HEX100HDVGA

VGA —— In —— Audio   HDMI LINK   HDMI in   IR RX   IR TX

RS232   Input Select   HDBT Out   LINK   DC12V   Power

HEX100HDVGA

Coaxial   L   R   —— Audio Out ——   HDMI LINK   HDMI Out   IR RX   IR TX

RS232   Input Select   HDBT In   LINK   DC12V   Power

▶ HEX100HDVGA-KIT
User Manual

BLUSTREAM

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Safety And Performance Notice

The transmission distances of HDMI over UTP cables are measured using TE CONNECTIVITY 1427071-6

EIA/TIA-568-B termination (T568B) of cables is recommended for optimal performance.

To minimise interference of the unshielded twisted pairs in the CAT5e/6 cable do not run the HDBaseT/Cat5e/6/6a cabling with or in close parallel proximity to mains power cables.

Do not substitute or use any other power supply other than the enclosed unit, or a Blustream approved replacement.

Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.

Contents

Introduction

Our HEX100HDVGA-KIT is an industry leading 4K HDBaseT™ solution that extends HDMI and VGA inouts up to 100m. The HEX100HDVGA-KIT features auto-sensing signal switching of video inputs and conversion of the VGA / audio input to the HDMI / HDBaseT™ output. The HDBaseT™ extender kit also transmits bi-directional IR, RS232 and PoH (PoE).
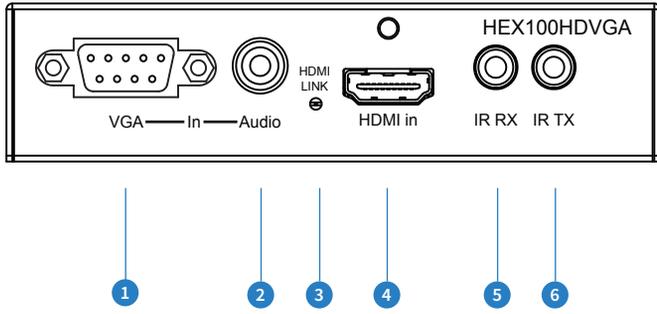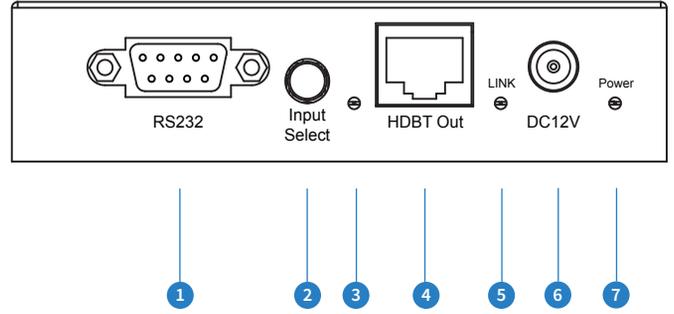

FEATURES:

- Advanced HDBaseT™ technology offering uncompressed video and audio with zero latency
- Extends HDMI and VGA / audio up to a distance of 100m over a single CAT cable
- Converts VGA and associated analogue L/R audio input to HDMI / HDBaseT™ output
- Supports 4K UHD video up to 70m (3840 x 2160 @30Hz 4:4:4, 4096 x 2160 @24Hz 4:4:4, and 4K @60Hz 4:2:0)
- Supports all industry standard video resolutions including VGA-WUXGA and 480i-4K
- Built in audio breakout with DAC on HDBaseT™ receiver
- Manual switching between inputs using toggle button or RS232 control on either Blustream Transmitter or Receiver
- Supports all known HDMI audio formats including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission
- Bi-directional RS-232 pass through
- Bi-directional IR pass-through
- Supplied with Blustream IR receiver and emitter
- Supports bi-directional PoH (Power over HDBaseT™) to power extenders from either Transmitter or Receiver end
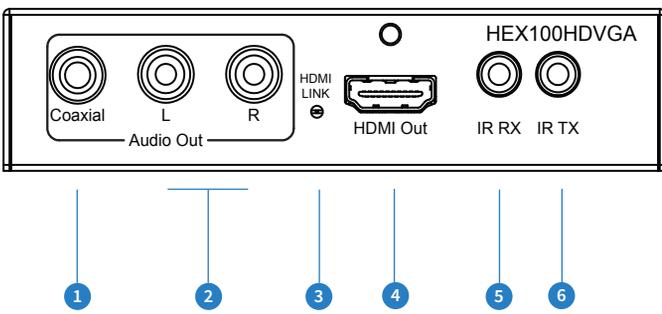- HDCP compliant

Panel Description HEX100HDVGA-TX

HEX100HDVGA

VGA — In — Audio · HDMI LINK · HDMI in · IR RX · IR TX

① ② ③ ④ ⑤ ⑥

RS232 · Input Select · HDBT Out · LINK · DC12V · Power

① ② ③ ④ ⑤ ⑥ ⑦

① VGA input

② Analogue Left/Right audio input - 3.5mm stereo jack

③ HDMI link indicator

④ HDMI input

⑤ IR RX jack (to IR sensor)

⑥ IR TX jack (to IR emitter)
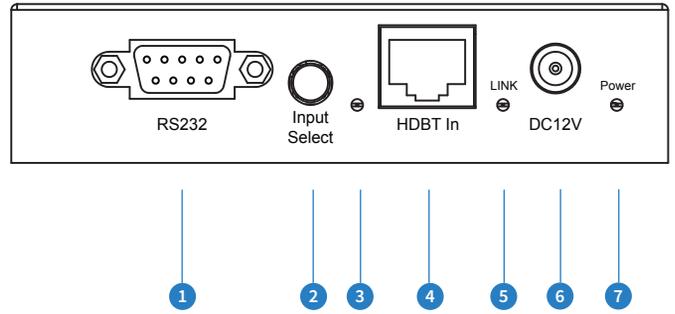
① RS-232 / serial connector

② Input select button - switch between HDMI and VGA/ Audio input

③ Input status light: Red = VGA   Blue = HDMI

④ HDBaseT input

⑤ HDBaseT link indicator

⑥ Power port - DC 12V screw type connector

⑦ Power status indicator

Panel Description HEX100HDVGA-RX

HEX100HDVGA

Coaxial · L · R · Audio Out · HDMI LINK · HDMI Out · IR RX · IR TX

① ② ③ ④ ⑤ ⑥

RS232 · Input Select · HDBT In · LINK · DC12V · Power

① ② ③ ④ ⑤ ⑥ ⑦

① Coaxial digital audio output

② Analogue Left/Right audio RCA output

③ HDMI link indicator

④ HDMI output - connect to display device

⑤ IR RX jack (to IR sensor)

⑥ IR TX jack (to IR emitter)
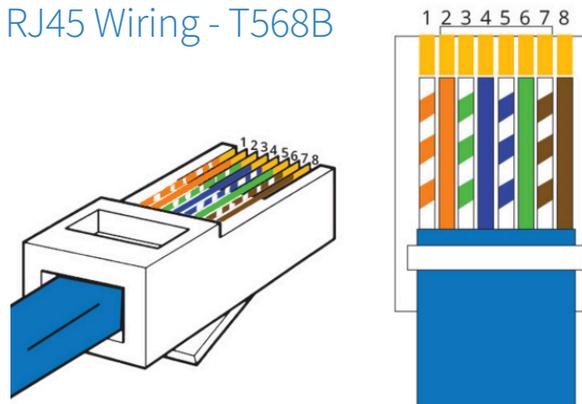
① RS-232 / serial connector

② Input select button - switch between HDMI and VGA/ Audio input

③ Input status light: Red = VGA   Blue = HDMI

④ HDBaseT input

⑤ HDBaseT link indicator

⑥ Power port - DC 12V screw type connector

⑦ Power status indicator

Terminating the interconnecting HDBaseT CAT cable

It is important that the interconnecting CAT cable between the Blustream HDBaseT products is terminated using the correct RJ45 pin configuration. The link CAT cable **MUST** be a 'straight' (pin-to-pin) CAT cable and it is advised that this is wired to the T568B wiring standard as this format is less prone to EMI (Electro-Magnetic Interference).

When installing CAT cables it is advised that you use the best possible CAT cable quality possible. HDMI distribution products will only work if used with CAT5e standard cable or above. Blustream recommends using a CAT6 cable for your installations, especially when running over longer distances, in areas of high EMI, or for 4K signal distribution.

RJ45 Wiring - T568B

Understanding the HEX100HDVGA signal status lights

The Blustream HEX100HDVGA extender solution includes status LED indicators on both the Transmitter and Receiver products to show all connections are active and to help diagnose possible problems.

Understanding the status lights:

Receiver:

- The HDMI signal link light will be off when there is no connection with a display/sink
- The HDMI link light will be on when there is an active connection with a display
- The HDBaseT link light will be off when there is no CAT cable/active HDBaseT connection on the RJ45 HDBaseT input
- The HDBaseT link light will blink if there is an unstable connection between the Transmitter/Matrix and Receiver
- The HDBaseT link light will be lit when a CAT cable is connected to the HDBaseT RJ45 output on the Transmitter/Matrix and an active connection is achieved with the Receiver
- The Power link light will be off when no power is connected to the Receiver, or to the connected Transmitter unit
- The Power link light will be on when power is connected directly to the Receiver or is being received from the Transmitter unit

Transmitter:

- The HDMI signal link light will be off when there is no connection with a source device
- The HDMI link light will be on when there is an active connection with a source device
- The HDBaseT link light will be off when there is no CAT cable/active HDBaseT connection on the RJ45 HDBaseT output
- The HDBaseT link light will blink if there is an unstable connection between the Transmitter and Receiver/Matrix
- The HDBaseT link light will be lit when a CAT cable is connected to the HDBaseT RJ45 output on the Transmitter and an active connection is achieved with the Receiver/Matrix.
- The Power link light will be off when no power is connected to the Transmitter, or to the connected Receiver unit
- The Power link light will be on when power is connected directly to the Transmitter or is being received from the Receiver unit
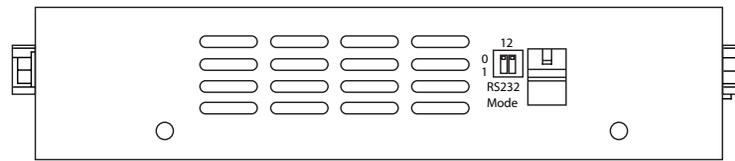
Blustream Support department are on hand to assist with signal distribution issues should they arise - please email us at one of the email addresses below.

RS232 Management

The HEX100HDVGA can pass-through an RS232 signal for control of 3rd party equipment connected to either side of the TX and RX units.

The HEX100HDVGA can also be set to receive an RS232 signal at either TX or RX end for the switching of the HDMI and VGA inputs on the Transmitter unit.

The DIP switches on the side of both the Transmitter anbd Receiver units determine the mode and use of the RS232 connections on both the TX and / or RX units.

DIP POSITION 1	DIP POSITION 2	MODE
0	0	RS232 Pass through HDBaseT (default)
0	1	HDBaseT Firmware Update
1	0	Master Firmware Update
1	1	Switch between inputs via RS232 and allow RS232 pass through HDBaseT

RS232 Control

RS232 switching codes for VGA and HDMI inputs:

CODE	DESCRIPTION
vgaselect	Switch to VGA input
hdmiselect	Switch to HDMI input
getselect	Get status of currently selected input, return message will be HDMI port of VGA port
ensigdet	Enable signal detect (auto switching)
dissigdet	Disable signal detect (auto switching)
resetdef	Restore factory settings

BLUSTREAM RS-232		REMOTE CONTROL CONSOLE	
PIN	Assignment	PIN	Assignment
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate: 9600 bps

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

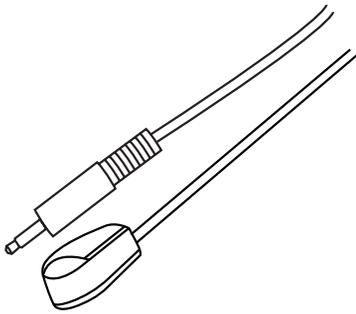# Infrared (IR) Distribution

The Blustream range of HDBaseT products include multiple options for control and routing of IR.

IMPORTANT: Blustream Infrared products are all 5v and NOT compatible with alternative manufacturers Infrared solutions. When using third party 12v IR control solutions please use supplied Blustream IRCAB cable for IR conversion (sold separately).

Each Blustream Matrix and HDBaseT extender kit is supplied with all necessary IR hardware required and includes:
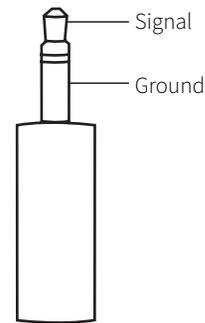
IR Emitter - IR1 & IR2 (IR2 sold separately)

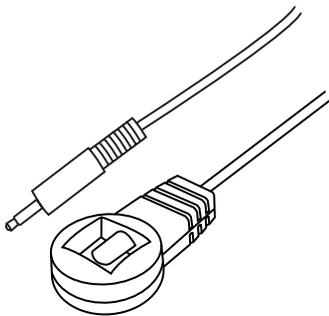Blustream 5V IR Emitter designed for discrete IR control of hardware

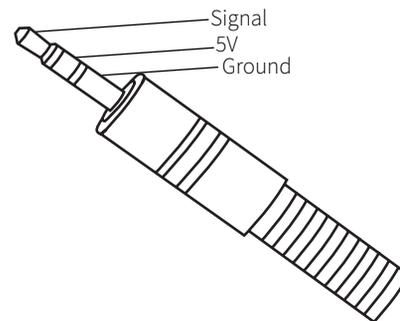### Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

- Signal
- Ground

IR Receiver - IRR

Blustream 5V IR receiver to receive IR signal and distribute through Blustream products

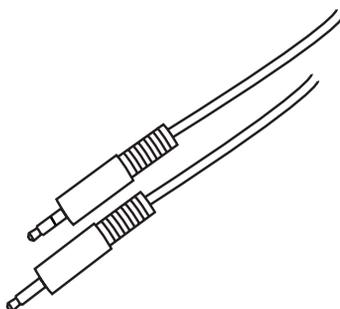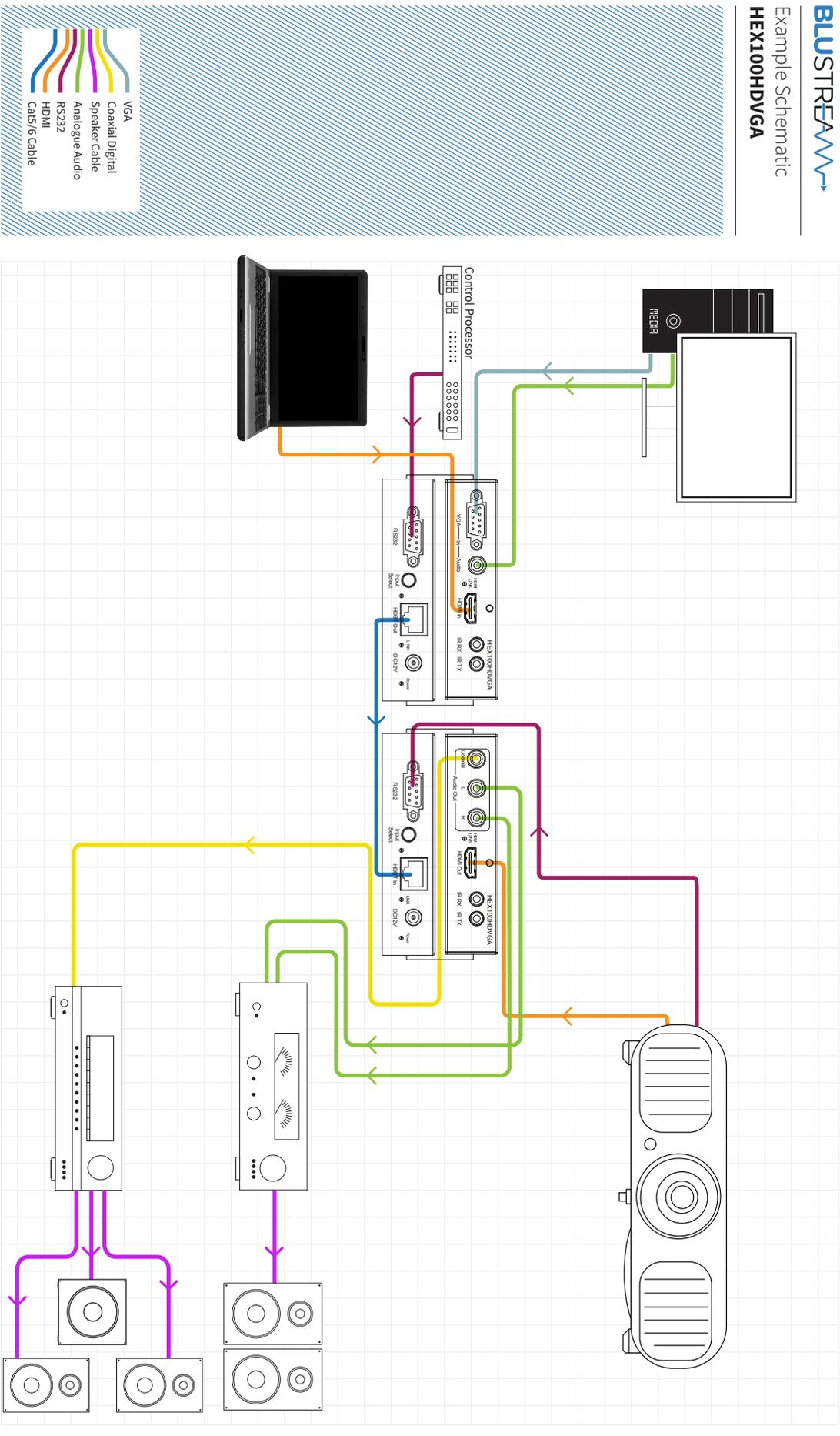### IR Receiver - Stereo 3.5mm

- Signal
- 5V
- Ground

IR Control Cable - IRCAB

Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Compatible with 12v IR third party products.

Note: Cable is directional as indicated

BLUSTREAM

Example Schematic
HEX100HDVGA

VGA
Coaxial Digital
Speaker Cable
Analogue Audio
RS232
HDMI
Cat5/6 Cable

Control Processor

MEDIA

RS232

VGA — Audio
HGM
HDM In

Input Select

HDMI Out

LINK
DC12V
Power

HEX100HDVGA

IR RX   IR TX

RS232

COAX IN
Audio Out
L
R
HDMI
HDMI Out

Input Select

HDMI In

LINK
DC12V
Power

HEX100HDVGA

IR RX   IR TX

Specifications

HEX100HDVGA-TX

- Video input: 1x HDMI Type A, female

- Video output: 1x HDBaseT RJ45 connector

- Audio output:1x 3.5mm L/R analogue audio & 1x digital coaxial (RCA)

- RS-232 serial port: 1x DB9 female connector

- IR input: 1x 3.5mm stereo jack

- IR output: 1x 3.5mm mono jack

- Mounting kit included

- Dimensions excl connections (W x D x H):

  124mm x 113mm x 29mm

- Shipping weight (Kit): 1.3 kg

- Power: 12V/2A DC, screw type connector

- Operating temperature: 32°F to 104°F (0°C to 40°C)

- Storage temperature: -4°F to 140°F (-20°C to 60°C)

HEX100HDVGA-RX

- Video input: 1x HDBaseT RJ45 connector

- Video output: 1x HDMI Type A, female

- RS-232 serial port: 1x DB9 female connector

- IR input: 1x 3.5mm stereo jack

- IR output: 1x 3.5mm mono jack

- Mounting kit included

- Dimensions excl connections (W x D x H):

  124mm x 113mm x 29mm

- Shipping weight (Kit): 1.3 kg

- Power: 12V/2A DC, screw type connector

- Operating temperature: 32°F to 104°F (0°C to 40°C)

- Storage temperature: -4°F to 140°F (-20°C to 60°C)

NOTE: Specifications are subject to change without notice. Weights and dimensions are approximate.

Package Contents

HEX100HDVGA-KIT

- 1 x HEX100HDVGA-TX / 1 x HEX100HDVGA-RX

- 1 x 12V/2A DC power supply

- 1 x IR emitter (IRE)

- 1 x IR receiver (IRR)

- 2 x Mounting bracket sets

- 1 x User manual

HEX100HDVGA-RX (when sold individually)

- 1 x HEX100HDVGA-RX

- 1 x Mounting bracket set

HEX100HDVGA-TX (when sold individually)

- 1 x HEX100HDVGA-TX

- 1 x Mounting bracket set

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.