EX-57V3K

HDMI 2.0 Transceiver Extender over Single Cat.6A with HDBaseT 3.0, RS-232, Bi-directional IR, USB 2.0, Ethernet & PoC

User Manual

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Made in Taiwan

INTRODUCTION

The **EX-57V3K HDMI 2.0 Transceiver Extender over Single Cat.6A with HDBaseT 3.0, RS-232, Bi-directional IR, USB 2.0, Ethernet & PoC** boosts up your video/audio transmission distance up to 100m (330ft) at 4K-HDR perfectly lossless. EX-57V3K has new generation technology which makes sure the HDBaseT extender can support HDMI2.0a and HDCP 2.2. EX-57V3K also supports the most advanced 3D video format complaint with HDMI specification and therefore guarantees the highest 3D video compatibility on the market. With only one cost-effective Cat.6A cable, users can readily extend UHDTV sources from DVD players, Blu-ray Disc player, PS4, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI or DVI enabled TV sets or LCD PC monitors. With the advanced design for the latest HDMI technology, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP support and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS4 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart. In addition, EX-57V3K is also equipped with bi-directional IR pass-through path and RS-232 serial port control. These bonus features allow users to boost IR control distance up to 100m (330ft) through only single Cat.6A cable including HDMI signals. In addition, serial port and USB 2.0 offer the convenient path for interactive application, such as touch panels. EX-57V3K also supports PoC (Power over Cable) which can power both units from TX or RX with power supply.

The EX-57V3K can work as either a transmitter or a receiver to provide more flexibility for installations. The transmitting unit is used to capture the input HDMI / DVI signals with control packets. The receiving unit is responsible for equalizing the transmitted HDMI signal and reconstructing IR and serial control signals. EX-57V3K offers the most convenient solution for digital signage with long distance A/V transmission path.

FEATURES

- No Compression
- HDMI 2.0a compliant
- Supports 4K2K@60 4:4:4 8bits
- Supports High Dynamic Range (HDR)
- Extends the HDMI Signal up to 100m (330ft) at 4K2K@60 4:4:4 (4K-HDR Technology) over Cat.6A
- Supports PoC (Power over Cable) which can power both units from TX or RX with power supply.
- Can be configured as a transmitter or receiver
- Supports ARC
- HDCP & EDID Bypass
- CEC support
- Auto equalization
- USB2.0 over Cat.6A cable transmission
- Analog audio over Cat.6A cable transmission from transmitter to receiver
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.6A cable transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support

- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path-through
- Integrated port for LAN/network device
- Full Duplex RS-232 control up to 115,200 bps through connector
- Wall mounting housing design for easy and robust installation

> The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ45 connectors is recommended.

PACKAGE CONTENTS

- 2x EX-57V3K
- 2x 3-Pin Terminal Block Connector
- 1x IR blaster
- 1x IR receiver
- 1x DC 24V
- 1x User Manual

SPECIFICATIONS

Model Name	EX-57V3K	
Technical		
Role of usage	Transmitter [TX]	
HDMI compliance	HDMI 2.0a	
HDCP compliance	Yes (HDCP 2.2)	
Video bandwidth	Single-link 600MHz [18Gbps]	
Video support	HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits)	
HDMI over UTP	4K2K@60 (4:4:4 8bit) 100m (330ft) [CAT 6A]	
Audio support	Surround sound [up to 7.1ch] 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	Human body model - ±15kV [air-gap discharge] & ±8kV [contact discharge]	
IR pass-thru	Bi-directional	
RS-232 support	Yes	
USB support	USB2.0	
PoC support	Yes	
I/O connector	2x HDMI + 4x 3.5mm + 1x RCA + 2x RJ-45 + 2x USB + 1x terminal block	
HDMI source control	Controllable via IR pass-through from RX to TX or TX to RX with IR extenders	
HDMI connector	Type A [19-pin female]	
RJ-45 connector	WE/SS 8P8C	
USB connector	Type A & Type micro-USB	
3.5mm connector	IR receiver / IR blaster / Stereo	
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	195 x 92 x 26mm [7.7" x3.6" x1"]
	Package	371 x 170 x 77mm[1'5" x 6.7" x 3"]
	Carton	410 x 368 x 393mm[1'3" x 1'4" x 1'5"]
Weight	Model	487g[1 lbs]
	Package	1102g [2.4 lbs]
Fixedness		Wall-mounting case with screws
Power supply		24V DC
Power consumption		18 Watt [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PANEL DESCRIPTIONS

Transceiver unit ▸ EX-57V3K

1. **HDMI IN:** Connect to a HDMI source with a HDMI male-male cable
2. **HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable
3. **Analog audio line out:** Connect to downstream headphone output
4. **Analog audio line in:** Connect to upstream speaker output
5. **S/PDIF IN/OUT:** Use dip switch PIN#1 to configure RCA(S/PDIF) as input or output (When device configures as RX and RCA(S/PDIF) configures as output, the RCA(S/PDIF) will support ARC function)
6. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
7. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
8. **USB:** Connect to USB Device
9. **Micro-USB:** Connect to USB Host
10. **Ethernet port for LAN:** Connect to network device
11. **LED:** Gender LED, Link LED, HDMI IN LED, FW LED, HDMI out LED (from left to right)
    Gender LED: [Solid Blue] device configure as TX
    　　　　　　[Blink Blue] device configure as RX
    Link LED: Link indicator LED
    HDMI IN LED: HDMI IN indicator LED
    FW LED: [Slow Blink (1 second)] Normal mode
    　　　　[Fast Blink (0.2 second)] Boot mode
    　　　　[OFF] No FW
    HDMI out LED: HDMI OUT indicator LED

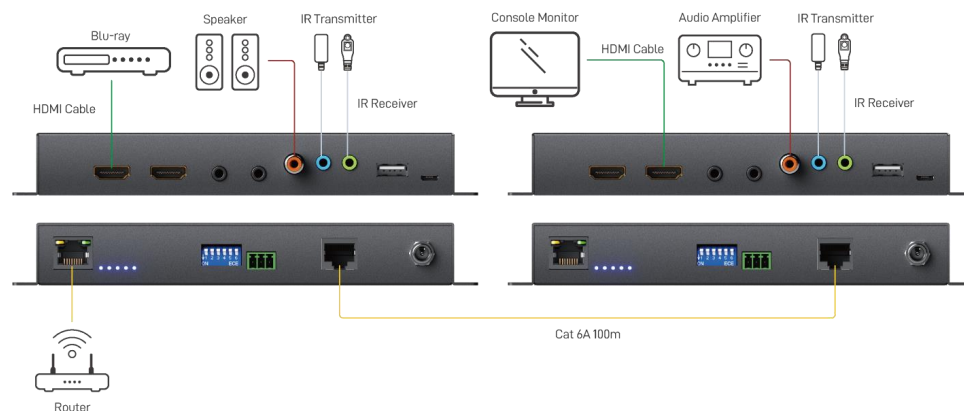12. **DIP Switch:** Please refer to DIP Switch Position

13. **RS-232(terminal block format):** The order of RS-232 pin are TX, RX, GND
    (from the left side to the right)

14. **RJ45:** Plug in a Cat-6A cable that needs to be linked to the transmitting unit or receiving unit

15. **+24V DC:** Connect to a 24V DC power supply.

DIP Switch Position			Description
TX & RX			
PIN#1	ON [⬇]		Link to USB Device (USB Type A port)
	OFF [⬆]		Link to USB Host (USB Type-micro-B port)
PIN#2	OFF [⬆]	OFF [⬆]	Configures RCA(S/PDIF) as ARC output function
PIN#3	ON [⬇]	OFF [⬆]	Configures RCA(S/PDIF) as input
	OFF [⬆]	ON [⬇]	Configures RCA(S/PDIF) as output
	ON [⬇]	ON [⬇]	Reserved
PIN#4	ON [⬇]		Firmware updated mode
	OFF [⬆]		Normal mode
PIN#5	OFF [⬆]	ON [⬇]	Device configure as RX
PIN#6	ON [⬇]	OFF [⬆]	Device configure as TX

CONNECTION DIAGRAM

IR PASS-THROUGH

[IR Extenders]

IR Blaster	IR Receiver

[IR Sockets]

IR BLASTER: plug in the IR blaster to emit all IR command signals received from the IR receiver from the other end to control the devices corresponding to the IR signals.

IR RECEIVER: plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.

CAUTION! 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. Warranty will not cover the damage.

[Definition of IR Earphone Jack]
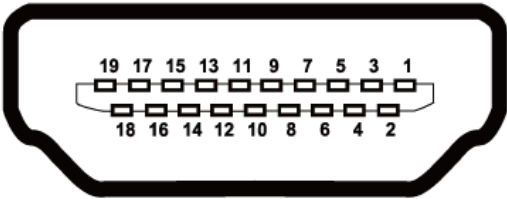
IR Blaster

1. IR Signal
2. Grounding

1 2

IR Receiver

1. IR Signal [30-56 kHz]
2. Grounding
3. Power

1 2 3

You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the extender if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

HDMI PIN DEFINITION

Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock–
Pin 3	TMDS Data2–	Pin 13	CEC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1–	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0–	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

NOTICE

1. 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. Warranty will not cover the damage.

2. The transmission length is largely affected by the type of Cat.6A cables, the type of HDMI sources, and the type of HDMI display. The testing result shows a Cat.6A U/FTP AWG23 cable with IL less than 39dB can have great performance.

3. EIA/TIA-568-B termination (T568B) for Cat.6A cables is recommended for better performance.

4. Because the quality of the CAT.6A cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of cables. For desired resolutions, a Cat.6A cable is recommended.

Under Cat.5e cable, the transmission distances are at the different Valens chipset model (VS3000, VS100, and VS010) and resolution (4K60, 4K30, and 1080P).

	TX & RX: VS3000	TX & RX: VS100	TX & RX: VS010	TX: VS3000; RX: VS100 Or TX: VS100; RX: VS3000	TX: VS3000; RX: VS010 Or TX: VS010; RX: VS3000
4K60	Up to 20m	Not Supported	Not Supported	Not Supported	Not Supported
4K30	Up to 35m	Up to 70m	Up to 40m	Up to 100m	Up to 60m
1080P	Up to 35m	Up to 100m	Up to 60m	Up to 100m	Up to 60m

* The Transmission distance is based on current HW & FW version

WARRANTY

The SELLER warrants the **EX-57V3K HDMI 2.0 Transceiver Extender over Single Cat.6A with HDBaseT 3.0, RS-232, Bi-directional IR, USB 2.0, Ethernet & PoC** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the EX-57V3K features and specifications is subject to change without further notice.**