5x1 4K60 Presentation Switcher with HDMI and HDBaseT output

User Manual

VER:1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the service lifeof your equipment.

Table of Contents

1. Introduction

The 5x1 4K60 Presentation Switcher supports 5 inputs including 3 HDMI ports, 1 VGA (YPbPr/CVBS) and 1 DisplayPort, scaling to HDMI and HDBaseT outputs (Mirrored). It offers flexibility application of audio which includes unbalance audio, MIC In and line out. The audio processor offers auto-mixer and auto-gain control to mix or reduce background audio in order to enhance major audio source. The system could be controlled and configured easily via Telnet, Web GUI, IR remote and RS-232. This switcher is a suitable solution for presentation purpose at classroom and conference room.

2. Features

- ✧ HDMI 2.0b, HDCP 2.2 compliant
- ✧ 3xHDMI, 1xVGA(YPbPr/CVBS), 1xDisplayPort, 1x MIC In, 4x unbalance audio input
- ✧ HDMI and HDBaseT (70M) outputs (Mirrored)
- ✧ HDMI/DP video resolutions up to 4K2K@60Hz(4:4:4), 4K2K@30Hz, 1080p@120Hz
- ✧ VGA resolutions up to 1920x1200@60Hz
- ✧ Output resolutions up to 4K2K@30Hz
- ✧ Support automatic and manual switching modes
- ✧ Supports EDID management
- ✧ Supports pass-through of PCM 2CH
- ✧ Touch Panel button, Web GUI, IR remote, Desk Plate and RS-232 control

3. Package Contents

- ✧ 1x 5x1 4K60 Presentation Switcher
- ✧ 1 x HDBT Receiver
- ✧ 2 x Mounting ears

- ✧ 1 x Remote Control Unit
- ✧ 2 x IR Receiver Cable(with carrier wave)
- ✧ 2 x IR Emitter Cable
- ✧ 1x 24V/1A Power Adapter
- ✧ 1 x 3RCA(Female) to D-SUB(Male) Cable
- ✧ 1 x User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
DP Compliance	DisplayPort 1.2a
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Input Resolutions	HDMI/DisplayPort: up to 4K2K@50/60Hz(4:4:4)
	CVBS: PAL/NTSC3.58/NTSC4.43/SECAM/PAL M/PAL N
	YPBPR: 480i to1080p
	VGA: 640x480/60 to1920x1200/60
HDMI/HDBT Output Resolutions	4K2K/30, 4K2K/25,1920x1080p60, 1920x1080p50, 1280x720p/60, 1280x720p/50, 1024x768/60,1280x800/60, 1360x768/60,1400x1050/60,1680x1050/60, 1920x1200/60
Audio Formats	LPCM 2.0CH
ESD Protection	Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)
Connections	
Input ports	3x HDMI Type A [19-pin female] 1x Display Port [female] 1x VGA [female] 1 x MIC input[3-pin phoenix port] 5x Stereo inputs [3-pin phoenix port]

Output ports	1x HDMI Output Type A [19-pin female]
	1x HDBaseT Out [RJ45]
	1x Stereo Output [3-pin phoenix port]
Control interfaces	1x IR in [3.5mm mini jack]
	1x IR out [3.5mm mini jack]
	1x CONTACT IN [6-pin phoenix port]
	1x RS-232 [3-pin phoenix port]
	1x Web GUI [RJ45]
	1x USB Type A [5-pin female]
Mechanical	
Housing	Metal
Color	Black
Dimensions	150mm [W] x 220mm [D] x 44mm [H]
Weight	1250 [g]
Power Supply	DC 24V/1A Adaptor (US/EU standards, CE/FCC/UL certified)
Power Consumption	9W [Main unit]
	18W [Main unit + HDBaseT Receiver]
Operation Temperature	32 - 104°F / 0 - 40°C
Storage temperature	-4 - 140°F / -20 - 60°C
Relative Humidity	20 - 90% RH (no condensation)

5. Operation Controls and Functions

5.1 Front Panel

① Power button and indicator:
When this device is switched to the standby mode by pressing Power button, the indicator will illuminate red. When switching to power on mode, the indicator will illuminate blue.

② IR Window:
Receiving IR signal from remote control.

③ Input Source & Auto buttons:
Press these buttons for source selection.
The active source will be illuminated to corresponding indicators on the front panel. AUTO is for auto-switching or manual-switching mode selection, when the indicator illuminates blue, the device switch to auto-switching mode, when the indicator turns off, the device switch to manual-switching mode.

④ MIC volume buttons:
Press these buttons for adjust the MIC input volume.

5.2 Rear Panel
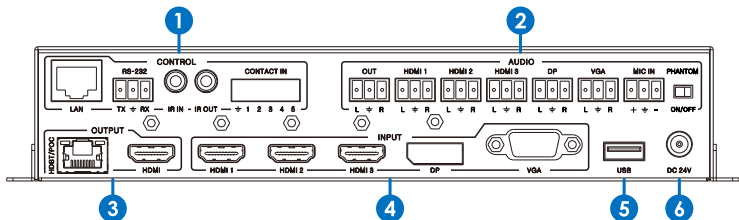
① Control ports:

LAN: This port is the link for Web GUI control; connect to an active Ethernet link with an RJ45 terminated cable.

RS-232: Serial control port, 3P captive screw connector, connects with a control device (such as a computer) to control the switcher or other device connected with the HDBT receiver.

IR IN: Connects with IR receiver cable (with carrier wave), to receive IR signals sent by the IR remote or remote controller of other input/output device.

IR OUT: Connects with IR emitter cable used for controlling the local source device or the switcher.

CONTACT IN: This input control reserving for direct source input selection. Connect ground pin (mark as ⏚ on panel) with following pin number for individual source selection.

Pin number	Source
Pin 1	HDMI1
Pin 2	HDMI2
Pin 3	HDMI3
Pin 4	Display Port
Pin 5	VGA/YPbPr/CVBS

2 Audio Ports

OUT: The audio comes from the input audio corresponding to the selected video source and mixed with MIC audio. Connects with amplifier for audio source broadcasting.

HDMI1/2/3/DP: Select the external analog audio on OSD and insert the audio to HDMI1/2/3/DP video source then output to display and analog audio output port.

VGA: The external analog audio input for VGA input.

MIC IN: Plug microphone in for audio source output.

PHANTOM ON/OFF: Arrange the slide switch to "OFF" for electrets condenser microphone/ dynamic microphones or "ON" for professional 48V phantom microphone.

3 Output Ports

HDBT Out: Connects with compatible Receiver for video and / or audio output. Support 24V POC function.

HDMI Out: Connect to an HDMI display or AV Receiver for video and/or audio output.

4 Input Ports

These video input ports include 3 HDMI inputs, 1 Display Port input & 1 VGA input. VGA port support VGA, YPbPr and CVBS format. Factory default is VGA format.

5 USB Port

USB port connects with USB flash disk or other storage that contains the software update file to update the system firmware.

6 Power

Plug the 24V DC power supply into the unit and connect the adaptor to an AC outlet.
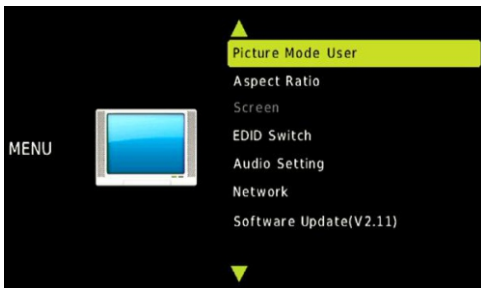
5.3 OSD Menu

The switcher provides a powerful OSD operation menu. Press MENU button on IR remote to enter in OSD menu, the users can change some settings through the OSD menu.

5.3-1 Main MENU

The Main MENU includes Picture mode, Aspect ratio, Screen, EDID switch, Audio setting, network and Software update options.

5.3-2 Picture

The picture MENU adjusts the picture quality.

Contrast 0-100 (default 50),
Brightness 0-100 (default 50),
Color 0-60 (default 30),
Sharpness 0-20 (default 10),
Tint 0-100 (default 50, for CVBS NTSC format only)

5.3-3 Aspect Ratio

The user can adjust picture output aspect ratio to 4:3 or 16:9.

4.3-4 Screen

The screen MENU adjusts for VGA input only. The user can adjust horizontal, vertical position, size and phase.

5.3-5 EDID

The EDID MENU adjusts for HDMI and Display port inputs only. EDID1.4 is for HDMI1.4 standard. EDID2.0 is for HDMI2.0 standard, and EDID AUTO is copying the display EDID directly.


5.3-6 Audio Setting

The Audio Setting MENU select between Embedded or External analog audio to choose the desired audio output port for HDMI and DP input ports. Select MIC mixer mode: ON, AUTO, OFF.

MIC mixer on: The switcher will mix the source audio and MIC audio to the audio output (HDMI, HDBT, Audio output port).

MIC mixer auto: The switcher will reduce the source audio volume automatic when it detects the MIC audio input.

MIC mixer off: The switcher will mute the MIC input audio.
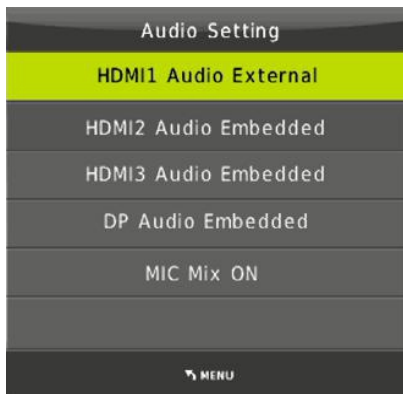
5.3.7 Network

The network MENU will display the IP address.
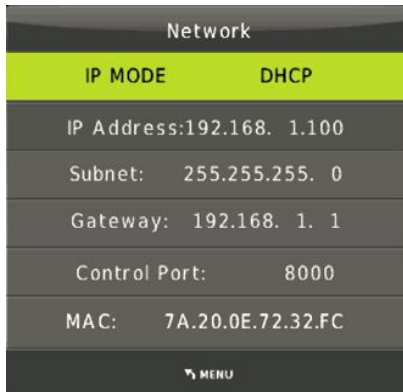
4.3-8 Software update

The switcher supports software updates via USB flash disk.The procedure is as follows:

1) Copy the file "**MERGE.bin**" to the root directory of a USB flash disk. (Make sure the file is copied to the root directory. The "**MERGE.bin**" file is provided/authorized by our engineering department or from our website)

2) Plug the USB flash disk to the switcher USB port on its rear panel.

3) Press the MENU -->software update-->YES enters to start the update. The OSD will display the update process.

4.3-9 Resolution

The switcher HDMI output resolutions support multiple modes. Press the "RES" button on the IR remote, the resolution menu will be displayed.
The user can select suitable resolution for HDTV or monitor. **Auto** means that the HDMI resolutions based on the EDID information read from the display device.

5.4 Remote Control & IR Operations
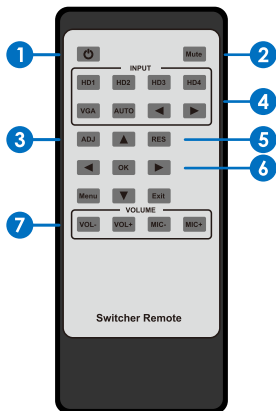
1. Press this button to power on the switcher or set it to standby mode.
2. Press this button for mute or un-mute the audio output.
3. Press this button for operate VGA input auto adjustment function;
4. Press these buttons for select the input sources.
5. Press this button to select HDMI output resolution. (Press and hold 5 seconds or more, the HDMI output resolution will reset to 720p60Hz.) Menu operation buttons:

6. **Menu operation buttons:**
   MENU: press to enter in OSD menu.
   EXIT: press to exit OSD menu.
   OK: confirm button.
   UP/DWON/LEFT/RIGHT button: OSD value setting.
7. **VOL-/+:** decrease or increase audio output volume (HDMI, HDBT, and Audio out ports).
   MIC-/+: decrease or increase MIC input audio volume.

As IR signal can be transmitted bi-directionally between the switcher and the HDBT receiver, it is able to use the IR remote to control the switcher or HDMI source devices.
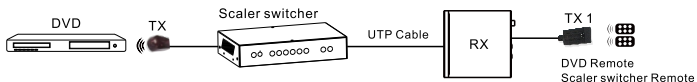
1) Control far-end device locally

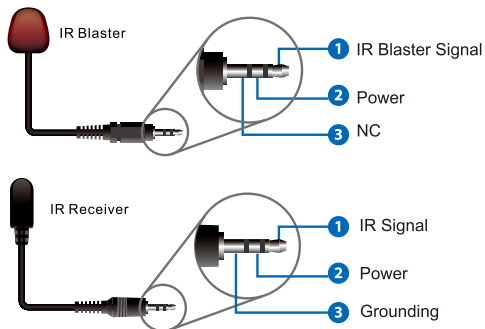To control the switcher or remote display device by using corresponding remote controller.
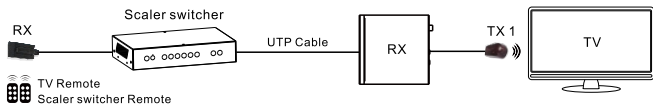
2) Control local device from remote

To control the switcher or local source device by using the corresponding remote controller.

3) IR(20KHz—60KHz) cable introduction

IR Blaster

1 IR Blaster Signal
2 Power
3 NC

IR Receiver

1 IR Signal
2 Power
3 Grounding

5.5 Auto-Switching function

The switcher has auto-switching and manual-switching modes. When the user select auto-switching mode, It will follows the following principles:

5.5-1.New input principle

Once a new input signal is detected, the switcher will switch to this new signal automatically.

5.5-2. Power rebooting principle

The switcher offers the function to remember the signal last used before power off. Once rebooted, it will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future reboots. If the last used input signal is still available, then it will choose that signal. If not, it will detect all input signals with priority on HDMI1->HDMI2->HDMI3->DP->VGA (YPbPr/CVBS).

5.5-3. Signal removing principle

Once the current signal is removed, the switcher will detect all input signals with priority on HDMI1->HDMI2->HDMI3->DP->VGA (YPbPr/CVBS). It will transfer the first signal detected to the output.

Notice: Auto-switching function works only when there is a new input signal or if an input signal is removed.

5.6 VGA/YPbPr/CVBS input

The VGA input port is a multiple format port. It supports VGA/YPbPr/CVBS input signal. The switcher will auto detect the input signal type and format. The user can use the convert cable for YPbPr or CVBS signal input.
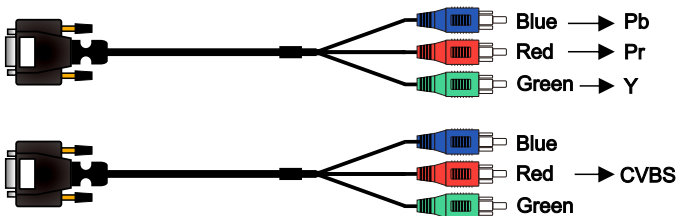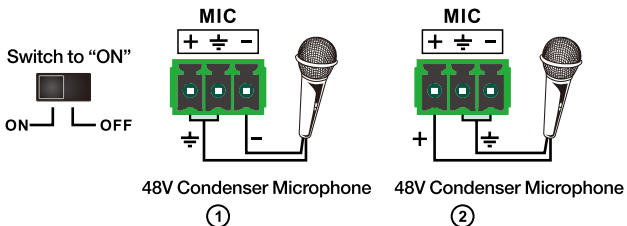
5.7 Connection of Microphone

The switcher provides one 2-level microphone input to accommodate different microphone input modes, including 48V phantom power mode and MIC mode. When switched to "ON" (It has a good frequency characteristic, high input impedance and high sensitivity in this mode), the MIC input will provide a 48V phantom power. This is only used for 48V condenser microphones.
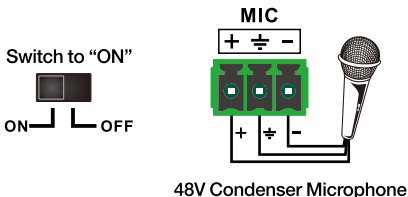
1) Unbalanced connection:

"+" and "⏚" connect to ground, and "-" connects to signal.

"-" and "⏚" connect to ground, and "+" connects to signal.

2) Balanced Connections:

"+" connects to positive, "-" connects to negative and "⏚" to ground.


48V Condenser Microphone

When switched to "OFF" (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting dynamic microphones and electrets condenser microphone. There are two different connections:

1). Unbalanced connection:

"+" and "⏚" connect to ground, and "-" connects to signal.
"-" and "⏚" connect to ground, and "+" connects to signal.

Electret Condenser Microphone
Dynamic Microphone
①

Electret Condenser Microphone
Dynamic Microphome
②
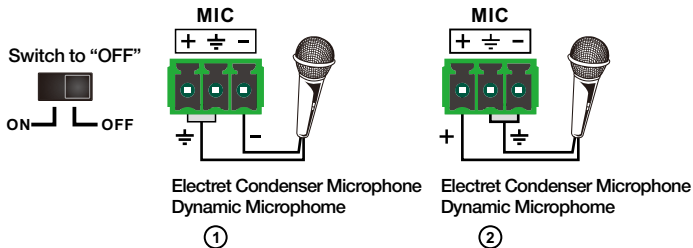
2) Balanced connection:

"+" connects to positive, "-" connects to negative and "⏚"connects to ground.


Electret Condenser Microphone
Dynamic Microphome
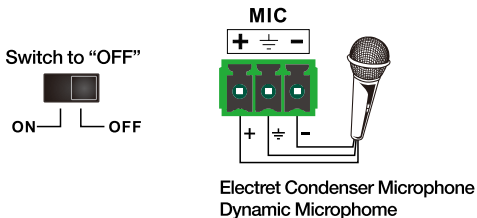
5.8 Operations of RS-232 Control

As RS-232 can be transmitted bi-directionally between the switcher and the HDBaseT receiver, it is able to control a third party RS-232 device locally or control the compact switcher bi-directionally.

1) Control the Switcher or 3rd Party Device from Local
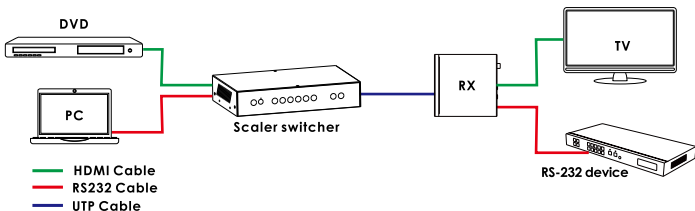
2) Control the Switcher or 3rd Party Device from remote Receiver

- ━━━ **HDMI Cable**
- ━━━ **RS232 Cable**
- ━━━ **UTP Cable**
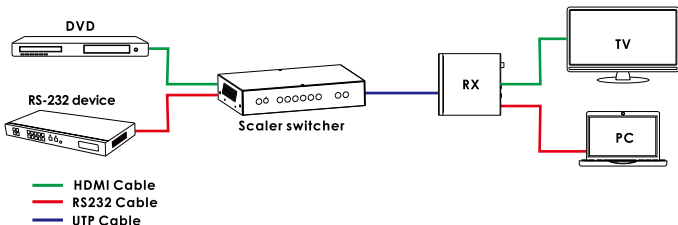
3) RS-232 Controller

Please connect the switcher with input devices and output device needed, then connect it with a computer that is installed with RS-232 control software. Double -click the software icon to run this software on your computer. The interface of the control software is showed as below:
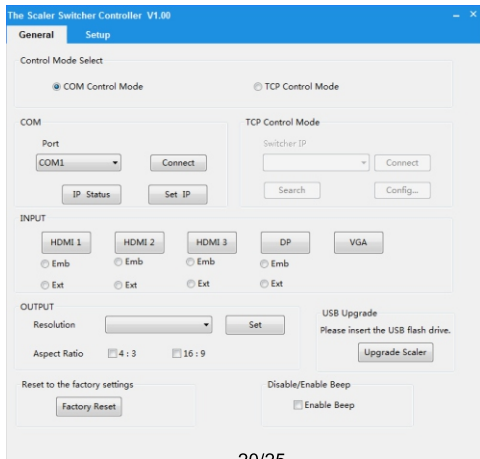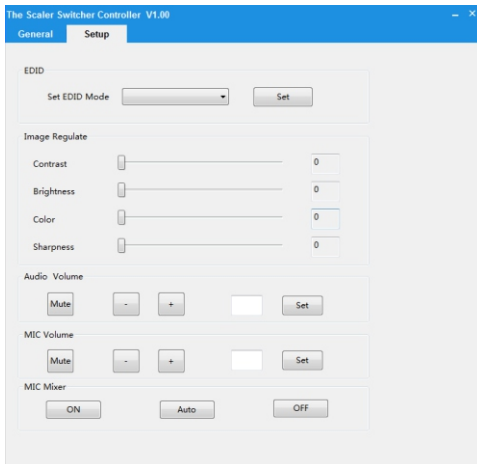
5.9 Web GUI Control

The switcher can be controlled via Web browser, which contains General, Setup and Network Settings. After the active Ethernet link with an RJ45 terminated cables are connected, the IP address is obtained and the IP address is entered in the Web browser, the switcher can be controlled. If IP address is unknown, there are two methods to obtain the IP address.
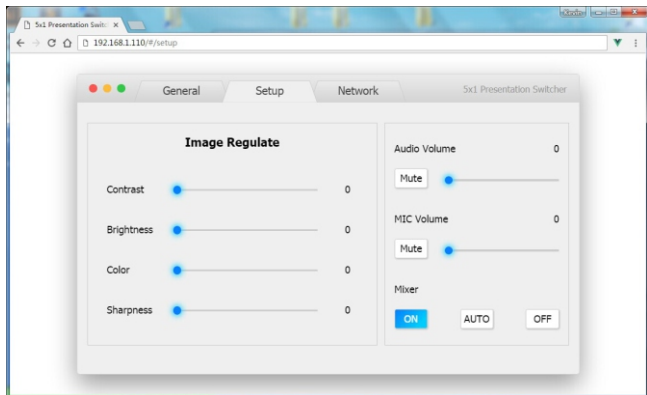
1. Obtain the IP address and port number via the information from the MENU-> Network OSD by the remote control.

2. Obtain the IP address and port number via RS-232 Controller.
   For example, the obtained IP address is 192.168.1.100 and port number is 8000. Input **http://192.168. 1.100** in the address bar of the web browser.
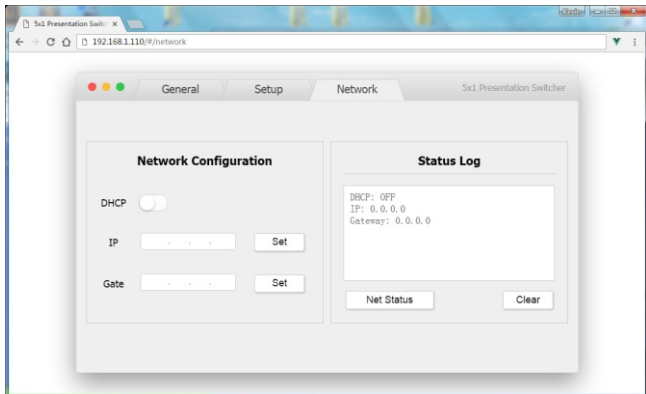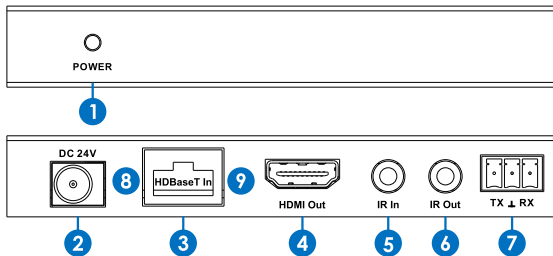
1) General
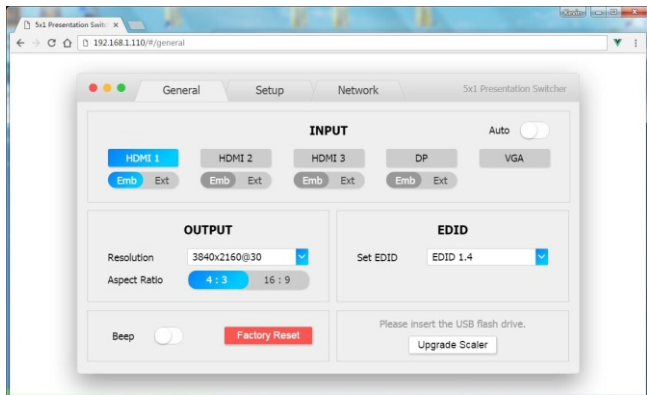
2) Setup

3) Network

6. HDBT Receiver

❶ **POWER:** This LED illuminates when the device is connected with power supply

❷ **DC 24V:** Plug the 24V DC power supply into the unit.

3 **HDBaseT IN:** Standard HDBaseT signal input port. Connect HDBaseT transmitter with a UTP cable following the standard of direct interconnection method.

4 **HDMI OUT:** HDMI output port. This slot is where you connect the HDTV or monitor with HDMI cable.

5 **IR IN:** Channel 1 IR Receiver. Connect with Wideband IR Rx.

6 **IR OUT:** Channel 2 IR Transmitter. Connect with Wideband IR Tx.

7 **RS-232:** Phoenix jack provide Serial port control signal from receiver or to receiver.

8 **Connection Signal Indicator Lamp**
　　※Illuminate: The Transmitter and Receiver are in good connections status.
　　※Flashing: The Transmitter and Receiver are in poor connections status.
　　※Dark: The Transmitter and Receiver are not connected.

9 **Data Signal Indicator Lamp**
　　※Illuminate: The HDMI signal is with HDCP.
　　※Flashing: The HDMI signal is without HDCP.
　　※Off: No HDMI signal.

7.Connection Diagram

1). Connect HDMI source devices (e.g. Blue-ray DVD) to HDMI input ports of the switcher with HDMI cable. Connect VGA source device (eg. PC/Note-book) to VGA input port of the switcher with a VGA cable.

2). Connect HDMI display device to the HDMI output port of the switcher with a HDMI cable.

3). Connect UTP Cable to the HDBT receiver.

4). Connect speaker, headphone or specialized amplifier to AUDIO output port of the switcher.

5). Connect control device (e.g. PC) to RS-232 port of the switcher.

6). Connect DC24V power adaptor to the power port and power on.