## XTENDEX® Series

# ST-C6USBDP4K-328
## 4K Display Port USB KVM RS232 Extender
# 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: This device not support MST (Multi Stream Transport) hub function based on DP1.2**

**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.**

**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.**

# TABLE OF CONTENTS

## INTRODUCTION

The XTENDEX® 4K DisplayPort USB KVM Extender transmits uncompressed digital Ultra-HD 4Kx2K 30Hz 4:4:4 DisplayPort signal, transparent USB, and RS232 up to 328 feet over a single CATx cable. Each extender consists of a local unit that connects to a computer, and a remote unit that connects to a UHD DisplayPort display and up to four USB 2.0 devices.

**Features:**

- Transmits an uncompressed high speed DisplayPort signal over one CAT6/6a/7 cable.
- Supports Ultra-HD 4Kx2K resolutions to 3840x2160 and 4096x2160 @30Hz YUV 4:4:4, and HDTV resolutions to 1080p @60Hz and 1920x1200@60Hz.
  - o Extend 4Kx2K up to 328 (100 meters) feet over a CAT6/6a/7 cable.
  - o Extend 1080p and 1920x1200 up to 492 (150 meters) feet over a CAT6/6a/7 cable.
- DisplayPort features supported:
  - o DisplayPort 1.2a
  - o 48-bit Color
  - o RGB, YCbCr 4:4:4
  - o LPCM, Dolby TrueHD, and DTS-HD Master Audio
  - o 3D
  - o Does **NOT** support MST
- HDCP compliant.
- USB 2.0 port supports fully transparent USB connection.
  - o Extend four USB devices such as a keyboard, mouse, game controller, USB flash drive, touch screen monitor, whiteboard, etc.
  - o Compliant with USB 2.0 (low/full/high speed) standards.
- Supports full-duplex RS232 at 115200 baud.
- Integrated mounting brackets for easy surface/wall mounting.

## MATERIALS

**Materials supplied with this kit:**

- Local and Remote Unit
- 1 x 100-240VAC, 50 or 60Hz-5VDC/2A AC Adapter **(For Local Unit)**
- 1 x 100-240VAC, 50 or 60Hz-5VDC/4A AC Adapter **(For Remote Unit)**
- USB Type A Male to USB Type B Male cable
- DB9 Male to 3.5mm cable
- DB9 Female to 3.5mm cable
- Mounting hardware
- URL Slip with path to this manual

**Materials *Not* supplied but *REQUIRED*:**

➢ CAT6/6a solid UTP; CAT7 solid STP (CATx) twisted-pair cables terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see page 6 for proper EIA/TIA 568 B wiring method)
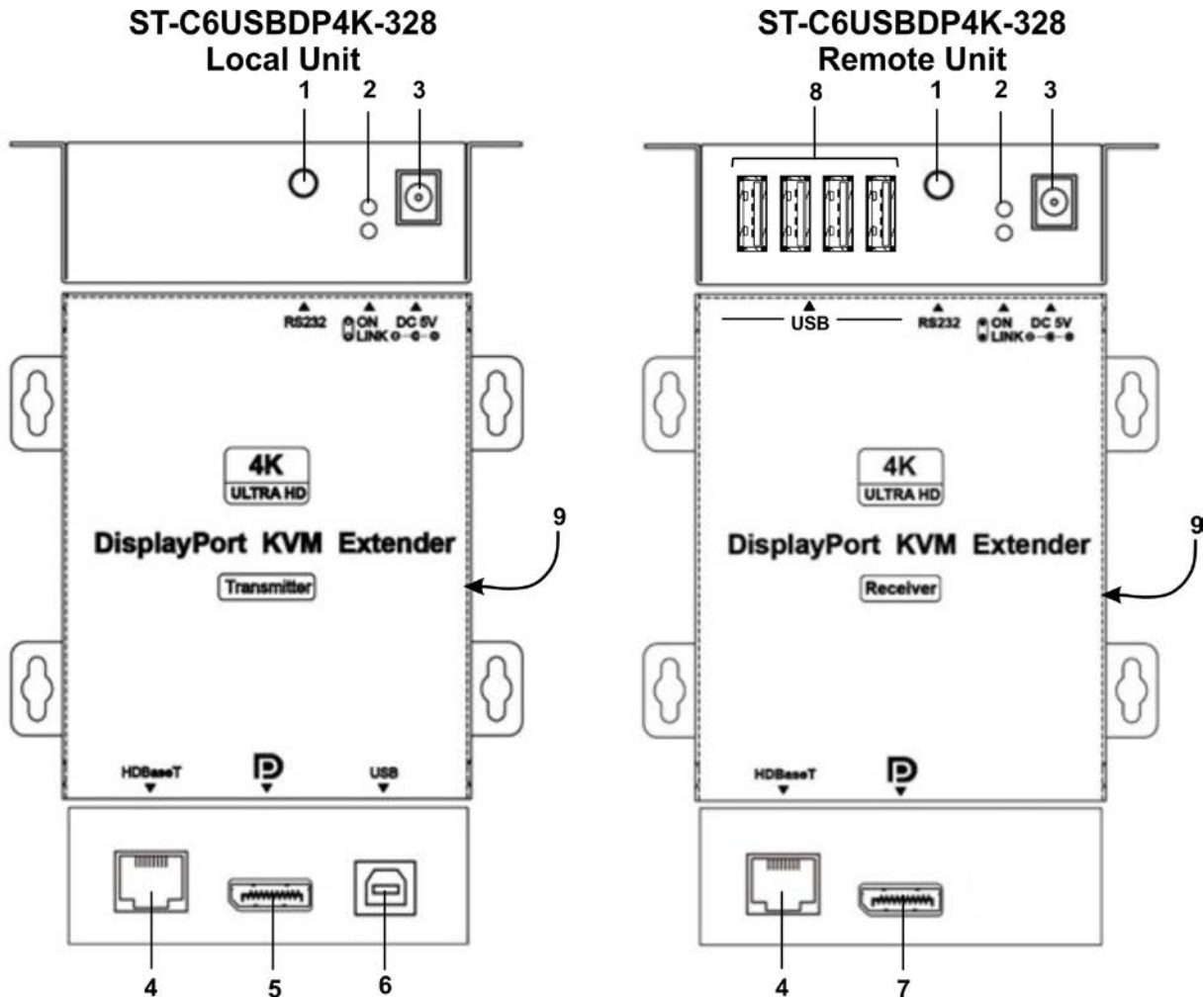
*WARNING: The CATx connection cable used between NTI XTENDEX Series Local and Remote or any XTENDEX Series products must be wired straight through (pin 1 to pin 1, pin 2 to pin 2, etc.)  The use of a CROSSOVER CABLE will damage the extender and void your warranty.*

➢ DisplayPort male-male cable to connect a DisplayPort source or display  up to 15 feet (Order NTI # DP-xx-MM  where  xx=3, 6, 10  or 15 foot cable).
➢ DisplayPort Active Optical cable to connect a DisplayPort source or display  up to 100 meters (Order NTI # DP4K21GB-FO-xxM-MM  where  xx=10. 15,20,25,30,50, 70 and 100 meters cable).

**Note: ST-C6USBDP4K-328 does not support DisplayPort to HDMI adapters/cables.**

Always use the shortest possible cable for best performance.

Contact your nearest NTI distributor or NTI directly for all of your KVM needs at 800-RGB-TECH (800-742-8324) in US & Canada or 330-562-7070 (Worldwide) or at our website at **http://www.networktechinc.com** and we will be happy to be of assistance.

## ST-C6USBDP4K-328 Local Unit

## ST-C6USBDP4K-328 Remote Unit

# CONNECTORS AND LEDS

| # | LABEL | CONNECTOR | DESCRIPTION |
|---|-------|-----------|-------------|
|   | **FRONT** | | |
| 1 | **RS232** | 3.5mm Stereo Jack | For connecting RS232 serial cable |
| 2 | **ON/Link** | **LEDs** | Status LEDs to indicate power and link between Local and Remote |
| 3 | **DC5V** | Power Jack | connection jack for the AC adapter - **Use 2A for Local Unit, use 4A for Remote Unit** |
| 4 | **HDBaseT** | RJ45 female | For connecting the CAT6/6a/7 cable between the Local and Remote units |
| 5 | **DisplayPort (symbol)** | DisplayPort female | For connecting DisplayPort cable from video/audio source |
| 6 | **USB** | USB Type B female | For connecting USB cable from PC |
| 7 | **DisplayPort (symbol)** | DisplayPort female | For connecting DisplayPort cable from display device |
| 8 | **USB** | USB Type A female | For connecting extended USB devices |
| 9 | **None** | DIP Switch (on bottom) | For setting extension mode and for firmware updates |

*WARNING: If the CATx IN or CATx OUT ports of a powered Remote or Local extender are connected to the RS232 port of another Remote or Local unit, the CATx port will be damaged and render the XTENDEX unusable and void the warranty.*

## PREPARATION FOR INSTALLATION

- Locations should be chosen for the monitor that also has space to connect the Remote unit within the distance provided by the cables.    If extension cables are needed, contact NTI for the cables required.

- The CATx cables must be run to the locations where the Remote and Local units will be connected.   Be careful to route the cables 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, fluorescent lighting, 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 video source and monitor 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 reconnection procedures before proceeding.

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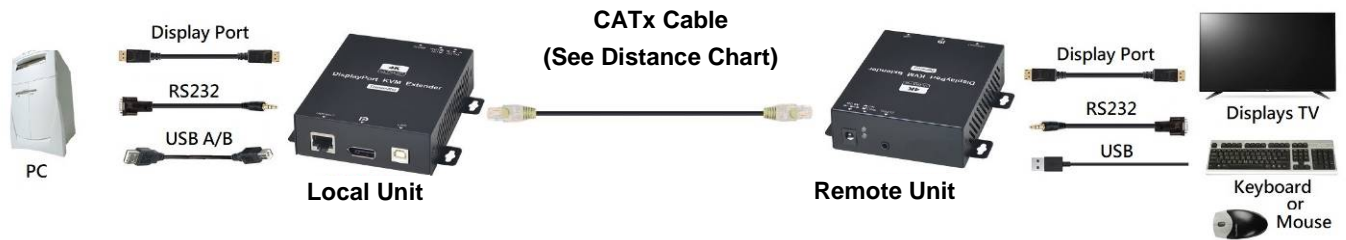
⚠ *WARNING:  Never connect the XTENDEX to an Ethernet card, Ethernet router, hub or switch or other Ethernet RJ45 connector of an Ethernet device.   Damage to devices connected to the Ethernet may result.*

**Note: This device not support MST (Multi Stream Transport) hub function based on DP1.2**

# INSTALLATION AND OPERATION
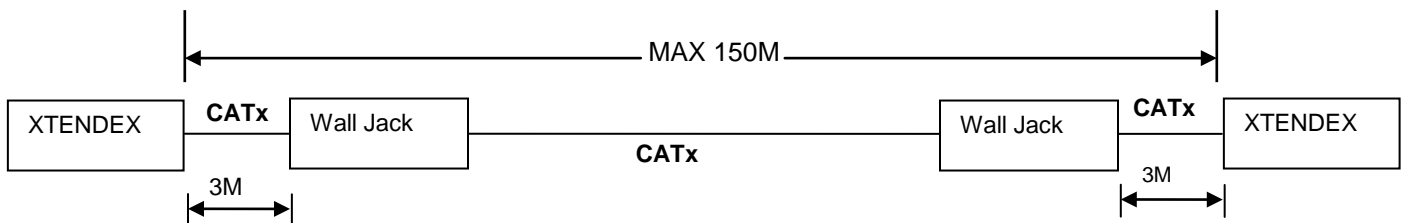
## Connections:



## Cable Quality:

For the connection between the Local and Remote units, we recommend using a high quality CAT6/6a/7 UTP/STP or FTP cable. A poor quality cable or network connection or improper construction will cause an unstable connection, video or sound disruptions, or noise on the display.
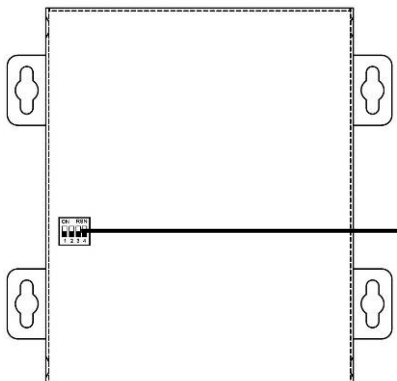
## Distance chart:

| Video Resolution Supported | CATx Cable | Long Reach Switch* | Distance |
|---|---|---|---|
| 4K@30Hz, 4:4:4, 8-bit | CAT5e | OFF | 53.34m (175 feet) |
| | CAT6/6a/7 | OFF | 100m (328 feet) |
| 1080p@60Hz, RGB, 8-bit 1920x1200@60Hz(WUXGA) | CAT5e | OFF | 53.34m (175 feet) |
| | CAT6/6a/7 | OFF | 100m (328 feet) |
| 1080p@60Hz, RGB, 8-bit 1920x1200@60Hz(WUXGA) | CAT5e | ON | 91.44m (300 feet) |
| | CAT6/6a/7 | ON | 150m (492 feet) |

 **\* See DIP Switch Function on next page**

If connecting through a wall socket, the CATx cable length between the XTENDEX and Wall Jack must be less than 3 meters, as illustrated below:

## DIP Switch Function:

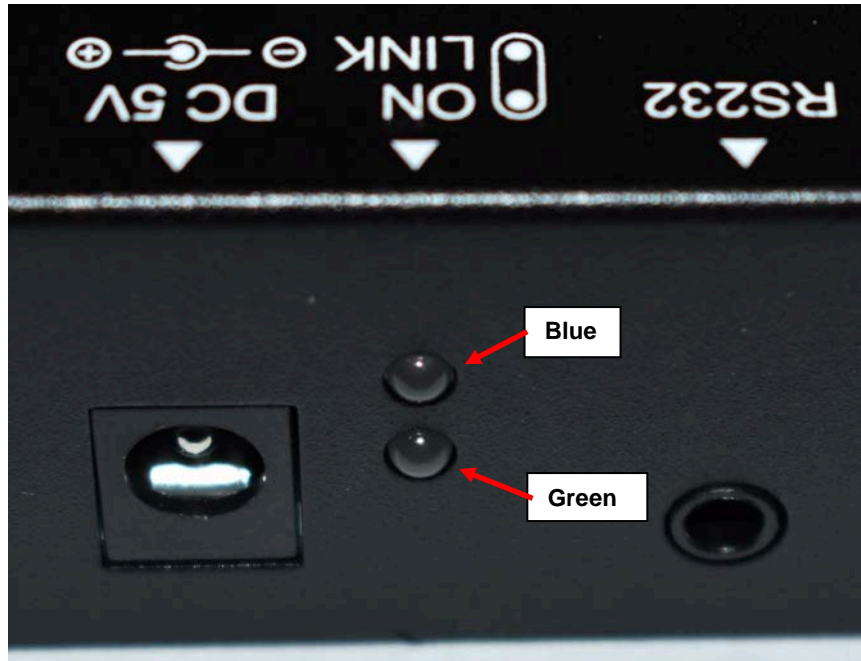| Switch | Position | Function | Position | Function |
|--------|----------|----------|----------|----------|
| SW1 | ON | Long Reach Mode (Supports resolution 1080p/60Hz/8Bits only) | OFF | Normal mode |
| SW2 | ON | None | OFF | RS232 Extension |
| SW3 | ON | Firmware Update* | OFF | |
| SW4 | ---- | Not Used | ---- | |

**(Bottom View of Local/Remote)**

*Note:   There are no updates to the firmware as of this printing.   This switch is provided for future use.*

## LED Indication：
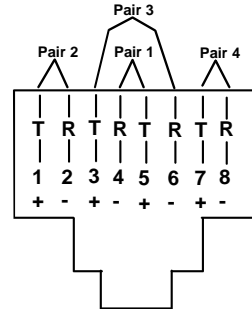
Green LED: Illuminated when Power is ON

Blue LED: Illuminated when a link is established between the Local and Remote Units
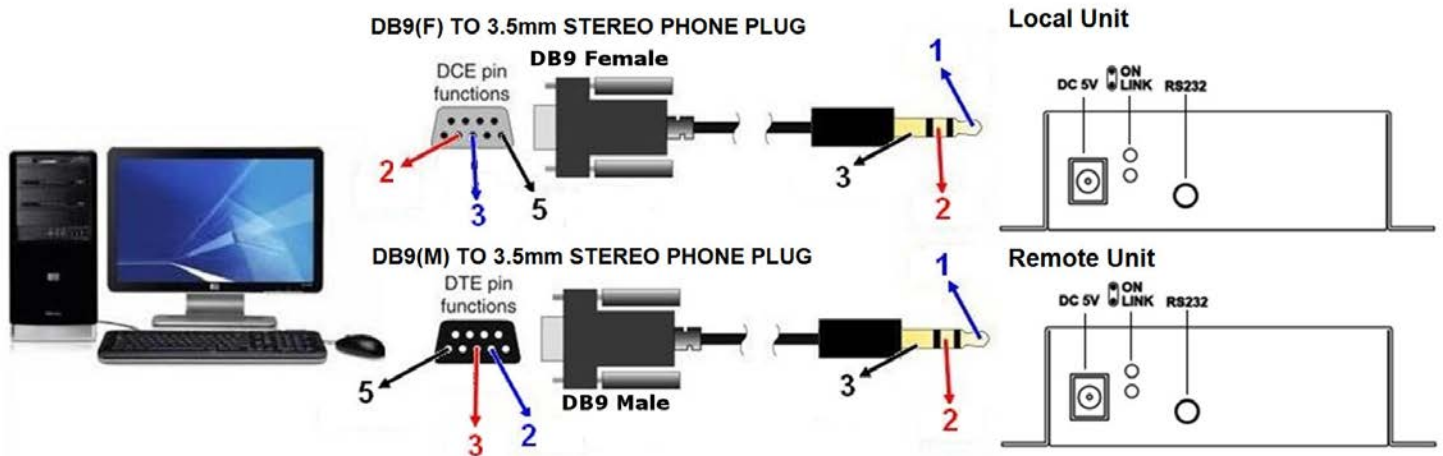
## INTERCONNECTION CABLE WIRING METHOD

The CATx connection cables between the Remote and Local are terminated with RJ45 connectors and must be wired according to the EIA/TIA 568 B industry standard.   Wiring is 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 |



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## RS232 CABLE PINOUT



**DB9(F) to 3.5mm STEREO PHONE PLUG (DCE)**

| RS232 | | 3.5 mm Phone Plug | |
|-------|--------|-------------------|--------|
| Pinout | Signal | Pinout | Signal |
| Pin 2 | RX out | Pin 1 | RX |
| Pin 3 | TX in | Pin 2 | TX |
| Pin 5 | GND | Pin 3 | GND |

**DB9(M) to 3.5mm STEREO PHONE PLUG (DTE)**

| RS232 | | 3.5 mm Phone Plug | |
|-------|--------|-------------------|--------|
| Pinout | Signal | Pinout | Signal |
| Pin 2 | RX in | Pin 1 | RX |
| Pin 3 | TX out | Pin 2 | TX |
| Pin 5 | GND | Pin 3 | GND |

## TECHNICAL SPECIFICATIONS

| Items | Specification |
|---|---|
| **Local Unit** | |
| **Devices supported** | USB PC or UHD video source with DisplayPort output |
| **OS supported** | Multiplatform support: Windows XP/7/10, Linux, and MAC OS10. |
| **Connectors** | 1- Female DisplayPort<br>1- Female USB Type B<br>1- Female 3.5mm (RS232)<br>1- Female RJ45 |
| **Remote Unit** | |
| **Connectors** | 1- Female DisplayPort<br>4- Female USB Type A  (Transparent USB)<br>    o  Supports high-speed (480 Mbps), full-speed (12 Mbps), or low-speed (1.5 Mbps) USB devices - keyboard, mouse, game controller, USB flash drive, touch screen monitor, whiteboard, etc.<br>1- Female 3.5mm (RS232)<br>    o  Support full-duplex RS232 up to 115200 baud.<br>1- Female RJ45 (CATx) |
| **General** | |
| **Operating Temperature** | 14 to 113°F (-10 to 45°C) |
| **Storage Temperature** | -22 to 167°F (-30 to 75°C). |
| **Operating Humidity** | 5 to 90% RH (no condensation) |
| **Video Resolutions Supported** | Ultra-HD 4Kx2K 60Hz 4:4:4 resolutions (4096x2160 and 3840x2160 @30Hz); HDTV resolutions to 1080p @60Hz,1920x1200 @60Hz |
| **Audio Supported** | Embedded digital audio through DisplayPort compatible displays or audio receivers<br><br>Up to 7.1 LPCM 192KHz / Dolby TrueHD / DTS-HD MA |
| **HDMI Compliance** | Supports DP1.2<br>**Note**: Does **NOT** support MST<br>      Does **NOT** support DisplayPort to HDMI adapters/cables. |
| **HDCP Compliance** | Compliant |
| **Power Supply** | 100-240VAC 50/60Hz; 5VDC2A (Local Unit (Transmitter))<br><br>100-240VAC 50/60Hz; 5VDC4A (Remote Unit (Receiver)) |
| **Power Consumption** | Local : < 5W ; Remote: < 16W (Max. Power)<br><br>**Note: The maximum load on each USB port cannot exceed 0.5A.** |
| **Dimensions  (WxDxH)** | 4.31x4.31x1.18 in. (109x109x30 mm) |
| **Maximum Extension Distance (using solid CAT6/6a/7 cable)** | 4K x 2K up to 328 feet (100 meters)<br><br>1080p and 1920x1200 up to 492 feet (150 meters) |
| **Weight** | Local:  265g (.584lb)  Remote:  265g (.584lb) |
| **Regulatory Approvals** | CE, RoHS |

## 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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