

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

4X4 HDMI HDBASET MATRIX SWITCHER WITH PoE/IR/RS232/Ethernet/4K























Model #: SW-HBT4K-C6-4X4E

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Product Application & Market Sectors



Corporate



House Of Worship



Military



Residential



Education



Industrial



Medical



Aviation



TABLE OF CONTENTS

1.1	IMPORTANT SAFEGUARDS	3
1.2	SAFETY INSTRUCTIONS	3
1.3	REGULATORY NOTICES FEDERAL COMMUNICATIONS COMMISSION (FCC)	4
2.	INTRODUCTION AND FEATURES	5
2.1	PACKAGE CONTENTS	6
2.2	BEFORE INSTALLATION	7
2.2	CABLE SPECIFICATIONS	7
2.3	APPLICATION DIAGRAM	8
3.	PANEL DESCRIPTION	9
	3.I FRONT PANEL (SW-HBT4K-C6-4X4E)	9
	3.2 REAR PANEL (SW-HBT4K-C6-4X4E)	10
4.	IR REMOTE AND CABLE DEFINITION	11
5.	INSTALLATION AND COMPATABLE DEVICES	12
6.	GENERAL TROUBLESHOOTING	13
SECT	TON 7: SPECIFICATIONS	14



SECTION 1: 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 **SW-HBT4K-C6-4X4E** HDBaseT HDMI CAT5/6/7 Matrix Switcher set has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the SW-HBT4K-C6-4X4E 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.
- 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.



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.



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

Avenview **4K 4x4 HDBaseT HDMI Matrix Switcher over CAT5e**/6/7 supports the transmission of video and multi-channel digital audio along with IR, RS-232 and LAN (Internet). This matrix can be controlled via Telnet or Web GUI to setup 4 HD sources to any eight single CAT5e/6/7outputs (up to 100m) to any of the eight screens to be displayed.

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

Audio signals: LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio

Data Signals: Bi-Directional IR signals 30 KHz to 50 KHz over CAT5/6. LAN up to 100Mbps

The SW-HBT-4K-4x4E includes one (I) unit: Transmitter unit with eight (4) UTP output ports which allows the user to extend all signals up 100m (330ft). Compatible with receivers HBT-C6POE-R and HBT-C6PLT-R

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

- 1. INPUT: HDMI with 3D & 4Kx2K (UHD), 1080p, HDCP and DVI compliant
- 2. VIDEO BANDWIDTH: From 340 MHz/10.2 GBs
- 3. PC RESOLUTIONS: Up to VGA to WUXGA
- 4. HD RESOLUTIONS: Up to 4Kx2K (3840x2160@30Hz and 4096x2160@24Hz)1080p (1920x1080@60Hz) AUDIO SUPPORTED: LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio AUDIO TRANSMISSION: (32-192kHz sample rate)
- 5. SUPPORTS: CEC bypass
- 6. **DISTANCE**: Extra 100 meters connected with HBT-C6POE-SET through CAT6e/6a/7 cables = 200m (300m with additional Repeater unit) Cascading HDBaseT Matrixes
- 7. ETHERNET TRANSMISSION: Rate up to 100Mbps
- 8. UNCOMPRESSED VIDEO: 1080p, 60 Hz, 36-bit
- 9. SERVICE: USB for Manufacturer USE ONLY
- 10. 3D SUPPORT: Follow by Display / TV's EDID
- 11. 5Play™ convergence: HDMI, LAN, PoE & Bi Directional Control

NOTE:

Receivers (Rx) from different manufactures and non HDBaseT would not be compatible.

Displaying HDMI 4Kx2K resolution would require the standard 4Kx2K HDMI cable and display for accurate results. Do not connect CAT inputs/outputs of this device to a POE network switch. Doing so may damage the unit. Only connect LAN port to a network.



2.1 PACKAGE CONTENTS

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

I	Ix SW-HBT4K-C6-4X4E	troat can
2	IR EXTENDER	
3	IR BLASTER	
4	IR REMOTE	
5	I x Power Adapter (24V/3.75A DC)	
6	Power Cord	
7	I x Right and Left Ear Rack Sets	
8	User's Manual	WE TO ANNUAL PROGRAMMENT AND ANNUAL PROGRAMME



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 and supplied with the unit. If improper power supply is used the unit may malfunction and cause a fire.
- Do not twist or pull by force ends of the UTP cable. It can cause malfunction.

2.2 CABLE SPECIFICATIONS





To achieve best results with our SW-HBT4K-C6-4X4E we highly recommend a premium quality 26 or 24 AWG HDMI cable with the below specifications to maintain signal integrity and distances.

FEATURES:

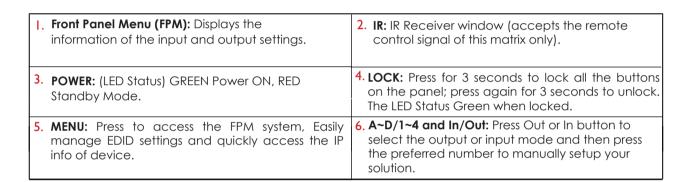
- Length: 5m (16ft) to 15m (50ft)
- Bandwidth: 10.2 Gbps data transfer rate
- Supports Resolution: Up to 3840x2160 @ 24Hz and 4096x2160 @ 24Hz, 1080p @ 24Hz / 50/60Hz/3D
- Conductor gauge: 26 / 24 AWG
- Deep Color
- 3D Capable
- CEC
- Ethernet Channel
- Audio Return Channel
- Connector I: HDMI (Type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





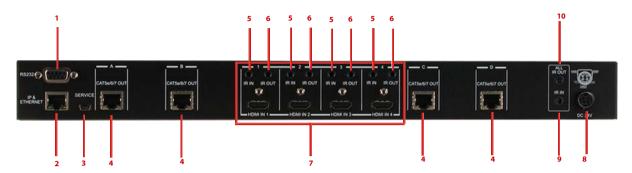
3.1 FRONT PANEL (SW-HBT4K-C6-4X4E)







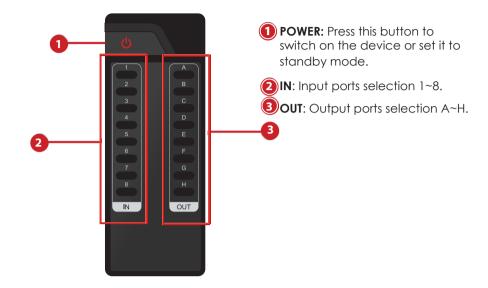
3.2 REAR PANEL (SW-HBT4K-C6-4X4E)

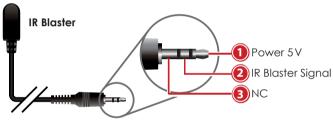


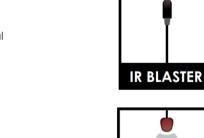
I. RS-232: Connect to PC or control system with D-Sub 9-pin cable for the transmission of RS-232 commands.	LAN: Connect to active network for LAN serving and Telnet and Web GUI control (refer to Control Codes Guide).
3. SERVICE: Manufacturer use only.	4. CAT5e/6/7 OUT I~8: Connect from these CAT outputs to the CAT input port of the receiver units with a single CAT5e/6/7 cable for HDMI Audio/Video and IR/RS-232 control signal transmission.
5. IR IN 1~4: Connect to IR extenders for IR signal reception.	6. IR OUT I ~4: Connect to IR blasters for IR signal transmission.
7. HDMI IN I~4: Connect to HDMI input source.	8. DC 24V MAIN POWER: Plug the 24 V DC power supply into the unit.
 ALL IR IN: Connect to IR extender for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR extender for it will send out the signal to all receiver's IR OUT. 	10.ALL IR OUT: Connect to IR blaster for IR signal transmission to source side. Place the IR blaster in direct line-of-sight of the equipment to be controlled for it will blaster out all signal received from the IR IN at the receiver sides.

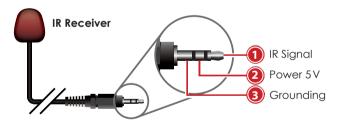


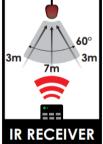
REMOTE CONTROL











1.5m

IR Sockets

- **IR BLASTER:** plug in the IR blaster to the SW-HBT4K-C6-4X4E to emit all IR command signals received from the IR Extender plugged into the Rx (Monitor Side) 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).



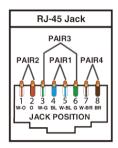


NOTE: Incorrect placement of IR Blaster and IR Extender into the extender may result in the failure of the IR extenders.

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

Data Link TIA/EIA-568-B			
PIN	Color	or Function	
1	◎ W-O	TX0-	
2	0	TX0+	
3	₩-G	TX1-	
4	BL	TX2-	
5	◎ W-BL	TX2+	
6	9 G	TX1+	
7	◎ 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/upto 300m) for best performance.



Unshielded CAT6 with metal RJ-45 connectors is recommended.

5. INSTALLATION (SW-HBT4K-C6-4X4E)

To setup Avenview SW-HBT4K-C6-4X4E please follow these steps for connecting to a device:

- 1. Turn off all devices including monitors / TV
- 2. Connect to a HDMI source (4K or 1080p) (such as a Blu-Ray Disc player) to the matrix unit.
- 2. Connect a compatable receiver with CAT5/6/7 cable with shielded ends and HDMI out to monitor
- 3. Connect HBT-C6POE-EX to extend upto 300m with a CAT5/6/7 cable with shielded ends,
- 4. Plug in dual Power to supply the Rx with PoE
- 5. Plug in the IR BLASTER: into IR out and the blinker on the IR eye (Source)
- 6. Plug in the IR Extender to IR IN to receive IR Signals from Remote (Monitor end)
- 7. Power on the HDMI display
- 8. Power on HDMI Sources.

COMPATABLE DEVICES



HBT-C6PLT-R Up to 60 meters



HBT-C6POE-RUp to 100 meters



HBT-C6POE-EXUp to 300 meters



PROBLEM	SOLUTION			
NO IMAGE	 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 Please use the supplied power supply-DC 24V/6.25A DC Check LED Link light see (Section 3 Panel Description) Check LED Sync light see (Section 3 Panel Description) 			
EDID ISSUE	 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. 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. 			
Set-Top Box No Picture	 HDBaseT and HDMI 1.3 standards support CLOCK STRETCHING for i2c buss 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 			
NO Infrared Communication	 Ensure the UTP cable is run within the wall away from EMI and High Voltage power Lines. Please check manual of device to ensure proper placement of IR Blaster on IR EYE. 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 780 (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 SW-HBT4K-C6-4X4E



SECTION 7: SPECIFICATIONS

ITEM	DESCRIPTION		
UNITS	SW-HBT4K-C6-4X4E		
UNIT DESCRIPTION	4K HDBaseT HDMI Matrix Switcher with IR/RS232/POE/4k2k support		
HDCP	YES		
LAN / ETHERNET	I 00Mbps		
VIDEO BANDWIDTH	300 MHz (10.2Gbps)		
SUPPORTED RESOLUTIONS	480i~1080p@50/60, 1080p@24, 3D 4K@30 Up to Ultra HD (3840x2160@24/25/30Hz) 4K2K-(4096x2160@24Hz)		
· 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		
ESD PROTECTION	Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)		
INPUT	4×HDMI 5x 3.5mm Stereo jack IR Extender Ix 9pin Dsub RS-232 Ix RJ45 IP Control / LAN Serving, Ix USBMini B (for firmware updates)		
OUTPUT	4x RJ45 WE/SS 8P8C with 2 LED indicators 5x 3.5mm Stereo jack IR Emitter		
HDMI CONNECTOR	Type A (19 pin female)		
IR FREQUENCY	30~50kHz		
DIMENSIONS (L X W X H)	9.8" x 17.1" x 1.7" 249 mm (L)×436 mm (W)×44mm (H)		
NET WEIGHT	3352g /7.3lbs		
POWER SUPPLY	24V / 3.75A DC (US/EU standards, CE/FCC/UL certified)		
POWER CONSUMPTION	66 W (PoE)		
ENVIRONMENTAL			
OPERATING TEMPERATURE	32° ~ 104°F (0° to 40°C)		
STORAGE TEMPERATURE	-4° ~ 140°F (-20° ~ 60°C)		
RELATIVE HUMIDITY	20~90% RH (non-condensing)		



NOTICE

- 1. All HDMI over UTP 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)	*	**	**
STRANDED	SHIELDED (STP)	**	*	**
TERMINATION		PLEASE USE EIA/TIA-568-B TERMINATION (T568B) AT ANY TIME		



Hvenview 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 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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