BZB GEAR®
Solutions to Amplify Your World™

BG-UHM

USB/HDMI Video Selector and Mixer

User Manual

Table of Contents

Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-UHM USB/HDMI Video Selector and Mixer is a solution designed to streamline video production workflows by enabling seamless switching and mixing of multiple video sources. Supporting up to three input sources, including USB 3.0, USB 2.0, and HDMI 1.4, the BG-UHM allows users to effortlessly integrate devices such as webcams, laptops, and document cameras. The device offers customizable video mixing options with professional-grade layouts such as Picture-in-Picture (PiP), side-by-side, and overlay configurations, all of which can be easily managed through an intuitive web interface. Equipped with various output options, including HDMI 2.0 and USB-C (UVC/UAC), the BG-UHM ensures compatibility with a wide range of displays and streaming platforms.

Advanced audio management capabilities allow users to mix audio from HDMI, USB, and analog sources, with the option to mute individual streams for precise control during live broadcasts. Control options include LAN, RS-232, and a web-based GUI, providing flexible management to suit various operational environments. Additionally, PoE (802.3af) support simplifies installation by reducing cable clutter and allowing the device to be powered through a network connection.

Features

- Supports connection of up to 3 camera sources: 1x USB 3.0, 1x USB 2.0, and 1x HDMI 1.4.
- HDMI input can be connected to any HDMI source, such as a laptop or document camera.
- Seamless switching between all 3 input sources.
- Mix and combine video feeds from the 3 input sources.
- Define mixed layouts via the web interface, including options like picture-in-picture, side-by-side, and big-and-small.
- 1x HDMI 2.0 output for a local monitor and 1x USB-C (UVC/UAC) output for a PC.
- Allows muting of video/audio during video conferencing or live broadcasting.
- Audio I/O and mixing can be managed through the web interface.
- Controllable via LAN and RS-232.
- Supports PoE, eliminating the need for an additional power supply.
- Compact and slim design with a height of only 18mm.

Packing List

- 1x BG-UHM Switcher
- 1x 4P Phoenix terminal male head
- 2x Mounting ear, 4x Screw
- 1x Power adapter
- 1x Manual

Specifications

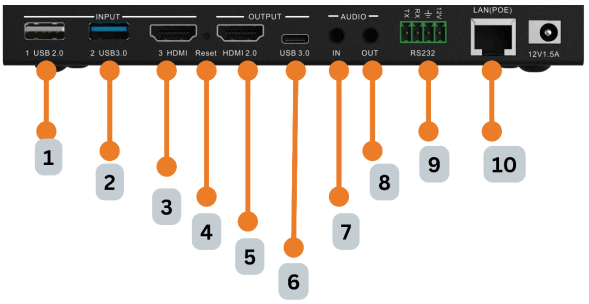
Technical Specifications	
OUTPUT	
HDMI output	1x HDMI 19-pin female connector
Format Compliance	HDMI1.4 / HDMI2.0
HDCP	HDCP1.4 / HDCP2.2
USB Interface	Type C x1, UVC, and UAC
Video Output Resolution	**HDMI:** 3840x2160@60Hz, 3840x2160@30Hz, 1920x1080@60Hz, 1280x720@60Hz **Type C:** 1920x1080@30Hz, 1280x720@30Hz, etc.
Analog Audio Output	HDMI, USB, Jack(analog input)
INPUT	
HDMI Input	1x HDMI 19-pin female connector
Format Compliance	HDMI1.4
HDCP	HDCP1.4
USB interface	**Rear:** USB 3.0, Type A x1; USB2.0, Type A x1 **Front:** USB 2.0, Type A x1, Type C x1
Video Intput Resolution	**HDMI:** 1920x1080@60Hz, 1280x720@60Hz **USB 3.0:** 1920x1080@30Hz, 1280x720@30Hz etc. **USB 2.0:** 1920x1080@30Hz, 1280x720@30Hz etc.
Audio Input	HDMI, USB, Jack(analog input)
CONTROL	
Control connectors	3.5mm Phoenix terminal / RS232 interface
LAN port	RJ45 x1: 1000Mbps, POE option (802.3af)
Hardware Specifications	
Control method	Web GUI, Telnet, RS232, Key
Dimension (W x D x H)	180mm x 95mm x 18mm
Weight	1KG
Operating Temperature	0° C to +45° C
storage Temperature	0° C to +60° C
Relative humidity	20%~ 85% RH（no condensation）
DC Power	12V
Power Consumption	15W(MAX)
Power adapter	AC100~240v 50/60Hz 12V/1.5A

Operation Controls and Functions

Front Panel

1. USB 2.0 & USB C PORT: KVM Input
2. Video Mute Button: Mute 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: Big & small layout

Back Panel

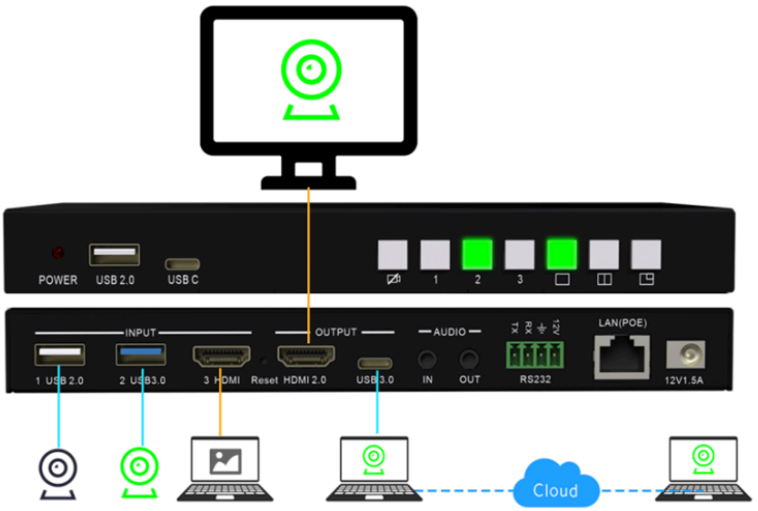


1. USB 2.0 INPUT: 1x USB 2.0 camera
2. USB 3.0 INPUT: 1x USB 3.0 camera
3. HDMI INPUT: 1x HDMI camera or video source
4. Reset button: Reset
5. HDMI 2.0 OUTPUT: 1x HDMI 2.0 output for screen
6. USB 3.0 OUTPUT: 1x USB-C output for PC
7. IN AUDIO: 1x line in
8. OUT AUDIO: 1x line out
9. RS232: 1x RS232 for control
10. LAN(POE): 1x 1000M LAN for control

Video function switching instructions

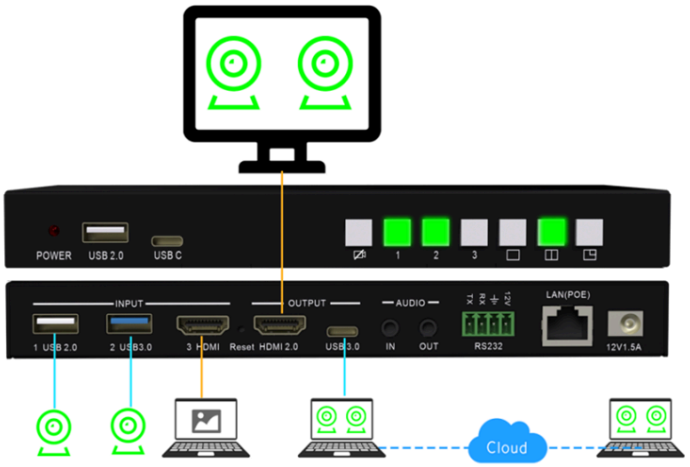
Single Screen Display

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



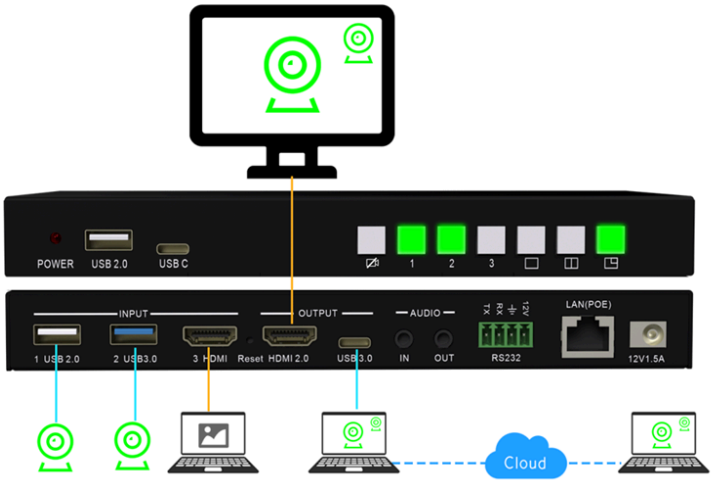
PBP Mode

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



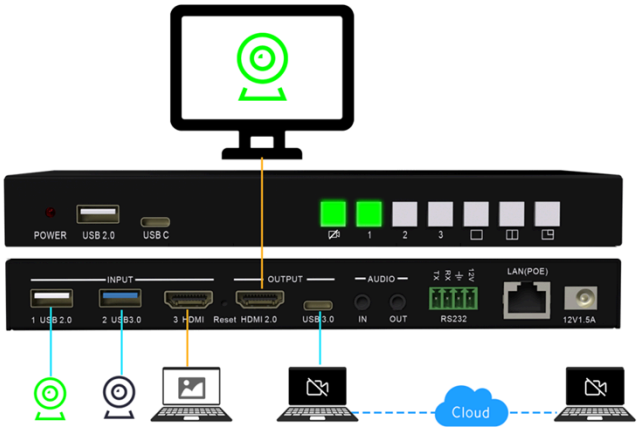
PIP Mode

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



Mute UVC output

By pressing the button  to enter the Mute UVC output as shown in the following example:



Note:

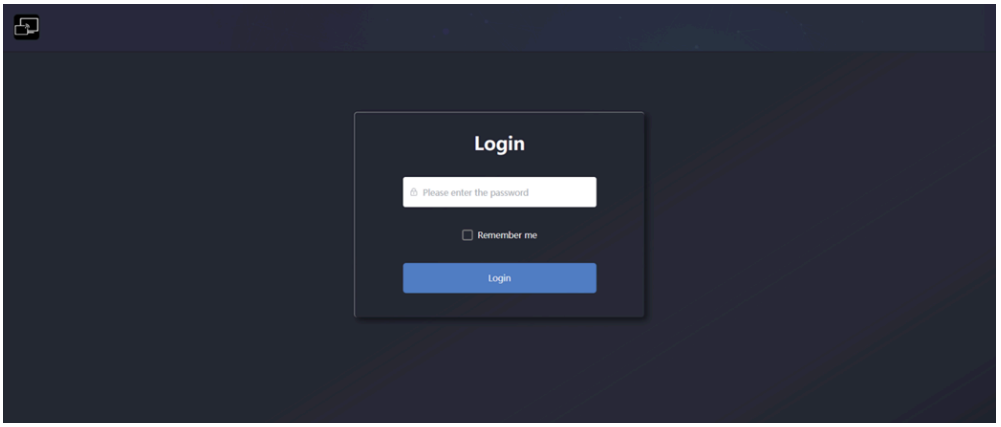
This function can be used to debug the local camera device before the meeting so that the remote participants will not be able to see the process of debugging the local camera.

Home Page

Note: This page can be accessed via the HDMI output once the device is powered on.

- The current IP address will be displayed on the bottom left corner of the screen
- The background image can be changed in the Web GUI

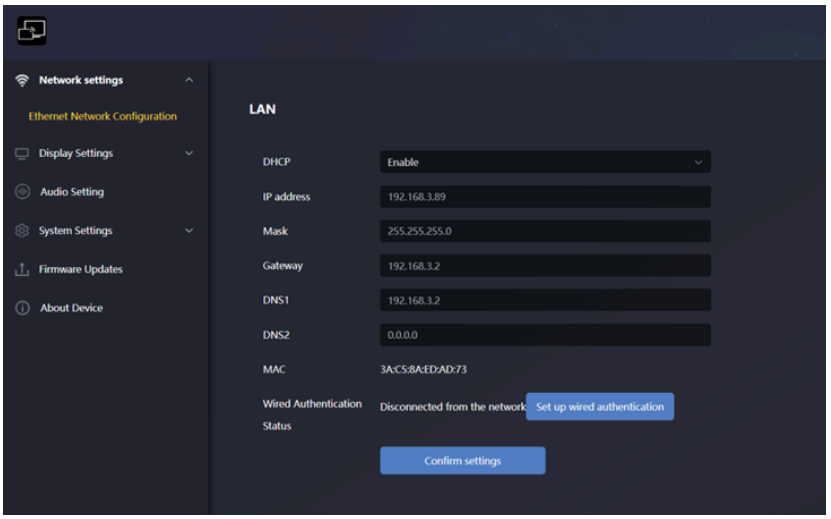
Web GUI



Note: To access the Web GUI of the BG-UHM, you will need to type the IP address of the unit in the address bar of a web browser and hit Enter or Search.

Default Password: admin

Network Settings

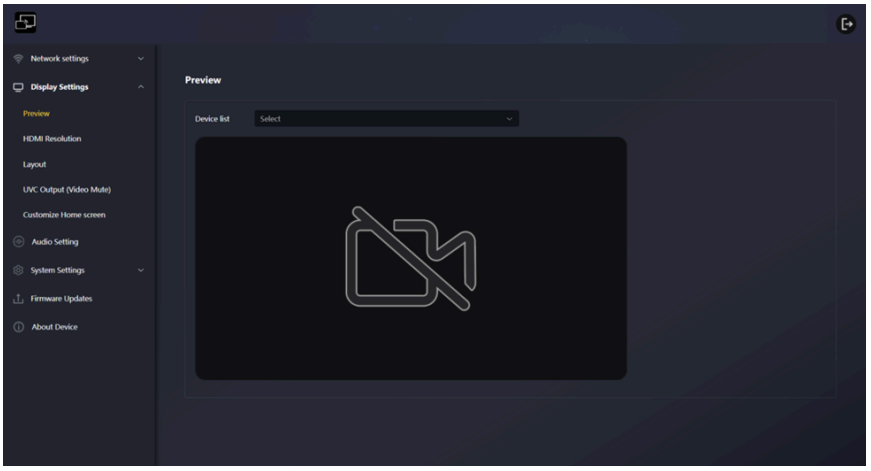


Ethernet Network Configuration

- 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:
    1. EAP-TLS
    2. EAP-TTLS
    3. PEAP
    4. No Authentication

Display settings

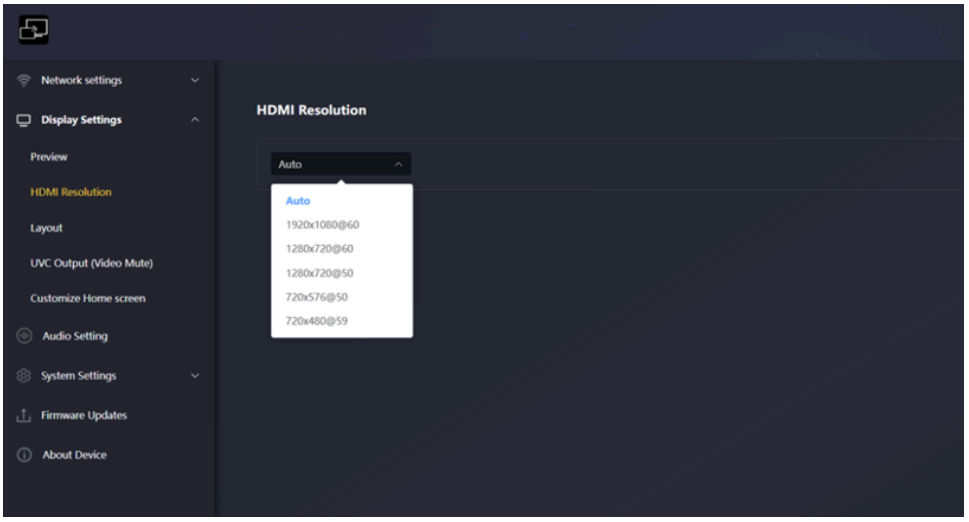
Preview



- Here you can search for signals connected to the three Input interfaces and preview them, including camera signals and computer HDMI signals.

⚠ Attention:
If the camera is occupied by video conferencing software or the computer system camera, the video output test and preview will not be possible here

HDMI Resolution

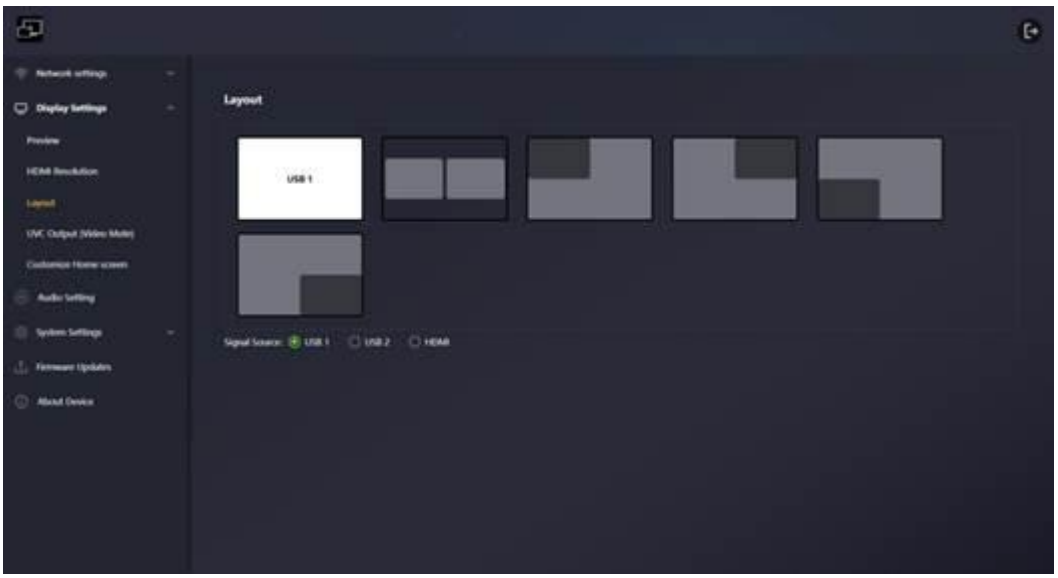


- The default mode is set to **Auto**. The resolution shown in the drop-down list corresponds to the resolution supported by the connected monitor.

Note: If the display only supports 1080p, the option for 4K output resolution will not be available in the list.

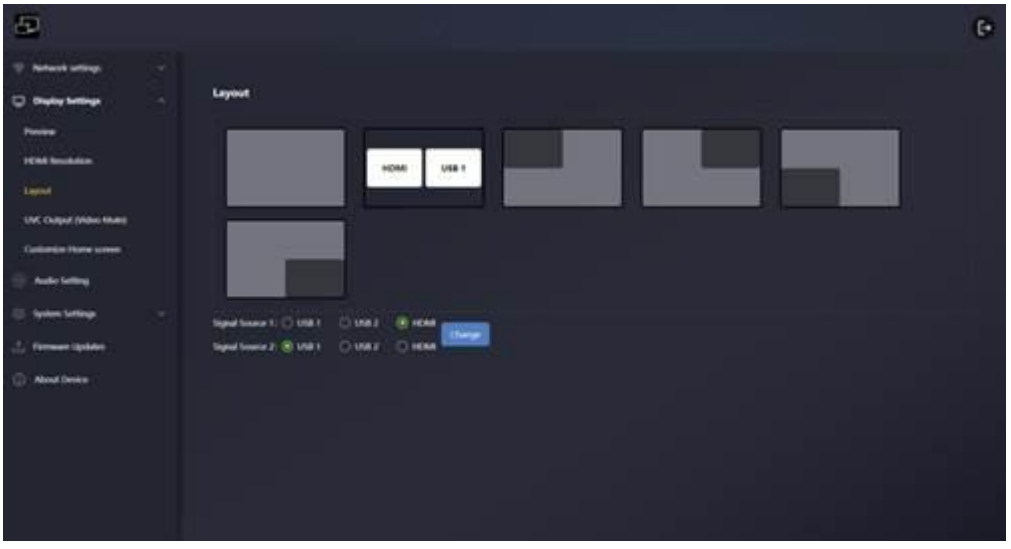
Layout

Single Screen



In **Single Screen** mode, you can select the desired signal input source for single-screen output by clicking on the signal source with the mouse. When the green button next to the corresponding interface lights up, the selected signal input is successfully output and displayed on the screen.

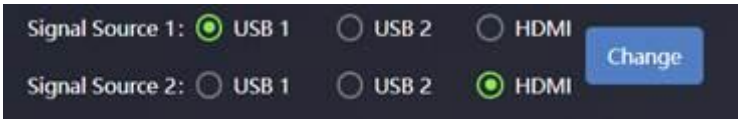
PBP Mode



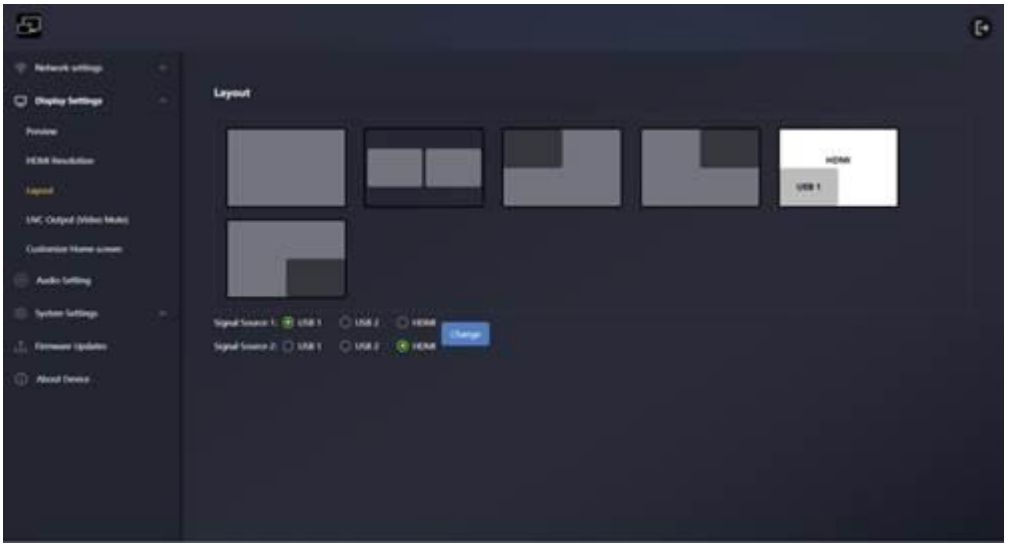
In **PBP** mode, you can select two signal sources simultaneously, which will be displayed side by side on the same screen in equal proportions—one on the left and one on the right. Simply click on **Signal Source 1** and **Signal Source 2** with the mouse. When the green

button next to the corresponding interface lights up, the selected signal inputs will be output and displayed on the screen.

After clicking the **"Change"** button, **Signal Source 1** and **Signal Source 2** will be swapped, as shown in the photo below.



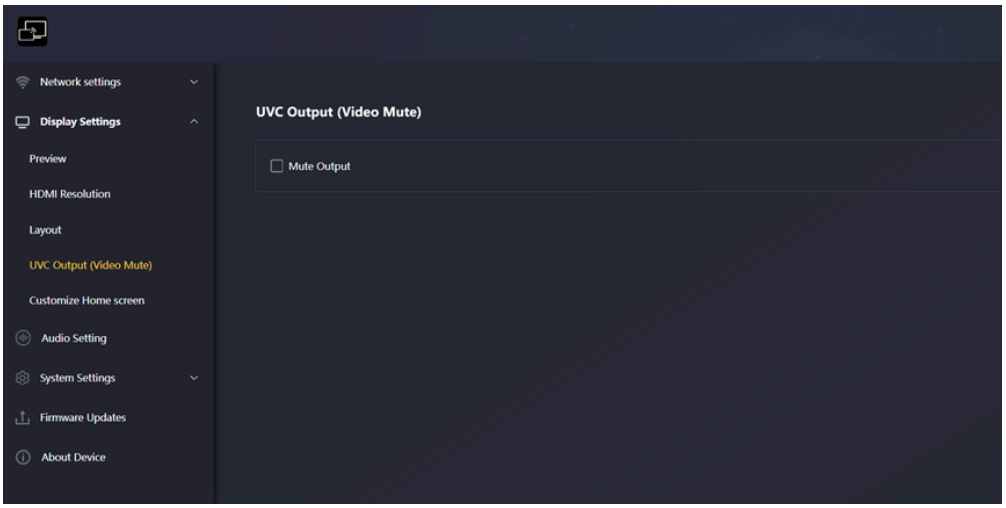
PIP Mode



In **PIP** mode, you can select two signal sources simultaneously and display them on the same screen, with one source appearing in a large window and the other in a smaller window. Simply click on **Signal Source 1** and **Signal Source 2** with your mouse. When the green button next to the corresponding interface lights up, the selected signal inputs will be output to the screen. Layouts **3-6** represent different PIP modes, with the smaller window positioned in various locations.

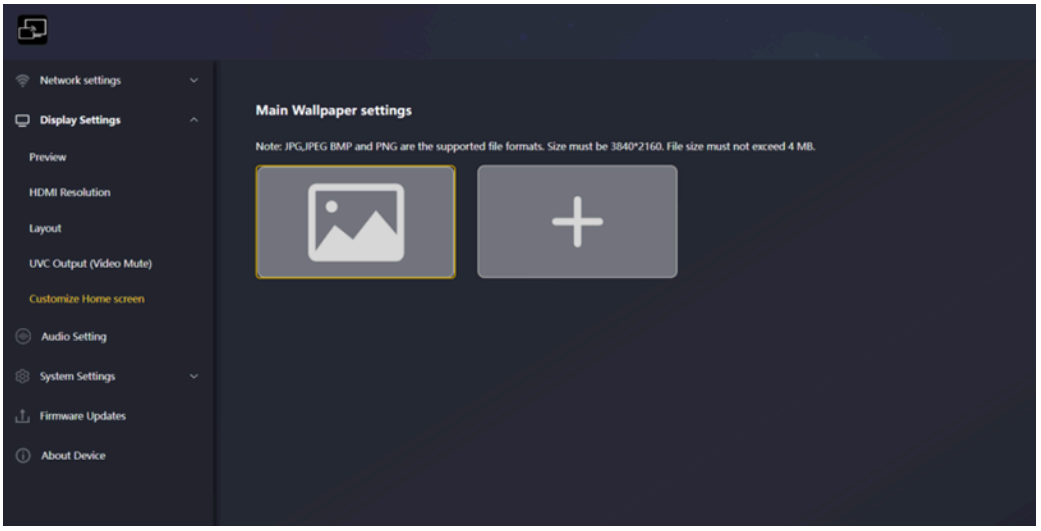
After clicking the **"Change"** button, **Signal Source 1** and **Signal Source 2** will be swapped, as shown in the photo below.

UVC Output (Video Mute)



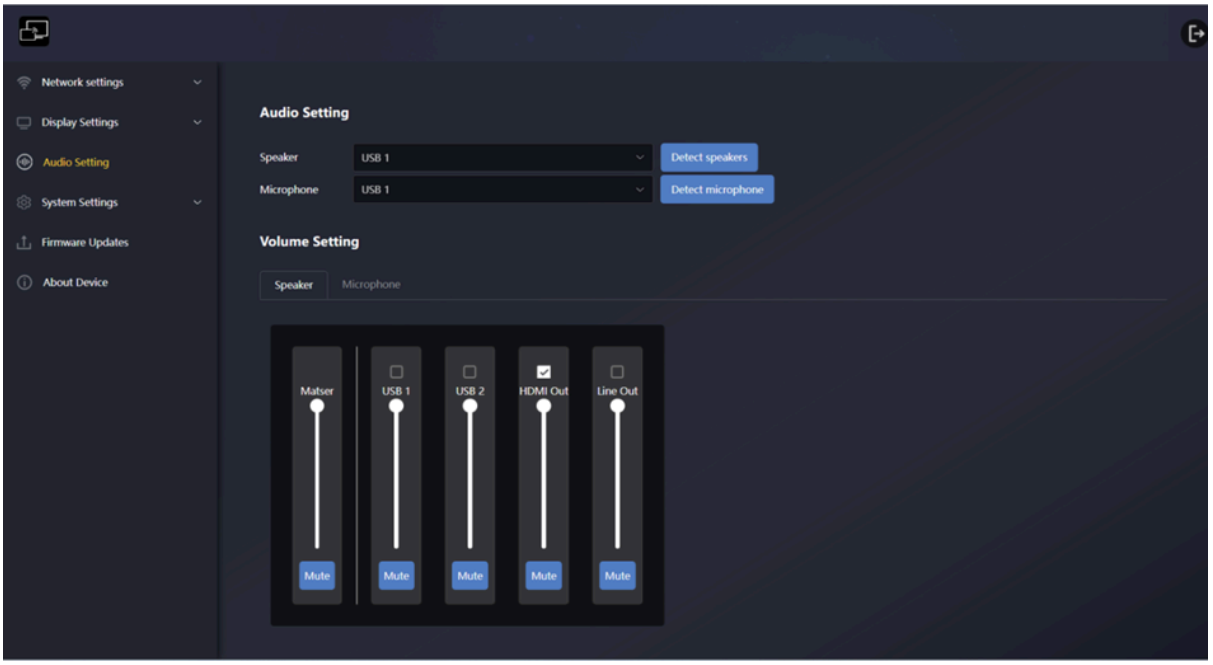
This feature is the same as the "Mute UVC Output" button  in the front panel. It is turned off by default.

Customize Home Screen



When the device starts, the boot screen is displayed. Users can customize the background image of the main page by selecting an image in JPG, BMP, PNG, or GIF format with a resolution of 1920 × 1080. If desired, users can easily revert to the original main interface at any time.

Audio Settings

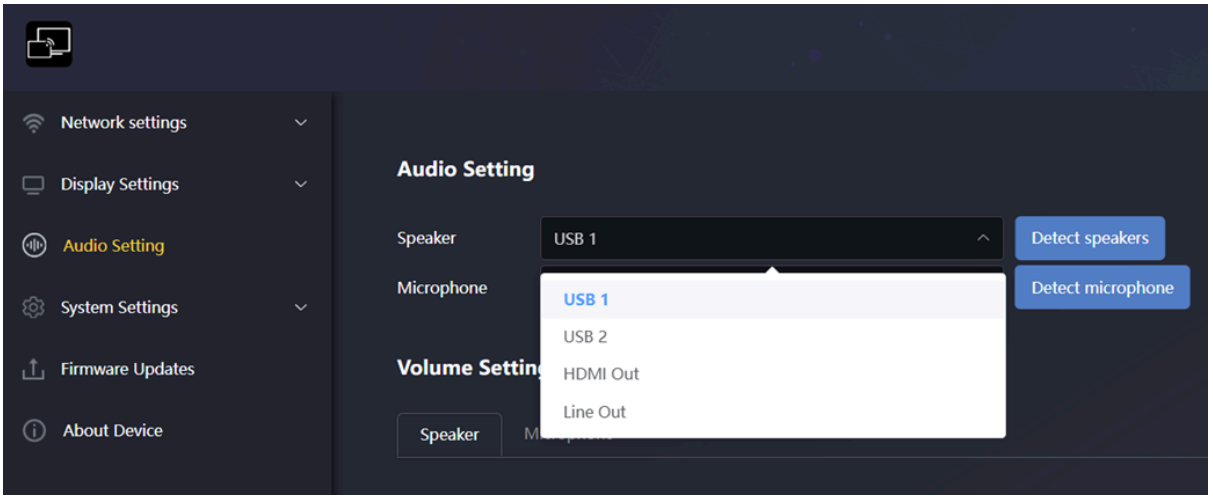


Testing Speaker and Microphone Functionality

This section allows you to test whether the speakers and microphones connected to the device are functioning correctly. You can select the desired speaker output and adjust its volume, as well as choose the preferred microphone input and modify its volume accordingly.

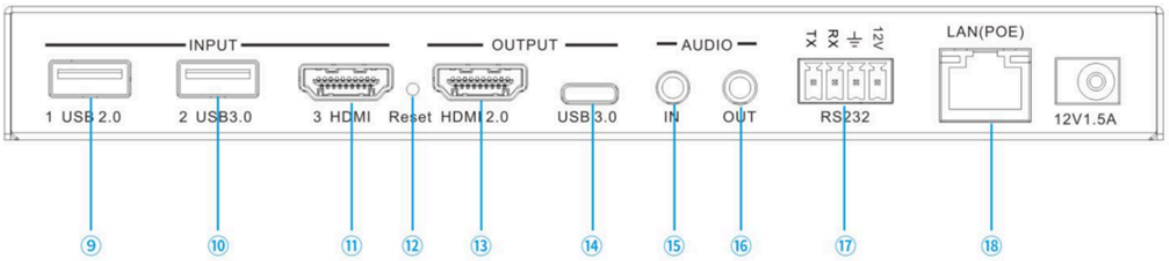
Speaker Settings

In the **Speaker** drop-down menu, you can test the following four options. After selecting an option, click the **"Detect Speakers"** button to verify if the selected output is available and capable of producing sound.



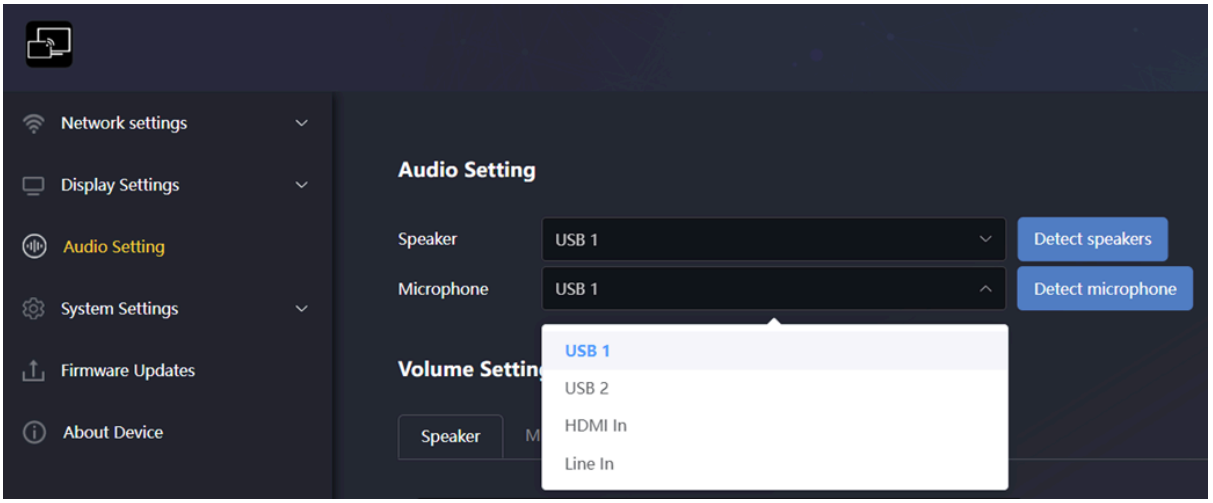
Speaker Options (Refer to the Device Interface Diagram):

- **USB 1** – Corresponds to audio output port ⑨
- **USB 2** – Corresponds to audio output port ⑩
- **HDMI Out** – Corresponds to audio output port ⑬
- **Line Out** – Corresponds to audio output port ⑯



Microphone Settings

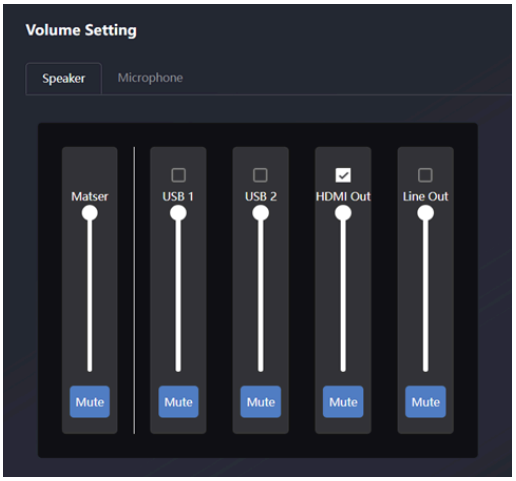
In the **Microphone** drop-down menu, you can test the following four options. After selecting an option, click the **"Detect Microphone"** button to verify if the selected input is available and capable of capturing sound.



Microphone Options (Refer to the Device Interface Diagram):

- **USB 1** – Corresponds to audio input port ⑨
- **USB 2** – Corresponds to audio input port ⑩
- **HDMI In** – Corresponds to audio input port ⑪
- **Line In** – Corresponds to audio input port ⑮

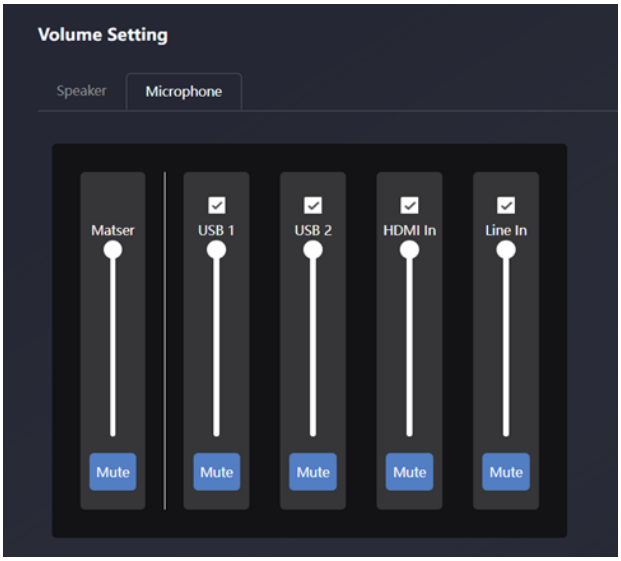
Volume Control > Speaker



By default, **HDMI Out** is selected as the speaker output. You can adjust the volume of the selected speaker output using the volume bar below.

- The **Master** volume bar adjusts the overall output volume for the selected speaker.
- Clicking the **"Mute"** button will mute the selected output, and a red background frame will indicate that the mute function is active.

Volume Control > Microphone



All available microphone options are enabled by default. You can adjust the volume of the selected microphone input using the volume bar below.

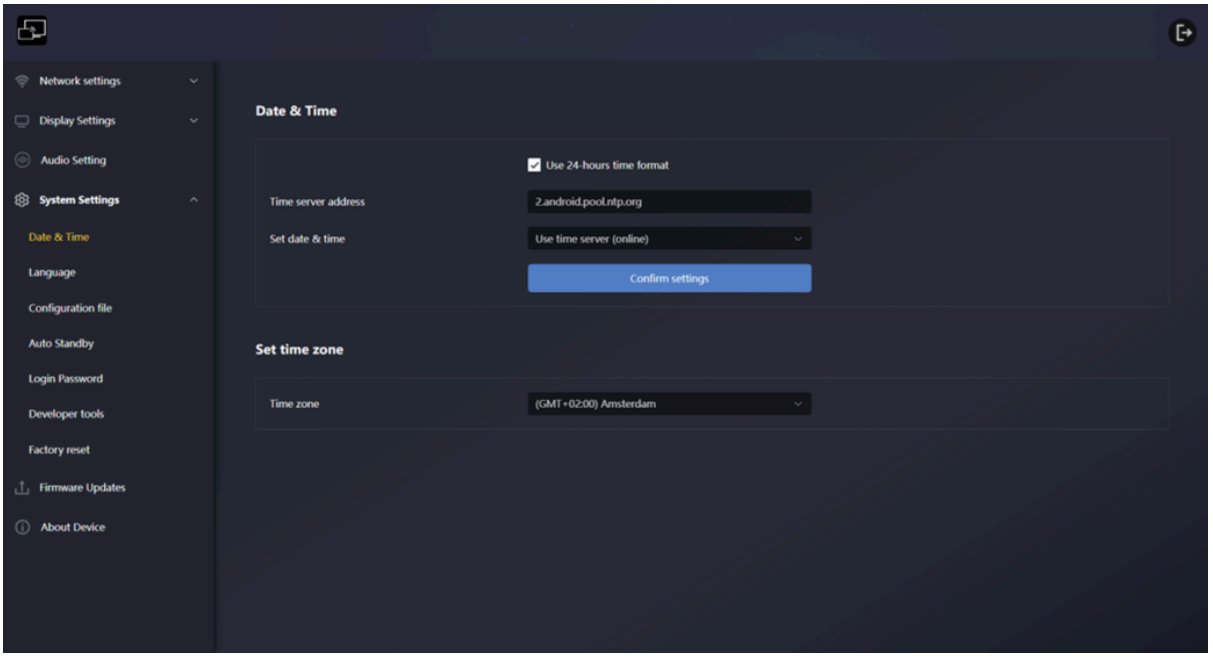
- The **Master** volume bar controls the input volume of the selected microphone.
- Clicking the **"Mute"** button will mute the microphone, and a red background frame will indicate that the mute function is active.

Device Interface Diagram

Refer to the diagram below for port identification and corresponding audio input/output connections.

System Settings

Date and Time



Time Settings Configuration

- **24-Hour Time Format**
  The 24-hour time format is enabled by default.

- **Time Server Address**
  By default, the time server is synchronized with Google's server at `2.android.pool.ntp.org`, which is part of the Android platform.

  Note:
  If you have your own time server, you can configure it here to synchronize the time with your server's address.

Set Date & Time

There are two available modes:

- **Use Time Server (Online)**
  - This function is enabled by default.

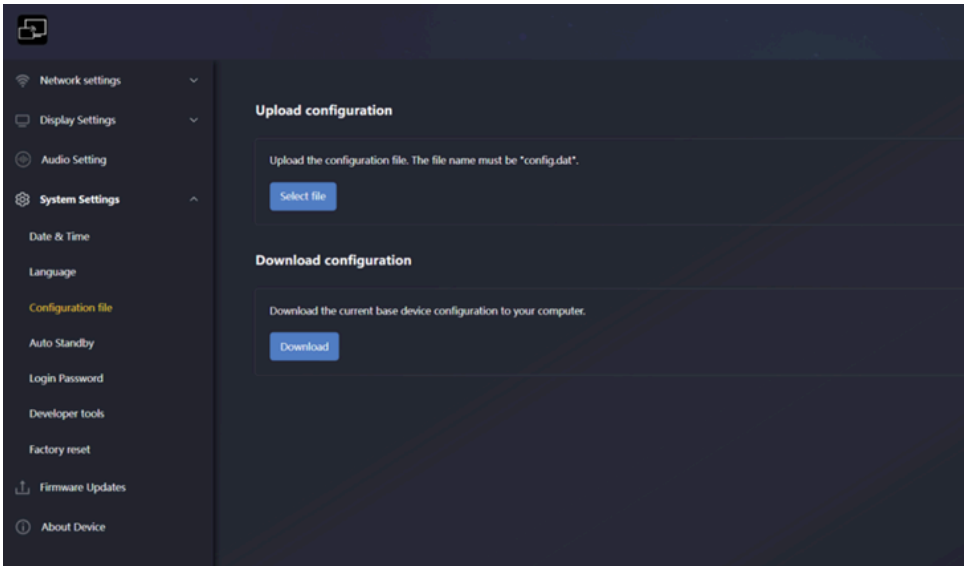
- **OFF**
    - In this mode, you can manually set the desired date and time.

Note:
If you switch from **OFF** to **Use Time Server (Online)**, you will need to re-login to the web client for the changes to take effect.

Set Time Zone

You can manually select the desired time zone. After synchronizing with Internet time, the time will be displayed in the local time of the selected zone.
The default time zone is set to **(GMT+02:00) Amsterdam**.

Configuration File



Upload Configuration

You can upload a previously saved configuration file (`Config.dat`) to restore your settings. Click the **"Select File"** button to choose the desired `Config.dat` file, as shown in the following figure:

After Upload is Completed

- Once the file is uploaded successfully, the system will automatically log out and require you to log back in to apply the changes.

Note:
Re-login is necessary for the configuration to take effect after uploading.

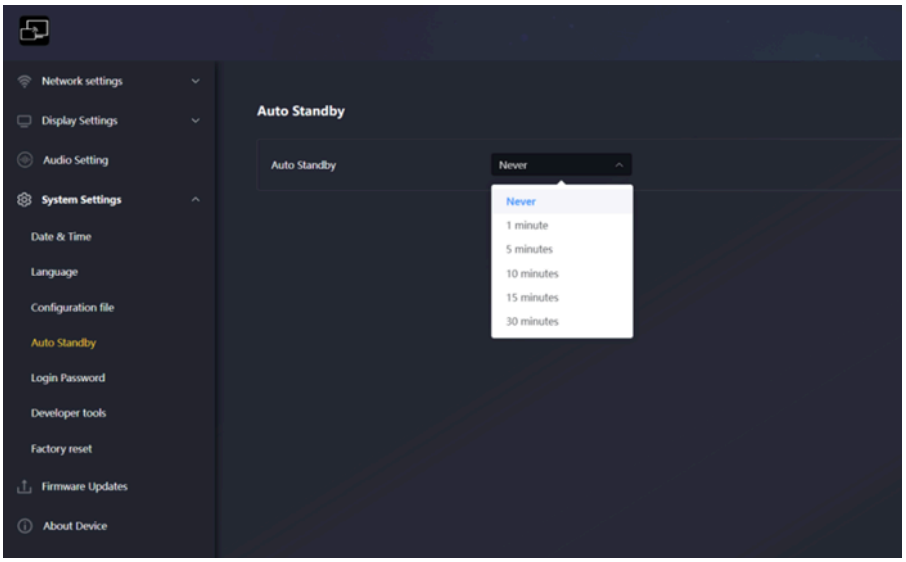
Download Configuration

You can download the current configuration file (`Config.dat`) to save your web settings. Click the **"Download"** button, as shown in the figure below.

After the Download is Complete

- The downloaded file will be saved as `Config.dat`.

Auto Standby

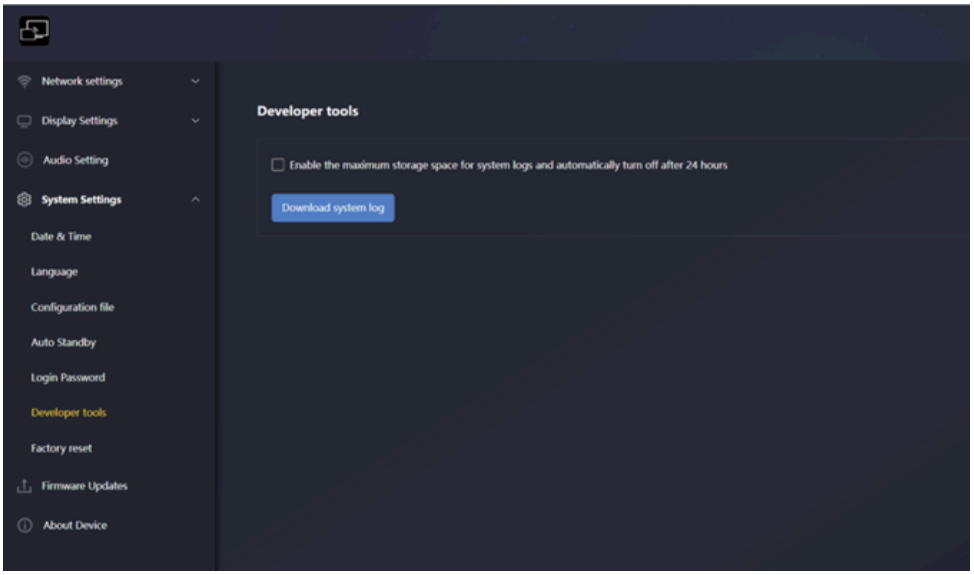


You can set the standby time interval using the following options:

- Never: The screen display remains on continuously.
- 1 minute: Enters standby mode after 1 minute of inactivity.
- 5 minutes: Enters standby mode after 5 minutes of inactivity.
- 10 minutes: Enters standby mode after 10 minutes of inactivity.
- 15 minutes: Enters standby mode after 15 minutes of inactivity.
- 30 minutes: Enters standby mode after 30 minutes of inactivity.

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

Developer Tools



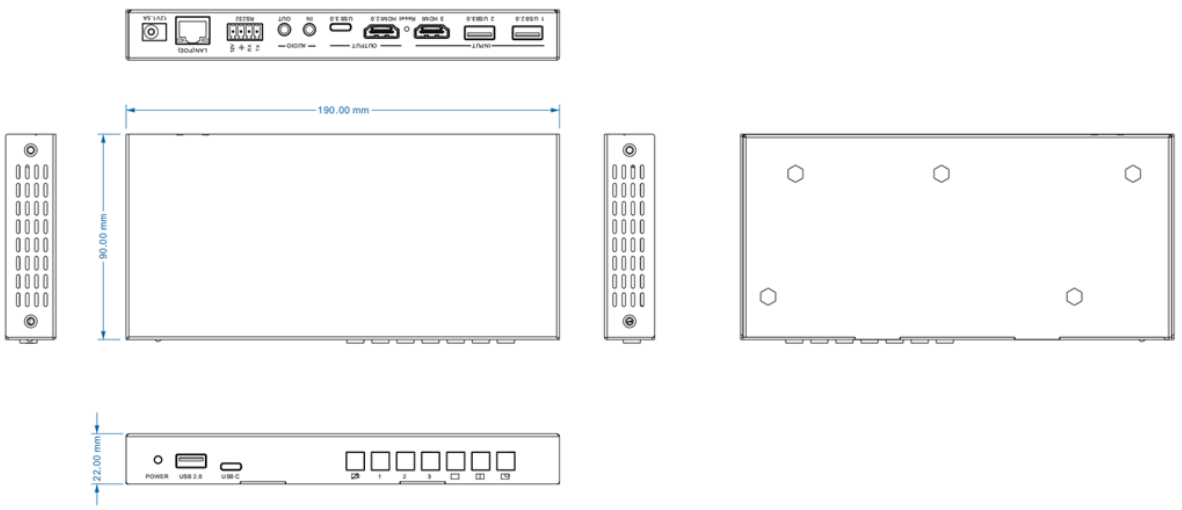
You can capture system abnormalities during device operation by generating a log file for further analysis.

To download the log file, click the “Download system log” button, as shown in the figure below:

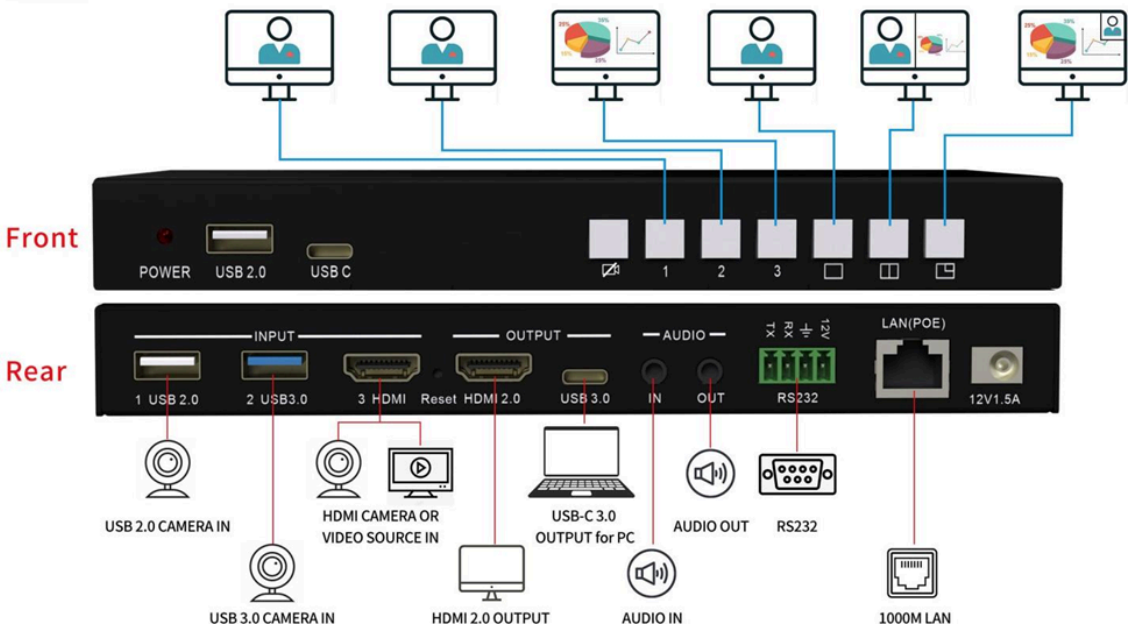
The downloaded log file is displayed in the following figure:

Note:
When “Enable the maximum storage space for system logs and automatically turn off after 24 hours” is selected, the system will capture more detailed log content over a 24-hour period.

Mechanical Diagram



Connection Diagram



Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player`s audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone	**Email**	**Live Chat**
1.888.499.9906	support@bzbgear.com	bzbgear.com

Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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