AV over IP with Video Wall Processing

SC08.MX5300M

Scion Tech Ltd
Thatcham, Berkshire,
United Kingdom

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1.0 Introduction

The SC08.MX5300M is a video over IP solution for high definition signal extension over copper cables. This solution leverages 1G Ethernet switches and enables signal management of 1080p/ 60Hz (4:4:4) signals with virtually zero frame latency. Bi-Directional RS232, Infra-Red, and embedded audio are also supported.

The video wall mode allows a single video source to be stretched across multiple displays, each receiver crops and scales the region of interest according to its position in the wall matrix. The receivers are locked to the source and thus to each other with no frame rate conversion.

The SC08.MX5300M is managed and controlled using RS232 and IP control codes over the network using an integrated web browser or from virtually any third party controller, including those from AMX, Crestron, Control4.

2.0 Main Features

- HDMI 1.3, HDCP 1.4 Compliant
- Video Resolutions up to 1920 x 1200@60Hz 4:4:4
- Video Compression H.264/H.265
- 4.95Gbps Video Bandwidth
- LPCM 2.0CH (32/44.1/48KHz)
- Up to 100m using a single CAT5e/6/6a cable
- Supports Matrix Switching when used with 1G Network
- Video Wall Processing
- Supports Audio Embedding & Extraction
- Control: RS232, TCP/IP, Web GUI, Panel Buttons
- Drag and Drop Matrix Switching
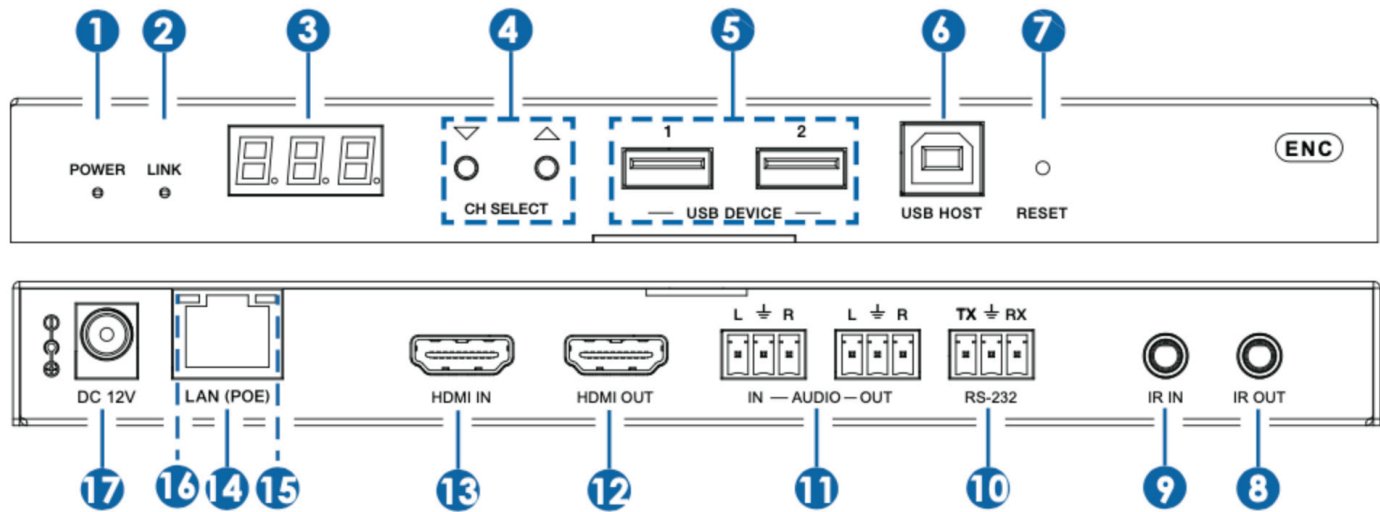- Power over Ethernet (PoE)

3.0 Package Contents

1 x Encoder	1 x Decoder
2 x 3-Pin Phoenix Terminal	2 x 3-Pin Phoenix Terminal
2 x Mounting Ears	2 x Mounting Ears
1 x 24V / 1A Power Supply	1 x 24V / 1A Power Supply
1 x User Manual	1 x User Manual

4.0 Specifications

Connections			
Transmitter	Input:	1 x HDMI Type A (19-Pin Female)	
	Output:	1 x 1G LAN (RJ45 Data Socket)	
		1 x L/R Stereo Audio (3-Pin Phoenix Terminal)	
	Control:	1 x RS232 (3-Pin Phoenix Terminal) 1 x USB Host (Type-B) 2 x USB Device (Type-A)	
Receiver	Input:	1 x 1G LAN (RJ45 Data Socket)	
	Output:	1 x HDMI Type A (19-Pin Female)	
		1 x L/R Stereo Audio (3-Pin Phoenix Terminal)	
	Control:	1 x RS232 (Phoenix Terminal) 2 x USB Device (Type-A)	
Technical			
HDMI		HDMI 1.3	
HDCP Compliance		HDCP 1.4	
HDMI iVideo Resolutions		Up to 1920 x 1200@60Hz 4:4:4	
Colour Space		RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0	
Colour Depth		8-bit, 10-bit, 12-bit, [1080p/60Hz) Output 8-bit	
HDMI Audio Formats		PCM 2.0CH (32/44.1/48KHz)	
Power			
Power Supply	Input:	100~240V 50/60Hz	
	Output:	DC 12V / 1A	
Power Consumption		Encoder 4.08W, Decoder 2.76W (max)	
Environment			
Operating Temperature		0℃ ~ 40℃	
Storage Temperature		-20℃ ~ 60℃	
Relative Humidity		20~90% RH (non-condensing)	
Mechanical			
Housing		Metal Enclosure	
Colour		Black	
Dimensions		Encoder & Decoder = (W) 204 x (D) 95 x (H) 22mm	
Weight		Encoder = 472g and Decoder = 468g	

5. Operation Controls and Functions

5.1 Encoder Panel

Number	Name	Description / Function
1	Power LED	The LED flashes RED during initialisation then remains on when complete.
2	Link LED (Green)	> LED on: Network is connected (Resolution is less than 1920x1200 and the frame rate is less than or equal to 60) access. > LED Flashes at 1Hz: Network is connected, but there is no video input. > LED Flashes at 10Hz: Network is connected but the accessed signal is incompatible, resolution is greater than 1920x1200 or the frame rate is greater than 60Hz. > LED Off: Network is not connected
3	LED Screen	Displays IP Address, Group ID etc. Note: When clicking the "SHOW ME" option of the corresponding machine on the controller, the LED screen of the corresponding machine will flash "SHO", so that you can find the corresponding machine in the network.
4	Channel Select	Sets the Encoders ID and other menu options.
5	USB Device	Connect Keyboard & Mouse
6	USB Host	Connect to PC for KVM
7	Reset	Sytem reset button. Press and hold for 5 seconds to reset factory default.
8	IR Out	Connect IR Emitter
9	IR In	Connect IR Sender
10	RS232	RS232 Serial port supporting signal pass-through and local serial port control.
11	In-Audio-Out	Analogue audio input and output for line level audio

Number	Name	Description / Function
12	HDMI Out	Local looped HDMI output
13	HDMI In	Connect source device such as STB, PC, SAT
14	LAN (PoE)	100M/1G Network Connection with PoE
15	Link Signal LED	ON=Good Network Connection, OFF=Poor or No Networn Connection
16	Data Singal LED	Flashing= Good Signal Connection, OFF=Poor or NO Signal Connection
17	DC 12V	Connection for 12V/1A Power (not required when using PoE)

Note:
The encoder can select HDMI audio or external audio using the "CH Select" buttons on the front panel. The default setting is HDMI audio.
If HDMI audio is selected the L/R OUT on the decoder is HDMI audio out, if external audio is selected the decoder will output the external audio.

Encoder (LED Screen and CH Select buttons)
1. After initialisation the Encoders LED screen displays ENC (000) by default.
2. Press and hold the "UP" button for 5 seconds, the dsplay will show in sequance "IP: xxx xxx xxx xxx, which is the IP address of the Encoder.
3. Press and hold both the UP & Down buttons for 5 seconds, then release to enter "Configuration" mode with "CFN" displayed on the screen.
4. Channel ID settings. Press the UP or DOWN button to display the current ID number (e.g. 001). Press and hold both UP & DOWN buttons for 5 seconds, then release to enter the ID settings mode. The ID number (e.g. 001) will flash at 1Hz, then press UP/DOWN to select the desired ID, then press and hold UP & DOWN buttons for 5 seconds to confirm changes.
5. EDID Settings
   Press the UP or DOWN button until the display shows "E00" (E refers to EDID and 00 is the IDID ID). Press and hold UP & DOWN for 5 seconds, then release to enter EDID settings mode. The EDID ID number (e.g. E01) will flash at 1Hz, then press UP or DOWN button to select the desired EDID ID, then press UP & DOWN for 5 seconds to confirm changes.

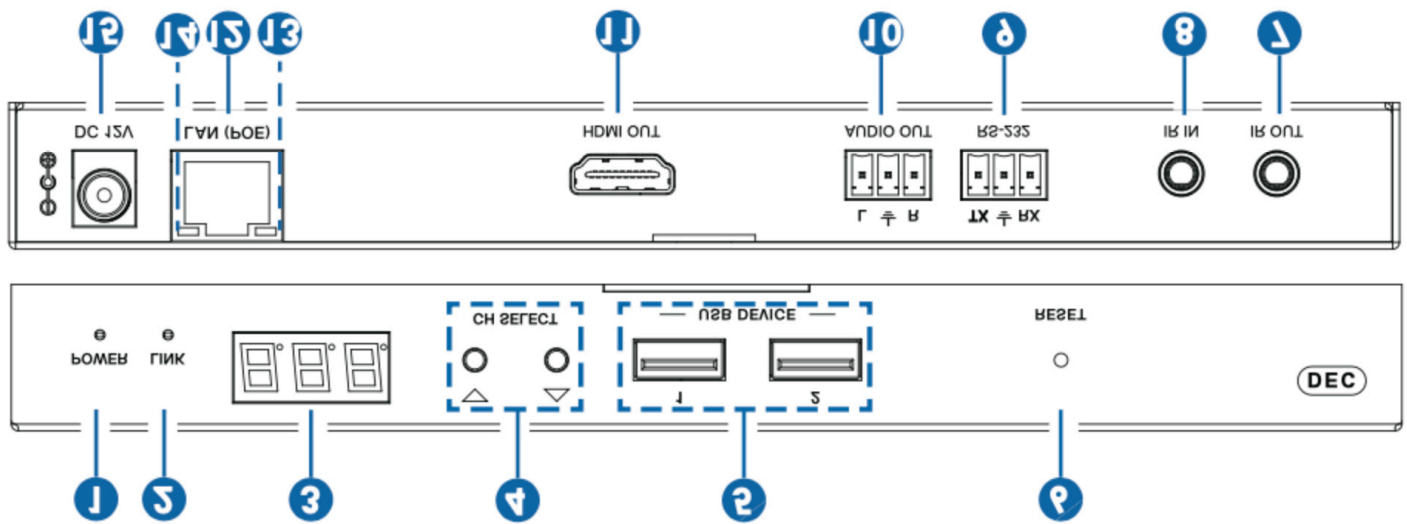| EDID ID	EDID Description
00	H1080P60_2CH
01	H720P60_2CH
02	D1024P60
03	D1080P60
04	D1200P60
05	H1200P_2CH
06	COPY
07	USER1
08	USER2

Notes:

H Refers to HDMI; D refers to DVI. (The default EDID of 1080P60 will be used if you have not previoulsy copied the EDID to ID 06 or downloaded EDID to ID 07/08 on the SC08.CTL100 web page).
EDID options ID 06/07/08 are not availble without SC08.CTL100 controller.

6.   Audio Options
     Press the UP or DOWN button until the screen shows "AHE" (in which "A" refers to Audio and "HE" to HDMI EMB). Press and hold UP & DOWN buttons for 5 seconds to enter audio settings. The audio options are (AHE or AEI), press the UP or DOWN button for select the desired audio setting. Press UP & DOWN buttons for 5 seconds to confirm changes.

5.2 Decoder Panel

Number	Name	Description / Function
1	Power LED	The LED flashes RED during initialisation then remains on when complete.
2	Link LED (Green)	> LED on: Network is connected and there is video data. > LED Flashing: Network is connected but there is no video. > LED Off: Network is not connected
3	LED Screen	Displays IP Address, Group ID etc. Note: When clicking the "SHOW ME" option of the corresponding machine on the controller, the LED screen of the corresponding machine will flash "SHO", so that you can find the corresponding machine in the network.
4	Channel Select	Sets the Decoders ID and other menu options.
5	USB	Connect keyboard and mouse
6	Reset	Sytem reset button. Press and hold for 5 seconds to reset factory default.
7	IR Out	Connect IR Emitter
8	IR In	Connect IR sender cable
9	RS232	RS232 Serial port supporting signal pass-through and local serial port control.

Number	Name	Description / Function
10	Audio In/Out	> Audio In: Analogue audio input from amplifier etc. > Audio Out: Analogue audio output to amplifier etc.
11	HDMI Out	Connect HDMI lead to screen
12	LAN (PoE)	100M/1G Network Port. Connect to switch, router or hub for data transmission and PoE.
13	Link LED	> Illuminated Green: Network Connection is normal. > Dark: Poor network connection.
14	Data LED	> Flasjing: Data transmission ok. > Dark: No data transmission.
15	Power	DC 12V /1A Power Input. Note: When PoE is applied there is no need for a local PSU.

Decoder (LED Screen and CH Select buttons)

1. After initialisation the Decoders LED screen displays ID of the connected Decoder (000) by default.
2. Press and hold the "UP" button for 5 seconds, the dsplay will show in sequance "IP: xxx xxx xxx xxx, which is the IP address of the Encoder.
3. Press and hold both the UP & Down buttons for 5 seconds, then release to enter "Configuration" mode with "CFN" displayed on the screen.
4. Channel ID settings. Press the UP or DOWN button to display the current ID number (e.g. 001). Press and hold both UP & DOWN buttons for 5 seconds, then release to enter the ID settings mode. The ID number (e.g. 001) will flash at 1Hz, then press UP/DOWN to select the desired ID, then press and hold UP & DOWN buttons for 5 seconds to confirm changes.
5. Output Resolution Settings
Press the UP or DOWN button until the display shows "S00" (S refers to Scaler and 00 is the Resolution ID). Press and hold UP & DOWN for 5 seconds, then release to enter "Output Resolution Settings" mode. The Resolution ID number (e.g. S01) will flash at 1Hz, then press UP or DOWN button to select the desired Resolution ID, then press UP & DOWN for 5 seconds to confirm changes.

Resolution ID	Resolution Description
00	Pass-Through (Default)
01	1080P60
02	1080P50
03	1080P30
04	1080P25
05	1080P24
06	720P60
07	720P50
08	576P50
09	480P60

| Resolution ID	Resolution Description
10	640X480P60
11	800X600P60
12	1024X768P60
13	1280X800P60
14	1280X1024P60
15	1366X768P60
16	1440X900P60
17	1600X1200P60
18	1680X1050P60
19	1920X1200P60

5.3 Encoder and Decoder Settings

When multiple encoders and decoders are used on a local area network, it's important to set each device with it's own unique ID. This is achieved using the following methods.

Method 1: Use the CH SELECT buttons on the front panel of the Encoder/ Decoder. According to the methods mentioned in Chapter 5, set the ID of Encoder, then set the ID of Decoder, finally set the Encoder ID from which to subscribe the stream. Match all Encoders and Decoders in the same way.

Method 2: Use the RS-232 serial port command control.
Connect the RS-232 port of Encoder/Decoder to a PC or control system, as shown in the figure below. Then use a Serial Command tool on PC to send the RS-232 command code: "!OUT xxx FR yyy\r\n". The function of this command is to connect the Decoder (ID:xxx) to the Encoder (ID:yyy). Match all Encoders and Decoders in the same way.
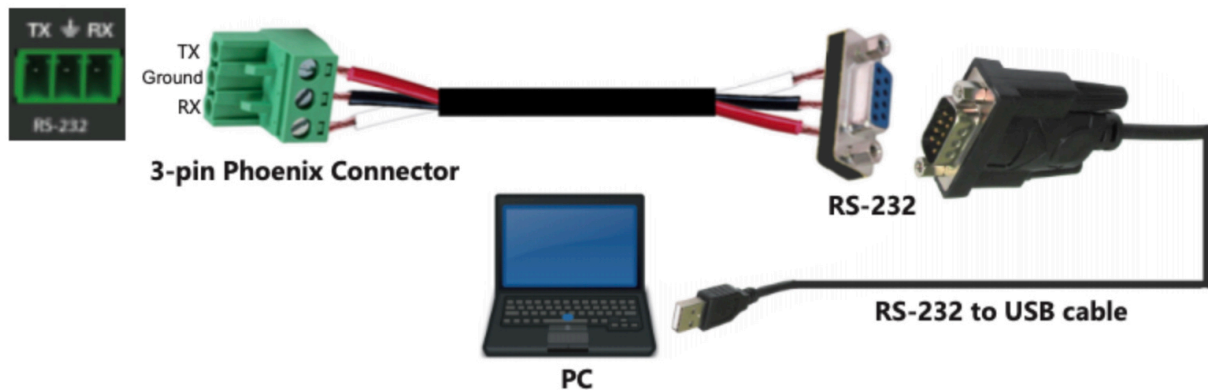
Method 3: Use the IR remote control (optional).
The IR of Decoder supports using IR remote control. The button number on the IR remote control is the ID of Encoder which is to be connected to the current Decoder. You can select Encoder 1~40 to match the current Decoder by directly pressing button 1~40. If you press and hold the button 1 for 5 seconds, Encoder 41~80 can be selected.

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6.0 Web GUI User Guide

6.1 Configuring PC Network Properties

Set the PC network segment to the same as the encoders and decoders. The PC IP address should be 169.254.3.150 and the subnet mask should be 255.255.0.0
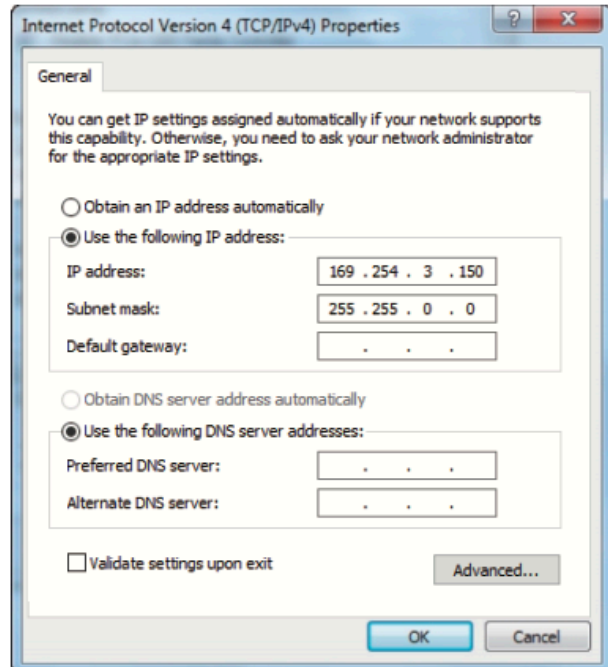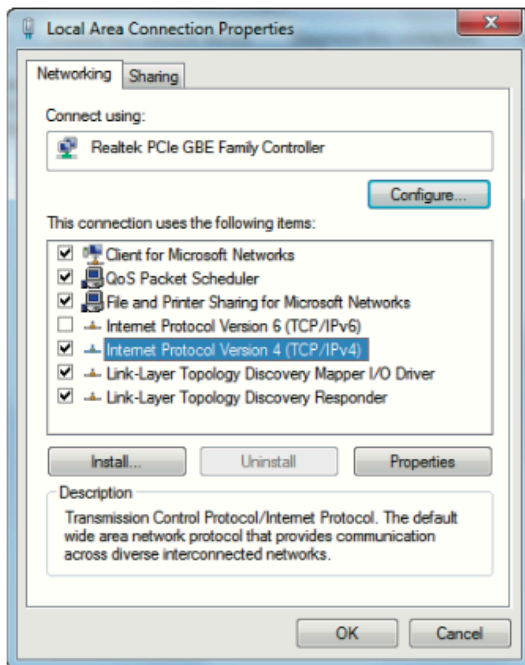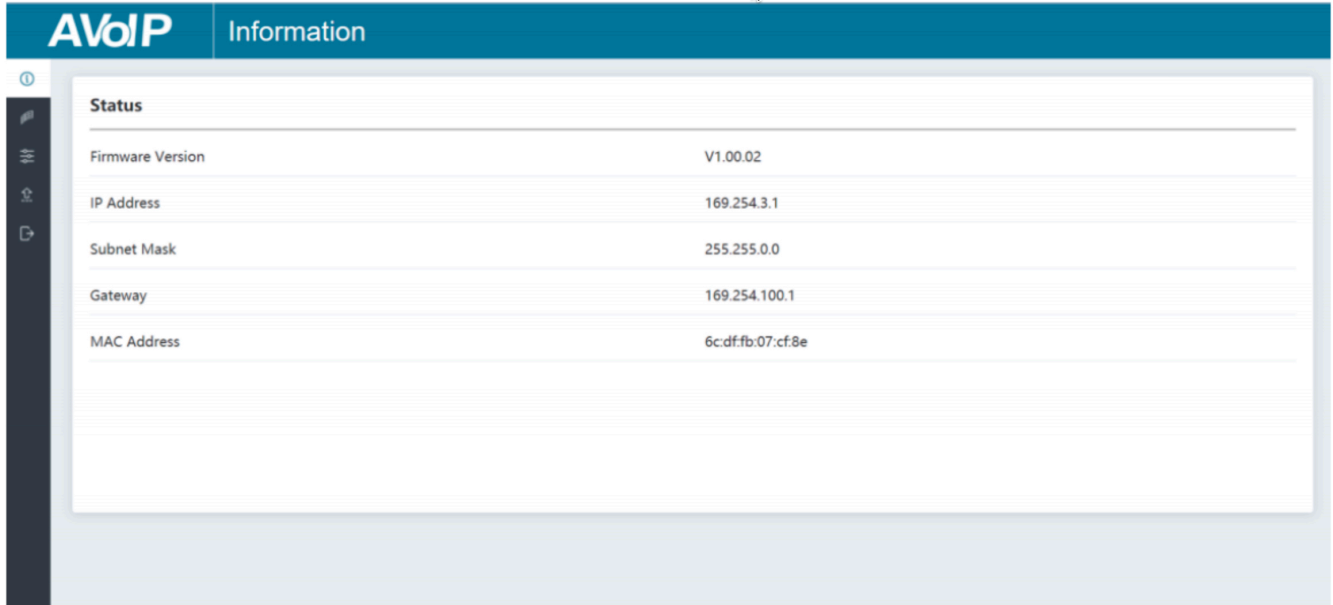

6.2 Log In

Enter the Encoder/Decoder IP address (refer to section 5) in to your WEB Browser address bar. Login: admin and Password: admin
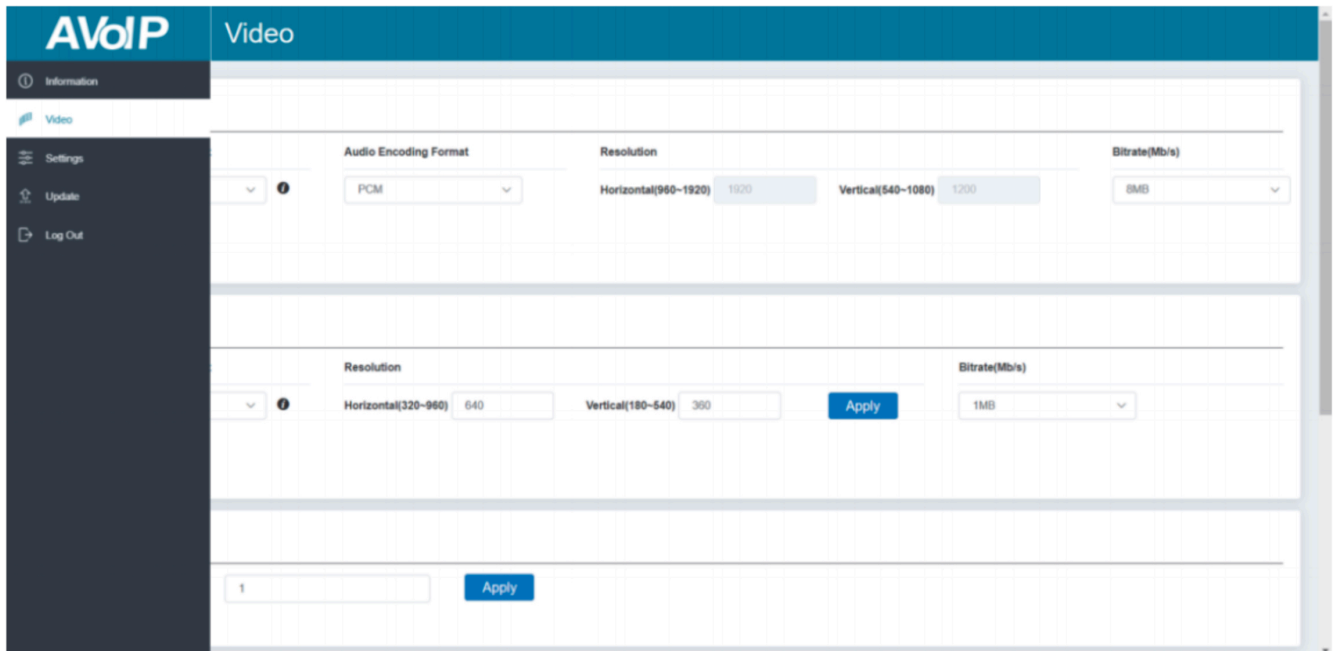

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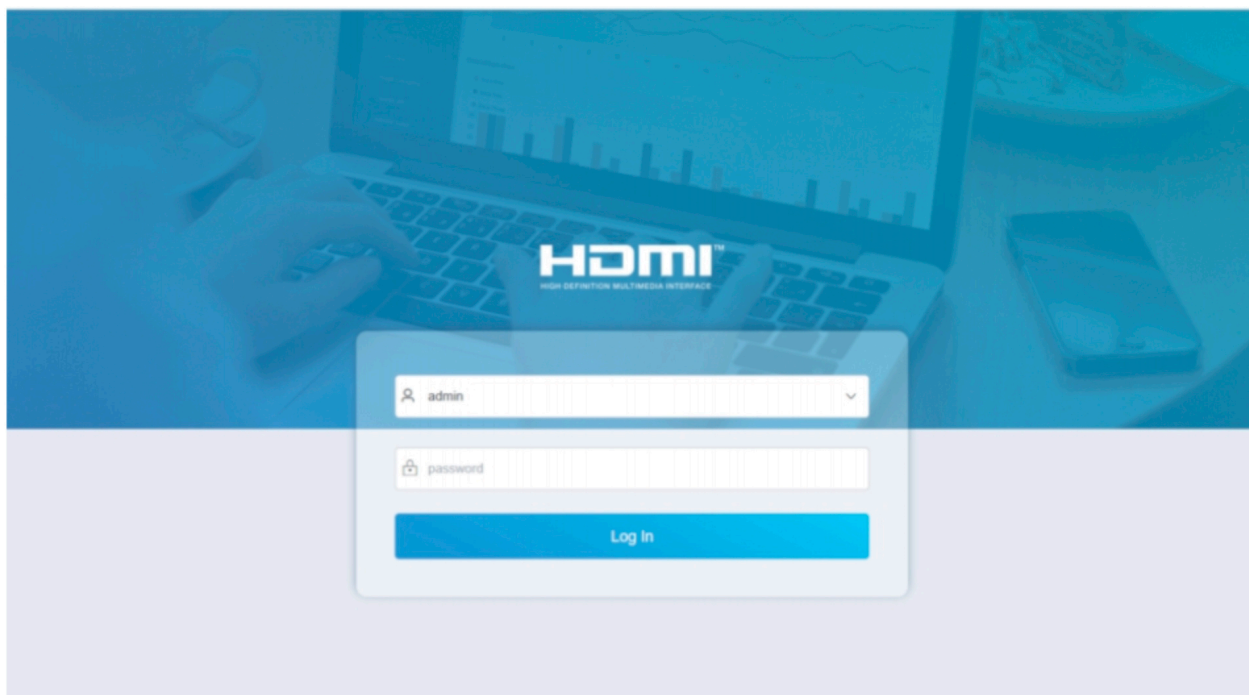
6.3 Device Information Page

The "Status" page provides information about the Encoder/Decoder, such as Firmware Version, IP Address, Subnet Mask and MAC Address.

6.4 Encoder Video Configuration

The encoder video configuration page includes settings for Main Stream, Sub Stream, ID Setting, Audio Selection and EDID Settings.

Main Stream: You can configure the Video Encoding Format, Audio Encoding Format and Bitrate. The Encoder supports H.264 and H.265 (H.265 is the default setting). The supported audio formats are PCM and AAC, PCM being the default. The encoding resolution cannot be manually set, it follows the input resolution. The default Bitrate is 8Mb/s.

Sub Stream: You can configure the Encoding Format, Resolution and Bitrate. The Sub Stream video encoder supports H.264 & H.265 (H.265 is the default setting). The default encodinf resolution is 640*360 and the Bitrate is 1Mb/s.

ID Setting: After setting the encoders ID the IP address will change. You need to press and hold for 5 seconds the (CH SELECT) UP button on the encoders front panel to reveal the new IP address, then enter the new IP address in to your web browser to continue.

Audio Selection: Select between HDMI and Analogue audio.

EDID Setting: Choose the required EDID from the drop-down list as shown below.

EDID binary files can be downloaded from the decoder and uploaded to the encoder EDID 1 and EDID 2 sections.

6.5 Decoder Video Configuration

The Decoder Video Configuration page includes Transmission Protocol, Scale Setting, Download EDID, Video Timeout Setting, ID Setting and Picture Setting.

Transmission Protocol: You can select "udp unicast" or "udp multicast" (udp multicast by default).
Scaler Setting: You can set the output resolution (Pass Through by default). Download EDID: You can download the EDID binary file of the display device connected to the Decoder. The EDID file can be used as the User EDID file to be uploaded to the Encoder.
Video Timeout Setting: You can set the timeout to turn off the video output when no input video signal is detected. 0 means never close.
ID Setting:
Local ID: You can set the ID of the Decoder. (After setting the ID, the IP will change. You need to press and hold the (CH SELECT) UP button on the front panel of the Decoder for 5 seconds to check the IP address, and then re-enter the new IP address on the web page to continue setting).
Max Channel ID: You can set the maximum range of Source Selection ID that can be set. When it is set to 0, there is no limit to the setting range of Source Selection ID.
Source Selection ID: You can select the ID of the Encoder to be the input source.
Picture Setting: You can configure the picture parameters (Brightness, Contrast, Hue and Saturation).

6.6 Settings

On this pag you set Network settings, configure security module, modify the username and login password.

Notes:

(1) The Network Settings can only be modified if the Mode button is set to Static.

(2) All changes will take effect by clicking the "Save" button.

(3) After making changes to the Network Settings, User Name or Password, it will re-direct you to the login page. You must login again using the new settings.

6.7 Update Page

Click "Browse.." to import the upgrade file and click "Update" to start upgrade. There will be a progress bar prompt during the upgrade process. When the progress bar reaches 100%, it indicates the upgrade is successful, and the device will be restarted automatically.

Clicking "Reset" can reset the device to factory default settings. Clicking "Reboot" can reboot the device.
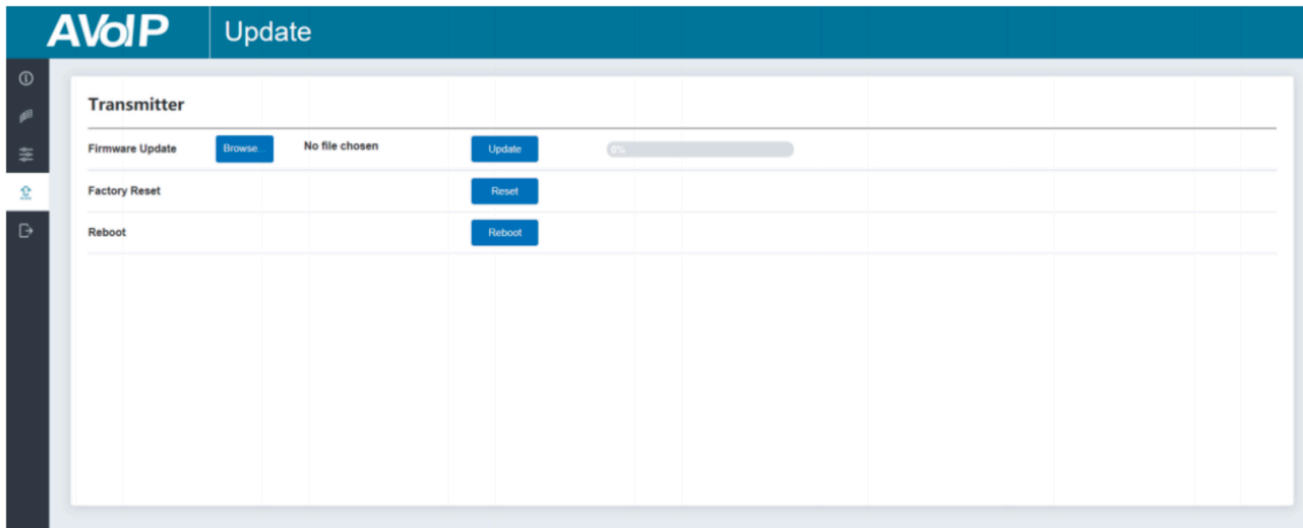
7.0 Maintenance, Service & Warranty

Clean this unit with a soft, dry cloth. Never use alcohol, pint thinner of benzene to clean these devices.

7.1 Servicing

Damage requiring service: This product should be serviced by a qualified service engineer if:
● The DC power cord or AC adaptor has been damaged.
● Objects or liquids have entered the housings.
● The product has been exposed to rain.
● The product has stopped working or shows signs of significant change in operating performance or function. ● The unit has been dropped or severely damaged externally.
Servicing personnel: Do not attempt to service the product beyond that described in these instructions. Refer all other servicing to authorised serving personnel.
Replacement parts: When parts need replacing ensure the service engineer uses parts specified by the manufacture or parts that have the same characteristics as the original parts. Unauthorised substitutes may result in fire, electric shock or other hazards.
Safety check: After a repair or service, ask the engineer to perform safety checks to confirm the product is in proper working condition.

7.2 Warranty

If your product does not work properly because of a defect in materials or workmanship, our Company (referred to as "the warrantor") will , for the length of the period indicated as below, (Parts and labour 2 years) which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new of a refurbished product. The decision to repair or replace will be made by the warrantor.
During the "Labour" Limited Warranty period there will be no charge for labour. During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

7.3 Returning a Product

When shipping the unit carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a day time phone number and/or email address where you can be reached.

7.4 Limited warranty limits and exclusions

This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, maladjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service centre or other authorized service engineer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE".THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only).

PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY. This returns policy does not affect your legal rights. Details of your legal rights are available from Trading Standards or Citizens Advice Consumer Service.

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