



## Lumens AVoIP Encoder/Decoder User Manual

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# LUMEN

## Lumens AVoIP Encoder/Decoder



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### Package Contents

#### OIP-D40E Encoder

OIP-D40E  
Encoder

Instruction for  
installation

5 V/2.6 A  
Power supply  
(including a  
multinational  
adapter)

3.5 mm  
male to D-Sub  
female adapter  
cable



3.5 mm to  
infrared emitter

3.5 mm to  
infrared extender

Foot mats



(A set of four)

#### OIP-D40D Decoder

**OIP-D40D  
Decoder**



**Instruction for  
installation**



**5 V/2.6 A  
Power supply  
(including a  
multinational  
adapter)**



**3.5 mm  
male to D-Sub  
female adapter  
cable**



**3.5 mm to  
infrared emitter**



**3.5 mm to  
infrared extender**



**Foot mats**



**(A set of four)**

## Product Overview

This product is an HDMI over IP encoder/decoder, which can extend and receive HDMI signals through a Cat.5e network cable under TCP/IP protocol. This product supports HD images (1080p@60Hz) and audio data, and the transmission distance can be 100 meters. If it is equipped with a Gigabit network switch, it can not only extend the transmission distance (up to 100 meters for each connection), but also receive VoIP signals without loss or delay.

In addition to supporting IR and RS-232 bi-directional transmission, this product also supports Multicast of VoIP signals, which can send the audio-visual signals of one encoder to multiple decoders in the same area network. In addition, the VoIP signals with multicast can also be used to build a large video wall composed of multiple displays. This product is perfectly suitable for home use and commercial audio-visual installation environments, and has a screen display function to quickly check setting information. The control interface includes WebGUI, Telnet and AV over IP controllers.

## Product Applications

- HDMI, IR and RS-232 signal extension
- Multi-screen broadcast displays in restaurants or conference centers
- Use connection to long-distance transmit data and images
- Matrix image distribution system
- Video wall image distribution system

## System Requirements

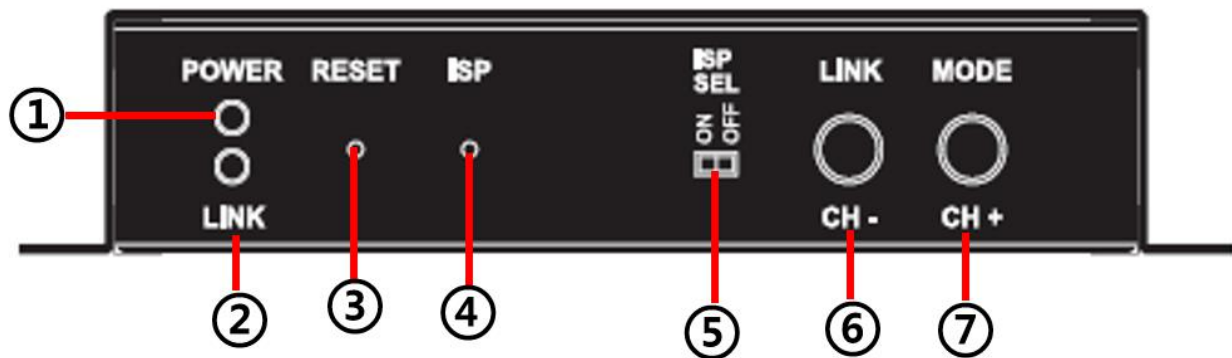
- HDMI audio-visual source devices, such as digital media players, video game consoles, PCs or set-top boxes.
- A Gigabit network switch supports Jumbo Frame (at least 8K Jumbo Frames).
- A Gigabit network switch supports Internet Group Management Protocol (IGMP) Snooping.

**<Remark>**

- Most consumer-grade routers cannot handle the high traffic flow generated by multicast, so it is not recommended to directly use the router as your network switch.
- It is strongly recommended to avoid mixing your commonly used network traffic with VoIP streaming flow. VoIP streaming flow should at least use a separate subnet.

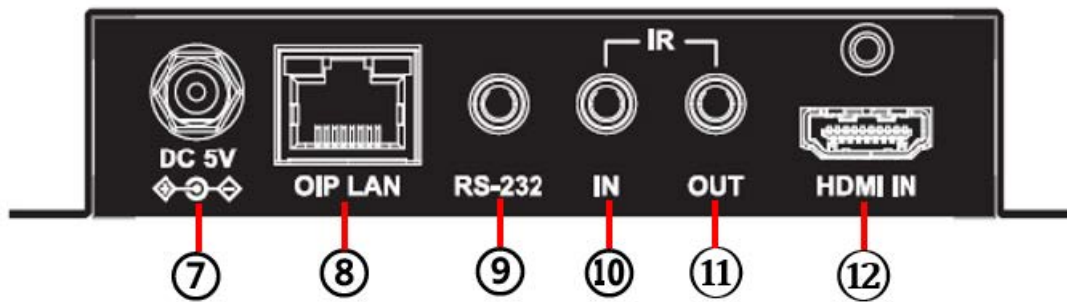
## I/O Functions Introduction

### 2.4.1 OIP-D40E Encoder – Front Panel



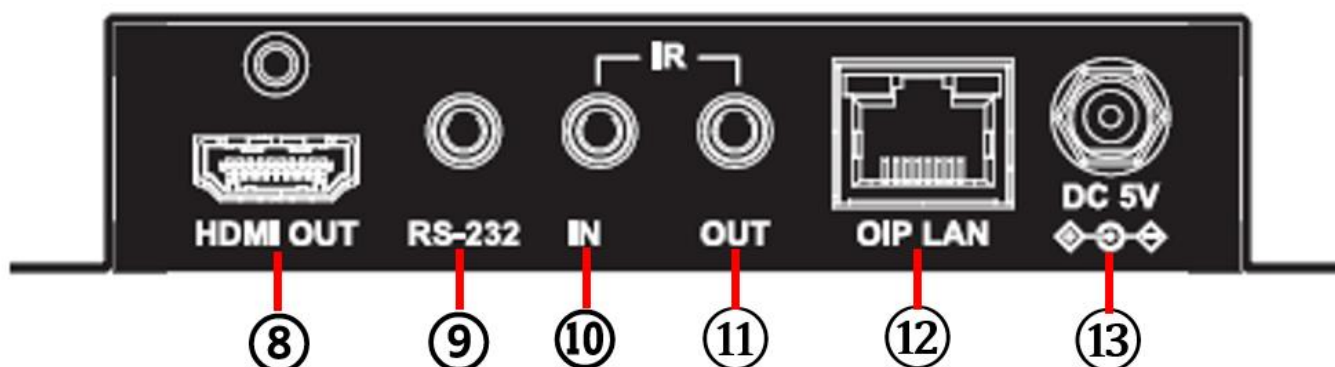
NO	Item	Function Descriptions
①	Power indicator	Display the status of the device. Please refer to <a href="#">2.5 Description of Indicator Display</a> .
②	Connection indicator	Display the status of connection. Please refer to <a href="#">2.5 Description of Indicator Display</a> .
③	Reset button	Press this button to restart the device (all settings will be retained).
④	Image stream button	<p>Press this button to switch image stream to Graphic or Video image processing modes.</p> <p>Graphic mode: Optimizing high-resolution static images. Video mode: Optimizing full motion images.</p> <p><b>&lt;Remark&gt;</b>When the device is on, hold down this button to reset the settings. Once the reset is complete, the two indicators will flash quickly. You need to restart the power manually.</p>
⑤	ISP button	For manufacturers only.
⑥	ISP SEL On/Off	For manufacturers only. The default position of this switch is OFF.

### OIP-D40E Encoder – Rear Panel



NO	Item	Function Descriptions
⑦	Power port	Plug in a 5V DC power supply and connect to an AC outlet.
⑧	OIP LAN port	Connect to a network switch to serially connect compatible decoders and transmit data, while being able to use WebGUI/Telnet control.
⑨	RS-232 port	<p>Connect to a computer, laptop or control equipment to extend the RS-232 signals. The default baud rate is 115200 bps, which can be set by users.</p> <p><b>&lt;Remark&gt;</b>With Multicast, the encoder can send RS-232 commands to all decoders, and individual decoders can send RS-232 commands to the encoder.</p>
⑩	IR input port	<p>After connecting to IR extender, aim at the remote control to extend the IR control range of the remote control to the far ends.</p> <p><b>&lt;Remark&gt;</b>With Multicast, the encoder can send IR signals to all decoders.</p>
	IR output port	After connecting to IR emitter, aim at the controlled device to send the received IR signals from the remote control to the controlled device.
	HDMI input port	Connect to HDMI source devices, such as digital media players, video game consoles, or set-top boxes.

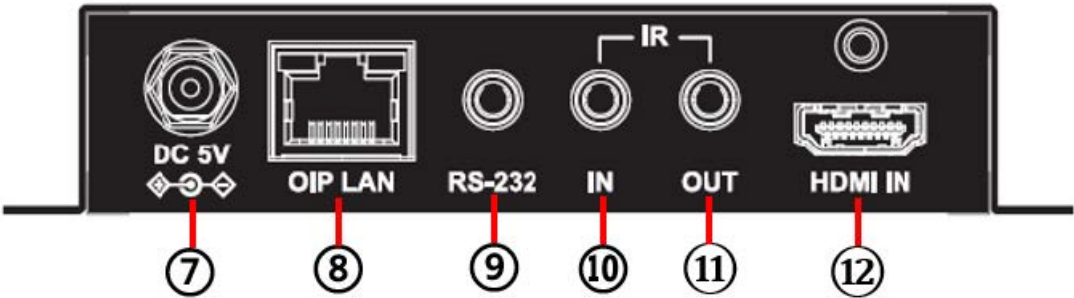
#### OIP-D40D Decoder – Front Panel



NO	Item	Function Descriptions
①	Power indicator	Display the status of the device. Please refer to <b><u>2.5 Description of Indicator Display</u></b> .
②	Connection indicator	Display the status of connection. Please refer to <b><u>2.5 Description of Indicator Display</u></b> .
③	Reset button	Press this button to restart the device (all settings will be retained).
④	ISP button	For manufacturers only.
⑤	ISP SEL On/Off	For manufacturers only. The default position of this switch is OFF.
⑥	Channel or Link button	<p>(1) Channel -: Press this button to switch to the previous available streaming channel in the local network.</p> <p><b>&lt;Remark&gt;</b>If the device does not detect an available streaming channel, its channel number will not be changed.</p>
		<p>(2) Image Connection: Press this button for 3 seconds to enable or disable image connection. When image connection is disabled, the displays connected to the decoder will show the current IP address and the firmware version of the system.</p>
		<p>(1) Channel +: Press this button to switch to the next available streaming channel in the local network.</p> <p><b>&lt;Remark&gt;</b>If the device does not detect an available streaming channel, its channel number will not be changed.</p>

⑦	Channel or Image Stream button	<p>(2) Image Stream: Press this button to switch image stream to Graphic or Video image processing modes.</p> <p>Graphic mode: Optimizing high-resolution static images. Video mode: Optimizing full motion images.</p> <p><b>&lt;Remark&gt;</b>When the device is on, hold down this button to reset the settings. Once the reset is complete, the two indicators will flash quickly. You need to restart the power manually.</p>
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**OIP-D40D Decoder – Rear Panel**



NO	Item	Function Descriptions
⑧	HDMI output port	Connect to HDMI display or audio-visual amplifier to output digital images and audio.
⑨	RS-232 port	Connect to a computer, laptop or control equipment to extend the RS-232 signals. The default baud rate is 115200 bps, which can be set

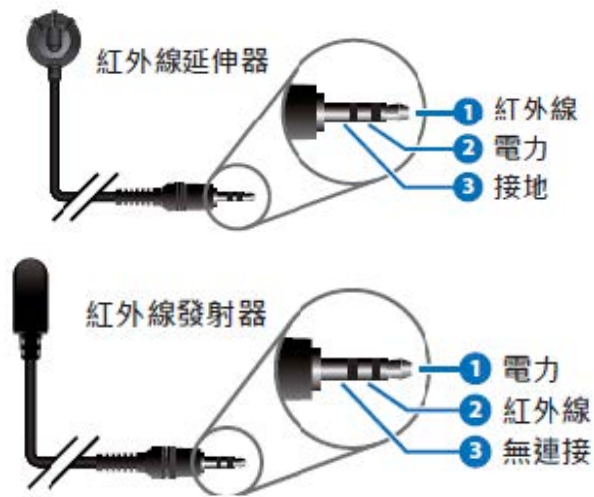
NO	Item	Function Descriptions
		by users.  <Remark>With Multicast, the encoder can send RS-232 commands to all decoders, and individual decoders can send RS-232 commands to the encoder.
⑩	IR input port	After connecting to IR extender, aim at the remote control to extend the IR control range of the remote control to the far ends.
	IR output port	After connecting to IR emitter, aim at the controlled device to send the received IR signals from the remote control to the controlled device.  <Remark>With Multicast, the encoder can send IR signals to all decoders.
	OIP LAN port	Connect to a network switch to serially connect compatible encoders and transmit data, while being able to use WebGUI/Telnet control.
	Power port	Plug in a 5V DC power supply and connect to an AC outlet.

#### Description of Indicator Display

Name	Indicator Status
Power indicator	<b>Flickering:</b> Receiving power <b>Stays On:</b> Ready
Connection indicator	<b>Off:</b> No internet connection <b>Flickering:</b> Connecting <b>Stays On:</b> Connection is stable

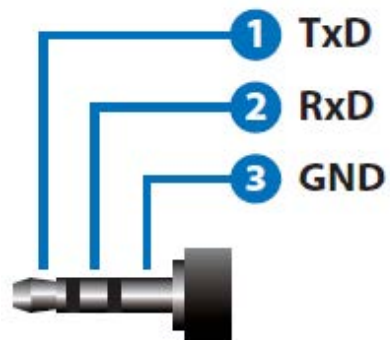
#### IR Pin Assignment Configuration





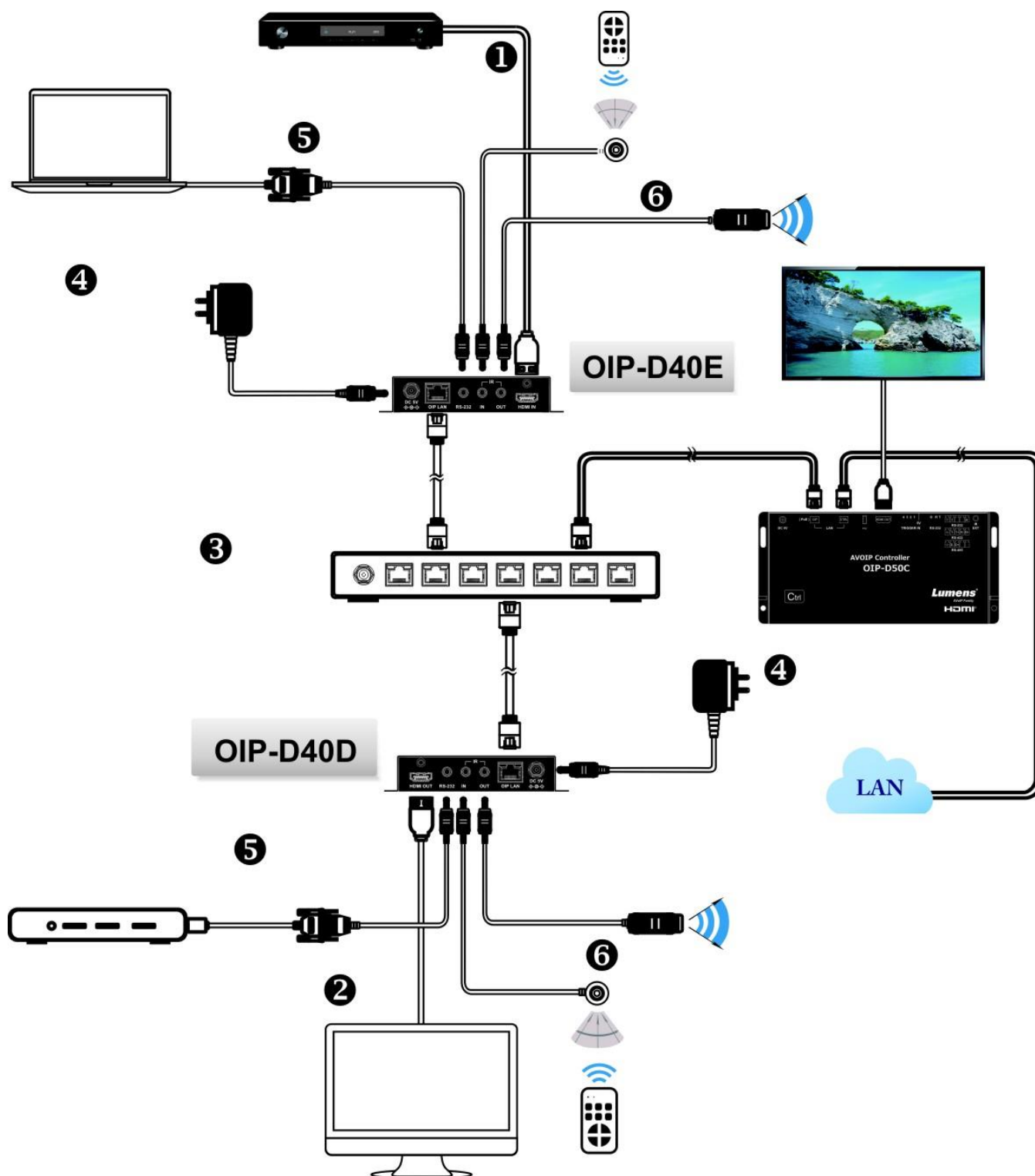
### Serial Port Pin and Default Setting

3.5 mm male to D-Sub female adapter cable



Default Setting of the Serial Port	
Baud Rate	115200
Data Bit	8
Parity Bit	N
Stop Bit	1
Flow Control	N

### Installation and Connections



## Connection Setting

1. Use an HDMI cable to connect the video source device to the HDMI input port on the D40E encoder.
2. Use an HDMI cable to connect the video display device to the HDMI output port on the D40D decoder.
3. Use a network cable to connect the OIP network port of the D40E encoder, D40D decoder, and D50C controller to the network switch of the same domain, so that all OIP devices are in the same local area network.
4. Plug the transformer into the power ports of D40E encoder, D40D decoder and D50C controller and connect to the power outlet.

Steps ①-④ can extend the signal. You can enter the IP address of the encoder or decoder on the browser to control the encoder or decoder individually. Or use the WebGUI operation interface to control the video display device connected to the D50C controller, which can simultaneously control all encoders and decoders currently

connected to the same local network.

You can also connect to a computer and IR emitter/receiver. Please refer to the following connection methods:

5. Connect a computer, laptop or control device to the RS-232 port to extend the RS-232 signal.
6. Connect the IR emitter/receiver to the D40E encoder and D40D decoder to receive IR from the remote control, and use the remote control to control the controlled device.

## Start Using

VoIP transmission will consume a lot of bandwidth (especially at higher resolutions), and it needs to be paired with a Gigabit network switch that supports Jumbo Frame and IGMP Snooping. It is strongly recommended to be equipped with a switch which includes VLAN (Virtual Local Area Network) professional network management.

### Network Switch Setting

#### Notes

Most consumer-grade routers cannot handle the high traffic flow generated by multicast, so it is not recommended to directly use the router as your network switch. It is strongly recommended to avoid mixing your commonly used network traffic with VoIP streaming flow. VoIP streaming flow should at least use a separate subnet.

#### Setting Suggestions

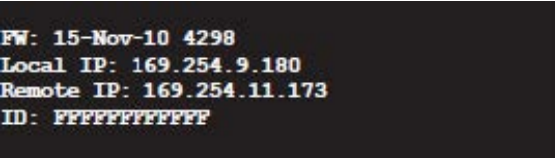
Please set Port Frame Size (Jumbo Frame) to 8000.

Please set IGMP Snooping and relevant settings (Port, VLAN, Fast Leave, Querier) to [Enable].

### WebGUI Control Methods

#### WebGUI control via D40E encoder/D40D decoder

The encoder and decoder have their own WebGUI interface. Open a standard web page browser, enter the IP address of the device, and log in to the WebGUI interface to connect to the encoder or decoder you'd like to operate. If you don't know the IP address, temporarily stop the VoIP streaming connection between the encoder and the decoder first. Please press the LINK button on the front panel of the decoder for 3 seconds (the LINK indicator flickers quickly then is off), and check the IP address on the display connected to the decoder. Once the VoIP streaming is disconnected, the decoder will output a 640 x 480 black screen, and a set of local (equal to the decoder) IP address will be shown at the bottom of the screen, and a set of remote (equal to encoder) IP address sharing the same VoIP transmission channel (the channel number is preset to 0). After obtaining the IP address, please press the LINK button again for 3 seconds to restore the original operating state of the device (the LINK indicator lights up first and then stays on).



```
FW: 15-Nov-10 4298
Local IP: 169.254.9.180
Remote IP: 169.254.11.173
ID: FFFFFFFFFF
```

After logging in to the WebGUI interface, you will see a window composed of several tabs. Please click the button at the top of the window to check the content of each tab. For each tab and its function, please refer to 5.1 WebGUI Control Menu Descriptions.

#### WebGUI control via theD50C controller

To activate the WebGUI connection of D50C controller, please open a web page browser, and enter the IP address of the CTRL LAN port of D50C controller, or connect the display to the HDMI output port, and connect the keyboard and mouse to the USB port for easy operation. Whether it is controlled on a web page browser or on a display, all encoders and decoders connected to the same local network can be controlled on the control page at

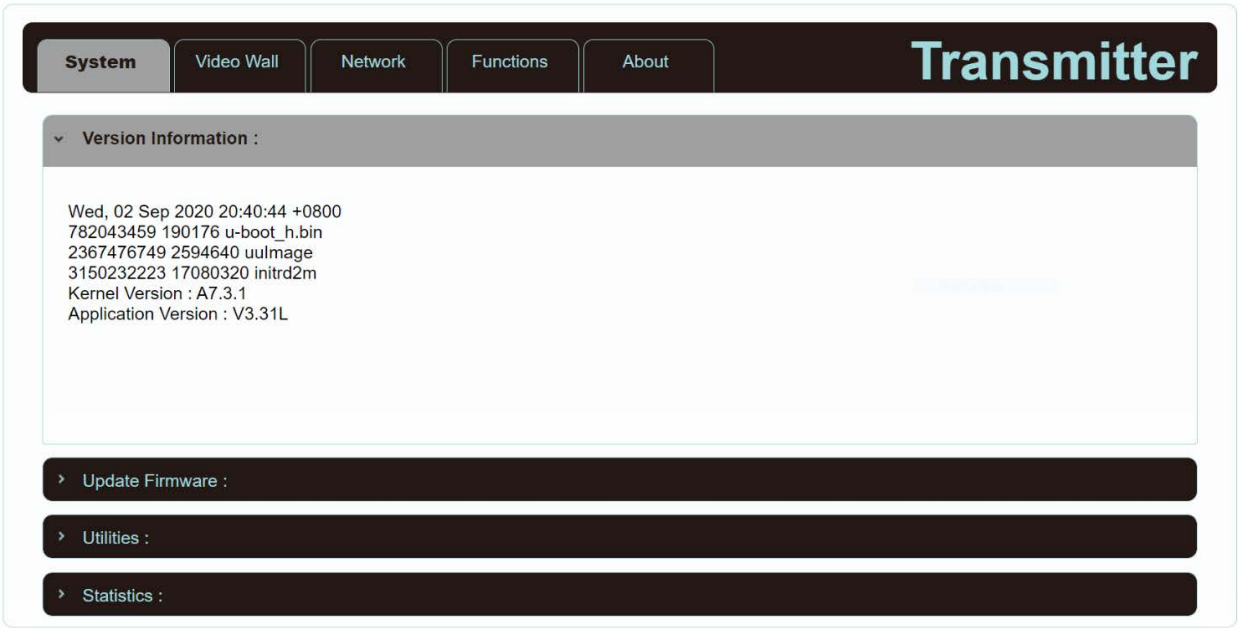
the same time. For the description of the D50C WebGUI control menu, please refer to the OIP-D50C User Manual.

## WebGUI Control Menu

### WebGUI Control Menu Descriptions

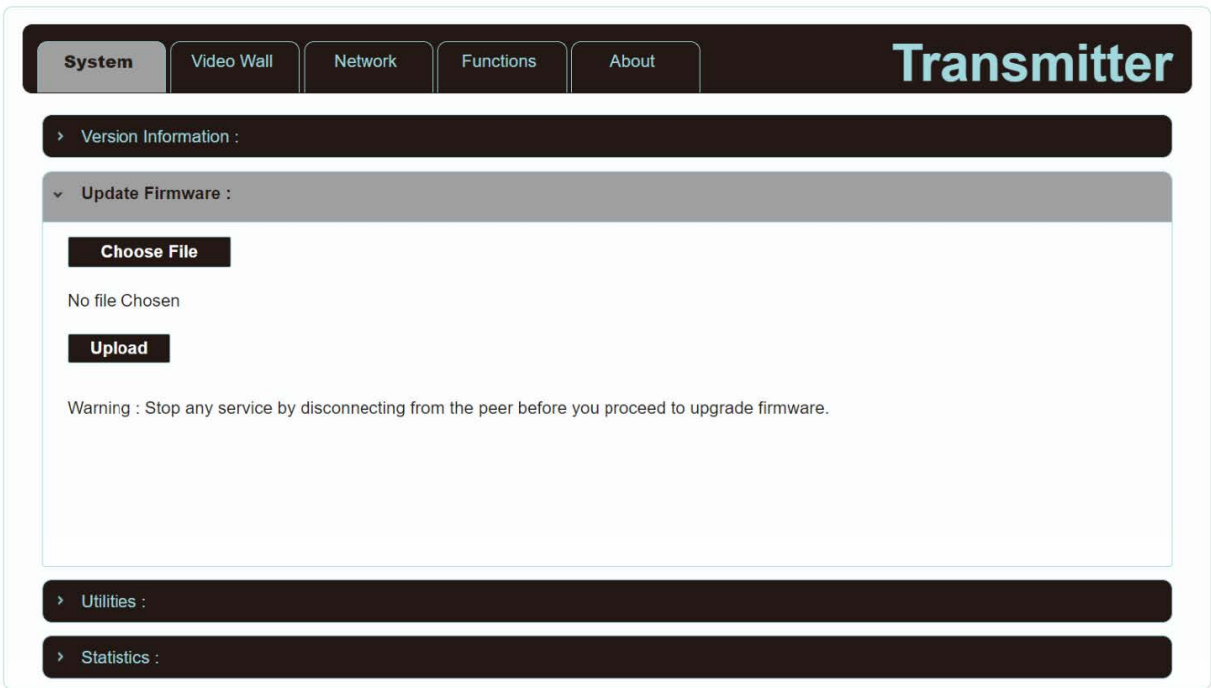
This chapter describes the WebGUI control menu of D40E encoder/D40D decoder. To use the WebGUI control page of D50C controller to control the device, please refer to OIP-D50C User Manual.

### System – Version Information



This window will show detailed information about the current firmware version of the device.

### System – Upgrade the Firmware



### Description

To upgrade the firmware of this device, please press [Choose File], select the updated file (\*.bin format) from your computer, and then press [Upload] to start the update.

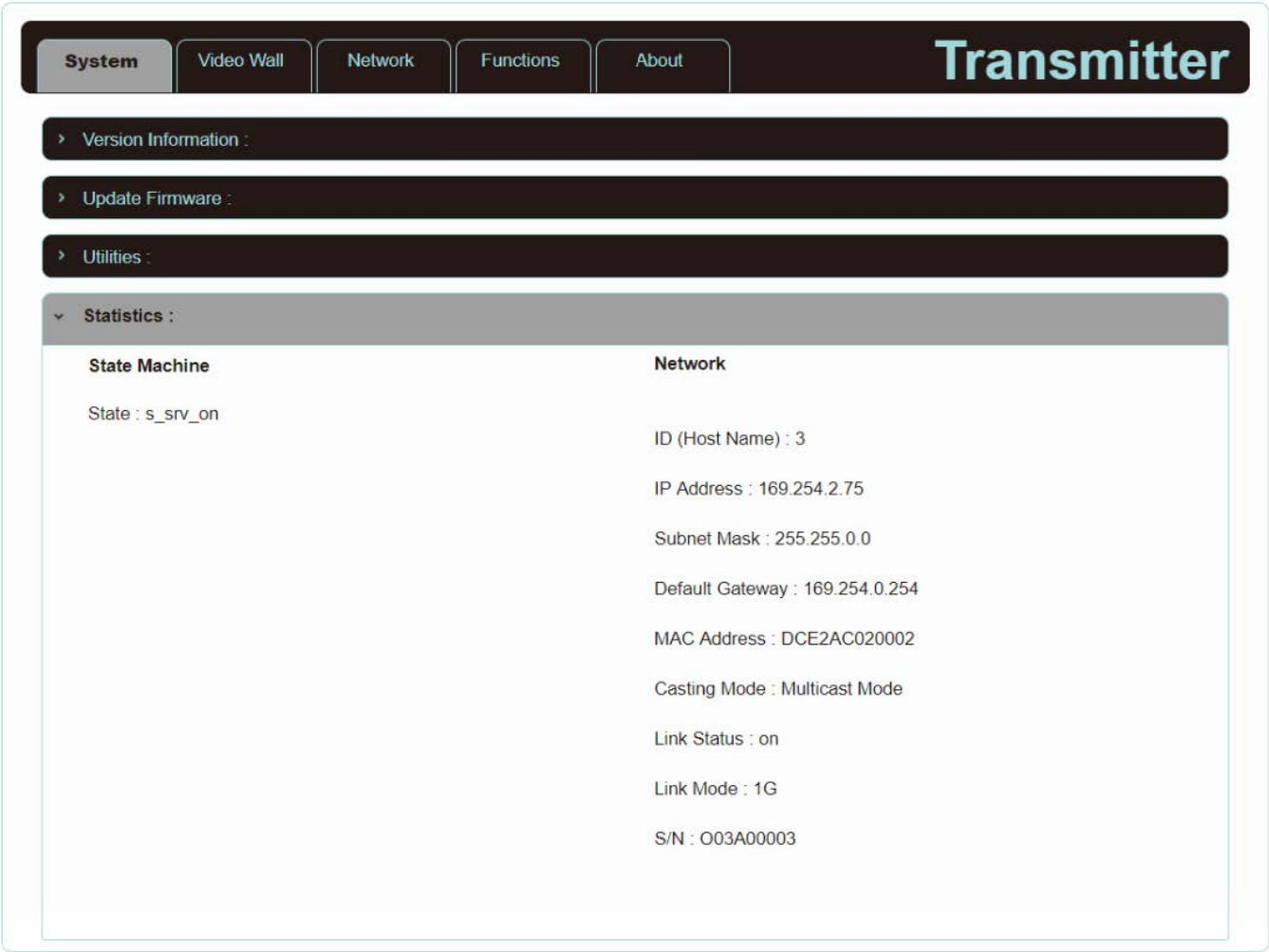
<Remark>The update process will take a few minutes to complete, and the device will automatically restart during the process. When updating, the video output may become unsteady.

## System – Utility Program

The screenshot shows the 'Dencoder' System Utility Program interface. The top navigation bar includes 'System', 'Video Wall', 'Network', 'Functions', and 'About'. The 'System' tab is selected. Below the navigation bar, there are sections for 'Version Information', 'Update Firmware', and 'Utilities'. The 'Utilities' section is expanded, showing three sub-sections:

- Commands** (labeled 1): Contains an 'Enable Log Message' checkbox, a 'Factory Default' button, and a 'Reboot' button.
- Reset EDID to Default Value** (labeled 2): Contains a radio button for 'Default HDMI EDID' and an 'Apply' button.
- Console API Command** (labeled 3): Contains a 'Command' input field, an 'Output' text area, and an 'Apply' button.

No	Item	Description
1	Commands	To restore the factory default settings of the device, please press [Factory Default]. If you only need to restart the device (settings will not be reset), please press [Reboot].
2	Reset EDID to Default Value	If the EDID data from the decoder is not compatible with the HDMI signal source, please select the built-in HDMI EDID setting from the encoder (supports 1080p resolution, including audio) to solve the compatibility problem, and then press [Apply].  <Remark>If restart the device, the EDID setting will be reset.  * The decoder operation interface does not have this function.
3	Console API Command	To send a Telnet command to the device, enter the Telnet command in the Command field, and then press [Apply]. The device's response to the command will be shown on the Output field.  <Remark>To check Telnet commands, please refer to <b><u>OIP-D40E.D40D Telnet Command List</u></b> .



**Description**

This window will display the current operating status of the device, including host name, network information, MAC address, unicast or multicast, and connection status and mode.

**Video Wall – Bezel and Gap Compensation**

The video wall page can design, edit and operate a video wall built by displays connected with multiple decoders. In the same video wall system, you can choose to control any decoder on any encoder (as long as the channel number is shared), or you can choose to access the video wall settings on the encoder and decoder. Some of the changed video wall settings can only be applied to the decoder. After saving the new video wall settings, please set Apply To to select the applied target and then press [Apply].

<Remark>Although it is feasible to build a small video wall with the unicast mode, it is strongly recommended to give priority to adopt the multicasemode when building a video wall so that the network bandwidth can be used more effectively.

System

**Video Wall**

Network

Functions

About

Transmitter

Bezel and Gap Compensation

OW :

1

OH :

1

VW :

1

VH :

1

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

All

Apply

## Description

It provides the actual size setting of the display of the video wall. Various measurement units (inches, millimeters, centimeters) will do, as long as all measurements are in the same unit and the numbers are integers.

<Remark>Video walls usually use the same type of displays in the same size. It is also feasible to use displays in different sizes, as long as each display is measured in the same unit. Video wall is laid out in the most common rectangular pattern, and the bezels of each display are aligned with the center of the video wall.

No	Item	Description
1	OW	(OW) The horizontal size of the display.
2	OH	(OH) The vertical size of the display.
3	VW	(VW) The horizontal size of the signal source screen.
4	VH	(VH) The vertical size of the signal source screen.
5	Apply your settings	<p>Set the device which you want to apply the changes to, and then press [Apply]</p> <p>Select All, and apply the changes to all encoders and decoders in the current video wall. Select a set of IP address on the Clients-end, and apply the changes to the decoder connected to this address.</p>

## Video Wall – Wall Size and Position Layout

Wall Size and Position Layout

Vertical Monitor Count :

1

Horizontal Monitor Count :

1

Row Position :

0

Column Position :

0

## Description

Provide the settings regarding the amount of displays in the video wall, and the position of displays. Typical video walls consist of the same amount of displays in both horizontal and vertical directions (for example: 2 x 2 or 3 x 3). Through this setting, you can build video walls in various rectangular patterns (for example: 5 x 1 or 2 x 3).  
<Remark>The maximum amount of displays for both the horizontal and vertical directions is 16.

No	Item	Description
1	Vertical Monitor Amount	Set the amount of displays in the vertical direction of the video wall (up to 16).
2	Horizontal Monitor Amount	Set the amount of displays in the horizontal direction of the video wall (up to 16).
3	Row Position	Set the vertical position of the displays currently under control (from top to bottom, ranging from 0 to 15).
4	Column Position	Set the horizontal position of the displays currently under control (from left to right, ranging from 0 to 15).

## Video Wall – Preference

Preferences

Stretch Type :

Fit In

Clockwise Rotate :

0

Apply To :

0 : 169.254.2.130

Apply

☐

Show OSD



No	Item	Description
1	Stretch Out	<p>Set the stretch out mode of the screen.</p> <ul style="list-style-type: none"> <li>– Fit In mode: The original aspect ratio of the image signal will be ignored, and the aspect will be stretched to fit the size of the video wall.</li> <li>– Stretch Out mode: The original aspect ratio of the image signal will be maintained, and the screen will be zoomed in/out until it stretches for the four sides of the video wall.</li> </ul>
2	Clockwise Rotation	Set the rotation degree of the screen, which can be 0°, 180°, or 270°.
3	Apply your settings	Set the device which you want to apply the changes to, and then press [Apply] Select a set of IP address on the Clients-end, and apply the changes to the decoder connected to this address.
4	Show OSD (On Screen Display)	Enable or disable the OSD of the currently selected channel.

## Network

System
Video Wall
**Network**
Functions
About

Transmitter

Channel Setup

Channel Selection : 3
Apply

IP Setup

IP Mode :
Auto IP
**DHCP**
Static

IP Address : 169.254.2.75
Subnet Mask : 255.255.0.0
Default Gateway : 169.254.0.254
Find Your Device :
Hide Me
Show Me

Apply

Casting Mode

Multicast
**Unicast**

Apply

Reboot

## Description

Set the network control. After changing any settings, please press [Apply] and follow the instructions to restart the device.

**<Remark>**If the IP address is changed, the IP address used to log in WebGUI must also be changed. If a new IP address is assigned through Auto IP or DHCP, stop the image connection between the encoder and the decoder to

view the new IP address on the display connected to the decoder.

No	Item	Description
1	Channel Setting	<p>Select the broadcast channel of this device from the drop-down menu. As long as the decoder channel is the same as the encoder in the same local area network, the encoder signal can be received. There are a total of 0 to 255 channel numbers.</p> <p><b>&lt;Remark&gt;</b>Encoders in the same local area network must have different channel numbers to avoid conflicts with each other.</p>
2	IP Address Setting	<p>Select the IP mode and configuration of the device, and quickly search for the device.</p> <ul style="list-style-type: none"><li>– Auto IP mode: Automatically assign a set of APIPA address (169.254.XXX.XXX) to itself.</li><li>– DHCP mode: Automatically obtain a set of address from the DHCP server.</li><li>– Static mode: Manually set the IP address, subnet mask, and default gateway. Press [Apply] to save the new settings.</li></ul> <p><b>&lt;Remark&gt;</b>The pre-set internet is Auto IP mode.</p>
3	Search Your Device	<p>After pressing [Show Me], the indicators on the front panel of the device will flash immediately for quick notice of the device.</p> <p>After pressing [Hide Me], the indicators will back to normal.</p> <p>It is very helpful for troubleshooting when a large number of devices are installed in the cabinet.</p>

4	Broadcasting Mode	<p>Click the button to select broadcast mode, and press [Apply] to save the new settings.</p> <p><b>&lt;Remark&gt;</b>The broadcast mode of the decoder must be the same as that of the encoder to receive the signal.</p> <ul style="list-style-type: none"> <li>– Multicast: Transfer the image stream of the encoder to multiple decoders at the same time without increasing the bandwidth consumption. This mode is suitable for video wall or matrix audio-visual distribution. It must be paired with a network switch that supports IGMP Snooping.</li> <li>– Unicast: Transfer the image stream of the encoder to each decoder individually, so the bandwidth consumption will be quite heavy. This mode is suitable for establishing simple peer-to-peer streaming, and does not necessarily need to be paired with a network switch that supports IGMP Snooping.</li> </ul>
5	Restart	Press this button to restart the device.

#### Functions – Image Extension/Serial over IP (Encoder)

System
Video Wall
Network
**Functions**
About

Transmitter

Video over IP

Maximum Bit Rate :
Unlimited

Maximum Frame Rate: Capture up to 100% of frames

Serial over IP

Baudrate :
115200

Data bits :
8

Parity :
None

Stop bits :
1

Apply

Reboot

## Image extension over IP

No	Item	Description
1	Maximum Bit Rate	<p>Set the maximum bit rate of the image stream. There are five options: Unlimited, 400 Mbps, 200 Mbps, 100 Mbps, and 50 Mbps.</p> <p>Selecting Unlimited will use the maximum bit rate of the bandwidth to keep the update frequency of the image stream intact.</p> <p><b>&lt;Remark&gt;</b>It is recommended to select Unlimited to transfer 1080p image streams. Bandwidth requirements will become very large, and the amount of image streams will be limited.</p>
2	Maximum Frame Rate	<p>Setting the encoding percentage of the image source (2%-100%) can effectively reduce the bandwidth requirement of high-resolution images. It is suitable for PowerPoint presentations or digital signage displays, but not suitable for dynamic image displays.</p> <p><b>&lt;Remark&gt;</b>If the frame rate of the dynamic images is too low, the frame will be intermittent.</p>

## Serial Extension over IP

No	Item	Description
3	Serial communication settings	<p>Manually set the baud rate, data bits, parity, and stop bits you need to extend RS-232 signals.</p> <p><b>&lt;Remark&gt;</b>The serial communication settings of the encoder and decoder must be the same.</p>
4	Restart	Press this button to restart the device.

## Functions – Image Signals extension/Serial Data over IP (Decoder)

System
Video Wall
Network
**Functions**
About

Receiver

Video over IP

☒ Enable Video over IP
☐ Copy EDID from this Video Output (Default disabled under multicast mode)

Timeout for Detecting Video Lost: 10 seconds

☐ Turn off screen on video lost

Apply

Scaler Output Mode: HD(1080p)@60

Video Channel Lock for Device Button:

Lock

Unlock

Serial over IP

☒ Enable Serial over IP

Baudrate: 115200

Data bits: 8

Parity: None

Stop bits: 1

Apply

Reboot

Image extension over IP		
Item	Description	
Enable image extension over IP	Uncheck to disable image signal extension over IP. Unless troubleshooting is in progress, please check this checkbox.	

2	Copy EDID data	<p>After checking this checkbox with multicast, the EDID data of the device will be sent to the connected encoder.</p> <p><b>&lt;Remark&gt;</b>This function can only be used in multicast mode.</p>
3	Reminder for disconnection timeout	<p>Select the waiting time when the signal source is lost from the drop-down menu, and a Link Lost message will appear on the screen. There are seven options: 3 seconds, 5 seconds, 10 seconds, 20 seconds, 30 seconds, 60 seconds, or Never Timeout.</p> <p>If you check and select Turn off screen, the device will stop sending any signal from the HDMI output port after the waiting time expires.</p>
4	Scaler output mode	<p>Select the output resolution from the drop-down menu.</p> <p>Select one, and the output resolution will become the one you selected.</p> <p>Select Pass-Through, the output resolution will be the signal source resolution. Select Native, the output resolution will be up-converted to the connected display resolution.</p>
5	Image channel lock (CH+/-) for device button	<p>After pressing [Lock], the image channel selection button will be locked and cannot be used.</p>
<b>Serial Extension over IP</b>		
<b>No</b>	<b>Item</b>	<b>Description</b>
6	Serial communication settings	<p>Uncheck to disable serial extension over IP. Unless you don't use serial support, please check this checkbox. Disabling this function can save small amount of bandwidth.</p> <p>Manually set the baud rate, data bits, parity, and stop bits you need to extend RS-232 signals.</p> <p><b>&lt;Remark&gt;</b>The serial communication settings of the encoder and decoder must be the same.</p>
7	Restart	Press this button to restart the device.

## Product Specifications

### Technical Specifications

Item	Description of Specifications	
	D40E Encoder	D40D Decoder
<b>HDMI Bandwidth</b>	225 MHz/6.75 Gbps	
<b>Audio-visual input port</b>	1x HDMI terminal	1x RJ-45 LAN terminal
<b>Audio-visual output port</b>	1x RJ-45 LAN terminal	1x HDMI terminal
<b>Data transfer port</b>	1x IR extender [3.5 mm terminal] 1x IR emitter [3.5 mm terminal] 1 x RS-232 port [9-pin D-sub terminal]	1x IR extender [3.5 mm terminal] 1x IR emitter [3.5 mm terminal] 1 x RS-232 port [9-pin D-sub terminal]
<b>IR Frequency</b>	30-50 kHz (30-60 kHz ideally)	
<b>Baud Rate</b>	Maximum of 115200	
<b>Power</b>	5 V/2.6A DC (US/EU standards and CE/FCC/UL Certifications)	
<b>Statics protection</b>	± 8 kV (Air Discharge) ± 4 kV (Contact Discharge)	
<b>Size</b>	128 mm x 25mm x 108 mm (W x H x D) [without parts] 128 mm x 25mm x 116mm (W x H x D) [with parts]	
<b>Weight</b>	364 g	362 g
<b>Case material</b>	Metal	
<b>Case color</b>	Black	
<b>Operation temperature</b>	0°C – 40°C/32°F – 104°F	
<b>Storage temperature</b>	-20°C – 60°C/-4°F – 140°F	
<b>Relative humidity</b>	20 – 90% RH (Non-condensing)	
<b>Power consumption</b>	5.17 W	4.2 W

#### Image Specifications

Supported Resolutions (Hz)	HDMI	Streaming
720×400p@70/85	P	P
640×480p@60/72/75/85	P	P
720×480i@60	P	P
720×480p@60	P	P
720×576i@50	P	P
720×576p@50	P	P
800×600p@56/60/72/75/85	P	P
848×480p@60	P	P
1024×768p@60/70/75/85	P	P
1152×864p@75	P	P
1280×720p@50/60	P	P



Supported Resolutions (Hz)	HDMI	Streaming
1280×768p@60/75/85	P	P
1280×800p@60/75/85	P	P
1280×960p@60/85	P	P
1280×1024p@60/75/85	P	P
1360×768p@60	P	P
1366×768p@60	P	P
1400×1050p@60	P	P
1440×900p@60/75	P	P
1600×900p@60RB	P	P
1600×1200p@60	P	P
1680×1050p@60	P	P
1920×1080i@50/60	P	P
1920×1080p@24/25/30	P	P
1920×1080p@50/60	P	P
1920×1200p@60RB	P	P
2560×1440p@60RB	O	O
2560×1600p@60RB	O	O
2048×1080p@24/25/30	O	O
2048×1080p@50/60	O	O
3840×2160p@24/25/30	O	O
3840×2160p@50/60 (4:2:0)	O	O
3840×2160p@24, HDR10	O	O
3840×2160p@50/60 (4:2:0), HDR10	O	O
3840×2160p@50/60	O	O
4096×2160p@24/25/30	O	O
4096×2160p@50/60 (4:2:0)	O	O
4096×2160p@24/25/30, HDR10	O	O
4096×2160p@50/60 (4:2:0), HDR10	O	O
4096×2160p@50/60	O	O

#### Audio Specifications

LPCM	
Maximum number of channels	8
Sample rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Formats supported	Standard

### Wire Specifications

Wire Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
<b>High-speed HDMI cable</b>				
HDMI input	15m	10m	O	O
<b>Network cable</b>				
Cat.5e/6	100m		O	
Cat.6a/7	100m		O	

### Troubleshooting

This chapter describes problems you may encounter while using OIP-D40E/D40D. If you have questions, please refer to related chapters and follow all the suggested solutions. If the problem still occurred, please contact your distributor or the service center.

No.	Problems	Solutions
1.	<b>The signal source screen is not shown on the display-end</b>	<p>Please check whether the Multicast of the encoder and decoder is enabled:</p> <p>(1) Enter the WebGUI control interface of the encoder and decoder, and check whether the Casting Mode is Multicast on the Network tab.</p> <p>(2) Enter the WebGUI control interface of the D50C controller, then click Device – [Settings] on the Encoder tab and Decoder tab to check whether Multicast is enabled.</p>
2.	<b>Image delay on the display-end</b>	<p>Check whether the MTU of the encoder and decoder is enabled (default is Enable):</p> <p>Enter “GET_JUMBO_MTU” in the Command field in the WebGUI interface system – Utility Program tab, and the Output below will show whether the status of jumbo frame MTU is enabled or disabled. If it is disabled, please enter “SET_JUMBO_MTU 1” in the Command field to enable it, and follow the instructions to restart the device to implement the changes.</p>
3.	<b>The image on the display-end is broken or black</b>	<p>Check that the Jumbo Frame of the switch is set to above 8000; Please make sure that IGMP Snooping of the switch and relevant settings (Port, VLAN, Fast Leave, Querier) has been set to “Enable”.</p>

## Safety Instructions

Always follow these safety instructions when setting up and using the CU-CAT Video Board

### Operation

1. Please use the product in the recommended operating environment, away from water or source of heat
2. Do not place the product on a tilted or unstable trolley, stand or table.
3. Please clean the dust on the power plug prior to usage. Do not insert the product's power plug into a multiplug to prevent sparks or a fire.
4. Do not block the slots and openings in the case of the product. They provide ventilation and prevent the product from overheating.
5. Do not open or remove covers, otherwise it may expose you to dangerous voltages and other hazards. Refer all servicing to licensed service personnel.
6. Unplug the product from the wall outlet and refer servicing to licensed service personnel when the following

- If the power cords are damaged or frayed.
- If liquid is spilled into the product or the product has been exposed to rain or water.

### FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### IC Warning

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par l’Industrie.

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### Documents / Resources

	<p><a href="#">Lumens AVoIP Encoder/Decoder</a> [pdf] User Manual Lumens, AVoIP, Encoder, Decoder, OIP-D40E, OIP-D40D</p>
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