LINK

LINK EXT40-4KUHD

4K@60 4:4:4 HDR HDBaseT Extender

User Manual

Version: V1.0.1

Important Safety Instructions

1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

6. Clean this apparatus only with dry cloth.

2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

7. Unplug this apparatus during lightning storms or when unused for long periods of time.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and/or similar items.

8. Protect the power cord from being walked on or pinched particularly at plugs.

4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments / accessories specified by the manufacturer.

5. Do not place sources of naked flames, such as lighted candles, on the unit.

10. Refer all servicing to qualified service personnel.

Table of Contents

Introduction

Overview

LINK EXT40-4KUHD is a slim HDBT transmitter receiver set with HDCP 2.2 compliant. It supports resolutions up to 4K@60Hz 4:4:4 8bit, transporting Ultra HD/4K video with HDR, audio, bi-directional IR and power up to 131ft (40m) and 1080P signals up to 230ft (70m) over a single CATX cable.

EXT40-4KUHD features bi-directional PoCC, requiring only one power adapter connected to either transmitter or receiver to power both units. Bi-directional IR pass through allows users to control the source at the display location or control the display at the source location with ease. RS232 pass through supports serial communication.

The transmitter and receiver are easy to install. They are space saving and offer ideal solutions for homes, offices, digital entertainment centers, control centers, conference rooms, schools and corporate training environments.

Features

- Supports HDMI 2.0 with 4K@60Hz 4:4:4 8bit and HDCP 2.2
- Supports HDR (High Dynamic Range) format
- Over a Cat 6a/7 cable, HDMI signal transport up to 230ft (70m) at 1080P and 131ft (40m) at 4K@60Hz (4:4:4)
- Over a Cat 5e/6 cable, HDMI signal transport up to 197ft (60m) at 1080P and 115ft (35m) at 4K@60Hz (4:4:4)
- Bi-directional PoCC, one power supply at either transmitter or receiver side can power both units
- Supports bi-directional IR/RS232 pass through
- Slim profile, space saving and easy-to-install

Package Contents

- 1 x Transmitter
- 1 x Receiver
- 1 x Power Supply (DC 18V 1A)
- 1 x IR Emitter
- 1 x Broadband IR Receiver (30-50 KHz)
- 1 x IR-AC IR Coupler Cable
- 2 x Phoenix Male Connector (3.5mm, 3 Pins)
- 4 x Mounting Bracket

Specification

Transmitter

Technical	
Input	1 x HDMI IN
Input Signal Type	HDMI with HDCP 2.2
Input/Output Resolution Supported	SMPTE: 1280x720P[1,2,3,4,5,6,7,8], 1920x1080I[6,8], 1920x1080P[1,2,3,4,5,6,7,8], 3840x2160[2,3,5,6,8], 4096x2160[2,3,5,6,8] VESA: 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x960[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1400x1050[8], 1440x900[8], 1600x900[8], 1600x1200[8], 1680x1050[8], 1920x1200[8] 1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz
Maximum Data Rate	18 Gbps
Input Video Level	0.5-1.0 V p-p
Maximum Pixel Clock	600MHz
Output	1 x HDBT
Output Signal Type	HDBT
Video Impedance	100ohms

General	
Operating Temperature	0°C to 45°C (32°F to 113°F), 10% to 90%, non-condensing
Storage Temperature	-20°C to 70°C (-4°F to 158°F) 10% to 90%, non-condensing
Humidity	10% to 90%, non-condensing
Power Supply	DC 18V 1A
Power Consumption (Max)	4.8W
Device Dimension (W x H x D)	5.39" x 0.61" x 2.93" (136.8 mm ×15.4 mm × 74.5 mm)
Product Weight	0.53lb (0.24kg)
Certification	CE, FCC

Cable Specification:

Note: LINK recommends the use of T568B straight-through Category cables.

Cable Type	Range	Supported Video
HDMI	49ft (15m)	1080P@60Hz
	33ft (10m)	4K@30Hz
	10ft (3m)	4K@60 Hz 4:4:4 8 bit with HDR
CAT5e/6	197ft (60 m)	1080P@60Hz 36 bpp
	115ft (35 m)	1080P@60Hz 48 bpp 1080P@60Hz 3D 4K@60 Hz 4:4:4 8bit with HDR
CAT6a/7	230ft (70 m)	1080P@60Hz 36 bpp
	131ft (40 m)	1080P@60Hz 48 bpp 1080P@60Hz 3D 4K@60Hz 4:4:4 8bit with HDR

Receiver

Technical	
Input	1 x HDBT
Input Signal Type	HDBT
Input/Output Resolution Supported	SMPTE: 1280x720P[1,2,3,4,5,6,7,8], 1920x1080I[6,8], 1920x1080P[1,2,3,4,5,6,7,8], 3840x2160[2,3,5,6,8], 4096x2160[2,3,5,6,8] VESA: 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x960[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1400x1050[8], 1440x900[8], 1600x900[8], 1600x1200[8], 1680x1050[8], 1920x1200[8] 1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz
Maximum Data Rate	18 Gbps
Input Video Level	0.5-1.0 V p-p
Maximum Pixel Clock	600MHz
Output	1 x HDMI
Output Signal Type	HDMI with HDCP 2.2
Video Impedance	100ohms

General	
Operating Temperature	0°C to 45°C (32°F to 113°F), 10% to 90%, non-condensing
Storage Temperature	-20°C to 70°C (-4°F to 158°F) 10% to 90%, non-condensing
Humidity	10% to 90%, non-condensing
Power Supply	DC 18V 1A
Power Consumption (Max)	7.4W
Device Dimension (W x H x D)	5.39" x 0.61" x 2.93" (136.8 mm ×15.4 mm × 74.5 mm)
Product Weight	0.53lb (0.24kg)
Certification	CE, FCC

Cable Specification:

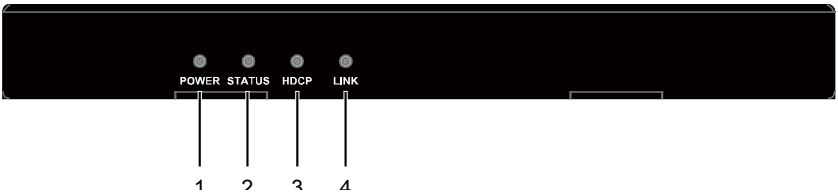
Note: LINK recommends the use of T568B straight-through Category cables.

Cable Type	Range	Supported Video
HDMI	49ft (15m)	1080P@60Hz
	33ft (10m)	4K@30Hz
	16ft (5m)	4K@60 Hz 4:4:4 8 bit with HDR
CAT5e/6	197ft (60 m)	1080P@60Hz 36 bpp
	115ft (35 m)	1080P@60Hz 48 bpp 1080P@60Hz 3D 4K@60 Hz 4:4:4 8bit with HDR
CAT6a/7	230ft (70 m)	1080P@60Hz 36 bpp
	131ft (40 m)	1080P@60Hz 48 bpp 1080P@60Hz 3D 4K@60Hz 4:4:4 8bit with HDR

Panel Layout

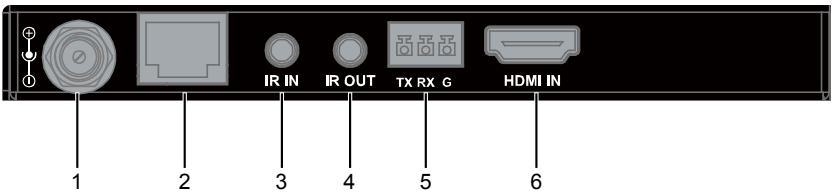
Transmitter

Front Panel



No.	Name	Description
1	Power LED (Red)	**On:** The transmitter is powered on. **Off:** The transmitter is powered off.
2	Status LED (Blue)	**Blinking:** The transmitter is working properly. **Off:** The transmitter is not working properly.
3	HDCP LED (Blue)	**On:** HDMI signal is HDCP protected. **Blinking:** HDMI signal is not HDCP protected. **Off:** No HDMI signal pass through.
4	Link LED (Green)	**On:** The link between transmitter and receiver is normal. **Blinking:** The link between transmitter and receiver is abnormal. **Off:** No link.

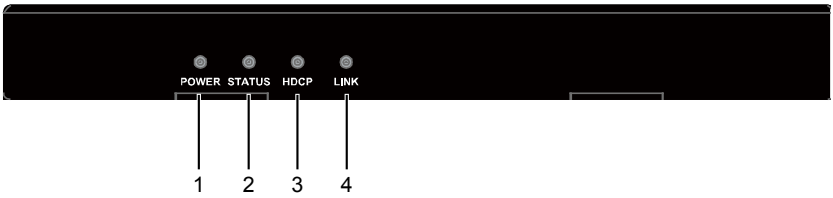
Rear Panel



No.	Name	Description
1	DC 18V	DC 18V power input
2	HDBT OUT	Connect to the receiver
3	IR IN	Connect to the supplied IR receiver.
4	IR OUT	Connect to the supplied IR emitter.
5	RS232	RS232 pass through
6	HDMI IN	Connect to an HDMI source device.

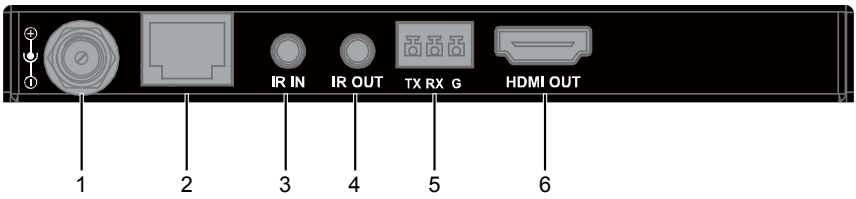
Receiver

Front Panel



No.	Name	Description
1	Power LED (Red)	**On:** The receiver is powered on. **Off:** The receiver is powered off.
2	Status LED (Blue)	**Blinking:** The receiver is working properly. **Off:** The receiver is not working properly.
3	HDCP LED (Blue)	**On:** HDMI signal is HDCP protected. **Blinking:** HDMI signal is not HDCP protected. **Off:** No HDMI signal pass through.
4	Link LED (Green)	**On:** The link between transmitter and receiver is normal. **Blinking:** The link between transmitter and receiver is abnormal. **Off:** No link.

Rear Panel

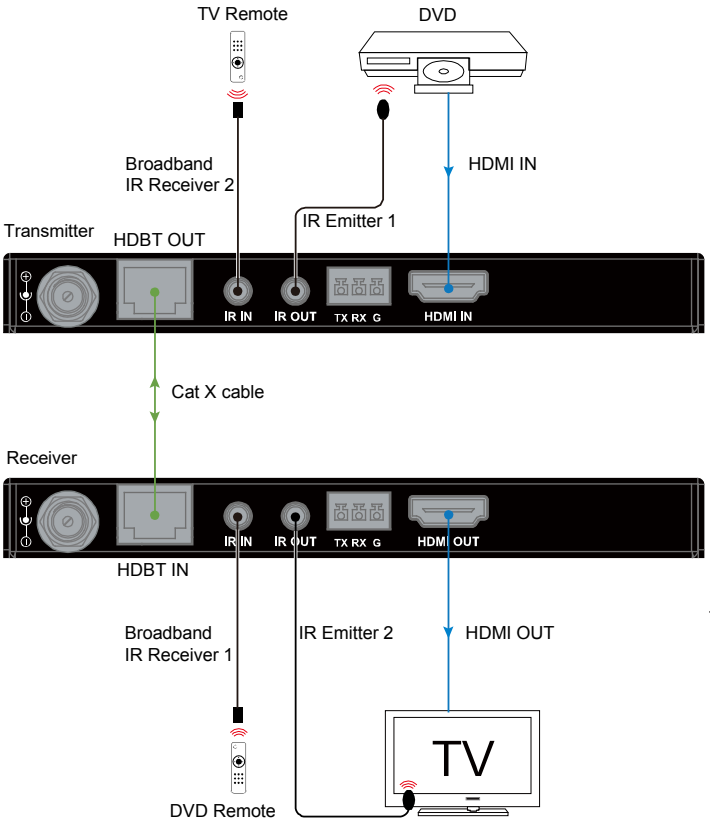


No.	Name	Description
1	DC 18V	DC 18V power input
2	HDBT IN	Connect to the transmitter
3	IR IN	Connect to the supplied IR receiver
4	IR OUT	Connect to the supplied IR emitter
5	RS232	RS232 pass through
6	HDMI OUT	Connect to an HDMI display device

Installation Instructions

1. Connect an HDMI source (such as Blu-ray player, games console, STB, Apple TV etc.) to the HDMI IN port of the Transmitter via an HDMI cable.
2. Connect the Transmitter to the Receiver via a Cat X cable on the HDBT ports.
3. Connect an HDMI display to the HDMI OUT port of the Receiver.
4. Connect the IR emitter and IR receiver to the Transmitter and the Receiver respectively. Users can control the source at the display location or control the display at the source location as required, please refer to the diagrams in **IR Pass Through** Section.
5. Connect the power supply to either the Transmitter or Receiver to power both units.

Check Power, Status, and HDCP & Link lights are illuminated on both units to indicate successful connection, with a lit HDCP light illustrating the presence of encryption within the signal. Power and Link are static lights. Status should be blinking.

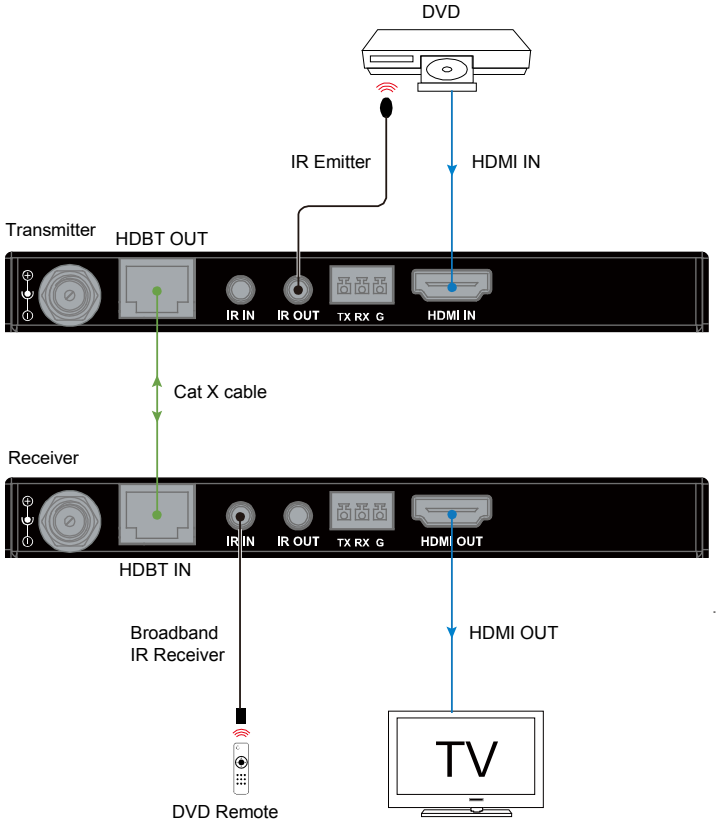

TV Remote
DVD
Broadband
IR Receiver 2
HDMI IN
IR Emitter 1
Transmitter
HDBT OUT
IR IN
IR OUT
TX RX G
HDMI IN
Cat X cable
Receiver
IR IN
IR OUT
TX RX G
HDMI OUT
HDBT IN
Broadband
IR Receiver 1
IR Emitter 2
HDMI OUT
TV
DVD Remote

IR Pass Through

IR pass-through function allows users to control the source at the display location or control the display at the source location.

1. Control the source

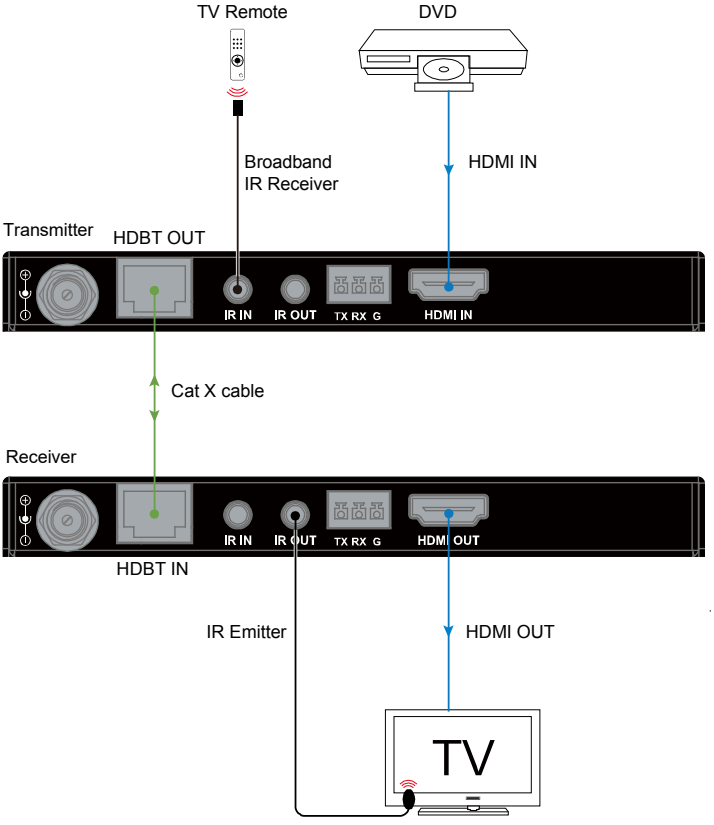
Connect an IR emitter to the IR OUT port of the Transmitter and a broadband IR receiver to the IR IN port of the Receiver. Users can control the source at the display location with the source remote.



Control the source at the display location

2. Control the display

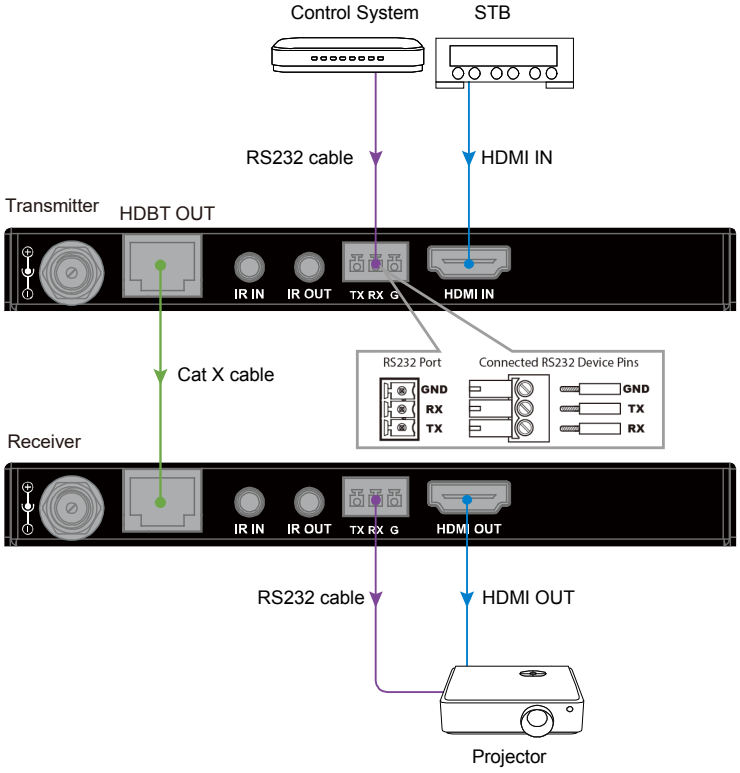
Connect a broadband IR receiver to the IR IN port of the Transmitter and an IR emitter to the IR OUT port of the Receiver. Users can control the TV at the DVD location with the TV remote.



Control the display at the source location

RS232 Pass Through

The RS232 port provides a channel to pass through protocol commands to control third party devices such as user's source or display. RS232 uses the three pins that are labeled transmitter, receiver and GND. Connect a host computer or control system to the RS232 connector. Please refer to the following pin definition of RS232 during installation.



Trouble Shooting

Troubleshooting Steps

1. **Power:** Please make sure all devices are powered on (the source, extender set and display).
2. **Indicator:** Please make sure LED indicators of the transmitter and receiver are normal according to user manual.
3. **Devices:** Please make sure picture can be shown normally when connecting source to display devices directly.
4. **Cable:** Unplug and plug in HDMI/Cat X cable or try another HDMI/Cat X cable.
   - Please make sure the specific cable length is within the transmission range listed in below table based on different resolutions.

Resolution and Transmission Range			
Resolution / Cable	1080P	4K@60 420 4K@30 444	4K@60 444
HDMI IN	49ft	33ft	10ft
HDMI OUT	49ft	33ft	16ft
Cat 5e/6	197ft	115ft	115ft
Cat 6a/7	230ft	131ft	131ft

   - Cat 5e/6/6a/7 cable is recommended, do not use Cat 5 cable. Please make sure the two connectors of one Cat X cable are the same standard (EIA/TIA 568B).
5. **Compatibility:** Please test other source and display devices to determine if it is a compatibility issue.

Typical Questions

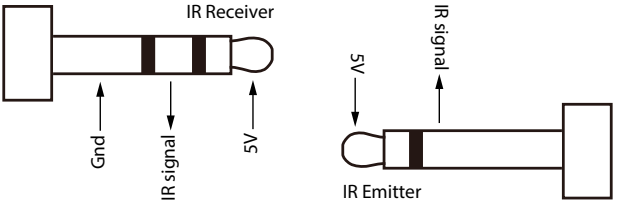
1. **How can I fix video flash or cut off during the installation?**
    - Power indicator should be solid on and status indicator should be blinking. If not, please check if the power adapter is securely connected.
    - Link indicator should be solid on. If it is blinking or off, it is likely a problem with your Ethernet cable, please change to a qualified cable (Cat5e/6/7, EIA/TIA 568B) and ensure the cable length is within the maximum distance (230ft for 1080P, 131ft for 4K).
    - HDCP indicator should be solid on or blinking. If it is off, it means no signal pass through, please check if the HDMI cables are securely connected to the source and TV, and the Ethernet cable that connects transmitter to receiver is normal. Try a better HDMI cable or Ethernet cable.

2. **How can I fix the IR signal if it is weak or not working?**
    - Make sure the IR cables are correctly installed according to the diagrams in IR Pass Through section above.
    - Check if the IR emitter head is secured over the center of the device IR receiver window. The best position may vary depending on the device, please refer to the device user manual. If the signal is weak, please try to adjust the position.
    - Pay attention to the control angle and distance as below. The control signal will be better when your controller is pointed at the IR receiver head directly.

Enabled Angle	**0°**	**30°(Horizontal)**	**15°(Vertical)**
Distance	26ft (Max)	15ft (Max)	10ft (Max)

3. **How can I make the IR work with third party control devices?**

Please make sure the third party device follows our pin definition as below:



Warranty Terms and Conditions

For the following cases LINK shall charge for the service(s) claimed for the products if the product is still remediable and the warranty card becomes unenforceable or inapplicable.

1. The original serial number (specified by LINK) labeled on the product has been removed, erased, replaced, defaced or is illegible.
2. The warranty has expired.
3. The defects are caused by the fact that the product is repaired, dismantled or altered by anyone that is not from a LINK authorized service partner. The defects are caused by the fact that the product is used or handled improperly, roughly or not as instructed in the applicable User Guide.
4. The defects are caused by any force majeure including but not limited to accidents, fire, earthquake, lightning, tsunami and war.
5. The service, configuration and gifts promised by salesman only but not covered by normal contract.
6. LINK preserves the right for interpretation of these cases above and to make changes to them at any time without notice.

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