TEK 1201-MV+

6x1 4K Universal Switcher

Version: 79033-MV+_2023V1.6.1

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different product model specifications may vary.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated January 2023. In order to continue improving the product, we reserve the right to make function or parameter changes without notice or obligation. Please refer to the dealers for the latest details.

Trademarks

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

Safety Precautions

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

- Unpack the equipment carefully, and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons
- Do not dismantle the housing or modify the module (electrical shock or burn hazard)
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration, or malfunction
- Refer all servicing to qualified service personnel
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water
- Do not put any heavy items on the product's power cable
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards
- Install the device in a place with sufficient ventilation to avoid damage caused by overheating
- Keep the module 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 to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes

Table of Contents

1201-MV+

79033-MV+ User Manual

1. Product Introduction

The 1201-MV+ is a universal switcher that supports 4Kx2K@60Hz 4:4:4, flexible multiview modes, and six video inputs: five HDMI, and one powered USB-C. The 1201-MV+ includes simultaneous HDMI & HDBaseT outputs, LAN bridge extension, and a simulated USB 3.0 hub extender with bridging to the USB-C input. The HDMI output can be configured to mirror the HDBaseT output or preview the HDMI 1 input. The HDBaseT output can travel up to 328 feet (100m) without any additional amplification, and supports PoC for remotely powering the receiver.

The 1201-MV+ also features automatic source detection & switching, can power displays on and off using CEC or RS232, and offers versatile multiview for showing up to four sources on-screen simultaneously. The universal switcher can extend USB signals—such as cameras and microphones—from the far-end hub, making them available to the system PC or a connected laptop. The 1201-MV+ is available with or without its hub/receiver.

1.1 Features

Video

- 5 HDMI inputs & 1 USB-C input with 60W charging
- EDID settings for all inputs – Default is 1080P/60
- Supports an Auto-Switching mode with automatic display power
- Supports HDMI output resolutions up to 4Kx2K @ 60Hz 4:4:4
- Supports HDBaseT 3.0 output resolutions up to 4Kx2K @ 60Hz 4:4:4
- Default output resolution is 1080P/60
- 12 flexible multiview configurations for showing up to 4 sources at once
- Breakaway HDMI output can preview the HDMI 1 input or mirror the HDBaseT output
- 328 ft HDBaseT transmission with controllable PoC power
- Hub receiver supports PoC power with 12 ~ 48V range

Audio

- Independent audio input selection during Multiview operation
- Supports both source and mic levels
- Microphone input with phantom power selection
- Line input for mic mixing

Control

- Controllable via RS232, IR remote, front panel buttons, or TCP/IP commands
- RS232 and TCP/IP use a unique, easy-to-use ASCII protocol
- Two RS232 control modes:
    - Control of the switcher from both the switcher and receiver (Default)
    - Sending RS232 display commands with baud rate setting to the receiver
- Supports sending TEVOX Macro commands for TekMonitor control
- Provides 24V power for a TEKVOX TekTouchPad
- CEC control of displays and receivers

- User-defined CEC commands
- RS232 Command entry for display power
- Bridged LAN network for single network connection to switcher and 3rd-party devices at receiver
- Selectable power on and off of the POC control for the hub/receiver
- Shipped fully functional, pre-programmed, and rigorously tested

USB

- Supports bidirectional USB 3.0 simulated hub extension at switcher and hub/receiver
- Automatic bridging of USB hub to USB-C input
- Provides PC or connected laptop access to far-end USB devices (cameras, microphones, etc)

1.2 Package List

1.2.1 TEK 1201-MV+ Switcher

- 1x 6x1 4K Universal Switcher
- 2x Mounting Ears with 4 Screws
- 4x Plastic Cushions
- 2x 3-pin Terminal Blocks
- 1x 4-pin Terminal Block
- 1x 5-pin Terminal Block
- 1x IR Remote
- 1x IR Receiver
- 1x Power Adapter (DC 24V, 5A)
- 1x Power Cord
- 1x User Manual

1.2.2 TEK 1201-MV-RX Receiver

- 1x HDBaseT Receiver
- 2x Mounting Ears with 2 Screws
- 4x Plastic Cushions
- 1x RS232 Cable (3-pin to DB9)

Note: *Please contact your distributor immediately if any damage or defect in the components is found.*

2. Specifications

2.1 Universal Switcher

Video Input	
Video Input	(5) HDMI (Type-A, Female) (1) USB-C (USB Type-C, Female, Powered)
Input Resolution	**HDMI (1~4)**: Up to 4K@60Hz 4:4:4 **HDMI (5)**: Up to 4K@30Hz 4:4:4 **USB-C**: Up to 4K@30Hz 4:4:4
Video Output	
Video Output	(1) HDMI (Type-A, Female) (1) HDBaseT (RJ45)
Output Resolution	**HDMI**: Up to 4K@60Hz 4:4:4 **HDBaseT**: Up to 4K@60Hz 4:4:4
HDMI Standard	Up to 2.0
HDCP Version	Up to 2.2
HDBaseT Version	3.0
Audio Input	
Audio Input	(1) AUDIO IN (3.5mm mini jack) (1) LINE IN (3-pin terminal block) (1) MIC IN (3-pin terminal block)
Frequency Response	20Hz to 20kHz, ±3dB
Max Input Level	2.0Vrms ± 0.1
L-R Level Deviation	< 0.3dB, 1kHz sine at 0dBFS level (or max level before clipping)
Input Impedance	> 10KΩ
AUDIO/LINE/MIC Audio Format	PCM 2.0
HDMI Audio Format	PCM 2.0 48K
L+R Audio Output	
Audio Output	(1) L+R Balanced Stereo (5-pin terminal block)
Audio Format	PCM 2.0
Frequency Response	20Hz to 20kHz, ±1dB
Max Output Level	2.0 ± 0.1Vrms
Total Harmonic Distortion + Noise (THD+N)	< 0.05%, 20Hz to 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio (SNR)	> 90dB, 20Hz to 20kHz bandwidth
Crosstalk Isolation	< -70dB, 10kHz sine at 0dBFS level

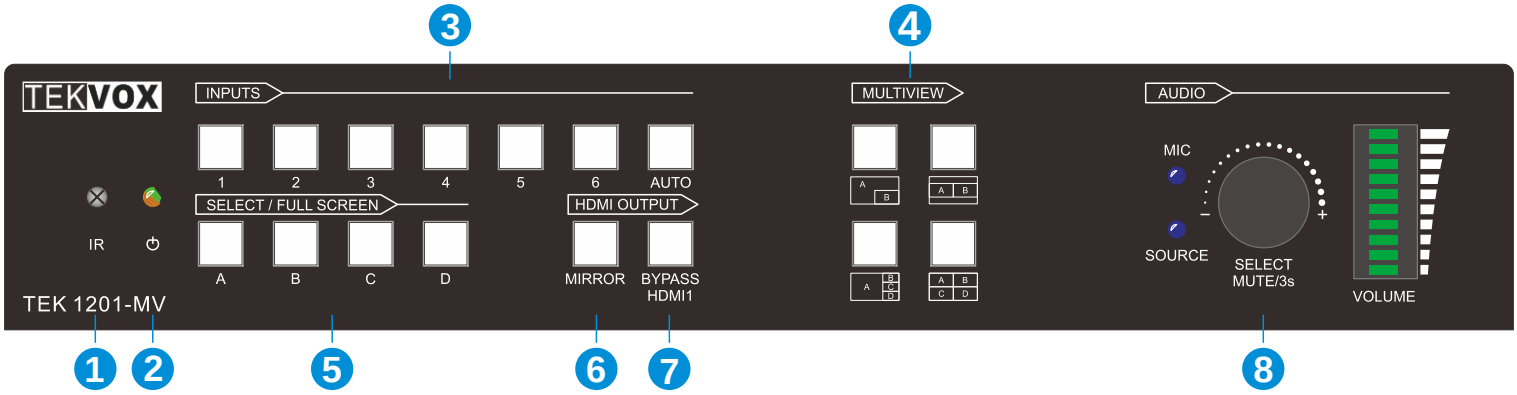
L-R Level Deviation	< 0.3dB, 1kHz sine at 0dBFS level (or max level before clipping)
Output Load Capability	1kΩ and higher (Supports 10x paralleled 10kΩ loads)
Noise Level	- 80dB
SPDIF Audio Output	
SPDIF Out	(1) SPDIF (Toslink)
Audio Format	PCM 2.0
Max Output level	±0.3dBFS
Frequency Response	20Hz to 20kHz, ±1dB
Total Harmonic Distortion + Noise (THD+N)	< 0.05%, 20Hz to 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio (SNR)	> 90dB, 20Hz to 20kHz bandwidth
Crosstalk Isolation	< -70dB, 10kHz sine at 0dBFS level (or max level before clipping)
Noise Level	- 90dB
Control	
Control Ports	(1) PC (Type-B USB 3.0) (2) DEVICES (Type-A USB 3.0) (1) IR IN (3.5mm mini jack) (1) IR OUT (3.5mm mini jack) (1) IR EYE (3.5mm mini jack) (1) FIRMWARE (Type-A USB 2.0) (1) RS232 (4-pin terminal block) (1) TCP/IP (RJ45)
General	
Transmission Distance	328 feet (100 meters)
Bandwidth	18Gbps
Operation Temperature	23° ~ 131°F (-5°C - 55°C)
Storage Temperature	-13° ~ 158°F (-25°C ~ 70°C)
Relative Humidity	10 ~ 90%, Non-condensing
External Power Supply	**Input**: 100 ~ 240VAC, 50/60Hz **Output**: DC 24V, 5A
Power Consumption	131W (Max)
USB-C Power Charging	60W (Max)
Product Dimensions	9.84” (250mm) x 1.73” (44mm) x 7.87” (200mm)
Product Weight	3.53lbs (1.6kg)

2.2 Receiver

Video	
Video Input	(1) HDBT (RJ45)
Video Output	(1) HDMI (Type-A, Female)
HDBT Input Resolution	Up to 4K@60Hz 4:4:4
HDBT Version	3.0
HDMI Output Resolution	Up to 4K@60Hz 4:4:4
HDMI Standard	Up to 2.0
HDCP Version	Up to 2.2
Audio	
Audio Output	(1) SPDIF OUT (Toslink)
Audio Format	PCM 2.0
Max Output Level	±0.3dBFS
Frequency Response	20Hz to 20kHz, ±1dB
Total Harmonic Distortion + Noise (THD+N)	< 0.05%, 20Hz to 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio (SNR)	> 90dB, 20Hz to 20kHz bandwidth
Crosstalk Isolation	< -70dB, 10kHz sine at 0dBFS level (or max level before clipping)
Noise Level	- 90dB
Control	
Control Ports	(1) PC (Type-B USB 3.0) (3) DEVICES (Type-A USB 3.0) (1) FW (Micro-USB) (1) ETHERNET (RJ45) (1) IR IN (3.5mm mini jack) (1) IR OUT (3.5mm mini jack) (1) RS232 (3-pin terminal block)
General	
Transmission Distance	328 feet (100 meters)
Bandwidth	18Gbps
Operation Temperature	23° ~131°F (-5 ~55°C)
Storage Temperature	-13° ~158°F (-25 ~ 70°C)
Relative Humidity	10 ~ 90%, Non-condensing
External Power Supply	Power over Cable (PoC); no external power supply
Power Consumption	PoC with 12 ~ 48V range, 10W (Max)
Product Dimensions	6.61” (168mm) x 0.91” (23mm) x 5.31” (135mm)
Product Weight	1.1lbs (500g)

3. Panel Description

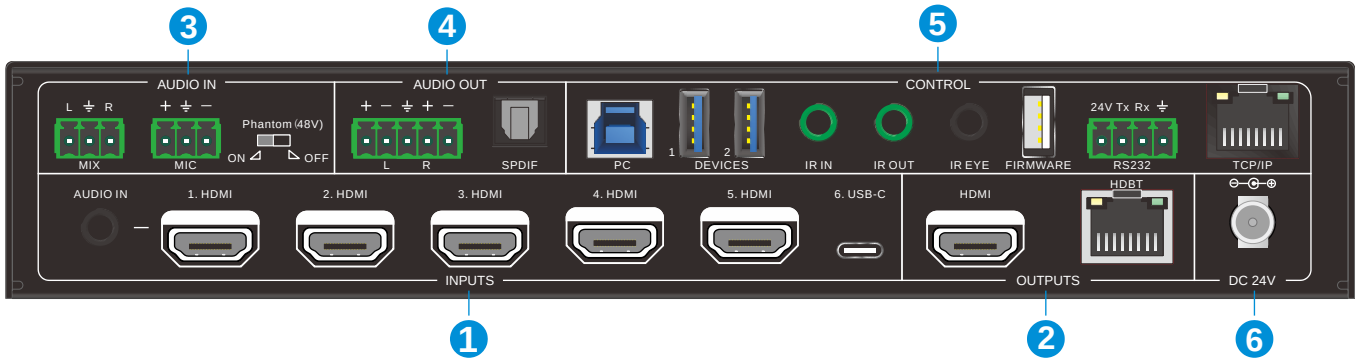
3.1 Universal Switcher Front Panel



1. **IR LED:** Built-in IR sensor; receives IR signals sent from IR remote
2. **POWER LED:** Lights up red when switcher is in Standby Mode, or green when device is powered on
3. **INPUT BUTTONS**:
   - **1~6:** Input source selectors
   - **AUTO:** Enables or disables auto-switching when in Fullscreen Mode
4. **MULTIVIEW:** Selects the four most commonly used built-in Multiview modes
5. **SELECT/FULLSCREENS (A~D):** Window A ~ D buttons for output selection and Fullscreen settings
6. **MIRROR:** Sets the local HDMI output as HDBT loop out. (e.g. HDMI and HDBT ports simultaneously output the same signal source)
7. **BYPASS HDMI 1:** Sets the local HDMI output port to output the HDMI input 1 source signal
8. **AUDIO CONTROL**:
   - Press the volume knob to select MIC or SOURCE audio to be controlled. With MIC audio selected, the MIX and MIC mixing audio inputs are controlled simultaneously.
   - Rotate the knob to increase or decrease the volume of the selected audio
   - Press and hold the knob for at least 3 seconds to mute the selected audio; rotate the knob to unmute.

***Note**: Please refer to **§4. Front Panel Control** for more details about button usages.*

3.2 Universal Switcher Rear Panel

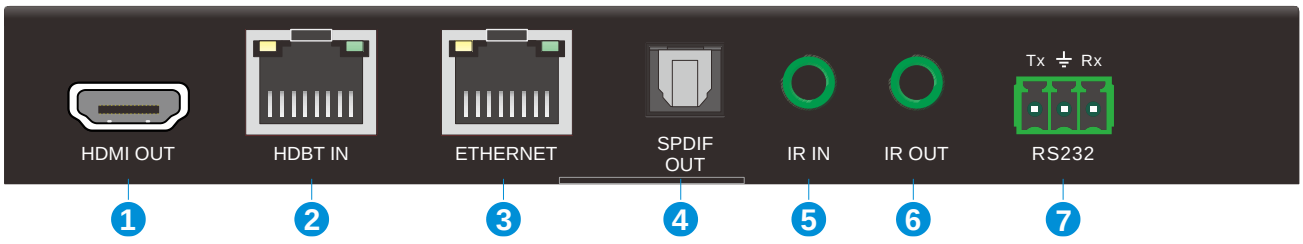


1. **INPUTS**:
   - Five HDMI inputs and one USB-C input
   - One external audio input for HDMI input 1
2. **OUTPUTS:** One HDMI and one HDBaseT output. The HDBaseT output supports PoC
3. **AUDIO IN**:
   - **MIX:** Mix audio input for audio mixing
   - **MIC:** Microphone input for audio mixing. Set 48V phantom power mode switch as needed (ON for Condenser microphone; OFF for Dynamic microphone)
4. **AUDIO OUT**:
   - **L+R:** Balanced stereo analog audio output for audio de-embedding
   - **SPDIF:** SPDIF audio output for audio de-embedding
5. **CONTROL**:
   - **PC:** Type-B USB port for Host PC connection. The Host PC is connected to the USB devices (e.g. mouse, keyboard, camera, mic, etc.) which are connected to the USB Type-A ports (DEVICES) on both the universal switcher and the hub receiver.
   - **DEVICES (1~2):** Two type-A USB ports for USB devices connection (e.g. mouse, keyboard, etc.). These USB devices are accessible from the Host PC
   - **IR IN:** Connects to IR receiver for IR pass-through
   - **IR OUT:** Connects to IR emitter for IR pass-through
   - **IR EYE:** Connects to IR receiver for switcher control
   - **FIRMWARE:** Type-A USB for firmware upgrade
   - **RS232:** Connects to a control device (e.g. PC) or a third-party device for RS232 control
   - **TCP/IP:** Connects to a control device (e.g. PC) to control the switcher by web GUI
6. **DC 24V:** DC connector for power adapter connection

3.3 Hub Receiver Front Panel

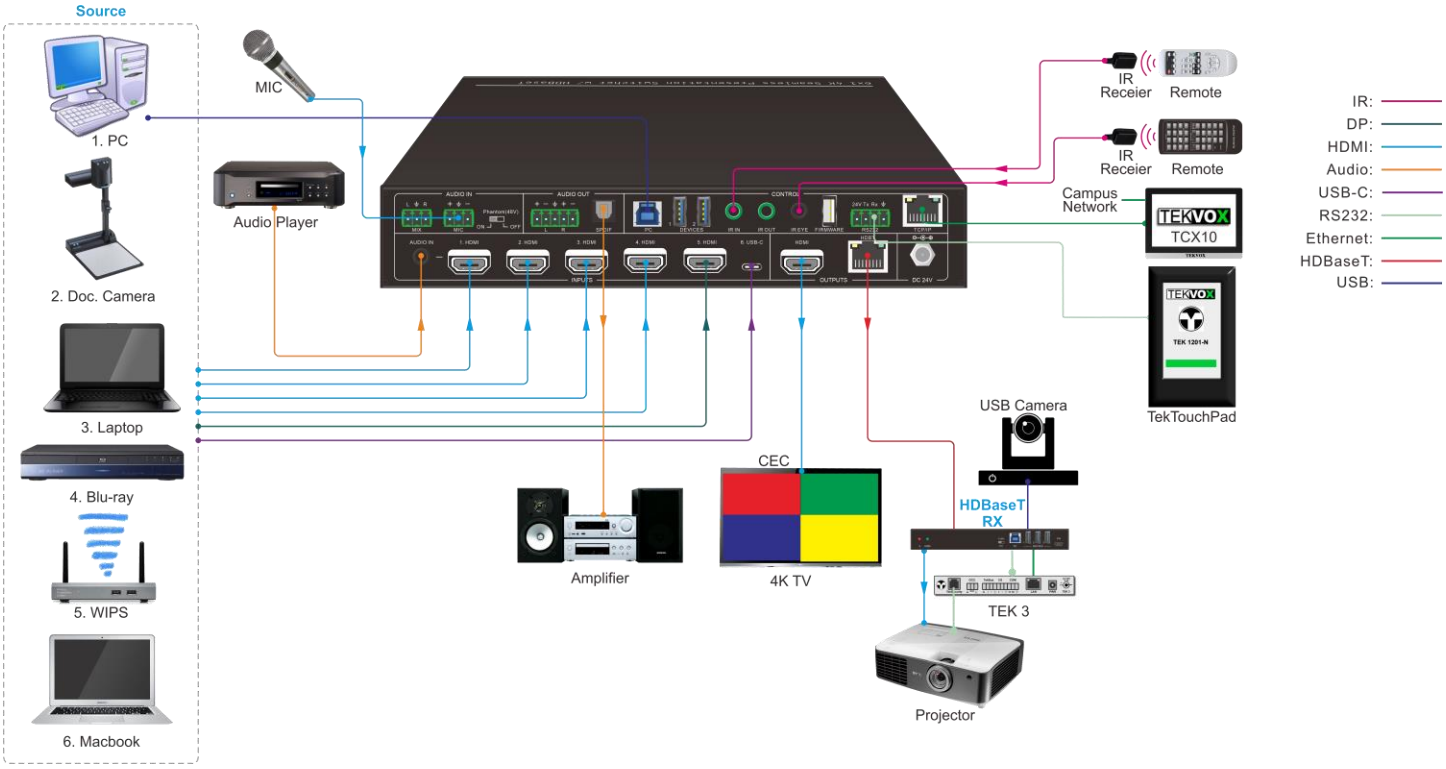
1. **POWER LED:** Lights up red when device is powered on
2. **HDMI LED:** Lights up green when there is an HDMI signal output
3. **PC:** Type-B USB port for Host PC connection. The Host PC is connected to the USB devices (e.g. mouse, keyboard, camera, mic, etc.) which are connected to the USB Type-A ports (DEVICES) on both the universal switcher and the hub receiver.
4. **DEVICES (1~3):** Three type-A USB ports for USB device connection (e.g. camera, microphone, etc.). These USB devices are accessible from the selected Host PC.
5. **FW:** Micro-USB for firmware upgrade

3.4 Hub Receiver Rear Panel



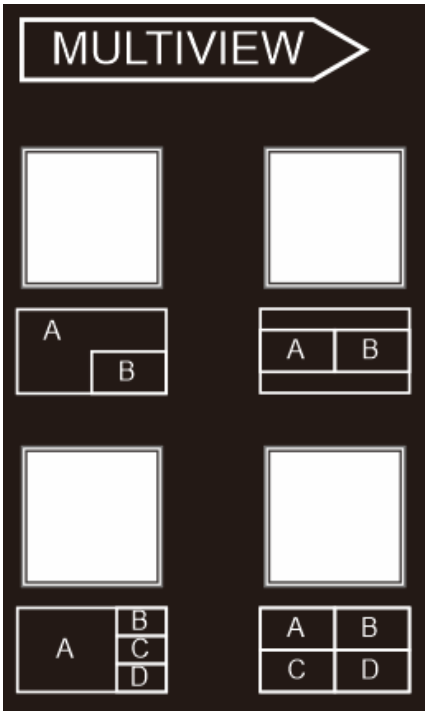
1. **HDMI OUT:** Connects to display device
2. **HDBT IN:** Connects to the HDBaseT output port of the universal switcher via a CAT cable. The orange LED lights up when there is a valid HDBaseT link between the switcher and the receiver. The green LED lights up when the video contains HDCP content.
3. **ETHERNET:** RJ45 port for network signal extension. When the TCP/IP port of the switcher is connected to the network, the port will gain network signal via HDBaseT bridged LAN extension.
4. **SPDIF OUT:** Connects to speaker or amplifier for audio de-embedding
5. **IR IN:** Connects to IR receiver for IR pass-through
6. **IR OUT:** Connects to IR emitter for IR pass-through
7. **RS232:** Connects to a control device (e.g. PC) or a third-party device for RS232 pass-through control

3.5 System Connection



4. Front Panel Control

4.1 Multiview Mode Selection



There are four built-in Multiview modes which can be selected via the front panel buttons.

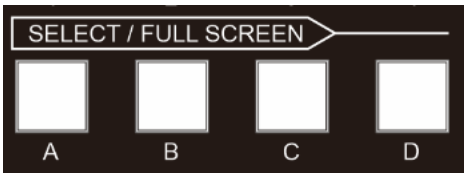
Input 1 -> Window A
Input 2 -> Window B
Input 3 -> Window C
Input 4 -> Window D.
The view buttons' LEDs (A~D) turn blue

When switching to two-window (A&B) mode, the corresponding mode's LED will turn blue, and the window A and B LEDs will turn blue. The factory default correspondence between the two input sources and the two output windows is:

Input 1 -> Window A
Input 2 -> Window B

4.2 Fullscreen Setting

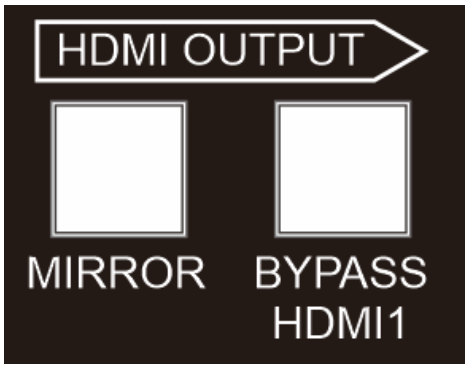
The default mode is fullscreen, and the default routing is:



Input 1 -> Window A.

In Multiview mode, press the Window A~D buttons to display the corresponding window in full-screen mode. The corresponding input source button LED and window button A LED will illuminate blue, and other window buttons and previous Multiview mode button LED will go out.

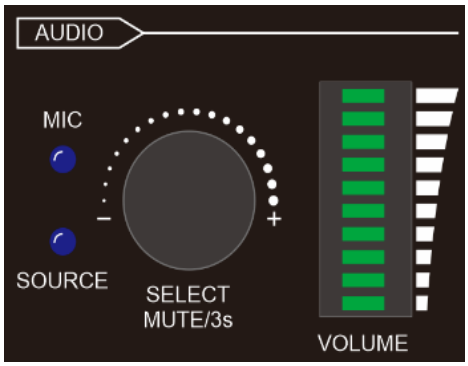
4.3 HDMI Output Settings



MIRROR: Press to set the local HDMI output as an HDBaseT loop output, meaning that the HDMI and HDBaseT ports will simultaneously output the same signal source.

BYPASS HDMI 1: Press to set the HDMI output port to output the source signal of HDMI input 1.

4.4 Audio Control



By default, the HDMI and HDBT output audio follows the video source in Fullscreen Mode. In the Multiview modes, the output audio will come from the HDMI 1 input. The audio source can be changed via GUI or RS232 command.

Press the volume knob to select MIC or SOURCE audio. If MIC audio is selected, then the MIX and MIC mixing audio inputs are controlled simultaneously.

Rotate the knob to increase or decrease the volume of the selected audio. Press and hold the knob for at least 3 seconds to mute the selected audio; rotate the knob to unmute.

4.5 Video Signal Switching

In Multiview modes
Operation: Input # + Window #

Example: Switch Input 1 to Window B:

Press “Input 1” (The input 1 LED will turn blue, and the A~D LEDs will flash.) ⟶ Press “Window B” (The A, C, and D LEDs will go out, and then the input 1 and Window B LEDs will flash three times. The input 1 LED will then go out, and the A~D LEDs will turn blue.)

In Fullscreen Mode
1. Manual Switching

Operation: Directly press Input #

If Input 2 is currently set to fullscreen Window A, press **“Input 3”** to switch HDMI Input 3 to Window A. The Input 3 and Window A LEDs will then turn blue.

2. Auto Switching

Press the “AUTO” button to enable or disable auto-switching mode. Note that auto-switching mode only works while in Fullscreen Mode. When in auto mode, the switcher will switch according to the following rules:

- The switcher will switch to the available active inputs with the following priority: Input 1 > Input 2 > Input 3 > Input 4 > Input 5 > Input 6 (USB-C). When the input source and output window are connected, the corresponding LEDs will turn blue.
- New input: The switcher will automatically select a new input once it has been detected.
- Reboot: If power is restored to the switcher, it will automatically reconnect to the input that was active when the switcher powered off.
- In auto-switching mode, the input source can be switched manually, but doing so will exit auto-switching mode
- When changing from Fullscreen Mode to Multiview mode, auto-switching mode will not exit.

4.6 Switching Status

In Multiview mode, the LEDs for Windows A, B, C, and D will turn blue

Operation: Press and hold **Window #** button for at least 3 seconds.

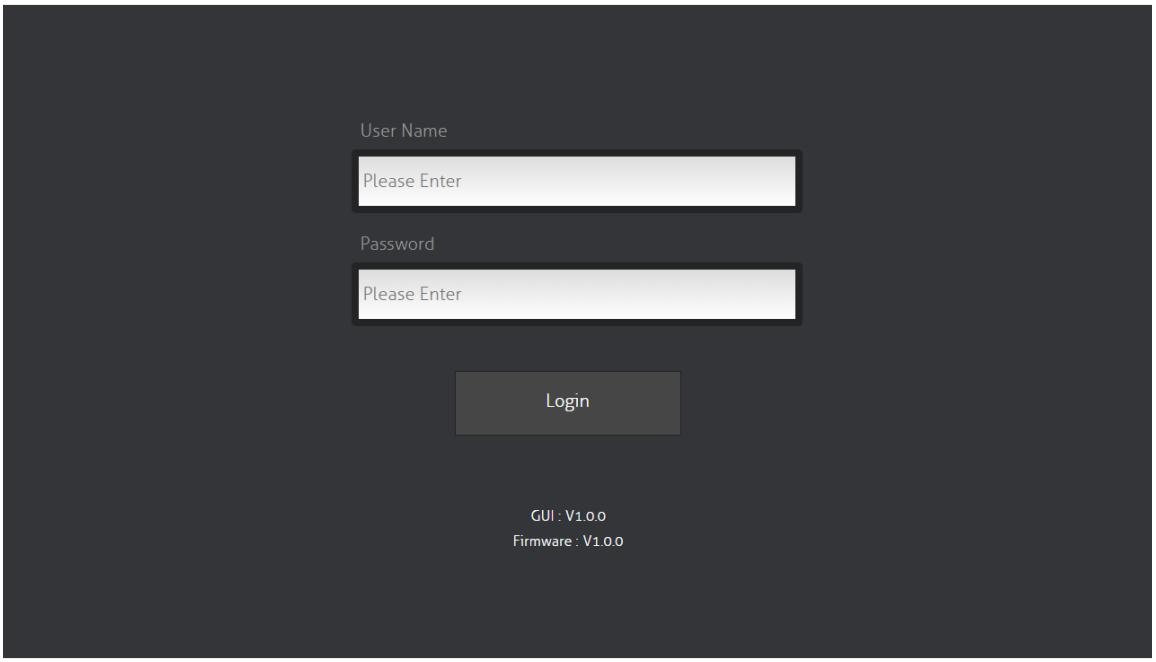
Example: To determine which source is being sent to Window B, press and hold the **Window B** button for at least 3 seconds. Windows A, C, and D’s LEDs will turn off, and the LED of the input being sent to Window B will light up (e.g. if Window B is currently set to Input 2, the Input 2 LED will light up). After 3 seconds, the Window A, B, C, and D LEDs will turn back on, and the Input 2 LED will turn off.

5. GUI Control

The switcher can be controlled via TCP/IP. The default IP settings are:

IP Address: 192.168.0.178
Subnet Mask: 255.255.255.0

Type ***192.168.0.178*** into a web browser, and it will open the login page, as shown below:

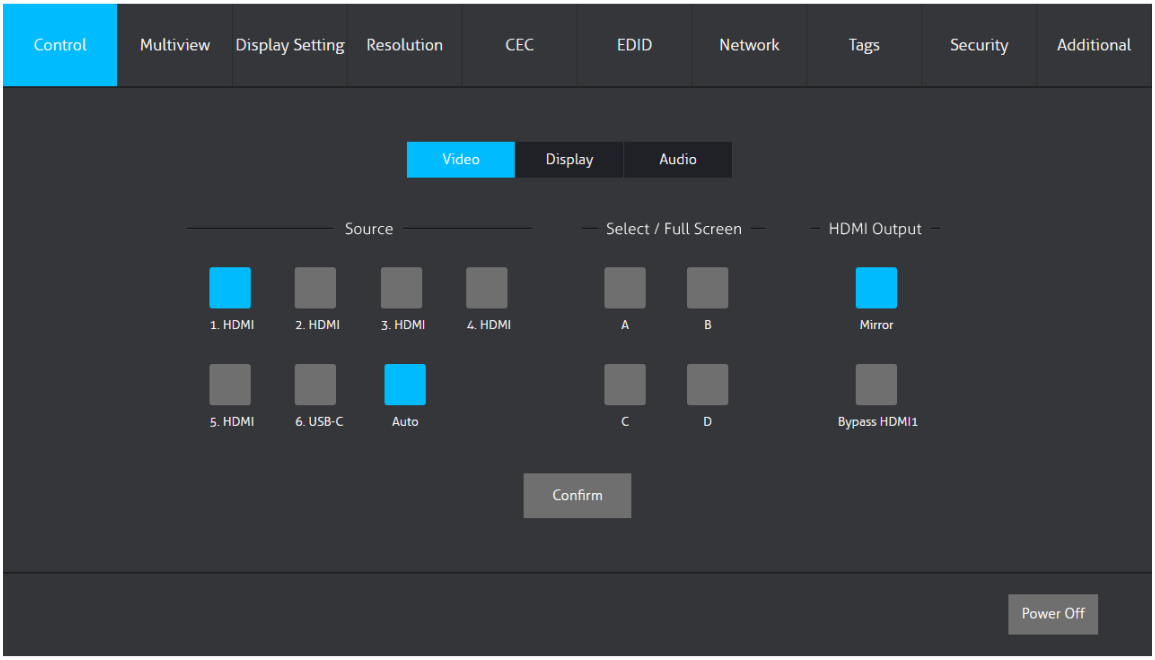


Username: admin
Password: admin

Type the username and password, then click “Login” to enter the section for video switching.

5.1 Control Tab

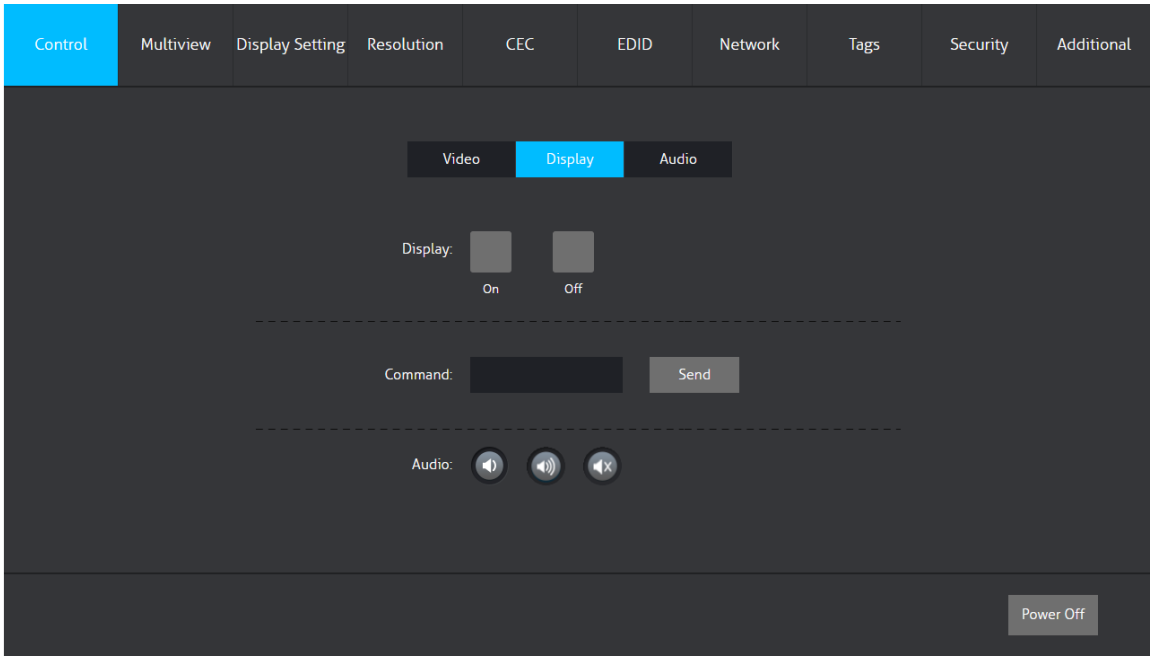
5.1.1 Video Control



- **Source:** Select a Window A ~ D, and then click one of the Input buttons (1 ~ 6) to select the corresponding input source. While in Fullscreen Mode, click “Auto” to enable or disable auto-switching mode.
- **Select/Fullscreen:** Window A ~ D buttons for selecting an output, and for using Fullscreen Mode.
- **HDMI Output:** Press the “Mirror” button to set the local HDMI output as an HDBaseT loop output, meaning that the HDMI and HDBaseT ports will simultaneously output the same signal. Press the “Bypass HDMI 1” button to set the HDMI output port to output the HDMI input 1 source signal.
- Press “Power Off” to put the system into Standby Mode

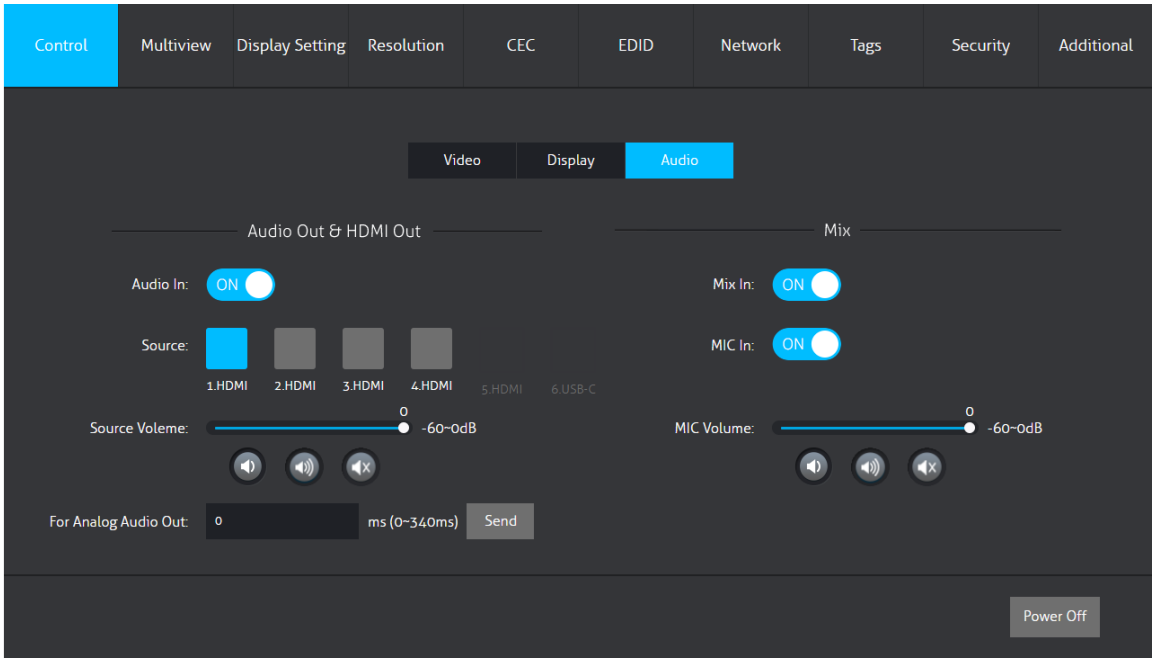
Note: *The source selection, Auto, Window A~D, Mirror, and Bypass HDMI 1 buttons are the same as the front panel buttons of the same names. See* ***4.5 Video Signal Switching*** *for more details.*

5.1.2 Display Control



- **Display:** Click “On” or “Off” to send RS232 and CEC commands simultaneously to power the display on or off, respectively.
- **Command:** To send a command to a 3rd-party device, type the command into this box, then click “Send”.
- **Audio:** Click the Volume Down, Volume Up, or Volume Mute buttons to control the volume of the display via CEC commands.
- **Power:** Press “Power Off” to put the system into Standby Mode

5.1.3 Audio Control



Audio Out & HDMI Out:

- **Audio In:** Enable or disable external audio embedding for HDMI input 1
- **Source:** Select a source as the audio output
- **Source Volume:** Use the Volume Bar, Volume Up, Volume Down, and Mute buttons to control the source audio
- **For Analog Audio Out:** Set a delay time for the balanced analog audio output

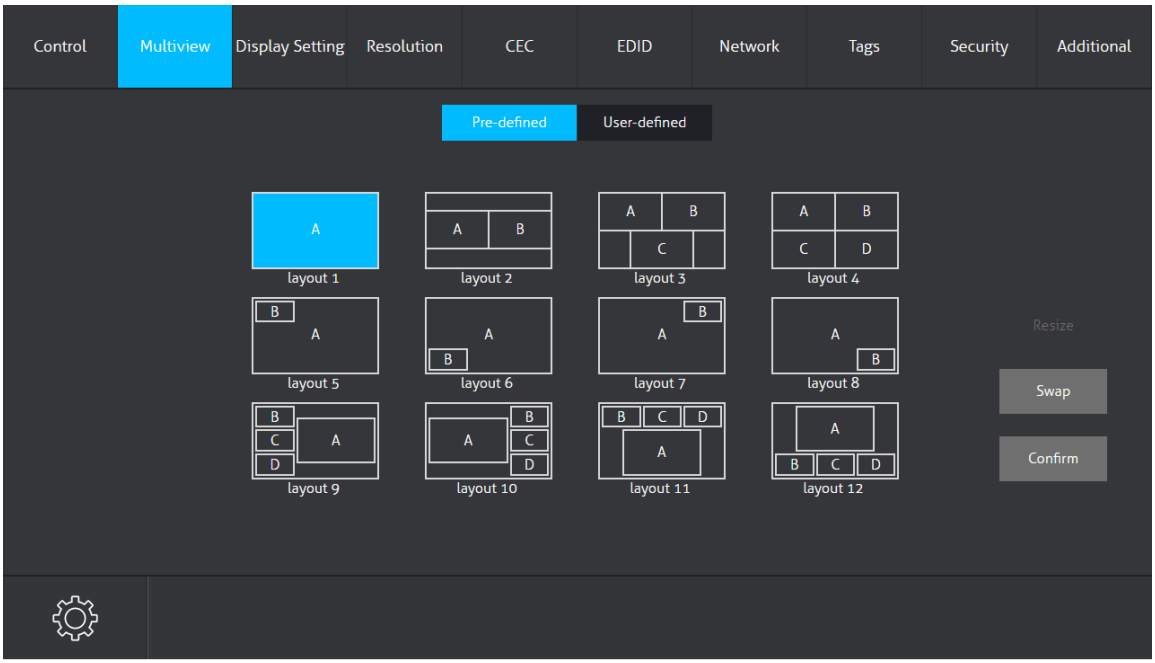
Mix:

- **Mix In:** Enable or disable the mixing audio input
- **MIC In:** Enable or disable the microphone audio input
- **MIC Volume:** Use the Volume Bar, Volume Up, Volume Down, and Mute buttons to control the Mix and Microphone (MIC) audio

Power: Press “Power Off” to put the system into Standby Mode

5.2 Multiview Tab

5.2.1 Pre-Defined Multiview Mode

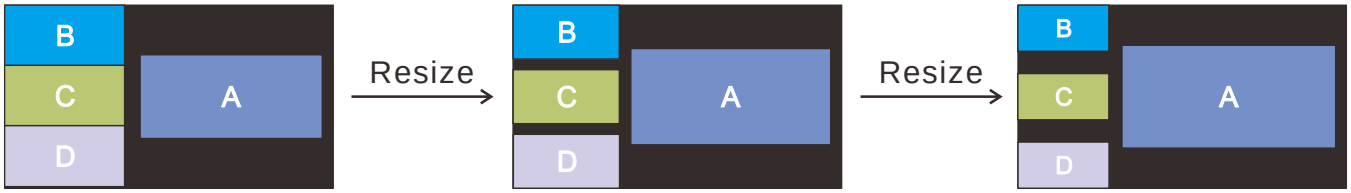


Select any of the twelve pre-defined multiview layouts, then click the gear icon to open the interface for selecting the input source for each window.

Resize: Click to adjust the window size. Note that only Layout 2 and Layouts 5 ~ 12 can be adjusted.

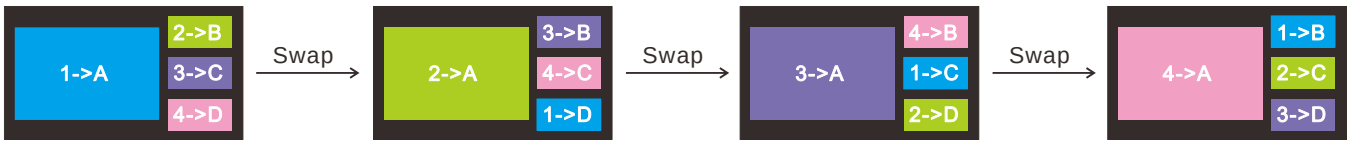
Example: Bisection

Example: PIP (Picture in Picture)

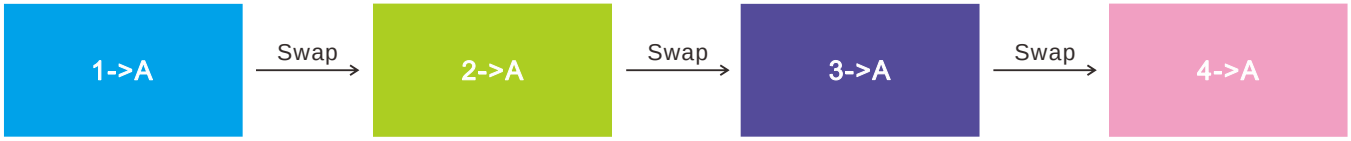


Example: One large and three small

Swap: Press to cycle which video sources are displayed in each window

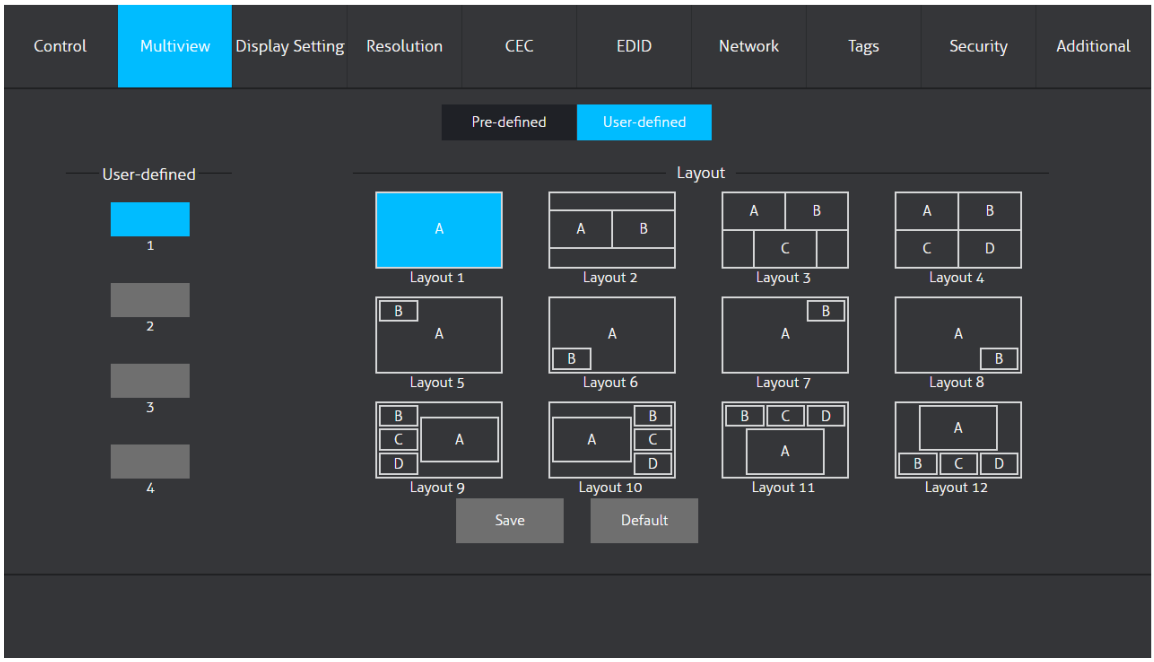


Example: In Multiview Mode

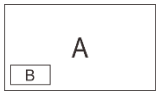
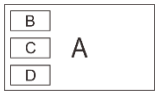
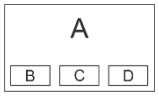


Example: In Fullscreen Mode

5.2.2 User-Defined Multiview Mode

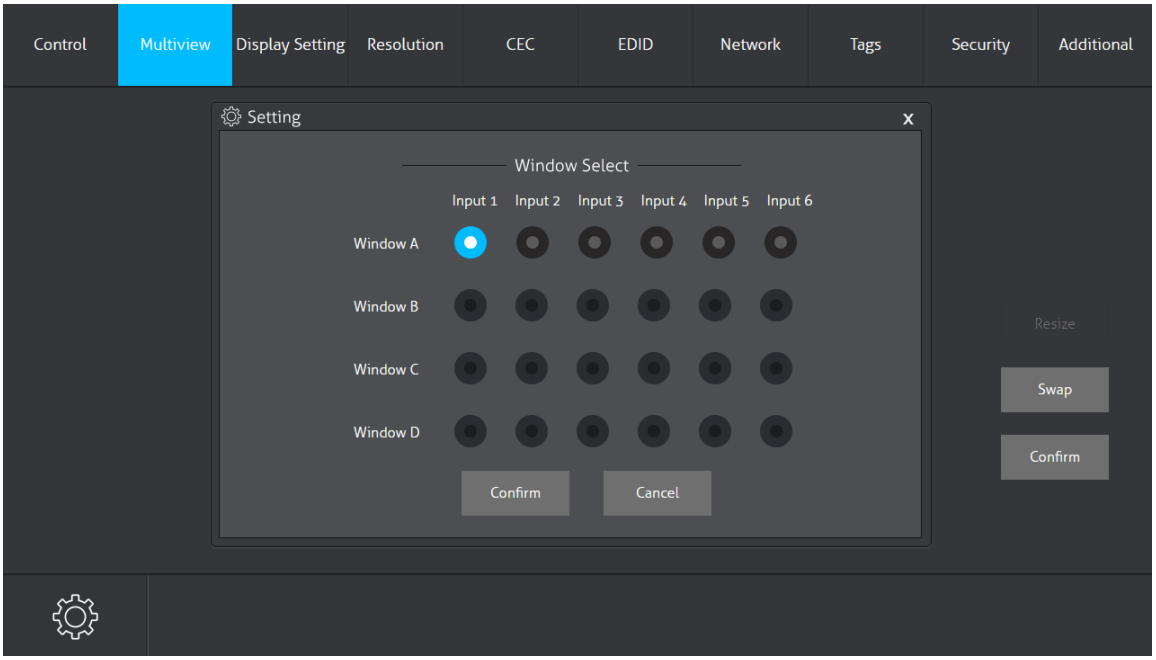


- **User-defined:** Select a user-defined layout number (1 ~ 4)
- **Layout:** Select a Layout, then click “Save”.
    - The factory defaults of user-defined layouts 1 ~ 4 are:

User-defined	Layout
1	
2	
3	
4	

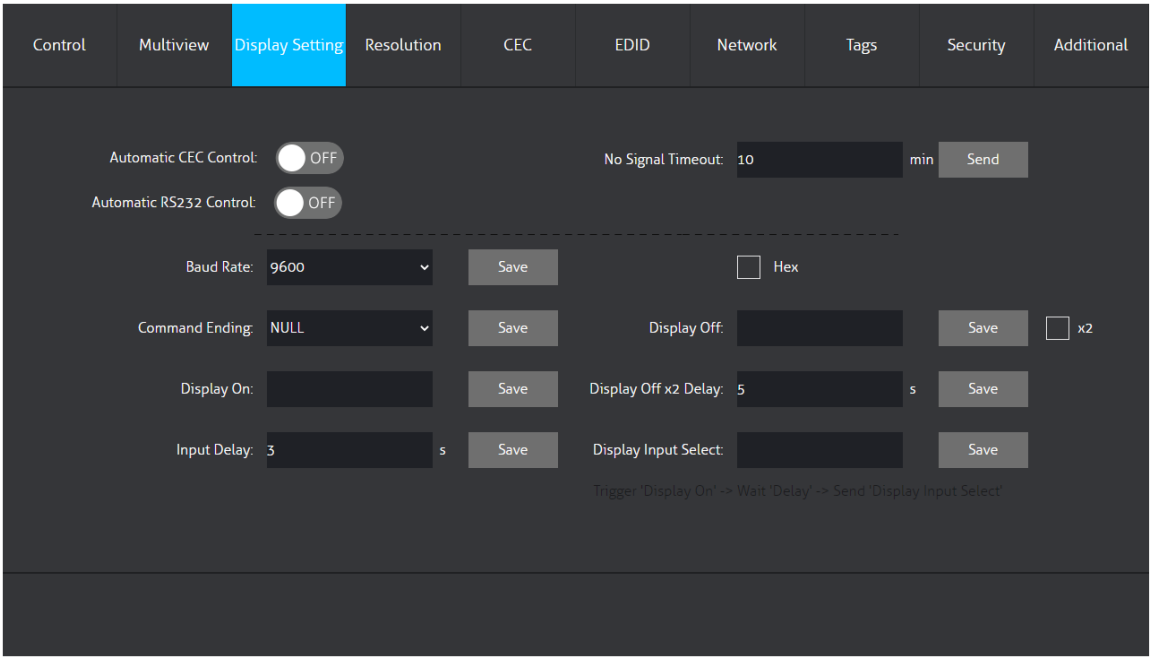
Note: *The user-defined Multiview layouts can be invoked by using the “User 1 ~ User 4” buttons on the IR remote.*

5.2.3 Multiview Source Selection



Press the *Settings* button in the bottom left corner to select which input to display in each window. After making all selections, press the *Confirm* button.

5.3 Display Setting Tab



Automatic CEC and RS232 Control: Enable or disable Automatic Display Control Mode. In Automatic Display Control Mode, the unit will automatically perform the operations listed below:

System On:

When the unit detects a source signal (5V), or receives the “Wake Up” command, it will automatically perform the following operations:

1. Send the ***Display On*** CEC or RS232 command to the display
2. RS232 Only. Send the ***Display On*** RS232 command to the display, then wait for the specified ***Delay Time*** (default: 3/5 S), then send the ***Display Input Select*** RS232 command to the display

System Off:

When the unit does not detect a source signal and the No Signal Timeout (default: 10 minutes) is on, or the unit receives a “Power Off” command, it will automatically perform the following steps:

1. Send a *Display Off* CEC or RS232 command to the display
2. RS232 Only. Send *Display Off* RS232 command to the display device. This command is sent once by default, or it can be set to send twice via settings.
3. After executing the “System Off” command, the “System On” can again be triggered.

No Signal Timeout: The system will enter Standby Mode, and the display device will automatically shut down, when no source signal is detected within this time interval.

Baud Rate: Set the baud rate for the display device (9600, 19200, 38400, 57600, or 115200)

Command Format: The default command format is ASCII; select “Hex” to enter commands as hexadecimal strings.

Command Ending: Select whether to terminate commands with NULL, CR, LF, or CR+LF

Display On: Enter the “Display On” RS232 command for turning on the display, then click “Save”.

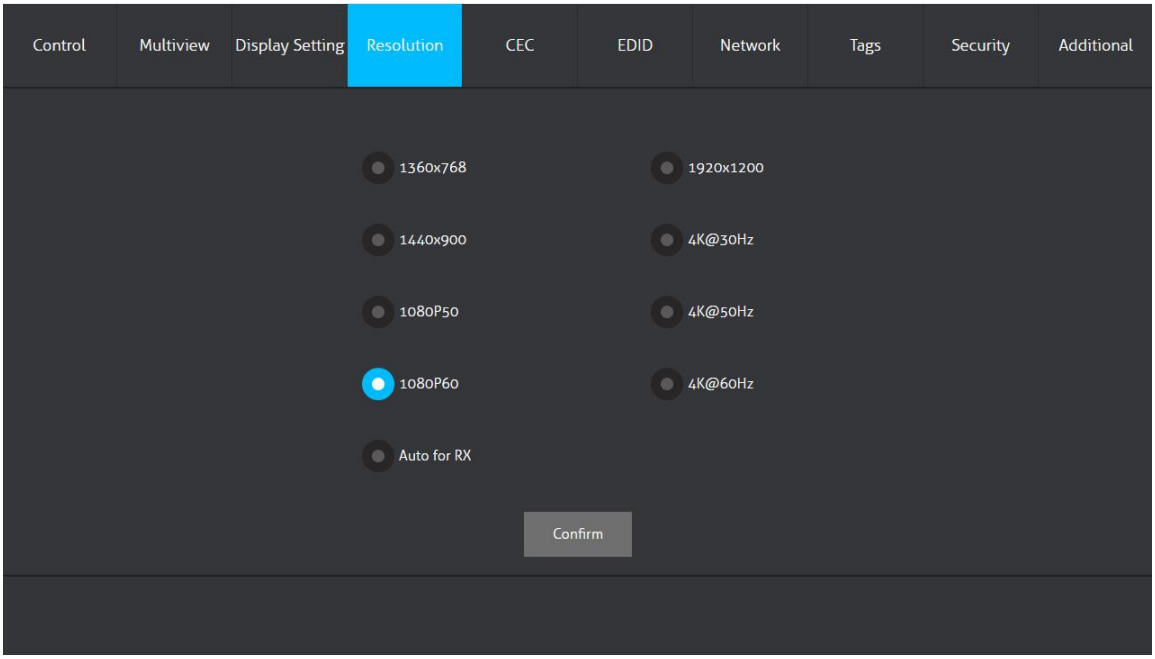
Display Off: Enter the “Display Off” RS232 command for turning off the display, then click “Save”. When “2x” is selected, the command is sent twice

Display Off x2 Delay: Set how long the unit will wait before re-sending the “Display Off” command (only applicable if “2x” is checked)

Input Delay: Set how long the unit will wait between sending the “Display On” and “Display Input Select” commands

Display Input Select: Enter the “Display Input Select” RS232 command for setting the display’s input source, then click “Save”.

5.4 Resolution Tab

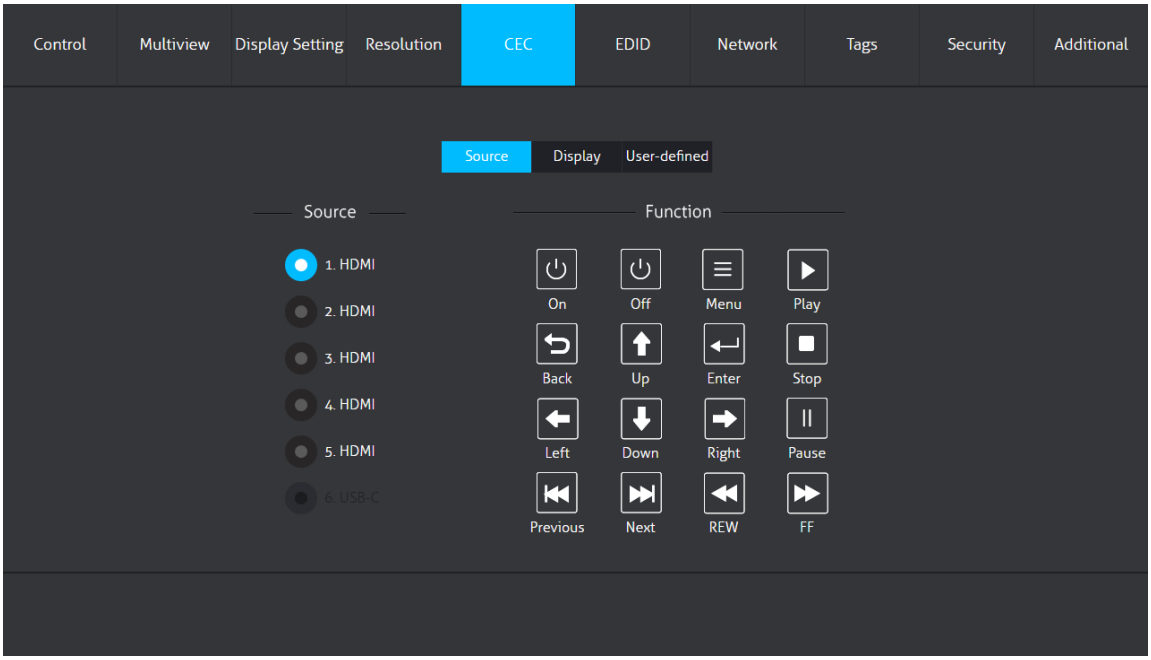


Select the output resolution for the HDMI and HDBaseT outputs.

Select “Auto for Rx” to match the output resolution to that of the display connected to the RX.

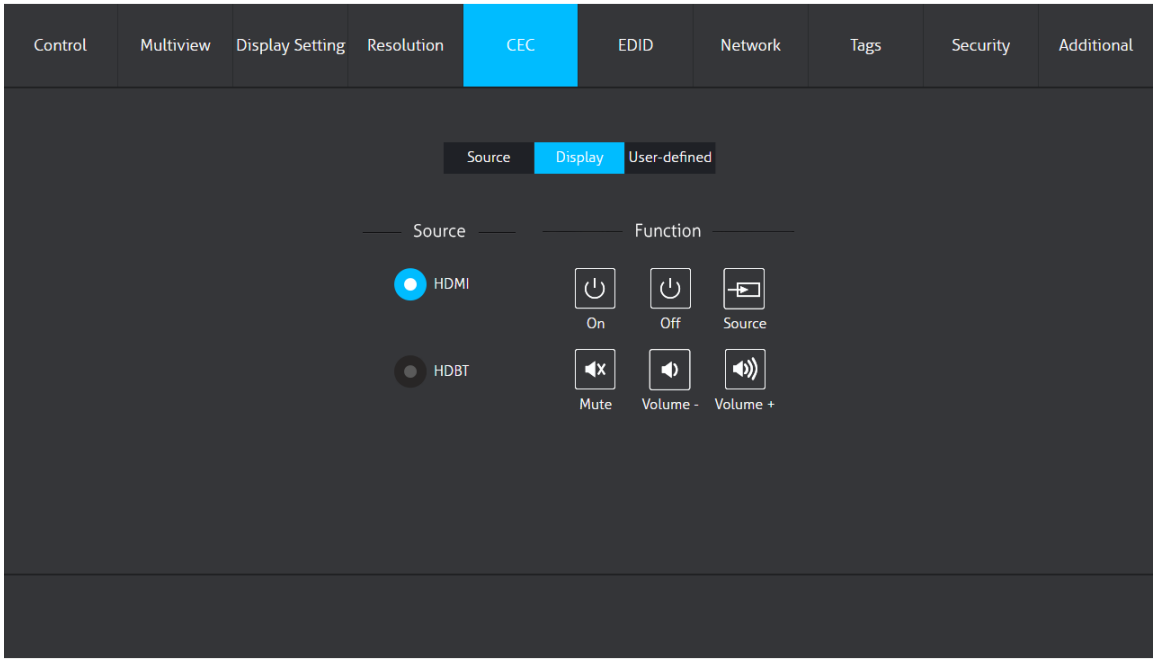
5.5 CEC Tab

5.5.1 Source Control



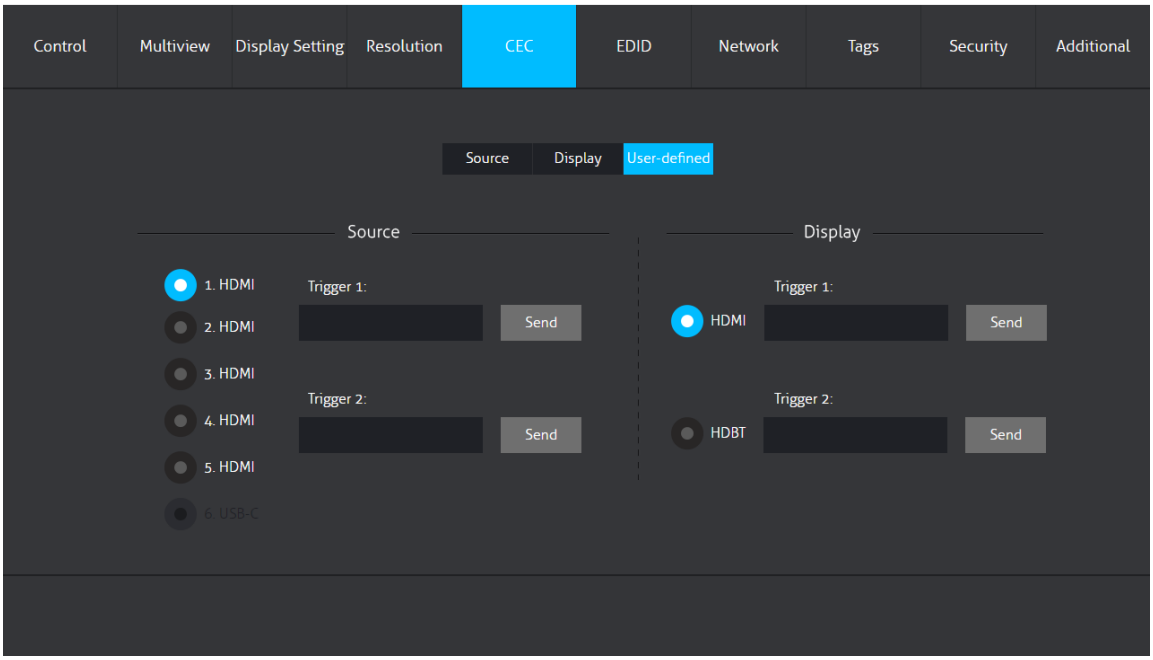
Select the HDMI input source to be controlled and then click the desired function buttons.

5.5.2 Display Control

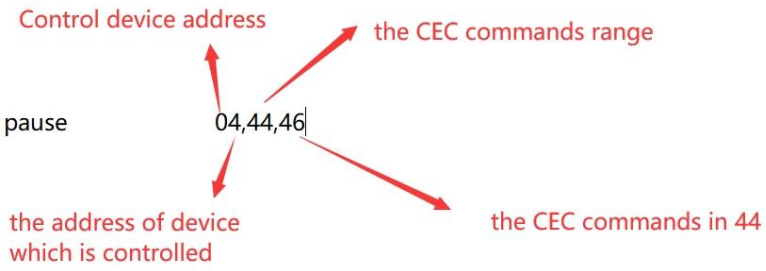


Select the output display device to be controlled, and then click the desired function buttons.

5.5.3 User-Defined CEC Command



Select an input source or display, then type the CEC command in the corresponding “Trigger 1” or “Trigger 2” box. Press “Send” to send that command to the corresponding device.



Playback Device	
pause	04,44,46
Play	04,44,44
Stop	04,44,45
PwrOn	04,44,6D
PwrOff	04,44,6C

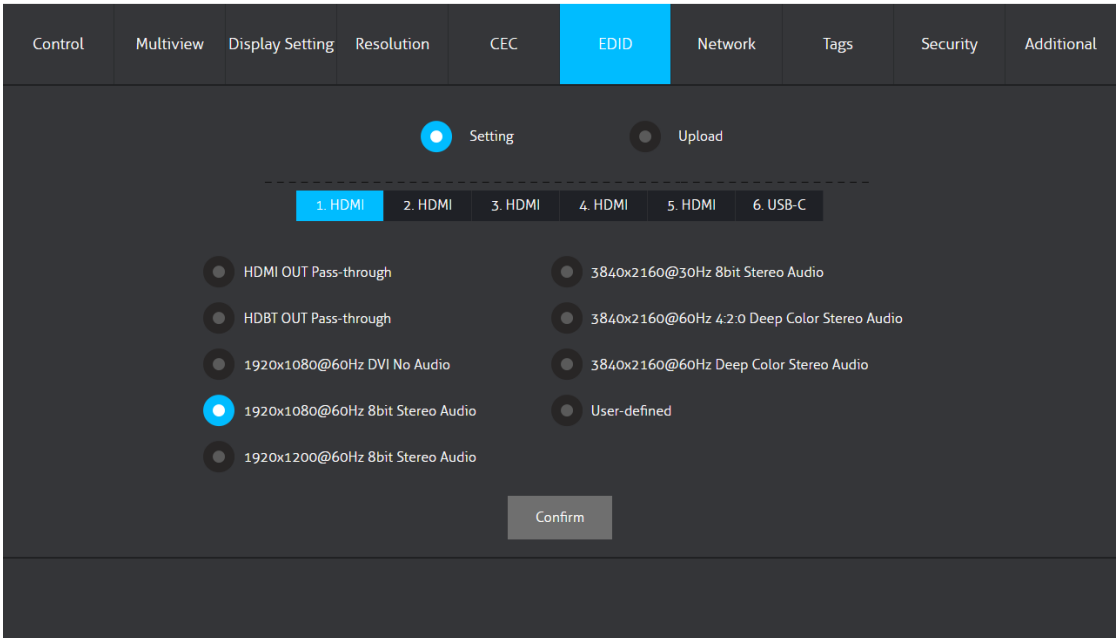
Playback Device	
pause	04,44,46
Play	04,44,44
Stop	04,44,45
PwrOn	04,44,6D
PwrOff	04,44,6C

Address Device list
0 TV
1 Recording Device 1
2 Recording Device 2
3 Tuner 1
4 Playback Device 1
5 Audio System
6 Tuner 2
7 Tuner 3
8 Playback Device 2
9 Recording Device 3
A Tuner 4
B Playback Device 3
C Reserved
D Reserved
E Specific Use
F Unregistered (as Initiator address) Broadcast (as Destination address)

Note: *The CEC standard is primarily formulated by TV manufacturers, and is generally compatible with TVs and Blu-ray Players, and may not be compatible with the source devices of other manufacturers, such as Apple TV, document cameras, etc.*

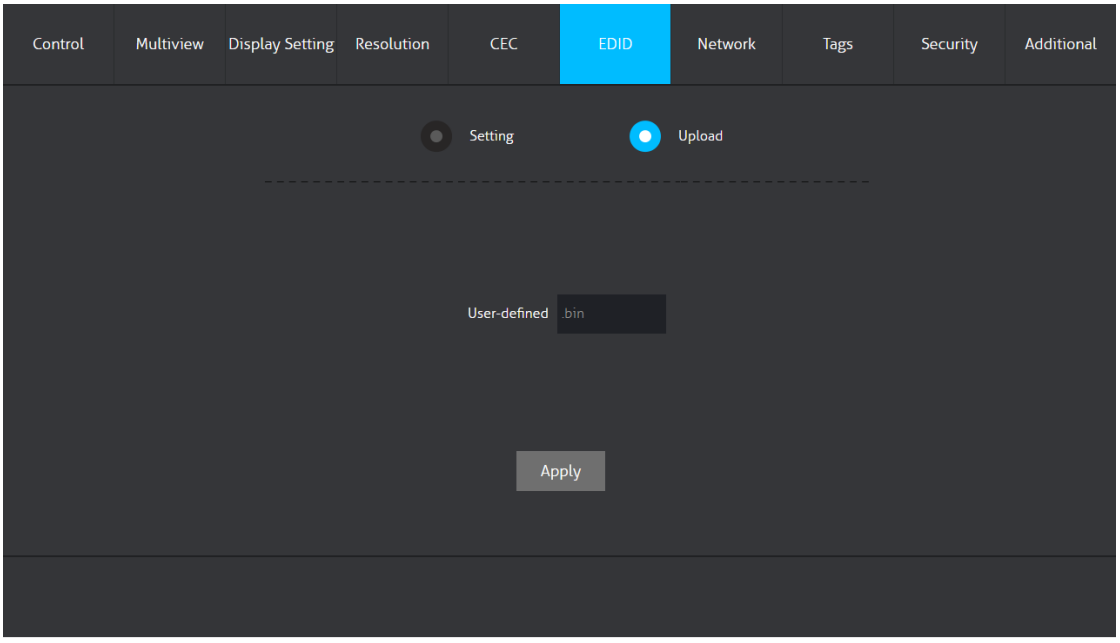
5.6 EDID Tab

5.6.1 EDID Setting



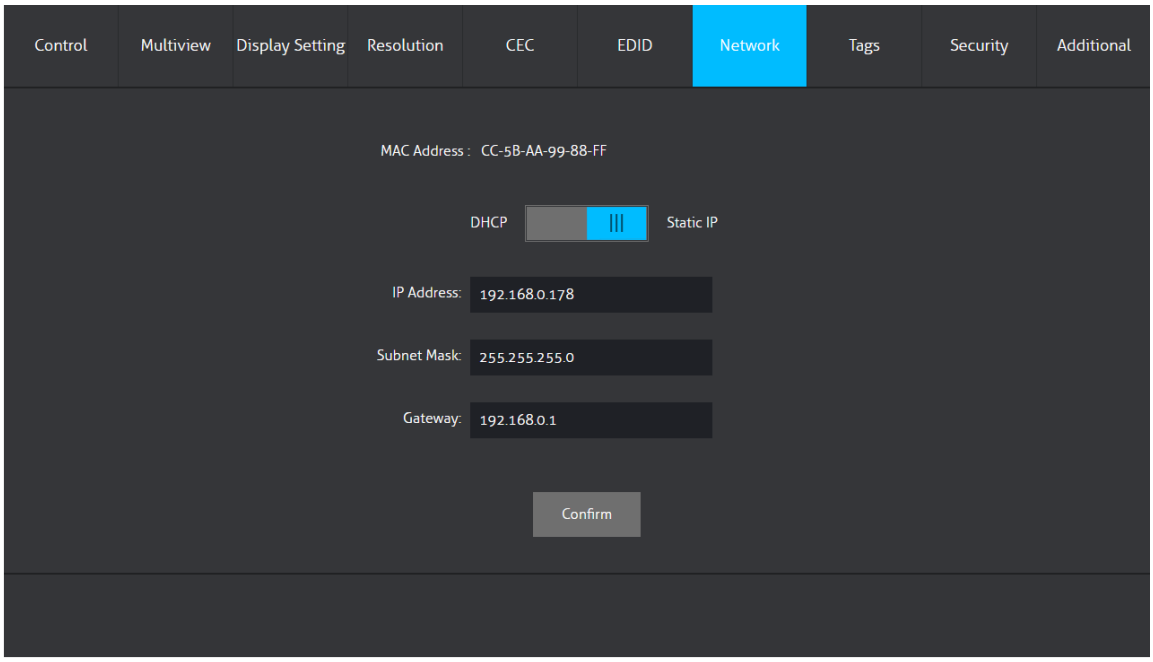
Select a compatible built-in EDID for the selected input. To get the EDID of the connected device, use HDMI or HDBT Passthrough.

5.6.2 EDID Upload



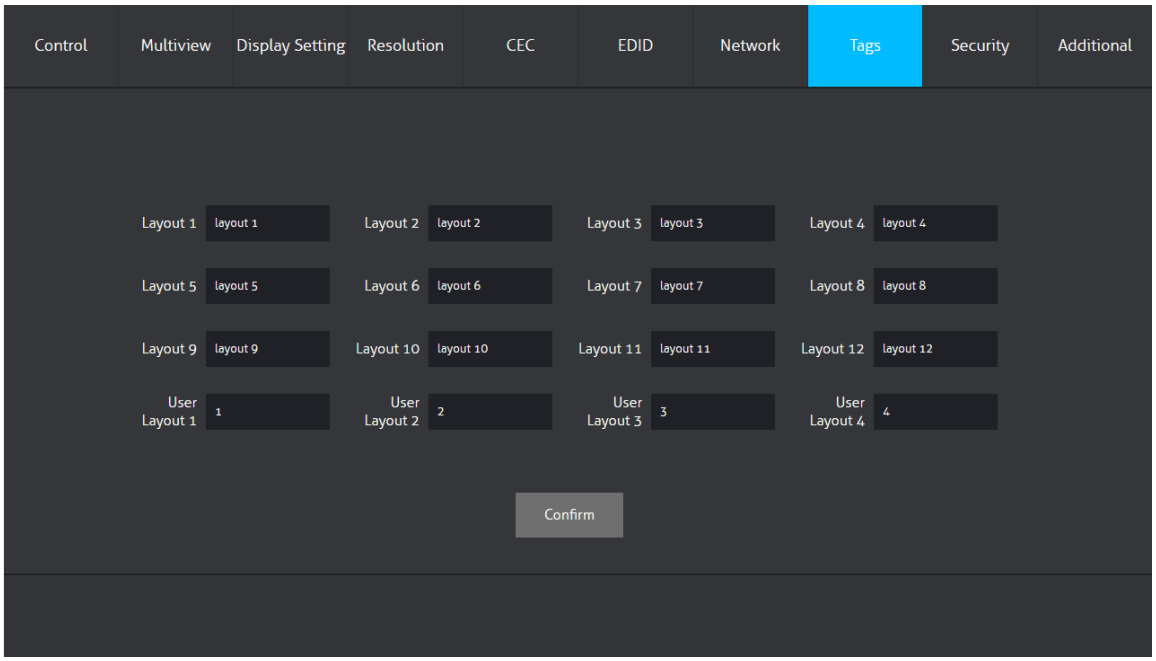
To upload a user-defined EDID, prepare the EDID file (.bin) on the connected PC, then click the user-defined box to select the EDID file (.bin). Click “Apply” to upload the selected EDID file.

5.7 Network Tab



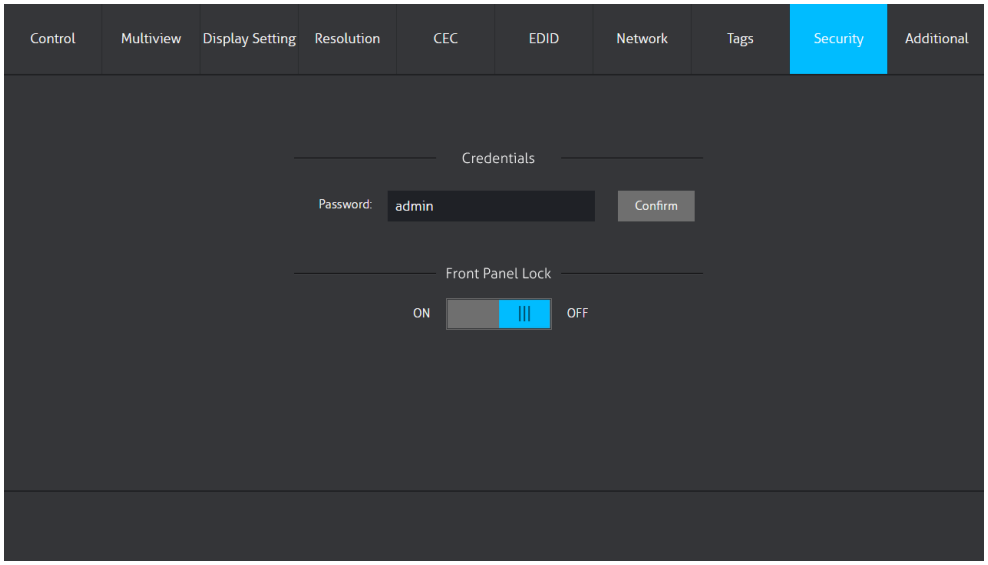
Select “Static IP” or “Dynamic Host Configuration Protocol” (DHCP)
Enter the static IP Address, Subnet Mask, and Gateway (Static IP only)

5.8 Tags Tab



Modify the Multiview layout labels.

5.9 Security Tab



Set the login password, or lock/unlock the front panel buttons

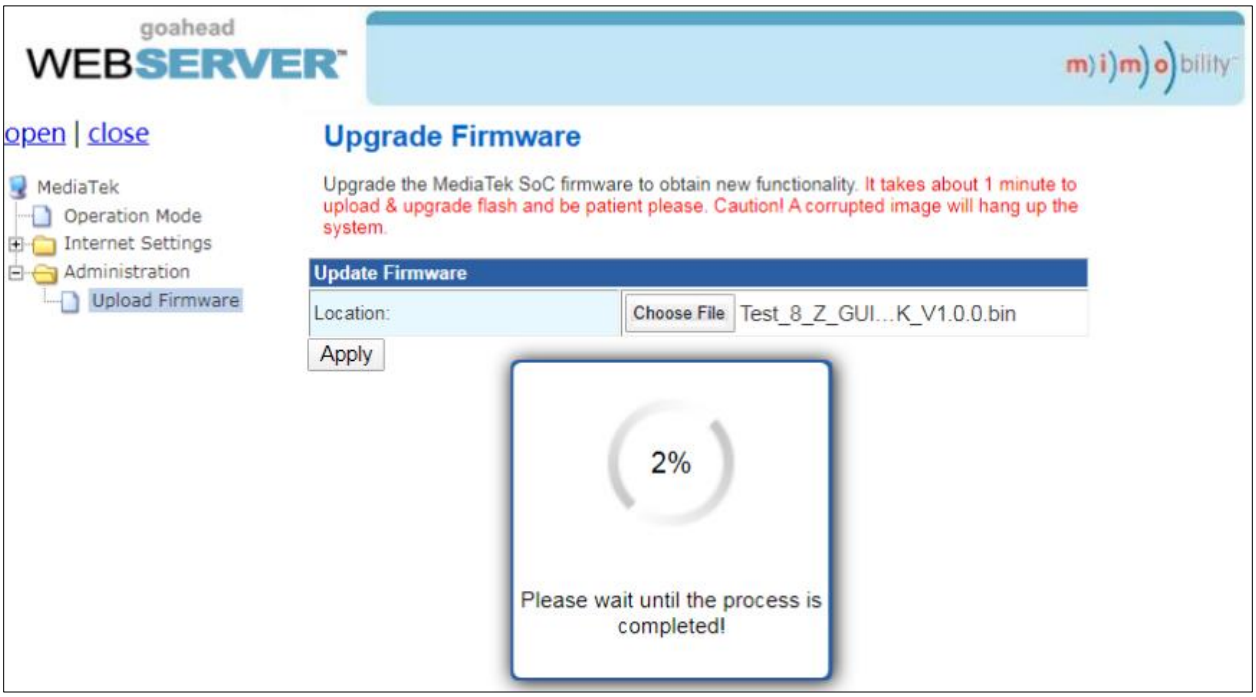
5.10 Additional Tab

USB Host:

- **PC**: Select whether the USB host is connected to the main switcher (TX) or receiver (RX)
- **TX USB Host:**
  - **Auto**: When the main window is a USB-C source, that source is the USB host, and USB devices are linked to the USB-C source (e.g. MacBook). When the main window is an HDMI source, the PC (USB-B) is the USB host, and USB devices are connected to the PC.
  - **Manual:** Manually set the USB Host to PC (USB-B) or USB-C
- **HDBT PoC:** Enable or disable PoC for the HDBaseT output
- **Factory Default:** Restore the switcher to its factory default settings

5.11 GUI Upgrade

Please visit at http://192.168.0.178:100 for GUI online upgrades.



Type the username and password (the same as for logging into the GUI) to log in to the configuration interface. After entering the WebServer, click “Administration” in the source menu, then click “Upload Firmware”. Select the desired update file, and press “Apply” to begin the upgrade.

6. IR Remote Control

The switcher includes an **IR EYE** port for connecting to an IR receiver, and can be controlled by the IR remote shown below.

Note: *There are no long-pressing functions on this IR remote.*

1. **INPUTS:** Six buttons for selecting an input source
2. **CONFIG**:

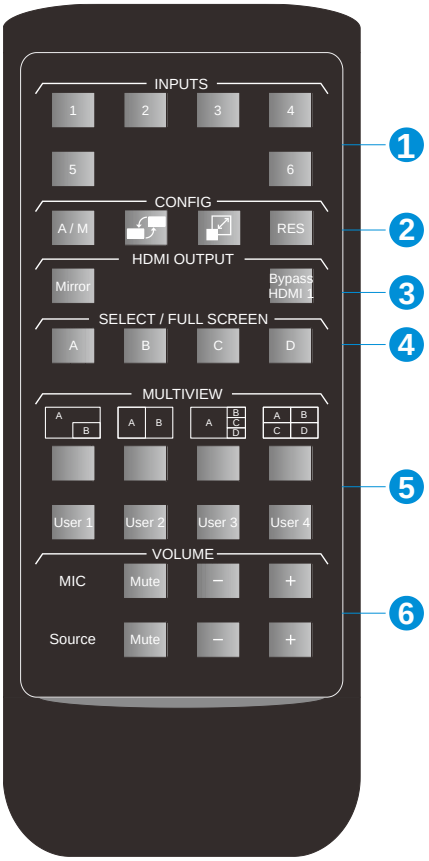
Enable or disable Auto-Switching Mode


Cycle which video sources are displayed in each window


Adjust the window size (Layouts 2 & 5~12 only)

Select output resolution

3. **HDMI OUTPUT**:
   - **MIRROR:** Set the local HDMI output as HDBT loop out, meaning that the HDMI and HDBT ports simultaneously output the same signal source
   - **BYPASS HDMI 1:** Set the local HDMI output port to output the source signal of HDMI input 1
   - **SELECT/FULLSCREEN:** Window A~D buttons for output window selection and fullscreen setting
4. **MULTIVIEW**:
   - Four buttons for built-in Multiview mode selection
   - Four buttons for user-defined 1~4 Multiview mode selection.
   - The user-defined modes can set in the GUI Multiview tab (see **5.2.2 User-Defined Multiview Mode**)
5. **VOLUME**:
   - **MIC (MIX+MIC):** Mute, volume up and down
   - **Source:** Mute, volume up and down



Note: *All IR remote buttons function in the same way as those in the GUI tab. Please refer to* **§5. GUI Control** *for more details.*

7. RS232 Control

The RS232 port of switcher has two control methods.

1. **Local control**: Connect the RS232 port to a control device (e.g. PC) to control the switcher with RS232 commands.
2. **Display device control**: The RS232 port is used with the RS232 port of a far-end HDBaseT receiver to control the display device (e.g. Projector).

RS232 Commands:

Use the following RS232 commands to control the switcher. All commands are numeric ASCII text, and the same command is used for feedback. An RS232 control software needs to be installed on the control PC to send RS232 commands.

After installing the RS232 control software, set the parameters of COM number, baud rate, data bit, stop bit, and parity bit correctly, then commands can be sent to the 1201-MV.

Baud rate: 9600
Data bit: 8
Stop bit: 1
Parity bit: None

Notes:

- All commands must be terminated with “<CR>”
- All feedbacks are terminated with “<CR><LF>”
- In the commands, “[”and “]” characters MUST be typed in order to function correctly
- Type commands carefully, as they are case-sensitive
- These same commands are used with TCP/IP port 4001

7.1 System Commands

Command	Description	Command Example and Feedback
50872	Lock the front panel buttons	50872
50873	Unlock the front panel buttons	50873
50874	Get the front buttons locking status	50872 50873
50875	Exit Standby Mode	50875
50876	Enter Standby Mode	50876
50877	Get the system standby status	50877
50896	Turn on feedback information at receiver (Default) – Local Control	50896
50897	Turn off feedback information at receiver – Display Control	50897
50898	Check status of feedback information	50896 50897
50899	Get the system status	V1.0.0 50701 ~ 50706 50707 ~ 50712 50713 ~ 50718 50719 ~ 50724 50601 ~ 50606 50611 ~ 50612 50614 ~ 50615 50617 ~ 50618 50620 ~ 50621 501**xx** (**xx** = 00 ~ 60) 502**xx** (**xx** = 00 ~ 60) 50815 ~ 50823 50824 ~ 50832 50833 ~ 50841 50842 ~ 50850 50851 ~ 50857 50858 ~ 50863 50811 ~ 50813 50801 ~ 50809

Command	Description	Command Example and Feedback
		50732 ~ 50733 50872~50873 50901~50912 IPADDR: 192.168.0.178 NetMask: 255.255.255.0 GateWay: 192.168.0.1
Command	**Description**	**Command Example and Feedback**
50998	Upgrade the MST software 1) Prepare the latest upgrade file (.bin) on a flash drive and rename it as “MERGE.bin”. 2) Plug the Flash drive into the FIRMWARE port. 3) Send the command “>50998” using the RS232 control software. 4) After the upgrade is successful, the feedback will be sent	50998
50999	Get the firmware version	V1.0.0
50996	Factory Default	50996
50997	System reboot	50997
50994	VS3000 HDBaseT chipset software upgrade; firmware upgrade	50994
50995	Query the IP address for accessing the GUI	IPADDR: 192.168.0.178 NetMask: 255.255.255.0 GateWay: 192.168.0.1

7.2 Signal Switching Commands

Command	Description	Command Example and Feedback
507**xx**	Switch input source to window A **xx**= 01 ~ 06 01 - HDMI 1 02 - HDMI 2 03 - HDMI 3 04 - HDMI 4 05 - HDMI 5 06 - USB-C	507**xx** (**xx**= 01 ~ 06)
507**xx**	Switch input source to window B **xx**= 07 ~ 12 07 - HDMI 1 08 - HDMI 2 09 - HDMI 3 10 - HDMI 4 11 - HDMI 5 12 - USB-C	507**xx** (**xx**= 07 ~ 12)
507**xx**	Switch input source to window C **xx**= 13 ~ 18 13 - HDMI 1 14 - HDMI 2 15 - HDMI 3 16 - HDMI 4 17 - HDMI 5 18 - USB-C	507**xx** (**xx**= 13 ~ 18)
507**xx**	Switch input source to window D **xx**= 19 ~ 24 19 - HDMI 1 20 - HDMI 2 21 - HDMI 3 22 - HDMI 4 23 - HDMI 5 24 - USB-C	507**xx** (**xx**= 19 ~ 24)
50725	Get the current input source of window A	50701 ~ 50706
50726	Get the current input source of window B	50707 ~ 50712
50727	Get the current input source of window C	50713 ~ 50718
50728	Get the current input source of window D	50719 ~ 50724
50729	Set the local HDMI output mode to Mirror	50729

Command	Description	Command Example and Feedback
50730	Set the local HDMI output mode to Bypass HDMI1 (View PC)	50730
50731	Get the local HDMI output mode	50729 / 50730
50732	Auto-Switching in Fullscreen Mode	50732
50733	Manual switching in Fullscreen Mode	50733
50734	Get the switching mode	50732 50733
50735	Swap input source of window A to D	50701 50707 50713 50719
50736	Freeze Window A	50736
50737	Unfreeze Window A	50737
50738	Freeze Window B	50738
50739	Unfreeze Window B	50739
50740	Freeze Window C	50740
50741	Unfreeze Window C	50741
50742	Freeze Window D	50742
50743	Unfreeze Window D	50743
50744	Get Freeze status of Window A	50736 / 50737
50745	Get Freeze status of Window B	50738 / 50739
50746	Get Freeze status of Window C	50740 / 50741
50747	Get Freeze status of Window D	50742 / 50743
50748	Freeze all windows	50748
50749	Unfreeze all windows	50749

7.3 Audio Setting Commands

Command	Description	Command Example and Feedback
5060**x**	Set the source audio for output **x** = 1 ~ 6 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 5 - HDMI 5 6 - USB-C	5060**x** (**x** = 1 ~ 6)
50607	Get the current audio source of the audio output	50601 ~ 50606
50608	Set HDMI Input 1 to use external analog audio input for embedding	50608
50609	Set HDMI Input 1 to use embedded audio	50609
50610	Get audio status of HDMI input 1	50608 50609
50611	Enable MIC audio mixing	50611
50612	Disable MIC audio mixing	50612
50613	Get the MIC audio mixing status	50611 50612
50614	Enable MIX audio mixing	50614
50615	Disable MIX audio mixing	50615
50616	Get the MIX audio mixing status	50614 50615
50617	Enable the source audio mute	50617
50618	Disable the source audio mute	50618
50619	Get the source audio mute status	50617 50618
50620	Enable MIC and MIX audio mute	50620
50621	Disable MIC and MIX audio mute	50621
50622	Get the MIC and MIX mute status	50620 50621

Command	Description	Command Example and Feedback
50626	Enable the audio following the video source switching in Fullscreen Mode	50626
50627	Disable the audio following the video source switching in Fullscreen Mode	50627
50628	Get whether the audio follows the video source switching	50626 50627
501**xx**	Set the audio source volume **xx**= 00 ~ 60	501**xx** (**xx**= 00 ~ 60)
50629	Get the audio source volume	501**xx** (**xx**= 00 ~ 60)
502**xx**	Set the MIC and MIX volume	502**xx** (**xx**= 00 ~ 60)
50630	Get the MIC and MIX volume	502**xx** (**xx**= 00~ 60)
56**xxx**	Set the audio output delay time **xxx** = 0 ~ 340 (ms)	56**xxx** (**xxx** = 0 ~ 340(ms))
50631	Get the audio output delay time	56**xxx** (**xxx** = 0 ~ 340(ms))
50632	Increase the audio source volume	501**xx** (**xx**= 00 ~ 60)
50633	Decrease the audio source volume	501**xx** (**xx**= 00 ~ 60)
50634	Increase the MIC and MIX volume	502**xx** (**xx**= 00 ~ 60)
50635	Decrease the MIC and MIX volume	502**xx** (**xx**= 00 ~ 60)

7.4 Function Setting Commands

Command	Description	Command Example and Feedback
5080**x**	Set the output resolution **x** = 1 ~ 9 1 - 3840x2160 60HZ 2 - 3840x2160 50HZ 3 - 3840x2160 30HZ 4 - 1920x1200 60HZ 5 - 1920x1080 60HZ 6 - 1920x1080 50HZ 7 - 1440x900 60HZ 8 - 1360x768 60HZ 9 - Auto	5080**x** (**x** = 1 ~ 9)

Command	Description	Command Example and Feedback
50810	Get the output resolution	5080**x** (**x** = 1 ~ 9)
5081**x**	Set the HDCP mode of the output port **x** = 1 ~ 3 1 - HDCP 1.4 (Default) 2 - HDCP 2.2 3 - Disable	5081**x** (**x** = 1 ~ 3)
50814	Get the HDCP mode of the output port	5081**x** (**x** = 1 ~ 3)
508**xx**	Set the EDID of input 1 **xx** = 15 ~ 23 15 - From HDMI Display 16 - 1920x1080@60Hz DVI No Audio 17 - 1920x1080@60Hz 8bit Stereo Audio 18 - 1920x1200@60Hz 8bit Stereo Audio 19 - 3840x2160@30Hz 8bit Stereo Audio 20 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 21 - 3840x2160@60Hz Deep Color Stereo Audio 22 - From HDBT Display 23 - USER	508**xx** (**xx** = 15 ~ 23)
508**xx**	Set the EDID of input 2 **xx** = 24 ~ 32 24 - From HDMI Display 25 - 1920x1080@60Hz DVI No Audio 26 - 1920x1080@60Hz 8bit Stereo Audio 27 - 1920x1200@60Hz 8bit Stereo Audio 28 - 3840x2160@30Hz 8bit Stereo Audio 29 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 30 - 3840x2160@60Hz Deep Color Stereo Audio 31 - From HDBT Display 32 - USER	508**xx** (**xx** = 24 ~ 32)

Command	Description	Command Example and Feedback
508**xx**	Set the EDID of input 3 **xx** = 33 ~ 41 33 - From HDMI Display 34 - 1920x1080@60Hz DVI No Audio 35 - 1920x1080@60Hz 8bit Stereo Audio 36 - 1920x1200@60Hz 8bit Stereo Audio 37 - 3840x2160@30Hz 8bit Stereo Audio 38 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 39 - 3840x2160@60Hz Deep Color Stereo Audio 40 - From HDBT Display 41 - USER	508**xx** (**xx** = 33 ~ 41)
508**xx**	Set the EDID of input 4 **xx** = 42 ~ 50 42 - From HDMI Display 43 - 1920x1080@60Hz DVI No Audio 44 - 1920x1080@60Hz 8bit Stereo Audio 45 - 1920x1200@60Hz 8bit Stereo Audio 46 - 3840x2160@30Hz 8bit Stereo Audio 47 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 48 - 3840x2160@60Hz Deep Color Stereo Audio 49 - From HDBT Display 50 - USER	508**xx** (**xx** = 42 ~ 50)
508**xx**	Set the EDID of input 5 **xx** = 51 ~ 57 51 - From HDMI Display 52 - 1920x1080@60Hz DVI No Audio 53 - 1920x1080@60Hz 8bit Stereo Audio 54 - 1920x1200@60Hz 8bit Stereo Audio 55 - 3840x2160@30Hz 8bit Stereo Audio 56 - From HDBT Display 57 - USER	508**xx** (**xx** = 51 ~ 57)

Command	Description	Command Example and Feedback
508**xx**	Set the EDID of input 6 **xx** = 58 ~ 64 58 - From HDMI Display 59 - 1920x1080@60Hz DVI No Audio 60 - 1920x1080@60Hz 8bit Stereo Audio 61 - 1920x1200@60Hz 8bit Stereo Audio 62 - 3840x2160@30Hz 8bit Stereo Audio 63 - From HDBT Display 64 - USER	508**xx** (**xx** = 58 ~ 64)
50865	Get the EDID of input 1	508**xx** (**xx** = 15 ~ 23)
50866	Get the EDID of input 2	508**xx** (**xx** = 24 ~ 32)
50867	Get the EDID of input 3	508**xx** (**xx** = 33 ~ 41)
50868	Get the EDID of input 4	508**xx** (**xx** = 42 ~ 50)
50869	Get the EDID of input 5	508**xx** (**xx** = 51 ~ 57)
50870	Get the EDID of input 6	508**xx** (**xx** = 58 ~ 64)
50871	Upload the user-defined EDID	50871
50878	Enable automatically sending CEC commands after signal detection	50878
50879	Disable automatically sending CEC commands after signal detection (Default)	50879
50880	Get whether to send CEC commands automatically after signal detection	50878 ~ 50879
50881	Enable automatically sending RS232 commands after signal detection	50881
50882	Disable automatically sending RS232 commands after signal detection (Default)	50882
50883	Get whether to send RS232 commands automatically after signal detection	50881 ~ 50882
50884	Enable auto-standby after no signal detection	50884
50885	Disable auto-standby after no signal detection (Default)	50885
50886	Get auto-standby setting	50884 ~ 50885

Command	Description	Command Example and Feedback
503**xx**	Set the delay time for sending CEC, RS232, and standby commands after the input signal is removed **xx** = 00 ~ 30 (min) (Default: 10min)	503**xx** (**xx** = 00 ~ 30)
50887	Get the delay time for sending CEC, RS232, and standby commands after the input signal is removed	503**xx** (**xx** = 00 ~ 30)
50974	Send “Display On” command	50974
50975	Send “Display Off” command	50975
508**xx**	Set the number of times to send the Display Off command **xx** = 88: Send command once **xx** = 89: Send command twice	50888 ~ 50889
50890	Get how many times the Display Off command is sent	50888 ~ 50889
504**xx**	Set the delay time for sending the Display Off command **xx** = 01 ~ 10(s)	504**xx** (**xx** = 01 ~ 10)
50891	Get the delay time for sending the Display Off command	504**xx** (**xx** = 01 ~ 10)
505**xx**	Set the delay time for sending the Display Input Select command 505**xx** = 01 ~ 10 (s) (Default: 3)	505**xx** (**xx** = 01 ~ 10)
50892	Get the delay time for sending the Display Input Select command	505**xx** (**xx** = 01 ~ 10)

Command	Description	Command Example and Feedback
509**xx**	Set the Multiview mode **xx** = 01 ~ 12 01 – 1 WINDOWS Full 02 – 2 WINDOWS PBP 03 – 3 WINDOWS 2U1D 04 - 4 WINDOWS SAME SIZE 05 - 2 WINDOWS PIP LU 06 - 2 WINDOWS PIP LD 07 - 2 WINDOWS PIP RU 08 - 2 WINDOWS PIP RD 09 - 4 WINDOWS PBP 3L1R 10 - 4 WINDOWS PBP 1L3R 11 - 4 WINDOWS PBP 3U1D 12 - 4 WINDOWS PBP 1U3D	509**xx** (**xx** = 01 ~ 12)
50913	Get the Multiview mode.	509**xx** (**xx** = 1 ~ 12)
509**xx**	Set the user-defined Multiview mode for User 1 **xx** = 22 ~ 33 22 - 1 WINDOWS Full 23 - 2 WINDOWS PBP 24 - 3 WINDOWS 2U1D 25 - 4 WINDOWS SAME SIZE 26 - 2 WINDOWS PIP LU 27 - 2 WINDOWS PIP LD 28 - 2 WINDOWS PIP RU 29 - 2 WINDOWS PIP RD 30 - 4 WINDOWS PBP 3L1R 31 - 4 WINDOWS PBP 1L3R 32 - 4 WINDOWS PBP 3U1D 33 - 4 WINDOWS PBP 1U3D	509**xx** (**xx** = 22 ~ 33)

Command	Description	Command Example and Feedback
509**xx**	Set the user-defined Multiview mode for User 2 **xx** = 34 ~ 45 34 - 1 WINDOWS Full 35 - 2 WINDOWS PBP 36 - 3 WINDOWS 2U1D 37 - 4 WINDOWS SAME SIZE 38 - 2 WINDOWS PIP LU 39 - 2 WINDOWS PIP LD 40 - 2 WINDOWS PIP RU 41 - 2 WINDOWS PIP RD 42 - 4 WINDOWS PBP 3L1R 42 - 4 WINDOWS PBP 1L3R 44 - 4 WINDOWS PBP 3U1D 45 - 4 WINDOWS PBP 1U3D	509**xx** (**xx** = 34 ~ 45)
509**xx**	Set the user-defined Multiview mode for User 3 **xx** = 46 ~ 57 46 - 1 WINDOWS Full 47 - 2 WINDOWS PBP 48 - 3 WINDOWS 2U1D 49 - 4 WINDOWS SAME SIZE 50 - 2 WINDOWS PIP LU 51 - 2 WINDOWS PIP LD 52 - 2 WINDOWS PIP RU 53 - 2 WINDOWS PIP RD 54 - 4 WINDOWS PBP 3L1R 55 - 4 WINDOWS PBP 1L3R 56 - 4 WINDOWS PBP 3U1D 57 - 4 WINDOWS PBP 1U3D	509**xx** (**xx** = 46 ~ 57)

Command	Description	Command Example and Feedback
509**xx**	Set the user-defined Multiview mode for User 4 **xx** = 58 ~ 69 58 - 1 WINDOWS Full 59 - 2 WINDOWS PBP 60 - 3 WINDOWS 2U1D 61 - 4 WINDOWS SAME SIZE 62 - 2 WINDOWS PIP LU 63 - 2 WINDOWS PIP LD 64 - 2 WINDOWS PIP RU 65 - 2 WINDOWS PIP RD 66 - 4 WINDOWS PBP 3L1R 67 - 4 WINDOWS PBP 1L3R 68 - 4 WINDOWS PBP 3U1D 69 - 4 WINDOWS PBP 1U3D	509**xx** (**xx** = 58 ~ 69)
50970	Get the user-defined Multiview mode for User 1	509**xx** (**xx** = 22 ~ 33)
50971	Get the user-defined Multiview mode for User 2	509**xx** (**xx** = 34 ~ 45)
50972	Get the user-defined Multiview mode for User 3	509**xx** (**xx** = 46 ~ 57)
50973	Get the user-defined Multiview mode for User 4	509**xx** (**xx** = 58 ~ 69)
50914	Resize display windows	50914
50893	Enable PoC	50893
50894	Disable PoC	50894
50895	Get the PoC status	50893 ~ 50894
50918	Set the USB Host mode to auto-switch	50918
50919	Set the USB Host mode to USB-B (PC)	50919
50920	Set the USB Host mode to USB-C	50920
50921	Get the USB Host mode	50918 ~ 50920
50915	Receiver’s USB mode set to HOST-TX.	50915
50916	Receiver’s USB mode set to HOST-RX.	50916
50917	Get the receiver’s USB mode.	50915 ~ 50916

7.5 CEC Commands

Command	Description	Command Example and Feedback
5100**x**	Send a CEC MENU command to a source device **x** = 1 ~ 5 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 5 - HDMI 5	5100**x** (**x** = 1 ~ 5)
510**xx**	Send a CEC UP command to a source device **xx** = 06 ~ 10 (HDMI 1~5)	510**xx** (**xx** = 06 ~ 10)
510**xx**	Send a CEC DOWN command to a source device **xx** = 11 ~ 15 (HDMI 1~5)	510**xx** (**xx** = 11 ~ 15)
510**xx**	Send a CEC LEFT command to a source device **xx** = 16 ~ 20 (HDMI 1~5)	510**xx** (**xx** = 16 ~ 20)
510**xx**	Send a CEC RIGHT command to a source device **xx** = 21 ~ 25 (HDMI 1~5)	510**xx** (**xx** = 21 ~ 25)
510**xx**	Send a CEC BACK command to a source device **xx** = 26 ~ 30 (HDMI 1~5)	510**xx** (**xx** = 26 ~ 30)
510**xx**	Send a CEC ENTER command to the source device **xx** = 31 ~ 35 (HDMI 1~5)	510**xx** (**xx** = 31 ~ 35)
510**xx**	Send a CEC ON command to a source device **xx** = 36 ~ 40 (HDMI 1~5)	510**xx** (**xx** = 36 ~ 40)
510**xx**	Send CEC OFF command to source device **xx** = 41 ~ 45 (HDMI 1~5)	510**xx** (**xx** = 41 ~ 45)
510**xx**	Send CEC STOP command to source device **xx** = 46 ~ 50 (HDMI 1~5)	510**xx** (**xx** = 46 ~ 50)

Command	Description	Command Example and Feedback
510**xx**	Send a CEC PLAY command to a source device **xx** = 51 ~ 55 (HDMI 1~5)	510**xx** (**xx** = 51 ~ 55)
510**xx**	Send a CEC PAUSE command to a source device **xx** = 56 ~ 60 (HDMI 1~5)	510**xx** (**xx** = 56 ~ 60)
510**xx**	Send a CEC PREV command to a source device **xx** = 61 ~ 65 (HDMI 1~5)	510**xx** (**xx** = 61 ~ 65)
510**xx**	Send a CEC NEXT command to a source device **xx** = 66 ~ 70 (HDMI 1~5)	510**xx** (**xx** = 66 ~ 70)
510**xx**	Send a CEC REWIND command to a source device **xx** = 71 ~ 75 (HDMI 1~5)	510**xx** (**xx** = 71 ~ 75)
510**xx**	Send a CEC FAST-FORWARD command to a source device **xx** = 76 ~ 80 (HDMI 1~5)	510**xx** (**xx** = 76 ~ 80)
510**xx**	Send a CEC ON command to a display **xx** = 81 ~ 82 81 - HDMI output 82 - HDBT output	510**xx** (**xx** = 81 ~ 82)
510**xx**	Send a CEC OFF command to a display **xx** = 83 ~ 84 83 - HDMI output 84 - HDBT output	510**xx** (**xx** = 83 ~ 84)
510**xx**	Send a CEC SOURCE command to a display **xx** = 85 ~ 86 85 - HDMI output 86 - HDBT output	510**xx** (**xx** = 85 ~ 86)
510**xx**	Send a CEC MUTE command to a display **xx** = 87 ~ 88 87: HDMI output 88: HDBT output	510**xx** (**xx** = 87 ~ 88)

Command	Description	Command Example and Feedback
510**xx**	Send a CEC VOLUME UP command to a display **xx** = 89 ~ 90 89: HDMI output 90: HDBT output	510**xx** (**xx** = 89 ~ 90)
510**xx**	Send a CEC VOLUME DOWN command to a display **xx** = 91 ~ 92 91: HDMI output 92: HDBT output	510**xx** (**xx** = 91 ~ 92)
>CEC <**xx1**,**xx2**,**xx3**,**xx….**>	Send a user-defined CEC command. **xx1** = 1 ~ 6 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 5 – Output HDMI 6 – Output HDMI **xx2** = DEVICE ADDRESS **xx3** = OPCODE **xx…** = COMMAND	>CEC <1,04,44,46>\ <CEC send to device:1 Header : 0x04 Opcode : 0x44 Message : 0x46

7.6 Special Commands

Special commands must be terminated with <CR>. To send RS232 commands to the display, first send the “Turn off feedback information at receiver” [50897] command.

Command	Description	Command Example and Feedback
51733	RS232 pass through mode. Enables pass through of RS232 data from receiver to Switcher. Will stay in this mode for 1 minute after data is no longer detected	Sends 51202 at start of data and 51203 after time out
521**xx**	TekMonitor Macro Command (**xx**= 01 ~ 99)	521**xx** (**xx** = 01 ~ 99)

Command	Description	Command Example and Feedback
/+[**x**][**y**]:**zzzz**	Send ASCII command "**zzzz**" to a far-end device **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 – 9600 **y** = command length **zzzz** = ASCII data to be sent (Up to 48 characters) **Notes**: **1.** When reading “\x”, the two characters after “\x” will be converted to HEX automatically **2.** When typing “\\”, only one “\” will be sent **3.** When reading “\r”, “\r” will be converted to “0x0D” in HEX **4.** When reading “\n”, “\n” will be converted to “0x0A” in HEX	/+[1][9]:123\r\x31\x3278 123 1278
/-[**x**][**y**]:**zz zz**	Send the HEX command "**zz zz**" to far-end device **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 – 9600 **y** = number of octets in HEX command **zz zz** = HEX data to be sent (**z** = 0~9, A~F and up to 20 octets)	/-[1][4]:30 31 32 33 0123
/+PU[**x**]:**zzzz**	Set the ASCII “Power On” command "**zzzz**" to be sent to a remote display when powering on the switcher **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600	/+PU[5]:PowerOn\x31

Command	Description	Command Example and Feedback
	zzzz = ASCII data to be sent (Up to 48 characters) **Notes**: **1.** When reading “\x”, the two characters after “\x” will be converted to HEX automatically **2.** When typing “\\”, only one “\” will be sent **3.** When reading “\r”, “\r” will be converted to “0x0D” in HEX **4.** When reading “\n”, “\n” will be converted to “0x0A” in HEX	Baud rate: 9600 Power on to send:PowerOn1
/-PU[**x**]:**zz zz**	Set the HEX “Power On” command "**zz zz**" to be sent to a remote display when powering on the switcher **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 **zz zz** = HEX data to be sent (**z** = 0~9, A~F and up to 20 octets)	/-PU[5]:50 6F 77 65 72 4F 6E
		Baud rate: 9600 Power on to send HEX:50 6F 77 65 72 4F 6E
/+PD[**x**]:**zzzz**	Set the ASCII “Power Off” command "**zzzz**" to be sent to a remote display when the switcher enters Standby Mode **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 **zzzz** = ASCII data to be sent (Up to 48 characters) **Notes**: **1.** When reading “\x”, the two characters after “\x” will be converted to HEX automatically **2.** When typing “\\”, only one “\” will be sent **3.** When reading “\r”, “\r” will be converted to “0x0D” in HEX **4.** When reading “\n”, “\n” will be converted to “0x0A” in HEX	/+PD[5]: ABCDEFG\x\n12
		Baud rate: 9600 Enter sleep to send:ABCDEFG0A12

Command	Description	Command Example and Feedback
/-PD[**x**]:**zz zz**	Set the HEX “Power Off” command "**zz zz**" to be sent to a remote display when the switcher enters Standby Mode **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 **zz zz** = HEX data to be sent (z = 0~9, A~F and up to 20 octets)	/-PD[5]:50 6F 77 65 72 4F 66 66 Baud rate: 9600 Enter sleep to send HEX:50 6F 77 65 72 4F 66 66
/+IN[**x**]:**zzzz**	Set the ASCII “Display Input Select” command "**zzzz**" to be sent to a remote display when powering on the switcher **x** = Baud rate (1 ~ 5) 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 **zzzz** = ASCII data to be sent (Up to 48 characters) **Notes**: **1.** When reading “\x”, the two characters after “\x” will be converted to HEX automatically **2.** When typing “\\”, only one “\” will be sent **3.** When reading “\r”, “\r” will be converted to “0x0D” in HEX **4.** When reading “\n”, “\n” will be converted to “0x0A” in HEX	/+IN[5]:Input Baud rate: 9600 Display input select to send:Input
/-IN[**x**]:**zz zz**	Set the HEX “Display Input Select” command "**zz zz**" to be sent to a remote display when powering on the switcher **x** = Baud rate (1 ~ 5) 1 - 115200	/-IN[5]:49 6E 70 75 74

Command	Description	Command Example and Feedback
	2 - 57600 3 - 38400 4 - 19200 5 - 9600 **zz zz**= HEX data to be sent (z = 0 ~ 9, A ~ F, and up to 20 octets)	Baud rate: 9600 Display input select to send HEX:49 6E 70 75 74

8. Firmware Upgrade

8.1 Switcher

Follow the steps below to upgrade the switcher's firmware via the **FIRMWARE** port on the rear panel:

1. Prepare the latest upgrade file (.bin) and rename it to "FW_MV. bin" on your PC.
2. Power off the switcher, and connect the switcher to the PC with a Type-A male-to-male USB cable.
3. Power on the switcher, and the PC will automatically detect a flash drive titled "BOOTDISK".
4. Double-click the flash drive, and a file named "READY.TXT" will be shown.
5. Copy the latest upgrade file (.bin) to the "BOOTDISK" flash drive.
6. Reopen the flash drive to check that the filename "READY.TXT" automatically changes to "SUCCESS.TXT". If this is the case, then the firmware has updated successfully. If this is not the case, then the firmware upgrade has failed. Confirm the name of the upgrade file (.bin), and then repeat the above steps to update again.
7. Remove the USB cable after the firmware upgrade, and reboot the switcher.

Please follow the steps below to upgrade the switcher's MST software:

1. Prepare the latest upgrade file (.bin) on a flash drive and rename it to "MERGE.bin".
2. Plug the flash drive into the **FIRMWARE** port on the rear panel.
3. Send the command "50998" via the RS232 control software.
4. While the firmware is updating, the switcher will display its status in the RS232 control software.

8.2 Receiver

Follow the steps below to upgrade the receiver's firmware via the **FW** port on the front panel:

1. Prepare the latest upgrade file (.bin) and rename it to "FW_MERG.bin".
2. Power off the receiver, and connect the receiver to a PC with a Micro-USB to Type-A male-to-male USB cable.
3. Power on the receiver, and the PC will automatically detect a flash drive titled "BOOTDISK".
4. Double-click the flash drive, and a file titled "READY.TXT" will be present.
5. Directly copy the latest upgrade file (.bin) to the "BOOTDISK" flash drive.
6. Reopen the flash drive to check that the filename "READY.TXT" automatically changes to "SUCCESS.TXT". If this is the case, then the firmware has updated successfully. If this is not the case, then the firmware upgrade has failed. Confirm the name of the upgrade file (.bin), and then repeat the above steps to update again.
7. Remove the USB cable after the firmware upgrade, and reboot the receiver.