

AV Connectivity, Distribution And Beyond...

VIDEO WALLS VIDEO PROCESSORS VIDEO MATRIX SWITCHES EXTENDERS SPLITTERS WIRELESS CABLES & ACCESSORIES

HDBaseT HDMI CAT5/6/7Extender with IR /RS-232/LAN/ Bi-directional POE





Model #: HBT-C6POE-SET

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Product Application & Market Sectors



Corporate



House Of Worship



Military



Residential



Education



Industrial



Medical



Aviation



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SECTION I: GETTING STARTED

I.I IMPORTANT SAFEGUARDS

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
- Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
- Repair or attempted repair by anyone not authorized by us.
- Any damage of the product due to shipment.
- Removal or installation of the product.
- Causes external to the product, such as electric power fluctuation or failure.
- Use of supplies or parts not meeting our specifications.
- Normal wear and tear.
- Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

I.2 SAFETY INSTRUCTIONS

The HBT-C6POE-SET HDBaseT HDMI CAT5/6/7 Extender set has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the HBT-C6POE-SET should be used with care. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- ⚠️ Do not dismantle the housing or modify the module.
- ▲ Dismantling the housing or modifying the module may result in electrical shock or burn.
- A Refer all servicing to qualified service personnel.
- ▲ Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards
- 🔥 Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- A Have the module checked by a qualified service engineer before using it again.
- 🔥 Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



I.3 REGULATORY NOTICES FEDERAL COMMUNICATIONS COMMISSION (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

Warning symbols	Description
	ONLY USE THE PROVIDED POWER CABLE OR POWER ADAPTER SUPPLIED. DO NOT TAMPER WITH THE ELECTRICAL PARTS. THIS MAY RESULT IN ELECTRICAL SHOCK OR BURN.
	DO NOT TAMPER WITH THE UNIT. DOING SO WILL VOID THE WARRANTY AND CONTINUED USE OF THE PRODUCT.
BEWARE this unit contains static sensitive devices	THE VIDEO BOARDS ARE VERY SENSITIVE TO STATIC. PLEASE ENSURE IF RACK MOUNTED OR INSTALLED ON A SURFACE, IT SHOULD BE IN A GROUNDED ENVIROMENT.



AWARNING

Read & understand user guide before using this device.

Failure to follow the proper installation instructions could result in damage to the product and preventing expected results.



2. INTRODUCTION

The Avenview HBT-C6POE-R HDBaseT Extender set CAT5/6/7 with Bi-Directional POE, IR and Ethernet has been designed to extend High Definition video and multi-channel digital audio formats to any HD Monitor.

Video Signals: 4K2K@30 (Ultra HD), 3D, 8/10/12 Deep Color, and Full HD 1080p@60 Hz/36-bit color depth.

Audio signals: Lossless Multi-channel audio formats (DTS-HD Master Audio, Dolby TrueHD).

Data Signals: Bi-Directional IR signals 30 KHz to 50 KHz over CAT5/6.

The HBT-C6POE-SET includes two (2) units: Sending unit (TX) HBT-C6POE-S and Receiving unit (RX) HBT-C6POE-R with one (1) UTP output port which allows the user to extend video and audio up to 100m (330ft). The HBT-C6POE-SET also allows bi- directional IR control of the source connected to the unit from the users IR remote control at the monitor side.

The bonus features with this device it can be powered by the 24V from the TX PoE (Power over the CATx cable to the RX) also Internet (100Mbps Ethernet service when connected to a Router). These features has been added to this unit to give the installer and user a complete solution with the new trends in online streaming, network connected devices and new demand in Smart TV, Ultra HD monitors and content.

Features:

- Input: HDMI with 3D & 4Kx2K, 1080p,HDCP and DVI compliant
- Video bandwidth: From 300MHz / 9 Gbps
- Pc resolutions: Up to VGA to WUXGA
- HD resolutions: Up to 4Kx2K (3840x2160@30Hz and 4096x2160@24Hz)1080p (1920x1080@60Hz)
- Audio supported: LPCM 7. ICH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio
- Audio transmission: (32-192kHz sample rate)
- Supports: CEC bypass
- Distance: Up to 100 meters through CAT6e/6a/7 cables
- Ethernet transmission: Rate up to 100Mbps
- Uncompressed video: 1080p, 60 Hz, 36-bit
- Service: USB for Manufacturer USE ONLY
- 3D support: Follow by Display / TV's EDID
- 5Play[™] convergence: HDMI, LAN, PoE & Bi Directional Control (IR & RS-232)

NOTE:

- The PoE function is designed for powering compatible Receiver units only.
- The non-PoE Receivers has to be powered with a power supply.
- Receivers (Rx) from different manufactures would not be compatible.
- Displaying HDMI 4Kx2K resolution would require the standard 4Kx2K HDMI cable and display for accurate results.



2.1 PACKAGE CONTENTS

Before you start the installation of the converter, please check the package contents.

I	HBT-C6POE-SET INCLUDES HBT-C6POE-S (TX) HBT-C6POE-R (RX)		
	POWER ADAPTER (24V/1.25A DC)	XI	
	IR EXTENDER	ХI	
2	IR BLASTER	ХI	
	USER'S MANUAL	ХI	<image/> <image/> <image/> <image/> <section-header><section-header><section-header><image/></section-header></section-header></section-header>



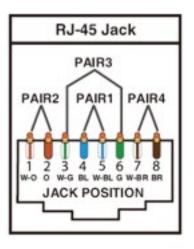
2.2 BEFORE INSTALLATION

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the UTP Cable. It can cause malfunction.

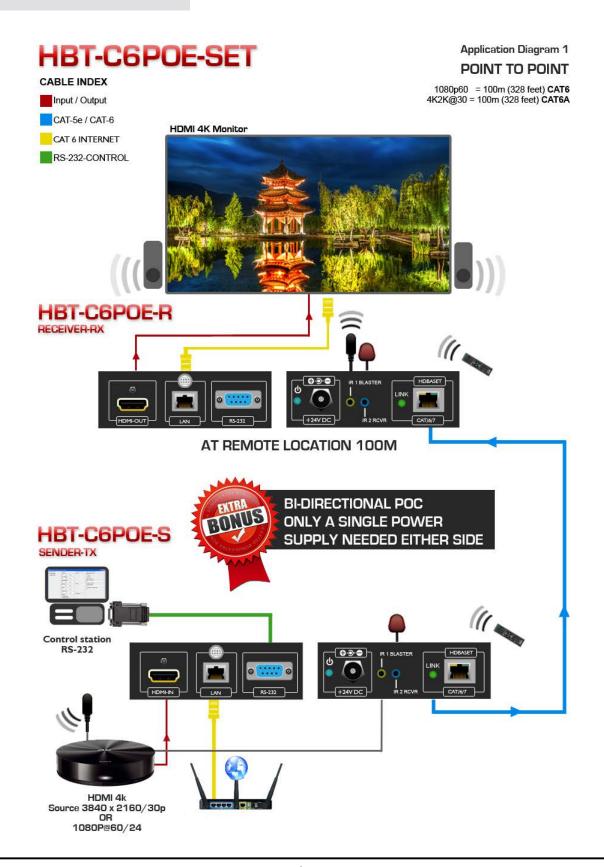
2.3 CABLE SPECIFICATIONS

CABLE TYPE	RANGE	VIDEO DATA RATE	SUPPORTED VIDEO
CAT5e/6/7	100 m	<=5.3 Gbps	Up to 1080p, 60Hz, 36bits, 3D (Data
		(HD Video)	rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	70m	>5.3 Gbps	4K2K, 30Hz
		(Ultra HD Video)	video formats

Data Link TIA/EIA-568-B		
PIN	Color	Function
1	0-W -	ТХ0-
2	0	TX0+
3	0 W-G	TX1-
4	D BL	TX2-
5	W-BL	TX2+
6	🕥 G	TX1+
7	W-BR	TXC-
8	BR BR	TXC+



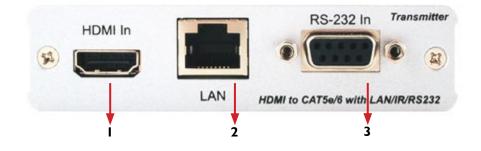






4. PANEL DESCRIPTION

4.1 INPUT PANEL (Transmitter, HBT-C6POE-S) Front



1.	HDMI IN: Connect HDMI source Max 35ft via HDMI Cable Blu-ray player or Digital player	2.	LAN Connect to a router for LAN sharing. This allows network/internet access) to be shared over the CATx to the RX. Warning: DO NOT connect the LAN connection to the CAT5e/6/7 output, this may trigger a power shut down and may damage the device.
3.	RS-232 IN: Connect to a 9-pin male cable)	dev	ice that has the ability to send control commands (PC or laptop via D-Sub

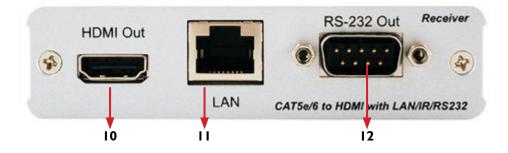
4.2 INPUT PANEL (Transmitter HBT-C6POE-S) Rear



4.	DC 24V: Connect the 24 V DC power supply in- cluded. Secure screw connector.	5.	POWER LED: This blue LED will illuminate when the device is connected to a power supply.
6.	IR I Blaster: Plug the IR Blaster cable for IR signal being transmitted. Place IR Blaster within direct site of the device being controlled.	7.	IR 2 Extender: Plug the IR Extender cable for IR signal being received. Place IR Extender within direct line of site with the IR Remote.
8.	LINK LED: Illuminate when both the input and output signals are in sync. The LED will blink inter- mittently to indicate no signal is being received from the display and irregularly to indicate that an error has occurred.	9.	CAT5e/6/7 OUT: Connect CAT5e/6/7 cable to trans- mit all data signals extend the signal to the Rx unit.

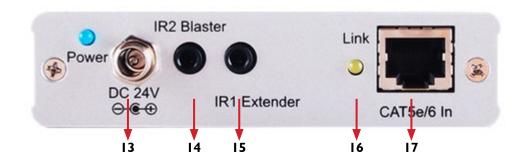


4.3 INPUT PANEL (Receiver, HBT-C6POE-R) Front



 HDMI OUT: Connect to HDMI display Max 35ft via HDMI Cable or cascade with another Avenview type Trans- mitter 	11. LAN OUT: Connect to a LAN equipped device (such as a smart TV or games console) to share the network/internet access. Warning: DO NOT connect the LAN connection to the CAT5e/6/7 output, this may trigger a power shut down and may damage the device.		
12. RS-232 OUT: Connect to a device that has the ability to Receive control commands via RS232 only with compatible Transmitters.			

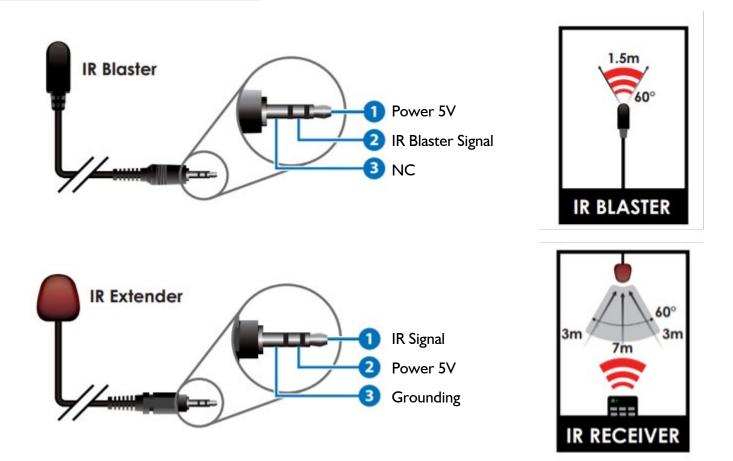
4.4 INPUT PANEL (Receiver HBT-C6POE-R) Rear



 13. DC 24V: Connect the 24 V DC power supply included. Secure screw connector. Note: Only one power supply needs to be connected to activate both transmitter and receiver. 	14. 5. IR I Extender: Plug the IR Extender cable for IR signal being received. Place IR Extender within direct line of site with the IR Remote.
15. 6. IR 2 Blaster: Plug the IR Blaster cable for IR signal being transmitted. Place IR Blaster within direct site of the device being controlled.	16. 7. LINK LED: Illuminate when both the input and output signals are in sync.The LED will blink intermittently to indicate no signal is being received from the display and irregularly to indicate that an error has occurred
17. 8. CAT5e/6/7 IN: Connect CAT5e/6/7 cable to transmit all data signals extend the signal from the TX unit.	



5. IR CABLE DEFINITION



IR Sockets

IR BLASTER: plug in the IR blaster to the HBT-C6POE-R to emit all IR command signals received from the IR Extender plugged into the TX. IRI Blaster on TX receives IR from IRI Extender on RX. IR2 Blaster on RX receives IR from IR2 Extender on TX. to control the devices corresponding to the IR signals. Example: Set Top Box or DVD player (The Source).

IR EXTENDER: plug in the IR Extender into the (RX) Receiver (Monitor Side) to receive all IR command signals from the IR remote controls of the corresponding source.

Example: Set Top Box or DVD player (IR Remote Control).





6. INSTALLATION (HBT-C6POE-SET)

To setup Avenview HBT-C6POE-SET please follow these steps for connecting to a device:

- Turn off all devices including monitors / TV
- Connect to a HDMI source (such as a Blu-Ray Disc player) to the Transmitter HBT-C6POE-S/SP4/8 or Matrix 4x4/8x8
- Connect HBT-C6POE-R 100m with a CAT5/6/7 cable with shielded ends, then connect to display with HDMI cable.
- Plug in Power for the Tx or Rx only one power adapter needed (Bi-directional).
- Plug in the IR BLASTER: into IR out and the blinker on the IR eye (Source)
- Plug in the IR Extender to IR IN to receive IR Signals from Remote
- Power on the HDMI display
- Power on HDMI Sources.

NOTE: The QUALITY and TRANSMISSION of the video signals depends on the characteristics and quality of the UTP cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance.

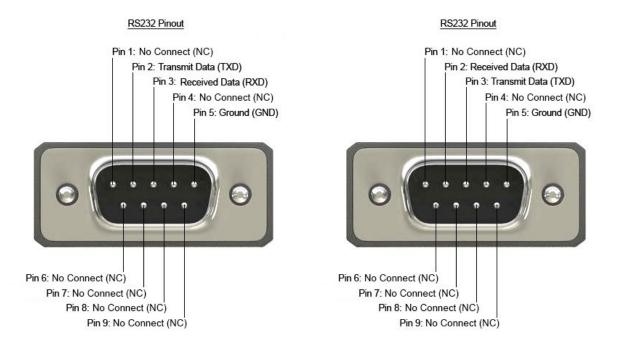
Unshielded CAT6 with metal RJ-45 connectors is recommended.



RS-232 Wiring (Cross Cable Connection)

HBT-C	C6POE-S	
PIN	Assignment	
I	NC	
2	TxD	
3	RxD	
4	NC	→ ←
5	GND	←
6	NC	
7	NC	
8	NC	
9	NC	

	HBT-C6I	POE-R
	PIN	De finition
	l	NC
	2	RxD
	3	TxD
→ ←	4	NC
←	5	GND
	6	NC
	7	NC
	8	NC
	9	NC





7. GENERAL TROUBLESHOOTING

Problem	Possible Solution	
	I. Check if connection to the source and the display are correct.	
	 Ensure that display device supports 480p, 720p and 1080p 4K@30 resolution 	
	3. Terminated to 568B standard with Shielded Ends Recommended	
NO IMAGE	4. High Quality CAT5/6/7 Cable helps signal transmission	
	5. Please use the supplied power supply-DC 24V 1.25A	
	6. Check LED Link light see (Section 4 Panel Description)	
	7. Check LED Sync light see (Section 4 Panel Description)	
	 HDBaseT and HDMI 1.3 standards support CLOCK STRETCHING for i2c buss protocol 	
SET-TOP BOX NO PICTURE	 Example set top boxes like Scientific Atlantic results no picture. This can be resolved by swapping out the box for a newer version that supports HDMI 1.3 not HDMI 1.2 	
	10. Ensure the UTP cable is run within the wall away from EMI and High Voltage power Lines.	
NO INFRARED COMMUNICATION	II. Please check manual of device to ensure proper placement of IR Blaster on IR EYE.	
	12. Some LED /Plasma TV have EMI interference with the IR Extender, please place the IR Rx 3-6" away from Screen	
	Recommended TEST	
END-TO-END TESTING	13. HDBaseT system, a final end-to-end test of all the A/V components should take place. These tests include checking the HDMI stream at the far end (sink end), the clock rate, frame compare, video pattern, audio, EDID and HDCP with Quantum 780 (recommended)	
PASSIVE MONITORING:	14. Passive monitoring enables an integrator to view the HDCP transactions, EDID exchange, as well as the connection events between the actual devices in the network.	





8. SPECIFICATIONS

ltem	Description			
UNITS	HBT-C6POE-S	HBT-C6POE-R		
UNIT DESCRIPTION	HDBaseT HDMI Transmitter	HDBaseT HDMI Receiver		
HDCP	YES			
ETHERNET SPEED	I 00Mbps			
VIDEO BANDWIDTH	Single-link 300MHz [9Gbps]			
SUPPORTED RESOLUTIONS	480i~1080p@50/60, 1080p@24, 3D 4K@30 Up to Ultra HD (3840x2160@24/25/30Hz)			
CEC SUPPORT	ALLOWS CEC BYPASS			
CAT5/6/7 CABLE	4K2K: (3840X2160@30Hz) ~ 70meter (229feet) (CAT6e) FULL HD: (1080p) ~ 100meter (330feet) (CAT6e/6A)			
AUDIO SUPPORT	LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio			
HDMI IN CABLE M/M	15m/1080p@8-bit or 6m/1080p@12-bit			
HDMI OUT CABLE M/M	15m/1080p@8-bit or 10m/1080p@12-bit			
ESD PROTECTION	Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)			
INPUT	Ix 3.5mm IR Extender Ix RS-232 Ix LAN port Ix HDMI	I x CAT5e/6/7 I x 3.5mm IR Extender		
Ουτρυτ	Ix CAT5e/6/7 Ix 3.5mm IR Blaster	Ix 3.5mm IR Blaster Ix RS-232 Ix LAN port Ix HDMI		
HDMI CONNECTOR	Type A (19 pin female)			
LED	YELLOW/BLUE LED			
IR FREQUENCY	30~50kHz			
DIMENSIONS (L X W X H)	4" x 4.4" x 1"	4" x 4.4" x 1"		
	102 mm (L)×113 mm (W)×25 mm (H)	102 mm (L)×113 mm (W)×25 mm (H)		
WEIGHT	252g /0.5lbs	252g /0.5lbs		
POWER SUPPLY	24V / 1.25A DC (US/EU standards, CE/FCC/UL certified)	POE (Powered from Transmitter)		
POWER CONSUMPTION	I 3 Watt (max)			
Environmental				
OPERATING TEMPERATURE	32° ~ 104°F (0° to 40°C)			
STORAGE TEMPERATURE	-4° ~ I40°F (-20° ~ 60°C)			
RELATIVE HUMIDITY	20~90% RH (no condensation)			



NOTICE

- I. All HDMI over CAT5 transmission distances are measured using Belden CAT6A (625MHz), 4-Pair, U/UTP-Unshielded, Riser-CMR, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, Polyolefin Insulation, Patented Double-H spline, Ripcord, PVC Jacket using Quantum 980 signal HDMI Video Generator Module Video Pattern Testing.
- The transmission length is largely affected by the type of category cables, also the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m or 1000ft bulk cable) can transmit a lot longer signals than stranded UTP cables (usually in the form of patch cords). Shielded STP connectors are better suit than unshielded UTP connectors. A solid UTP CAT5e cable
 shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid cables are your only choice.
- 3. EIA/TIA-568-B termination (T568B) for category cables is recommended for better performance.
- 4. To reduce the interference among the unshielded twisted pairs of wires in category cable, you can use shielded STP cables with shielded connector to improve EMI problems, which occurs in long transmission.
- 5. Because the quality of the category 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 category cables. For resolution greater than 1080i or 1280x1024, a solid CAT6 cable is the only viable choice.

PERFORMANCE GUIDE FOR HDMI OVER CATEGORY CABLE TRANSMISSION

PERFORMANCE RATING		TYPE OF CATEGORY CABLE		
WIRING	SHIELDING	CAT5e	CAT6	CAT6A /7
SOLID	UNSHIELDED (UTP)	****	****	****
	SHIELDED (STP)	***	****	****
STRANDED	UNSHIELDED (UTP)	*	**	**
	SHIELDED (STP)	**	*	**
TERMINATION		PLEASE USE EIA/TIA-568-B TERMINATION (T568B) AT ANY TIME		



Notes









Control Your Video

TECHNICAL SUPPORT



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