UNCOMPRESSED

4K HDBaseT Extender with eARC, KVM, PoH and Ethernet

Vanco Part Number: EVEXHDB3

Uncompressed 4K HDBaseT Extender with eARC, KVM, PoH and Ethernet

EVOLUTION BY VANCO ADVANCING DIGITAL CONNECTIVITY

www.vanco1.com • 800.626.6445

DEAR CUSTOMER

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.

This product is 100% inspected and tested in the United States to verify HDMI performance parameters.

WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.
2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.
3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
4. Do not install near any source of heat, including other units that may produce heat.
5. Do not place unit near flames.
6. Only clean unit with a dry cloth.
7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.
8. Protect the power cord from being walked on or pinched, particularly at the plugs.
9. Use unit only with accessories specified by the manufacturer.
10. Refer all servicing to qualified personnel.

CAUTION

HDMI is a very complex technology requiring continuous authentication of the signal and the same video resolution and audio settings on all electronic equipment in the system. When there are multiple sources and displays, the video resolution and audio setting on all connected units must be adjusted to correspond with that of the display having the lowest video and audio capability.

FEATURES

INTRODUCTION

The Evolution by Vanco EVEXHDB3 HDBaseT 3.0 extender offers multiple options for pass-through control, and audio including eARC and ARC, along with PoH while being able to extend uncompressed 4K with HDR up to 164ft/50m over a sinlge Cat6 or up to 328ft/100m using Cat6a/7. Control signals include bi-directional IR pass-through to control IR sources either way, bi-directional USB for KVM pass-through to control sources with a keyboard and mouse, and RS-232 pass-through for 3rd party control. Audio options include the ability to embed audio from a separate audio source, de-embed or extract audio from the HDMI signal, as well as eARC (Enhanced Audio Retrun Channel) and ARC (Audio Return Channel). In addition, the EVEXHDB3 allows for 1Gb ethernet pass-through. A great solution when trying to extend a network for streaming or control along with the audio and video signals over a single Cat6/6a/7 cable. The transmitting unit is equipped with an HDMI loop-out, to connect to a local display, combine with another HDMI distribution product, or extract audio. Power over HDBaseT (PoH) Technology transmits power over Cat6/6a/7, allowing either the Transmitter or Receiver to be powered without the use of a power supply. For extending uncompressed 4K with HDR, along with checking multiple boxes for control and audio options and more, the EVEXHDB3 is the perfect solution for any application.

The EVEXHDB3 includes two units: transmitting unit (EVEXHDB3-TX) and receiving unit (EVEXHDB3-RX). The transmitting unit is used to capture the HDMI input with additional signals and carries the signals via a single Cat6/6a/7 cable. The receiving unit is responsible for equalizing the transmitted HDMI signals and reconstructing other signals.

*NOTE – All specifications and ratings for the EVEXHDB3 have been tested and confirmed using Cat6 and Cat6a cabling. Cat5e is not recommended.

Evolution Uncompressed 4K HDBaseT Extender with eARC, KVM, PoH and Ethernet

Part # EVEXHDB3

- Allows HDMI audio/video signals to be transmitted using a single Cat6/6A/7 Cable HDMI 2.0b, HDCP 2.3/1.4 and HDBaseT 3.0 compliant
- Extends uncompressed 4K@60Hz, 4:4:4, 18Gbps and HDR up to 328ft/100m
- Transmission distance up to 328ft/100m via a single CAT6a/7 cable, or 164ft/50m using a single Cat6 cable
- HDR compatible: passes HDR10, HDR10+, Dolby Vision and HLG formats
- Supports Enhanced Audio Return Channel (eARC) and Audio Return Channel (ARC)
- Supports multiple audio formats such as LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, and more
- Able to embed audio from a separate audio source, or de-embed to break out or extract audio
- Bi-directional IR, RS-232 and 1Gb Ethernet signal pass through
- Extends and supports USB 2.0 functions such as mouse, keyboard, and touch screen control, as well as data, microphone and webcams
- HDMI loop-out for local monitoring, use with other HDMI distribution products, or for de-embedding audio from the source or display end
- Features Power over HDBaseT technology (PoH) which transmits power over Cat6/6a/7, allowing for either Transmitter or Receiver to be powered without the use of a power supply
- Dimensions: 6.7" W x 4" D x 0.9" H (170mm W x 102mm D x 22mm H)

SPECIFICATIONS

HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.3
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@60Hz 4:4:4
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit
Audio Formats	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
L/R Audio Formats	PCM 2.0
SPDIF Audio Formats	LPCM2.0, AC3 5.1, DTS 5.1
IR Level	12Vp-p
IR Bandwidth	20K - 60KHz
USB Bandwidth	Up to 350Mbps
Ethernet	1000Mbps
RS-232	Up to 921600bps
Transmission Distance	100m (via a single CAT 6A/7 cable)
ESD Protection	Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Transmitter Inputs	1x HDMI IN (Type A, 19-pin female)
Transmitter Outputs	1x HDMI OUT (Type A, 19-pin female)
	1x HDBT OUT (RJ45, 8-pin female)
	1x SPDIF OUT (S/PDIF)
	1× L/R OUT (3.5mm Stereo Mini-jack)
Transmitter Controls	1x IR IN (3.5mm Stereo Mini-jack)
	1x IR OUT (3.5mm Stereo Mini-jack)
	1x RS-232 (3pin-3.81mm Phoenix jack)
	1x SERVICE (Mini-USB, Update port)
	1×USB HOST (USB Type B)
	2×USB DEVICES (USB Type A)
	1×LAN (RJ45)

Housing	Metal Enclosure
Color	Black
Dimensions	TX/RX: 6.7" W x 4" D x 0.9" H (170mm W x 102mm D x 22mm H)
Weight	TX: 0.9lbs; RX: 0.96lbs
Power Supply	Input: AC 100 - 240V 50/60Hz; Output: DC 24V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	15.36W
Operating Temperature	32 - 104°F / 0 - 40°C
Storage Temperature	-4 - 140°F / -20 - 60°C
Relative Humidity	20 - 90% RH (no condensation)
Resolution/HDMI Cable Length	4K60Hz (16ft/5m); 4K30Hz (32ft/10m); 1080p (50ft/15m)

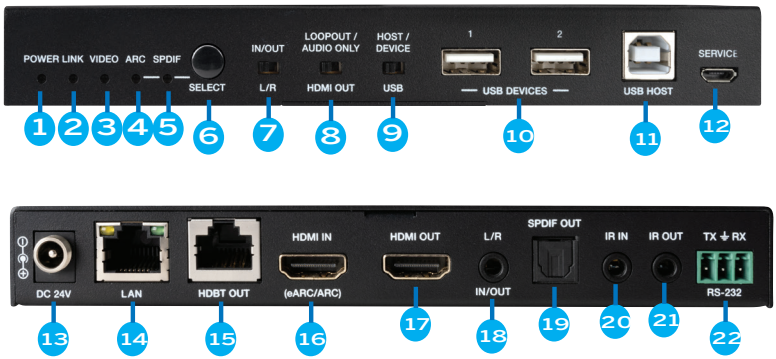
The use of "Premium High Speed HDMI" cables are highly recommended.

PACKAGE CONTENTS

- (1) EVEXHDB3 (TX and RX)
- (1) IR Emitter
- (1) IR Receiver
- (4) Mounting Ears
- (8) Mounting Screws
- (2) 3-pin Phoenix Connector
- (1) 24V/1A Locking Power Adapter
- (1) Product Manual

PANEL DESCRIPTIONS

Transmitting Unit



1. Power LED: Illuminates when the unit is powered on
2. Link LED:

   Light on: Transmitter and Receiver are connected and communicating

   Light flashing: Transmitter and Receiver are in Low Power Mode (check cabling, home-run cabling should be utilized with no coupling points)

   Light off: No connection between Transmitter and Receiver
3. Video LED

   Light on: The video is encrypted and able to be passed to Receiver

   Light flashing: The video is not encrypted

   Light off: No HDMI input signal detected
4. ARC LED:

   Light on: The device is switched to the ARC mode, the receiver will receive eARC/ARC signals from an eARC/ARC equipped display, and will pass signals via the Cat6/6a/7 cable to the Transmitting unit.

   Light off: The device is switched to the SPDIF mode
5. SPDIF LED

   Light on: The device is switched to the SPDIF mode. In this mode, the optical input on the Receiving unit will be passed to the Transmitting unit, and then can be broken out via the SPDIF out or HDMI loop-out

   Light off: The device is switched to the ARC mode
6. SELECT Button: Used for switching between the ARC and SPDIF modes
7. L/R IN/OUT Switch: Switch to left, the L/R IN/OUT port is the audio embedding port; Switch to right, the L/R IN/OUT port is the audio de-embedding port
8. Loop Out/Audio Only Switch: Switch to left (LOOP-OUT), the HDMI OUT port is the loop-out port for the HDMI IN port (source signal); Switch to right (AUDIO ONLY), the HDMI OUT port outputs 720P black screen image, and the audio is from ARC or SPDIF signals from the Receiving unit

9. Host/Device USB Switch

   The USB pass-through on this unit is bi-directional, however is not simultaneous, which means one unit must be set to “HOST”, and the other to “DEVICE”

   Switch to left (HOST), the USB host port, connects to a PC, security NVR, etc.; the USB ports on the Receiving unit will be active to connect a keyboard/mouse

   Switch to right (DEVICE), the USB DEVICE mode is enabled to connect a keyboard/mouse, the Receiving unit must be set to “HOST” and connected to a component such as a smart or touch screen display

10. USB Devices: USB device ports to connect to a keyboard/mouse
11. USB Host: USB extension host port, connected to PC, security NVR, etc.
12. Service: Firmware update port
13. DC 24V: DC 24V/1A power supply input port. Note that the extender supports PoH function, allowing for either Transmitter or Receiver to be powered without the use of a power supply
14. LAN: 1Gb Network port, connect an ethernet source such as a switch or router; this will pass ethernet signals up to 1GHz to the Transmitting unit to connect to devices needing hardwired ethernet connectivity; this will also work in the opposite direction
15. HDBT OUT: Cat6/6a/7 Output: Connect a single Cat6/6a/7 with other end of cable connected to the RX unit (home-run cabling strongly recommended without any couplings, punch-downs, or patch panels)
16. HDMI IN: HDMI IN: Connect a source such as a Cable box, Blu-ray player, game console, PC, Security NVR etc. If intending to utilize eARC/ARC, connect an eARC/ARC capable component such as an AV Receiver, soundbar, etc; back up ARC plan, if the display does not have eARC/ARC capability, this can be connected to the optical output of the display to be sent to the Transmitter
17. HDMI OUT: HDMI signal loop-out port. Connect a local monitor or audio amplifier
18. L/R IN/OUT: Audio embedding/de-embedding port. Used for audio embedding/de-embedding through the L/R IN/OUT switch
19. SPDIF OUT: Optical output port
20. IR IN: IR signal input port, connect the included IR Receiver cable
21. IR OUT: IR signal output port, connect the included IR Emitter cable
22. RS-232: RS-232 serial port, used for serial port command transmission

PANEL DESCRIPTIONS

Receiving Unit

1. Power LED: Illuminates when the unit is powered on
2. Link LED:

   Light on: Transmitter and Receiver are connected and communicating

   Light flashing: Transmitter and Receiver are in Low Power Mode (check cabling, home-run cabling should be utilized with no coupling points)

   Light off: No connection between Transmitter and Receiver
3. Video LED

   Light on: The video is encrypted and able to be passed to Receiver

   Light flashing: The video is not encrypted

   Light off: No HDMI input signal detected
4. ARC LED:

   Light on: The device is switched to the ARC mode and will receive ARC signals from an ARC equipped display, and will pass signals via the Cat6/6a/7 cable to the Transmitting unit

   Light off: The device is switched to the SPDIF mode
5. SPDIF LED

   Light on: The device is switched to the SPDIF mode. In this mode, the optical input on the Receiving unit will be passed to the Transmitting unit, and then can be broken out via the SPDIF out or HDMI loop-out

   Light off: The device is switched to the ARC mode
6. SELECT Button: Used for switching between the ARC and SPDIF modes
7. DEVICE/HOST USB SWITCH:

   The USB pass-through on this unit is bi-directional, however not simultaneous, which means one unit must be set to “HOST”, and the other to “DEVICE”

   Switch to left (HOST), the USB HOST mode is enabled and connect a component such as a smart or touch screen display; the USB ports on the Transmitting unit will be active to connect a keyboard/mouse;

   Switch to right (DEVICE), the USB DEVICE mode is enabled to connect a keyboard/mouse, the Transmitting unit must be set to “HOST” and connected to a component such as a PC or security NVR

8. USB DEVICES: USB device ports to connect to a keyboard/mouse
9. USB HOST: USB extension host port, connected to smart or touch screen display
10. SERVICE: Firmware update port
11. DC 24V: DC 24V/1A power supply input port. Note that the extender supports PoH function, allowing for either Transmitter or Receiver to be powered without the use of a power supply
12. LAN: 1Gb Network port, connect an ethernet source such as a switch or router; this will pass ethernet signals up to 1GHz to the Transmitting unit to connect to devices needing hardwired etherney connectivity; this will also work in the opposite direction
13. HDBT IN: Cat6/6a/7 Input: Connect a single Cat6/6a/7 with other end of cable connected to the TX unit (home-run cabling strongly recommended without any couplings, punch-downs, or patch panels)
14. HDMI OUT: Connect a display such as an HDTV or HD Projector
15. L/R OUT: Audio de-embedding output port
16. SPDIF IN: Optical input port; back up ARC plan, if the display does not have eARC/ARC capability, this can be connected to the optical output of the display to be sent to the Transmitter
17. IR IN: IR signal input port, connect the included IR Receiver cable
18. IR OUT: IR signal output port, connect the included IR Emitter cable
19. RS-232: RS-232 serial port, used for serial port command transmission

CONNECT AND OPERATE

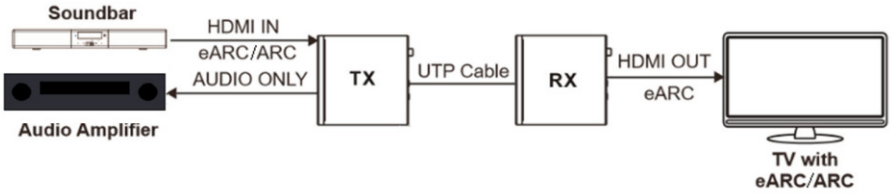
The EVEXHDB3 has MANY different ways it can be setup and used for a variety of different jobs. Here are different scenarios of how it can be setup. The Extender can switch to ARC/SPDIF mode by pressing the SELECT button on the front panel of both transmitter and receiver. The HDMI OUT port of the transmitter can turn to LOOP OUT or AUDIO ONLY through the LOOP OUT/AUDIO ONLY switch. The input and output routing are different for different scenarios, as shown in the diagrams below:

eARC (Enhanced Audio Return Channel) and ARC (Audio Return Channel)

In this mode, the unit will pass eARC/ARC signals from an eARC/ARC equipped display to an eARC/ARC capable component such as an AV Receiver. Note that all components must have eARC or ARC capability. If one component does not have eARC, the signal may be downgraded to ARC for example.

While the signals will be passed through the "HDMI IN" of the Transmitting unit to a capable component, audio can also be broken out via the HDMI loop-out or SPDIF output. Furthermore, the HDMI loop-out can either output the eARC/ARC audio signal, or output the HDMI source signal, see below:

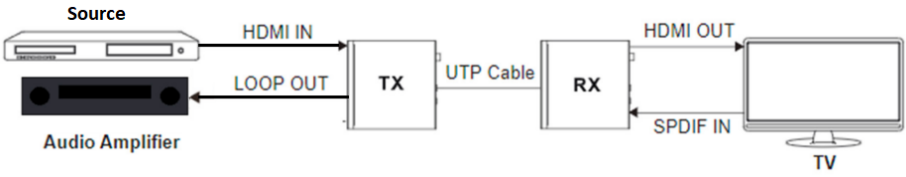
1. Set the Extender (either the Transmitter or Receiver, the other end will update to this mode) to ARC Mode.
2. If using the HDMI loop-out for audio, set the extender (either the Transmitter or Receiver, the other end will update to this mode) to ARC MODE, then switch the LOOP OUT/ AUDIO ONLY switch to right, the HDMI OUT (loop-out) port of the transmitter is set to AUDIO ONLY.



HDMI Loop-Out - AUDIO ONLY

This setup allows for audio to be received into the receiver, and extracted from the HDMI OUTPUT of the transmitter. This is often referred to as the ARC backup plan as it allows audio from a display or smart TV to be routed back to the transmitter, then extracted for use with an AVR or distributed audio system in a similar way to ARC.

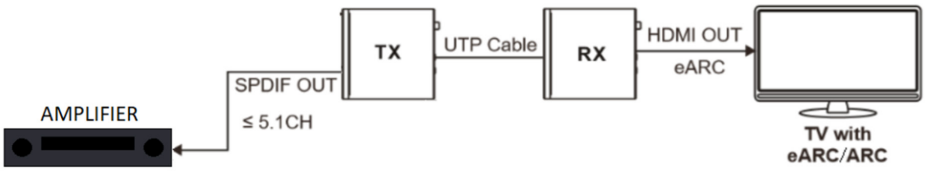
1. Set the extender to SPDIF Mode
2. Switch the LOOP-OUT/AUDIO ONLY switch to the left. Note: When using SPDIF for audio, only audio formats up to 5.1CH can be passed.



SPDIF Audio

This setup allows audio to be extracted from the SPDIF port on the transmitter. Note: When using SPDIF for audio, only audio formats up to 5.1CH can be passed.

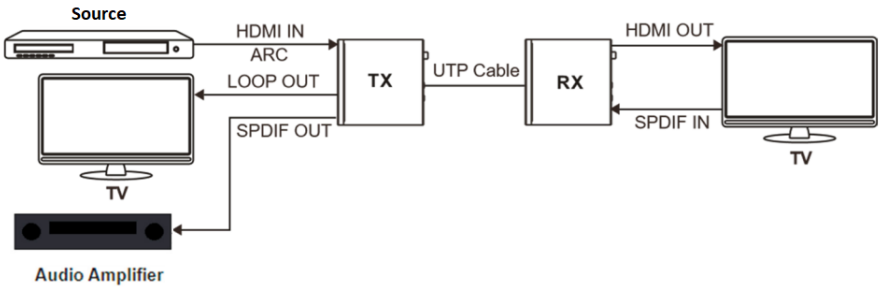
1. Set the Extender (either the Transmitter or Receiver, the other end will update to this mode) to SPDIF Mode
2. Switch the LOOP OUT/ AUDIO ONLY switch to right, the HDMI OUT port of the transmitter is set to AUDIO ONLY



HDMI Audio and Video Loop-Out

Utilizing the HDMI loop-out on the Transmitter to output video and audio from source (HDMI IN on TX):

1. Set the Extender to SPDIF Mode
2. Then switch the LOOP OUT/ AUDIO ONLY switch to left, the HDMI OUT port of the transmitter is set to LOOP OUT, which will output both video and audio from the source (HDMI IN on the Transmitting unit)

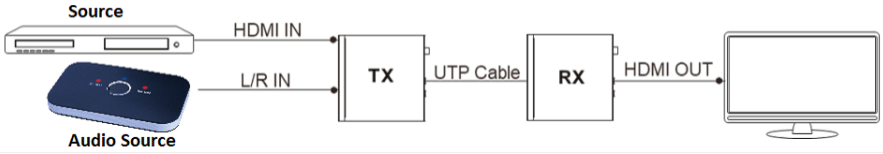


Audio Embedding and De-emedding

The Transmitter supports audio embedding and de-embedding (extraction). The L/R IN/OUT port can be used for audio embedding or de-embedding through the L/R IN/OUT switch

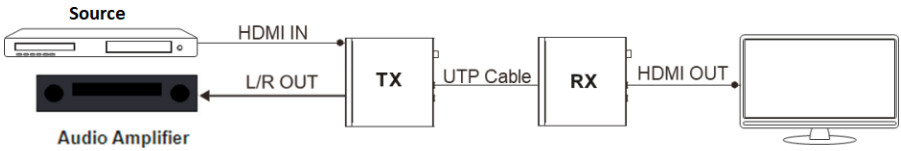
TX Audio Embedding

When the L/R IN/OUT switch is switched to the left, the audio from external audio device will be embedded to the L/R IN/OUT port.



TX Audio De-embedding (audio extraction)

When the L/R IN/OUT switch is switched to the right, The L/R IN/OUT port will output the audio de-embedded from the HDMI IN port.



USB Mode Applications

The Extender supports USB 2.0 transmission to control a components such as keyboard, mouse, touchscreen display, as well as with USB microphones, and video cameras as well.

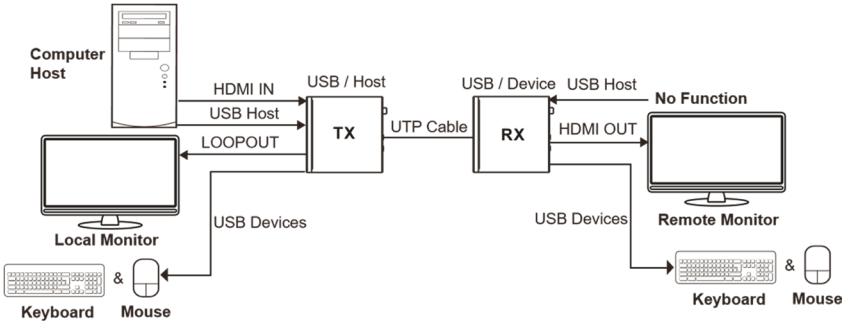
Note: While the extender can pass USB signals either way (bi-directional), it cannot pass the USB signals both ways simultaneously, one side needs to be set to “HOST”, while the other side needs to be set to “DEVICE”.

HOST = Component such as PC or Security NVR

DEVICE = Mouse, keyboard, webcam, etc

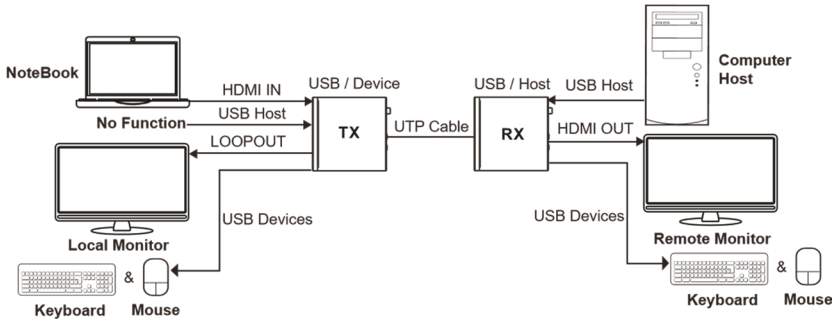
Mode 1: USB forward from TX to RX

1. Set TX to “HOST” (left)
2. Set RX to “DEVICE” (right). NOTE: In this mode, connect a component such as a PC or Security NVR to the “USB HOST” port of the Transmitting unit via USB Type B
3. Connect a keyboard, mouse, and/or webcam to the Receiving unit via USB Type A



Mode 2: USB reverse from RX to TX

1. Set TX to “DEVICE” (right)
2. Set RX to “HOST” (left). NOTE: In this mode, connect a component such as a smart or touch screen display to the “USB HOST” port of the Receiving unit via USB Type B
3. Connect a keyboard, mouse, and/or webcam to the Transmitting unit via USB Type A



IR PASS-THROUGH

IR PASS-THROUGH

The bi-directional IR system allows you to control the source that is connected to the extender unit, from the display; or the display from the source, not simultaneously. There are two important things to note when setting up the IR system:

1. The IR Receiver (IR RX) is always what you point your remote at to send an IR signal. This pigtail is placed at the display for controlling the source; or at the source for controlling the display.
2. The IR Emitter (IR TX) is what sends the IR signal to what you are intending to control, whether it's the source or the display. This pigtail is placed at the source; either pointed at the source, or placed on the front panel of the source, see below for placement tips. Or placed at the display to control the display from the source.

To Control the Source:

1. Plug the IR Emitter into the IR OUT port of the transmitter unit; place emitter in front of the IR eye of the source

2. Plug the IR Receiver into IR IN port of receiver unit; place receiver at or near display

To Control the Display:

1. Plug the IR Emitter into the IR OUT port of the receiver unit; place emitter in front of the IR eye of the display

2. Plug IR Receiver into IR IN port of transmitter unit; place receiver in position where it is able to receive remote signals

SAFETY AND NOTICE

The EVEXHDB3 has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the EVEXHDB3 should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit.
- Always unplug the power to the device before cleaning

LIMITED WARRANTY

With the exceptions noted in the next paragraph, Vanco warrants to the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in Vanco's opinion, prove defective within this warranty period, Vanco, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of Vanco. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into Vanco products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to Vanco. A surge protector, power conditioner unit, or an uninterruptible power supply must be installed in the electrical circuit to protect against power surges.

If repairs are needed during the warranty period the purchaser will be required to provide a sales receipt/sales invoice or other acceptable proof of purchase to the seller of this equipment. The seller will then contact Vanco regarding warranty repair or replacement.

TECHNICAL SUPPORT

In case of problems, please contact Vanco Technical Support by dialing 1-800-626-6445. You can also email technical support issues to techsupport@vanco1.com.

When calling, please have the Model Number, Serial Number (affixed to the bottom of the unit) and Invoice available for reference during the call.

Please read this Instruction Manual prior to calling or installing this unit, since it will familiarize you with the capabilities of this product and its proper installation.

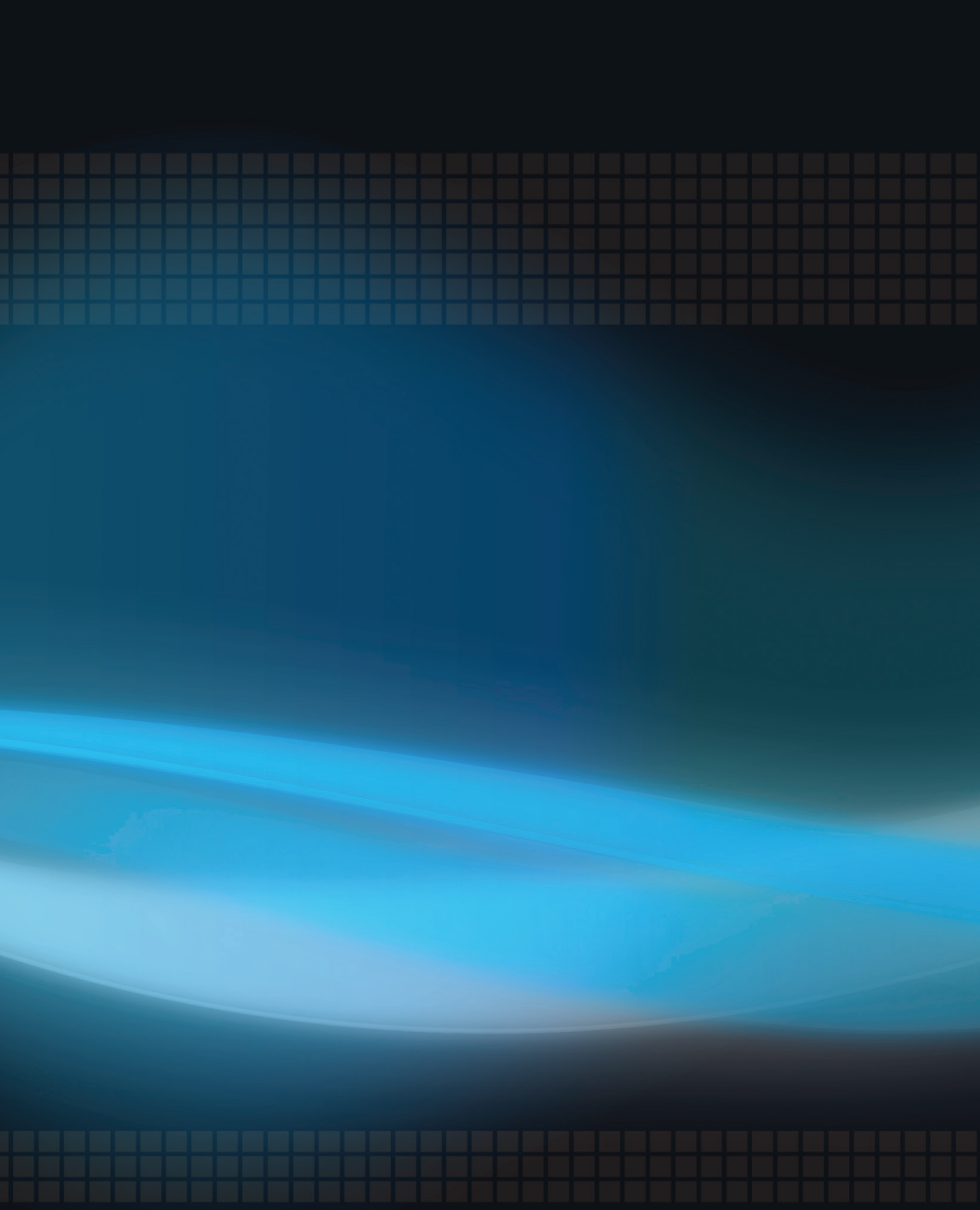
All active electronic products are 100% inspected and tested to insure highest product quality and trouble-free installation and operation. The testing process utilizes the types of high-definition sources and displays typically installed for entertainment and home theater applications.

For additional information, such as helpful installation videos, etc. please visit www.vanco1.com

LIABILITY STATEMENT

Every effort has been made to ensure that this product is free of defects. The manufacturer of this product cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user and installer of the hardware to check that it is suitable for their requirements and that it is installed correctly.

Manufacturer reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.



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