



ATLONA
HDMI 1.3 OVER SINGLE CAT5 EXTENDER
AT-HD-V40SRS

USER MANUAL



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INTRODUCTION

Atlona's AT-HD-V40SRS HDMI 1.3 over Single CAT5 Extender boosts up your video/audio transmission distance up to 60m (200ft) in HDTV 1080i format, 40m (130ft) in HDTV 1080p format, and 20m (65ft) in HDTV 1080p with 36 bit color depth. With only one cost effective LAN cable, users can readily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI/DVI enabled TV sets or LCD PC monitors. With the state-of-the-art Silicon Image chipsets equipped, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP supports and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS3 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart.

The AT-HD-V40SRS includes two units: Sender (AT-HD-V40SS) and Receiver (AT-HD-V40RS) units. The Sender unit is used to capture the input HDMI/DVI signals and carry the signals through one RJ-45 connector into one cost effective CAT-5/5e/6 LAN cable. The Receiver unit is responsible for equalizing the sent TMDS multimedia data. The transmission distance between the sender and receiver units can be up to 60m (200ft) under HD (720p/1080i) or 40m (130ft) under Full HD (1080p). With an 8-level equalization control knob on the receiving unit, users can adjust the equalization strength to the received TMDS signals accordingly, and therefore optimize the transmission distance between source and destination.

FEATURES:

- State-of-the-art Silicon Image (founder of HDMI) chipset embedded for upmost compatibility and reliability
- HDMI 1.3c compliant
- Extend the transmission length up to 60m (200ft) from the HDMI sources under HD resolution (1080i or 720p at 24-bit color depth)
- Extend the transmission length up to 40m (130ft) from the HDMI sources under Full HD resolution (1080p at 24-bit color depth)
- Extend the transmission length up to 20m (65ft) from the HDMI sources under Full HD resolution (1080p at 36-bit color depth)
- HDCP 1.1 compliant
- Minimize the cable skew by adjustable 8-level equalization control
- Pure unaltered uncompressed 7.1ch digital HDMI over LAN cable transmission
- DTS-HD and Dolby True HD high bit rate audio support
- Allows cascading
- Wall mounting housing design for easy installation
- Perfectly integrated with other HDMI over CAT5 series products

Note: The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ-45 connectors is recommended.

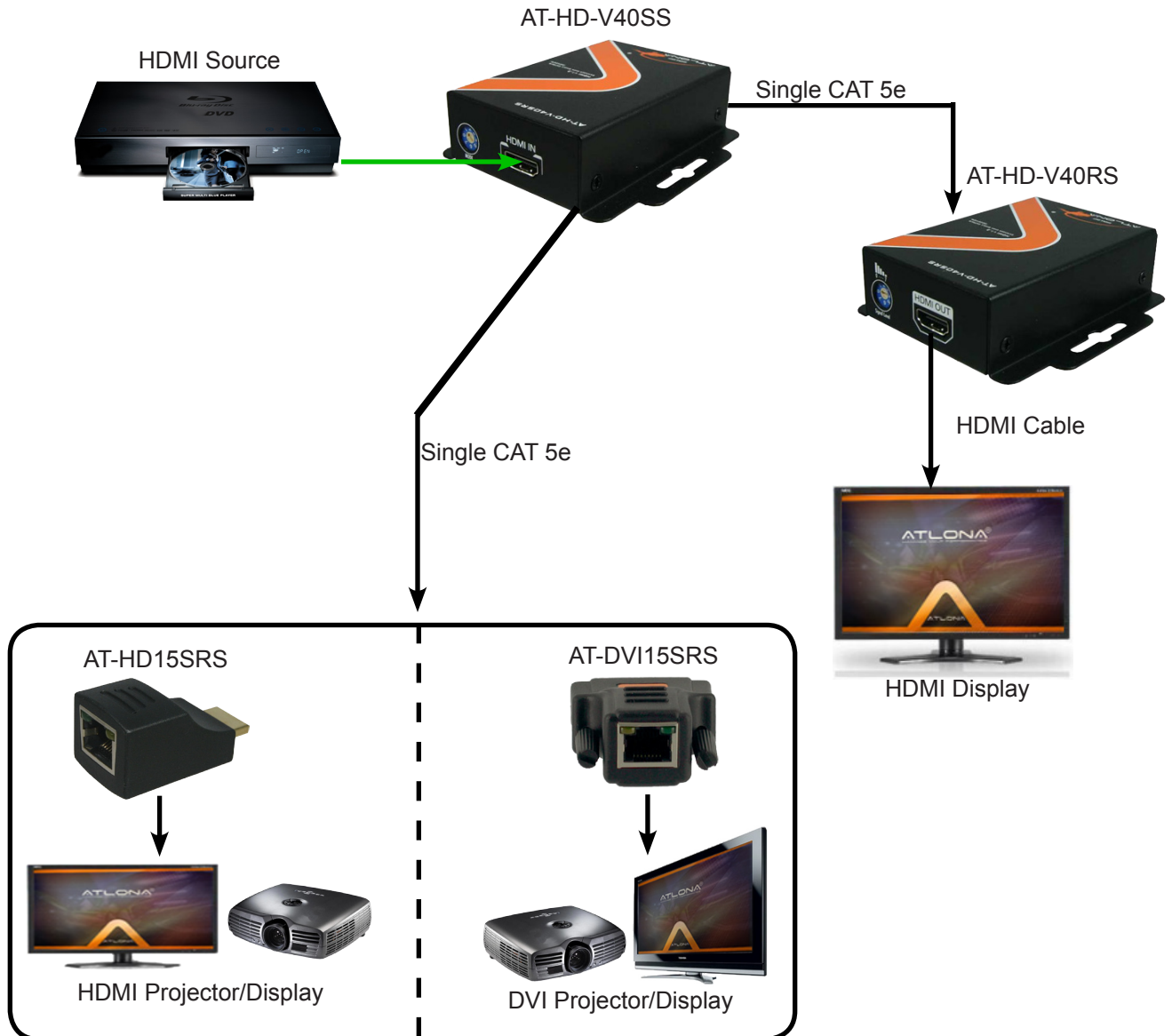
SPECIFICATIONS

Technical		AT-HD-V40SS	AT-HD-V40RS
Role of usage		Sender	Receiver
HDMI compliance		HDMI 1.3c	
HDCP compliance		Yes	
Video bandwidth		Single-link 225MHz [6.75Gbps]	
Video support		480i / 480p / 720p / 1080i / 1080p60	
HDMI transmission over LAN cable [24-bit]		Full HD (1080p)-40m (130ft) [CAT5e] / 50m (165ft) [CAT6] HD (720p/1080i)-50m (165ft) [CAT5e] / 60m (200ft) [CAT6]	
Audio support		Surround sound (up to 7.1ch) or stereo digital audio	
Equalization		8-level digital control at RX	
Input TMDS signal		1.2 Volts [peak-to-peak]	
Input DDC signal		5 Volts [peak-to-peak, TTL]	
ESD protection		[1] Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge] [2] Core chipset — ±8kV	
PCB stack-up		4-layer board [impedance control — differential 100 Ω ; single 50 Ω]	
Input		1x HDMI	1x RJ-45
Output		1x RJ-45	1x HDMI
HDMI source control		No	
IR remote control		N/A	
HDMI connector		Type A [19-pin female]	
RJ-45 connector		WE/SS 8P8C with 2 LED indicator	
3.5mm connector		None	
Rotary control switch		Mode	Signal level
Mechanical			
Housing		Metal case	
Dimensions [L x W x H]	Model [Sender/Receiver]	93 x 60 x 25mm [3.7"x2.4"x1"]	
	Package	270 x 175 x 80mm [10.6" x 6.9" x 3.1"]	
	Carton	450 x 370 x 300mm (1'6" x 1'3" x 11.8")	
Weight	Model	405g [14.2oz]	
	Package	815g [1.8 lbs]	
Fixedness		Wall-mounting case with screws	
Power supply		5V 2A DC	
Power consumption		1 Watt [max]	
Operation temperature		0~40°C [32~104°F]	
Storage temperature		-20~60°C [-4~140°F]	
Relative humidity		20~90% RH [no condensation]	

PACKAGE CONTENTS:

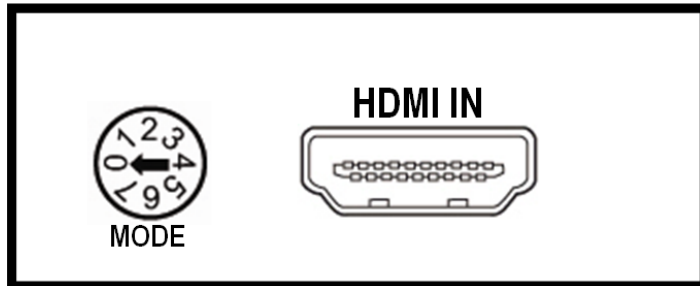
1. 1xAT-HD-V40SRS [Sender/Receiver]
2. 1x 5V power adapter
3. 1x User Manual

CONNECTION DIAGRAM



AT-HD-V40SS

Front Panel



HDMI IN: Connects to an HDMI source with an HDMI Male-Male cable here

MODE: 0 = [Video] – supports up to HDMI 1.3 output. [Audio] – supports up to 7.1ch output

1 = [Video] – supports up to HDMI 1.3 output. [Audio] – locks to stereo audio output

2 = [Video] – locks to HDMI 1.2 output. [Audio] – supports up to 7.1ch output

3 = [Video] – locks to HDMI 1.2 output. [Audio] – locks to stereo audio output

4 = [Video] – DVI display mode. [Audio] – no audio output

5 = [Safe Mode] – uses default EDID1 with video supported up to 720p/1080i

6 = [Default Mode] – uses default EDID2 with video supported up to 1080p

7 = [EDID Learning Mode] – learns EDID3 from the display

Note for EDID (Extended Display Identification Data) learning

1. If you cannot get the audio/video output from the connected display from the first time setup. Please follow the instructions below to check if the extender is OK:

Step 1 – Please set the rotary arrow on Sender at “Mode 5” for Safe Mode, and wait for the LED of the RJ-45 connector blinks for a couple seconds.

Step 2 – Please turn the rotary arrow counterclockwise [↺] from Mode 5 to Mode 3. If you can get audio/video from the display, you can stay tune at this setting for 720p or 1080i and stereo audio. If you need to get 720p/1080i with 7.1ch audio output, please turn the rotary arrow counterclockwise [↺] from Mode 3 to Mode 2. For better audio/video output, please check Note#2. If you still cannot get the audio/video out normally, please go on the next step.

Step 3 – Please turn the rotary arrow counterclockwise [↺] from Mode 3 to Mode 7. Wait a few seconds until the LED of the RJ-45 connector dims and then lights again.

Step 4 – Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 1. You should have normal audio/video output. If not, please contact technical support.

2. For desirable 1080p video output, please follow the instructions below:

Step 1 – Please set the rotary arrow on Sender at “Mode 6” for Default Mode, and wait for the LED of the RJ-45 connector blinks for a couple seconds.

Step 2 – Please turn the rotary arrow clockwise [↻] from Mode 6 to Mode 1. If you can get audio/video from the display, you can stay tune at this setting for 1080p and stereo audio. If you need to get 1080p with 7.1ch audio output, please turn the rotary arrow counterclockwise [↺] from Mode 1 to Mode 0. If you cannot get the audio/video out normally, please go on the next step.

Step 3 – Please turn the rotary arrow counterclockwise [↺] from Mode 0/1 to Mode 7. Wait a few seconds until the LED of the RJ-45 connector dims and then lights again.

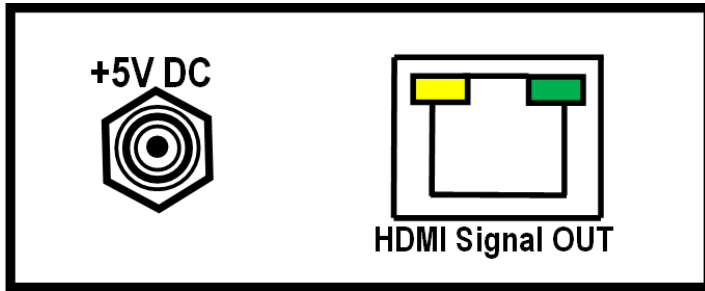
Step 4 – Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 0/1. You should have your desirable audio/video output. If not, please follow the instruction in Note#1.

3. To learn EDID from the HDMI display, please follow the instruction below:

Step 1 – Please connect the display which you want to read EDID with a HDMI cable to the transmitter’s HDMI IN and set the rotary arrow at Mode 7 so the Sender can learn the EDID information from the connected display. The LED on the RJ45 connector of Sender will dim and light again in a few seconds, which indicates the EDID learning procedure is complete.

Step 2 – Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 0 or Mode 1 for desirable audio setting and enjoy the experience. DO NOT let the rotary arrow pass by Mode 5 and Mode 6 which will erase the EDID just learned and restore the default EDID.

Rear Panel

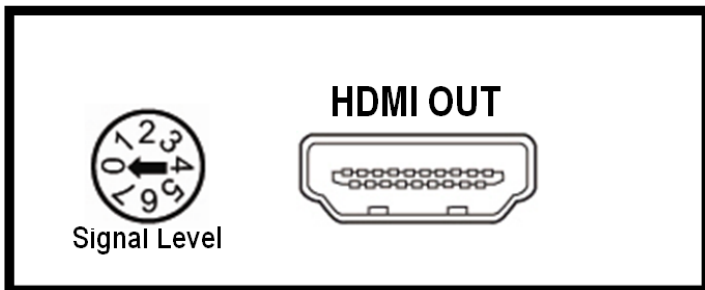


+5V DC: Connect to 5V DC power supply.

HDMI Signal OUT: Plug in a CAT-5/5e/6 LAN cable that needs to be linked to the RJ-45 connector of the receiver unit AT-HD-V40RS.

AT-HD-V40RS

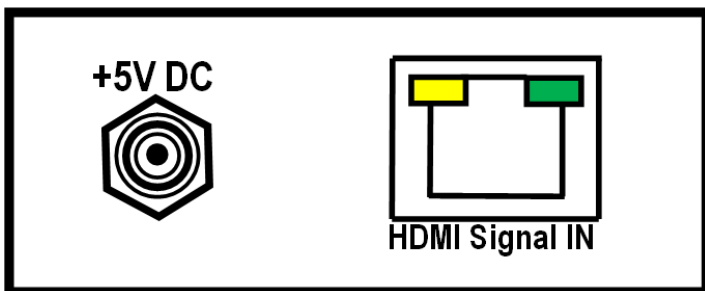
Front Panel



HDMI OUT: Connect to a HDMI display with a HDMI Male-Male cable here.

Signal Level: Adjust the 8-level equalization rotary control switch to the received HDMI signals. 0 – 7 = strongest – weakest. It is recommended to switch from 7 to 0 to find the optimal visual experience.

Rear Panel



HDMI Signal IN: Plug in a CAT-5/5e/6 cable that needs to be linked to the RJ-45 connector of the Sender unit AT-HD-V40SS.

+5V DC: Connect to 5V DC power supply.

HARDWARE INSTALLATION:

1. Connect the HDMI/DVI source (such as a Blu-ray Disc player) to the Sender unit AT-HD-V40SS.
2. Connect the HDMI/DVI display (such as a LCD TV) to the Receiver unit AT-HD-V40RS.
3. Connect a CAT-5/5e/6 LAN cable between the transmitting and receiving units.
4. Make sure this CAT-5/5e/6 LAN cable is tightly connected and not loose.
5. Plug in 5V DC power cord to the power jack of the receiving unit AT-HD-V40RS.
6. Plug in 5V DC power cord to the power jack of the transmitting unit AT-HD-V40SS.
7. If a flickering or a blinking image is seen, try to adjust the rotational switch to improve the cable skew. 0 stands for the strongest HDMI signal level while 7 stands for the weakest. Try adjusting the signal level from 7 to 0 to accommodate the length of HDMI over CAT5 transmission.

EDID LEARNING

1. Turn on AT-HD-V40SS.
2. Turn the Mode of AT-HD-V40SS to 7.
3. Connect the HDMI display to the "HDMI IN" of AT-HD-V40SS with a HDMI cable. The LED on the RJ-45 connector of AT-HD-V40SS will dim and light again, which indicates the EDID learning procedure is complete.
4. Turn the Mode of AT-HD-V40SS clockwise [↻] from 7 to 0 (for surround sound) or 1 (for stereo). The most important thing is don't let the rotary arrow pass through mode 5 and Mode 6 which will erase the EDID just learned and restore to default EDID.
5. Unplug the HDMI cable from the display and follow the instruction in [Hardware Installation] to set up the AT-HD-V40SRS and enjoy the experience.

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m or 1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suit than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid LAN cables are your only choice.
4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, you can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the LAN cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your LAN cables. For resolution greater than 1080i or 1280x1024, a CAT6 cable is recommended.
7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

Performance Guide for HDMI over LAN Cable Transmission

Performance rating		Type of LAN cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	***	****	*****
	Shielded (STP)	***	***	****
Stranded	Unshielded (UTP)	*	**	**
	Shielded (STP)	*	*	**
Termination		Please use EIA/TIA-568-B termination (T568B) at any time		

Safeguards

To reduce the risk of electric shock, do not expose this product to rain or moisture.

If the wall plug does not fit into your local power socket, hire an electrician to replace your obsolete socket.

Do not modify the wall plug. Doing so will void the warranty and safety features.

This equipment should be installed near the socket outlet and the device should be easily accessible in case it requires disconnection.

Precautions

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Operate this product using only the included external power supply. Use of other power supplies could impair performance, damage the product or cause fires.

In the event of an electrostatic discharge, this device may automatically turn off. If this occurs, unplug the device, and plug it back in.

Protect and route power cords so they will not be stepped on or pinched by anything placed on or against them. Be especially careful of plug-ins, or cord exit points from this product.

Avoid excessive humidity, sudden temperature changes or temperature extremes.

Keep this product away from wet locations such as bathtubs, sinks, laundries, wet basements and swimming pools.

Use only accessories recommended by ATLONA to avoid fire, shock or other hazards.

Unplug the product before cleaning. Use a damp cloth for cleaning. Do not use cleaning fluid or aerosols, which could enter the unit and cause damage, fire or electrical shock. Some substances may also mar the finish of the product.

Never open or remove unit panels or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your AT-HD-V40SRS. Opening the product will void the warranty.

Do not attempt to service the unit. Instead disconnect it and contact your Authorized ATLONA reseller or contact ATLONA directly.

1. LIMITED WARRANTY

Atlona Technologies warrants that (a) its products (the “Product”) will perform substantially in accordance with the accompanying written materials for a period of 3 YEARS from the date of receipt and (b) that the Product will be free from defects in materials and workmanship under normal use and service for a period of 3 years. In the event applicable law imposes any implied warranties, the implied warranty period is limited to 3 years from the date of receipt. Some jurisdictions do not allow such limitations on duration of an implied warranty, so the above limitation may not apply to Customer.

2. CUSTOMER REMEDIES

Atlona Technologies and its suppliers’ entire liability and Customer’s exclusive remedy shall be, at Atlona Technologies’ option, either return of the price paid for the Product, or repair or replacement of the Product that does not meet this Limited Warranty and which is returned to Atlona Technologies with a copy of Customer’s receipt. This Limited Warranty is void if failure of the Product has resulted from accident, abuse, or misapplication. Any replacement Product will be warranted for the remainder of the original warranty period or 3 year, whichever is longer.

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