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XTENDEX® Series

ST-IPUSB4K-L/R-VW

4K HDMI USB KVM Over IP Extender

Installation and Operation Manual

MAN274 REV 5/5/21

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.

CURRENT FIRMWARE

Revision A7.4.2.4, 4/19/2021

Note: Shielded CAT6,6a or 7 cable must be used to connect to Transmitter and Receiver units in order to meet CE emission and immunity requirements.

Note: CATx connection cable used between NTI XTENDEX Series Transmitter and Receiver 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 Transmitter and Receiver 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

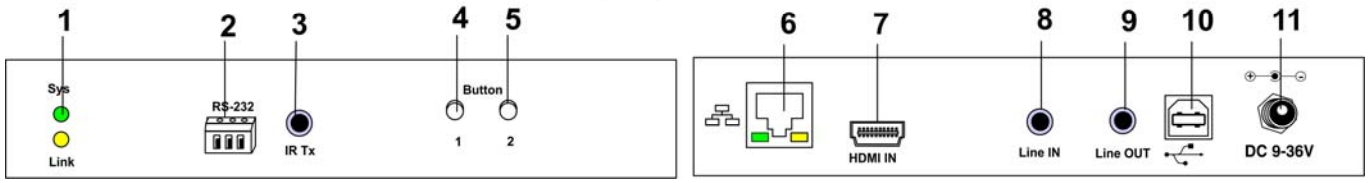
The XTENDEX® 4K HDMI USB KVM Over IP Extender provides remote KVM (USB keyboard, USB mouse, and 4Kx2K HDMI monitor) access to a USB computer up to 492 feet (150 meters) over a Gigabit network using a single CAT6/6a/7 cable. The extender consists of the ST-IPUSB4K-L-VW local unit (Transmitter) that connects to a computer and the ST-IPUSB4K-R-VW remote unit (Receiver) that connects to an HDMI monitor, 3.5mm stereo audio speakers and microphone, and up to four USB devices (keyboard, mouse, flashdrive, HDD, or touchscreen display).

The transmitter and receiver units can be connected together for a Point-to-Point connection via CAT6/6a/7 cable or a Point-to-Many connection via a Gigabit network switch. Support for multiple transmitters requires a managed Gigabit network switch.

- Supports Ultra-HD 4Kx2K resolutions to 3840x2160 (30Hz), 2K resolution 2048x1080, HDTV resolutions to 1080p, and computer resolutions to 1920x1200.
  - Extend 4Kx2K up to 492 feet in a Point-to-Point connection.
  - Extend 4Kx2K up to 984 feet in a Point-to-Point or Point-to-Many connection via a Gigabit network switch.
  - The max length between the switch and the transmitter/receiver unit is 492 feet.
- HDMI features supported:
  - HDMI 1.4
  - x.v.Color, sYCC601 color, Adobe RGB Color and Adobe YCC601 color
  - Dolby TrueHD, LPCM 7.1, DTS-HD Master Audio, Dolby Digital, and DTS
  - Bandwidth up to 340 MHz (10.2 Gbps)
  - Lip Sync
- HDCP 1.4 compliant.
- Supports USB 2.0 devices.
  - Keyboard and mouse are hot-pluggable.
  - Connect a mouse, keyboard, flashdrive, HDD or touchscreen display.
- Supports video wall installations from 1x2 to 8x16 screens.
  - Displays can be rotated 180 and 270°.
- Plug-and-Play installation allows receivers to find the transmitter automatically on the same network. (Network configuration may be required for managed network switch.)
- Full Infrared Remote (IR) control of HDMI source from remote HDTV using existing source remote control.
- Support for multiple transmitters requires a managed Gigabit network switch with VLAN/IGMP support. Standard LAN switches can only support one transmitter.
- Each VLAN acts as a separate HDMI Over IP Channel on the network.
- When using multiple remote units, only one unit can have USB control over the source at any time.
- Manage transmitter/receiver connections and video wall configuration with built-in software.
- Supports full-duplex RS232 up to 115200 baud.
- Customizable EDID table on local unit.
- Supports the DDC2B protocol.

PANEL AND CONNECTORS

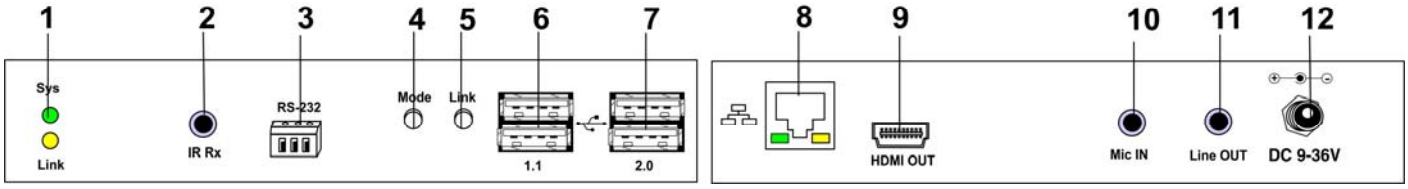
Transmitter (Tx)- Front and Rear Panel



No.	Marking	Description
1	System LED (Green) Link LED (Amber)	**Green Blinks Slowly/Amber Off:** System is starting up. **Green On:** System is ready, but TX/RX are not connected. **Green Blinks Rapidly:** TX/RX connected and communicating. **Amber On:** Video input is ready. **Amber Blink Slowly:** Video input is not ready.
2	RS-232 (Terminals)	Serial-over-IP function; pin assignment: TxD-RxD-GND
3	IR Blaster	Connect to external IR Emitter
4	Button 1	**Press** and **Hold** at **Power ON** until **Green** and **Amber** LEDs
		Keep pressing for 3 sec.: To Lock Receiver's keyboard and mouse.
5	Button 2	**Press momentarily:** To select Video/Graphic mode
		Keep pressing for 3 sec.: To Enable/Disable Anti-Dither.
	Gigabit Ethernet	Connect to Gigabit Ethernet switch or directly to Receiver.
	HDMI IN	HDMI signal from video source
8	Line IN	3.5mm audio will be extended to the Line Out of Receiver
9	Line OUT	3.5mm audio extending the Microphone from the Receiver
10	USB-to-PC	USB-B to PC USB port for USB 2.0 Virtual HUB extension
11	DC 9~36V In	System power input (range 9 to 36VDC).

Note: If any 3.5mm audio jacks on the TX or RX are used, the HDMI cable from the Receiver to the monitor will not include digital audio to the speakers in or connected to the monitor.

Receiver (Rx)- Front and Rear Panel



No.	Marking	Description
1	System LED(Green) Link LED (Amber)	**Green Blinks Slowly/Amber Off:** System is starting up. **Green On:** System is ready, but TX/RX are not connected. **Green Fast Blink:** TX/RX are connected and communicating. **Amber On:** Video input ready. **Amber Slow Blink:** Video input is not ready.
2	IR Receiver	Remote Universal IR receiver
3	RS-232(Terminals)	Serial-over-IP function. (Pin assignment: TxD-RxD-GND)
4	Mode button	**Press momentarily:** To select Video/Graphic mode
		Keep pressing for 3 sec.: To Enable/Disable Anti-Dither
		Press and **Hold** at **Power ON** until **Green LED starts blinking:** Set this RX as EDID Master
5	Link button	**Short Press:** To enter OSD Transmitter List menu
		Press for 3 sec.: To request USB access right.
		Press and **Hold** at **Power ON** until **Green and Amber** LED starts **blinking:** Reset to **Factory default** and enter **192.168.0.88 Setup**
6	USB 1.1	2 x USB 1.1 ports for Keyboard, Mouse
7	USB 2.0	2 x USB 2.0 ports for Flash Drive, Touchscreen, etc.
8	Gigabit Ethernet	Connect to Gigabit Ethernet switch or directly to Transmitter.
9	HDMI Out	Connect to HDMI display by HDMI-to-HDMI cable
10	Mic. IN	3.5mm jack extending to Line Out of Transmitter
11	Line OUT	3.5mm jack to self-powered stereo speakers
12	DC 9~36V In	System power input (range 9 to 36VDC).

Note: For a microphone to work in the "Mic In" port, the Casting Mode in the Network Configuration (page 7) must be set to "Unicast Mode" and a stereo plug must be inserted into the "Line In" port on the Transmitter (whether a cable connects it to an audio source or not).

CONFIGURATION

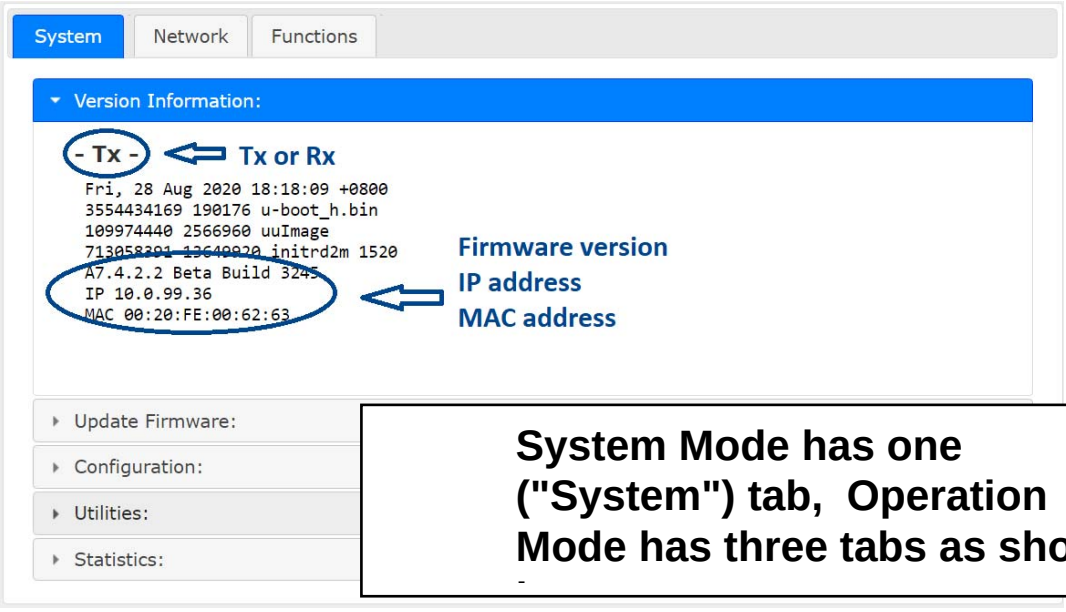
To configure the Tx/Rx through the **Configuration Web page** there is **Setup mode and Operation mode**. You can use either. We recommend Operation mode (on page 6).

Setup Mode Configuration

1. To enter TX/RX Setup Mode Configuration Web page, press and Hold the TX/RX's **[Button 1]/[Link]** button and Power ON until **Green and Amber** LED start blinking, then release the button. This will force TX/RX to enter **Setup mode**.
2. Directly connect TX/RX to PC LAN port and set the PC IP to 192.168.0.1, Net Mask 255.255.255.0.
3. Open the PC's Web Browser (we recommend Chrome) and enter IP address **192.168.0.88** to enter the Setup Mode Configuration Web page.
4. The Setup Mode Configuration Web page contains a **System** tab with sub-tabs **Version Information, Update Firmware, Configuration, Utilities** and **[Statistics]**.

Version Information

Provides information for "Tx" or "Rx", Firmware version, IP address, MAC address:



Update Firmware

Enter [**Update Firmware**] ---> navigate to the firmware file (.bin) then click [**Upload**] to start a firmware upgrade. The firmware upgrade takes about 3 minutes, then it will display “DONE Rebooting…” to indicate the unit has been upgraded and rebooted.

Configuration

You can export the current settings to a configuration file, or import configuration from an external file. Enter [**Configuration**] ---> Click [**Save Configuration**] to export configuration, click [**Upload Configuration**] to import configuration.

Utilities

Factory Default ---> To reset the device to the factory default.
Reboot ---> To reboot the device.
Compatibility mode, **EDID, Console API Command** ---> See **"Operation Mode Configuration"** for details.

Statistics

Display system status for State Machine, Network, Video EDID, Video Screen attachment, Video Timing.

Operation Mode Configuration

To enter TX/RX Operation mode Configuration Web page:

1. Set the PC to IP 10.0.1.1, Net Mask 255.0.0.0.
2. Open a Browser (we recommend Chrome) then enter TX/RX IP address 10.xx.xx.xx
3. The TX contains 3 subtabs **System, Network, Functions.** The RX contains 4 subtabs **System, Video Wall, Network and Functions**.

System Tab

Version Information

Same as in Setup Mode on page 4.

Update Firmware

Same as in Setup Mode on page 4.

Configuration

Same as in Setup Mode on page 5.

Utilities

Commands ---> **Factory Default** ---> To reset the device to the factory default.

Commands --->**Reboot** ---> To reboot the device.

Compatibility mode ---> Not applicable to this product.

EDID

(TX only, not in RX)

The TX provides flexible EDID selections:

Copy EDID from EDID Master (default) ---> TX will get EDID from the RX with "EDID Master" setting.

Resolution ---> You can set TX with a specific resolution from the drop-down menu.

Available resolutions are 3840x2160@30Hz,
2560x1440@60Hz, 1920 x 1200@60Hz, 1920 x 1080@60Hz,
1680 x 1050@60Hz,1440 x 900@60Hz, 1366 x 768@60Hz,
1280 x 1024@60Hz,1280 x 720@60Hz, 1024 x 768@60Hz,
720 x 480@60Hz.

Note: The [Resolution] selection will be overwritten by the RX EDID Master if the TX is set on Unicast.

DVI ---> Enable this option if the video source is DVI-D instead of HDMI.

Console API Command ---> Not applicable to this product.

Statistics

Display system status for State Machine, Network, Video EDID, Video Screen attachment, Video Timing.

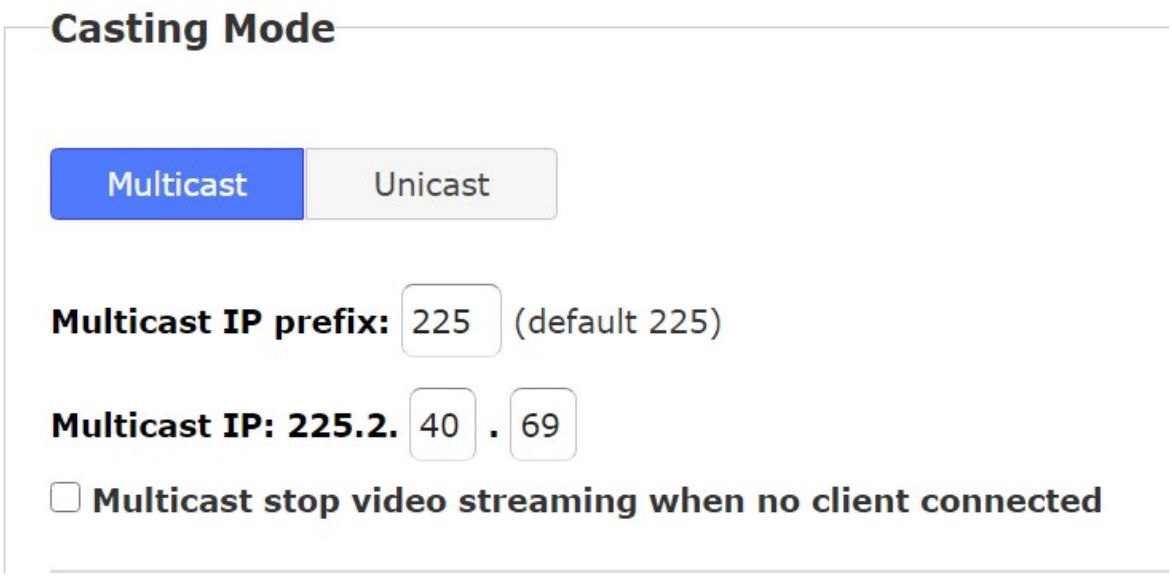
Network Tab

IP Setup (TX/RX)

The system supports Auto IP, DHCP, and **Static (default)** for the IP configuration:
Auto IP ---> 169.254.xxx.xxx (Auto), Subnet Mask 255.255.0.0, Default Gateway 192.168.0.1
DHCP ---> Get IP from DHCP Server.
Static ---> Enter IP Address, Subnet Mask, Default Gateway, click [Apply].

Casting Mode (TX)

The TX can be set either in **Multicast (default)** or Unicast mode as below:

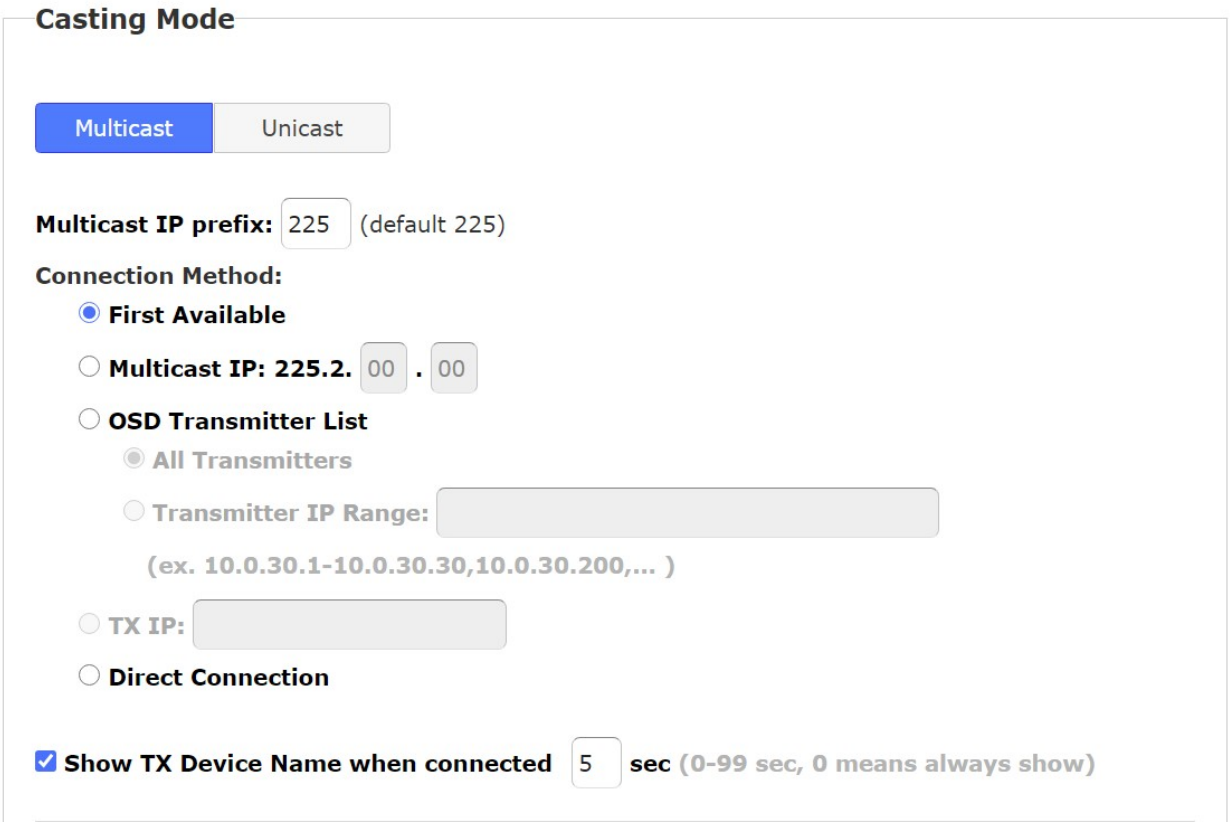


In Multicast mode, the **Multicast IP prefix** (1st digit) can be configured in the range of 224 ~ 239, default is 225.
The 2nd digit is internally fixed with Video=2, Audio=3, IR=4, Serial=5, GPIO=6, USB=7, CEC=8.
The 3rd and 4th digits are configurable in the range of 00 ~ 99.

Multicast stop video streaming when no client connected: Enable this setting to stop the Tx from streaming out (reduce bandwidth) if there is no Rx connected.
Disable this setting to keep the Tx streaming out (fast switching but increase bandwidth) even if there is no Rx connected.

Casting Mode (RX)

The RX can be set in **Multicast (default)** or **Unicast** mode as below:



In **Multicast mode**, you can set the **Multicast IP prefix** (default 225) and select the Connection Method from: First Available **(default)**, Multicast IP, OSD Transmitter List, and Direct Connection.

In **Unicast mode**, you can select the Connection Method from First Available, OSD Transmitter List, TX IP and Direct Connection.

The RX supports the following Connection Methods:

First Available: the RX will connect to the first available TX when powered ON.

Multicast IP 225.2.xx.xx: the RX will connect to the TX with the same Multicast IP address specified here.

OSD Transmitter List: the RX will display the available TXs in the OSD menu for user to select. Select “All Transmitters” if all of TXs are permitted. Select “Transmitter IP Range” and input the IP range with “-“ and “,”.

For example, “10.0.30.1 – 10.0.30.30, 10.0.30.200, 10.0.92.188, …”

TX IP: the RX will connect to this specified TX only.

Direct Connection: this setting enables RX to connect TX by the same subnet, same Casting Mode, Jumbo Frame and EDID Master will be automatically enabled.

★ Show TX Device name when connected (RX)

This feature enables the RX to display the TX name (or IP) when connected. Default is enabled with 5 seconds of display time.

Jumbo Frame (TX/RX)

The TX/RX supports Jumbo Frame (8K bytes) for better video quality, default **Enabled**.

Note: The Ethernet Switch also must be set with Jumbo Frame enabled (at least 8K) if TX has been enabled.

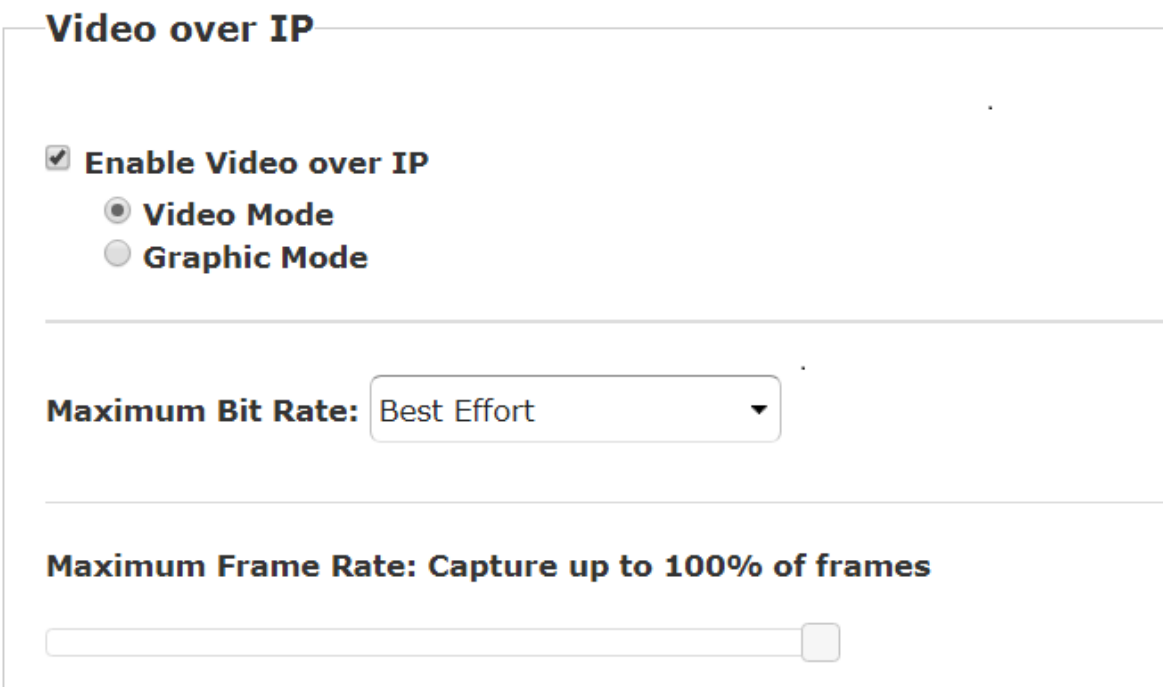
Functions tab

Device Name (TX/RX)

To set TX/RX Device name, enter ---> **[Functions]** ---> **[Device Name]** ---> input name (20 characters max) ---> [**Apply**] to save the Device Name.

Video over IP (TX)

Functions---> **Video over IP:**



Enable Video over IP (Default: Enabled)

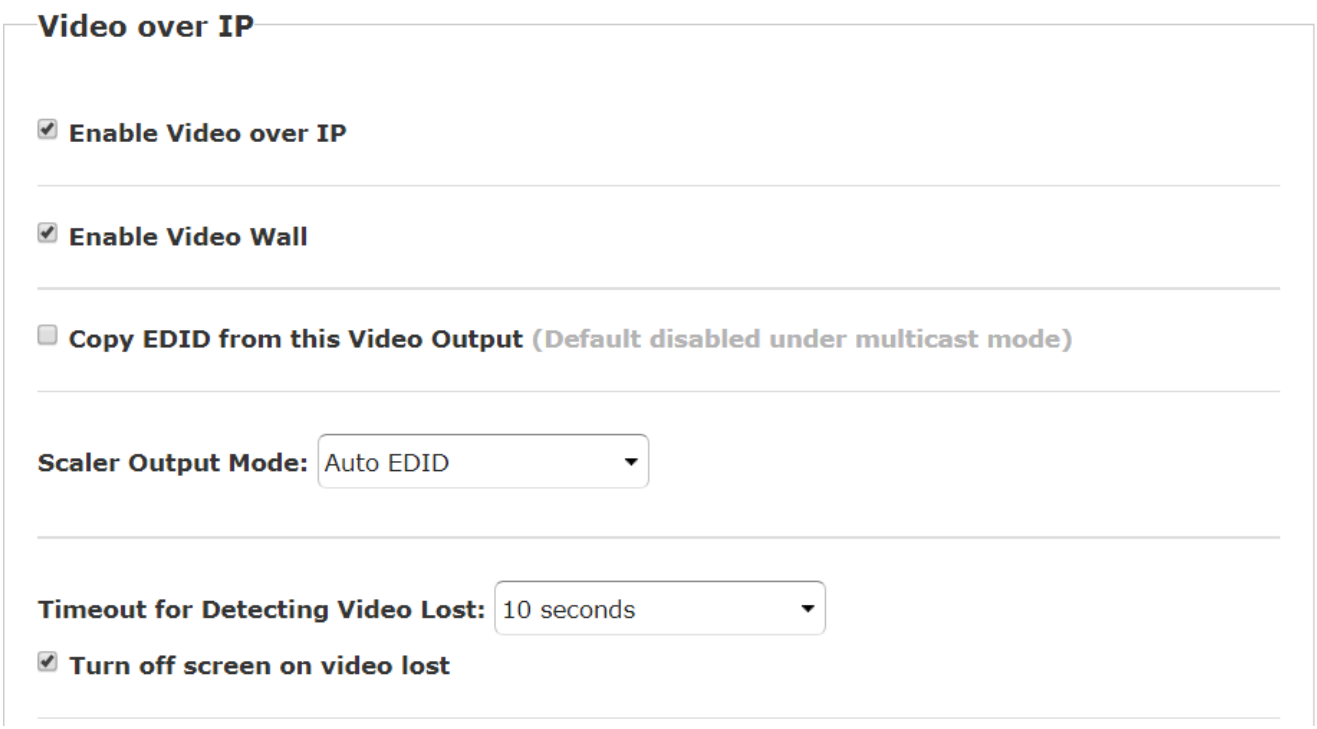
Video/Graphic Mode: Select [Video Mode] for smooth video play. Select [Graphic Mode] for a static picture KVM application.

Maximum Bit Rate: Options are “Best Effort”, “200, 150, 100, 50, and 10 Mbps” for the TX bandwidth selection. **(Default: Best Effort).**

Maximum Frame Rate: This provides the maximum % of the TX frames rate capture up **(Default: 100%)**.

Video over IP (RX)

Functions ---> Video over IP:



Enable Video over IP (**Default Enabled**).

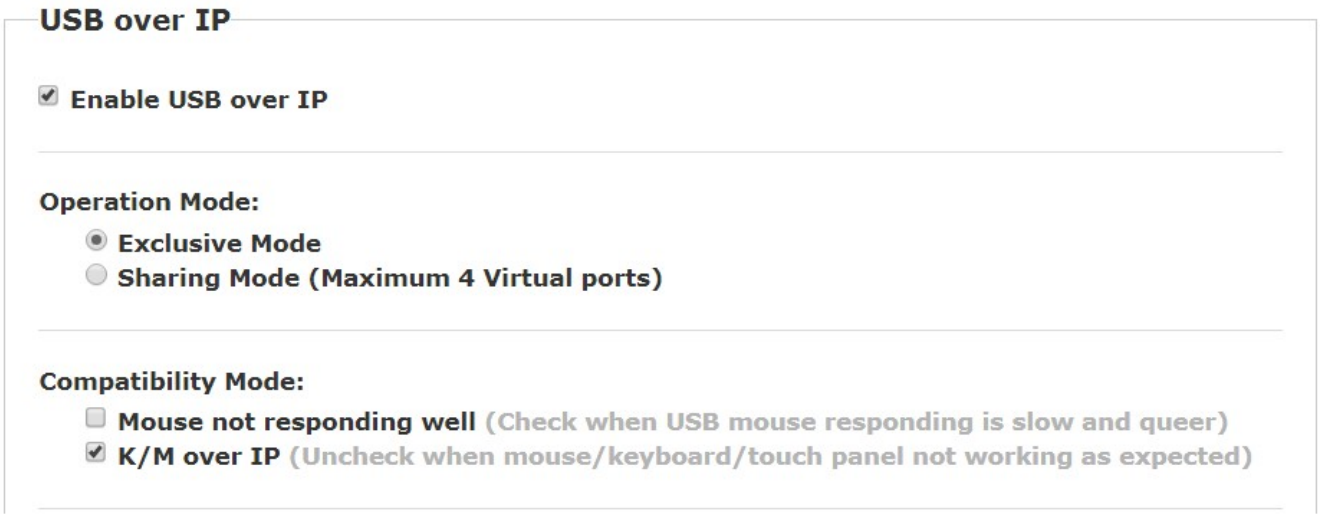
Enable Video Wall: Enable this setting for the Video Wall output. **Copy EDID from this Video Output: T**o assign this RX as the EDID Master.

Scaler Output Mode: The RX is built with a scaler feature. The output resolution can be selected from these options:
Auto EDID (**default**), Pass Through, 1080p60, 1080p50, 1920x1200, and Customize.
The "Auto EDID" means the RX will output to the screen with resolution of the screen's EDID.

Timeout for detecting video lost: The timeout period for the video signal lost detection (**default 10 sec.**)

Turn off screen on video lost: Stop the video output when video signal is lost (**default Enabled**)

USB over IP (TX)



Enable USB over IP ----> Check to enable TX's USB over IP feature (**default Enabled**). It works as a 5-port Virtual HUB when TX is attached to PC USB port. These 5 Virtual USB ports will be sequentially linked to the connected RX USB devices. There are 4 USB ports on each RX, but only the port with device attached will occupy the TX's Virtual USB port.

Operation Mode ---> The TX USB-over-IP supports the **Exclusive** and **Sharing** modes:

Exclusive Mode: All of TX's 5 Virtual USB ports will be exclusively assigned to the RX which has the USB access right. The other RXs can request USB access right manually.

Sharing Mode: The TX's 5 Virtual USB ports can be shared by multiple RXs. Depending on the number of USB devices on each RX, it is possible to have maximum 5 RXs sharing the same TX's Virtual USB.

Compatibility Mode

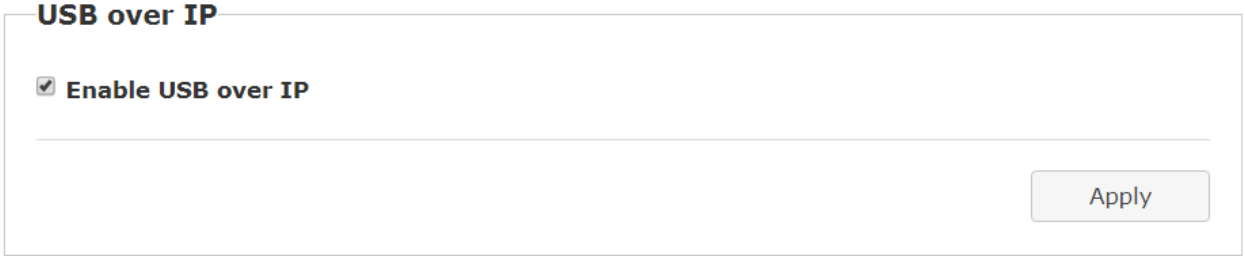
Mouse not responding well ---> enable this setting when mouse is slow.

K/M over IP ---> The TX also built in K/M over IP HID emulation for multiple RXs to share the same TX's keyboard/mouse. This feature will occupy one TX's Virtual USB port when enabled **(the default).**

USB over IP / KMoIP ports (RX)

There are 2 x USB 1.1 and 2 x USB 2.0 ports on each RX. These 4 USB ports can be configured for USB-over-IP or KM-over-IP devices. The USB-over-IP devices will be virtually linked to the TX's 5 Virtual USB ports; the KM-over-IP devices will be linked and shared with the TX's K/M over IP HID emulation port.
The advantage of USB-over-IP device have better USB compatibility, for example USB Touch, Disk, … devices must be configured with USB-over-IP. The advantage of KM-over-IP device is to have multiple RXs sharing the same TX's K/M over IP HID emulation port. It is recommended to configure the 2 x USB 1.1 (keyboard/mouse) as KMoIP ports and 2 x USB 2.0 as USB over IP ports (for Touch screens, Flashdrive, etc).

The RX **USB over IP** Configuration Web page:



This **USB over IP** setting must be enabled for any USB devices to be attached with TX's Virtual USB HUB.
The RX **KMoIP ports** Configuration Web page:

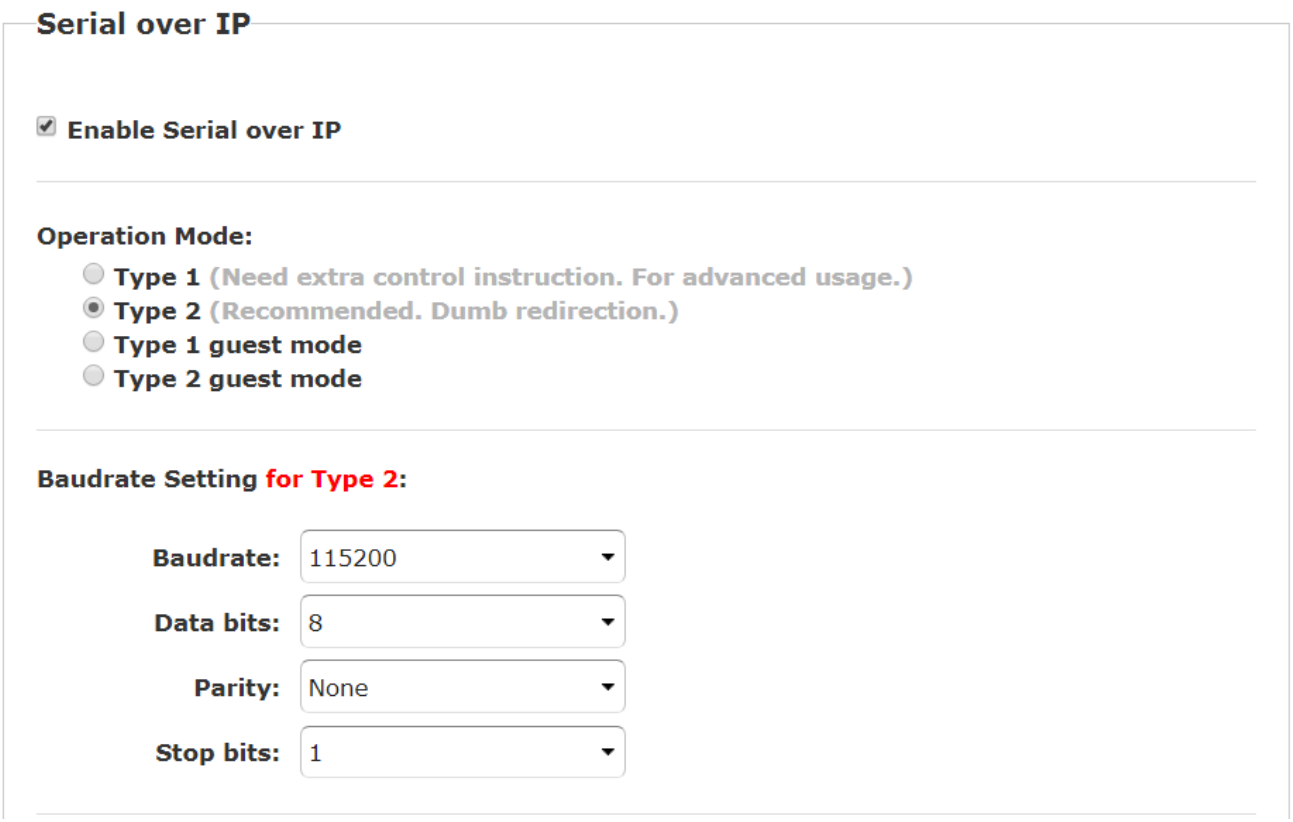
Enable the port #1, 2, 3, 4 for the device to be linked with the TX's K/M over IP HID emulation port. **By default Ports 1 and 2 are KMoIP Enabled.**

Note: All of RX's 4 x USB ports will be configured as KMoIP if the USB over IP is disabled.

Hotkey (RX)

The RX supports Hotkey for OSD Menu. To choose the RX OSD Hotkey: **Function** ---> **Hotkey** ---> select the Hotkey from the list: <Ctrl><Ctrl>, <Shift> <Shift>, <Alt> <Alt>, or <Scroll> <Scroll> **(default: Ctrl Ctrl)**.

Serial over IP (TX/RX)



Serial over IP ---> Enable/Disable (**default Enabled**).

Operation Mode

Type 1: for Unicast application where user can dynamically link with any target RX.

Type 2: for Multicast application where TX RS-232 will link with all of connected RXs (**default**).

Type 1 guest: similar to type 1 but using PC to link with RX's RS-232.

Type 2 guest: similar to type 2 but using PC to link with RX's RS-232. **Note: Please refer to "How to Use RS232 over IP" .**

Baudrate Setting for Type 2

Set RS-232 Baudrate, Data bits, Parity, Stop bits. (**default 115200, 8-n-1**)

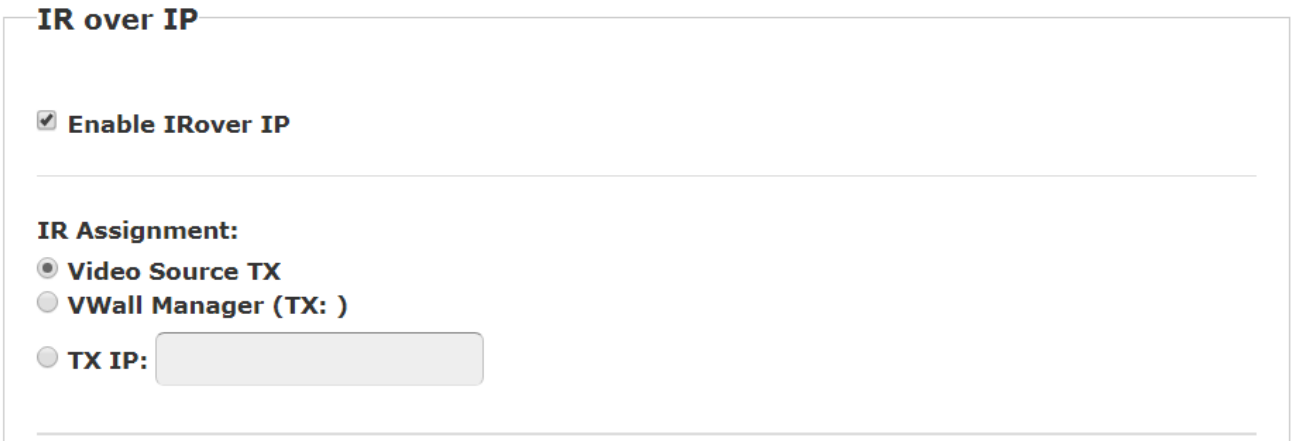
Audio Output (RX)

If the TX's input audio is HDMI, you can route the audio output on Line Out of the RX:

Functions ---> **Audio Output** ---> check **"HDMI Audio De-Embedder"**. Click **Apply** to save the setting and reboot. (**default Disabled**)

Note: If any 3.5mm audio ports on the TX or RX are used, audio will not be routed through the HDMI cable at the RX.

IR over IP (RX)



It is possible to assign the IR signal routing path:

Enable IR over IP (default Enabled)

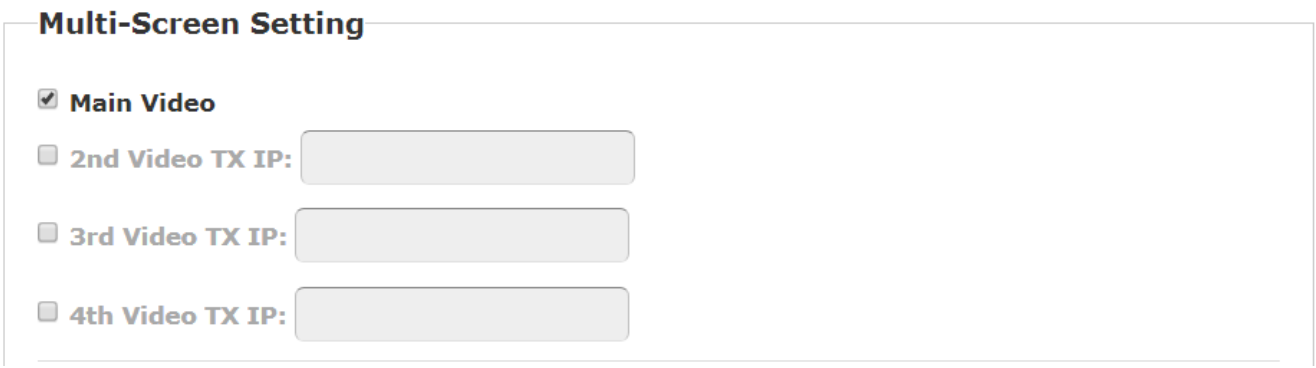
IR Assignment ---> Select IR routing path from the following 3 options:

Video Source TX ---> Send the RX's IR input signals to the TX of current video source.

VWall Manager (TX:) ---> Send the RX's IR input signals to the TX which is assigned by the VWall Manager software.

TX IP: ---> Send the RX's IR input signals to this specified TX.

Multi-Screen Setting (TX)



The system supports Multi-Screen feature which is useful for PC with multiple screen outputs. As above TX [Multi-Screen Setting] Web page:

Main Video: Enable this setting if this TX is connected to the PC's main video output.

Note: Any TX with [Main Video] setting disabled will not be shown on the OSD Transmitter List.

2nd Video TX IP: Type in TX IP address which is connected to the PC's 2nd video out.

3rd Video TX IP: Type in TX IP address which is connected to the PC's 3rd video out.

4th Video TX IP: Type in TX IP address which is connected to the PC's 4th video out.

Multi-Screen Setting (RX)

As shown above in the RX Multi-Screen Setting Web page:

2nd Screen RX IP: Type in RX IP address which is connected to the 2nd screen.

3rd Screen RX IP: Type in RX IP address which is connected to the 3rd screen.

4th Screen RX IP: Type in RX IP address which is connected to the 4th screen.

When the Main RX switches to a new TX, its associated RXs will also be switched to the new TX's associated TXs automatically.

Mirror (RX)

When the **"Mirror"** option is enabled, the associated RXs will connect to the same TX as the Main RX is connected to. This splitter function enables multiple RXs to display the same TX.

VIDEO WALL CONFIGURATION(RX)

Basic Setup:

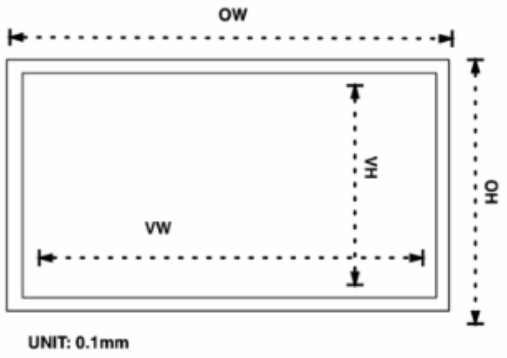
Bezel and Gap Compensation

OW:
1

OH:
1

VW:
1

VH:
1



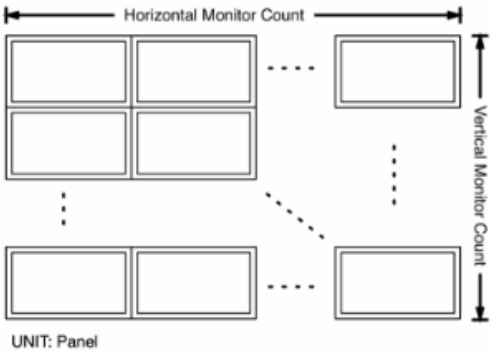
Wall Size and Position Layout

Vertical Monitor Count:
1

Horizontal Monitor Count:
1

Row Position:
0

Column Position:
0



Preferences

Stretch Type: Fit In

Clockwise Rotate: 0

Apply To: "All" device(s) in the list

All Apply

Show OSD

The RX comes with Video-Wall feature, multiple RXs can receive the same video stream and display on multiple screens in a grid. You can setup the Video-Wall either by using Video-Wall Manager software, or OSD (On Screen Display) or the Web page.

For the Video-Wall Manager setup and operation, please refer to "**Video-Wall Manager Setup Guide**" on our website.

For the OSD setup and operation, please refer to "**Video-Wall OSD Quick Setup Guide**".

The following section provides information for the Video-Wall Web page setup.

Basic Setup

Enter RX Web page ---> **Video Wall** ---> **Basic Setup**.

Bezel and Gap Compensation

Enter the value for OW (Outside Width), OH (Outside Height), VW (View Width), VH (View Height) in **0.1mm** units ---> **Apply**. With these 4 values, the system can calculate the screen **Bezel** and **Gap** size.

Wall Size and Position Layout

Select the value for Vertical Monitor Count, Horizontal Monitor Count, Row Position, Column Position from the drop-down menu --->**Apply**. With these 4 values, the system can calculate the Rx grid position within the Video-Wall.

Preferences

Stretch Type ---> Select "Fit In" or "Keep Aspect Ratio" --->**Apply**

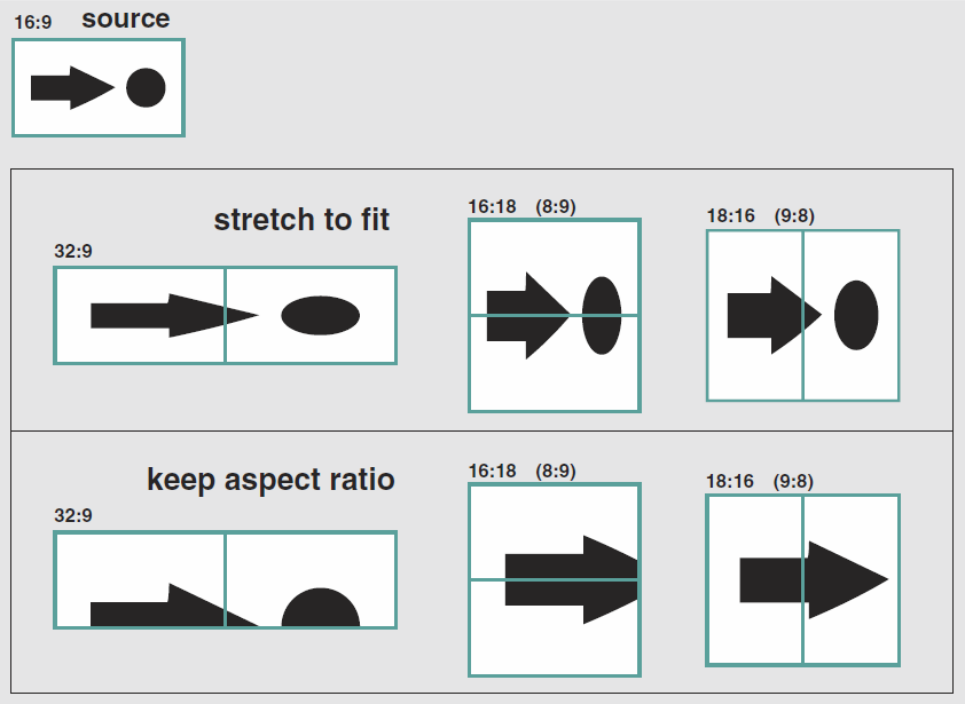
Clockwise Rotation ---> Select 0, 180, 270 --> **Apply**

Note:

Fit In: Stretches or compresses the broadcast screen to fill the whole wall.

Keep Aspect Ratio: keeps strict picture aspect ratio. If there is a mismatch, some image may fall beyond screen edges.

The following screenshot shows couple examples of Fit In and Keep Aspect Ratio:

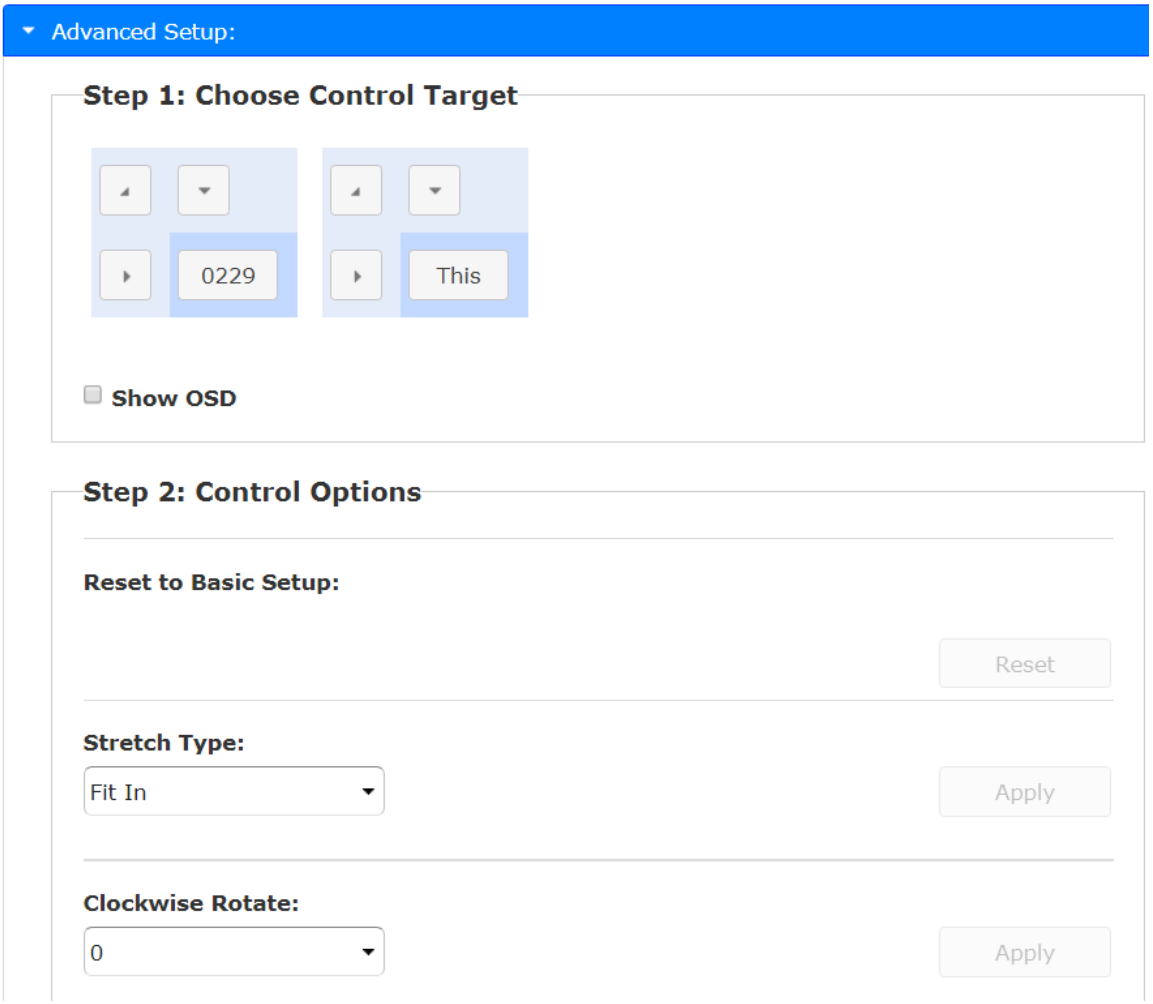


Show OSD

To identify the screen, check the “Show OSD” and select the device then click **Apply** button.

Video-Wall Advanced Setup

The Advanced Setup can be used for special effects which are not included in Basic Setup. There are two steps in advanced setup:
Step 1: Choose one or more target RXs to apply setup to.
Step 2: After the targets are selected, changes can be applied in Step 2.



Show OSD

To identify the screen, check the “Show OSD” and select the device then click **Apply** button.

Reset to Basic Setup ---> Reset the target(s) to the setting of “Basic Setup”.

Stretch Type

Fit In: Stretch the full screen to the whole wall.

Keep Aspect: keeps picture aspect ratio; some image may spill off screen if needed.

Clockwise Rotate

0: No rotation

180: clockwise rotate 180 degrees

270: clockwise rotate 270 degrees

Screen Layout (Row x Column):

1 X 1 Apply

Row Position:

0 Apply

Column Position:

0 Apply

Horizontal Shift:

Left Right 0 Apply

Vertical Shift:

Up Down 0 Apply

Horizontal Scale Up (N pixels/column_count):

0 Apply

Vertical Scale Up (N pixels/row_count):

0 Apply

Console API Command:

Apply

Screen Layout (Row x Column)

Define the Video Wall size, select the Row and Column count from the drop-down menu.

Row Position: Set the Row position for the selected target RX. (start from 0)

Column Position: Set the Column position for the selected target RX. (start from 0)

Horizontal Shift: Shift target screen horizontal to left/right in 1 pixel units.

Vertical Shift: Shift target screen vertically up or down in 1 pixel units.

Horizontal Scale Up (N pixels/column_count): Scale up the target screen horizontally, by pixels (1/column count).

Vertical Scale Up (N pixels/column_count): Scale up the target screen vertically, by pixels (1/row count).

INSTALLATION

1. The factory default Connection Method for RX is “First Available”, and TX is in Multicast mode with its default Multicast IP (shown on the label). It means all TXs will send packets with default Multicast IP (225.2.xx.xx), and all RXs will find the first available TX for connection.

2. Use a CAT6 UTP cable (straight, EIA 568B) to directly connect TX/RX as a pair connection, or connect to IGMP enabled Gigabit Ethernet switch for many-to-many installation.

Note: Each TX comes with individual factory default Multicast IP which is shown on the unit label.

3. Connect TX/RX to video source/screen by HDMI cable.

4. The TX factory default EDID setting is “**Copy EDID from EDID Master**“, please perform step 4.1/4.2 to assign a RX as the EDID Master. (The Tx has internal built-in EDID of “KVM over IP” with resolution 1080p if there is no any Rx set as EDID Master)
Or you can change and use the TX built-in EDID as step 4.3:

4.1 Press and hold the [**Mode**] button of the specific RX unit and power ON until **Green** LED blinking then releasing the [**Mode**] button, this RX will be assigned as EDID Master (RX’s **Green** LED will blink, then steady ON, and **Amber** LED Off to indicate it is ready and waiting for connecting with TX). Then power ON other RX units sequentially.

4.2 Refer page 10, enable “**Copy EDID from this Video Output**” to assign a specific RX as EDID Master.

4.3 To use TX built-in EDID for specific Resolution, refer to page 6 **“**Resolution Selection**”.**

5. The following start-up messages will be displayed during RX power on:
FW: 20-Aug-28 A7.4.2.2 (Firmware date and version)
Local IP: 10.0.99.33 (RX's IP address)
MAC: 0020FExxxxxx (RX's MAC address)
Connection Method: First Available
Remote IP: 10.0.x.x / 225.0.x.x (Connecting target TX IP / Multicast IP)

6. To get the best video performance, please refer to page 9 to enable TX/RX Jumbo Frame setting, and set Ethernet Switch Jumbo Frame with minimum 8K bytes.
7. Attach HDMI/DVI source to the TX's HDMI In. Then power ON the TX unit, the **Green** LED will blink then go steady ON to indicate ready and waiting for connecting with RX.
8. As long as TX/RX connection established, both TX and RX Amber LED will start to blink, indicating waiting for video input source (Green LED is ON).
9. If you are using PC as video source, check the correct screen EDID is shown on PC graphic control panel.
10. Activate video with audio source to TX, then check if all RXs are correctly displayed. In this step, the Green LED is fast blinking and the Amber LED is ON to indicate the unit is ready and video source is also ready.

USB over IP and KM over IP installation

11. Connect TX USB-B to PC, OS will detect a Generic USB 2.0 Virtual Hub Device.

12. Refer to the [USB over IP], [K/M over IP] and [KMoIP ports] on page 11 and 12 to properly configure TX and RX for the USB devices such as keyboard, mouse, Pen Drive, Touch Screen, etc.

Note: The RX KMoIP ports will be linked to TX's KM over IP HID emulation; RX USB-over-IP ports will be linked to TX's Virtual USB ports.

It is not necessary to gain USB access right for the KM over IP port. The TX (PC) can be shared with multiple RXs for keyboard/mouse access in KM over IP mode.

13. There are 4 USB-A ports on the RX. The factory default setting for the TX is both USB-over-IP and KM-over-IP enabled; RX USB-over-IP enabled, USB 1.1 KMoIP enabled and USB 2.0 KMoIP disabled.

14. There are 2 methods to gain the access rights for a USB-over-IP port:

14.1 Keep pressing 3 sec. the RX **Link button.**

14.2 Press “U” key to toggle during Transmitter List OSD menu. The RX display “Requesting USB” to indicate starting USB-over-IP connection, and message of “Starting USB” will be displayed if it successfully gained the USB access rights. Meanwhile, the previous USB Master unit will show an OSD message of “USB Stopping”.

Tx/Rx Panel Button Operation

Press TX "Button 1" button to lock/unlock RX

Keep pressing TX **Button 1** button for 3 seconds will lock/unlock the RX’s USB and KMoIP ports. The RX will display “**Locked by TX**” OSD message on the screen when it is locked.

Press TX "Button 2" or RX "Mode" button to select Video/Graphic mode

Press TX **Button 2** or RX **Mode** button to set RX in Video or Graphic mode. The RX will display “**Graphic Mode**” or “**Video Mode**”OSD message on the screen.

Keep pressing RX "Link" button for 3 seconds to request/release USB access right.

The RX user can manually request/release USB access right when a TX is connected with multiple RXs. Keep pressing RX [Link] button for 3 seconds to request USB access right, the RX will display “**Starting USB**” OSD message. Press again will release and display “**Stopping USB**”.

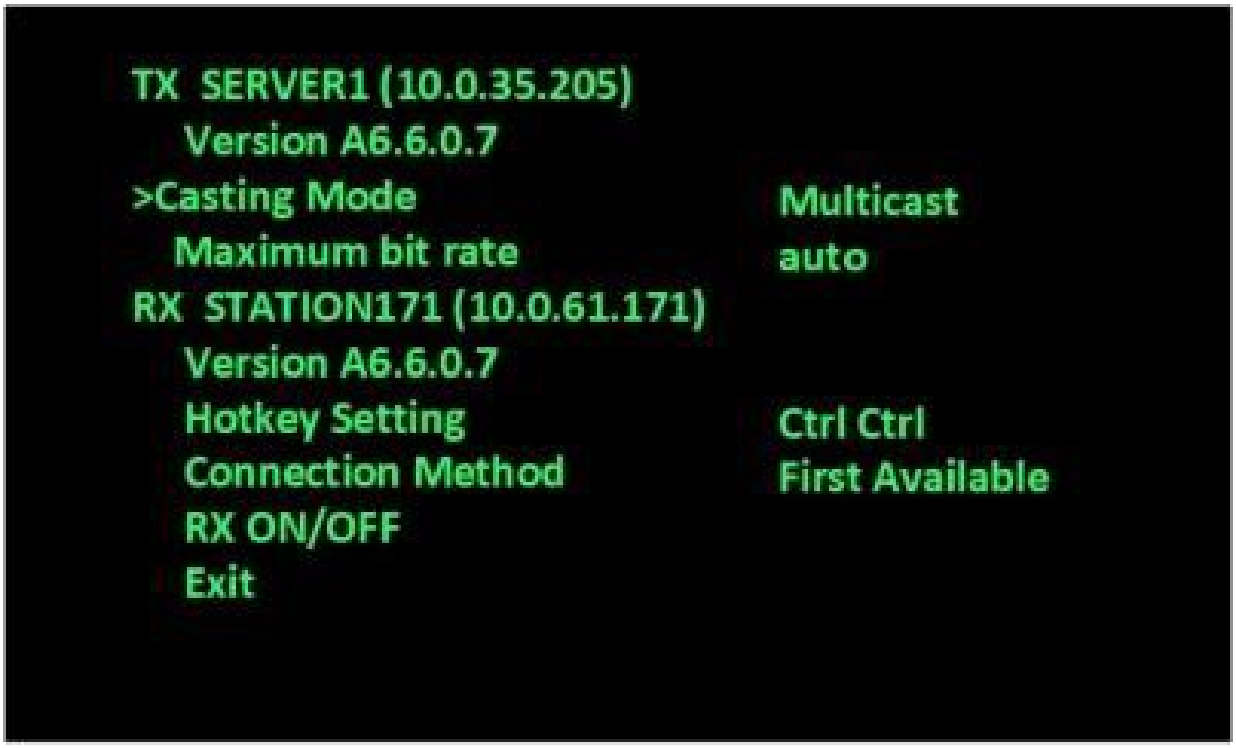
Press RX "Link" button for the “Transmitter List” and “Simple

Configuration" OSD Menu

Press RX's **Link** button for the **Transmitter List OSD Menu** as the below. Short press the button again to move the highlight arrow ">" to select the TX, the RX will connect to the selected TX after 3 seconds.

From the Transmitter List OSD Menu, keep pressing the **Link** button for 3 seconds will enter **Simple Configuration OSD Menu** as the below screenshot. Short press the button to move the highlight arrow ">" to select the setting to change. You can change Casting Mode, TX Maximum bit rate, Connection Method and RX ON/OFF (temporary Connect/Disconnect with TX).

Move the highlight arrow ">" to [Hotkey Setting], wait a few seconds, the sub-menu will show up with 4 possible selections: "Ctrl Ctrl", "Shift Shift", "Alt Alt", or "Scroll Scroll". Press **Link** button to move the highlight arrow ">" to the desired selection. The RX unit will be re-booted.

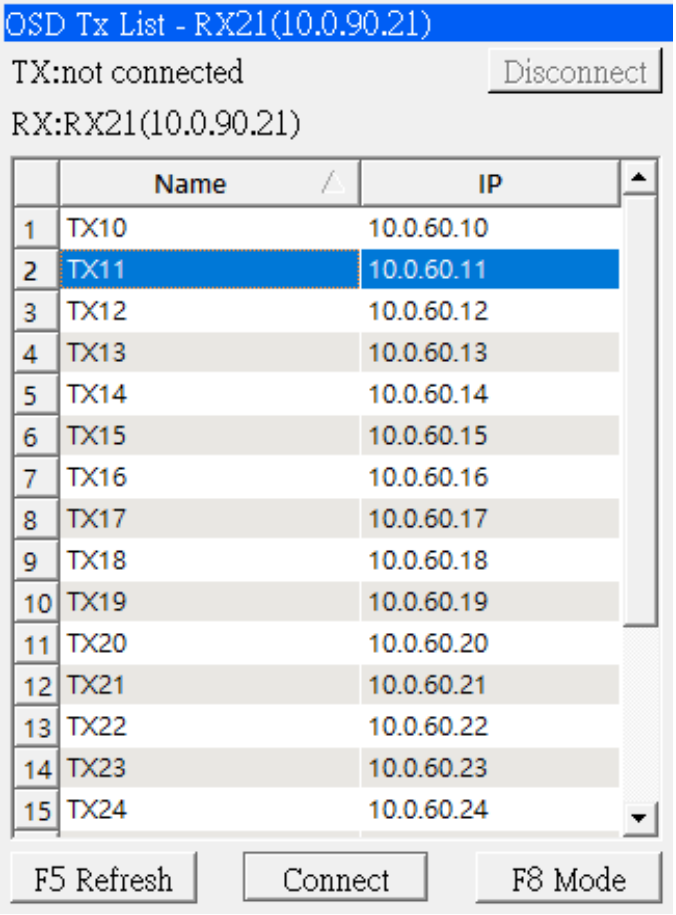


Rx Hotkey OSD Menu

The Rx supports Graphic OSD Menu from firmware version A7.4.2.2. There are 2 type of A7.4.2.2 firmware for Rx unit: **OSD Tx List firmware** and **OSD Console firmware**.

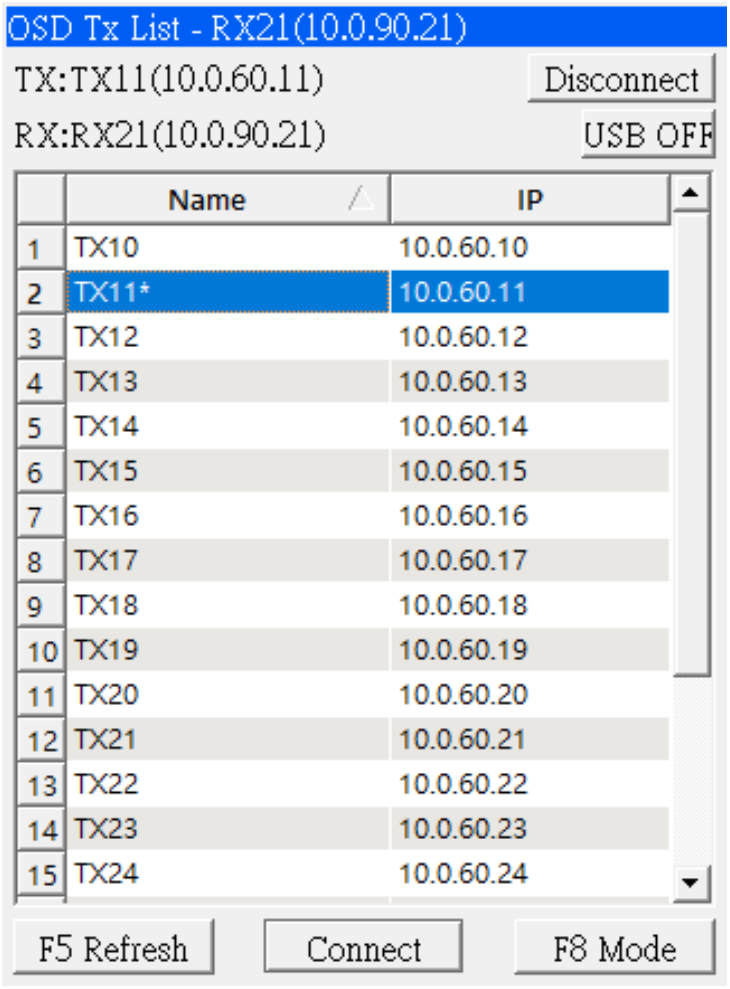
Rx with "OSD Tx List" firmware

Press <hotkey> <hotkey> at Rx keyboard will activate the OSD Tx List Menu. If the Rx has not been connected with any Tx, the OSD Tx List Menu is as below, the 1st line shows "TX:not connected", the 2nd line shows the current Rx name and IP address.



To connect to a Tx: Select a Tx by mouse or ↑ ↓ then click **Connect** button to make connection.

If the Rx already connected with a Tx, the OSD Tx List Menu is as below, the 1st line shows the connected TX name and IP address with a ”Disconnect” button, the 2nd line shows the current Rx name and IP address with a “USB ON/OFF” button.



To Start/Stop Current Rx USB over IP: Press **USB ON/OFF** button.

To refresh Tx List: Press **F5 Refresh** button.

To switch OSD in Transparency/Background Mode: Press F8 Mode button.

To Disconnect with the current Tx: Press the **Disconnect** button.

To end the OSD: Press **<ESC>**

SPECIFICATIONS

Local/Transmitter (TX)	
Ports	HDMI- Female x1 RJ45 Female x1 USB Type B Female x1 Screw Terminal (RS232) 3.5mm Jacks x2 (Mic In/Audio Out) 3.5mm Jack x1 (IR emitter- sold separately)
Computers supported	PC, SUN and MAC with Ultra-HD HDMI output
Remote/Receiver (RX)	
Ports	HDMI- Female x1 RJ45 Female x1 USB Type A Female x4 (2x USB 1.1 and 2x USB 2.0) Screw Terminal (RS232) 3.5mm Jacks x2 (Mic In/Audio Out) 3.5mm Jack x1 (IR emitter- sold separately)
Video Resolutions supoported	• Ultra-HD 4Kx2K resolutions (3840x2160 @ 30Hz) • 2K Cinema (2048x1080 @ 60Hz) • HDTV resolutions to 1080p • Computer resolutions to 1920x1200
Audio support	Supports embedded digital audio through HDMI compatible TVs or audio receivers.
RS232	
Communication	Supports TXD and RXD
Baud rate	9600/14400/19200/38400/57600/115200
Other	Supports Touch Screen Monitor
General	
Power (Local & Remote)	100 to 240VAC @50/60Hz; 12VDC, 2A AC Adaptors
Dimensions (WxDxH)	5.91x4.33x1.10 In. (150x110x28 mm).
Operating Temperature	32 to 122°F (0 to 50°C).
Storage Temperature	-4 to 185°F (-20 to 85°C).
Operating/Storage Relative Humidity	0 to 80% non-condensing RH
Regulatory Approvals	CE, FCC, RoHS, TAA compliant