

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

# HDBaseT HDMI CAT5/6/7 Repeater with IR /RS-232/LAN/ POE up to 300m



















Model #: HBT-C6POE-EX

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# **Product Application & Market Sectors**



Corporate



House Of Worship



Military



Residential



Education



Industrial



Medical



Aviation



## **TABLE OF CONTENTS**

١.	GETTING STARTED
1.1	IMPORTANT SAFEGUARDS
1.2	SAFETY INSTRUCTIONS
1.3	REGULATORY NOTICES FEDERAL COMMUNICATIONS COMMISSION (FCC)
2.	INTRODUCTION
2.1	PACKAGE CONTENTS
2.2	BEFORE INSTALLATION
2.3	CABLE SPECIFICATIONS
3.	APPLICATION DIGRAM
4.	PANEL DESCRIPTION
	4.1 INPUT PANEL (HBT-C6POE-EX) Front
	4.2 INPUT PANEL (HBT-C6POE-EX) Rear
5.	IR CABLE DEFINITION8
6.	INSTALLATION (HBT-C6POE-EXwith HBT-C6POE-SET)
7.	GENERAL TROUBLESHOOTING
8.	SPECIFICATIONSI



#### 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.

# 1.2 SAFETY INSTRUCTIONS

The HBT-C6POE-EX HDBaseT HDMI CAT5/6/7 Repeater 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-EX 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.
- A 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.
- ⚠ 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.



# 1.3 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



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.

**Description** 



DO NOT TAMPER WITH THE UNIT. DOING SO WILL VOID THE WARRANTY AND CONTINUED USE OF THE PRODUCT.



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.





#### 2. INTRODUCTION

Avenview HBT-C6POE-EX HDBaseT $^{\text{TM}}$  Repeater simply allows HDBaseT systems to be both extended and cascaded. Supports the highest quality of uncompressed HD video up to  $4K \times 2K$  (Ultra HD), also 8 channels of uncompressed multichannel audio. Built in data functions - RS-232 and IR control systems, this unit also supports PoE and Ethernet. HDBaseT  $5Play^{\text{TM}}$  convergence over a single CAT5e/6/7 cable.

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-EX includes one (I) unit: Repeating unit (EX) HBT-C6POE-EX with one (I) UTP output port which allows the user to extend video and audio up an extra 100m (330ft). The HBT-C6POE-EX also allows extends bi- directional IR control of the source connected to the HBT-C6POE-S TX from the users IR remote control at the monitor side. Compatible with HBT-C6POE-SET and HBT-C6PLT-SET

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 extends Internet (100Mbps Ethernet service when connected to a Router at the TX). 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: Extra 100 meters connected with HBT-C6POE-SET through CAT6e/6a/7 cables =200m

(300m with additional Repeater unit) Cascading HDBaseT Matrixes

- 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<sup>™</sup> convergence: HDMI, LAN, PoE & Bi Directional Control (IR & RS-232)

#### NOTE

**Note:** The PoE function is ativated with a powered TX to this repeater so it requires no external power supply connection. When the repeater power supply connection is used, the power from the transmitter unit can be used to power a receiver unit connected to the repeater, but that receiver has to be PoE-enabled and compatible with both the Tx and the repeater.



# 2.1 PACKAGE CONTENTS

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

I	HBT-C6POE-EX	We want to see the second of t
2	POWER ADAPTER (24V/I.25A DC) XI	
3	USER'S MANUAL X I	Willow Malla Willo Productions  Control The York  Control The York  HDBsace T HDPHI CATS/6/7 Repeater with IR //RS-222/LANY POE up to 300m  POE  **POE  ***  ***  ***  ***  ***  *



# 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





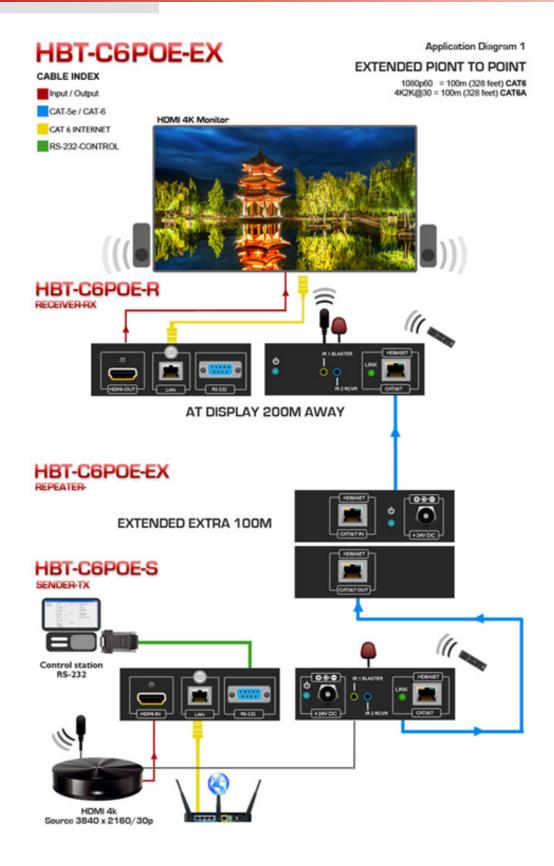
To achieve best results we highly recommend the use of a high quality 26 or 24 AWG HDMI cable with the below specifications to maintain signal integrity and distances when using our SPLIHD42K.

#### **Features**

- Length: 5m (16ft) to 15m (50ft)
- Bandwidth: 10.2 Gbps data transfer rate
- Supports Resolution: Up to 3840x2160 @ 24Hz and 4096x2160 @ 24Hz, 1080p @ 24Hz / 50/60Hz/3D
- Conductor gauge: 26 / 24 AWG
- Deep Color
- 3D Capable
- CEC
- Ethernet Channel
- Audio Return Channel
- Connector I: HDMI (Type A) Male
- Connector 2: HDMI (Type A) Male



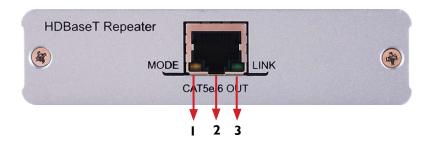
# 3. APPLICATION DIGRAM





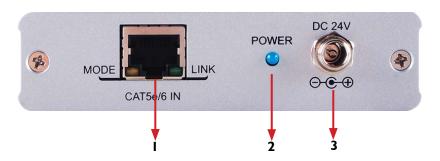
# 4. PANEL DESCRIPTION

# 4.1 INPUT PANEL (HBT-C6POE-EX) Front



- MODE LED: Yellow LED will flash when the unit is powered or when an active receiver is connected
- 2. **CAT5e/6 OUT:** Connects to the receiver unit with a single CAT5e/6/7 cable (up to 100m)
- 3. **LINK LED:** Green LED will illuminate when output is connected to an active receiver. The LED will flash if there is a problem with the connection.

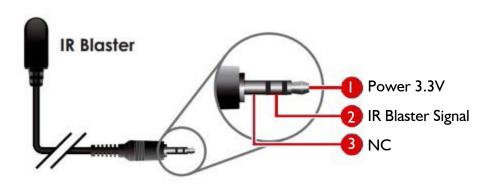
# 4.2 INPUT PANEL (HBT-C6POE-EX) Rear

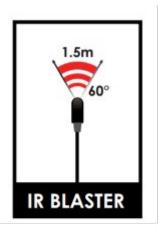


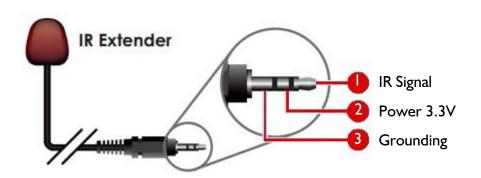
- I. **CAT5e/6 IN:** Connect to the transmitter unit with a single CAT5e/6/7 cable (up to 100m)
- POWER: Connect Power adapter 24V DC included in the package
- 2. **POWER LED:** Blue LED illuminates when the unit is powered by a power supply or a PoE transmitter

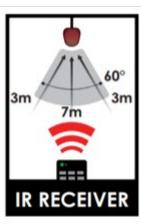


# 5. IR CABLE DEFINITION









#### **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).



NOTE: Incorrect placement of IR Blaster and IR Extender into the extender may result in the failure of the IR extenders.

Please check carefully before plugging in the IR extender to the respective IR sockets.

It is clearly marked and IR I: IR EXTENDER /IR 2: IR BLASTER

WARRANTY WILL NOT COVER THE DAMAGE



# 6. INSTALLATION (HBT-C6POE-EX with HBT-C6POE-SET)

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

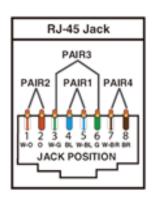
- Turn off all devices including monitors / TV
- Connect to HDMI source (such as a Blu-Ray Disc player) to the Transmitter HBT-C6POE-S/SP4/8 or Matrix 4x4/8x8
- Connect HBT-C6POE-EX with a CAT5/6/7 cable with shielded ends, in between the Tx and Rx.
- The LED will illuminate blue when the unit is powered by a power supply or a PoE transmitter.
- 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.

#### **POWER CONNECTION**

Connect the 24V DC power adaptor into an AC outlet which is included in the package and to the unit.

Note: This device can be powered without the power adaptor when a PoE (Power over Ethernet) enabled active transmitter HBT-C6POE-S is connected to the 'CAT5e/6 IN' port. However, in a cascading scenario when multiple repeaters are in connection, only one single repeater can be powered by PoE while the others require their own power supply connection.

	Data Link TIA/EIA-568-B						
PIN	Color	Function					
1	<b>∞</b>	TX0-					
2	•	TX0+					
3		TX1-					
4	BL	TX2-					
5	<b>€</b> W-BL	TX2+					
6	• G	TX1+					
7	<b>€</b> W-BR	TXC-					
8	● BR	TXC+					



#### **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



# 7. GENERAL TROUBLESHOOTING

PROBLEM	SOLUTION						
	- Check if connection to the source and the display are correct.						
	- Ensure that display device supports 480p, 720p and 1080p 4K@30 resolution						
	- Terminated to 568B standard with Shielded Ends Recommended						
	- High Quality CAT5/6/7 Cable helps signal transmission						
NO IMAGE	- Please use the supplied power supply-DC 24V 2.7A						
	- Check LED Link light see (Section 3 Panel Description)						
	- Check LED Sync light see (Section 3 Panel Description)						
	- EDID MODE-TV: The default factory setting is on TV. The unit will detect the 1st						
	- CAT5e/6/7 output's EDID. When obtained a (4K2K) Ultra HD 3840x2160 EDID the signal is transmitted.						
EDID ISSUE	- If the 1st CAT5e/6/7 output is without a Ultra HD 3840x2160 EDID the unit will detect						
	all output's EDID and Transmit the signal that all outputs can accept.						
	- EDID MODE-STD: Switch to STD to use built-in EDID if the display has No Image. STD						
	- EDID's video at 1080p@60Hz and audio at LPCM 2CH.						
	- HDBaseT and HDMI 1.3 standards support CLOCK STRETCHING for i2c buss						
Set-Top Box No Picture	protocol - 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						
	- Ensure the UTP cable is run within the wall away from EMI and High Voltage power Lines.						
NO INFRARED	- Please check manual of device to ensure proper placement of IR Blaster on IR EYE.						
COMMUNICATION	- 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	- 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 78 (recommended)						
PASSIVE MONITORING:	- 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.						

#### NOTE

Addional info on Guidelines to Test & Troubleshoot HDBaseT Systems Can be retreived from our website under the category Downloads for this product HBT-C6POE-SET



# 8. SPECIFICATIONS

ITEM	DESCRIPTION			
UNITS	HBT-C6POE-EX			
UNIT DESCRIPTION	HDBaseT HDMI Repeater			
HDCP	YES			
ETHERNET SPEED	I00Mbps			
VIDEO BANDWIDTH	Single-link 300MHz [10.2Gbps]			
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)Extra			
CATS/S/F CABLE	FULL HD: (1080p) ~ 100meter (330feet) (CAT6e/6A)Extra			
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)			
ESDINOTECTION	& ±4kV (contact discharge)			
INPUT	Ix CAT5e/6/7			
OUTPUT	Ix CAT5e/6/7			
HDMI CONNECTOR	Type A (19 pin female)			
LED	BLUE LED 30~50kHz			
IR FREQUENCY	30~50kHz			
	4" × 5.7" ×  "			
DIMENSIONS (L X W X H)	102 mm (L)×145 mm (W)×25 mm (H)			
WEIGHT	324g /0.7lbs			
DOWED CLIDDLY	24V / I.25A DC			
POWER SUPPLY	(US/EU standards, CE/FCC/UL certified)			
POWER CONSUMPTION	9 W (PoE) or 16.2 W (Not PoE)			
Environmental				
OPERATING TEMPERATURE	32° ~ 104°F (0° to 40°C)			
STORAGE TEMPERATURE	-4° ~ 140°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.
- 2. 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)	****	****	****
SOLID	SHIELDED (STP)	***	***	***
STRANDED	UNSHIELDED (UTP)	*	**	**
STIVANDED	SHIELDED (STP)	**	*	**
TERMINATION		PLEASE USE <b>EIA/TIA-568-B</b> TERMINATION ( <b>T568B</b> ) AT ANY TIME		



# Inenview Warranty Certificate

AVENVIEW CORP. ("Avenview") warrants Avenview-branded product(s) contained in the original packaging against defects in materials and workmanship when used normally in accordance with Avenview's enclosed manual guidelines for a period of THREE (3) YEARS from the date of original retail purchase - Warranty Period. Avenview's published guidelines include but are not limited to information contained in technical specifications, user manuals and service communications.

LABOR: During the Warranty Period of THREE (3) YEARS, Avenview will repair or replace the product(s) at no cost using new or used parts equivalent to novel performance and reliability if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Labor applicable to product(s) after Warranty Period. For labor costs, please contact support@avenview.com.

PARTS: During the Warranty Period of of THREE (3) YEARS, Avenview will supply new or rebuilt replacements in exchange for defective parts of the product(s) at no cost if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Parts applicable to product(s) after Warranty Period. For part(s) costs, please contact support@avenview.com.

To obtain Warranty: (a) proof of purchase in the form of a bill of sale or receipted invoice reflecting that the registered product(s) is within warranty period must be presented to obtain warranty service; (b) product(s) must be registered at time of purchase. Failure to do so will result in applicable parts and labor charges. Returning product(s) must be shipped in Avenview's original packaging or in packaging pertaining equal degree of protection to Avenview's. Both Avenview and purchaser are responsible for freight charges and brokerages when shipping the product(s) to the receiver.

#### NOT COVERED BY THIS WARRANTY

This warranty does not apply to any non-Avenview branded product(s); non-registered Avenview product(s). This warranty does not apply: (a) to cosmetic damage, including but not limited to scratches, dents and broken cords; (b) to damage caused by use with another product; (c) to damage caused by accident, abuse, misuse, liquid contact; fire, earthquake or other external cause; (d) to damage caused by operating the Avenview product(s) outside Avenview's manuals or guidelines; (e) to damage caused by service performed by anyone who is not a representative of Avenview or an Avenview authorized personnel; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the Avenview product(s), or (g) if any serial number has been removed or defaced from the Avenview product(s).

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Some states do not allow the inclusion or limitation of incidental or consequential damages, or allow limitations on duration implements of the Warranty Period; therefore the above limitations or exclusions may not be applicable to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.



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