4K HDMI®
EXTENDER

with Digital Audio Breakout, HDMI Loop-out, IR and PoE

**Vanco Part Number
EVEX4K70**

**4K HDMI® Extender
with Digital Audio
Breakout, HDMI Loop-
out, IR and PoE**

*E*VOLUTION

BY

VANCO®
ADVANCING DIGITAL CONNECTIVITY

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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 tecŠology 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 EVEX4K70 HDMI Extender over single Cat6 with Digital Audio Breakout, HDMI Loop-out, IR, and PoE, extends 4K@60Hz, 4:4:4 Chroma, and HDR10 up to 230ft/70m. Vanco's patented bi-directional Power over Ethernet (PoE) TecŠology transmits power over Cat6, allowing either the Transmitter or Receiver to be powered without the use of a power supply for an easy installation. The transmitter is equipped with an HDMI loop-out for local monitoring or use with other distribution products. The receiver features digital optical output to break multi-channel audio out to amplifiers for a better listening experience. No EDID or EQ adjustments are necessary as the units automatically adjust for compatibility and gain. In addition, 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 HDR10, with options for connecting additional displays and breaking out audio, the EVEX4K70 is a great plug and play solution for connecting the latest components!

The EVEX4K70 includes two units: transmitting unit (EVEX4K70-TX) and receiving unit (EVEX4K70-RX). The transmitting unit is used to capture the HDMI input with IR signals and carries the signals over a single Cat6 cable. The receiving unit is responsible for equalizing the transmitted HDMI signal and reconstructing IR signals.

*NOTE – All specifications and ratings for the EVEX4K70 have been tested and confirmed using Cat6 cabling. Cat6 or better is strongly recommended for optimum performance, achieve rated distance, and to maximize resolution capabilities of this product. Cat5e is not recommended and may not achieve distance and/or resolution expectations.

4K HDMI® Extender with Digital Audio Breakout, HDMI Loop-Out, IR and PoE
Part # EVEX4K70

- Allows HDMI audio/video signals to be transmitted using a single Cat6/6A/7 Cable
- Extends 4K@60Hz, 4:4:4, and HDR10 up to 230ft/70m and 1080p up to 330ft/100m
- Features bi-directional Power over Ethernet (PoE) tecŠology which transmits power over Cat6, allowing the transmitter and receiver to be powered off of a single power supply
- Supports multiple audio formats such as (Dolby TrueHD 7.1CH/Dolby Digital 5.1CH)
- Dynamic EDID for compatibility and plug and play operation
- HDMI loop-out for local monitoring or use with other HDMI distribution products
- Digital optical audio breakout for audio extraction
- Supports bi-directional IR (20~60KHz) for source or display control
- Slim and compact design
- Dimensions: 4.2" x 3.9" x 1" (106.0 x 99.0 x 26.2mm)
- Patent No. 9,710,038 B1

PACKAGE CONTENTS

- EVEX4K70 (TX & RX)
- (1) IR Receiver
- (1) IR Emitter
- Mounting Hardware
- (1) DC 12V, 1A Power Supply
- Product Manual

SPECIFICATIONS

TECHNICAL SPECS

HDMI Compliance .... HDMI Deep Color 30/36/48 bit color depth, Full 3D

HDCP Compliance .... Yes

Video Bandwidth .... 594 MHz

Video Support .... 480i/480p/720p/1080i/1080p/4Kx2K @60

Audio Support .... Surround Sound (up to 7.1 ch) or stereo digital audio

Input TMDS Signal .... 1.2 Volts (peak to peak)

Input DDC Signal... 5 Volts (peak to peak, TTL)

ESD protection .... (1) Human body model +/- 6kV (air-gap discharge) &
(contact discharge) (2) Core chipset - +/-8KV

PCB stack-up .... 4 layer board (impedance control - differential 100,
single 50

IR pass-thru .... Full-duplex bi-directional

Input .... (TX) 1xHDMI; (RX) 1xRJ45 + 2x3.5mm

Output.. (TX) 1xRJ45 + 2x3.5mm; (RX) 1xHDMI

HDMI source control .... Controllable via IR pass-through from RX to TX and
from TX to RX with IR extenders

HDMI connector .... Type A 19 pin female

RJ-45 connector.. WE/SS 8P8C

LED indicators .... Video lock yellow, Power, green

3.5mm connector .... (TX and RX) IR Receiver/ IR blaster

MECHANICAL SPECS

Housing .... Metal enclosure

Power supply.. (1)12V 1A

Power consumption.. 3.5 Watts TX, 2.5 Watts RX

Operation temperature... 0 ~ 45 degrees Celsius

Storage temperature.. -20~85 degrees Celsius

Relative humidity .... 20-90% RH (no condensation)

PANEL DESCRIPTIONS

Transmitting Unit
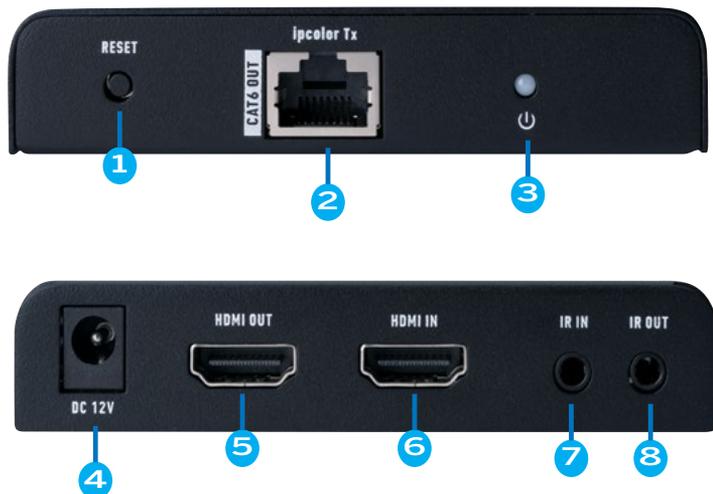
1. Reset Button: Press to reset TX unit without having to disconnect power supply

2. Cat6 Output: Connect a single Cat6 with other end of cable connected to the RX unit (home-run cabling strongly recommended without any couplings, punch-downs, or patch panels)

3. Power/Signal Indicator: When there is power and no HDMI source signal, the indicator will flash; when there is power and a source HDMI signal, the indicator will emit solid blue

4. DC 12V Port: Connect the included DC12V/1A power supply (PoE feature allows for either Transmitter or Receiver to be plugged into power, not both units)

5. HDMI Loop-out: Connect a local display or HDMI distribution component

6. HDMI IN: Connect a source such as a Cable box, Blu-ray player, game console, PC, etc.

7. IR IN: Connect the included IR Receiver (RX); see IR section for setup

8. IR OUT: Connect the included IR Emitter (TX); see IR section for setup

PANEL DESCRIPTIONS

Receiving Unit
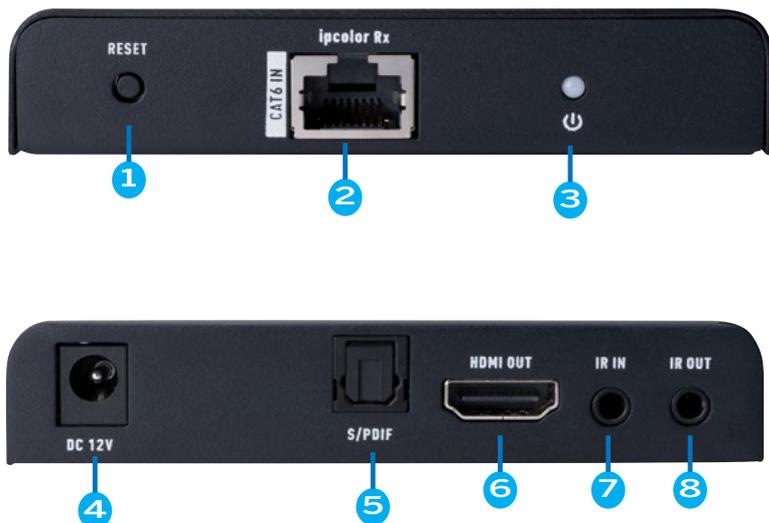
1. Reset button: Press to reset RX unit without having to disconnect power supply

2. Cat6 Input: Connect a single Cat6 with other end of cable connected to the TX unit (home-run cabling strongly recommended without any couplings, punch-downs, or patch panels)

3. Power/Signal Indictator: When there is power and no HDMI source signal, the indicator will flash; when there is power and a source HDMI signal, the indicator will emit solid blue

4. DC 12V Port: Connect the included DC12V/1A power supply (PoE feature allows for either Transmitter or Receiver to be plugged into power, not both units)

5. S/PDIF OUT: Digital Optical Audio break out that will output source signal audio; connect to an external amplifier, soundbar, and/or audio distribution component

6. HDMI OUT: Connect a display such as an HDTV or HD Projector

7. IR IN: Connect the included IR Receiver (RX); see IR section for setup

8. IR OUT: Connect the included IR Emitter (TX); see IR section for setup

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. OPTIONAL: Connect a local display to the HDMI loop-out on the Transmitting unit

4. Connect a single Cat6 (up to 230ft/70m) to the Cat6 output of the Transmitting unit, and the other end to the Cat6 input of the Receiving unit

5. 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 (See IR section)

6. OPTIONAL: Connect an amplifier, soundbar, or audio distribution component to the S/PDIF digital optical output on the Receiving unit

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 (PoE)

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 Cat6 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.

NOTE: It is recommended to use a length range within 2~70m network cable. If the cable is too short, there may be no display output because the signal is too strong.

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

IR Emitter

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

IR RX

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

IR Emitter

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

IR RX

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 EVEX4K70 has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the EVEX4K70 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 TecŠical Support by dialing 1-800-626-6445. You can also email tecŠical 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.

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