Blackbird™ 4K 8x8 HDBaseT™ Matrix with 6 Receivers

P/N 39670

User's Manual

CONTENTS

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 unplug it from the power outlet 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 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.
- Use only in a well-ventilated area. Do not use in close, confined spaces.
- 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 Blackbird™ 4K 8x8 HDBaseT™ Matrix features 8 HDMI® inputs, 2 HDMI outputs, 6 HDBaseT outputs, and 4 digital optical S/PDIF audio outputs. It supports video resolutions up to 4K@60Hz with YCbCr 4:4:4 and can transmit 4K video to distances up to 131 feet (40 meters) and 1080p video to distances up to 229 feet (70 meters) over a single Cat5e/6 Ethernet cable. Audio extracted from the HDMI inputs, HDBaseT outputs, and Audio Return Channel (ARC) output from the HDBaseT receivers can be output using the 4 digital optical S/PDIF audio connectors. It supports bidirectional IR extension and features front panel buttons, IR remote control, RS-232, and Web GUI control options. It supports the Power over Cable (PoC) feature, which allows the receivers to draw their power from the matrix over the Ethernet cable. It includes smart EDID® management using the 4-pin DIP switch on the rear panel.

FEATURES

- Supports HDMI® resolutions up to 4K@60Hz with YCbCr 4:4:4 HDR, including 1080p@60Hz and 3D video
- Fully compliant with the HDMI 2.0 and HDCP™ 2.2 specifications
- Can transmit 4K signals to distances up to 131 feet (40 meters) and 1080p signals to distances up to 229 feet (70 meters) over a single Cat5e/6 Ethernet cable
- Features 6 HDBaseT™ outputs and includes 6 receivers
- Supports the 24V Power over Cable (PoC) feature, allowing the receivers to draw their power from the matrix over the Ethernet cable
- Includes two HDMI outputs for connecting local displays
- Audio from the HDMI inputs, HDBaseT and HDMI outputs, and Audio Return Channel (ARC) audio from the receivers can be output to 4 digital optical S/PDIF audio outputs
- Includes smart EDID® management using the 4-pin DIP switch on the rear panel
- Can be controlled using the front panel controls, the included IR remote control, or with a computer using an RS-232 or Ethernet connection

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 Blackbird™ 4K 8x8 HDBaseT™ matrix

6x HDBaseT receivers

2x Mounting ears with 6 screws for the matrix

12x Mounting ears with 24 screws for the receivers

4x Plastic feet for the matrix

24 Plastic feet for the receivers

1x IR remote control

6x IR receivers

8x IR transmitters

1x RS-232 cable (3-pin to DB-9)

6x 3-pin terminal blocks

1x AC power adapter

1x User's manual

PRODUCT OVERVIEW

Matrix Front Panel

1. **POWER LED:** The LED indicator illuminates red when power is applied.
2. **OUTPUTS:** Eight buttons with LED indicators for selecting the outputs.
3. **INPUTS:** Eight buttons with LED indicators for selecting the inputs.
4. **MENU:** Four buttons for performing various menu related functions.
    - **ENTER:** Press the button to accept the changes.
    - **LOCK:** Press the button to lock or unlock the other buttons on the front panel.
    - **ALL:** Press the button to select all inputs for EDID® management or all outputs for switching.
    - **CLEAR:** Press the button to cancel pending changes.
5. **PRESET RECALL:** Momentarily press one of the 4 buttons to select a previously saved preset. The LED to the left of the button illuminates to indicate that the preset is active. Press and hold one of the 4 buttons to save the current input selections for each output channel to a preset.

Matrix Rear Panel

1. **INPUTS:** Eight HDMI® inputs for connecting the video source devices.
2. **OUTPUTS:**
   - **1-6 HDBT:** Six RJ45 Ethernet jacks for connecting the included receivers using Cat5e/6 Ethernet cables (not included).
   - **7-8 HDMI:** Two HDMI output ports for connecting local displays.
3. **IR OUT:**
   - **1-8:** Eight 3.5mm jacks for connecting the included IR transmitters for IR pass-through control of the individual video source devices.
   - **ALL OUT:** One 3.5mm jack for connecting one of the included IR transmitters for IR pass-through control of all video source devices.
4. **IR IN:**
   - **1-6:** Six 3.5mm jacks for connecting the included IR receivers to receive IR signals for transmission to the corresponding HDBaseT™ receivers.
   - **ALL IN:** One 3.5mm jack for connecting one of the included IR receivers to receive IR signals for transmission to all HDBaseT receivers.
5. **AUDIO MATRIX OUTPUTS/ARC:** Four digital optical S/PDIF connectors for connecting external amplifiers for separate amplification of audio de-embedded from the HDMI inputs, HDBaseT and HDMI outputs, and Audio Return Channel (ARC) audio from the HDBaseT receivers. By default, the four outputs use audio de-embedded from HDBaseT receivers 1-4. The source for the audio de-embedding can be set using the built-in Web GUI or using RS-232 commands.

6. **CONTROL:**
    - **TCP/IP:** RJ45 Ethernet jack for connecting to an existing Ethernet network using a Cat5e/6 Ethernet cable (not included) for computer control using the built-in Web GUI.
    - **RS232:** 3-pin terminal block for connecting the included RS-232 cable for computer control using RS-232 commands or to connect to a third-party device for RS-232 control.
    - **IR EYE:** 3.5mm jack for connecting one of the included IR receivers to control the matrix using the included IR remote control.
    - **FW:** USB Type-A port for connecting a USB flash drive for performing firmware updates.
7. **DC 12V:** Connector for attaching the included AC power adapter.

Receiver

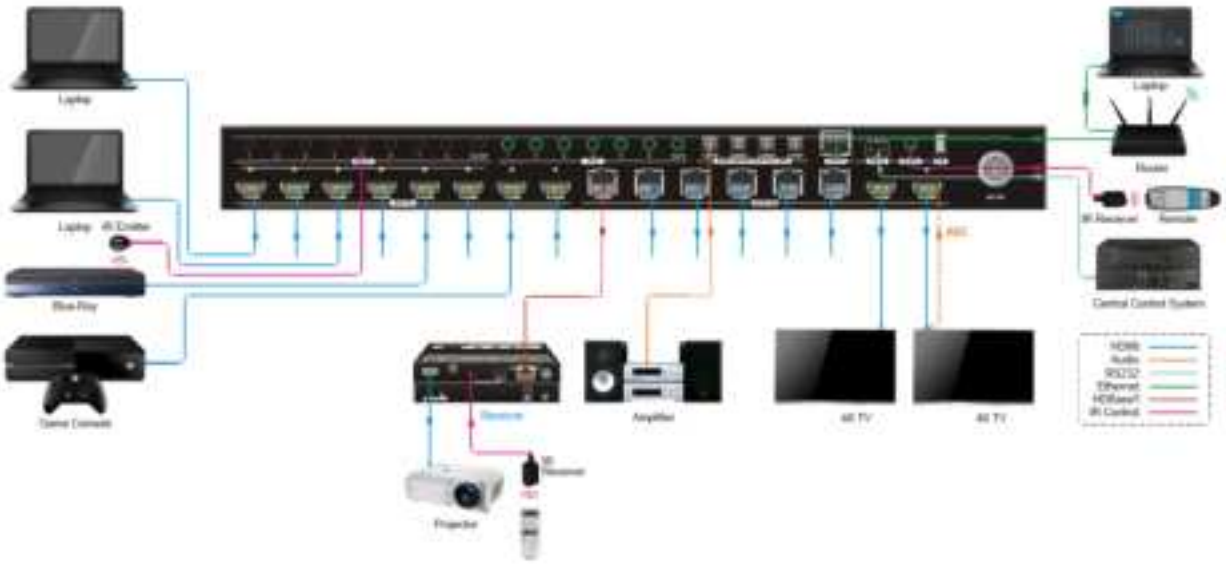
1. **POWER LED:** The LED illuminates red when power is applied.
2. **ARC Mode:** Use a paper clip or other sharp, thin device to press the recessed button to enable or disable Audio Return Channel (ARC) audio. When ARC mode is enabled, the LED illuminates blue. When ARC audio is selected as the audio source for one of the digital optical S/PDIF outputs on the matrix, ARC mode is automatically enabled.
3. **ARC Audio In:** Digital optical S/PDIF input for connecting the ARC audio source (e.g., TV) using a digital optical S/PDIF audio cable (not included).
4. **FW:** Micro USB port for connecting a USB flash drive to perform firmware updates.
5. **HDMI Out:** HDMI® port for connecting an HDMI display using an HDMI cable (not included).

6. **Audio Breakout:** Digital optical S/PDIF connector for connecting an external amplifier using a digital optical S/PDIF cable (not included) for amplification of audio de-embedded from the input. Note that if ARC mode is enabled, this output is disabled.
7. **IR In:** 3.5mm jack for connecting one of the included IR receivers for IR pass-through control of the video source devices.
8. **IR Out:** 3.5mm jack for connecting one of the included IR transmitters for IR pass-through control of the connected display.
9. **RS232:** 3-pin terminal block for connecting the included RS-232 cable for computer control of the matrix using RS-232 commands or to connect to a third-party device for RS-232 control.
10. **HDBT In:** RJ45 jack for connecting the Ethernet cable from the matrix. The **HDCP** LED illuminates green when the video contains HDCP™ content. The **LINK** LED illuminates orange when there is a valid HDBaseT™ link with the matrix.
11. **DC 12V:** DC barrel connector for connecting an AC power adapter (not included). Note that the receivers can be power using the Power over Cable (PoC) feature, so no AC power adapters for the receivers are included.

IR Remote Control

1. **STANDBY:** Press the **STANDBY** button to turn the matrix on or to put it into standby mode.
2. **INPUTS:** Eight numbered buttons corresponding to the eight inputs.
3. **OUTPUTS:** Eight numbered buttons corresponding to the eight outputs.
4. **MENU:**
    - **ALL:** The **ALL** button can be used to select all **INPUTS** for EDID® management or all **OUTPUTS** for switching.
    - **EDID:** The **EDID** button is used to set the EDID for one or more **INPUTS** to the EDID capabilities of the selected **OUTPUT**.
    - **CLEAR:** The **CLEAR** button is used to cancel a change in progress.
    - **ENTER:** The **ENTER** button is used to accept the change.

SAMPLE CONNECTION DIAGRAM



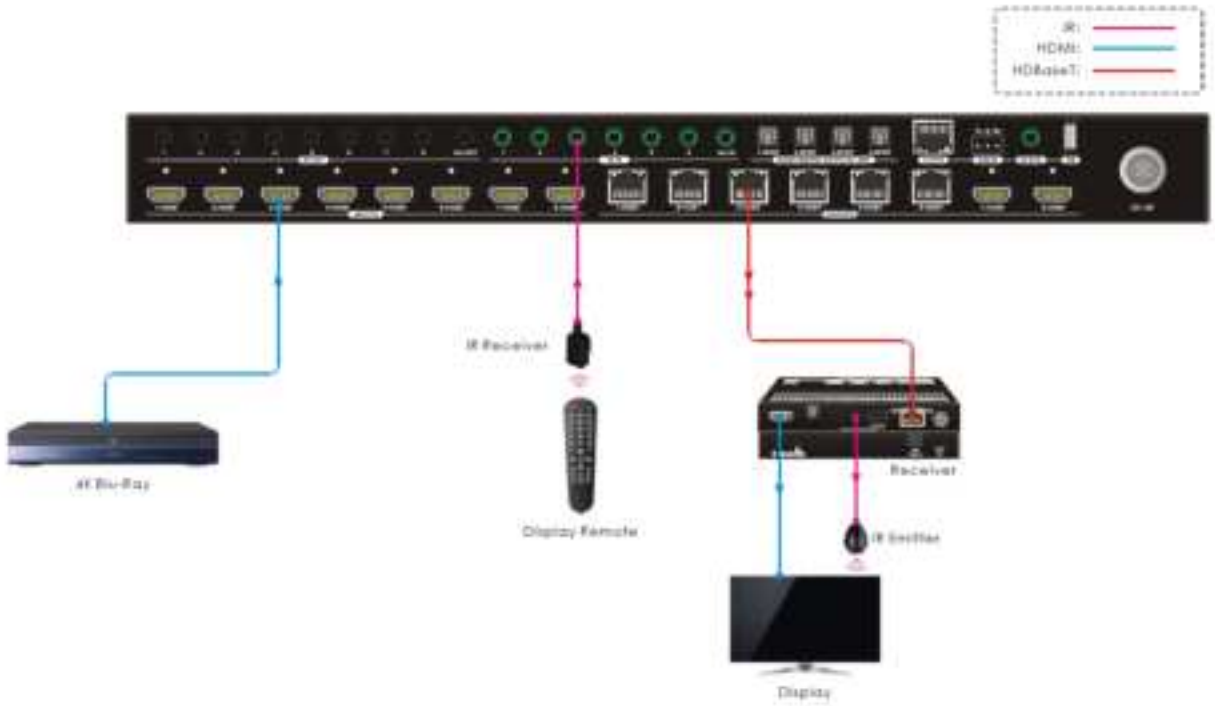
IR PASS-THROUGH CONTROL

This matrix features bidirectional IR control and includes 6 IR receivers and 8 IR transmitters. The receivers and transmitters can be installed in a variety of ways for several control options. The following diagrams illustrate the various control methods.

Controlling a Single Remote Display from the Matrix

Perform the following steps to connect for control of one of the remote displays from the matrix location.

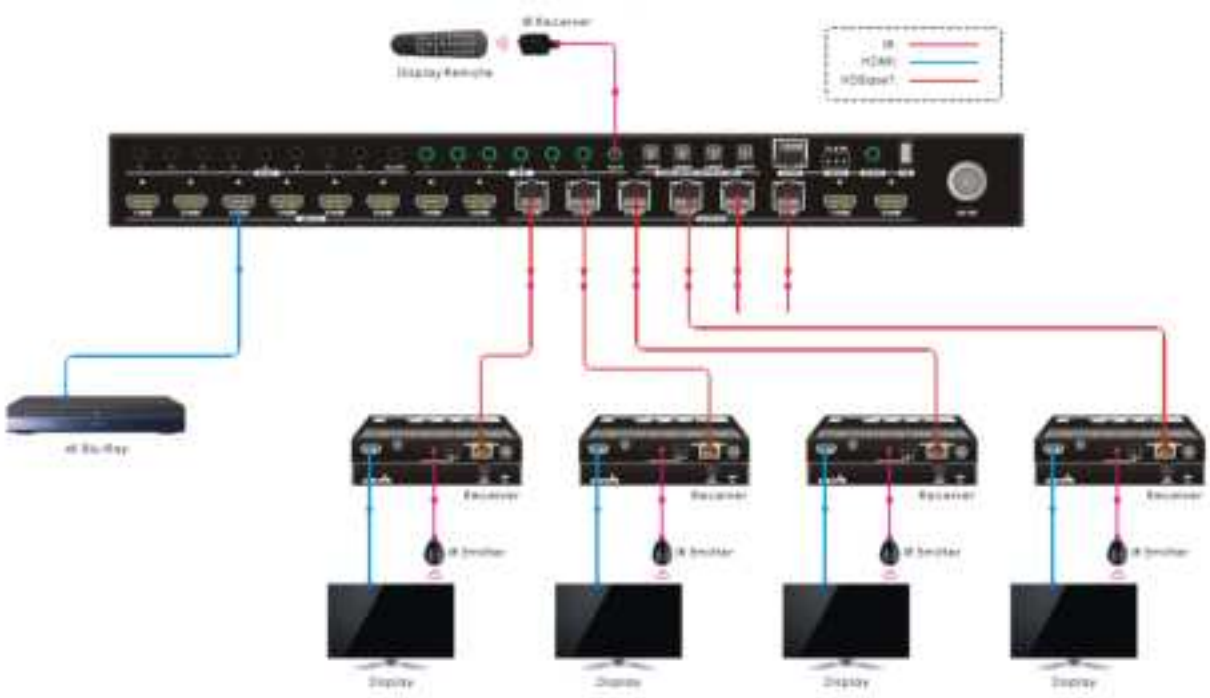
1. Plug one of the included IR transmitters to the **IR Out** jack on the receiver, then position the emitter so that it can transmit to the IR eye on the display.
2. Plug one of the included IR receivers to the **IR IN** jack on the matrix that corresponds to the receiver, then position it so that it can receive IR signals from the remote display's IR remote control.



Controlling All Remote Displays from the Matrix

Perform the following steps to connect for control of all of the remote displays from the matrix location.

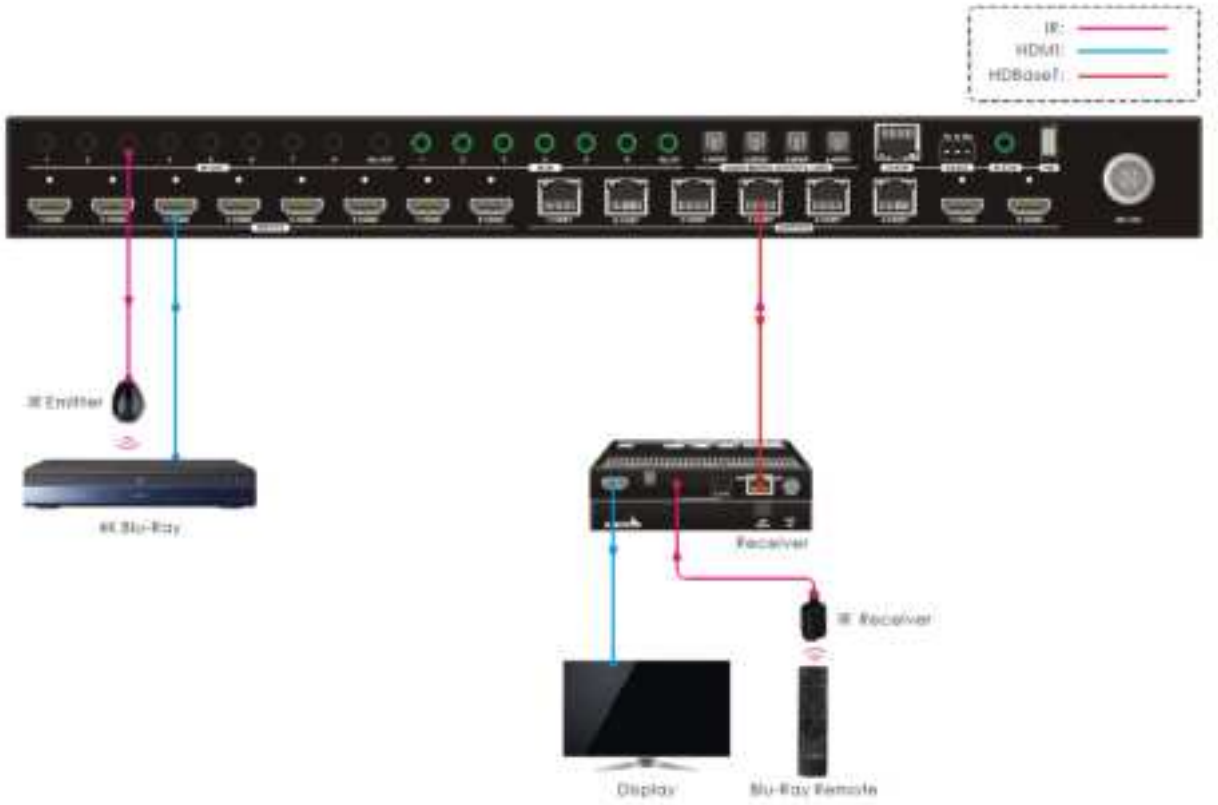
1. Plug one of the included IR transmitters to the **IR Out** jack on each connected receiver, then position the emitters so they can transmit to the IR eyes on each display.
2. Plug one of the included IR receivers into the **IR IN ALL IN** jack on the matrix, then position it where it can receive IR signals from the remote displays' IR remote controls.



Controlling a Single Source Device from a Receiver

Perform the following steps to connect for control of a single video source device from the receiver location.

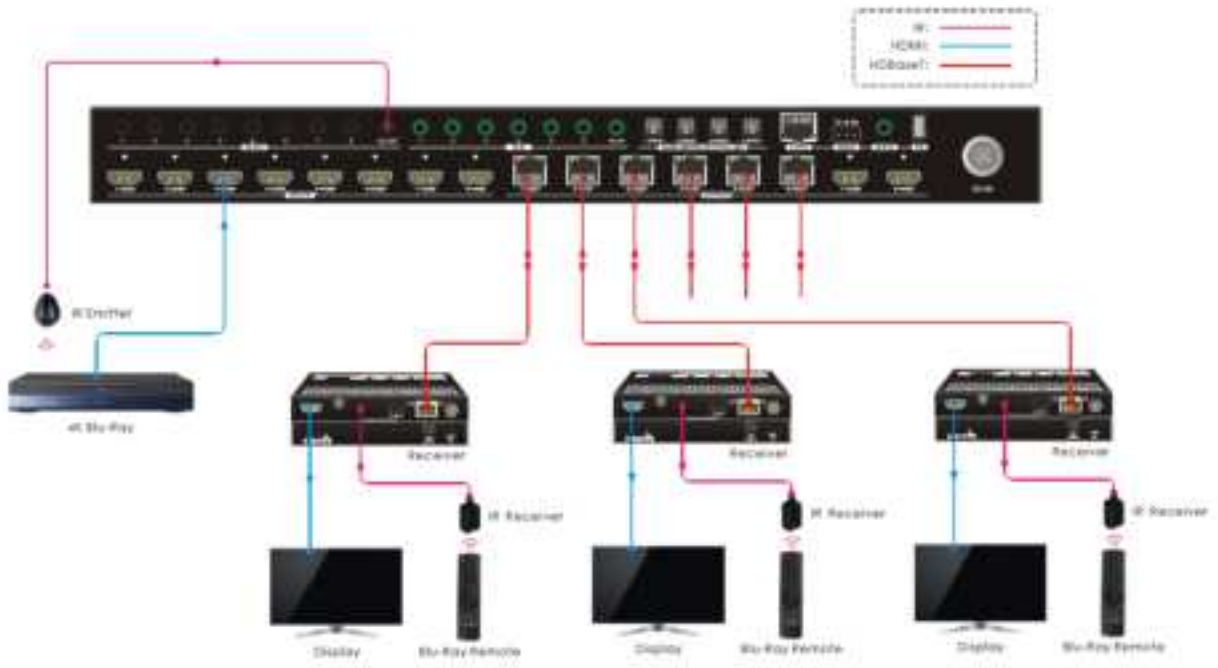
1. Plug one of the included IR transmitters into the **IR OUT** jack on the matrix that corresponds to the source device to be controlled, then position it where it can transmit to the IR eye on the source device.
2. Plug one of the included IR receivers into the **IR In** jack on one of the receivers, then position it where it can receive signals from the source device's IR remote control.



Controlling All Source Devices from All Receivers

Perform the following steps to connect for control of all video source devices from the receiver locations.

1. Plug one of the included IR transmitters into the **IR OUT ALL OUT** jack on the matrix, then position it where it can transmit to the IR eyes on the source devices.
2. Plug one of the included IR receivers into the **IR In** jack on one or more of the receivers, then position them where they can receive signals from the source devices' IR remote controls.



CONTROL

Front Panel Buttons

The matrix can be controlled using the buttons on the front panel. Whenever a command is accepted, the LEDs of all buttons pressed will blink three times, then turn off. If the **ENTER** or **CLEAR** button is not pressed after initiating a change, the LEDs will turn off after eight seconds.

- To switch an input to one or more outputs, press one of the **INPUTS** buttons, then press one or more **OUTPUTS** buttons or the **ALL** button for all outputs, and finally press the **ENTER** button to execute the change.
- To see which input is assigned to a given output, press and hold the **OUTPUTS** button you want to query. The LED of the assigned input illuminates blue. The LEDs turn off when you release the **OUTPUTS** button.
- Press and hold the **LOCK** button for about 3 seconds to lock or unlock the other front panel buttons. The LED next to the **LOCK** button illuminates blue when the front panel buttons are locked.
- Press and hold one of the **PRESET** buttons to save the current switching layout to the corresponding preset. Momentarily press one of the **PRESET** buttons to load the corresponding preset. The LED next to the selected **PRESET** button illuminates blue to indicate that it is selected.

  Note: The matrix supports nine presets, but only the first four presets can be accessed using the front panel controls and only the first six can be managed in the Web GUI. The other three presets can be managed using RS-232 control.
- Press the **ENTER** button to execute any pending commands.
- Press the **CANCEL** button to clear any pending commands.

IR Remote Control

- Press the **STANDBY** button to turn the matrix on or to put it into standby mode.
- To switch the selected input for one or more of the outputs, first press the number button in the **INPUTS** section corresponding to the desired input, then press one or more number buttons in the **OUTPUTS** section or the **ALL** button in the **MENU** section for all outputs, and finally press the **ENTER** button in the **MENU** section to execute the change.
- To set the EDID® for one or more source devices to the EDID capabilities of a specific output, press the **EDID** button, then press one or more number buttons in the **INPUTS** section corresponding to the desired input(s) or the **ALL** button in the **MENU** section for all inputs, then press a number button corresponding to the **OUTPUT** with the desired EDID settings, and finally press the **ENTER** button in the **MENU** section to execute the change.
- At any time prior to pressing the **ENTER** button to execute the change, you can press the **CANCEL** button in the **MENU** section to cancel the pending change.

Following are some examples:

- To send input 3 to output 2, first press the **INPUTS 3** button, then press the **OUTPUTS 2** button, and finally press the **ENTER** button to execute the change.
- To send input 4 to all outputs, first press the **INPUTS 4** button, then press the **ALL** button, and finally press the **ENTER** button to execute the change.
- To send the EDID from output 4 to all inputs, first press the **EDID** button, then press the **ALL** button to select all inputs, press the **OUTPUTS 4** button, and finally press the **ENTER** button to execute the change.

WEB GUI CONTROL

The matrix features a built-in Web GUI and the ability to be controlled from a computer connected to the network. To use the Web GUI, you must first connect the matrix to an existing Ethernet network using a Cat5e or Cat6 Ethernet cable (not included). The default IP settings of the matrix are as follows:

IP Address:	192.168.0.178
Subnet Mask:	255.255.255.0
Gateway:	192.168.0.1

Login

To access the Web GUI, open an internet browser on your computer, then type **192.168.0.178** into the address bar and hit enter. You will see the following login screen.

The default User Name and Password are:

User Name: admin

Password: admin

Type the **User Name** and **Password** into the appropriate fields, then click the **Login** button.

Switching Tab

- Use the 8x8 button grid on the left side of the screen to set which inputs are directed to each of the eight outputs. For example, if you want to send Input 1 to Outputs 1-4, click the **Input 1** button in the **Output 1**, **Output 2**, **Output 3**, and **Output 4** columns.
- Use the six numbered buttons in conjunction with the **Save** and **Recall** buttons to save and load layout presets. Note that the matrix supports 9 presets, with presets 1-4 corresponding to the four **PRESET RECALL** buttons on the matrix front panel. The three remaining presets can be managed using RS-232 control.
    - To save a given layout, first click one of the numbered buttons, then click the **Save** button.
    - To load a previously saved layout, first click one of the numbered buttons, then click the **Recall** button.

Audio Tab

- Use the pull-down list boxes to select a source for the selected digital optical S/PDIF audio output. For each S/PDIF output you can select the audio from any of the eight inputs, the audio from any of the eight outputs, or the ARC audio from the six HDBaseT™ outputs.

Configuration Tab

PoC

- Click the **On** or **Off** radio buttons to enable or disable the Power over Cable (PoC) feature for each of the six **HDBT** outputs, then click the **Confirm** button to save the changes.
- Click the **Cancel** button at any time to cancel any unsaved changes.

EDID Copy

- Click one of the **HDMI** tabs above the radio buttons to select an input, then click one of the six **HDBT Out** or two **HDMI Out** radio buttons, and finally click the **Confirm** button to send the EDID® settings from the selected output to the selected input.
- Click the **Cancel** button at any time to clear any unsaved changes.

EDID Setting

- Click one of the **HDMI** tabs above the radio buttons to select an input, then click one of the radio buttons other than the **User-defined** entry. and finally click the **Confirm** button to send the selected fixed EDID® setting to the selected input.
- Click one of the **HDMI** tabs above the radio buttons to select an input, then click the **User-defined** radio button. Click inside the box with the **.bin** label, locate and select the file with your custom EDID settings, then click the **Apply** button to load your custom EDID settings, and finally click the **Confirm** button to send your custom EDID to the selected input.

  Note: You can create the .bin file with the custom EDID settings using HDMI® EDID programming software.
- Click the **Cancel** button at any time to cancel any unsaved changes.

CEC Tab

Input

- Click one of the radio buttons in the **Input** section to select an input device to control, then click one of the buttons in the **Function** section to send the command to the selected video input device. Note that your device must support the Consumer Electronics Control (CEC) HDMI® feature to be controlled using the Web GUI or IR remote control and only a single source device can be controlled at a time.

Output

- Click one of the radio buttons in the **Display** section to select a display to control, then click one of the buttons in **Function** section to send the command to the selected display. Note that your display must support the Consumer Electronics Control (CEC) HDMI® feature to be controlled using the Web GUI or IR remote control and only a single display can be controlled at a time.

RS232 Tab

Local

- Click the **Local** radio button to send RS-232 commands to the matrix.
- Click the **HEX** radio button to specify that your RS-232 command will be in hex format or click the **ASCII** radio button to specify that your RS-232 command will be in ASCII format.
- Use the pull-down list box next to the **Baud Rate** label to select the speed at which your RS-232 command is sent. You can select **2400**, **4800**, **9600**, **19200**, **38400**, **57600**, and **115200** baud.
- Use the pull-down list box next to the **Command Ending** label to select the termination for your RS-232 command. You can select **NULL**, **CR**, **LF**, or **CR+LF**.
- Type your RS-232 command into the **Command** field, then click the **Send** button to send the command using the selected format, baud rate, and termination settings. See the *RS-232 COMMANDS* section for a list of valid RS-232 commands.
- Click the **Cancel** button at any time to clear any unsent command.

HDBT

- Click the **HDBT** radio button to send RS-232 commands to one of the HDBaseT™ receivers to control a connected third-party device.
- Click one of the radio buttons in the **Port** section to select which HDBaseT receiver will receive the RS-232 command.
- Click the **HEX** radio button to specify that your RS-232 command will be in hex format or click the **ASCII** radio button to specify that your RS-232 command will be in ASCII format.
- Use the pull-down list box next to the **Baud Rate** label to select the speed at which your RS-232 command is sent. You can select **2400**, **4800**, **9600**, **19200**, **38400**, **57600**, and **115200** baud.
- Use the pull-down list box next to the **Command Ending** label to select the termination for your RS-232 command. You can select **NULL**, **CR**, **LF**, or **CR+LF**.
- Type your RS-232 command into the **Command** field, then click the **Send** button to send the command using the selected format, baud rate, and termination settings. See the *RS-232 COMMANDS* section for a list of valid RS-232 commands.
- Click the **Cancel** button at any time to clear any unsent command.

Interface Tab

- Type a new title into the field next to the **Title Bar Label**, then click the **Confirm** button to save the change. The title is displayed at the bottom of each page in the Web GUI.
- You can type new labels into the **Button Labels** fields. These button labels are displayed on the **Switching Tab**. Click the **Confirm** button to save the changes.
- Click the **Cancel** button at any time to cancel any unsaved changes.

Network Tab

- The **MAC Address** entry shows the MAC address of the matrix.
- Click the slider under the **MAC Address** entry to change between using the Dynamic Host Configuration Profile (**DHCP**) to automatically determine your IP address or the **Static IP** address shown on this page.
- Enter new **IP Address**, **Subnet Mask**, and **Gateway** addresses, then click **Confirm** to save the changes. Once changed, the Web GUI is accessed using the new address.
- Click the **Cancel** button at any time to cancel any unsaved changes.

Access Tab

- Type a new password into the field next to the **Password** label, then click the **Confirm** button to change the login password. Note that passwords are case sensitive. The default password is **admin**.
- Click the slider under the **Front Panel Lock** label to lock or unlock the front panel buttons. When locked, the front panel buttons cannot be used to control the matrix.

WEB GUI UPGRADE

In the event that the Web GUI software in the matrix changes, a Web GUI upgrade file will be made available for download on the product page on the Monoprice.com website. Perform the following steps to download and apply the Web GUI upgrade.

1. Open a web browser and type **monoprice.com** on the address bar, then hit enter.
2. On the Monoprice website, type **39670** into the search bar and hit enter.
3. Go to the bottom of the page and look for the **Support Files** section. Locate and download the new Web GUI update zip file. Note the location to which you downloaded the file.
4. Extract the update file from the downloaded zip file.
5. In your web browser, type **http://192.168.0.178: 100** into the address bar and hit enter.
6. Enter the **User Name** and **Password** on the login screen, then click the **Login** button. The default User Name is **admin** and the default Password is **admin**. The following screen will be displayed.

7. Click the **Administration** entry on the left, then click the **Upload Firmware** entry.
8. Click the **Choose File** button, then locate and select the update file on your computer.
9. Click the **Apply** button, then follow the on-screen instructions.

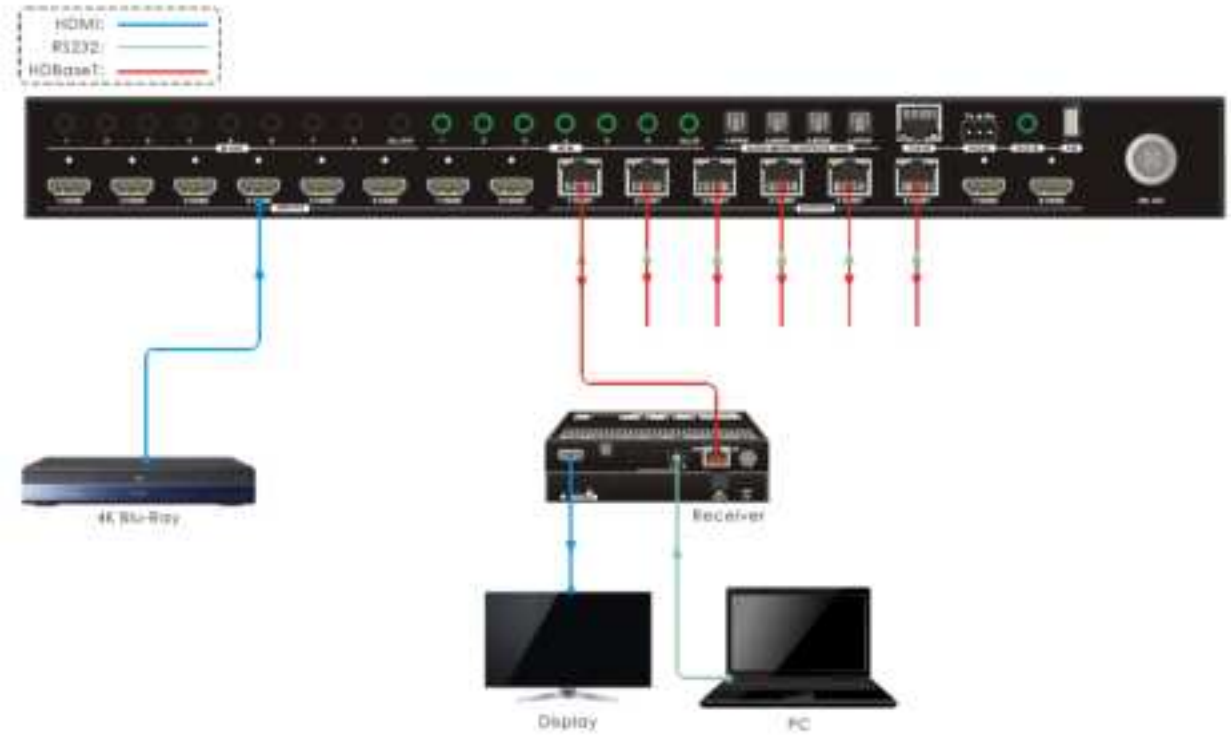
RS-232 CONNECTION

This section details the various ways you can connect your computer and any third-party devices for matrix and third-party device control.

Controlling the Matrix with a PC Connected to the Matrix

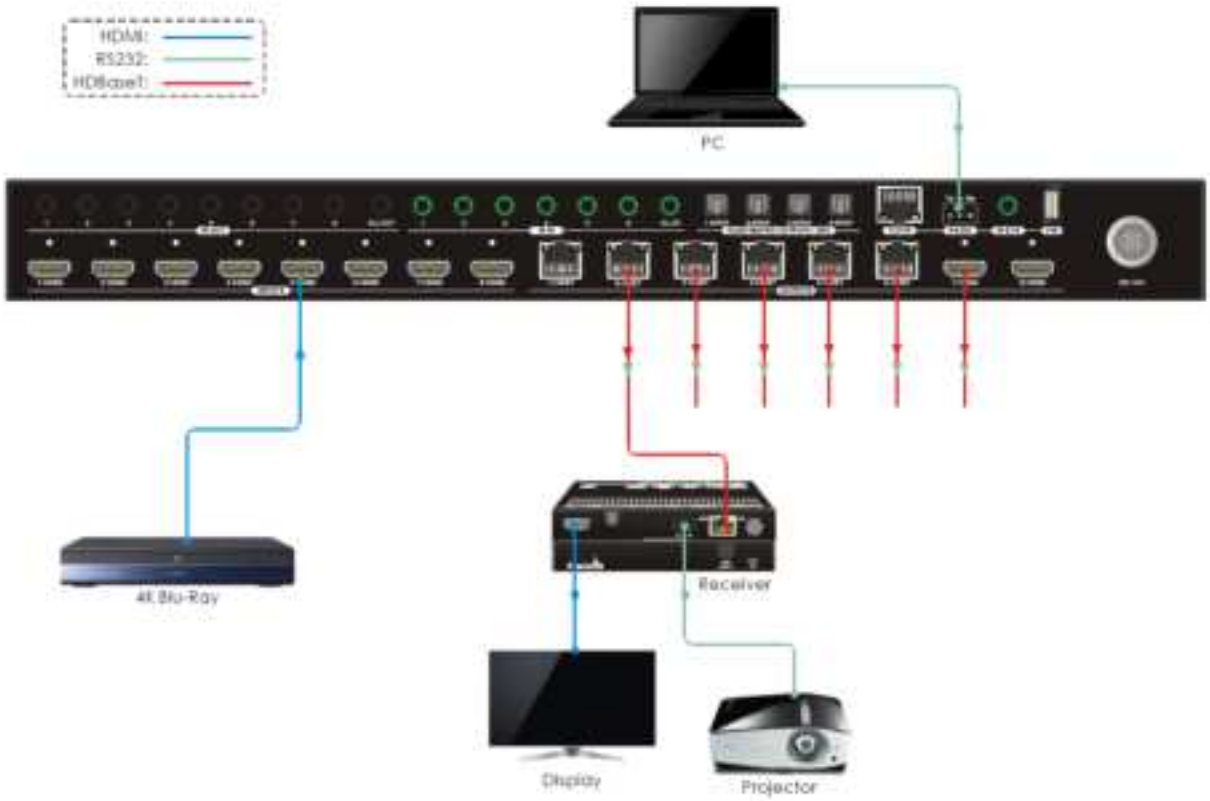
- Plug one end of the included RS-232 cable into the **RS232** connector on the matrix rear panel, then plug the other end into an available COM port on your PC.

Controlling the Matrix with a PC Connected to a Receiver



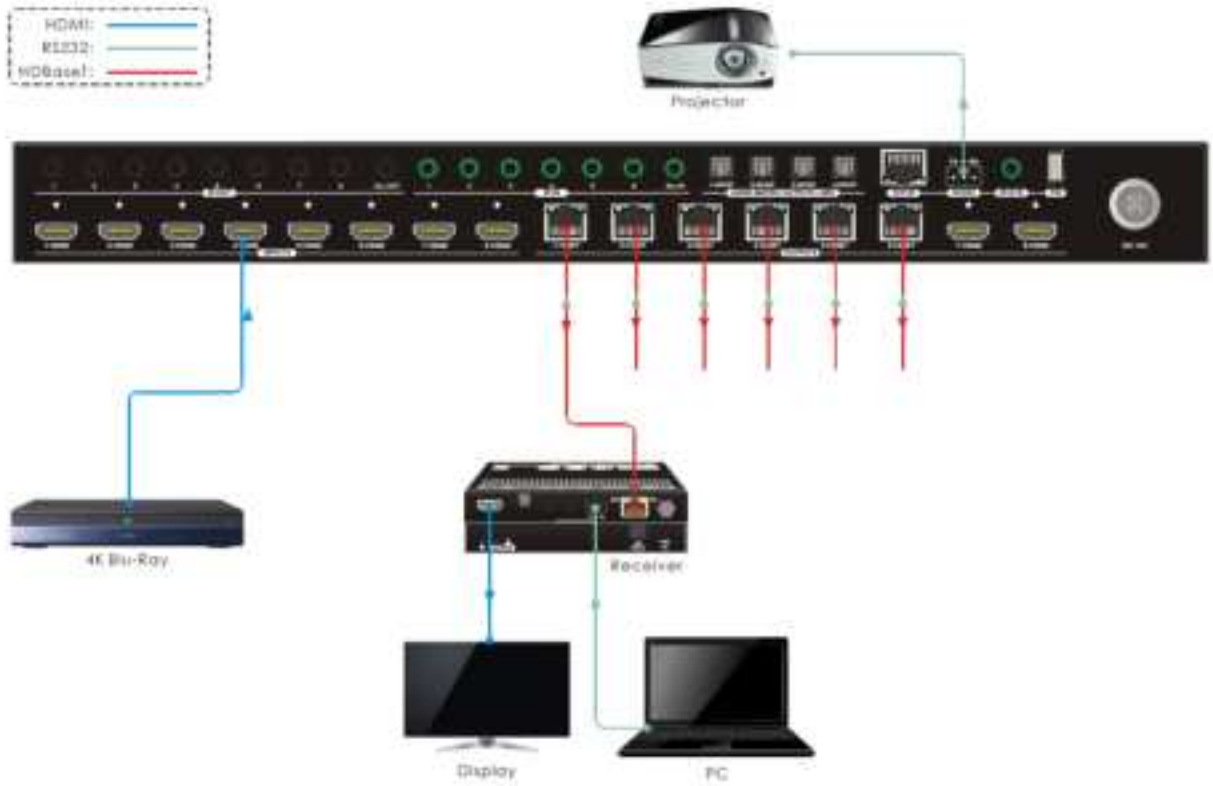
1. Plug one end of the included RS-232 cable into the **RS232** connector on one of the receivers, then plug the other end into an available COM port on your PC.
2. Using RS-232 control software, send the **RS232RCMxxON.** command to enable remote RS-232 control, where xx=00 for all HDBaseT™ receivers or 01-06 for an individual receiver. Refer to the *RS-232 COMMANDS* section for command details.

Controlling a Remote Third-Party Device with a PC Connected to the Matrix



1. Plug one end of the included RS-232 cable into the **RS232** connector on the matrix rear panel, then plug the other end into an available COM port on your PC.
2. Plug one end of a second RS-232 cable (not included) in the **RS232** connector on one of the receivers, then plug the other end into the RS-232 control connector on your third-party device.

Control a Local Third-Party Device with a PC Connected to a Receiver

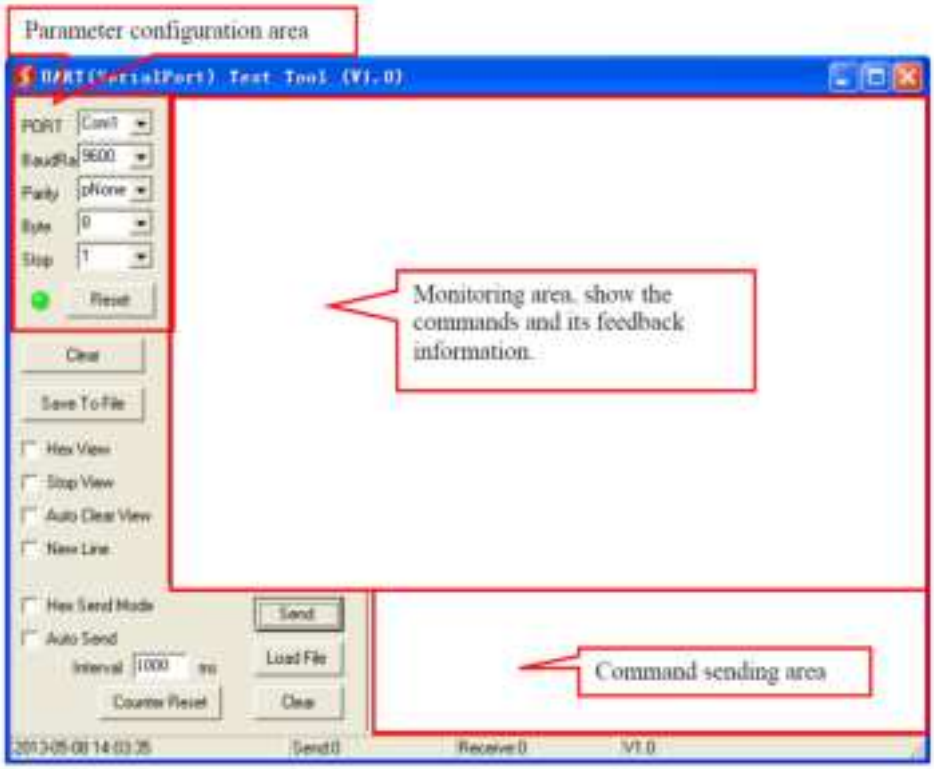


1. Plug one end of the included RS-232 cable into the **RS232** connector on one of the receivers, then plug the other end into an available COM port on your PC.
2. Plug one end of a second RS-232 cable (not included) in the **RS232** connector on the matrix, then plug the other end into the RS-232 control connector on your third-party device.
3. Using RS-232 control software, send the **RS232RCMxxON.** command to enable remote RS-232 control, where xx=00 for all HDBaseT™ receivers or 01-06 for an individual receiver. Refer to the *RS-232 COMMANDS* section for command details.

RS-232 CONTROL

The matrix can be controlled using RS-232 commands issued from RS-232 control software. Before you can issue RS-232 commands, you must plug one end of the included RS-232 Cable into the **RS232** terminal block on the matrix rear panel, then plug the other end into an available serial port on your computer.

Next, you need to download and install RS-232 control software. A common freeware RS-232 control software is CommWatch.exe, which this section will use as an example, but other software can be used instead.



The default communications parameters are:

Baud Rate:	9600
Data Bits:	8
Stop Bits:	1
Parity:	None

RS-232 COMMANDS

This section details all available RS-232 commands. These commands can be entered using RS-232 control software or on the **RS232** tab in the Web GUI.

Notes:

- In the following commands, the **[** and **]** characters are used to make it easier to read the command. Do not enter these characters.
- The period at the end is part of the command and must be included for the command to work.
- The commands are case sensitive, so enter them exactly as shown in the tables below.

System Settings

Command	Description	Feedback Example
PowerON.	Turns the system on.	Power ON! HDBT 01 Power ON! HDBT 02 Power ON! HDBT 03 Power ON! HDBT 04 Power ON! HDBT 05 Power ON! HDBT 06 Power ON! Front Panel UnLock!
PowerOFF.	Turns the system off.	Power OFF!
/*Name.	Reports the system name.	39670
/*Type.	Reports the system model.	HDBaseT Matrix
/^Version.	Reports the firmware and video driver versions.	V1.0.0 CPLD:V1.0.0 VideoDriverVersion:V1.0.0

Command	Description	Feedback Example
RST.	Resets the matrix to the factory default values.	Factory Default! System Initialization..... HDBaseT Matrix 39670 V1.0.0 Power ON! . . . . .
Lock.	Lock the front panel buttons.	Front Panel Locked!
Unlock.	Unlocks the front panel buttons.	Front Panel UnLock!
GetGuiIP.	Reports the GUI IP address.	GUI_IP:192.168.0.178!
SetGuiIP:xxx.xxx.xxx.xxx	Sets the GUI IP to xxx.xxx.xxx.xxx.	SetGuiIP:192.168.0.178!
Baudrate115200.	Sets the baud rate of the matrix to 115200 baud.	Set Local RS232 Baudrate Is 115200!
Baudrate57600.	Sets the baud rate of the matrix to 57600 baud.	Set Local RS232 Baudrate Is 57600!
Baudrate38400.	Sets the baud rate of the matrix to 38400 baud.	Set Local RS232 Baudrate Is 38400!
Baudrate19200.	Sets the baud rate of the matrix to 19200 baud.	Set Local RS232 Baudrate Is 19200!
Baudrate9600.	Sets the baud rate of the matrix to 9600 baud.	Set Local RS232 Baudrate Is 9600!
IRFVON.	Enable IR switching to follow video switching.	IR Follow Video ON!
IRFVOFF.	Disable IR switching to follow video switching.	IR Follow Video OFF!

Command	Description	Feedback Example
PHDBT[xx]:ON	Turns on the Power over Cable (PoC) feature for HDBT output [xx]. [xx]=00~06, where 00 represents all HDBT outputs.	Example: PHDBT00:ON Feedback: HDBT 01 Power ON! HDBT 02 Power ON! HDBT 03 Power ON! HDBT 04 Power ON! HDBT 05 Power ON! HDBT 06 Power ON!
PHDBT[xx]:OFF.	Turns off the Power over Cable (PoC) feature for HDBT output [xx]. [xx]=00~06, where 00 represents all HDBT outputs.	Example: PHDBT00:OFF. Feedback: HDBT 01 Power OFF! HDBT 02 Power OFF! HDBT 03 Power OFF! HDBT 04 Power OFF! HDBT 05 Power OFF! HDBT 06 Power OFF!
STA_PHDBT.	Reports the Power over Cable (PoC) status of the HDBT outputs.	HDBT 01 Power ON! HDBT 02 Power ON! HDBT 03 Power OFF! HDBT 04 Power ON! HDBT 05 Power ON! HDBT 06 Power OFF!

Command	Description	Feedback Example
RS232RCM[xx]ON.	Enables RS-232 remote control mode for HDBT output [xx] to allow for control of the matrix from the HDBaseT™ receiver [xx]. [xx]=00~06, where 00 represents all HDBT outputs.	Example: RS232RCM00ON. Feedback: RS232 Remote 01 Control MCU ON! RS232 Remote 02 Control MCU ON! RS232 Remote 03 Control MCU ON! RS232 Remote 04 Control MCU ON! RS232 Remote 05 Control MCU ON! RS232 Remote 06 Control MCU ON!
RS232RCM[xx]OFF.	Disables RS-232 remote control mode for HDBT output [xx] to allow for control of the matrix from the HDBaseT™ receiver [xx]. [xx]=00~06, where 00 represents all HDBT outputs.	Example: RS232RCM00OFF. Feedback: RS232 Remote 01 Control MCU OFF! RS232 Remote 02 Control MCU OFF! RS232 Remote 03 Control MCU OFF! RS232 Remote 04 Control MCU OFF! RS232 Remote 05 Control MCU OFF! RS232 Remote 06 Control MCU OFF!

Command	Description	Feedback Example
STA_RS232RCM.	Reports the RS-232 remote control mode status.	RS232 Remote 01 Control MCU OFF! RS232 Remote 02 Control MCU ON! RS232 Remote 03 Control MCU ON! RS232 Remote 04 Control MCU ON! RS232 Remote 05 Control MCU OFF! RS232 Remote 06 Control MCU OFF!
IRRCM[xx]ON.	Enables IR remote control mode for HDBT output [xx] to control the matrix using the included IR remote control from the HDBaseT™ receiver locations. [xx]=00~06, where 00 represents all HDBT outputs.	Example: IRRCM00ON. Feedback: IR Remote 01 Control MCU ON! IR Remote 02 Control MCU ON! IR Remote 03 Control MCU ON! IR Remote 04 Control MCU ON! IR Remote 05 Control MCU ON! IR Remote 06 Control MCU ON!

Command	Description	Feedback Example
IRRCM[xx]OFF.	Disables IR remote control mode for HDBT output [xx] to control the matrix using the included IR remote control from the HDBaseT™ receiver locations. [xx]=00~06, where 00 represents all HDBT outputs.	Example: IRRCM00OFF. Feedback: IR Remote 01 Control MCU OFF! IR Remote 02 Control MCU OFF! IR Remote 03 Control MCU OFF! IR Remote 04 Control MCU OFF! IR Remote 05 Control MCU OFF! IR Remote 06 Control MCU OFF!
STA_IRRCM.	Reports the IR remote control mode status.	IR Remote 01 Control MCU OFF! IR Remote 02 Control MCU ON! IR Remote 03 Control MCU ON! IR Remote 04 Control MCU ON! IR Remote 05 Control MCU OFF! IR Remote 06 Control MCU ON!

Command	Description	Feedback Example
@OUT[xx].	Turns on output [xx]. [xx]=00~08, where 00 represents all outputs.	Example: @OUT00. Turn ON Output 01! Turn ON Output 02! Turn ON Output 03! Turn ON Output 04! Turn ON Output 05! Turn ON Output 06! Turn ON Output 07! Turn ON Output 08!
$OUT[xx].	Turns off output [xx]. [xx]=00~08, where 00 represents all outputs.	Example: $OUT00. Feedback: Turn OFF Output 01! Turn OFF Output 02! Turn OFF Output 03! Turn OFF Output 04! Turn OFF Output 05! Turn OFF Output 06! Turn OFF Output 07! Turn OFF Output 08!
STA.	Reports the system status.	GUI OR RS232 Query Status: HDBaseT Matrix 39670 V1.0.0 Power ON! . . . . .

Command	Description	Feedback Example
STA_POUT.	Reports the status of all outputs.	Turn ON Output 01! Turn ON Output 02! Turn OFF Output 03! Turn OFF Output 04! Turn ON Output 05! Turn ON Output 06! Turn OFF Output 07! Turn ON Output 08!
STA_IN.	Reports the connection status of all HDMI® inputs.	IN 1 2 3 4 5 6 7 8 LINK Y N N Y Y Y Y Y
STA_OUT.	Reports the connection status of all HDMI and HDBT outputs.	OUT 1 2 3 4 5 6 7 8 LINK Y N N Y Y Y Y Y

Signal Switching

Command	Description	Feedback Example
OUT[xx]:[yy].	Switch video input [yy] to video output [xx]. [xx]=00~08, where 00 represents all outputs. [yy]=01~08.	Example: OUT01:03. Feedback: Output 01 Switch To In 03! Local 03 IR Out Switch To Remote 01 IR IN!
STA_VIDEO.	Reports the selected input for each output.	Output 01 Switch To In 03! Output 02 Switch To In 07! Output 03 Switch To In 03! Output 04 Switch To In 01! Output 05 Switch To In 02! Output 06 Switch To In 08! Output 07 Switch To In 04! Output 08 Switch To In 04!

Command	Description	Feedback Example
IR[xx]:[yy].	Switches remote IR IN [yy] to local IR OUT [xx]. [xx]=01~08. [yy]=00~06, where 00 represents all remote IR IN ports.	Example: IR01:03. Feedback: Local 01 IR Out Switch To Remote 03 IR IN!
STA_IR.	Reports the IR switching status.	IR Follow Video OFF! Local 01 IR Out Switch To Remote 01 IR IN! Local 01 IR Out Switch To Remote 02 IR IN! Local 01 IR Out Switch To Remote 03 IR IN! Local 01 IR Out Switch To Remote 04 IR IN! Local 01 IR Out Switch To Remote 05 IR IN! Local 01 IR Out Switch To Remote 06 IR IN!
PresetSave[xx].	Saves the current switching layout to preset [xx]. [xx]=01~09.	Example: PresetSave09. Feedback: Preset 09 Sta: Out 01 In 01! Out 02 In 04! Out 03 In 05! Out 04 In 04! Out 05 In 06! Out 06 In 03! Out 07 In 06! Out 08 In 08!

Command	Description	Feedback Example
PresetRecall[xx].	Loads the switching layout for preset [xx]. [xx]=01~09.	Example: PresetRecall09. Feedback: Output 01 Switch To In 01! Output 02 Switch To In 04! Output 03 Switch To In 05! Output 04 Switch To In 04! SPDIF Out 03 Switch To Video Out 04! Output 05 Switch To In 06! Output 06 Switch To In 03! Output 07 Switch To In 06! Output 08 Switch To In 08!
PresetSta[xx].	Reports the switching layout for preset [xx]. [xx]=01~09.	Example: PresetSta06. Feedback: Preset 06 Sta: Out 01 In 01! Out 02 In 01! Out 03 In 03! Out 04 In 04! Out 05 In 03! Out 06 In 03! Out 07 In 06! Out 08 In 05!

Audio Settings

Command	Description	Feedback Example
SPDIF[xx]:[yy].	Selects audio source [yy] for SPDIF audio output [xx]. [xx]=00~08, where 00 represents all SPDIF audio outputs. [yy]=01~22. [yy]=01~08 represents Input 1~8. [yy]=09~16 represents Output 1~8. [yy]=17~22 represents ARC on Output 1~6.	Example: SPDIF01:04. Feedback: SPDIF Out 01 Switch To Video In 04!
STA_SPDIF.	Reports the S/PDIF audio status.	SPDIF Out 01 Switch To Video In 01! SPDIF Out 02 Switch to ARC 03! SPDIF Out 03 Switch to Video Out 04! SPD

EDID Management

Command	Description	Feedback Example
EDIDMInit.	Resets the EDID® of all inputs to the factory default setting.	All Input EDID Set Default!
EDIDUpgrade[xx].	Upgrades the EDID data of input port [xx]. [xx]=00~08 or U, where 00 represents all inputs and U instructs to upload a user-defined EDID. When the command is applied the system prompts to upload the EDID file (.bin). The operation will be cancelled after 10 seconds. Please disconnect the HDBT connection before sending the command to ensure the data can be successfully received.	256 9600bps Input XX/User Define EDID Upgrade OK BY RS232 Or GUI!

Command	Description	Feedback Example
EDID/[xx]/[yy].	Assign embedded EDID [yy] to input [xx]. [xx]=00~08, where 00 represents all inputs. [yy]=01~09, where: 01=1920x1080@60Hz, 8-bit Stereo Audio 02=1920x1080@60Hz 8-bit High Definition Audio 03=3840x2160@30Hz 8-bit Stereo Audio 04=3840x2160@30Hz Deep Color High Definition Audio 05=3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 06=3840x2160@60Hz Deep Color Stereo Audio 07=3840x2160@60Hz Deep Color High Definition Audio 08=3840x2160@60Hz Deep Color HDR LPCM 6-channel Audio 09=User-defined EDID®	Example: EDID/03/01. Feedback: Input 03 EDID Upgrade OK By 01 Internal EDID!
EDIDGOUT[xx].	Reports the EDID data from output [xx]. [xx]=01~08.	Example: EDIDGOUT04. Feedback: . . . . .

Command	Description	Feedback Example
EDIDM[xx]B[yy].	Copies the EDID data of output [xx] to input [yy]. [xx]=01~08. [yy]=00~08, where 00 represents all inputs.	Example: EDIDM04B01. Feedback: Input 01 EDID Upgrade OF By 04 EXT EDID!
EDIDSTA[xx].	Reports the EDID status of input [xx]. [xx]=00~08, where 00 represents all inputs.	Example: EDIDSTA00. Feedback: Input 01 EDID From 01 Internal EDID! Input 02 EDID From 02 Internal EDID! . . . . . . Input 07 EDID From 06 Internal EDID! Input 08 EDID From User Define EDID!

HDCP Management

Command	Description	Feedback Example
HDCP[xx]MAT.	The HDCP™ content of output [xx] follows the HDCP version of the connected display. [xx]=00~08 where 00 represents all outputs.	Example: HDCP00MAT. Feedback: OUT 01 HDCP MAT Display! OUT 02 HDCP MAT Display! OUT 03 HDCP MAT Display! OUT 04 HDCP MAT Display! OUT 05 HDCP MAT Display! OUT 06 HDCP MAT Display! OUT 07 HDCP MAT Display! OUT 08 HDCP MAT Display!
HDCP[xx]PAS.	Sets the HDCP mode of output [xx] to Passive. The HDCP content of output [xx] automatically follows the HDCP version of the source device. [xx]=00~08, where 00 represents all outputs.	Example: HDCP00PAS. Feedback: OUT 01 HDCP PASSIVE! OUT 02 HDCP PASSIVE! OUT 03 HDCP PASSIVE! OUT 04 HDCP PASSIVE! OUT 05 HDCP PASSIVE! OUT 06 HDCP PASSIVE! OUT 07 HDCP PASSIVE! OUT 08 HDCP PASSIVE!

Command	Description	Feedback Example
HDCP[xx]BYP.	Sets the HDCP™ mode of output [xx] to Active. If the input video has HDCP content, the HDCP version of the HDMI® output is HDCP 1.4 for broader video compatibility. If the input video has no HDCP content, the HDMI output has no HDCP, either. [xx]=00~08 where 00 represents all outputs.	Example: HDCP00BYP. Feedback: OUT 01 HDCP BYPASS! OUT 02 HDCP BYPASS! OUT 03 HDCP BYPASS! OUT 04 HDCP BYPASS! OUT 05 HDCP BYPASS! OUT 06 HDCP BYPASS! OUT 07 HDCP BYPASS! OUT 08 HDCP BYPASS!
STA_HDCP.	Reports the HDCP mode of all outputs.	OUT 01 HDCP PASSIVE! OUT 02 HDCP PASSIVE! OUT 03 HDCP MAT DISPLAY! OUT 04 HDCP BYPASS! OUT 05 HDCP BYPASS! OUT 06 HDCP BYPASS! OUT 07 HDCP BYPASS! OUT 08 HDCP BYPASS!

Third-Party Device Control

Command	Description	Feedback Example
/+[x]/[yy]:xxx.	Sends the ASCII command xxx at baud rate [x] to control the remote third-party device connected to the HDBaseT™ receiver connected to HDBT output [yy]. xxx=ASCII string. [x]=1~7 represents the baud rate of the third-party device. [x]=1, the baud rate is 2400 [x]=2, the baud rate is 4800 [x]=3, the baud rate is 9600 [x]=4, the baud rate is 19200 [x]=5, the baud rate is 38400 [x]=6, the baud rate is 57600 [x]=7, the baud rate is 115200 [yy]=00~06 where 00 represents all HDBT outputs.	Example: +3/01:123456. Sends the ASCII command 123456 at 9600 baud to the third-party device connected to the HDBaseT receiver connected to HDBT output port 1.

Command	Description	Feedback Example
CMDON/+[x]/[yy]:xxx.	When the matrix is powered on, automatically sends the ASCII command xxx at baud rate [x] to the third-party device connected to the HDBaseT™ receiver connected to HDBT output [yy]. xxx=ASCII string. [x]=1~7 represents the baud rate of the third-party device. [x]=1, the baud rate is 2400 [x]=2, the baud rate is 4800 [x]=3, the baud rate is 9600 [x]=4, the baud rate is 19200 [x]=5, the baud rate is 38400 [x]=6, the baud rate is 57600 [x]=7, the baud rate is 115200 [yy]=00~06 where 00 represents all HDBT outputs.	Example: CMDON/+3/01:123456. Automatically sends the ASCII command 123456 at 9600 baud to the HDBaseT receiver connected to HDBT output 1 when the matrix is powered on.

Command	Description	Feedback Example
CMDOFF/+[x]/[yy]:xxx.	When the matrix is powered off, automatically sends the ASCII command xxx at baud rate [x] to the third-party device connected to the HDBaseT™ receiver connected to HDBT output [yy]. xxx=ASCII string. [x]=1~7 represents the baud rate of the third-party device. [x]=1, the baud rate is 2400 [x]=2, the baud rate is 4800 [x]=3, the baud rate is 9600 [x]=4, the baud rate is 19200 [x]=5, the baud rate is 38400 [x]=6, the baud rate is 57600 [x]=7, the baud rate is 115200 [yy]=00~06 where 00 represents all HDBT outputs.	Example: CMDOFF/+3/01:123456. Automatically sends the ASCII command 123456 at 9600 baud to the HDBaseT receiver connected to HDBT output 1 when the matrix is powered off.

CEC Control

The command structure for Consumer Electronics Control (CEC) commands is:

CEC[I/O][AA][BB][CC][DD].

- [I] represents a command for an input device and [O] represents a command for the connected display.
- [AA] represents the port number. The HDMI® input ports are 01~08. The HDBaseT™ output ports are 01~06 and the local HDMI output ports are 07~08.
- [BB] represents the device type (e.g., TV: 40/20/80, Blu-ray Disc™ player: 04/08).
- [CC] represents the function type (e.g., Remote control: 44).
- [DD] represents the specific command from the following table.

Command	Description	Feedback Example
CECI[AA][BB][CC]00.	Confirm operation (Enter).	Example: CECI02044400. Feedback: CEC Input 02 Send Success!
CECI[AA][BB][CC]01.	UP direction.	Example: CECI01044401. Feedback: CEC Input 01 Send Success!
CECI[AA][BB][CC]02.	DOWN direction.	Example: CECI01044402. Feedback: CEC Input 01 Send Success!
CECI[AA][BB][CC]03.	LEFT direction.	Example: CECI03044403. Feedback: CEC Input 03 Send Success!

Command	Description	Feedback Example
CECI[AA][BB][CC]04.	RIGHT direction.	Example: CECI03044404. Feedback: CEC Input 03 Send Success!
CECI[AA][BB][CC]09.	Back to submenu.	Example: CECI03044409. Feedback: CEC Input 03 Send Success!
CECI[AA][BB][CC]0A.	Enter main menu.	Example: CECI0304440A. Feedback: CEC Input 03 Send Success!
CECI[AA][BB][CC]0D.	Exit menu.	Example: CECI0204440D. Feedback: CEC Input 02 Send Success!
CECI[AA][BB][CC]6D.	Power on.	Example: CECI0204446D. Feedback: CEC Input 02 Send Success
CECI[AA][BB][CC]6C.	Power off.	Example: CECI0204446C. Feedback: CEC Input 02 Send Success!
CECO[AA][BB][CC]41.	Volume up.	Example: CECO05404441. Feedback: CEC Output 05 Send Success!

Command	Description	Feedback Example
CECO[AA][BB][CC]42.	Volume down.	Example: CECO05404441. Feedback: CEC Output 05 Send Success!
CECO[AA][BB][CC]43.	Mute on/off.	Example: CECO05404441. Feedback: CEC Output 05 Send Success!
CECO[AA][BB][CC]04.	Power on.	Example: CECO038004. Feedback: CEC Output 03 Send Success!
CECO[AA][BB][CC]36.	Power off.	Example: CECO038036. Feedback: CEC Output 05 Send Success!

FIRMWARE UPGRADE

In the event that the firmware in the matrix changes, an upgrade file will be made available for download on the product page on the Monoprice.com website. Perform the following steps to download and apply the firmware upgrade.

1. Open a web browser and type **monoprice.com** on the address bar, then hit enter.
2. On the Monoprice website, type **39670** into the search bar and hit enter.
3. Go to the bottom of the page and look for the **Support Files** section. Locate and download the new Firmware update zip file. Note the location to which you downloaded the file.
4. Extract the update file from the downloaded zip file and rename it **08010000.APP**.
5. Plug a USB flash drive into an available USB port on your PC.
6. Change the volume name of the USB flash drive to **BOOTDISK**.
7. Copy the **08010000.APP** file onto the USB flash drive. Check the contents of the USB flash drive to ensure that a file named **READY.TXT** is present.
8. Remove the USB flash drive from your PC.
9. Ensure that the matrix is powered off, then plug the USB flash drive into the **FW** port on the rear panel.
10. Turn the matrix on to automatically update the firmware.
11. When the process is complete, remove the USB flash drive from the matrix and plug it into an available USB port on your PC.
12. Check the contents of the USB flash drive. If the **READY.TXT** file is no longer present and a **SUCCESS.TXT** file is present, the firmware has been successfully updated. If not, delete the contents of the USB flash drive, then repeat steps 6-12.
13. Once the firmware has been successfully updated, restore the matrix to its factory default settings by issuing the **RST.** RS-232 command.

TROUBLESHOOTING

Q1: The video signal is losing color or there is no video output.

A1: Ensure that the cables are properly plugged in. Check that the cable is good by replacing it with a known good one.

Q2: There is no output image when switching.

A2: Ensure that the cables are properly plugged in. Check that output HDCP™ compliance is enabled. Check that the display supports the selected video resolution. Use an oscilloscope or multimeter to verify that there is a signal at the input and output ends.

Q3: The front panel buttons do not work.

A3: Ensure that the front panel buttons are not locked.

Q4: The IR remote control does not work.

A4: Ensure that you are using the remote within the IR range and at the proper angle. Replace the remote control's battery. Ensure that the IR receiver is properly plugged in. Try replacing the IR receiver.

Q5: The **POWER LED** on the front panel remains off, even after switching power on.

A5: Ensure that the power cord is properly plugged in. Verify that the power outlet has power by plugging in another device, such as a lamp.

Q6: EDID® management does not work properly.

A6: Try replacing the HDMI® cable with a known good one.

Q7: The screen on the display is blank when switching.

A7: Try switching again. Manually adjust the EDID® data to set a usable video resolution for the video source.

Q8: The matrix cannot be controlled using RS-232 commands.

A8: Check the RS-232 cable connection at each end. Ensure that the RS-232 communication parameters are set as baud rate=9600, data bits=8, stop bits=1, parity=none. Try using a different COM port.

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.

SPECIFICATIONS

Matrix

Model	39670
Video Inputs	8x HDMI®
Video Outputs	6x HDBaseT™, 2x HDMI
Maximum HDMI Output Resolution	4K@60Hz with YCbCr 4:4:4
Maximum HDBaseT Output Resolution	4K@60Hz with YCbCr 4:2:0
Bandwidth	18 Gbps

HDMI Version	2.0
HDCP™ Version	2.2
Audio Outputs	4x digital optical S/PDIF
Audio Frequency Response	20Hz ~ 20kHz, ±1dB
Maximum Output Level	±0.05dBFS
THD+N	< 0.05%, 20Hz ~ 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio	> 90dB, 20Hz ~ 20kHz bandwidth
Crosstalk Isolation	> -70dB, 10kHz sine at 0dBFS level (or max level before clipping)
Noise Level	-90dB
Transmission Standard	HDBaseT™
Maximum Transmission Distance	1080p@60Hz: ≤ 229 feet (70 meters) 4K@60Hz: ≤ 131 feet (40 meters)
Input Power	100 ~ 240 VAC, 50/60 Hz
Maximum Power Consumption	92 watts
Operating Temperature	+23 ~ +131°F (-5 ~ +55°C)
Storage Temperature	-13 ~ +158°F (-25 ~ +70°C)
Operating Humidity	10 ~ 90% RH, noncondensing
Dimensions	17.2" x 1.7" x 15.2" (436 x 44 x 385 mm)
Weight	10.7 lbs. (4.87 kg)

Receivers

Video Input	1x HDBaseT™
Video Output	1x HDMI®
Maximum Input Resolution	4K@60Hz with YCbCr 4:2:0
Maximum Output Resolution	4K@60Hz with YCbCr 4:4:4 8-bit HDR10
Transmission Standard	HDBaseT
Maximum Transmission Distance	1080p@60Hz: ≤ 229 feet (70 meters) 4K@60Hz: ≤ 131 feet (40 meters)
HDMI® Version	2.0
HDCP™ Version	2.2, 1.4 compliant
Bandwidth	18 Gbps
Maximum Output Level	2.0Vrms ±0.5dB, 2V = 16dB headroom above -10dBV (316mV) nominal consumer line level signal
THD+N	< 0.05% (-80dB), 20Hz ~ 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio	> 85dB, 20Hz ~ 20kHz bandwidth
Crosstalk Isolation	> -70dB, 10kHz sine at 0dBFS level (or max level before clipping)
L/R Channel Separation	< 0.03dB, 1kHz sine at 0dBFS level (or max level before clipping)
Frequency Response Deviation	< ±0.5dB 20Hz ~ 20kHz
Output Load Capability	1kΩ and higher (supports 10x paralleled 10kΩ loads)
Stereo Channel Separation	> 70dB @ 1kHz

HDMI® 2.0 Cable Length	4K@60Hz YCbCr 4:4:4 ≤ 5m 4K@60Hz YCbCr 4:2:0 ≤ 15m 1080p ≤ 20m
Input Power	12 VDC 1.25A or Power over Cable (PoC)
AC Adapter Input Power	100 ~ 240 VAC, 50/60Hz
Maximum Power Consumption	12 watts
Operating Temperature	+23 ~ +131°F (-5 ~ +55°C)
Storage Temperature	-13 ~ +158°F (-25 ~ +70°C)
Operating Humidity	10 ~ 90% RH, noncondensing
Dimensions	1.6" x 0.8" x 3.3" (40 x 20 x 84 mm)
Weight	10.2 oz. (290 g)

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.