FEELWORLD®

L3

Professional Multi Format Video Switcher



User Manual

V1.0

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

Safety Instruction

The general safety information in this summary is for operating personnel.
1. There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.
2. Please do not use chemical solutions to clean this product. Please wipe the switcher with a clean soft cloth to maintain the brightness of the surface.
3. This product comes with standard 12V/3A power adapter, please use the power supply correctly.
4. 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.

Packaging List

Video switcher

12V/3A Power adapter

Dual port USB/Type-C cable

Quick start guide

Key Features

- Supports 5+1 input sources (4*HDM + USB--extend UVC camera, playback/media library)
- 2*HDMl outputs easy to connect external display for PGM and MULTI-PVW monitoring
- T-Bar easily switch the transition effects and signal sources, up to 16 transition effects
- Real-time recording and supports playback
- USB-C or RTMP fast to live streaming
- Joystick and Zoom key for effortless PTZ control
- Embedded & Insert Audio with Sync
- Up to 7-channel audio mixing
- Chrome key + Logo overlay creating an exciting studio
- 8 PIP modes, support size/position custom adjustment, scale &crop
- Real-time view saving and fast call out
- Supports UVC input, compatible with such as DJI Osmo Action 5,Osmo Action 4, Osmo Pocket 3, DJI Pocket 2, Logitech C series/Brio series,Feelworld USB webcam etc,Blackmagic ATEM mini series,OBS tiny series/meet series, Yealink UVC86,Insta360 X3/link UHD 4K AI WEBCAM
- PC/Phone remote control via APP

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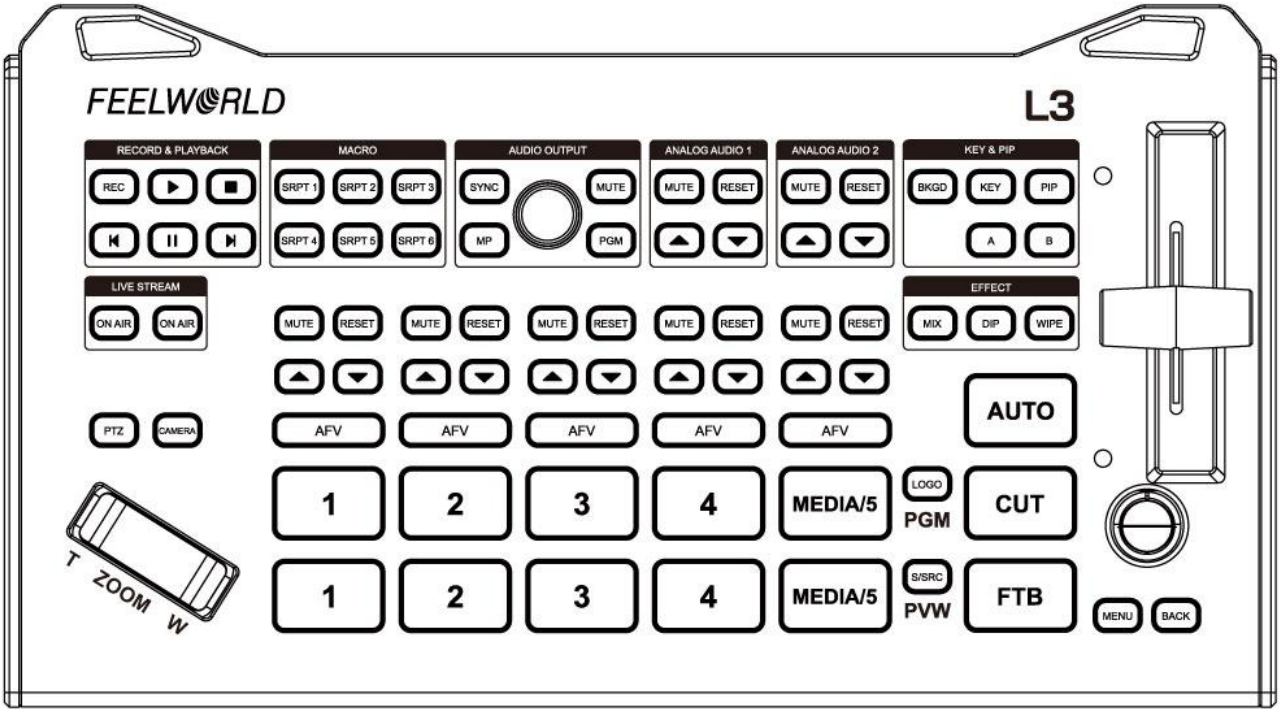
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Chapter 1 Your Product

1.1 Front Panel Instruction

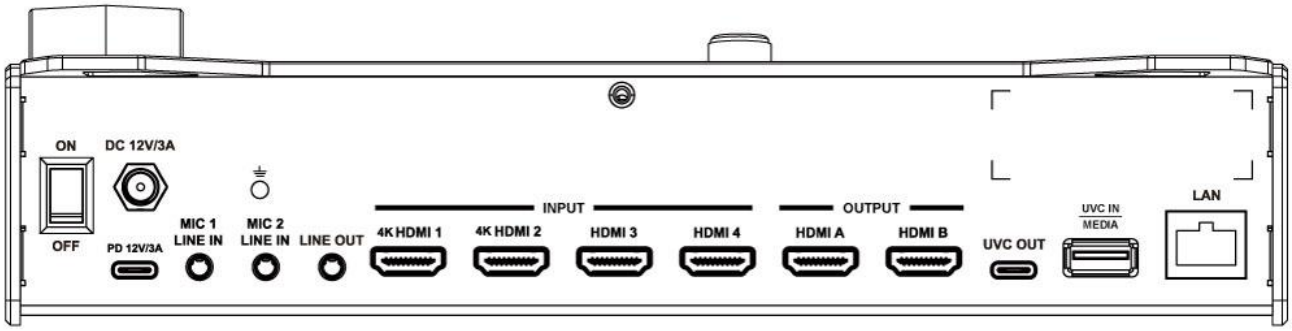


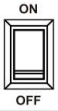
Area	Button	Instruction
Record & Playback	**REC**	Recording Key
	▶	Play Key
	■	Stop Key
	⏮	Play Previous Video
	⏸	Pause Key
	⏭	Play Next Video
MACRO	**SRPT1~SRPT6**	Script Operation Control Key (record a sequence of switcher operations to automate workflows)
AUDIO OUTPUT	◯	Adjust the Volume
	SYNC	Control the volume of MP and PGM simultaneously
	MUTE	Mute Key
	MP	When SYNC is turned off, select MP and set the volume of MP
	PGM	When SYNC is turned off, select PGM and set the volume of PGM
ANALOG AUDIO	**MUTE**	Mute Key
	RESET	Restore system default audio settings
	▲	Increasing the audio level (will not active when at the highest level)

	▼	Decreasing the audio level(will not active when at the lowest level)
KEY & PIP	**BKGD**	Background Signal Source Selection
	KEY	KEY ON/OFF
	PIP	PIP ON/OFF
	A	After enabling the KEY/PIP function, you can select layer A to make it adjustable and switchable
	B	Select Layer B to switched or adjusted
LIVE STREAM	**ON AIR**	When the device imported RTMP streaming address, press it to live stream.(the two ON AIR buttons on the panel correspond to 1,2 ON AIR in the menu)
AUDIO INPUT CONTROL	**MUTE**	Mute ON/OFF
	RESET	Restore system default audio settings
	▲	Increasing the audio level (will not active when at the highest level)
	▼	Decreasing the audio level(will not active when at the lowest level)
	AFV	Audio follow video switching
EFFECT	**MIX**	Mix transition
	DIP	Dip transition
	WIPE	Wipe transition
PTZ /UVC Camera Control	**PTZ**	Press it to enter PTZ control
	CAMERA	Press it to enter UVC camera control
	T--ZOOM--W	Zoom in/out
		**5-Direction Joystick** 1. left-right-up- down 4 directions to rotate direction of PTZ, press middle to confirm auto focus 2. left-right-up- down 4 directions rotate direction of UVC camera
PGM	1~5	PGM output signals
PVW	1~5	1~5 PVW preview signals
/	**LOGO PGM**	Logo overlay
/	**S/SRC PVW**	When in the PVW , one key access to the View function
/	**AUTO**	Auto transition

/	**CUT**	Press it to switch the signal from PVW to PGM directly
/	**FTB**	Fade to Black
/	**T-BAR**	Manual switch signal and transition, push to top end or bottom end to switch signal to PGM. T-Bar is not at end position input switch will fail
MENU OPERATION	**MENU**	Main menu
	BACK	Menu return
		**5-Direction Joystick** left-right-up- down 4 directions menu selection Press middle to confirm auto focus

1.2 Interface Panel Instruction



Interface	Instruction
	Power ON/OFF
DC 12V/3A	DC power input, you can use the standard 12V/3A power adapter
PD 12V/3A	USB-C power input,, connect to PD power adapter
MIC1 LINE IN	Connect to microphone, smartphone, computer or audio console
MIC2 LINE IN	Connect to microphone, smartphone, computer or audio console
LINE OUT	Audio out, connect to speaker/headphone
	Ground screw
4K HDMI 1~ 4K HDMI 2	4K HDMI signal inputs
HDMI 3~HDMI 4	2K HDMI signal inputs

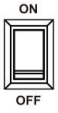
HDMI A~HDMI B	HDMI signal outputs HDMI A is for multi-view operation interface HDMI B is for PGM output
UVC OUT	USB-C streaming port
UVC IN **MEDIA**	1. Recording 2. Connect the expanding device such as PTZ 3. Media file 4. Firmware update/LOGO pic/Background pic/Stream address import
LAN	Communication Port

Chapter 2 Install Your Product

2.1 Plug in Power

2.1.1. L3 is packaged with a 12V/3A power adapter, can be connect to the DC 12V/3A power jack of L3. Please check the power supply standard used in your country/region.

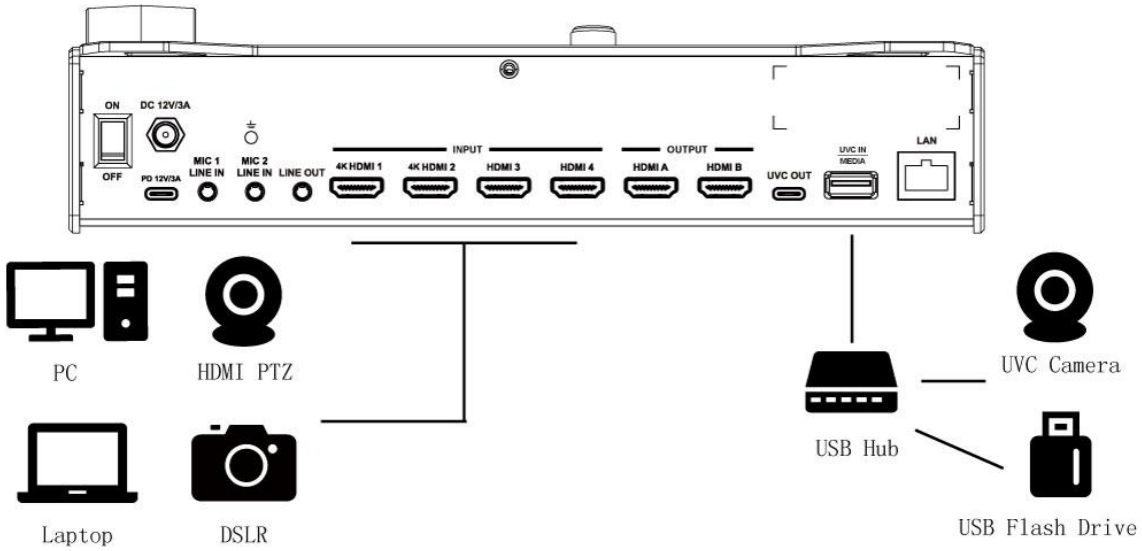
2.1.2. L3 also provides a PD 12V/3A power input, you can use a USB（PD)3.0 12V/3A power adapter to supply.

After plug the power, press the 

button to power on the L3

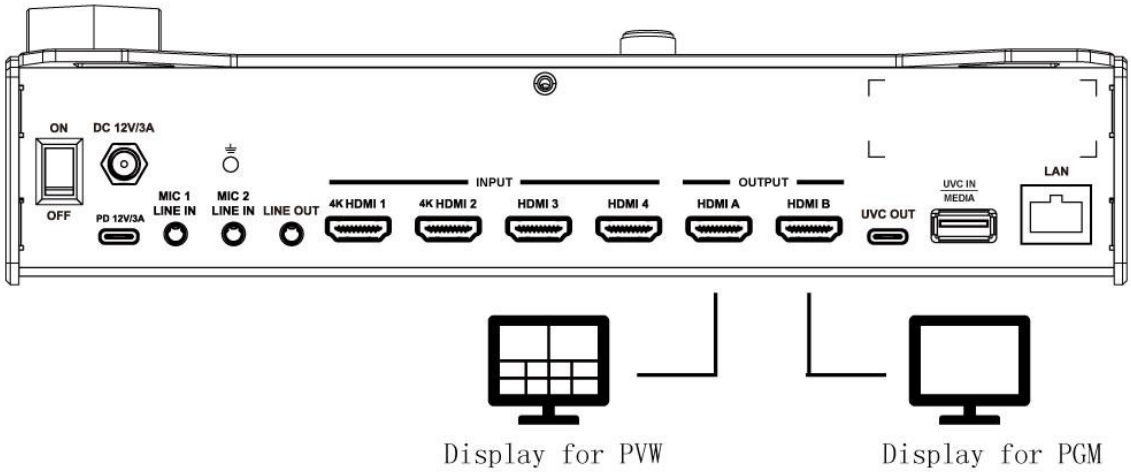
2.2 Connect Signal Source Input

You can use any camera, computer or other HDMI device as the input source of the L3. HDMI1&HDMI2 support up to 4Kp60, and HDM3&HDMI4 support 1080p60. L3 also comes with a UVC IN/MEDIA interface, combine use with a USB hub you can connect UVC camera and media file.



2.3 Connect HDMI Outputs

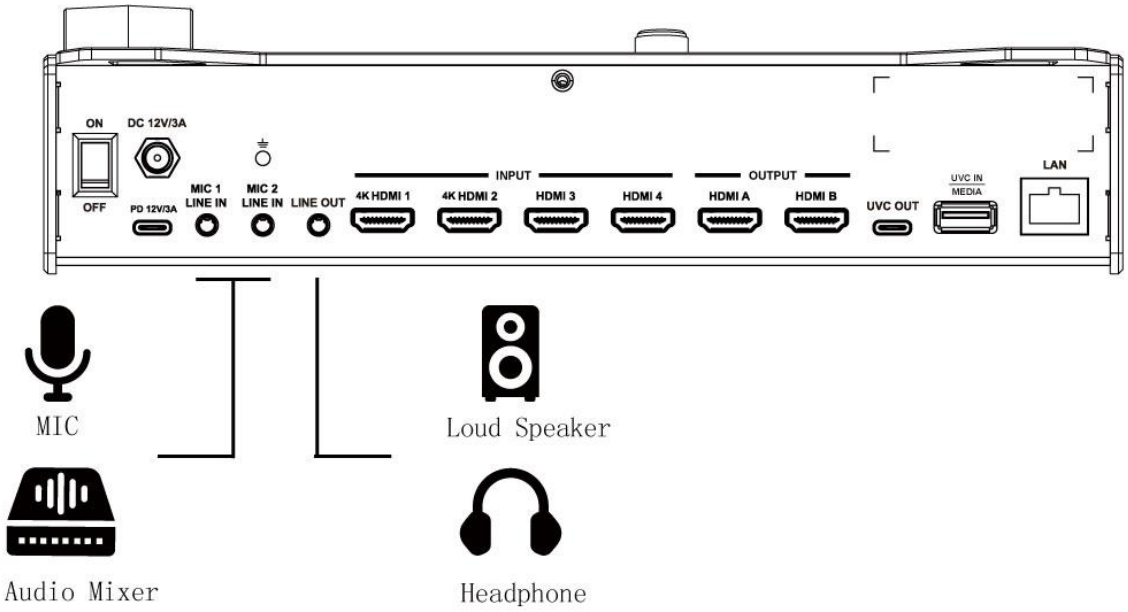
You can use a HDMI cable to connect the HDMI A output to a monitor with an HDMI input interface, so that you can monitor the input, output , audio display and menu in real time. You can also use another HDMI cable to connect HDMI B output to another monitor for PGM



2.4 Connecting Microphone and External Monitoring Devices

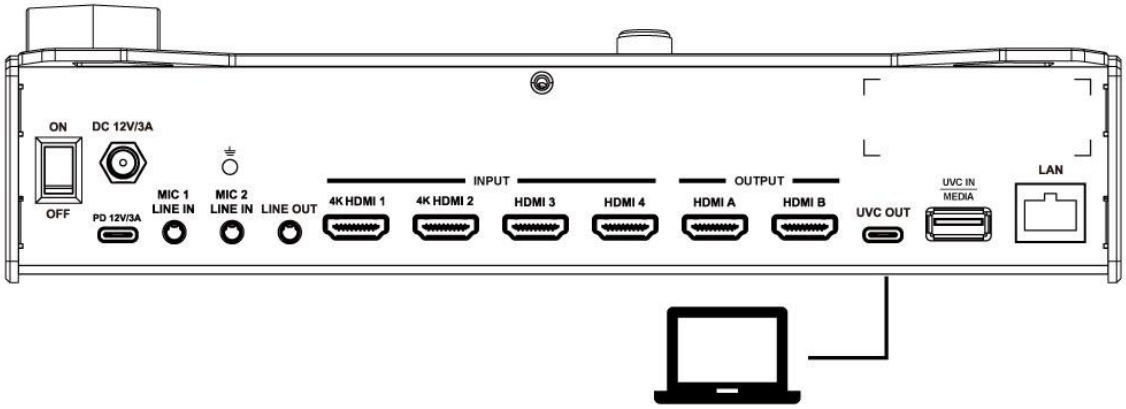
L3 provides dual 3.5mm mini audio inputs, you can connect microphone, also can use an external sound console to mix multiple external sound inputs.

L3 also provides a 3.5mm mini audio output, so you can use external speakers or headphones to monitor the L3 ’s main output audio signal in real time.



2.5 Connect USB-C as a Network Signal Source

You can use the L3 ’s UVC OUT port to use the L3 as a webcam source, and you can recognize the webcam signal from the L3 on live streaming platforms like Zoom, YouTube, Facebook, Twitch, OBS, etc.



2.6 Connect Computer and L3

Software control: connect computer and L3 with CAT6 cable

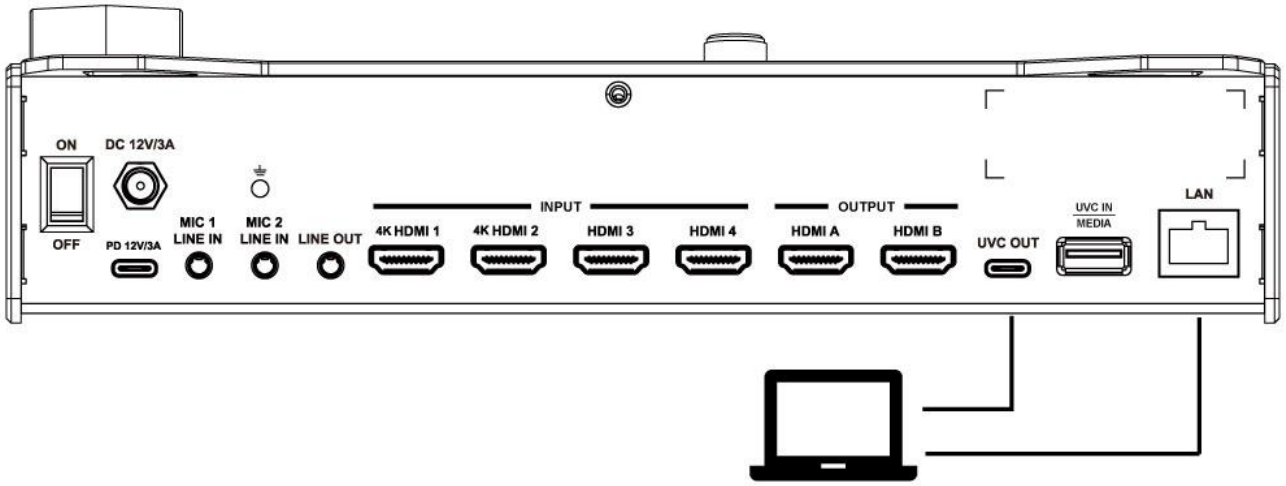
Stream: connect L3 ’s USB CONTROL and computer’s USB 3.0 port with USB3.0 cable (Note: the color of USB3.0 port is blue)

Minimum System Requirements for macOS （Note: the following system is an example, it doesn’t mean only this system supported）

- macOS 11.0 Big Sur or later
- macOS 10.15 Catalina

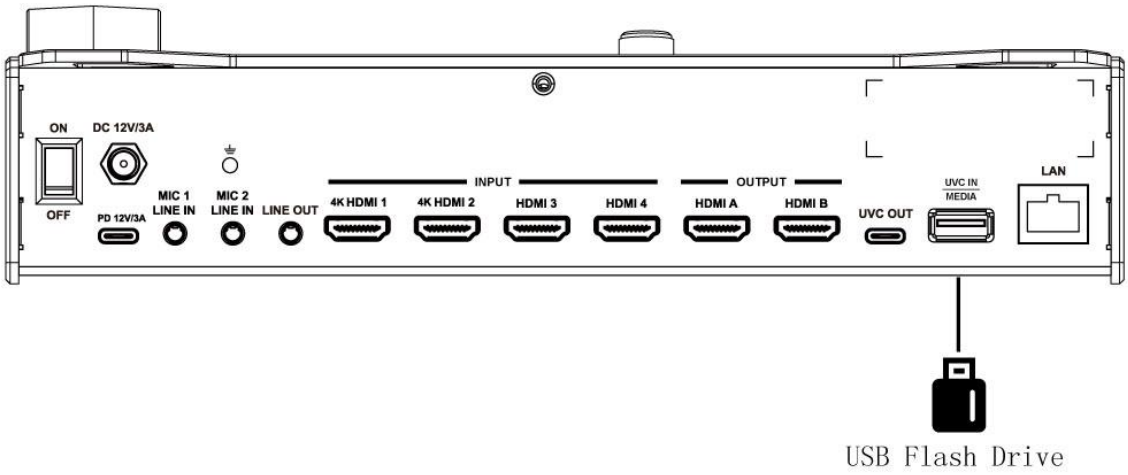
Minimum System Requirements for Windows

- Microsoft Windows 10 64-bit



Note： The IP address of the L3 must be in the same WLAN segment as the computer.

2.7 Connect UVC/MEDIA (USB 2.0)for Recording



■ Video recording

1. Format the USB flash drive

The USB flash drive can be formatted to FAT32 or exFAT file system, with two available operation methods:

①. When formatting on a computer, you can directly set the USB flash drive to FAT32 or exFAT file system.

②. When formatting on the L3 device, only the exFAT file system is supported for the time being.

Format on L3, you can enter main menu--record--U DISK Format. After formatting, the USB flash drive will automatically generate dedicated folders including lg_pic (for LOGO storage), bg_pic (for background image storage) and rtmp ini (for rtmp address storage), laying the groundwork for subsequent LOGO setting, background image import and streaming address configuration).

Remark: If your USB flash drive is already in FAT32 or exFAT format, you can simply insert it into the USB 2.0 port of the L3 , and automatically created the folders such as LSeries lg_pic, bg_pic and rtmp.ini

2. Connect the U Disk to the Device
Insert the formatted U disk into the UVC IN/MEDIA (USB2.0)port of the L3.

3. Start Recording
Press the **REC** button on the device panel. The button light will turn red, indicating that the recording has started officially.

4.Stop Recording
Press the **REC** button again. The button light will go off, and the recording will stop. The recorded files will be automatically saved in the U disk

5. View the Files
After stopping the recording, wait for 5 seconds before removing the U disk, then you can view the recorded files on a computer. Alternatively, you can directly check the files in the Record List of the device menu.

■ Video Play

Enter the menu, select Input, and then choose the recorded file from the MEDIA List. Select it to start playback. You can control the playback using the buttons on the panel:

press ▶ button to start play

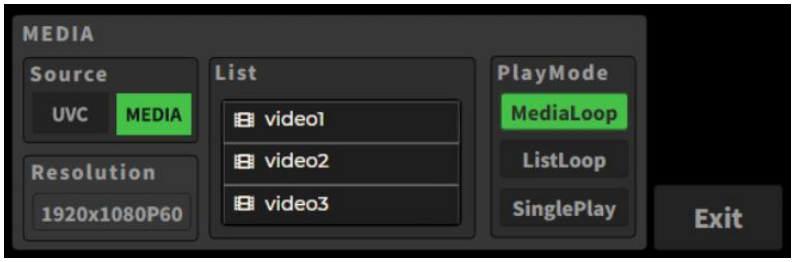
press ■ button to stop play

Press ⏸ button to pause play

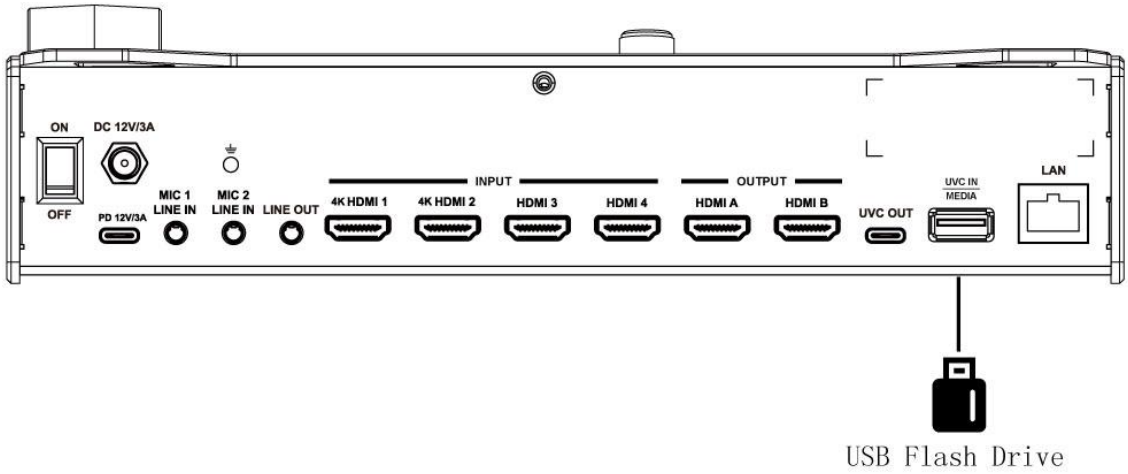
press ⏮ button to play the the previous video

Press ⏭ button to play the next video





2.8 Connect UVC/MEDIA (USB2.0) for Firmware Update



Firmware Upgrade Steps:

1. Format the U Disk

Format the U disk to the FAT32 file system.

2. Prepare the Upgrade File

Copy the firmware upgrade file to the root directory of the U disk, then insert the U disk into the UVC IN/MEDIA (USB2.0) port of the L3.

3. Initiate the Upgrade

Enter the device menu, navigate to System -- Upgrade, and confirm to start the upgrade process.

4. Complete the Upgrade

Wait for the upgrade to finish following the on - screen prompts. The device will restart automatically after the upgrade is completed.

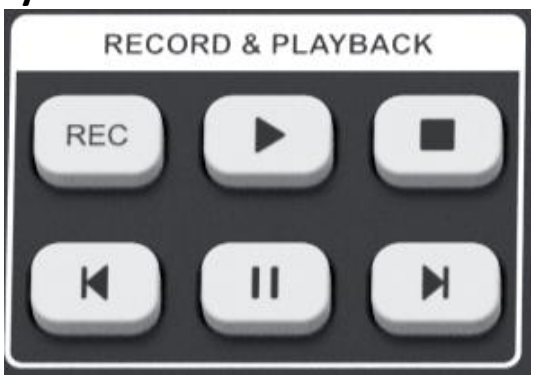
2.9 Ground Screw

In order to increase the safety and reliability, and avoid accidents such as fire and explosion caused by static electricity. The L3 is equipped with a grounding screw for optional additional grounding (**note: this is not mandatory**). To use it, loosen the screw, wrap the grounding wire around it, and then connect the other end of the wire to a metallic surface.

Chapter 3 Use Your Product

3.1 Button Instruction

3.1.1 Record & Playback



Record Operation

Insert the U disk into the UVC IN/MEDIA (USB2.0) port of the L3 . Press the **REC** button to start recording the content displayed on the PGM output. The button light will turn red during recording. Press the **REC** button again to stop recording.

Caution: Do not power off the device during recording.

Playback Operation

press ▶ button to start play

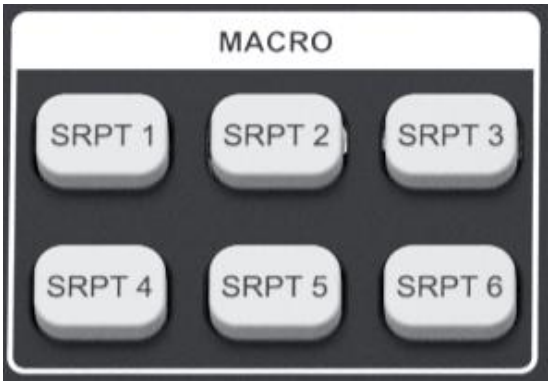
press ■ button to stop play

Press ⏸ button to pause play

press ⏮ button to play the the previous video

Press ⏭ button to play the next video

3.1.2 MACRO



The front panel of L3 PRO features 6 script keys. These keys can record a sequence of switcher operations to automate workflows. Once saved, you can replay the whole sequence with a single press anytime.

It supports storing operations including signal selection and switching for PGM and PVW, transitions via AUTO, CUT and T-BAR, as well as enabling FTB, Recording, KEY and PIP functions and selecting corresponding signal sources. Presets can be flexibly configured to suit different needs, simple or complex, making them a reliable tool for on-site production.

Operation Steps (Take SRPT1 as an example)

1. Press and hold the SRPT1 key until the indicator flashes red and then stays solid red. The recording mode is activated. You may now perform operations, such as enabling PIP and selecting signal sources for Layer A and Layer B.
2. After completing the settings, press SRPT1 again. A solid white indicator means the script is saved successfully.
3. To recall the script, press SRPT1. The indicator will flash green and then stay solid green.

Note: No indicator light will be triggered if no script is stored in the key.

3.1.3 Audio Output



1. Volume Adjustment Rules

Non-sync Mode (SYNC Off, No Light On)

- Press the MP button (white light on): Rotate the knob to adjust only the MP (Headphone Monitoring) volume.
- Press the PGM button (white light on): Rotate the knob to adjust only the PGM (Program Output) volume.

Sync Mode (SYNC On, SYNC, MP and PGM Buttons All Light Up White)

- Rotate the knob to adjust the volumes of both MP and PGM simultaneously.
- If the two volumes are inconsistent before adjustment, the PGM volume will be used as the reference for synchronous adjustment.

2. MUTE Rules

When SYNC is On

- Press the MUTE button: Both MP and PGM will be muted at the same time, and all buttons will stay lit white.
- No light feedback will be given if the MUTE function is inactive.

When SYNC is Off

- Press the MUTE button: Only the currently selected audio channel will be muted (MP is muted first by default).
- No light feedback will be given if the MUTE function is inactive.

3. Button Light Indications

Function Status	Button Light Performance
SYNC Active	SYNC, MP and PGM buttons light up white simultaneously
SYNC Inactive	No corresponding lights on
MUTE Active	All buttons stay lit white (Sync Mode) / Only the selected channel button lights up (Non-sync Mode)
MUTE Inactive	No corresponding lights on

3.1.4 Analog Audio 1&2



This section applies to the audio input operations of MIC1/LINE IN1 and MIC2/LINE IN2 audio inputs.

1. Mute Control (MUTE)

Audio is enabled by default:

- Press the MUTE button to activate the mute function; the button will stay solid red;
- Press the button again to deactivate mute; the button light will turn off.

2. Reset to Default (RESET)

Press the RESET button to restore the system's default audio settings. The button will illuminate white briefly and then turn off automatically.

3. Volume Adjustment

▲ KEY: Press to increase the audio volume by one level. Adjustment stops when the maximum volume is reached. The button will light up white briefly and then turn off;

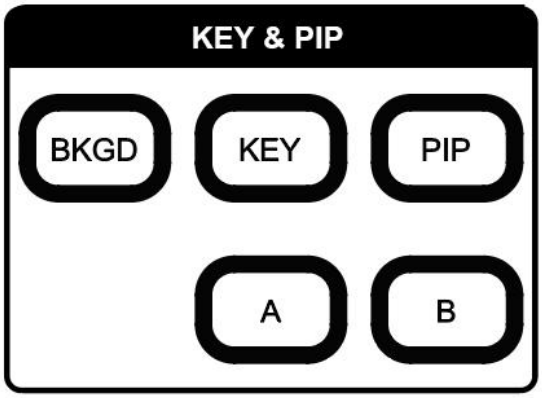
▼ KEY:Press to decrease the audio volume by one level. Adjustment stops when the minimum volume is reached. The button will light up white briefly and then turn off.

4. Audio Meter

In multi-view display mode, the MIC/LINE IN Audio Meter window is located at the bottom-left corner of the screen, allowing real-time monitoring of the audio source level.

- Adjustment Paths: ① Direct operation via the buttons on the device panel; ② Menu Path: Menu > Audio > MIC1/MIC2 Setting.

3.1.5 KEY & PIP



Background Control (BKGD)

- Press the BKGD button to enable the background function; the button will stay solid white;
- Press the button again to disable the background function; the light will turn off

Key Function (KEY)

- Press the KEY button:The button will stay solid white, the KEY screen enters Preview (PVW)
- Follow Signal Source Switching: The KEY screen will be cut into Program Output (PGM) or cut out from PGM along with signal source switching;
- When Enabled: Only Layer A is activated, displaying in full screen with keying applied.

Picture-in-Picture (PIP)

- Press the PIP button to enable the Picture-in-Picture function; the

button will stay solid white, and the PIP screen enters Preview (PVW) first, with A as the sub-screen and B as the main screen;

- Follow Signal Source Switching: The PIP screen will be cut into Program Output (PGM) or cut out from PGM along with signal source switching;
- When Enabled: A and B screens can be called normally.

Layer A Control

- Press the A button for the first time: Turn on Layer A, the button stays solid white, and the signal source can be selected;
- Press the A button for the second time: The button enters a flashing state, and Layer A can be edited (adjust size via the ZOOM button, adjust position via the joystick);
- Press the A button for the third time: Exit the ZOOM and joystick adjustment functions for size and position.

Layer B Control

When PIP is enabled, Layer B can be controlled

- Press the B button for the first time: Turn on Layer B, the button stays solid white, and the signal source can be selected;
- Press the B button for the second time: The button enters a flashing state, and Layer B can be edited (adjust size via the ZOOM button, adjust position via the joystick);
- Press the B button for the third time: Exit the ZOOM and joystick adjustment functions for size and position.

3.1.6 LIVE STREAM



ON AIR Button Function Instruction

1. Function Trigger Prerequisite

The device must have the streaming URL imported first. Press this button to activate the streaming function.

2. Correspondence Between Light Status and Streaming Status

- No light: The device is in network-disconnected streaming status (streaming not successful).
- Red light on constantly: The device is in active streaming status (streaming task running normally).

3. Default Rule for Multiple Buttons

- The two ON AIR buttons on the panel are set by default to control

Streaming CH 1 and Streaming CH 2 in the streaming menu respectively, namely:

- Button 1 → Stream CH 1
- Button 2 → Stream CH 2

3.1.7 Audio Input Control Area



MUTE (Mute Button)

Audio is enabled by default. Press the MUTE button to activate mute mode, the button light with the red light staying on constantly; press the button again to deactivate mute mode, and the button light will turn off.

RESET (Reset Button)

Press the RESET button to restore the system to its default audio settings. The button light will stay on white for about 3 seconds and then turn off

automatically.

▲ (Volume Up Button)

Press this button to increase the audio volume by one level. When the volume reaches the maximum level, further button presses will have no effect, and the button light will stay on white for about 3 seconds and then turn off automatically.

▼ (Volume Down Button)

Press this button to decrease the audio volume by one level. When the volume reaches the minimum level, further button presses will have no effect, and the button light will stay on white for about 3 seconds and then turn off automatically.

AFV (Audio-Follow-Video Button)

Press the AFV button of the corresponding channel, and the audio of that channel will switch synchronously with the video. When the AFV function is activated, the button light will be solid white light; when the function is not activated, the button light will stay off.

3.1.8 EFFECT Area



MIX (Mix Transition Button)

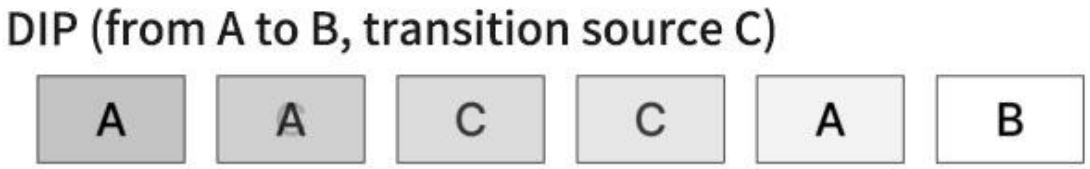
This button corresponds to the mix transition mode; press it and the button light stays white on constantly. This effect enables a smooth transition from one video source to another, during which the two video sources are gradually blended in a cross-dissolve manner.



DIP (Dip Transition Button)

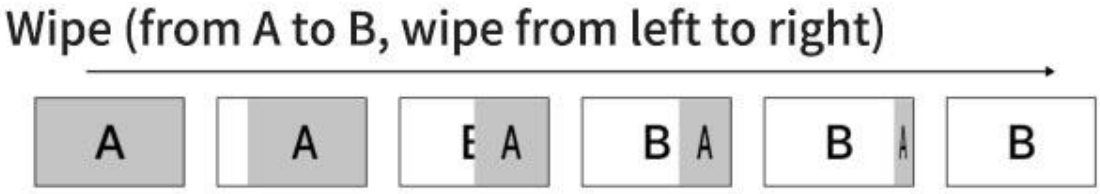
This button corresponds to the dip transition mode; press it and the button light stays white on constantly. This mode delivers an immersive video transition effect by means of dip color field immersion.

The difference between dip transition and mix transition lies in that the former requires a third signal source for fusion transition. During the transition switch, the target video source will slowly emerge from this third signal source, which is generally referred to as the dip signal source. The L3 device supports the use of solid-color images as the dip signal source.



WIPE （Wipe Transition Mode）

Press this button, the button light stays white on constantly, achieving a gradual transition from one video source to another, moving from left to right.



3.1.9 AUTO, CUT, FTB

AUTO Button:

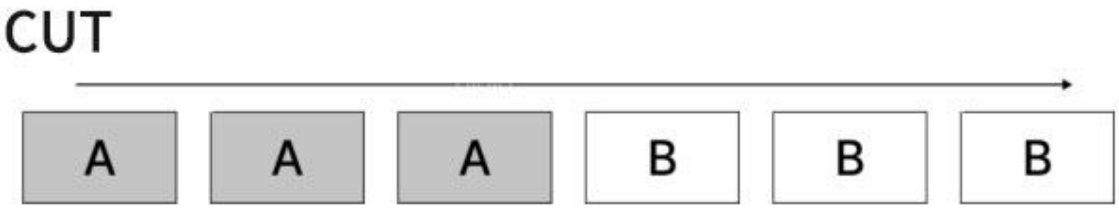
Auto-transition function. Press this button, and the device will complete the transition switch between the Program (PGM) and Preview (PVW) signals according to the selected transition mode (MIX/DIP/WIPE). The transition effect will be displayed synchronously in the PGM window of the multi-view screen and the main output screen. The button light turns red during



the transition and turns off automatically after the transition is completed.

CUT Button

Cut transition function. Press this button to perform a cut transition, which directly switches the signal between Program (PGM) and Preview (PVW). The button light turns red during the transition and turns off immediately after the transition is completed.



FTB Button

Fade-to-black function. This function executes a mix-to-black operation and is applicable to all video layers. The transition effect is displayed on the Program (PGM) screen, and the indicator light of the FTB button stays solid red during the blackout. Fade-to-black transition is commonly used as a convenient method for the start and end of live broadcasts. When the fade-to-black function is activated, the main program audio fades out synchronously. Press the FTB button again to resume normal live production.



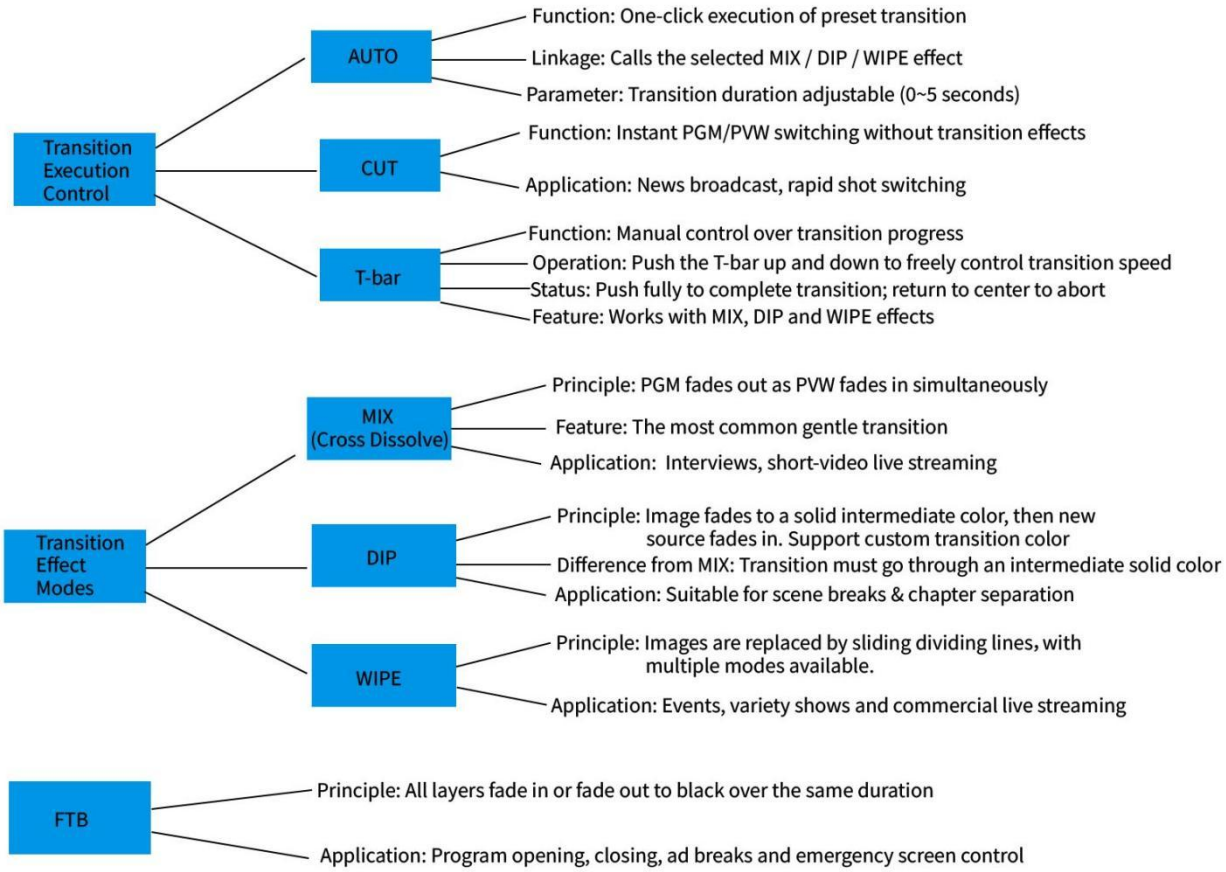
3.1.13 T-BAR

Manual Signal/Effect Switching Operation

When the control component is moved to the top-most position, the indicator light turns green;When moved to the bottom most position, the indicator light also turns green;When it is in the middle position, the green lights on both sides go out.



■ Transition Execution Control and Effect Modes Instruction



3.1.11 PTZ /UVC Camera Control





Joystick

PTZ Button: Press this button, and the button light turns into a white constant-on mode. At this point, the ZOOM button and the joystick will enter the PTZ control state.

Press the ZOOM button to adjust the zoom of the PTZ. Toggle the joystick up, down, left, or right to adjust the rotation direction of the PTZ. Press the confirmation button in the middle of the joystick to activate auto-focus.
CAMERA Button: Press this button, the button light turns into a white constant-on mode, and the device will enter the UVC camera control state; use the joystick to adjust the camera's rotation direction.

3.1.12 Signal Source Area



This area is used to switch the background signals of Program Output (PGM) and Preview Output (PVW). Press the corresponding signal source button to switch the signal source of the program output or preview output.

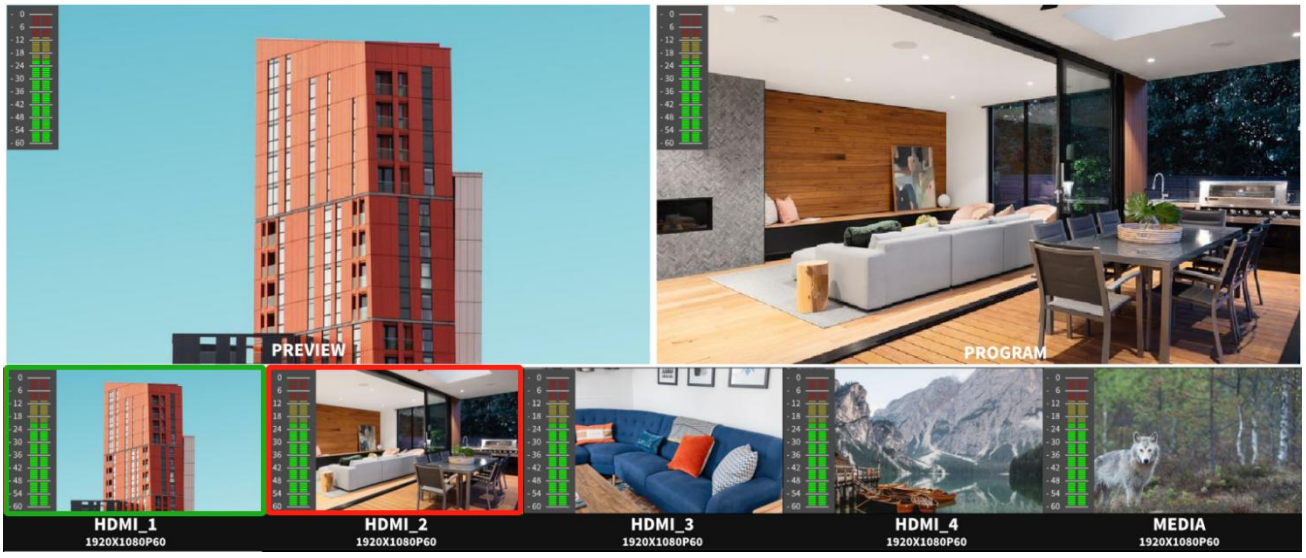
- **PGM (Program Output)**

The buttons in the upper row are program output signal source selection buttons. Buttons 1–4 correspond to HDMI input signals, and the MEDIA/5 button corresponds to UVC camera or media file input signal.
After selecting a signal source, the signal will be directly used as the PGM output signal. When switching the PGM signal source, only the program output screen changes, without affecting the preview output screen.
When a signal source is selected, the red indicator light of the corresponding button stays on, and the indicator lights of the other four buttons turn off.
The current program output signal can be monitored in the program output

window (i.e., the PROGRAM window shown in the below figure) of the multi-view display window. The signal source currently selected for PGM is identified by the red rectangular box in the second row.

- **PVW (Preview Output)**

The buttons in the lower row are preview output signal source selection buttons. Buttons 1–4 correspond to HDMI input signals, and the MEDIA/5 button corresponds to UVC camera or media file input signals.The selected signal source is a preview signal, which needs to be switched to PGM program output via a transition operation.When a signal source is selected, the green indicator light of the corresponding button stays on, and the indicator lights of the other four buttons turn off.The selected preview background signal can be previewed in the preview output window (i.e., the PREVIEW window shown in the below figure) of the multi-view display window, which is commonly used for signal pre-check before official broadcasting. The signal source currently selected for PVW is identified by the green rectangular box in the second row.





3.1.13 LOGO + View

LOGO Button: Used to turn the LOGO display function on or off. When activated, the button light stays solid red, and the LOGO is displayed synchronously on both the Preview (PVW) and Program (PGM) screens. When deactivated, the indicator light turns off.

The device has 8 built-in default LOGO and supports users to import max. 8 custom LOGOs. (See section 3.2.7 LOGO in the MENU Instruction for details)

S/SRC Button: Used for switching preset scenes, enabling sequential toggle from VIEW1 to VIEW8. When the button is pressed, the button light turns green and then goes off immediately.



3.1.14 Menu Operation Area

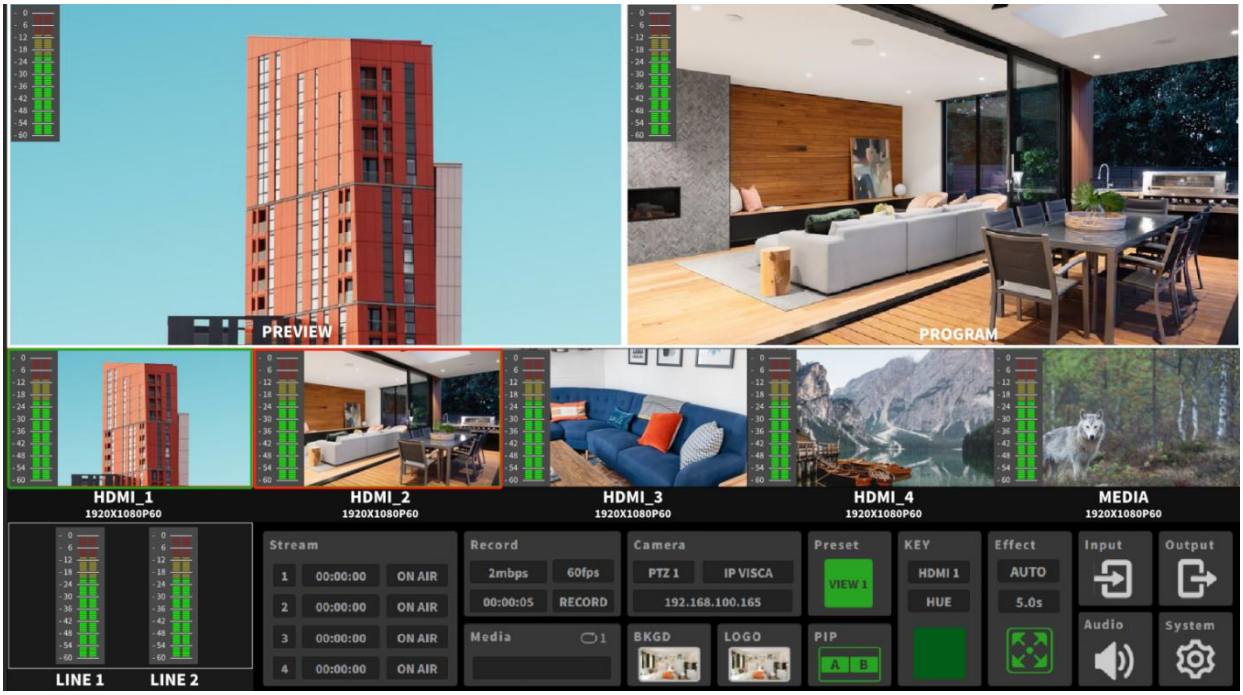
MENU Button: Press to enter the main menu
BACK Button: Press to return to the previous menu

: Toggle the joystick (Up/Down/Left/Right) to select menu options, and press the confirmation button in the center to confirm the menu function.

3.2 MENU Instruction

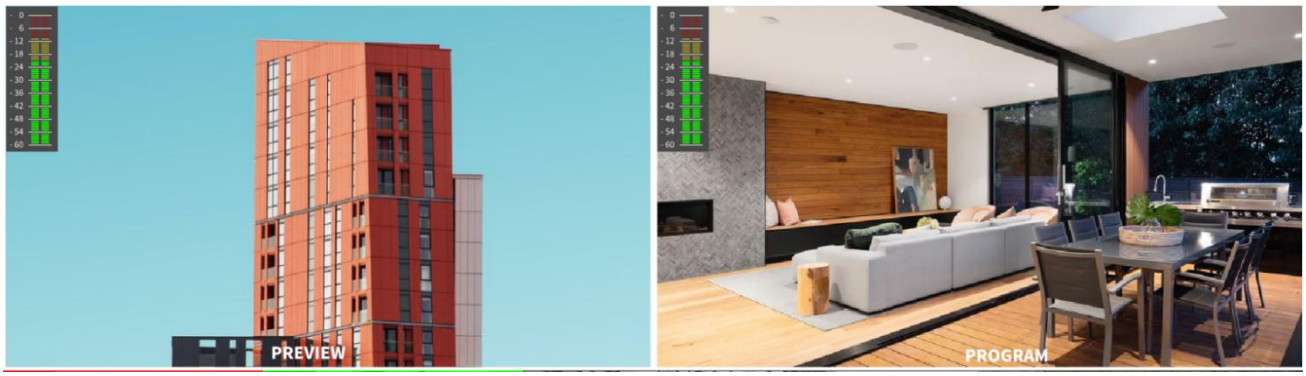
3.2.1 Multi-screen Display

The L3 is equipped with a multi - screen display function, which enables simultaneous monitoring of program output, preview output, signal sources, audio status, and other contents on a single screen. After completing the connection of input and output devices, power on the L3 and connect it to the multi - screen monitoring interface (HDMI A).



1. Program Output and Preview Output Windows

In the top - row windows of the multi - screen display, the right window displays the current program output image by default, which is used to monitor the content being broadcast. The left window displays the preview output image, i.e., the content to be broadcast next, allowing users to preview the pre - cut signal, transition effects, and key loading effects in advance.



2. Signal Sources

The five windows in the second row correspond sequentially to the content and resolution of the signal sources transmitted via the video input interfaces HDMI 1~HDMI 4 and UVC/MEDIA. A red border around the signal

source image indicates that the signal source is in the main program output (live PGM) state; a green border indicates that the signal source is used for preview output (PVW).



3. Audio Meters

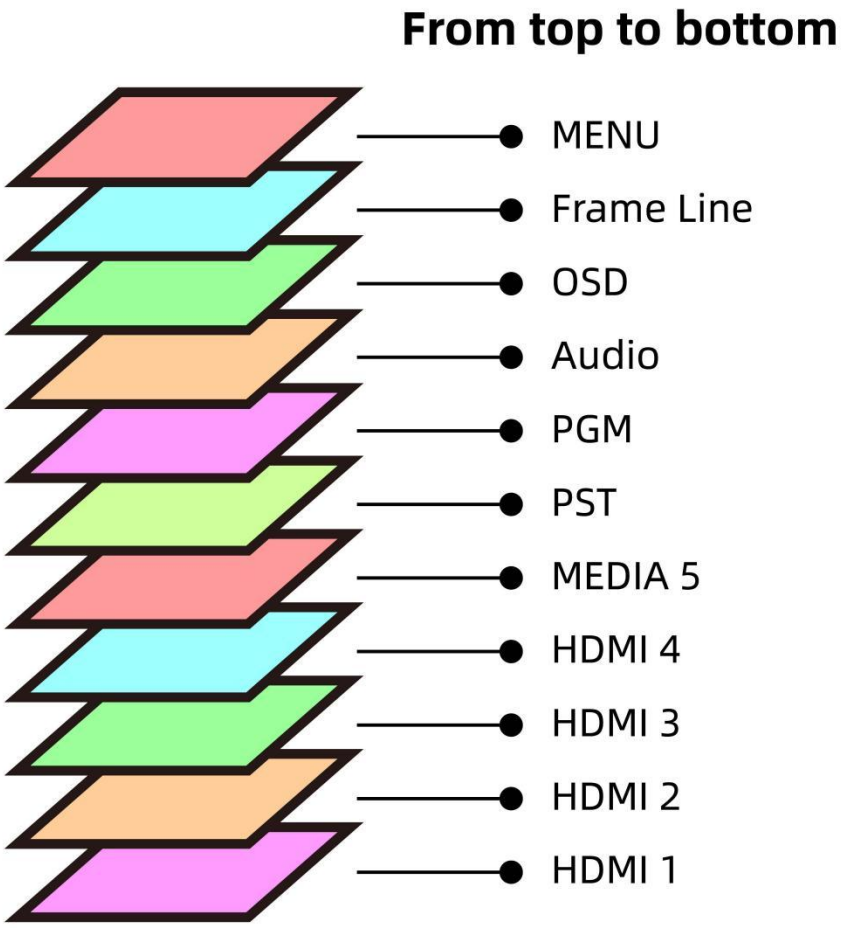
An audio meter is displayed on the left side of each signal source window, and a MIC/LINE IN audio window is located on the left of the third row, which allows for real - time monitoring of the level of each audio source. The parameters of the audio channels can be directly adjusted via the buttons on the panel or configured through the menu.

4. Operable Menu Area (Main Menu)

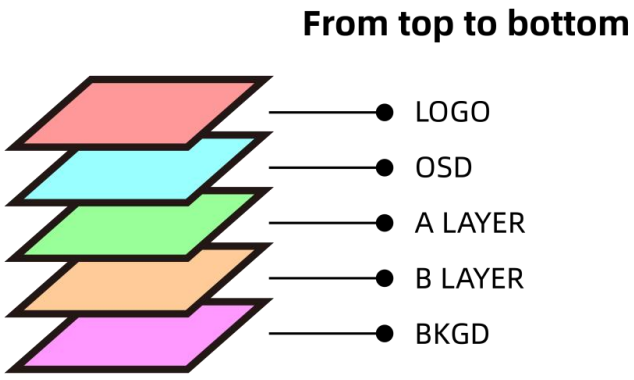
The right side of the third row is the operable menu area, which enables real-time monitoring of streaming duration, recording status, media resource, PTZ, background (BKGD), logo, View, picture-in-picture (PIP), keying , transition effect mode and effect duration.



■ MULIT-PVW Layer Stacking Relationship



■ **PGM Layer Stacking Relationship**



3.2.2 Stream



The L3 supports network streaming. You can import the RTMP streaming address from the live streaming platform into the L3 to start streaming. It can also be recognized as a network camera for streaming via online streaming media software such as OBS (refer to Chapter 4 for details on UVC streaming).

Select **STREAM** on the main menu and confirm to enter the setting interface

CH1~CH4: Select the streaming channel to stream

Output Mode: Horizontal, Vertical for optional

BITRATE: 2M bps/4M bps/8M bps/16M bps for optional

NDI: Open the NDI switch to activate the NDI output function. Connect the L3 to an NDI device or computer via an Ethernet cable, and then the corresponding signal can be viewed on the NDI device or the computer which with NDI software. This function offers a 30 - minute free trial period, and long - term usage right can be unlocked after payment.

■ RTMP Stream Address Import Steps

- Insert the U disk into the USB 2.0 port of L3 . After about 5 seconds, the device will automatically generate the file X:\LSeries\rtmp.ini. Remove the U disk and connect it to a computer.
- After connecting the U disk to the computer, open the rtmp.ini file. Copy and paste the RTMP streaming URL provided by the live streaming platform into the file and save it. A maximum of 4 streaming URLs can be imported at the same time, then safely eject the U disk.
- Plug the U disk with the configuration file into the USB 2.0 port of L3 .

Select **URL – U Disk** in the device menu and confirm. The streaming URLs

will be imported successfully and displayed in the address list on the right side of the menu.

3.2.3 RECORD

Record format: mp4

USB flash drive support format: FAT32、exFAT

Storage: Recorded files are saved in the USB drive directory x:\LSeries\record by default. A single file is approximately 4GB in size. When one file is full, the system will automatically switch to a new file for storage.

ON/OFF: Select “RECORD” and confirm to start to record

AUDIO: ON/OFF

BITRATE: 2M bps/4M bps/8M bps/16M bps for optional

FREE SPACE: display the remaining record-able storage space of the USB drive in real time

RES: Default 1920×1080. If the output resolution is manually adjusted, the modified value shall prevail.

U DISK Format: If the USB disk is unformatted, you can perform the formatting operation in this interface. After formatting, the system will automatically generate supporting folders such as lg_pic and bg_pic.

3.2.4 Media

The Media need to set in **“Input”** (see 3.2.12 Input)

3.2.5 Camera



The L3 supports controlling PTZ cameras that transmit control commands via the IP VISCA protocol, with a maximum connection capacity of 4 PTZ cameras. To control PTZ cameras, the computer, L3 and PTZ cameras must be on the same network segment.

PTZ Selection： Select any camera from PTZ1 to PTZ4.

PTZ Connect： After selecting the target PTZ, configure the camera's IP address and port number (default port number: 1259), then establish the connection.

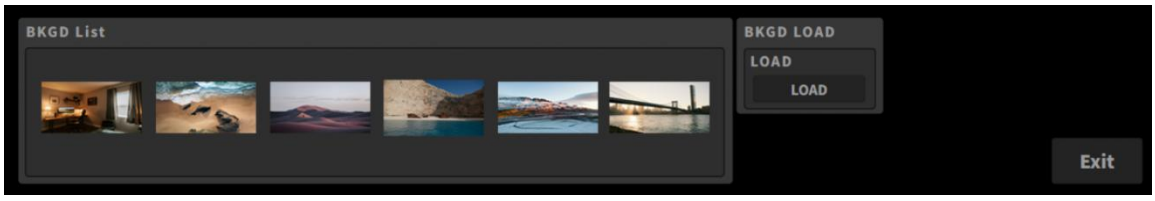
Protocol： Default to IP VISCA protocol

Pan/Tilt Speed： Set the PTZ pan/tilt speed to level 1–17.

Reset： Confirm the operation to restore all PTZ parameters to default settings.

Focus： Auto Focus / Manual Focus for option

3.2.6 BKGD



The L3 comes with 6 built-in background images, and users can also import custom background images via the USB 2.0 port. After importing custom images, the original built-in background images will be automatically overwritten. To restore the built-in background images, simply perform a device reset.

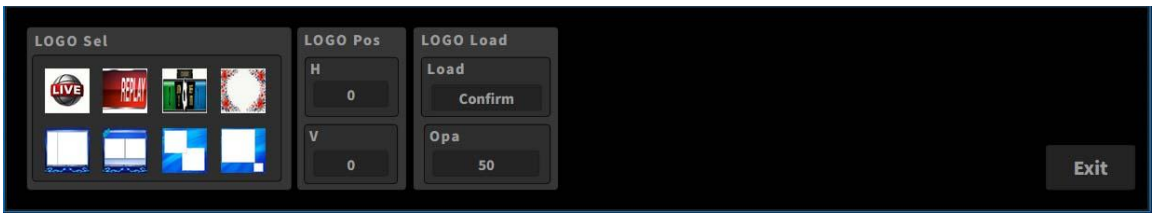
Requirements for imported custom background images are as follows:

Image Format: PNG, BMP are supported

Image Resolution: 1920×1080

Path and Naming Convention: Save the images to the folder x:\LSeries\bg_pic in the root directory of the USB flash drive. Name the images as bg_1 to bg_6 (e.g., to replace the 1st background image, name the custom image bg_1; follow the same naming rule for other images).

3.2.7 LOGO



The L3 built-in 8 logos. Users can also import custom logos via the USB 2.0 port, with a maximum capacity of 8 logos. Imported images will overwrite the original logos by file name. For example, importing pics named lg_1 to lg_3 will replace the first three logos.

Logo Position: The horizontal and vertical coordinate values both range from 50 to 1920

Opa (transparency): 0 ~ 100

■ Requirements for importing custom logos are as follows:

Image Format: PNG format

Image Size: Must be smaller than the screen display size

Path and Naming Convention: Save the logo images to the folder x:\LSeries\lg_pic in the root directory of the USB flash drive. Name the images as lg_1 to lg_8 (e.g., to replace the 1st logo, name the custom image lg_1; follow the same naming rule for other images).

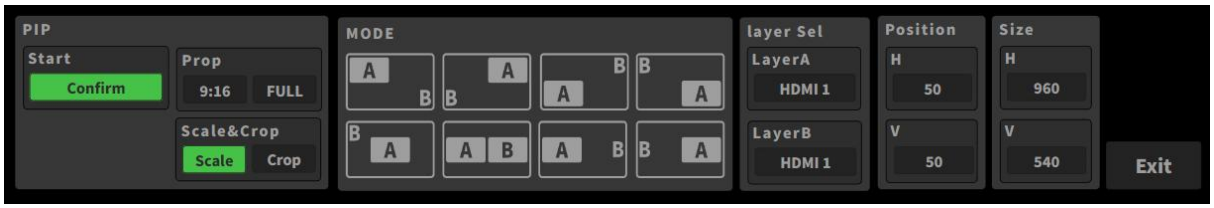
3.2.8 Preset



The L3 comes with 4 preset scene modes: Teaching, Meeting, E-sport and Church. The VIEW5 to VIEW8 support custom scene settings via the menu, which can be saved after configuration. Click any of VIEW 1~VIEW8 and Confirm to Apply to quickly call up the corresponding scene.

Preset Exit : Restore to the last screen before entering the preset scene.

3.2.9 PIP



The Picture-in-Picture (PIP) function enables simultaneous display of the main picture and sub-picture. It supports overlaying the sub-signal source on the small window of the main picture, and allows custom configuration of the PIP mode, picture position and size.

Start: The PIP function will be activated after “Confirm”, quick activation is also available by directly pressing the PIP button on the panel.

Proportion: Supports 9:16 and Full Screen modes (when Full Screen is selected, Layer A and Layer B will be scaled and adapted synchronously).

Scale&Crop: Independent operations are available for Layer A or Layer B. For example, after selecting the "Scale" function and "Layer A", you can adjust the size of Layer A separately.

Mode: 8 optional PIP modes are provided

Layer Selection: Toggle the joystick up and down to switch the signal sources corresponding to Layer A/B.

Layer Position: Toggle the joystick up and down to adjust the horizontal/vertical position of the layer within the range of 0–1920.

Layer Size: Toggle the joystick up and down to adjust the horizontal/vertical size of the layer within the range of 50–1920.

■ PIP Operation Steps

1. Activate the PIP function

2.Select the desired PIP mode

3.Specify the signal sources for Layer A and Layer B respectively



3.2.10 KEY



Start: The keying function will be activated upon confirmation. Press the KEY

button on the panel directly for quick activation.

Mode: Chroma keying and Luma keying for optional.

Layer: Toggle the joystick up and down to select the signal source for the Main and BKGD (background) layer respectively.

Type： Chroma keying includes green screen and blue screen options; Luma keying includes Black and White options.

Saturation： Adjustment range 0~1023

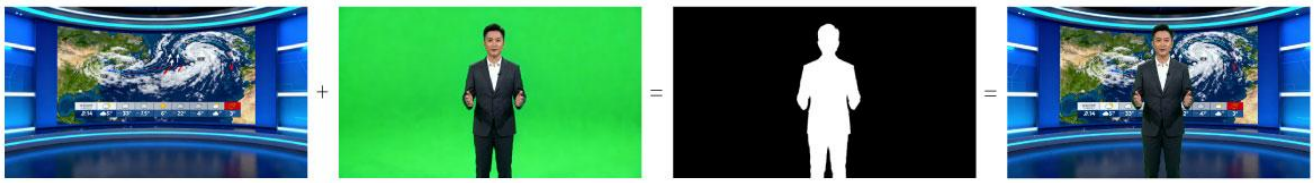
Minimum Value： Adjustment range 0~1232

Maximum Value： Adjustment range 0~2880

■ Steps for Chroma Keying

Chroma keying refers to removing the solid-color background and overlaying the target image onto the frame of another signal source, so as to achieve virtual reality application effects. This function can be configured and adjusted either via the menu of the device or through the FEELWORLD Control Software to set.

1. Activate the keying function and select the **Chroma** Keying mode.
2. Select the corresponding signal sources for the main source and background layer respectively.
3. Select the background color, with green as the default.
4. Adjust the three parameters: Saturation, Minimum Value and Maximum Value



■ Steps for Luma Keying

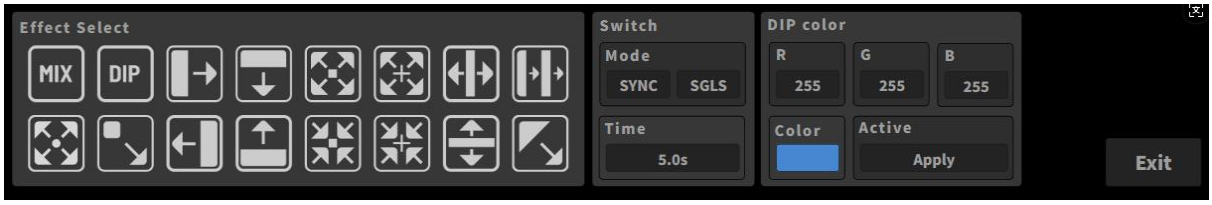
Luma keying means adjusting the brightness threshold to remove the shadow or highlight background in the frame, so as to quickly achieve the

overlay and fusion of the foreground and new background.

1. Activate the keying function and select the Luma Keying mode.
2. Select the corresponding signal sources for the keying subject and background layer respectively.
3. Choose the background type to be removed, with Black or White available.
4. Adjust the three parameters: Saturation, Minimum Value and Maximum Value.



3.2.11 Effect



There are 16 effects for selection

MIX	Mix transition
DIP	Third layer transition
	Slide right from left
	Slide down from top
	Rectangle Expand Outward
	Cross Expand Outward
	Horizontal Expand from Center

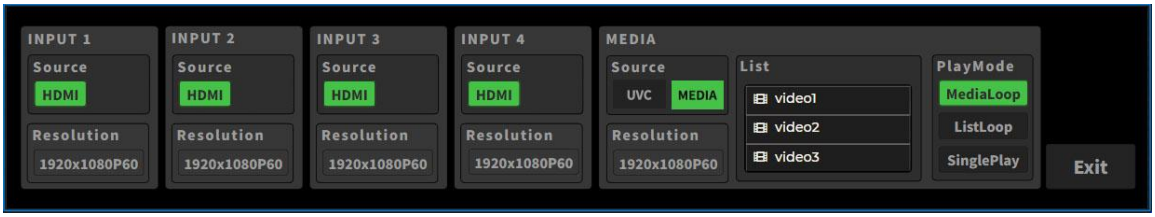
	Slice Slide Right
	Circle Expand Outward
	Rectangle Stretch (Top-left to Bottom-right)
	Slide Left from Right
	Slide up from bottom
	Rectangle Shrink Inward
	Cross Shrink Inward
	Vertical Expand from Center
	Diagonal Side Stretch

Switch Mode

- **SYNC (Synchronization Mode):** When switching the signal sources corresponding to PGM (Program) and PVW (Preview), the PVW and PGM images will not be swapped but change synchronously.
- **SGLS (Independent Mode):** When switching between PVW and PGM, the corresponding signal sources will be switched independently, and the PVW and PGM images will be exchanged with each other.
- **Switching Time：** Adjustment range 0~5 seconds (s)

DIP Color： When the DIP transition effect is selected, the R/G/B color values can be customized (range: 0~255). Confirm the color effect in the color preview window and click “Apply” to activate the effect.

3.2.12 INPUT



INPUT1~INPUT4 ： HDMI1~HDMI4 signal source

MEDIA 5 Signal Source Description

This channel is the 5th signal source, which can be selected to connect to a UVC camera or read MEDIA playback files.

Play Mode： When MEDIA play file is selected, three play modes are supported-- Media Loop, List Loop and Single Play.

3.2.13 OUTPUT



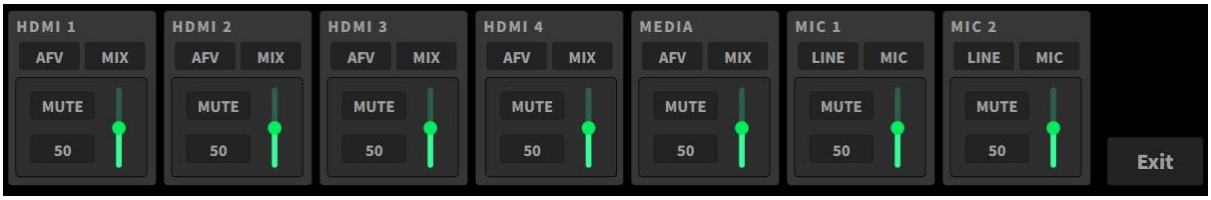
Output Settings (for HDMI B output)

Output Type： Two modes are selectable: TP (Test Pattern Interface) and PGM (Program Output).

Resolution： Three resolution are supported, namely 1920×1080P60, 1920×1080P30 and 1280×720P60

Audio Output： The monitoring audio and PGM output audio can be muted or adjusted in volume. To adjust the volume, select the green volume bar first, then toggle the joystick up and down to complete the adjustment.

3.2.14 Audio



The L3 supports 7-channel audio mixing, including 4 channels of HDMI embedded audio, 1 channel of media library audio, and 2 channels of external analog audio (MIC/LINE).

Function Description:

AFV (Audio Follows Video)： The audio signal switches synchronously with the corresponding video signal.

MIX (Audio Mixing)： Select the MIX option of the corresponding channel to include it in the mix; the MIC/LINE channels are enabled for mixing by default.

MUTE (Mute)： Mute the audio of the specified channel or the overall output.

Volume Adjustment： Adjust via the green volume bar. Toggle the joystick up and down to increase or decrease the volume, with the default volume value set to 50.

Input Mode Selection： The MIC1 and MIC2 channels can be switched to LINE or MIC input mode as needed.

3.2.15 System



IP Settings

The device supports two modes: Automatic IP Acquisition and Manual IP Configuration:

1. Automatic IP Acquisition: After selecting DHCP mode, the device

will automatically match the IP address of the current network.

2. Manual IP Configuration: After selecting the manual setting mode, you can configure the parameters of IP Address, Subnet Mask, Gateway and DNS manually.

Other Settings



1. Language: Supports switching between Chinese and English.
2. Fan Settings: High Speed, Medium Speed, Low Speed, Stop, Auto for optional. Default to Auto Mode .

Version Information: Includes the device version number, MAC address and serial number (S/N).

Version: Automatically scans and displays whether an available update version exists for the current firmware.

Firmware Upgrade: For detailed upgrade steps, refer to Section 2.8

Factory Reset: After "Confirm", all parameters of the device will be restored to the factory default settings.

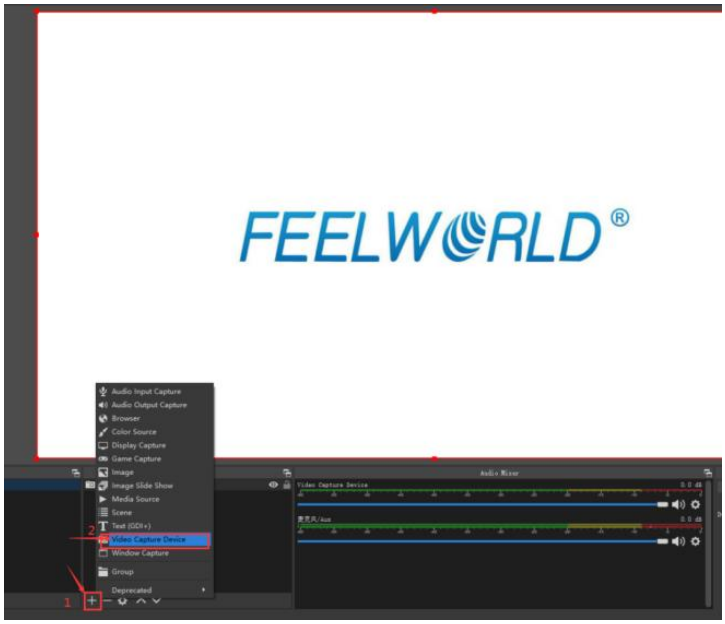
T-Bar Calibration: After confirming "Calibration", follow the on-screen prompts to complete the operation.

Chapter 4 UVC Stream

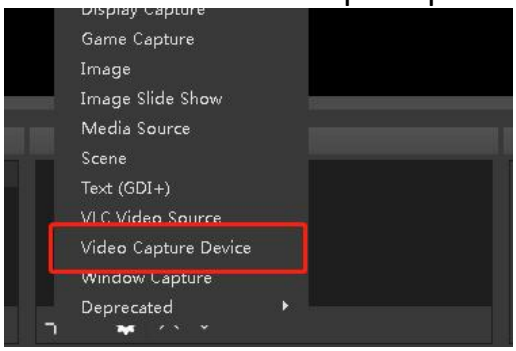
4.1 OBS Streaming

L3 is compatible with many third party steaming software, we recommend OBS, which is available to download on https://obsproject.com/download. Download the software and update to the latest version.

1.Click “+”icon



2. choose video capture device and click to open up the setting page



3. Choose Device FEELWORLD

4. The Resolution and choose the device default

5. Video Format choose YUY2 or the device default

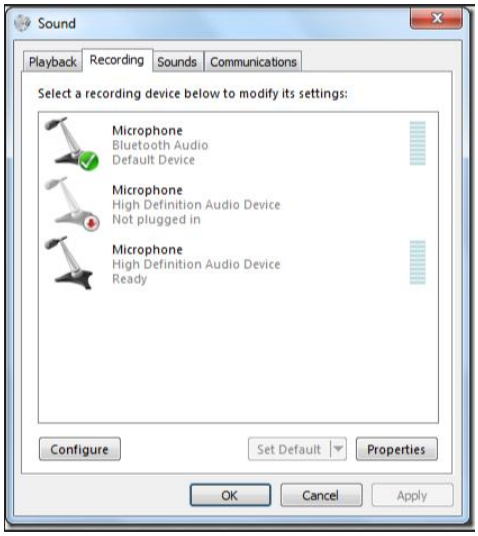


Audio Setting

When there is no audio playing first check the video source see if the it is set in 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)

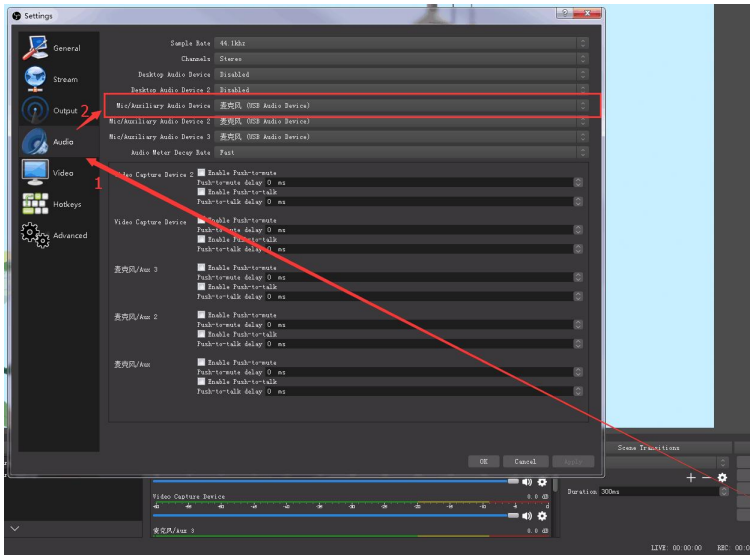


Synchronize Video with External Audio

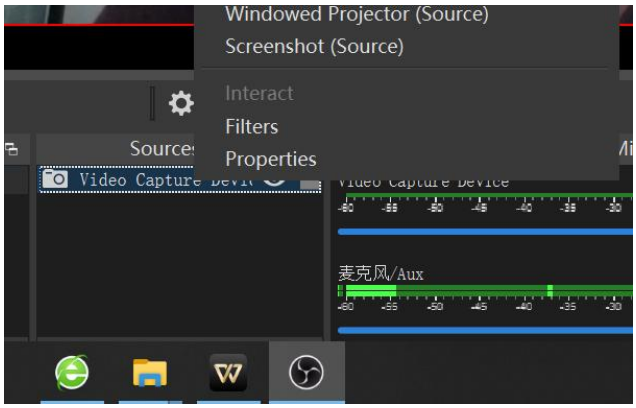
When the video itself doesn't have embedded audio and need insert external audio.Here are the steps



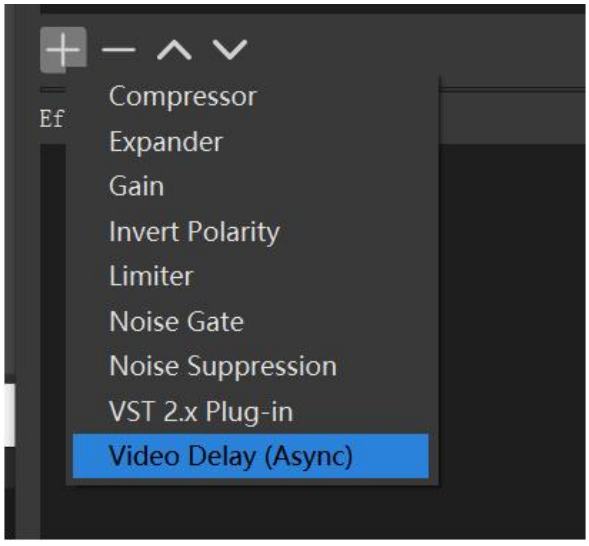
1. Set the audio source: Setting→Audio→Mic/Auxiliary Audio Devices



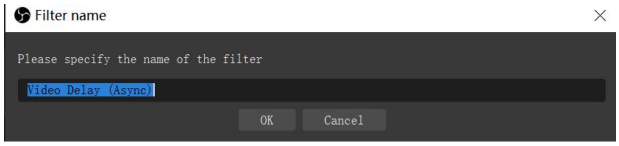
2.Right click the Video Capture Device in Source and choose Filter



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



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



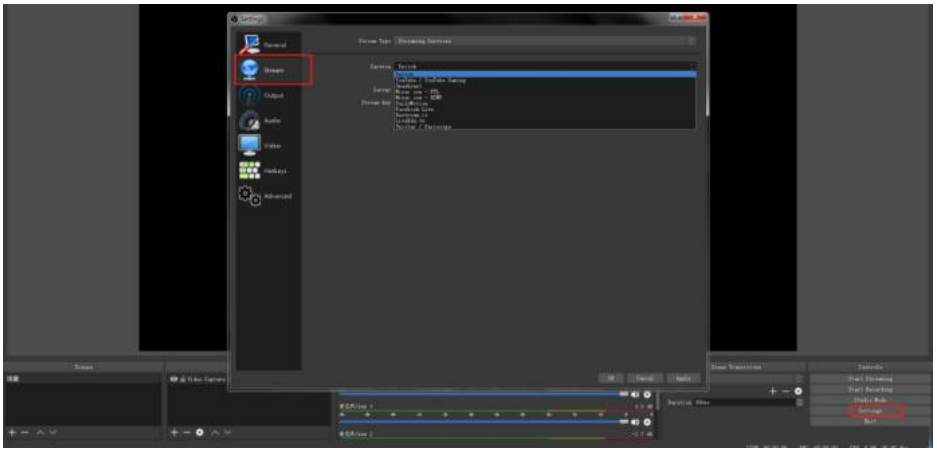
5. Input delay value in ms, the value need to adjusted until the video and audio is synchronous.

Streaming Setting

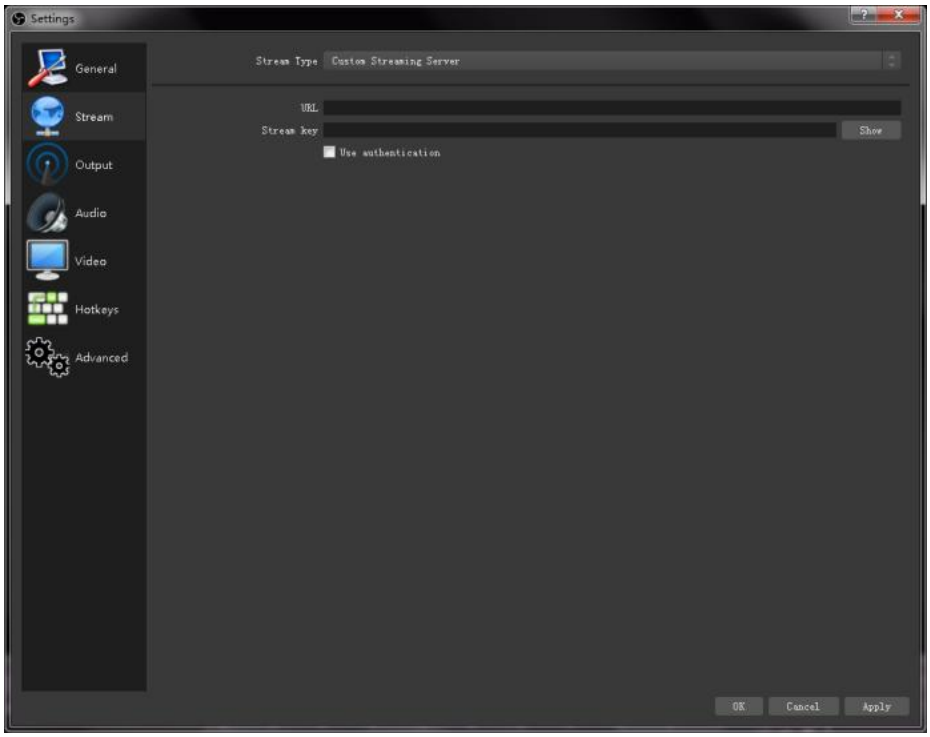


1. Find the RTMP URL and Stream Key provided by streaming broadcast website.
2. Copy URL and Stream Key
3. Back to OBS, click Setting in the lower right corner and click “Stream”.

Choose Stream Type as “Streaming Service” or “Custom Streaming Server” .
If choose “Streaming Service”, there is a list of streaming service name available in the drop down list of Service. If the streaming service is in the list, choose it from the list.
If choose Custom Service, just fill in URL and Stream Key.



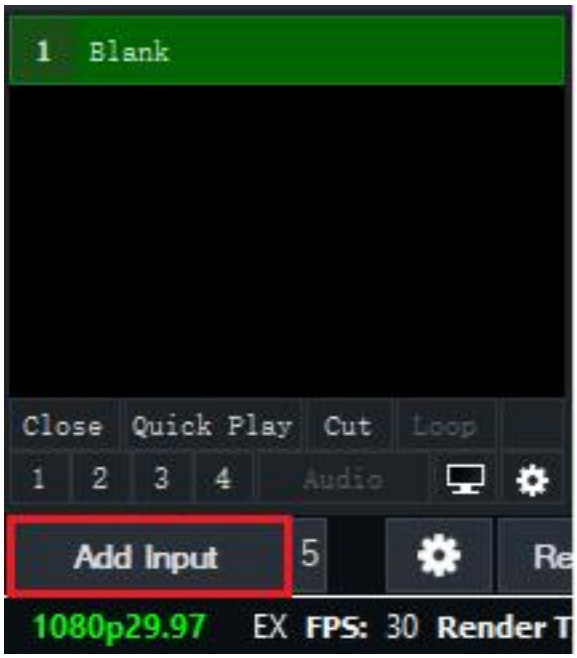
4. Paste the RMTP URL to Server or URL and Stream Key to Stream Key.
5. Click “Start Streaming”.
6. Go back to live broadcast website and check the broadcasting.



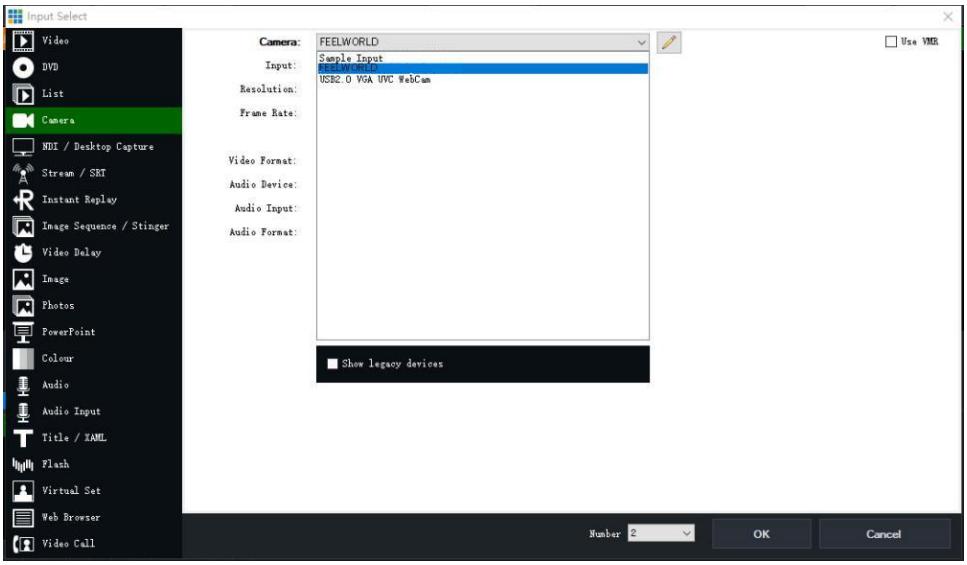
4.2 vMix Streaming

L3 streaming via vMix steps are as follow:

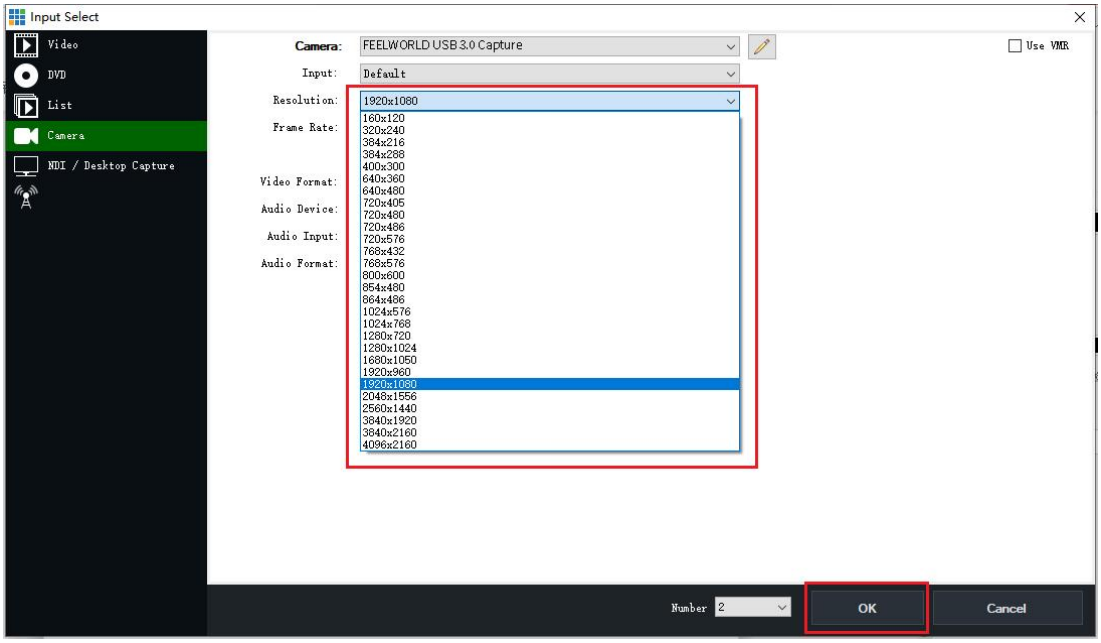
Click a new blank, then click the “Add



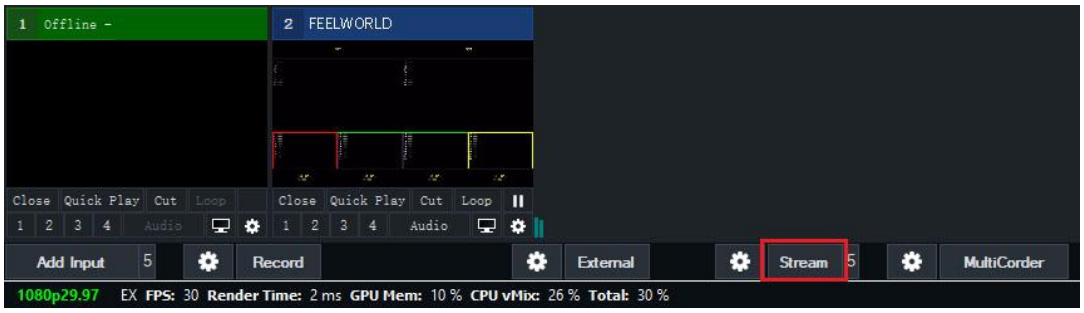
2. Select Camera-Camera-FEELWORLD



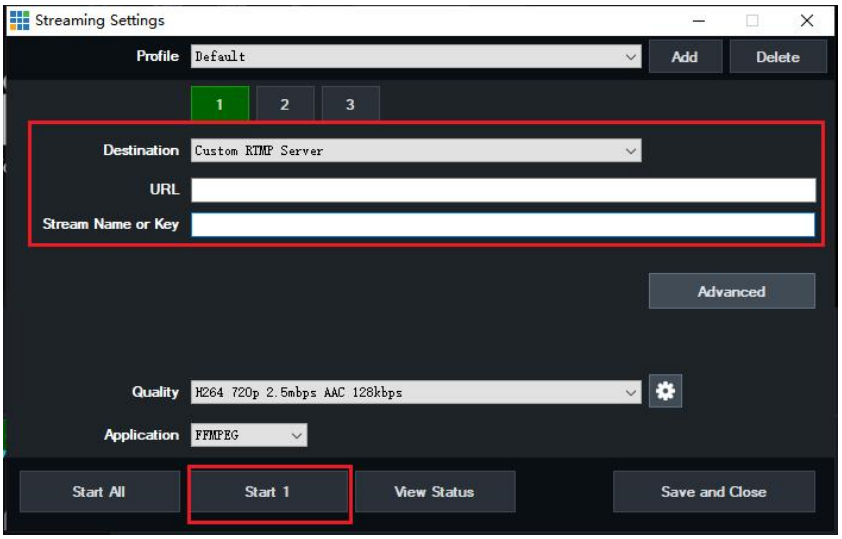
3. Select the same resolution as the output. Then click “OK”.



4. Click “Stream” setting button.



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



Chapter 5 Product Parameters

<table>
<tr><td rowspan="10">Connections</td><td rowspan="2">Input</td><td>HDMI In</td><td colspan="2">2× 4K HDMI
2x 2K HDMI</td></tr>
<tr><td rowspan="2">Out</td><td>HDMI Out</td><td colspan="2">2xHDMI</td></tr>
<tr><td>UVC Out</td><td colspan="2">1×USB-C</td></tr>
<tr><td rowspan="2">Audio</td><td>MIC/Line IN</td><td colspan="2">2x 3.5mm mini-Jack</td></tr>
<tr><td>Line OUT</td><td colspan="2">1x 3.5mm mini-Jack</td></tr>
<tr><td>Communication</td><td>LAN</td><td colspan="2">1×RJ45</td></tr>
<tr><td rowspan="2">Power</td><td>DC</td><td colspan="2">1×DC Jack</td></tr>
<tr><td>TYPE-C</td><td colspan="2">1 x USB-C Port</td></tr>
<tr><td>Other Interface</td><td>UVC IN/MEDIA</td><td colspan="2">1.Recording
2. connect the expanding device such as PTZ
3.Media file
4. Firmware update/LOGO pic/Background pic/Stream address</td></tr>
<tr><td rowspan="10">Performance</td><td>Input Resolutions</td><td colspan="3">HDMI
1280×720@50/59.94/60 | 1024×768@60 | 1280×768@60 | 1280×800@60 | 1280×1024@60 | 1360×768@60 |1366×768@60 | 1440×900@60 | 1600×1200@60 | 1680×1050@60 | 1920×1200@60 | 1920×1080i@50/59.94/60 |1920×1080p@23.98/24/25/29.97/30/50/59.94/60 | 3840×2160p@30/50/60 | 4096x2160@30/50/60</td></tr>
<tr><td rowspan="2">Output Resolutions</td><td colspan="3">HDMI
1280×720@60
1920×1080@30/60</td></tr>
<tr><td colspan="3">USB
1080p/60</td></tr>
<tr><td rowspan="3">Supported Standards</td><td colspan="3">HDMI2.0/ 1.3</td></tr>
<tr><td colspan="3">USB 3.X</td></tr>
<tr><td colspan="3">ITU-T H.265/ ISO/IEC 23008-2</td></tr>
<tr><td rowspan="5">Video</td><td>Video Formats</td><td colspan="2">HDMI 2.0 | HDCP 2.2 & HDMI 1.4 | HDCP 1.4</td></tr>
<tr><td>Grayscale Processing</td><td colspan="2">10bit</td></tr>
<tr><td>Video Sampling</td><td colspan="2">RGB 4:4:4 or YUV 4:4:4/4:2:2/4:2:0</td></tr>
<tr><td>Color Range</td><td colspan="2">0~255 | 16~235</td></tr>
<tr><td>Network Port Streaming</td><td colspan="2">Support 4ch streaming simultaneously</td></tr>
</table>

		Network Port Streaming Bitrate	CBR 16Mbps
		Video Latency	<3 frames
	Audio	Line In Delay	8 frames
		Audio Mixing	Supports maximum of 7ch audio mixing
		Audio Format	HDMI, USB (streaming), Record
	PTZ control	Maximum support for controlling 4 PTZ units via the keyboard	
	Record/Storage	Record Formats	MP4
		USB disk Formats	FAT32(≤64 GB) | exFAT(64GB~2T)
	Playback/Media (Video)	MP4 | AVI	
	Playback/Media (Picture)	BMP | PNG	
	USB3.X (Stream)	YUY2 & MJPEG Support for Windows|Android|Linux|macOS system	
		UVC 1.0 | UAC 1.0	
Power	Input Voltage	DC 12V/3A	
		USB（PD)3.0 12V/3A	
	Max Power	30W	
Environment	Temperature	0℃～45℃	
	Humidity	10%~85%	
Physical	Weight	About 1kg	
	Dimension	261x144x70.69mm	

HDMI Input Support Format

Input port	Mode	Sampling	Frame/Field Rate
HDMI	VESA	RGB 8bits Full/limit	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		RGB 10bits Full/limit	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		RGB 12bits Full/limit	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		YCbCr_422 8bits	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		YCbCr_422 10bits	1024×768@60、1280×1024@60、1360

Input port	Mode	Sampling	Frame/Field Rate
			×768@60、1440×900@60、 1600×1200@60
		YCbCr_422 12bits	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		YCbCr_444 8bits	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		YCbCr_444 10bits	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
		YCbCr_444 12bits	1024×768@60、1280×1024@60、1360×768@60、1440×900@60、 1600×1200@60
	CTA 861	RGB 8bits Full/limit	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60、3840×2160p@30/50/60、4096×2160p@30/50/60
		RGB 10bits Full/limit	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60
		RGB 12bits Full/limit	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60
		YCbCr_422 8bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60、3840×2160p@30/50/60、4096×2160p@30/50/60
		YCbCr_422 10bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60
		YCbCr_422 12bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60
		YCbCr_444 8bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60、3840×2160p@30/50/60、4096×2160p@30/50/60
		YCbCr_444 10bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×

Input port	Mode	Sampling	Frame/Field Rate
			1080p@23.98/24/25/29.97/30/50/59.94/60
		YCbCr_444 12bits	1280×720@50/59.94/60、1920×1080i@50/59.94/60、1920×1080p@23.98/24/25/29.97/30/50/59.94/60
		YCbCr_420 8bits	3840×2160p@50/60、4096×2160p@50/60
		YCbCr_420 10bits	3840×2160p@50/60、4096×2160p@50/60
		YCbCr_420 12bits	3840×2160p@50/60、4096×2160p@50/60