

CV-57IP

HDMI extender over IP with bi-directional IR and RS-232

User Manual



TX



RX

To avoid EMI issue, complete STP Cat6 cable is strongly recommended!



rev: 120403
Made in Taiwan



Safety and Notice

The **CV-57IP HDMI extender over IP with bi-directional IR and RS-232** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **CV-57IP** 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.



TABLE OF CONTENTS

INTRODUCTION	1
FEATURES.....	1
PACKAGE CONTENTS	1
SPECIFICATIONS.....	2
PANEL DESCRIPTIONS.....	3
Transmitting unit ► CV-57IP-TX.....	3
Receiving unit ► CV-57IP-RX	4
CONNECTION DIAGRAM	5
IR PASS-THROUGH.....	6
HARDWARE INSTALLATION.....	7
EDID LEARNING.....	8
PIN DEFINITION	9
NOTICE	10
WARRANTY	11

INTRODUCTION

The **CV-57IP HDMI extender over IP with bi-directional IR and RS-232** boosts up your video/audio transmission distance up to 100m (330ft) in HDTV 1080p format. With only one cost effective Cat.5/5e/6 cable, users can readily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, 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. Besides **CV-57IP** also supports HDCP and this flexibility makes HDCP compliant DVD players or PS3 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart. In addition, **CV-57IP** is also equipped with bi-directional IR pass-through path and RS-232 serial port control.

The CV-57IP is also a HD video distribution solution for digital signage. It can transmit Full HD 1080p HDMI video broadcast over IP network. With Gigabit Ethernet network switch, the CV-57IP can support Point to Point, Point to Many, and Multi-Casting which HDMI video source with CV-57IP-TX can transmit signal to HDMI displays with CV-57IP-RX. Multi-casting can be done by Managed Gigabit Switch with 802.1Q VLAN function which provides control remotely and more video and more source allowed.

FEATURES

- Support HDMI 1.3
- DVI 1.0 Compliant
- Full HD 1080p60 24bit Video transmission and Up to 16 Groups Multi-Casting
- Flexible and scalable HD Video Broadcasting by Gigabit Ethernet LAN/Switch
- 1 to 1, 1 to many & multi-casting broadcasting architecture, adding more displays without adding LAN bandwidth loading
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path
- Two way RS-232 command unicast broadcast for controlling display or video source device from remote site
- Easy Dip Switch matching for multi-casting group configuration
- New EDID copy/video mode switching button for optimal video performance and enhance on EDID compatibility
- Wall mounting housing design for easy and robust installation

PACKAGE CONTENTS

- 1x CV-57IP [TX & RX]
- 1x IR receiver
- 1x User Manual
- 1x IR blaster
- 2x DC 5V 2A wall wart

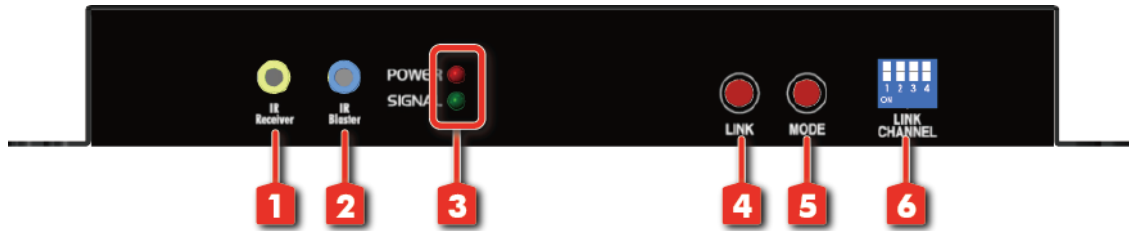
SPECIFICATIONS

Model Name	CV-57IP	
Technical	CV-57IP[Tx]	CV-57IP[Rx]
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI	
HDCP compliance	Yes	
Video bandwidth	Single-link 225MHz [6.75Gbps]	
Video support	480i / 480p / 720p / 1080i / 1080p60	
HDMI over UTP transmission [24-bit]	Full HD (1080p)-100m (330ft) [CAT.X]	
Audio support	Surround sound (up to 7.1ch) or stereo digital audio	
Signal Equalization	N/A	
Input TMDS signal	1.2 Volts [peak-to-peak]	
Input DDC signal	5 Volts [peak-to-peak, TTL]	
ESD protection	[1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±8kV	
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
IR pass-thru	Full-duplex bi-directional	
RS-232 support	Yes	
Input	1x HDMI + 2x 3.5mm + 1x USB	1x RJ45 + 2x 3.5mm
Output	1x RJ45 + 2x 3.5mm	1x HDMI + 2x 3.5mm + 4x USB
In/ Out	1x DIN9	1x DIN9
HDMI source control	Controllable via IR pass-through from RX to TX and from TX to RX with IR extenders	
IR remote control	Electro-optical characteristics: $\tau = 25^\circ$ / Carrier frequency: 20-60kHz	
HDMI connector	Type A [19-pin female]	
Min DIN connector	DIN-9	
RJ45 connector	WE/SS 8P8C with 2 LED indicators	
3.5mm connector	IR blaster & IR receiver	
Mechanical		
Housing	Metal enclosure	
Dimensions [L x W x H]	Model	[TX/RX] 185 x 102 x 26mm [7.2" x 4" x 1.0"]
	Package	494 x 225 x 70mm [1'6" x 8.9" x 2.6"]
	Carton	510 x 380 x 252mm [1'7" x 1'2" x 9.9"]
Weight	Model	[TX/RX] 545g [1.2 lbs]
	Package	TBA
Fixedness	Wall-mounting case with screws	
Power supply	5V 2A DC	
Power consumption	1.5 Watts	
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

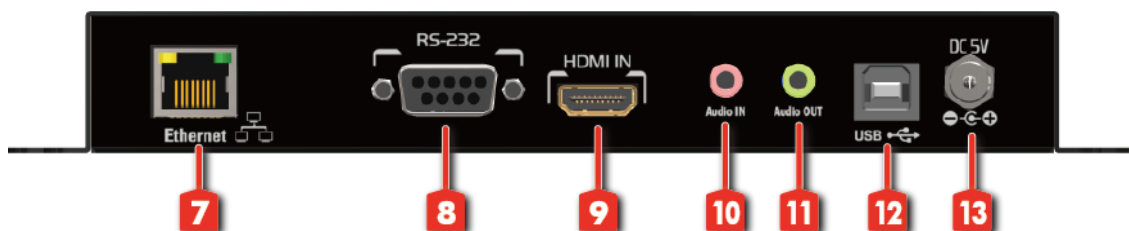
Transmitting unit ► CV-57IP-TX

Front Panel



- 1. IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
- 2. IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
- 3. LED Indicator:** Power and signal LED indicator
- 4. Link Push Button:** Connected/Disconnected button
- 5. Mode Push Button:**
 - [Short Press]:** Video/Graphics Mode Switching
 - **Video mode(Auto):** Smooth motion, auto switch between video mode and Graphics mode depends on motion of video
 - **Graphics mode:** Fixed at high video quality & sharp clear detail, but high bandwidth required
 - [Long Press]:** EDID Learning Function (refer to the EDID Learning Section)
- 6. Dip Switch:** Video channel selection

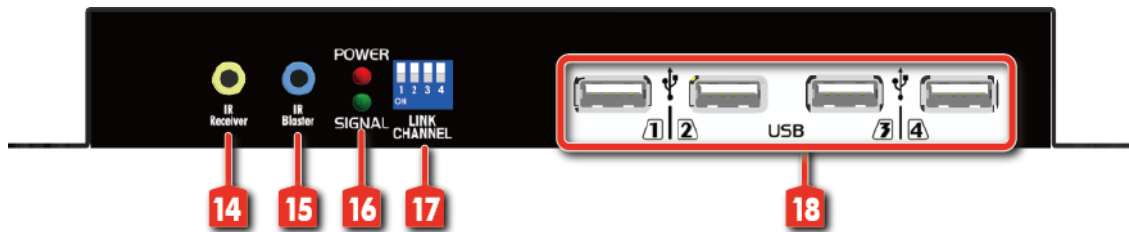
Rear Panel



- 7. HDMI Signal OUT:** RJ-45 Network connector
- 8. RS-232:** Connect to PC serial port with a DSUB-9 male-male cable here
- 9. HDMI IN:** Connects to a HDMI source with a HDMI male-male cable
- 10. Audio IN**
- 11. Audio OUT**
- 12. USB**
- 13. +5V DC:** Connect to 5V DC power supply

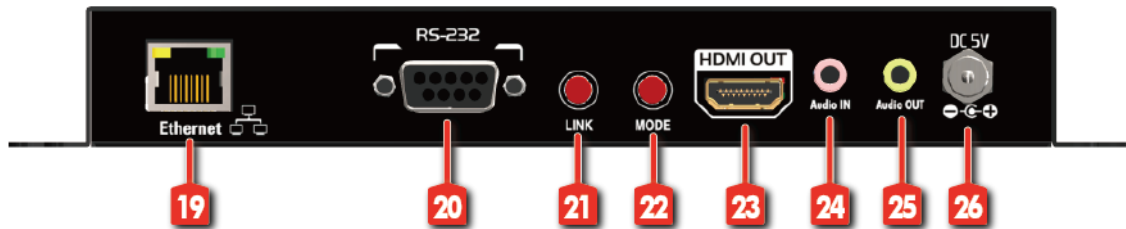
Receiving unit ► CV-57IP-RX

Front Panel



- 14. IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
- 15. IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
- 16. LED Indicator:** Power and signal LED indicator
- 17. Dip Switch:** Video channel selection
- 18. USB**

Rear Panel

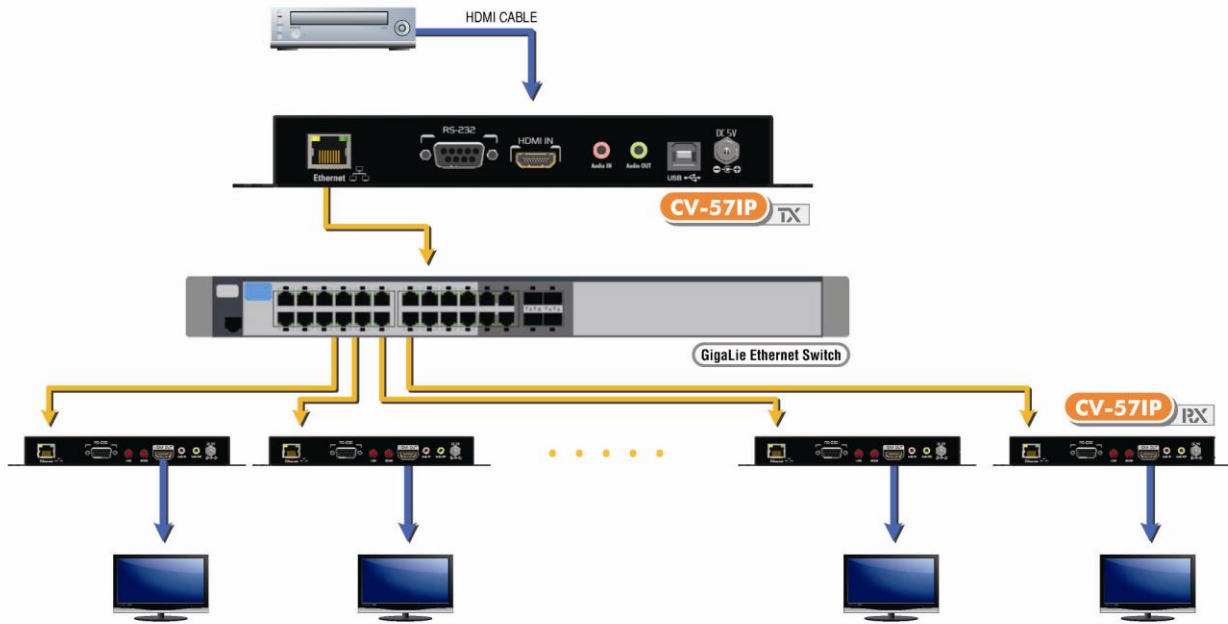


- 19. HDMI Signal IN:** RJ-45 Network connector
- 20. RS-232:** Connect to PC serial port with a DSUB-9 male-male cable here
- 21. Link Push Button:** Connected/Disconnected button
- 22. Mode Push Button:**
 - [Short Press]:** Video/Graphics Mode Switching
 - **Video mode(Auto):** Smooth motion, auto switch between video mode and Graphics mode depends on motion of video
 - **Graphics mode:** Fixed at high video quality & sharp clear detail, but high bandwidth required
 - [Long Press]:** EDID Learning Function (refer to the EDID Learning Section)
- 23. HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable.
- 24. Audio IN**
- 25. Audio OUT**
- 26. +5V DC:** Connect to 5V DC power supply

CONNECTION DIAGRAM

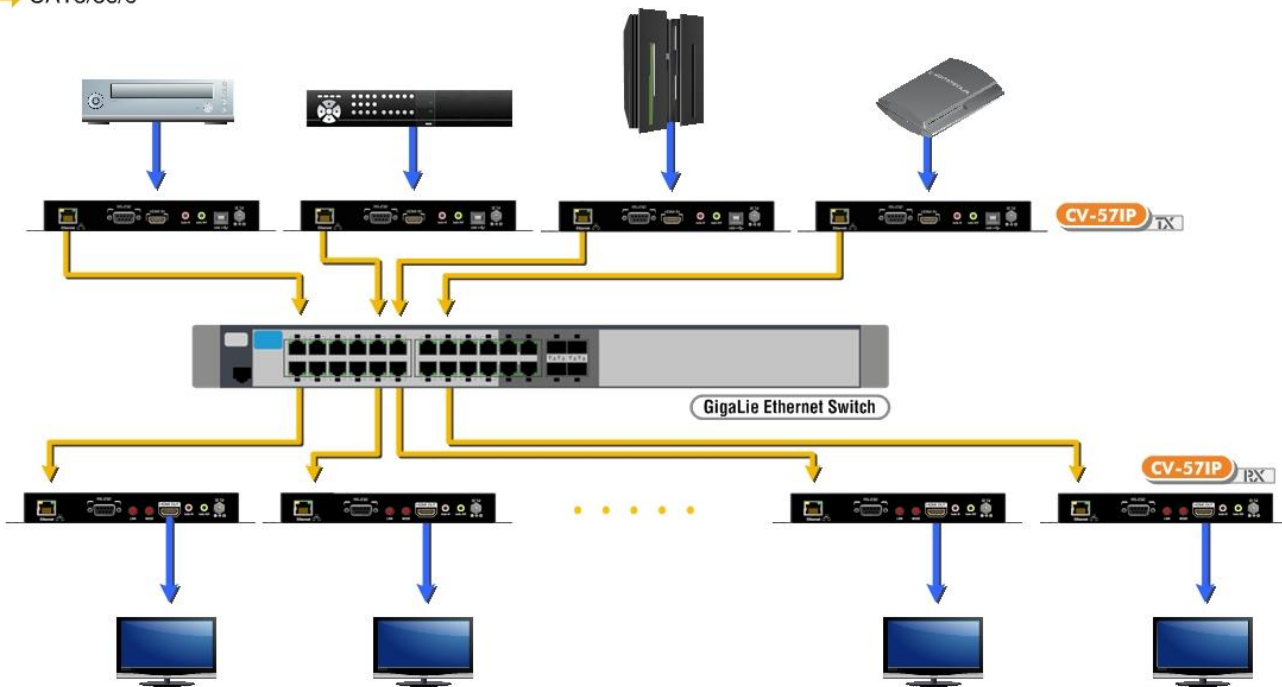
1 to Many Displays

- HDMI
- CAT5/5e/6



Multi-Casting

- HDMI
- CAT5/5e/6



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!

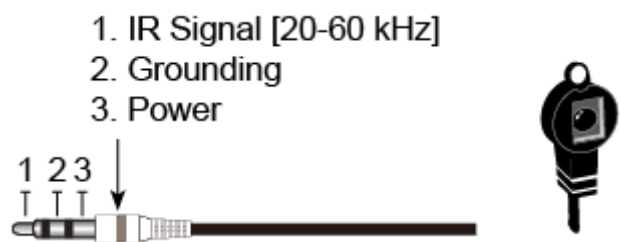
Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

Definition of IR Earphone Jack

IR Blaster



IR Receiver



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

HARDWARE INSTALLATION

1. Make sure all CV-57IP TX and RX have correct video channel setting

1 to 1	All Same
1 to Many	All Same
Multicasting w/ VLAN by Layer 2 switch	All Same
Video Channel Matching	Refer to example below

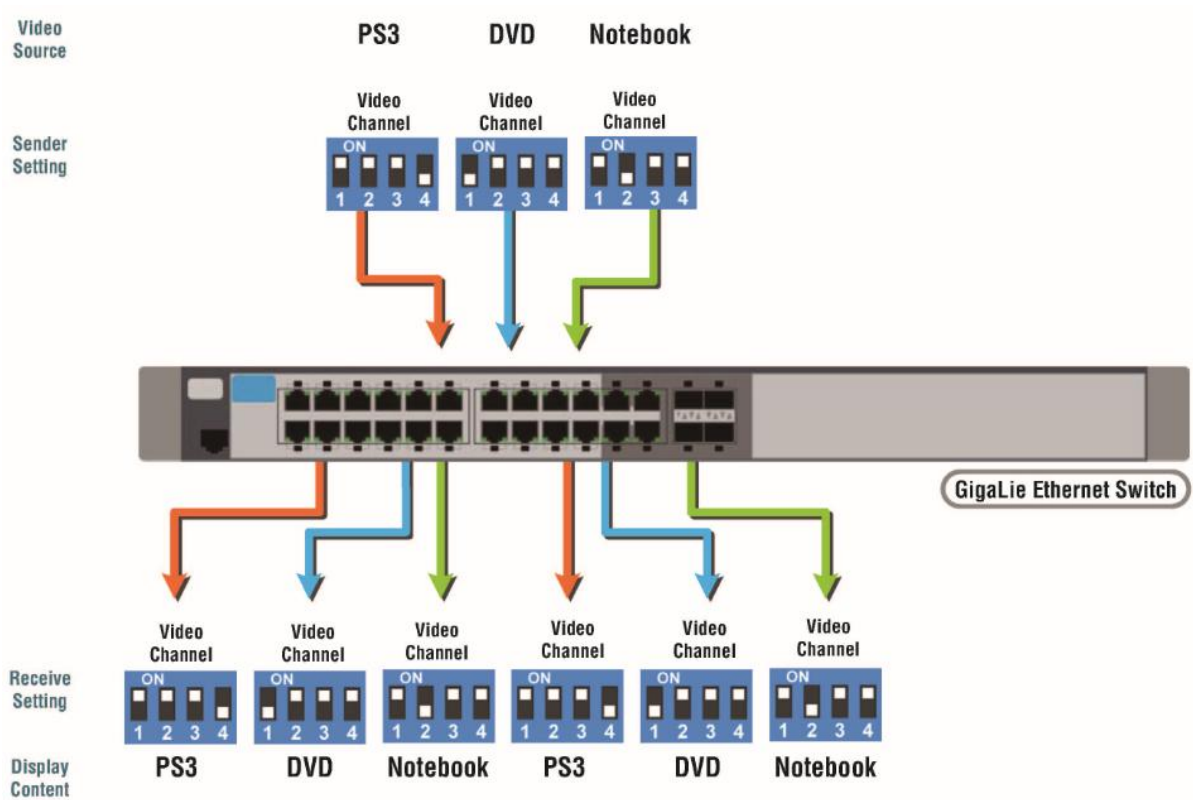
2. Connect the HDMI source (such as a DVD player) to the CV-57IP-TX with HDMI cable
3. Connect IR Blaster/Receiver to both TX and RX units.
4. Connect the HDMI or DVI display (such as a LCD TV) to the CV-57IP-RX with HDMI cable
5. Connect all CV-57IP TX and RX to Gigabit Ethernet Switch with Cat.X Cables
(If 1 to 1 extender, connect TX and RX with Cat.X cable directly)
6. Power on displays and receivers
7. Power on video sources and senders

Multicasting with Layer 2 Managed Switch

1. Make sure all CV-57IP TX and RX have the same video channel setting
2. Configure Layer 2 Managed Switch with 802.1Q VLAN setting (RJ-45 Port base Virtual Network)
 - ⇒ Only one transmitter is allowed in each VLAN Group
 - ⇒ Multiple receivers OK in each VLAN Group
3. Following standard installation procedure to connect all TX and RX to Layer 2 managed switch

Video Channel Matching (Easy Multicasting) with Unmanaged Gigabit Ethernet Switch

1. Setting up a unique video channel setting on each CV-57IP TX with video source. Make sure the setting on each TX will not be duplicated
2. On video channel setting, CV-57IP-RX's video channel selection always match that of the TXs with the video sources you want to display
3. Following standard installation procedure to setup all TXs and RXs to unmanaged switch
EX: Video Channel Matching Configuration Example



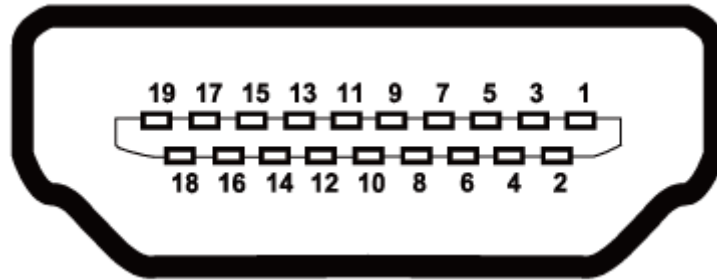
Number of Video Channel transmitters will depend on video content, resolution and ethernet switch capacity

EDID LEARNING

1. Unplug the transmitting unit CV-57IP-TX HDMI Connection while all other cables are connected (LINK LED On)
2. Long Press the receiving unit CV-57IP-RX Mode button and hold it
3. Reboot the receiving unit CV-57IP-RX (Unplug & Plug-in DC power) while keep press on Mode button
4. Release Mode button till the receiving unit CV-57IP-RX Link LED start blinking
5. Reboot the transmitting unit CV-57IP-TX and Plug-in HDMI connection

PIN DEFINITION

HDMI

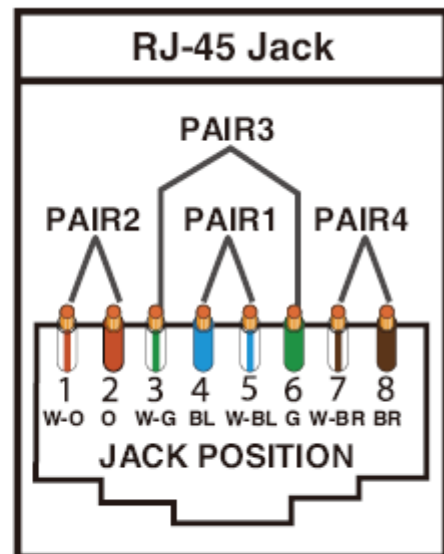


Type A (Receptacle) HDMI

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+		

CAT5 [RJ45]

Data Link TIA/EIA-568-B		
PIN	Color	Function
1	W-O	TX0-
2	O	TX0+
3	W-G	TX1-
4	BL	TX2-
5	W-BL	TX2+
6	G	TX1+
7	W-BR	TXC-
8	BR	TXC+



NOTICE

1. When adjusting the signal level on the receiver unit, please dial the rotary control switch from MIN to MAX and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
2. Wrongly insert IR blaster and IR receiver to wrong 3.5mm infrared sockets may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets.
3. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI or HDMI display EDID information.
4. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C & VG-870B.
5. The transmission length is largely affected by the type of Cat-5/5e/6 cables, 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 Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
6. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.
7. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
8. Because the quality of the CAT5/6 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 Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
9. 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.



WARRANTY

The SELLER warrants the **CV-57IP HDMI extender over IP with bi-directional IR and RS-232** 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 **CV-57IP** features and specifications is subject to change without further notice.