# KVM-1-EH-LAN/RH-LAN
# User Manual v1.0



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APANTAC LLC, 7556 SW BRIDGEPORT ROAD, PORTLAND, OR 97224
INFO@APANTAC.COM, TEL:    +1 503 968 3000, FAX:    +1 503 389 7921

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# Table of Contents

# 1.0 WHAT'S IN THE BOX (When sold in pairs)

**Note:   KVM-1-EH-LAN and KVM-1-RH-LAN can also be sold separately**

| QTY | Product | Description |
|---|---|---|
| 1 | | KVM-1-EH-LAN:   KVM Extender (Transmitter) |
| 1 | | KVM-1-RH-LAN:   KVM Receiver (Receiver) |
| 2 | | 5 V DC power supply with universal adapter |
| 1 | | Type A to Type B USB Cable comes with KVM-1-EH-LAN |
| 2 | | IR Emitter cables |
| 1 | | Remote Control to switch |

# 2.0 Key Features

- KVM Extenders over Gigbit Ethernet network
- Extends HDMI, USB 2.0/1.1, RS-232, bidirectional audio, bi-directional IR over a single cable
- Built-in HDMI loop-out to eliminate the need for a splitter
- Receiver unit has 4 USB ports to easily extend peripherals such as flash drives, keyboard and mouse
- Support HDMI rewolutions up to 1080P
- Compatible with HDCP 2.0
- Up to 16 transmitters and 200 receivers on the same network
- Support up to 150 meters on CAT5E cables and 180 meters on CAT6 point to poing
- Support up to 100 meters via switch/hub
- Requires Gigabit switches that supports IGMP and Jumbo frame packets
- Web interface for basic configuration

## 2.1 Specifications

| Functions/Part# | KVM-1-EH-LAN | KVM-1-RH-LAN |
|---|---|---|
| HDMI Input Connector | 1 (HDMI Type A) | None |
| HDMI Output Connector | 1 (HDMI Type A) | |
| HDMI Output Max. Resolution | 1080P@60Hz (8 bit) | |
| USB | Type B (Female) | Type A x 4 (Female) |
| LINK | Rj-45 | |
| Audio | 2 x 3.5 mm jack | |
| IR In | None | 3.5 mm jack |
| IR Out | 3.5 mm jack | None |
| CAT 5E cable distance | 150 meters maximum point to point | |
| RS-232 connector | DB9 Female | |
| Weight | 338 g | |
| Dimension (LxW-H) | 140 mm x 125 mm x 30 mm | |

### 2.1.1 Defalut Settings

Both multicast and unicast modes are supported.   The default is Multicast mode.

## Multicast Mode

In multicast mode, the system can be setup to be one to one, one to many, multiple transmitters to multiple receivers.

The analog audio output of the transmitter and the input of the receiver is turned off in the multicast mode.   Analog audio is only passed from the transmitter to the receiver.

## Unicast Mode

Unicast mode is sutable for one to one or , multiple transmitters to one receivers

The bi-directional analog audio transmission only works in unicast mode.   Please refer to Appendix A for setup with the webpage.

### 2.1.2 Bandwidth chart

| Resolutions @60Hz | Average BW (Mbps) | Resolutions @ 60Hz | Average BW (Mbps) |
|---|---|---|---|
| 1080P | 77 (24 ~ 91) | 1600x1200 | 59 (24 ~ 73) |
| 720P | 46 (29 ~ 150) | 1280x1024 | 58 (31 ~ 76) |
| 480P | 63 (36~ 73) | 1024x768 | 118 (56 ~ 128) |
| | | 800x600 | 83 (64 ~ 107) |

The bove bandwidth chart does not include USB transmission, it consumes up to 50 Mbps when USB mass storage data is transmitted.

The system support 16 full HD video source transmitted simultaneously, for systems more than 16 video sources, it can be set through web page or APP.

The system scalability is limited only by uplink and stacking connector bandwidths, for example under a Gigabit Ethernet network, the total flow must not exceed 1000Mbps to avoid any delay on video streaming.   If the video sources are 1080p resolution, the transmitters allow maximum up to 10 streams for simultaneous video streaming.

For 11~20 sources, use switches that support 802.3ad Link Aggregation or smart (or intelligent) switches to get 2 Gbps or more bandwidth.

For 21~100 sources, use switches that support SFP+ uplink or stackable switches to get 10 Gbps bandwidth.

## 2.1.3 USB Hot Key Functions

In multicast mode, the KVM-1-RH-LAN (receiver) supports multiple plug and play USB keyboards and mice.   However, only one USB FLASH drive /hard disk can be used at same time.   Click on the "Pause/Break" key on the keyboard three times on that is connected to the KVM-1-RH-LAN (receiver) to enable the USB FLASH drive /hard disk connection.

## 2.2 Front/Rear Views
### KVM-1-EH-LAN



Figure 2-1 KVM-1-EH-LAN front view

1.  LAN in (RJ45 LED indicator Status)

| RJ45 LED | Status | Description |
|----------|--------|-------------|
| Orange | Off | Ethernet not connected |
|  | On | Ethernet connected |
| Green | Off | No data transmission |
|  | Flash | Data transmission |

2.  HDMI Input
3.  HDMI Output
4.  Audio In
5.  Audio Out
6.  USB



Figure 2-2 KVM-1-EH-LAN rear view

1. IR
2. LED LINK Status

| LED | Status | Description |
|---|---|---|
| Green | Off | No power |
| | On | Boot completed |
| | Flash twice | Booting |
| | Flash slowly | Turning off video output |
| Blue | Off | Not connected between Tx and Rx |
| | On | Connected and video is streaming |
| | Flash | Connecting or no source input on transmitter |

3. IR Emitter
4. Link button
5. Function button

| Button | LINK | FUNCTION |
|---|---|---|
| Short Press | Remote output (on/off) | Video Mode / Graphic Mode |
| Hold button (3 seconds) | Loop (on/off) | Dither off/On |
| Press to power on (hold until Green LED flashes) | N/A | Update EDID from Loop Out |
| Press to power on (Hold until Green and Blue LED flashes) | Reset to Default | N/A |

**Note: Video Mode and Dither Off are the default setting**

6. RS-232
7. Transmitter Channel Switch
8. Power

## KVM-1-RH-LAN
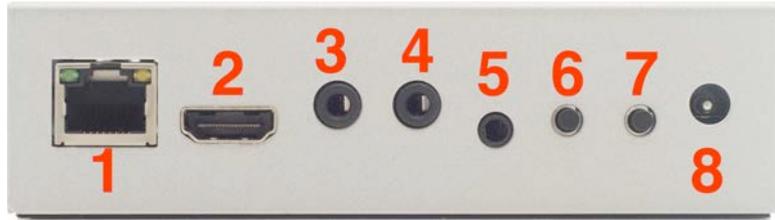
Figure 2-3 KVM-EH-LAN front view

1. LAN out
2. HDMI output
3. Audio In
4. Audio Output
5. IR Emitter
6. Receiver channel up button "+"
7. Receiver channel down button "-"

| Buttons | CH - | CH + |
|---|---|---|
| Press both | Confirm/Enter menu/Turn on video output | |
| Short press | Reduce the channel value | Increase the channel value |

8. Power



Figure 2-4 KVM-1-RH-LAN rear view

1. IR receivers
2. LED indicators (Power: Green, Link: Blue, IR: Red)

| LED | Status | Description |
|---|---|---|
| Green | Off | No power |
| | On | Boot completed |
| | Flash twice | Booting |
| | Flash slowly | Turning off video output |

|       | Pulse | Screen saver mode |
|-------|-------|-------------------|
| Blue  | Off   | Not connected between Tx and Rx |
|       | On    | Connected and video is streaming |
|       | Flash | Connecting or no source input on transmitter |
| Red   | Off   | No IR signal between Tx and Rx |
|       | On    | Transmitting IR signal between Tx and Rx |

3. USB ports for keyboard, mouse and USB storage

# 3.0 Rotary Switch

## 3.1 Transmitter channel setting



This KVM system is capable of 16 transmitters to 200 receivers.   This rotary switch has 16 positions to enable the required channel settings.

In order to communicate, the transmitter and receiver must have the same channel setting.   The rotary switch setttings are from "0 ~F", where A = 10, B = 11, C = 12, D =13, E = 14, F = 15

When there are multiple transmitters in the system, the transmitter channel settings must be unique.   Power cycle is required after rotary switch change.

# 4.0 Remote Control



You can choose not to use computer to set up the KVM-1-RH (receiver), then you can use the IR remote control instead.   The remote control and the remote ID of the receiver must be the same.   The default Remote ID is 8.

To set the ID on the remote control,

1.  Press and hold the power button

2.  Press the number.   Example:   Press the ⏻ then ⑧ will set the ID to 8

## 4.1 Remote Control Button Functions

| Symbol | Function | Description |
|---|---|---|
| | Power | Temporarily turn on/off the video output / setup remote control ID |
| | MENU | Menu selections, input numbers after press menu button |
| | LEFT | Previous channel |
| | RIGHT | Next channel |
| | UP | Previous quick menu selection |
| | DOWN | Next quick menu selection |
| | ENTER | Confirmation / display the current channel |
| | 1 | Number 1 |
| | 2 | Number 2 |
| | 3 | Number 3 |
| | 4 | Number 4 |
| | 5 | Number 5 |
| | 6 | Number 6 |
| | 7 | Number 7 |
| | 8 | Number 8 |
| | 9 | Number 9 |
| | 0 | Number 0 |

| | * | Cancel / Exit |
|---|---|---|
| | A | Favorite channel switching |
| | B | Back to previous channel |

## 4.2 Remote Control Operations

### Select Channel
Mode 1: use ◄ or ► select channel and wait 3 seconds, or press **ENTER** immediately to confirm.
Mode 2: enter the channel number and press **ENTER** to confirm the input channel.

### Select Function
Mode 1: use ▲ or ▼ select function, press **ENTER** to confirm.
Mode 2: press **ENTER**, then input function number as below, press **ENTER** to confirm.

### Basic Menu Number

| A | Add Favorite Channels | Add current channel to favorite channel list |
|---|---|---|
| B | Remove Favorite Channels | Remove current channel from favorite list |
| 0 | MAC Address | Display MAC address of receiver |
| 1 | IP address | Display IP address of receiver |
| 2 | Host IP address | Display IP address of currently connected Tx |
| 5 | System Version | Show system version information |
| 6 | Restart Link | Recoonect with the transmitter |
| 7 | Stop Link | Stop the connectionwith the transmitter |
| 8 | Display Advance Menu | Display and enable advance menu |
| 9 | Hide Advance Menu | Hide and disable advance menu |

### Advance Menu Number

| 10 | Enable Screen Saver Mode | After there is no video input for one minute |
|---|---|---|
| 11 | Disable Screen Saver Mode | Turn off Screen Saver |
| 12 | Enable Channel Expansion | Enable channel expansion (CH 0 ~ 99) |
| 13 | Disable Channel Expansion | Disable channel expansion (CH 0 ~ 15) |
| 14 | Device Number | Show device number |
| 15 | Set Device Number | Set device number from 0 to 9999 |
| 16 | Group Number | Show group number |
| 17 | Set Group Number | Set Group number from 0 – 99 |
| 18 | Party Number | Show Party number |
| 19 | Set Part Number | Set party number from 0 to 99 |
| 20 | Remote ID | Show current remote ID |

| 21 | Set Remote ID | Set Remote ID 0 to 9 |
|---|---|---|
| 22 | Enable IR remote | Enable IR remote |
| 23 | Disable IR remote | Disable IR remote |
| 24 | Enable IR extender | Enable IR extender |
| 25 | Disable IR extender | Disable IR extender |
| 26 | Enable Channel Button | Enable Channel button |
| 27 | Disable Channel Button | Disable channel button |
| 28 | Enable RS-232 Assignment | Enble RS-232 assignment then auto reboot |
| 29 | Disable RS-232 Assignment | Disable RS-232 assignment then auto reboot |
| 30 | Video Graphics/Video Mode | Switch host video (Video mode = default) |
| 31 | Anti-Dithereing | Switch host video (Anti-dithering = default) |
| 70 | Favorite List | Show favorite channel list |
| 80 | System Information | Transmission/streaming mode, version |
| 81 | Network Information | Status of link, MAC, IP, Host Ip address |
| 82 | Channel Information | Current/previous channel, expansion |
| 83 | Device Number Information | Display device, group, party numbers |
| 84 | IR & Button Information | Status of IR, remote ID, IR remote/ extender |
| 85 | RS-232 Assignment Info | Status of RS-232 assingment, channel, IP |

## System Maintenance Menu Numbers

| 300 | Force Update EDID of a target client | Set host EDID from current monitor |
|---|---|---|
| 333 | Reset to Factory Default | Reset to factory default |
| 999 | Reboot | Restart the system |

# 5.0 RS-232

Extender mode is the default setting of RS-232, the connection topology is the same as the channel ID.   RS-232 ports of the receiver will only connect to the transmitter with the same channel ID.   This mode is suitable for direct RS-232 tranmission between KVM-1-EH-LAN (transmitter) and KVM-1-RH-LAN (receiver).

Network Switch

**Video**

**RS-232**
AAA

**CH.1**
Transmitter 1

**RS-232**

**RS-232 Not Assign to Any Channel**

**RS-232 Follow Video**

**CH.1**
Receiver 1

AAA

**Video**

**RS-232**
BBB

**CH.2**
Transmitter 2

**RS-232**

**RS-232 Not Assign to Any Channel**

**RS-232 Follow Video Channel**

**CH.2**
Receiver 2

BBB

**Video**

**RS-232**
CCC

**CH.3**
Transmitter 3

**RS-232**

**RS-232 Not Assign to Any Channel**

**RS-232 Follow Video Channel**

**CH.3**
Receiver 3

CCC

**RS-232 Not Assign to Any Channel**

**RS-232 Follow Video Channel**

**CH.3**
Receiver 4

CCC

Figure 5-1: To use the RS-232 for automation control, you can enable the RS232 assignment mode to change the RS-232 connection not to follow channel ID's as the above diagram
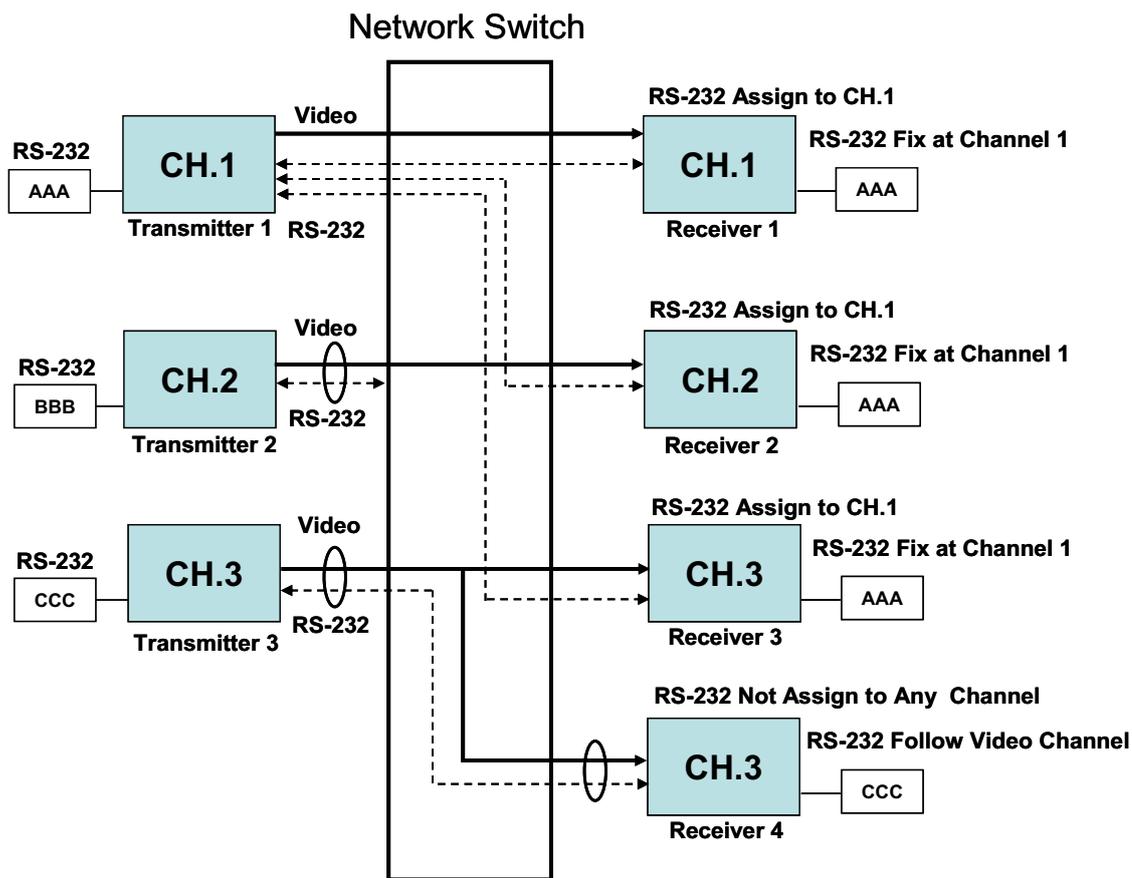
Figure 5-2:   The receiver 1 to 3 is connected to channel 1 in the assignment mode, receiver 4 follows the channel ID without assignment mode

1.  Connect the RS-232 link between transmitter and receivers
2.  Press the IR remote button MENU -> 2 -> 8 -> ENTER to enable the RS-232 assignment mode
3.  If the IP address of the transmitter has been changed, then you have to enable RS-232 assingment to recover the connection

## 5.1 RS-232 Control Command

The RS-232 port of the transmitter can be used to operate/setup with utilities such as Hyper Terminal.   Here are the Hyper Terminal settings,

1.  115200 bps (8-N-1), Flow Control: none
2.  Properties -> Settings
3.  ASCII Setup, select "Send line ends with line feeds" & "Echo typed characters locally"

   Note: It is recommended to enable RS-232 assingment mode for all receivers when using RS-232 to control them.   And set all receivers assignments to only

on transmitter to avoid RS-232 disconnection during video channel switching

Command format: <CMD.Address> Command parameters
**Note:   Address, command and parameters are char, not hex**
**Enter (LF or <CR>+LF) is required to excute the command**

All assigned receivers will run the command and parameters, there are also 3 types of user defined numbers except MAC & IP (Device Number, Party Number) for flexible applications

| Mxxx | The last 4 digits of MAC Address of receiver | 221868860123 = M0123 |
|---|---|---|
| Ixxx | The last 2 column of IP address (Hex) of receiver | eg: 169.254.012.034 = I0C22 |
| Dxxx | Device Number | eg: Device no 1234 = D1234 |
| Gxx | Group Number | eg: Group No 12 = G12 |
| Pxx | Party Number | eg: Party No 34 = P34 |
| Cxx | Channel Number | eg: Channel 12 = C12 |
| ALL | All receivers | |

Response format: <ACK_Adress> Response character
Receivers will respond messages to transmitters with above format and send <CR-F> after the response.
When multiple command are sent to multiple receivers, by default the receivers will not respond. To force the respond, add "!" in front the commands, then the receivers will respond in sequence in accordance to their device numbers with 15 ms intervals (eg: 0ms, 15ms, 30ms and so on).   It is recommended to set Device numbers to all receivers, if you expect reponses from multiple receivers.

Note:   To prevent response conflict or long wait time where is a large numbers of receivers, it is not recommended to us "!" with Gxx, Pxx, Cxx and ALL

## 5.2 Command and Parameters List

| Command | Function | Parameters | Response |
|---|---|---|---|
| CHANNEL | Select Channel | 0 ~ 15 (Channel No.) ? (display setting) | OK = Setting successful ERROR = Setting fail |
| REMOTE_ID | Set Remote ID | 0-9 (Remote ID No.) ? (display Remote ID No.) | OK = Setting successful ERROR = Setting fail |
| BUTTON | Set button | Enable / Disable / ? | OK = Setting successful |

| | | (display setting) | ERROR = Setting fail |
|---|---|---|---|
| IR_REMOTE | Set IR remote | Enable / Disable / ? (display setting) | OK = Setting successful ERROR = Setting fail |
| IR_EXTENDER | Set IR Extender | Enable / Disable / ? (display setting) | OK = Setting successful ERROR = Setting fail |
| SCREENSAVER | Screen Saver | Enable / Disable / ? (display setting) | OK = Setting successful ERROR = Setting fail |
| CH_EXPANSION | Channel expansion | Enable / Disable / ? (display setting) | OK = Setting successful ERROR = Setting fail |
| DEVICE | Set Device Number | 0 ~ 9999 (Device No.) ? (display setting) | OK = Setting successful ERROR = Setting fail |
| GROUP | Set Group Number | 0 ~ 99 (Group No.) ? (display setting) | OK = Setting successful ERROR = Setting fail |
| PARTY | Set Party Number | 0 ~ 99 (Party No.) ? (display setting) | OK = Setting successful ERROR = Setting fail |
| OSD_ON | Display character on screen 30 seconds | Character (alphabet and numbers) | OK = Setting successful ERROR = Setting fail |
| OSD_OFF | Turn off the OSD | 0~655 (Delay time, based on 100ms) | OK = Setting successful ERROR = Setting fail |
| SCREEN | Turn on/off screen | ON OFF | OK = Setting successful ERROR = Setting fail |
| REBOOT | System reboot | N/A | SYSTEM REBOOT |

※ The maximum of OSD_ON is 30 characters, not support comma sign 「,」 and double quotation marks 「"」, some characters must use \x## format to display, ## means the characters number in ASCII HEX code
e.g.: **\x0a** is line feed, **\x28** is **(** brackets sign, **\x22** is **"** sign

Example:
>CMD_M1234> CHANNEL 12 (Set receiver which last 4 digits MAC Address is 1234 to Channel 12)
(CMD in HEX code: 3E 43 4D 44 5F 4D 31 32 33 34 3E 20 43 48 41 4E 4E 45 4C 20 31 32 0D 0A)

<ACK_M1234< OK                    (Receiver which last 4 digits MAC Address is 1234 response "OK")
(ACK in HEX code: 3C 41 43 4B 5F 4D 31 32 33 34 3C 20 4F 4B 0D 0A)

-----------------------------------------------------------------------------------------------------------------------------------------------------

>CMD_I0A12> CHANNEL 3          (Set receiver which IP Address is 169.254.10.18 to Channel 3
(CMD in HEX code: 3E 43 4D 44 5F 49 30 41 31 32 3E 20 43 48 41 4E 4E 45 4C 20 33 0D 0A)
<ACK_I0A12< OK                    (Receiver which IP Address is 169.254.10.18 response "OK")
(ACK in HEX code: 3C 41 43 4B 5F 49 30 41 31 32 3C 20 4F 4B 0D 0A)

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>CMD_G34> CHANNEL 5      (Set receivers which Group No is 34 to Channel 5)

(CMD in HEX code: 3E 43 4D 44 5F 47 33 34 3E 20 43 48 41 4E 4E 45 4C 20 35 0D 0A)

(No response from multiple receivers)

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>CMD_ALL> !OSD_ON Hello! \x28123\x29 \x22ABC\x22  (Show「Hello! (123) "ABC"」

to all monitor and send response)

(CMD in HEX code: 3E 43 4D 44 5F 41 4C 4C 3E 20 21 4F 53 44 5F 4F 4E 20 48 65 6C 6F 21 20 5C 78 32 38 31 32 33 5C 78 32 39 20 5C 78 32 32 41 42 43 5C 78 32 32 0D 0A)

<ACK_M0219< OK                    (Receiver which last 4 digits MAC Address is 0129

response OK)

(ACK in HEX code: 3C 41 43 4B 5F 4D 30 32 31 39 3C 20 4F 4B 0D 0A)

<ACK_M021B< OK                    (Receiver which last 4 digits MAC Address is 021B

response OK)

(ACK in HEX code: 3C 41 43 4B 5F 4D 30 32 31 42 3C 20 4F 4B 0D 0A)

<ACK_M021C< OK                    (Receiver which last 4 digits MAC Address is 021C

response OK)

(ACK in HEX code: 3C 41 43 4B 5F 4D 30 32 31 43 3C 20 4F 4B 0D 0A)

>CMD_ALL> OSD_OFF 10000(All receiver turn off OSD after 10 seconds)

(CMD in HEX code: 3E 43 4D 44 5F 41 4C 4C 3E 20 4F 53 44 5F 4F 46 46 20 31 30 30 30 30 0D 0A)

# 6.0 Installation and Quick Start Guide

**Impartant Note:**

- It requires 30 seconds to boot the Transmitter / Receiver
- Transmitter must be rebooted to apply the channel setting
- Not recommend to work with existing LAN connection to avoid large video, data transmission or multicast packets to bog down the existing LAN devices.
- Gigabit switching hub muse support IGMP and Jumbo Frame over 8K in order to achieve the best performance
- If monitor shows green screen, please check to see if the switch has running the Gigabit and IGMP/Jumbo Frame function enabled
- If video not smooth please check if IGMP function enabled or the bandwidth of the switch closes to maximum.
- When using computer or mobile APP management the IP address should be set to the

same subnet.

## 6.1 Point to point, point to multi-point, multiple transmitters to one receiver, multiple transmitters to multiple receivers

### 6.1.1 connections

1. Turn off the source computer and HDMI Displays
2. Connect the HDMI cable between the source and the KVM-1-EH-LAN via the HDMI in port
3. Connect the CATx cable between the Displays and the KVM-1-EH-LAN and KVM-1-RH-LAN, if it is a point to point connection
4. Connect the CATx cables between the Displays and the KVM-1-EH-LAN and the network switch and the KVM-1-RH-LAN, if it is a point to multi-point connection
5. Connect the mouse and keyboard signals from the source computer to the KVM-1-EH-LAN (transmitter) with the USB (Type A to Type B) cable



Figure 6-1:   Connect the USB cable between the source computer to KVM-1-EH-LAN via port 6

6. Connect keyboard and mouse to the KVM-1-RH-LAN(s) (receivers) to any of the 4 USB ports



Figure 6-2:   Connect the physical mouse and keyboard to the USB ports marked as "4"

7. Connect the CATx cable between the KVM-1-EH-LAN and KVM-1-RH-LAN
8. Make sure the Rotary switch on the KVM-1-EH-LAN and the Channel switch on the KVM-1-RH-LAN is set the same

Figure x-x:   Set the rotoary switch on the KVM-1-EH-LAN
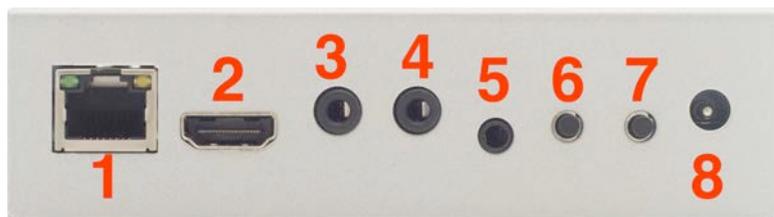


Figure 6-3:   Set the channel ID by pressing buttons 6 an 7 for "+" and "-"   channel number

9.   Connect the power to both KVM-1-EH-LAN and KVM-1-RH-LAN
10.  Turn on the the power for the HDMI Displays
11.  The point to point/multi-point IP KVM system is now setup and ready



Figure 6-4:   Point to point connection
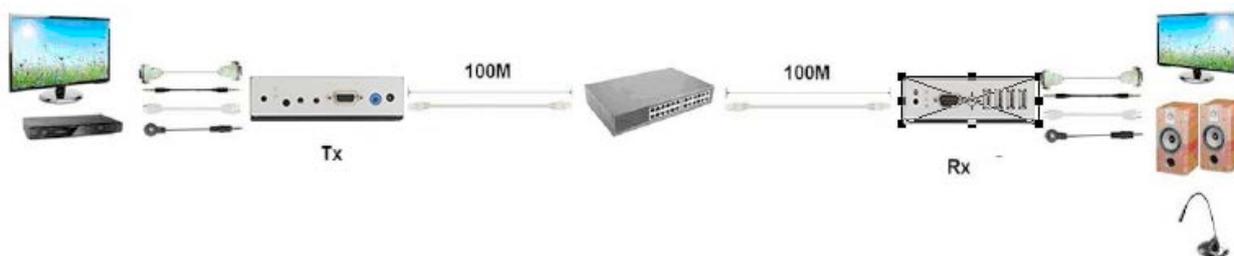


Figure 6-5:   Point to point connection with a network switch
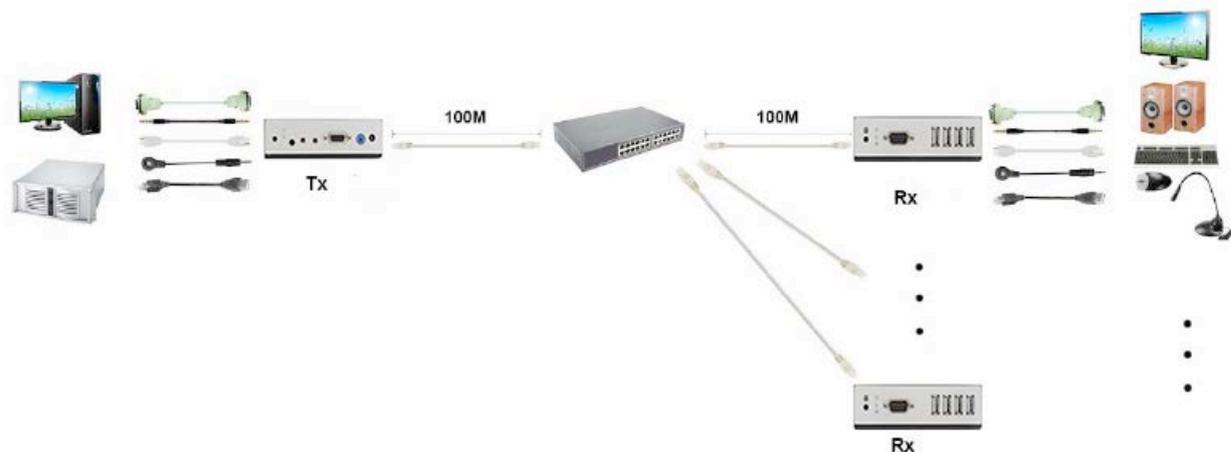
Figure 6-6:    Point to multi-point connection with a network switch
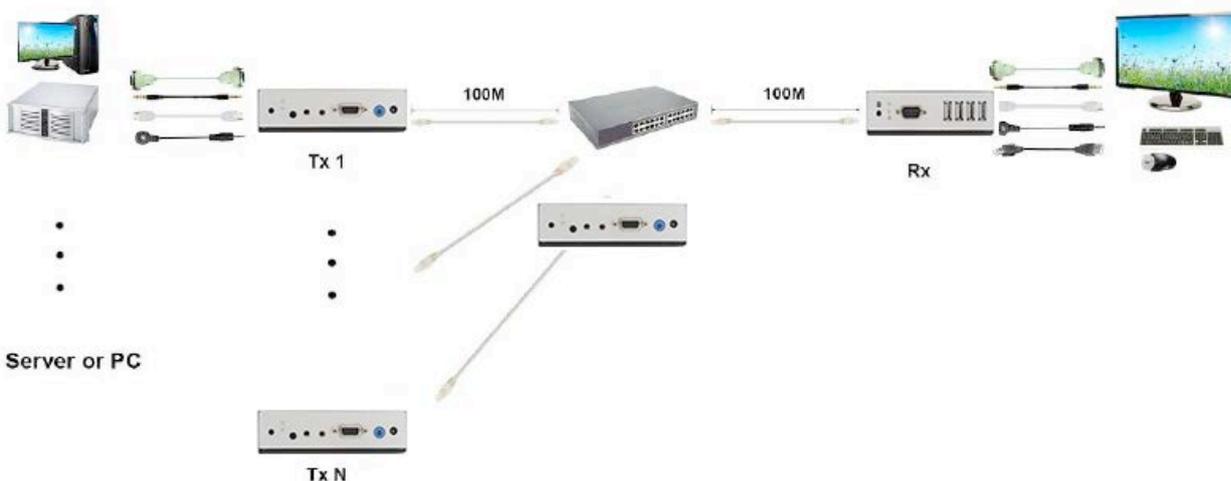


Figure 6-7:    Multipe transmitter to one receiver connection with a network switch
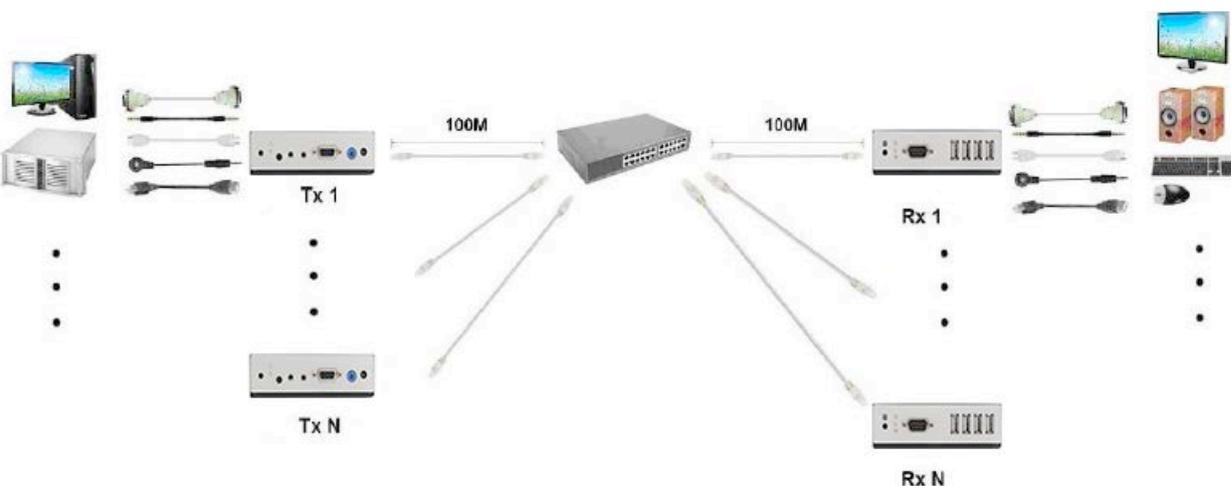


Figure 6-8:    Multipe transmitter to multiple receiver connection with a network switch
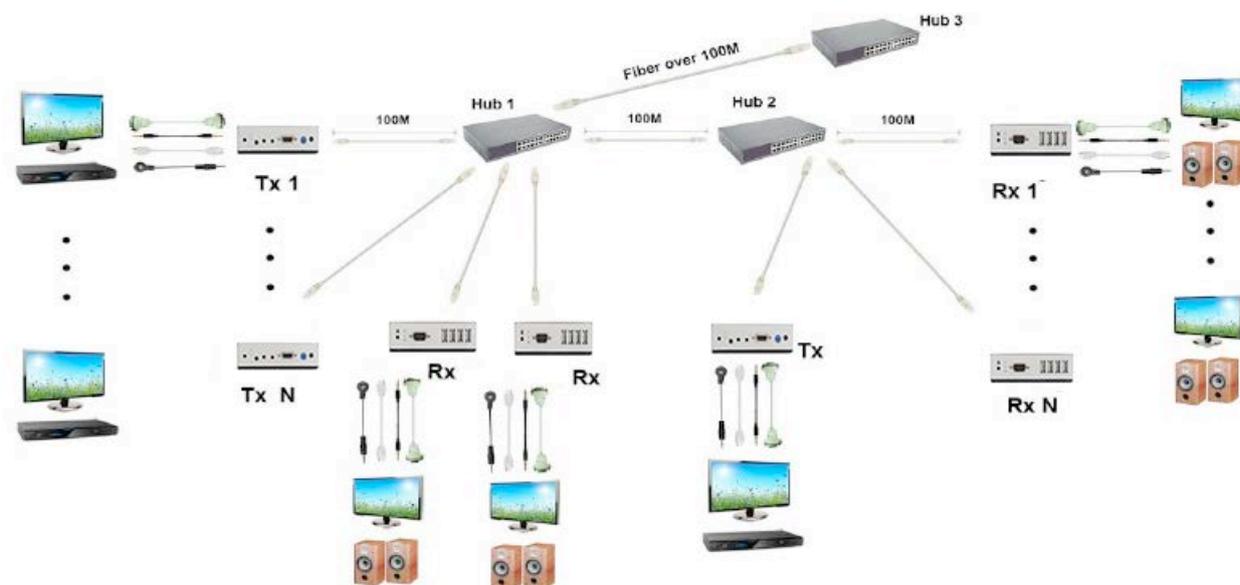
Figure 6-9:    Multipe transmitter to multiple receiver connection with multiple network switches


## 6.1.2 Retrieve IP addresses

There are built-in OSDs in the KVM-1-RH-LAN HDMI output that provides various important information for the setup. The default IP address of KVM-1-EH-LAN (Tx: Remote) and KVM-1-RH-LAN (Rx: Local), can be obtained from the OSD with the following procedure,

> ➢ Remove the Ethernet cable of KVM-RH-LAN (Rx: Local), information will display on the lower right corner of the monitor.    The status will be on the lower left of the monitor.

Here is the descripton of the OSD screen capture
1. FW Version: 15-Aug-24 5f6c
2. KVM-1-RH-LAN (Loca) IP address is initially at 169.254.6.84
3. KVM-1-EH-LAN (Remote) IP address is initially at 169.254.4.215
4. ID:    22186886605C1 (what does this mean?)

Fig. 6-10: Initial OSD Screen capture when KVM-1-RH-LAN is connected to the screen without any network

## 6.1.3 Change IP addresses

Both KVM-1-EH-LAN (Tx) and KVM-1-RH-LAN (Rx) have built-in webpages for basic settings

1. To access the webpage, change your PC's IPv4 settings to match the network subdomain of KVM-1-EH-LAN (Tx) and KVM-1-RH-LAN (Rx)
2. Open any browser and enter the IP address of the Tx or Rx
3. Change IP address under the tab of "Network"
4. Reboot the unit under the Sytem Tab -> Utilities (Need this screen shot)

Figure 6-11:    Configuration via webpage

## 6.1.4 Enable USB 2.0 mass storage

1. Turn off the source computers and HDMI Displays
2. Connect the HDMI cables between the source and the KVM-1-EH-LAN via the HDMI in port
3. Connect the HDMI cable between the Displays and the KVM-1-EH-LAN and KVM-1-RH-LAN

# Appendix A

**For APP instruction please refer attached software CD**
**To avoid confusion we do not recommend install multiple APP in one device**

## Web Setting Function

The KVM-1-EH-LAN/KVM-1-RH-LAN system provides detail configurations over a standard web browser.    You could enter the IP address of transmitter / receiver on the browser to

access the hardware.

**There are three ways to get the IP address of receiver:**
1. Connect monitor with receiver, **local IP** shows on right bottom screen when receiver booting or transmitter not connected ( or no video input)
2. Press remote control button *MENU, 1, ENTER* (IP Address), it will shows the receiver IP Address on screen
3. Install Internet explorer plug-in: Bonjour, click device name to enter web setting page to get the IP address(please refer Bonjour plug-in installation)

**There are three ways to get the IP address of transmitter:**
1. Connect monitor with receiver, connect receiver with transmitter and set in the same channel, **remote IP** shows on right bottom screen when receiver booting or no video input from transmitter
2. Connect monitor with receiver, connect receiver with transmitter and set in the same channel, press remote control button *MENU, 2, ENTER* (Host IP Address) at receiver side, it will shows the transmitter IP Address on screen(must remove the HDMI cable of transmitter or turn off the video source).
3. Install Internet explorer plug-in: Bonjour , click device name to enter web setting page to get the IP address(please refer Bonjour plug-in installation)

System default IP setting is Auto IP, it will assign 169.254.X.X (subnet mask 255.255.0.0) to transmitters and receivers, you could also set to DHCP or Static IP.
Your computer must set in same subnet mask to enter the web setup page.

If you are not sure what the IP address of transmitters/receivers you can reset the transmitters and receiver to default.
> For transmitters: press the LINK button to power on (Press and hold until Green and Blue LED Flash) to reset to default.
> For receivers: press remote control *MENU, 3, 3, 3, ENTER* to reset to default.

## Bonjour plug-in installation:

a. Click "BonjourSDKSetup.exe" to install Bonjour plug-in for Internet Explorer.

b. Click "Next" to continue.

c. Click "I accept the terms in the license agreement" to continue.
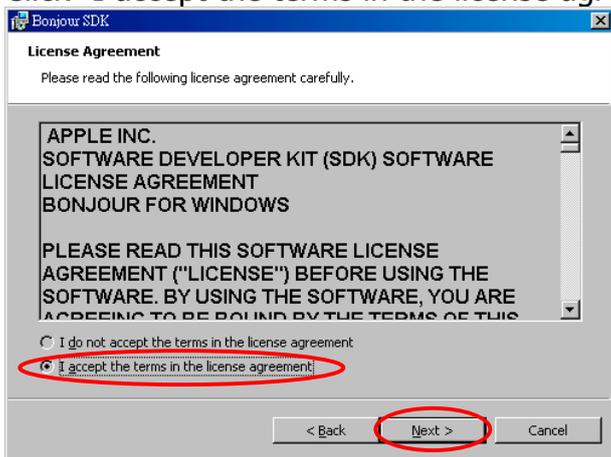
d. Click "Next" to continue.
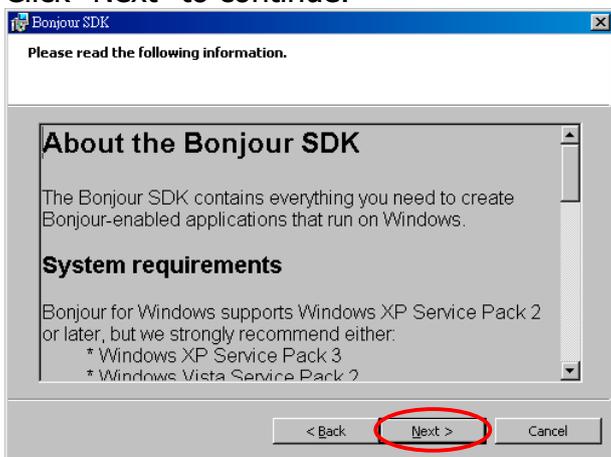
e. Click "Install" to start installation.
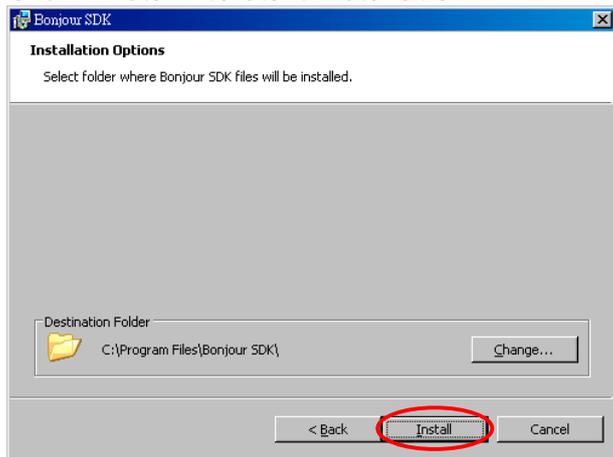
f. Click "Finish" to exit installation.

g. Right click on "My Network Place" → "Properties" then right click on "Local Area Connection" → "Properties" then double click on "Internet Protocol (TCP/IP)" to setting as below:
(IP address 169.254.111.111, sub mask 255.255.0.0)
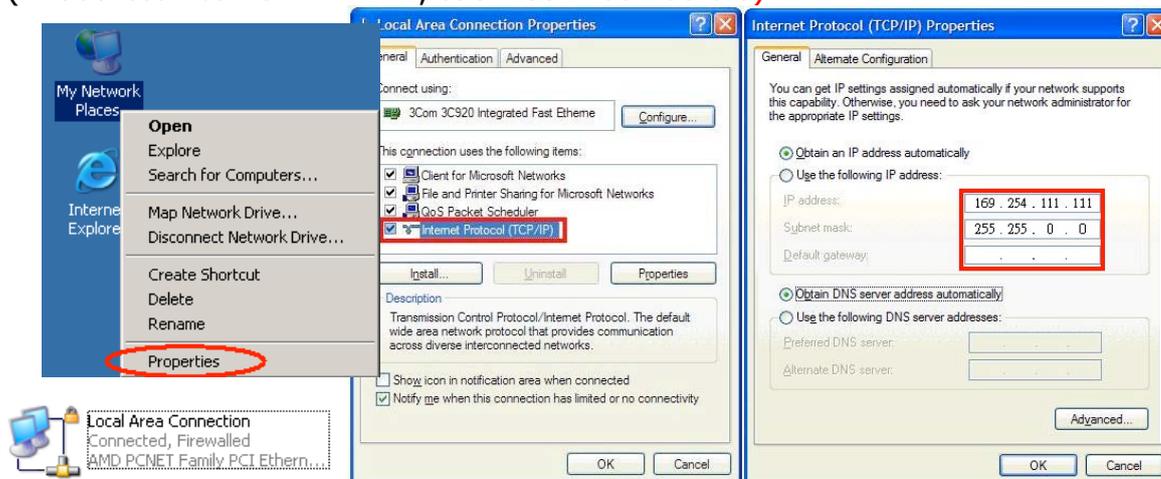
## Login in to the web setting:

Use CAT5 cable to connect transmitter/receiver RJ45 port to PC LAN port, open IE browser then select View → Explorer Bars → Bonjour.
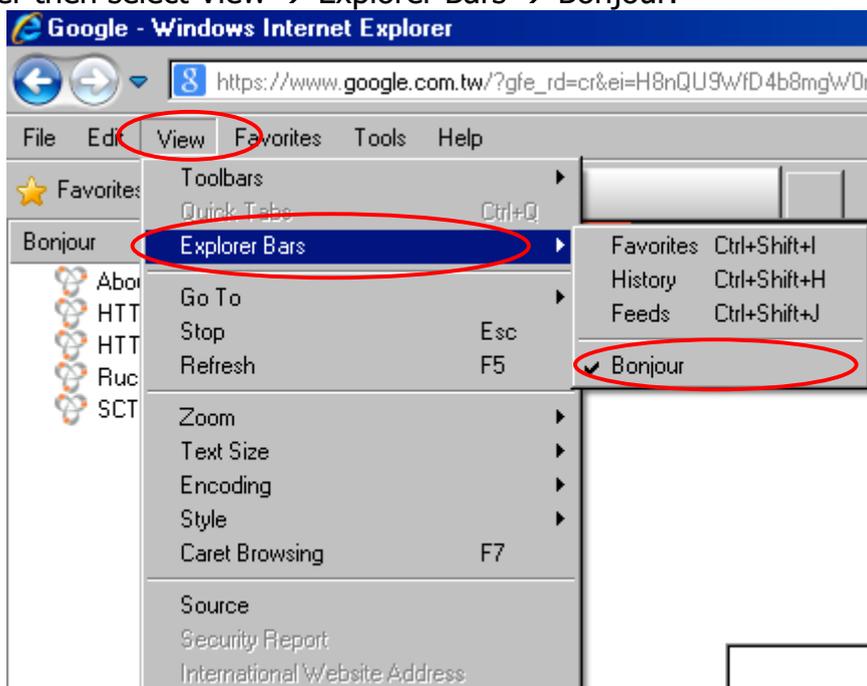


Double click on "HTTP on ast2-gateway(transmitter)" or "HTTP on ast2-client (receiver)", it will pop up web setup in Bonjour windows as below:
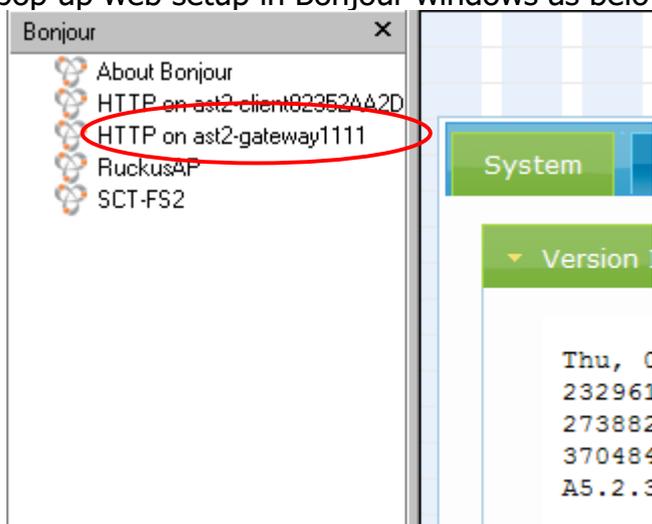


Click Network page you will see the IP address of transmitter/receiver

## System Menu:



- Version Information       Firmware version information
- Update Firmware       Update system firmware
- Utilities       System tools
  - Factory Default       Set system to factory default
  - Reboot       Reboot system
  - Default EDID       Set EDID to default
  - Console API Command       Run Console API command
- Statistics       System status

## Channel expansion:
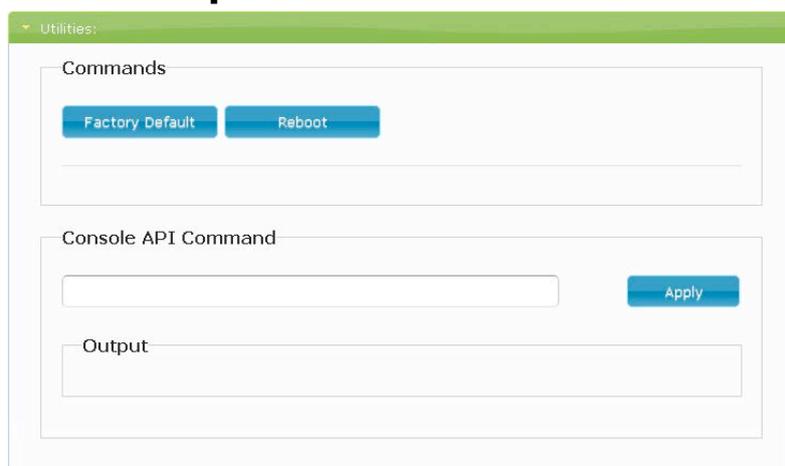


To use channel expansion function (CH.0 ~ CH.99)，please **copy** and **paste** below command in bold at **System -> Utilities -> Console API Command** to set the transmitter, or use **DEVICE MANAGER** program which included in package for quick

setting:

Step 1, disable channel setting from rotary switch:

**astparam s hostnamebydipswitch n ; astparam s reset_ch_on_boot n**

After copy and paste press [Apply] button (notice: do not use **Enter** key)

Set up once only unless you run Factory Default

Step 2, set channel of transmitter:

**ast_send_event -1 e_stop_link ; astparam s multicast_ip MULTICAST_IP ;**

**astparam s hostname_id HOSTNAME_ID ; ast_send_event -1**

**e_chg_hostname ; astparam save ; ast_send_event -1 e_reconnect**

After copy and paste press [Apply] button (notice: do not use **Enter** key)

Value of MULTICAST_IP and HOSTNAME_ID as below table:

| CHANNEL | MULTICAST IP | HOSTNAME_ID | CHANNEL | MULTICAST IP | HOSTNAME_ID |
|---------|--------------|-------------|---------|--------------|-------------|
| 0 | 225.0.101.111 | 1111 | 50 | 225.0.131.011 | 31011 |
| 1 | 225.0.100.111 | 0111 | 51 | 225.0.130.011 | 30011 |
| 2 | 225.0.101.011 | 1011 | 52 | 225.0.131.101 | 31101 |
| 3 | 225.0.100.011 | 0011 | 53 | 225.0.130.101 | 30101 |
| 4 | 225.0.101.101 | 1101 | 54 | 225.0.131.001 | 31001 |
| 5 | 225.0.100.101 | 0101 | 55 | 225.0.130.001 | 30001 |
| 6 | 225.0.101.001 | 1001 | 56 | 225.0.131.110 | 31110 |
| 7 | 225.0.100.001 | 0001 | 57 | 225.0.130.110 | 30110 |
| 8 | 225.0.101.110 | 1110 | 58 | 225.0.131.010 | 31010 |
| 9 | 225.0.100.110 | 0110 | 59 | 225.0.130.010 | 30010 |
| 10 | 225.0.101.010 | 1010 | 60 | 225.0.131.100 | 31100 |
| 11 | 225.0.100.010 | 0010 | 61 | 225.0.130.100 | 30100 |
| 12 | 225.0.101.100 | 1100 | 62 | 225.0.131.000 | 31000 |
| 13 | 225.0.100.100 | 0100 | 63 | 225.0.130.000 | 30000 |
| 14 | 225.0.101.000 | 1000 | 64 | 225.0.141.111 | 41111 |
| 15 | 225.0.100.000 | 0000 | 65 | 225.0.140.111 | 40111 |
| 16 | 225.0.111.111 | 11111 | 66 | 225.0.141.011 | 41011 |
| 17 | 225.0.110.111 | 10111 | 67 | 225.0.140.011 | 40011 |
| 18 | 225.0.111.011 | 11011 | 68 | 225.0.141.101 | 41101 |
| 19 | 225.0.110.011 | 10011 | 69 | 225.0.140.101 | 40101 |
| 20 | 225.0.111.101 | 11101 | 70 | 225.0.141.001 | 41001 |
| 21 | 225.0.110.101 | 10101 | 71 | 225.0.140.001 | 40001 |
| 22 | 225.0.111.001 | 11001 | 72 | 225.0.141.110 | 41110 |

| CHANNEL | MULTICAST IP | HOSTNAME_ID | CHANNEL | MULTICAST IP | HOSTNAME_ID |
|---------|--------------|-------------|---------|--------------|-------------|
| 23 | 225.0.110.001 | 10001 | 73 | 225.0.140.110 | 40110 |
| 24 | 225.0.111.110 | 11110 | 74 | 225.0.141.010 | 41010 |
| 25 | 225.0.110.110 | 10110 | 75 | 225.0.140.010 | 40010 |
| 26 | 225.0.111.010 | 11010 | 76 | 225.0.141.100 | 41100 |
| 27 | 225.0.110.010 | 10010 | 77 | 225.0.140.100 | 40100 |
| 28 | 225.0.111.100 | 11100 | 78 | 225.0.141.000 | 41000 |
| 29 | 225.0.110.100 | 10100 | 79 | 225.0.140.000 | 40000 |
| 30 | 225.0.111.000 | 11000 | 80 | 225.0.151.111 | 51111 |
| 31 | 225.0.110.000 | 10000 | 81 | 225.0.150.111 | 50111 |
| 32 | 225.0.121.111 | 21111 | 82 | 225.0.151.011 | 51011 |
| 33 | 225.0.120.111 | 20111 | 83 | 225.0.150.011 | 50011 |
| 34 | 225.0.121.011 | 21011 | 84 | 225.0.151.101 | 51101 |
| 35 | 225.0.120.011 | 20011 | 85 | 225.0.150.101 | 50101 |
| 36 | 225.0.121.101 | 21101 | 86 | 225.0.151.001 | 51001 |
| 37 | 225.0.120.101 | 20101 | 87 | 225.0.150.001 | 50001 |
| 38 | 225.0.121.001 | 21001 | 88 | 225.0.151.110 | 51110 |
| 39 | 225.0.120.001 | 20001 | 89 | 225.0.150.110 | 50110 |
| 40 | 225.0.121.110 | 21110 | 90 | 225.0.151.010 | 51010 |
| 41 | 225.0.120.110 | 20110 | 91 | 225.0.150.010 | 50010 |
| 42 | 225.0.121.010 | 21010 | 92 | 225.0.151.100 | 51100 |
| 43 | 225.0.120.010 | 20010 | 93 | 225.0.150.100 | 50100 |
| 44 | 225.0.121.100 | 21100 | 94 | 225.0.151.000 | 51000 |
| 45 | 225.0.120.100 | 20100 | 95 | 225.0.150.000 | 50000 |
| 46 | 225.0.121.000 | 21000 | 96 | 225.0.161.111 | 61111 |
| 47 | 225.0.120.000 | 20000 | 97 | 225.0.160.111 | 60111 |
| 48 | 225.0.131.111 | 31111 | 98 | 225.0.161.011 | 61011 |
| 49 | 225.0.130.111 | 30111 | 99 | 225.0.160.011 | 60011 |

Example:

Set transmitter to CH.8:

**ast_send_event -1 e_stop_link ; astparam s multicast_ip 225.0.101.110 ;**
**astparam s hostname_id 1110 ; ast_send_event -1 e_chg_hostname ;**
**astparam save ; ast_send_event -1 e_reconnect**

Set transmitter to CH.63 :

**ast_send_event -1 e_stop_link ; astparam s multicast_ip 225.0.130.000 ;**

**astparam s hostname_id 30000 ; ast_send_event -1 e_chg_hostname ; astparam save ; ast_send_event -1 e_reconnect**

To disable channel expansion please click [Factory Default] button on web, channel setting will back to 0 ~ F total 16 channels by rotary switch

## Network Menu:



IP Setup:

- IP Mode could be Auto IP, DHCP, Static three mode, default is Auto IP
  For mass deploying please use static or DHCP mode.
- Casting Mode : could be Multicast, Unicast  mode, default is Multicast，
  When using Multicast mode, please check the "Auto select USB operation mode per casting mode" box

## Functions Menu:



For transmitter:

Video over IP:

This function setup the video signals send from network, default is checked.

**Please note it will turn off HDMI output of receivers in same channel if this function be disabled, only analog audio output**



For Receiver:

Video over IP:

This function setup the video signals send from network, default is checked.

**Please note it will turn off HDMI output of receiver if this function be disabled, only analog audio output**

Copy EDID from this Video Output:

Check this box will auto copy EDID from the TV connected to receiver when receiver booting, default is not checked.

**In multiple connections transmitter will use default EDID 1080p with 2 channel audio, to prevent EDID conflict recommend check this box in Unicast mode only.**

USB over IP Setup:

This function setup the USB signals send from network, default is checked.

Operation Mode:

USB device operation setting, default is "Auto select mode"

In Unicast mode recommend set to "Active on link".

In Multicast mode recommend set to "Active per request".

Serial over IP：

This function setup Serial (RS-232) signal sends from network

● Operation Mode:
   Default is "Type 2 (Recommended. Dumb redirection.)"

● Baudrate Setting for Type 2：**default is 115200, 8, None, 1**