User Manual

HD-H-SP-TX
HD-H-SP-RX

100m HDBaseT HDMI Extender Set

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43080

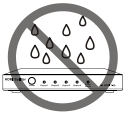
LIT1540

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.

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.

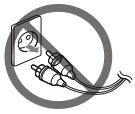
3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.

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

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

6. Clean this device only with dry cloth.

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



8. Protect cables and cords from being walked on or pinched particularly at plugs.

9. Only use attachments/accessories specified by FSR.

10. Refer all servicing to qualified service personnel.

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Overview

The HD-H-SP series HDBaseT extenders can extend the signals up to 100 meters with a single Ethernet cable. It supports HDMI, Ethernet, bi-directional IR, bi-directional RS-232 and bi-directional PoE. The extenders can be powered by a single power supply and its PoE circuitry can power the extender at the far end. 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

HD-H-SP-Tx – 100 Meter HDBaseT Slim-Pack Transmitter

- HDMI In to HDBaseT Out (RJ-45)
- RS-232 via 3-Pin Captive Screw Terminal (Tx, Rx, GND)
- IR RX & TX via 1/8” mini jacks
- 12VDC Power via screw connector or 2-Pin Captive Screw Terminal (12V & GND)
- Ethernet Port (RJ-45)
- Unit Dimensions: (W x L x H) 7.72” x 3.73” x 0.71” (196.1mm × 18.1mm × 99.3mm)

HD-H-SP-Rx – 100 Meter HDBaseT Slim-Pack Receiver

- HDBaseT In (RJ-45) to HDMI Out
- RS-232 via 3-Pin Captive Screw Terminal (Tx, Rx, GND)
- IR RX & TX via 1/8” mini jacks
- 12VDC Power via screw connector or 2-Pin Captive Screw Terminal (12V & GND)
- Ethernet Port (RJ-45)
- Locking power supply included
- Unit Dimensions: (W x L x H) 7.72” x 3.73” x 0.71” (196.1mm × 18.1mm × 99.3mm)

Package Contents

HD-H-SP-Tx and HD-H-SP-Rx are sold separately.

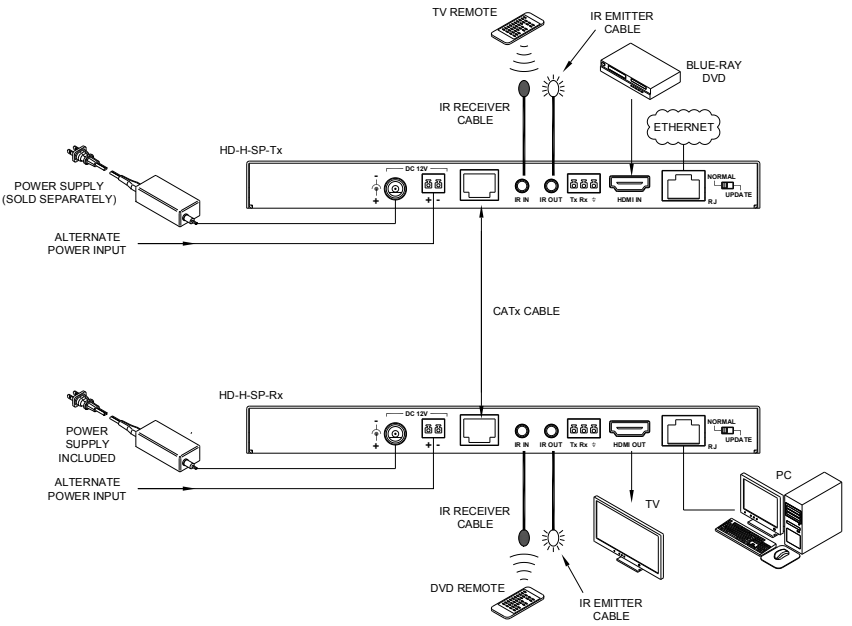
HD-H-SP-Tx Transmitter:

- One 2-pin screw-down terminals
- One 3-pin screw-down terminals
- One IR Emitter
- One IR Receiver (30kHz ~ 50kHz)
- Two Mounting Ears

HD-H-SP-Rx Receiver:

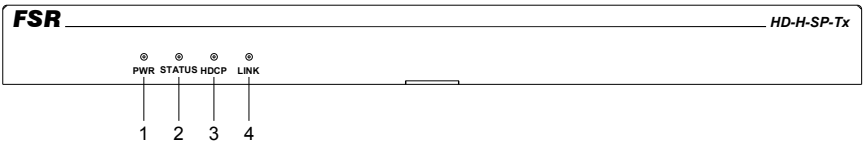
- One 2-pin screw-down terminals
- One 3-pin screw-down terminals
- One IR Emitter
- One IR Receiver (30kHz ~ 50kHz)
- Two Mounting Ears
- 12VDC 2A power supply

Typical Application



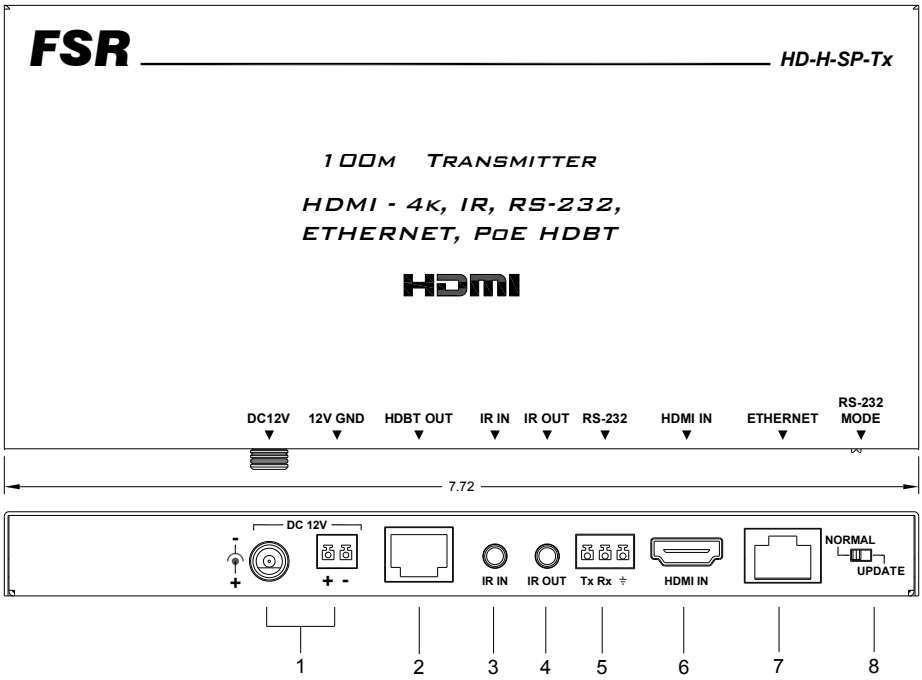
NOTE: It is only necessary to power one side (Tx or Rx)

HD-H-SP-Tx Front Panel



ID	Name	Description
1	Power LED	**ON:** Unit is powered ON **OFF:** Unit is powered OFF
2	Status LED	**Intermittent:** Normal operating condition **OFF:** Fault
3	HDCP LED	**ON:** HDCP video is being transmitted **OFF/Intermittent:** No HDCP video is being transmitted
4	Link LED	**ON:** Receiver and Transmitter are linked to each other **OFF/Intermittent:** Fault in unit(s) or cabling

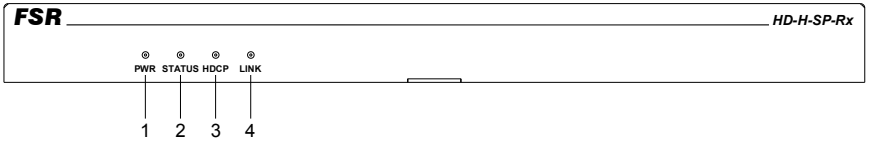
HD-H-SP-Tx Rear Panel



ID	Name	Description
1	Power	Connect to a power supply via a power adapter to either the transmitter or receiver side 12VDC 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

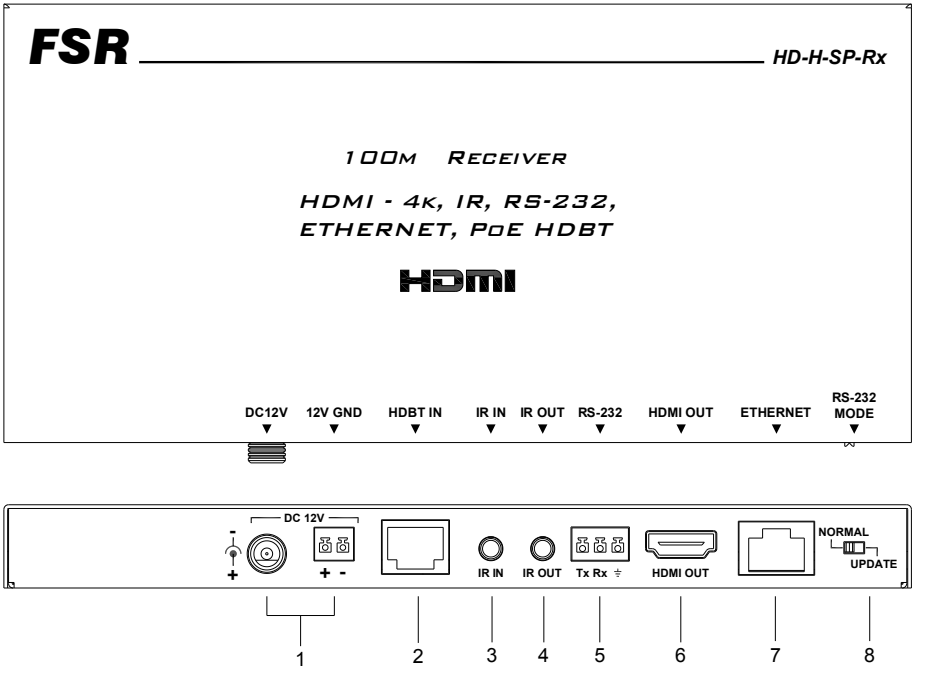
ID	Name	Description
6	HDMI IN	Connect to a source device
7	Ethernet	Ethernet connection for a router, switcher or computer, etc Orange: Link-Activity Green: Speed 100Mbps
8	Switch Mode	**Normal:** ● RS-232 pass through capability enabled ● Firmware cannot be updated **Update:** ● RS-232 pass through capability disabled ● Firmware can be updated

HD-H-SP-Rx Front Panel



ID	Name	Description
1	Power LED	**ON:** Receiver is powered ON **OFF:** Receiver is powered OFF
2	Status LED	**Intermittent:** Normal operating condition **OFF:** Fault
3	HDCP LED	**ON:** HDCP video is being transmitted **Intermittent:** No HDCP video is being transmitted
4	Link LED	**ON:** Receiver and Transmitter are linked to each other **OFF/Intermittent:** Fault in unit(s) or cabling

HD-H-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 12VDC 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	Connection to the Display

ID	Name	Description
7	Ethernet	Ethernet connection for a router, switcher or computer, etc Orange: Link-Activity Green: Speed 100Mbps
8	Mode Switch	**Normal:** ● RS-232 pass through capability enabled ● Firmware cannot be updated **Update:** ● 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 while 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 the **HDMI IN** on the Transmitter.
2. Connect the IR emitter to the **IR OUT** and the IR Receiver to the **IR IN** on both the Transmitter and Receiver.
3. Connect a Display to the **HDMI OUT** on the Receiver.
4. Connect the **HDBT OUT** on the Transmitter to the **HDBT IN** on the Receiver via a shielded CAT5e / CAT6 / CAT6A / CAT7 cable.
5. Connect the power supply to either the Transmitter or Receiver.

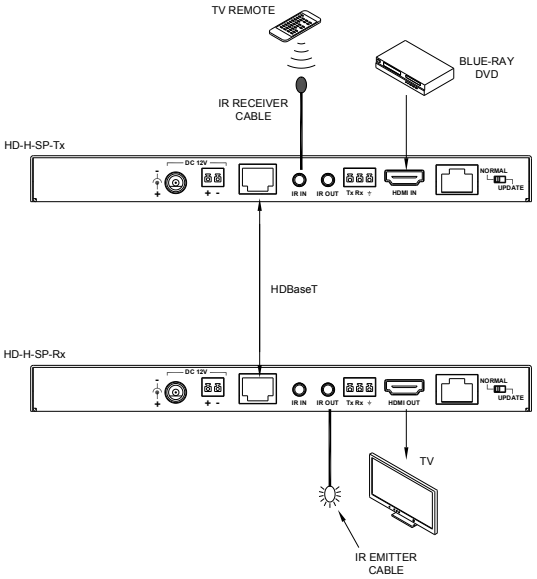
IR and RS-232 Operation

IR Control

The IR pass-through feature on the Transmitter and Receiver allows you to control the Source from the Display's location or vice versa.

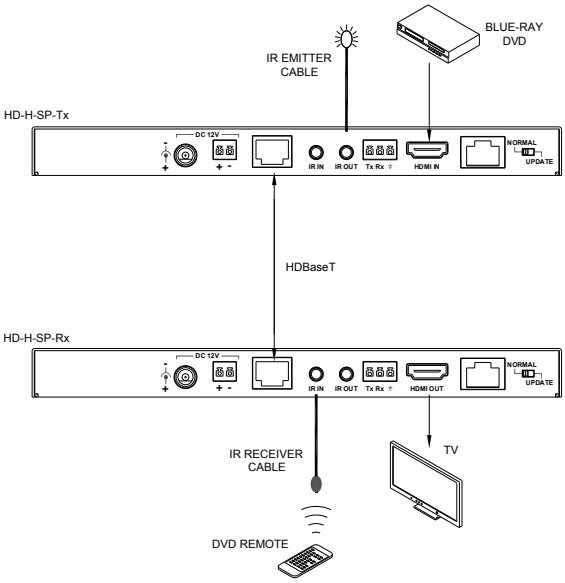
Scenario 1

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



Scenario 2

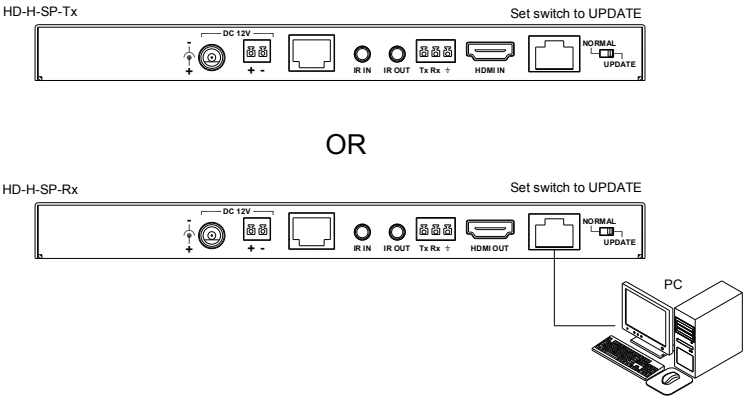
The DVD Player can be controlled from the Receiver's location with the DVD Player Remote. The IR emitter is connected to the IR OUT on the Transmitter and the IR receiver is connected to the IR IN on the Receiver.



RS-232 Control and Firmware Updates

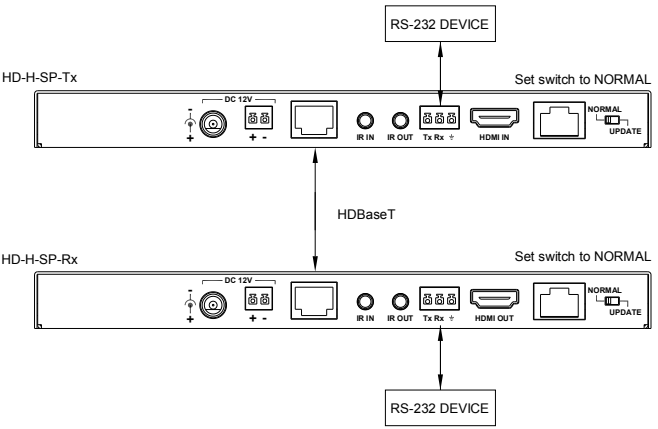
The RS-232 port can be used as pass-through to control a device connected to the Transmitter from the Receiver or vice versa. In addition, the RS-232 port on the Transmitter or Receiver can be connected to a computer to update the firmware.

Scenario 1: Firmware Update



Scenario 2: RS-232 Control

Maximum Baud rate is 115.2 Kbps.



Specifications

HD-H-SP-Tx

Technical	
Input	1 HDMI
Input Signal Type	HDMI 1.4 with 4K2K
Input Resolution Support	4k 2160p (3840x2160) / 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
Input Video Level	0.5-1.2Vp-p
Output	1 HDBT
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 12V 2A with locking connector
Power Consumption	HD-H-SP-Rx powers HD-H-SP-Tx (or vice versa): ≤11.8W 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	100m	1080p 60Hz (36 bpp)
	70m	1080p 60Hz (48 bpp) 1080p 60Hz 3D 4K 2160p (3840x2160 30Hz)
CAT6A/CAT7	100m	1080p 60Hz (36 bpp)
		1080p 60Hz (48 bpp) 1080p 60Hz 3D 4K 2160p (3840x2160 30Hz)
General		
Shipping Weight	1.45 lbs. (0.66 kg)	
Dimension (W x H x D)	7.72" x 0.71" x 3.91" (196.1mm × 18.1mm × 99.3mm)	

HD-H-SP-Rx

Technical	
Input	1 HDBT
Input Signal Type	HDBT
Input Resolution Support	4k 2160p (3840x2160) / 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
Input Video Level	0.5-1.2 Vp-p
Output	1 HDMI
Output Signal Type	HDMI
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 12V 2A with locking connector
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	100m	1080p 60 Hz 36 bpp
	70m	1080p 60 Hz 48 bpp 1080p 60 Hz 3D 4K 2160p (3840 x 2160 30Hz)
CAT6A/CAT7	100m	1080p 60 Hz 36 bpp
		1080p 60 Hz 48 bpp 1080p 60 Hz 3D 4K 2160p (3840 x 2160 30Hz)
General		
Shipping Weight	2.1 lbs. (0.95 kg)	
Dimension (W x H x D)	7.72" x 0.71" x 3.91" (196.1mm × 18.1mm × 99.3mm)	

Limited Warranty

The HD-H-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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