HDBaseT™ 4K@60Hz 4:4:4 Chroma,
HDR Extender

Vanco Part Number
EVEXHDB2

HDBaseT™ 4K@60Hz, 4:4:4 Chroma, HDR Extender

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.

INTRODUCTION

The Evolution by Vanco EVEXHDB2 HDBaseT 4K@60Hz, 4:4:4 Chroma, HDR Extender with Bi-directional IR, and Power over HDBaseT (PoH) extends 4K/60Hz, 4:4:4 with HDR along with audio, Ethernet, and RS232 at a distance of up to 230ft/70m over a single Cat5e/6 cable. Also able to pass 1080p/60Hz up to 330ft/100m. Power over HDBaseT (PoH) Technology transmits power over Cat5e/6, allowing either the Transmitter or Receiver to be powered without the use of a power supply. No EDID or EQ adjustments are necessary as the units automatically adjust for compatibility and gain. The EVEXHDB2 also has the ability to expand networking setup, by extending Ethernet along with HDMI signals over the single Cat5e/6 cable, allowing for two RJ45 jacks on the transmitting and receiving ends to hardwire any network capable components. In addition, RS-232 and bi-directional IR pass-through allows for source and/or display control. For extending full 4K resolution with up to 60Hz, 4:4:4 chroma subsampling, and HDR, the EVEXHDB2 is a great plug and play solution for connecting the latest components!

The EVEXHDB2 includes two units: transmitting unit (EVEXHDB2-TX) and receiving unit (EVEXHDB2-RX). The transmitting unit is used to capture the HDMI input with IR signals and carries the signals via one cost effective Cat5e/6 cable. The receiving unit is responsible for equalizing the transmitted HDMI signal and reconstructing IR signals. The EVEXHDB2 offers the most convenient solution for 4K extension over a single Cat5e/6 with Power over Cable, and is the perfect solution for any application.

HDBaseT™ 4K@60Hz, 4:4:4 Chroma, HDR Extender
Part # EVEXHDB2

- Features the latest HDBaseT Technology, optimized for whole-home or commercial distribution of high-definition signals at much greater distances of standard HDMI cables

- Transmission Range: Extends 4Kx2K@60Hz, 4:4:4 with HDR up to 230ft/70m over a single Cat5e/6 cable and 1080p@60Hz up to 330ft/100m

- Features Power over HDBaseT (PoH) Technology which transmits power over Cat5e/6, allowing for either Transmitter or Receiver to be powered without the use of a power supply

- Virtually Lossless Compression retains high end audio and video quality

- 4-10/100 Ethernet ports for directly connecting displays and sources to a network

- Bi-directional IR and RS232 control

- Features Auto EDID and EQ Management for plug and play installation

- HDR Compatible

- HDCP 2.2 compliant and backward compatible to previous versions

- CEC Support

- Slim and compact design

- Power Supply: DC 24V

- Dimensions: 5.9 W" x .6" H x 4" D

SPECIFICATIONS

Transmitter Input .... HDMI in

Transmitter Output .... HDBaseT out

Receiver Input .... HDBaseT in

Receiver Output... HDMI out

Transmitter Control Ports.. IR in, IR out, RS-232

Receiver Control Ports .... IR in, IR out, RS-232

Ethernet Ports.. 2 RJ45 connectors - TX, 2 RJ45 connectors - RX

Transmission Mode & Distance .... HDBaseT; 1080P ≤ 100m; 4K×2K w/HDR ≤ 70m

Ethernet Transmission Speed .... Adaptive 10M/100M (max), full duplex or half duplex

Resolution.. Up to 4K×2K@60Hz 4:4:4 with HDR

Bandwidth.. 18Gbps

HDMI Standard.. HDMI 2.0 & HDCP 2.2

Power Consumption .... 20W (max)

Temperature... -10°C ~ 50°C

Humidity .... 0% ~ 90%

Power Supply .... Input: 100VAC~240VAC, 50/60Hz; Output: 24VDC 1.25A

Dimensions (mm)... 152 W x 16.2 H x 104 D

Net Weight .... 240g - TX, 240g - RX

PACKAGE CONTENTS

- EVEXHDB2 (TX & RX)
- IR Transmitter (IR TX)
- IR Receiver (IR RX)
- (2) RS232 Cables (3-pin to DB9)
- Mounting Hardware
- (1) DC 24V Power Supply
- Product Manual

CONNECTION DIAGRAM
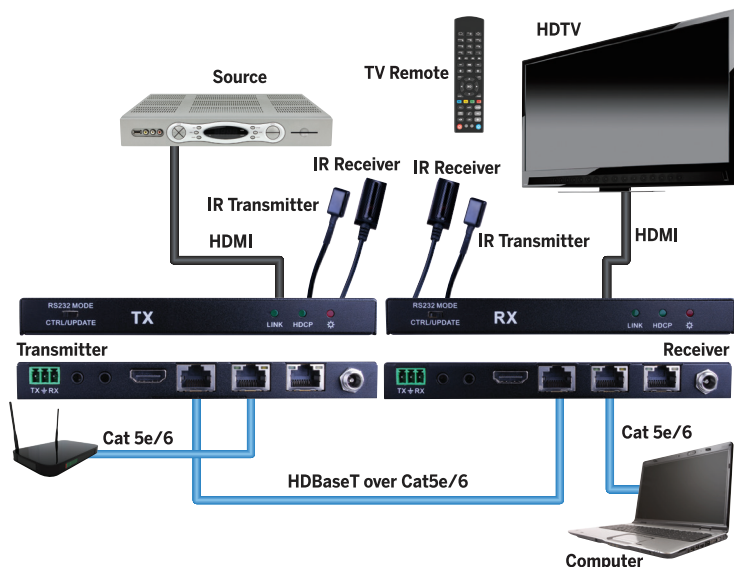
1. Connect a source such as a Blu-Ray Player, game console, A/V Receiver, Cable or Satellite Receiver, etc. to the HDMI input on the Transmitting unit.

2. Connect a display such as an HDTV or HD Projector to the HDMI output on the Receiving unit.

3. Connect a single Category 5e/6/7 (up to 330ft/100m for 1080p or 230ft/70m for 4K) to the UTP output of the Transmitting unit, and the other end to the UTP input of the Receiving unit.

4. OPTIONAL: When using the bi-directional IR control, connect the IR emitter at either end to the IR OUT port on either the transmitter or the receiver. When using a powered IR receiver, connect via a 3.5 mm stereo plug to the IR IN on either the receiver or the transmitter.

5. OPTIONAL: When using bidirectional RS232 control, use the provided 3-conductor screw down terminals in the proper configuration of the devices being connected. If you are unsure of the TX, RX, and Ground pin configuration, please contact the manufacturer for additional information.

6. OPTIONAL: When connecting to a network, computer, or third party control system, connect a well-terminated Cat5e/6/7 to the Ethernet ports on the transmitter and receiver for sending Ethernet, internet, or control signals

7. For power, plug in either the Transmitting unit or Receiving unit with the included power supply, opposite unit will not have to be plugged in as it features Power over Ethernet (PoH).

8. Power on each device in the same sequence (receiver and transmitter will already be powered when either unit is plugged in).

At this point the display connected should display the source signal connected to the extender set. If no signal is being displayed, connect a shorter Cat5e/6 cable (jumper or patch cable). If a display is having difficulty receiving a signal, access the display's menu and adjust the resolution (lowest to highest until signal is displayed). Use the source remote at the receiver emitter to test IR functionality. If the IR remote function is not responding, check the emitters to ensure they are placed correctly and are plugged into the correct IR jacks on the Extender set receiving and transmitting units.
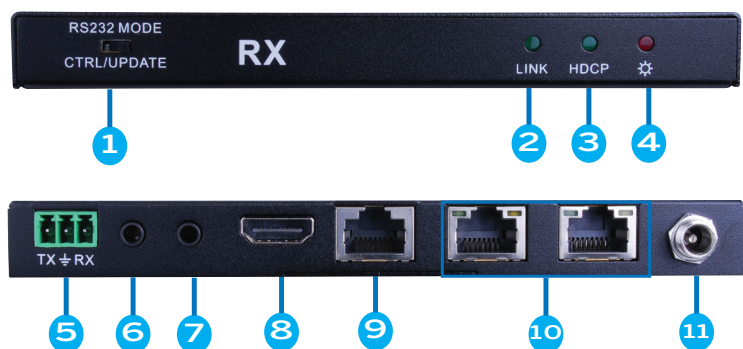
PANEL DESCRIPTIONS

EVEXHDB2-TX (Transmitting Unit)
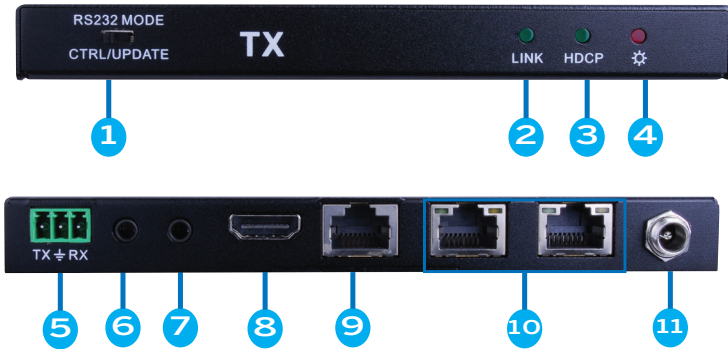
1. RS-232 Mode Switcher - Option for RS232 pass-through with selections to update firmware (See RS-232 Mode Switcher section)

2. Link Status LED - OFF: No Link; GREEN: Link successful

3. HDCP Status LED - OFF: No HDMI signal (no picture); GREEN: HDMI signal with HDCP; Blinking: HDMI signal without HDCP

4. Power LED - OFF: No power; RED: DC power present

5. RS-232 - Connect for control via PC or third party control system

6. IR IN – Connect the included IR Receiver (RX) to control the display

7. IR OUT – Connect the included IR Transmitter (TX) to control the source

8. HDMI IN – Connect an HDMI source

9. HDBT OUT – Connect a single Cat5e/6 that will connect to the Receiving unit (home run cable recommended with no coupling or patch panels for optimal performance)

10. Ethernet – Connect either an ethernet source such as a switch or router, or connect devices to receive ethernet, an ethernet source is required to be connected on the Transmitter unit or Receiving unit

11. DC 24V – Connect the included 24V Power Supply (extender set has PoH and requires only one power supply, connect the power supply to the Transmitter unit OR Receiver unit)

PANEL DESCRIPTIONS

EVEXHDB2-RX (Receiving Unit)

1. RS-232 Mode Switcher - Option for RS232 pass-through with selections to update firmware (See RS-232 Mode Switcher section)

2. Link Status LED - OFF: No Link; GREEN: Link successful

3. HDCP Status LED - OFF: No HDMI signal (no picture); GREEN: HDMI signal with HDCP; Blinking: HDMI signal without HDCP

4. Power LED - OFF: No power; RED: DC power present

5. RS-232 - Connect for control via PC or third party control system

6. IR IN – Connect the included IR Receiver (RX) to control the source

7. IR OUT – Connect the included IR Transmitter (TX) to control the display

8. HDMI OUT – Connect an HDMI display

9. HDBT IN – Connect a single Cat5e/6 that will connect to the Transmitting unit (home run cable recommended with no coupling or patch panels for optimal performance)

10. Ethernet – Connect either an ethernet source such as a switch or router, or connect devices to receive ethernet, an ethernet source is required to be connected on the Transmitter unit or Receiving unit

11. DC 24V – Connect the included 24V Power Supply (extender set has PoH and requires only one power supply, connect the power supply to the Transmitter unit OR Receiver unit)

USAGE PRECAUTIONS

1. System should be installed in a clean environment and has a prop temperature and humidity.

2. All of the power switches, plugs, sockets and power cords should be insulated and safely connected.

3. All devices should be connected before being powered on.

4. The Cat5e/Cat6 terminations for HDBaseT devices recommend a straight-through TIA/EIA T568B standard

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 Transmitter (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.

IR RECEIVER   IR TRANSMITTER

IR Transmitter (TX)

To control the source: Plug IR Transmitter into IR OUT port of transmitter unit (EVEXHDB2-TX); place transmitter in front of the IR eye of the source.

To control the display: Plug IR Transmitter into IR OUT port of receiver unit (EVEXHDB2-RX); place transmitter in front of the IR eye of the display.

Note: Placement of the IR Transmitter is important and can result in the IR system not working if improperly placed.

•   First, locate the IR eye or window on the source

•   If placing the IR Transmitter right on the front panel of the source, stick right on top of the IR eye or IR window.

IR RECEIVER (RX)

To control the source: Plug IR Receiver into IR IN port of receiver unit (EVEXHDB2-RX); place receiver at or near display.

To control the display: Plug IR Receiver into IR IN port of transmitter unit (EVEXHDB2-TX); place receiver in position where it is able to receive remote signals

RS-232 Mode Switcher

The RS232 switch allows for RS232 pass-through at default, however can also be used for firmware updates for the extender unit. Any available firmware versions will be provided on the EVEXHDB2 product page on www.vanco1.com. Instructions on how to update firmware will be provided on firmware version release documents.

To Control the Source:

1. Plug the IR Transmitter into the IR OUT Port on the Transmitter

IR Transmitter

2. Plug the IR Receiver into the IR IN Port on the Receiver

IR Receiver

To Control the Display:

1. Plug the IR Receiver into the IR IN Port on the Transmitter

IR Receiver

2. Plug the IR Transmitter into the IR OUT Port on the Receiver

IR Transmitter

NOTICE

1. Vanco HDMI and Cat5e/6 cables are strongly recommended for use with this product to ensure best results.

2. Incorrect placement of IR Transmitter and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets.

3. The transmission length is largely affected by the type of Cat5e/6 cables utilized, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m [1,000ft] bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat5e/6 cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, use solid UTP/STP category cables.

4. EIA/TIA-568-B termination (T568B) for Cat5e/6 cables is recommended for better performance.

5. To reduce the interference among the unshielded twisted pairs of wires in Cat5e/6 cables, one can use shielded STP cables to improve EMI problems, which worsens in long cable transmission.

6. The quality of Cat5e/6 cables can have a major effect on how long the transmission limit can achieve and quality of picture, the actual transmission range is subject to the Cat5e/6 cable utilized. For the best results, Cat6 is recommended.

7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

TROUBLE-SHOOTING

1. Best results are usually achieved when the source and display resolutions are the same. If resolutions differ, the extenders will try to adjust the signal to match the resolution of the HDTV with the lowest resolution. This will result in a picture with a lower resolution on the other HDTV sets.

2. If you do not get audio and video, access the "setup" menu on the TV to adjust the audio and video settings. If the HDMI control circuit cannot establish a handshake, then there usually will be no audio or video in addition to a blue or black screen with a statement similar to "this protocol not supported" or "weak signal".

3. If the above mentioned messages display, reset the receiver by disconnecting the power supply. You can also disconnect all of the HDMI and power cables, wait 15 minutes for any voltages to decay and then reconnect all of the cables.

4. If you are still encountering issues, attempt the "hot-plug" concept. With all of the HDMI cables disconnected, turn on the source and plug in the HDMI cable into it's output, then power up the Vanco unit and plug the HDMI cable into it's input, finally turn on the display and plug the HDMI cable from the receiver into it. This activates all of the devices in corresponding order and results in a signal being plugged into a device that is on and will attempt to connect the signal.

5. Most of the major source and display manufacturers employ a proprietary control channel to communicate between devices from the same manufacturer (CEC). Sometimes this can interfere with the HDMI control circuit or the authentication of the signal. Call the manufacturer if you experience this issue. Sometimes a player, an audio/video receiver, or a cable/satellite box may not have the latest software update, usually this can be downloaded from the manufacturer's website.

6. If you have problems with the IR control circuit, make sure that the IR RX pigtail is plugged into extender receiver and pointed at the display, and the IR TX pigtail is attached to the extender sender and pointed at the source.

SAFETY AND NOTICE

The EVEXHDB2 has been tested for conformance to safety regulations and requirements, and has been certified for EVEXHDB2 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. All rights are reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

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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