HDMI (HDBaseT) CAT5 Extender Series

ITEM NO.: HE23U 4K2K 60Hz HDMI (HDBaseT) CAT5e Extender with USB/IR/RS232

HE23U HDMI CAT5 Extender is using only one cost effective CAT.5e/6 cable to extend your UHD display up to 100 meters at 4K2K 60Hz. With USB, Bi-directional RS232 and IR function to delivers significant value to the entire home and commercial entertainment system.

HE23U 4K2K 60Hz HDMI (HDBaseT) CAT5e Extender with USB/ IR/RS232

Features:
- Extends HDMI, USB,RS232 and IR signal over one CAT5e/6 cable.
- HDBaseT 2.0, HDCP 2.2 & DVI Compliant.
- **Uncompressed high definition video up to 4K2K@60hz (YCbCr 4:2:0).**
- Audio supports up to LPCM 7.1 @ 192KHz, Dolby TrueHD, DTS-HD MA
- Transmission range up to 100 meters at 4K2K resolution.
- Bi-directional IR, support 30-60khz.
- Bi-Directional RS232.
- USB support USB 2.0 and USB 1.0 and 1.1.
- Perfect for 4K2K touch panel application.

Installation view:

Cable:

Link cable recommend use high quality CAT.5e、CAT.6、CAT.6a、CAT.7 UTP / STP or FTP cable.

Poor quality cable or network connection or improper construction will cause unstable connection, video or sound disruptions, picture noise appears.

HDBaseT Distance chart by different cable:

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video
CAT5e	100M	<=225Mhz	<=5.3Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bpp (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	90M	>225Mhz	>5.3Gbps (Ultra HD Video)	1080p 60 Hz 48 bpp, 1080p 60 Hz 3D, 4K2K/30Hz/4:4:4 and 4K2K/60Hz/4:2:0 video formats
CAT5e/CAT6a/CAT7	100M			

If connection through the wall socket, the cable length must less 100 meters between HDMI extender and wall jack, as below drawing:
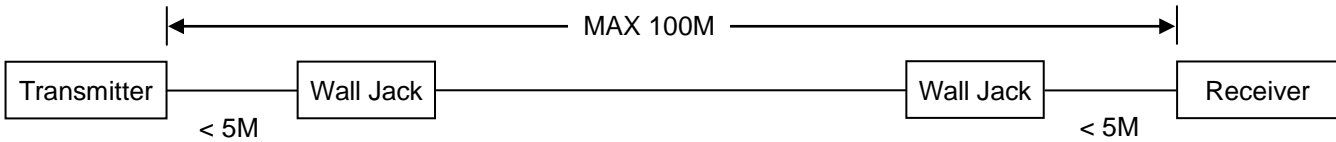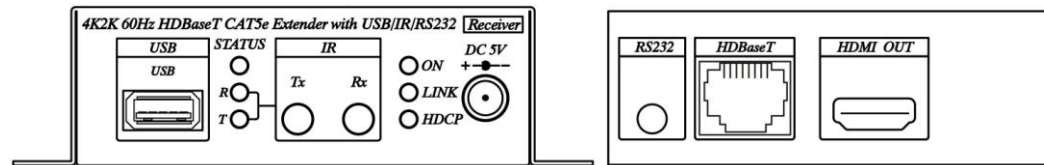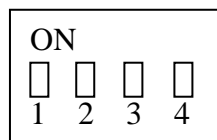

Panel view:

HE23UT
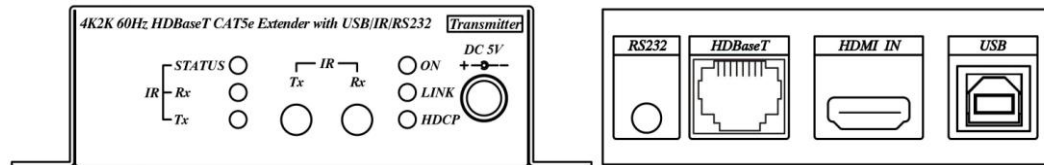
HE23UR

LED Instruction:

Color	Status	HE23UT	HE23UR
GREEN	ON	ON: Power on	
BLUE	LINK	ON: HDBaseT Linking	
RED	HDCP	OFF: HDMI unlink, ON: HDCP enable , Flash: HDCP disable	

Color	Status	HE23UT	HE23UR
GREEN	STATUS	ON: IR Polarity Reverse (third party IR system)	
BLUE	IR RX	ON: Receiving IR signal	
RED	IR TX	ON: Sending IR signal	

Switch Function:

1. RS232   ON : Firmware Update   ,OFF : RS232 Extension
2. LINK MODE   ON : Low Power   ,OFF : Long Reach
3. IR MODE   ON : Polarity Reverse   ,OFF : Default
4. IR RX TYPE   ON : Pinout Exchange   ,OFF : Default

Remark: IR mode and IR RX type is for 3rd Party IR system which use different polarity and pinout, please check with your IR system supplier.

RS232 Define:

DB9(F)/3.5mm STEREO PHONE JACK

DB9(M)/3.5mm STEREO PHONE JACK
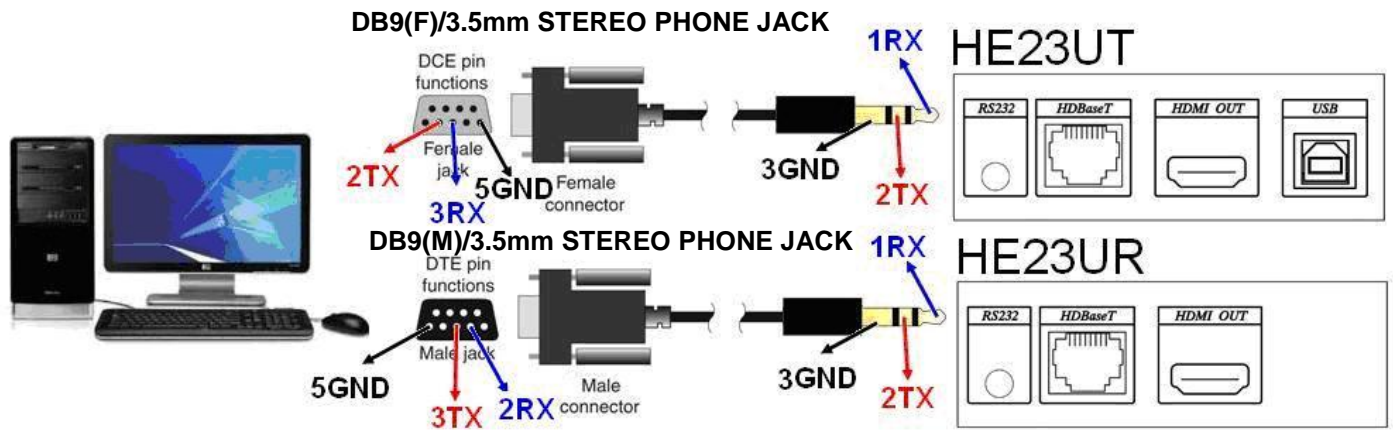
DB9(F)/3.5mm STEREO PHONE JACK

RS232		3.5 mm Phone Jack	
Footprint	Define	Footprint	Define
Pin 2	TX	Pin 1	RX
Pin 3	RX	Pin 2	TX
Pin 5	GND	Pin 3	GND

DB9(M)/3.5mm STEREO PHONE JACK

RS232		3.5 mm Phone Jack	
Footprint	Define	Footprint	Define
Pin 2	RX	Pin 1	RX
Pin 3	TX	Pin 2	TX
Pin 5	GND	Pin 3	GND

RJ45 Define:

Video Link (TIA/EIA-568-B)
1. **Orange-white**   **DATA0 +**
2. **Orange**   **DATA0 -**
3. **Green-white**   **DATA1 +**
4. **Blue**   **DATA2 +**
5. **Blue-white**   **DATA2 -**
6. **Green**   **DATA1 -**
7. **Brown-white**   **DATA3 +**
8. **Brown**   **DATA3 -**

Caution:

1. The wiring must away from any equipment with electromagnetic wave, i.e.: mobile phone, microwave, radio equipment, fluorescent lamp, high voltage power lines.
2. The cable must pull in straight to avoid any crosstalk interference and the transmission stability.
3. This device HDBaseT port is not general Ethernet signal; do not connect with Network devices to avoid damage.
4. IR transmitter do not put near from receiver to avoid mutual interference.

Package Include:
HE23UT HDM Transmitter x 1 pcs
HE23UR HDMI Receiver x 1 pcs
IR Blaster Cable x 1 pcs
IR Receiver Cable x 1 pcs
USB A/B cable x 1 pcs
DB9 (M)/3.5mm STEREO PHONE JACK x 1
DB9 (F)/3.5mm STEREO PHONE JACK x 1
Mounting Screw pack x 2 bags
DC5V 2Amp Power Adapter x 2 pcs

Specification:

ITEM NO.	HE23UT	HE23UR
HDMI Connector	HDMI Type A x 1	
HDMI Video Support	1080p @ 60Hz @ 48bits、3D、4K x 2K(YCbCr 4:2:0)	
HDMI Audio Support	Up to 7.1 LPCM 192KHz / Dolby TrueHD / DTS-HD MA	
HDBaseT Connector	RJ45 x 1	
HDBaseT Distance	100M	
RS-232 Interface	DB9(F)/3.5mm STEREO PHONE JACK	DB9(M)/3.5mm STEREO PHONE JACK
RS-232 Baud Rate	115200 bps / full duplex	
IR Input/Output	3.5mm Phone Jack x 2	
IR Carrier Frequency/Angle/Distance	20~60KHz / T：± 10° / R：± 55° / 5M /Bi-directional	
USB input/output	USB Type B x 1	USB　Type A x 1
Power Consumption	800mA	1200mA
Power Adapter	DC 5V 2A	
Temperature	Operation: -10 to 45℃, Storage: -30 TO 75℃, Humidity: up to 95%	
Dimensions mm	109.6 x 109.5 x 30	
Weight　　　g	280	

RoHS CE FC C

Rev. A