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XTENDEX® Series

ST-C6USB4K-HDBT

4K HDMI Extender over HDBase-T with USB and RS232

Installation and Operation Manual

TRADEMARK

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CHANGES

The material in this guide is for information only and is subject to change without notice. Network Technologies Inc reserves the right to make changes in the product design without reservation and without notification to its users.

Note: CATx connection cable used between NTI XTENDEX Series Local and Remote or any XTENDEX Series products should not be run underground, outdoors or between buildings.

WARNING: Outdoor or underground runs of CATX cable could be dangerous and will void the warranty.

WARNING: The CATx connection cable used between NTI XTENDEX Series Local and Remote or any XTENDEX Series products must be wired straight through (pin 1 to pin 1, pin 2 to pin 2, etc.) The use of a CROSSOVER CABLE will damage the extender and void your warranty.

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INTRODUCTION

The XTENDEX® 4K HDMI Extender over HDBase-T with USB and RS232 transmits uncompressed digital 4Kx2K HDMI signal, USB and RS232 up to 328 feet over a single CAT6/7 cable using HDBase-T technology. Each extender consists of a local unit that connects to a computer and a remote unit that connects to a UHD HDMI display and USB 2.0 device.

Features

- Transmits an uncompressed high speed HDMI signal over one CAT6/7 cable.
- Supports Ultra-HD 4Kx2K resolutions to 3840x2160, 2K resolution 2048x1080, HDTV resolutions to 1080p, and up to 1920x1200 (WUXGA).
- HDMI features supported:
  - x.v.Color, sYCC601 color, Adobe RGB Color and Adobe YCC601 color
  - Dolby TrueHD, DTS-HD Master Audio, Dolby Digital, and DTS
  - Bandwidth up to 340 MHz (10.2 Gbps).
  - Support for CEC (consumer electronic control) compatible devices.
  - 3D
  - Lip Sync
- HDCP compliant.
- Supports the DDC2B protocol.
- USB 2.0 port for keyboard, mouse, flash drive, HDD, or touchscreen display.
  - Compliant with USB 2.0 (low/full/high speed) standards.
  - Use a USB hub to extend multiple USB devices.
- Supports full-duplex RS232 up to 115200 baud.
- Compact size.
- Optional mounting bracket for easy surface/wall mounting.

HDBT Features

HDBT Feature	Support
ARC	NO
Video & Audio	YES
LAN	NO
IR	NO
RS232	YES
Send power to Tx	NO
Send power to Rx	NO
USB	YES

MATERIALS

Materials supplied with this kit:

- NTI Transmitter and Receiver
- 2 x 100-240VAC, 50 or 60Hz-5VDC/2A AC Adapter
- 3-Pin wire terminal connector for RS232
- URL Slip with path to this manual

Materials *Not* supplied but *REQUIRED:*

- Use HD-xx-MM to connect an HDMI source or display.
  - Max HDMI cable length: 30 feet.
- Use CAT6/6a/7 (CATx) straight through cables for TIA/EIA 568B wiring terminated with standard RJ45 connectors.

Cables can be purchased from Network Technologies Inc by calling ***(800) 742-8324*** *(800-RGB-TECH) in the US and Canada or* ***(330) 562-7070*** *(worldwide).*

Hardware Requirements

- DVD player, Blu-Ray player,media receiver, or any PC with HDMI output ports
- HDMI or DVI display device.

Note: If using a DVI-only display device, the video source must also be DVI.

PREPARATION FOR INSTALLATION

- Locations should be chosen for the monitors, mice, and keyboards that also have space to connect the Remote and Local Units within the distance provided by the cables. If extension cables are needed, contact NTI for the cables required.

- The CAT6/6a/7 cable must be run to the locations where the Remote and Local Units will be connected. Be careful to route the cable away from any sources of magnetic fields or electrical interference that might reduce the quality of the video signal (i.e. AC motors, welding equipment, etc.).

- All cables should be installed in such a way that they do not cause stress on their connections to the equipment. Extended lengths of cable hanging from a connection may interfere with the quality of that connection. Secure cables as needed to minimize this.

- Properly shut down and disconnect the power from the CPU and monitors to be separated. If other equipment is involved whose connections are being interrupted, be sure to refer to the instruction manuals for that equipment for proper disconnection and re-connection procedures before proceeding.

Note: CATX connection cable used between NTI XTENDEX Series Local and Remote or any XTENDEX Series products should not be run underground, outdoors or between buildings.

WARNING: Outdoor or underground runs of CATx cable could be dangerous and will void the warranty.

WARNING: Never connect the XTENDEX to an Ethernet card, Ethernet router, hub or switch or other Ethernet RJ45 connector of an Ethernet device. Damage to devices connected to the Ethernet may result.

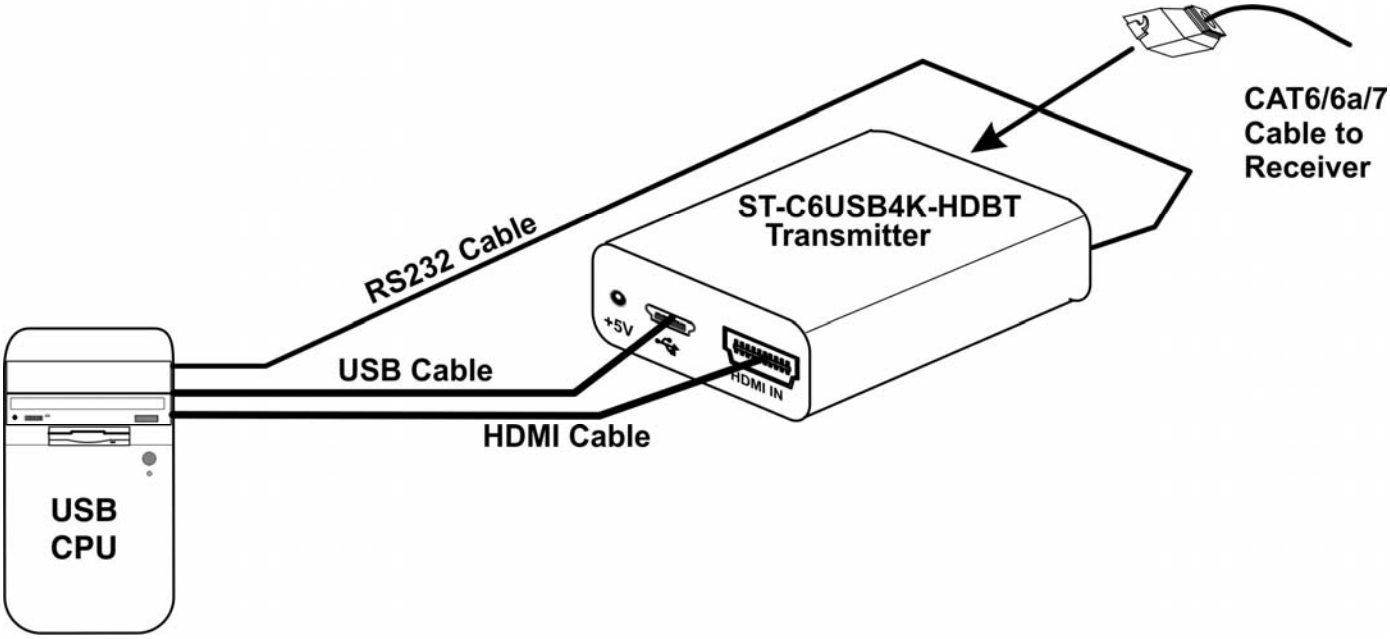
INSTALLATION

1. Connect a CAT6/6a/7 cable between the "HDBT OUT" on the Transmitter and the "HDBT IN" on the Receiver.

2. Connect the Transmitter to the video source with either a HDMI to HDMI cable, or HDMI to DVI (DVI video source) cable.

3. If USB devices are being extended, connect a USB cable with USB Male Type B Mini to the Transmitter and USB Type A male connector to the PC.

4. If an RS232 device is being extended, connect a 3-wire RS232 cable between the DB9 connection on the PC and the 3-wire connector on the Transmitter.

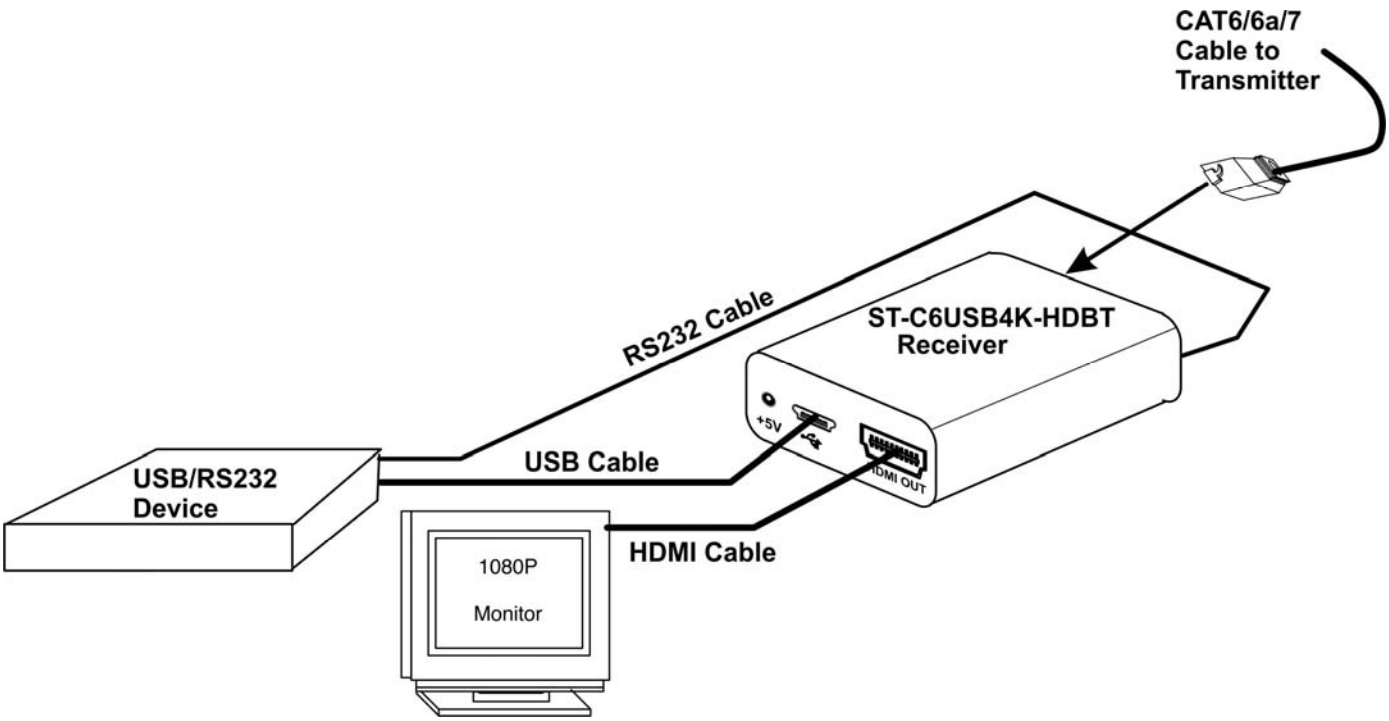


5. Connect the Receiver to the extended display device with either a HDMI to HDMI cable, or HDMI to DVI cable (required if you have a DVI video source).

Note: If your display device is DVI only, the video source must also be DVI.

6. If USB devices are being extended, connect a USB cable with USB Male Type B Mini to the Receiver and USB Type B male connector to the USB Device.

7. If an RS232 device is being extended, connect a 3-wire RS232 cable between the DB9 connection on the RS232 device and the 3-wire connector on the Receiver. See RS232 Cable Pinout on next page.



Power ON

Connect the 5V 2A AC Adapters to the Transmitter and Receiver. Three LEDs will provide status information.

- Blue LED (below power jack) - Illuminates when power is applied
- Green LED (on RJ45- Illuminates when connection is made between Transmitter and Receiver
- Yellow LED (on RJ45) - Illuminates when Transmitter and Receiver are transferring data

RS232 Cable Pinout

If an RS232 Cable is used, the following connections need to be made;

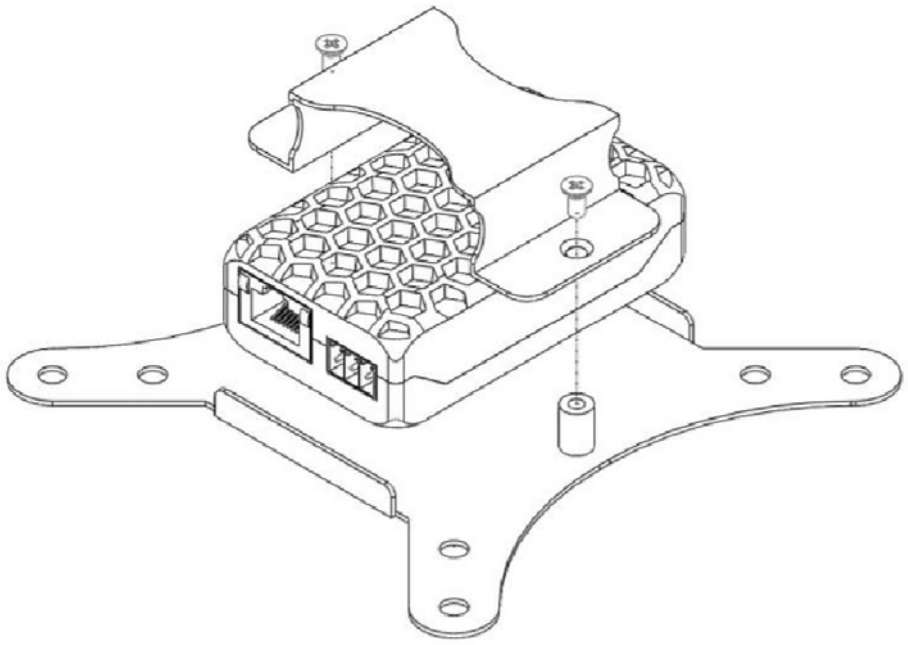
DB9F Pins (Connect at PC (DTE))	Transmitter Terminal Block	Signal
3	T	TxD Out
2	R	RxD In
5	G	Gnd

DB9M Pins (Connect to device (DCE))	Receiver Terminal Block	Signal
3	T	TxD In
2	R	RxD Out
5	G	Gnd

VESA Mounting Bracket

A VESA Mounting Bracket is available (NTI PN: MK-STC6USB4KHDBT) in the event installation is being made to the back of a flat panel monitor. The steps for mounting the Transmitter or Receiver to the bracket are as follows:

1. Place the Transmitter/Receiver on the bottom bracket.
2. Line up the holes between the top bracket and the bottom bracket.
3. Install the flat-head countersink screws to secure the top bracket to the bottom bracket.
4. Mount the assembly to your display.



MK-STC6USB4KHDBT Bracket Installation

INTERCONNECTION CABLE WIRING METHOD

The connection cable between the remote and local is terminated with RJ45 connectors and must be wired according to the EIA/TIA 568 B industry standard. Wiring is as per the table and drawing below.

Pin	Wire Color	Pair	Function
1	White/Orange	2	T
2	Orange	2	R
3	White/Green	3	T
4	Blue	1	R
5	White/Blue	1	T
6	Green	3	R
7	White/Brown	4	T
8	Brown	4	R

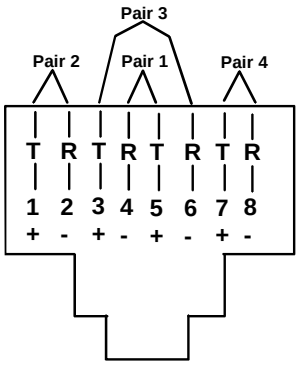


Figure 1- View looking into RJ45 female

Distances and Resolutions

Cable	Distance	Maximum Resolution
CAT6 / 6a / 7	328 feet (100 meters)	3840x2160 at 60Hz, 4:2:0 3840x2160 at 30Hz, 4:4:4

TROUBLESHOOTING

Display has a black screen	• Make sure power is connected (blue LED is ON) • Make sure all cables are firmly connected at the transmitter, receiver, and the devices • Make sure video source and display are powered ON and fully booted • Power cycle the Transmitter and Receiver after cable connections have been checked
Screen is distorted or displays noise	• Check to make sure resolution is within the specified limitations • Power cycle the entire system • Power down, disconnect and reconnect all cables, and power back ON.

TECHNICAL SPECIFICATIONS

Transmitter	
Compatibility	USB computer (PC, SUN and MAC) with Ultra-HD HDMI output Windows 2000/XP/Vista/7/8/10, Windows Server 2000/2003/2008/2012, Solaris, Linux, FreeBSD, and MAC OS 9/10.
Connectors	• One female HDMI connector. • One female USB Type B Mini connector. • 3-pin screw terminal for RS232. • One female RJ45 port for sending/receiving UHD video, audio, USB, RS232 and DDC signals.
Receiver	
Connectors	• One female HDMI connector for display. • One female USB Type Mini B connector for connecting USB keyboard, mouse, flash drive, HDD, or touchscreen display. o Use a USB hub to extend multiple USB devices. • 3-pin screw terminal for RS232. o Support full-duplex RS232 up to 115200 baud.
Resolutions supported	• Ultra-HD 4Kx2K resolutions: o 3840x2160 at 60Hz, 4:2:0 o 3840x2160 at 30Hz, 4:4:4 • 2K Cinema (2048x1080 at 60Hz) • HDTV resolutions to 1080p • Up to 1920x1200 (WUXGA)
Audio Support	Supports embedded digital audio through HDMI compatible TVs or audio receivers.
General	
Dimensions (WxDxH) (In.)	1.73x2.87x0.98 (44x73x25mm)
Power (Local and Remote)	100 to 240 VAC at 50 or 60 Hz; 5VDC,2A via AC adapter. (2x US AC adapter included.)
Operating temperature	32 to 122°F (0 to 50°C).
Storage temperature	-4 to 167°F (-20 to 75°C).
Operating/storage relative humidity	5 to 95% non-condensing RH
Maximum distance	328 feet (100 meters)
Cable type	CAT6/6a/7 cable
Regulatory Approvals	CE, FCC, RoHS, TAA compliant

Note: When routing the CATx cable, be careful not to loop the wire. Loops in the cable tend to cause signal degradation.

WARRANTY INFORMATION

The warranty period on this product (parts and labor) is two (2) years from the date of purchase. Please contact Network Technologies Inc at **(800) 742-8324** (800-RGB-TECH) or **(330) 562-7070** or visit our website at http://www.networktechinc.com for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

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