AVP-57FC-U

HDMI 2.0 over IP Multicast Transceiver System
with Bi-directional IR, RS-232, Audio Extender/Extractor,
USB 2.0 & Video Wall Support

User Manual

rev: 210609
Made in Taiwan

INTRODUCTION

The **AVP-57FC-U HDMI 2.0 over IP Multicast Transceiver System with Bi-directional IR, RS-232, Audio Extender/Extractor, USB 2.0 & Video Wall Support** boosts up your video/audio transmission distance up to 100m(330ft)**[over copper] or 300m (990ft) (OM3) / 400m (1320ft) (OM4)[over fiber] in Ultra-HD 4K2K@60(4:4:4) format. Users can readily extend Ultra-HD sources from Blu-ray Disc player, PS4, PC, and any other HDMI sources to distant display / monitor, including HDMI or DVI enabled TV sets or LCD PC monitors. Besides **AVP-57FC-U** is HDCP compliant, moreover it supports IR & RS-232 pass-through, audio extender/extractor, video wall and multi-view.

With broadcasting management software and 10 Gigabit Ethernet network switch (supported IGMP Snooping), **AVP-57FC-U** is a complete Ultra-HD 4K2K@60(4:4:4) video broadcasting solution for many 4K requirement applications, such as medical care, digital signage etc. It can transmit Ultra-HD 4K2K@60(4:4:4) HDMI video broadcasting over IP network. The broadcasting format can be Point to Point, Point to Many, and Multi-Casting. Multi-casting is based on Managed 10 Gigabit Switch with 802.1Q VLAN function which provides control remotely with multi device

> ⚠   *   Up to 4K@60 4:4:4 (4K@60 4:4:4 needs light compression)
>   **   Cat-6A cable or better is recommended for better performance

FEATURES

- Supports HDMI 2.0 & HDCP 2.2
- Supports HDR and up to 4K@60 4:4:4
- Extends the transmission over cat.6A cable up to 100m (330ft) from the HDMI source at Ultra-HD 4K2K@60 4:4:4
- Extends the transmission over multi-mode optic cable up to 300m (990ft) (OM3)/400m (1320ft) (OM4)
- Lite compress with less than 100us latency for 4K2K@60 4:4:4
- HDCP & CEC Bypass
- Supports EDID management
- Can be configured as a full duplex transmitter and receiver when 4K@60 4:4:4
- Slide switch to select transmission over 10G copper or SFP
- Auto equalization
- Pure unaltered uncompressed 7.1ch digital HDMI over cat.6A/fiber transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Supports bi-directional full frequency IR signal from 20KHz to 60KHz
- Bi-directional Analog audio path-through
- Full duplex RS-232 control up to 115,200 bps
- Integrated port for 1G LAN/ network device
- Cat.6A/fiber extension and connection to a 10GbE Ethernet Switch (supported IGMP Snooping)
- Supports software to configure & upgrade device and to control the switching operation of the various signal types
- Supports seamless switching
- Supports Video Wall* & Multi-view function
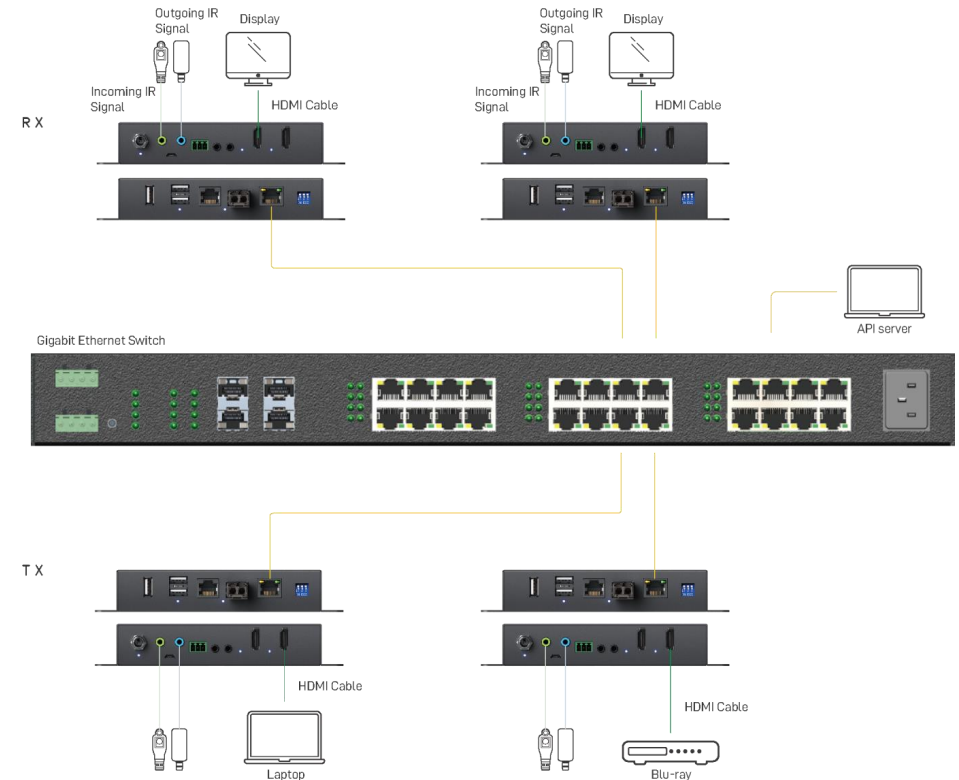- Supports custom scaling to display
- Supports USB2.0

> ⚠   * Supports the compensation of frame-tearing

PACKAGE CONTENTS

- 1x AVP-57FC-U
- 1x IR blaster
- 1x IR receiver
- 1x DC 12V
- 1x User Manual

CONNECTION DIAGRAM

SPECIFICATIONS

Model Name	AVP-57FC-U
Technical	
Role of usage	Transceiver
HDMI compliance	HDMI 2.0a
HDCP compliance	HDCP 2.2 & 1.4
Video bandwidth	Single-link 594MHz [18Gbps]
Video support	480i / 480p / 720p / 1080i / 1080p60 / 4K2K@30 / 4K2K@60 4:4:4
HDMI over UTP	4K2K@60 4:4:4 100m (330ft) [CAT.6A]
HDMI over fiber	4K2K@60 4:4:4 up to 300m (990ft) (OM3) / 400m (1320ft) (OM4) [multi-mode optic cable]
Audio support	Surround sound [up to 7.1ch) or stereo digital audio
Equalization	Auto
Input TMDS signal	1.2 Volts [peak-to-peak]
Input DDC signal	5 Volts [peak-to-peak, TTL]
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up	6-layer board [impedance control — differential 100Ω; single 50Ω]
IR pass-thru	Bi-directional
RS-232 support	Yes
I/O connector	2x HDMI + 4x 3.5mm + 3x USB + 2x RJ45 + 1x fiber + 1x RS-232
HDMI source control	Controllable via IR pass-through from RX to TX or TX to RX with IR extenders
HDMI connector	Type A [19-pin female]
RJ-45 connector	WE/SS 8P8C
USB connector	Type A
3.5mm connector	IR receiver / IR blaster / Stereo
Mechanical	
Housing		Metal enclosure
Dimensions [L x W x H]	Model	172 x 162 x 30mm [6.7" x6.3" x1.2"]
	Package	325 x 196 x 92mm[12.7" x 7.7" x 3.6"]
	Carton	490 x 426 x 352mm[1'6" x 1'4" x 1'2"]
Weight	Model	685g[1.5 lbs]
	Package	1400g [3 lbs]
Fixedness		Wall-mounting case with screws
Power supply		12V DC
Power consumption		18 Watt [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PANEL DESCRIPTIONS

Front Panel
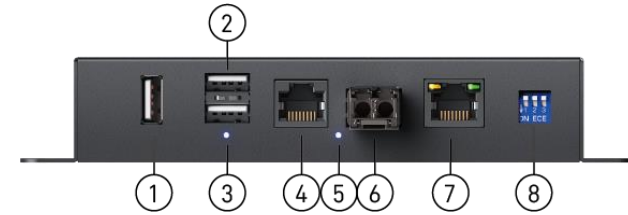
1. **USB 2.0:**
   1) Connect to USB device when the USB routing on the software is set as "remote"
   2) Connect to computer when the USB routing on the software is set as "local"

2. **USB-HID:**
   [Top USB] Connect to keyboard or mouse
   [Bottom USB]
   1) Connect to keyboard or mouse when the USB routing on the software is set as "remote"
   2) Connect to computer when the USB routing on the software is set as "local"

3. **Indicator LED:** USB-HID LED

4. **10G Copper IN/OUT:** Plug in RJ-45 cable that needs to be linked to the other unit

5. **Indicator LED:** Link LED

6. **10G SFP IN/OUT*:**
   Plug in single/multi-mode fiber optic cables cable that needs to be linked to the other unit
   (*Fiber module is NOT included in the product)

7. **Ethernet Port:** Ethernet control port

8. **Dip Switch:**

DIP Switch Position			Description
PIN#1	**PIN#2**	ON [⬇]	OFF [⬆]	FW update 1
		ON [⬇]	ON [⬇]	Reserved
		OFF [⬆]	ON [⬇]	FW update 2
		OFF [⬆]	OFF [⬆]	Normal mode
PIN#3		ON [⬇]	Select transmission over SFP
		OFF [⬆]	Select transmission over copper

Rear Panel
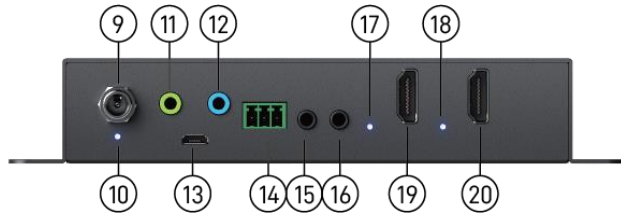
9. **+12V DC:** Connect to a 12V power supply unit
10. **Indicator LED:** Power LED
11. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
12. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
13. **Micro-USB:** for F/W update
14. **RS-232(terminal block format):**
    The order of RS-232 pin are TX, RX, GND (from the left side to the right)
15. **Stereo OUT:** Connect to analog stereo audio speaker
16. **Stereo IN:** Connect to analog stereo audio source
17. **Indicator LED:** HDMI out signal LED
18. **Indicator LED:** HDMI in signal LED
19. **HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable
20. **HDMI IN:** Connect to a HDMI source with a HDMI male-male cable

IR PASS-THROUGH

[IR Extenders]

IR Blaster   IR Receiver

[IR Sockets]

IR BLASTER: plug in the IR blaster to emit all IR command signals received from the IR receiver from the other end to control the devices corresponding to the IR signals.

IR RECEIVER: plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.

CAUTION! → Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

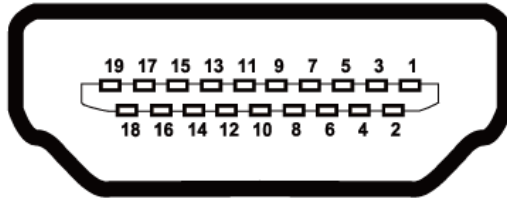### [Definition of IR Earphone Jack]

IR Blaster   IR Receiver

1. IR Signal
2. Grounding

1. IR Signal [30-56 kHz]
2. Grounding
3. Power

You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the extender if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

HDMI PIN DEFINITION

Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock–
Pin 3	TMDS Data2–	Pin 13	CEC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1–	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0–	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

OPERATION APPROACH

Software Control through Ethernet port

1. **System Requirement**
   (1) OS information: Microsoft Windows XP/7/8/10
   (2) Software size: 30MB
   (3) Minimum RAM requirement: 256MB

2. **Start the software control program**
   (1) Extract the **Setup_AVP_AVX Control Tool.zip** file and follow the installation wizard to install the software.
   (2) Open the **blueriver_control.exe** file from server folder.
   (3) Click the **AVP.exe** file from AVP Control Tool folder to start using the software.

3. **Control Interface**
   When you click the executable file, the following screen will pop up. Please click **"Refresh"** to complete the device connection.

1	HDMI	5	RS232	9	Infrared
2	Display Wall	6	USB Routing	10	Multiview
3	HDMI Audio	7	EDID		
4	Analog Audio	8	Firmware Update		

- Users can drag the encoder and decoder Device ID at the bottom of each page to do input/output mapping, or select the Device ID to set.
  a. Type (AVX/AVP) – VID – PID (15-over Copper/16-over Fiber)
  b. Output Device ID (derived from the device MAC address)
  c. IP address
  d. Input Device ID

- Users can select Device ID and enter the name. Then click **"Apply"** to apply the device name.
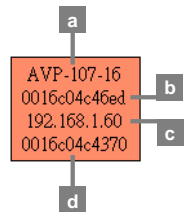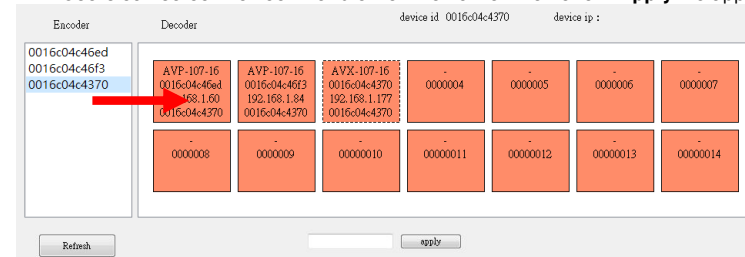
- Users can right-click on the decoder Device ID to adjust advanced settings.
  Reboot: reboot the device
  Factory reset: restore the device to factory settings
  Start/Stop HDMI: 0: start or stop the input video under normal mode
  Start/Stop HDMI: 1: start or stop the input video under Multiview mode

  Reboot
  Factory Reset
  Start HDMI:0
 Stop HDMI:0
  Start HDMI:1
  Stop HDMI:1

(1) HDMI

Drag the Input Device ID to Output Device ID to do input/output mapping. After setting the mapping, you can select the device ID to set more video modes. We provide three switching modes, including General, Genlock, and Fastswitch. Selecting **"General"** will follow the previous setting, **"Genlock"** will bypass HDR, and **"Fastswitch"** can choose from three preset resolutions. Users can also click **"Start"** or **"Stop"** to start the video and stop the video. In addition, if you want to disconnect the input and output of the device, click **"Leave"**.

* The "Fastswitch" mode does not support HDR.

(2) Display Wall

Users can click on the device ID, then set the output video resolution and display wall split method. Horizontal Cut and Vertical Cut are up to 8x8 displays, and the range is selected from the Number. You can also define wall dimensions by entering parameters. After completing the settings, please click **"Preview"** or **"Apply"**.
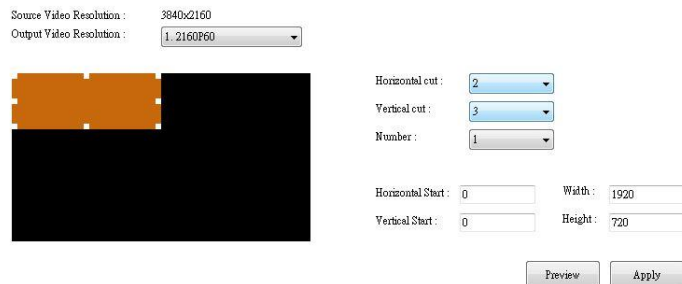
(3) HDMI Audio

First, select the device ID to set HDMI audio modes, including audio from HDMI and I2S. Then click **"Start"** or **"Stop"** to start the audio or stop the audio. After completing the audio mode settings, drag the Input Device ID to Output Device ID to do input/output mapping. Users can also click **"Leave"** to disconnect the input and output of the device.

* Please select the device ID and click **"Start"** in Analog Audio page, if you want to choose I2S audio subscription or I2S audio local loop out modes.
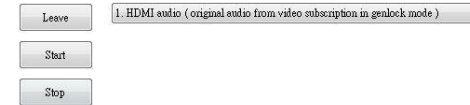
(4) Analog Audio

First, select the device ID to set Analog Audio output modes, including audio from HDMI and I2S. Then click **"Start"** or **"Stop"** to start the audio or stop the audio. After completing the audio mode settings, drag the Input Device ID to Output Device ID to do input/output mapping. Users can also click **"Leave"** to disconnect the input and output of the device.
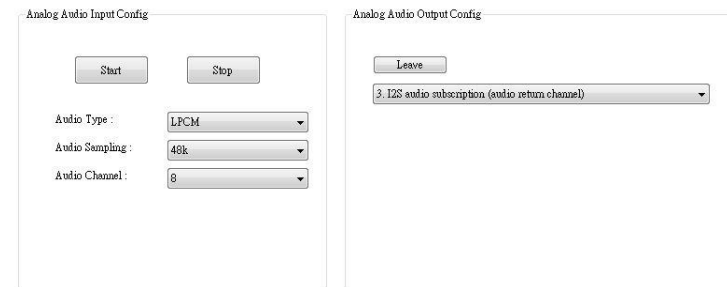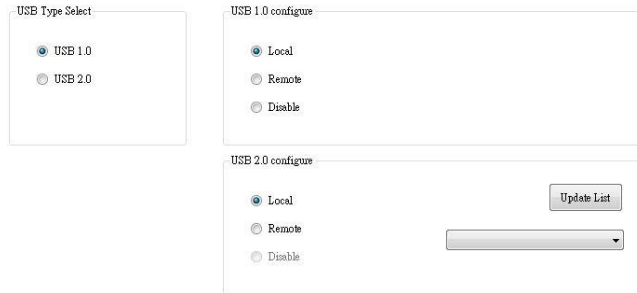
(5) RS232

Drag the Input Device ID to Output Device ID to do input/output mapping. You can also send text messages to the device via RS232 Routing. Besides, select **"Sent to all device"** to send text messages to all devices at once.

* Please set the Uart configuration of all devices to the same option before sending.

(6) USB Routing

First, follow the Panel descriptions part to connect the computer, mouse or keyboard to USB 1.0 or 2.0 port. Select the device ID, then choose **"USB 1.0" or "USB 2.0"** according to the USB port type to set. If the USB port of the device is connected to a computer, select the corresponding Device ID and click **"Local"**. If it is connected to a mouse or keyboard, select **"Remote"**. After completing the settings, power cycle the device and drag the input device ID to the output device ID to do input/output mapping. Then users can use the mouse or keyboard to control the computer via USB routing.

USB Type Select
- ⦿ USB 1.0
- ◯ USB 2.0

USB 1.0 configure
- ⦿ Local
- ◯ Remote
- ◯ Disable

USB 2.0 configure
- ⦿ Local
- ◯ Remote
- ◯ Disable

Update List

(7) EDID

Select the device ID, then click **"Get EDID"**, you will see HDMI Decoder EDID, and Monitor EDID. Then select EDID you want to save and click **"Save EDID"**. Next, click **"Upload EDID"** and choose EDID file to learn EDID. Users can also click **"View"** to check EDID Description.

HDMI Decoder EDID

Monitor EDID

Get EDID

Save EDID
- ⦿ Decoder
- ◯ Monitor

Save EDID

View   Upload EDID

View
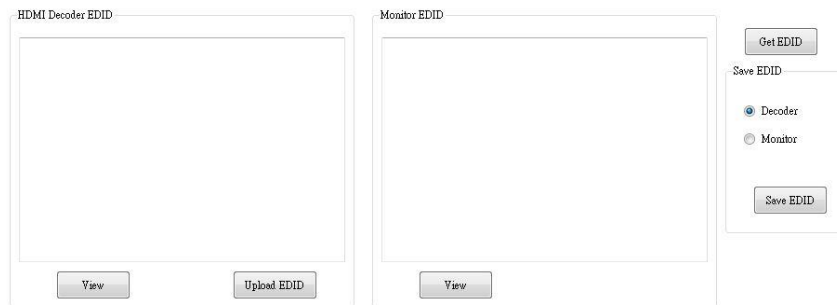
(8) Firmware Update

➢ Firmware Update Process
  I.   Click "Browse" to select the file which you want to write into device.
  II.   Select the Output device ID to decide which device you want to update.
  III. Click "Start" and firmware will start to update.
  IV.   After updating, please right-click on device ID and select "Factory Reset".
  V.   Power cycle the device.
  * Please save the firmware file (.apz) & software in the same folder.

➢ Device Mode
  • Transmitter: set the device as the transmitter
  • Receiver: set the device as the receiver
  • Transceiver: set the device as the transceiver

Browse

Start

USB MAC and Firmware

COM Port :

Write   Read

USB Firmware Update: Link Tool
Switch To Update Mode
Switch_USB_None

Device mode
- ◯ Transmitter
- ◯ Receiver
- ◯ Transceiver

(9) Infrared

Drag the Input Device ID to Output Device ID to do input/output mapping. You can also enter Hex Codes and send IR commands to the device via infrared routing. Besides, select **"Sent to all device"** to send IR commands to all devices at once.
* Please search for keywords related to Infrared Hex Code online for more commands.

Sent to Device
- ☐ IR to all devicce

Send   Clear

(10) Multiview

> **Multiview Mode**
> Click **"Get Preset List"** and the preset multiview mode will appear. Users can also enter the name in the **"Layout Group"**, the screen size in the **"Output Size"**, and click **"Create"** on the left to create a new model.
> * Do not include spaces in the name.
> - Create: create the mode
> - Delete: delete the mode
> - Save: save the mode
> - Load: load the previously saved mode

> **Surface and Window**
> Create **Surface** (group) and **Window** (screen). Next, select the surface (0 to 21) to set the window size by dragging the orange frame on the upper right, or entering parameters (X, Y, Width, and Height). Then click **"Create"** to create a new window. Multiple windows can be created in each surface, and the same image will be applied to all windows in the same surface.
> - Create: create the window
> - Set: reset the created window
> - Delete: delete the window

> **Apply Surface**
> After completing the settings, click the Output Device ID and the Surface to be applied, then drag the Input Device ID to the colored pattern on the upper right to complete the application. Users can apply several surfaces to the output device.
> * If the input resolution is 4K60, please right-click on the Output Device ID and select "Stop HDMI: 0".
> *Total bandwidth is 10Gbps under Multiview mode (up to four 1920x1080@30 inputs).
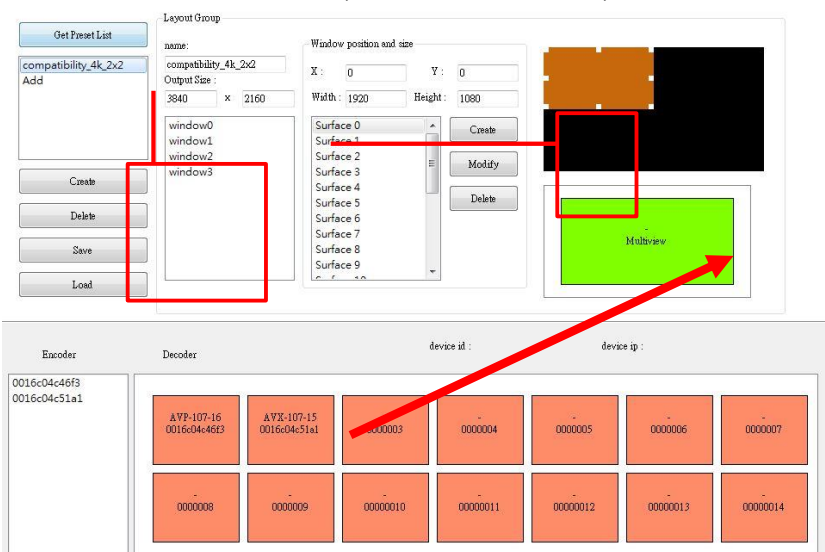
WARRANTY

The SELLER warrants the **AVP-57FC-U HDMI 2.0 over IP Multicast Transceiver System with Bi-directional IR, RS-232, Audio Extender/Extractor, USB 2.0 & Video Wall Support** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the AVP-57FC-U features and specifications is subject to change without further notice.**