mini ISO

RGBlink®

User Manual

Content

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

Declarations

FCC/Warranty

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

Guarantee and Compensation

RGBlink provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. RGBlink must be informed immediately in writing of any complains.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of compliant, RGBlink can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other service provided by RGBlink, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of RGBlink.

If the purchaser or a third party carries out modifications or repairs on goods delivered by RGBlink, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by RGBlink either.

The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Operators Safety Summary

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

Do Not Remove Covers or Panels

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.

Power Source

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.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

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 In the Box

Power Adapter
(PD 12V/2.5A)

USB 3.0 AV
Capture Cable

Type-C Power Cable

Notes：

For computers/phones/pads without HDMI port but with USB-C interface, you can convert USB-C to HDMI.

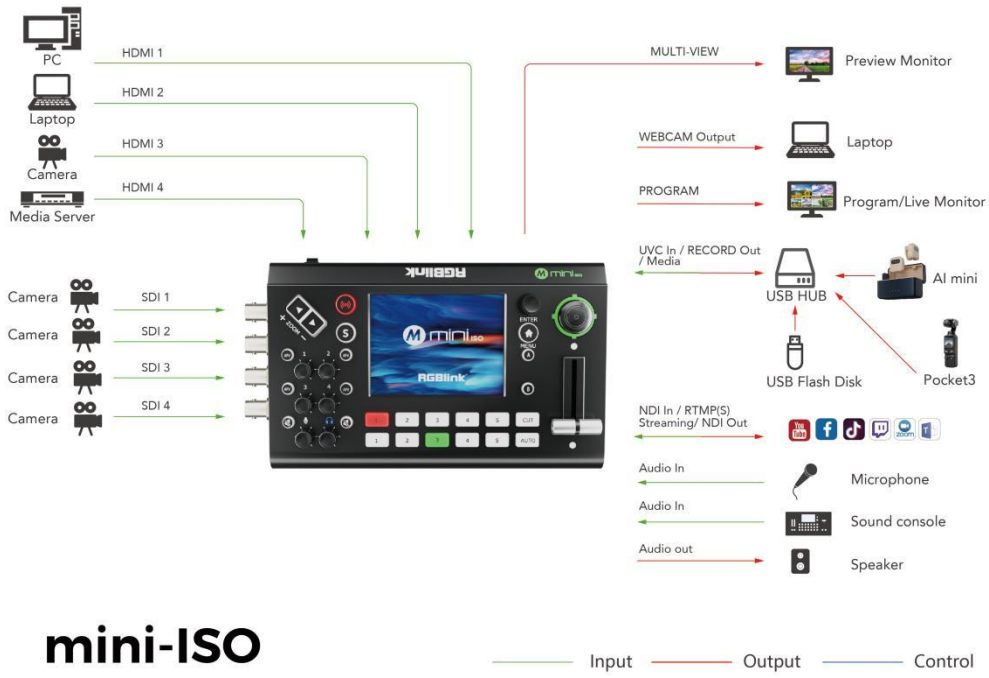
Be sure that the (USB-C) interface shall meet the USB 3.1 or higher standard.

1.2 Product Overview

mini-ISO supports 4K resolution via HDMI® (2.0 standard) input ports and features four 3G-SDI inputs, one UVC input and one NDI input, supporting signals from PC, Laptop, camera and more. Both Line and Mic level audio are supported. Dual HDMI outputs support monitoring of multi-view Preview, Program or Test Pattern. One USB output supports YUY2 and MJPEG encoding formats, which can be recognized as a webCAM for streaming to Facebook, YouTube, ZOOM, etc.

mini-ISO is built with 3.5-inch TFT touch screen for menu operation and video sources display. mini-ISO is packed with features including dynamic output control, multi-view preview, picture in picture, chroma Key, luma Key, transitions, on board PTZ camera controls and much more.

mini-ISO supports Web server and TAO Cloud integrated control. It can perform simultaneous streaming to 4 live streaming platforms via RTMP(s).



1.2.1 Key Features

- Mini and convenient to carry
- 3.5-inch TFT touch screen for menu operation, signal preview, and working status display
- 4-CH HDMI 2.0 inputs (HDCP 1.4 compliance), resolution up to 4K@60
- 4-CH SDI inputs support signal from camera, recorder, etc
- 2-CH HDMI 1.3 outputs for monitoring of multiviewer, Program, or Test Pattern
- Seamless video switching between 5 channels (4 x HDMI / SDI and 1 x NDI/UVC) with transition effects
- 4-CH HDMI/SDI for mixed signals and 2-channel external audio mixing support
- UVC input supports signal from webcam, UVC Camera, USB capture, etc
- NDI encoder output as an NDI source in the ethernet range
- T-bar switch and 15 transition effects support
- Fast mode and preview switch mode support
- USB 2.0 for recording in exFAT or FAT32 format with bitrate up to 16Mbps
- USB 3.0 output supports YUY2 or MJPEG format, which can be recognized as webcam for streaming or capture
- RTMP(s) network streaming up to 4 platforms
- One NDI output support
- Independent control of PTZ, zoom, and focus of up to 5 PTZ cameras; fast view saving and view recall.
- 5-direction joystick and toggle for controlling PTZ camera (IP VISCA Protocol supported)
- Specify either "green" or “blue” as the key color for Chroma Key
- TAO Cloud control support, compatible with mobile devices and desktop

1.2.2 Front Panel

No.	Item	Description
❶	**ZOOM IN/OUT**	● Function as focus adjustment and zoom in/out when a PTZ device is being controlled. ● Adjust the layer size when a layer is selected.
❷	**Stream**	● Tap to turn on/off the streaming.
	Shortcut	● Tap to enter Record interface. Tap again to enter transition effects interface.
❸	**3.5-inch touch screen**	● Tap the screen for menu operation and signal monitoring (Ten preview windows by default.). ● Signal monitoring windows: ○ Yellow: Zoom button for adjusting the PTZ focus. Joystick for adjusting the PTZ position. Press the joystick to access the PTZ setting interface. ○ Green: Zoom button for scaling the layer. Joystick for adjusting the layer position. Press the joystick to resize the layer to full screen.
❹	**ENTER**	Tap the button to select and confirm the selection.
	MENU	● Tap the button ○ Tap the 10 preview screen to open the main menu. ○ Tap the menu screen to return to the previous interface and the main menu with a long press. ○ Tap the main menu to exit the menu interface and enter the 10 preview screen.
	Layer A	Tap to enable the main screen.

	Layer B	Tap to enable the sub-screen.
❺	**Five-direction joystick**	● Move the joystick up, down, left and right ○ Adjust the direction of a PTZ camera when it is being controlled. ○ Adjust the layer position when a layer is being controlled. Tap to enable the layer scaling and tap again to reset the layer size to full screen and another tap can reset the layer to the previous size.
❻	**Volume Knob**	Audio Adjustment Knob: ○ The knobs with digital logos are used to adjust the volume of the input signals 1~4 (embedded audio). ○ The microphone labeled knob is for adjusting the MIC2. The earphone labeled knob is for adjusting the output volume.
	AFV	Tap “AFV” to enable the audio-follow-video function of the current channel.
	Mute	○ The left bottom knob controls the analog audio input. Tap the button to mute and tap again to cancel the mute. ○ The right bottom knob is for the program output volume control. Tap the button to mute and tap again to cancel the mute.
❼	①②③④⑤	● Press button 1~5 above to switch the dedicated input directly to the program output. ● Press button 1~5 below to switch the Preview signals according to the layer selected. ● Press “CUT”to switch between PRE and PGM. ● Press "AUTO"to switch the layer effects between the PRE and PGM. ● Button unlit: no input signal ● Button lit white: an input source loaded but unselected ● Button lit green: preview output status ● Button lit red: program output status
❽	**T-Bar**	● Switch manually between the preview and program outputs according to the selected switching effect.

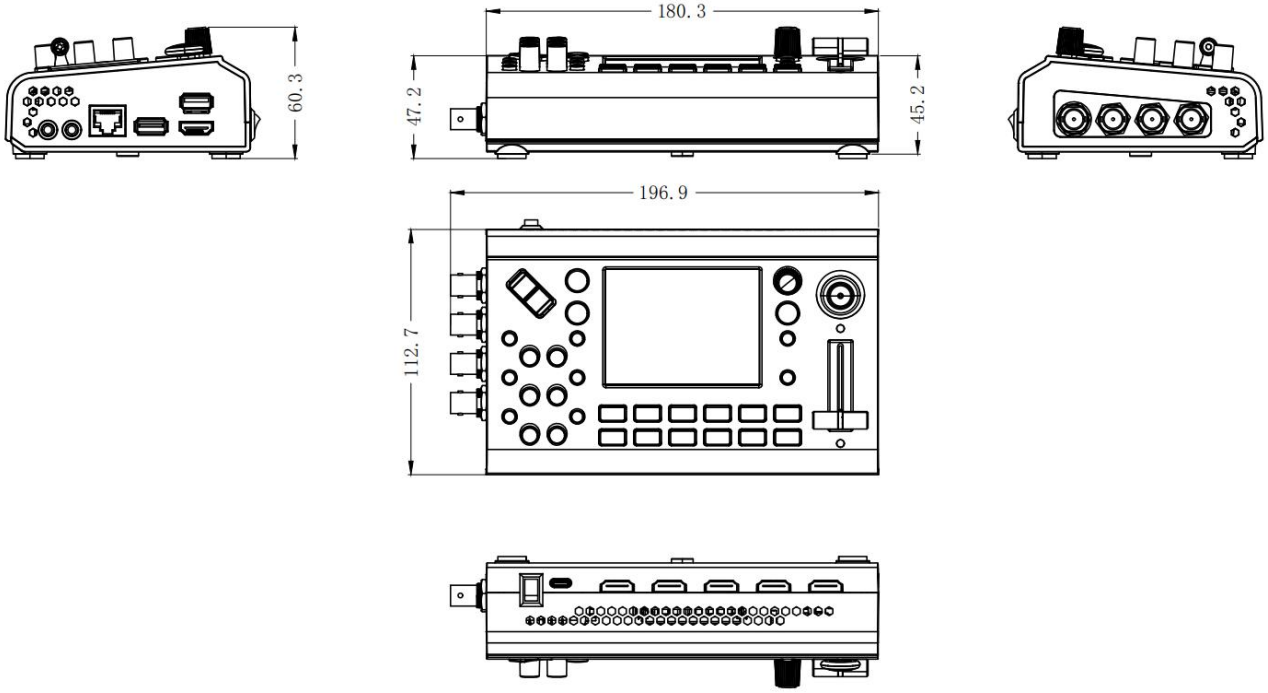
1.2.3 Interface Panel

No.	Item	Description
❶	**HDMI Multi-View Output Port**	Monitor the audio and video of all channels, as well as the recording and live-streaming status when connecting to a monitor.
❷	**HDMI 1~4 Input Port**	● Four HDMI input ports that can be connected to (HD) UHD cameras, computers and other input sources. ● Input resolution supports up to 4K and is backward compatible.
❸	**USB-C Power Connector**	Support PD protocol, 12V/2.5A.
❹	**Power Switch**	Boat-shaped switch and downward to power on.
❺	**Headset Interface Line In**	● Headset interface; Through the headset separation cable, you can split the interface into one passive MIC input and one audio output. ● Active audio input to connect to a cell phone, computer or audio console.

⑥	**Gigabit Ethernet Port**	● Control: connect a camera and can directly control the camera. ● Streaming: connect to the internet and can be used for webcasting. ● TAO Cloud web control
⑦	**Record**	Insert the mobile SSD or U disk to record PGM directly. Act as a video input (UAC) when connecting to a camera.
⑧	**HDMI Main Output**	The signal outputted to show on the main screen.
⑨	**Webcam**	USB Streaming Interface: capture the screen through the third-party streaming software and stream it to the live broadcasting platform for live broadcasting.
⑩	**SDI 1~4 Inputs**	● Four SDI input interfaces can be connected (to HD cameras, computers, and other input sources.) to FHD cameras and other devices with SDI output interface. ● Input resolution support up to 2K and backward compatible. ● Input supports 3G/HD/SD-SDI.

1.2.4 Dimension

Following is the dimension of mini-ISO for your reference:
196.9mm × 112.7mm × 60.3mm



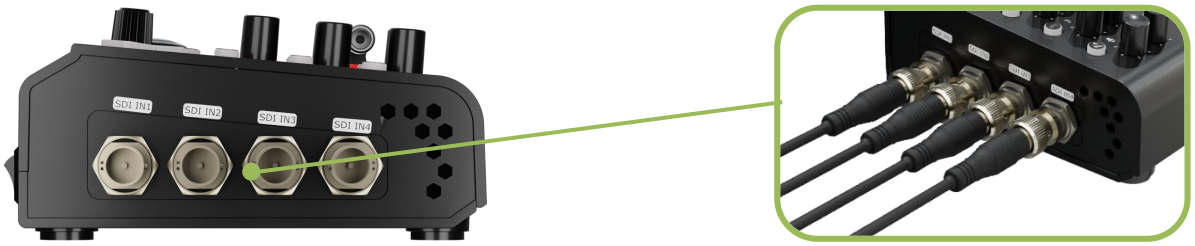
Chapter 2 Install Your Product

2.1 Connecting HDMI/SDI Input

You can connect any camera, computer or other devices with SDI/HDMI outputs to mini-ISO's four SDI/HDMI inputs as the mini-ISO's input sources.

The mini-ISO also supports 4 SDI or 4 HDMI inputs of different resolutions. The 4 HDMI inputs all support up to 4K@60p input resolution, and at the same time support the de-interlacing function, which allows you to access the i standard interlaced signals to this interface to realize the de-interlacing effect. This step is automatically recognized without manual operation.

After connecting the signals, the 3.5-inch touch screen will recognize and display the input screen and resolution under the state of power-on.

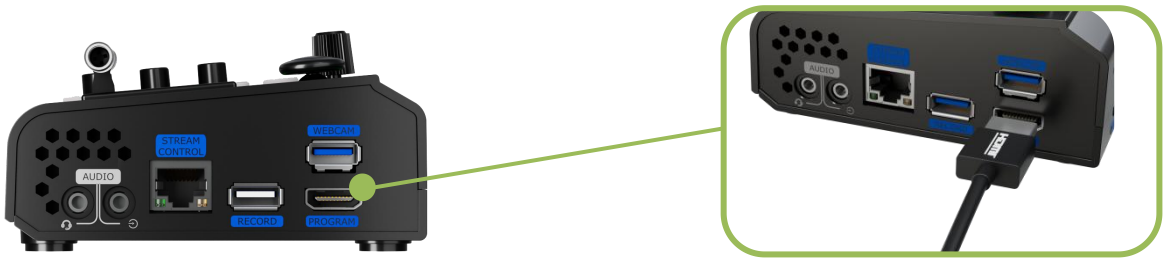


Notes:

The mini-ISO package does not include HDMI cables and SDI cables, which needs to purchase separately. Some camcorders demand the mini HDMI interface. When using these camcorders, please purchase mini HDMI to HDMI cable separately.

2.2 Connecting Monitoring Devices

Users can use an HDMI cable to connect the mini-ISO's MULTI-VIEW and PROGRAM outputs to a monitor with an HDMI input, so that they can monitor the preview screen and the main output screen at the same time.



The default output of MULTI-VIEW is a multi-view monitoring display, so that the user can see the audio and video of all input sources as well as the current status of the mini-ISO's various functions, as well as the preset views and the current main output screen.

HDMI output supports modifying the output resolution, after pressing the [M] key, touch [Video Output] in the menu to select the format of the output resolution, HDMI output supports(the highest output resolution of 1080p60.) up to 1080p60.

2.3 Connecting Microphones and External Monitoring Devices

On the right panel of the mini-ISO, there is a 3.5mm audio jack for input, allowing direct

connection of a microphone, wireless MIC, or use of the LINE output of an external sound console for mixing multiple external sound inputs.

The mini-ISO supports 3.5mm analog audio and 4 HDMI digital audio for simultaneous mixing, enabling concurrent output of computer and MIC audio. Additionally, it has a 3.5mm audio jack for output, enabling users to connect external speakers or headphones to monitor the main output audio signal in real time

2.4 Connecting USB for Live Streaming and Recording

You can use a USB cable to connect the mini-ISO's USB 3.0 port (with WEBCAM silkscreen) to your computer, which will recognize the mini-ISO as a webcam source, so that you can select the incoming USB webcam signal in zoom, Facebook, Skype, Jittery, Douyu, BiliBili, OBS, and other streaming media platforms. This is a new way to show the professional level of multi-camera production.

Users can also insert a USB flash drive into the mini-ISO's other USB port (with RECORD silkscreen). This USB port is the recording port, which supports SSD up to 2T and USB flash drive up to 64G, and FAT32 and exFAT formats.

Attention:

If the computer only has a USB-C port, you can use a USB-A to USB-C cable for webcam signal transmission. Please note that the USB-C cable you purchase needs to support data transmission, and the signal recognized in Windows and MAC system is “RGBlink USB 3.0 Capture".

Please choose to use a solid state drive for your hard disk, and check the hard disk manual in detail to confirm whether the hard disk needs additional power supply.

Using more than two channels for streaming or using UVC output/recording at the same time may cause mini-ISO frame drop and stuttering, please use with caution.

2.5 Connecting the Router

Connect the mini-ISO's network port and the router's network port with a CAT6 (network cable). Tap the "M" button to enter the menu, and click "Menu" > "Settings" > "IP Settings" > "Disable DHCP" to set the IP address of the mini-ISO. Users must keep both the router and mini-ISO's IP address in the same network segment.

2.6 Connecting the Power Supply

A PD power adapter (including power cord) is provided in the package. When connecting the power supply, please check the power standard used in your country/region. Please plug the power connector of the device tightly to ensure that the power supply of the mini-ISO is stable.

Notes:

It is recommended to use the power adapter provided by mini-ISO. If you need to use other power adapter in case of emergency, the selected power adapter should meet the following requirements:

1. Support PD fast charging protocol;
2. The interface is USB-C charging port, support plugging and unplugging in either direction;
3. The power delivered by PD should be at least 20W.

2.7 Turning on mini-ISO

After connecting the power supply and input/output sources, press the boat-shaped power-on button down to turn on the mini-ISO. The full-color touch screen will display the mini-ISO logo and enter the power-on screen.

Chapter 3 Use Your Product

After making sure the steps above are completed, you can use mini-ISO to do the following.

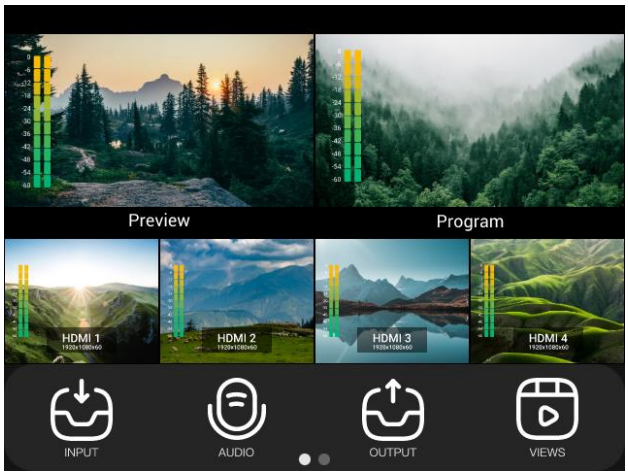
3.1 Device Control

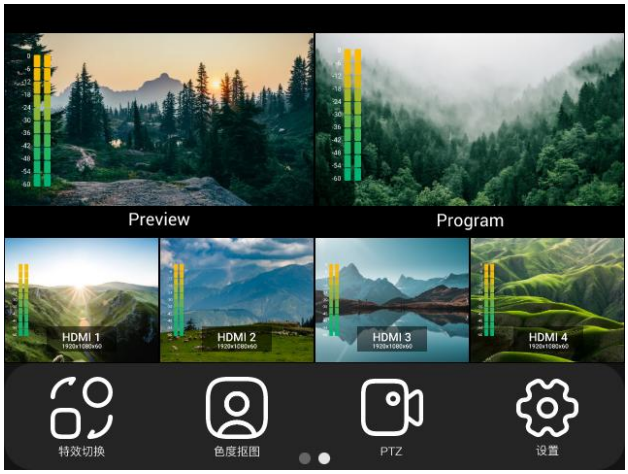
3.1.1 Touch Screen Operation

The mini-ISO operation panel comes with a full-color display touchscreen, and the main operations of the mini-ISO are done through this touchscreen.

Before introducing the touch screen operation, we need to introduce the "M" key. The "M" key indicates the MENU key for mini-ISO to return to the main menu when the 3.5-inch LCD screen is displaying other interfaces simply with a press.

As shown in the figure below, the style of mini-ISO's full-color display touchscreen is similar to the current mainstream cell phone APP operation interface, with all icon buttons at the first-level menu for quickly entering the corresponding function management interface by touching the corresponding icon.

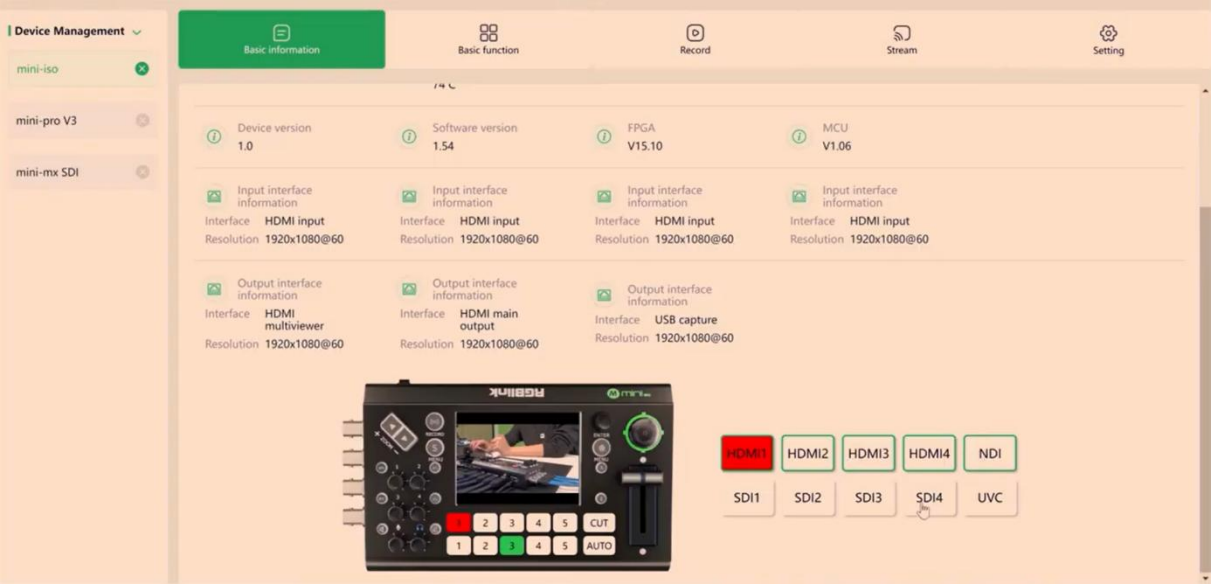

Preview
Program
HDMI 1
HDMI 2
HDMI 3
HDMI 4
INPUT
AUDIO
OUTPUT
VIEWS


Preview
Program
HDMI 1
HDMI 2
HDMI 3
HDMI 4
特效切换
色度抠图
PTZ
设置

3.1.2 TAO Cloud Control

In addition to operating directly on the device, you can also control mini - family devices and operate signal switching, saving the trouble of firmware installation. Follow the steps mentioned in Section 3.6.2.1 to bind your device to the TAO Cloud.

Then you can check the basic information of your mini-family devices and operate signal switching. The device will respond correspondingly once you operate on the TAO Cloud.

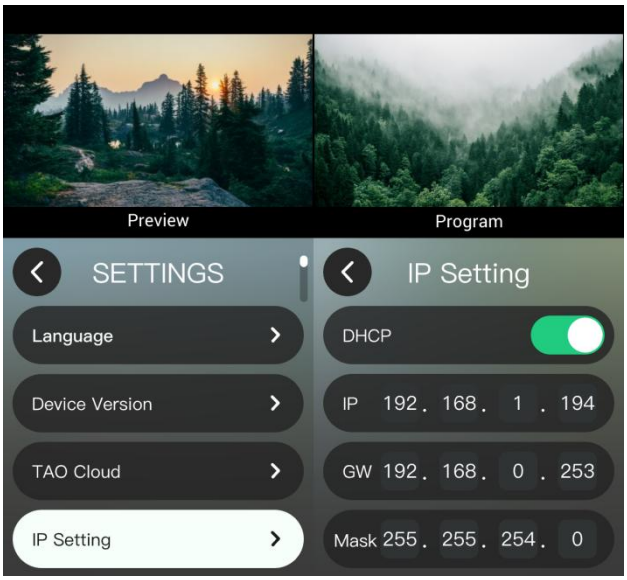


We have made a detailed video about channel switching via TAO Cloud. Click the following link to learn: https://youtu.be/VssE0FBItI4

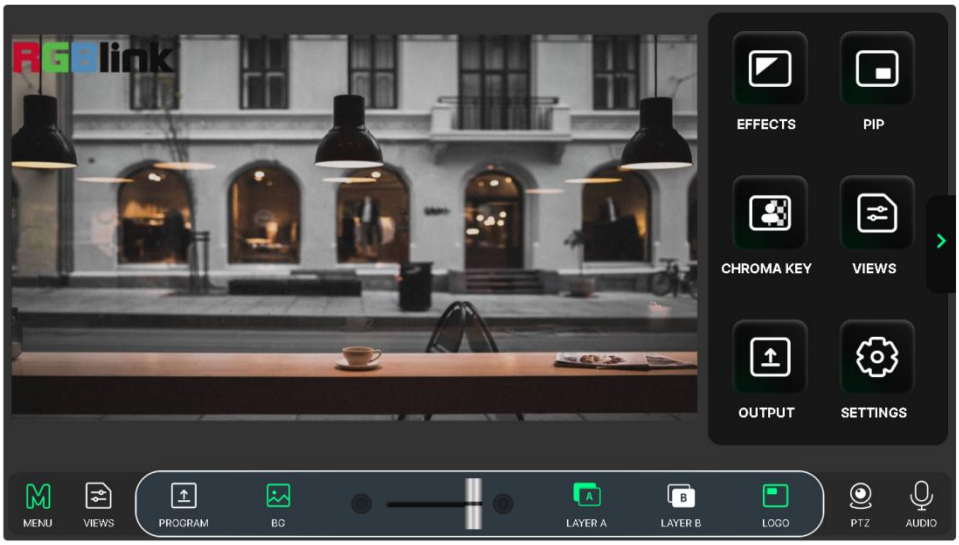
You can refer to this video for all channel-switching operations of mini-family products.

3.1.3 Web App

You can perform remote control via the control panel on the Web App. First you should connect a network cable to the Ethernet port of mini-ISO. Check the IP address of min-ISO on “Setting">"IP Setting".



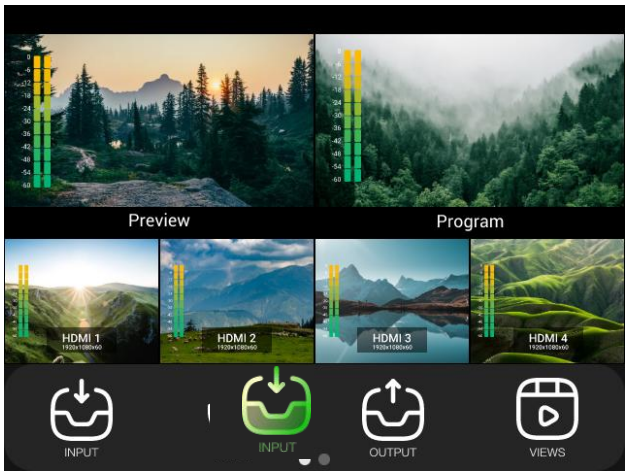
Enter the device IP on your browser, then the web will display the device control panel.



3.2 Input

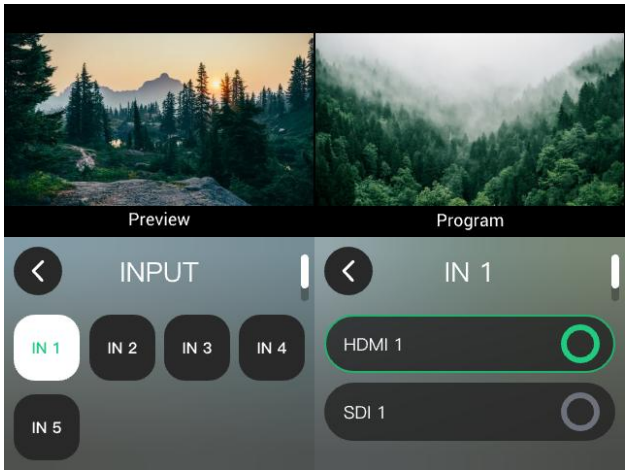
On the mini-ISO's operation panel, ① ② ③ ④ ⑤ buttons correspond to the five input signals one by one. For signal 1~4, the input sources can be HDMI or SDI, which can be selected in the menu. The fifth signal is a UVC signal. When accessing the five signal source buttons, their lights will show four states:

- Green color: a signal is recognized but no operation is done;
- Blinking green color: the currently selected signal is being edited;
- Red color: the current signal is placed at the program output;
- Unlit: the signal source is not accessed or the resolution of the accessed signal source is not supported by mini-ISO.

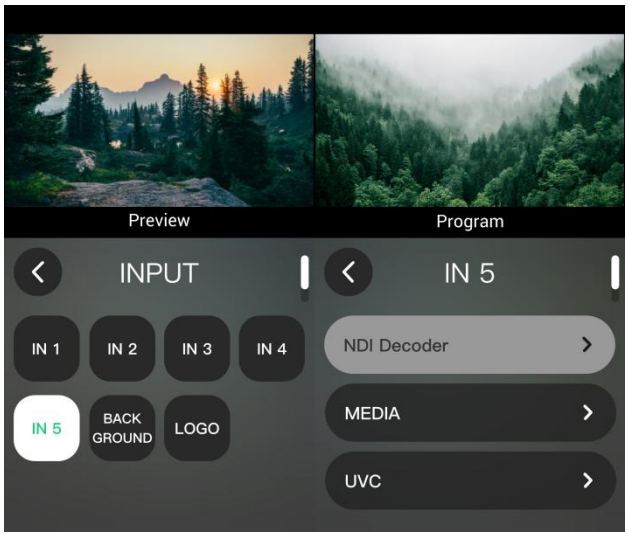


3.2.1 IN1~IN5 Input

1. For IN1~IN4, each IN has an HDMI (HDMI IN1-IN4) or an SDI (SDI IN1-IN4) to select.



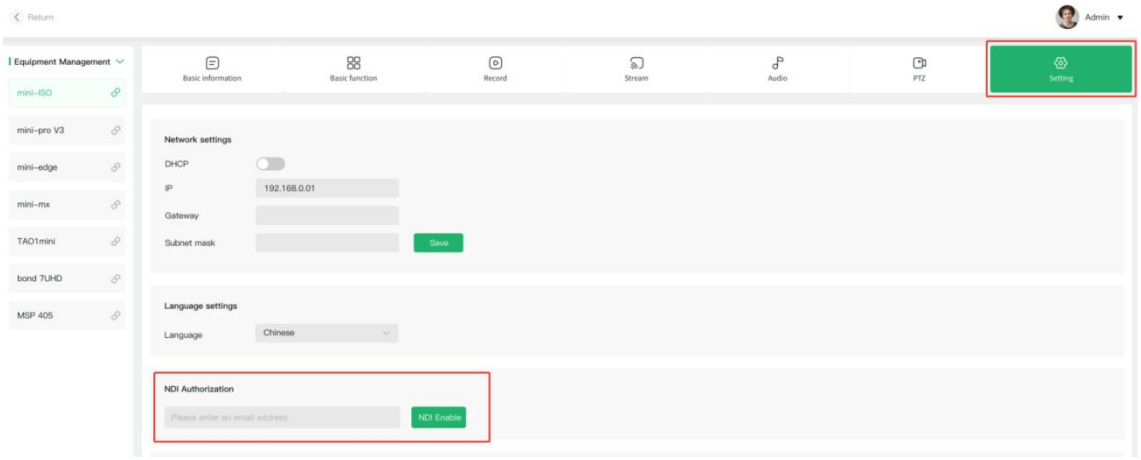
2. For IN5, there are NDI, Media and UVC to select.



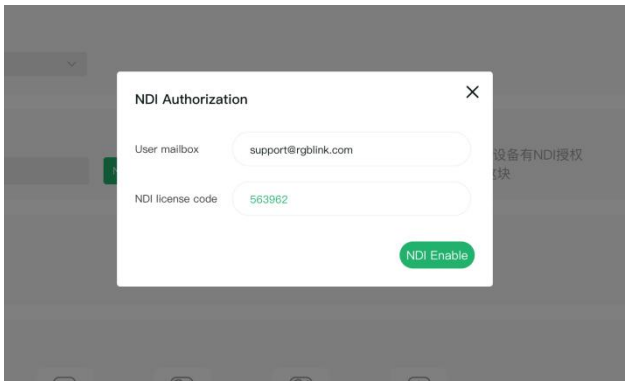
2.1 NDI Decoding

a. The NDI decorder is not available by default. If the NDI source is needed for IN5, users need to bind mini-ISO to TAO Cloud(https://www.taolive.com) in advance.

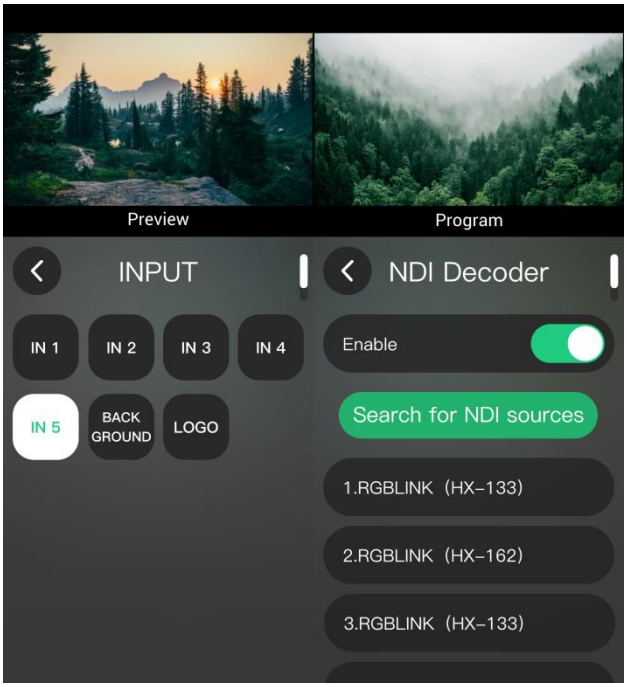
b. Follow the steps in Section 3.10.3 TAO Cloud to bind mini-ISO to the TAO Cloud and go to enable NDI under the device setting interface.



c. Enter a valid mail to receive the NDI authorization code and click “NDI enable”. Then the NDI decoding function of mini-ISO is activated.



d. Back to mini-ISO's NDI interface. Users can enable the NDI decoder and search for NDI sources：



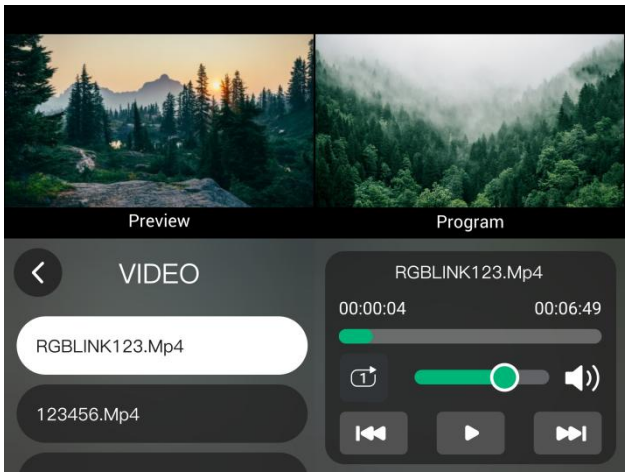
2.2 Media Playback

a. Set a folder named mini-iso and set a sub-folder named Video where you store the mp4 videos to be played.

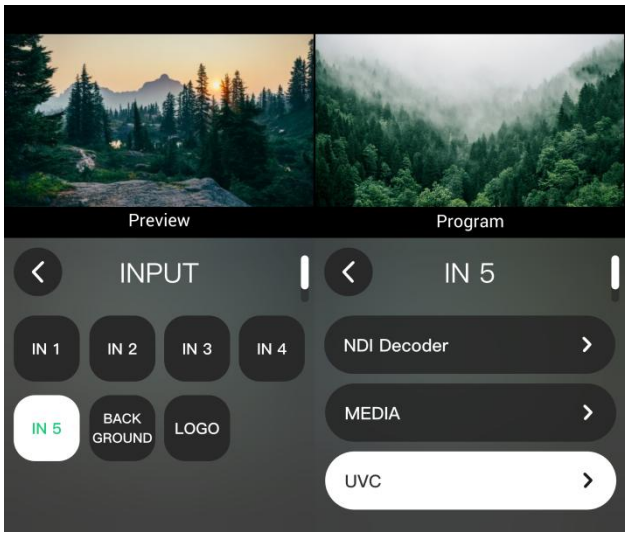
Note: mp4 format, supporting 2K resolution and below.

b. Insert the USB disk in to the RECORD port and select “MEDIA” under IN5. Then you can check and play the video you've stored.

c. You can select playback mode, adjust volume, switch to previous/next video.



2.3 Click “UVC” to enter the USB Camera interface, you can click to turn on or off the camera input.

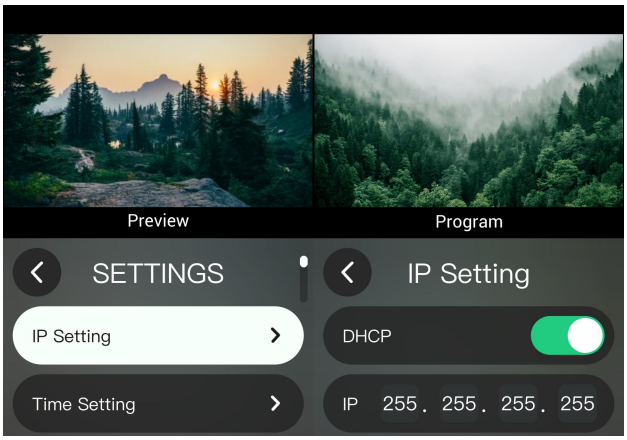


3.2.2 Add Graphics via Web App

You can enrich your content production by adding graphics via the Web App.

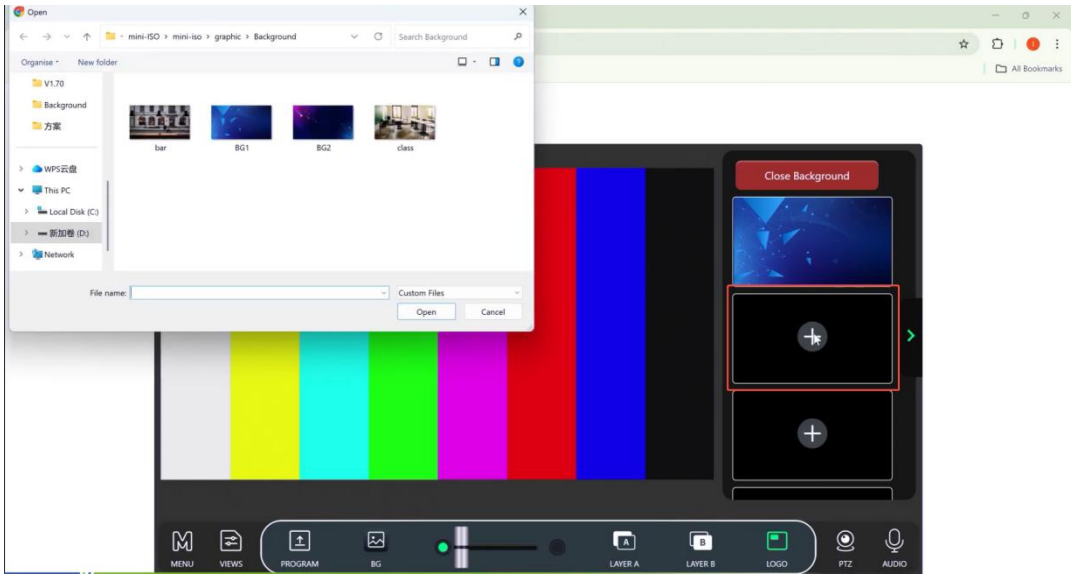
Add Background:

1. Enter the IP address on your browser (make sure you've already connected the Ethernet port before viewing IP).

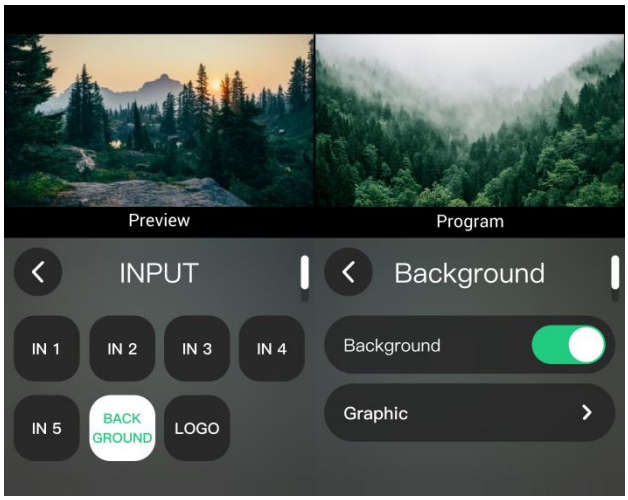


2. Click the BG icon on the web panel and click “Show Background”.

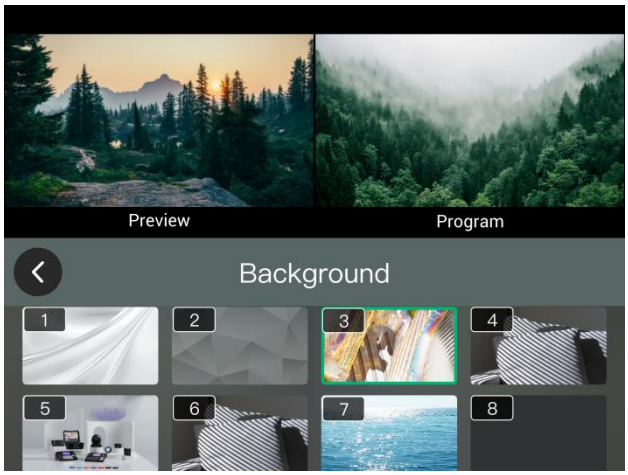
3. The right-side column will display the uploaded backgrounds. Click “+” to upload local backgrounds.



4. Back to the input interface, select BACKGROUND and enable it.

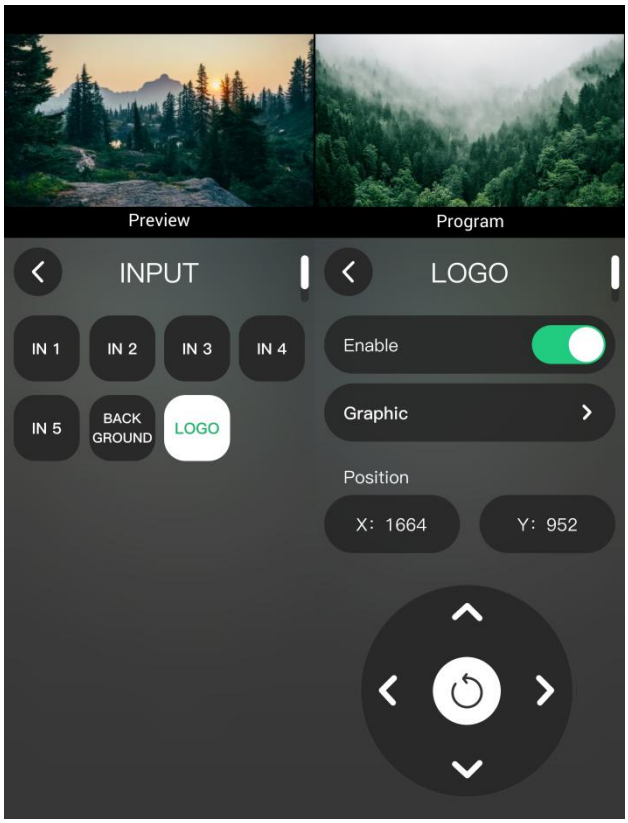


5. Tap “Graphic” to see the uploaded background and choose a background to apply.



Add LOGO:

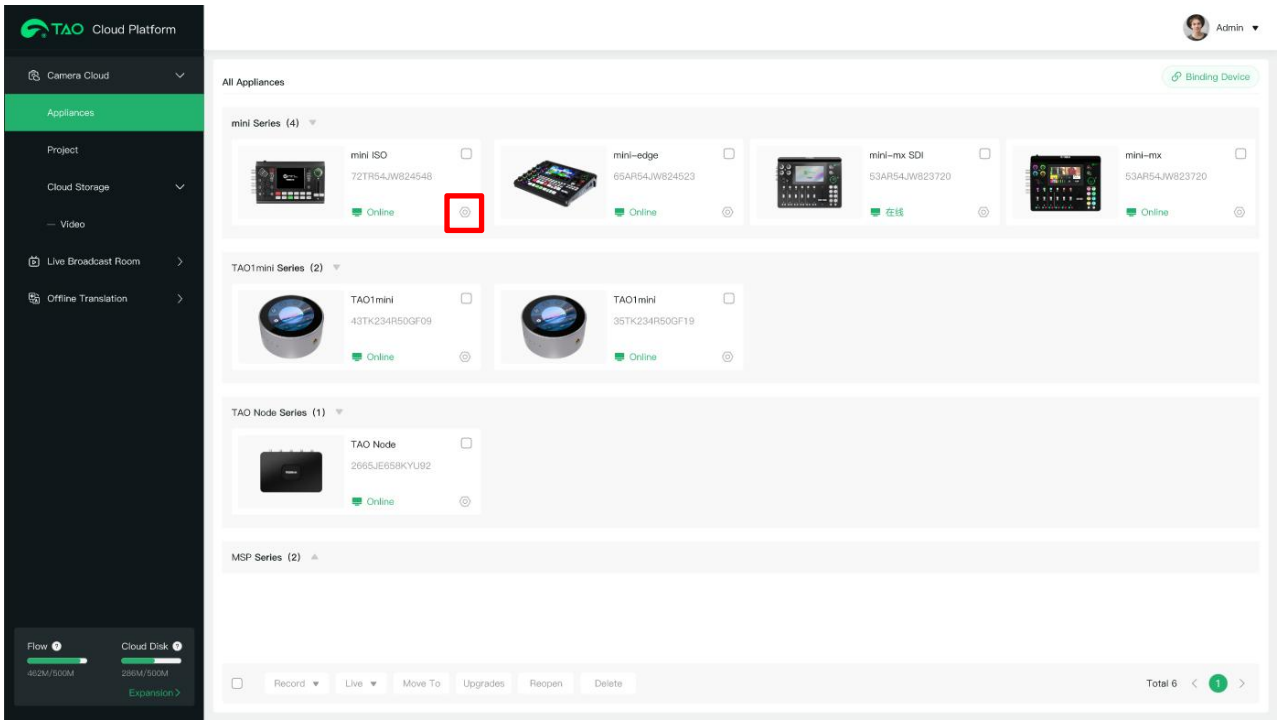
1. The operations of adding LOGO into mini-ISO are the same as adding backgrounds. Click the LOGO icon on the Web App. Then back to the INPUT interface of mini-ISO and choose the LOGO to be applied.



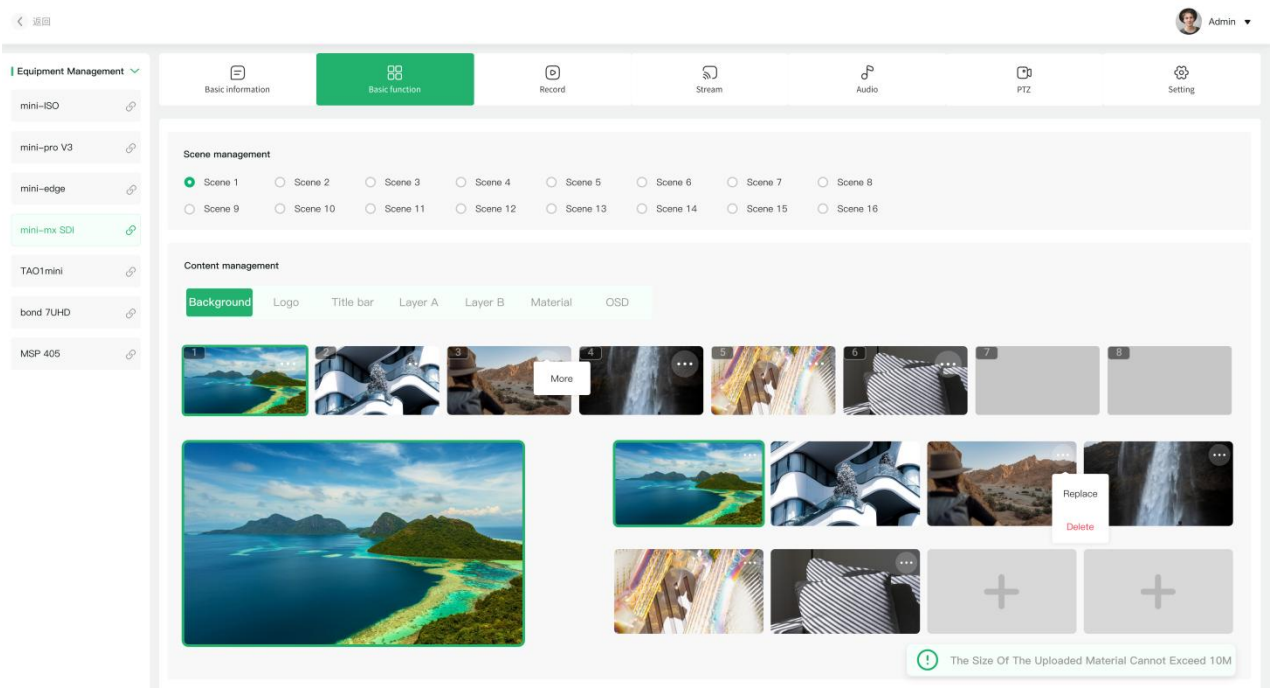
2. After selecting a LOGO, you can adjust the LOGO position using the panel on the screen. Besides, you can use the joystick to adjust the position.

3.2.3 Add Graphics via TAO Cloud Platform

1. After binding mini-ISO to the TAO Cloud, you can also add materials via TAO Cloud Platform. After the logging in, click “My Collection” > “Device” > click the setting icon of mini-ISO.

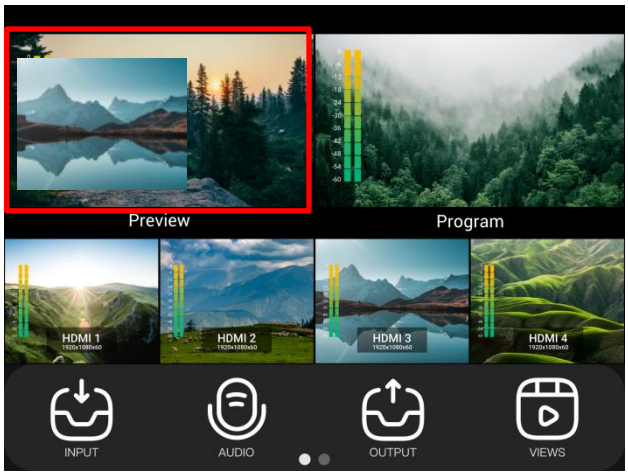


2. When entering the device management interface of mini-ISO, click “Basic Function”. You can select a view and finish the upload and adoption of different materials under the content management area.



3.3 PIP/Scale

When the MENU is not enabled and the input signal monitoring windows is not yellow (With layer A as the main screen), press button "B" to open layer B and enable the PIP function. Then you can resize the layer using the Zoom in/out buttons and adjust the position using the joystick.



3.4 Source Transition

3.4.1 Switch Mode

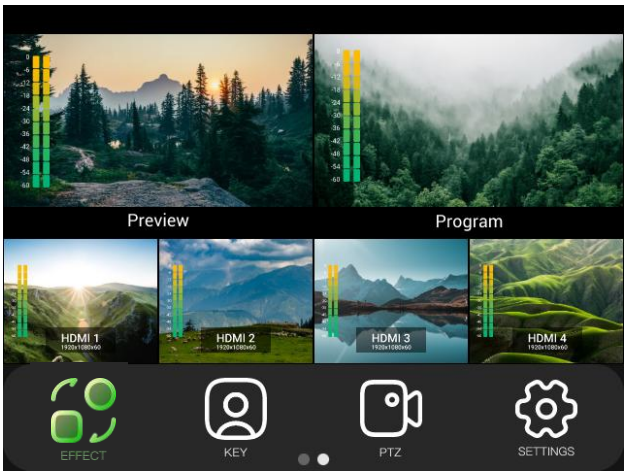
mini-ISO provides two switch modes: CUT and AUTO. mini-ISO defaults to AUTO mode and users can switch modes as needed.

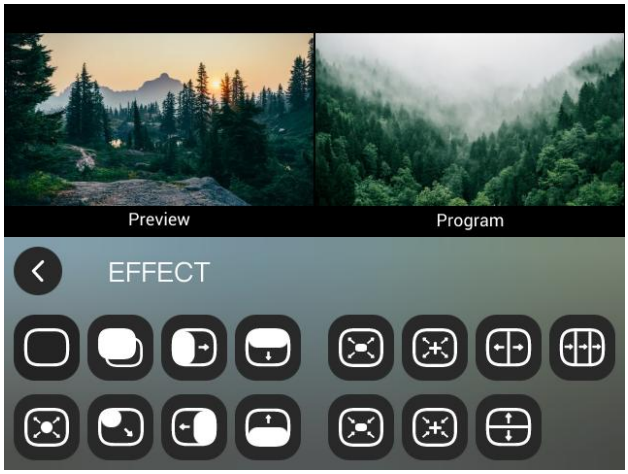
1. mini-ISO supports CUT mode. After the setting, the signal sources will be switched directly without transition effects.

2. mini-ISO supports AUTO mode. On some important occasions, you may need to preview and preset the next view to ensure the accuracy and stability of the screen. After enabling the AUTO mode, you can preview and edit the next view on the PVW window. After the editing, slide the T-BAR to switch between Preview and Program according to the configured transition effect.

3.4.2 Transition Effects

The transition effect of mini-ISO is by default 0.5 seconds of fast fading in, which is achieved simply by pressing “AUTO”. Press “CUT” to quickly switch the views without any transition effects. If you want to use more transition effects, you can press the touch screen’s “Effects” to enter the effects selection interface including fade and various other effects.



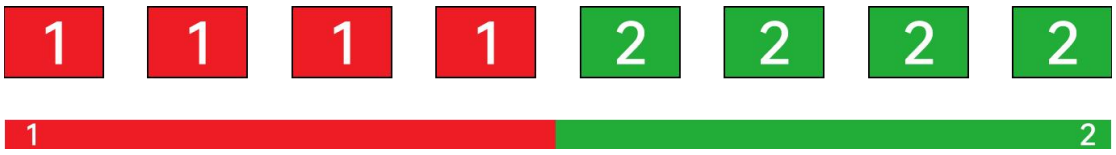


You can select the desired transition effects by referring to the following table.

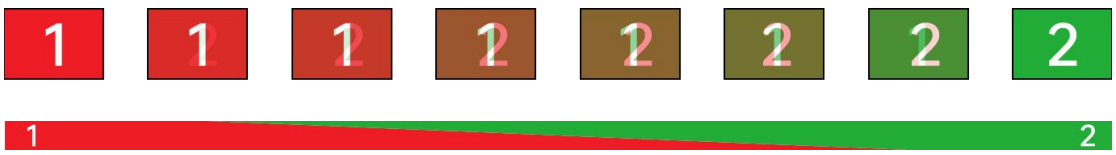
	Cut
	Fade
	Box Outwards
	Wipe to Right
	Wipe to Bottom
	Wipe to Bottom Right

	Cross outwards
	Wipe to Left
	Wipe to Top
	Center Split
	Center Split Vertical
	Cross Inwards
	Blinds Vertical
	Box Inwards
	Centric Spread

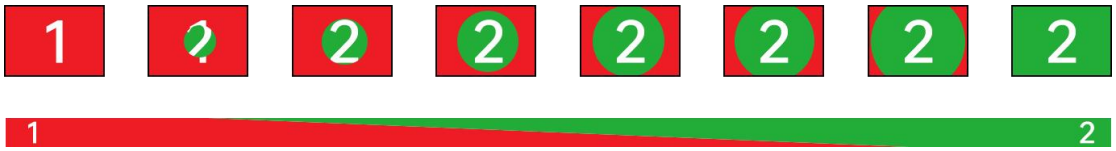
-  CUT: The Picture 1 switches to Picture 2 instantly with no transition effect.



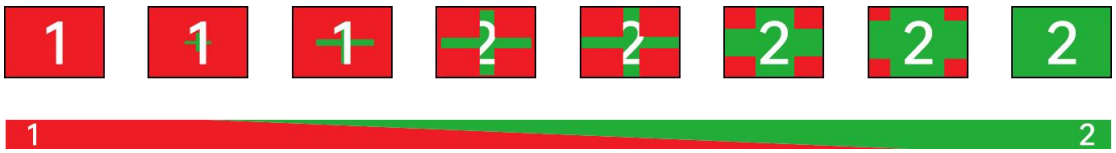
-  FADE: FADE is a transition from Picture 1 to Picture 2 and two pictures are blended together during switching process.



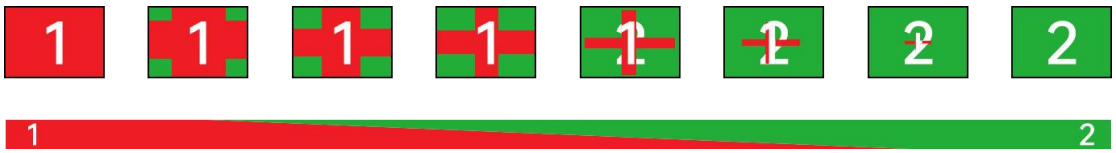
●  Centric spread： Centric spread refers to replacing Picture 1 by Picture 2 and is achieved by using a circle pattern growing from the center and progressing outward.



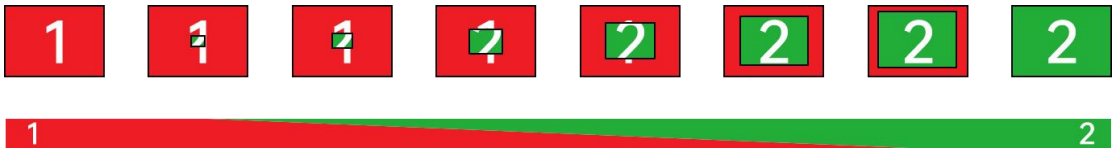
●  Cross outwards： Cross outwards refers to replacing Picture 1 by Picture 2 and is achieved by using a cross pattern growing from the center and progressing outward.



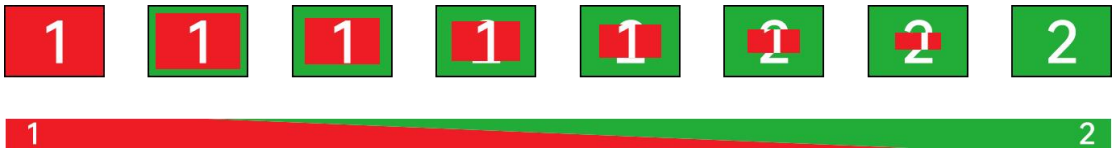
●  Cross Inwards: Cross Inwards refers to replacing Picture 1 by Picture 2 and is achieved by using a cross pattern closing in from the edge towards center.



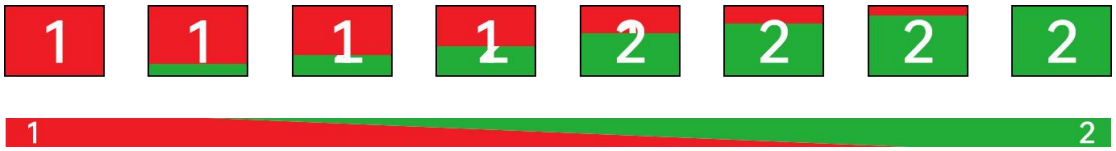
●  Box outwards: Box outwards refers to replacing Picture 1 by Picture 2 and is achieved by using a box pattern growing from the center and progressing outward.



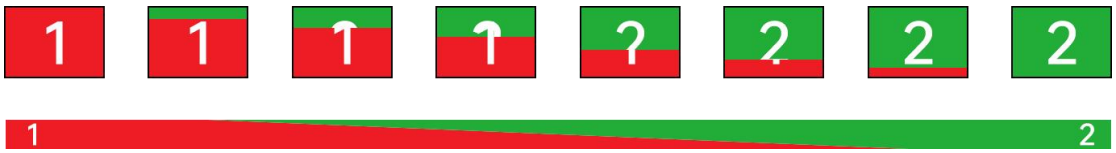
●  Box Inwards: Box Inwards refers to replacing Picture 1 by Picture 2 and is achieved by using a box pattern closing in from the edge towards center.



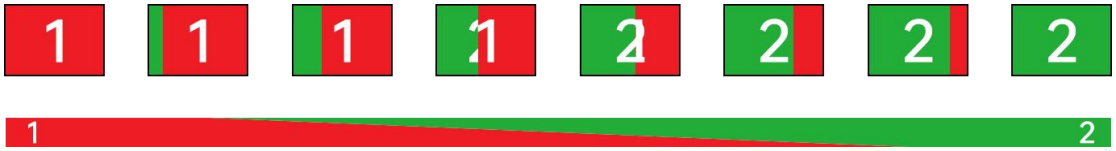
●  Wipe to Top：Picture 1 is unchanged, and Picture 2 is gradually wiped in to replace Picture 1 from the upward direction.



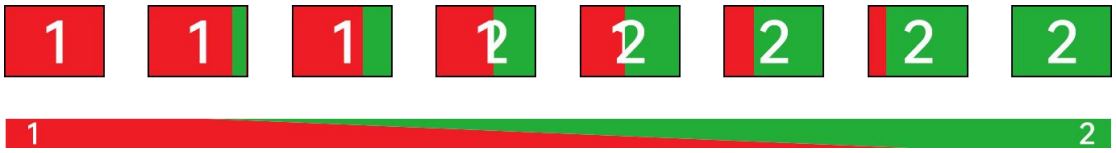
●  Wipe to Bottom： Picture 1 is unchanged, and Picture 2 is gradually wiped in to replace Picture 1 from the downward direction.

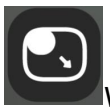


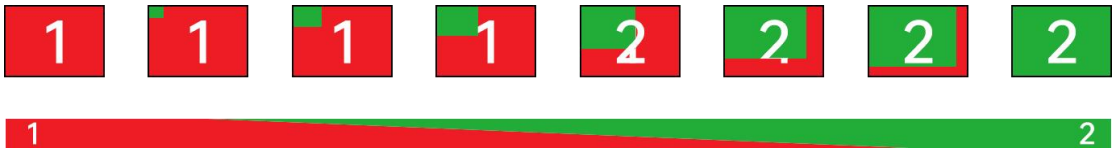
●  Wipe to Right： The Picture 1 is unchanged, and Picture 2 is gradually wiped in to replace Picture 1 from the rightward direction.。



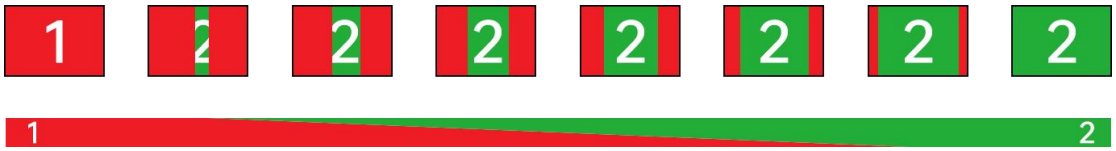
●  Wipe to Left：Picture 1 is unchanged, and Picture 2 is gradually wiped in to replace Picture 1 from the leftward direction.



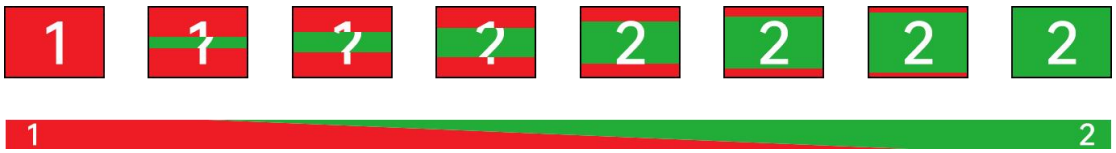
●  Wipe to Bottom Right：Picture 1 is unchanged, and Picture 2 is gradually wiped in to replace Picture 1 from the diagonal direction.



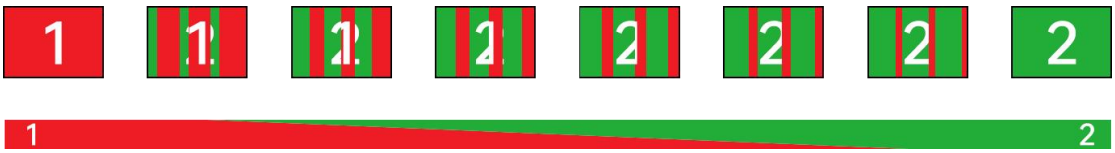
●  Center Split Vertical: The Picture 1 is unchanged, and the Picture two grows from the center and extends vertically.



●  Center Split Horizontal: The Picture 1 is unchanged, and the Picture 2 grows from the center and extends horizontally.



●  Blinds opening: Picture 1 is unchanged and Picture 2 is split into three slices moving from left to right and gradually expanding to fill the screen.

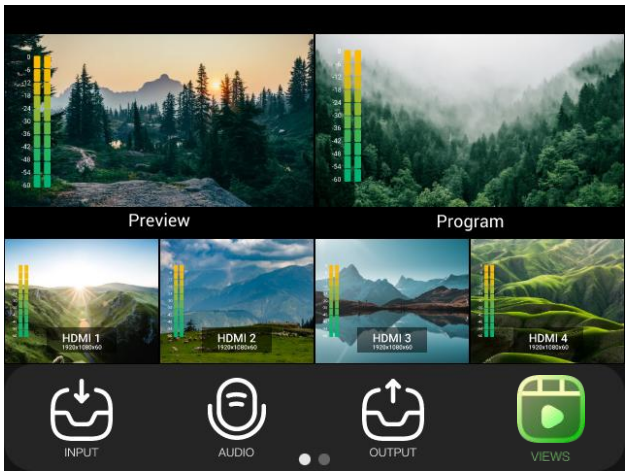


3.5 Saving and Quick Recall of Preset Views

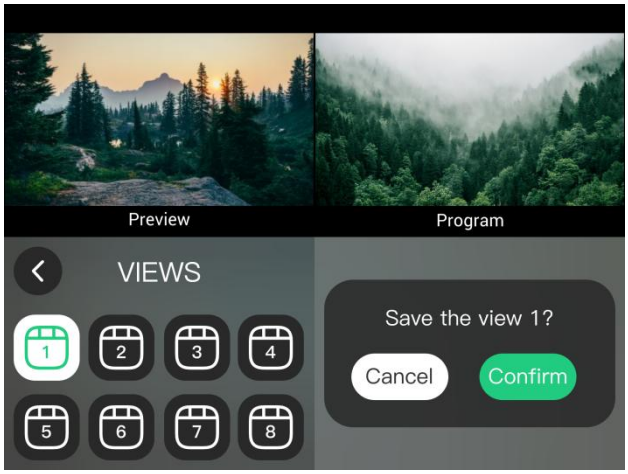
The mini-ISO supports saving views in real time. Of course, if you want to quickly call up a previously set view the next time you use it, you can first save the currently set effect to the corresponding view.

The preset will save all the parameters of the current setting, including the picture-in-picture effect, keying effect, input source, PTZ saved view, etc. When you need to call the preset, you only need to tap the view button.

1. After setting the effect, please tap the “M” key and find the VIEWS icon to enter the view saving interface.



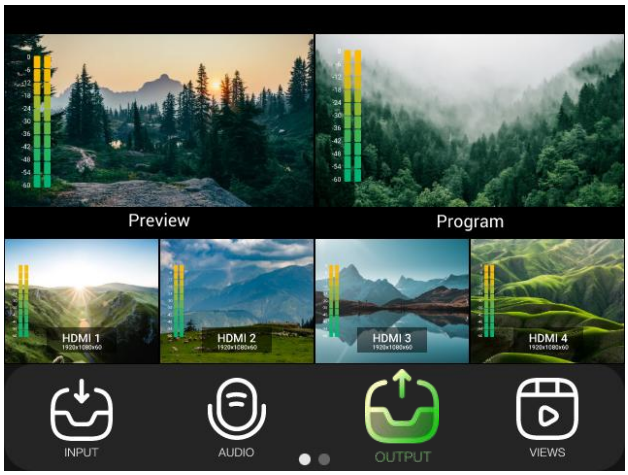
2. Tap the arrow on the right side to enter view saving interface, you can save the current view to the corresponding stored views 1-8.



4. If you still need to modify the picture-in-picture after calling the preset, you can directly select the corresponding signal by the signal source button, and adjust the position of the screen by the joystick. All the readjusted settings will be saved in real time to ensure that you can use them directly when you turn on the computer next time.
5. If you want the modified content to be able to be recalled through the view, you need to re-save it to the current view or a new view. Please just repeat the save operation above.

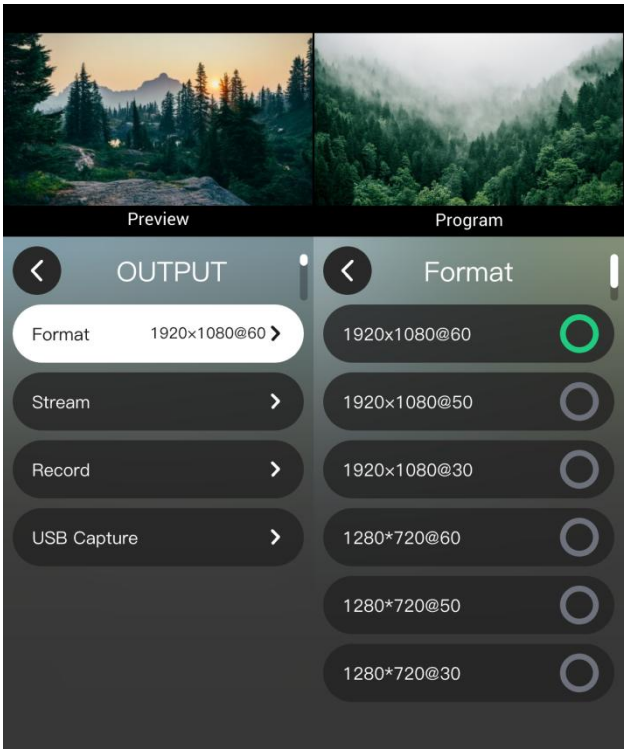
3.6 Video Output Settings

Tap the “M" key to start the main menu. Tap "OUTPUT" to enter the output setting interface, where you can set the main output, live broadcast, recording, capture and so on.



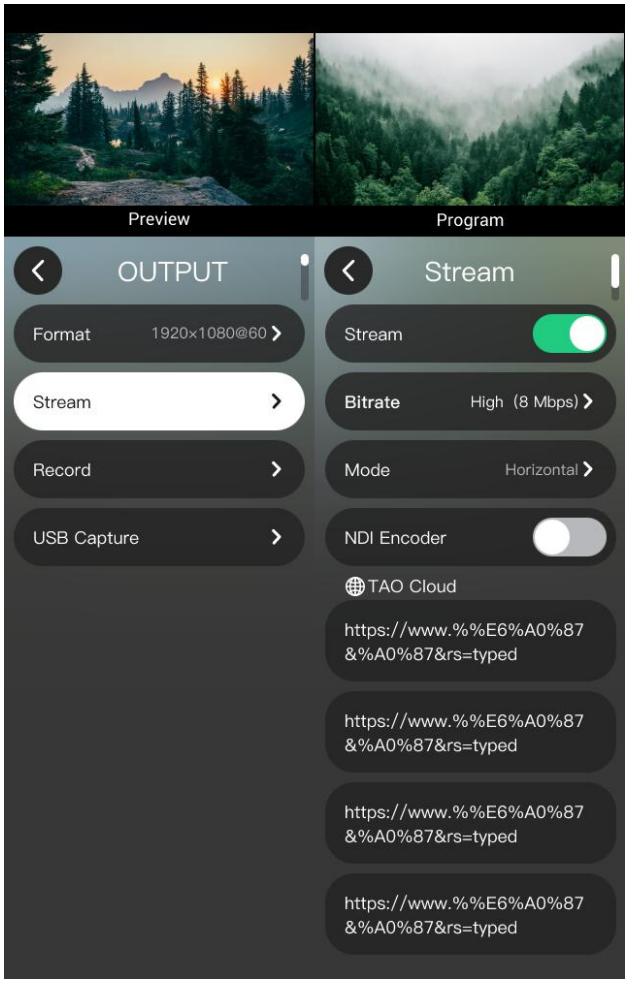
3.6.1 Resolution

Tap “Format” to set the output resolution as shown:



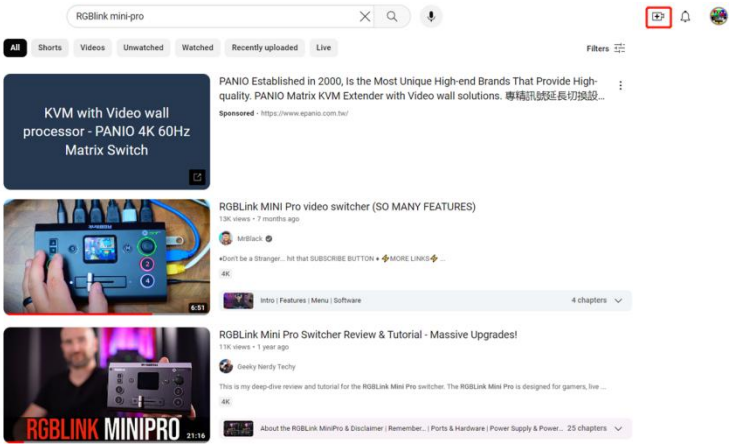
3.6.2 Streaming on Device (take YouTube Live as an Example)

Tap “Stream” on the interface and you can see the streaming information. It's up to you to select the bit rate and output mode, turn on or off the NDI encoding, view the address information of the stream, and check whether the device is connected to the TAO Cloud account or not, as shown in the following figure.

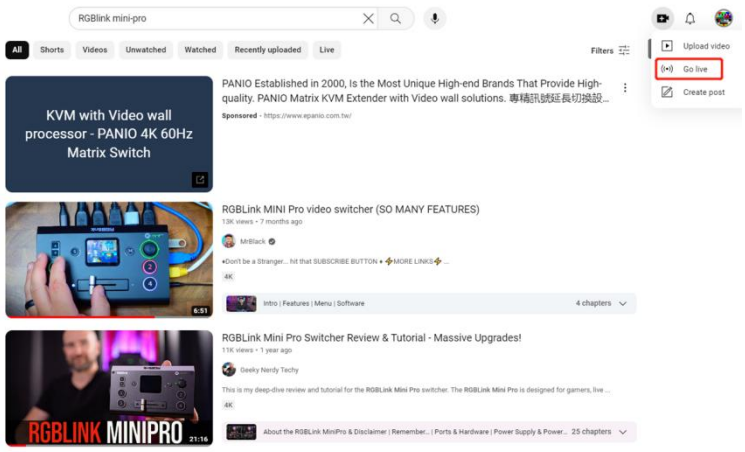


In above operations, mini-ISO has been connected to the network. Then TAO cloud can assign a streaming address. To stream the content to a platform, proceed as follows. This section takes YouTube Live as an example.

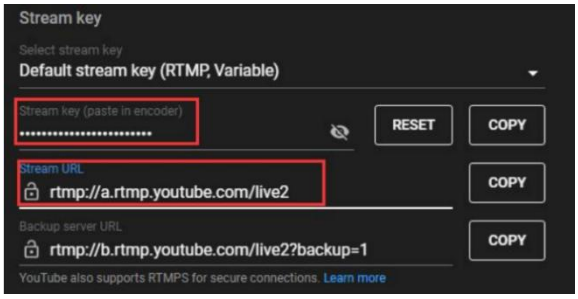
1. Log in your YouTube account on your computer;
2. Click the camera icon in the top right corner to create a video.



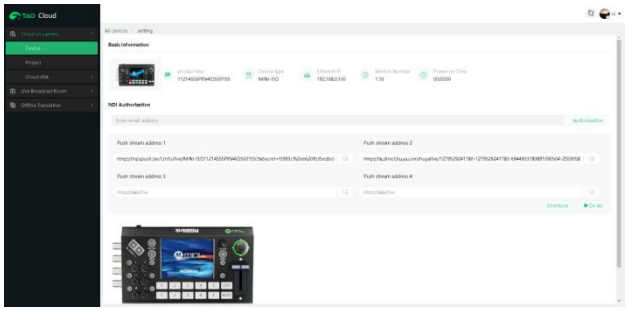
3. Select “go live”.

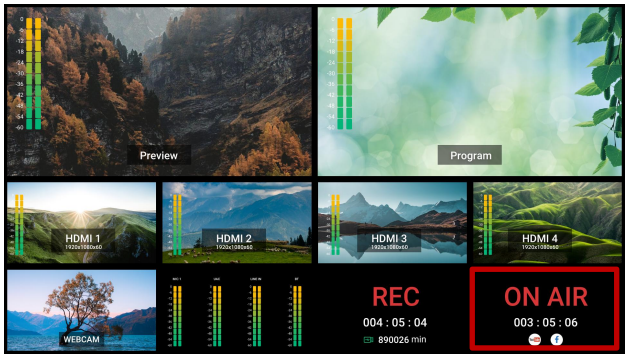


4. Type in a title and add a description in the dialogue box, click “create stream” and then copy the Stream URL and Stream Key.

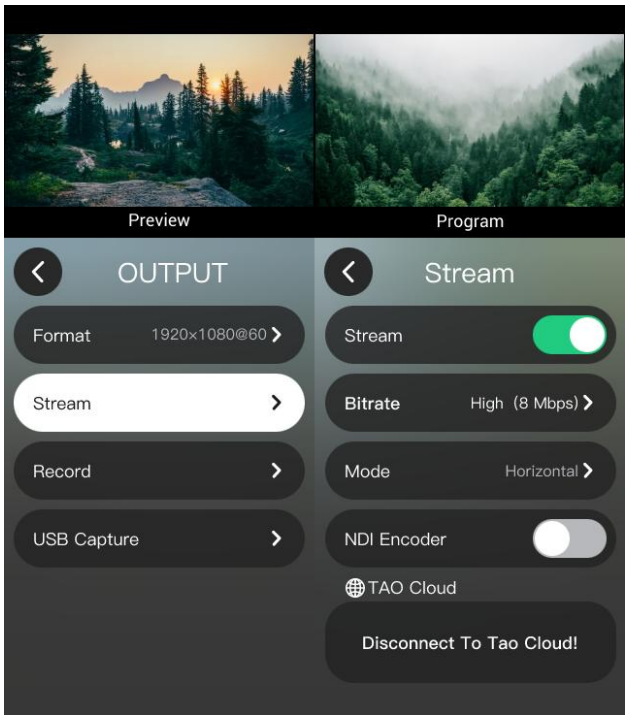


5. Open TAO Cloud, connect it to the mini-ISO device, fill in the copied Stream URL/Stream key into the “Push Stream Address Box”, click “Send”, and the mini-ISO device will automatically recognize the push stream address. After the live streaming, the “ON AIR” box in the main interface will have a red border.





6. mini-ISO supports streaming up to 4 platforms at the same time. Turn on “Stream” on STREAM interface or SHORTCUT interface to start streaming. mini-ISO can restream via TAO Cloud to up to 32 platforms.



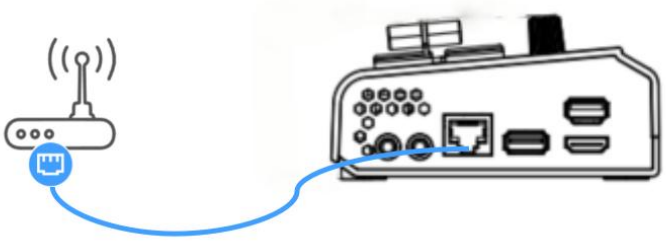
Users can adjust the bitrate and mode of the video live stream according to the actual situation. For example, if the network speed is slow, the bitrate can be switched to a lower level.

3.6.3 TAO Cloud Streaming

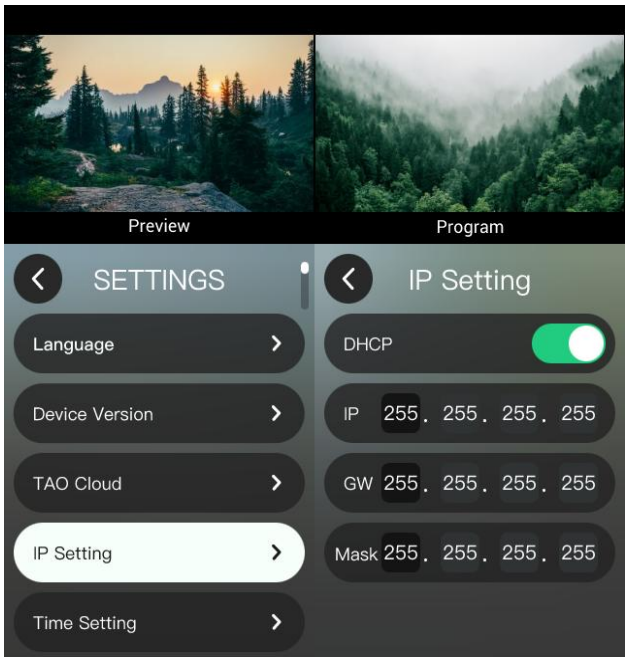
TAO Cloud Binding

mini ISO can stream to 4 platforms and restream to 32 platform after binding to TAO Cloud. Touch TAO Cloud in the setting menu to enter the following interface. You can bind a video device, such as a mini-ISO, to TAO Cloud to realize efficient content production and creation.

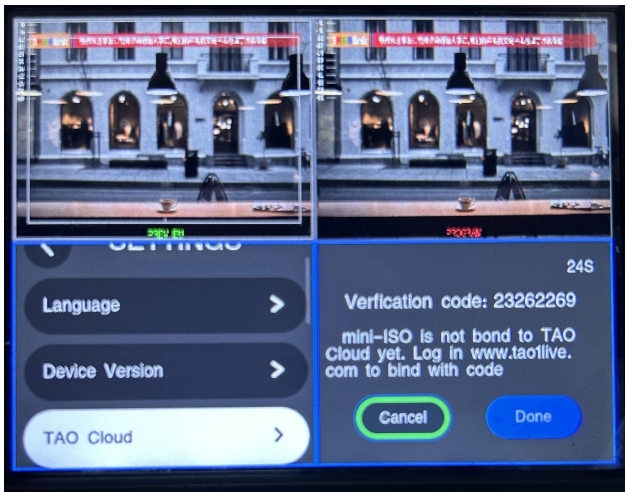
1. Use a network cable to connect the mini-ISO to the Ethernet.



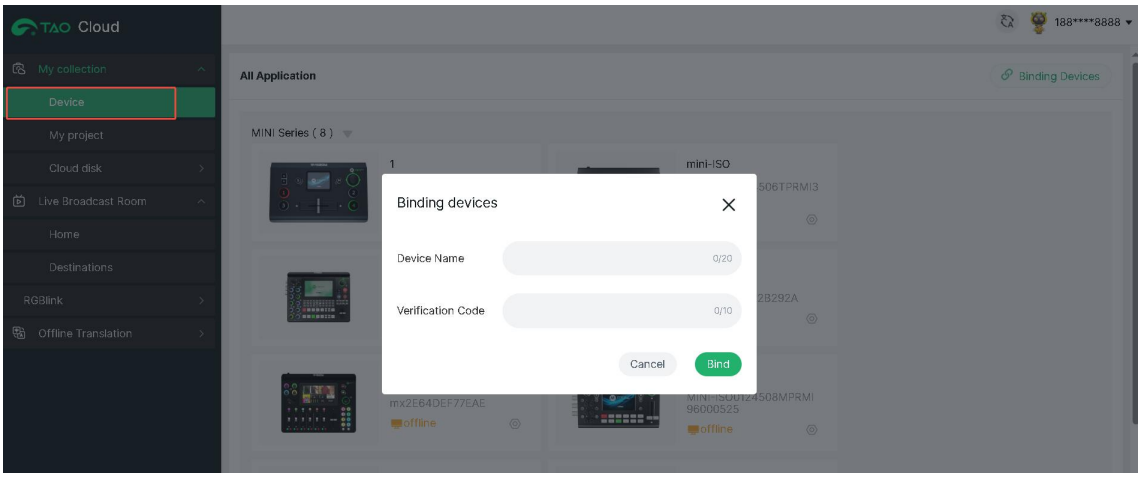
2. Go to Settings > IP Settings to access the following interface. Enable DHCP to automatically obtain an IP address. The mini-ISO can only connect to Ethernet and bind to TAO Cloud once the interface displays an IP address assigned by the router.



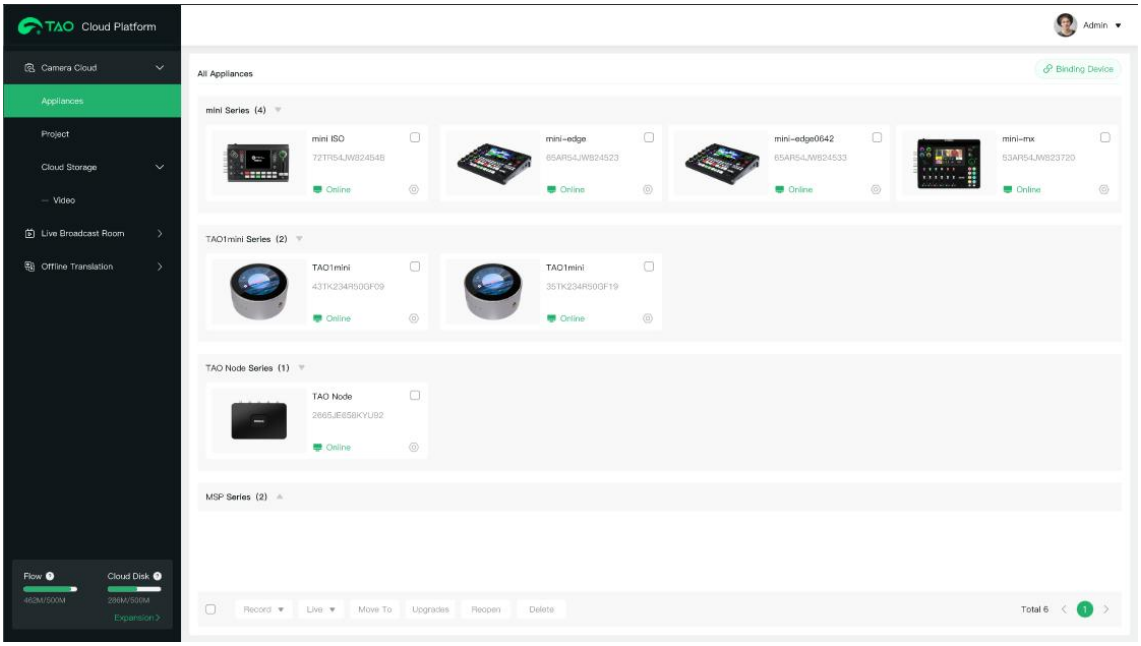
3. Go to Setting > TAO Cloud to enter following interface and get the verification code.



After entering TAO cloud platform, click “Device” > “Binding Device”, enter the device name (support customization) and verification code, and then click “Bind”.



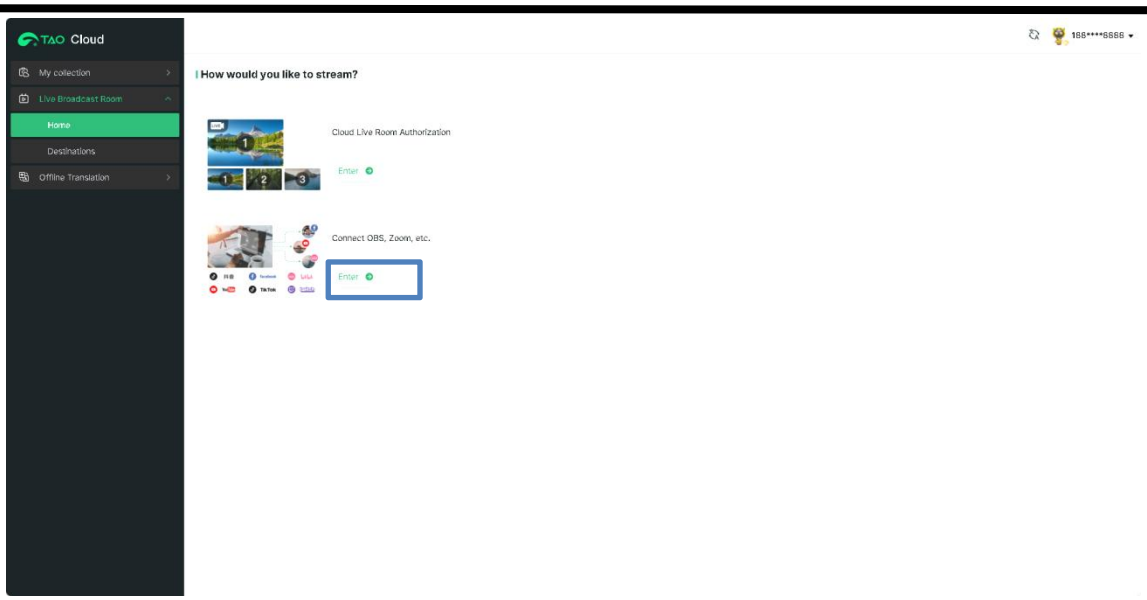
You can check the binding status of the device in the TAO Cloud Platform interface.



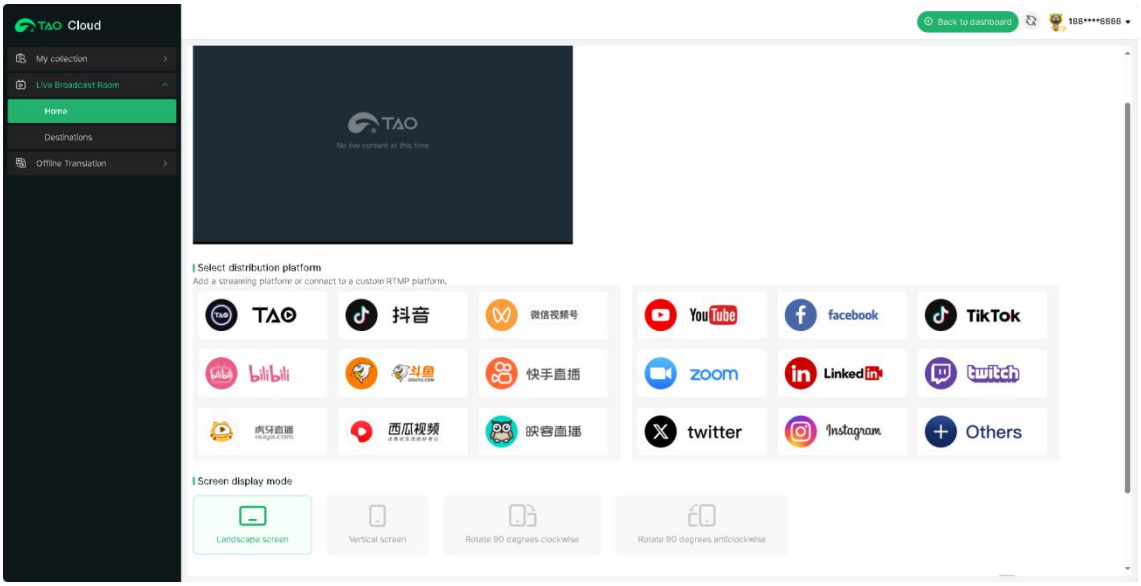
If you want to unbind, Go to mini-ISO Setting > TAO Cloud again and select "Rebind".

Multi-platform Streaming

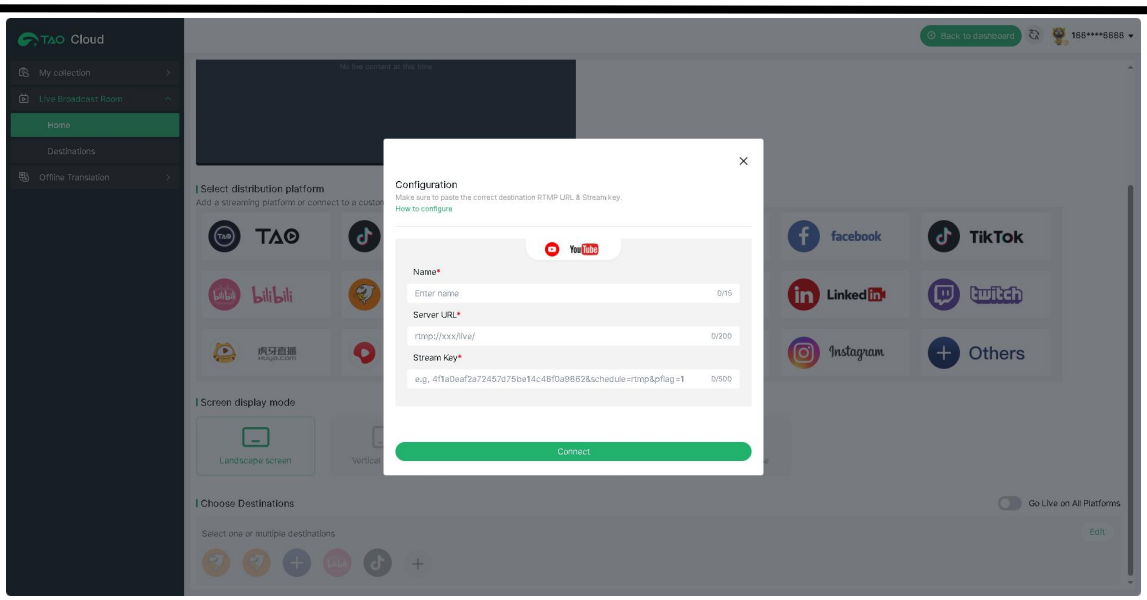
1.Click "Home" on the navigation bar and click "Enter"to enter the streaming platform setting interface.



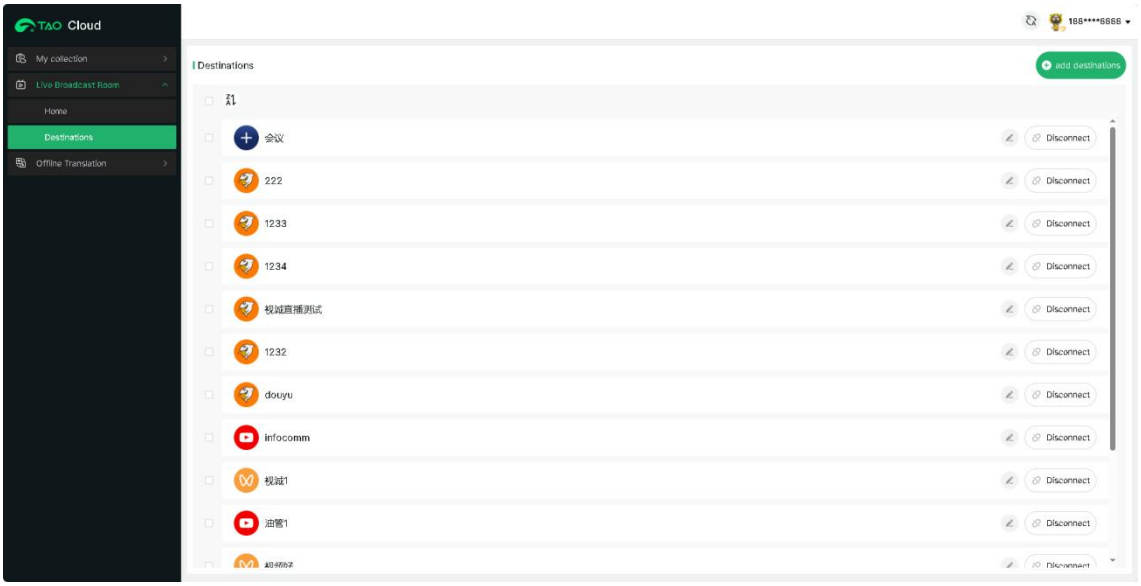
2.For the convenience of the users, the TAO Cloud provides the common streaming platforms worldwide. Users can click the platforms to be streamed or click "Others" to add a new platform. Users can also select the screen display mode on this interface.



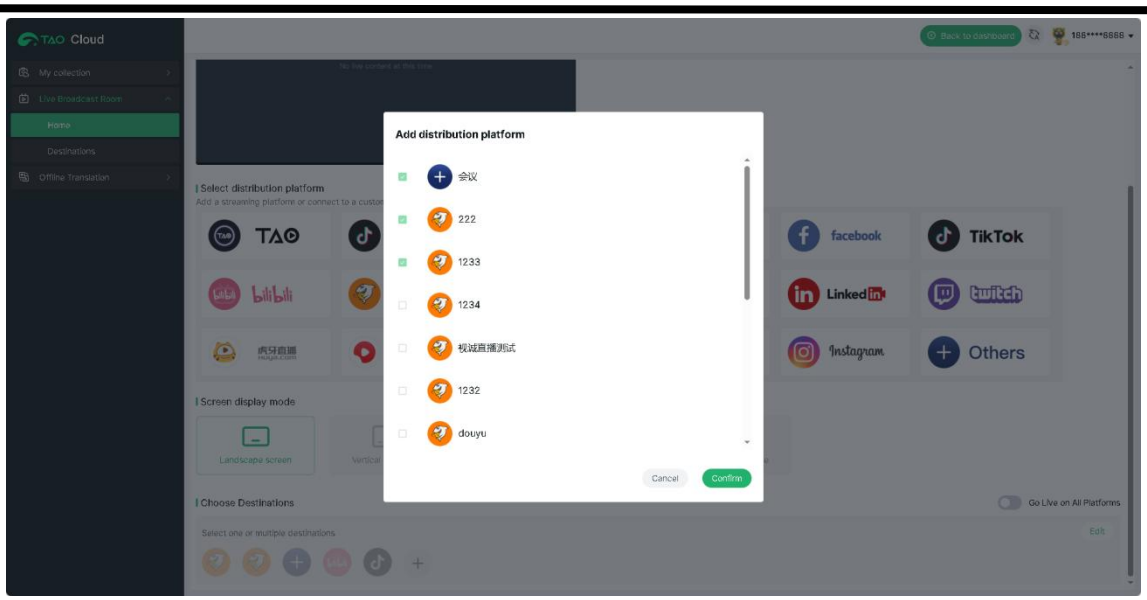
3.A setting interface will pop up after clicking any platform. Please enter the studio name (customizable), streaming address and streaming key as the the box informed. Then click "Connect".



4.To manage the studios already set, click “Destinations” on the navigation bar and enter the management interface.



5.With all these done, press “+” on the “Choose Destination” column to add platforms to be distributed. The icons of the added platforms will be displayed. Users can click any icon to stream the content or simply click “Go Live on All Platforms” to stream the content to all the added platforms.



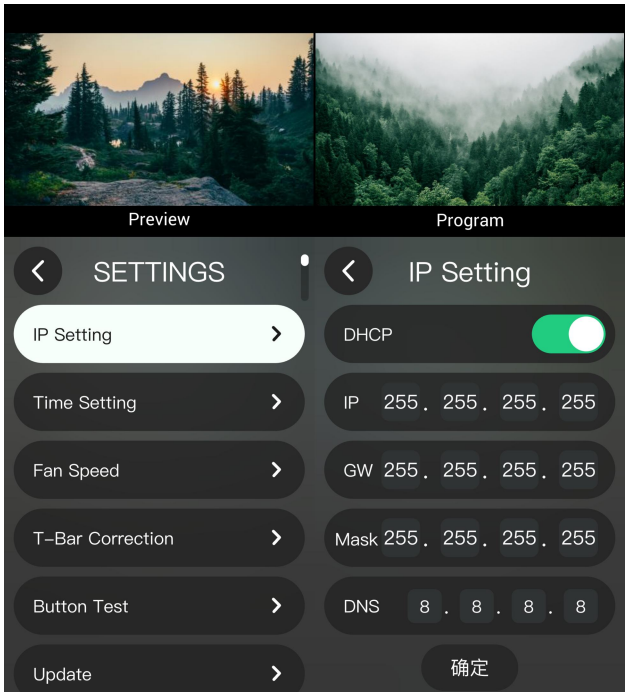
3.6.4 Controlling PTZ Camera During Live

To enable PTZ camera and live push streaming to work at the same time, you need to set PTZ camera, mini-ISO and network in the same network segment, and turn on the DHCP switch of mini-ISO at the same time. If there is no IP conflict, leaving DHCP turned off will not affect the live streaming result.

Touch the “IP Settings” icon in the “Settings” menu to enter the following interface, where users can **set the IP address by rotating the ENTER knob.**

IP Address: There are two ways to get an IP address, including dynamic (IP configured by the router) and static (IP freely set by the user).

Dynamic: Connect the mini-ISO to a router with the DHCP function. Turn on the DHCP switch of the device as well as the DHCP switch of the router, then the mini-ISO will obtain an IP address automatically.

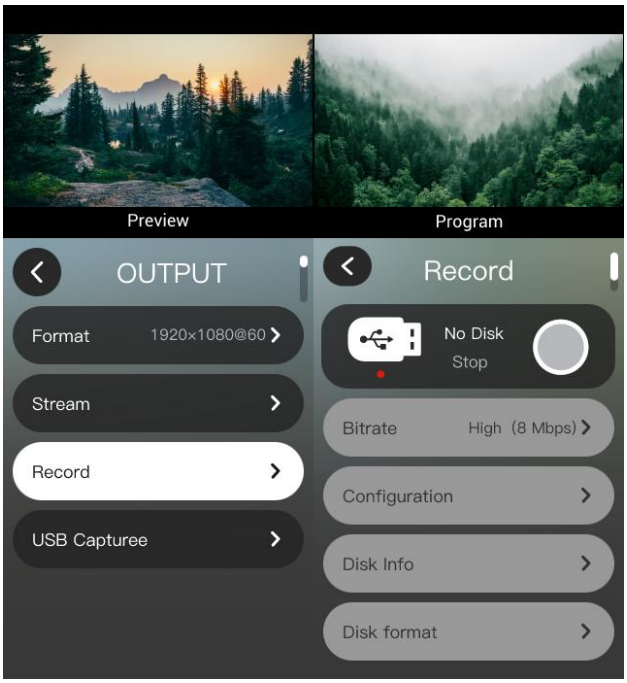


Static: If the DHCP IP distribution function is not used, users can manually set a static IP by turning off the DHCP switch.

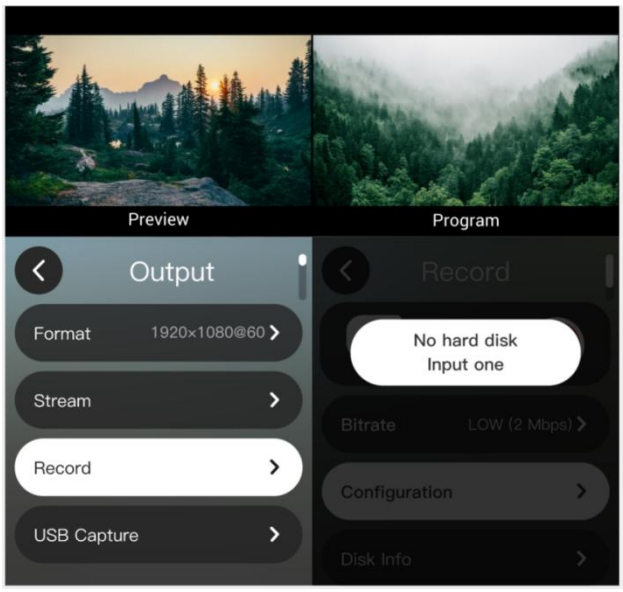
3.6.5 Record

Tap “Record” to record the output video as follows:
mini-ISO supports recording streaming content to an external SSD or U disk via USB interface. The maximum capacity of SSD is up to 2T, the maximum capacity of U disk is up to 64G, and the supported formats are FAT32 and exFAT. A video will be segmented every 4G automatically and the duration of each segment is about 60min when the bitrate is 6Mbps.

Insert the USB flash disk into the USB recording port of the mini-ISO with the RECORD silkscreen. Format your hard disk or USB flash drive before using the recording function. To format the hard disk on the mini-ISO, proceed as follows:
Touch “Record” to enter the recording setting interface to check the status of the hard disk and set the related parameters.



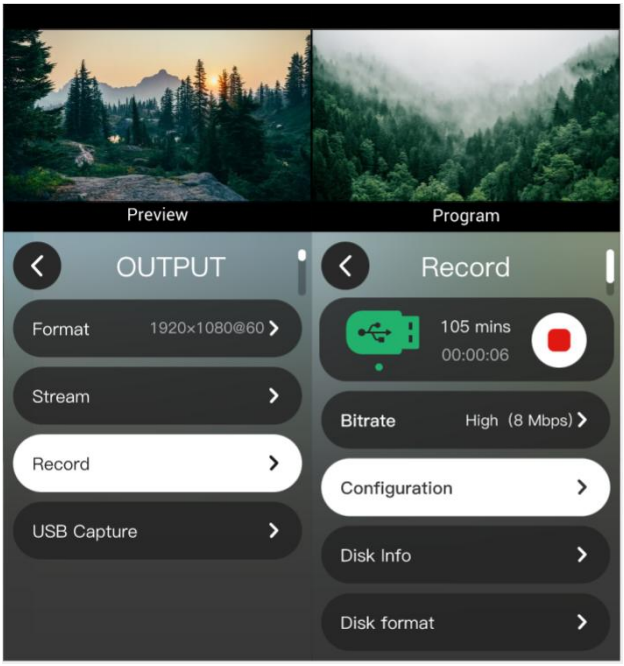
The mini-ISO will automatically recognize whether a USB flash drive is inserted or not. If no USB flash drive is inserted, the recording function can not be used.



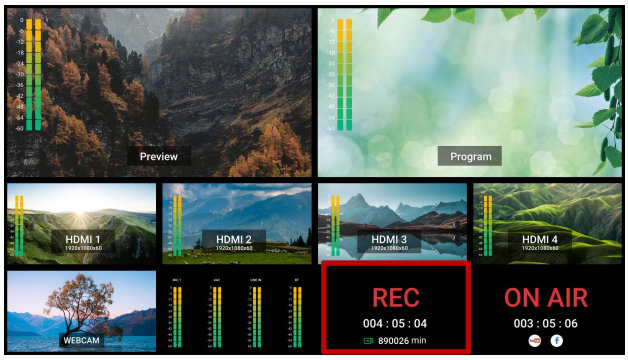
In the “Recording” interface, click “  ” to choose whether to start recording and adjust the quality of the picture.

Notes:

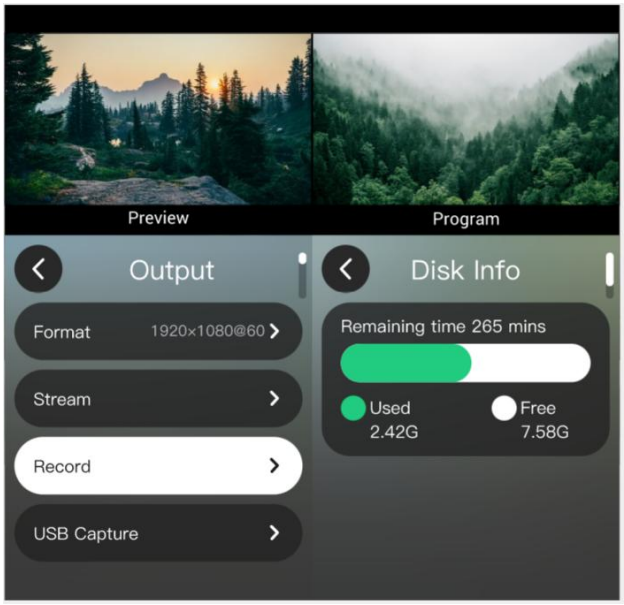
1. **Remove the U disk only when the recording process is completed.** Low quality recording bitrate is 2Mbps; Medium quality recording bitrate is 4Mbps; High quality recording bitrate is 8Mbps; Best quality recording bitrate is 16 Mbps.



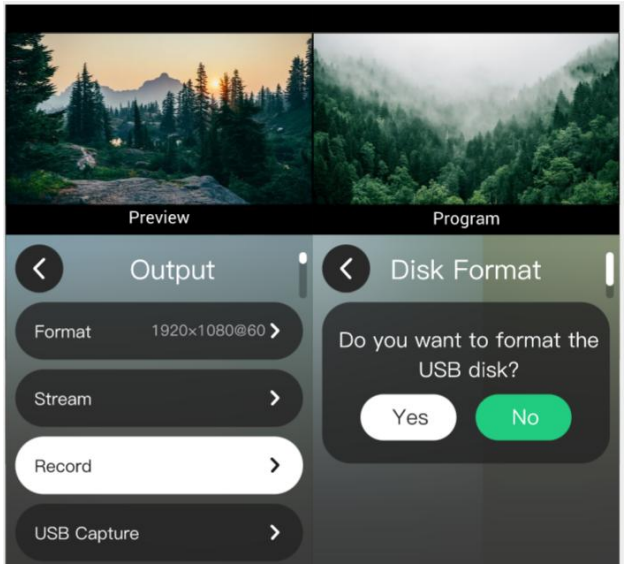
During the recording, the “REC" box on the main interface will have a red border.



Click “Disk Information” Disk Info, mini-ISO will automatically read the used capacity and the free storage capacity of the USB flash drive.



Click on “Format Disk Disk Format": On Windows computers, set the file system to “exFAT” and the allocation unit size to 128kb > Click on “Format Disk”. “ > “Yes” to complete the disk formatting operation.

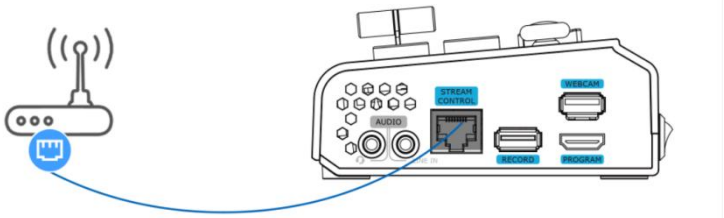


Notes:
If the computer does not recognize the USB flash drive when it is plugged in, you will need to use a dual-ended USB to power the drive.

When inserting the U disk into your computer, you can check the recording videos on the folder named “record” under the product folder. Note that if you mini device is not connect to the Ethernet while recording, the recording file may not display the correct time information.

No time info displayed when there's not network connection

To connect mini-ISO to the Ethernet, use a network cable to connect the Ethernet port of mini-ISO and the LAN port of a router.

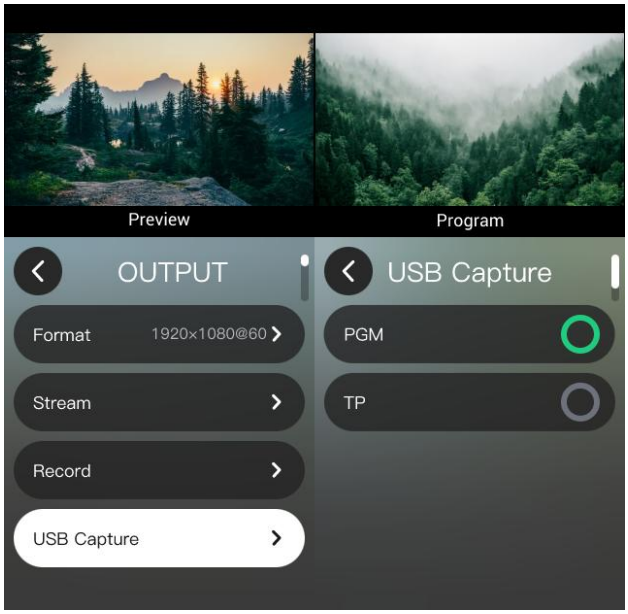


Go to Setting > IP Setting. Enable the DHCP to get the IP address allocated by the router. Now your mini device is connect to the Ethernet and the file recorded will show the correct recording time.

Recording time displayed when connected to the network

3.6.6 USB Capture

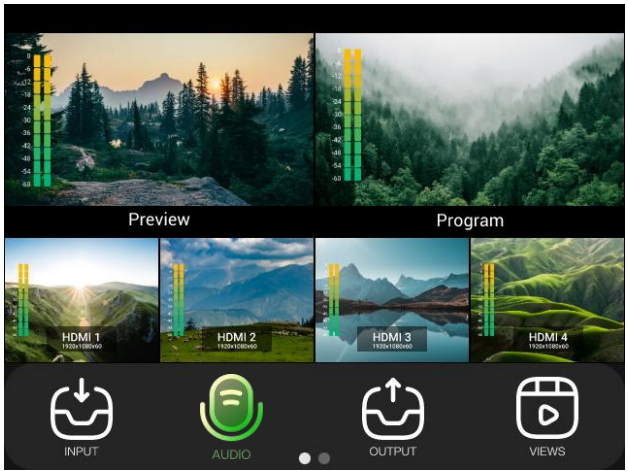
Touch "USB Capture", and you can select the video signal of PGM and TP to capture. The signal of mini-ISO is captured by the computer via OBS software.



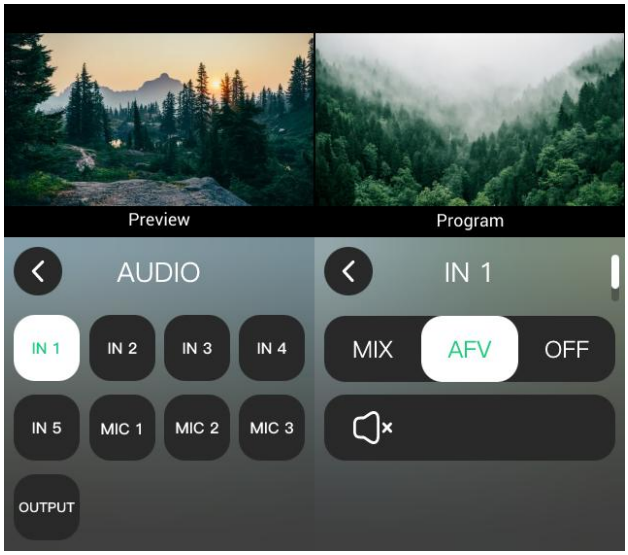
3.7 AUDIO

Users can nudges the volume knobs on the front panel to adjust the volume.

After pressing the “M” button to return to the main menu, touch “AUDIO” to enter the sound setting interface. You can choose to turn on or off the audio output, and also adjust the volume level by sliding the module.

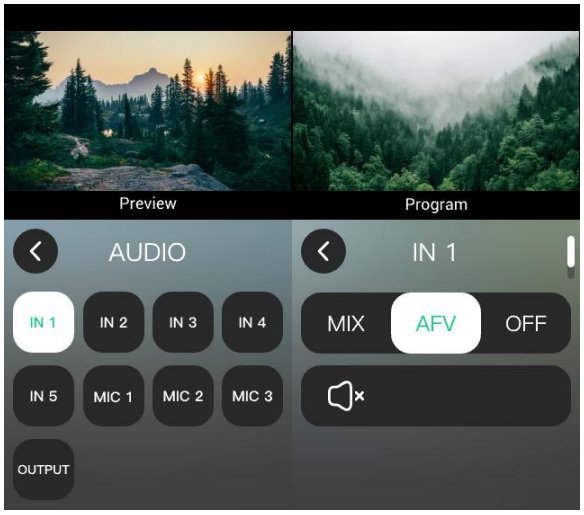


When you enter the input audio screen, you can select the input signal type as shown in the following picture.



3.7.1 HDMI/SDI Input

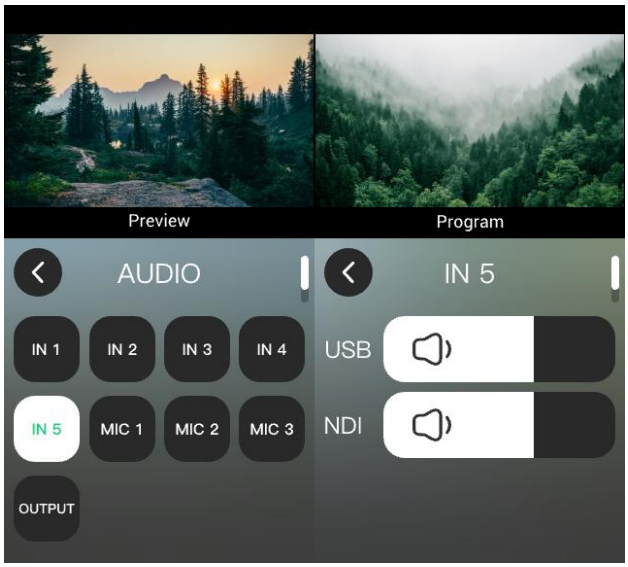
The mini-ISO supports simultaneous mixing output of up to eight audio channels, including 4 HDMI/ SDI embedded audio, 1 NDI/UVC input, MIC1, MIC2, and MIC3.
The mini-ISO supports embedded audio and external audio mixing and its 4 HDMI inputs and 4 SDI inputs support embedded audio input. If a channel is selected as a mix, it will always be heard at the Program output.
In this interface, you can adjust the volume level of HDMI/SDI (embedded audio).



In addition to the MIX (mixing) mode, mini-ISO also supports AFV (audio-follow-video) mode. The audio on all 4 HDMI and 4 SDI channels of the mini-ISO can enable the AFV mode. If this mode is turned on, when switching video signals, the audio will follow the video switching with a soft gradual transition. For example, when the HDMI audio mode of a certain channel is set to the AFV mode, the audio will be turned on only when the PGM outputs are switched to that HDMI channel. For example, when HDMI IN1 audio mode is set AFV, HDMI IN1's embedded audio will be turned on when HDMI IN1 is on the PGM output.

3.7.2 NDI/UVC Input

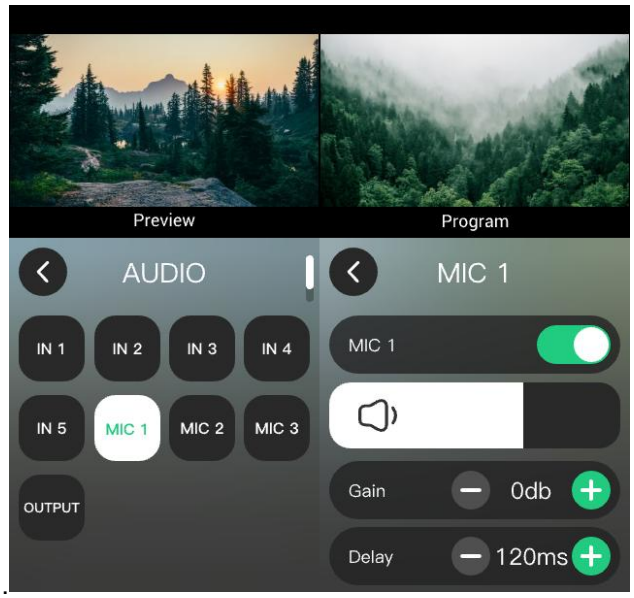
The mini-ISO IN5 supports NDI/UVC input. Users can select one of the audio channels and and adjust the volume level of the output.

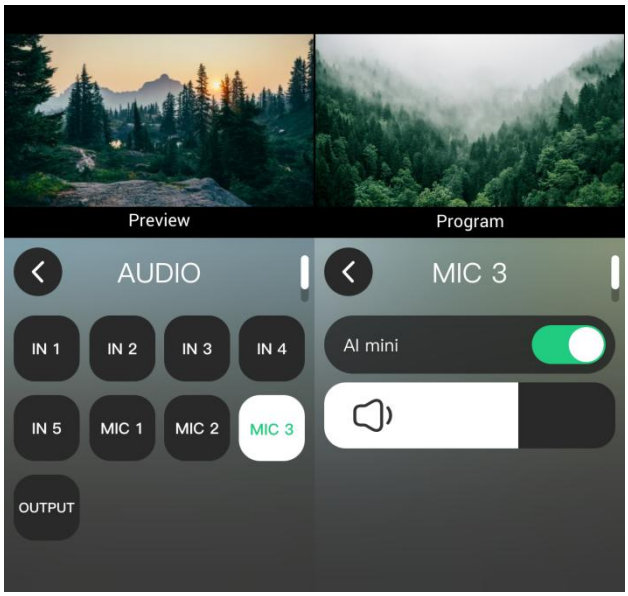


3.7.3 Line, MIC Inputs

The mini-ISO has one microphone input (MIC1) and one line-in input (MIC2), allowing users to connect it to a microphone or a line-in audio source.

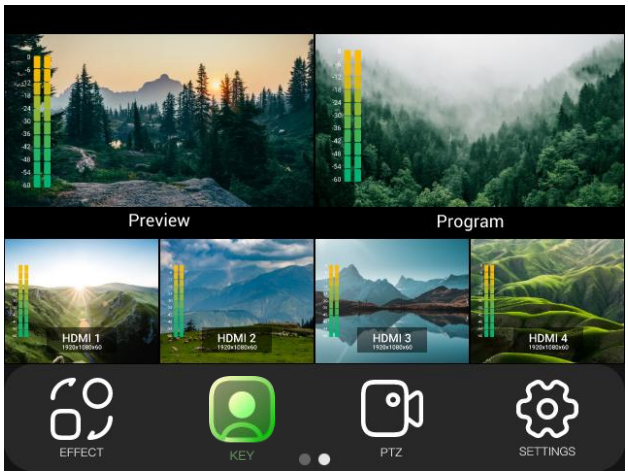
Tap MIC1/2/3 to enter the corresponding setting interface to make detailed settings. MIC 1-2 is for setting gain and delay. MIC3 will display AI mini (RGBlink wireless lavalier microphone) when an AI mini is detected. When the icon of MIC1/2/3 shows dark color, it means the current state is off; when MIC1/2/3 shows bright color, it means the current state is on.



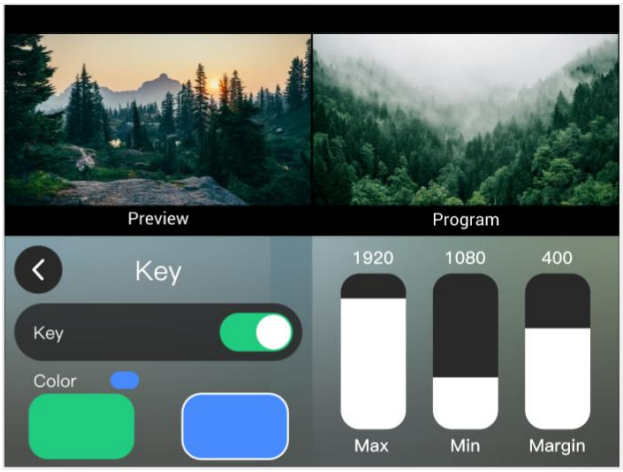


3.8 Key

1. The mini-ISO sup ports keying, i.e., keying off a solid color background and overlay it on another signal to achieve virtual reality applications. The keying can be preset by the upper computer control software or simply set and adjusted through the menu.
2. Tap the “M” key to return to the main menu interface, and tap the “KEY” icon to enter the setting menu.



3. You can tap to turn keying on or off. The sub-screen defaults to Input 4 and the main screen defaults to Input 1.



Select a color icon and adjust it. The default color is green as the background. You can touch the touch screen to select different options and slide to adjust the parameters, or use the up and down keys on the front panel of the device for fine-tuning. The default parameters of the device are: the upper limit is 1232, the lower limit 560, and the margin 602.

4. After setting up the keying, the parameters are saved directly on the device, the next time you use it, whether it is the upper computer, including cell phones, or the lower computer to open the keying, you can directly open the last saved parameter settings.

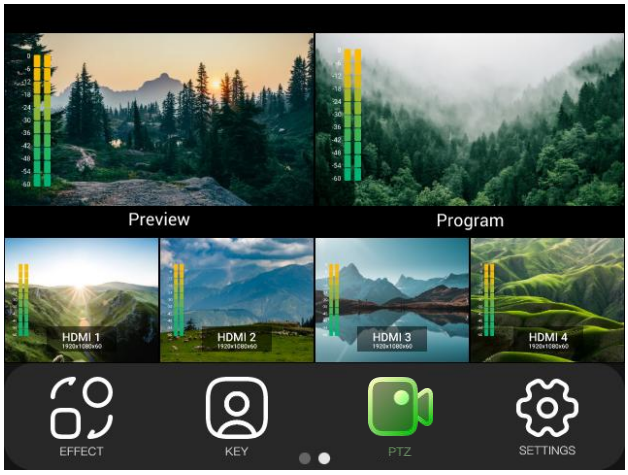
3.9 PTZ Control with Preset Position Saving

mini-ISO supports control of the PTZ camera's viewing angle and focus using the IP VISCA protocol. The mini-ISO allows you to control the camera's X- and Y-axis rotation, focus and lens zoom.

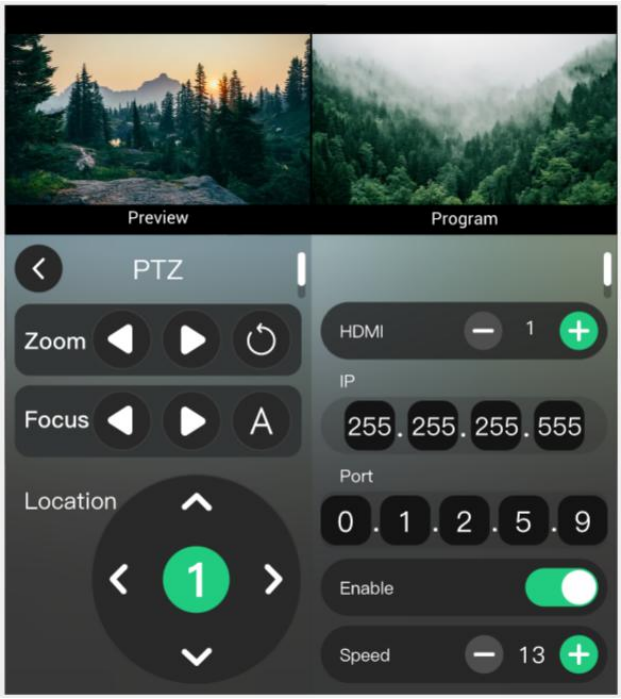
In addition, mini-ISO saves the PTZ camera's position and zoom information so that you can quickly retrieve it the next time you use it.

The mini-ISO's PTZ view not only saves a PTZ's preset parameters, but also includes the ability to recall that PTZ, i.e., when recalling the PTZ's preset view, it simultaneously switches to the input setting where this PTZ is located.

Tap the "M" button to go back to the main menu, find the "PTZ" icon and tap it to enter the menu.



The PTZ menu is shown below:



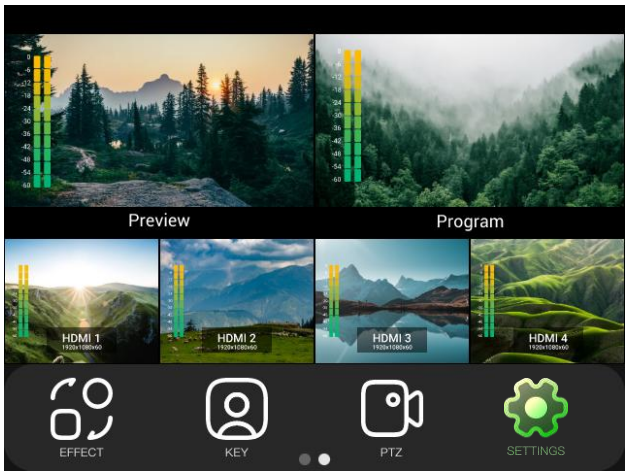
When controlling PTZ, the mini-ISO and the PTZ camera need to be in the same LAN and have the same network segment. Users can set the IP address of the mini-ISO in the "PTZ" menu. When setting the IP address, users can select different IP segments by pressing the S button and then adjust the four numbers of the IP address by the up and down buttons on the front panel.

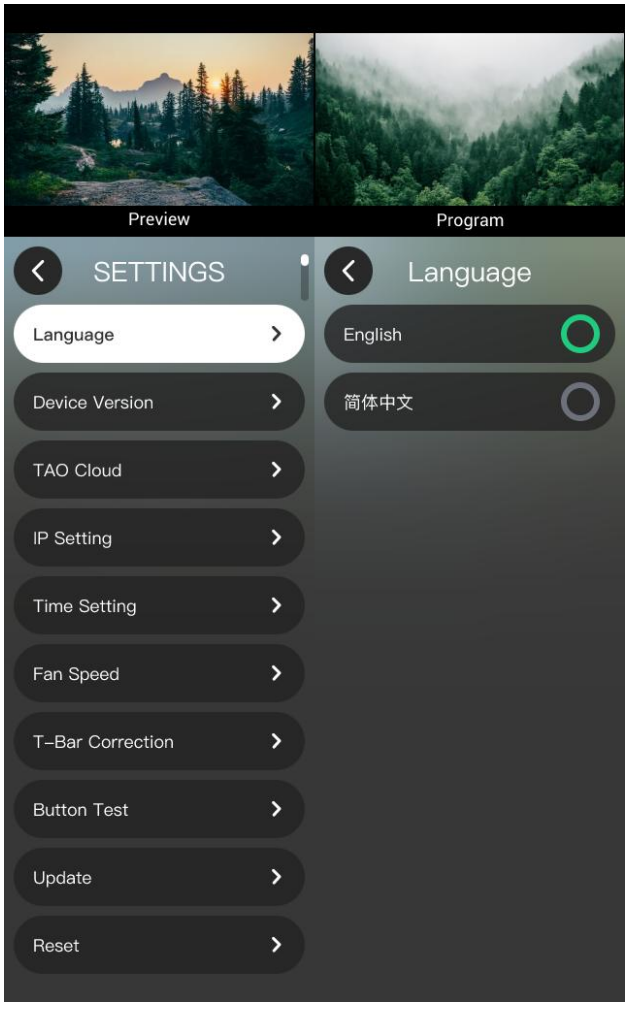
If you need to set PTZ, please select the corresponding PTZ camera signal to the PRE window by signal key ① ② ③ ④ ⑤ first.

In the PTZ control page, when the PTZ function is turned on, you can manually adjust the focus of the camera or touch A to realize auto focus; you can adjust the PTZ speed by using the joystick or touching the speed adjustment area of the touch screen, the default speed is 13, 10, 7, 4, 1; you can also directly switch the signal source to switch between different PTZ cameras. On the front panel, there are a toggle (Zoom in/out) and a five-way joystick for you to control the focus and position of the PTZ cameras.

3.10 SETTING

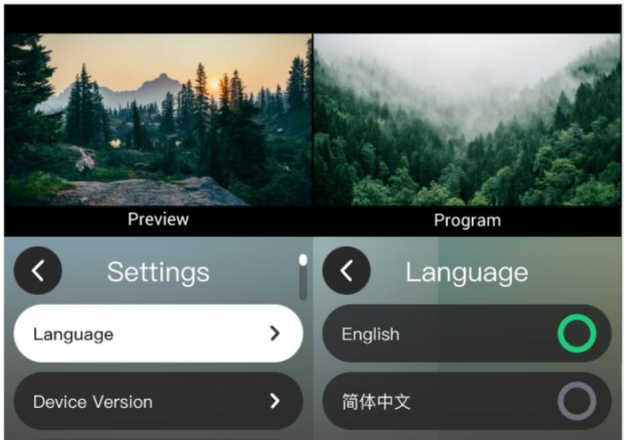
Tap "SETTING" to enter the system setting menu. As shown in the figure below, the setting area menu includes 12 sections of functions: Language, Device Version, TAO Cloud,IP Settings, Time Settings, Fan, T-Bar Correction, Button Test, Upgrade, and Reset.





3.10.1 Language

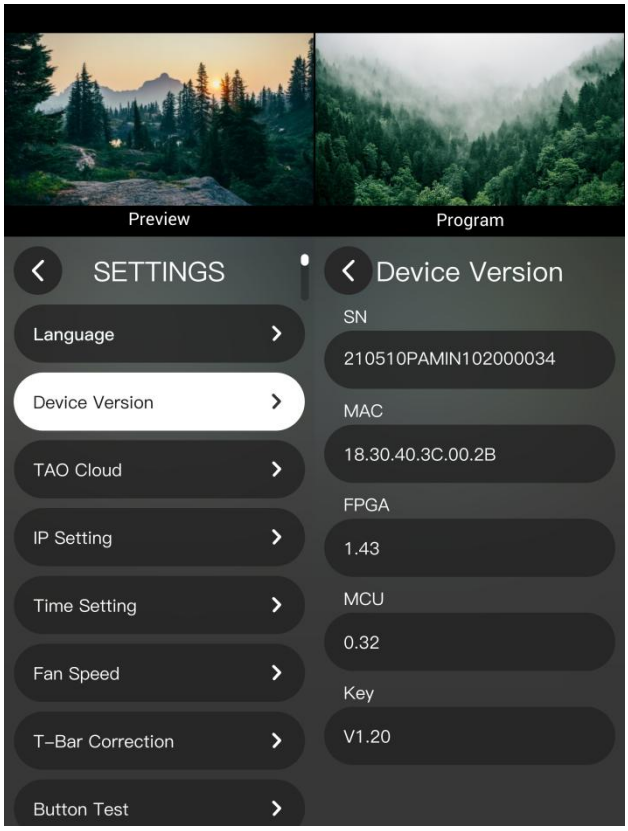
Tap Language in the setting menu to enter the following interface.



mini-ISO supports both Chinese and English language settings, which can be selected by the user as desired.

3.10.2 Device Version

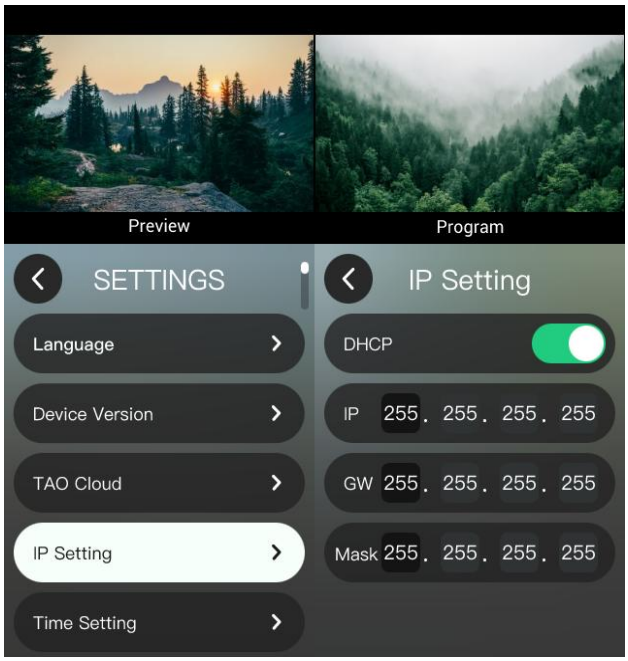
Tap the device version in the setting menu to view device-related information.



As shown in the image above, users can view the device serial number, MAC, FPGA, MCU version, and Key button version.

3.10.3 IP Setting

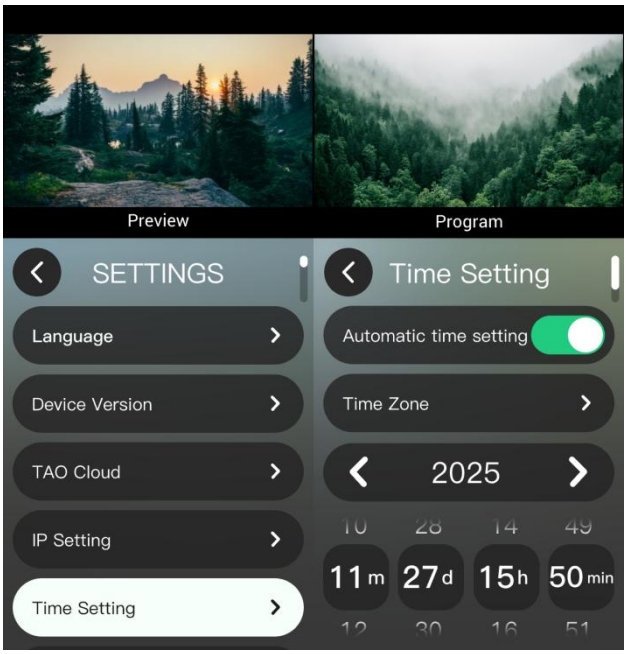
Tap IP Settings in the setting menu to enter the following interface.



Turn on the DHCP switch to obtain an IP address automatically, and turn off the DHCP switch to configure the IP address, subnet mask and gateway manually.

3.10.4 Time Setting

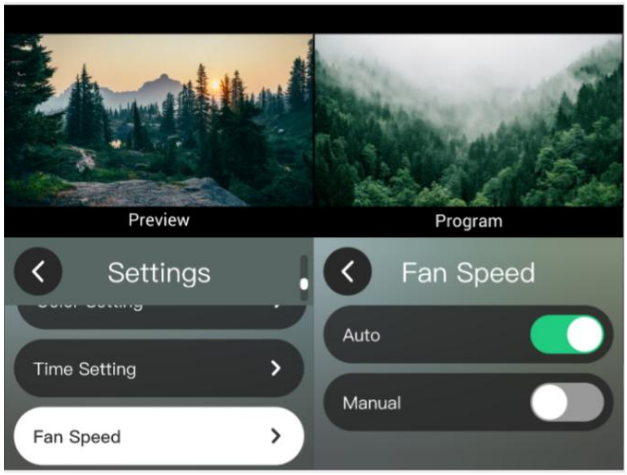
Touch "Time Setting" in the setting menu to enter the following screen. The time setting here shows the system date and time.

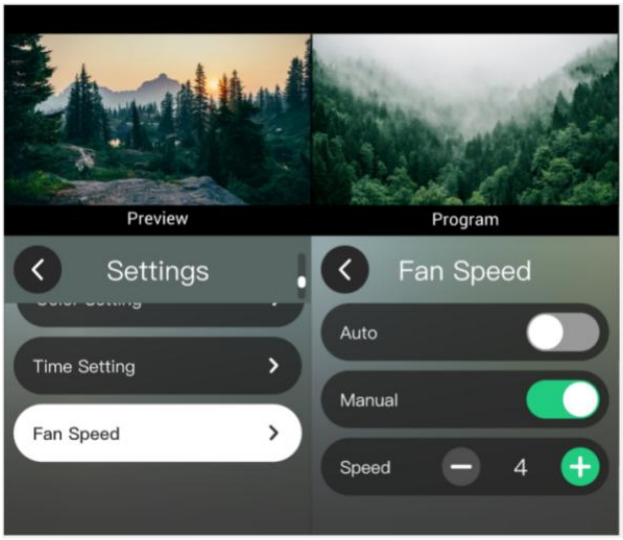


If the power-on configuration is enabled, the mini-ISO will automatically pop up this interface after power on to remind the user to set the time. After the device is turned off, the set time will be restored to the default value.

3.10.5 Fan Speed

Touch the fan icon in the setting menu to control the fan speed.

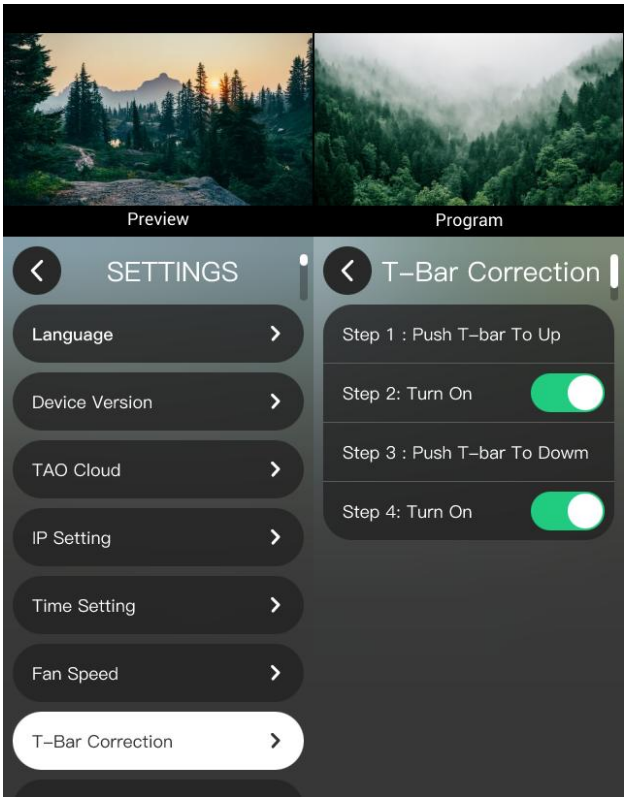




Turn on “Auto”, and the device will automatically adjust the fan speed. Turn off “Auto”, then you can manually adjust the fan speed, which supports four adjustable speeds.

3.10.6 T-Bar Correction

Touch the T-Bar correction of the setting menu to enter the following screen.



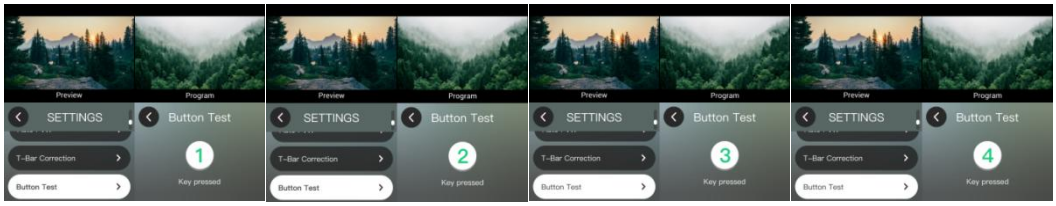
The user can complete the calibration by following the four steps.

1. Push the T-bar to the top;

2. Enable the correction switch  ;
3. Push the T-bar to the bottom

4. Enable the correction switch  .

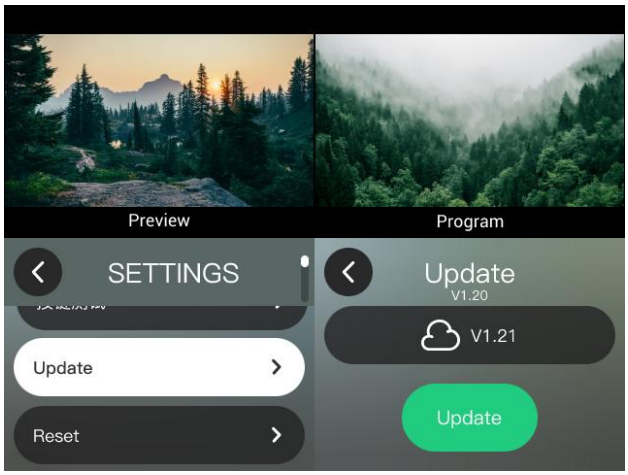
Touch the **"Button Test"** of the setting menu to enter the following screen.



In this interface, press the menu key or other keys and observe whether the content on the screen corresponds to the key pressed to test whether the function is normal.

3.10.7 Update

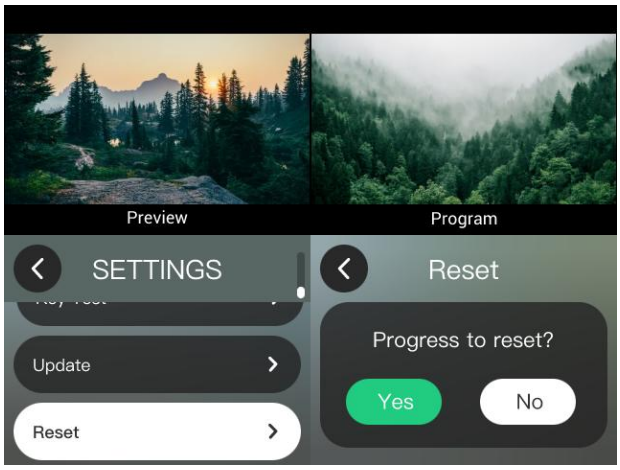
Touch " Update" in the setting menu to enter the following screen.



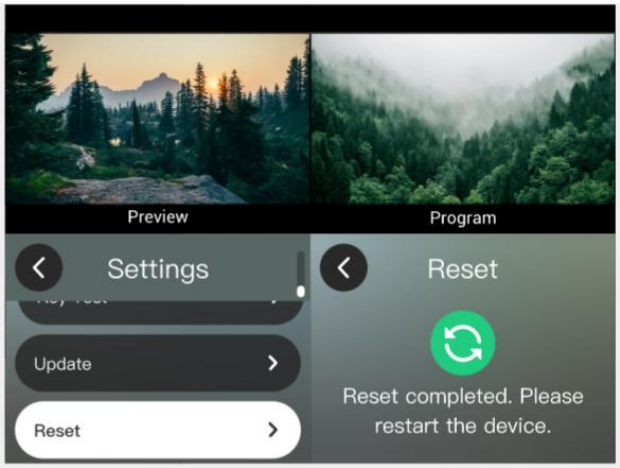
In this interface, you can press the "Update"on the right side to upgrade the mini-ISO (See 6.3 Upgrade Guidelines for details on the steps to upgrade the device). Please make sure your network is working during the update.

3.10.8 Reset

Tap "Reset" of the setting menu to enter the following screen.



If you want to reset the previous settings, you can select “Yes" to reset. After the reset is completed, please restart the device.



Chapter 4 Network Streaming

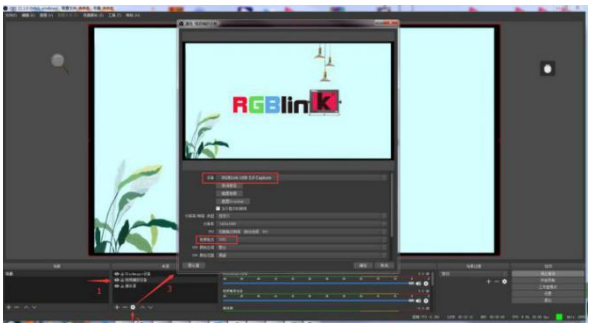
The USB port with WEBCAM silkscreen is for video capture, which allows users to capture videos to computer and the captured video content can be streamed to Facebook, YouTube, Zoom, Twitter and other streaming media platforms via a third-party Video Media Player software like OBS, vMix, Facebook and Zoom.

4.1 OBS Streaming

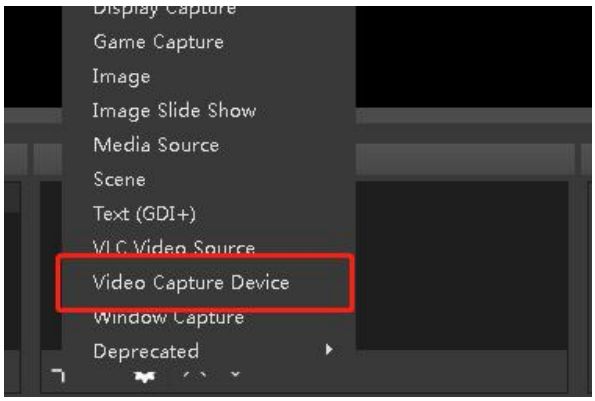
Video Capture

mini-ISO is compatible with many third party steaming softwares. We recommend OBS, which is available on https://obsproject.com/download. Download the software and update to the latest version.

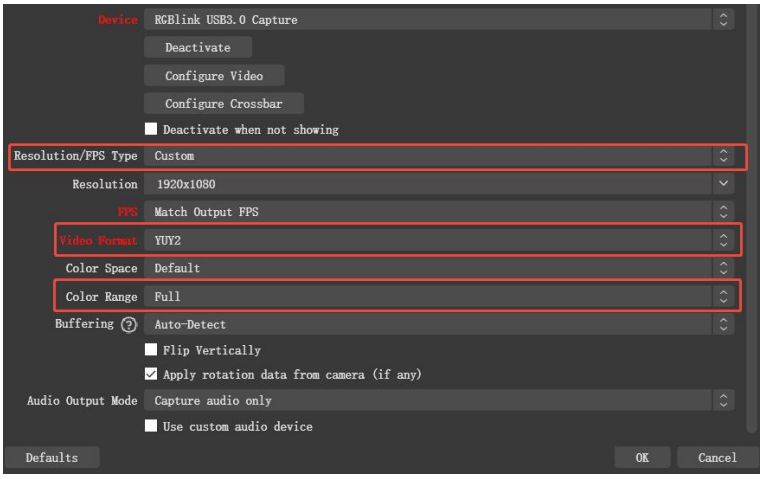
1. Click "+"icon.



2. Choose Video Capture Device.



3. Choose RGBlink USB 3.0 Capture, set resolution type as “Custom” and choose Video Format YUY2. To ensure the accuracy of the output color, set the color space as “Full”.



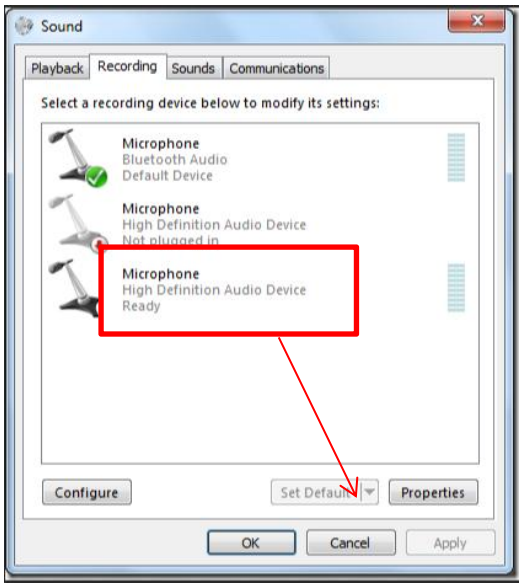
Notes: If there is no video format YUY2 after setting above, check the USB 3.0 port connection. Make sure it is linked to USB 3.0 port on PC by a USB 3.0 cable. (USB 3.0 cable or port is standard in blue while USB 2.0 is in black). If the captured picture flashes, change the video format to YUY2.

Audio Setting

When there is no audio playing, check the video source to see if it is set as default value, and then check the 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).

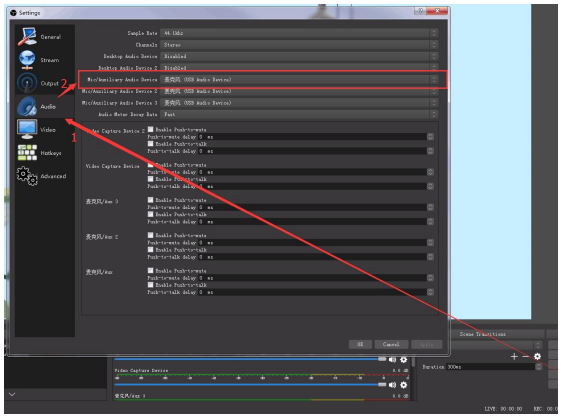


Synchronize Video with External Audio

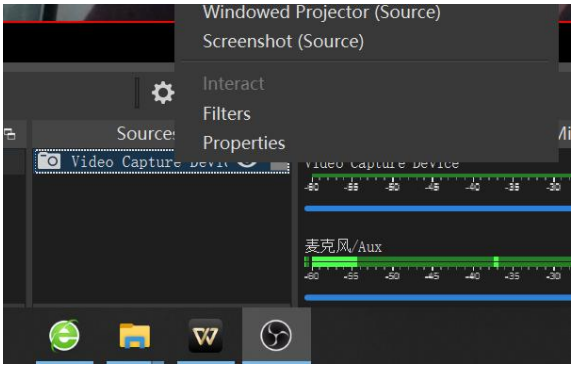
When the video itself doesn't have embedded audio and needs insert external audio, here are

the steps:

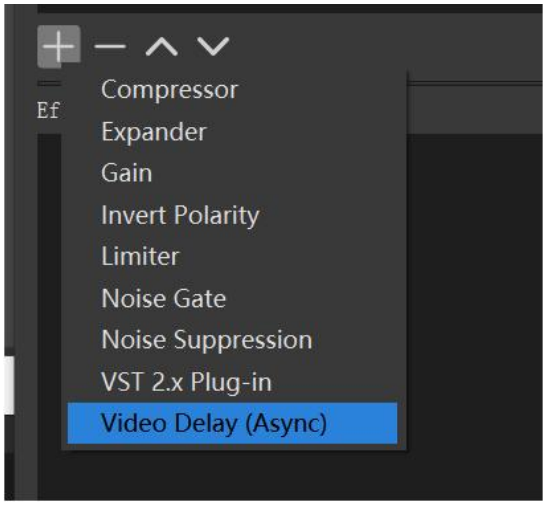
1. Set the audio source: Setting→Audio→Mic/Auxiliary Audio Devices.



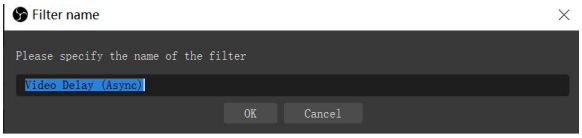
2. Right click the “Video Capture Device” in Source and choose “Filters".



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



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

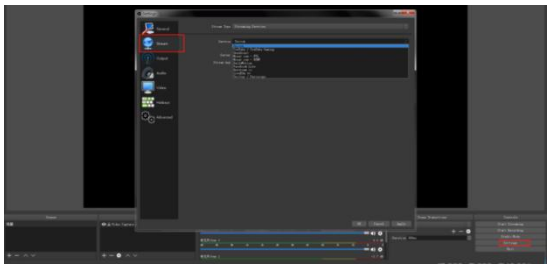


5. Input delay value in ms, the value needs to be adjusted until the video and audio are synchronous.

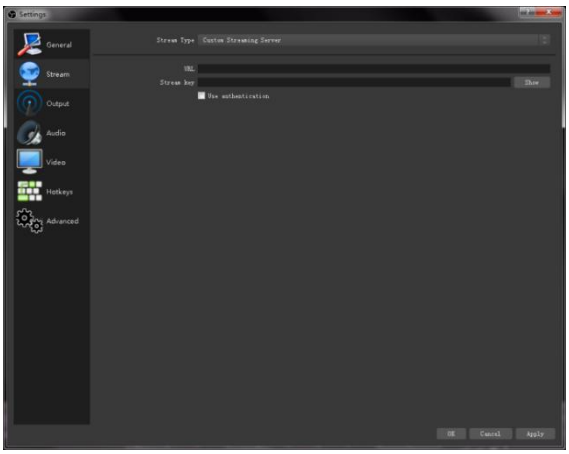
Streaming Setting

1. Find the RTMP URL and Stream Key provided by streaming broadcast website.
2. Copy URL and Stream Key.

Back to OBS, click Setting in the lower right corner and click “Stream". Choose Stream Type as “Streaming Service" or “Custom Streaming Server" . If “Streaming Service" is chosen, a list of streaming service names will be available in the drop-down list of Service. If the desired streaming service is in the list, select it from the list.
For the Custom Service, simply fill in the URL and Stream Key.

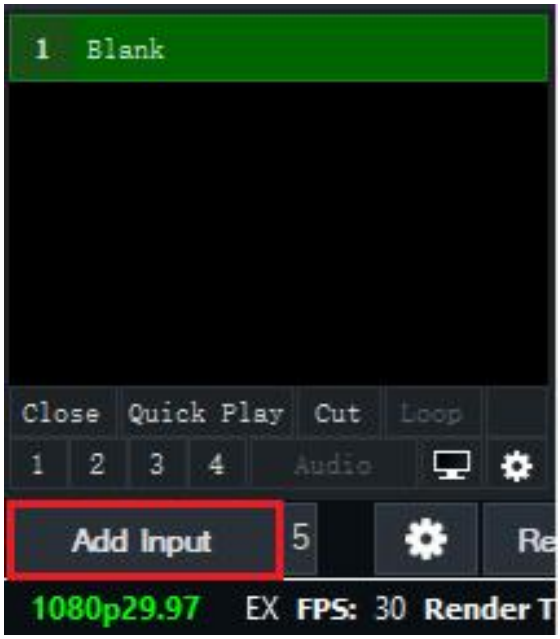


3. Paste the RMTP URL to Server or URL and Stream Key to Stream Key.
4. Click “Start Streaming".
5. Go back to live broadcast website and check the broadcasting.

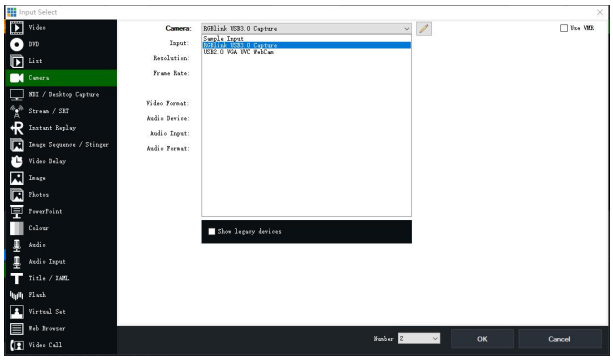


4.2 vMix Streaming

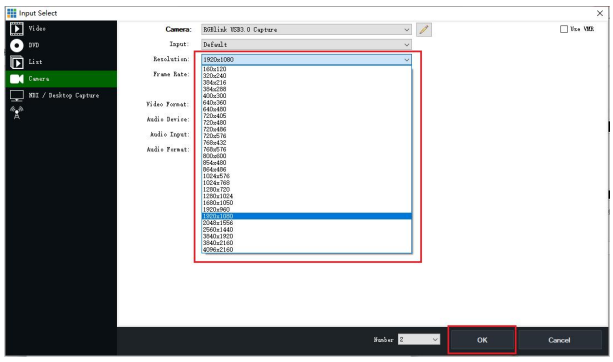
1. Click a new blank, then click the“Add Input" button.



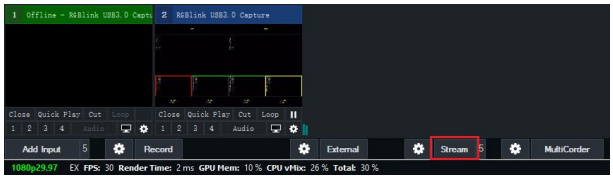
2. Click"Camera", and select “RGBlink USB3.0 Capture" from “Camera"



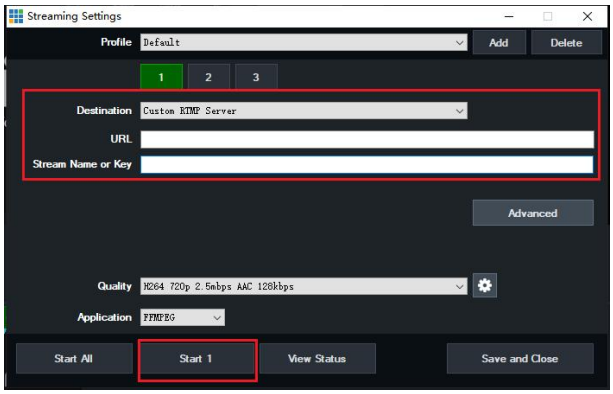
3. Select the same resolution as the mini output. Then click “OK".



4. Click Stream setting button.



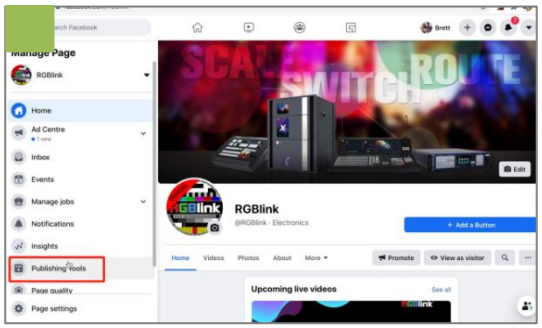
5. Complete the URL and Key information. Click“Start 1", vMix will begin streaming.



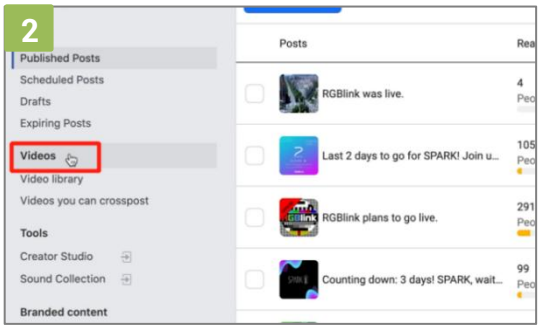
Notes: vMix does not support automatic recognition of the output resolution of mini-ISO. Every time the output resolution of mini-ISO is modified, the picture on vMix will pause. The user needs to re-select RGBlink USB3.0 Capture and manually input the current output resolution of mini-ISO.

4.3 Facebook Streaming

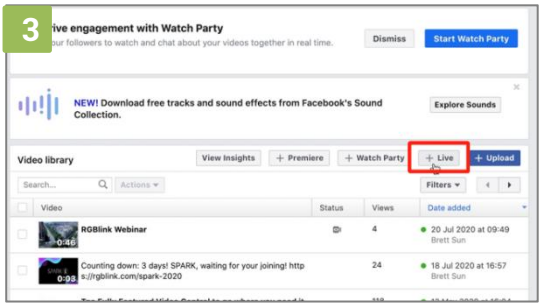
1. Enter "Publishing Tools".



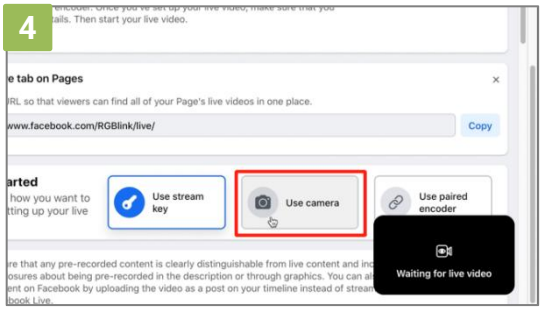
2. Click "Video".



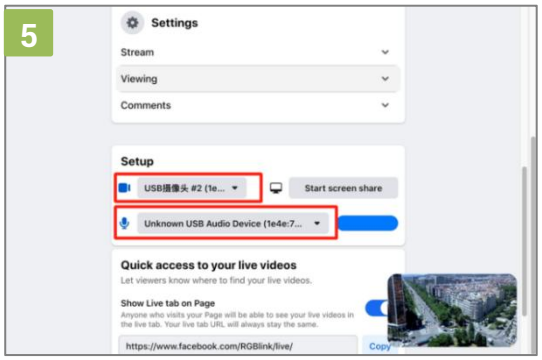
3. Click "+Live".



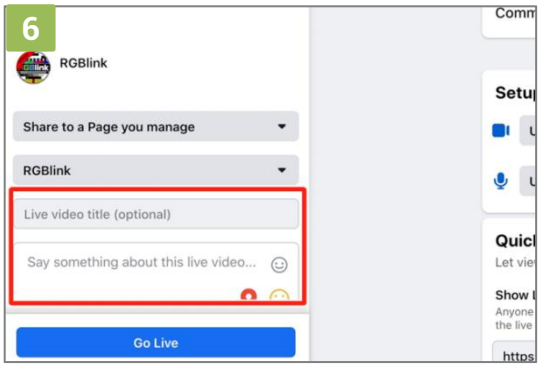
4. Choose "Use Camera".



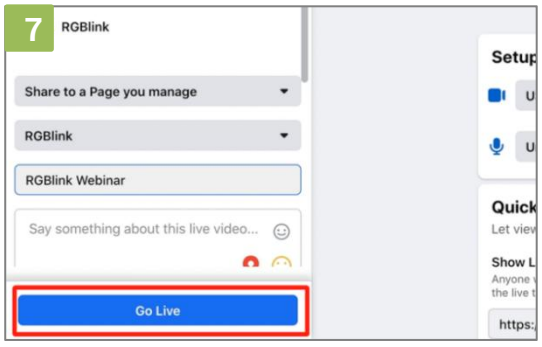
5. Set video and audio as USB 3.0 Video/Audio



6. Add a title and description.

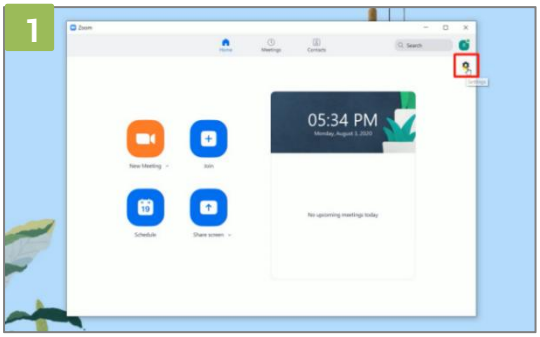


7. Go Live.

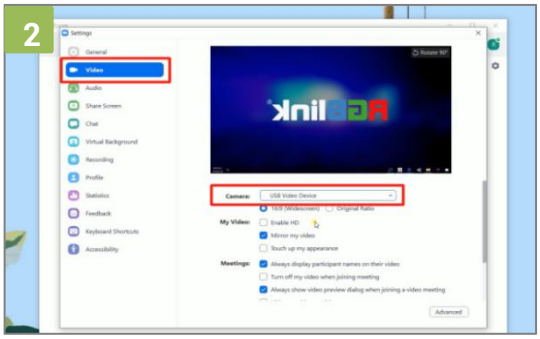


4.4 Zoom Streaming

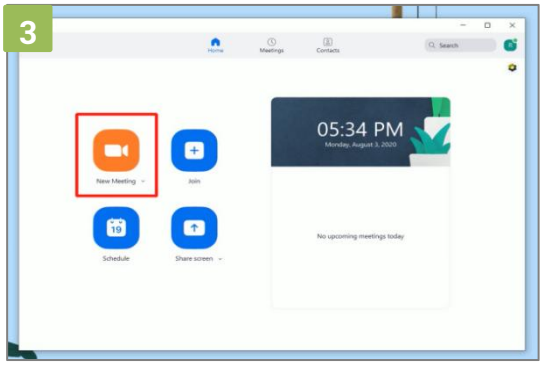
1. Enter Zoom and click “Setting” icon.



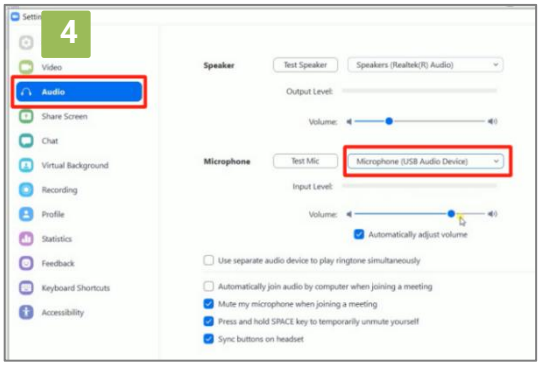
2. Click “Video” and set “Camera” as “USB Video Device”.



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



4. Finished all setting and start meeting/Live.



Chapter 5 Ordering Codes

5.1 Product Code

230-0007-01-0	mini-ISO

Chapter 6 Appendix

6.1 Specification

Connectors	Input	HDMI 4K	4×HDMI-A
		UVC	1×USB-A
		SDI	4×BNC
		Media	1×USB-A
	Output	HDMI 2K	2×HDMI-A
		Recording	1×USB-A
		RTMP(S)/NDI	1×RJ45
	Audio	Embedded Audio Inputs	4×HDMI-A
		External Digital Inputs	1×USB-A
		External Analog Inputs	2×3.5mm Stereo Jack
		External Analog Output	1×3.5mm Stereo Jack
	Communication	LAN	1×RJ45
	Power	Power	1×USB-C
Performance	Input Resolution	HDMI	1280×720p@50/60 | 1280×768p@60 | 1280×1024p@60 | 1360×768p@60 | 1366×768p@60 | 1600×900p@60 | 1920×1080i@50/60 | 1920×1080p@30/50/60 | 3840×2160p@23.97/24/25/29.97/30/50/59.94/60
		SDI	720p@50/60 | 1080i@50/59.94/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60
	Output Resolution	HDMI	1280×720p@50/60 | 1920×1080p@24/30/50/60
		USB	1280×720p@60 | 1920×1080p@24/25/30/50/60
	Standards	HDMI	2.0
		USB	3.0
	Video	Video Format	HDMI 2.0 | HDCP 2.2
		Bit Depth	8 bit/10 bit/12 bit
		Color space	RGB 8bit | YUV 4:4:4 | YUV 4:2:2 | YUV 4:2:0
		Video Latency	<3 frames
	Audio	Audio Format	LPCM/2ch/24bit/16bit/48kHZ

		Sample Rate	48K
		Bitrate	24bit
	Record/Storage	Disk Formats	FAT32(≤32 GB) | exFAT(64GB~2T)
		Record Formats	MP4 (Code Rate:up to 16Mbps)
Power	Input Voltage	PD 12V/2.5A	
	Max Power	30W	
Environment	Temperature	0℃~60℃	
	Humidity	10%~85%	
Physical	Weight	Net	0.42kg
		Packaged	1.20kg
	Dimension	Net	180.6mm×112.7mm×53mm
		Packaged	255mm×145mm×85mm

6.2 FAQ

1. When there is a problem with mini-ISO:

A: We recommend you to reset and restart the device.

2. If there is a power supply problem with the mini-ISO, or mini-ISO fails to start, or the screen and buttons blink frequently:

A: Please use the standard power adapter. If the above problem still occurs, try to replace the adapter (support PD 12V/2.5A2 and above).

3. mini-ISO upgrade notes:

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

4. mini-ISO cannot control PTZ.

A: Please make sure that the IP addresses of mini-ISO and PTZ are in the same LAN. For example, the IP address of PTZ is 192.168.5.163. Please also set the IP address of mini-ISO to 192.168.5.X ((2~254) except 163). Confirm on mini XPOSE whether the Visca port number in the PTZ settings is the corresponding port number. For example, the Visca port number of the PTZ of RGBlink is 1259.

5. mini-ISO USB 2.0 RECORD cannot recognize U disk.

A: Please format the U disk (exFAT, FAT32).

6. mini-ISO USB 3.0 webcam cannot be recognized/recognized without a 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 and mini-ISO

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 USB3.0 cable to do streaming (Note that the picture quality is lower than the USB3.0 cable, and the USB3.0 cable is not recommended to use the Preview output)

7. Does mini-ISO 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.

8. mini-ISO HDMI input what kind of YUV.

A: mini-ISO supports 4:4:4, but it doesn't support 4:2:0.

9. When mini-ISO 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.

10. Can mini-ISO be controlled by mobile phone?

A: At present, the Android version has been uploaded to the official website, and the IOS version is still being prepared. Note that the version in the APP Store can not control the mini-ISO.

11. When the mini-ISO is powered on, the LCD screen sometimes flickers as the USB cable is plugged into the USB 2.0 RECORD port.

A: We've done a hardware fix. If this situation occurs, please try to turn off the switch, unplug the power, and power on again.

12. Can mini-ISO recording be paused? If you stop recording and then start recording again, will it be saved in a new file?

A: Currently there is no pause function. A new file will be build for the saving previous recording when restarting..

13. Can mini-ISO control PTZ of Pelco protocol?

A: Currently, the PTZ controlling under the Pelco protocol is not supported. The mini-ISO supports controlling PTZ via Visca protocol only.

6.3 Upgrade Guideline

Online Upgrade

mini-ISO supports online upgrade in the cloud.

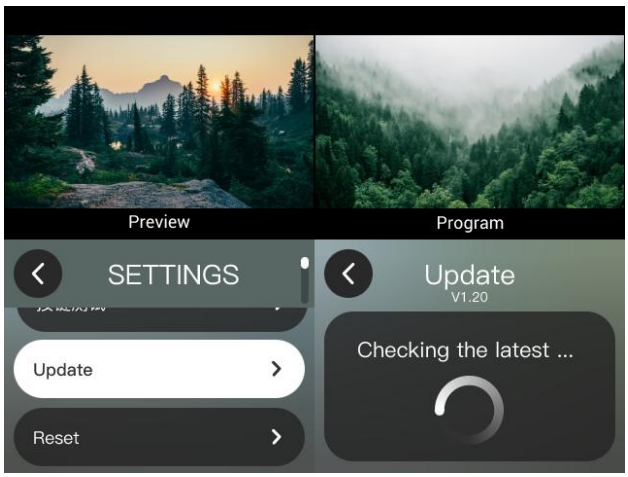
Upgrade method: Online upgrade

Upgrade steps:

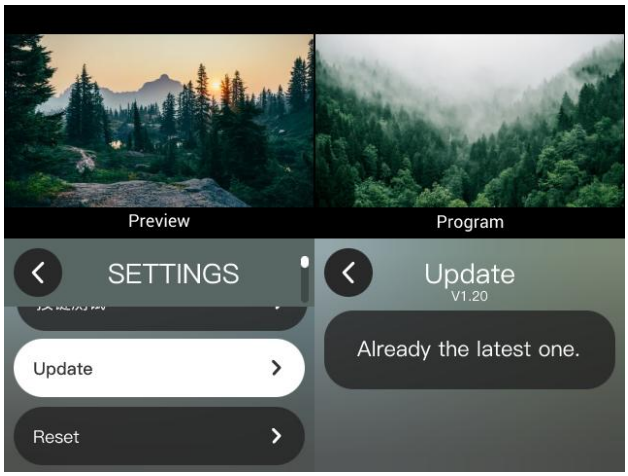
1. Use a network cable to connect the mini-ISO's network port to the computer's network port.

2. Open the network settings on your computer and make sure that your computer is connected to the LAN where the device is located (e.g., automatically obtain an **IP** address through DHCP) to ensure normal communication.

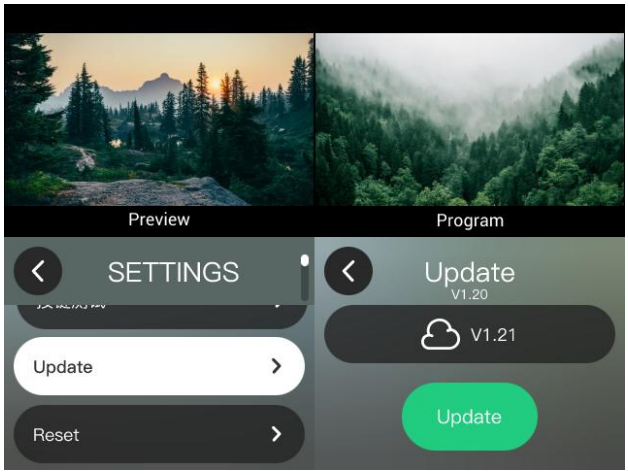
3. Select “Settings” > “Update” to enter the upgrade interface as follows.



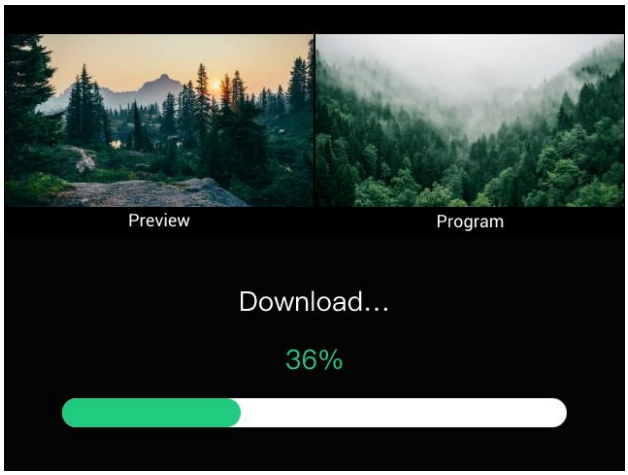
4. The system automatically checks the device's version. It displays "already the latest one" if the device is up-to-date.



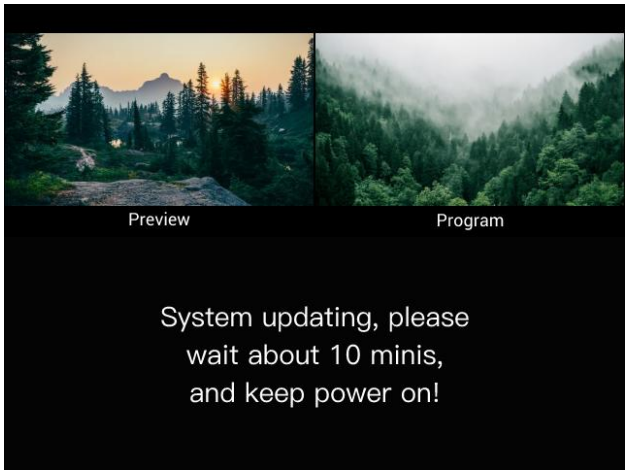
5. If a new version is found, the screen will display the version number and the update key. Click “Update” to download the new package.



6. The following figure shows the download process, the process will take about 10 minutes (depending on the speed of the Internet).



7. Please do not power off during the upgrade process. After the upgrade is completed, the device will restart automatically.



6.4 Terms & Definitions

●**RCA:** Connector used primarily in consumer AV equipment for both audio and video. The RCA connector was developed by the Radio Corporation of America.

●**BNC:** Stands for Bayonet Neill-Concelman. A cable connector used extensively in television (named for its inventors). A cylindrical bayonet connector that operates with a twist-locking motion .

●**CVBS:** CVBS or Composite video, is an analog video signal without audio. Most commonly CVBS is used for transmission of standard definition signals. In consumer applications the connector is typically RCA type, while in professional applications the connector is BNC type.

●**YPbPr:** Used to describe the colour space for progressive-scan. Otherwise known as component video.

●**VGA:** Video Graphics Array. VGA is an analog signal typically used on earlier computers. The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using in mode.

●**DVI:** Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.

●**SDI:** Serial Digital Interface. Standard definition video is carried on this 270 Mbps data transfer rate. Video pixels are characterized with a 10-bit depth and 4:2:2 color quantization. Ancillary data is included on this interface and typically includes audio or other metadata. Up to sixteen audio channels can be transmitted. Audio is organised into blocks of 4 stereo pairs. Connector is BNC.

●**HD-SDI:** High-definition serial digital interface (HD-SDI), is standardized in SMPTE 292M this provides a nominal data rate of 1.485 Gbit/s.

●**3G-SDI:** Standardized in SMPTE 424M, consists of a single 2.970 Gbit/s serial link that allows replacing dual link HD-SDI.

●**6G-SDI:** Standardized in SMPTE ST-2081 released in 2015, 6Gbit/s bitrate and able to support 2160p@30.

●**12G-SDI:** Standardized in SMPTE ST-2082 released in 2015, 12Gbit/s bitrate and able to support 2160p@60.

●**U-SDI:** Technology for transmitting large-volume 8K signals over a single cable. a signal interface called the ultra high definition signal/data interface (U-SDI) for transmitting 4K and 8K signals using a single optical cable. The interface was standardized as the SMPTE ST 2036-4.

● **:** HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

●**HDMI 1.3:** Released on June 22 2006, and increased the maximum TMDS clock to 340 MHz (10.2 Gbit/s).

Support resolution 1920 × 1080 at 120 Hz or 2560 × 1440 at 60 Hz). It added support for 10 bpc, 12 bpc, and 16 bpc color depth (30, 36, and 48 bit/px), called deep color.

●**HDMI 1.4:** Released on June 5, 2009, added support for 4096 × 2160 at 24 Hz, 3840 × 2160 at 24, 25, and 30 Hz, and 1920 × 1080 at 120 Hz. Compared to HDMI 1.3, 3 more features added which are HDMI Ethernet Channel (HEC) , audio return channel (ARC),3D Over HDMI, a new Micro HDMI Connector, an expanded set of color spaces.

●**HDMI 2.0:** Released on September 4, 2013 increases the maximum bandwidth to 18.0 Gbit/s. Other features of HDMI 2.0 include up to 32 audio channels, up to 1536 kHz audio sample frequency, the HE-AAC and DRA audio standards, improved 3D capability, and additional CEC functions.

●**HDMI 2.0a:** Was released on April 8, 2015, and added support for High Dynamic Range (HDR) video with static metadata.

●**HDMI 2.0b:** Was released March, 2016, support for HDR Video transport and extends the static metadata signaling to include Hybrid Log-Gamma (HLG).

●**HDMI 2.1:** Released on November 28, 2017. It adds support for higher resolutions and higher refresh rates, Dynamic HDR including 4K 120 Hz and 8K 120 Hz.

●**DisplayPort:** A VESA standard interface primarily for video, but also for audio, USB and other data. DisplayPort (orDP) is backwards compatible with HDMI, DVI and VGA.

●**DP 1.1:** Was ratified on 2 April 2007, and version 1.1a was ratified on 11 January 2008. DisplayPort 1.1 allow a maximum bandwidth of 10.8 Gbit/s (8.64 Gbit/s data rate) over a standard 4-lane main link, enough to support 1920x1080@60Hz

●**DP 1.2:** Introduced on 7 January 2010, effective bandwidth to 17.28 Gbit/s support increased resolutions, higher refresh rates, and greater color depth, maximum resolution 3840 × 2160@60Hz

●**DP 1.4:** Publish on 1 Mar, 2016.overall transmission bandwidth 32.4 Gbit/s ,DisplayPort 1.4 adds support for Display Stream Compression 1.2 (DSC), DSC is a "visually lossless" encoding technique with up to a 3:1 compression ratio. Using DSC with HBR3 transmission rates, DisplayPort 1.4 can support 8K UHD (7680 × 4320) at 60 Hz or 4K UHD (3840 × 2160) at 120 Hz with 30 bit/px RGB color and HDR. 4K at 60 Hz 30 bit/px RGB/HDR can be achieved without the need for DSC.

●**Multi-mode Fiber:** Fibers that support many propagation paths or transverse modes are called multi-mode fibers, generally have a wider core diameter and are used for short-distance communication links and for applications where high power must be transmitted.

●**Single-mode Fiber:** Fiber that support a single mode are called single-mode fibers. Single-mode fibers are used for most communication links longer than 1,000 meters (3,300 ft).

●**SFP:** Small form-factor pluggable , is a compact, hot-pluggable network interface module used for both telecommunication and data communications applications.

●**Optical Fiber Connector:** Terminates the end of an optical fiber, and enables quicker connection and disconnection than splicing. The connectors mechanically couple and align the cores of fibers so light can pass. 4 most common types of optical fiber connectors are SC, FC, LC,ST.

●**SC:** (Subscriber Connector), also known as the square connector was also created by the Japanese company – Nippon Telegraph and Telephone. SC is a push-pull coupling type of connector and has a 2.5mm diameter. Nowadays, it is used mostly in single mode fiber optic patch cords, analog, GBIC, and CATV. SC is one of the most popular options, as its simplicity in design comes along with great durability and affordable prices.

●**LC：** (Lucent Connector) is a small factor connector (uses only a 1.25mm ferrule diameter) that has a snap coupling mechanism. Because of its small dimensions, it is the perfect fit for high-density connections, XFP, SFP, and SFP+ transceivers.

●**FC:** (Ferrule Connector) is a screw type connector with a 2.5mm ferrule. FC is a round shaped threaded fiber optic connector,mostly used on Datacom, telecom, measurement equipment, single-mode laser.

●**ST:** (Straight Tip) was invented by AT&T and uses a bayonet mount along with a long spring-loaded ferrule to support the fiber.

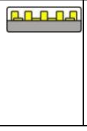
●**USB:** Universal Serial Bus is a standard that was developed in the mid-1990s that defines cables, connectors and communication protocols. This technology is designed to allow a connection, communication and power supply for peripheral devices and computers.

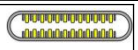
●**USB 1.1:** Full–Bandwidth USB, specification was the first release to be widely adopted by the consumer market. This specification allowed for a maximum bandwidth of 12Mbps.

●**USB 2.0:** or Hi–Speed USB, specification made many improvements over USB 1.1. The main improvement was an increase in bandwidth to a maximum of 480Mbps.

●**USB 3.2:** Super Speed USB with 3 varieties of 3.2 Gen 1(original name USB 3.0), 3.2Gen 2(original name USB 3.1), 3.2 Gen 2x2 (original name USB 3.2) with speed up to 5Gbps,10Gbps,20Gbps respectively.

USB version and connectors figure:

	Type A	Type B	Mini A	Mini B	Micro-A	Micro -B	Type C
USB 2.0							
USB 3.0							

USB 3.1&3.2							

●**NTSC:** The colour video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. NTSC utilizes an interlaced video signals.

●**PAL:** Phase Alternate Line. A television standard in which the phase of the colour carrier is alternated from line to line. It takes four full images (8 fields) for the colour-to-horizontalimages (8 fields) for the colour-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, is widely used in needed on a PAL TV set. PAL, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-field (25 fps) composite colour transmission system.

●**SMPTE:** Society of Motion image and Television Engineers. A global organization, based in the United States, that sets standards for baseband visual communications. This includes film as well as video and television standards.

●**VESA:** Video Electronics Standards Association. An organization facilitating computer graphics through standards.

●**HDCP:** High-bandwidth Digital Content Protection (HDCP) was developed by Intel Corporation an is in wide use for protection of video during transmission between devices.

●**HDBaseT:** A video standard for the transmission of uncompressed video (HDMI signals) and related features using Cat 5e/Cat6 cabling infrastructure.

●**ST2110:** A SMPTE developed standard, ST2110 describes how to send digital video over and IP networks. Video is transmitted uncompressed with audio and other data in a separate streams.
SMPTE2110 is intended principally for broadcast production and distribution facilities where quality and flexibility are more important.

●**SDVoE:** Software Defined Video over Ethernet (SDVoE) is a method for transmission, distribution and management AV signals using a TCP/IP Ethernet infrastructure for transport with low latency. SDVoE is commonly used in integration applications.

●**Dante AV:** The Dante protocol was developed for and widely adopted in audio systems for the transmission of uncompressed digital audio on IP based networks. The more recent Dante AV specification includes support for digital video.

●**NDI:** Network Device interface (NDI) is a software standard developed by NewTek to enable video-compatible

products to communicate, deliver, and receive broadcast quality video in a high quality, low latency manner that is frame-accurate and suitable for switching in a live production environment over TCP (UDP) Ethernet based networks. NDI is commonly found in broadcast applications.

●**RTMP:** Real-Time Messaging Protocol (RTMP) was initially a proprietary protocol developed by Macromedia (now Adobe) for streaming audio, video and data over the Internet, between a Flash player and a server.

●**RTSP:** The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. The protocol is used for establishing and controlling media sessions between end points.

●**MPEG:** Moving Picture Experts Group is a working group formed from ISO and IEC developing standards that allow audio/video digital compression and Transmission.

●**H.264:** Also known as AVC (Advanced Video Coding) or MPEG-4i is a common video compression standard. H.264 was standardized by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC JTC1 Moving Picture Experts Group (MPEG).

●**H.265:** Also known as **HEVC** (High Efficiency Video Coding)H.265 is the successor to the widely used H.264/AVC digital video coding standard. Developed under the auspices of ITU, resolutions up to 8192x4320 may be compressed.

●**API:** An Application Programming Interface (API) provides a predefined function which allows access capabilities and features or routines via a software or hardware, without accessing source code or understanding the details of inner working mechanism. An API call may execute a function and/or provide data feedback/report.

●**DMX512:** The communication standard developed by USITT for entertainment and digital lighting systems.The wide adoption of the Digital Multiplex (DMX) protocol has seen the protocol used for a wide range of other devices including video controllers. DMX512 is delivered over cable of 2 twisted pairs with 5pin XLR cables for connection.

●**ArtNet:** An ethernet protocol based on TCP/IP protocol stack, mainly used in entertainment/events applications. Built on the DMX512 data format, ArtNet enables multiple "universes" of DMX512 to be transmitted using ethernet networks for transport.

●**MIDI:** MIDI is the abbreviation of Musical Instrument Digital Interface. As the name indicates the protocol was developed for communication between electronical musical instruments and latterly computers. MIDI instructions are triggers or commands sent over twisted pair cables, typically using 5pin DIN connectors.

●**OSC:** The principle of Open Sound Control (OSC) protocol is for networking sound synthesizers, computers, and multimedia devices for musical performance or show control. As with XML and JSON, the OSC protocol allows sharing data. OSC is transported via UDP packets between devices connected on an Ethernet.

●**Brightness:** Usually refers to the amount or intensity of video light produced on a screen without regard to colour. Sometimes called black level.

●**Contrast Ratio:** The ratio of the high light output level divided by the low light output level. In theory, the contrast ratio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.

●**Colour Temperature:** The colour quality, expressed in degrees Kelvin (K), of a light source. The higher the colour temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark colour temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.

●**Saturation:** Chroma, Chroma gain. The intensity of the colour, or the extent to which a given colour in any image is free from white. The less white in a colour, the truer the colour or the greater its saturation. Saturation is the amount of pigment in a colour, and not the intensity.

●**Gamma:** The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.

●**Frame:** In interlaced video, a frame is one complete image.A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still image of a series that makes up a motion image.

●**Genlock:** Allows synchronisation of otherwise video devices. A signal generator provides a signal pulses which connected devices can reference. Also see Black Burst and Color Burst.

●**Blackburst:** The video waveform without the video elements.It includes the vertical sync, horizontal sync, and the Chroma burst information. Blackburst is used to synchronize video equipment to align the video output.

●**Colour Burst:** In colour TV systems, a burst of subcarrier frequency located on the back part of the composite video signal. This serves as a colour synchronizing signal to establish a frequency and phase reference for the Chroma signal. Colour burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

●**Colour Bars:** A standard test pattern of several basic colours (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used colour bars are the SMPTE standard colour bars. In PAL video, the most commonly used colour bars are eight full field bars. On computer monitors the most commonly used colour bars are two rows of reversed colour bars

●**Seamless Switching:** A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoids a glitch (temporary scrambling) which often is seen when switching between sources.

●**Scaling:** A conversion of a video or computer graphic signal from a starting resolution to a new resolution.

Scaling from one resolution to another is typically done to optimize the signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.

●**PIP:** Picture-In-Picture. A small image within a larger image created by scaling down one of image to make it smaller. Other forms of PIP displays include Picture-By-Picture (PBP) and Picture- With-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.

●**HDR:** is a high dynamic range (HDR) technique used in imaging and photography to reproduce a greater dynamic range of luminosity than what is possible with standard digital imaging or photographic techniques. The aim is to present a similar range of luminance to that experienced through the human visual system.

●**UHD:** Standing for Ultra High Definition and comprising 4K and 8K television standards with a 16:9 ratio, UHD follows the 2K HDTV standard. A UHD 4K display has a physical resolution of 3840x2160 which is four times the area and twice both the width and height of a HDTV/FullHD (1920x1080) video signal.

●**EDID:** Extended Display Identification Data. EDID is a data structure used to communicate video display information, including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the provided EDID data, ensuring proper video image quality.

6.5 Revision History

The table below lists the changes to the User Manual.

Format	Time	ECO#	Description	Principal
V1.2	2024-11-04	0002#	Release mini-ISO	Niki
V1.3	2025-01-14	0003#	1. Update all known incorrect UI diagrams; 2. Modify all known format errors; 3. Update Section 1.2 Application Diagram; 4. Modify Section 3.3 to: press button B to enable the PIP function; 5. Modify Section 3.4 to: press "CUT" to switch the views without any transition effects; 6. Add content to Section 3.5: long press to save the views; 7. Modify Section 3.10.3 to: use the TAO Cloud to distribute the streaming address; 8. Add notes to Scetion 3.6.3; 9. Add network connection tips in Section 3.10.9; 10. Delete Section 6.3 describing the use of XTOOL or U Disk to update	Alyssa
V1.4	2025-03-06	0004#	1. Modify the function of the MULTI-VIEW port as	Alyssa

			multi-view preview.	
V1.5	2025-05-22	0005#	Align images and instructions with mini-ISO program V1.70: 1. Update Section 1.2.2: S-key functionality and touchscreen introduction 2. Add Section 3.1: Device control methods 3. Add Section 3.2: material upload via Web App 4. Add Section 4.1: YUY2 color range selection (Full)	Alyssa
V1.6	2025-07-14	0006#	Delete the audio cable in the included accessories.	Alyssa
V1.7	2025-08-11	0007#	Add descriptions about how to obtain recording time to Scetion 3.6.5.	Alyssa
V1.8	2025-08-15	0008#	Add multi-platform streaming description on Section 3.6.3.	Alyssa

Chapter 7 Support

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7.2 Operation Videos

Below are the tutorial videos of operating mini family's products. Click the link to learn how to operate your device.

https://www.youtube.com/@rgblink/playlists