MuxLab

USB/HDMI Video Selector and Mixer

User Manual

500882

94-001061-A/SE-001061-A

Table of Contents

1. Safety Precautions

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for future reference.

- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burns.
- Do not open or remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture and do not install this product near water. Keep the product away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Using supplies or parts not meeting the product specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with adequate ventilation to avoid damage caused by overheat.
- Unplug the power when left unused for a long period of time.
- Information on disposal of devices: do not burn or mix with general household waste, please treat them as normal electrical waste.

2. Introduction

The USB/HDMI Video Selector and Mixer (Model: 500882) is a USB and HDMI Source Switcher and mixer. It enables seamless switching between 3 sources (1x USB 3.0, 1x USB 2.0 and 1x HDMI) and mixing 2 of them into one image. It provides one HDMI output for local monitoring and one USB-C output for the computer to do web conferencing or live broadcasting.

The unit may be managed locally via front panel push buttons, RS232 and over an Ethernet network, and comes with a 12VDC @ 1.5A Power Supply and supports PoE.

3. Features

- Supports 3 camera sources connection: 1 x USB 3.0, 1 x USB 2.0 and one HDMI 1.4
- HDMI input can be any HDMI source like laptop or document camera
- Seamless switching between the 3 input sources
- Mix videos from the 3 input sources
- Mixed layout can be defined like picture in picture, side by side and big and small
- One HDMI 2.0 output for local monitoring and one USB-C (UAC/UVC) for computer streaming
- Can mute video/audio to video conferencing or live broadcasting
- May be managed by local push buttons, RS232, and Ethernet
- Audio Mixer

4. Package Contents

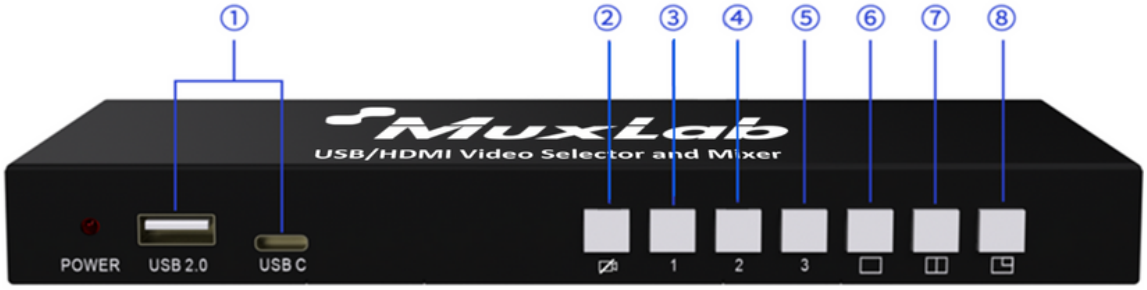
- One (1) USB/HDMI Video Selector and Mixer
- Two (2) Mounting ears
- Four (4) Screws
- One (1) Power adapter
- One (1) User manual (available via download)

5. Specifications

Specification	
Enviroment	HDMI 1.4 (1080p), HDMI2.0 (4K/60) and USB (UAC/UVC)
HDMI Devices	Cameras, PCs/Laptops, projectors/monitors/TVs
Transmission	Transparent to the user
Frequency	Up to 594 MHz
Video Signal	HDMI 1.4/2.0 protocol and HDCP 1.4 & 2.2
Connectors	Two (2) HDMI connectors for video (one HDMI 1.4 inputs and one HDMI 2.0 outputs) One (1) USB 2.0 input for UAC/UVC Stream One (1) USB 3.0 input for UAC/UVC Stream One (1) USB-C 3.0 output for UAC/UVC Stream Two (2) 3.5mm jack for Analog Stereo audio input and output One (1) 4-POS terminal block for RS232 control One (1) RJ45 PoE Ethernet port for IP and Web control
Management	Locally via front panel push buttons, RS232 and Ethernet
Audio extraction	2CH Analog Audio
Power Supply	12VDC,1.5A
Power Consumption	12W (max)
Temperature	Operating: 0° to 40°C Storage: -20° to 60°C Humidity: up to 90% non-condensing
Enclosure	Metal enclosure
Unit Dimensions	7.48" x 3.54" x 0.87" (190mm x 90mm x 22mm)
Shipping Weight	1.1 lbs (0.5 Kg)
Compliance	Regulatory: FCC, CE, RoHS
Warranty	2 years
Order Information	500882 USB/HDMI Video Selector and Mixer (UPC: 627699008829)

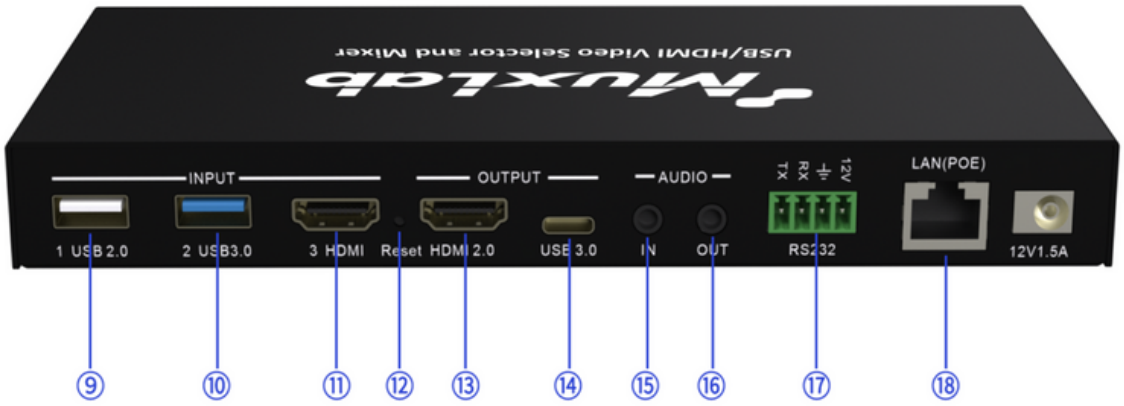
6. Operation Controls and Functions

Front Panel



No	Name	Description
1	USB 2.0 & USB C PORT	Reserved for future use
2	Video Mute Button	Disable UVC output
3	Video 1 Button	Switch the source from USB 2.0
4	Video 2 Button	Switch the source from USB 3.0
5	Video 3 Button	Switch the source from HDMI
6	Single Video Button	Single view layout
7	PBP Mode Button	Side by side layout
8	PIP Mode Button	Picture in Picture Layout

Rear Panel

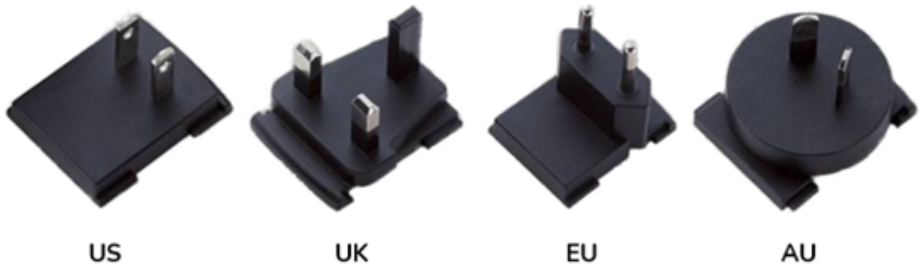


No	Name	Description
9	1 USB 2.0 INPUT	1 x USB 2.0 camera
10	2 USB 3.0 INPUT	1 x USB 3.0 camera
11	3 HDMI INPUT	1 x HDMI camera or video source
12	Reset button	Reset
13	HDMI 2.0 OUTPUT	1 x HDMI 2.0 output for local monitoring
14	USB 3.0 OUTPUT	1 x USB-C output for UVC/UAV Streaming
15	IN AUDIO	1 x line in
16	OUT AUDIO	1 x line out
17	RS232	1 x RS232 for control
18	LAN(POE)	1x 1000M LAN for control

7. Power Supply

Local Power Source

Plug the power connector to the power adapter to the power input connector of the USB/HDMI Video Selector and Mixer.



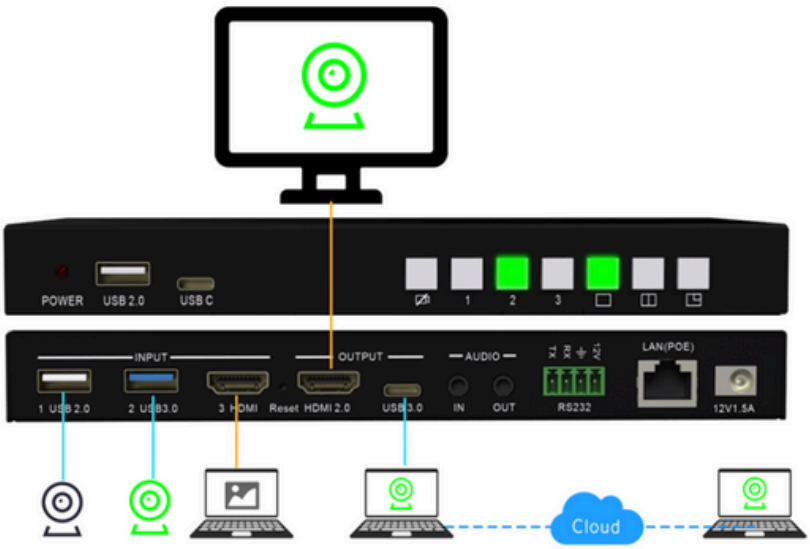
Power over Ethernet

If the LAN Ethernet switcher supports PoE (Power over Ethernet), LAN port can be used to power up the USB/HDMI Video Selector and Mixer instead of using the external power adapter.

8. Video Function Switching Instructions

8.1 Single Screen Display

By pressing the button  to enter Single Screen mode, press the buttons  to select the video source you want to output as shown in the following example:

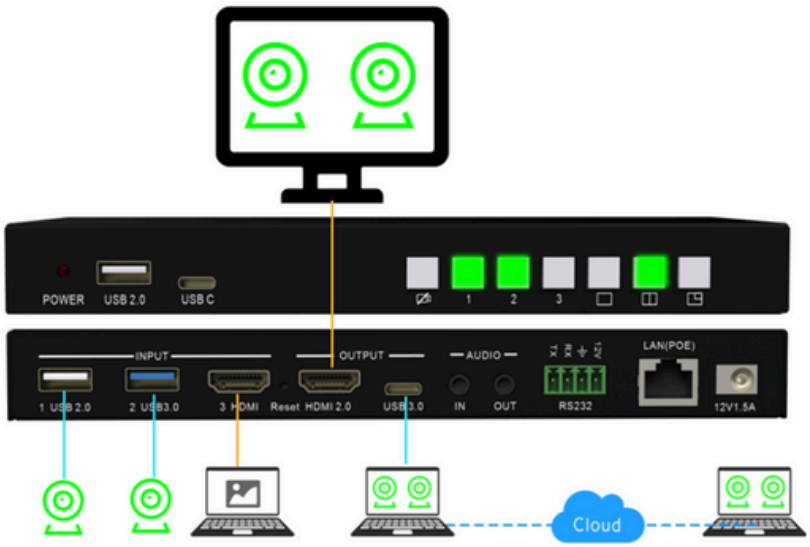


- To switch Single Screen video signal source to USB 1 port press the button 
- To switch Single Screen video signal source to USB 2 port press the button 
- To switch Single Screen video signal source to HDMI 3 port press the button 

8.2 Dual Screen Display

8.2.1 PBP Mode

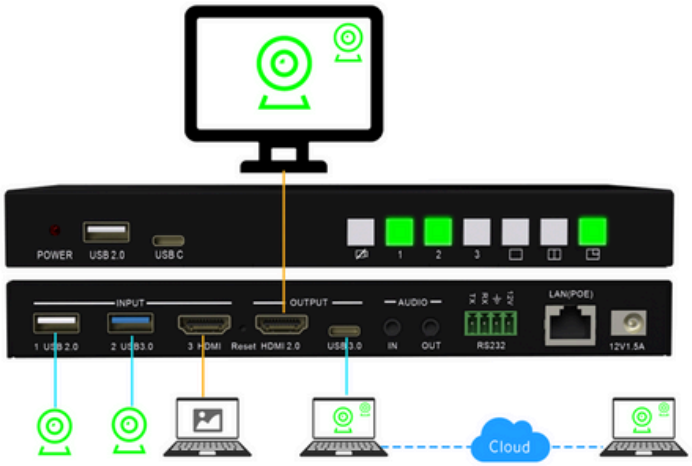
By pressing the button  to enter PBP mode, press the buttons  to select two video sources you want to output as shown in the following example:



- To switch PBP signal source to USB 1 and USB 2 press the buttons  and 
- To switch PBP signal source to USB 1 and HDMI 3 press the buttons  and 
- To switch PBP signal source to USB 2 and HDMI 3 press the buttons  and 
- During the PBP on display, press the PBP control button again to swap the left and the right video source display from each other.

8.2.2 PIP Mode

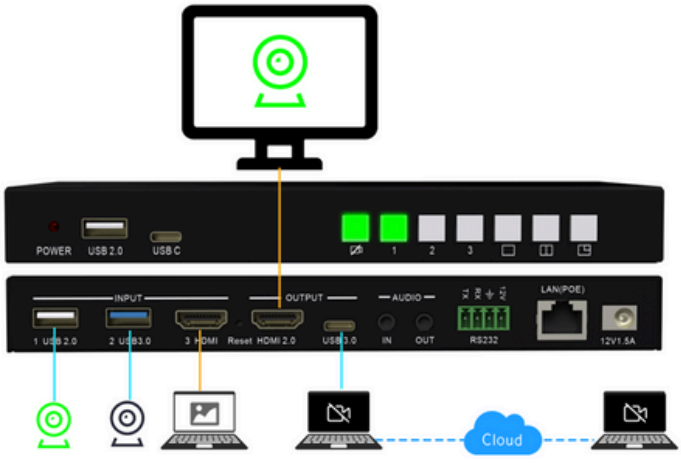
By pressing the button  to enter the PIP mode, press the buttons  to select two video sources you want to output as shown in the following example:



- To switch PIP signal source to USB 1 and USB 2 press the buttons  and 
- To switch PIP signal source to USB 1 and HDMI 3 press the buttons  and 
- To switch PIP signal source to USB 2 and HDMI 3 press the buttons  and 
- During the PIP on display, press the PIP control button again to swap the large and the small video source display from each other.

8.3 Mute UVC Output (Video Disable)

Pressing button  disables the UVC output as shown in the following example:

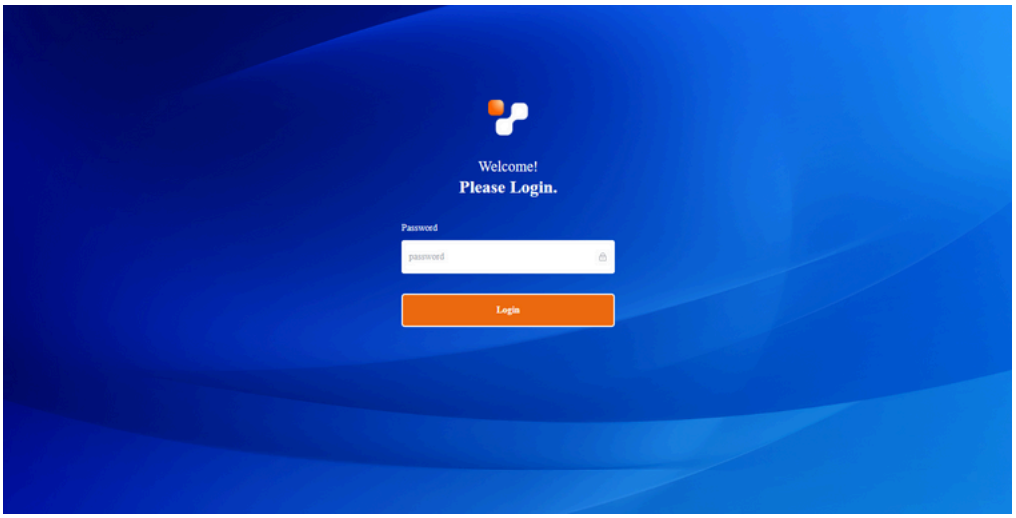


When the green light on the button  is on, you can still see the image from the currently selected camera on the monitor connected via HDMI; however, neither the PC nor the remote conference participants can see it because it is blocked. 

9. Web GUI User Guide

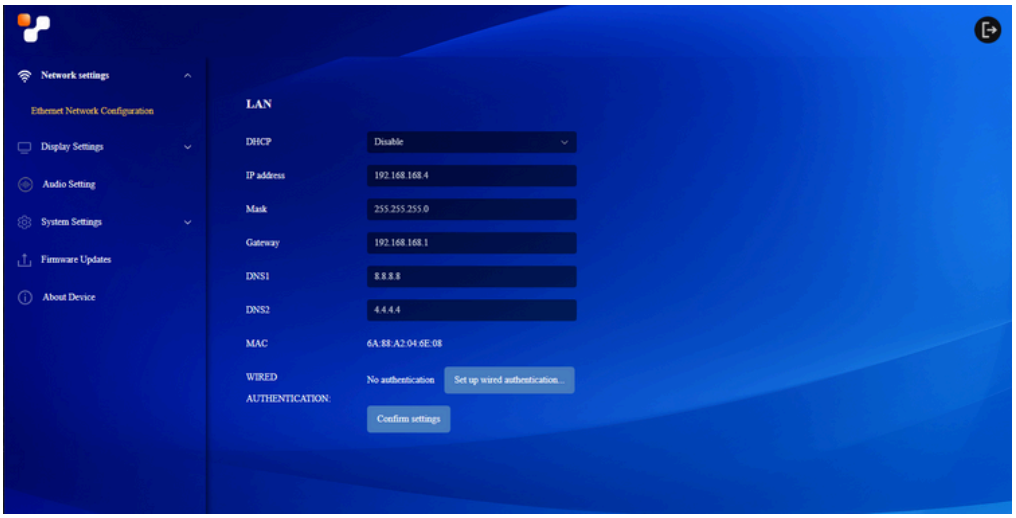
The USB/HDMI Video Selector and Mixer can be controlled by Web GUI. You can access the web GUI via the IP address displayed, when the device is powered on, in the upper left corner of the home screen. (See the image below)

Input the current IP address of USB/HDMI Video Selector and Mixer into your browse then the login page will be shown. The default password is admin. (See the image below)



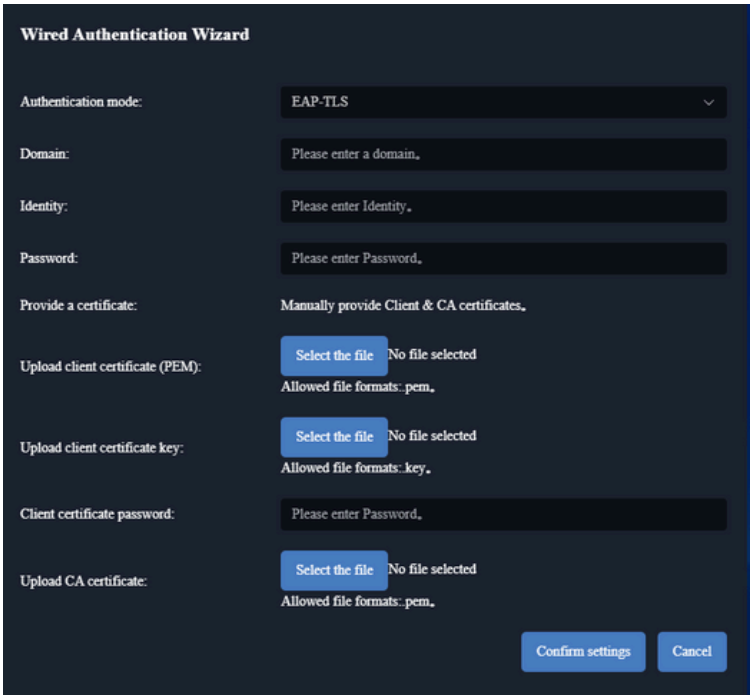
9.1 Network Settings

9.1.1 Ethernet Network Configuration

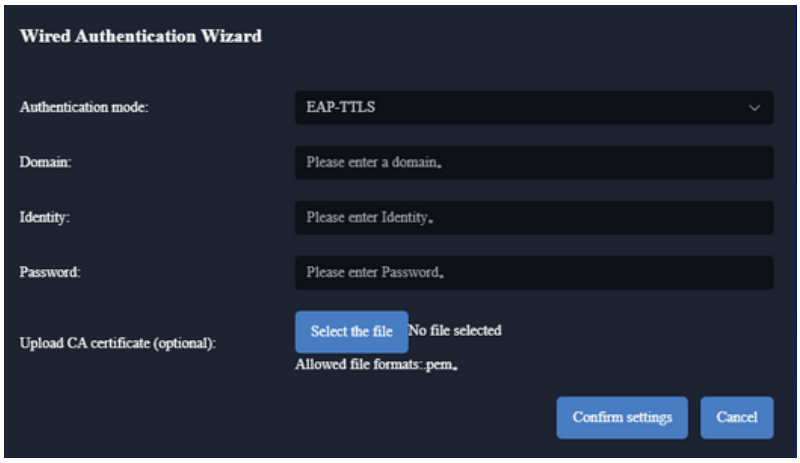


Here you can set to automatically obtain the LAN IP or manually. The DHCP function is turned on by default. The Wired Authentication Status has the following four states:

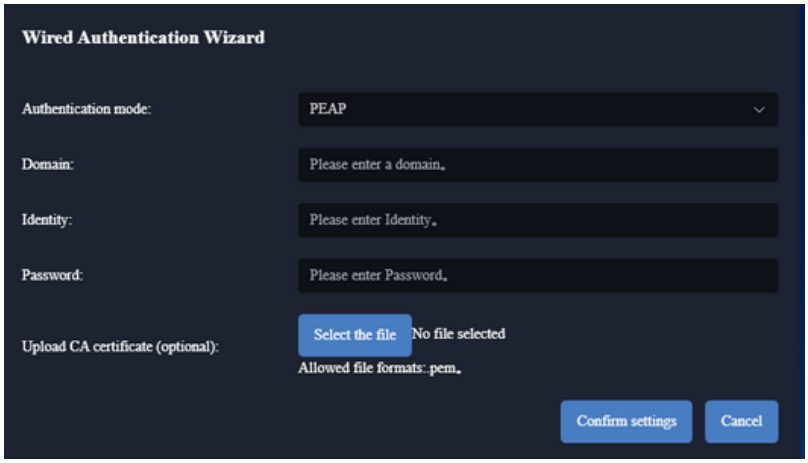
- **EAP-TLS**



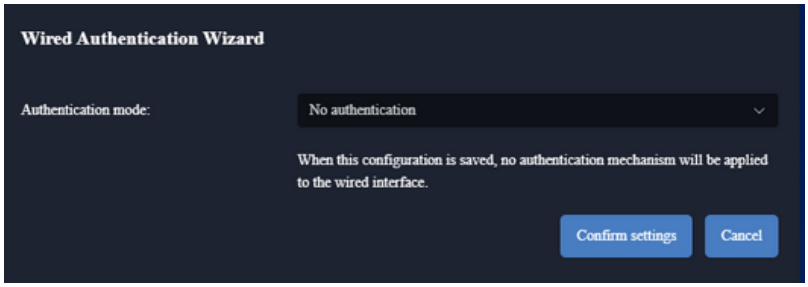
- **EAP-TTLS**



- **PEAP**



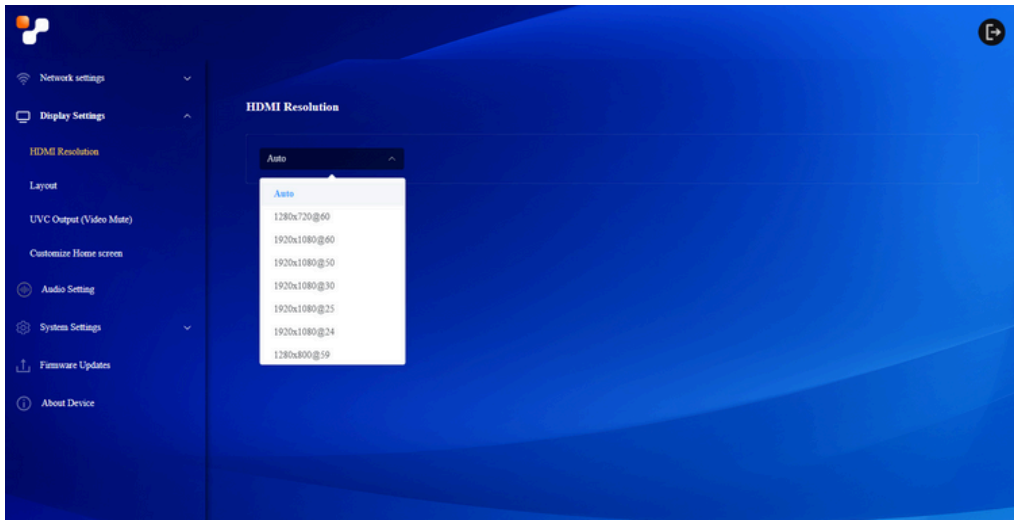
- **No Authentication**



Note:
The default is No Authentication, which means no authentication is required. The LAN network with network cable can be plug-and-play.

9.2 Display Settings

9.2.1 HDMI Resolution

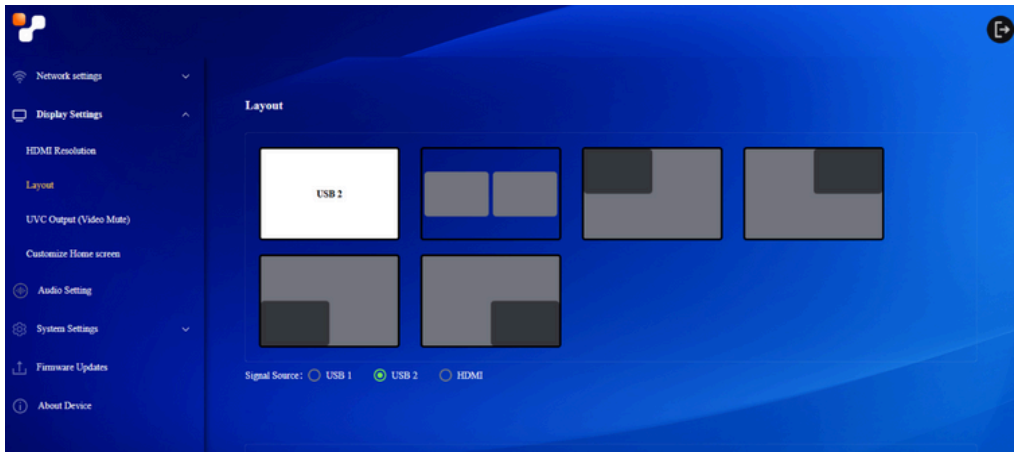


The default mode is Auto. The resolution in the drop-down list is the resolution that the monitor is connected to and can use.

Note:
If the display only supports 1080P, the 4K output resolution will not appear in the above resolution list.

9.2.2 Layout

- **Single Screen**

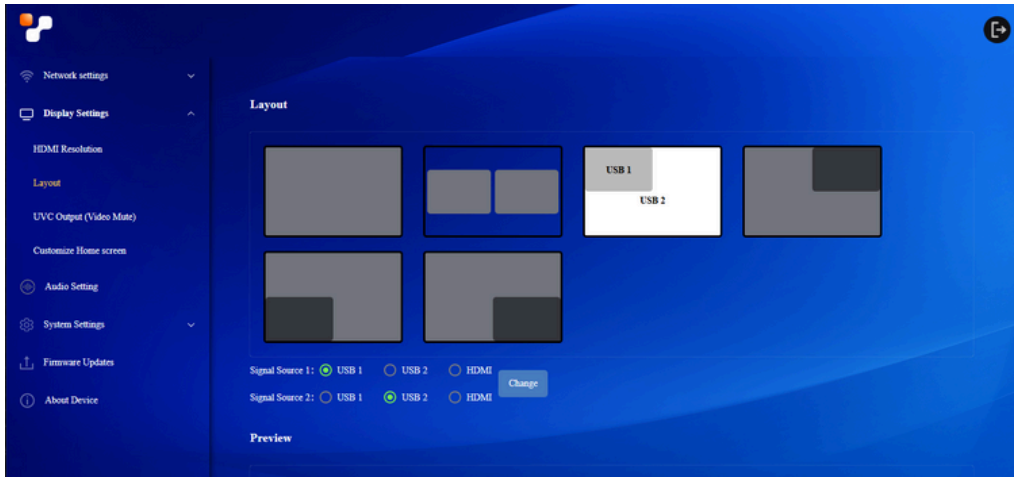


In single Screen mode you can select the corresponding signal input source for single-screen output display. Simply click the Signal Source with the mouse. When the green button of the corresponding interface lights up, the signal input source is output and displayed on the screen.

- **PBP Mode**

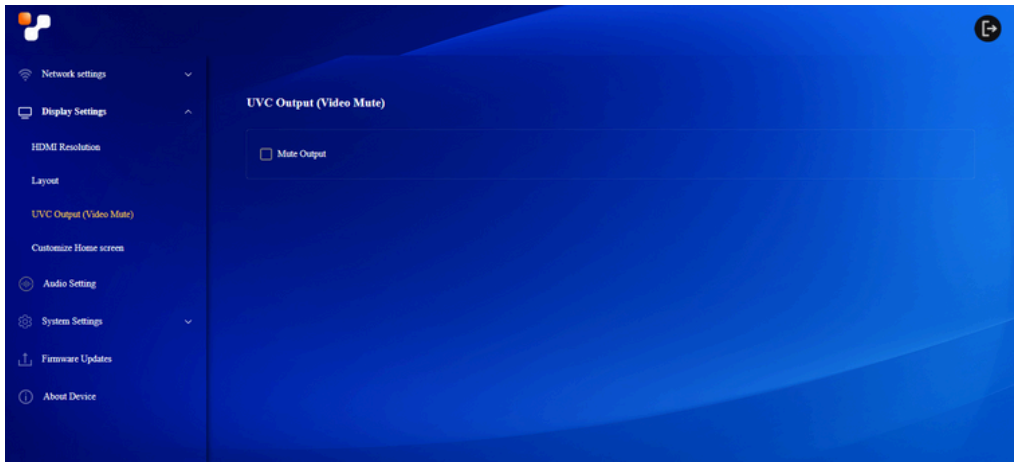
In PBP mode, you can select two signal sources at the same time and then they will be output and displayed on the same screen in the same proportion, one on the left and one on the right. For example, You can directly click Signal Source 1 and Signal Source 2 with the mouse. When the green button of the corresponding interface lights up, this signal input source is output and displayed on the screen.
Clicking the "Change" button, Signal Source 1 and Signal Source 2 will be swapped.

- **PIP Mode**



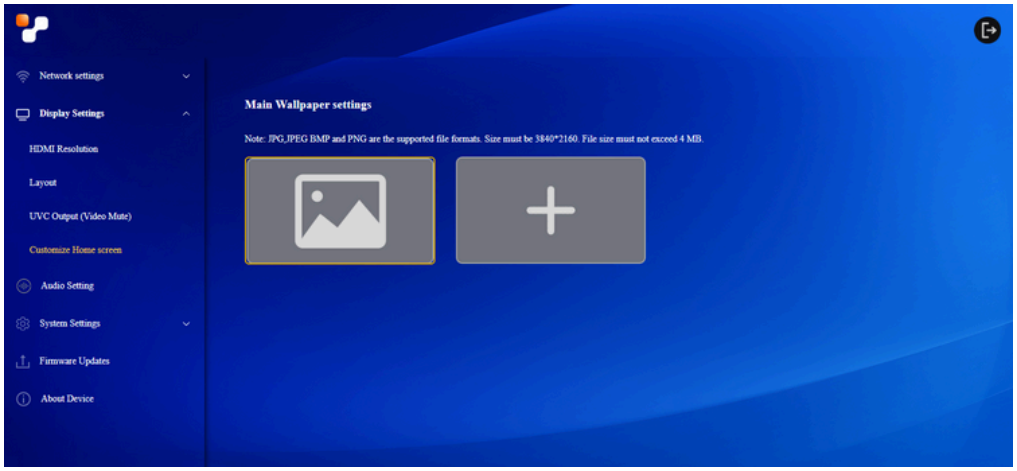
In PIP mode, you can select two signal sources at the same time and then display them on the same screen, one large and one small. Layout 3-6 are all PIP modes with the small window in different position.
Clicking the "Change" button, Signal Source 1 and Signal Source 2 will be swapped

9.2.3 UVC Output (Video Disable)



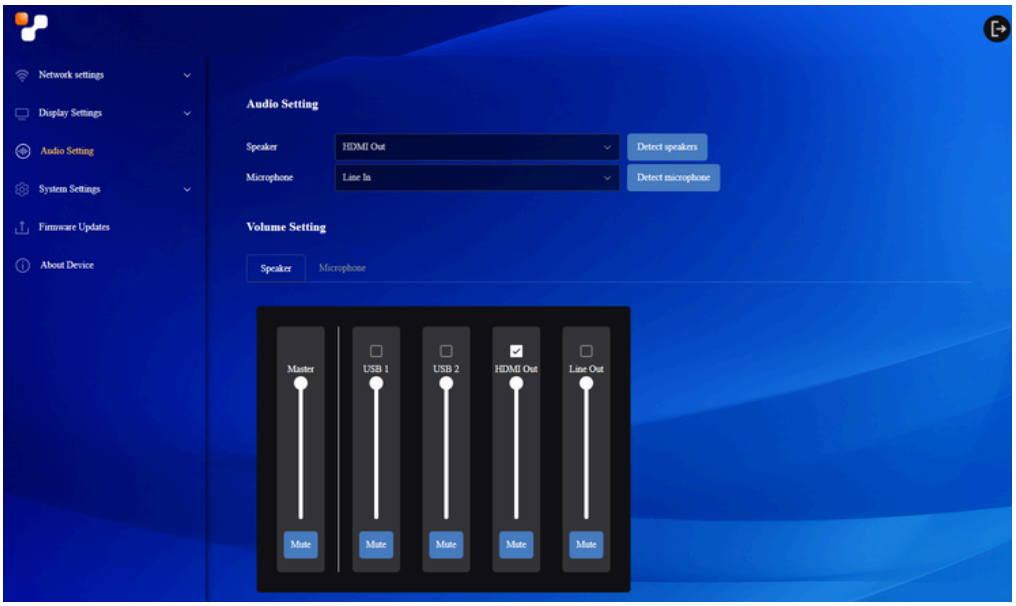
This feature is the same as "Mute UVC Output" button  in the front panel. It is turned off by default.

9.2.4 Customize Home Screen



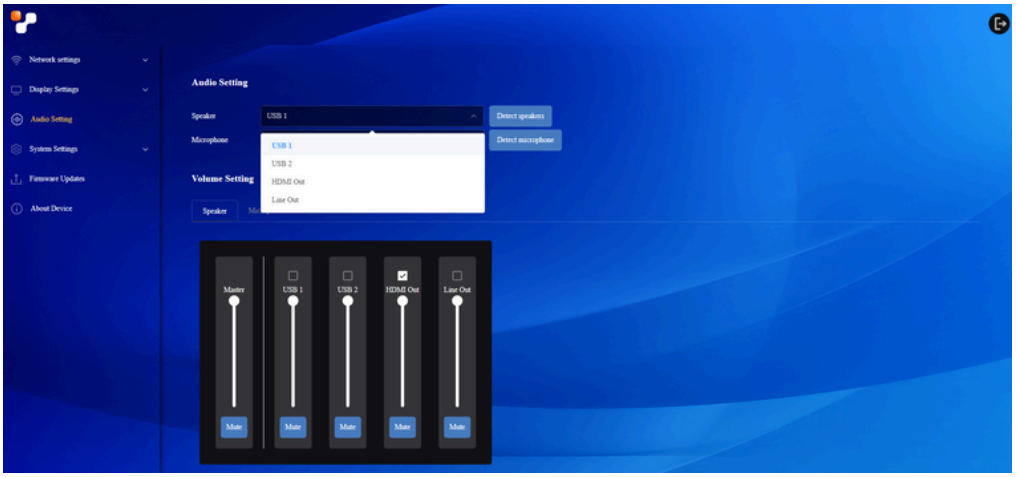
When the device is started, the boot screen will be displayed. Users can change the background image of the main page by themselves. Select an image (It supports jpg, bmp, png, gif image, the resolution is 1920x1080P) to change. Of course, users can also return to the original main interface at any time.

9.3 Audio Settings



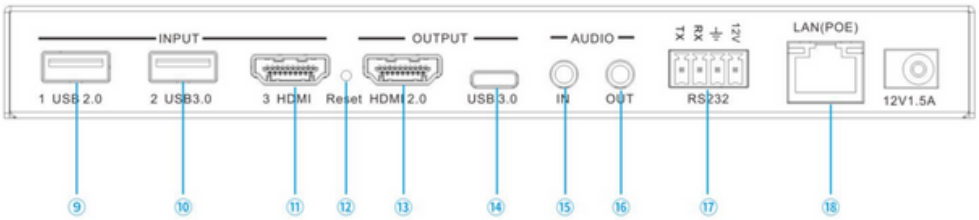
Here you can test whether the speakers and microphones that connected to the device are available or not. You can also select which available speaker output and corresponding volume adjustment, and select which available microphone input and corresponding volume adjustment.

1. In the Speaker drop-down options, you can test the following four options. After selecting the corresponding option, click the "Detect speakers" button to test whether it is available and can output sound.

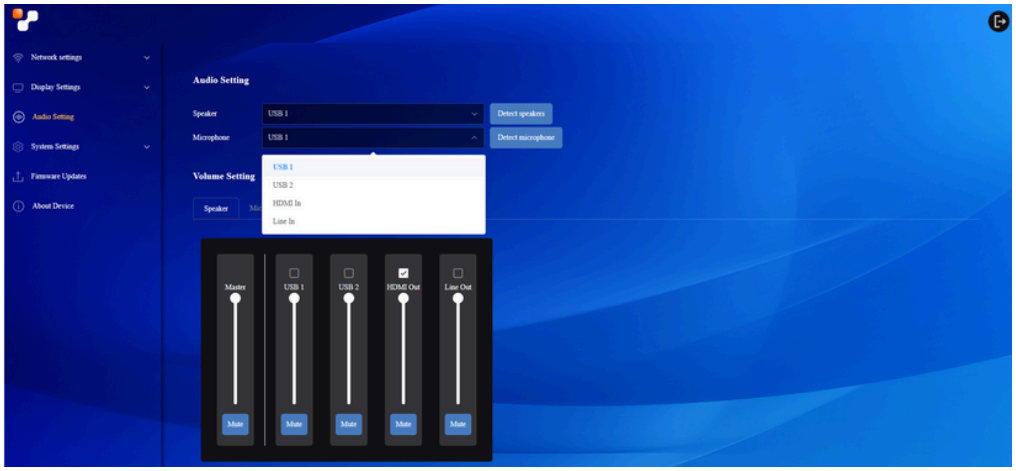


As below device interface diagram showed:

>> USB 1 corresponds to the audio output of ⑨
>> USB 2 corresponds to the audio output of ⑩
>> HDMI Out corresponds to the audio output of ⑬
>> Line Out corresponds to the audio output of ⑯



2. In the Microphone drop-down option, you can test the following four options. After selecting the corresponding one, click the button "Detect microphone" to test whether it is available and can input sound.



As above device interface diagram showed:

>> USB 1 corresponds to the audio input of ⑨
>> USB 2 corresponds to the audio input of ⑩
>> HDMI In corresponds to the audio input of ⑪
>> Line In corresponds to the audio input of ⑮

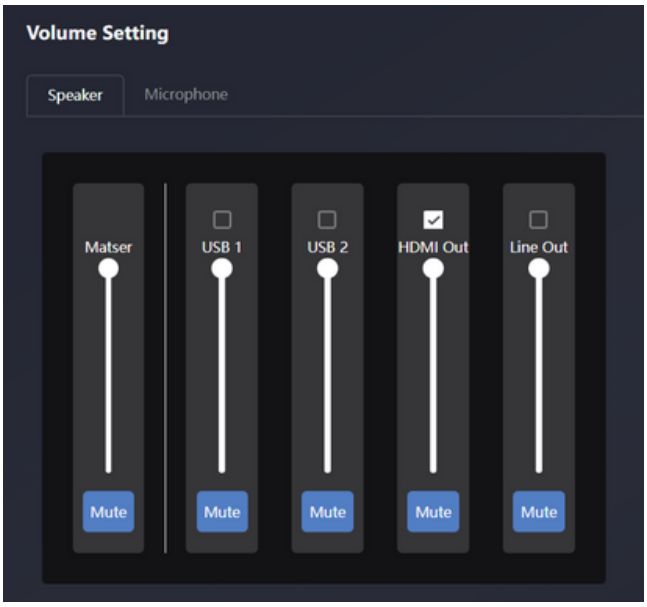
● Volume Setting > Speaker

As below example shown, HDMI OUT is checked by default 

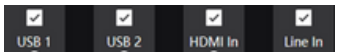
, so the speaker output is currently HDMI OUT port. The volume bar below can adjust the volume of this HDMI OUT speaker output port.

The volume bar below Master can adjust the speaker output volume of the ticked one, which has a multiplication effect. For example, in the current example of the HDMI OUT port, when you click the "Mute" button, a red background frame will appear 

, indicates that the function is enabled.

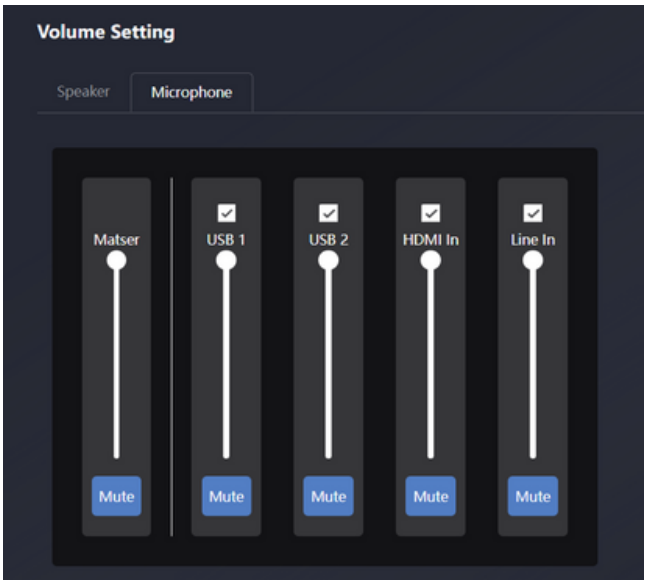


- Volume Setting > Microphone

As shown in the following example, all are currently checked by default 

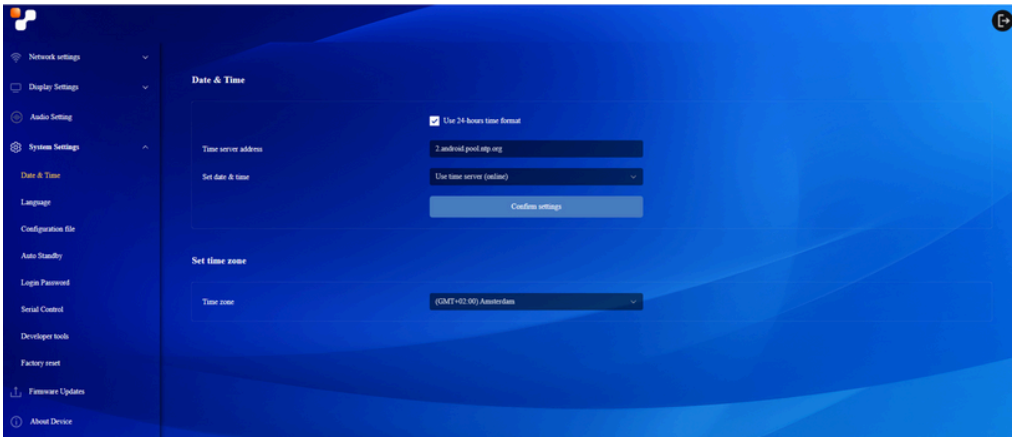
There is a volume bar under the corresponding microphone input port to adjust the sound volume. If it is ticked, it means the current function is enabled.
The volume bar under Master can adjust the microphone input volume of the ticked microphone source, which has a multiplicative effect. When you click the "Mute" button to take effect, a red background frame will appear 

, indicates that the function is enabled



9.4 System Settings

9.4.1 Date & Time

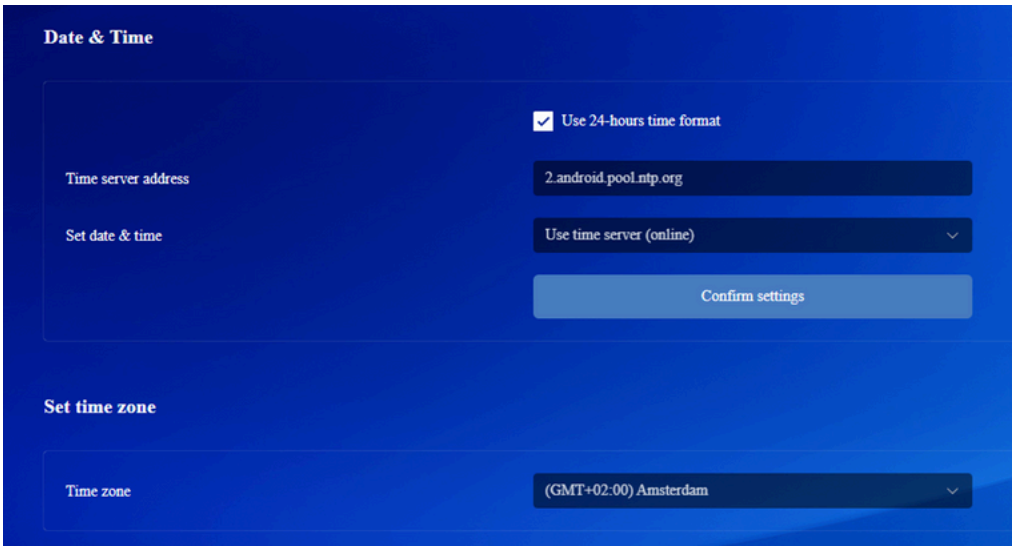


>> Use 24-hours time format is enabled by default.
>> Time server address is synchronized to the Google server 2.android.pool.ntp.org of the Android platform by default.

Note:
If you have your own server, you can also set it here to synchronize the time with your own server address

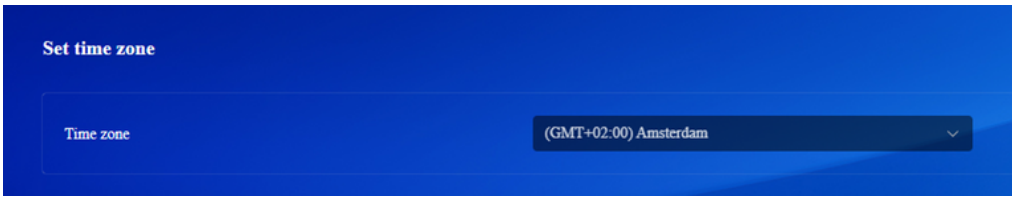
>> Set date & time, there are two modes:
- Use time server(online)
  This function is enabled by default

- OFF
  Here you can manually set the time and date you want

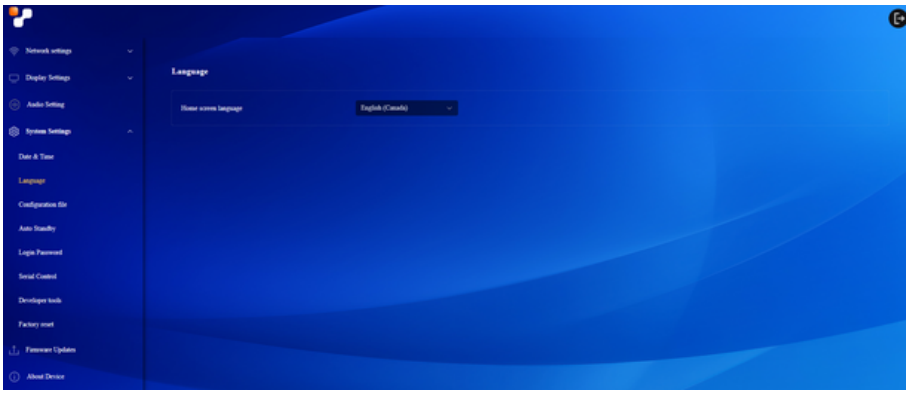


Note:
It needs to re-login the web client automatically to take effect when Set date & time from OFF to Use time server(online)

>> Set time zone
Here you can manually set the desired time zone. After syncing to the Internet time, it will be displayed in local time. The default time zone is (GMT+02:00) Amsterdam

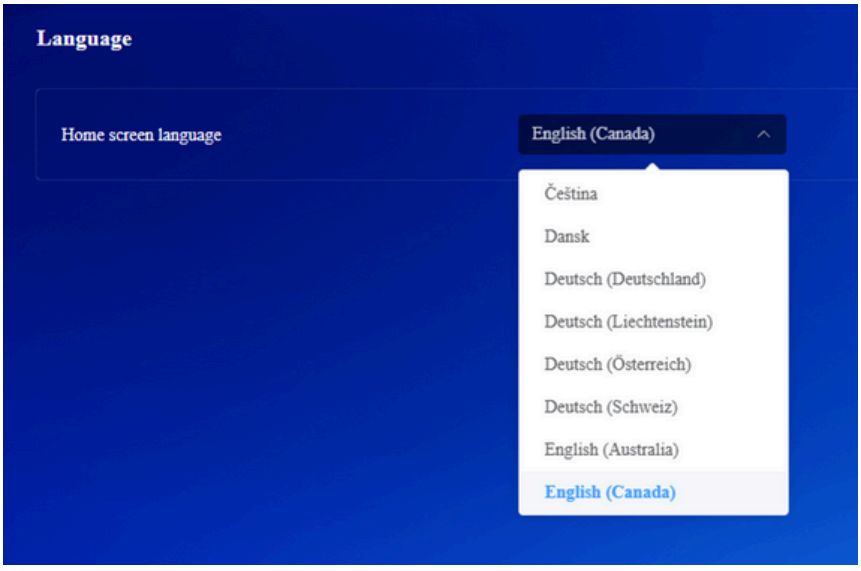


9.4.2 Language



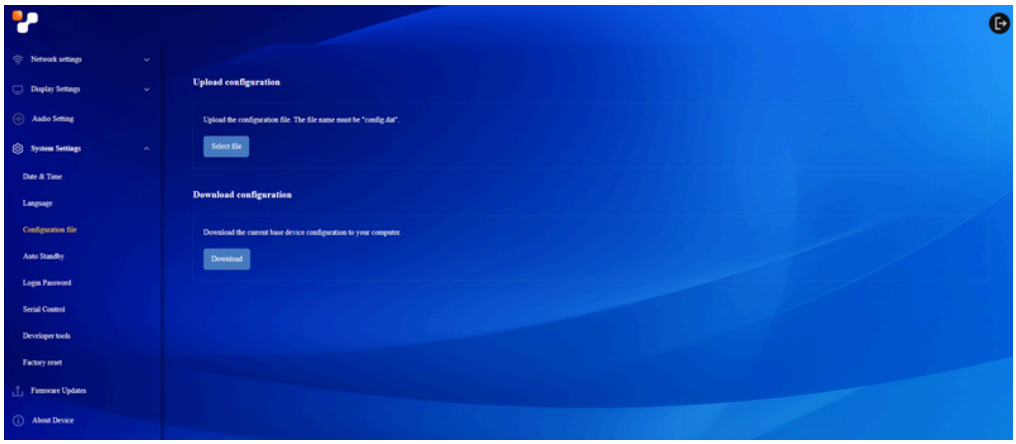
Here you can choose and define the language you want to display on the home page and web client.

- Home screen language

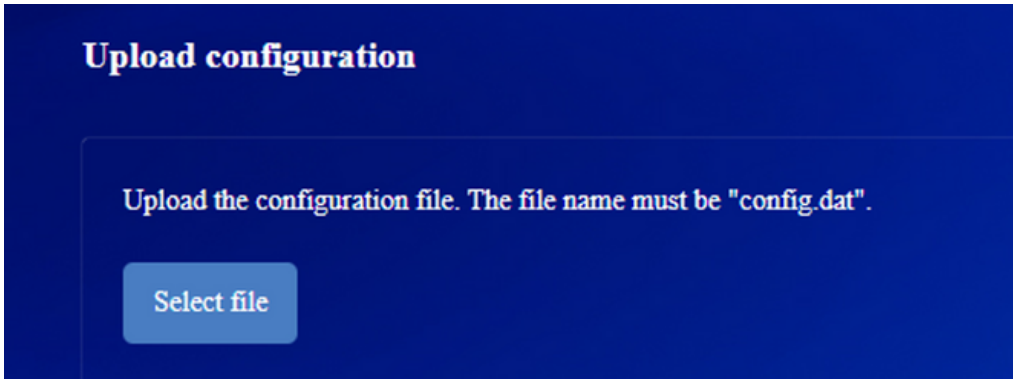


Here is to set the language displayed on the Home Page, which supports the languages of many countries around the world;

9.4.3 Configuration File



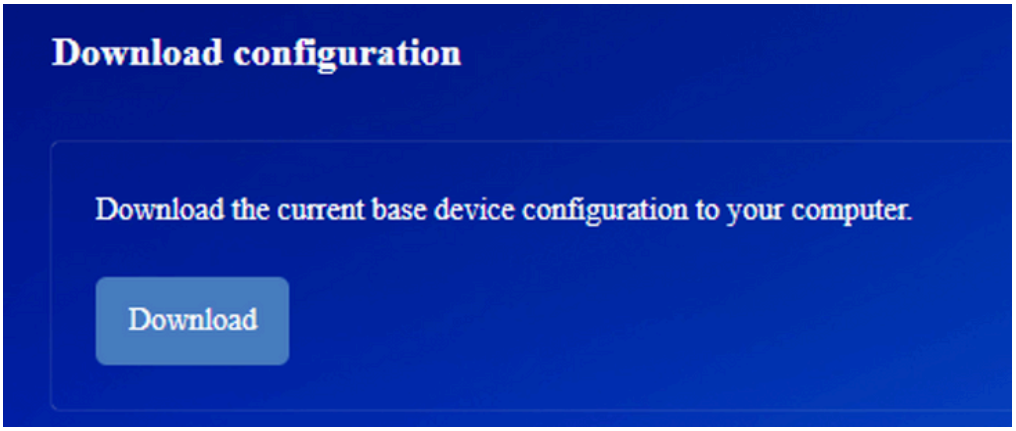
- Upload configuration



Here you can upload the previously saved configuration file Config.dat. Click the button "Select file" to load the Config.dat file you want to upload.

Note:
After uploading and configuring, it needs to re-login automatically to the web page to take effect

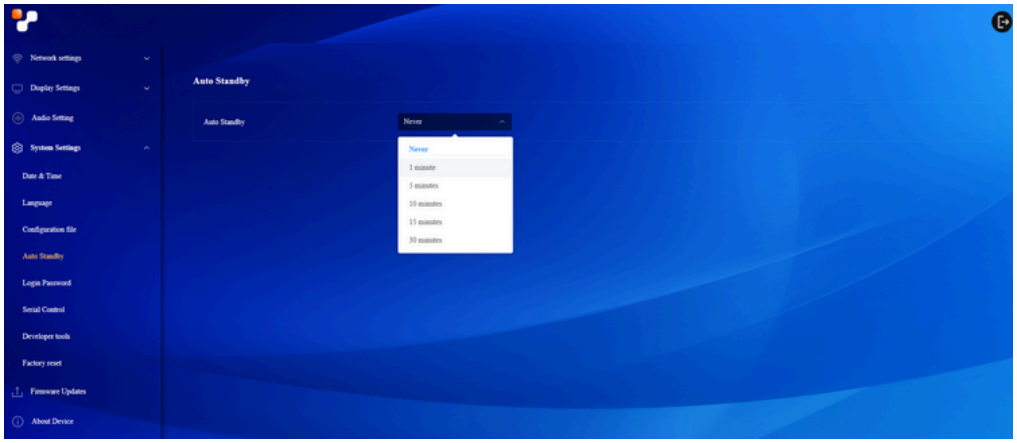
- Download configuration



Here you can download the configuration file Config.dat for the current web settings. Click the "Download" button.

After the download is complete, there will be the following Config.dat file

9.4.4 Auto Standby

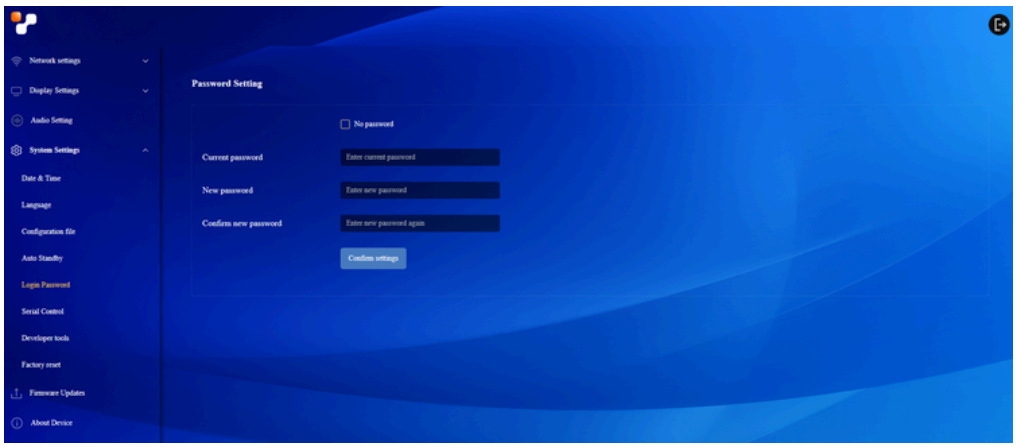


Here you can set the standby time interval:

- Never: always on screen display
- 1 minutes: enter standby mode after 1 minute
- 5 minutes: enter standby mode after 5 minutes
- 10 minutes: enter standby mode after 10 minutes
- 15 minutes: enter standby mode after 15 minutes
- 30 minutes: enter standby mode after 30 minutes

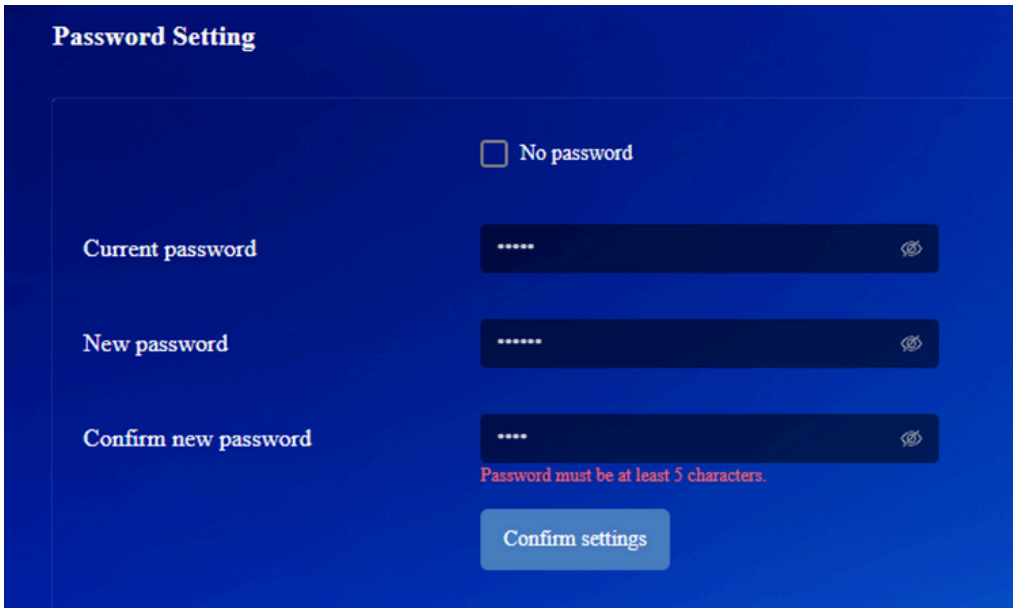
Note:
The default standby time setting is Never. The device will wake up automatically when the video conferencing software calls the camera.

9.4.5 Login Password

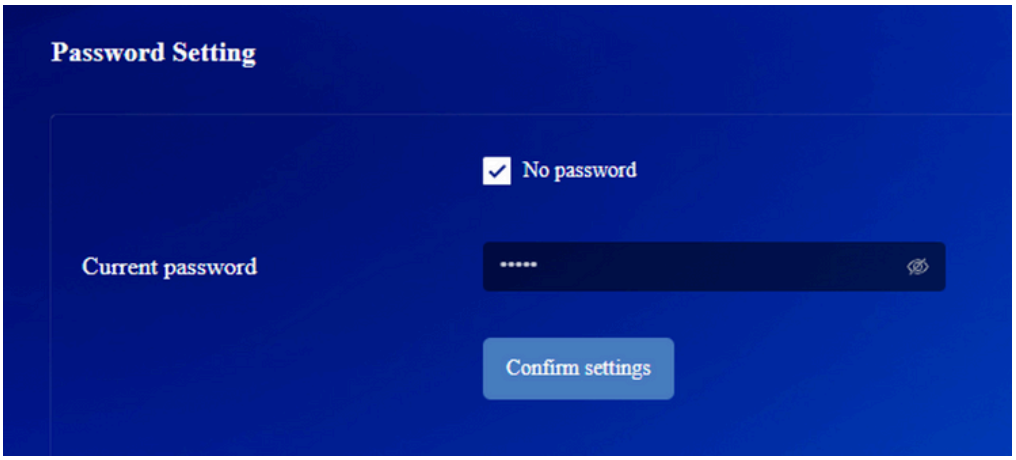


The default login web page password is admin.

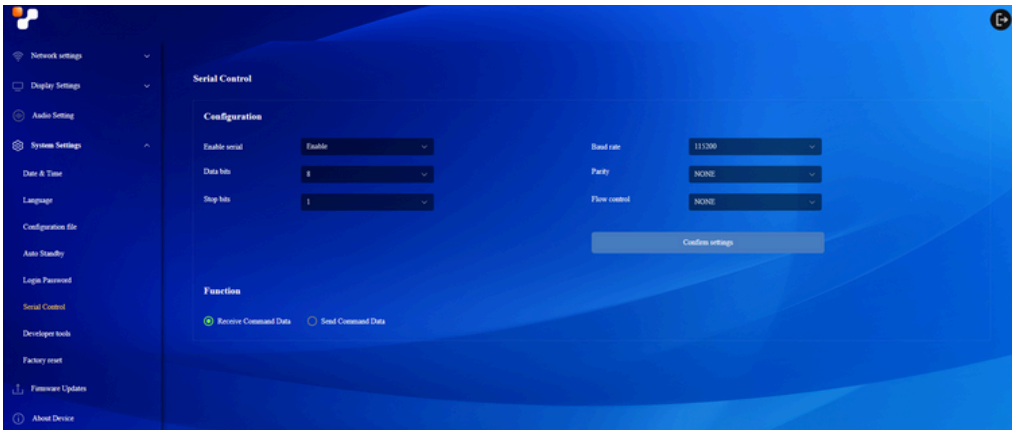
You can change your password here and the minimum required password is 5 characters. Otherwise, the following error message will appear:



After ticking No password, enter the current login password for confirming, no password is required to enter the web in the future.

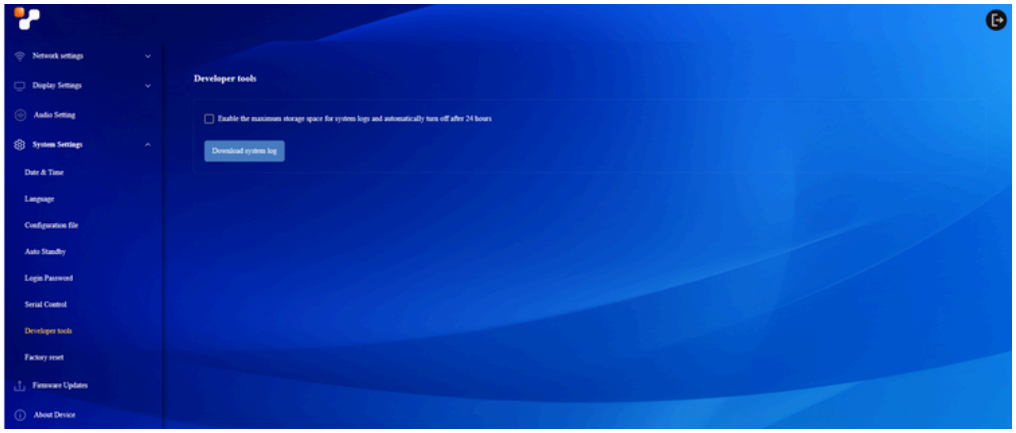


9.4.6 Serial Control



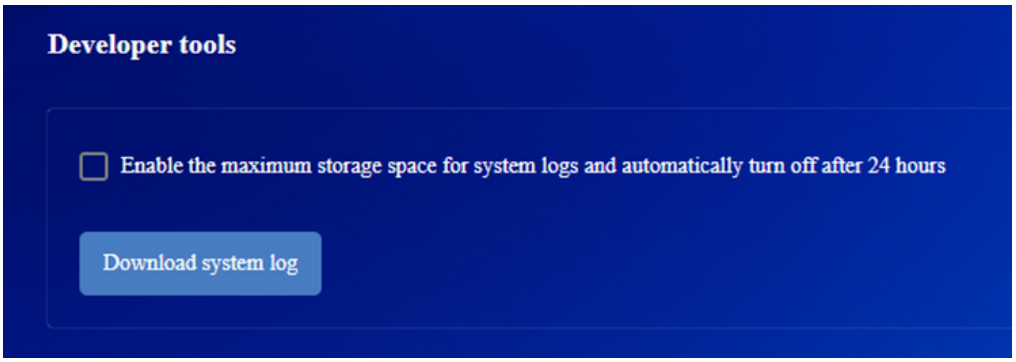
From here, you can enable and configure the serial port according to your specific control needs.

9.4.7 Developer Tools

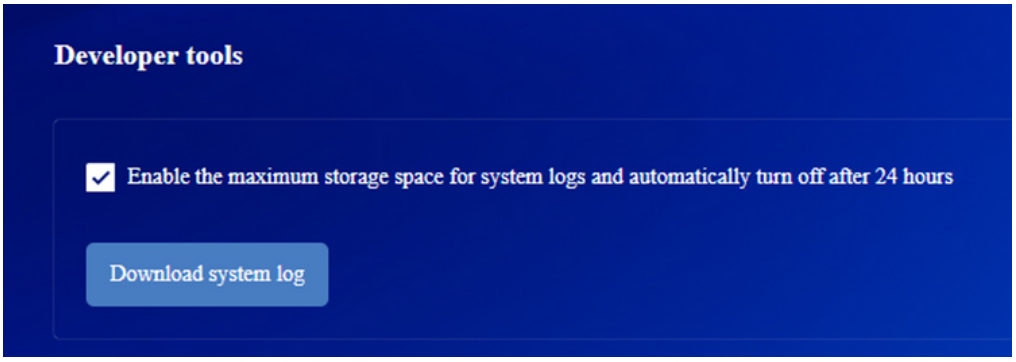


Here you can capture some abnormalities during the operation of the device, the capture the log that can be used for further analysis.

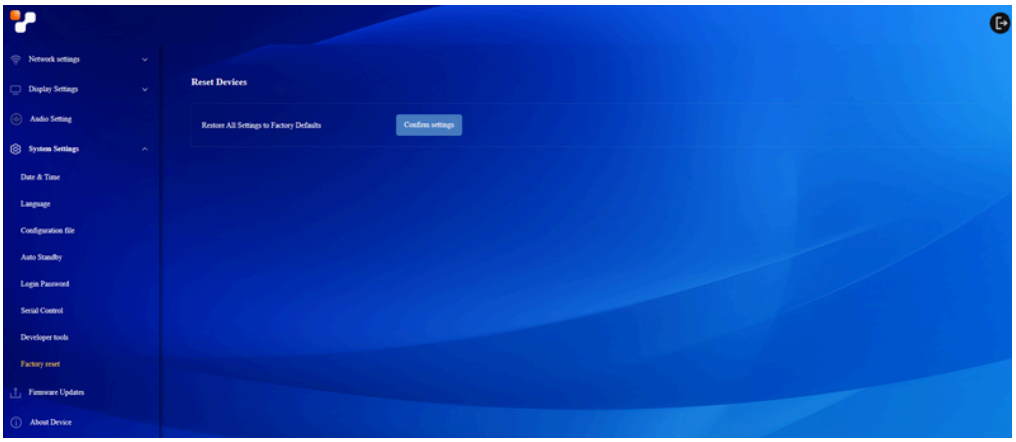
Click the button "Download system log" to request to download the log file, as shown in the following figure:



Note:
More log content will be captured during 24-hour period when ticked "Enable the maximum storage space for system logs and automatically turn off after 24 hours". It means richer log content will be captured.



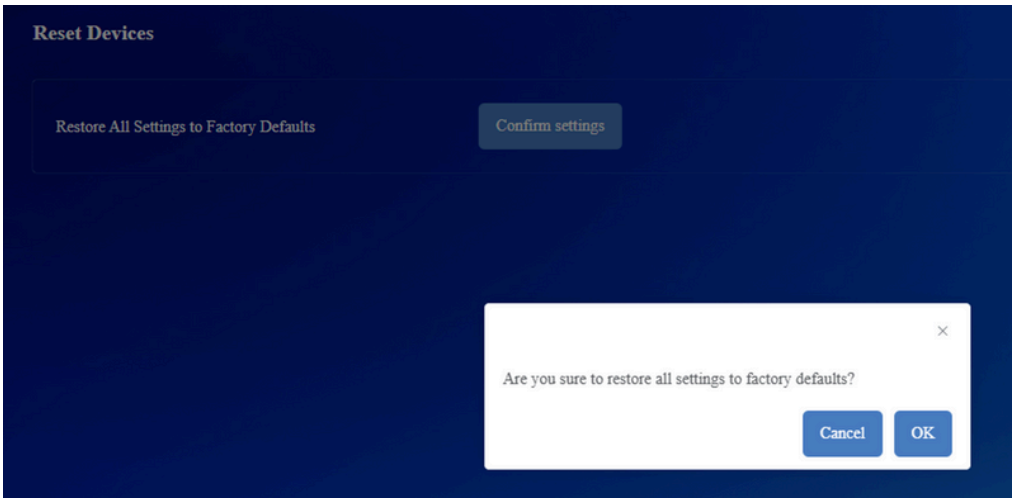
9.4.8 Factory Reset



Here you can restore the device to factory settings.

When the device encounters some problems that cannot be solved conventionally, you can restore the factory settings to eliminate some faults.

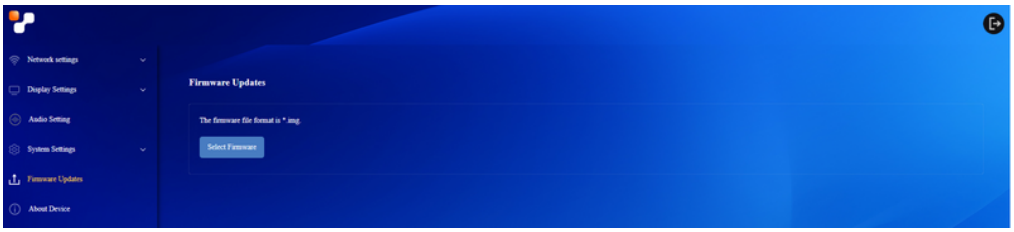
Click the "Confirm settings" button to enter the following page. After clicking the "OK" button, the device begins to enter the factory settings restoration process.



Note:
>> After restoring the factory settings, the relevant settings will be restored to the factory default state and need to be reset.

>> There is a reset button on the back panel of the device. Use a pointed object (such as an unbent paper clip) to press this button for at least 2 seconds until the "Factory Reset" page appears.

9.5 Firmware Updates

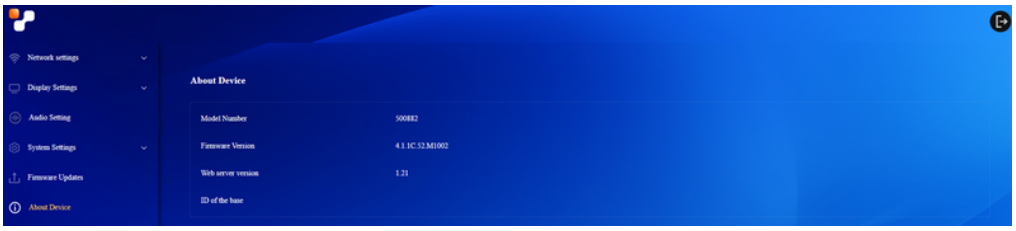


Here you can upgrade the device's firmware. Be careful not to have power outages during the upgrade process, otherwise the device may be damaged.

- Firmware Updates
  Click the "Select Firmware" button to load the firmware program file to be manually updated.

Note:
In addition to the above method of upgrading the device firmware through the web, you can also upgrade it through a USB flash drive. Copy the upgrade file "update.img" to the root directory of the USB flash drive. The USB flash drive needs to be in FAT 32 format.

9.6 About Device



Here you can see the relevant information of the device and the web version information, including below:

- Model Number
- Firmware Version
- Web server version
-Serial number

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