EX-54RZ2

HDMI 2.0 Extender over Single Coax with Bi-directional IR

User Manual

Transmitter

Receiver

rev: 210225
Made in Taiwan

INTRODUCTION

The **EX-54RZ2 HDMI 2.0 Extender over Single Coax with Bi-directional IR** boosts up your HDMI transmission range up to 110m (363ft) in Ultra HD 4K2K format through single coaxial cable. EX-54RZ2 is easy to install and works perfectly with Belden 1694A coaxial cables. Other coaxial cables can also work with EX-54RZ2 and the transmission distance depends upon the quality and bandwidth of coaxial cables. In addition, EX-54RZ2 is also equipped with bi-directional IR pass-through path. This bonus feature allows users to rely on the same coax cable to have IR control on IR equipped devices, such as TV and BD players, and EX-54RZ2 makes IR control possible through only single coax cable along with high quality HDMI A/V signals.

The EX-54RZ2 includes two units: transmitting (EX-54RZ2[TX]) and receiving (EX-54RZ2[RX]) units. The transmitting unit is used to capture the HDMI and HDCP input signals and carry the signals through only coaxial cable. The receiving unit is responsible for auto equalizing the transmitted HDMI multimedia data. The transmission range between the sending and receiving units can be up to 110m (363ft) under Ultra HD (4K2K) with 2 channel audio.

FEATURES

- HDMI 2.0 compliant
- Supports up to 4K2K@60 4:4:4 8bits*
- Extends the transmission range up to 110m (363ft) from the HDMI sources under 4K2K@60 4:4:4 8bits
- HDCP input & output support
- Single coaxial cable
- Pure unaltered uncompressed 2ch digital HDMI over Coaxial cable transmission
- Audio sample rate supports 32KHz, 44.1KHz, 48KHz
- Auto signal equalization
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path
- Wall mounting housing design for easy and robust installation

> The length depends on the characteristics and quality of the coax cables. Higher resolutions and longer transmission distances require low skew cables for best performance. Solid and shielded coax cable such as Belden 1694A with metal 75ΩBNC connectors is recommended.

*Noted:

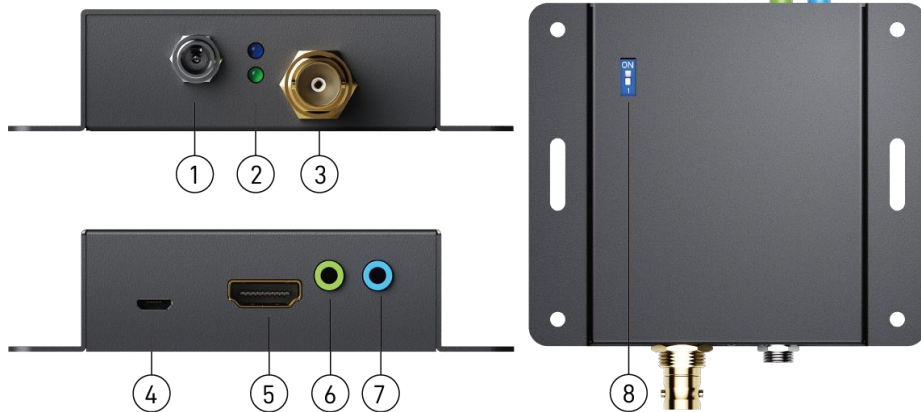| Supported Resolution		
480i 60Hz	1080P 29.97(30)Hz	4K2K 50Hz 4:2:0
480P 60Hz	1080P 50Hz	4K2K 50Hz 4:2:0 10/12bit**
576i 50Hz	1080P 59.94(60)Hz	4K2K 50Hz 4:2:2
576P 50Hz	1080P 59.94(60)Hz 10/12bit**	4K2K 50Hz 4:4:4
720P 50Hz	4K2K 24Hz 4:4:4	4K2K 60Hz 4:2:0
720P 59.94(60)Hz	4K2K 24Hz 4:4:4 10/12bit	4K2K 60Hz 4:2:0 10/12bit**
1080i 59.94(60)Hz	4K2K 25Hz 4:4:4	4K2K 60Hz 4:2:2
1080P 23.98(24)Hz	4K2K 30Hz 4:4:4	4K2K 60Hz 4:4:4
1080P 25Hz	4K2K 30Hz 4:4:4 10/12bit**	

** **ONLY** input resolution supports 10/12 bit

PACKAGE CONTENTS

- 1x EX-54RZ2 [TX & RX]
- 2x DC 5V wall wart
- 1x User Manual

SPECIFICATIONS

Model Name		EX-54RZ2	
Technical			
Role of usage		Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 2.0a	
HDCP compliance		Yes	
Video bandwidth		Single-link 594MHz [18Gbps]	
Video support		up to 4K2K@60 4:4:4 8bits	
Audio support		Stereo audio	
HDMI over Coax transmission range		Ultra HD [4K2K 24-bit color] – up to 110m [363ft]	
HDMI Equalization		Auto	
Input TMDS signal		1.2 Volts [peak-to-peak]	
Input DDC signal		5 Volts [peak-to-peak, TTL]	
ESD protection		Human body — ±15kV [air-gap discharge] & ±8kV [contact discharge]	
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input		1x HDMI/ 1x IR socket	1x BNC/ 1x IR socket
Output		1x BNC/ 1x IR socket	1x BNC/ 1x IR socket
IR remote control		Electro-optical characteristics: τ= 25° / Carrier frequency: 20-60kHz	
HDMI connector		Type A [19-pin female]	
BNC connector		75Ω interlocking socket	
3.5mm connector		3.5mm earphone jack for IR blaster to control HDMI source device	
Mechanical			
Housing		Metal enclosure	
Dimensions [L x W x H]	Model	90 x 96 x 25mm[3.5" x 3.7" x 1"]	90 x 96 x 25mm[3.5" x 3.7" x 1"]
	Package Carton	263 x 170 x 97mm [10.3" x 6.7" x 3.8"] 512 x 364 x 288mm [1'7" x 1.2' x 11.3"]	
Weight	Model	127g [4.5oz]	127g [4.5oz]
	Package	1140g [2.5lbs]	
Fixedness		Interlocking power supply	
Power supply		5V DC	
Power consumption		10 Watt [max]	6 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]	

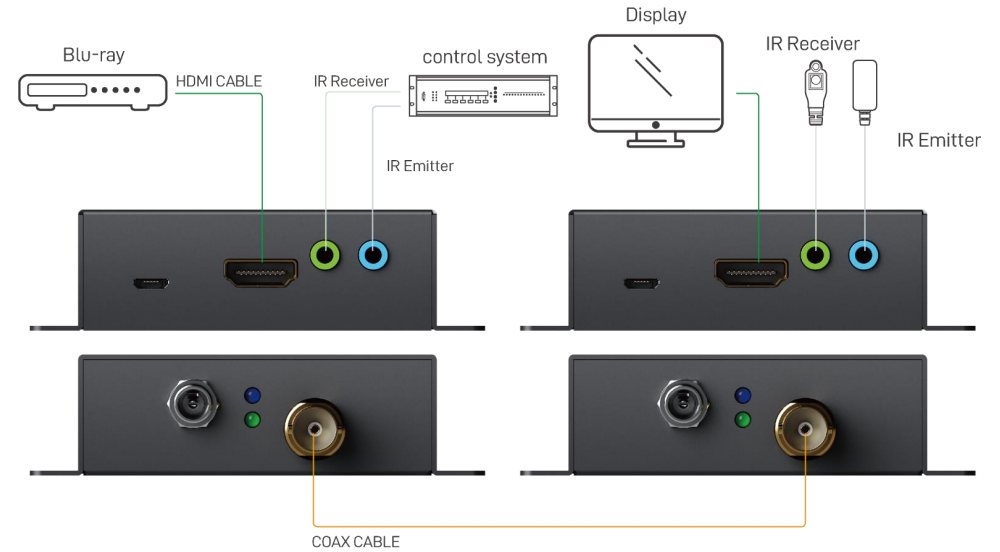## PANEL DESCRIPTIONS

Transmitting unit ► EX-54RZ2-TX

1. **+5V DC:** Connects to 5V DC power supply
2. **POWER/SIGNAL LED:** Blue light - POWER; Green light - SIGNAL ACTIVE
3. **COAX OUT:** Connects to a high standard coaxial cable here
4. **Micro-USB:** for F/W update
5. **HDMI IN:** Connects to a HDMI source device with a HDMI male-to-male cable here
6. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
7. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
8. **DIP Switch:** [ON] FW update mode; [OFF] Normal mode
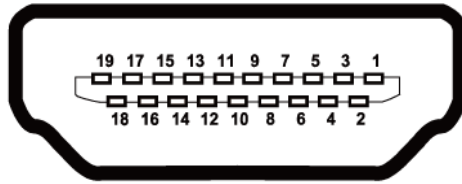
Receiving unit ► EX-54RZ2-RX

1. **+5V DC:** Connects to 5V DC power supply
2. **POWER/SIGNAL LED:** Blue light - POWER; Green light - SIGNAL ACTIVE
3. **COAX IN:** Connect to a high standard coaxial cable here
4. **Micro-USB:** for F/W update
5. **HDMI OUT:** Connects to a HDMI display with a HDMI male-male cable here
6. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
7. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

CONNECTION DIAGRAM

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. The lab testing result shows that Belden 1694A coaxial cables can transmit HDMI signals up to 110m (363ft).

2. Please noticed that audio must be 48KHz.

WARRANTY

The SELLER warrants the **EX-54RZ2 HDMI 2.0 Extender over Single Coax with Bi-directional IR** 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-54RZ2 features and specifications is subject to change without further notice.**