



# VEX-X1501R-B0C

UHD+ HDMI over Copper Receiver with PoE



**Operation Manual**



**HDMI**<sup>®</sup>  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

## VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
RDV1	2021/07/09	Preliminary release



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## 1. INTRODUCTION

This 4K UHD<sup>+</sup> HDMI over Copper Receiver is designed for high-quality AV extension with minimum latency. By using a sophisticated ultra-light compression scheme (lossless for most content) it's a great solution for extending 4K@60Hz (4:4:4) HDMI audio/video streams. Advanced HDMI content such as HDR (High Dynamic Range), 10-bit color and multi-channel HD Bitstream audio can be easily received. The use of 10 Gigabit Ethernet allows for extension distances of up to 100m when using Cat.6A/7. Additionally, this unit's compact form factor, and its PoE functionality, which allows it to operate on power from the transmitter, makes it ideal for installation in tight spaces, or inclusion in A/V travel kits.

## 2. APPLICATIONS

- High quality, low latency, video extension
- Household entertainment
- Lecture halls, meeting rooms, and classrooms
- Point-to-Point secure video conferencing

## 3. PACKAGE CONTENTS

- 1× UHD<sup>+</sup> HDMI over Copper Receiver
- 1× 48V/0.83A DC Power Adapter
- 1× Shockproof Feet (Set of 4)
- 1× Operation Manual

## 4. SYSTEM REQUIREMENTS

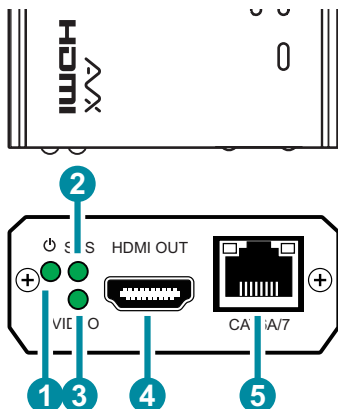
- HDMI receiving equipment such as an HDTV, monitor, or audio amplifier
- Compatible copper-based transmitter
- The use of Premium High Speed HDMI cables, and industry standard Cat.6A, or Cat.7 Ethernet cable is highly recommended.

## 5. FEATURES

- HDMI 2.0 and DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- 1 10GbE input
- 1 HDMI output
- Ultra-light compression, lossless for most content
- Extension up to 100m when using at.6A/7
- Supports up to 4K UHD<sup>+</sup> (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video input and output
- Supports pass-through of 10/12-bit HDR sources
- Supports pass-through of audio formats including LPCM (up to 8 channels), Bitstream and HD Bitstream
- Simple, hassle free, point-to-point connection
- Supports PoE which allows it to receive power from the transmitter. (Compatible transmitters only)

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel

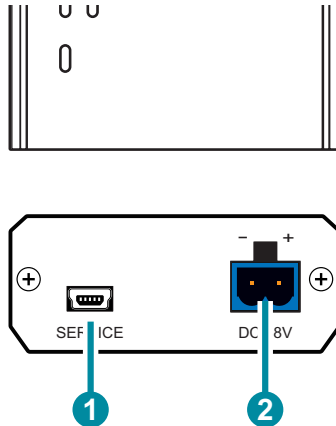


- 1 Power (⏻) LED:** This LED will illuminate to indicate the unit is on and receiving power.  
*Note: This LED will blink during the firmware update process.*
- 2 System (⚙️) LED:** This LED will illuminate to indicate that the system is stable and ready to process audio/video streams.  
*Note: This LED will blink during the firmware update process.*
- 3 VIDEO LED:** This LED will illuminate to indicate that the video source is stable, and streaming is in process.
- 4 HDMI OUT Port:** Connect to an HDMI TV, monitor, or amplifier for digital video and audio output.
- 5 CAT6A/7 Port:** Connect directly to a compatible transmitter for audio and video extension. Power via PoE can also be received over this port when connected to a compatible transmitter.

*Note: The PoE function is designed for extending power from compatible transmitter units only. Transmitters from other brands may not be compatible.*



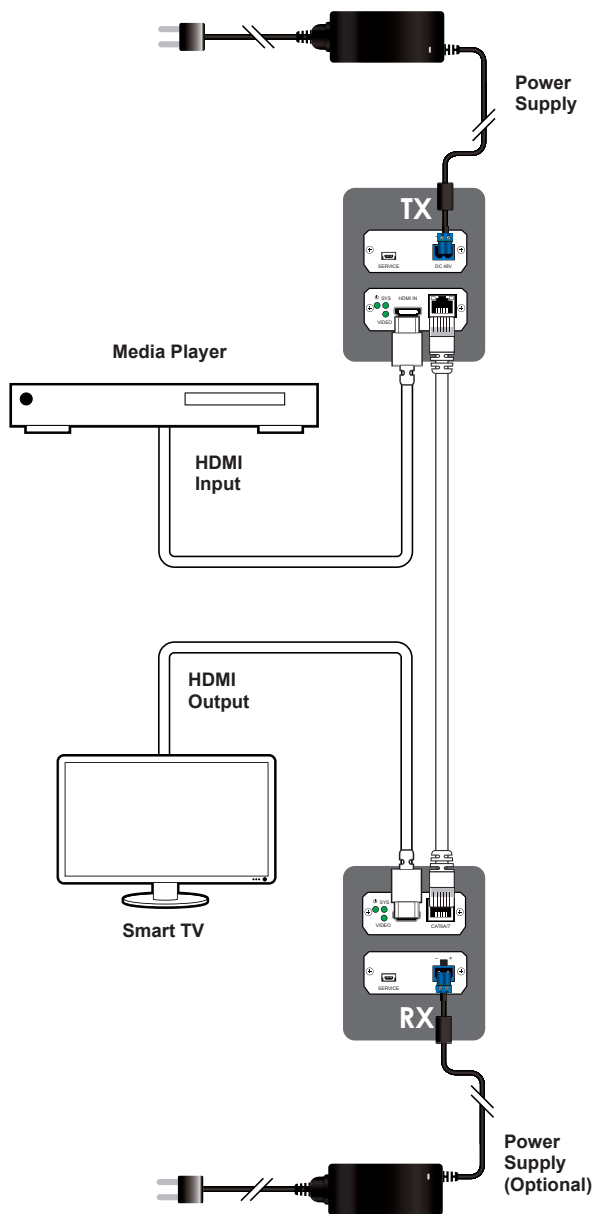
## 6.2 Rear Panel



- 1 SERVICE (USB Mini-B) Port:** This port is for firmware update only.
- 2 DC 48V Port:** Plug the 48V DC power adapter into this port and connect it to an AC wall outlet for power. (Optional, not required if powered via PoE from the transmitter)

*Note: Please be sure to follow the polarity labels on the unit and the power adapter's wires.*

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>HDMI Bandwidth</b>	18Gbps
<b>Ethernet Bandwidth</b>	10Gbps
<b>Input Ports</b>	1×10GbE (RJ-45)
<b>Output Ports</b>	1×HDMI (Type-A)
<b>Service Port</b>	1×USB 2.0 (Mini-B)
<b>Power Supply</b>	PoE (from Tx) or 48V/0.83A DC (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection (HBM)</b>	±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions (W×H×D)</b>	57mm×20.6mm×87mm [Case Only] 60mm×20.6mm×87mm [All Inclusive]
<b>Weight</b>	139g
<b>Chassis Material</b>	Metal (Steel)
<b>Chassis Color</b>	Black
<b>Operating Temperature</b>	0°C – 50°C/32°F – 122°F
<b>Storage Temperature</b>	-20°C – 60°C/-4°F – 140°F
<b>Relative Humidity</b>	20 – 90% RH (Non-condensing)
<b>Power Consumption</b>	15.62W

## 8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output
	10GbE	HDMI
720×400p@70/85	✓	✓
640×480p@60/72/75/85	✓	✓
720×480i@60	✓	✓
720×480p@60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
800×600p@56/60/72/75/85	✓	✓
848×480p@60	✓	✓
1024×768p@60/70/75/85	✓	✓
1152×864p@75	✓	✓
1280×720p@50/60	✓	✓
1280×768p@60/75/85	✓	✓
1280×800p@60/75/85	✓	✓
1280×960p@60/85	✓	✓
1280×1024p@60/75/85	✓	✓
1360×768p@60	✓	✓
1366×768p@60	✓	✓
1400×1050p@60	✓	✓
1440×900p@60/75	✓	✓
1600×900p@60RB	✓	✓
1600×1200p@60	✓	✓
1680×1050p@60	✓	✓
1920×1080i@50/60	✓	✓
1920×1080p@24/25/30	✓	✓
1920×1080p@50/60	✓	✓
1920×1200p@60RB	✓	✓

Supported Resolutions (Hz)	Input	Output
	10GbE	HDMI
2560×1440p@60RB	✓	✓
2560×1600p@60RB	✓	✓
2048×1080p@24/25/30	✓	✓
2048×1080p@50/60	✓	✓
3840×2160p@24/25/30	✓	✓
3840×2160p@50/60 (4:2:0)	✓	✓
3840×2160p@24, HDR10	✓	✓
3840×2160p@50/60 (4:2:0), HDR10	✓	✓
3840×2160p@50/60	✓	✓
4096×2160p@24/25/30	✓	✓
4096×2160p@50/60 (4:2:0)	✓	✓
4096×2160p@24, HDR10	✓	✓
4096×2160p@50/60 (4:2:0), HDR10	✓	✓
4096×2160p@50/60	✓	✓

## 8.3 Audio Specifications

### 8.3.1 Digital Audio

10GbE Input / HDMI Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48
Bitstream	
Supported Formats	Standard & High-Definition

## 8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
High Speed HDMI Cable				
HDMI Output	15m	10m	5m	3m
Ethernet Cable				
Cat.6A/7	100m			

### Bandwidth Category Examples:

- **1080p (FHD Video)**
  - Up to 1080p@60Hz, 12-bit color
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock
- **4K30 (4K UHD Video)**
  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit color
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps
- **4K60 (4K UHD+ Video)**
  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>10GbE</b>	10 Gigabit Ethernet
<b>4K UHD</b>	4K Ultra-High-Definition (10.2Gbps max)
<b>4K UHD<sup>+</sup></b>	4K Ultra-High-Definition (18Gbps max)
<b>AV</b>	Audio/Video
<b>AVoIP</b>	Audio/Video over IP
<b>Cat.5e</b>	Enhanced Category 5 cable
<b>Cat.6</b>	Category 6 cable
<b>Cat.6A</b>	Augmented Category 6 cable
<b>Cat.7</b>	Category 7 cable
<b>CEC</b>	Consumer Electronics Control
<b>DVI</b>	Digital Visual Interface
<b>EDID</b>	Extended Display Identification Data
<b>Gbps</b>	Gigabits per second
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>HDR</b>	High Dynamic Range
<b>kHz</b>	Kilohertz
<b>LAN</b>	Local Area Network
<b>LED</b>	Light-Emitting Diode
<b>LPCM</b>	Linear Pulse-Code Modulation
<b>MHz</b>	Megahertz
<b>TMDs</b>	Transition-Minimized Differential Signaling
<b>USB</b>	Universal Serial Bus



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