BENESTON ®

USER MANUAL

VHDI-KV005M
HDMI Extender with KVM+USB

Features

● Extending distance is 170ft(50meters) at resolutions 1080P 3Dor 1920x1200 60fps, and 270ft(80 met ers) at 1080i/720P through single CAT5e cable.

● Support audio formats, Dolby True HD, DTS-master, etc.

● Support 3D signals(all 7 formats), include new ones, such as Frame Packing, Side-by-Side,Top- to- Bottom, etc.

● Support EDID.and CEC.

● VESA DDC and hot swap technology (HPD).

● 38Khz remote IR (RX->TX).

● USB HID mouse and keyboard (RX->TX).

● Bi-direction RS232 UART communication.

● Compatible with HDCP 1.2.

● Compatible DVI 1.0.

● Support cascade to enhance extending distance.

● Industrial metal case, easy to install.

User manual

VHDI-KV005M   V00150213-U(1)

Preface

Thanks for purchasing our HDMI USB KVM extender. Before using this product, read this user manual carefully please. Follow the instruction to keep your safety and avoid products damage. This user manual might be modified irregularly because of updated products. And the manual is for instruction only, we do not guarantee the information and the suggestions.

1. Cautions

Logo and meaning

⚠ Careful, warning, dangerous, Pay attend to following items.

Cautions

* Do not use this product in the extreme hot, cold, dusty or humid environments.
* Prevent friction with hard objects.
* Avoid the product falling down from a high place, or it may damage the hardware.
* The product is not water proofed. So do not get any liquid into the unit please.
* Do not dismantle, assemble or alter the product arbitrarily.

⚠ Warning

The CAT5e/6 cable can NOT be placed underground, outdoor, and between buildings. It must be placed with extenders indoor.

2. About

Product model and standard

HDMI+USB KVM extender includes transmitter and receiver. Transmitters combine HDMI video, audio and control signals, then transmit them through single CAT5e cable. Receivers get these signals, separate signals and rebuild video, audio and control ones, output through HDMI interfaces. It supports USB HID mouse and keyboard, remote IR (RX->TX) and bi-direction RS232 URAT. This product can achieve all functions through single CAT5e cable. Extending distance is 50 meters for 1080P 60Hz HD signal.

Main features:

● Extending distance is 170ft.(50 meters) at resolutions 1080P 3D or 1920x1200 60fps, and 270ft.(80 meters) at 1080i/720P through single CAT5e cable.

● Support audio formats, Dolby True HD, DTS-master, etc.

● Support 3D signals (all 7 formats), such as Frame Packing, Side-by-Side,Top-to-Bottom, etc.

● Supports EDID call back.

● Supports CEC pass through.

● VESA DDC and hot swap technology (HPD).

● 38Khz remote IR (RX->TX).

● USB HID mouse and keyboard (RX->TX).Bi-direction RS232 UART communication.

● Compatible with HDCP 1.2.

● Compatible DVI 1.0.

● Support cascade to enhance extending distance.

● Industrial metal case, easy to install.

Parameters:

Interface	Transmitters	HDMI input, IR output (3.5mm), RJ45 Ethernet interface, USB output (female)
	Receivers	HDMI output, IR input (3.5mm), RJ45 Ethernet interface, USB input (two male)
Power		<2.5W TX or <1.5W RX
Dimension		(L x W x H): 110 x 80 x 30mm
Net weight		0.2kg per unit
Video bandwidth		Maximum TMDS clock frequency 225MHz，6.75Gbps
Resolution and distance		1080P 170ft (50 meters)-CAT5e/ 270ft (80 meters)-CAT6 720P/1080i 270ft (80 meters)-CAT5e/ 330ft (100 meters)-CAT6
Audio formats		8-channel, support Dolby True HD and DTS Master
TMDS input signal		1.2 volts (point to point)
DDC input signal		5 volts (point to point)
Indicator		Power-green, video link-yellow
HD interface		HDMI 1.3 standard (HDMI 1.4 3D function), HDCP 1.2, support CEC, EDID
UART data rate		Support 4800bps, 9600bps, 19200bps, 39400bps, 57600bps
Remote IR		38khz
USB interface		USB HID compatible devices, plug & play, no need to install software
Temperature		0 ~ 40°C (operation), -20~60°C(stock)
Compliance		FCC, CE, RoHS

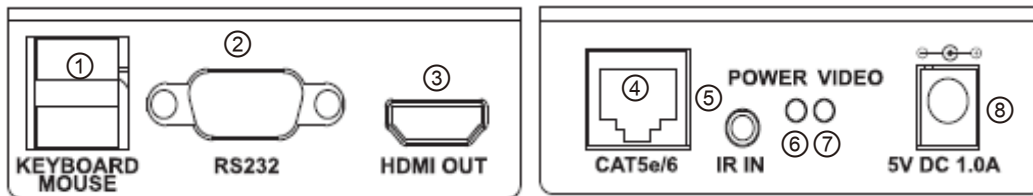## Product introduction

Transmitter：
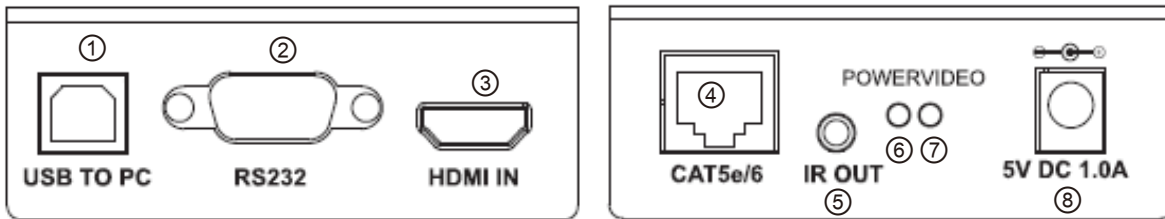
① USB type-B, connect to PC

② RS232 DB9 interface

③ HDMI input

④ CAT5e/6 cable RJ45 port

⑤ Remote IR output

⑥ Power indicator

⑦ Video link indicator

⑧ 5V DC input

Receiver：

① USB type-A, connect to mouse & keyboard

② RS232 DB9 interface

③ HDMI output

④ CAT5e/6 cable RJ45 port

⑤ Remote IR input

⑥ Power indicator

⑦ Video link indicator

⑧ 5V DC input

Packing list

● 1 * transmitter, 1 * receiver.

● 1 * remote IR blaster (with 1m cable), 1 * IR receiver (with 1m cable).

● 4 * type-L metal brackets, used for install on walls.

● 2 * DC 5V 1A adapter.

● 1 * USB type-A to type-B cable

● 223*180*50mm / carton packing.

3. Installation

### Installation details and cautions

* Before installation

a) Prepare place for installing system. The transmitter should be close to video sources, and the receiver should be close to display terminals. The HDMI cables should be both less than 1.5 meters.

b) Basing on real request, make CAT5e/6 cables for connecting the transmitter and the receiver. The length can NOT be more than distance of parameters.

c) CAT5e/6 cables should be far away from electromagnetic disturbance sources. Such as AC motors, electro soldering, fluorescents, microwave ovens, etc. These disturbance sources might affect extending distance or video quality.

d) Ensure the length of cable is suitable, no external tensions. e) Ensure reliable AC plug base.

* Typical installation instruction

Connect the PC and HD monitors to extend video, mouse and keyboard:
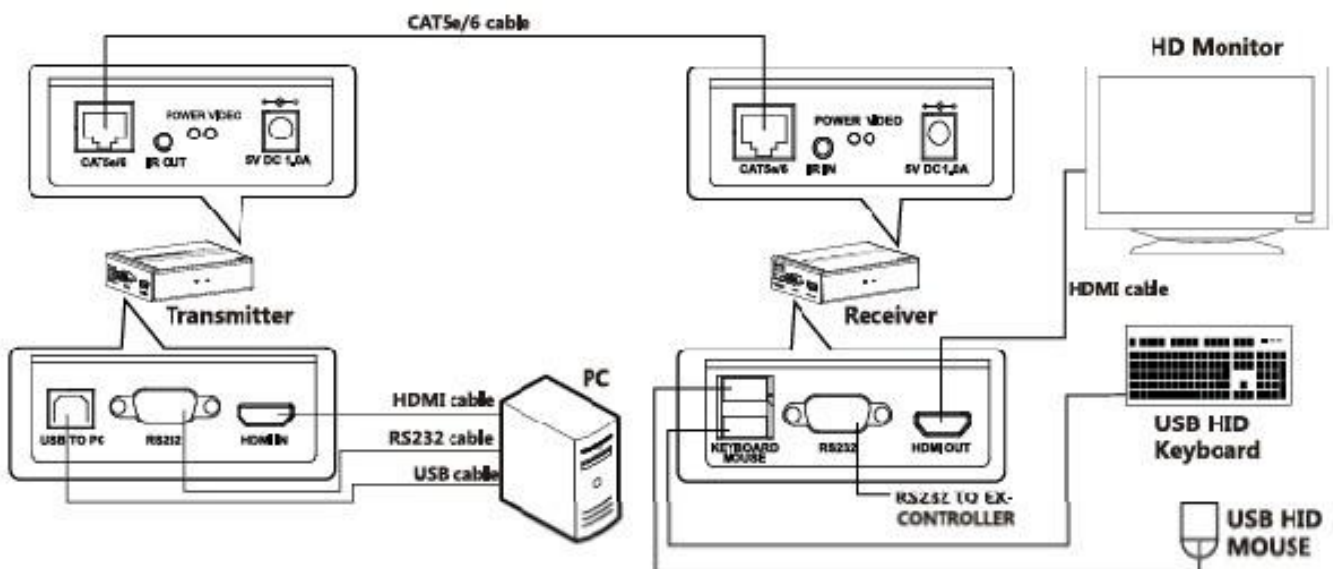
Connect a player and a HDTV:
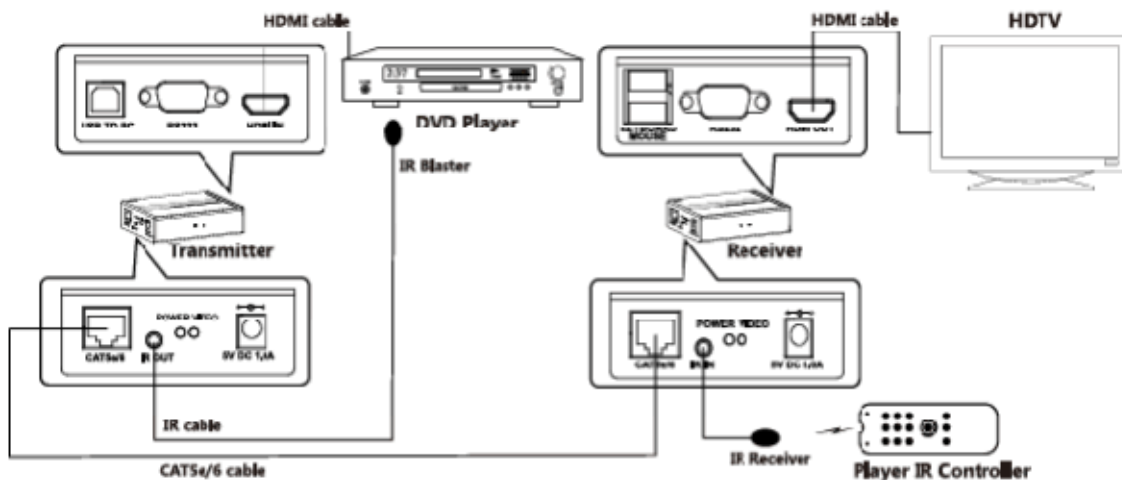
Transmitter side connection

a) Connect your PC or Player and HDMI IN port of transmitter with HDMI cable (HDMI cables are not included in this product).

b) Connect PC and transmitter using USB type-A to type-B cable.Type-A port connects PC, type-B port connects transmitter. Using standard RS232 cable connects PC or other equipment to transmitters DB9 port.

c) Inset IR blaster cable to extender TX IR OUT port. IR blaster should be close to your player or other controlled equipment.

d) Inset CAT5e/6 cable to CAT5e/6 port.

e) Connect power adapter.

Receiver side connection

a) Connect your HDTV and HDMI OUT port of receiver with HDMI cable (HDMI cables are not included in this product).

b) Connect mouse and keyboard to receiver USB ports separately.

c) Using standard RS232 cable connects external equipment to receiver DB9 port.

d) Inset IR receiving cable to extender RX IR IN port. IR receiver should be face outside for easy operation.

e) Inset CAT5e/6 cable to CAT5e/6 port.

f) Connect power adapter.

Install products on walls or frames

There are type-L metal brackets. It is easy to fix transmitters or receivers on walls.

a) Fix two metal hangers with screws.

b) Makes holes with hand drill on walls, place rubber keeper into the holes. For frame installation, no need for this step.

c) Fix products on walls or frames with screws.

4. Operation instruction

Getting started

After finishing all steps above, system is workable, follow below steps.

a) Ensure the video source and the display terminals are power on.

b) Ensure all input, output cables are connects.

c) Inset TX and RX power adapters into power plug bases. d) Green power indicator will light.

e) It takes about 2~3 seconds to finish EDID and other initialization automatically.

f) Transmitter video indicator will light; it means input video signal is OK. Then receiver video indicator will light, it means output video signal is OK.

g) At this time, display terminal will show the same format video that video source send out.
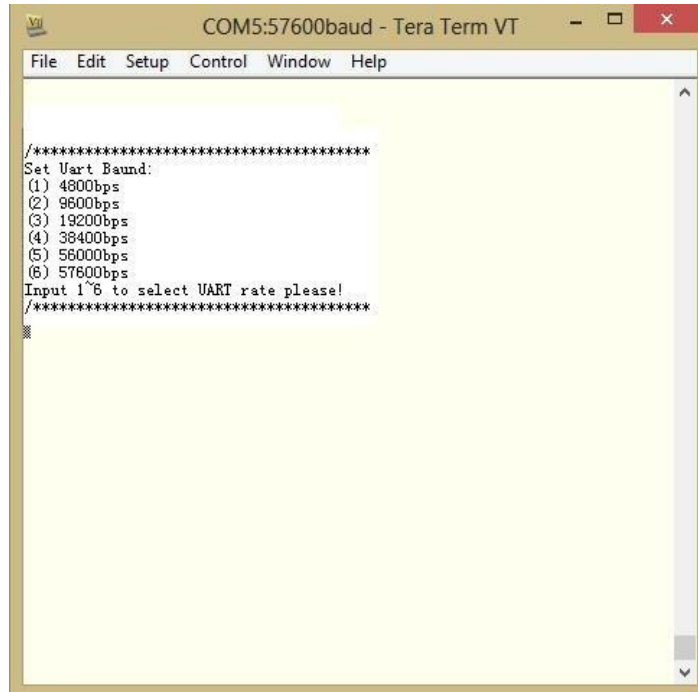
Remote IR function

Using video source's (such as Blue-ray DVD) IR controller faces extender RX side IR receiver. IR signal will be transmitted to extender TX side IR output port, to control video source directly.

Bi-direction RS232 function

Bi-direction RS232 Baud rate configuration

Refer to user manual, HDMI USB KVM Cat5e/6 Extender Model A and C support bi-direction RS232 communication, and the default data rate is set to 57600bps. In case of avoiding some potential misconfigured user data input.
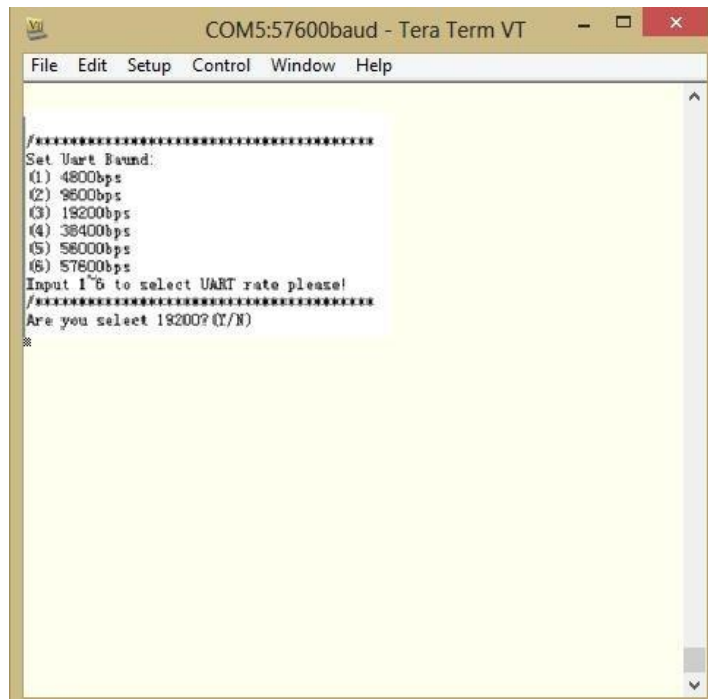
a) Power on RX unit, you will find similar output at your serial port debug software as below screenshot.

b) Select the data rate you want to set. Select (1-6) to set the different baud rate and the system will stop 5 second to wait for your input, like below figure (select '3', and the system baud rate will be 19200bps).
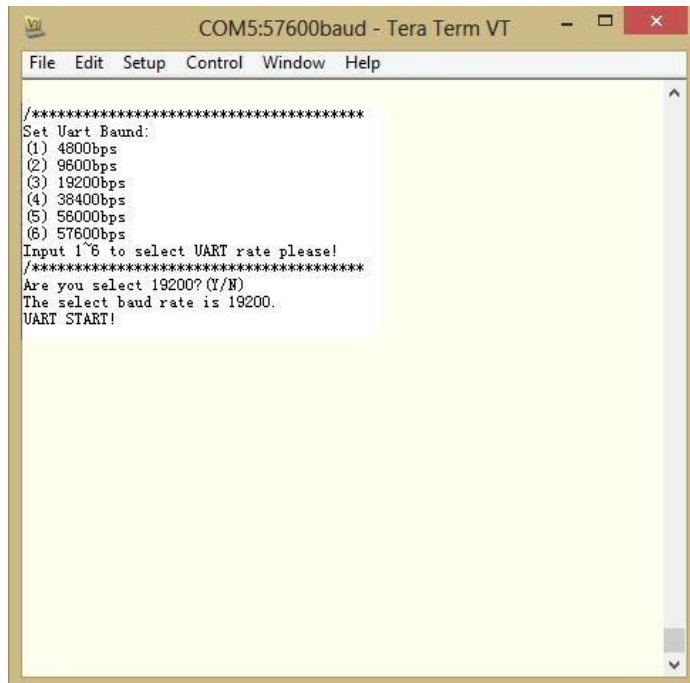
c) After you send out (1-6), and the system will print a prompt of "Are you select **?(Y/N)", and you have 5 seconds time the select yes or no. According your input, the system will go on with below 3 possibilities:

  1) If you input 'Y' or 'y', that means you confirm the current 1-6 selection, and system will execute new baud rate right now. And the window will print "The select baud rate is ***", like below screenshot.

  2) If you input 'N' or 'n'，the system will reload the 'Set Uart Baud' menu.

  3) If input any other symbols, the system will automatically execute the old baud rate before last power off.

d) The system will print 'UART START' 5 seconds later, that means bi-direction RS232 is ready for the normal status. Then you need set your DTU or PC UART baud rate according new selection.

e) No need to set baud rate on TX side. TX will get baud rate information from RX when system is working.

USB HID mouse and keyboard function pass back function

The device supports USB HID mouse and keyboard pass back function. To use this function, PC system must be Windows XP or upper version. In Windows system, USB HID devices are plug and play, no need drivers. Transmitter unit has USB type-B connector, receiver unit has two USB type-A connectors, one is for mouse, and the other one is for keyboard. When extender system is installed, if receiver side mouse and keyboard can control transmitter side PC, it means mouse and keyboard function is workable.

EDID call back function

Products support EDID call back function. Receiver unit will read EDID from display terminal, and then pass this EDID information to transmitter unit. The transmitter unit will update internal NVRAM to save new EDID information, and inform video source to read updated EDID information. This function is automatic, no need to setup by customers. This function is to keep maximum compatibility.

CEC pass through function

Products support CEC pass through function. When the system is powered on, CEC pass through is built automatically.

How to make Cat5e/6 cable

Products request normal CAT5e or CAT6 Ethernet cables, which must meet standard-TIA/EIA-568B, refer to below pin definition.
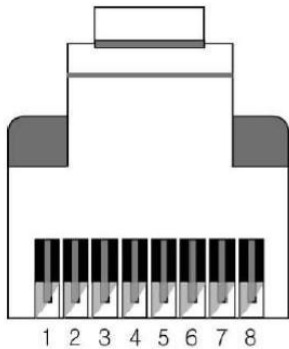
Pin	TIA/EIA−568B Wire color
1	Orange/ White
2	Orange
3	Green/ White
4	Blue
5	Blue/ White
6	Green
7	Brown/ White
8	Brown
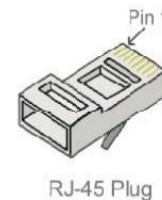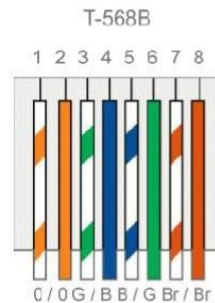
5. Maintenance

Normal problems

a) No output on display terminals

Check transmitter and receiver power first. And then check if transmitter unit video indicator is light. If it is not, check video source please. If it is, check receiver unit video indicator. If receiver video indicator is not light, check CAT5e/6 cable please. If length of cable is longer than maximum distance, the system is not workable. Refer to manual parameters segment to get more details of distance. If receiver video indicator is light, check HDMI cable and display terminal please.

b) Remote IR is not workable

Check transmitter and receiver power fist. Ensure both TX and RX power and video indicators are light. And then check CAT5e/6 cable please. Check if IR blaster unit connects to extender receiver unit, and close to display terminals. And check if remote controller faces to IR receiver.

c) USB mouse and keyboard are not workable

Check transmitter and receiver power first. Ensure both TX and RX power and video indicators are light. Check if CAT5e/6 cable length is longer than maximum distance. Refer to manual parameters segment to get more details of distance. USB mouse and keyboard is workable before connecting to this system. And check if USB mouse and keyboard are Windows compatible HID devices.

d) RS232 function is not workable

Check transmitter and receiver power first. Ensure both TX and RX power and video indicators are light. Check if CAT5e/6 cable length is longer than maximum distance. Refer to manual parameters segment to get more details of distance. Check if choosing the right RS232 port, transmitter and receiver must work at the same data rate. Refer to manual bi-direction RS232 function to get more details.

e) USB TO PC cable hot-plug issue

When you do USB TO PC cable hot-plug, there have a known possibility that PC will lose USB mouse and Keyboard enumeration in current software version. It is possible that mouse and keyboard function can recover with more USB TO PC cable hot-plugs, but the more reliable solution is to repower TX or RX units. This issue will be fixed in next software version.