HDBASET™ BOOST EXTENDER

(330 ft./ 100m) over single Cat5e/Cat6 or HDMI Cable

Vanco Part Number
EVEX2330

HDBaseT™ Boost
Extender (330ft/100m)

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.

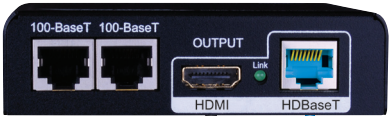
INTRODUCTION

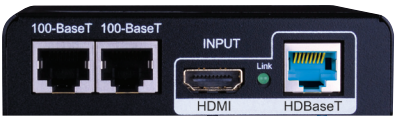
The Evolution by Vanco EVEX2330 HDMI Extender over Single Cat5e/6 with HDBaseT Technology, Bi-directional IR, and Boost extends high definition video and audio signals, IR, and power at a distance of up to 330ft/100m over a single Cat5e/6 cable. 4K2K (2160p) resolution can be extended up to 262ft/80m over a single Cat5e/6 cable. Features HDBaseT Technology that allows for greater transmission range compared to standard HDMI extenders. Also features Boost Technology which allows HDBaseT transmission over out of date HDMI cables, turn outdated 1.2 HDMI cables into 4K2K capable cables! With only one cost effective Cat5e/6 cable, high definition sources with HDMI outputs can be connected to high definition displays with HDMI inputs over long distances. Deep color video, DTS-HD or Dolby TrueHD audio, and HDCP is supported and compatible with the EVEX2330. In addition, EVEX2330 is also equipped with bi-directional IR pass-through which allows for source or display control.

The EVEX2330 includes two units: transmitting unit (EVEX2330-TX) and receiving unit (EVEX2330-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 and serial control signals. The EVEX2330 offers the most convenient solution for HDMI extension over a single Cat5e/6 with long distance capability, and provides a solution to update out of date HDMI cables.

Transmitter

Receiver





HDBaseT Boost Extender 330ft/100m

Part # EVEX2330

- Features HDBaseT Technology, optimized for whole-home or commercial distribution of uncompressed high-definition signals at twice the distance of HDMI cables without degradation
- HDBaseT Extender can connect uncompressed full HD digital video, audio, 100BaseT Ethernet, and various control signals through a single 330ft/100m Cat5e/Cat6 cable
- Boost feature allows for HDBaseT and 4K2K transmission over out of date HDMI cables
- 4K2K (2160p) resolution compatible
- HDBaseT Technology that supports HDMI Deep Color, 3D, and up to 4K2K resolution @ 30hZ
- Transmission Range: Extends 1080p resolutions up to 330ft (100m) over a single Cat5e/6 cable and 2160p/30hZ (4K2K) resolutions up to 262ft (80m)
- HDCP Compliant
- EDID pass through
- CEC support
- Auto equalization
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.5/5e/6 cable transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Wideband IR signal from 20KHz to 60KHz
- Bi-directional IR pass-through
- Wall mountable housing design for a quick and easy installation
- Dimensions: 3.82" (97.1mm) W x 1" (25.4mm) H x 3.58" (91mm) D

SPECIFICATIONS

TECHNICAL SPECS

HDMI Compliance	HDMI Deep Color, Full 3D 4K2K @ 30
HDCP Compliance	Yes
Video Bandwidth	Single link 340 MHz (10.2 Gbps)
Video Support	480i/480p/720p/1080i/1080p @60/2160p@30
HDMI over UTP	1080p@60 100m (330ft) Cat5e
Audio Support	Surround Sound (up to 7.1 ch) or stereo digital audio
Equalization	Auto
Input TMDS Signal	1.2 Volts (peak to peak)
Input DDC Signal	5 Volts (peak to peak, TTL)
ESD protection	(1) Human body model +/- 19kV (air-gap discharge) & (contact discharge) (2) Core chipset - +/- 8k V
PCB stack-up	6 layer board (impedance control - differential 100, single 50
IR pass-thru	Bi-directional
Input	(TX)1xHDMI + 2x3.5 + 1x mini USB; (RX)2xRJ45 1xRJ45(HDBT) + 1x HDMI (HDBT)
Output	(TX) 2xRJ45 + 1xRJ45(HDBT) + 1x HDMI(HDBT) ; (RX)1xHDMI + 2x3.5mm + 1x mini USB
HDMI source control	Controllable via IR pass-through from RX to TX with IR extenders
HDMI connector	Type A 19 pin female
RJ-45 connector	WE/SS 8P8C (reverse mode)
3.5mm connector	(TX and RX) IR Receiver/ IR blaster

MECHANICAL SPECS

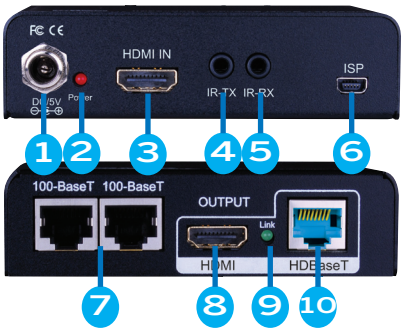
Housing	Metal enclosure
Fixedness	Wall-mounting case with screws
Power supply	5V2A
Power consumption	Max 12W
Operation temperature	32-104 degrees F
Storage temperature	-4 - 140 degrees F
Relative humidity	20-90% RH (no condensation)

PACKAGE CONTENTS

- EVEX2330 (TX and RX)
- IR Blaster (TX)
- IR Receiver (RX)
- (2) DC 5V in line power supply
- Rack-mounting ear set
- Product Manual

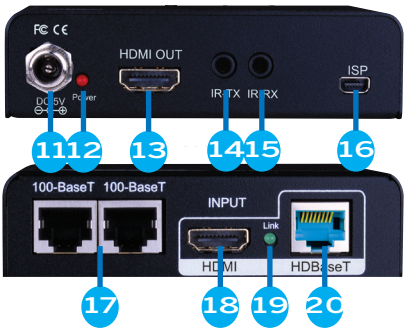
PANEL DESCRIPTIONS

Transmitting Unit



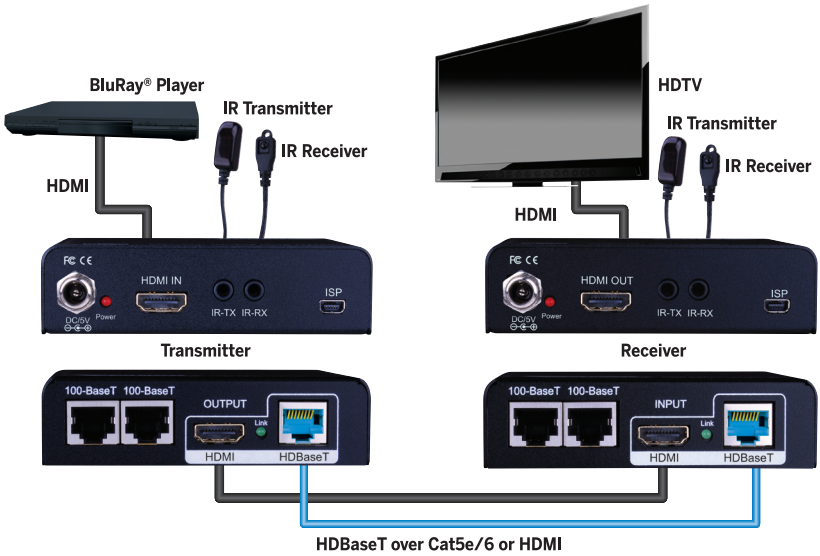
1. 5 V DC
2. Power indicator
3. HDMI IN
4. IR Blaster
5. IR Receiver
6. Mini USB (for firmware updates)
7. LAN OUT
8. HDMI (HDBT) OUT
9. TX/RX link indicator
10. RJ45 (HDBaseT OUT)

Receiving Unit



11. 5 V DC
12. Power indicator
13. HDMI OUT
14. IR Blaster
15. IR Receiver
16. Mini USB (for firmware updates)
17. LAN IN
18. HDMI (HDBT) IN
19. TX/RX link indicator
20. RJ45 (HDBaseT IN)

CONNECTION DIAGRAM



CONNECT AND OPERATE

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 to the HDBaseT output of the Transmitting unit, and the other end to the HDBaseT input of the Receiving unit.
4. For Boost feature, connect a single HDMI cable to the HDMI ports on the Transmitting and Receiving units. (HDMI ports for Boost transmission are located next to the HDBaseT RJ45 jacks). HDBaseT over Cat5e/6 and Boost over HDMI transmission cannot be utilized simultaneously.
5. For power, plug in the Transmitting and Receiving units with included DC 5V 2A power supplies.
6. 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). A 24 Hz vertical refresh rate may work better than 60 Hz or higher. 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.

IR PASS-THROUGH

IR Blaster TX

IR Receiver RX

IR BLASTER (TX)

To control the source: Plug IR Blaster into IR TX port of transmitter unit (EVEX2330-TX); place blaster in front of the IR eye of the source.

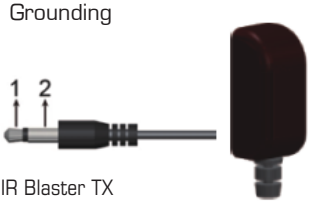
To control the display: Plug IR Blaster into IR TX port of receiver unit (EVEX2330-RX); place blaster in front of the IR eye of the display.

IR RECEIVER (RX)

To control the source: Plug IR Receiver into IR RX port of receiver unit (EVEX2330-RX); place receiver at or near display.

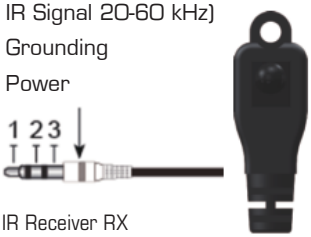
To control the display: Plug IR Receiver into IR RX port of transmitter unit (EVEX2330-TX); place receiver in position where it is able to receive remote signals.

1. IR Signal
2. Grounding



IR Blaster TX

1. IR Signal 20-60 kHz)
2. Grounding
3. Power



IR Receiver RX

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 Blaster 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.

Performance Guide for HDMI over Category Cable Transmission

Performance rating		Type of category cable		
Wiring	**Shielding**	**CAT5**	**CAT5e**	**CAT6**
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
	Shielded (STP)	★	★	★★
Termination		Please use **EIA/TIA-568-B** termination (**T568B**) at any time		

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. 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 EVEX2330 HDMI Extender over Single Cat5e/6 with HDBaseT Technology, Bi-directional IR, and PoE has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the EVEX2330 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 info@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.

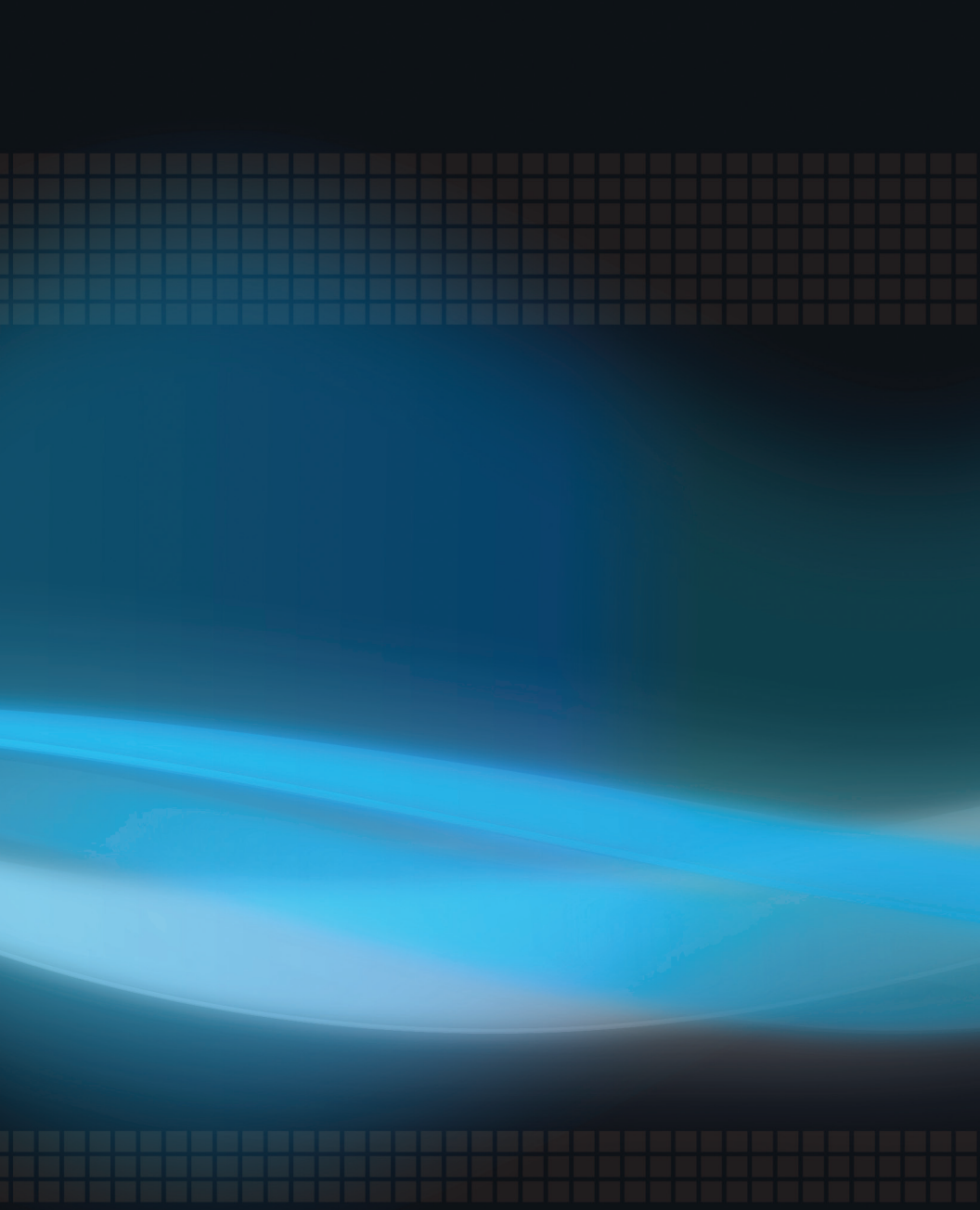
Please read this Instruction Manual prior to calling or installing this unit, since it will familiarize you with the capabilities of this product and its proper installation.

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.

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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