

ZEKTOR

Designed by you. Built by us.™

Zektor Z54B

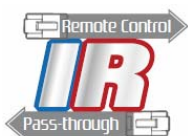
HDMI™ 1.3 over Coaxial Extender with
Bi-directional IR Pass-through

User Manual



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

HDCP™
HIGH-DEFINITION CONTENT PROTECTION



**7.1 CH
AUDIO**

**Full HD
1080**

x.v.Color



Safety and Notice

The Zektor **Z54B HDMI™ 1.3 over Coaxial Extender with Bi-directional IR Pass-through** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the Z54B 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.



The **Z54B HDMI™ 1.3 over Coaxial Extender with IR Pass-through** boosts up your HDMI™ transmission range up to 100m (330ft) in HDTV 1080p format. Z54B is easy to install and works perfectly with the RGBHV or RG-6 coaxial cables. Coaxial cables are typically used for VGA or component signals, and provide the audio/video professionals with remarkable flexibility. Built with IR pass-through extension, users can control the remote HDMI™ source devices such as Blu-ray Disc players instantly at the display site. Embedded with bi-directional HDCP™ mechanism, high definition HDMI™ content is secured from piracy.

The Z54B includes two units: transmitting Z54B (TX) and receiving Z54B (RX) units. The transmitting unit is used to capture the HDM™ I/ DVI, HDCP™ and IR input signals and carry the signals through five coaxial cables. The receiving unit is responsible for equalizing the transmitted HDMI™ multimedia data and extracting HDCP™ and IR data. The transmission range between the sending and receiving units can be up to 100m (330ft) under Full HD (1080p) with 7.1 channel audio. With Z54B installation, current analog A/V based distribution systems can be upgraded to become pure high quality and future-proof HDMI™ supported system cost effectively.

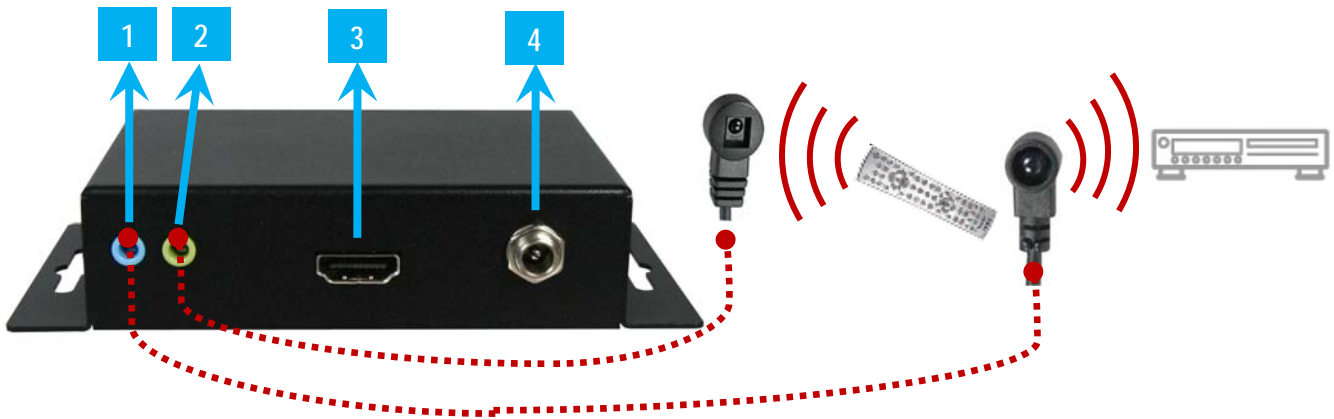
Features

- HDMI™ 1.3c and DVI 1.0 compliant
- HDCP™ compliant
- Supports 7.1-channel DTS-HD Master Audio and Dolby TrueHD high bitrate audio
- Supports Deep Color and x.v.Color (xvYCC)
- Extends the transmission range up to 100m (330ft) from the HDMI sources under Full HD resolution (1080p60 24-bit color depth); and up to 50m (165ft) under Deep Color Full HD 1080p 36-bit color depth
- Supports embedded IR bi-directional pass-through and Consumer Electronics Control (CEC) channel
- Supports Video resolutions up to WQXGA (2560x1600@60Hz or 1920x1200@75Hz) or HDMI video up to 1080p@36 bit RGB/YCbCr
- Supports VESA DDC and Hot-Plug Detect (HPD)

Specifications & Package Contents

Model Name		Z54B	
Technical		Z54B[TX]	Z54B[RX]
Role of usage		Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 1.3c	
HDCP compliance		Yes	
Video bandwidth		Single-link 340MHz [10.2Gbps]	
Video support		480i / 480p / 720p / 1080i / 1080p60 / 1920x1200@75 / 2560x1600@60	
Audio support		Surround sound (up to 7.1ch) or stereo digital audio	
HDMI over Coax transmission range		Full HD [1080p 24-bit color] – 100m [330ft] Deep Color Full HD [1080p 36-bit color] – 50m [165ft]	
HDMI equalization		N/A	Auto
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]	
Input		1x HDMI 1x IR socket for IR receiver	5x BNC 1x IR socket for IR receiver
Output		5x BNC 1x IR socket for IR blaster	1x HDMI 1x IR socket for IR blaster
IR remote control		Electro-optical characteristics: $\tau = 25^\circ$ / Carrier frequency: 36-40kHz	
HDMI connector		Type A [19-pin female]	
BNC connector		75Ω interlocking socket	
3.5mm connector		Earphone jack for IR blaster and IR receiver	
Mechanical			
Housing		Metal enclosure	
Dimensions (L x W x H)	Model	[TX/RX] – 93 x 128 x 27mm [3.6" x 5" x 1.1"]	
	Package	175 x 270 x 80mm [6.9" x 10.6" x 3.1"]	
	Carton	450 x 370 x 300mm [1'6" x 1'3" x 1']	
Weight	Model	560g [1.2 lbs]	
	Package	1350g [3.0 lbs]	
Fixedness		Interlocking power supply & wall-mount case with screws	
Power supply		+5V 2A DC	
Power consumption		3 Watts [max]	
Operation temperature		0~40°C [32~104°F]	
Storage temperature		-20~60°C [-4~140°F]	
Relative humidity		20~90% RH [no condensation]	
Package Contents		1x Z54B [TX & RX] 1x IR blaster 1x IR receiver 2x 5V power supply unit 1x User manual	

Front Panel — Transmitting Unit Z54B[TX]



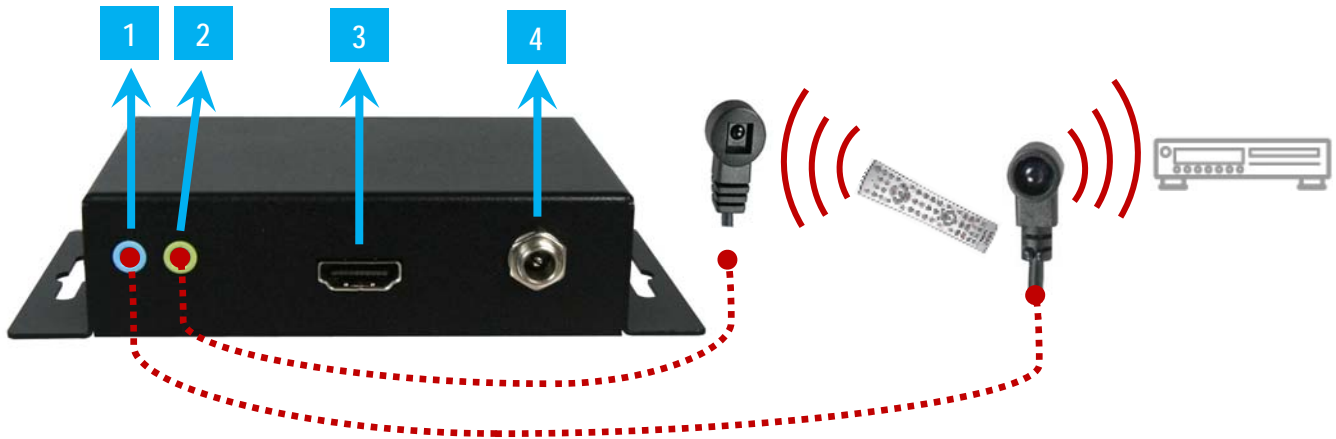
1. IR Receiver: 3.5mm socket for plugging in the extension cable of IR receiver
2. IR Blaster: 3.5mm socket for plugging in the extension cable of IR blaster
3. HDMI™ IN: connect to a HDMI™ source device with a HDMI™ male-male cable here
4. +5V DC: connect to 5V DC power supply unit

Rear Panel — Transmitting Unit Z54B[TX]



Connect all five coaxial cables to the BNC connectors of power [PWR], red [R], green [G], blue [B], and synchronization [Sync] to the BNC connectors of Z54B [RX] respectively.

Front Panel — Receiving Unit Z54B[RX]



1. IR Receiver: 3.5mm socket for plugging in the extension cable of IR receiver
2. IR Blaster: 3.5mm socket for plugging in the extension cable of IR blaster
3. HDMI™ OUT: connect to a HDMI™ display with a HDMI™ male-male cable here
4. +5V DC: connect to 5V DC power supply unit

Rear Panel — Receiving Unit Z54B[RX]



Connect all five coaxial cables to the BNC connectors of power [PWR], red [R], green [G], blue [B], and synchronization [Sync] to the BNC connectors of Z54B [TX] respectively.

IR Extenders

IR Blaster



IR Receiver



IR Sockets

Z54B [TX]

IR Blaster: Plug in the IR blaster here to emit all IR command signals received from the IR receiver to control the HDMI™ source devices.

Z54B [RX]

IR Receiver: Plug in the IR receiver here to receive all IR command signals from the IR remote controls of the HDMI™ source devices.

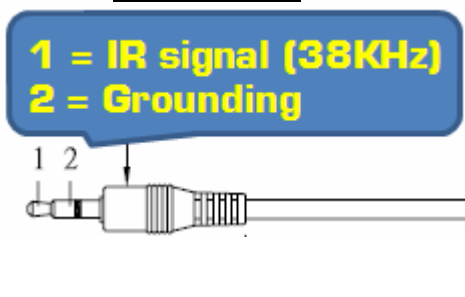


CAUTION!

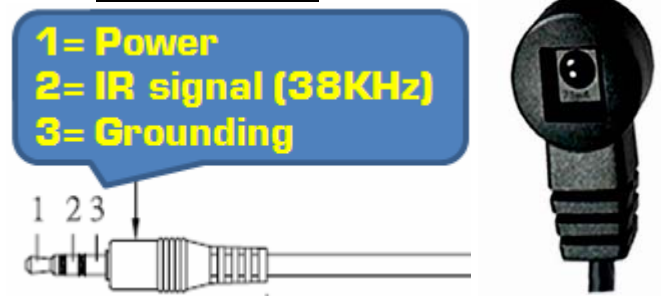
Incorrect insertion of IR blaster and IR receiver to wrong 3.5mm infrared sockets may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets.

Connecting to a 3.5mm jack

IR Blaster



IR Receiver

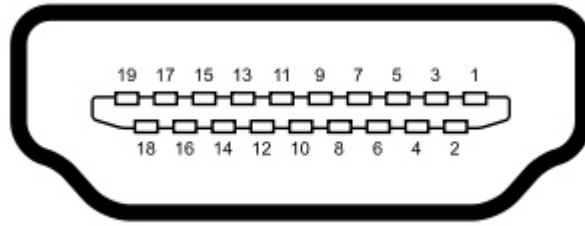


You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

Supported IR Data Format

Data Format	Suitable	Not Recommended
NEC	✓	
RC5	✓	
TOSHIBA MICOM CODE	✓	
GRUNDIG CODE	✓	
SONY 12 BIT CODE	✓	
SONY 15 BIT CODE	✓	
SONY 20 BIT CODE	✓	
RCA CODE		✓
RCM CODE		✓
MATSUSHITA CODE		✓
MITSUBISHI CODE	✓	
ZENITH CODE	✓	
JVC CODE	✓	
M50560-001P	✓	
MN6125H	✓	
MN6125L	✓	
MN6014_C5D7	✓	
MN6014-C6D6	✓	
MC14457P	✓	
LC7464(AHEA)	✓	
GEMINI_CM	✓	

HDMI™ Pin Definition



Type A (Receptacle) HDMI

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

Reference for Coaxial Cables

50Ω Coaxial cable

MHz	dB loss per 100ft	dB loss per 100m
30	0.105	0.346
50	0.243	0.799
450	0.439	1.440
1500	0.855	2.840
2000	1.020	3.360
2500	1.170	3.840

75Ω Coaxial cable

MHz	dB loss per 100ft	dB loss per 100m
50	1.45	4.756
100	2.02	0.799
200	2.83	1.440
400	4.05	2.840
700	5.60	3.360
800	6.23	
1000	6.59	
1200	7.50	
1450	8.10	
1800	8.95	
2200	9.98	3.840

Notice

!! MAKE SURE YOU CONNECT THE IR BLASTER AND IR RECEIVER CORRECTLY !!

1. All the transmission distances are measured using Belden7789A coaxial cables and ASTRODESIGN Video Signal Generator VG-859C. The transmission distance is defined as the distance between the transmitter and the HDMI display.
2. The lab testing result shows that 5 RG-6 coaxial cables can transmit HDMI 1.3 signals up to 80m (260ft).
3. If your HDMTMI display has multiple HDMITM inputs, it is found that the first HDMITM input [HDMITM input #1] generally can produce better transmission performance among all HDMITM inputs.
4. Incorrect insertion of 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.

Limited Warranty

Zektor Incorporated warrants the **Z54B HDMI™ 1.3 over Coaxial Extender with Bi-directional IR Pass-through** to be free from defects in the material and workmanship for 1 year from the date of purchase from Zektor Incorporated or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, Zektor Incorporated, 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 Zektor Incorporated 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 Zektor Incorporated. Cables are limited to a 30 day warranty and cable 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, Zektor Incorporated assumes no responsibility for any inaccuracies that may be contained in this manual. Zektor Incorporated 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 **Z54B** features and specifications is subject to change without further notice.

