
3	Link LED	Orange Static: Transmission between the transmitter-receiver is stable. Orange Blinking: Transmission between the transmitter-receiver is unstable. OFF: No transmission between the transmitter and receiver.
4	HDMI® IN LED	Orange Static: The video display is normal with the HDCP key. Orange Blinking: The video display is normal without the HDCP key. OFF: There is no video signal.
Receiver LEDs		
5	HDMI® OUT LED	Orange Static: The video display is normal with the HDCP key. Orange Blinking: The video display is normal without the HDCP key. OFF: There is no video signal.
6	Link LED	Orange Static: Transmission between the transmitter-receiver is stable. Orange Blinking: Transmission between the transmitter-receiver is unstable. OFF: There is no transmission between the transmitter and receiver.
7	Power LED	Green Static: The unit is receiving power. OFF: The unit is powered off.

D. DISPLAY & SOURCE DEVICE

- Up to two HDMI® displays are capable of the highest required resolution.
- A source device with an HDMI® port.

E. CABLES

- 2x HDMI® cables

To connect the transmitter and receiver units, we recommend using HDBaseT™ 3.0-Certified Cat 6a cables. For better video quality, we strongly suggest using an HDBaseT™ 3.0-Certified Cat 6a cable with zero latency.

F. WALL MOUNTING

You can mount this transceiver to the wall or on a rack. Secure or hang the unit to a solid wall using reliable mounting brackets (accessory not included).

G. CONSIDERATIONS

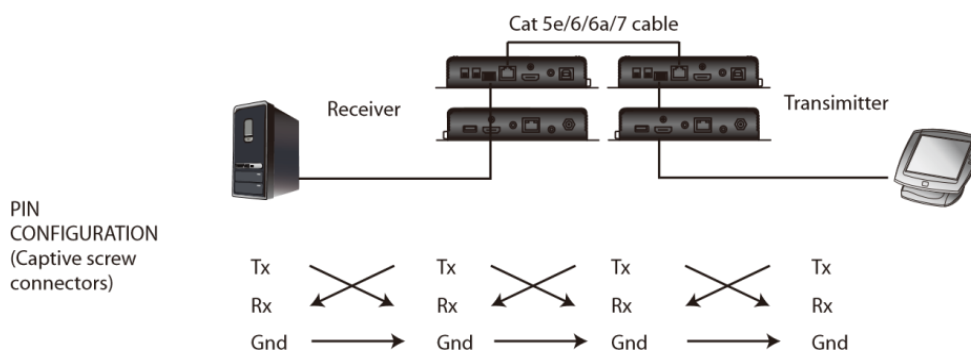
The maximum transmission distance varies at different parts of the transmission:

Connection	Interface	Resolution	Distance
Computer to the 44559 Transmitter	HDMI®	True 4K	5 m
The transmitter to a receiver or a compatible HDBaseT™ Receiver	HDBaseT™ 3.0-Certified Cat 6a cable with zero latency	True 4K	100 m
The receiver to a display	HDMI®	True 4K	5 m

NOTE: The maximum transmission distance for the True 4K resolution using an HDBaseT™ 3.0-Certified Cat 6a cable) with zero latency is 100 m.

H. RS-232 CHANNEL TRANSMISSION

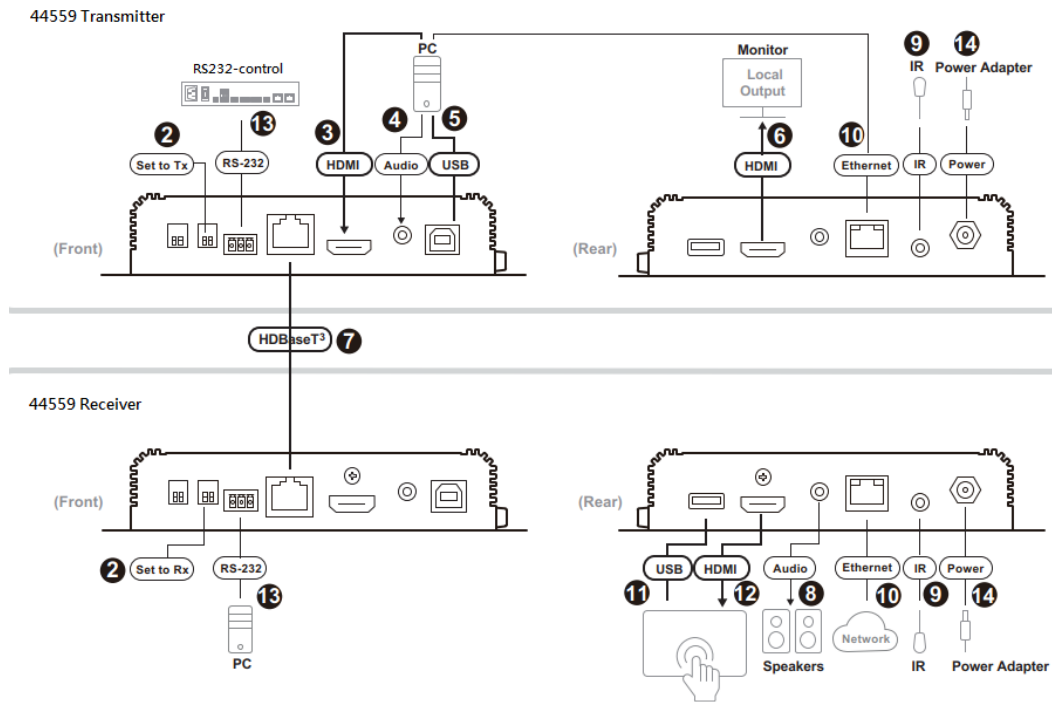
You can manage the connected devices via RS-232 serial devices, such as computers or barcode scanners. The RS-232 signal transmission flow can be illustrated as follows:



The general concept here is that an RS-232 signal can be transmitted (Tx) to the receiving (Rx) end of a unit. The received signal can then be transmitted (Tx) to the receiving (Rx) end of another unit. The RS-232 signals can be transmitted back the other way.

INSTALLATION

Follow the steps below to safely install this transceiver to a source, a display device, and other devices as required.

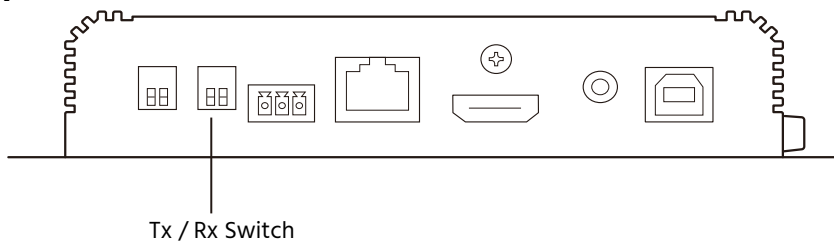


1. Ground the unit by connecting one end of a grounding wire to the grounding terminal and the other end to a suitable grounded object. **NOTE:** Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.
2. **IMPORTANT:** Before connecting the unit, please set the Tx / Rx switch to define the unit.
3. Connect an HDMI-enabled PC to the transmitter using an HDMI[®] cable. You can connect another HDMI-enabled source device here (e.g., a Blu-ray[™] player).
4. **OPTIONAL:** Connect an audio source device (e.g., PC) to the transmitter. To embed this audio input to the HDMI[®] output, turn ON the HDMI[®] audio switch (on the Tx).
5. Connect the USB Type-B port of the transmitter to a USB host (e.g., PC).
6. Connect an HDMI-enabled display device to the transmitter using an HDMI[®] cable.
7. Connect the HDBaseT[™] ports of the transmitter and receiver with an HDBaseT[™] 3.0-Certified Cat 6a cable (or above).
8. **OPTIONAL:** Connect your speakers or audio amplifier to the receiver. To de-embed this HDMI[®] audio from the HDMI[®] output, put the HDMI[®] audio switch (on Rx) to ON.
9. **OPTIONAL:** To remotely control a device connected to the receiver (e.g., a TV), connect the IR emitter to the IR port of the receiver, and the IR receiver to the IR port of the transmitter, and vice versa. **NOTE:** The unit supports bi-directional IR transmission.
10. **OPTIONAL:** To provide network connectivity for your PC, connect the receiver to a network switch and then connect the Ethernet port of the transmitter to your PC. **NOTE:** The unit supports bi-directional bypass transmission.

11. **OPTIONAL:** Connect the USB Type-A port to a USB-enabled touch screen.
12. Connect an HDMI-enabled touch screen to the receiver using an HDMI cable.
13. **OPTIONAL:** To control a PC through the serial controller remotely, connect the transmitter's RS-232 port to a serial controller, and then connect the receiver's RS-232 port to a PC, and vice versa.
14. Connect the power cord and the power adapter, and then plug the power adapter cables into the unit's power jack.
15. Turn on all connected devices.

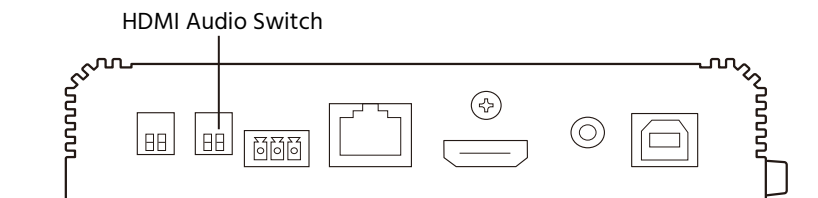
OPERATION

A. Tx / Rx SWITCH



Use the Tx / Rx switch to set the unit as a transmitter or receiver as needed.

B. HDMI AUDIO SWITCH



To embed the audio signals, follow the steps below:

1. Set the HDMI audio switch on the transmitter to ON.
2. Set the HDMI audio switch on the receiver to OFF.

To de-embed the audio signals, follow the steps below:

1. Set the HDMI audio switch on the transmitter to ON.
2. Set the HDMI audio switch on the receiver to OFF.

To bypass the audio signals, follow the steps below:

1. Set the HDMI audio switch on the transmitter to OFF.
2. Set the HDMI audio switch on the receiver to OFF.

NOTE: By default, the HDMI audio switch on the 44559 is set to OFF.

TECHNICAL SPECIFICATIONS

P/N	44559	
VIDEO IN		VIDEO OUT
Interfaces	1x HDMI® Type-A Female (Black)	1x HDMI® Type-A Female (Black)
Impedance	100Ω	100Ω
Max. Distance	5 m	5 m
VIDEO		
Max. Data Rate	18 Gbps (6 Gbps per Lane)	
Max. Pixel Clock	600 MHz	
Compliance	HDMI® (3D, Deep Color, 4K / 60Hz); 4K HDR HDCP 2.3 Compatible Consumer Electronics Control (CEC) NOTE: The CEC signals are only bypassed from the transmitter unit to the receiver unit and do not support local output.	
Max. Resolutions	4096 × 2160 @ 60Hz (4:4:4) 3840×2160 @ 60 Hz (4:4:4)	
Max. Resolutions / Distances	Up to 4K×2K @ 60Hz (4:4:4) @ 100 m HDBaseT™ 3.0-Certified Cat 6a cable	
Input Resolutions	6460×480 @ 60, 67, 72, 75 Hz / 720×400 @ 70 Hz / 800 × 600 @ 56, 60, 72, 75 Hz / 1024×768 @ 60, 70, 75 Hz / 1280×800 @ 60 Hz / 1280×1024 @ 60, 75 Hz / 1400×1050 @ 60 Hz / 1400×900 @ 60 Hz / 1600×1200 @ 60 Hz / 1680×1050 @ 60 Hz / 1920×1080, 1200 @ 60 Hz / 1920×1200 @ 60 Hz (Reduced Blanking) / 1080p 60 Hz / 480p 60 Hz (4:3, 16:9) / 720p 60 Hz / 1080i 60 Hz / 640×480 60 Hz (4:3) / 576p 50 Hz (4:3, 16:9) / 720p 50 Hz / 1080i, 1080p 50 Hz / 1080p (24, 25, 30 Hz) / 3840×2160p (24, 25, 30, 50, 60 Hz) / 4096×2160p (24, 25, 30, 50, 60 Hz) / 3840×2160p (50, 60 Hz) 4:2:0 / 4096×2160p (50, 60 Hz) 4:2:0 / 7680×4320 30 Hz 4:2:0	
AUDIO		
Input	1x HDMI Type-A Female (Black) 1x Stereo Audio (Mini Stereo Jack Female Green)	
Output	1x HDMI Type-A Female (Black) 1x Stereo Audio (Mini Stereo Jack Female Green)	
CONNECTORS		
Unit to Unit	1x RJ45 Female	
Power	1x DC Jack with locking (Black)	
Control RS-232 Channel	Connector: 1x Terminal Block, 3-pole Baud Rate: 19200, Data Bit: 8, Stop Bit: 1 No parity and flow control	

IR Channel	1x Mini Stereo Jack Female (Black, Bi-directional) 30K ~ 56 kHz full range transmission
Ethernet Channel	1x GbE RJ45 Female
USB Channel	1x USB 2.0 Type-B Female (White, Host), 1x USB 2.0 Type-A Female (White, Device), Transmission Data Bandwidth: Up to 3000 Mbps
Power Consumption	DC 12V: 6.45W: 40 BTU
SWITCHES	
Ethernet Channel	1x GbE RJ45 Female
USB Channel	1x USB 2.0 Type-B Female (White, Host), 1x USB 2.0 Type-A Female (White, Device), Transmission Data Bandwidth: Up to 3000 Mbps
Power Consumption	DC 12V: 6.45W: 40 BTU
LED	
Power	1x Tx (Green, Transmitter), 1x Rx (Green, Receiver) NOTE: The Tx / Rx LED lights indicate the role the unit is set to.
Link	1x Tx (Orange, Transmitter), 1x Rx (Orange, Receiver)
Video Output	1x Rx HDMI OUT (Orange, Receiver)
Video Input	1x Tx HDMI IN (Orange, Transmitter)
ENVIRONMENTAL	
Operating Temperature	0 ~ 40°C
Storage Temperature	-20 ~ 60°C
Humidity	0 × 80% RH, Non-Condensing
PHYSICAL PROPERTIES	
Housing	Metal
Weight	0.64 kg (1.41 lbs)
Dimensions (L x W x H)	17.15 cm × 15.09 cm × 3.00 cm (6.75" × 5.94" × 1.18")

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 **44559** 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.

HDMI TRADEMARK STATEMENT



The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

RoHS STATEMENT

This product is RoHS compliant.

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.

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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

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