BZB2GEAR®

Solutions to Amplify Your World™

BG-UHD-18GFE

4K 18Gbps UHD HDMI USB KVM Extender Kit over Fiber w/HDR, 2-Way IR & RS-232

User Manual

TABLE OF CONTENTS

Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.

- Do not expose the product to rain or moisture.

- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

- Do not use the product beyond the specified temperature, humidity, or power supply specifications.

- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.

- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-UHD-18GFE 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-HD 4K2K@60. Users can easily extend Ultra-HD sources from DVD/Blu-ray Disc players, game consoles, PCs, and any other HDMI sources broadcasting to distant displays. The BG-UHD-18GFE is also HDCP compliant and supports IR & RS-232 pass-through as well as keyboard/mouse USB signal transmission.

Features

- 4K2K@60 4:4:4 8 bits

- HDR 4K2K@60 4:2:0 10 bits

- Supports HDCP2.2

- Extend HDMI signals up to 10km (6.25miles) over single mode fiber optic cables

- Keyboard & mouse signal transmission

- Full frequency IR signal from 20KHz to 60KHz

- Bi-directional IR pass-through

- Link LED indicator light

- Wall mounting housing design for easy and robust installation

Note: The RS-232, IR, and USB functions cannot be used at the same time.

Packing List

- 1x BG-UHD-18GFE [TX & RX]
- 1x IR blaster
- 1x IR receiver

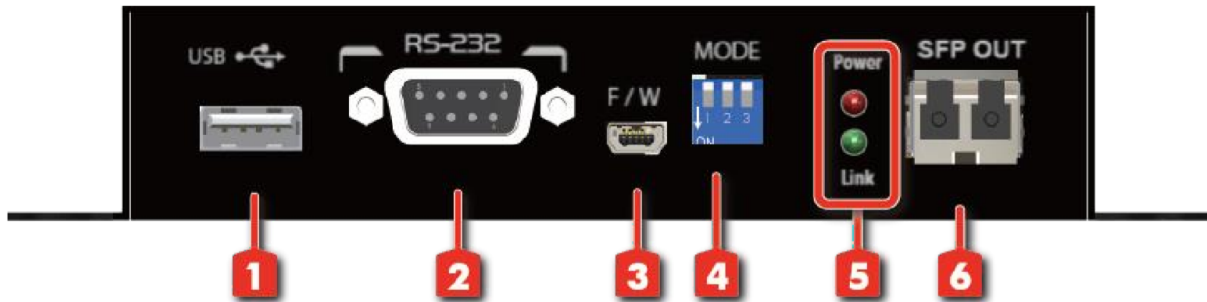- 2x DC 12V
- 1x User Manual
- 2x Single Mode Module [optional]

Specifications

Technical			
Role of usage	**Transmitter [TX]**		**Receiver [RX]**
HDMI compliance	HDMI 2.0a		
HDCP compliance	HDCP2.2		
Video bandwidth	Single-link 600MHz [18Gbps]		
Video support	HDR 4K2K@60 (4:2:0 10 bits) / 4K2K@60 (4:4:4 8 bits)		
HDMI over fiber	Yes		
Audio support	Surround sound [up to 7.1ch] or stereo 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	125x112.2x28mm[4.9" x4.4" x1.1"]	125x112.2x28mm[4.9" x4.4" x1.1"]
	Package	371 x 170 x 77m m[1'5" x 6.7" x 3"]	
	Carton	410 x 368 x 393m m[1'3" x 1'4" x 1'5"]	
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	0-50°C		
Storage temperature	-20~60°C [-4~140°F]		
Relative humidity	20~90% RH [no condensation]		

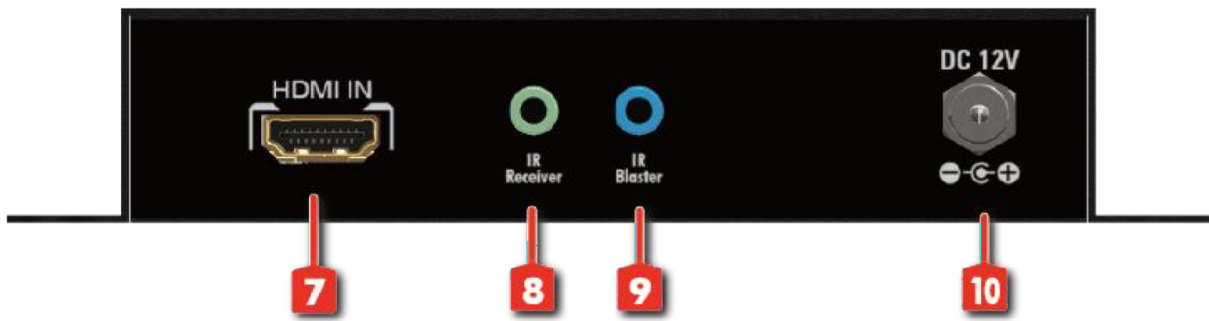# Operation Controls and Functions

Transmitter Front Panel

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

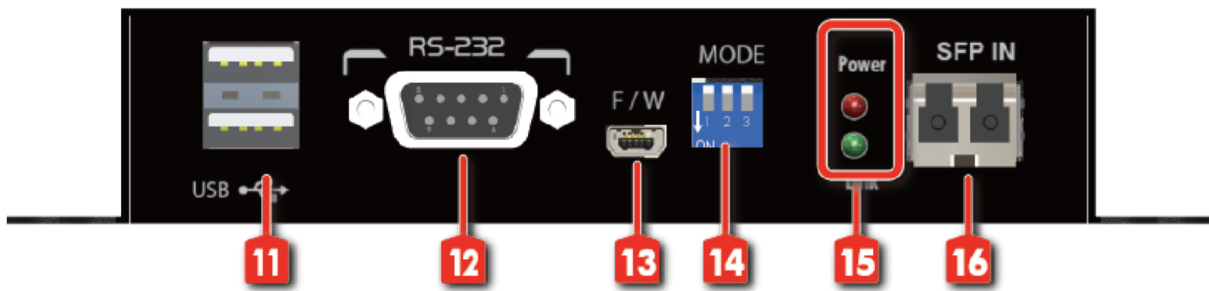6. **SFP OUT:** Plug in single mode fiber optic cables that needs to be linked to the receiving unit

Transmitter Rear Panel

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

Receiver Front Panel

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

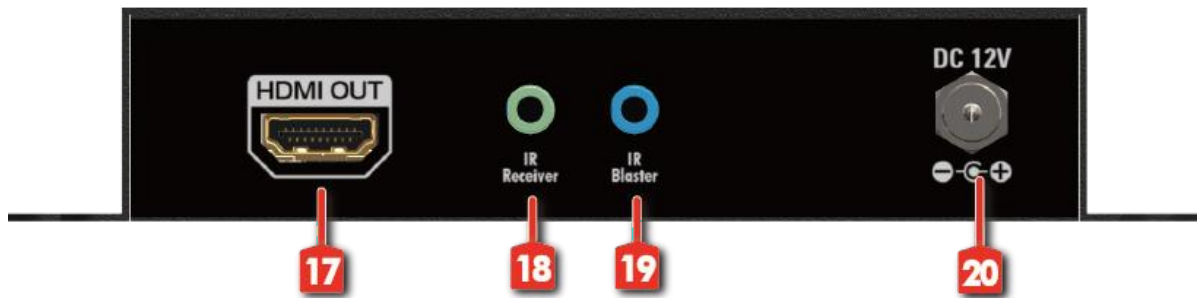| DIP Switch Position		Description
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PIN#3	ON [↓]	*Disable IR function*
	OFF [↑]	*Enable IR function*

15. LED indicator

    [Red]: Power LED indicator

    [Green]: Link LED indicator

16. SFP IN: plug in single mode fiber optic cables that needs to be linked to the transmitting unit
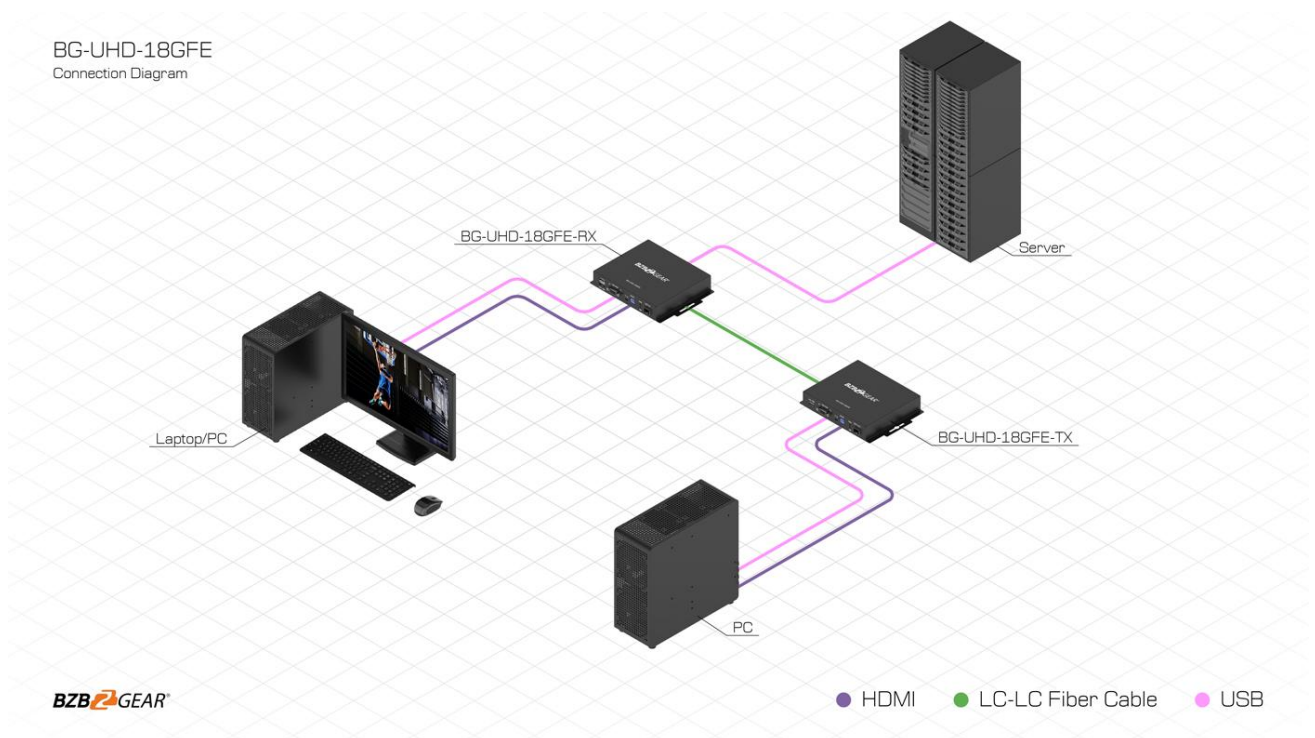
Receiver Rear Panel

17. HDMI OUT: Connect to a HDMI display with a HDMI male-male cable

18. IR Receiver: Infrared 3.5mm socket for plugging in the extension cable of IR receiver

19. IR Blaster: Infrared 3.5mm socket for plugging in the extension cable of IR blaster

20. +12V DC: Connect to a 12V power supply unit

Application 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

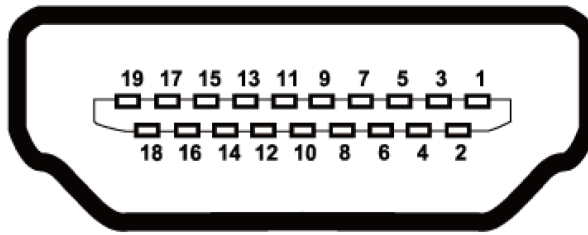**IR Receiver**

1. IR Signal
2. Grounding

1   2

1. IR Signal [20-60 kHz]
2. Grounding
3. Power

1 2 3

Note: You can buy any IR extension cables in the market that are compatible with 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.

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**	NC
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+		

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone	**Email**	**Live Chat**
1.888.499.9906	support@bzbgear.com	bzbgear.com

Warranty

BZBGEAR Pro AV products and cameras come with a three-year warranty. An extended two-year warranty is available for our cameras upon registration for a total of five years.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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