ECT40 4 Channel Video Controller

User Manual

Contents

Thank you for choosing our product!
This User Manual is designed to show you how to use this video processor quickly and make use of all the features. Please read all directions and instructions carefully before using this product.

Declarations

Safety Instruction

The general safety information in this summary is for operating personnel.

1. There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.
2. This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.
3. To avoid explosion, do not operate this product in an explosive atmosphere.
4. Please do not use chemical solutions to clean this product. Please wipe the switcher with a clean soft cloth to maintain the brightness of the surface.

Installation Safety Summary

Safety Precautions

For all product installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment. To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord. The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening product shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative. Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your product should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Chapter 1 Your Product

1.1 Product Overview

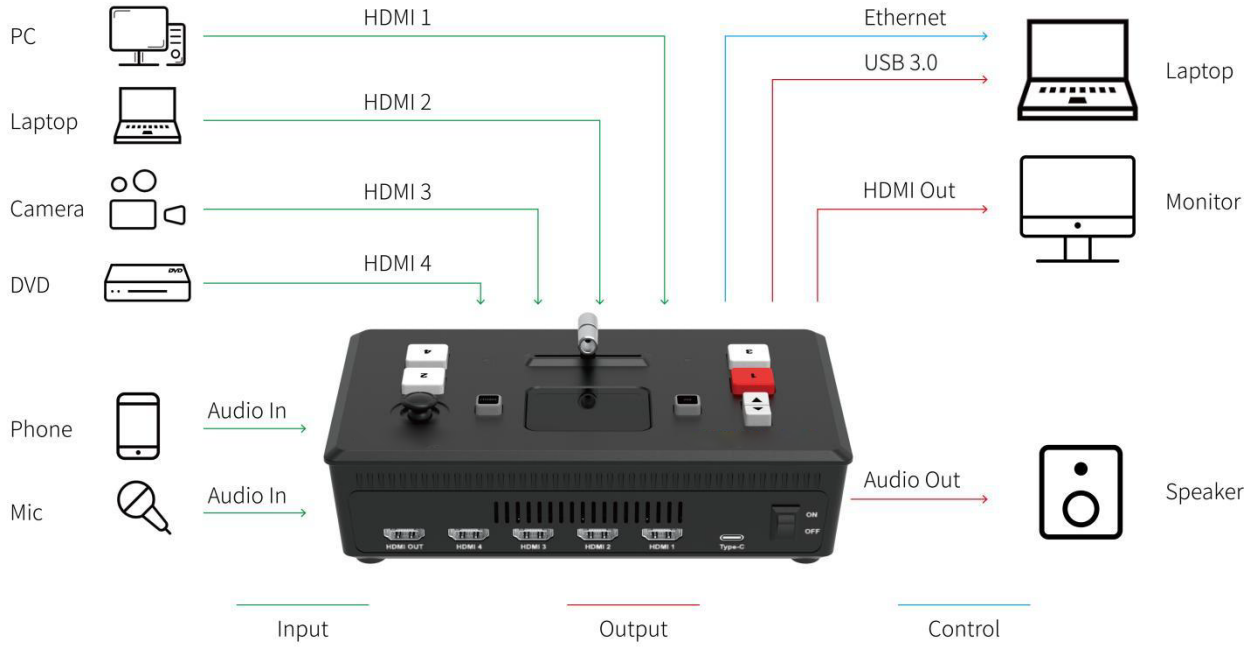
The multi-camera video switcher mixer for the streaming generation, ECT40 features four resolution independent inputs - support signals up to 4K@60 to take advantage of native high-performance sources, whether cameras or laptops, without compromise.

While presets for PIP and PBP are provided, ECT40 includes full pixel-to-pixel scaling capabilities for both the PIP and background video layers – truly unique in a streaming mixer of this size – features usually found only on larger professional video mixers.

Audio for output is selectable from embedded sources or an external source. Both Line and Mic level audio a supported on aboard with variable delay controls to bring audio into sync if needed.

In addition to HDMI and USB3.0 streaming outputs. The exclusive integral display not only shows video preview, but is touch enabled for natural operation of features and settings. Remote control is available via free companion apps for laptops and mobile devices too.

ECT40 is packed with features including dynamic output control, preview multi-view, picture in picture, Chroma Key, on board PTZ camera controls and more.

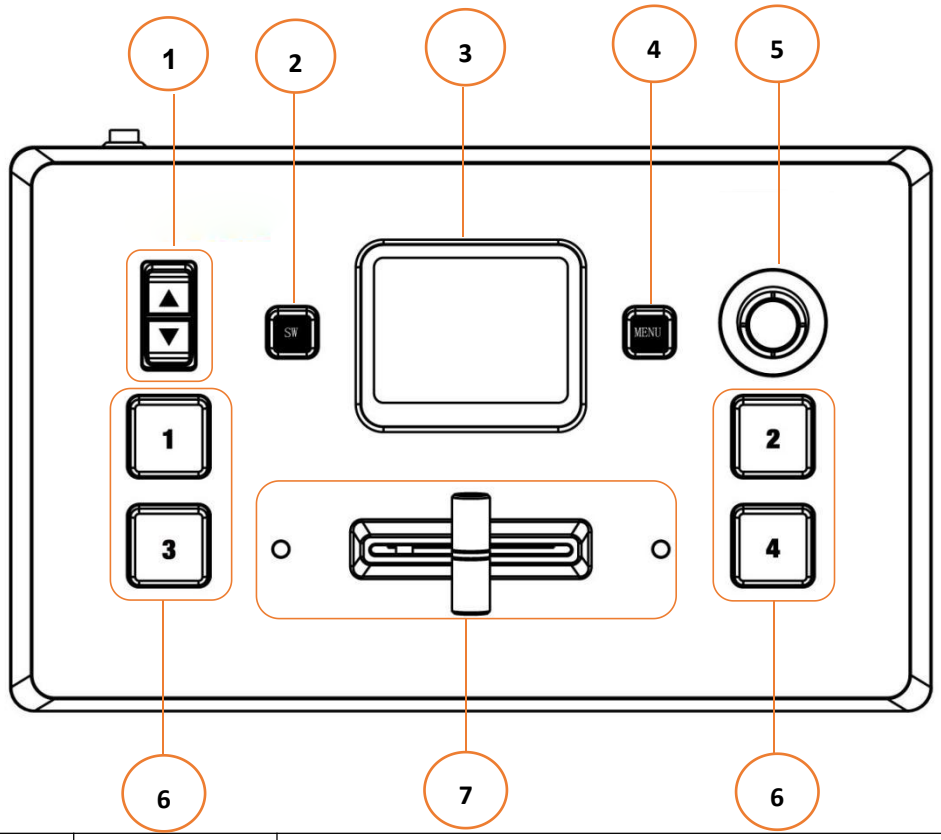


1.2 Key Features

- Compact and lightweight, easy to carry
- Iconized touch operation, fast to learn
- Joystick easy to control PTZ
- Up to 4K@60 signal inputs
- T-bar simply switch signal source or transition effects
- Webcam (USB3.0) fast to live streaming

- Embedded & Insert Audio with Sync
- Mix audio from multiple inputs
- Chrome key, creating an exciting studio
- Configurable PIP video overlay

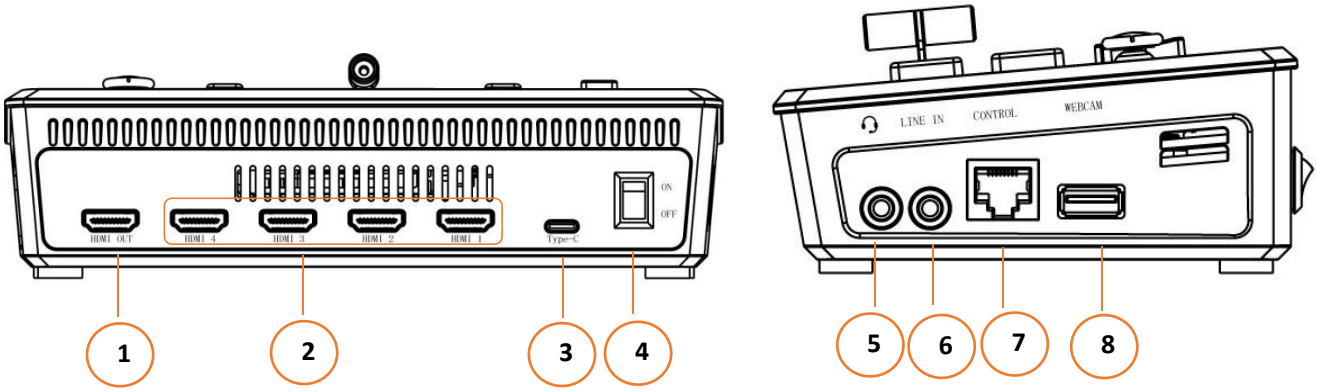
1.3 Front Panel



1	**Up/Down**	1. Adjust volume of PGM when it is under Main menu 2. Proportionally adjust size of sub-picture when it is under position and scale adjustment 3. Adjust volume when it is under shortcut menu 4. Zoom in/out when PTZ control is enabled
2	**SW**	Shortcut button, push it and touch screen enter quick operation interface which includes 4 Preset to load, Audio,Mute on/off,Chroma Key on/off
3	**2” Touch Screen**	1. Operate ECT40 menu by tapping it and monitor 4 inputs in real time 2. Monitor the screen of the currently controlled camera in real time under PTZ control, and save the currently set screen by tapping it, and a call button can be formed on the screen
4	**MENU**	Main menu button, push it and touch screen back to main menu interface and push it again touch screen display 4 inputs

5	**5-Direction Joystick**	1. left-right-up- down 4 directions to move the picture position when it is under position adjustment. Press middle to switch A/B layer 2. Adjust the logo size when LOGO overlay is enabled 3. Control left right up and down movement when PTZ control is enabled.
6	①②③④	4 inputs, red: on air (PGM) static green: signal is standing by flashing green: ready to be switched No light: input source is not supported or no input source
7	**T-Bar**	Manual switch signal and transition, push to left end or right end to switch signal to PGM. T-Bar is not at end position input switch will fail

1.4 Interface Panel



Note: For computers/phones/pads without HDMI port but with Type C interface, you can convert Type C to HDMI. Be sure that the Type C interface shall meet the USB 3.1 standard.

Chapter 2 Install Your Product

2.1 Plug in Power

ECT40 is packaged with a 12V power link cable and Type C power Adapter.
When linking the power supply, please check the power supply standard used in your country/region.

Connect ECT40 to power plug by the link cable

Note:
The Power Supply included with ECT40 is the recommended power supply for use with the device.In the event the power supply is mislaid or otherwise not available, a USB-C power supply may be used provided that the power supply :
1. meet s the USB Power Delivery (PD3.0) specification
2.has a "Fast Charge" capability
3.is rated for a minimum of 20W
and if a replacement USB-C cable is also needed,
4.a only a certified PD aware USB cable should be used

2.2 Input HDMI Signal Source

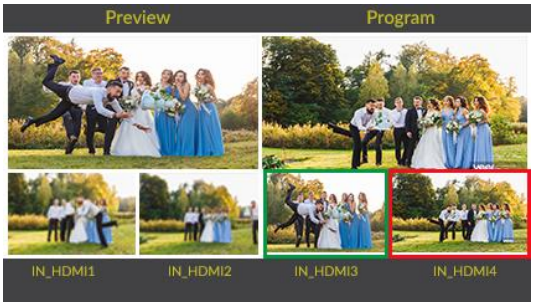
You can use any camera, computer or other HDMI device as the input source of the ECT40. It supports up to 4 sources of different formats and resolutions at the same time via 4 HDMI ports, and 4 HDMI inputs support up to 4K@60Hz. If you are using interlaced signal, ECT40 supports de-interlacement through HDMI 1 automatically. You can see the resolution of the input signal on the ECT40 screen when there is active signal plug in.

Note: The HDMI cable is not included in the ECT40 package and needs to be purchased separately. Some camcorders use a mini HDMI port, you need to buy a mini HDMI-HDMI cable separately when you use these camcorders.

2.3 Connecting HDMI Output

You can use a HDMI cable to connect the HDMI output to a monitor with an HDMI input interface, so that you can monitor the input, output and audio display in real time.

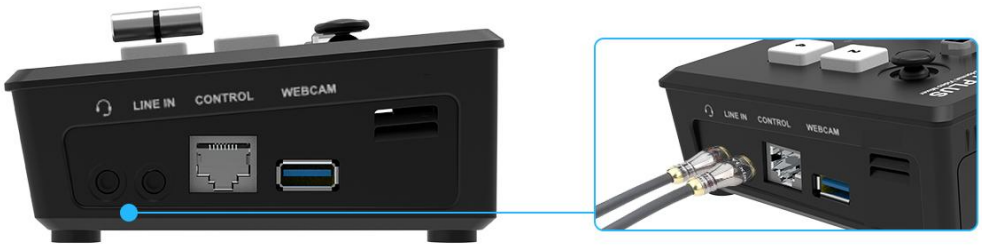
The default output of HDMI output is multi-screen PVW (Preview) monitoring screen, so you can see the audio and video conditions of all input signal sources, you can see the current status of each function of ECT40, and you can also see the PST (Preset) and current PGM (program)output.



In addition to supporting multi-screen monitoring, HDMI output also supports single screen display of any one of the four inputs. You can switch between PVW and PGM In【Video Output】menu. HDMI output supports resolution setting . After pressing the【MENU】button, tap the OUTPUT setting on the menu to select the output resolution format. HDMI output supports resolution up to 1080p60.

2.4 Connecting Microphone and External Monitoring Devices

ECT40 provides a 3.5mm standard headphone interface support one passive MIC input and one audio output via 2 in 1 audio splitter cable, or LINE output from the external audio console to do audio mixing of multiple external audio inputs.
The ECT40 supports 3.5mm analog audio and 4-channel HDMI digital audio for multi-channel simultaneous mix in to make sure sound of the computer and the sound of the MIC can be output at the same time. (suggest mix two channels audio)



Note: For general camera, there usually is a certain delay due to the processing of light-to-electricity conversion during the filming process but the processing of MIC is relatively simple,so there will be video picture failing to keep up with MIC audio, which is synchronization problem. Therefore, it is necessary to do audio delay setting for the MIC audio to ensure the synchronization of the picture and the sound, which will be explained in the introduction of "Audio Control" later.

2.5 Connect USB and Webcam

Connect the USB 3.0 port on ECT40 to computer by USB 3.0 cable (blue) and computer will capture ECT40 USB output as a webcam source which can be pushed to Facebook,YouTube,Zoom, Twitter and other streaming media platform.

2.6 Connect Computer

Software control:connect computer and ECT40 with CAT6
cable Stream:connect ECT40 USB 3.0 port with USB3.0 cable
(Note:the color of USB3.0 port is blue

Minimum System Requirements for macOS

- macOS 11.0 Big Sur or later
- macOS 10.15 Catalina

Minimum System Requirements for Windows

- Microsoft Windows 10 64-bit

Note: If your computer only has a Type-C port, you can use a USB-A to Type-C cable to transmit the webcam signal. Please note that the Type-C cable you choose needs to support data transmission. The signal is recognized in Windows and MAC system as「FEELWORLD USB 3.0 Capture」.

2.7 Turn on Your ECT40

After ECT40 is connected to power supply, push the Power button on the rear panel,the device will enter to the boot interface and enter operation interface within 10S.

Chapter 3 Use Your Product

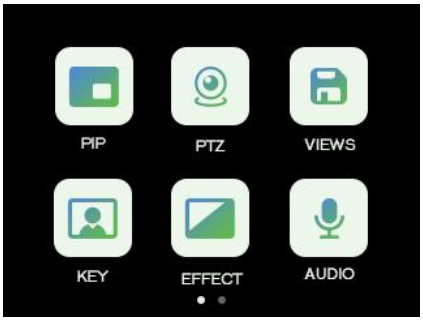
After system connection of ECT40 to power supply, input source devices(computer, MIC(camera) and output to HDMI display and USB 3.0 streaming which is recognized as webcam source on computer.

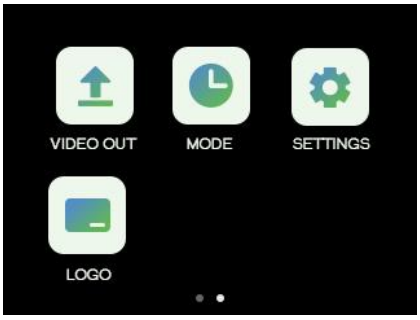
3.1Touch Screen Operation

3.1.1 Touch Screen Introduction

There is a 2” touch screen on ECT40 operation board, through which most operation can be done, so let’s introduce this touch screen first.
Before introducing the operation of the touch screen, we need to introduce the button 【MENU】, the MENU and back key. Push the button and the 2-inch LCD screen will quickly return to the main menu interface.

As shown in the figure below, the UI style on the touch screen is similar to current smart phone operating interface. The first-level menu is in icon. You can quickly enter the corresponding function management interface by tapping the corresponding icon.





3.1.2 Swipe Shortcut

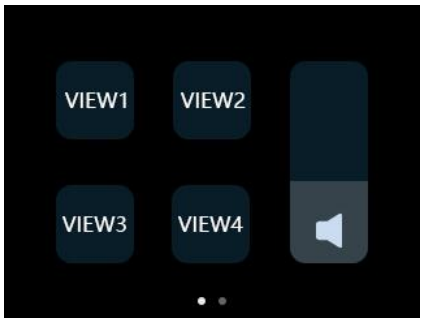
When it is in main menu interface, the ECT40 touch screen has some simple **swipe shortcut** functions:

(1) you can quickly return to the main menu by swiping from bottom to top (same as the 【MENU】 key);

(2) enter the preset Load menu by swiping from top to bottom(same as the 【SW】key);

3.1.3 Preset Menu

In the preset menu (by pressing the 【SW】button or swiping from the top to the bottom of the screen), the icons on the LCD screen default to the dark off state. Tap the icon to turn to the bright color to get it selected and open preset (View), Chroma Key switch, volume adjustment switch, etc.



The function of the icon button in the shortcut menu can be customized according to user's needs.

3.2 Switch Source

The buttons ①②③④ on the operation board corresponds to the 4 HDMI inputs one-to-one.
When four signal source plug in, the lights on the signal source buttons will appear in four states:

Steady white: The signal is recognized and no operation is performed;

Flashing green: The currently selected signal is ready to be switched;

Steady red: The current signal is in PGM output;

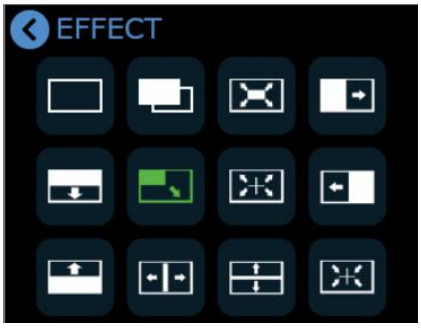
Unlit: No signal source is connected or the resolution of the signal source connected is not accepted.

3.2.1 Switch Effect Setting

ECT40 is default 0.5S Fast Fade mode, by pushing ①②③④ signal buttons, 4 input signals can be switched in fast fade mode.

If you want to use more transition effects, tap【EFFECT】icon on the touch screen.

You can enter the【Effects】selection interface, where fade in, fade out and various other transition effects can be selected. The inside icons on the menu can be dragged and sorted according to your preferences. When the selection is completed, the root directory icon will be replaced with the last selected icon.



3.2.2 Switch Mode Setting

Tap the icon【MODE】to customized by sliding the time bar.

3.3 T-Bar Switch and Multi-screen Preview

ECT40 defaults to **Fast Switching Mode**, but on some important occasions, you may need to preview and preset the next scene to ensure the accuracy and stability of the screen.ECT40 provides T-Bar mode to allow switch after editing and confirmation.

Return to the main menu interface by pushing the button【MENU】,find the【MODE】icon by swiping the screen left right, and then tap the icon to enter the menu and you can see【MODE】in which there options of Fast and T-Bar mode, as follows

When T-Bar is enabled, all operation could be checked on PST window. Slide T-Bar to switch between PST and PGM.

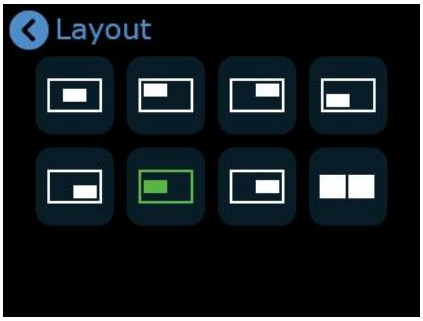
3.4 MENU OPERATION

3.4.1 PIP

ECT40 defaults to single-screen switching. If you need to use PIP, push button【MENU】to return to the main menu, then find【PIP】, and tap the icon to enter the PIP setting interface.

PIP Layout Setting

Layout offers 8 layout options for picture-in-picture. Click the arrow on the right to enter layout interface and choose the layout needed.

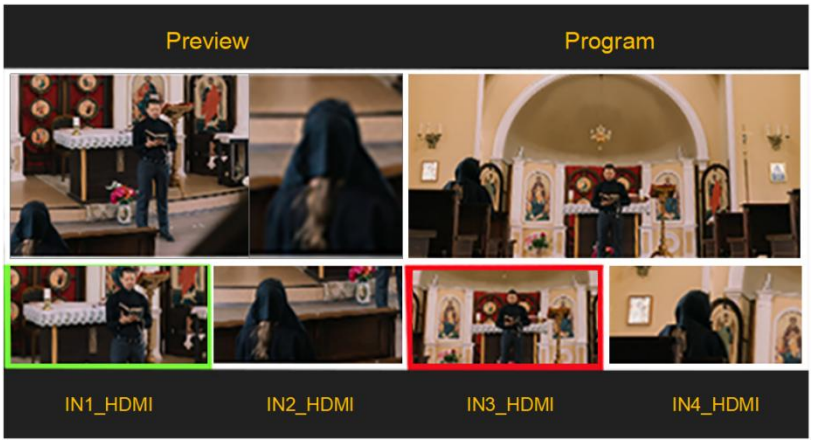


PIP Layer Setting

If detailed adjustment is required, return to PIP【Picture】menu,adjust the size and position via the up/down/left/right keys,as shown below.

In addition to adjustment by moving the slide rail, you can also use the toggle to quickly adjust the size of the sub-picture, and use the joystick to quickly adjust the position of the sub screen. If you need to quickly switch to the PGM, you can press the joystick. You can also directly click on 9:16 or Full to adjust the scale of the A/B layer to 9:16 or full screen

If you select the layout ,then press the toggle to adjust the picture ratio and get a better view.



Blend Function Setting

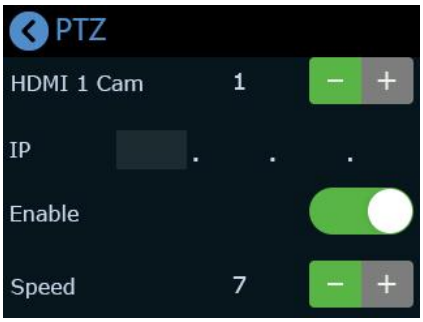
If you want to achieve such an effect that images of two input signals can be blended with a softening effect around their edges, it is recommended to use **Blend** in ECT40.
Click【Blend】in PIP menu to enter the following interface.

You can choose to enable the function and then configure parameters.
SW button can be used to shift options between Enable, Mode, Width and Location.
You can choose Left or Right Blend Mode. Tap **+/-** icon or push Up/Down button on the front panel to adjust width and location as required.
The default Width value is 700. The larger the width value is set, the softer the edge, and the better the blending effect.
The Location is used to control the blending range. The larger the location value, the wider the blending


3.4.2 PTZ

ECT40 can control cameras supporting VISCA protocol. ECT40 can control the camera's lens moving horizontally and vertically, focus and zoom. Not only that, the ECT40 can also save the position and zoom information of the camera, so that you can quickly retrieve it the next time you use it.
The PTZ preset of ECT40 not only saves the parameters of the PTZ, but also includes calling the camera, that is, when the View of the PTZ is loaded, the input is switched to the camera signal source at the same time.
Tap the button【MENU】to return to the main menu, find the【PTZ】icon and tap the icon to enter the menu.

When you want to control PTZ camera,the IP address of ECT40 and camera should be in the same network segment.You can adjust the IP address in the menu below.



When setting PTZ, use the signal key ①②③④ to select the corresponding PTZ camera signal to preview.

On the PTZ menu interface , when the PTZ function is enabled, the rotation angle of the PTZ can be adjusted by the joystick, and the focal length adjusted by the toggle. Pushing signal keys can switch the signal source between different PTZ cameras.

3.4 .3 Views

ECT40 save preset to View in real time. If you want to quickly load current preset next time, just save it to corresponding View. The View will save all the currently set parameters including PIP layout, Chroma Key setting, PTZ presets, therefore when you need to load any preset, just push corresponding View button in Shortcut interface.

(1) After setting the effect, please tap the button【MENU】and find the VIEWS.

(2) By tapping the icon VIEW , you can save the preset to the corresponding View 1-8.
Yellow icon indicates the view that being used,green one is saved views,gray one in the blank view.

(3) Push button【SW】to enter the Shortcut menu where there are buttons of View 1~4 which can loaded directly.

(4) After loading View, if PIP layout needs to change, users can select main screen or sub screen by pushing the middle button on joystick which default selects sub screen. After selecting sub screen or main screen, select input source for them by pushing the signal source button, adjust sub screen size by pushing button Up/Down and position by joystick. All the setting is saved to in real time to make sure it can be used next time the device is turned on.

(5) If you want the modified preset to be loaded from the View, you need to re-save it to the current View or a new View. Please repeat the above save operation.

3.4.4 Chroma Key

ECT40 supports matting, the Chroma Key in the menu, removing the pure color background and overlaying it on another signal to realize the application of virtual reality. Matting can be done on Feelworld Live or simple settings and adjustments can be made on the Chroma Key in the menu.

(1) Push button【MENU】to return to the main menu interface, find【Chroma Key】, tap this icon to enter the setting menu.

(2) You can choose on or off to enable/disable the function. The sub-screen defaults to input 4, and the main screen defaults to input 1, which can both be changed to other source according to field application.

(3) Select the background color which is default in green to be removed and make adjustments. Similar to PIP, the size, position and cropping of the main/sub-screen can be set.

(4) After the Chroma Key is set, the parameters can be saved directly on the device. Next time when the the device is on no matter on the dominant software Feelworld Live or the touch screen itself, users can directly load the preset. And the layer selection stays at main screen, that is, directly press the signal key, the main screen is switched. You can also directly click on 9:16 or Full to adjust the scale of the A/B layer to 9:16 or full screen

(5) After loading the Chroma Key preset, you can use the joystick to switch the selection of the main/sub-screen, push the signal source to switch between different signals, adjust the size of

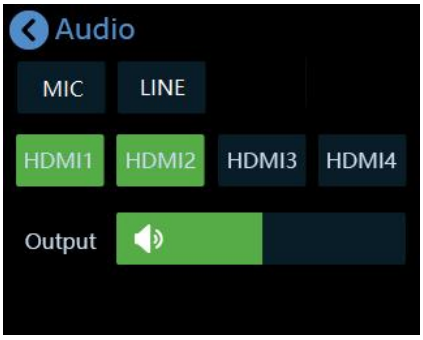
the screen through the toggle, adjust the position of the screen through the joystick, and all the re-adjusted settings will be Saved to the current View in real time.

3.4.5 Effect (see 3.2.1

3.4.6 Audio

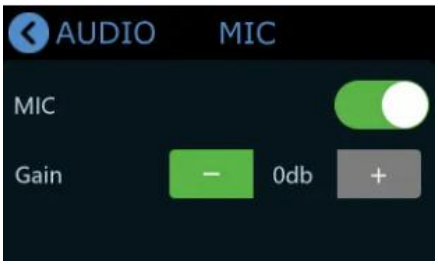
ECT40 supports mixed output of multiple channels, and also supports audio delay.
Tap the button【MENU】to return to the main menu, find and tap【Audio】to enter the sound setting interface.

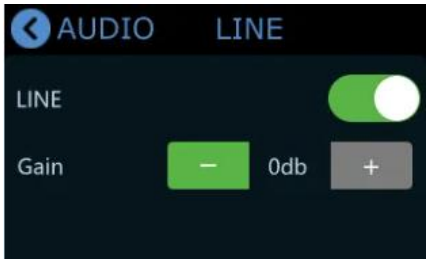
The audio output can be turned on or off, and the volume can be adjusted by sliding the bar.



The audio input can be selected as MIC passive microphone input, or LINE input audio console or active microphone signal input according to needs.
The four HDMI input ports all support embedded audio. Turn on the MIX to always add the audio to PGM.
Turn on AFV, the audio follows the video switch to perform a soft gradual transition when video is switched.

Users can also click【MIC】/【LINE】in【AUDIO】interface to do the following setting.
MIC / LINE: ON/OFF
Gain: 0-40





When the touch screen is in the main interface or preview interface (4-screen of the 4 inputs) or Shortcut interface, the PGM audio volume can be adjusted by the toggle.

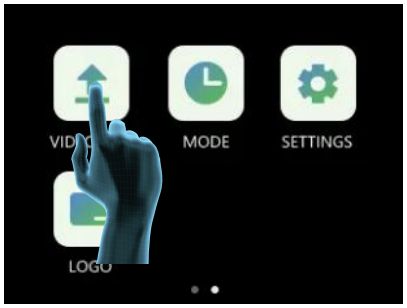
3.4.7 Video Output

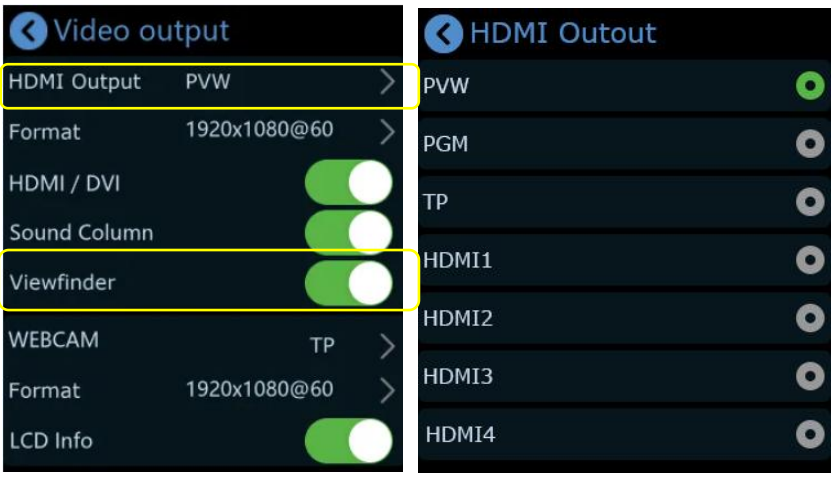
ECT40 offers output through HDMI and USB.

HDMI Output

HDMI output defaults multi-screen preview,which can be switched to PGM or the 4 input content in field application.

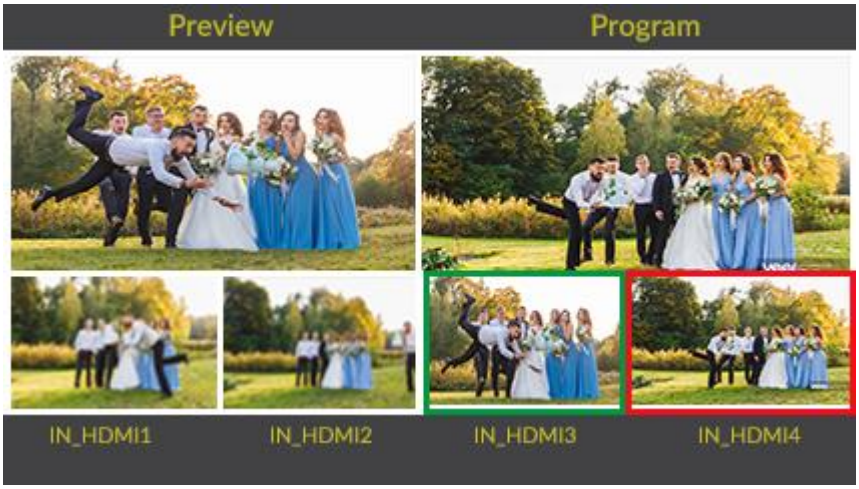
Push button【MENU】to return to main menu and find【Video Output】to set parameters for the HDMI output.



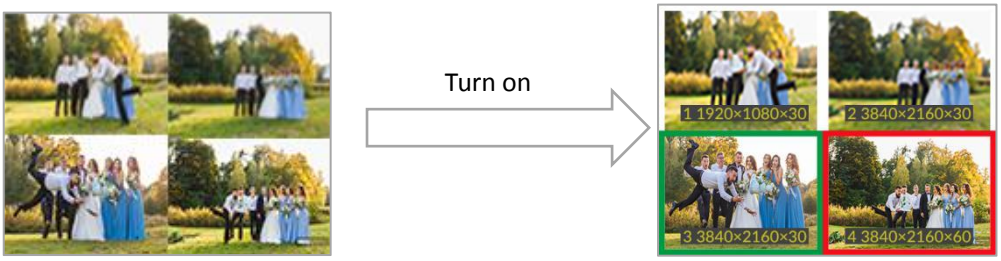


Push button【MENU】again when the touch screen is in main menu interface and touch screen will enter 4-screen input source preview.

Turn on【Viewfinder】, you can see a white rectangle in the PST as shown in the picture,helping users frame the camera view.



The【LCD Info】is LCD display setting, which controls whether the 2x2 video preview is【simple】or as 【standard(PVW)】,turn on【LCD Info】to check the resolution of four inputs as shown in the picture below:



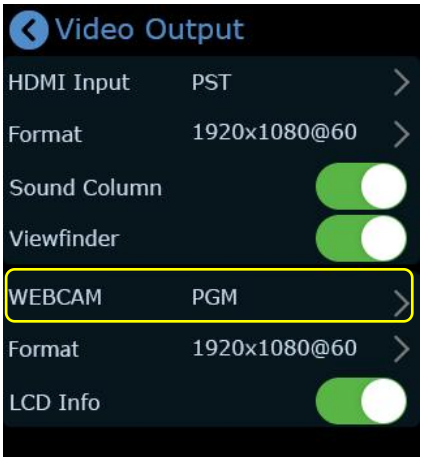
Simple

Standard

USB 3.0 Output

USB 3.0 output recognized as WEBCAM on computer defaults to be PGM which can be changed to multi-screen PST or TP (Test Pattern).

Push button【MENU】to return main menu and find【Output】to do **WEBCAM** setting.



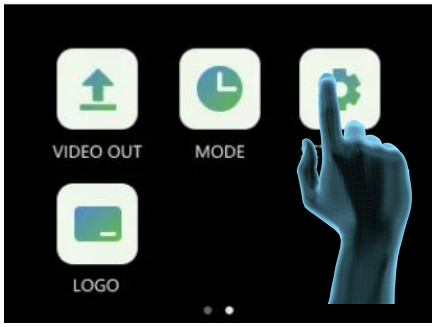
It is default to be PGM and tap “>”on the right to change to PST or TP. Choose format for the output setting by tapping “>”on the right.

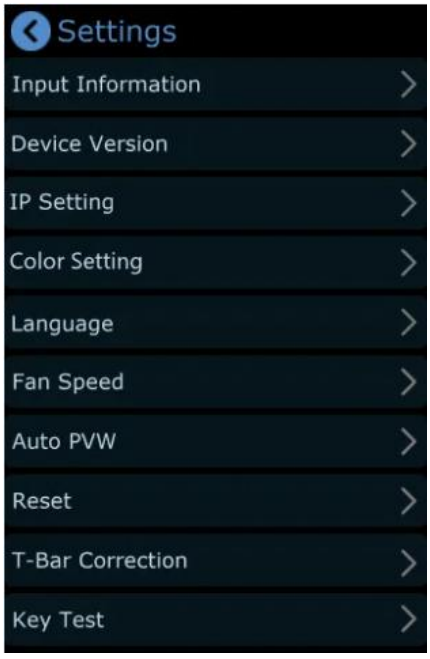
3.4.8 MODE

There are 2 transition modes: **FAST** or **T-BAR**
Switching time: **0.5s ~ 5.0s (tap +/- to adjust the time)**

3.4.9 Settings

Click【Settings】to enter the menu below. As shown in the figure, the Settings menu includes 11 modules: Input Information, Device Version, IP Setting, Color Setting, Time, Language, Fan Speed, Auto PVW, Reset, T-Bar Correction and Key Test.





Input Information

Click **Input Information** to enter the following interface.

In this interface, users can check information of 4 HDMI inputs. If there is no HDMI input, the interface displays "No Input"; If there is an active HDMI input, the interface displays the resolution.

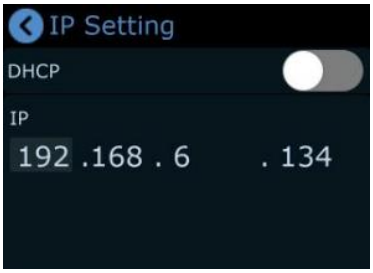
Deinterlace: If you are using interlaced signal, ECT40 supports de-interlacement through HDMI input automatically. When interlaced signal output to other device and shaked, you can turn on the Deinterlace function.

Device Version

Click **Device Version** to check Serial Number, MAC Address, MCU Version and Video Version.

IP Setting

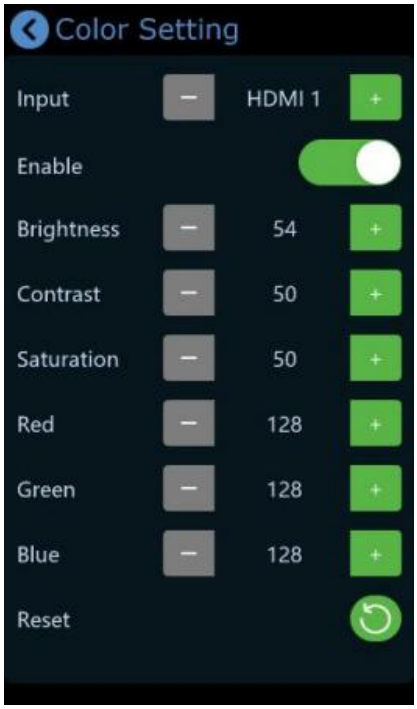
Click **IP Setting** to enter the following interface.



Turn on DHCP and ECT40 can automatically capture the IP address. If DHCP is turned off, users can manually set the IP address, net mask and gateway.

Color Setting

Click **Color Setting** to enter the following interface for parameter settings of 1-4 HDMI inputs.



The Enable switch is ON by default. Use S button on the front panel to switch different options. Select different HDMI inputs and then adjust Brightness, Contrast, Saturation and other parameters by pushing Up/Down button on the front panel or clicking +/- icons.

Restore to the default parameters by clicking  icon.

Language

Click **Language** to enter the following interface. English and Chinese is optional.

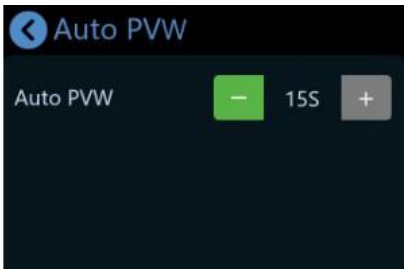
Fan Speed

Click **Fan Speed** to enter fan control interface for speed adjustment.

Four gears available, and users can also turn on **Auto** to achieve automatic adjustment of the fan speed

Auto PVW

Click **Auto PVW** to enter the following interface.



Set the time of Menu display on screen (default to be 15s). Adjust automatic PVW time by pressing **+/-**
Can be set off, 15s, 30s, 45s

Reset

Click **Reset** to enter the following interface.

Click **YES** to restore to the previous settings. Please reboot the device after reset.

T-Bar Correction

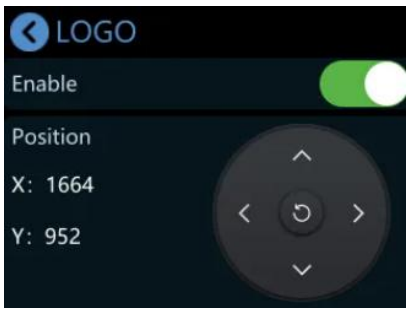
Click **T-Bar Correction** to enter the following interface.

Key Test

ECT40 can test the buttons. when press one of buttons and display on the screen, it indicates that the button function is normal. If it is not displayed, there may be an abnormality.

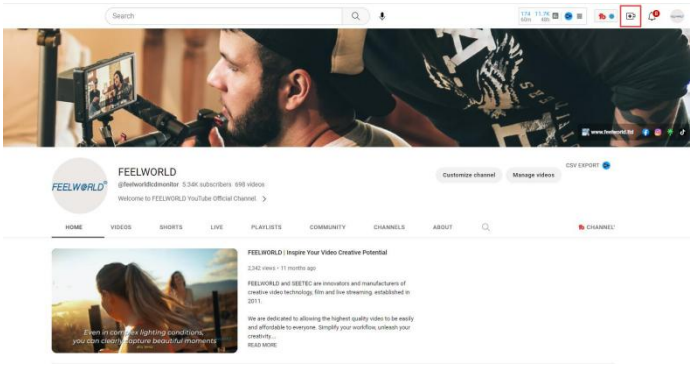
3.4.10 Logo

Enable the LOGO and adjust the position
(If it is the first time to set LOGO, please refer to <5.2.8 LOGO>and import the picture in the software.

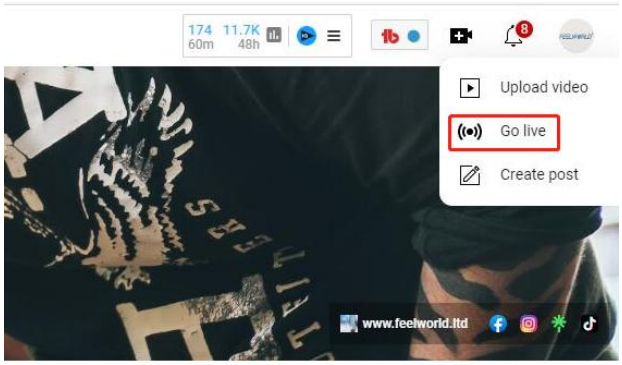


Chapter 4 Streaming

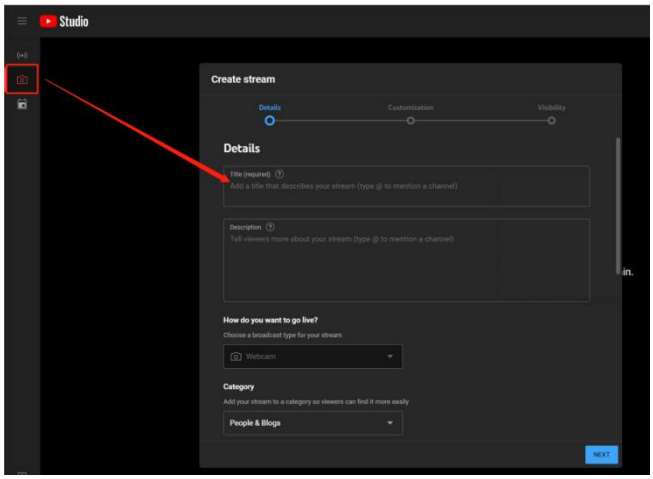
4.1 YouTube Streaming



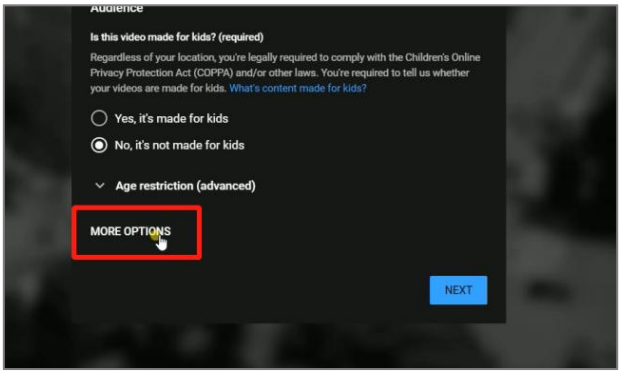
1. Create a video or post.



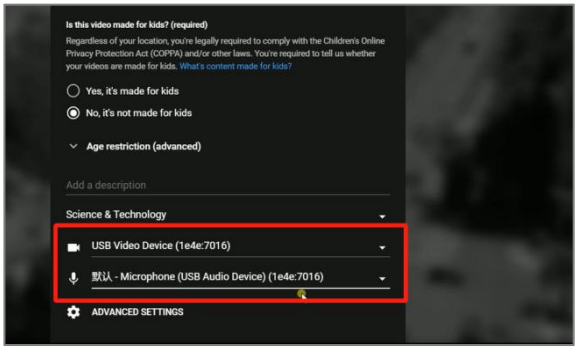
2. Then click “Go live”.



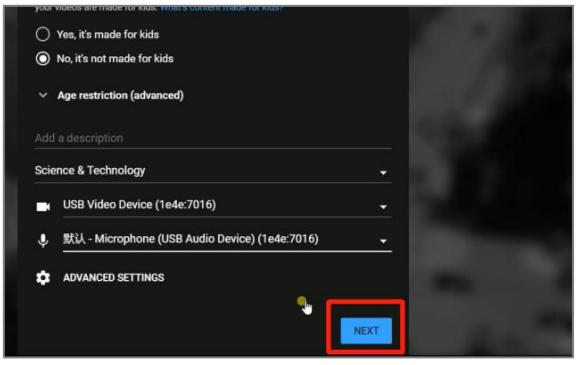
3. Enter Live streaming interface. And then add a title.



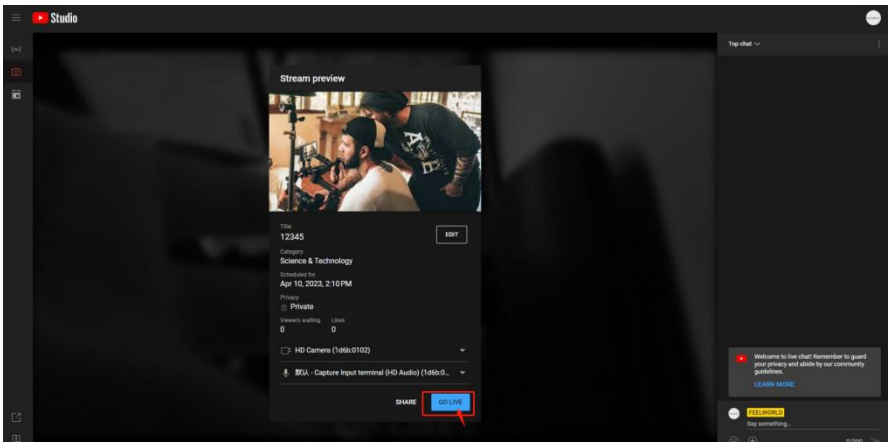
4. Click “More option”.



5. Set video and audio as USB 3.0 Video/Audio device.

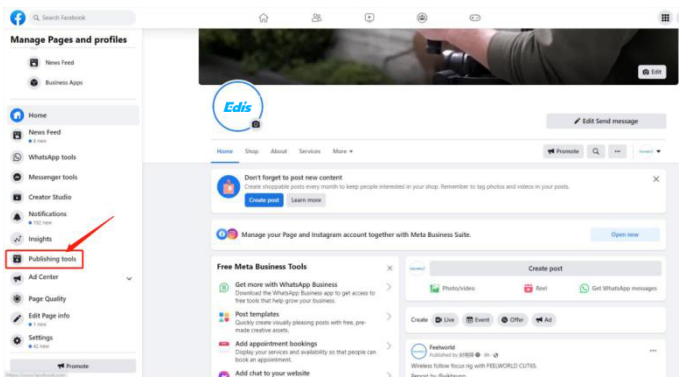


6. After finished all setting, click “NEXT”.



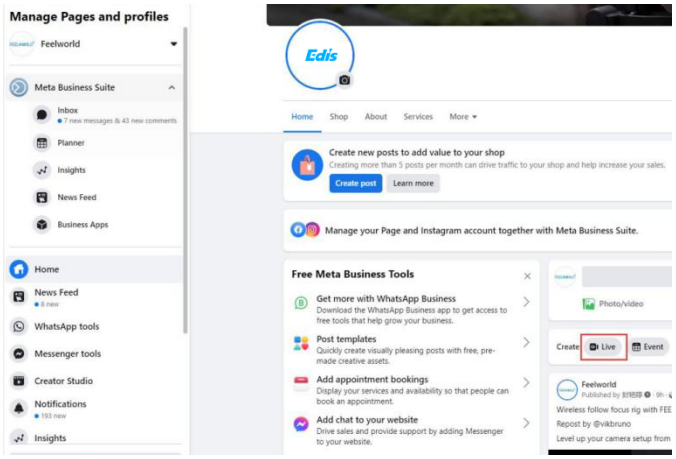
7. Go live.

4.2 Facebook Streaming

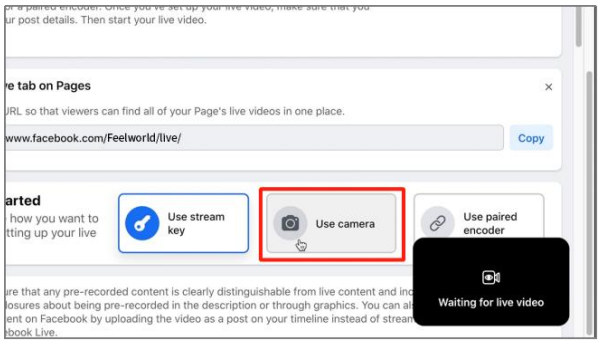


1. Enter “Publishing Tools”.

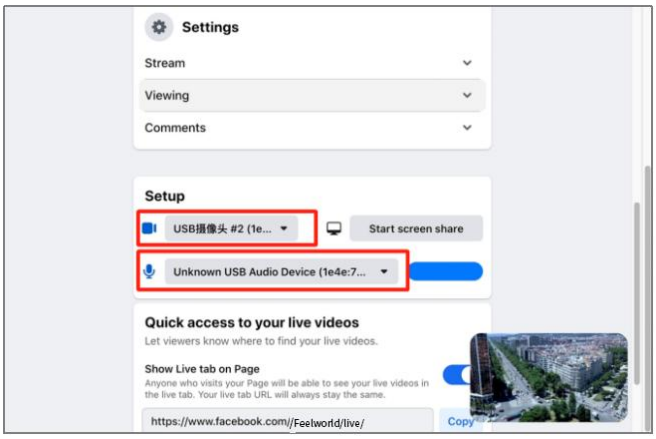
2. Click ”Video”



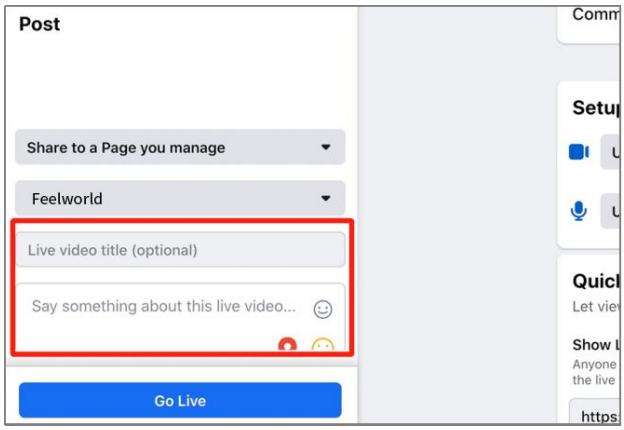
3. Click ”+Live”



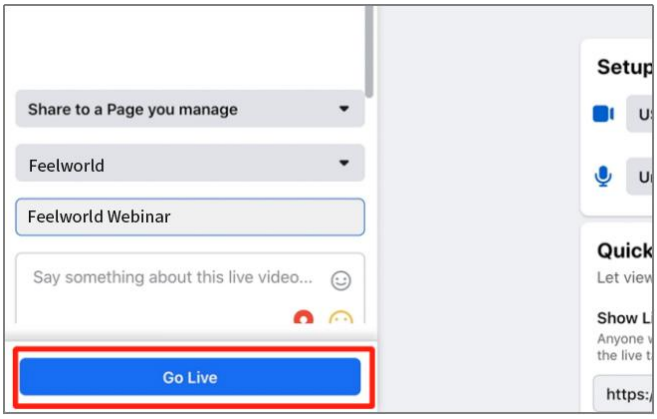
4. Choose ”Use Camera”



5. Set video and audio as USB 3.0 Video/Audio device.

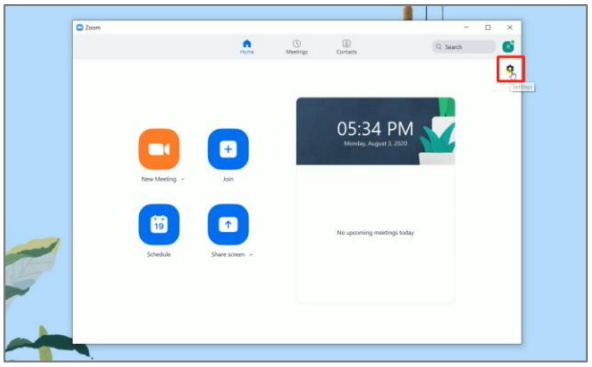


6. Add a title and description.

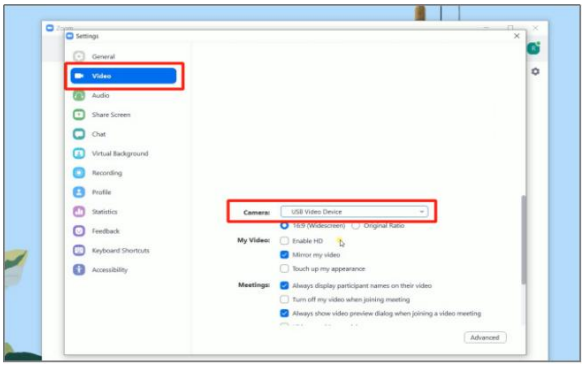


7. Go Live.

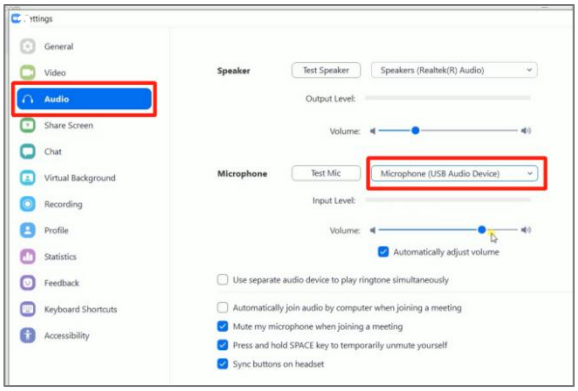
4.3 Zoom Streaming



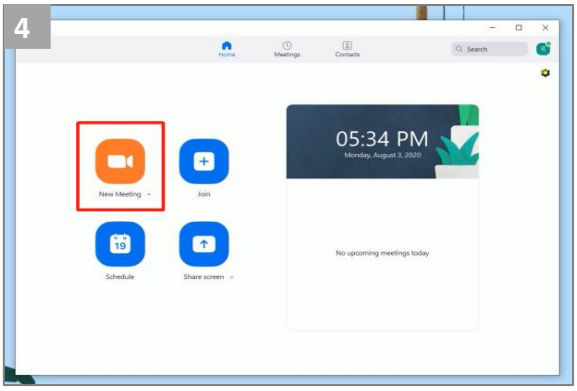
1. Enter Zoom, click “Setting” icon.



2. Click “Video”, set Camera as “USB Video Device”.



3. Click “Audio”, set Microphone as “USB Audio Device”.



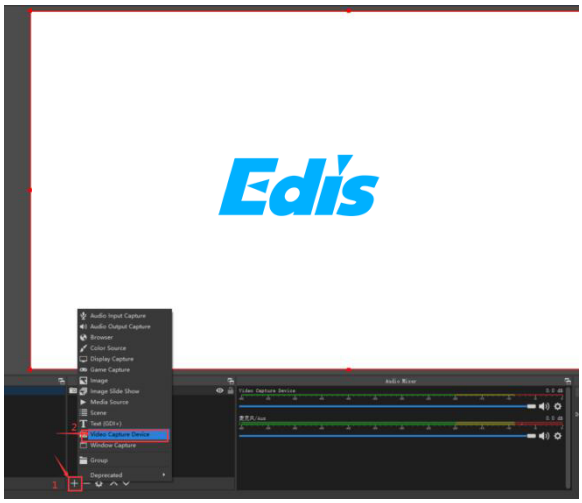
4. Finished all setting, Start meeting/Live.

4.4 OBS Streaming

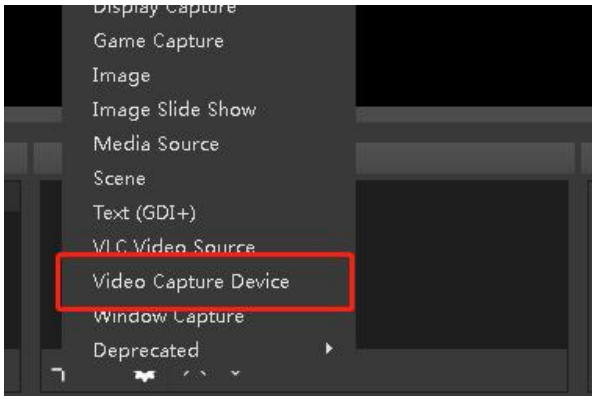
Video Capture

ECT40 is compatible with many third party steaming software, we recommend OBS, which is available to download on https://www.edis-audio-visual.com//download. Download the software and update to the latest version.

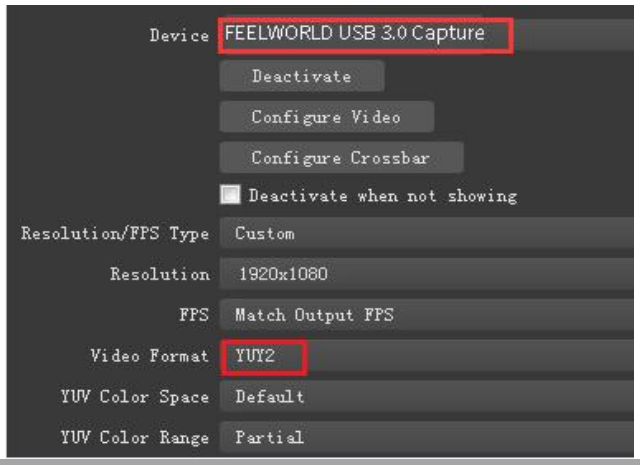
1. Click”+”icon



2. choose video capture device



3. Choose : FEELWORLD USB 3.0 Capture and Choose Video Format YUY2

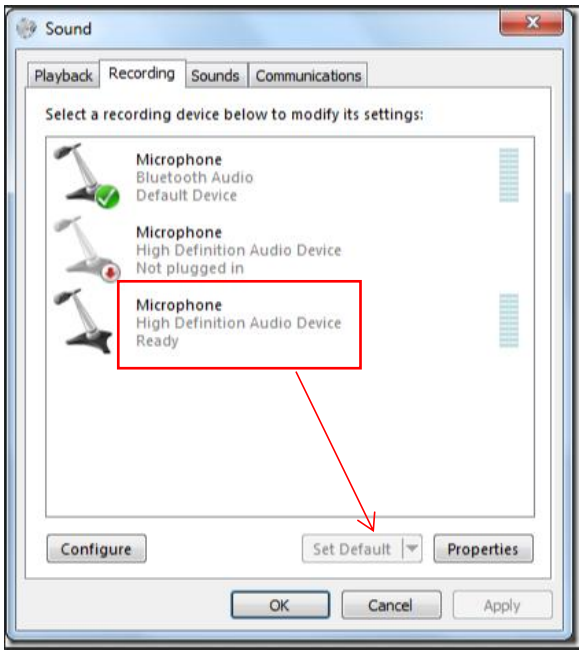


Note： If there is no video format YUY 2 after setting above, check the USB 3.0 port connection. Make sure it is linked to USB 3.0 port on PC by USB 3.0 cable. (USB 3.0 cable or port is standard in blue while USB 2.0 is in black). If the captured , change the video format to YUY2.

audio setting on OBS.

1. Set Default for the audio source.
2. Audio setting on OBS.

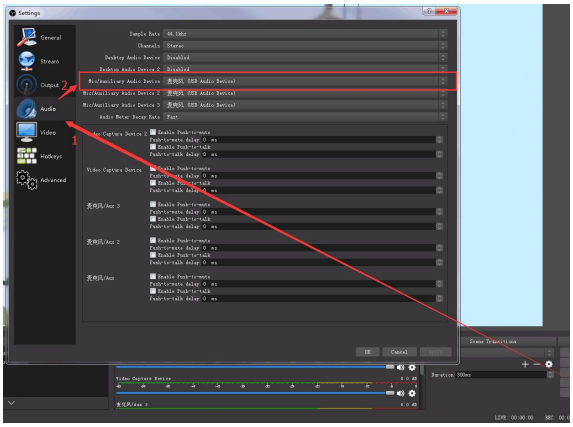
Choose Audio, click Setting and choose audio device (Mic/Auxiliary Audio Device)



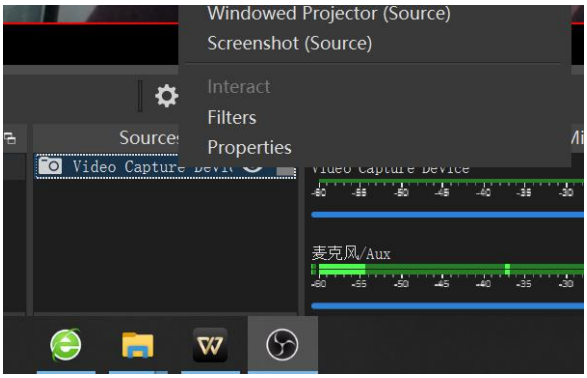
Synchronize Video with External Audio

When the video itself doesn't have embedded audio and need insert external audio.Here are the steps.

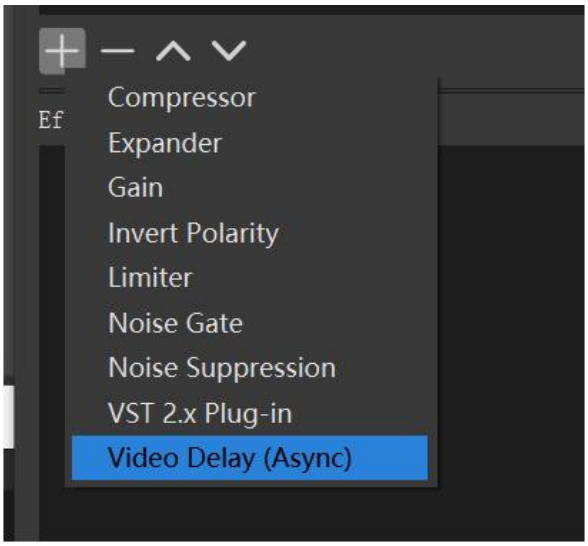
1. Set the audio source: Setting→Audio→Mic/Auxiliary Audio Devices



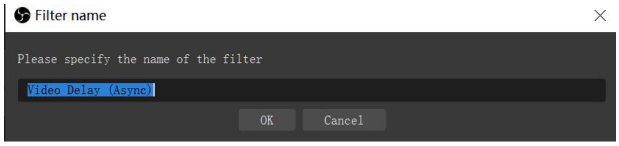
2.Right click the Video Capture Device in Source and choose Filter



3. Click “+”under Audio/Video Filters and choose Video Delay (Async)



4.You can custom the filter name in the pop-up window. Click OK to confirm the filter name.

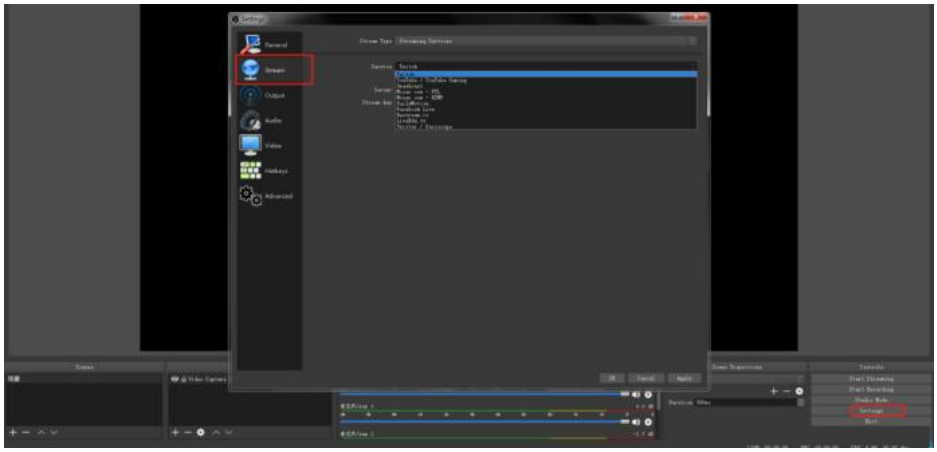


5.Input delay value in ms, the value need to adjusted until the video and audio is synchronous.

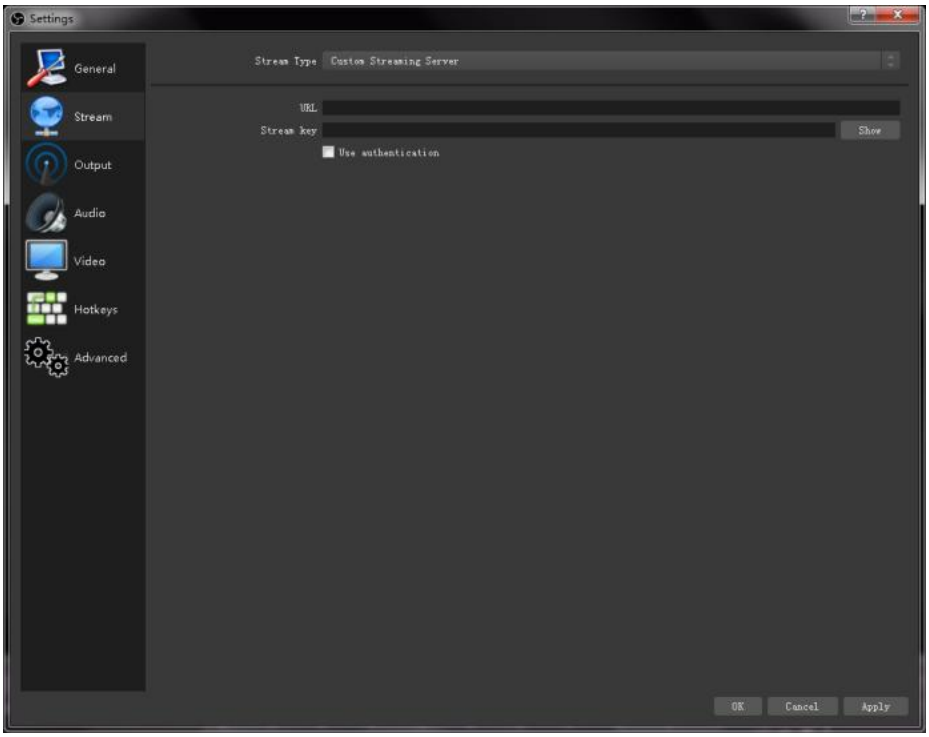
Streaming Setting

1. Find the RTMP URL and Stream Key provided by streaming broadcast website.
2. Coy URL and Stream Key
3. Back to OBS, click Setting in the lower right corner and click “Stream”. Choose Stream Type as “Streaming Service” or “Custom Streaming Server” . If choose “Streaming Service”, there is a list of streaming service name available in the drop down list of Service. If the streaming service is in the list, choose it from the list.

If choose Custom Service, just fill in URL and Stream Key.

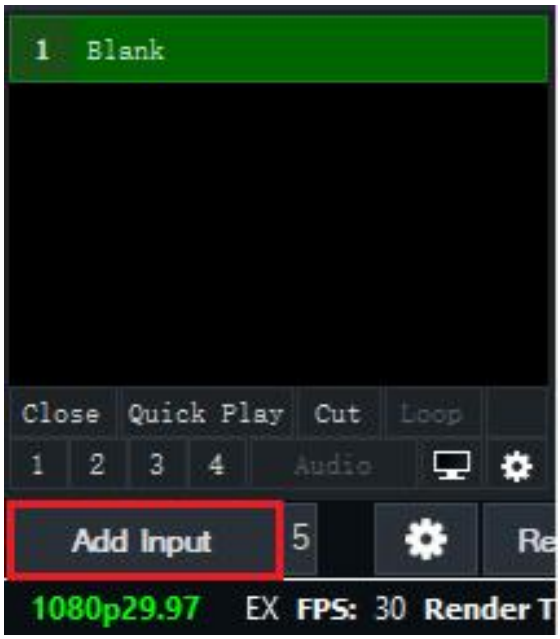


4. Paste the RMTP URL to Server or URL and Stream Key to Stream Key.
5. Click “Start Streaming”.
6. Go back to live broadcast website and check the broadcasting.

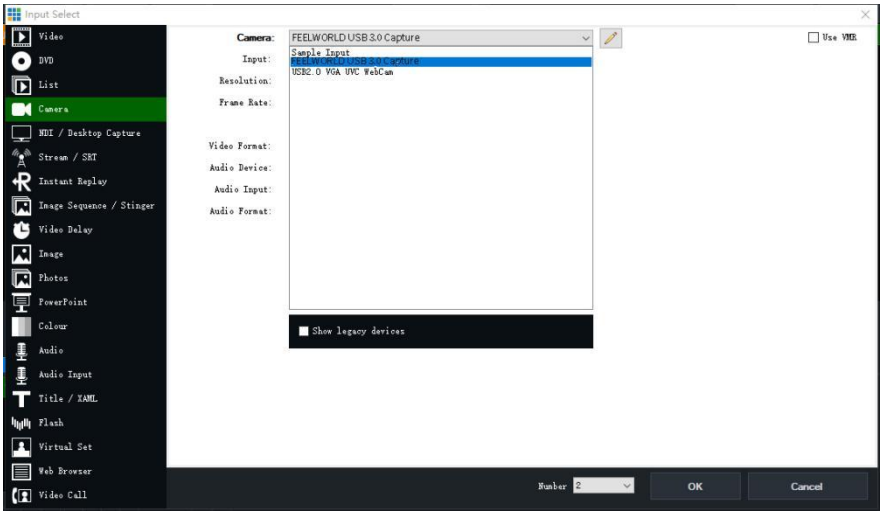


4.5 vMix Streaming

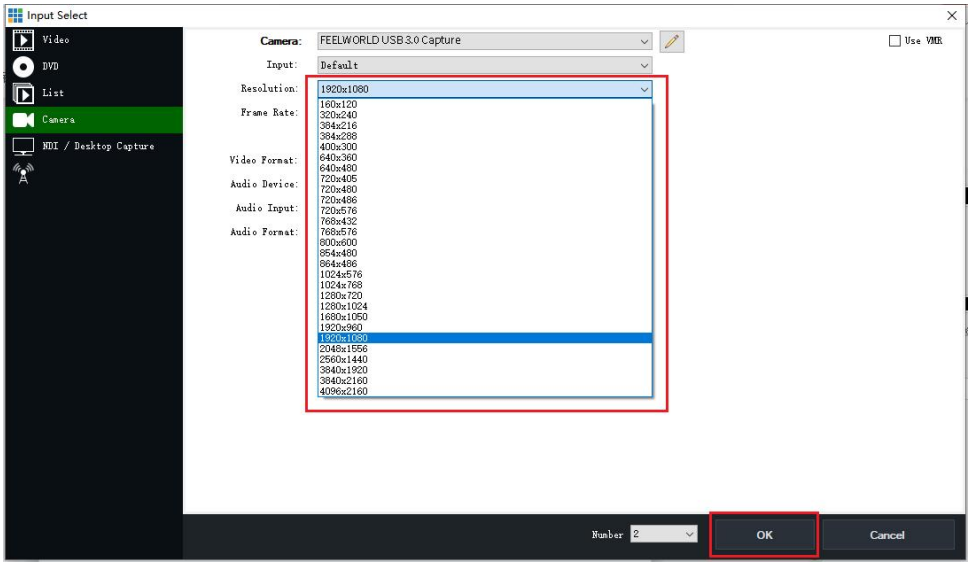
1. Click a new blank, then click the “Add Input” button.



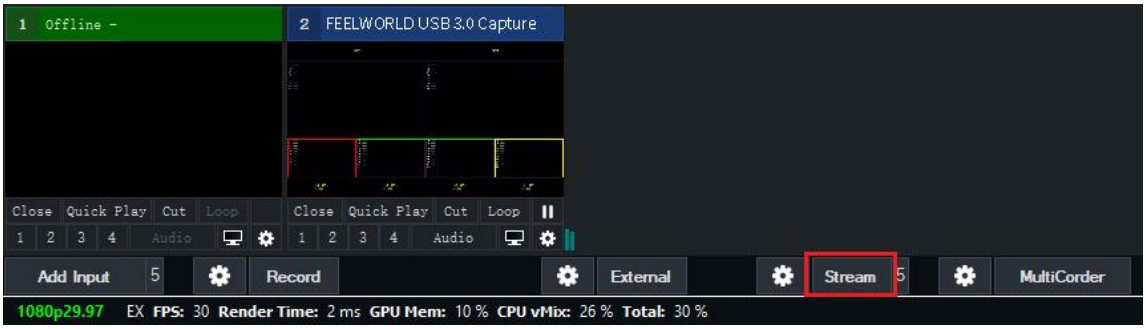
2. Select Camera-Camera-FEELWORLD USB3.0 Capture.



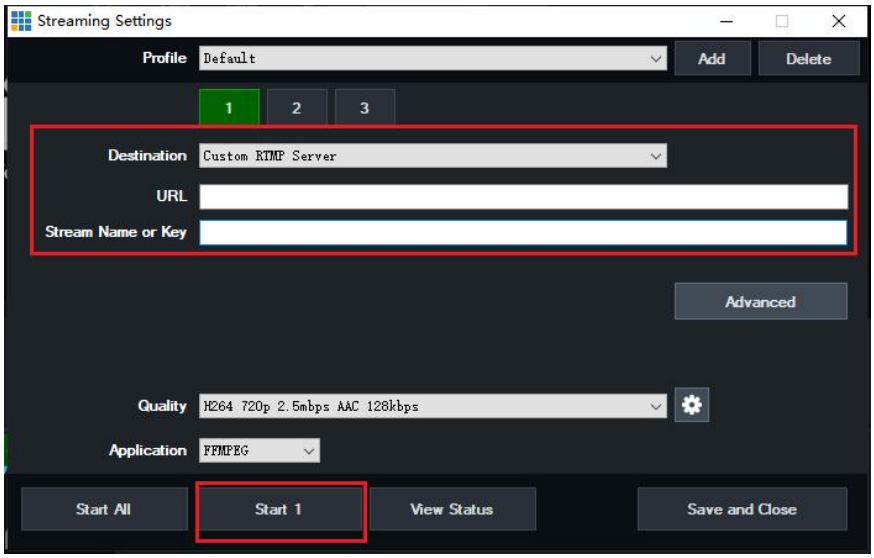
3. Select the same resolution as the ECT40 output. Then click “OK”.



4. Click Stream setting button.



5. Complete the URL and Key information. Click “Start 1”,vMix will begin streaming.



Note: vMix does not support automatic recognition of the output resolution of ECT40. Every time the output resolution of LIVE US is modified, the picture on vMix will pause. The user needs to re-select FEELWORLD USB3.0 Capture and manually input the current output resolution of ECT40.

Chapter 5 Feelworld Live Software Operation

Feelworld Live is a software that allows you to control your ECT40, FEELWORLD is available for all platforms including Android, iOS, MacOS, Windows.

Minimum System Requirements for macOS

Windows：

- CPU: i5 and above
- Memory:8 GB or more
- Operating System: Windows 10 64 bit processor or above
- Graphics: Support Direct X9 128M or above (open AERO effect)
- Hard disk space: Above 16G (primary partitions, NTFS format)
- Connector: USB 3.0 or type-c
- Others: do not run multiple video capture or editing software simultaneously

MAC：

- CPU：i5 and above
- Connector: USB 3.0 or type c
- Operating System: macOS 11.0 Big Sur or later
  macOS 10.15 Catalina
- Others: do not run multiple video capture or editing software simultaneously

You can either connect the ECT40 directly to your computer via the LAN port provided by the ECT40, or link the ECT40 to your router and the computer to the Wi-Fi emitted by your wireless router.

Note: The IP address of the ECT40 must be in the same WLAN segment as the computer or the mobile control device you choose.

5.1 Connect ECT40 and computer

Direct Link via a Network Cable

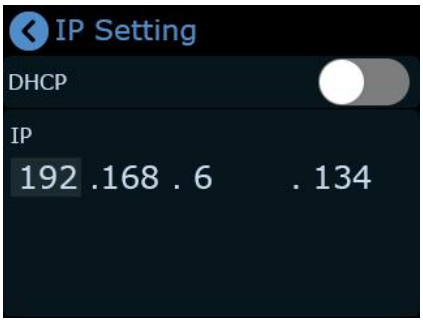
(1)Modify ECT40 IP Address

The ECT40 is connected to a computer via TCP/IP protocol for data transfer. Therefore, you need to keep the ECT40 on the same IP network segment as your PC or mobile device. If the ECT40 is connected directly to a computer, you need to change the ECT40 IP manually to avoid IP conflicts on the same network segment.

Steps to modify ECT40 IP address:

1. Push【MENU】button,enter【Settings】--【IP Setting】menu;

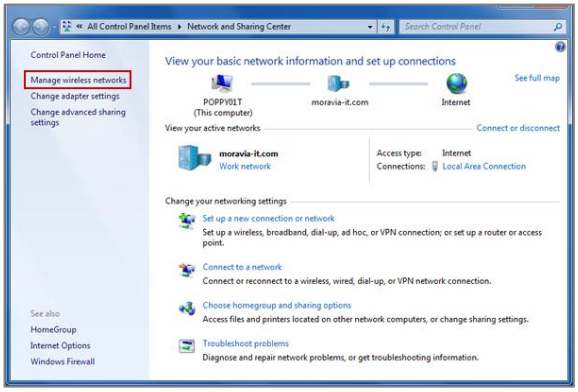
2. Change value of IP via touch screen and toggle



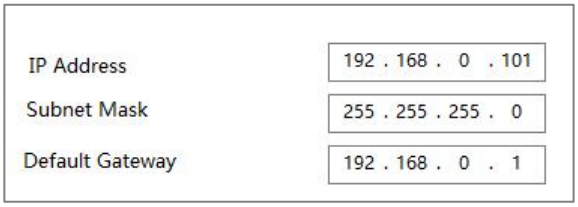
(2) Change the PC's IP Address

To ensure that the ECT40 and the PC can communicate smoothly, the IP address of the computer needs to be verified.

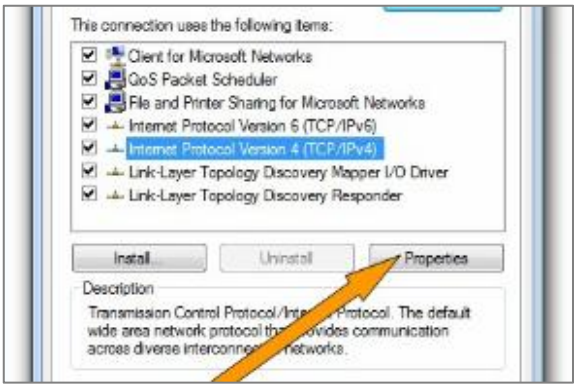
Steps to modify the IP address of the Ethernet port (windows.



1. Open the Network Sharing Center;
Click on "Ethernet";



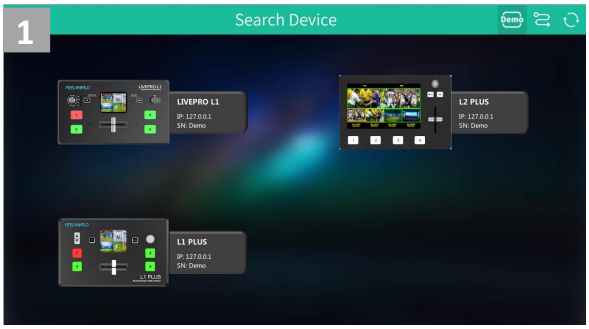
3. Select "Use the following IP address" and change the IP address to the same network segment as ECT40
eg: ECT40 IP address is 192.168.0.99, then the computer's IP address can be set to 192.168.0.1-255. Please make sure that the IP addresses do not conflict.



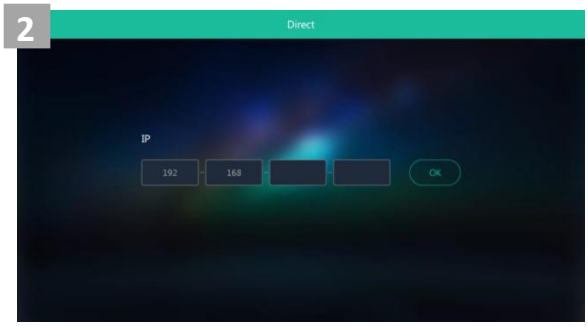
2. Access to Properties may require administrator privileges;
Under "This connection uses the following items", find "Internet Protocol version 4 (TCP/IPv4)";

Static Direct Connection

To ensure that Feelworld Live can connect in different classes of subnet masks, if you find that you cannot connect to the FEELWORLD switchers by searching, please try to use the direct connection method.



1. Open Feelworld Live and click on the icon in the upper right corner  .



2. Enter the IP address of the currently connected ECT40.

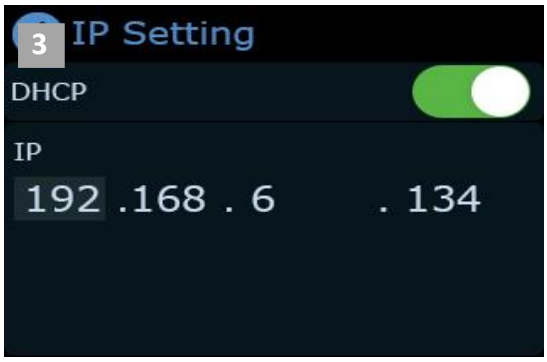
Connect Wirelessly with Your Router

The ECT40 provides wireless control, so you can control it from a greater distance when the ECT40 is not in your immediate vicinity. A wireless router is required to use this feature. The computer receives the WIFI signal from the wireless router you connect the ECT40 to.

Steps of wireless connection:

1. Connect the ECT40 to the router's LAN port.

2. Press the【M】button to enter【Settings】--【IP Setting】menu.



3. Turn on the DHCP switch.

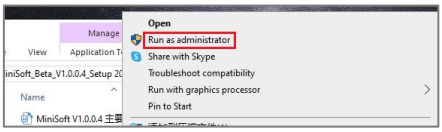
4.Computer connects to Wi-Fi from the router,and then Open Feelworld Live search

Note: The Android and IOS versions can only connect wirelessly. Regardless of whether you are using wireless or wired, you need to make sure that the IP addresses are on the same network segment and that they do not conflict.

5.2 Using Feelworld Live

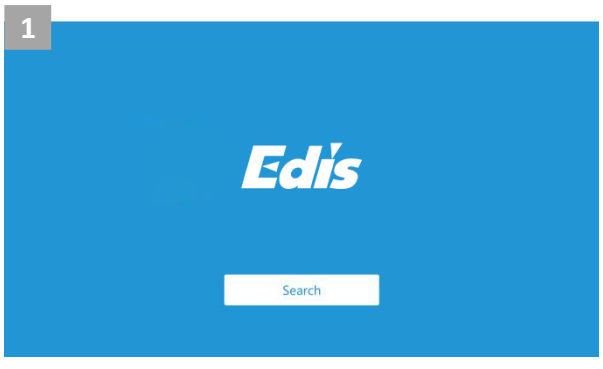
Feelworld Live simulates the ECT40 real world appearance and the operations you can control with Feelworld Live are very similar to those you can do with the ECT40 hardware. Feelworld Live has put all the functions in the "M" button. You can use this button for functions that are not possible with the ECT40 hardware.

Install dedicated software named Feelworld Live to control ECT40.
Right click the setup exe file .
Choose ***Run as administrator*** to open the exe and install the software.

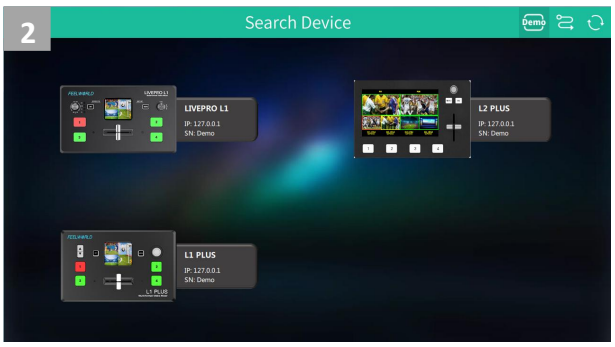


After software is installed, click the icon  login the software

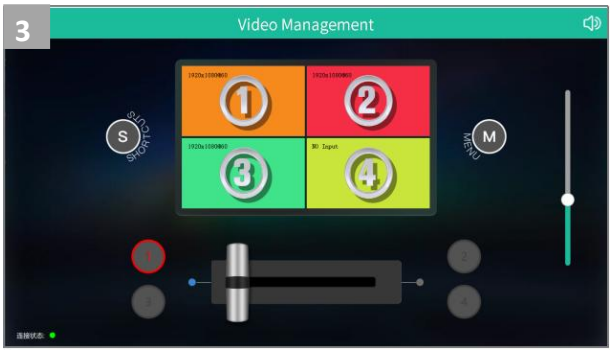
Search Device



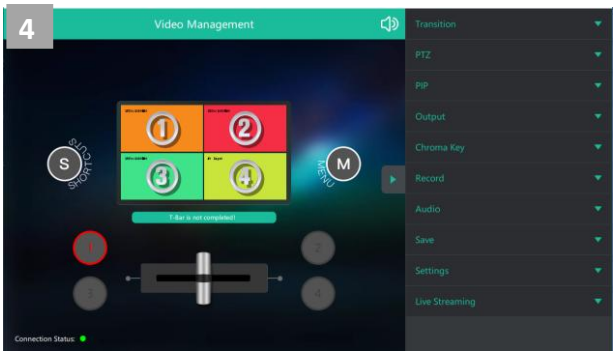
1. Click Search to search ECT40 device.



2. After searching, all available ECT40 devices in the sub-net can be found, up to 128 devices can found if there are.



3. Select the desired device by SN and IP and enter the management interface.



4. The software interface is a simulation of operation panel on real ECT40 device.

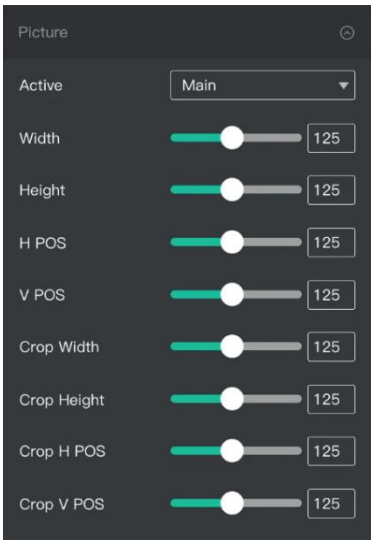
5.2.1 PIP

Layout

Can be set 7 PIP modes

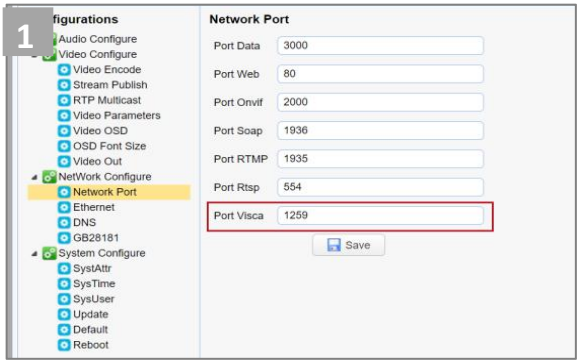
Picture

Adjust the Main or Sub picture



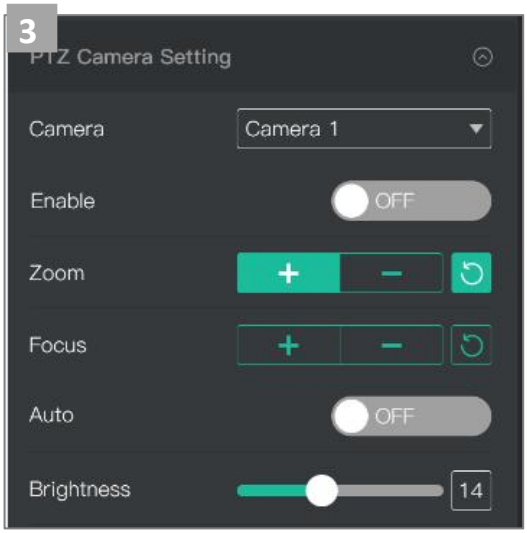
5.2.2 PTZ

When controlling the PTZ camera, the computer, ECT40 and PTZ camera should be in the same network segment.



1. Set the corresponding communication port on the PTZ camera, such as VISCA or UDP port 1259.

2. Set both old IP and new IP to the camera IP address you want to control,the corresponding communication port to 1259 on ECT40, configuration path: M(Menu) → PTZ Camera Setting Port on the control software of ECT40.

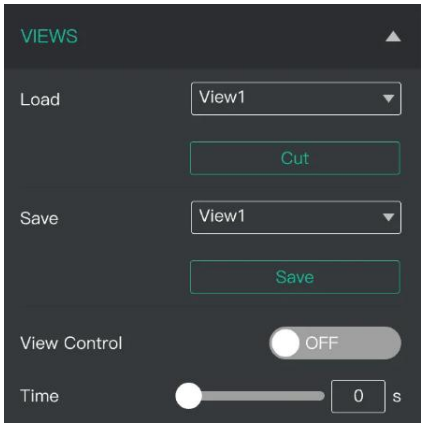


3. After IP address setting,turn on “Enable” and you can control PTZ camera.

5.2.3 Views

Load: View 1~ 8, click “Cut” after selected
Save: View 1~ 8, click “Save” and confirm to save the view

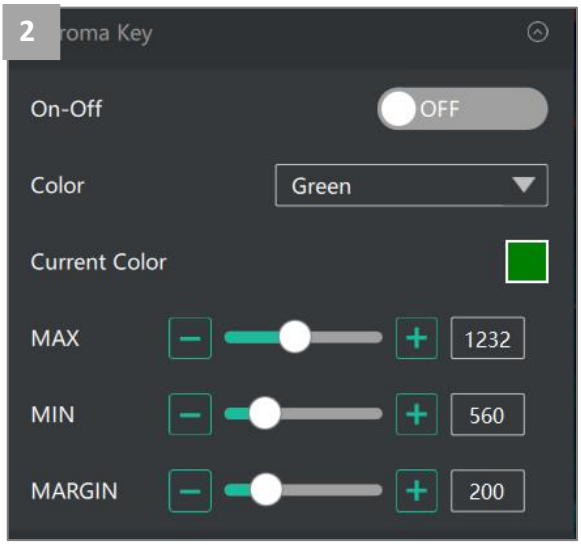
View Control: after turned on, will play the saved views automatically.
Time: 3.0s~600s



5.2.4 Chroma Key

ECT40 also provides chroma key of sub-screens. Sub-screen keying is possible with PIP turned on,which helps you to combine characters with the virtual background.

1. Select the base color you want to remove, there are 6 kinds of colors you can select: orange, yellow, green, cyan,blue and purple.



2. You can click in the MAX MIN MARGIN data input box to achieve a more precise keying effect.

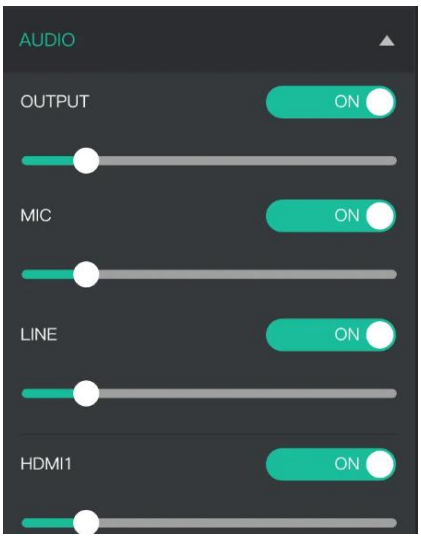
Note: When using chroma key, make sure that the layer you want to edit is on the top layer, which is the B layer in the PIP setting, otherwise you may not see the chromakey effect.

5.2.5 EFFECT

Mode: Fast/T-Bar
Time: 0.5s~5.0s
Layout: 15 kinds

5.2.6 Audio

The function same as 3.4.6



5.2.7 Video

HDMI

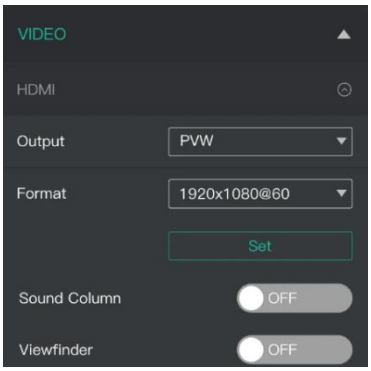
Output: PVW/PGM/TP/HDMI1~4

Format: 1920×1080@60(max)

Click**<Set>**after confirm

Sound Column: OFF/ON

Viewfinder: OFF/ON

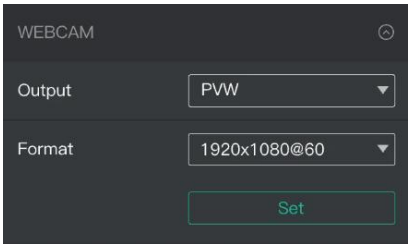


WEBCAME

Output: PVW/PGM/TP

Format: 1920×1080@60(max)

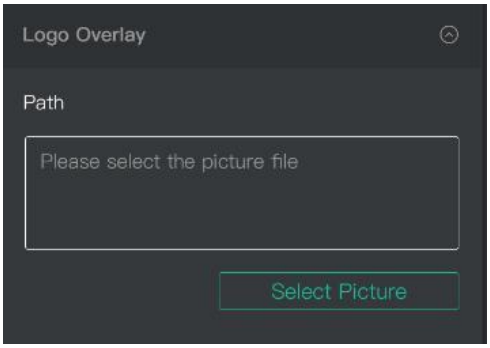
Click**<Set>**after confirm



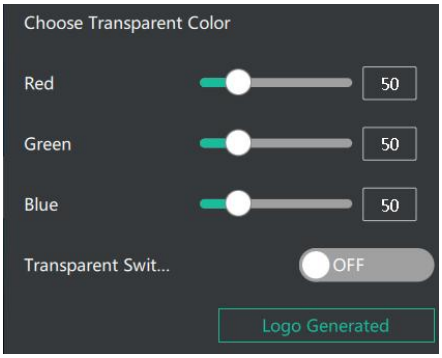
5.2.8 LOGO

If it is your first time to use Logo Over lay, please connect ECT40 to your computer, and make sure that IP address of both are in the same network segment.

1. Select a picture as the Logo.



2. Click “ColorPicker ”and select color you want to filter in the LOGO picture, and current color can be seen below.



3. Turn on”Transparent Switch”, the filtered color will disappear in the LOGO picture.

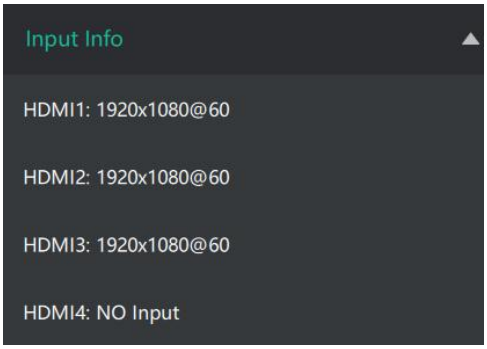
4. Click “Logo Generated”, “upgrading”will be seen in the TFT screen of ECT40, and the Logo picture will be imported in.

Note: The format of the LOGO image should be BMP 24 bits, and the image size should be within 256*128 pixels.

5.2.9 SETTINGS

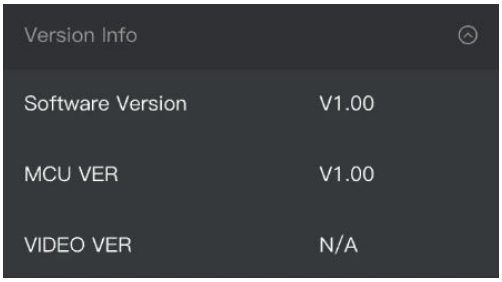
Input Info

In the【Input Info】you can check the input resolution



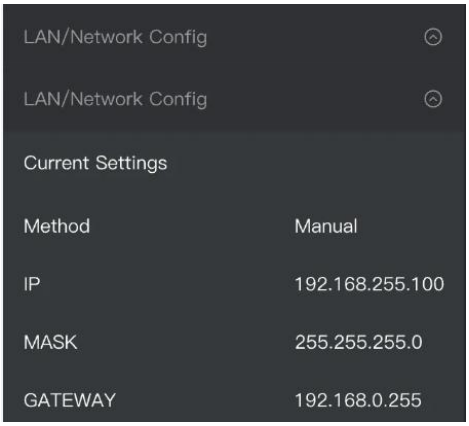
Version Info

In the【Version Info】you can check the Software Version, MCU version and Video Version

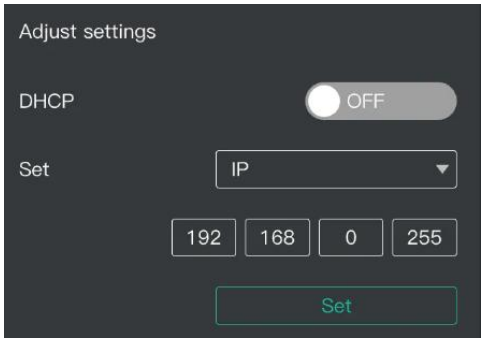


LAN/Network Config

In the【LAN/Network Config】, you can check current IP, mask and gateway.

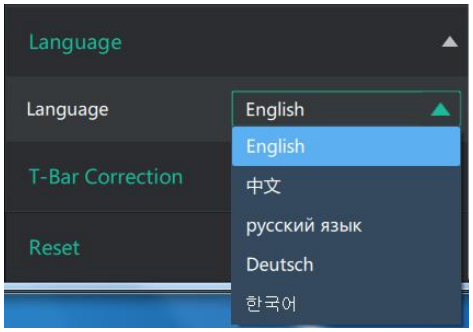


If you want to change the IP address, mask and gateway, turn off **DHCP** first and change the value.



Language

There are 5 kinds of language: Chinese, English, Russian, German and Korean.

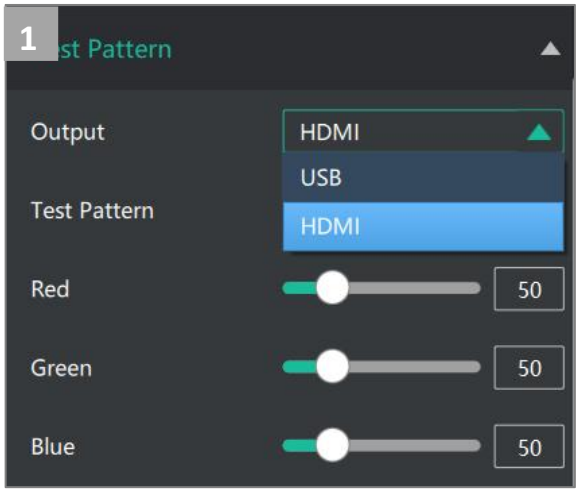


Reset

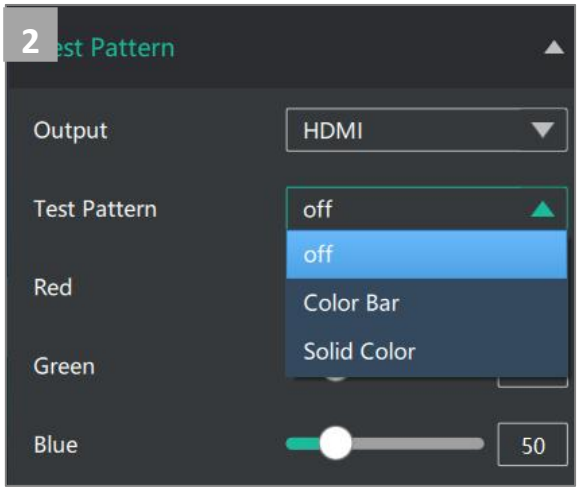
Reset will remove all settings.

Test Pattern

To facilitate troubleshooting, Feelworld Live provides a test signal output, which can be used to troubleshoot the USB or HDMI output interface when there is no output signal from USB or HDMI.



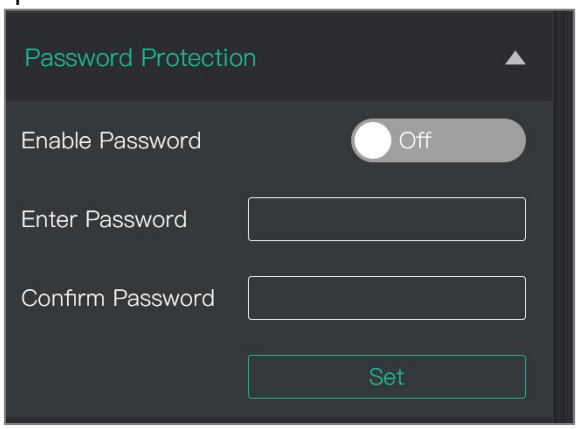
1. Select the USB/HDMI interface to be tested.



2. Select the mode of the test pattern.

Password Protection

In order to solve the problem of control conflicts caused by different devices controlling the same ECT40 in the same LAN, Feelworld Live provides a password protection function, as an administrator, you can set a password for the device controlling Feelworld Live, and when you control the interface again, you need to enter the password to control it.



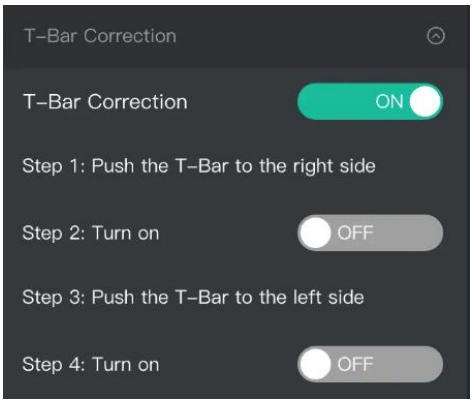
Note: If you have forgotten your password, please restore the factory settings on the ECT40.

T-Bar Calibration

If the T-Bar is not in the correct position, no other operation is possible. t-Bar correction is available in Feelworld Live.

The steps are as follow：

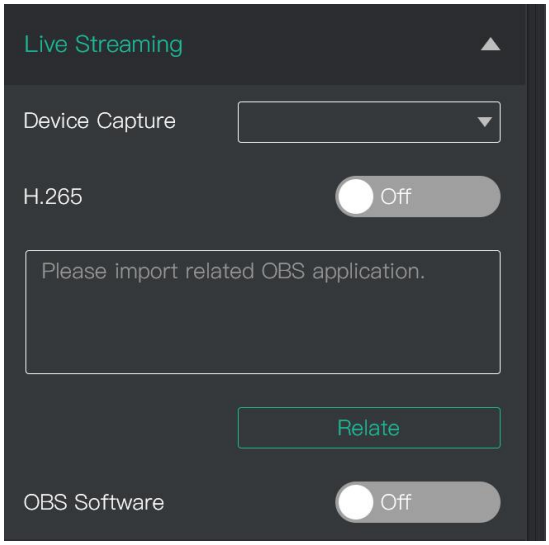
1. Turn on the T-Bar Calibration switch.
2. Push the T-Bar to the **far right** on the ECT40.
3. Turn on the "On" switch
4. Push the T-Bar to the **far left** on the ECT40.
5. Turn on the "On" switch



5.2.10 Live Streaming

Device Capture:choose FEELWORLD USB3.0 Capture
H.265: When it is ON, users can watch 4 inputs streaming back on Feelworld Live software.
Import the related OBS application if users need to do live streaming, click Relate to confirm.
OBS: slide ON to start streaming.

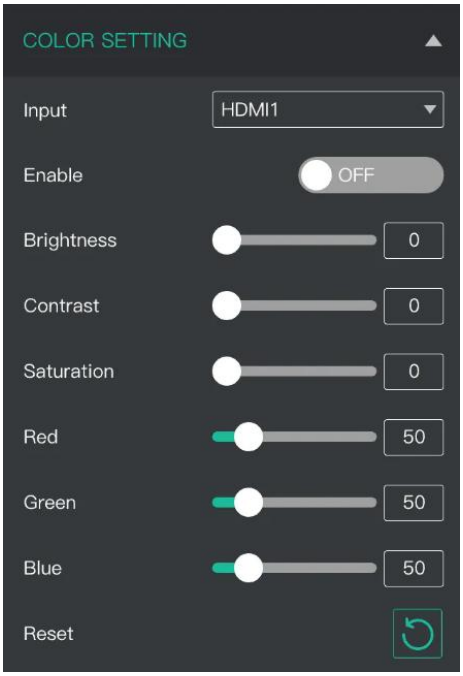
Note:H.265 and OBS cannot work at the same time. User choose either H.265 or OBS, not both.



5.2.11 COLOR SETTING

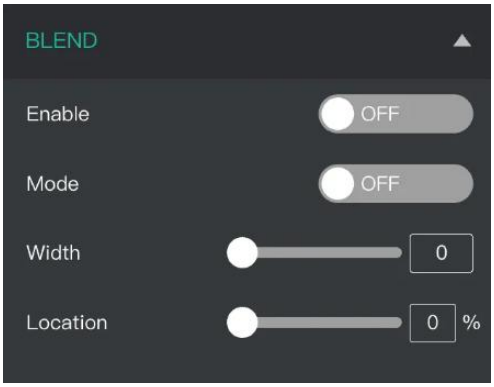
Input: HDMI1~4
Click Enable button can be adjust the selected input image's brightness/ contrast/ saturation

Click  to reset the value



5.2.12 BLEND

Click Enable, you can achieve an effect that images of two input signals can be blended with a softening effect around their edges and adjust the width and location
Width: 0~960
Location: 0~100%



5.3 Upgrade

1.Tools：

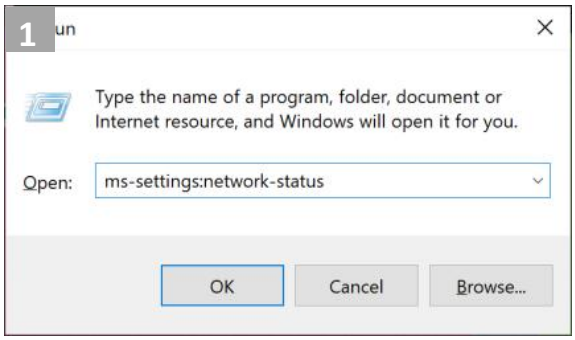
- XTOOL -packaged in the ZIP (download it from WWW.feelworld.cn--Support--Firmware Updte)
- Computer with network connection
- Windows (minimum Win 7, Win 10 recommended)
  macOS (minimum 10.13 High Sierra)

2. Connection

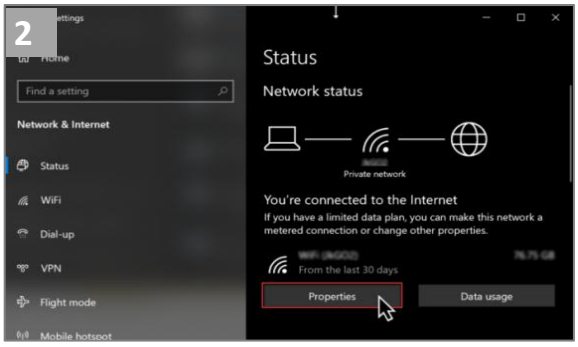
2.1 Power on the device and connect LAN ports between PC and device by Cat6 cable;

2.2 Ensure that your computer is on the same network as the ECT40. The default IP address of ECT40 is 192.168.0.99, in which case your computers IP address should be in the range 192.168.0.xxx (xxx can not be the same as ECT40 or other device on the network) to enable connection between the ECT40 and your computer.

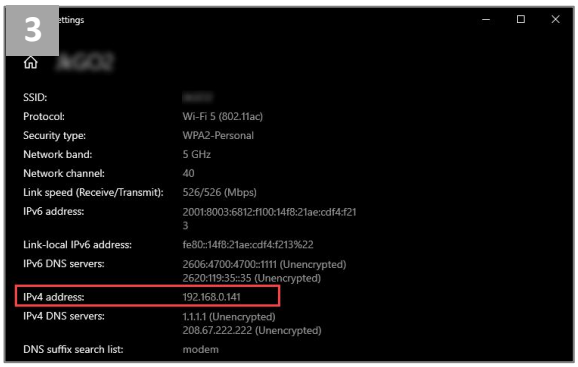
Check IP of PC:



1. Press + R keys together to open the Command Prompt; In the dialog type: ms-settings:network-status



2. Click on the “Properties” button



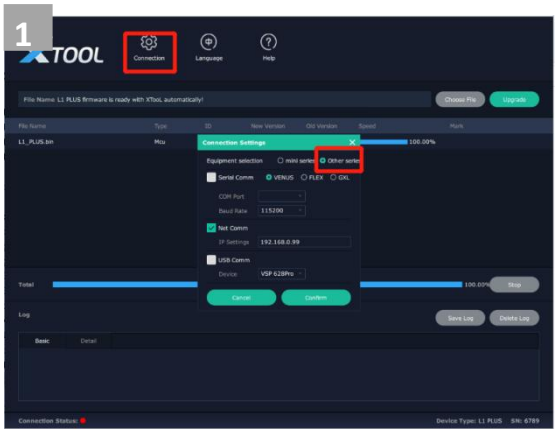
3. Scroll down to find your IP address

If the IP address is not in the same section, manual change of IP address is required. Here are the steps:

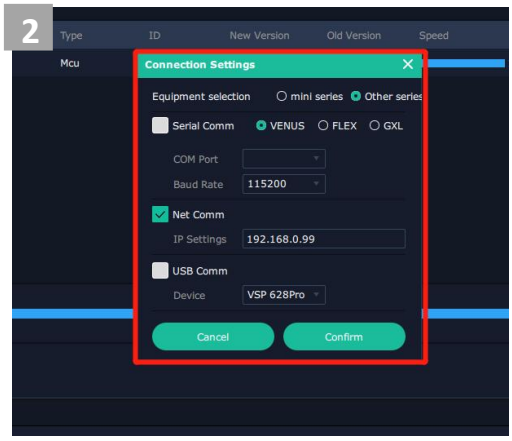
- Step 1. Click Start menu, click “Setting”
- Step 2. Open **Network and Internet** > **Network and Sharing Center**.
- Step 3. On the left pane of the new window, click **Change adapter settings**.
- Step 4. You will be displayed with **Network Connections** of the PC.
- **Important note**: Right click on “Ethernet” or “Local Area Connection” if you want to change IP of any physical connection. And right click on “WLAN” in case you wish to change IP of any wireless connections.
- Step 5. Choose **Properties** after right clicking on the network name.
- Step 6. Select the **Internet Protocol Version 4 (TCP/IPv4)**, then click **Properties**.
- Step 7. **Obtain an IP Address automatically** should be selected by default, but please choose the **Use the Following IP Address**.
- Step 8. Now put your desired IP Address according to your wish its correct format. Change **Subnet mask and default gateway** if you want to.

3. Upgrade

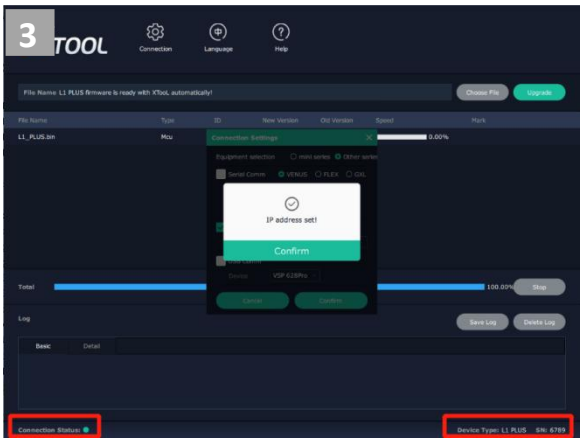
Open the upgrade file and install XTOOL according to prompts [Taking Windows as an example]



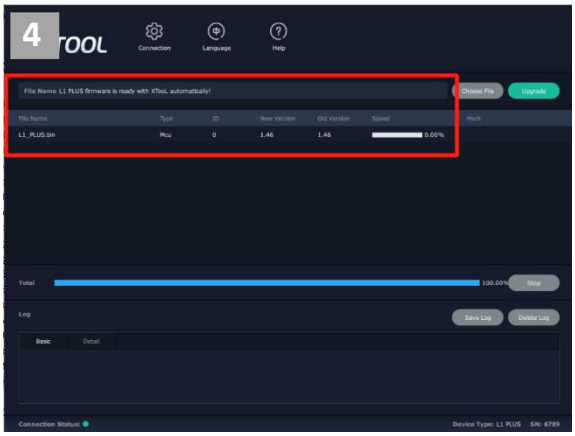
1. Click”**Connection**”and select “other **series**”



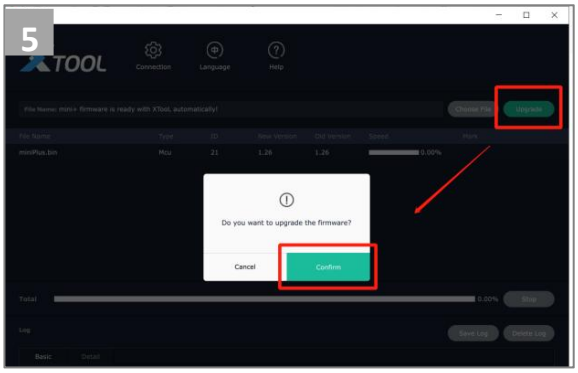
2. Fill in the IP Address of the ECT40(as example above, default ECT40 IP is 192.168.0.99),and click “**Confirm**”.



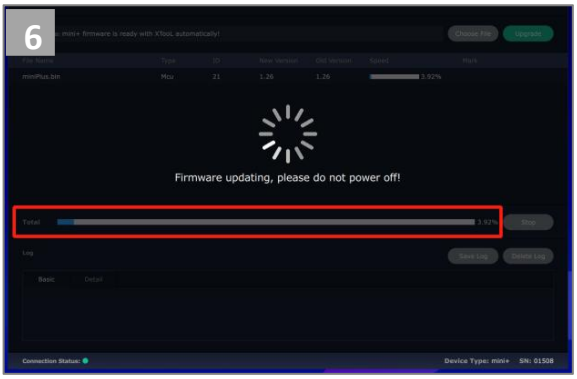
3. Review Connection Status at bottom left, to confirm indicator light is green and there is device information showing at bottom right.



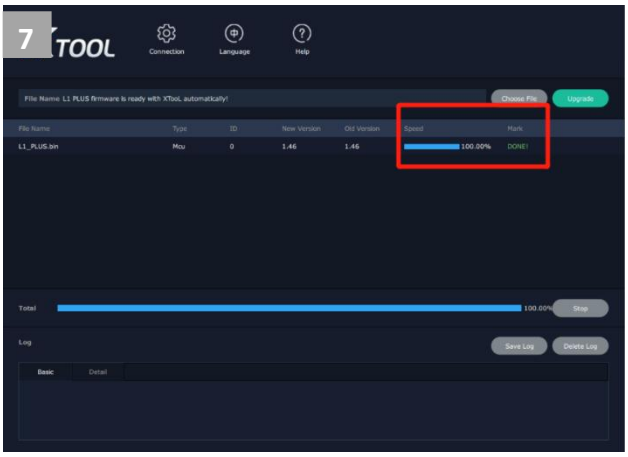
4. The firmware package will be ready with XTOOL automatically.



5. Click”**Upgrade**”and click “**Confirm**”in the pop-up windows.



6. Firmware is upgrading and you can monitor the progress.Please do not power off while upgrading.



7. ECT40 is now upgraded and ready to use.

Chapter 6 Appendix

6.1 Specification

Connectors	Input	HDMI 4K	4×HDMI-A
	Output	HDMI 2K	1×HDMI-A
		Streaming	1×USB Type-A
	Audio	In	2×3.5mm Stereo Jack
		Out	1×3.5mm Stereo Jack
	Communication	LAN	1×RJ45
	Power		1×PD Type-C
Performance	Input Resolutions	HDMI	
		SMPTE	720p@50/60 |1080i@50 | 1080p@24/30/50/60 |2160p@60
		VESA	1024×768@60 | 1280×720@60 | 1280×768@60 | 1280×800@60 | 1280×1024@60 | 1360×768@60 | 1366×768@60 | 1440×900@60 | 1600×1200@60 | 1680×1050@60 | 1920×1080@60 | 1920×1200@60 | 3840×2160@60 | 4096×2160@60
	Output Resolutions	HDMI	
		SMPTE	720p@50/60 | 1080p@24/25/30/50/60
		VESA	1024×768@60 | 1280×720@50/60 | 1280×768@60 | 1280×1024@60 | 1360×768@60 |1920×1080@24/25/30/50/60
		USB	1024×768@60 | 1280×720@50/60 | 1280×768@60 | 1280×1024@60 | 1360×768@60 |1920×1080@24/25/30/50/60
	Supported Standards	HDMI	2.0
		USB	3.0
		H.265	ITU-T H.265/ ISO/IEC 23008-2
	Supported Protocol	PTZ	VISCA
	Video Formats	HDMI 2.0	HDCP 2.2
	Streaming Formats	ITU-T H.265	ISO/IEC 23008-2
	Color Space	RGB	
	Video Sampling	4:4:4 YUV	
	Latency	＜4 frames	
Power	Input Voltage	PD 12V/1.5A(via plug pack supplied)	
	Contact Power	13.2W	
	Max Power	20W	
Environment	Temperature	0℃~60℃	
	Humidity	10%~85%	
Physical	Net Weight	468g	57
	Dimension	194mm×109.6mm×47.8mm	

6.2 FAQ

1. When there is a problem ECT40

A：We recommend you to upgrade to the latest version of firmware first, then reset and restart the device.

2. If there is a power supply problem with the ECT40.

A：Please try to change the power adapter (support 20W).

3. ECT40 upgrade notes.

A：Please disable the other adapters(except ECT40 LAN adapter) on Network and Internet, turn off the DHCP on setting of ECT40, after upgrading successfully, remember to reset and restart the device.

4. ECT40 cannot control PTZ.

A：Please make sure that the IP address of ECT40 and PTZ are in the same network segment. For example, the IP address of PTZ is 192.168.5.163. Please also set the IP address of ECT40 to 192.168.5.X ((2~254) except163 Outside), confirm on Feelworld Live whether the Visca port number in the PTZ settings is the corresponding port number, for example, the Visca port number of the PTZ of FEELWORLD is 1259.

5. ECT40 USB3.0 WEBCAM cannot be recognized/recognized without picture(black picture).

A：Please confirm whether the computer configuration meets the following conditions, if not, please select one of the following methods 6.1)-6.5) for testing:

Windows：

CPU:i5 and above

Memory:8 GB or more

Operating System: Windows 10 64 bit processor or above

Graphics: Support Direct X9 128M or above (open AERO effect)

Hard disk space: Above 16G (primary partitions, NTFS format)

Connector: USB 3.0 or type c

Others: do not run multiple video capture or editing software simultaneously

MAC：

CPU：i5 and above

Connector: USB 3.0 or type c

Operating System: macOS 11.0 Big Sur or later macOS 10.15 Catalina

Others: do not run multiple video capture or editing software simultaneously

6.1)Or use typeC to USB3.0 hub to connect the computer andL1 PLUS

6.2)Or use USB software->ProcessControl_1.0.0.2 to improve performance of computer(in the attachment)

6.3)Lower the output resolution

6.4)Unplug and plug the USB3.0 cable and re-enter the streaming software.

6.5)Change the USB2.0 cable to do streaming (note that the picture quality is lower than the USB3.0 cable, and

the USB2.0 cable is not recommended to use the PVW output)

6. Does ECT40 support HDCP?

A: The HDMI input supports the HDCP protocol, HDMI input 1 port supports HDCP2.X, the other input ports support HDCP1.X, and the output does not support HDCP protocol encryption

7. ECT40 HDMI input what kind of YUV.

A：ECT40 supports 4:4:4， not supports 4:2:0.

8. When ECT40 input is i format signal will be half-screened or cut with the P format signal, the height of the P format will be cut.

A：At present, the latest program can automatically determine the i/P signal source and automatically adjust the cropping value.

9. Can ECT40 be controlled by mobile phone?

A：At present, the Android version has been uploaded on the official website, the IOS version is still being uploaded, and the version in the APP Store does not control the ECT40.

10. Can ECT40 control PTZ of Pelco protocol?

A：Currently, the PTZ controlling this protocol is not supported, ECT40 supports to control Visca protocol PTZ.