



User Manual

HD-H70-SP

HDBaseT HDMI EXTENDER SET



BASED ON V1.0.0

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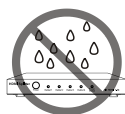


Important Safety Instructions

Contents are subject to change without notice

Warnings

To reduce the risk of fire, electric shock or product damage:



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



6. Clean this device only with dry cloth.



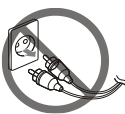
2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this device 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 similar items.



8. Protect cables and cords 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 device (including amplifiers) that produce heat.



9. Only use attachments/accessories specified by FSR.



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



10. Refer all servicing to qualified service personnel.

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Overview

HD-H70-SP HDBaseT HDMI EXTENDER SET is designed to extend HDMI signals up to 70 meters via a single CAT5e / CAT6 / CAT6A / CAT 7 cable. The system is powered from a single power supply via its bi-directional PoE function. The Extenders can control the source from the display's location or vice versa via the IR pass-through or bi-directional RS-232 control functions. The transmitter and receiver modules are easy to install and space saving. The Extenders are ideal for home, office, digital entertainment centers, control centers, conference rooms, schools and corporate training environments.

Features

FSR HDBaseT 70 Meter HD-H70-SP Ultra Slim Pack Transmitter & Receiver Set:

- 70 Meter units are Class B HDBaseT Units known as HDBaseT Lite
- Transmits uncompressed full HD Digital HDMI Video, Audio, Control (Bi-Directional IR & RS-232), and Power
- **Input resolutions:** 4k 2160p (3840x2160) / 1080p / 1080i / 720p / 576p / 480p / 576i / 480i

Cable Distances & Resolutions:

For best resolution and ESD performance Shielded CAT6A in a TIA / EIA 568B wiring configuration is recommended.

CAT5e / CAT6:

60 Meters: 1080p @60 Hz. (36 bpp)

35 Meters: 1080p @60 Hz. (48 bpp) or 3D and 4k 2160p (3840x2160 @ 30 Hz.)

- CAT6A / CAT7:

70 Meters: 1080p @60 Hz. (36 bpp)

40 Meters: 1080p @60 Hz. (48 bpp) or 3D and 4k 2160p (3840x2160 @ 30 Hz.)

- Power supply can power the set from the HD-H70-SP-Tx Transmitter or the HD-H70-SP-Rx Receiver (Tx-Rx or Rx-Tx)

Package Includes:

HD-H70-SP-Tx transmitter

HD-H70-SP-Rx receiver

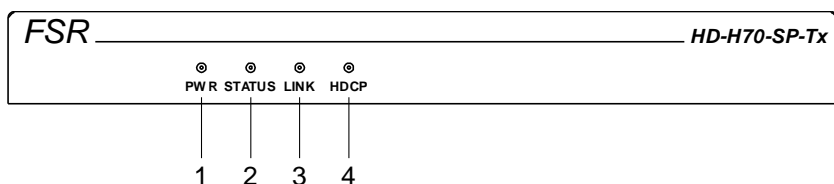
18V DC 1A power supply

Under Table Mounting Brackets

2 IR emitter cables

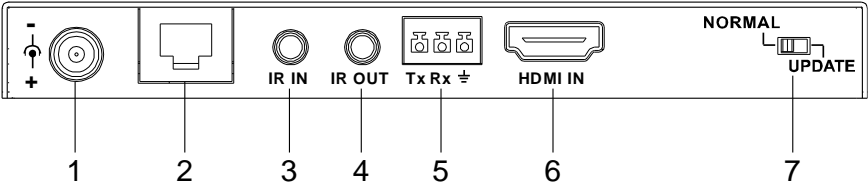
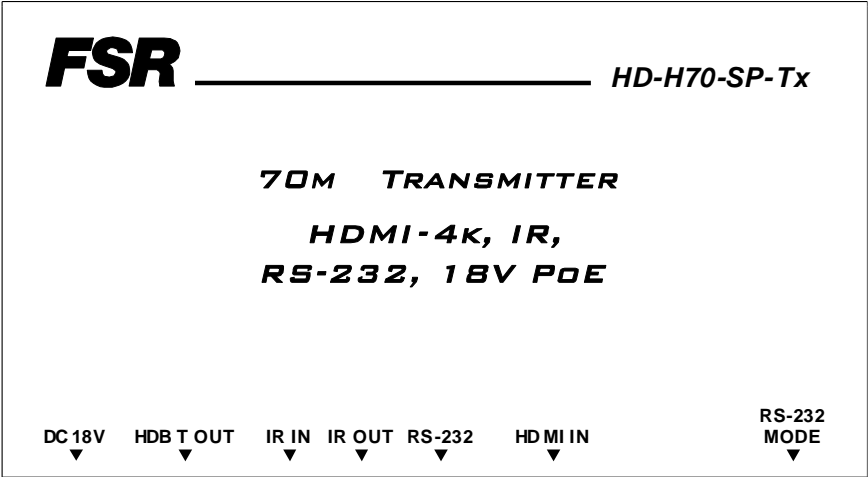
2 IR receiver cables

HD-H70-SP-Tx Front Panel



ID	Name	Description
1	Power LED	On: Unit is powered on. Off: Unit is powered off.
2	Status LED	Blinking: Normal operating condition. Off: Fault.
3	Link LED	On: Transmitter and receiver are linked to each other. Off/Blinking: Fault in unit(s) or cabling
4	HDCP LED	On: HDCP video is being transmitted. Blinking: No HDCP video is being transmitted.

HD-H70-SP-Tx Rear Panel



ID	Name	Description
1	Power	Connect to a power supply via a power adapter to either the transmitter or receiver side 18VDC input. Note: It is only necessary to power one side (Tx or Rx)
2	HDBT OUT	RJ-45 connection to the receiver via a CAT5e/CAT6 CAT6A / CAT7 cable.
3	IR IN	Connect to an IR receiver cable.
4	IR OUT	Connect to an IR emitter cable.
5	RS-232	Used to connect to a computer to update firmware or connect a RS-232 control device.
6	HDMI IN	Connect to a source device via an HDMI cable.
7	Switch	Normal:

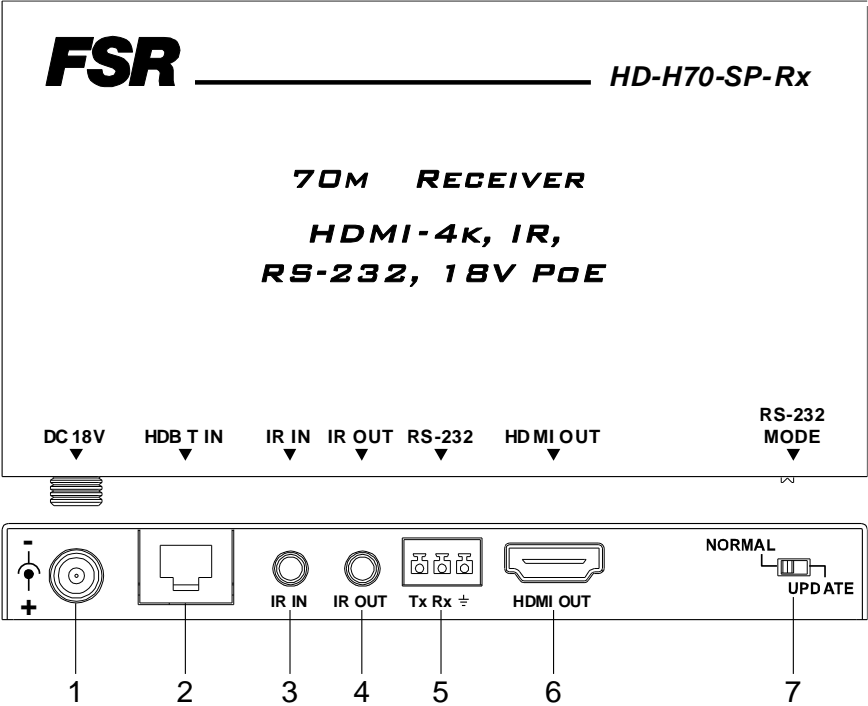
ID	Name	Description
	Mode	<ul style="list-style-type: none"> ● RS-232 pass through capability enabled ● Firmware cannot be updated. <p>Update:</p> <ul style="list-style-type: none"> ● RS-232 pass through capability disabled ● Firmware can be updated.

HD-H70-SP-Rx Front Panel



ID	Name	Description
1	Power LED	On: Receiver is powered on. Off: Receiver is powered off.
2	Status LED	Blinking: Normal operating condition Off: Fault
3	Link LED	On: Receiver and Transmitter are linked to each other. Off/Blinking: Fault in unit(s) or cabling
4	HDCP LED	On: HDCP video is being transmitted. Blinking: No HDCP video is being transmitted.

HD-H70-SP-Rx Rear Panel



ID	Name	Description
1	Power	Connect to a power supply via a power adapter to either the transmitter or receiver side 18VDC input. Note: It is only necessary to power one side (Tx or Rx)
2	HDBT IN	Connect to the transmitter via a CAT5e / CAT6 / CAT6A / CAT7 cable.
3	IR IN	Connect to an IR receiver cable.
4	IR OUT	Connect to an IR emitter cable.
5	RS-232	Used to connect to a computer to update firmware or connect a RS-232 control device.
6	HDMI OUT	Connect to a Display via an HDMI cable.
7	Mode Switch	Normal:

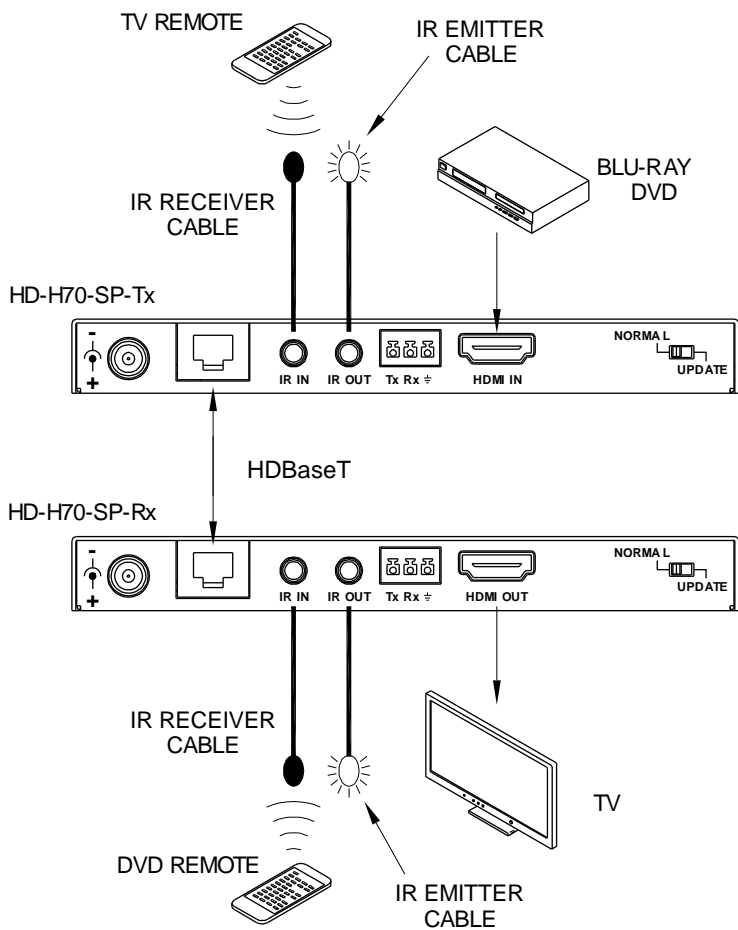
ID	Name	Description
		<ul style="list-style-type: none"> ● RS-232 pass through capability enabled ● Firmware cannot be updated. <p>Update:</p> <ul style="list-style-type: none"> ● RS-232 pass through capability disabled ● Firmware can be updated.

Hardware Installation

Warnings

- Before the installation, disconnect the power supply from all the devices.
- Do not connect or disconnect cables from the Transmitter and Receiver when they are powered on. To connect or disconnect cables from the units, power them off first.
- For best resolution and ESD performance Shielded CAT6A in a TIA / EIA 568B wiring configuration is recommended. Please use care when installing, connecting and disconnecting cables.

1. Connect the source to **HDMI IN** on the Transmitter via an HDMI cable.
2. Connect an IR emitter cable to **IR OUT** and an IR receiver cable to **IR IN** on transmitter.
3. Connect a Display to **HDMI OUT** on Receiver.
4. Connect an IR emitter cable to **IR OUT** and an IR receiver cable to **IR IN** on the Receiver.
5. Connect **HDBT OUT** on the Transmitter to **HDBT IN** on the Receiver via a shielded CAT5e / CAT6 / CAT6A / CAT7 cable.
6. Connect the power supply to either the transmitter or receiver.



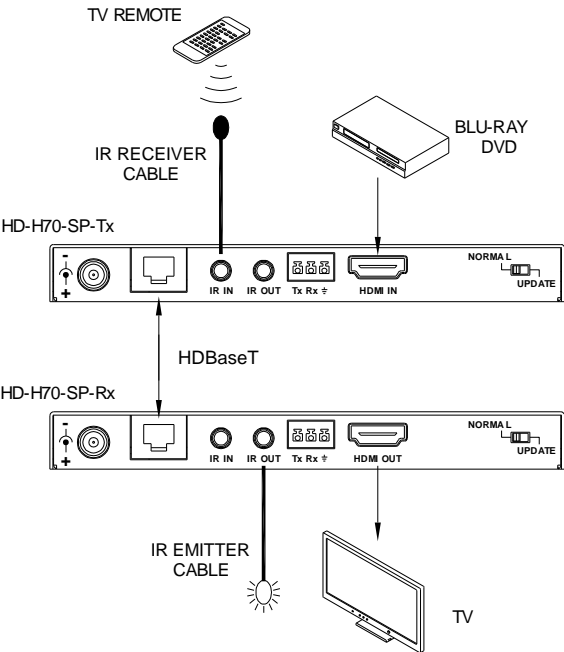
IR and RS-232 Operation

IR Control

The IR pass-through function in the Transmitter and Receiver allows you to control the source from the Display's location or control the Display from the source's location.

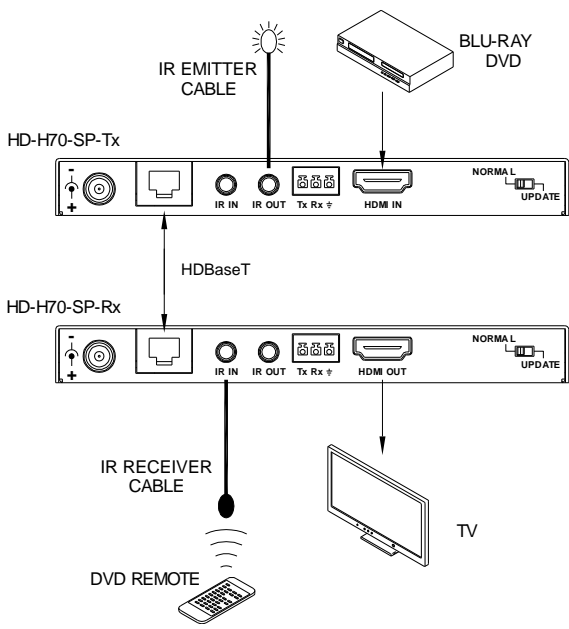
Scenario 1

In this case, IR IN on the Transmitter is connected to an IR receiver cable and IR OUT on Receiver is connected to an IR emitter cable. The TV can be controlled from the Transmitter's location with the TV remote.



Scenario 2

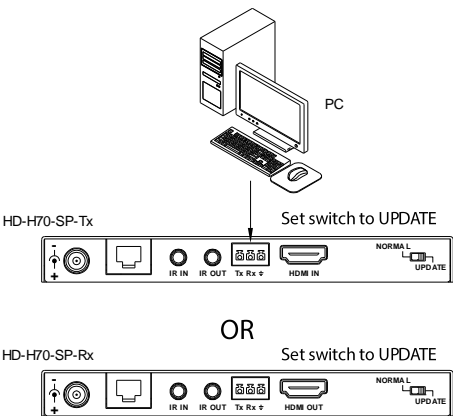
In this case, IR OUT on the Transmitter is connected to an IR emitter cable and IR IN on the receiver is connected to an IR receiver cable. The DVD-player can be controlled from the Receiver's location with the DVD remote.



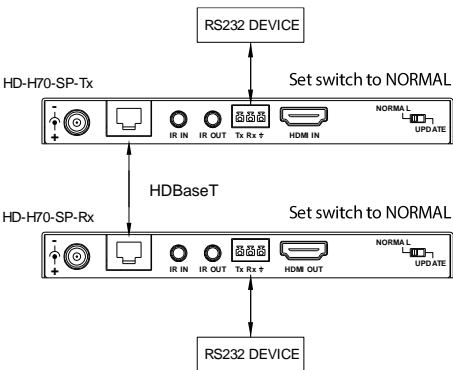
RS-232 Control and Firmware Updates

The RS-232 port on the Transmitter or Receiver can be connected to a computer to update firmware. An RS-232 device can be connected to communicate with another RS-232 device on the other extender's side via a CATx cable.

Scenario 1: Firmware Update



Scenario 2: RS-232 Control



Baud rate max is 115.2 Kbps.

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Troubleshooting

Why is the power LED off?
<ul style="list-style-type: none">● Check that the power supply is powered on.● Check that all the cables are properly connected.
Why is the Link LED off or blinking?
<ul style="list-style-type: none">● Check that power supplies of all the devices are powered on.● Check that all the cables connected properly.● Check that the length of cable is appropriate. For more information, see cable specifications in the Specifications section.
Why does the display connected to the Receiver show no picture?
<ul style="list-style-type: none">● Check that power supplies of all the devices are powered on.● Check that all the cables are connected properly.● Check that the display works properly, and that source device has a normal signal output.● Check that your Display is switched to the correct source input mode, such as switching to HDMI 1, HDMI 2, etc.● Check that no compatibility issues exist between Receiver and Display. If so, replace the Display with another model.

Why does the Display connected to the Receiver display snow or mosaic?

- Check that all the cables are qualified and connected properly.
- Check that HDBaseT cables are CAT5e/CAT6 or better cables.
- Check that the input sources have no problems, such as snow, mosaic or a damaged disc. If so, replace them with the normal input sources.
- Check that there are no compatibility issues between the Receiver and Display. If so, replace the Display with another model.

Glossary

ESD	Electro-static Discharge
HDBT	HDBaseT
HDCP	High-bandwidth Digital Content Protection
HDMI	High Definition Multimedia Interface
IR	Infra-red
LCD	Liquid Crystal Display
LED	Light Emitting Diode

Specifications

HD-H70-SP-Tx

Technical	
Input	1 x HDMI IN
Input Signal Type	HDMI 1.4 with 4K2K
Input Resolution Support	4k 2160p (3840x2160) / 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
Input Video Level	0.5-1.2 V p-p
Output	1 x HDBT OUT
Output Signal Type	HDBT
Video Impedance	100Ω
Maximum Pixel Clock	297MHz
Operating Temperature	32°F to 95°F (0°C to 35°C) 10% to 90%, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 70°C) 10% to 90%, non-condensing
Power Supply	DC 18V 1A with locking connector
Power Consumption	HD-H70-SP-Rx powers HD-H70-SP-Tx (or visa versa): 12.2W for both devices.
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) ±4kV (Contact discharge)
Surge Protection	IEC 61000-4-4 (EFT) 40A (5/50ns); IEC 61000-4-5 (Lightning) 25A (8/20μs)

Cable Specifications		
For best resolution and ESD performance Shielded CAT6A in a TIA / EIA 568B wiring configuration is recommended.		
Cable Type	Range	Supported Video
CAT5e/CAT6	60 m	1080p 60Hz (36 bpp)
	35 m	1080p 60Hz (48 bpp) 1080p 60Hz 3D 4K 2160p (3840x2160@30Hz)
CAT6A/CAT7	70 m	1080p 60Hz (36 bpp)
	40 m	1080p 60Hz (48 bpp) 1080p 60Hz 3D 4K 2160p (3840x2160@30Hz)
General		
Shipping Weight (set)		2.1 lbs. (0.95 kg)
Dimension (W x H x D)		5.3" x 0.6"x3" (135 mm x 14 mm x 77 mm)
Certification		FCC, RoHS

HD-H70-SP-Rx

Technical	
Input	1 x HDBT IN
Input Signal Type	HDBT
Input Resolution Support	4k 2160p (3840x2160) / 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
Input Video Level	0.5-1.2 V p-p
Output	1 x HDMI OUT
Output Signal Type	HDMI: HDMI 1.4 with 4K2K
Video Impedance	100Ω
Maximum Pixel Clock	297 MHz
Operating Temperature	32°F to 95°F (0°C to 35°C) 10% to 90%, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 70°C) 10% to 90%, non-condensing
Power Supply	DC 18V 1A
Power Consumption	HD-H70-SP-Rx powers HD-H70-SP-Tx (or visa versa): 12.2W for both devices
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) ±4kV (Contact discharge)
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Cable Specifications		
For best resolution and ESD performance Shielded CAT6A in a TIA / EIA 568B wiring configuration is recommended.		
Cable Type	Range	Supported Video
CAT5e/CAT6	60 m	1080p, 60 Hz 36 bpp
	35 m	1080p 60 Hz 48 bpp 1080p 60 Hz 3D 4K 2160p (3840 x 2160@30Hz)
CAT6A/CAT7	70 m	1080p, 60 Hz 36 bpp
	40 m	1080p 60 Hz 48 bpp 1080p 60 Hz 3D 4K 2160p (3840 x 2160@30Hz)
General		
Shipping Weight (set)	2.1 lbs. (0.95 kg)	
Product Dimension (W x H x D)	5.3" x 0.6" x 3" (135 mm x14 mm x77 mm)	
Certification	FCC, RoHS	

Limited Warranty

The HD-H70-SP HDBaseT HDMI EXTENDER SET is warranted against failures due to defective parts or faulty workmanship for a period of three years after delivery to the original owner. During this period, FSR will make any necessary repairs or replace the unit without charge for parts or labor. Shipping charges to the factory or repair station must be prepaid by the owner, return-shipping charges (via UPS Ground) will be paid by FSR.

This warranty applies only to the original owner and is not transferable. In addition, it does not apply to repairs done by other than the FSR factory or Authorized Repair Stations.

This warranty shall be cancelable by FSR at its sole discretion if the unit has been subjected to physical abuse or has been modified in any way without written authorization from FSR. FSR's liability under this warranty is limited to repair or replacement of the defective unit.

FSR will not be responsible for incidental or consequential damages resulting from the use or misuse of its products. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty claims should be accompanied by a copy of the original purchase invoice showing the purchase date (if a Warranty Registration Card was mailed in at the time of purchase, this is not necessary). Before returning any equipment for repair, please read the important information on service below.

SERVICE

Before returning any equipment for repair, please be sure that it is adequately packed and cushioned against damage in shipment, and that it is insured. We suggest that you save the original packaging and use it to ship the product for servicing. Also, please enclose a note giving your name, address, phone number and a description of the problem.

NOTE: all equipment being returned for repair must have a Return authorization (RMA) Number. To get a RMA Number, please call the FSR Service Department (1-800-332-FSR1). **Please display your RMA Number prominently on the front of all packages.**

CONTACT INFORMATION:

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