

1201-N+ Seamless Presentation Switcher



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Version: 79033-N+_2020V1.0

1201-N+

79033-N+ User Manual

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 October, 2018. 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.

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 as it may cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug 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. Treat them as normal electrical waste

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1. Product Introduction

The TEK 1201-N+ is a next generation, compact seamless presentation switcher/scaler that can be used on a wall, rack-mounted in a podium, teacher's desk, or under a conference table. The switcher includes the following:

- Six input seamless Auto-Switcher Scaler
- Inputs - 5 HDMI, 1 Multi-format (VGA, YUV, or Video)
- Outputs – Mirrored HDMI and HDBaseT Lite
- Balanced stereo audio output
- RS232 control from unit or receiver
- TCP/IP control
- Stereo Mix Input
- Separate Program and Mix volume control
- Operates with TEKVOX Drop-In commands
- Hands-Free operation with automatic switching and power control of a display using CEC
- IR remote control from receiver
- IR pass through to receiver
- IR from receiver to sources
- On Screen Menu Controls for easy setup
- Control of HDMI sources with CEC or IR
- Control of display with CEC, IR, or RS232
- Allows RS232 pass through for display control
- Rack and wall mounting kit included

1.1 Features

- HDMI 1.4a and HDCP 2.2 Compliant
- Supports CEC transport commands for each HDMI input
- Supports CEC Display On/Off commands
- Supports video auto-switching with automatic TV power control
- Bi-directional IR and RS232 control. Including TEKVOX Macro commands
- Selectable output resolutions: 1920x1200, 1920x1080, 1600x1200, 1600x900, 1360x768, 1280x800, 1280x720, 1024x768

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1.2 Package List

- 1 x TEK 1201-N+
- 2 x Wall Mounting ears
- 2 x Rack Mounting ears
- 1 x Inline Power Adapter (24VDC, 2.71A)
- 1 x IR remote
- 1 x IR receiver
- 1 x IR emitters
- 1 x RS232 cable (3-Pin phoenix connector to DB9)
- 1 x VGA converting cables (male VGA to female YPbPr)
- 2 x 3-Pin phoenix connectors
- 1 x 5-Pin phoenix connector
- 6 x Screws (black color)
- 4 x Plastic cushions
- 1 x TEK TPUH411RA HDBaseT Receiver
- 1 x User Manual

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

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2. Specifications

Input	5 HDMI (Female), 1 VGA (Female, 15-pin)
Video Signal	HDMI, YPbPr, C-video, VGA
Output	1 HDMI (Female) 1 HDBaseT (Female RJ-45)
IR Input	1 IR In, 3.5mm mini jack
IR Output	1 IR Out, 3.5mm mini jack
Resolution Range	1024×768, 1280×720, 1280×800, 1920×1080, 1600×1200, 1600×900, 1920×1200
Bandwidth	HDMI: 4.95 Gbps (1.65 Gbps per color) C-video: 150 MHz YPbPr: 170 MHz VGA: 375 MHz
Transmission Distance	325 ft. (100m)
HDCP	Compliant w/ DVI & HDMI 1.4, HDCP 2.2
Audio Input	1 Stereo Audio for VGA (3.5mm jack) 1 Stereo Line Level (3 Pin Phoenix) 2 Stereo Audio Input (3.5mm jack)
Audio Output	1 Balanced Stereo (5 Pin Phoenix)
Frequency Response	20Hz~20KHz
Control	IR Remote Front Panel Buttons RS-232 TCP/IP
Power Supply	Input: 100VAC ~ 240VAC, 50/60Hz Output: DC 24V, 2.71A
Power Consumption	28W
Temperature	14 ~ 104°F (-10 ~ 40°C)
Humidity	10% ~ 90%
Case Dimension	8.7"(221mm) x 1.73"(44mm) x 9.25"(235mm) 1U Rack Mountable
Product Weight	2.1 lbs. (0.95kg)

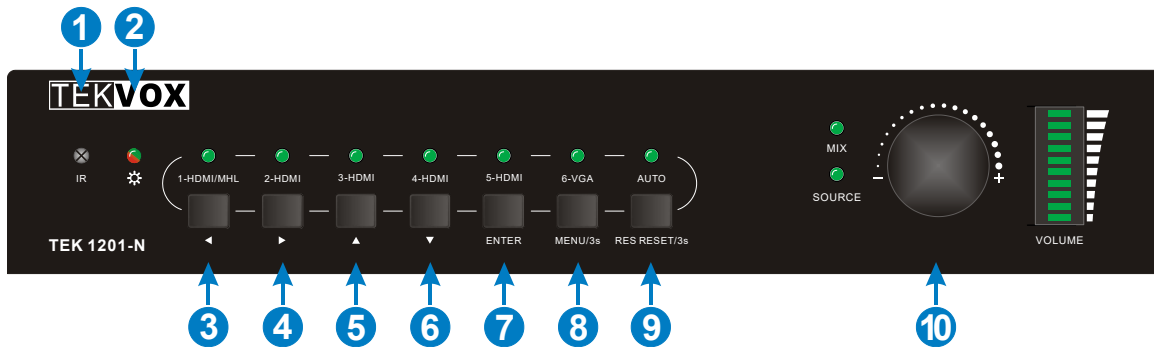
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3. Product Appearance

3.1 1201-N+ Presentation Switcher Panels

3.1.1 1201-N+ Front Panel

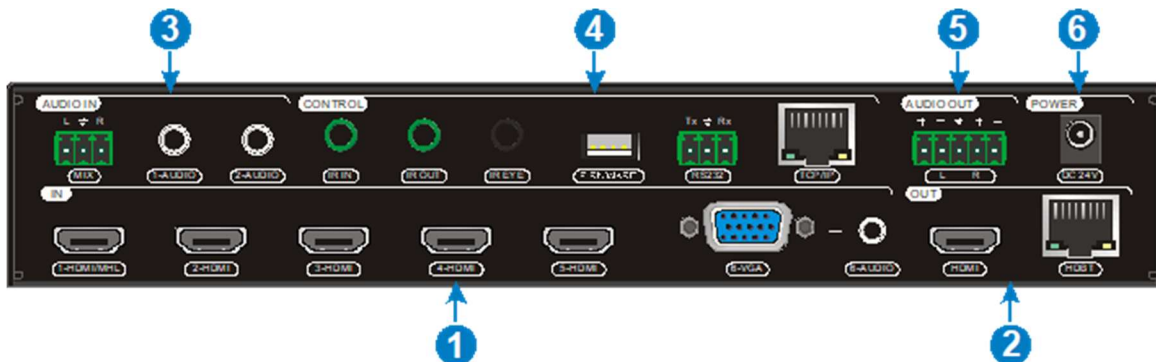


- 1) Built-in IR Receiver
 - 2) Power Indicator - RED when the device is in standby, GREEN when device is powered on and no indicator when there is no power to device.
 - 3) 1-HDMI/MHL input selector and activity LED/Left key for OSD.
 - 4) 2-HDMI input selector and activity LED/Right key for OSD.
 - 5) 3-HDMI input selector and activity LED/Up key for OSD.
 - 6) 4-HDMI input selector and activity LED/Down key for OSD.
 - 7) 5-HDMI input selector and activity LED/ENTER key for OSD.
 - 8) 6-VGA input selector and activity LED/OSD menu button.
 - 9) Auto-switching selector and activity LED.
 - Press this to enter or exit auto-switching mode
 - Long-press this button 3 seconds or more to reset output resolution to 720p or to activate HDMI and HDBT outputs if they have been turned off.
- Note:** When you set any VGA port to C-video or YPbPr in Manual-switching mode, the system will not be able to enter Auto-switching mode.
- 10) Volume knob for variable audio control - Push knob in to toggle between 'MIX' and 'Source' control.

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3.1.2 1201-N+ Rear Panel



1) INPUTS

- Video input ports: 1 HDMI/MHL, 4 HDMI inputs, and 1 VGA.
- Audio input ports: 1 VGA auxiliary audio input.

2) OUTPUTS

- HDMI output: HDMI video output port.
- HDBaseT output: Support PoH. Connect with a compatible HDBaseT Receiver to transmit AV signal, IR, or RS232 control signal.

3) AUDIO IN

- MIX: 3-Pin phoenix connector for line audio input.
- 1-AUDIO: 3.5mm mini jack, embedded audio input for 1-HDMI.
- 2-AUDIO: 3.5mm mini jack, embedded audio input for 2-HDMI.

4) CONTROL

- IR IN & IR OUT: Connect with IR Receiver and Emitter to control devices via IR.
- IR EYE: Connect with the IR Receiver (with carrier wave only) to control this SC61TS via the including IR Remote.
- FIRMWARE: Type-A USB port for updating system firmware or loading customized EDID data.
- RS232: Serial port, 3-pin phoenix connector - connect with a control device (such as a PC) to control SC61TS or other devices connected with HDBaseT Receiver.
- TCP/IP: Ethernet port - connect with PC to control SC61TS via GUI.

5) AUDIO OUT - Stereo balanced L/R audio output.

6) DC 24V - Locking power port, connect 24V DC power adapter.

3.2 TPUH411RA HDBaseT Receiver Panels

3.2.1 TPUH411RA Front Panel

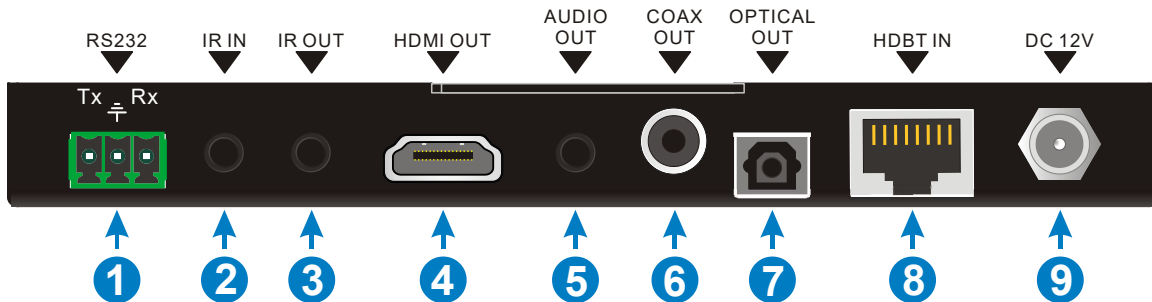


- 1) **RS232 Mode switcher**
 - CTRL: RS232 pass-through control mode;
 - UPDATE A: Update Valens IC program, connect a PC to the RS232 port, and then double-click the update file (.bat).
 - UPDATE B: Update the IC program which is used for de-embedding audio. The upgrade method is the same as the above UPDATE A.
- 2) **Link status LED** - OFF: No Link/GREEN: Link successful.
- 3) **HDCP compliant LED** - OFF: No HDMI traffic/GREEN: Traffic with HDCP/Blinking GREEN: Traffic without HDCP.
- 4) **Power LED** - RED when the device is powered on and no indicator when there is no power to the device.

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3.2.2 TPUH411RA Rear Panel



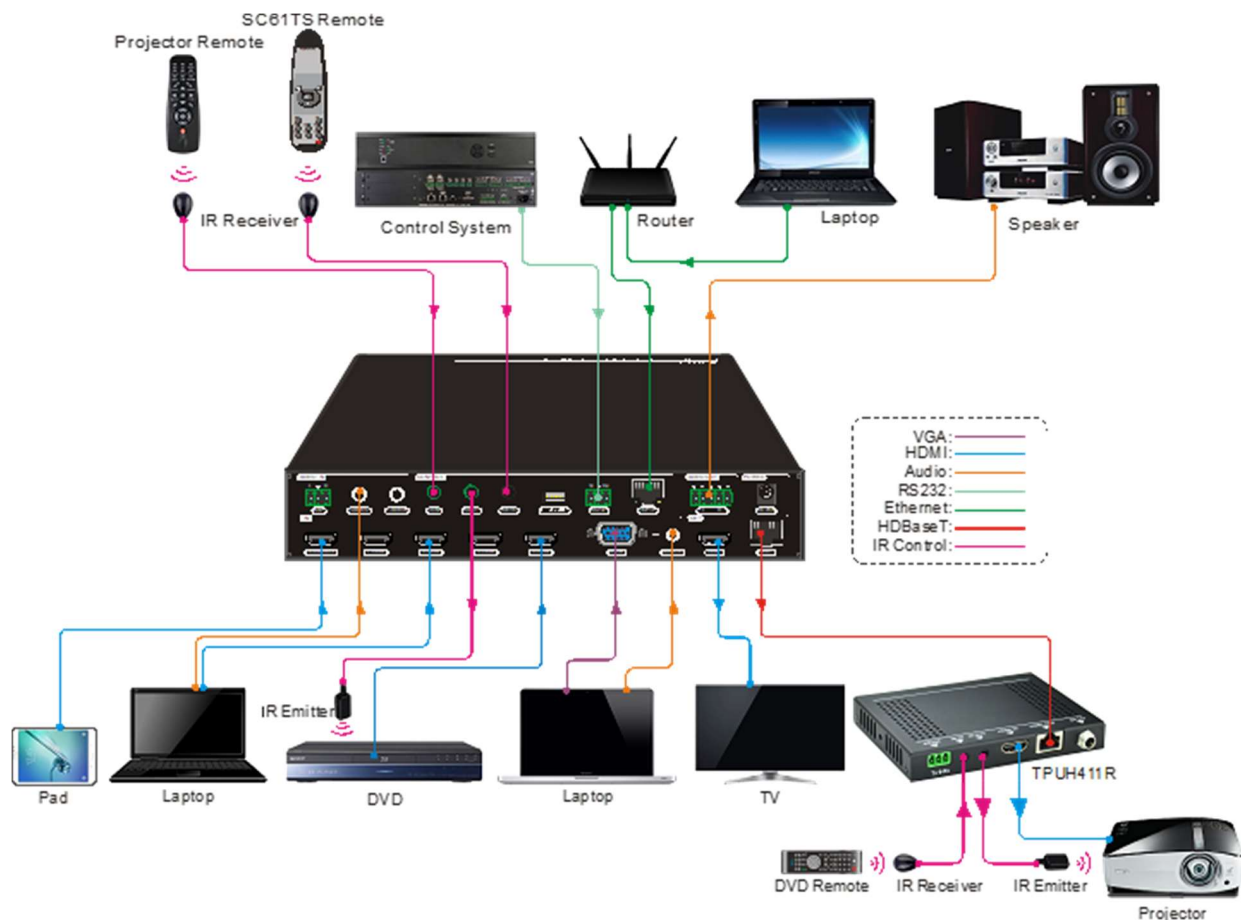
- 1) **RS232 Connector** - If one is connected with a control device (e.g. PC), then the other should be connected with the third-party that needs to be controlled.
- 2) **IR IN** - Work with far-end IR OUT port, connect with IR Receiver (with carrier) to collect IR signal to control far-end display device from local.
- 3) **IR OUT** - Works with far-end IR IN port - connects with IR Emitter to send IR signal to control input source device.
- 4) **HDMI OUT** - HDMI type A connector - connects to display.
- 5) **AUDIO OUT** - 3.5mm stereo audio jack - connects to analog stereo audio device.
- 6) **COAX OUT** - Coaxial audio connector – connects to digital audio device.
- 7) **OPTICAL OUT** - Optical audio connector - connects to optical audio devices.
- 8) **HDBT IN** - Connects to the HDBT OUT socket on HDBaseT Transmitter or Matrix Switcher via CAT5e/6a/7 cable - supports unidirectional PoH technology.
- 9) **DC 12V Power Port** - Connect to 12VDC power adaptor. It can also be powered via the Scaler Switcher by PoH.

4. System Connection

4.1 Installation Precautions

- System should be installed in a clean environment with normal operating temperatures and humidity.
- All of the power switches, plugs, sockets, and power cords should be installed according to safety standards.
- All cables should be properly terminated and tested before connecting to the unit.
- All devices should be connected before powering the unit on.

4.2 System Diagram



4.3 Connection Procedure Steps

- 1) Connect HDMI source devices (e.g. Blue-ray DVD) to 1~5 HDMI input ports with HDMI cable.
- 2) Connect a VGA source device (e.g. Laptop) to VGA input port with VGA cable and VGA audio input port with audio cable.
- 3) Connect a HDMI display device to HDMI output port with HDMI cable.
- 4) Connect HDBaseT Receiver to HDBT output port with twisted pair.
- 5) Connect speaker, headphone or AV amplifier to AUDIO OUTPUT port.
- 6) Connect control device (e.g. PC, control system) to the TCP/IP port, the Scaler Switcher can be controlled via GUI.
- 7) Connect control device (e.g. TekTouchPad) to the RS232 port of the Switcher or the HDBaseT Receiver (bi-directional RS232 control, either end is available).
- 8) Connect IR receiver to the IR EYE port. The Switcher can be controlled via IR remote.
- 9) Both the Switcher and the HDBaseT Receiver have IR IN and OUT. When one model is connected with IR receiver, the other model should connect with an IR transmitter.
 - For example: When “IR IN” of the Scaler Switcher connects with an IR receiver, the IR transmitter must connect to “IR OUT” of the HDBaseT Receiver.
 - The IR signal can be transmitted bi-directionally between the Scaler Switcher and the HDBaseT Receiver.
- 10) Connect DC24V power adaptor to the power port (HDBaseT Receiver can be powered by the Scaler Switcher with PoH function).

Note: *If the power adapter is connected to HDBaseT Receiver, the Scaler Switcher can't be powered from the HDBaseT Receiver.*

4.4 Connection of Microphone Mixer

The TEK 1201-N+ only provides a line-level stereo input that can be used to connect to a microphone mixer with line-level out. This input is a stereo 3-Pin phoenix connector and is labeled as “MIX”.

4.5 Application

The TEK 1201-N+ is ideal for both small conference room and typical classroom room applications, especially when there is no need for an equipment rack. The switcher can be mounted under a conference table, on a wall, or in a teacher's desk. It can also be easily mounted into a rack with its rack-mount ears. When used with a TEKVOX Drop-In™ system, a low cost and complete mediated classroom system can be created. Placing the switcher in “Auto-Switching” and enabling the “Output CEC Auto Power” modes allows the switcher to automatically power on and off a display with CEC control when video is detected at any of its video input connections. This feature allows the TEK 1201-N+ to be used for both simple conference rooms as well as collaboration tables.

5. Front Panel Control

Front panel buttons can be used for switching operations and adjusting the volume.

5.1 Manual-Switching

Press 1-HDMI/MHL, 2-HDMI, 3-HDMI, 4-HDMI, 5-HDMI, 6-VGA on the front panel to select the corresponding input source.

5.2 Auto-Switching

Press **AUTO** to enter in auto-switching mode. The auto-switching mode abides by the following principles:

New input - Once detecting a new input signal, the switcher automatically displays this new signal.

Rebooting device - The switcher has the ability to save the last configuration before losing power. If rebooted and the last switching mode was set to "auto-switching", the switcher will automatically enter auto-switching mode. If the last displayed signal is still available, the unit will output this signal. If not, the unit will detect all the input signals with priority from 1-HDMI to 6-VGA. The first detected signal is sent to the output.

Signal removing - When a signal is removed, the unit will detect all the input signals with priority from 1-HDMI to 6-VGA. The first detected signal is sent to the output.

Note: *Auto-switching function works only when inputting a new signal, removing a signal, or power-rebooting. With any VGA port set to C-video or YPbPr, the system will be not be able to enter in Auto-switching mode.*

5.3 Volume Adjustment

Press the "Volume" knob to select "MIX" or "Source" audio to adjust. The corresponding LED will turn green and remain on. Move the volume knob in clockwise or counter-clockwise direction to turn the volume up or down.

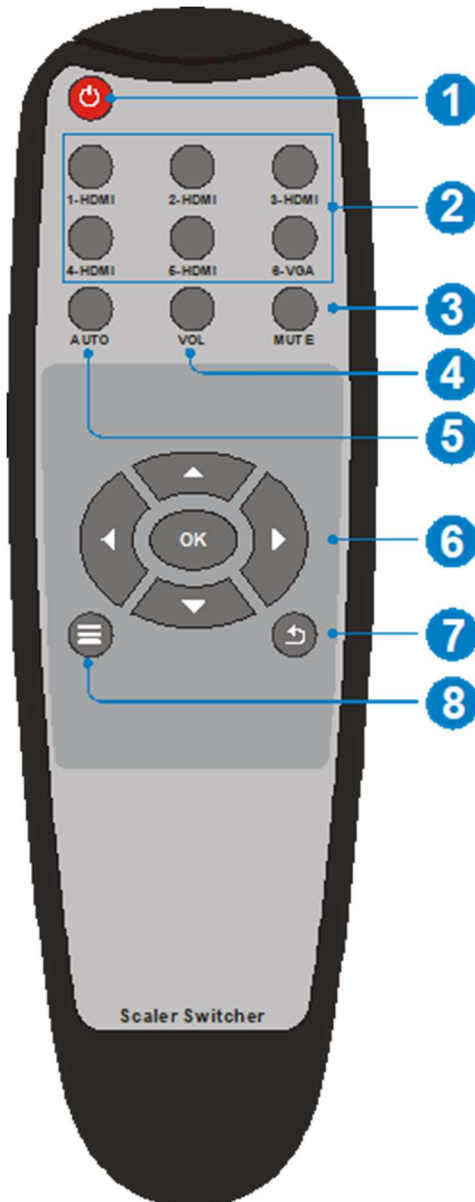
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5.4 Operations of IR

5.4.1 IR Remote

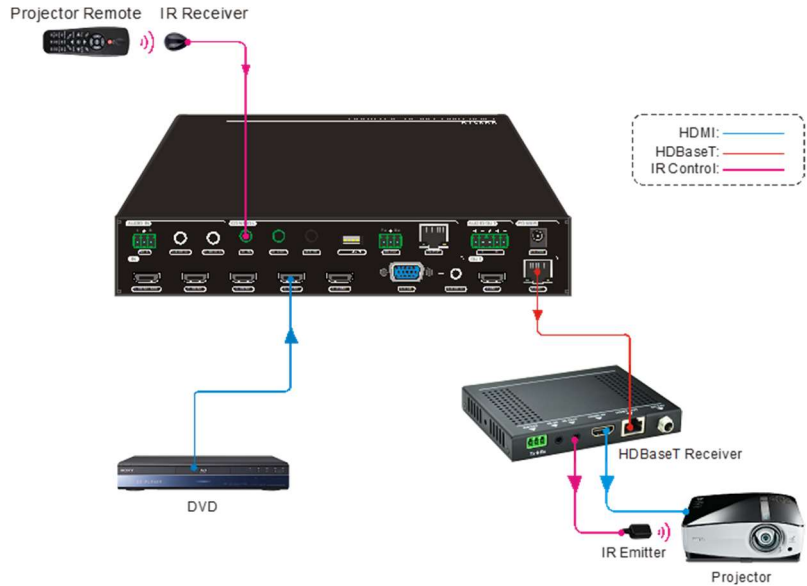
Connect IR receiver to IR EYE port, the switcher can be controlled by using the included IR Remote. The user is able to use the IR Remote to turn on/off the HDMI source or Display using CEC control.



- 1) Power
This button is used to power cycle the switcher and CEC controlled display.
- 2) Input Selection buttons (1~6)
Select video source via the corresponding button.
- 3) **AUTO** - Enter/Exit auto-switching mode.
- 4) **MUTE** - Mute and unmute the audio
- 5) **VOL** - Volume adjusting button. Pressing this button displays the volume adjusting menu.
- 6) Menu Operation Buttons
OK: confirm button.
▲, ▼, ◀, ▶: UP/DWON/LEFT/RIGHT button, for value setting or page-turn.
- 7) Exit
Press to exit the OSD menu.
- 8) Menu
Enter OSD menu or return to the previous menu.

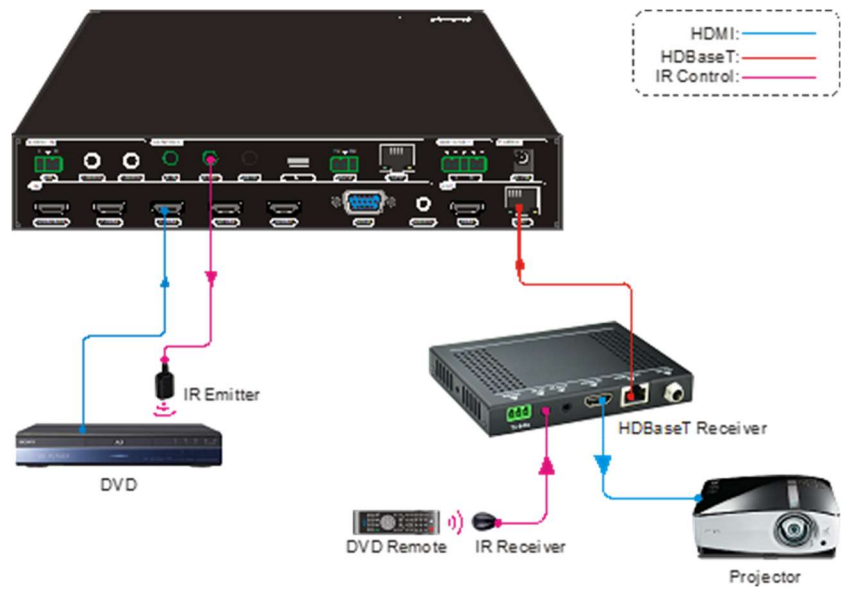
5.4.2 Control of Far-End IR Device from Local

Connect an IR receiver to IR IN port on the Switcher and connect IR emitter to the IR OUT port on the HDBaseT Receiver. The far-end device can be control by its IR remote from local.



5.4.3 Control Local Device from Remote

Connect an IR emitter to IR OUT port on the Compact Scaler Switcher and connect IR receiver to the IR IN port on the HDBaseT Receiver. The source devices can be controlled by their IR remote from the receiver.








5.5 Operation of CEC Functions

The switcher supports CEC control of a Blu-ray or TV. It can be turned on/off by sending RS232 commands or OSD menu operations. The default setting is ON.

Commands pertaining to CEC: "50686%" (enable CEC) and "50687%" (disable CEC)

HDMI INPUT ports 1~5 support CEC. If the connected source devices also support CEC and their CEC are on, users can control the source device and display via the switcher's IR remote.

The working status related to CEC and STANDBY is shown as below:

Situation	Working Status
CEC: on, Standby: on	Press STANDBY button on IR remote. When the Switcher enters standby mode, all HDMI source devices and displays will as well. Press STANDBY button again on IR remote. The Scaler Switcher exits standby mode. The previous selected HDMI input source device and display power on as well.
CEC: on, Standby: off	Press STANDBY button on IR remote. The Switcher enters in standby mode; HDMI 1~3 source devices and display do not change.
CEC: on	Use  ,  ,  ,  and  buttons on IR remote to control HDMI source device.
CEC: off	Unable to control HDMI source device and display through IR remote.

5.6 RS232 Control

Use the RS232 port on the TEK 1201-N+ or HDBaseT receiver to control the switcher using a third party RS232 device. It is also possible to control a display from the switcher using RS232 at the HDBaseT Receiver. To control the switcher, the RS232 commands must be sent as one packet using a program such as Hercules or CommWatch. Do not terminate with Carriage Return. These same commands are used with TCP/IP port 4001. For feedback, the same command is used with terminating <CR><LF>.

Hercules from HW Group: http://new.hwg.cz/files/download/sw/version/hercules_3-2-8.exe

HDBaseT Baud rates supported 2400, 4800, 9600 (default), 19200, 38400, 57600, or 115200.

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5.6.1 RS232 Communication Protocol

Communication protocol: RS232 Communication Protocol

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

Command	Function	Feedback Example
Switch Commands		
50701%	Switch to 1-HDMI/MHL input	50701<CR><LF>
50702%	Switch to 2-HDMI input	50702<CR><LF>
50703%	Switch to 3-HDMI input	50703<CR><LF>
50704%	Switch to 4-HDMI input	50704<CR><LF>
50705%	Switch to 5-HDMI input	50705<CR><LF>
50705%	Switch to VGA / YPbPr / AV input	50706<CR><LF>
50680%	Set the signal format to VGA for 6-VGA input.	50680<CR><LF>
50681%	Set the signal format to YPbPr for 6-VGA input.	50681<CR><LF>
50682%	Set the signal format to AV(C-video) for 6-VGA input.	50682<CR><LF>
50785%	Enable auto-switching	50682<CR><LF>
50786%	Disable auto-switching	50786<CR><LF>
Audio Commands		
50600%	MUTE Source audio	50600<CR><LF>
50601%	Un-Mute Source audio	50601<CR><LF>
50602%	Source audio volume up	501xx<CR><LF>
50603%	Source audio volume down	501xx<CR><LF>
501xx%	Set the Source volume (xx = 00 to 60)	501xx (xx=00~60)
50720%	Mute Source audio & MIC audio	50720<CR><LF> Mute
		50721<CR><LF> Unmute
50721%	Unmute Source audio & MIC audio	50721<CR><LF> Unmute
		50720<CR><LF> Mute
50722%	Mute MIC audio	50722<CR><LF>
50723%	Unmute MIC audio	50723<CR><LF>
50724%	MIX volume up	508xx<CR><LF>
50725%	MIX volume down	508xx<CR><LF>
508xx%	Set MIX volume (xx = 00 to 60)	508xx (xx=00~60)
50726%	Disable VGA audio.	50726<CR><LF>
50727%	Enable VGA audio.	50727<CR><LF>
50660%	Disable 1-HDMI audio.	50660<CR><LF>
50661%	Enable 1-HDMI audio.	50661<CR><LF>
50662%	Disable 2-HDMI audio.	50662<CR><LF>
50663%	Enable 2-HDMI audio.	50663<CR><LF>
50664%	Disable 3-HDMI audio.	50664<CR><LF>

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Command	Function	Feedback Example
50665%	Enable 3-HDMI audio.	50665<CR><LF>
50666%	Disable 4-HDMI audio.	50666<CR><LF>
50667%	Enable 4-HDMI audio.	50667<CR><LF>
50668%	Disable 5-HDMI audio.	50668<CR><LF>
50669%	Enable 5-HDMI audio.	50669<CR><LF>
50941%	Disable MIX audio.	50941<CR><LF>
50942%	Enable MIX audio.	50942<CR><LF>
50954%	1-HDMI audio source from internal audio.	50954<CR><LF>
50955%	1-HDMI audio source from external 1-Audio.	50955<CR><LF>
50956%	2-HDMI audio source from internal audio.	50956<CR><LF>
50957%	2-HDMI audio source from external 2-Audio.	50957<CR><LF>
50648%	Enable HDMI embedded audio output.	50648<CR><LF>
50649%	Disable HDMI embedded audio output.	50649<CR><LF>
Resolution Commands		
50619%	Set the output resolution to 1360X768 HD.	50619<CR><LF>
50626%	Set the output resolution to 1024X768 XGA.	50626<CR><LF>
50627%	Set the output resolution to 1280X720 720P.	50627<CR><LF>
50628%	Set the output resolution to 1280X800 WXGA.	50628<CR><LF>
50629%	Set the output resolution to 1920X1080 1080P.	50629<CR><LF>
50620%	Set the output resolution to 1920X1200 WUXGA.	50620<CR><LF>
50621%	Set the output resolution to 1600X1200 UXGA.	50621<CR><LF>
50624%	Set the output resolution to 1600X900.	50622<CR><LF>
Setup Commands		
50797%	Standby	50797<CR><LF>
50697%	Power On	50697<CR><LF>
50604%	Lock the front panel buttons	50604<CR><LF>
50605%	Unlock the front panel buttons	50605<CR><LF>
502xx%	Set the brightness (xx = 00 to 99)	502xx<CR><LF>
503xx%	Set the contrast (xx = 00 to 99)	503xx<CR><LF>
504xx%	Set the saturation (xx = 00 to 99)	504xx<CR><LF>
505xx%	Set the sharpness (xx = 00 to 99)	505xx<CR><LF>
50698%	Software update.	50698<CR><LF>
50617%	Restore to factory defaults.	Factory Reset
50607%	Auto-adjust the color temperature to (xx=01 Cool/02 Medium/03 Warm/ 04 User)	50607:xx<CR><LF>
50608%	Set the aspect ratio to xx (xx= 01 16:9/02 4:3/ 03 auto)	50608:xx<CR><LF>

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Command	Function	Feedback Example
50614%	Set the image mode to xx (xx= dynamic/ standard/ mild/ user)	50614:xx<CR><LF>
50655%	Enable Freeze	50655<CR><LF>
50656%	Disable Freeze	50656<CR><LF>
50646%	Enable Volume Icon display	50646<CR><LF>
50647%	Disable Volume Icon display	50647<CR><LF>
50765%	Enable freeze icon	50765<CR><LF>
50766%	Disable freeze icon	50766<CR><LF>
50644%	Enable channel status Icon	50644<CR><LF>
50645%	Disable channel status Icon	50645<CR><LF>
50606%	Auto-adjust the VGA only	50606<CR><LF>
50755%	Turn off HDMI output	50755<CR><LF>
50756%	Turn on HDMI output	50756<CR><LF>
50757%	Turn off HDBT output	50757<CR><LF>
50758%	Turn on HDBT output	50758<CR><LF>
50759%	Turn on HDMI& HDBT output synchronously	50759<CR><LF>
50760%	Turn on HDBT POH Power	50760<CR><LF>
50761%	Turn off HDBT POH Power	50761<CR><LF>
Adjustment Commands		
50678%	Enable screen output adjusting	50678<CR><LF>
50679%	Disable screen output adjusting	50679<CR><LF>
50670%	Move the image to right	50670:xx<CR><LF>
50671%	Move the image to left	50671:xx<CR><LF>
50672%	Move the image up	50672:xx<CR><LF>
50673%	Move the image down	50673:xx<CR><LF>
50674%	Stretch left from left side (increase image width)	50674:xx<CR><LF>
50675%	Pull right from left side (decrease image width)	50675:xx<CR><LF>
50676%	Stretch upwards from top side (increase image height)	50676:xx<CR><LF>
50677%	Stretch downwards from bottom side (increase image height)	50677:xx<CR><LF>
OSD Menu Control		
50616%	MENU button (enter OSD)	50616<CR><LF>
50609%	OK for OSD selection	50609<CR><LF>
50610%	LEFT button	50610<CR><LF>

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Command	Function	Feedback Example
50611%	RIGHT button	50611<CR><LF>
50612%	UP button	50612<CR><LF>
50613%	DOWN button	50613<CR><LF>
50618%	EXIT button (exit OSD)	50618<CR><LF>
CEC Input Commands		
50686%	Enable CEC Input	50686<CR><LF>
50687%	Disable CEC Input	50687<CR><LF>
50901%	Play & Pause	50901<CR><LF>
50902%	Stop	50902<CR><LF>
50903%	Menu	50903<CR><LF>
50904%	Reverse	50904<CR><LF>
50905%	Forward	50905<CR><LF>
50906%	Up	50906<CR><LF>
50907%	Down	50907<CR><LF>
50908%	Left	50908<CR><LF>
50909%	Right	50909<CR><LF>
50910%	Confirm command	50910<CR><LF>
50911%	Exit command, Toggle Menu	50911<CR><LF>
50912%	Pause	50912<CR><LF>
50913%	Power on input source device	50913<CR><LF>
50914%	Power off input source device	50914<CR><LF>
50915%	Enable input CEC auto power	50915<CR><LF>
50916%	Disable input CEC auto power Do not allow the Switcher to power on from Blu-ray being powered on	50916<CR><LF>
50917%	Next chapter	50917<CR><LF>
50918%	Previous chapter	50918<CR><LF>
CEC Output Commands		
50920%	Enable output CEC auto power. When in switcher is in auto and video detection is detected, CEC power on command is sent to display. After 3 minutes of no video input, CEC power-off command is sent to display.	50920<CR><LF>
50921%	Disable output CEC auto power.	50921<CR><LF>

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Command	Function	Feedback Example
50922%	Power on output display device.	50922<CR><LF>
50923%	Power off output display device.	50923<CR><LF>
EDID Configuration		
50731%	Set 1-HDMI/MHL EDID to 720P.	50731<CR><LF>
50732%	Set 1-HDMI/MHL EDID to 1080P.	50732<CR><LF>
50733%	Set 1-HDMI/MHL EDID to 1920x1200.	50733<CR><LF>
50735%	Set 2-HDMI EDID to 720P.	50735<CR><LF>
50736%	Set 2-HDMI EDID to 1080P.	50736<CR><LF>
50737%	Set 2-HDMI EDID to 1920x1200.	50737<CR><LF>
50739%	Set 3-HDMI EDID to 720P.	50739<CR><LF>
50740%	Set 3-HDMI EDID to 1080P.	50740<CR><LF>
50741%	Set 3-HDMI EDID to 1920x1200.	50741<CR><LF>
50743%	Set 4-HDMI EDID to 720P.	50743<CR><LF>
50744%	Set 4-HDMI EDID to 1080P.	50744<CR><LF>
50745%	Set 4-HDMI EDID to 1920x1200.	50745<CR><LF>
50747%	Set 5-HDMI EDID to 720P.	50747<CR><LF>
50748%	Set 5-HDMI EDID to 1080P.	50748<CR><LF>
50749%	Set 5-HDMI EDID to 1920x1200.	50749<CR><LF>
50767%	Restore default EDID.	50767<CR><LF>
50768%	Bypass EDID data from output to input.	50768<CR><LF>
50769%	Upload custom EDID data to the switcher.	50769<CR><LF>
50782%	EDID management, copy the best resolution data of one output to HDMI input.	50782<CR><LF>
HDCP Compliance		
50791%	HDCP Active mode	50791<CR><LF>
50792%	HDCP Manual mode. Set best for Seamless.	50792<CR><LF>
50793%	Disable VTC Mode	50793<CR><LF>
50794%	Enable VTC Mode. Set best for Seamless	50794<CR><LF>
Auto Power-off Setup		
50714%	Auto Switch Mode: Disable the auto power-off function.	50714<CR><LF>
50715%	Auto Switch Mode: Set the auto power-off time to 1 minute when No signal input.	50715<CR><LF>

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Command	Function	Feedback Example
50716%	Auto Switch Mode: Set the auto power-off time to 2 minute when No signal input.	50716<CR><LF>
50717%	Auto Switch Mode: Set the auto power-off time to 5 minute when No signal input.	50717<CR><LF>
50718%	Auto Switch Mode: Set the auto power-off time to 10 minute when No signal input.	50718<CR><LF>
50771%	Manual Switch Mode: Disable auto power-off time function.	50771<CR><LF>
50772%	Manual Switch Mode: Set the power-off time to 1 minute.	50772<CR><LF>
50773%	Manual Switch Mode: Set the power-off time to 2 minute.	50773<CR><LF>
50774%	Manual Switch Mode: Set the power-off time to 5 minute.	50774<CR><LF>
50775%	Manual Switch Mode: Set the power-off time to 10 minute.	50775<CR><LF>
Get Status		
50754%	Get the panel locked status.	50604<CR><LF>/ 50605<CR><LF>
50719%	Check the auto power-off time.	50714/50771/50772/ 50773/50774/50775 <CR><LF>
50631%	Get the input source (xx= HDMI1/ HDMI2/ HDMI3/ HDMI4/HDMI5/(VGA/ YPbPr/ AV))	50701<CR><LF>/ 50702<CR><LF>/ 50703<CR><LF>/ 50704<CR><LF>/ 50705<CR><LF>/ 50706<CR><LF>
50632%	Get the output resolution(xx=1920×1200/ 1920×1080/ 1600×1200/ 1360×768/ 1280×800/ 1280×720/ 1024×768/1600x900)	50619<CR><LF>/ 50626<CR><LF>/ 50627<CR><LF>/ 50628<CR><LF>/ 50629<CR><LF>/ 50620<CR><LF>/ 50621<CR><LF>/ 50622<CR><LF>

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Command	Function	Feedback Example
50751%	Get the Source mute status.	50600<CR><LF>/ 50601<CR><LF>
50752%	Get the MIX mute status	50722<CR><LF>/ 50723<CR><LF>
50630%	Get the volume level (xx=00~60).	501xx<CR><LF>/ 508xx<CR><LF>
50947%	Check external audio input status (MIX).	50941/50942<CR><LF>
50636%	Get the brightness.	502xx<CR><LF>
50637%	Get the contrast.	503xx<CR><LF>
50638%	Get the saturation.	504xx<CR><LF>
50639%	Get the sharpness.	505xx<CR><LF>
50640%	Get the color temperature (xx= 01 Cool/ 02 Medium/03 Warm/04 User).	50607:xx<CR><LF>
50635%	Get the image aspect ratio(xx= 01 16:9/ 02 4:3/ 03 auto/)	50608:xx<CR><LF>
50633%	Get the image mode (xx= 01 Dynamic/ 02 Standard/ 03 Mild/ 04 User).	50614:xx<CR><LF>
50753%	Get the freeze status.	50655<CR><LF>/ 50656<CR><LF>
50659%	check input HDMI audio status	50660/50661<CR><LF> 50662/50663<CR><LF> 50664/50665<CR><LF> 50666/50667<CR><LF> 50668/50669<CR><LF>
None	Video Detection Feedback	51730 (Signal Off) 51731(Signal On)
50795%	Get HDCP status.	50791<CR><LF>/ 50792<CR><LF>/ 50793<CR><LF>/ 50794<CR><LF>
50650%	Get the Icon status.	50765<CR><LF>/ 50766<CR><LF>/ 50644<CR><LF>/ 50645<CR><LF>
50699%	Get the system version	Version Vx.x.x

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Command	Function	Feedback Example
50770%	Inquire EDID status	50767<CR><LF>/ 50768<CR><LF>/ 50769<CR><LF>
50657%	Check IP address	192.168.0.178!
50783%	Get current status Display status including Source, MIX audio, Resolution, Output Audio on/off, Manual/ Auto-switching modes and Power mode.	501xx<CR><LF> (Source xx = 00 to 60) 508xx<CR><LF> (Mix xx = 00 to 60) 50701-50706<CR><LF> (Input) 50619/26/27/28/29/20 (Resolution) 50648/50649<CR><LF> (HDMI output audio) 50600/50601<CR><LF> (Source Mute) 50722/50723<CR><LF> (Line Mute) 50785/50786<CR><LF> (Switching mode) 50726/50727<CR><LF> (VGA MUTE) 50797/50697<CR><LF> (Standby/On)
TEKVOX Commands		
521xx%	TekMonitor Macro Command (xx= 01-99)	CMD:01 - 99

Note:

- Turn on/off HDCP auto-management by sending serial commands.
- When HDCP is set to active, whether or not the output source has HDCP depends on the input source. If the input source has HDCP, the output will also have HDCP, and vice versa.
- When HDCP is set to Manual, the output always enables HDCP for seamless switching.
- Screen output adjusting works only when the screen output adjusting is on. Send command 50678% to turn it on.
- CEC commands with tan background avails only when CEC is on.

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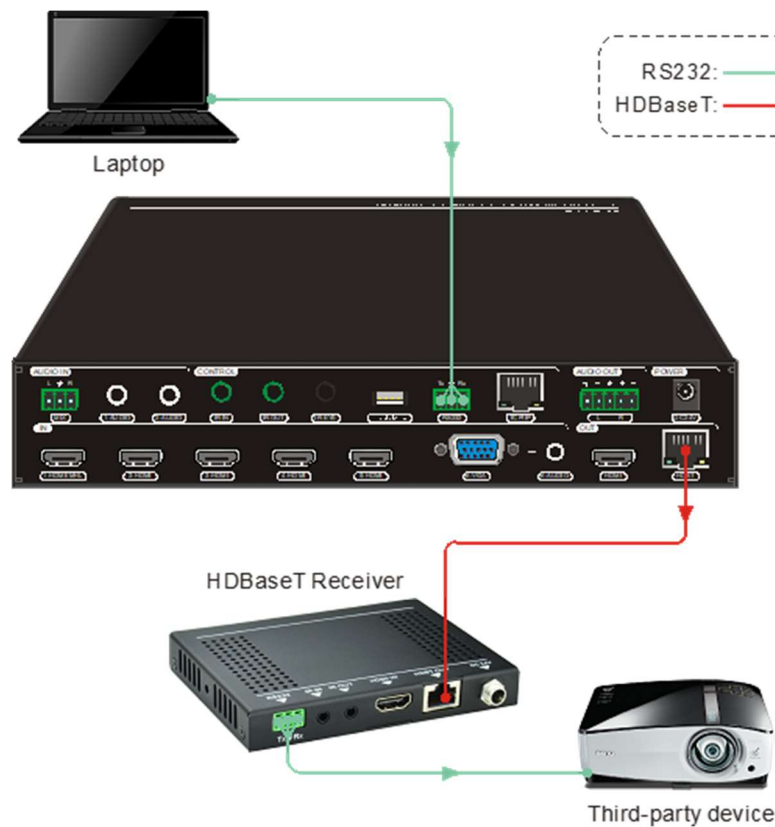
5.6.2 RS232 Control Modes

There are two RS232 operational control modes for the TEK 1201-N+ to function with. One allows a 3rd party control system to operate the TEK 1201-N+ using the local RS232 port on the unit, while also allowing the control system to send RS232 commands to a display via the RS232 on the HDBaseT receiver. The other (TekMonitor serial control) allows the TEK 1201-N+ to be controlled from both the local RS232 port on both the unit and the HDBaseT receiver.

5.6.3 Control TEK-1201-N+ AND Display from Local RS232 Port

This mode allows a 3rd party controller to send commands to both the TEK 1201-N+ and display device.

- 1) Connect the RS232 port of TEK 1201-N+ to RS232 port of PC.
- 2) Send the command 50787% via RS232 communication software.
- 3) Send the right command of TEK 1201-N+ or other remote RS232 device connected in present system. Connection is shown below:



Control 1201-N+ and Display from Local

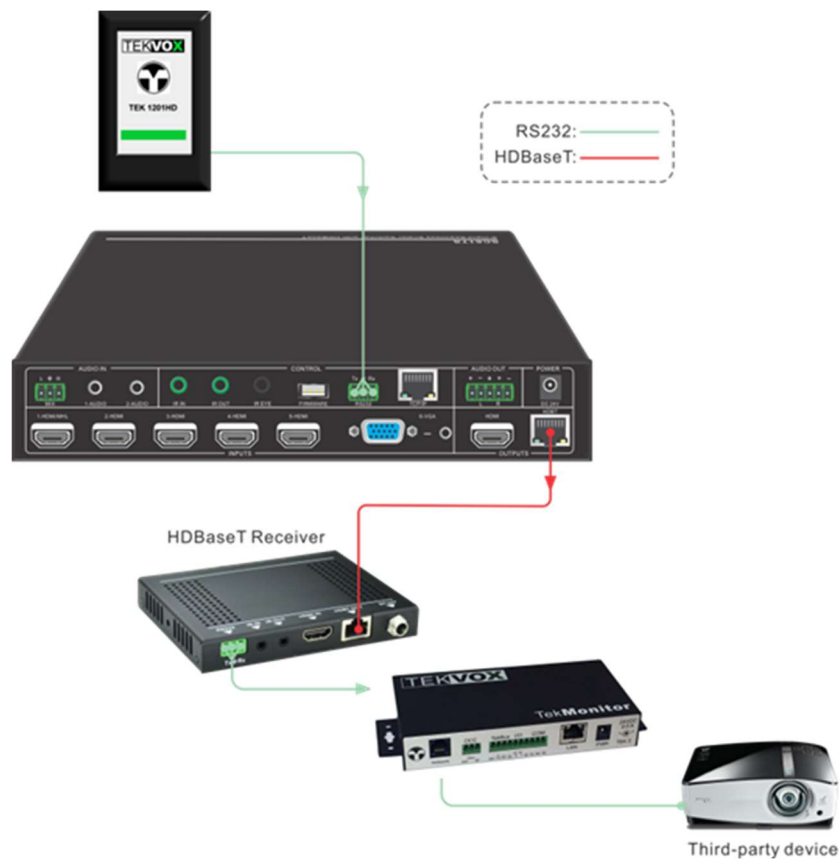
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5.6.4 Control TEK 1201-N+ from Local and Remote

This is the normal operation of the TEK 1201-N+ which also works with a TekMonitor at the HDBaseT receiver.

- 1) Connect the RS232 port of TEK 1201-N+ to RS232 port of PC.
- 2) Send the command 50788% (serial control mode 1, factory default) via RS232 communication software.
- 3) Send any control command for the TEK 1201-N+ from either RS232 port on unit or HDBaseT receiver. Connection is shown below:




Control 1201-N+ using TEKVOX Equipment

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5.7 Operations in OSD Menu

The Switcher provides a powerful OSD operation menu containing 3 parts: optional settings, image settings, and system setting.

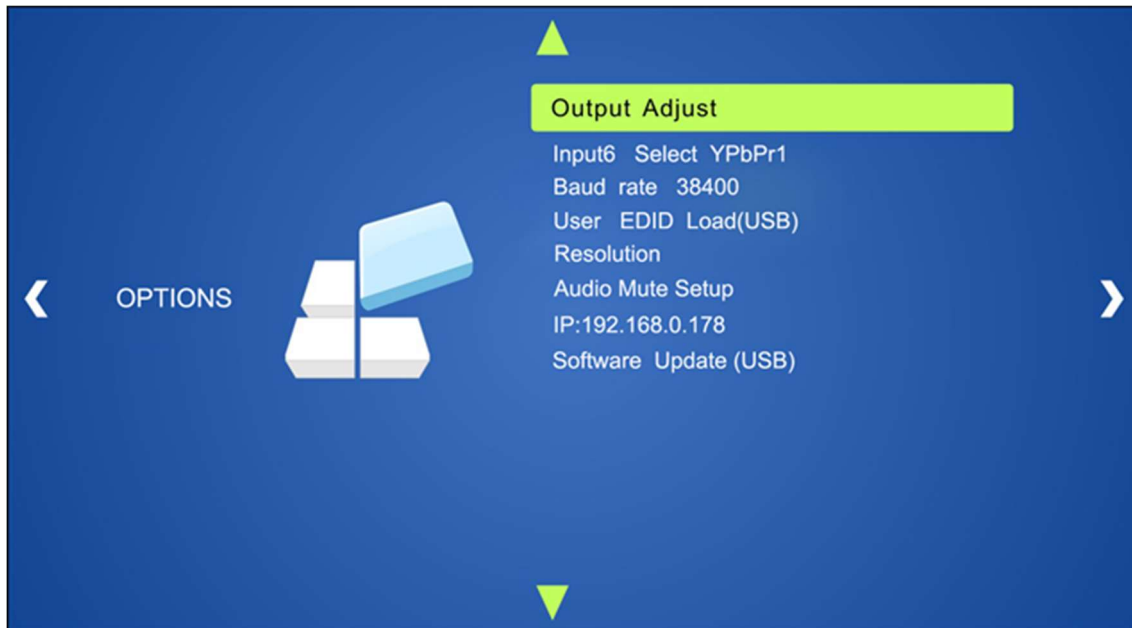
Press MENU button  on IR remote. Press the Menu/3s for three seconds or send command **50616%** to enter in OSD menu.

Operation way:

- Press , , ,  on the IR remote to switch between menu options and menu pages.
- Press  on the IR remote to confirm the selection.
- Press  on the IR remote to exit OSD menu.

5.7.1 Options

Includes Output Adjust, Input 6 Selection, Baud rate, User EDID Load (USB), Resolution, Audio Mute Setup, IP Address, and Software Update (USB).



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- **Output Adjust:** Adjust output image position (X: horizontal direction and Y: vertical direction), ratio aspect (width and height), polarity adjustment (H Polarity and V Polarity) and output setting (HDMI on/off and HDBT on/off).
- **Input 6 Selection:** Select video source format for VGA input, includes AV 1 (C-video signal), VGA 1 (VGA signal) and YPbPr 1 (Component video signal).
- **Baud rate:** Set the baud rate for Local and HDBaseT RS232 control: 2400, 4800, 9600, 19200, 38400, 57600, and 115200.
- **User EDID Load (USB):** Insert the USB flash disk with EDID file to FIRMWARE port to load EDID data through this menu.
- **RESOLUTION:** Set the output resolutions: 1920x1200, 1920x1080, 1600x1200, 1600x900, 1360x768, 1280x800, 1280x720, and 1024x768.
- **Audio Mute Setup:** Turn on/off the Mix, HDMI 1, HDMI 2, HDMI 3, HDMI 4, HDMI 5, VGA audio.
- **IP:** Shows the current IP address.
- **Software Update (USB):** Insert the USB flash drive with updating file to USB port of the Scaler Switcher in order to update the software through this menu.

5.7.2 Instructions for VGA Converting Cable

VGA inputs support YPbPr and C-video sources. The TEK 1201-N+ comes with 1 VGA converting cable to comply with these signals. When you need to select these signals as an input source, switch to channel INPUT 5 and set the signal type in OSD.

A. Operation Examples:

1) Via front panel buttons & OSD:

Press the **MENU** button on the front panel to enter into OSD. In the **OPTION** setting menu, set "INPUT 5 Select" to **YPbPr**.

Via RS232 commands:

Send command **50684%** to switch to YPbPr source.

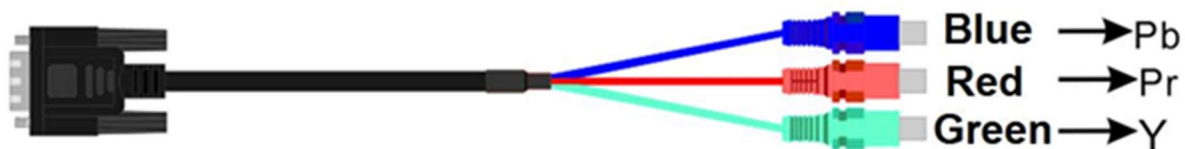
2) Via IR remote & OSD:

Press the **MENU** button on the IR remote to enter into OSD and enter into the **OPTION** setting menu, set "INPUT 5 Select" to **YPbPr** source.

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B. Connecting the VGA converting cable as pictured below:



Connect with Composite Video (C-VIDEO) Source

A. Operation Examples:

1) Via front panel buttons and OSD:

Press the **MENU** button on the front panel to enter into OSD and enter into the **OPTION** setting menu: set "INPUT 5 Select" to **AV**.

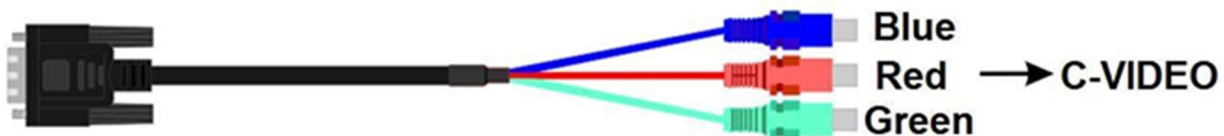
Via RS232 commands:

Send command **50685%** to switch to YPbPr source.

2) Via IR remote & OSD:

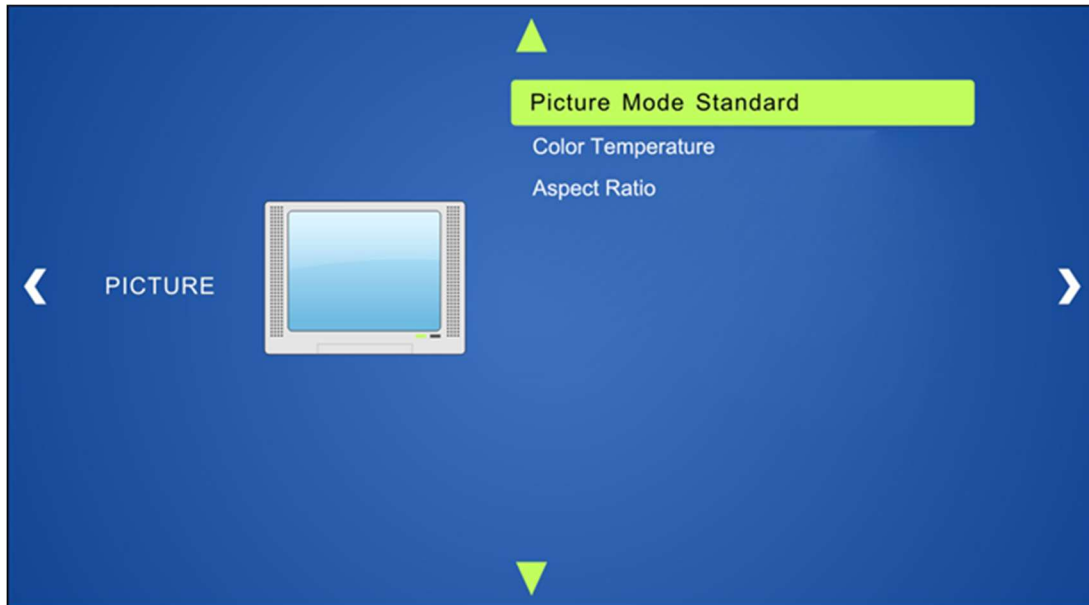
Press **MENU** button on IR remote to enter into OSD and in the **OPTION** setting menu: set "INPUT 5 Select" to **AV** source.

B. Connecting the VGA converting cable as pictured below:



5.7.3 Picture

Including Picture Mode, Color Temperature, Aspect Ratio, Noise Reduction, Screen, and Color Range.



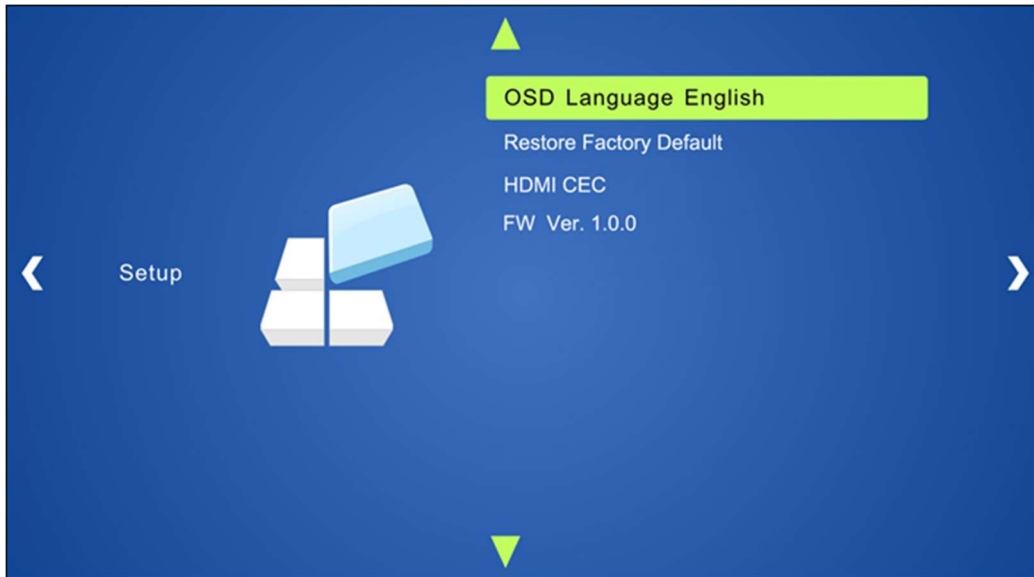
- **Picture Mode:** Includes Dynamic, Standard, Mild, and User. User mode sets the image contrast, brightness, color, and sharpness.
- **Color Temperature:** Includes Cool, Medium, Warm, and User. User mode sets values for Red, Green, and Blue (RGB).
- **Aspect Ratio:** Includes Native, 4:3, 16:9, Zoom1, Zoom2, Just Scan, and Panorama. VGA format only supports 4:3, 16:9, and Panorama.

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5.7.4 Setup

Includes OSD Language, Restore Factory Default, HDMI CEC, and Version Inquiry.



- **OSD Language:** Supports 7 languages, including English (default).
- **Restore Factory Default:** Restores to original system state
- **HDMI CEC:** Enable/disable CEC and auto-standby function. Default: CEC on, STANDBY on. Only when CEC is on, will it be able to set auto-standby status.
- **VERSION:** Displays software version

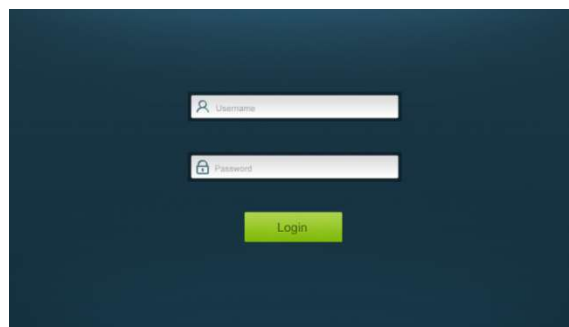
5.8 GUI Control

In addition to control of the TEK 1201-N+ via front panel, IR remote, and RS232 communication software, the Switcher can be controlled via GUI. It allows users to interact with the Switcher through graphical icons and visual indicators.

Type **192.168.0.178** into your browser, it will enter the log-in interface shown as below:

Default User name: **user**

Default Password: **user**



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5.8.1 Control Menu


Type your user name and password on the log-in interface and then click **Login** to enter Control menu shown as below:

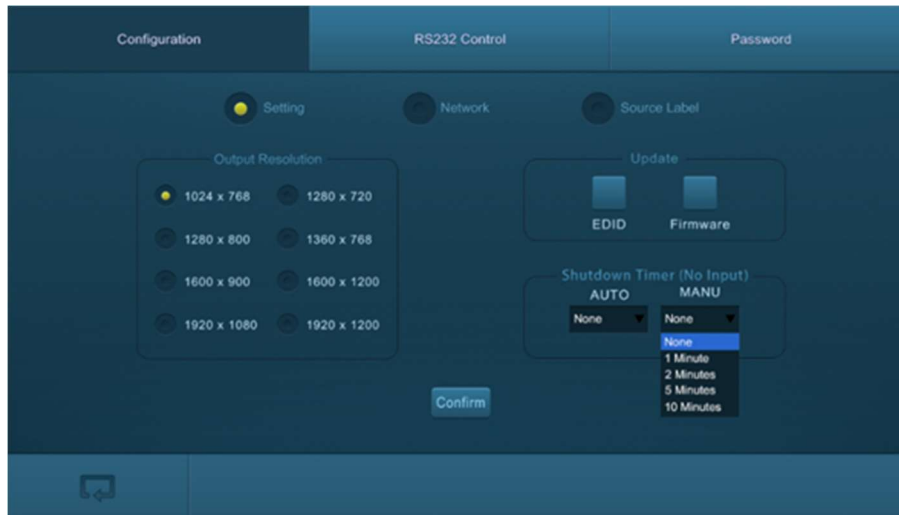


- **Sources:** Click the corresponding button (**1-HDMI/MHL**, **2-HDMI**, **3-HDMI**, **4-HDMI**, **5-HDMI**, and **6-VGA**) to select video input source.
- **AUTO:** Click this button to enter auto-switching mode.
- **Adjust:** Click this button to adjust the position of VGA video output image to ensure the best visual effect.
- **Display:** Click this button to turn on/off the output display device.
- **Standby:** Click this button to put the Scaler Switcher in standby mode.
- **Embedded Audio:** Click 1-Audio to select embedded audio for 1-HDMI input, and click 2-Audio to select embedded audio for 2-HDMI input.
- **Volume:** Click the corresponding positive/negative button or move the scroll bar to turn up/down the MIX/Source audio volume.

Click the corresponding **Mute** button to mute/unmute Mix/Source audio input.

5.8.2 Configuration Menu

1) Click  on control menu to enter setting menu shown as below:



- **Output Resolution:** Select the output resolution that you need and then click Confirm.
- **Update:** Insert the USB flash drive with EDID file/software updating the file to FIRMWARE port, and then click EDID/Firmware to start the update procedure.
- **Shutdown Timer (NO Input):** Set the shutdown time under manual-switching mode or auto-switching mode including none, 1 minute, 2 minutes, 5 minutes, and 10 Minutes. If the Switcher cannot detect a video source input, it will automatically shut down after a preset interval.

2) Click **Network** to enter network setting menu shown as below:

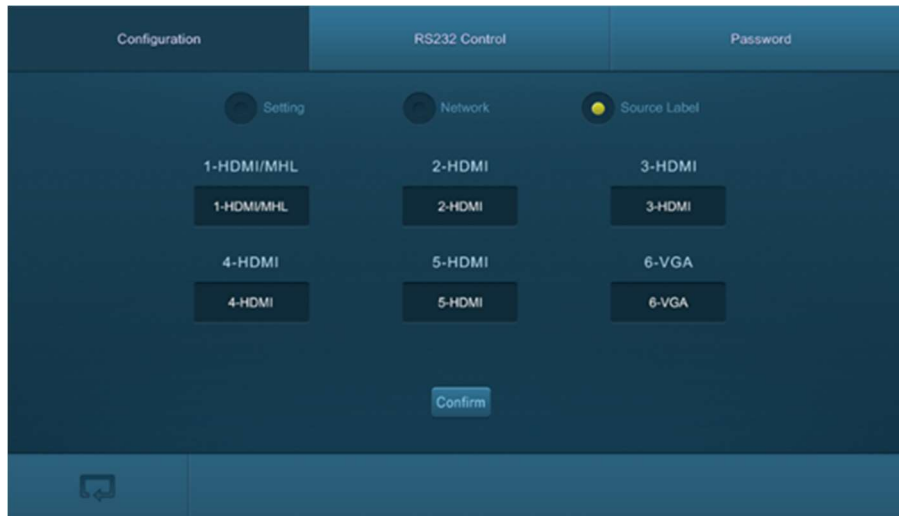


In this interface, you can select Dynamic or static IP. Under static IP mode, the IP address, Subnet Mask, and Gateway can be set and make sure the IP addresses are different to avoid IP conflict.

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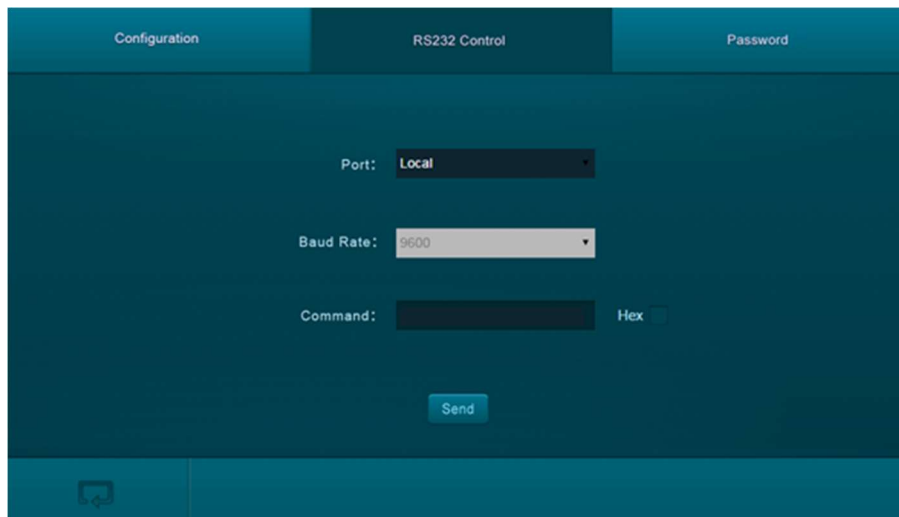
3) Click **Source Label** to enter source label setting menu shown as below:



In this interface, the name of source input selection button can be modified.

5.8.3 RS232 Control Menu

Click **RS232 Control** on the top of interface to enter RS232 control menu shown as below:



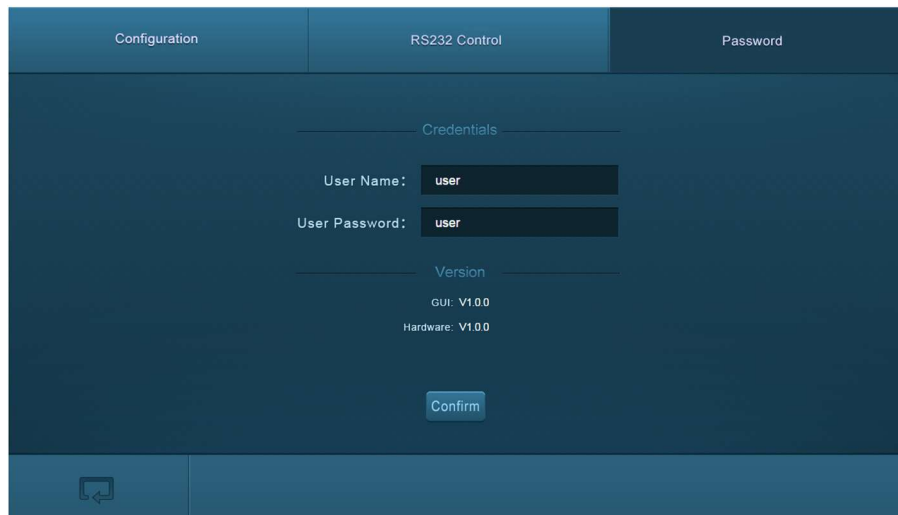
- **Port:** Local port refers to the RS232 port of the Scaler Switcher, and the HDBT port refers to the RS232 port of HDBaseT Receiver.
- **Baud Rate:** The baud rate of the local port is 9600 which can't be modified. The HDBT port however, supports 2400, 4800, 9600, 19200, 38400, 57600, and 115200.
- **Command:** Typing commands in this box controls the Scaler Switcher or the far-end device which is connected to HDBaseT Receiver. If you select the "Hex", you can enter a hexadecimal value in the "Command" box.

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5.8.4 Password Menu

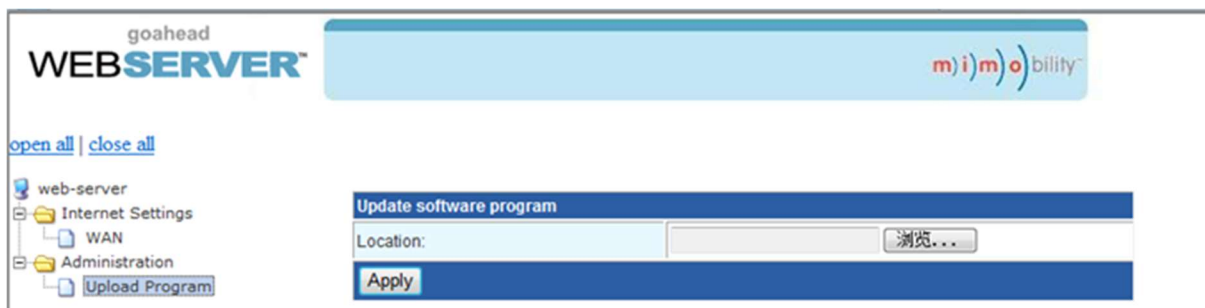
Click Password on the top of interface to enter password menu shown as below:



In this interface, the user name and password can be modified.

5.8.5 GUI Update

GUI for the Scaler Switcher supports online update in <http://192.168.0.178:100>. Type the username and password (the same as the GUI log-in settings. A modified password will be available only after rebooting) to log into the configuration interface. After that, click "**Administration**" at the source menu to get to "**Upload Program**" as shown below:

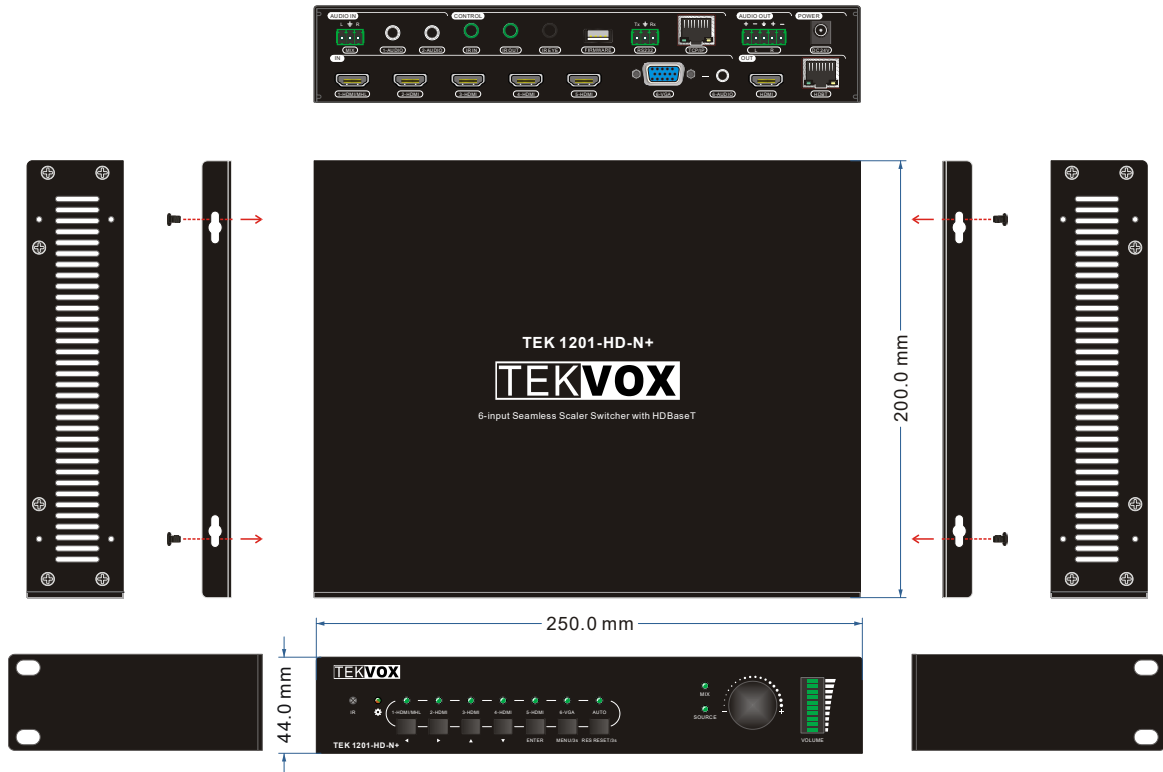


Select the desired update file and then press "**Apply**". It will then start updating.

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6. Panel Drawing



7. Troubleshooting & Maintenance

- 1) When the output image looks like noise or snowflakes, common problems can include but are not limited to:
 - Poor quality cable. If this appears to be the problem, try using a different cable.
 - Loose video cables. If this appears to be the problem, try reconnecting them.
- 2) When it is not able to manage EDID, the HDMI cable may be broken or loose.
- 3) When a user cannot control the switcher by computer through its COM port, check the COM port number in the software and make sure the COM port is in good condition.
- 4) If the POWER indicator doesn't work or respond to any operation, ensure that the power cord's connection is secure.
- 5) No output image when switching:
 - Use an oscilloscope or multi-meter to determine if there is a signal at the input and output end. If there is no signal, the connection cord may be broken or have loose connections. Use a new cable and/or attempt to reconnect them.
 - If none of these methods have worked, there may be something wrong with the switcher. Contact your dealer if this is the case.
- 6) If the static becomes stronger when connecting the video/audio connectors, the grounding may be incorrect. If it is incorrect, the connection may damage the switcher.
- 7) If it is not able to control the scaler-switcher from the front panel buttons, but is able through RS232 commands, the front panel buttons are might be locked. If so, send command "50605%" to unlock.
- 8) If the scaler-switcher cannot be controlled by the buttons on the front panel, RS232 port, or IR remote, the switcher may be broken.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support at support@tekvox.com.

8. After-Sales Service

If there appear to be any problems while running the device, first refer to the user manual.

Product Limited Warranty: We warrant that our products will be free from defects in materials and workmanship for three years, which starts from the first day the product leaves the warehouse (check the SN mark on the product). Proof of purchase in the form of a bill-of-sale or receipted invoice must be presented in order to utilize the warranty.

What the warranty does not cover:

- Warranty expiration.
- Factory applied serial number that has been altered or removed from the product
- Damage, deterioration, or malfunction caused by:
 - Normal wear and tear
 - Use of supplies or parts not meeting our specifications
 - No certificate or invoice as the proof of warranty
 - The product model shown on the warranty card does not match with the model of the product for repairing or had been altered
- Damage caused by force majeure
- Servicing not authorized
- Other causes which does not relate to a product defect
- Delivery, installation or labor charges for installation or setup of the product

Technical Support: When contacting us in regards to repairs or replacement, please provide the following information:

- Product version and name
- Detailed failure situations
- The formation of the cases

For further questions or concerns, contact your local distributor or email us at support@tekvox.com.