HDBaseT™ 2.0 EXTENDER

with ARC and Digital/Analog Audio Breakouts

Vanco Part Number
EVEXHDARC

HDBaseT™ 2.0 Extender with ARC and Digital/Analog Audio Breakouts

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 EVEXHDARC HDBaseT 2.0 Extender with Bi-directional IR, PoC, ARC, and Digital/Analog audio breakouts, extends 4K/60Hz ultra high definition video and audio signals, IR, power, Ethernet, RS-232, and ARC at a distance of up to 330ft/100m over a single shielded Cat6 cable. Also features Long Range Mode (LRM), in which 1080p high definition video and audio signals can be extended up to 492ft/150m over a single Cat5e/6 cable. Power over Cable (PoC) 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. For the audiophile in mind, Audio Return Channel (ARC) is supported, with digital and analog audio breakouts. 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 receiving end, 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 HDMI signals over a single Cat6 with IR at a long distance, with Power over Cable, and maximum 4K and 1080p extension, the EVEXHDARC is a great plug and play solution for connecting the latest components!

The EVEXHDARC includes two units: transmitting unit (EVEXHDARC-TX) and receiving unit (EVEXHDARC-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 EVEXHDARC 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™ 2.0 Extender with ARC and Digital/Analog Audio Breakouts

Part # EVEXHDARC

- Features HDBaseT™ 2.0 technology, optimized for whole-home or commercial distribution of uncompressed high-definition signals at more than twice the distance of HDMI cables without degradation
- Capable of sending and receiving resolutions of up to 4K2K@60Hz with YCbCr 4:2:0 up to 330ft/100m using shielded Cat6 Cable or 230ft/70m using unshielded Cat5e Cable*
- Allows audio, video, power, control and Ethernet to be sent over a single category cable up to 100m/328ft
- Supports PoC (Power Over Cable) function allowing either the TX or RX to power the opposite side when using the provided 24v power supply
- Supports resolutions up to 4K/60Hz with 4:2:0 color sampling
- Supports HDBaseT Long Reach (LR) mode to allow 1080p to be transmitted and received up to 492ft/150m
- ARC functionality allows audio to be received from the HDMI port on the receiver unit to be sent to an amplifier via the optical audio breakout on the transmitter unit
- Features Digital or Analog audio breakouts for audio extraction
- Supports pass-through of HD audio formats: LPCM2/5.1/7.1 CH, Dolby Digital, DTS, Dolby TrueHD, DTS-HD Master Audio and more
- RS-232 pass through with phoenix connector included
- HDCP 2.2 and DVI 1.0 compatible
- Wideband bi-directional IR with 38KHz-56KHz frequency range
- Dimensions: 5" W x .7" H x 4.1" D

*Specifications are dependent on quality cable and terminations

SPECIFICATIONS

Video Bandwidth	340MHz/10.2Gbps
Resolution	4K2K@60Hz, 4:2:0*; 480i~1080p@60Hz**
Audio	LPCM2/5.1/7.1 CH, Dolby Digital, DTS, Dolby TrueHD, DTS-HD Master AudioPOE
Transmitter Input Ports	1 x HDMI in, 1 x LAN, 1 x IR RX, 1 x 3.5 Stereo Audio in, 1 x RS232
Transmitter Output Ports	1 x IR TX, 1 x Optical out, 1 x HDBaseT out, 1 x 3.5mm Stereo Audio out
Receiver Input Ports	1 x IR RX, 1 x Optical in, 1 x HDBaseT in, 1 x 3.5mm Stereo Audio in
Receiver Output Ports	1 x HDMI out, 2 x LAN, 1 x IR TX, 1 x 3.5mm Stereo Audio out, 1 x RS232
Power Supply	DC 24V 1A
ESD Protection	± 8kV (air-gap discharge)
Human Body Model	± 4kV (contact discharge)
Dimensions (mm)	127(W) X 104.8 (D) X 17 (H)
Weight	0.87 lbs - TX, 0.87 lbs - RX
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (Non-condensing)
Power Consumption (Max)	10W

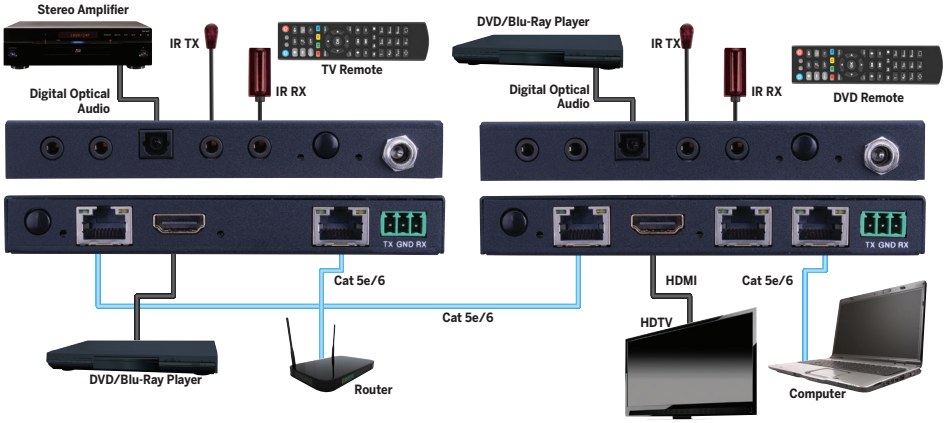
*4K2K up to 330ft/100m using shielded Cat6, up to 70m using unshielded Cat5e in Normal Mode

**1080@60Hz up to 492ft/150m using unshielded Cat5e/6 while in Long Reach Mode (LRM)

PACKAGE CONTENTS

- EVEXHDARC (TX & RX)
- IR Blaster (TX)
- IR Receiver (RX)
- (1) DC 24V/1A power supply
- Phoenix Connector (for RS-232 pass-through)
- Product Manual

CONNECTION DIAGRAM



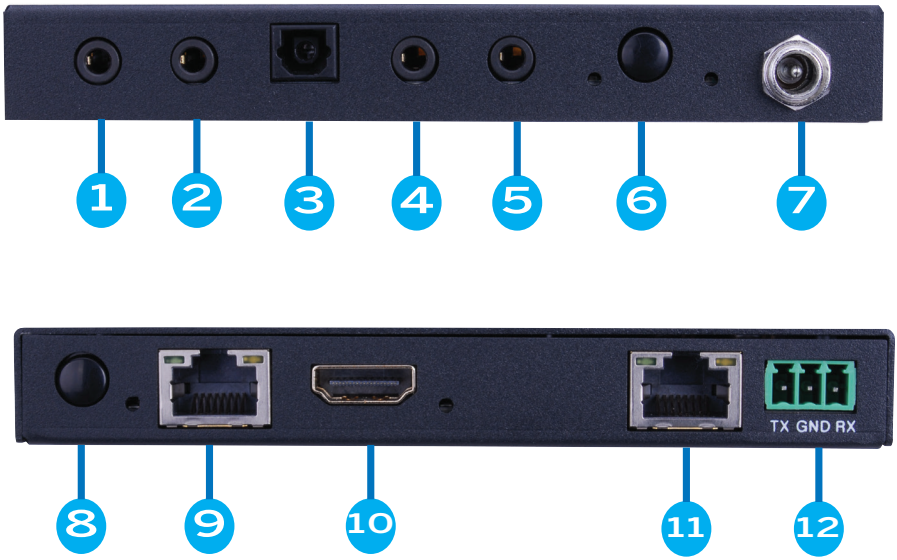
CONNECT AND OPERATE

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 492ft/150m (LRM mode) to the UTP output of the Transmitting unit, and the other end to the UTP input of the Receiving unit.
4. 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 Cable (PoC).
5. Power on each device in the same sequence (receiver and transmitter will already be powered when either unit is plugged in.)
6. See “Panel Descriptions” for connecting digital/analog audio ports, Ethernet, and RS-232 ports

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.

PANEL DESCRIPTIONS

EVEXHDARC-TX (Transmitting Unit)



EVEXHDARC-TX (Transmitting Unit)

1. Audio Out: Analog audio output, connect to an external amplifier or audio system using a 3.5mm audio cable
2. Audio In: Analog audio input, connect an audio source
3. Optical Out: Digital audio output, connect to an external amplifier or audio system using an optical audio cable
4. IR TX: Connect the included IR Transmitter (TX); see IR section for setup
5. IR RX: Connect the included IR Receiver (RX); see IR section for setup
6. ARC: Pressing this button will activate or de-activate ARC pass-through

   ARC ON: LED ON

   ARC OFF: LED OFF

*NOTE: For ARC functionality, your display must support ARC, the audio will break out on the Transmitter unit via the "Optical Out" port. If the display does not support ARC function, however has an optical audio breakout, this can be connected to the Receiving unit via the "Optical In" port, and will pass the audio to the Transmitter unit.

7. DC 24V: Connect the included power supply (PoC feature allows for either Transmitter or Receiver to be plugged into power)
8. LRM (Long Range Mode): Pressing this button will activate or de-activate Long Range Mode (to extend 1080p signals up to 492ft/150m)

   Long Reach mode ON: LED ON

   Long Reach mode OFF: LED OFF

*NOTE: With LRM activated, max resolution output will be 1080p/60Hz/24bit.

9. HDBaseT Out: Connect a single Cat5e/6 that runs to the display location (home-run cable strongly recommended)

   LINK LED (LED on the left, and in GREEN): Connection status indicator

   • Solid illumination: Transmitter and Receiver communication successful

   • Flashing: Transmitter and Receiver communication has issues

   • No light: Transmitter and Receiver not communicating, check power

   HDCP LED (LED on the right, and in YELLOW): HDCP status indicator

   • Solid illumination: HDCP signal verified

   • Flashing: HDCP signal not found

   • No light: No HDMI signal, check the source

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

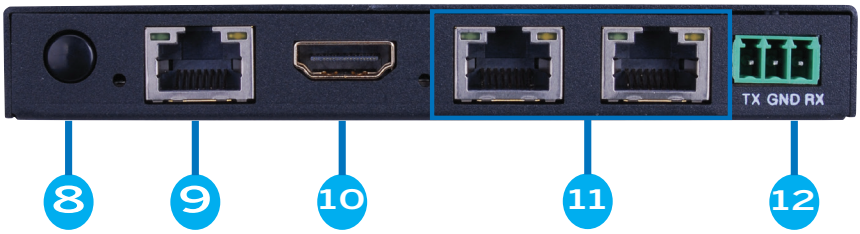
11. LAN: Connect to an Ethernet router or switch to extend Ethernet signals to the Receiver unit

*NOTE: DO NOT connect the single Cat5e/6 intended for HDMI extension to the receiving unit

12. RS232 TX/RX: For RS-232 pass-through, the RS-232 signal can go in either direction, however not simultaneously, connect the included phoenix connector

PANEL DESCRIPTIONS

EVEXHDARC-RX (Receiver Unit)



EVEXHDARC-RX (Receiver Unit)

1. Audio Out: Analog audio output, connect to an external amplifier or audio system using a 3.5mm audio cable
2. Audio In: Analog audio input, connect an audio source
3. Optical In: Digital audio input, connect to the digital audio source, typically the digital optical breakout on the display
4. IR TX: Connect the included IR Transmitter (TX); see IR section for setup
5. IR RX: Connect the included IR Receiver (RX); see IR section for setup
6. ARC: Pressing this button will activate or de-activate ARC pass-through

   ARC ON: LED ON

   ARC OFF: LED OFF

*NOTE: For ARC functionality, your display must support ARC, the audio will break out on the Transmitter unit via the "Optical Out" port. If the display does not support ARC function, however has an optical audio breakout, this can be connected to the Receiving unit via the "Optical In" port, and will pass the audio to the Transmitter unit.

7. DC 24V: Connect the included power supply (PoC feature allows for either Transmitter or Receiver to be plugged into power)
8. LRM (Long Range Mode): Pressing this button will activate or de-activate Long Range Mode (to extend 1080p signals up to 492ft/150m)

   Long Reach mode ON: LED ON

   Long Reach mode OFF: LED OFF

*NOTE: With LRM activated, max resolution output will be 1080p/60Hz/24bit.

9. HDBaseT In: Connect a single Cat5e/6 that runs from the source location (home-run cable strongly recommended)

   LINK LED (LED on the left, and in GREEN): Connection status indicator

   - Solid illumination: Transmitter and Receiver communication successful
   - Flashing: Transmitter and Receiver communication has issues
   - No light: Transmitter and Receiver not communicating, check power

   HDCP LED (LED on the right, and in YELLOW): HDCP status indicator

   - Solid illumination: HDCP signal verified
   - Flashing: HDCP signal not found
   - No light: No HDMI signal, check the source

10. HDMI OUT: Connect a display such as an HDTV or HD Projector
11. LAN1/LAN2: Connect to an active network for Ethernet sharing a total transmission rate up to 100Mbps. When a compatible LAN equipped Transmitter is connected to an active network, this allows the network access (including internet access) to be shared between the Transmitter and Receiver. This allows for connection of any Ethernet capable component such as a SmarTV, game console, PC, etc. to be hard wired.

*NOTE: DO NOT connect the single Cat5e/6 intended for HDMI extension to the receiving unit

12. RS232 TX/RX: For RS-232 pass-through, the RS-232 signal can go in either direction, however not simultaneously, connect the included phoenix connector

EDID

The EVEXHDARC is equipped with EDID management, however there is no need to adjust any dip switches or dials, the unit automatically reads the EDID from the display and saves it internally. This feature was created for the installer in mind, for a plug and play installation!

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 Blaster (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.

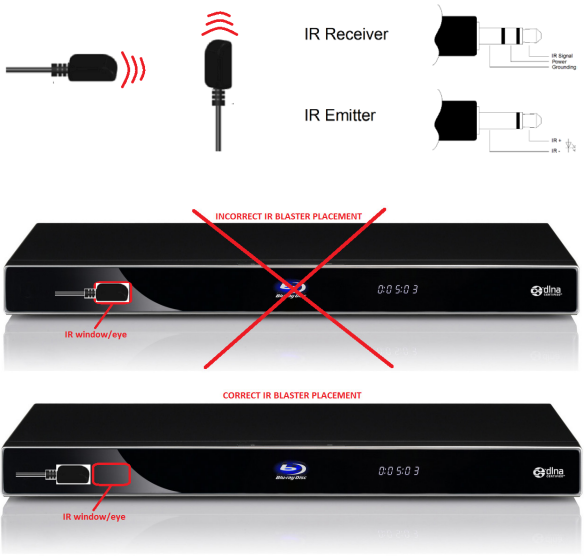
IR BLASTER (TX)

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

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

Note: Placement of the IR Blaster 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 blaster right on the front panel of the source, do not stick right on top of the IR eye or IR window. The IR signal cannot travel through the double-sided tape on the Blaster. Instead place the blaster on either side, or on the top or bottom of the IR eye or window, with the tip of the blaster facing the IR eye or window. See below for illustration of where IR signal shoots from on IR Blaster:



IR RECEIVER (RX)

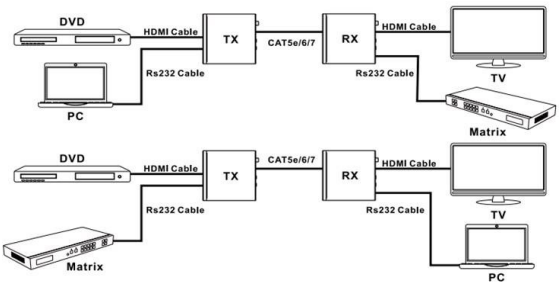
To control the source: Plug IR Receiver into IR RX port of receiver unit (EVEXHDARC-RX); place receiver at or near display.

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

BI-DIRECTIONAL RS-232 CONTOL

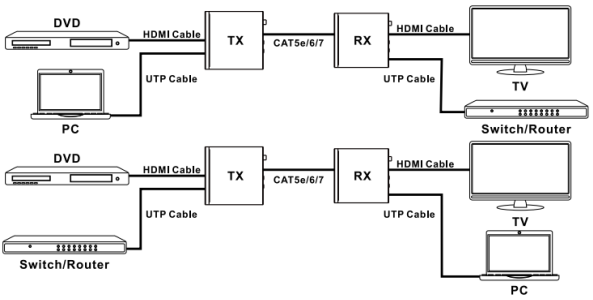
RS-232 pass-through is accomplished by using screw down terminals on both the Transmitter and Receiver. Please refer to the instructions provided with the devices being connected to determine the correct transmit, receive, and ground wires along with other pertinent serial information provided on the list below.

- Baud Rate
- Data Bits
- Parity
- Stop Bits



BI-DIRECTIONAL ETHERNET

The LAN ports located on the Transmitter and Receiver allows information and/or control to be sent over a local network or internet device using the Cat5e/6 and HDBaseT technology. Transfer rate supports up to 10/100 Mbps. This allows Ethernet to be combined with the HDMI signals, and other features to be extended to the opposite unit. A great solution for hardwiring a game console, PC, SmarTV, etc. at the opposite end.



To Control the Source:

1. Plug the IR Blaster into the IR TX Port on the Transmitter

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

To Control the Display:

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

2. Plug the IR Blaster into the IR TX Port on the Receiver

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.

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 (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 EVEXHDARC has been tested for conformance to safety regulations and requirements, and has been certified for EVEXHDARC 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.

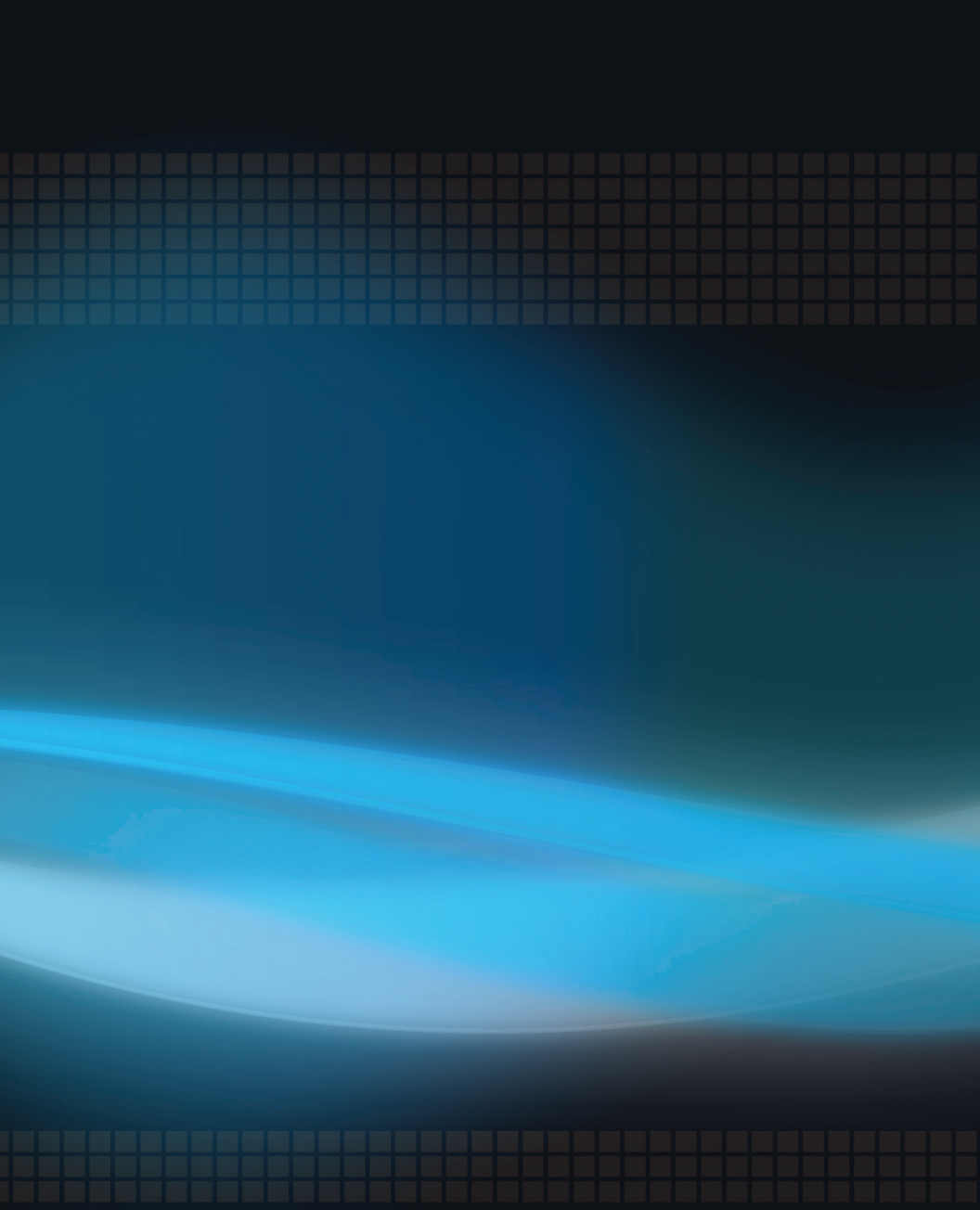
All active electronic products are 100% inspected and tested to insure highest product quality and trouble-free installation and operation. The testing process utilizes the types of high-definition sources and displays typically installed for entertainment and home theater applications.

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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