INT-BSR4K-H2 Owners Manual

Rev 180717

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Important Safety Instructions

» Please completely read and verify you understand all instructions in this manual before operating this equipment.

» Keep these instructions in a safe, accessible place for future reference.

» Heed all warnings.

» Follow all instructions.

» Do not use this apparatus near water.

» Clean only with a dry cloth.

» Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

» Use only accessories specified or recommended by Intelix.

» Explanation of graphical symbols:

◊ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.

◊ Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.
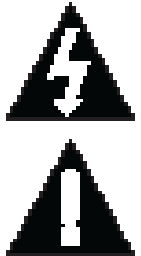
» **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**

» Use the mains plug to disconnect the apparatus from the mains.

» **THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.**

» Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of your obsolete outlet. **Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.**

» Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.

» Do not block the air ventilation openings. Only mount the equipment per Intelix's instructions.

» Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

» Unplug this apparatus during lightning storms or when unused for long periods of time.

» **Caution!** Shock Hazard. Do not open the unit.

» Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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Table of Contents

Product Overview

The INT-BSR4K-H2 is an HDMI 2.0 and HDCP 2.2 compliant HDBaseT scaling 4K receiver that distributes uncompressed 4K@60Hz UHD video, digital coax / analog stereo audio, Ethernet, RS232 and bi-directional IR up to 100m/330ft over a single category cable. The INT-BSR4K-H2 can be controlled by telnet or RS232 but also can also store and pass display commands via RS232 as well as generate CEC display ON and OFF commands. The two-port network switch on the INT-BSR4K-H2 allows a second device to share the 100BaseT Ethernet pass-through connection without adding additional hardware to the installation. The INT-BSR4K-H2 requires local power, however it can provide power to a compatible Intelix HDBaseT transmitter.

The INT-BSR4K-H2 is compatible with all Intelix HDBaseT product offerings and any product that meets the HDBaseT specifications.

Package Contents

- INT-BSR4K-H2 HDBaseT Scaling Receiver
- Quick Install Guide
- DC12V 3A power supply with US, UK, EU and AU power cords
- (1) IR Emitter
- (1) IR Receiver
- (2) 3.5mm 3 pin phoenix male connectors
- (2) Mounting Brackets

Front and Rear Panel View

1. 12V DC - Locking power port to connect DC12V power adapter

2. ETHERNET 1 - Ethernet Port 1

3. ETHERNET 2- Ethernet Port 2

4. HDBT IN- HDBaseT input to connect to HDBaseT output from transmitter via category cable

5. IR IN- IR Input to connect to IR receiver

6. IR OUT- IR Output to connect to IR emitter

7. HDMI OUT - HDMI output for display connectivity

8. S/PDIF OUT- Digital (S/PDIF) Coax Audio Output

9. AUDIO OUT- Analog Audio Output

10. RS232- Serial control port for display control / 3rd party control

11. POWER STATUS LED- When solid, the transmitter is receiving power

12. STATUS LEDS

    - *SCALER-* When blinking slowly, the scalar chip is working properly
    - *STATUS-* When blinking slowly, the transmitter is working properly
    - *HDCP* - When solid, HDCP content is being transmitted; when blinking NON HDCP content is being transmitted; when off there is no audio or video data transmitted
    - *LINK -* When solid, the link between transmitter and receiver is normal. When blinking or off the link between transmitter and receiver is not operable

Installation Instructions

Quick Start

1. Mount the switcher / extender set
2. Connect compatible HDBaseT transmitter
3. Connect display
4. Connect audio output (optional)
5. Connect control (optional)
6. Apply power

Mount the Switcher / Extender

At least 2 inches of free air space is required on both sides of the INT-BSR4K-H2 for proper side ventilation. Avoid mounting the INT-BSR4K-H2 near a power amplifier or any other source of significant heat.
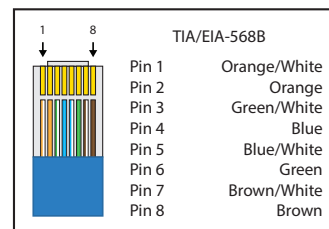
Attach the supplied mounting brackets to the sides of the receiver. Once the rails are installed the receiver can be mounted in an A/V enclosure or on the wall behind a display or above a projector.

Connect Compatible HDBaseT Transmitter

Connect the INT-BSR4K-H2 HDBaseT receiver to a compatible Intelix HDBaseT transmitter using a Category cable.

Twisted Pair Wiring
Use TIA/EIA-568B wiring for Category 6 connection between the transmitter and receiver

1	8	TIA/EIA-568B	
		Pin 1	Orange/White
		Pin 2	Orange
		Pin 3	Green/White
		Pin 4	Blue
		Pin 5	Blue/White
		Pin 6	Green
		Pin 7	Brown/White
		Pin 8	Brown

To ensure proper performance of the INT-BSR4K-H2, it is recommended that you use solid core shielded Category 6 F/UTP cabling at a minimum. Category 5e F/UTP may perform well but may not support power over HDBaseT reliably.

When using shielded category cabling ALWAYS...

....use shielded connectors
....properly ground the category cable

For optimized performance use the following Liberty Wire and Cable branded cabling;
Category 6 plenum; **24-4P-P-L6SH**
Category 6A plenum; **24-4P-P-L6ASH**

Category 6 NON-plenum; **24-4P-L6SH**
Category 6A NON-plenum; **24-4P-L6ASH**

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Connecting a Display

HDMI Output

Connect the display devices to HDMI output on the receiver using an HDMI cable that is less than or equal to 5 meters in length.

Connect Audio Output

Insert the removable 3-pin phoenix connector block to the audio output. The INT-BSR4K-H2 supports a stereo unbalanced output
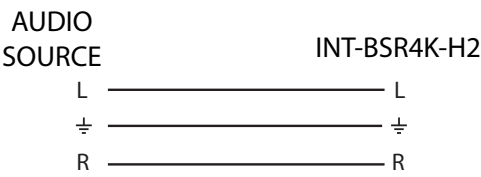
Connecting Control

Connect the INT-BSR4K-H2 receivers LAN port to an Ethernet control network for telnet control.

Connect the DL-SE3H1V-C RS232 port on the receiver for serial control.

> **Note**: The INT-BSR4K-H2 RS232 port can either be used with a control system for serial control or can be connected to an external display for ON/OFF display control using telnet control.

> For complete list of control commands see pg11 *RS232 and TCP/IP Control*

RS232 Control Wiring

Connect the controller or device RX signal to TX port of the INT-BSR4K-H2 receiver. Then connect the controller or device TX signal to the RX port on the INT-BSR4K-H2 receiver.

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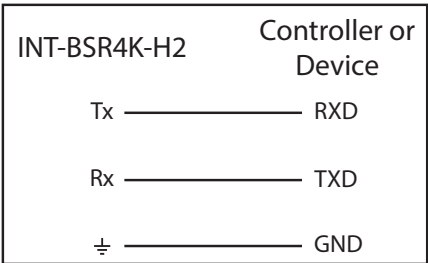
Passing IR Signals

The INT-BSR4K-H2 is capable of passing IR signals between 33 and 55 KHz. To prevent damage to any of the electronics, the extenders should be powered off while inserting or removing any IR components. Inserting an IR transmitter into the IR IN port may damage the IR circuit for that extender.

IR OUT: The IR transmitter (IR emitter) must be plugged into the IR OUT port.
IR IN: The IR receiver (IR eye) must be plugged into the IR IN port.

Apply Power

Plug the power supply into the power input port on the rear of the INT-BSR4K-H2 receiver Twist the locking ring clockwise to prevent accidental disconnection of power.

Note: The INT-BSR4K-H2 scaling receiver can provide power to a compatible Intelix transmitter via HDBaseT, however a compatible Intelix HDBaseT transmitter (including HDBaseT matrix switchers) cannot provide power to the INT-BSR4K-H2.

Application Diagram

IR REMOTE 1

MEDIA PLAYER

Intelix INT-HDX100-TX
(NOT INCLUDED)

HDMI

CATx

AUDIO

RS232

IR

HDBT
up to 100m / 330'

CONTROL SYSTEM

IR REMOTE 2

AUDIO AMP

PROJECTOR

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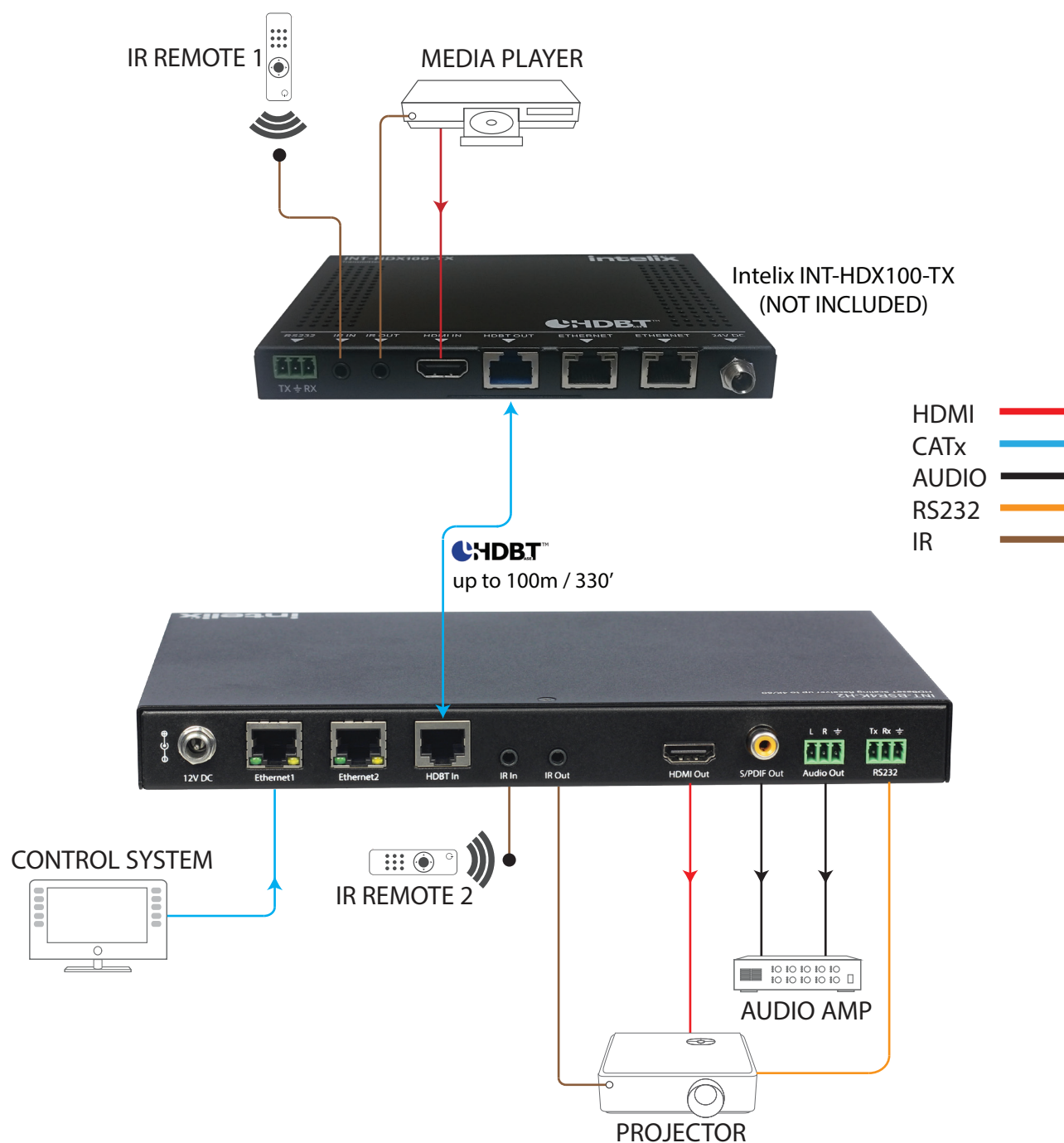
RS232 and TCP/IP Control

RS232 Settings: 115200 baud, 8 Data bits, 1 Stop bit, Parity = None
TCP/IP Settings: User defined IP address (default IP address:192.168.2.128), port 23

The commands are case sensitive All commands below are in ASCII and all strings and responses end in a carriage return (hex 0D) and a line feed (hex 0A).

<CR> = Carriage return (Hex 0D)
<LF> = Line Feed (Hex 0A)

RS232 Mode Functions

Description	Command	Example
Sets mode to scaler device control	CONNECT SCA	*Command:* CONNECT SCA<CR><LF> *Return:* CONNECT SCA<CR><LF>
Sets mode to HDBaseT pass-through control (default)	CONNECT PTH	*Command:* CONNECT PTH<CR><LF> *Return:* CONNECT PTH<CR><LF>
Sets mode to upgrade device	CONNECT UPG	*Command:* CONNECT UPG<CR><LF> *Return:* CONNECT UPG<CR><LF>
Sets mode to enable RS232 control of device through connected HDBaseT transmitter	CONNECT SML	*Command:* CONNECT SML<CR><LF> *Return:* CONNECT SML<CR><LF>
Query current mode	GET CONNECT	*Command:* GET CONNECT<CR><LF> *Return:* CONNECT SCA<CR><LF>

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Output Scaler Settings

Description	Command	Example

Set output resolution	SET SCALER *{r}*
	
	{r} = 3840x2160@60
	     3840x2160@50
	     3840x2160@30
	     3840x2160@25
	     3840x2160@24
	     1920x1200@60
	     1920x1080@60
	     1920x1080@50
	     1280x720@60
	     1280x720@50
	     1600x1200@60
	     1680x1050@60
	     1600x900@60
	     1440x900@60
	     1366x762@60
	     1360x768@60
	     1280x1024@60
	     1280x960@60
	     1280x768@60
	     1280@800@60
	     1024x768@60
	     800x600@60
	     AUTO
	
	Note: *AUTO* setting copies connected displays native resolution setting for scaled output
		Command:
		
		SET SCALER AUTO<CR><LF>
		
		Return:
		
		SCALER AUTO<CR><LF>

Query current output resolution setting	GET SCALER	*Command:* GET SCALER<CR><LF> *Return:* SCALER AUTO<CR><LF>

EDID Input Settings

Description	Command	Example

Set input EDID	`SET EDID input {e}`
	
	`{e} = 3840x2160@30`
	`     1920x1200@60`
	`     1920x1080@60`
	`     1280x800@60`
	`     1280x720@60`
	`     1024x768@60`
	`     copy`
	
	Note: *copy* setting copies connected displays native EDID setting
		Command:
		
		`SET EDID input copy<CR><LF>`
		
		Return:
		
		`EDID input copy<CR><LF>`

CEC to Display Commands

Description	Command	Example

Display On / Off via CEC	`DISPLAY {p}`
	
	`{p} = ON`
	`      OFF`
		Command:
		
		`DISPLAY ON<CR><LF>`
		
		Return:
		
		`DISPLAY ON<CR><LF>`

Display Auto On or Off via CEC with active source	`DISPLAY AUTO {p}`
	
	`{p} = ON`
	`      OFF`
		Command:
		
		`DISPLAY AUTO ON<CR><LF>`
		
		Return:
		
		`DISPLAY AUTO ON<CR><LF>`

Display Auto Off with no source, delay time (xx = 0-30 minutes)	`DISPLAY AUTO DELAY xx`	*Command:*
		
		`DISPLAY    AUTO    DELAY 1<CR><LF>`
		
		Return:
		
		`DISPLAY   AUTO   DELAY   1 MINUTES <CR><LF>`

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RS232 to Display Commands

Description	Command	Example

Set RS232 port to baud rate of display	SET BAUD *{b}*
	
	{b} = 9600
	      57600
	      115200
		Command:
		
		SET BAUD 115200<CR><LF>
		
		Return:
		
		BAUD 115200<CR><LF>

Set end character	SET ENCHAR *{e}*
	
	{e} = cr
	      lf
	      crlf
	      null
		Command:
		
		SET ENDCHAR cr<CR><LF>
		
		Return:
		
		ENDCHAR cr<CR><LF>

Query end character	GET ENCHAR	*Command:* GET ENDCHAR<CR><LF> *Return:* ENDCHAR CR<CR><LF>
Set RS232 display on command - ASCII format	DON *xxxx* *xxxx* = ASCII display ON command string	*Command:* DON PWR ON<CR><LF> *Return:* DON PWR ON<CR><LF>
Set RS232 display on command - HEX format	DON_HEX *0Xxx 0Xxx* *0Xxx 0Xxx* = HEX display ON command string	*Command:* DON 0XAA 0XBB<CR><LF> *Return:* DON AA BB<CR><LF>
Query RS232 display on command	DON?	*Command:* DON?<CR><LF> *Return:* DON PWR ON<CR><LF>

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RS232 to Display Commands (continued)

Description	Command	Example
Set RS232 display off command - ASCII format	DOF *xxxx* *xxxx* = ASCII display OFF command string	*Command:* DOF PWR OFF<CR><LF> *Return:* DOFF PWR OFF<CR><LF>
Set RS232 display off command - HEX format	DOF_HEX *0Xxx 0Xxx* *0Xxx 0Xxx* = HEX display OFF command string	*Command:* DOF 0X8F 0XBB<CR><LF> *Return:* DOF 8F BB<CR><LF>
Get RS232 display off command	DOF?	*Command:* DOF?<CR><LF> *Return:* DOF PWR OFF<CR><LF>
Set auto display power ON	DFG1	*Command:* DFG1<CR><LF> *Return:* ON<CR><LF>
Set auto display power OFF	DFG0	*Command:* DFG0<CR><LF> *Return:* OFF<CR><LF>
Turn On / Off display via RS232	DISP *{p}* *{p}* = ON OFF	*Command:* DISP ON<CR><LF> *Return:* DISPLAY ON<CR><LF>

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De-embedded Audio Output Settings

Description	Command	Example
Set de-embedded audio output volume (0-100)	SET VOL {v} {v} = 0-100	*Command:* SET VOL 50<CR><LF> *Return:* VOL 50<CR><LF>
Query de-embedded audio output volume	GET VOL	*Command:* GET VOL<CR><LF> *Return:* VOL 50<CR><LF>

IP Addressing Commands

Description	Command
Set Static IP Address and Subnet	SET IPADDRESS STATIC ip4addr {ip} netmask {n} {ip} = ip address {n} = subnet
	Example
	Command: SET IPADDRESS STATIC ip4addr 192.168.2.128 netmask 255.255.255.0<CR><LF> *Return:* IPADDRESS STATIC ip4addr 192.168.2.128 netmask 255.255.255.0<CR><LF>
Get IP Address and Subnet	GET IPADDRESS
	Command: GET IPADDRESS<CR><LF> *Return:* IPADDRESS STATIC ip4addr 192.168.2.128 netmask 255.255.255.0<CR><LF>

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Miscellaneous Commands

Description	Command	Example
Get Current Firmware Version	GET VER	*Command:* GET VER\<CR>\<LF> *Return:* V1.7\<CR>\<LF>
Upgrade Device Firmware	UPG	*Command:* UPG\<CR>\<LF> *Return:* UPG\<CR>\<LF>
Factory Reset	RESET	*Command:* RESET\<CR>\<LF> *Return:* RESET\<CR>\<LF>
System Reboot	REBOOT	*Command:* REBOOT\<CR>\<LF> *Return:* REBOOT\<CR>\<LF>

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Technical Specifications

Video	
Video Output	(1) HDMI
Video Output Connector	(1) HDMI type A
Output Video Signal	HDMI
Output Resolutions Supported	**SMPTE:** 4096 x 2160@24/30/60 (YUV4:2:0); 3840 x 2160@24/30/60 (YUV4:2:0); 1920 x 1080@60; 1280 x 720@60; 720 x 576p@60; 720 x 480p@60 **VESA:** 1920 x 1200@60; 1680 x 1050@60; 1600 x 1200@60; 1600 x 900@60; 1440 x 990@60; 1366 x 768@60@60; 1360 x 768@60; 1280 x 1024@60; 1280 x 960@60; 1280 x 800@60; 1280 x 768@60; 1024 x 768@60; 800 x 600@60
Standards	Compliant with HDMI 2.0 & HDCP2.2
Audio	
Supported output formats	Analog and Digital: PCM 2.0
Audio Outputs	Stereo analog and digital coax
Audio Output Connectors	Analog: (1) 3 Pin phoenix Digital: (1) Digital S/PDIF Coax
Audio Output Impedance	70 Ohms
Frequency Response	20Hz~20K Hz
CONTROL	
Control Port / Connector	(2) LAN / RJ45 (1) RS232 / 3 pin phoenix
Other	
System Bandwidth	9Gbps
Transmission Distance	1080p 100m / 330' or less when using Cat6 F/UTP, 4K 70m or less when using Cat6 F/UTP . 1080p 100m / 330' or less when using Cat6A F/UTP, 4K 100m or less when using Cat6A F/UTP .
Operating Temperature	0 ~ +45 C (32 to + 113 °F)
Storage Temperature	-20 to +70°C (-4 to + 158 °F)
Humidity	10% ~ 90%
Power Supply	DC12V 3A
Power Consumption	16.4w
Dimension (W*H*D)	234.4. mm x 25mm x 143mm 9.2" x 1" x 5.6"
Weight	.9kg / 1.9 lbs
Warranty	2 years
Certification	CE, FCC, RoHS

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Thank you for your purchase.

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