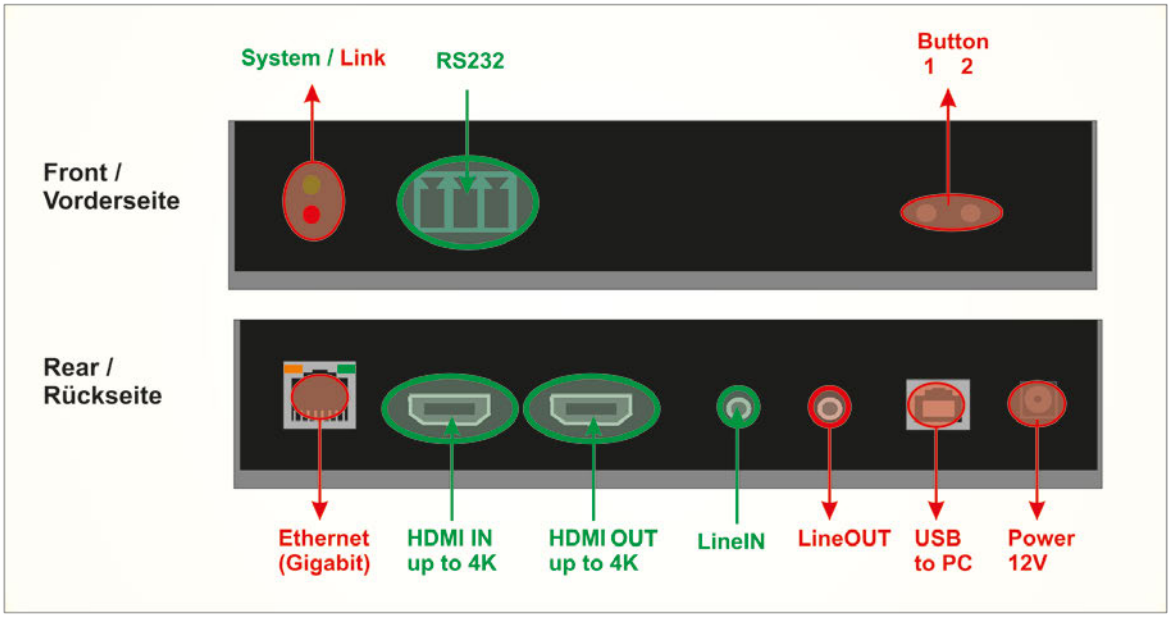
Panel and Connectors

LionDATA AVX-4K2K-HDMI-Transmitter (TX) LDA-DIG-AVX-TRA-04K/IP HDMI



Button 1

Press and hold at POWER ON : If Green and Amber LED blinking, release button. Unit will enter to Setup mode: 1. Reset to Factory default, 2. Enter Setup and Firmware upgrade mode in 192.168.0.88

Button 2

Short press : Set to video / graphic mode
Long press (3 sec) : Anti-Dither mode - for some ATI graphic cards to achieve better video quality

LEDs (GREEN=system, AMBER=link)

Green blinking/Amber off	:	System is starting up
Green On/Amber off	:	System is ready, but Broadcaster/Receiver not connected
Green on/Amber blinking	:	Connected, but waiting HDMI input
Green on/Amber on	:	Connection established, HDMI input is ready

USB-to-PC

USB-B connection to PC for USB 2.0 extension

MSC (monitor status control) via RS232

The AVX-IP HDMI system provides serial-over-IP function (pin assignment: TxD-RxD-GND)

Line in / Line out

Line in : Audio line in, extended to line out of receiver unit
Line out : Audio line out, extended from mic. of receiver unit

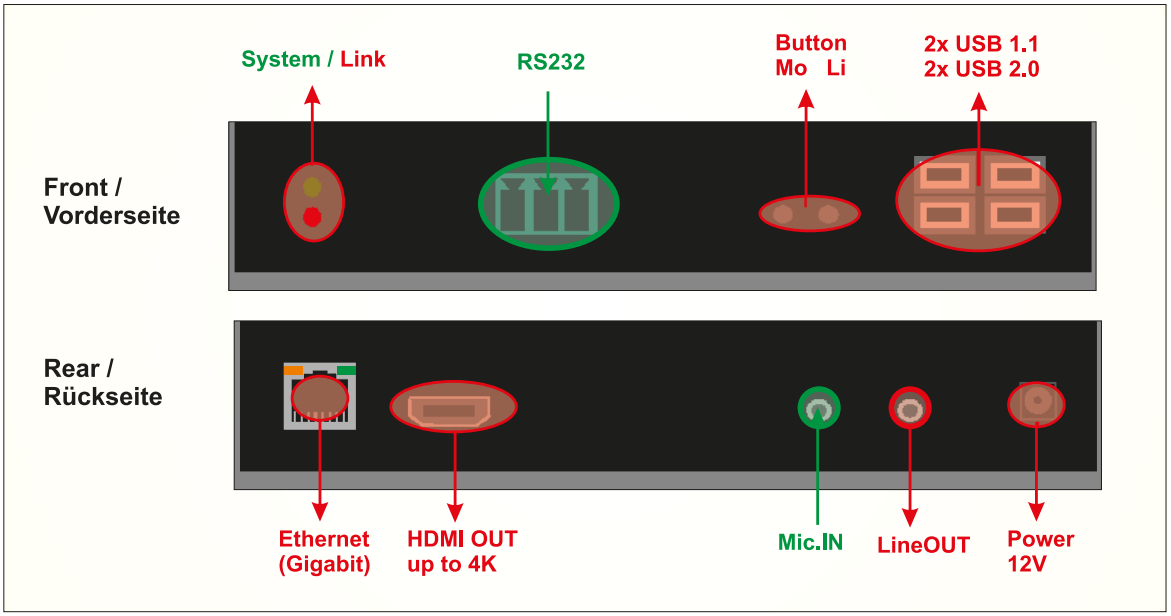
DC power input

DC 9 - 32V input

© LionDATA

Panel and Connectors

LionDATA AVX-4K2K-HDMI Receiver (RX) LDA-DIG-AVX-REM-04K/IP HDMI



Mode-Button

Short-press	:	Set to video or graphic mode
Long press (3 sec)	:	Enable/disable Anti-Dither mode (see broadcaster unit, why)
Press and hold at POWER ON	:	Until Green LED blinking - get and use this Receiver units EDID as the system EDID

Link-Button

Short press	:	To enable/disable transmitter list OSD
Long press (3 sec)	:	To get the USB access right
Press and hold at POWER ON	:	If Green and Amber LED blinking, release button. Unit will enter to Setup mode: 1. Reset to Factory default, 2. Enter Setup and Firmware upgrade mode in 192.168.0.88

LEDs (GREEN=system, AMBER=link)

Green blinking/Amber off	:	System is starting up
Green On/Amber off	:	System is ready, but Broadcaster/Receiver not connected
Green on/Amber blinking	:	Connected, but waiting HDMI input
Green on/Amber on	:	Connection established, HDMI input is ready

2x USB 1.1 / 2x USB 2.0 (both USB-A)

USB 1.1 devices like keyboard, mouse, printer / USB 2.0 devices like USB disk, Touch scr.

MSC (monitor status control) via RS232

The AVX-IP HDMI system provides serial-over-IP function (pin assignment: TxD-RxD-GND)

Mic. in / Line out

Mic in	:	Microphone input, extended to line out of transmitter unit
Line out	:	Audio line out, extended from line in of transmitter unit

DC power input

DC 9 - 32V input

© LionDATA

■ Configuration

The TX/RX unit built with Web page for Setup mode and Operation mode configurations.

■ Setup Mode Configuration

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

➢ Reset to Factory default (Setup Mode)

If the device settings lost, you can reset the device back to the factory default:

1. Enter Setup Mode Web page **[System]** ---> [**Utilities**] ---> [**Factory Default**]
   (The Factory default setting are shown on the label that under the TX/RX unit)

➢ Firmware Upgrade (Setup Mode)

1. Enter Setup Mode Web page **[System]** ---> [**Update Firmware**] ---> navigate to the firmware file (.bin) then click [**Upload**] to start firmware upgrade.
2. The firmware upgrade takes about 3 min., it will display "DONE Rebooting…" to indicate the unit has been upgraded and rebooted.

■ Operation Mode Configuration

The TX/RX can be configured in Operation Mode through Ethernet Switch or direct connection.
To enter Operation mode Web page:

1. Set PC IP 10.0.1.1, Net Mask 255.0.0.0.
2. Open Browser (recommend Chrome) then enter TX/RX IP: 10.xx.xx.xx
3. The TX/RX Web page are shown as the below screenshots. The TX contains 3 tab menus [System],
4. [Network], Functions], the RX contains 4 tab menus [System], [Video Wall], [Network], Functions]:

➢ Firmware Upgrade (Operation Mode)

It is possible to do the firmware upgrade in Operation mode for TX/RX:

1. Enter Web page **[System]** ---> **[Update Firmware]** ---> navigate to the firmware file (.bin) then click [Upload] to start firmware upgrade.
2. The firmware upgrade takes about 3 min., it will display "DONE Rebooting…" to indicate the unit has been upgraded and rebooted.

■ Network Configuration

The TX/RX provides the following Network related settings:

© LionDATA

➢ IP Setup (TX/RX)

Enter TX/RX Web page **[Network]** ---> **[IP Setup] --->** select Auto IP, DHCP, Static ---> enter device IP, Subnet Mask, Default Gateway ---> **[Apply]**.

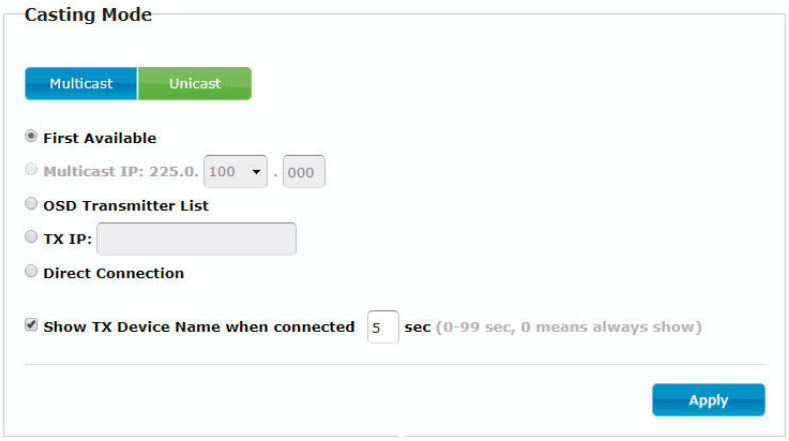
➢ Casting Mode (TX)

Enter TX Web page **[Network]** ---> **[Casting Mode]** ---> select [Multicast] or [Unicast] ---> enter the Multicast IP address with 225.0.x.x ---> **[Apply]**. **(Default Multicast)**

Note: **Each TX comes with one Individual IP address and one Multicast IP address that are both shown on the unit label.**

➢ Casting Mode (RX)

There are 4 Connection Methods **for Multicast RX:** First Available, Multicast IP, OSD Transmitter List, and Direct Connection.
There are 3 Connection Methods for **Unicast RX:** OSD Transmitter List, TX IP and Direct Connection.
First Available: the RX will connect to the first available TX.
Multicast IP: 225.0.xxx.xxx: the RX will connect to the TX with the same Multicast IP address.
OSD Transmitter List: the RX will show up the available Transmitters for user to select.



TX IP: x.x.x.x: the RX will connect to this dedicated TX only.
Direct Connection: this setting enables RX to connect TX by the same subnet, same Casting Mode, Jumbo Frame will be automatically enabled.

★ Show TX Device name when connected (RX)

This feature enable RX to pop up the TX name (or IP) when connected. Default is enabled with 5 seconds.

➢ Jumbo Frame (TX/RX)

The TX/RX Jumbo Frame must be enabled for the 4K input and output. **(default Enabled)**
Enter TX/RX Web page ---> **[Network]** ---> **[Jumbo Frame]** ---> Enable/Disable ---> **[Apply]** ---> the unit will save the setting and reboot automatically.

Note: TX/RX and Ethernet Switch must be Jumbo Frame enabled (at least 8K) to work properly for 4K HDMI.

© LionDATA

■ Functions Configuration

➢ Device Name (TX/RX)

Enter TX/RX Web page ---> **[Functions]** ---> **[Device Name]** ---> enter name (8 characters) ---> [**Apply**] to save the device name.

➢ K/M over IP (TX) ; KMoIP ports (RX)

The system supports both USB-over-IP and KM-over-IP for USB extension. The USB-over-IP works as a virtual 5-port USB HUB when TX is connected to PC, it can compatible with most kind of USB devices such as keyboard, mouse, Pen Drive, Touch Screen… etc.

The KM-over-IP is a HID emulation built for multiple RXs to share keyboard/mouse for one PC, it takes one port of the 5 virtual ports. The KM-over-IP setting is different for TX and RX:

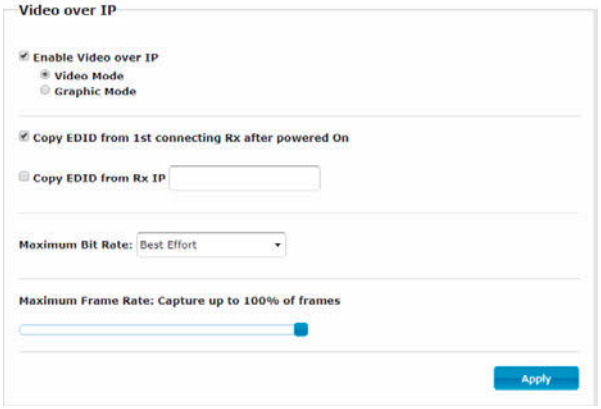
For TX: enter TX Web page ---> **[Functions]** ---> **[USB over IP]** ---> **[Compatibility Mode]** ---> check/uncheck [K/M over IP] to Enable/Disable ---> **[Apply] (default enabled)**.

For RX, enter RX Web page ---> **[Functions]** ---> **[KMoIP ports]** ---> check/uncheck 1, 2, 3, 4 to Enable Disable KM-over-IP ports **(default all disabled)** ---> **[Apply]**.

➢ Hotkey (RX)

The RX supports Hotkey for OSD Menu. You can choose the Hotkey: enter RX Web page ---> **[Functions]** ---> **[Hotkey]** ---> select the Hotkey of <Ctrl><Ctrl>, <Shift> <Shift>, <Alt> <Alt>, or <Scroll> <Scroll> **(default Ctrl Ctrl)**.

➢ Video over IP (TX)



Enter TX Web page ---> **[Functions]** ---> **[Video over IP]** ---> check/uncheck [Enable Video over IP].

★ Video/Graphic Mode

Select [Video Mode] for play smoothly.
Select [Graphic Mode] for display static picture clearly.

★ Copy EDID from 1st connecting RX

Enable this feature will force TX to get EDID from the 1st connected RX.

★ Copy EDID from RX IP

Enable this feature to force TX to get EDID from a specific RX. Enter RX's IP address here.

★ Maximum Bit Rate

The TX provides options of "Best Effort", "200 Mbps", "150 Mbps", "100 Mbps", "50 Mbps", "10 Mbps" for the TX bandwidth selection. **(default Best Effort).**

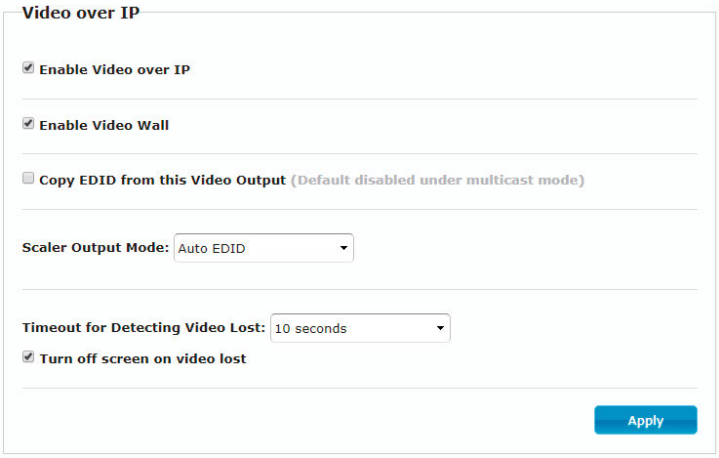
★ Maximum Frame Rate

This setting provides the maximum % of the TX frames rate capture up **(default 100%)**.

© LionDATA

➢ Video over IP (RX)

Enter RX Web page ---> **[Functions]** ---> **[Video over IP]** ---> check/uncheck [Enable Video over IP].



★ Enable Video Wall

Enable this setting for the Video Wall output.

★ Copy EDID from this Video Output

Enable this setting to assign this RX as the EDID Master.

★ Scaler Output Mode

Select the option of “Auto EDID”, “Pass Through”, “1080p60”, “1080p50”, “1920x1200”, “2160p30”, “2160p25”, “Customize” **(default Auto EDID)**

★ Timeout for detecting video lost

Set the timeout period for the video lost detection **(default 10 sec.)**

★ Turn off screen on video lost

Enable this setting to stop the video output. **(default Enabled)**

➢ USB over IP (TX/RX)

Enter TX/RX Web page ---> **[Functions]** ---> **[USB over IP]** ---> **[Enable USB over IP] --->** check/uncheck to Enable/Disable **(default Enable).**

★ Compatibility Mode: (TX)

★ Mouse not responding well

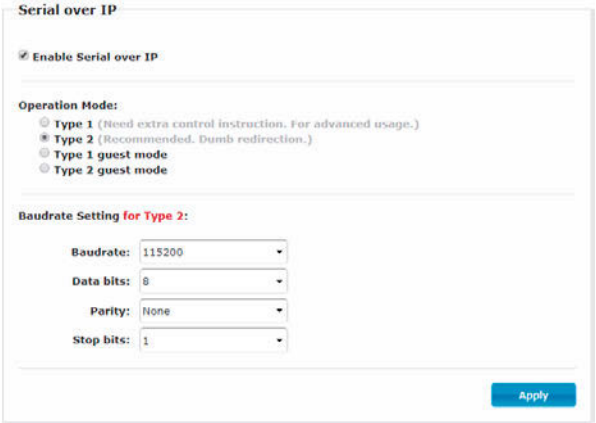
Enable this setting if the USB mouse response slow and queer. **(default Disabled)**

★ K/M over IP

Check this setting to enable TX’s KM over IP (built-in HID) feature. **(default Disabled)**

➢ Serial over IP (TX/RX)

Enter TX/RX Web page ---> **[Functions]** ---> **[Serial over IP]** ---> Enable/Disable **(default Enable).**



★ Operation Mode

Select options of Type 1, Type 2, Type 1 guest mode, Type 2 guest mode **(default Type 2).**

Note: Type 1 is mainly for Unicast application where user can dynamically link with any target RX.
Type 2 is mainly for Multicast application where TX RS-232 will link with all of connected RXs **(default).**
Type 1 guest mode is similar to type 1 but using PC to link with RX’s RS-232.
Type 2 guest mode is similar to type 2 but using PC to link with RX’s RS-232.

© LionDATA

For details, please refer to “How to Use RS232 over IP” manual.

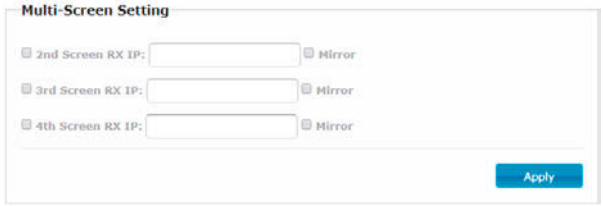
★ **Baudrate Setting for Type 2**

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

➢ **Audio Output (RX)**

If the TX’s input audio is HDMI, you can set the Audio output on Line Out of the TX: Enter RX Web page ---> **[Functions]** ---> **[Audio Output]** ---> check **“HDMI Audio De-Embedder”**. Click **[Apply]** to save the setting and reboot. **(default Disabled)**

➢ **Multi-Screen Setting (TX/RX)**



The system supports Multi-Screen feature. Each TX/RX can be defined with associated 2nd, 3rd, 4th TX/RX IP. When the Main RX switches to a new TX, its associated RXs will also be switched to the new TX’s associated TXs automatically.
Enter TX/RX Web page ---> **[Functions]** ---> **[Multi-Screen Setting]** ---> then enter IP address for the associated 2nd, 3rd, 4th TX/RX IP.

★ **Mirror (RX)**

There is an option of **“Mirror”**, when enabled, the associated RXs will connect to the same TX as the Main RX is connecting. This enables multiple RXs to display the same TX as a splitter.

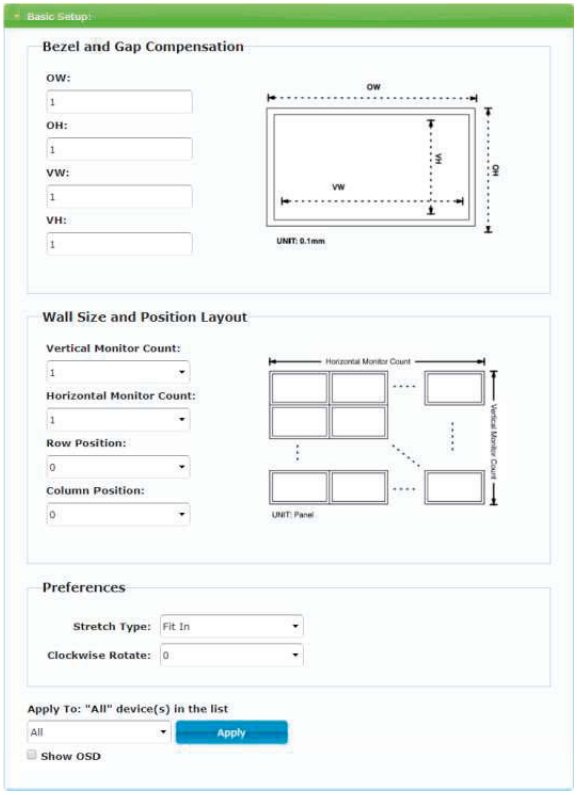
© LionDATA

■ Video Wall Configuration (RX)

➢ Basic Setup

➢ Bezel and Gap Compensation

Enter RX Web page ---> **[Video Wall]** ---> **[Basic** Setup] ---> Enter the value for OW (Outside Width), OH (Outside Height), VW (View Width), VH (View Height) in 0.1mm unit ---> **[Apply]**.



➢ Wall Size and Position Layout

Enter RX Web page ---> **[Video Wall]** ---> **[Basic Setup]** ---> select the value for Vertical Monitor Count, Horizontal Monitor Count, Row Position, Column Position from the drop-down menu ---> **[Apply]**.

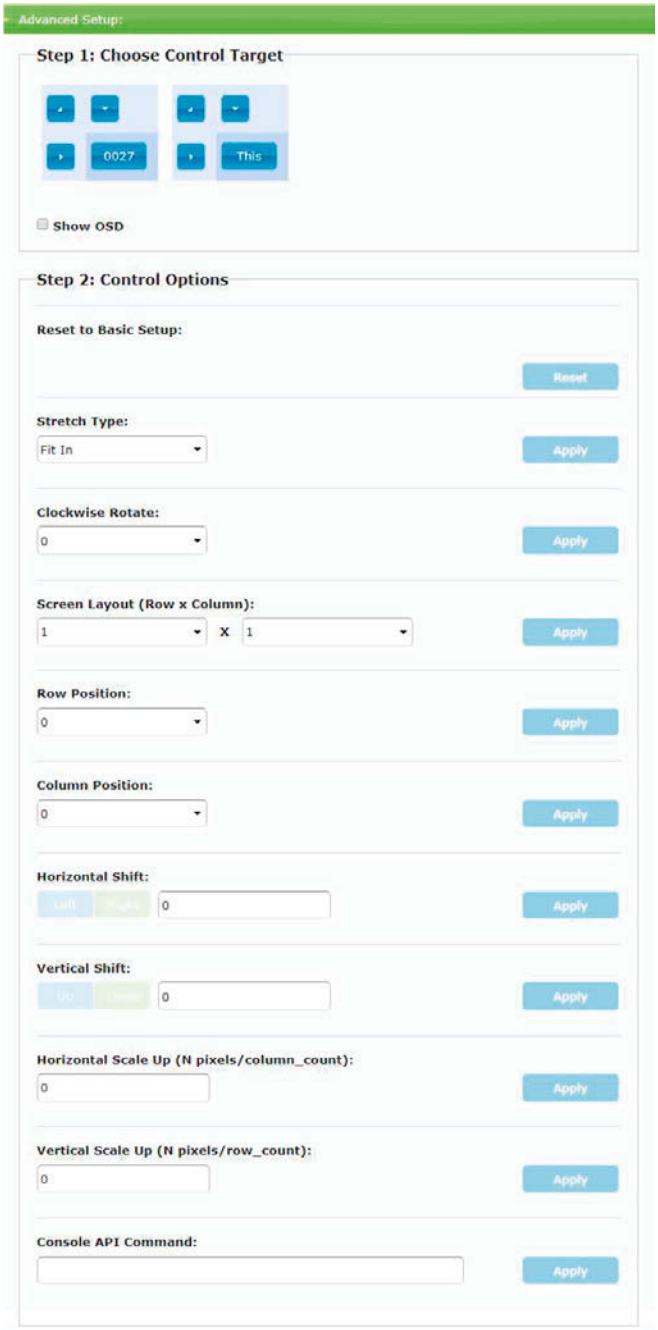
➢ Stretch and Rotation Preferences

Enter RX Web page ---> **[Video Wall]** ---> **[Basic Setup]** ---> **[Preferences]** ---> **[Stretch Type]** ---> select ”Fit In” or “Stretch Out” ---> **[Apply]**
[Clockwise Rotate] ---> Select 0, 180, 270 --> **[Apply]**
Note: Fit In: Stretch the full screen to the whole wall.
Stretch Out: keep picture aspect ratio and stretch out of the screen if needed.

➢ Show OSD

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

© LionDATA



- **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.

- **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.
  Stretch Out: keep picture aspect ratio and stretch out of the screen if needed.

- **Clockwise Rotate:**
  0: No rotate
  180: clockwise rotate 180 degree
  270: clockwise rotate 270 degree

- **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. (The Row starting from 0)

- **Column Position:**
  Set the Column position for the selected target RX. (The Column starting from 0)

- **Horizontal Shift (Left, Right):**
  Shift target screen horizontal to left or right in 1 pixel unit.

- **Vertical Shift (Left, Right):**
  Shift target screen vertical to left or right in 1 pixel unit.

- **Horizontal Scale Up**
  Scale up the target screen in horizontal (1/column count) pixel.

- **Vertical Scale Up**
  Scale up the target screen in vertical (1/row count) pixel.

© LionDATA

■ 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). This means all of TXs will send packets with its default Multicast IP (225.0.xxx.xxx), and all of 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 connects to IGMP enabled Gigabit Ethernet switch for the many TXs-to-many RXs installation.
   Note: Each TX comes with individual factory default Multicast IP which shown on the unit label.

3. Adjust D/A switch for HDMI/DVI or VGA installation. Connects TX/RX to video source/screen.

4. **Assign EDID Master**. There are some methods for the EDID Master assignment:
   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. Then power ON other RX units sequentially. In this step, RX’s **Green** LED will blink then ON, and **Amber** LED Off to indicate it is ready and waiting for connecting with TX.
   4.2 Refer to page 7 “Copy EDID from this Video Output” to assign a specific RX as EDID Master.
   4.3 Refer to page 6 “Copy EDID from 1st connecting RX” to set TX EDID from the first connected RX.
   4.4 Refer to page 6 “Copy EDID from RX IP” to set TX EDID from a specified RX.

5. The following start-up messages will be displayed during RX powered on:
   FW: 25-Sep-17 A6.5.3.1 (Firmware date and version)
   Local IP: 10.0.34.38 (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. **If the input source is 4K2K then please refer to page 5 to enable TX/RX Jumbo Frame setting, and set Ethernet Switch Jumbo Frame with minimum 8K bytes to get the best video quality.**

7. Attach HDMI/DVI or VGA source to the TX’s HDMI/VGA In. Then power ON the TX unit, the **Green** LED will blink then ON to indicate ready and wait for connection with RX.

8. As long as TX/RX connection established, both of TX and RX Amber LED will start to blink indicating wait for video input source (Green LED is ON).

9. If you are using PC as video source, it is recommended to check if the correct screen EDID shown on PC graphic card control panel.

10. Activate video with audio source to TX, then check if all RXs are correctly displayed. In this step, both Green and Amber LED should be ON to indicate the unit is ready and video source is also ready.

■ USB and KM over IP installation

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

12. The system can support both “USB-over-IP” and “KM-over-IP”.
    The USB-over-IP works as a Virtual 5-port HUB when connected to TX, it is compatible with most kind of USB devices such as keyboard, mouse, Pen Drive, Touch Screen…
    The KM-over-IP means the USB port will work as HID device only for keyboard/mouse emulation. 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 of USB-over-IP and KM-over-IP enabled, all 4 USB ports of RX are in USB-over-IP mode (KM-over-IP disabled).

Änderungen und Irrtümer vorbehalten. © LionDATA

14. There are 2 methods to gain the access right for a USB-over-IP port:
    14.1 Long press (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 right. Meanwhile, the previous USB Master unit will show an OSD message of "USB Stopping".

➢ RX OSD Main Menu

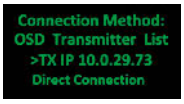
The RX supports OSD menu, press the RX's **[Link]** button to get the OSD Main menu: **[Hotkey Setting]** and [**Connection Method]**.

➢ RX OSD Hotkey selection Sub-Menu

From the OSD Main Menu, press **[Link]** button to 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 again to move the highlight arrow to the desired selection. The RX unit will be re-booted.

➢ RX OSD Connection Method Sub-Menu

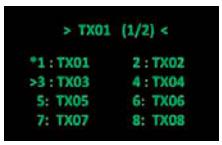
From the OSD Main Menu, press **[Link]** button to move the highlight arrow to [Connection Method]. Wait a few seconds, either **Multicast** or **Unicast Connection Method** sub-menu will show up depending on the RX's Casting mode. The Multicast RX supports 4 possible connection methods: First Available, Multicast IP, Transmitter List, and Direct Connection, as the right screenshot:
The **First Available** means the RX will connect to the first available TX that it finds on the network.
The **Multicast IP** 225.0.100.000 means the RX will connect to the TX with the same Multicast IP.
The **OSD Transmitter List** means the RX will show up the available Transmitters for user to select when <Hotkey> <Hotkey> is pressed.
The **Direct Connection** means the RX will connect to a specific TX as a pair connection.



The Unicast RX supports 3 possible connection methods: OSD Transmitter List, Dedicated TX IP, and Direct Connection, as the right screenshot:

Press the **[Link]** button to move the highlight arrow to the desired selection and wait a while to confirm the selection.
Please note the Sub-Menu only provide selection, the Multicast IP or TX IP can only be changed by the Web page setting.

➢ RX OSD Transmitter List



Attach a keyboard to the RX's any USB port, press <hotkey> <hotkey>. The OSD List with maximum 8 Transmitters will be shown, as the screenshot on the right. The top line "TX01 (1/2)" means the current connection is "TX01" and there are 2 pages and currently it's on page 1. The TX with an asterisk (*) mark indicates the current connected TX.
You can select TX by the↑↓←→key and <Enter>, or 1 ~ 8 key to immediately connect to that TX.
Press F5 to refresh Transmitter List. Press U to request (or release) USB-over-IP. To end of OSD, press <ESC>

■ Connection Manager and Video-Wall Manager

The system provides Windows based Connection Manager and Video-Wall Manager software for the TX/RX connection and Video-Wall management. Please refer to the Connection Manager and Video Wall Manager Guide for details.

Änderungen und Irrtümer vorbehalten. © LionDATA