User Manual

Stoltzen ATHENA 44

4x4 HDMI 2.0 Matrix with Audio Matrix/ Downscaling/ AOC Supported

Version: ATHENA 44 _2019V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till December, 2019. In the constant effort to improve the product, we reserve the right to make functions or parameters 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 B 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 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. It may result in electrical shock or burn.
- 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 extension cable in case of extrusion.
- 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 fine ventilation to avoid damage caused by overheat.
- 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 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

1. Product Introduction

The ATHENA 44 is a professional 4x4 HDMI 2.0 Matrix Switcher with Audio Matrix. It includes 4 HDMI inputs, 4 HDMI outputs and the last two outputs with down-scaling function, which is designed for switching two HDMI2.0 and HDCP2.3 compliant signals. It also features 4 SPDIF and 4 analog audio outputs for audio matrix.

The matrix switcher features comprehensive EDID management and advanced HDCP handling to ensure maximum functionality with a wide range of video sources.

The matrix switcher not only supports bi-directional IR, RS232 extension but also has IR, RS232, and TCP/IP control options.

1.1 Features

- 4x4 HDMI 2.0 Matrix Switcher.
- Supports 4K/60 4:4:4, HDR, HDCP2.3 compliant.
- Audio Matrix, audio out can de-embedded from arbitrary input or output.
- Individual volume adjustment on each L+R output.
- Supports 4K to 1080p down-scaling on 2 outputs.
- HDMI Output support up to 5V500mA to power Active Optical Cable (AoC).
- Controllable by front panel, IR, RS232 and TCP/IP.

1.2 Package List

- 1x ATHENA 44
- 2x Mounting Ears with 6 Screws
- 4x Plastic Cushions
- 1x IR Remote
- 1x IR Receiver
- 1x RS232 Cable (3-pin to DB9)
- 1x Power Adaptor (24V DC 1.25A)
- 1x User Manual

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

2. Specification

Video	
Video Input	(4) HDMI
Video Input Connector	(4) Type-A female HDMI
Video input Video Resolution	Up to 4K@60Hz 4:4:4
Video Output	(4) HDMI
Video Output Connector	(4) Type-A female HDMI,
Video output Video Resolution	Up to 4K@60Hz 4:4:4
HDMI Output	Supports up to 5V500mA for AoC cable
HDMI Version	Up to 2.0
HDCP Version	Up to 2.3
HDMI Audio Signal	LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through.
Digital Audio Output	
Output	(4) Digital SPDIF audio
Output Connector	(4) Toslink connector
Digital SPDIF Audio Format	Supports PCM, Dolby Digital, DTS, DTS-HD
Frequency Response	20 Hz to 20 kHz, ±1dB
Max Output level	±0.05dBFS
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0dBFS level (or max level)
SNR	> 90dB, 20Hz-20 kHz bandwidth
Crosstalk Isolation	< -70 dB, 10 kHz sine at 0dBFS level (or max level before clipping)
Noise	-90dB
Analog Audio Output	
Output	(4) Analog L/R Audio
Output Connector	(4) L&R (RCA)
Digital SPDIF Audio Format	PCM 2CH
Frequency Response	20 Hz to 20 kHz, ±1dB
Max output level	2.0Vrms ± 0.5dB. 2V = 16dB headroom above -10dBV (316 mV) nominal consumer line level signal
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0dBFS level (or max level)
SNR	> 80dB, 20Hz-20 kHz bandwidth
Crosstalk Isolation	< -80 dB, 10 kHz sine at 0dBFS level (or max level before clipping)
L-R Level deviation	< 0.05 dB, 1 kHz sine at 0dBFS level (or max level before clipping)
Frequency Response Deviation	< ± 0.5dB 20Hz - 20KHz

Output Load Capability	1k ohm and higher (supports 10x paralleled 10k ohm loads)
Noise	-80dB
Control	
Control Port	(1) IR EYE, (1) RS232, (1) FIRMWARE, (1) TCP/IP
Control Connector	(1) 3.5mm jack, (1) 3-pin terminal block, (1) USB-A, (1) RJ45,
General	
Transmission Distance	4K/60Hz/444 5m,4K/60Hz/420 10m,1080P 15m
Bandwidth	18Gbps
Operation Temperature	-5~ +55℃
Storage Temperature	-25 ~ +70℃
Relative Humility	10%-90%
External Power Supply	Input: AC 100~240V, 50/60Hz; Output: 24V DC 1.25A
Maximum Power Consumption	18.3W
Dimension (W*H*D)	436.4mm*44mm*236mm
Net Weight	2.6kg

Video Resolution Down-scaling

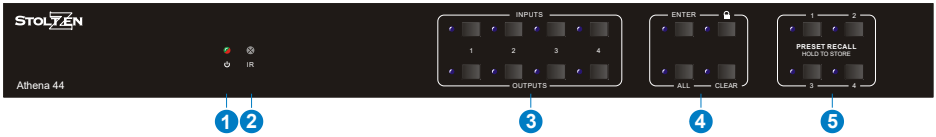
The product supports video resolution down-scaling, the 4K input can be automatically degraded to 1080p output for compatibility with 1080p display, shown in the below chart.

	Input			Output	
#	**Resolution**	**Refresh**	**Color Space**	**Downscale**	**1080p Specs**
1	3840x2160	60	4:4:4	Support	1080p@60Hz 4:4:4
2	3840x2160	30	4:4:4	Support	1080p@30Hz 4:4:4
3	3840x2160	24	4:4:4	Support	1080p@24Hz 4:4:4
4	3840x2160	60	4:2:0	Support	1080p@60Hz 4:4:4
5	3840x2160	30	4:2:0	Support	1080p@30Hz 4:4:4
6	3840x2160	24	4:2:0	Support	1080p@24Hz 4:4:4
7	3840x2160	60	4:2:2	Not Support	N/A
8	3840x2160	30	4:2:2	Not Support	N/A
9	3840x2160	24	4:2:2	Not Support	N/A

Note: *Only last two outputs (output 3 and output 4) have down-scaling function.*

3. Panel Description

3.1 Front Panel



No.	Name	Description
①	**Power Indicator**	• Illuminates green when device powered on; • Turns red in standby mode.
②	**IR sensor**	Built-in IR sensor, receives IR signal sent from IR remote.
③	**INPUT selector button** **OUTPUT selector button**	• Total 4 input selector buttons, press one of buttons to switch input source. • Total 4 output selector buttons, press the buttons to select output channel.
④	**ENTER button**	Confirm operation.
	LOCK button	Press this button for 3 seconds to lock/unlock all front buttons.
	ALL button	Select all outputs to convert an input to all outputs: → Press INPUTS 1 + ALL + ENTER
	CLEAR button	Withdraw button.
⑤	**PRESET RECALL** **HOLD TO STORE**	• Press and hold the button 1~4 to save the current switching status to the corresponding preset 1~4. • Press the button 1~4 to recall the saved preset 1~4.

3.2 Rear Panel

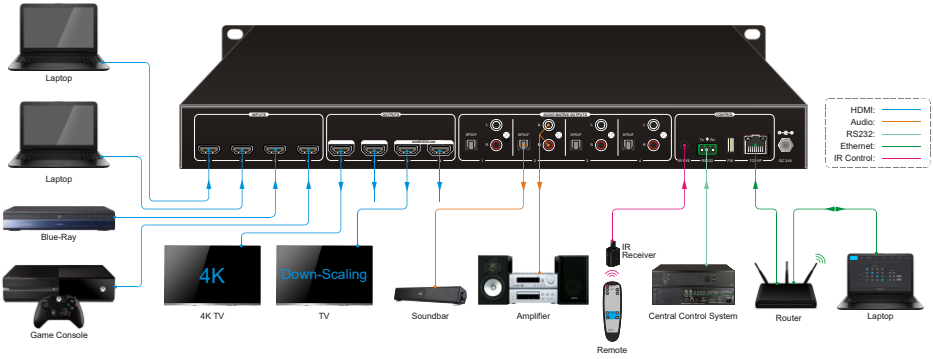
No.	Name	Description
①	**INPUTS**	HDMI input ports, 4 in total, connects with HDMI sources.
②	**OUTPUTS**	4 in total, connects with HDMI displays. The latter four HDMI ports have down-scaling function.
③	**AUDIO MATRIX OUTPUTS**	**SPDIF:** audio output ports for de-embedded HDMI audio, 4 in total. **L&R (RCA):** audio output ports for de-embedded HDMI audio, 4 pairs in total.
④	**IR EYE**	Connects with external IR receiver for using the IR remote to control the Matrix Switcher.
	RS232	3-pin terminal block to connect the RS232 control device (e.g. PC) or a device to be controlled by RS232 commands.
	FIREWARE	USB-A port for updating firmware.
	TCP/IP	RJ45 port to connect the control device (e.g. PC) to control the matrix by GUI.
⑤	**DC 24V**	Connect with 24VDC 1.25A power adaptor.

4. System Connection

4.1 Usage Precaution

- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

4.2 System Diagram



5. Panel Control

5.1 I/O Connection Switching

The front panel features four input selection buttons and four output selection buttons for switching I/O connection.

1) **To convert 1 input to 1 output:**

   Example: Input 1 to Output 3

   → Press **INPUTS 1** + **OUTPUTS 3** + **ENTER** button.

2) **To convert 1 input to 2~3 outputs:**

   Example: Input 1 to Output 2, Output 3, Output 4.

   → Press **INPUTS 1** + **OUTPUTS 2, Output 3, Output 4** + **ENTER** button.

3) **To convert 1 input to 4 outputs:**

   Example: Convert Input 2 to all outputs

   → Press **INPUTS 2** + **ALL** button + **ENTER** button.

NOTE: Indicators of the pressed buttons will blink blue for three times if the conversion is done, then it will be off. If the conversion failed, they will be off immediately.

5.2 I/O Connection Inquiry

Press **OUTPUTS** button 1, 2, 3 or 4 to inquiry its corresponding input, and then the indicator of the input button will turn blue.

5.3 LOCK Function

Long press the **LOCK** button for three seconds, all buttons on the front panel disable to work. And then long press the **LOCK** button for three seconds again or unlock on GUI control, the front panel button will unlock.

5.4 PRESET RECALL Function

Press and hold the **PRESET 1~4** at least three seconds to save the current switching status to the corresponding preset 1~4.

Press the **PRESET 1~4** to recall the saved preset 1~4.

Note: *The matrix switcher supports six presets, but only preset 1~4 can be saved and recalled by button control. Please manage other preset by GUI control or RS232 control.*

5.5 CLEAR Button

Please press the **CLEAR** button if want to withdraw an operation before the **ENTER** button comes into effect, meanwhile, the matrix will return to the previous status.

6. IR Remote Control

The Matrix Switcher features one built-in IR receiver to receive IR signal from IR remote to enable IR control. If the external IR receiver or other IR control device need to be used, the IR EYE port on rear panel can be connected.

① Standby button:
Press it to enter/ exit standby mode.

② INPUTS:
Input channel selection buttons, same with the corresponding front panel buttons

③ OUTPUTS:
Output channel selection buttons, same with the corresponding front panel buttons.

④ Menu buttons:

- **ALL**: Select all inputs/outputs.

To convert an input to all outputs:
Example: Input 1 to all Outputs:
→ Press INPUTS 1 + ALL + ENTER

- **EDID management button:**

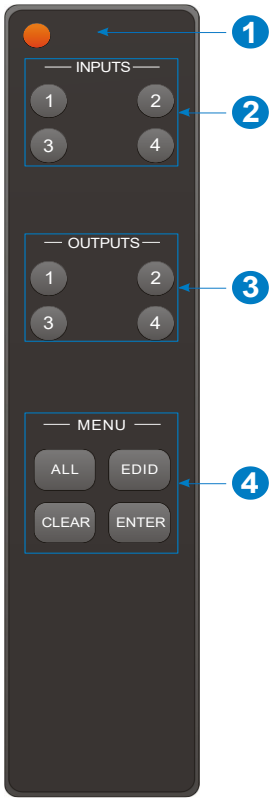
1) One input port follows the EDID data from one output port.

Example: Input 2 learns EDID data from output 4:
→ Press EDID + INPUTS 2 + OUTPUTS 4+ ENTER

2) All input ports learn EDID data from one output port.

Example: All input ports learn EDID data from output 3:
→ Press EDID + ALL + OUTPUTS 3 + ENTER

- **CLEAR:** Withdraw button.
- **ENTER:** Confirm operation.



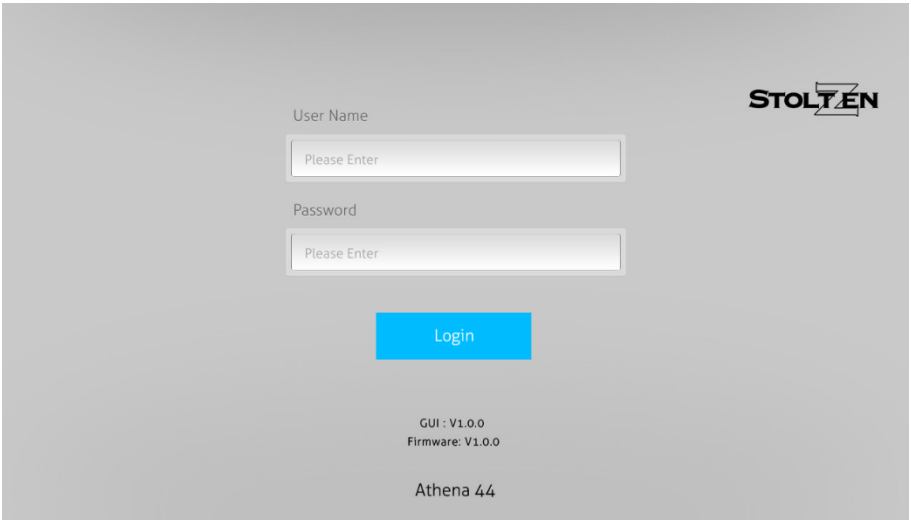
7. GUI Control

The matrix 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*** in the internet browser, it will enter the below log-in webpage:



There are two selectable usernames:

User Name	Password	Access Tab
admin	admin	All tabs
user	user	**Switching**, **Display Control** and **Audio** tabs

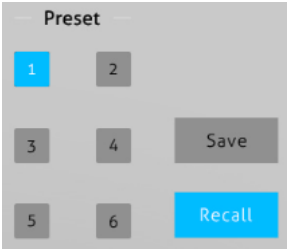
Here we login as “admin” as an example to introduce each GUI tab.

7.1 Switching Tab

Use the 4x4 button grid on the page to set which inputs are directed to which outputs. For example, clicking the button on the Input 1 row and Output 1 column, directs input 1 to output 1.

Use the 6 numbered buttons under scene area to save and load layout presets.

- To save a given layout, first click one of the numbered buttons, then click the **Save** button.
- To load a previously saved layout, first click one of the numbered buttons, then click the **Recall** button.



7.2 Display Control Tab

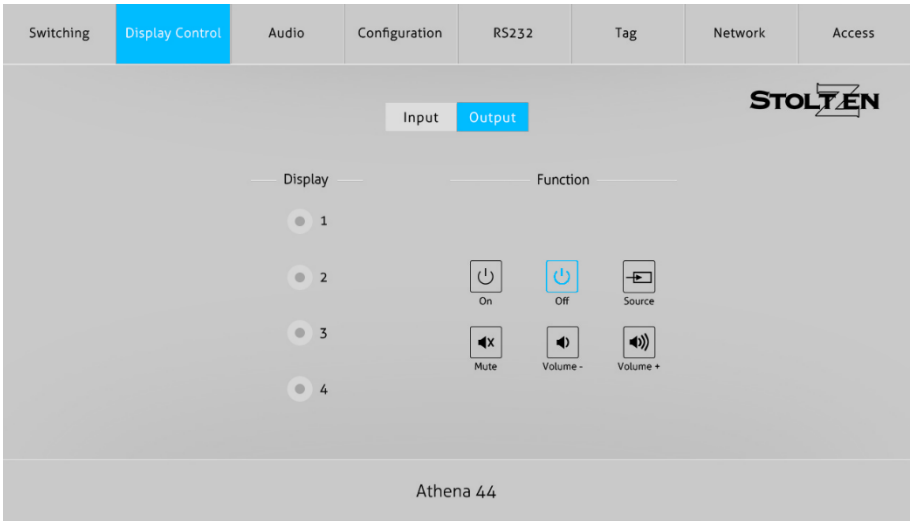
If the input source devices, output display devices support CEC, they can be controlled via the following Display Control interface.

1) Input Source Device Control

- Select one input source device to be controlled, and then press function buttons.

Note: *It can not control two or more input source devices simultaneously.*

2) Output Display Device Control

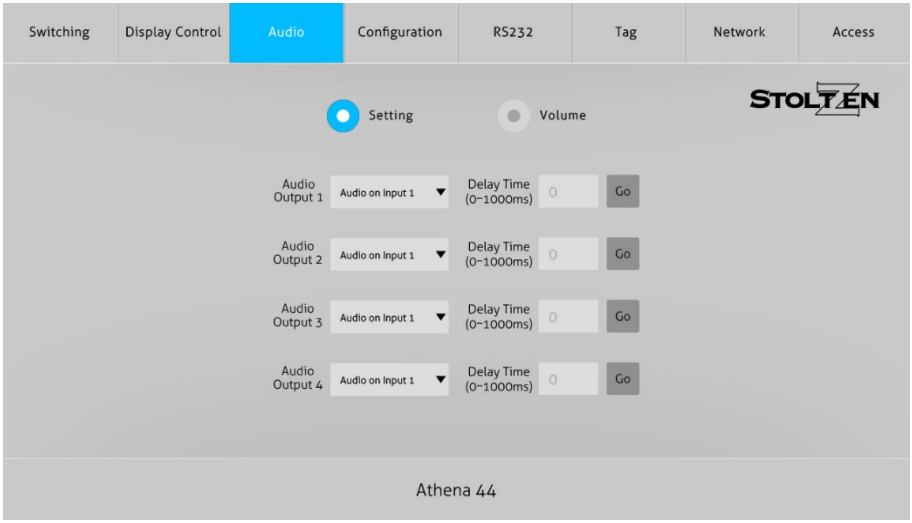


- Select one output device to be controlled, and then press function buttons.

Note: *It can not control two or more output devices simultaneously.*

7.3 Audio Tab

1) Audio Setting



- There are eight audio sources can be selected for four digital SPDIF output ports.

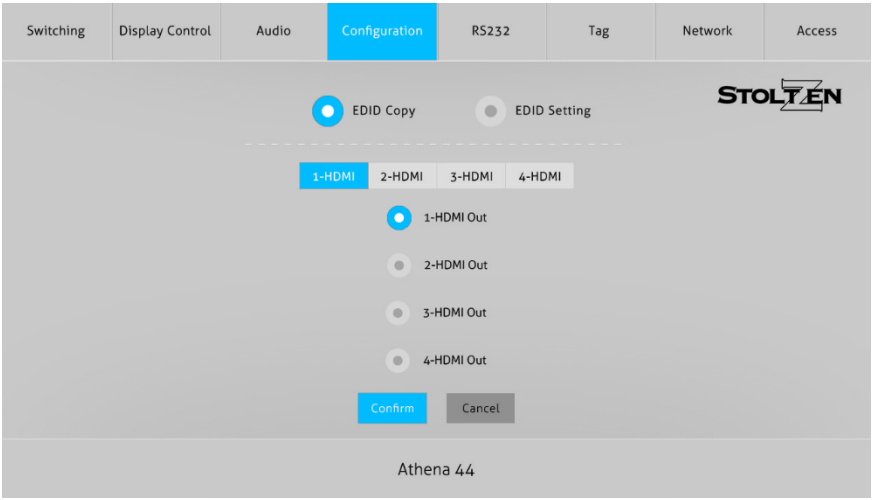
Audio Output Ports	Audio Sources	
	Input Breakout	Output Breakout
SPDIF 1 & Analog 1	Audio on Input 1	Audio on Output 1
SPDIF 2 & Analog 2	Audio on Input 2	Audio on Output 2
SPDIF 3 & Analog 3	Audio on Input 3	Audio on Output 3
SPDIF 4 & Analog 4	Audio on Input 4	Audio on Output 4

2) Audio Volume

- Four pairs analog L/R audio to control their outputs volume.

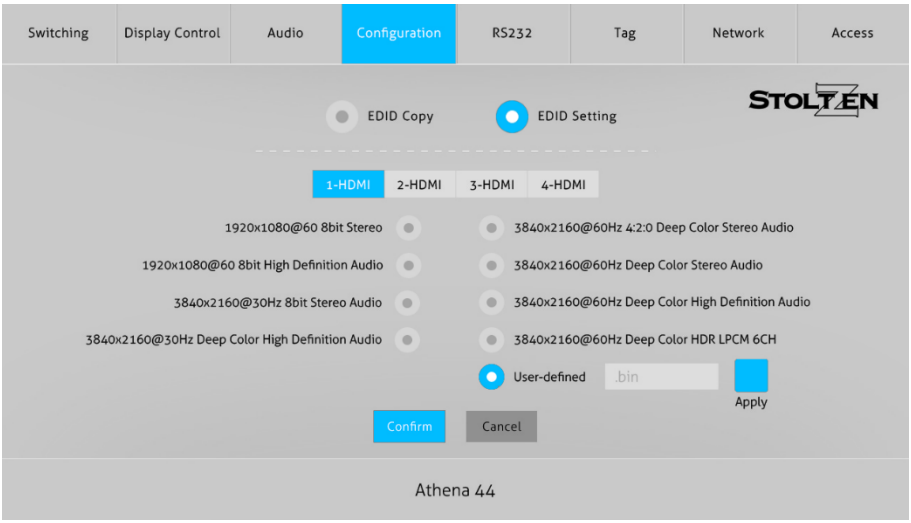
7.4 Configuration Tab

1) EDID Copy



- Copy the EDID of the selected output device to one or more input source device.

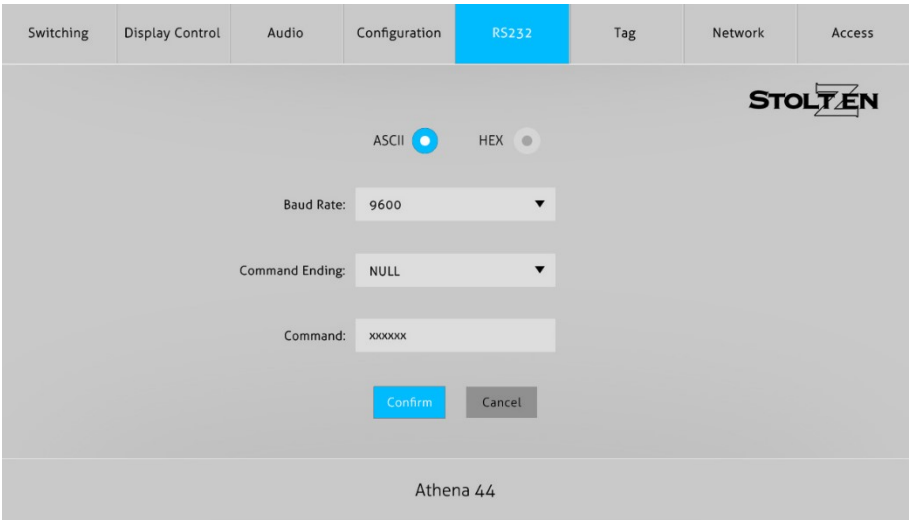
2) EDID Setting



- Select the compatible built-in EDID for the selected input source.
- Upload user-defined EDID by the below steps:

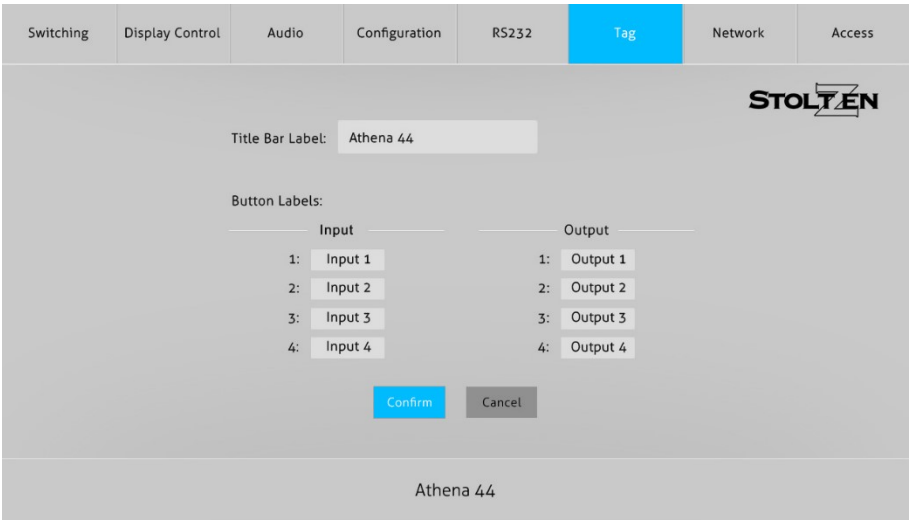
1) Prepare the EDID file (.bin) on the control PC.
2) Select the **User-defined**.
3) Click the box .bin, and then select the EDID file (.bin) according the tooltip.
4) Click **Apply** to upload the user-defined EDID, and then click **Confirm** to save setting.

7.5 RS232 Tab



- ASCII or HEX command format can be selected.
- Baud Rate: Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200.
- Command Ending: NULL, CR, LF or CR+LF can be chosen.
- Command: Type the command in this box to control the third-party device which is connected to the RS232 port of the switcher.

7.6 Tag Tab

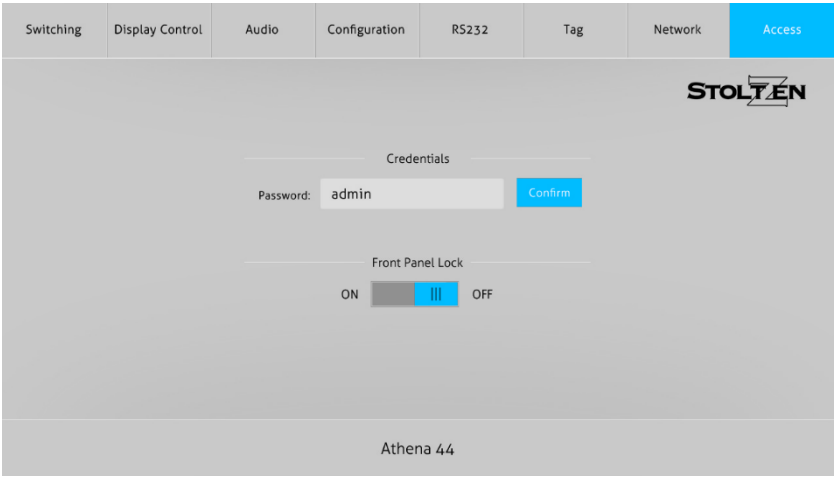


- Modify the title bar label.
- Modify the button labels.

7.7 Network Tab

- Static IP or Dynamic Host Configuration Protocol (DHCP).
- Modify the static IP Address, Subnet Mask, and Gateway.

7.8 Access Tab



- Modify the login password.
- Lock or unlock the front panel buttons.

8. RS232 Control

8.1 RS232 Control Software

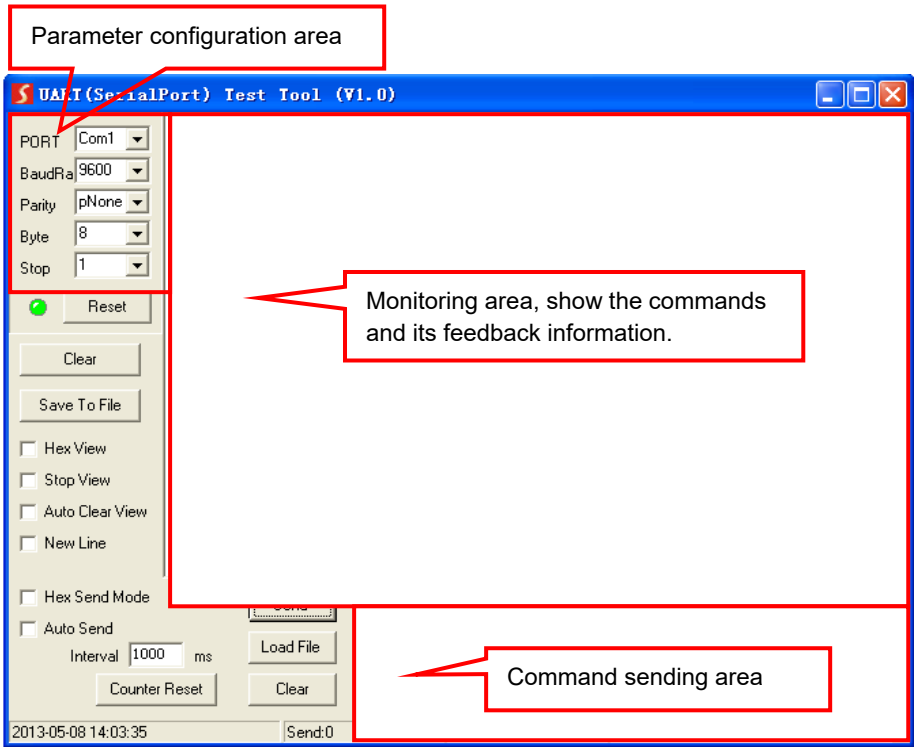
- **Installation:** Copy the control software file to the control PC**.**
- **Uninstallation:** Delete all the control software files in corresponding file path.

Basic Settings

Firstly, connect ATHENA 44 with necessary input devices and output devices. Then, connect it with a PC installed RS232 control software. Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:



Set the parameters (baud rate, data bit, stop bit and parity bit) correctly to ensure reliable RS232 control.

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

8.2 RS232 Communication Commands

- Case-sensitive.
- "[", "]" in the commands are for easy recognition only and not necessary in real operations. Other symbols "#" and "_" are parts of the commands.
- All commands need to be ended with "<CR><LF>".

8.2.1 System Command

Command	Function	Command Example and Feedback
#SET_RS232_BAUD [x]	Set the baud rate. [x]=3~7 3 - 9600 4 - 19200 5 - 38400 6 - 57600 7 - 115200	#SET_RS232_BAUD 3 @RS232_BAUD 9600
#SET_POWER [x]	Power on/power off [x]=0~1 0 - OFF 1 - ON	#SET_POWER 1 @POWER 1
#GET_MATRIX_NAME	Get matrix name.	@Athena 44
#GET_MATRIX_TYPE	Get matrix type.	@4x4 HDMI Matrix
#GET_FIRMWARE_VERSION	Query control's soft version and video's soft version.	@V1.0.2 @CPLD:V1.0.0
#FACTORY_RESET	Reset to factory default setting.	@Factory Default
#GET_SYSINFO	Query all statues and settings.	@GUI Or RS232 Query Status: @HDBaseT Matrix @Athena 44 @V1.0.3 @POWER 1 @HDBT Power ON …

Command	Function	Command Example and Feedback
#SET_KEYPAD_LOCK [x]	UnLock/Lock front keypad. [x]=0~1 0 - Unlock 1 - Lock	#SET_KEYPAD_LOCK 1 @KEYPAD_LOCK 1
#GET_GUI_IP	Query GUI IP.	@192.168.0.178
#SET_GUI_IP:XXX.XXX.XXX.XXX	Set GUI IP.	@GUI_IP:192.168.0.178

8.2.2 Setting Command

Command	Function	Command Example and Feedback
#SET [XX] [YY]	Switch HDMI input [XX] to output [YY]. [XX]=H1, H2, H3, H4. [YY]=O1, O2, O3, O4, OA (all outputs)	#SET H1 OA @Switch Input 1 to Output 1 @Switch Input 1 to Output 2 @Switch Input 1 to Output 3 @Switch Input 1 to Output 4
#PresetSave[XX]	Save the current video switching setting to Preset [XX]. [XX]=01~09. Preset number.	#PresetSave01 @Preset 01 Save Success @Preset 01 Sta: @O1 H1 @O2 H1 @O3 H1 @O4 H1
#PresetRecall[xx]	Recall the Preset [XX]. [XX]=01~09. Preset number.	#PresetRecall02 @Preset 03 Recall: @Switch Input 3 to Output 1 @Switch Input 3 to Output 2 @Switch Input 3 to Output 3 @Switch Input 3 to Output 4
#SET AUDIO [XX] [YY]	Select audio source [XX] for	#SET AUDIO H1 A1

Command	Function	Command Example and Feedback
	ANALOG and SPDIF audio (They are same source) output [YY]. [XX]=H1, H2, H3, H4, O1, O2, O3, O4. [YY]=A1, A2, A3, A4, AA (all audio outputs)	@Switch HDMI Input 1 audio to Analog output 1
#[XX] VOLUME [YY]	Volume adjustable [XX] is for analog audio output: A1, A2, A3, A4. [YY]=V+ Volume up [YY]=V- Volume up [YY]=MU Mute [YY]=UM Unmute [YY]=00~100 Volume value	#A1 VOLUME V+ #AA VOLUME 60
		@Analog Output 1 Volume at 66 @All Analog Outputs Volume at 60
#SET [XX] DS ON	Enable the down-scaling function of HDMI output [XX]. [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4))	#SET O3 DS ON
		@HDMI OUT 3 Down Scale ON
#SET [XX] DS OFF	Disable the down-scaling function of HDMI output [XX]. [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4))	#SET O3 DS OFF
		@HDMI OUT 3 Down Scale OFF
#SET HDCP [XX] ON	Set the HDMI output [XX] to have HDCP 1.4 content. [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4))	#SET HDCP O1 ON
		@HDMI Output 1 HDCP 1.4
#SET HDCP [XX] PAS	Set the HDCP of HDMI output [XX] to same as the HDCP of the HDMI input source Input HDCP 2.2, Output HDCP 2.2 Input HDCP 1.4, Output HDCP 1.4 Input no HDCP, Output no HDCP [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4))	#SET HDCP O1 PAS
		@HDMI Output 1 HDCP Passive
#SET HDCP [XX] BYP	Set the HDCP of HDMI output [XX] to follow the HDCP of the HDMI input source Input HDCP 2.2, Output HDCP 1.4 Input HDCP 1.4, Output HDCP 1.4	#SET HDCP O1 BYP
		@HDMI Output 1 HDCP Bypass

Command	Function	Command Example and Feedback
	Input no HDCP, Output no HDCP [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4)) [XX]=O1,O2,O3,O4, OA (All HDMI Outputs(1~4))	
#EDIDMInit	Reset all HDMI inputs EDID to factory default.	@All Input EDID Set Default
#EDIDUpgrade [XX]	Upgrade the EDID Data of the Input Port [XX]. [XX]=H1, H2, H3, H4, UD. [XX]=HA, represents all inputs. [XX]=H1~H4, represents HDMI input 1~4. [XX]=UD, upload a user-defined EDID. The EDID can be saved for invoking at any time. When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds.	#EDIDUpgrade H1 #EDIDUpgrade UD @H1 Upgrade OK By RS232 Or GUI @User Define EDID Upgrade OK By RS232 Or GUI
#EDID [XX] [YY]	The input [XX] recall the embedded EDID [YY]. [XX]=H1, H2, H3, H4, HA. The “HA” represents all inputs. [YY]=01~09. EDID 01 1920x1080@60 8bit Stereo 02 1920x1080@60 8bit High Definition Audio 03 3840x2160@30Hz 8bit Stereo Audio 04 3840x2160@30Hz Deep Color High Definition Audio 05 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 06 3840x2160@60Hz Deep Color Stereo Audio 07 3840x2160@60Hz Deep Color High Definition Audio 08 3840x2160@60Hz Deep Color HDR LPCM 6CH	#EDID H3 01 @H3 EDID Upgrade OK By 01 Internal EDID

Command	Function	Command Example and Feedback
	09 User-defined EDID	
#EDIDM [XX] [YY]	Copy the EDID data of output [XX] to input [YY]. [XX]=O1, O2, O3, O4. [YY]=H1,H2, H3, H4,HA (All Inputs)	#EDIDM O1 H1 #EDIDM O1 HA
		@H1 EDID Copy From HDMI O1
#/+[X]/[YY]:xxx	Send data to local RS232 out. [X]: baudrate 1-2400；2-4800；3-9600；4-19200；5-38400；6-57600；7-115200. [YY]:01(Local RS232)	#/+3/01:123456
		123456
#@[XX]	Turn on HDMI output 5V. [XX]=O1, O2, O3, O4, OA (All outputs).	#@O1
		@Turn ON 5V On HDMI O1
#$[XX]	Turn off HDMI output 5V. [XX]=O1, O2, O3, O4, OA (All outputs).	#$O1
		@Turn OFF 5V On HDMI O1

8.2.3 Query Command

Command	Function	Command Example and Feedback
#EDIDSTA[xx]	Query The HDMI Inputs EDID Setting [xx]=H1, H2, H3, H4, HA (All inputs). ***Note:*** *1) If user defined EDID is empty, then use it will show the default EDID.* *2) If EDID from "#EDIDUpgrade"*	#EDIDSTA HA #EDIDSTA H1
		@H1 EDID From 01 Internal EDID @H2 EDID From 01 Internal EDID @H3 EDID From 01 Internal EDID @H4 EDID From 01

Command	Function	Command Example and Feedback
	will show "user define EDID"	Internal EDID
#STA_POUT	Query HDMI outputs 5V statue.	@Turn ON 5V On HDMI O1 @Turn ON 5V On HDMI O2 @Turn ON 5V On HDMI O3 @Turn ON 5V On HDMI O4
#STA_DS	Query down-scaling statue of HDMI outputs.	@HDMI OUT 3 Down Scale OFF @HDMI OUT 4 Down Scale OFF
#STA_IN	Query HDMI input connection (5V).	@IN 1 2 3 4 @LINK N N N Y
#STA_OUT	Query HDMI output connection (HPD).	@OUT 1 2 3 4 @LINK N N N Y
#STA_VIDEO	Query video switching setting.	@Switch Input 1 to Output 1 @Switch Input 1 to Output 2 @Switch Input 1 to Output 3 @Switch Input 1 to Output 4
#STA_HDCP	Query all HDMI HDCP.	@HDMI Output 1 HDCP BYPASS @HDMI Output 2 HDCP BYPASS @HDMI Output 3 HDCP BYPASS @HDMI Output 4 HDCP BYPASS
#STA_AUDIO	Query statue of audio outputs.	@Switch HDMI Input 1 Audio to Audio Output 1 @Analog Output 1 Volume UnMute @Analog Output 1 Volume at 60

Command	Function	Command Example and Feedback
		@Switch HDMI Input 2 Audio to Audio Output 2 @Analog Output 2 Volume UnMute ..
#PresetSta[XX]	Query the switching setting of Preset [XX]. [XX]=01~09. Preset number.	#PresetSta01 @Preset 01 Sta: @O1 H1 @O2 H1 @O3 H1 @O4 H1

8.2.4 CEC Control

If the input sources, HDBaseT output devices and local HDMI output devices are supports CEC, they can be controlled by sending the following command instead of IR remote.

#CEC [XX] [BB] [CC] [DD]

- [XX]=H1, H2, H3, H4, HA (All inputs).
- [XX]=O1, O2, O3, O4, OA (All outputs).
- [BB]: Device type (e.g. TV: 40/20/80; Blu-ray DVD: 04/08).
- [CC]: CEC function type (e.g. “44”: Remote control).
- [DD]: The specific command and the common commands are shown in the table below

✓ **Control the input source:**

[DD]	Description	Command Example and Feedback
4A	DVD in and out of warehouse	#CEC H3 04 44 4A (DVD in and out of warehouse) @CEC H3 Send Success
00	Confirm operation (Enter).	
01	UP	
02	DOWN	
03	LEFT	
04	RIGHT	
09	Back to submenu.	
0A	Enter main menu.	
0D	Exit menu.	
6D	Power on.	
6C	Power off.	

✓ **Control the output display device:**

[DD]	Description	Command Example and Feedback
41	Volume up.	#CEC O3 80 44 6D (TV ON) #CEC O3 80 44 6C (TV STANDBY) @CEC HDMI O3 Send Success
42	Volume down.	
43	Mute	
04	Power on.	
36	Power off.	

8.2.5 Command Description and Explanation

Category	Description	Alias	Remarks
Video	HDMI Input 1	H1	
Video	HDMI Input 2	H2	
Video	HDMI Input 3	H3	
Video	HDMI Input 4	H4	
Video	All HDMI Inputs	HA	
Video	HDMI Output 1	O1	
Video	HDMI Output 2	O2	
Video	HDMI Output 3	O3	
Video	HDMI Output 4	O4	
Video	All HDMI Outputs	OA	
Audio output	ANALOG and SPDIF Audio Output 1	A1	The analog L+R and SPDIF audio outputs are same audio source.
Audio output	ANALOG and SPDIF Audio Output 2	A2	
Audio output	ANALOG and SPDIF Audio Output 3	A3	
Audio output	ANALOG and SPDIF Audio Output 3	A4	
Audio output	All audio outputs.	AA	

9. Firmware Upgrade

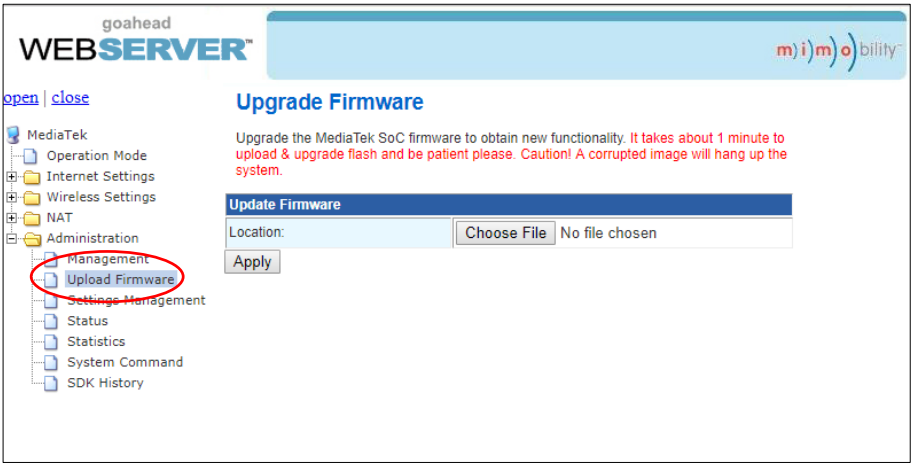
Please follow the steps as below to upgrade firmware by the **FIRMWARE** port on the rear panel:

1) Prepare the latest upgrade file and rename it as “08010000.APP” on PC.
2) Power off the switcher, and connect the **FIRMWARE** port of switcher to the PC with USB cable.
3) Power on the switcher, and then the PC will automatically detect a U-disk named of “BOOTDISK”.
4) Double-click the U-disk, a file named of “READY.TXT” would be showed.
5) Directly copy the latest upgrade file 08010000.APP (.bin) to the “BOOTDISK” U-disk.
6) Reopen the U-disk to check the filename “READY.TXT” whether automatically becomes “SUCCESS.TXT”, if yes, the firmware was updated successfully, otherwise, the firmware updating is fail, the name of upgrade file (.bin) should be confirm again, and then follow the above steps to update again.
7) Remove the USB cable after firmware upgrade.
8) After firmware upgrade, the switcher should be restored to factory default by sending command.

9.1 WebGUI Upgrade

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

Type the username and password (the same as the GUI log-in setting, modified password will be available only after rebooting) to login the configuration interface. After that, click **Administration** in the source menu to get to **Upload Firmware** as shown below:



Select the desired update file and press **Apply**, it will start upgrading then.

10. Troubleshooting and Maintenance

Problems	Potential Causes	Solutions
Color losing or no video signal output	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
	Fail or loose connection.	Make sure the connection is good
No output image when switching	No signal at the input / output end.	Check with oscilloscope or multimeter if there is any signal at the input/ output end.
	Fail or loose connection.	Make sure the connection is good.
	Input source is with HDCP while the HDCP compliance is switched off.	Send command /%[Y]/[X]:1. or change HDCP compliance status in GUI.
	The display doesn't support the input resolution.	Switch for another input source or enable the display to learn the EDID data of the input.
Cannot control the device via front panel buttons	Front panel buttons are locked.	Send command /%Unlock; or select unlock in GUI interface to unlock.
Cannot control the device via IR remote	The battery has run off.	Change for new battery.
	The IR remote is broken.	Send it to authorized dealer for repairing.
	Beyond the effective range of the IR signal or not pointing at the IR receiver.	Adjust the distance and angle and point right at the IR receiver.
	The IR receiver connected to IR IN port is not with carrier.	Change for an IR receiver with carrier.
Power Indicator remains off when powered on	Fail or loose power connection.	Check whether the cables are connected correctly.

EDID management does not work normally	The HDMI cable is broken at the output end.	Change for another HDMI cable which is in good working condition.
There is a blank screen on the display when switching	The display does not support the resolution of the video source.	Switch again.
		Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong connection.	Check to ensure the connection between the control device and the unit
	Wrong RS232 communication parameters.	Type in correct RS232 communication parameters: Baud rate:9600; Data bit: 8; Stop bit: 1; Parity bit: none
	Broken RS232 port.	Send it to authorized dealer for checking.

Note: *If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.*

11. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusion

- Warranty expiration.
- Factory applied serial number 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 showed 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 by distributor.
  - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: Please contact your local distributor for further assistance or solutions.