

EX-56SZ-U

4K-HDR HDMI over Fiber USB KVM Extender

User Manual



Transmitter



Receiver

TABLE OF CONTENTS

INTRODUCTION.....	1
FEATURES.....	1
PACKAGE CONTENTS	1
SPECIFICATIONS	2
PANEL DESCRIPTIONS.....	3
CONNECTION DIAGRAM.....	5
IR PASS-THROUGH.....	6
HDMI PIN DEFINITION.....	7
WARRANTY	8

INTRODUCTION

The **EX-56SZ-U 4K-HDR HDMI over Fiber USB KVM Extender** boosts up your video/audio transmission distance up to 10km (6.25miles) over single mode fiber optic cables in Ultra-HD4K2K@60 format. Users can readily extend Ultra-HD sources from DVD players, Blu-ray Disc player, PS4, PC, and any other HDMI sources broadcasting to distant display monitors including HDMI or DVI enabled TV sets or LCD PC monitors. Besides **EX-56SZ-U** is HDCP compliant, and supports IR& RS-232 pass-through path and keyboard/mouse USB signal transmission.

FEATURES

- Supports 4K2K@60 4:4:4 8bits
- Supports HDR¹, which is 4K2K@60 4:2:0 10bits²
- Supports HDCP2.2
- Extend HDMI signals up to 10km (6.25miles) over single mode fiber optic cables
- Supports Keyboard & mouse signal transmission
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path-through
- Link LED indicator light
- Wall mounting housing design for easy and robust installation



1. HDR = High Dynamic Range.

2. The video bandwidth of 4K2K@60 4:2:0 10bits (HDR) is 384 MHz, and the 4K2K@60 4:4:4 8bits is 594MHz.



The RS-232, IR and USB function cannot be used at the same time

PACKAGE CONTENTS

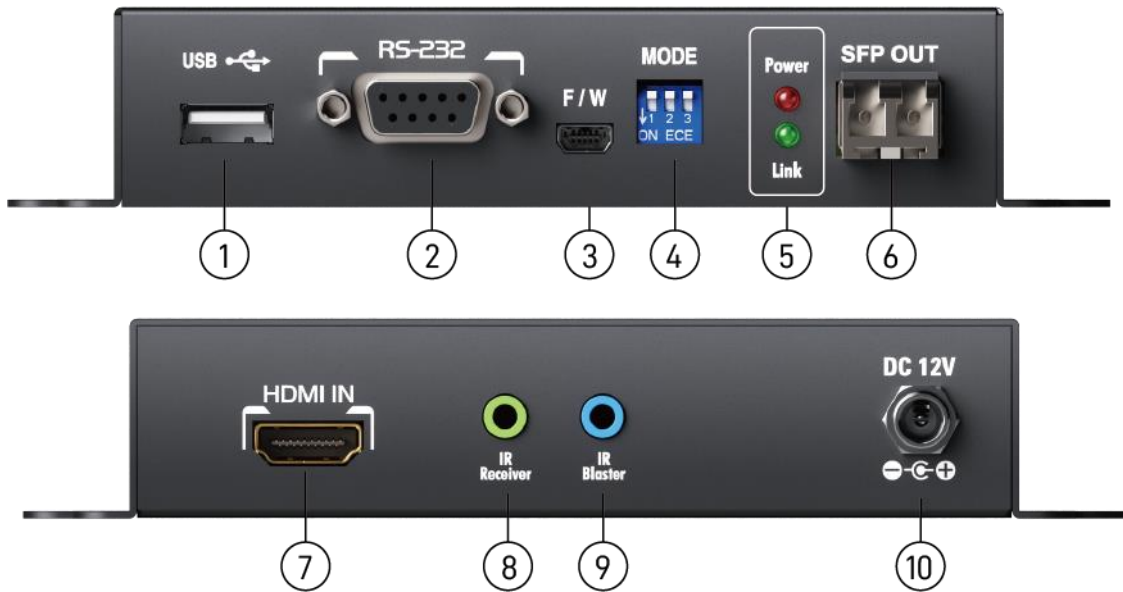
- 1x EX-56SZ-U [TX & RX]
- 1x IR blaster
- 1x IR receiver
- 2x DC 12V
- 2x Single Mode Module [optional]
- 1x User Manual

SPECIFICATIONS

Model Name		EX-56SZ-U	
Technical			
Role of usage		Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 2.0a	
HDCP compliance		HDCP 2.2	
Video bandwidth		Single-link 594MHz [18Gbps]	
Video support		HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits)	
HDMI over UTP		Yes	
Audio support		Surround sound [up to 7.1ch] or stereo digital audio	
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]	
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]	
IR pass-thru		Bi-directional	
RS-232 support		Yes	
Input		1x HDMI, 1x 3.5mm	1x fiber, 1x 3.5mm
Output		1x fiber, 1x 3.5mm	1x HDMI, 1x 3.5mm
In / Out		1x RS-232, 1x USB	1x RS-232, 2xUSB
HDMI source control		Controllable via IR pass-through from RX to TX with IR extenders	
HDMI connector		Type A [19-pin female]	
USB connector		Type A	
3.5mm connector		IR receiver / IR blaster	IR receiver / IR blaster
Mechanical			
Housing		Metal enclosure	
Dimensions [L x W x H]	Model	125x112x28mm[4.9" x4.4" x1.1"]	125x112x28mm[4.9" x4.4" x1.1"]
	Package	371 x 170 x 77mm[1'5" x 6.7" x 3"]	
Weight	Model	463g [16.3 oz]	455g [16 oz]
	Package	1730g [3.8 lbs]	
Fixedness		Wall-mounting case with screws	
Power supply		12V2A	
Power consumption		Max 10W	
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-56SZ-U-TX

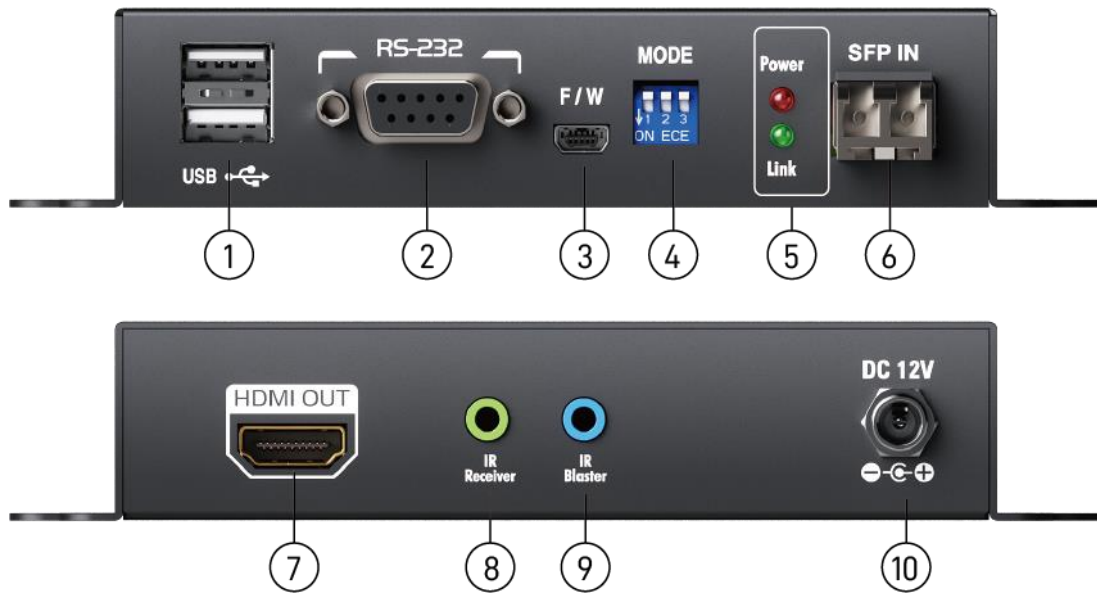


1. **USB[Host]:** Connect to a USB port from the computer for keyboard & mouse control
2. **RS-232:** Connect to serial port device with a DSUB-9 male-male or male-female cable here
3. **Mini USB:** For technical support only [firmware update]
4. **Dip Switch**

DIP Switch Position		Description
TX & RX		
PIN#1	ON [↓]	For system firmware update
	OFF [↑]	Normal
PIN#2	ON [↓]	USB function ON
	OFF [↑]	RS-232/IR function ON
PIN#3	ON [↓]	Disable IR function
	OFF [↑]	Enable IR function

5. **LED indicator**
 [Red]: Power LED indicator
 [Green]: Link LED indicator
6. **SFP OUT:** Plug in single mode fiber optic cables that needs to be linked to the receiving unit EX-56SZ-U-RX
7. **HDMI IN:** Connect to a HDMI source with a HDMI male-male cable
8. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
9. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
10. **+12V DC:** Connect to a 12V power supply unit

Receiving unit ▶ EX-56SZ-U-RX

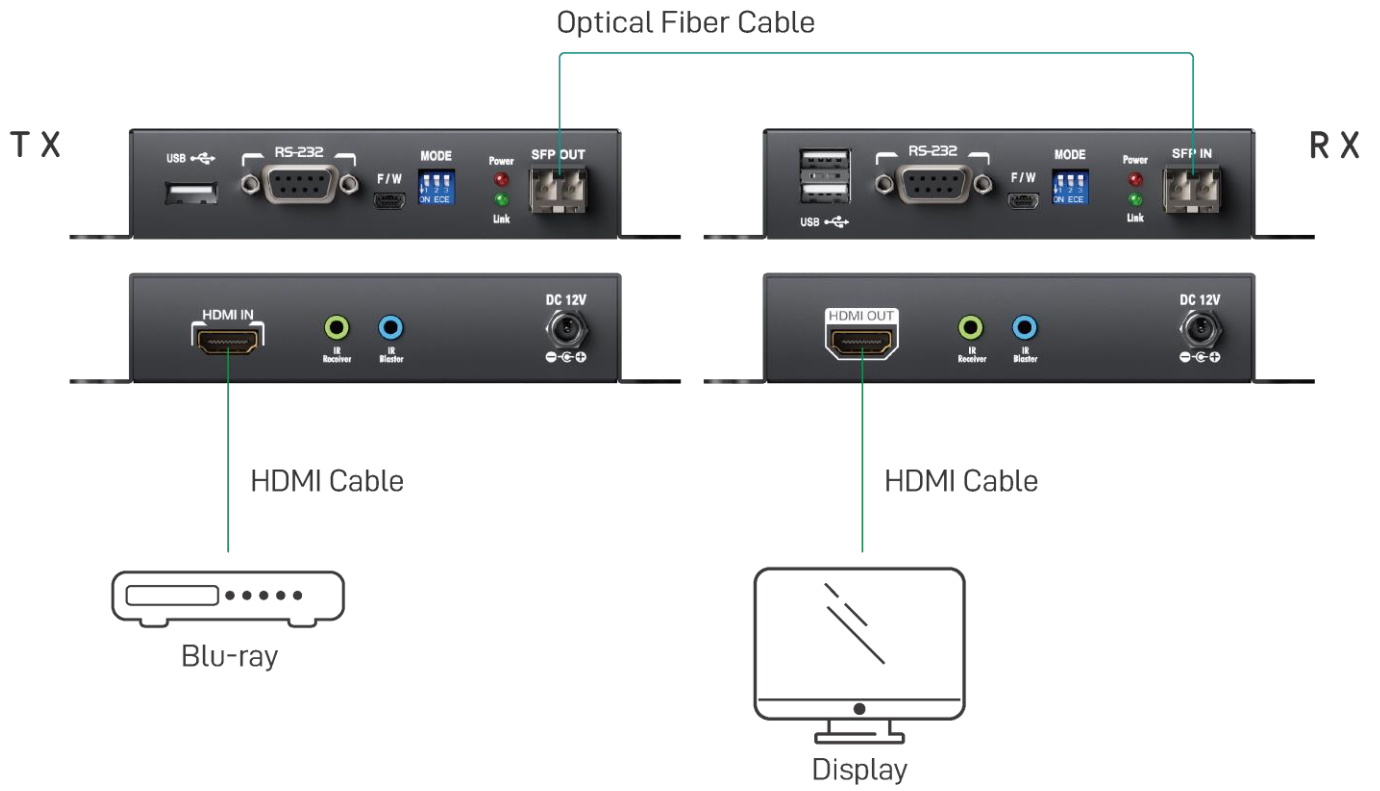


1. **USB[Device]:** Connect to the USB keyboard & mouse
2. **RS-232:** Connect to serial port device with a DSUB-9 male-male or male-female cable here
3. **Mini USB:** For technical support only [firmware update]
4. **Dip Switch**

DIP Switch Position		Description
TX & RX		
PIN#1	ON [↓]	For system firmware update
	OFF [↑]	Normal
PIN#2	ON [↓]	USB function ON
	OFF [↑]	RS-232/IR function ON
PIN#3	ON [↓]	Disable IR function
	OFF [↑]	Enable IR function

5. **LED indicator**
 [Red]: Power LED indicator
 [Green]: Link LED indicator
6. **SFP IN:** Plug in single mode fiber optic cables that needs to be linked to the transmitting unit EX-56SZ-U-TX
7. **HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable
8. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
9. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
10. **+12V DC:** Connect to a 12V power supply unit

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.

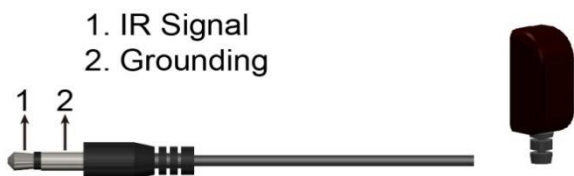
IR RECEIVER: plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.



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

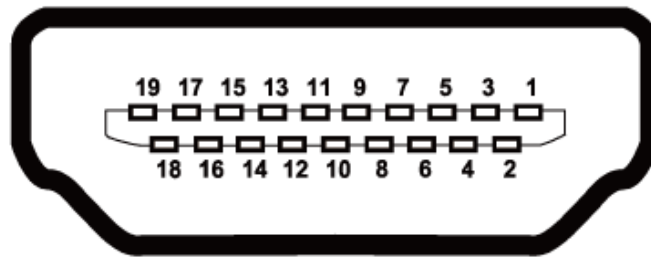


IR Receiver



You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the 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+		

WARRANTY

The SELLER warrants the **EX-56SZ-U 4K-HDR HDMI over Fiber USB KVM Extender** 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-56SZ-U features and specifications is subject to change without further notice.**