



HDMI® Extender
over Single Cat5e/6
Cable with IR

Vanco Part Number:
280501

Technical Support

www.vanco1.com • techsupport@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

The Vanco 280501 HDMI Extender over Single Cat5e/6 with IR, extends high definition video and audio signals, and IR, at a distance of up to 196ft/60m over a single Cat5e/6 cable. No EQ adjustments are necessary as the receiving unit automatically adjusts for gain by just a push of a button. Fully supports 1080p high definition resolution, multiple audio formats, and is HDCP compliant. In addition, IR pass-through allows for source control with IR accessories included. For extending HDMI over a single Cat5e/6 at a long distance, with IR, the 280501 is a great cost effective solution for any application!

HDMI® Extender over Single Cat5e/6 Cable with IR ***Part # 280501***

- Allows HDMI Audio/Video and IR signals to be transmitted over a single Cat5e/6 cable
- Transmission Range: Extends 1080p resolution up to 196ft/60m over a single Cat5e or Cat6 cable
- IR system allows for control of source at display location (IR accessories included)
- Auto EQ distance for perfect transmission and reception of HDMI signals by just a push of a button
- Works with HDMI and HDCP compliant devices
- Supports up to 1080p High Definition resolution
- Power Supply: (2) 5V DC
- Dimensions: 1.875" W x 1" H x 3.25" D

PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make sure the following items are contained in the shipping carton:

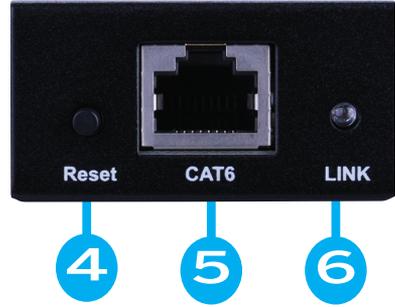
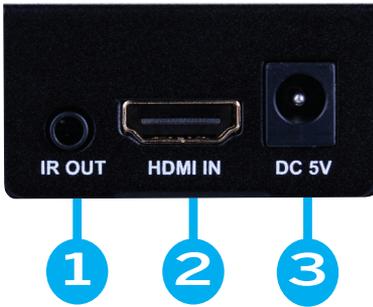
- 280501 (TX & RX)
- IR Blaster (TX)
- IR Receiver (RX)
- (2) 5V DC power supplies
- Product Manual

SPECIFICATIONS

HDMI Compliance	HDMI Deep Color 24/30 bit color depth, 3D
HDCP Compliance	Yes
Video Bandwidth	Single-link 165MHz (4.95 Gbps)
Video Support	480i/480p/720p/1080i/1080p @60
HDMI over UTP	Full HD (1080p) - 60m (196ft)
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
IR pass-thru	Directional
Input	(TX) 1xHDMI; (RX) 1xRJ45 + 1x3.5mm
Output	(TX) 1xRJ45 + 1x3.5mm; (RX) 1xHDMI
HDMI source control extenders	Controllable via IR pass-through from RX to TX IR extenders
HDMI connector	Type A 19 pin female
RJ-45	WE/SS 8P8C
LED indicators	Video source link: Blue
3.5mm connector	(TX and RX) IR Receiver/IR blaster
HDMI connector	Type A 19 pin female
RJ-45	WE/SS 8P8C
LED indicators	Video source link: Blue
3.5mm connector	(TX and RX) IR Receiver/IR blaster
Housing	Metal enclosure
Power supply	(2) 5V DC
Power consumption	5 Watts TX, 5 Watts RX
Operation temperature	32-158 degrees Fahrenheit
Operating humidity	10-85% RH (no condensation)
Storage temperature	12-176 degrees Fahrenheit
Storage humidity	5-90% RH (no condensation)

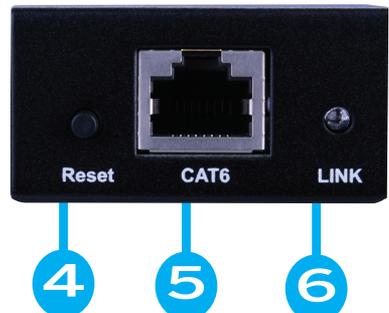
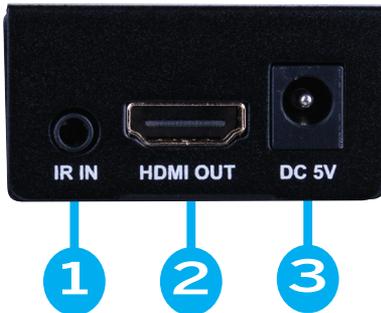
PANEL DESCRIPTIONS

TRANSMITTER:



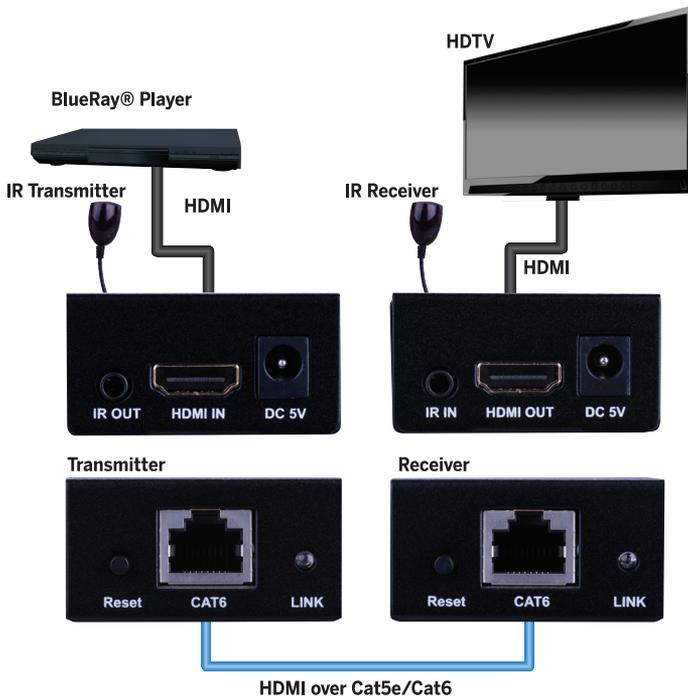
1. IR OUT for controlling the source
2. HDMI Input
3. 5V Power Supply Input
4. Reset Button: Press to reset the connection and automatically adjust for resolution
5. Cat5e/6 Output
6. Link Status Indicator: this will blink when there is no signal or weak signal coming from the source. A solid link LED light means you've have a good source signal.

RECEIVER:



1. IR IN for controlling the source
2. HDMI Output
3. 5V Power Supply Input
4. Reset Button: press for Auto EQ
5. Cat5e/6 Output
6. Link Status Indicator for Power

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 196ft/60m 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 both Transmitting unit or Receiving unit with the included power supplies.
5. 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.

RESET BUTTONS

The 280501 is equipped with RESET buttons on each unit, there is no need to adjust any dip switches or dials, the unit automatically adjusts gain when the RESET button is pushed on the RX unit. The RESET button on the TX unit resets the connection and automatically adjusts for resolution. This feature was created for the installer in mind, for a plug and play installation!

LINK LEDS

- The link LED light on the Transmitter will blink when there is no signal or weak signal coming from the source. A solid link LED light means you have a good source signal.
- The link LED light on the Receiver indicates you have power, this not will indicate signal status

IR PASS THROUGH

The bi-directional IR system allows you to control the source that is connected to the Transmitter, from the display. There are two important things to know 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.

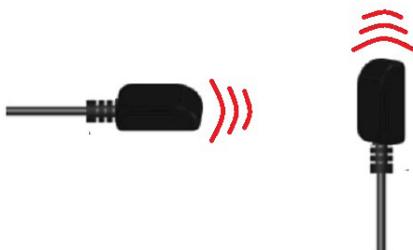
NOTE: The IR TX and IR RX look the same, however they are labeled "TX" and "RX." Connecting them into the wrong ports/units will result in the IR system to not function as designed. No damage will be done if connected incorrectly.

IR BLASTER (TX)

To control the source: Plug IR Blaster into IR OUT port of the transmitter unit (280501-TX); place transmitter in front of the IR eye of the source.

NOTE: Placement of the IR Blaster (IR TX) 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 IR 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 to the right for an 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 the receiver unit (280501-RX); place receiver at or near display



To Control the Source:

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

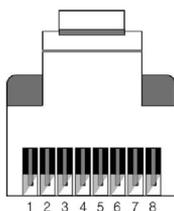


2. Plug the IR Receiver into the IR IN Port on the Receiver



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



TIA/EIA-568B	
Pin	Wire color
1	Orange/ White
2	Orange
3	Green/ White
4	Blue
5	Blue/ White
6	Green
7	Brown/ White
8	Brown

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 its output, then power up the Vanco unit and plug the HDMI cable into its 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 280501 has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the 280501 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.

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.

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, glossary of terms, etc. please visit vanco1.com

Vanco® International

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