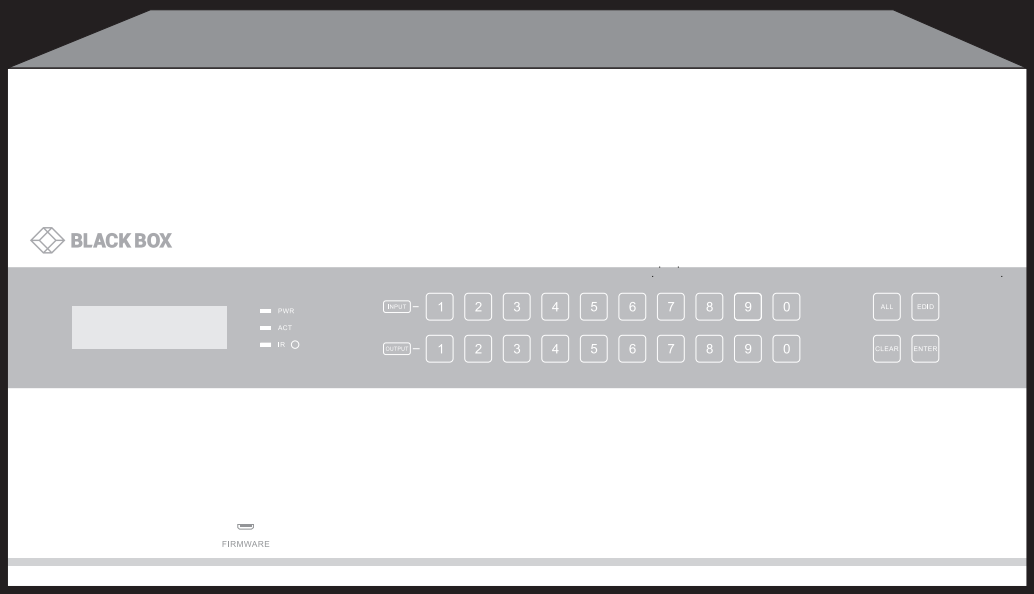
USER MANUAL

AVS-3200-R2

MODULAR MATRIX SWITCHER

24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT BLACKBOX.COM



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SAFETY PRECAUTIONS

To ensure the best performance from the product, 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 product. This may cause electrical shock or burn.
- Using supplies or parts not meeting the product's 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 location with proper ventilation to avoid damage caused by overheating.
- Keep the product 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 the housing, unplug the unit immediately.
- Do not twist or pull by force the 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. Treat the product as normal electrical waste.

CHAPTER 1: SPECIFICATIONS

1.1 MAIN UNIT

TABLE 1-1. MAIN UNIT SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Connectors	
Control	(1) IR ALL IN, (1) IR EYE, (1) RS-232, (1) TCP/IP
Card Slot	(32) PCI-E
Control Connectors	(2) 3.5-mm mini jacks, (1) DB9, (1) RJ-45
Power	
Power Supply	100 to 240 VAC
Power Consumption	26 W (no load)
General	
Dimensions	8.7"H x 19.0"W x 15.0" D (22.1 x 48.3 x 38.3 cm)
Operating Temperature	14 to 131° F (-10 to 55° C)
Storage Temperature	-13 to 158° F (-25 to 70° C)
Humidity	10 to 90% relative humidity

1.2 INPUT/OUTPUT (I/O) CARDS

1.2.1 AVS-HDMI2-4KI AND AVS-HDMI2-4KO

TABLE 1-2. AVS-HDMI2-4KI AND AVS-HDMI2-4KO SPECIFICATIONS

SPECIFICATION	DESCRIPTION
AVS-HDMI2-4KI	
Input	(1) HDMI, (1) Analog audio
Input Connector	(1) 19-pin Type A Female HDMI; (1) 3-pin pluggable terminal block
Power Consumption	4 W (max.)
AVS-HDMI2-4KO	
Output	(1) HDMI, (1) Analog audio
Output Connector	(1) 19-pin Type A Female HDMI; (1) 3-pin pluggable terminal block
Power Consumption	1.5 W (max.)
General	
Standards	HDMI 1.4 and HDCP 2.2
EDID	Supports EDID Management
Output Resolution	Auto, 4K x 2K @ 60 Hz 4:2:0, 4K x 2K @ 30 Hz, 1024 x 768 @ 60 Hz, 1920 x 1080p @ 60 Hz, 1280 x 720 @ 60 Hz

1.2.2 AVS-HDB-4KI AND AVS-HDB-4KO

TABLE 1-3. AVS-HDB-4KI AND AVS-HDB-4KO SPECIFICATIONS

SPECIFICATION	DESCRIPTION
AVS-HDB-4KI	
Input	(1) HDBT; (1) Analog audio; (1) RS232; (1) IR IN, (1) IR OUT
Input Connector	(1) RJ-45 female; (2) 3-pin pluggable terminal block; (2) 3.5mm mini jack
Power Consumption	15 W (max.)
AVS-HDB-4KO	
Output	(1) HDBT; (1) Analog audio; (1) RS232; (1) IR IN, (1) IR OUT
Output Connector	(1) RJ-45 female; (2) 3-pin pluggable terminal block; (2) 3.5-mm mini jack
Power Consumption	17 W (max.)
General	
Transmission Distance	1080p: Up to 229 ft. (70 m) over CAT6 cable; 4K x 2K: Up to 131 ft. (40 m) over CAT6 cable
Standards	HDMI 1.4 and HDCP 2.2
EDID	Supports EDID Management
Output Resolution	Auto, 4K x 2K @ 60 Hz 4:2:0, 4K x 2K @ 30 Hz, 1024 x 768 @ 60 Hz, 1920 x 1080p @ 60 Hz, 1280 x 720 @ 60 Hz

1.2.3 AVS-VGA-HDI

TABLE 1-4. AVS-VGA-HDI SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Video	
Input	(1) VGA
Input Connector	(1) 15-pin HD female
Input Resolution	Up to 1920 x 1200 @ 50/60 Hz
Audio	
Input	(1) Analog audio
Input Connector	(1) 3-pin pluggable terminal block
Signal Format	PCM
Frequency Response	20 Hz to 20 kHz, ±0.5 dB
CMRR	>85 dB @ 20 Hz to 20 kHz
General	
Power Consumption	2 W (max.)

1.2.4 AVS-AUD-IO

TABLE 1-5. AVS-AUD-IO SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Input	
Input	(1) MIC/LINE IN
Input Connector	(1) 3-pin pluggable terminal block
Output	
Output	(1) MIX OUT; 1 PGM OUT
Output Connector	(1) 3-pin pluggable terminal block
General	
Signal Format	PCM
Power Consumption	5 W
Frequency Response	20 Hz to 20 kHz, ±0.5 dB
CMRR	> 85dB @ 20 Hz to 20 kHz

CHAPTER 2: OVERVIEW

2.1 INTRODUCTION

The Modular Matrix Switcher 32 port, 4K Seamless, I/O Auto detect is a high-performance seamless AV modular matrix switcher providing 24 flexible PCIE slots for single HDMI/HDBaseT/VGA input/output cards and 8 fixed slots for output signal cards.

With its advanced modular design, a single HDBaseT/HDMI/VGA input/output card can make up different kinds of matrixes. All the cards support plug-and-play. It supports different video signals with seamless cross switching. Every video or audio signal is transmitted and switched independently to decrease signal attenuation. The switcher can handle all the audio-visual management, including switching, driving, scaling, etc.

2.2 FEATURES

- Has 24 card slots for flexible input/output combination, and 8 slots for output signal cards
- Comprehensive signal card compatibility: HDMI/HDBaseT/VGA
- Automatically recognizes input/output signal cards
- Powerful EDID management
- UPnP enables quick-connection to GUI
- HDCP Compliant
- Seamless AV distribution through different AV signals
- Controllable via front panel buttons, IR, RS-232 and TCP/IP
- Adjustable output resolution
- Online firmware upgrade via USB port

2.3 WHAT'S INCLUDED

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com

- (1) Modular Matrix Switcher 32 port, 4K Seamless, I/O Auto detect
- (2) mounting ears with 4 with screws
- (4) plastic cushions
- (1) RS-232 cable
- (1) power cord
- (1) user manual

NOTE: Input/Output (I/O) cards are sold and packed separately, all the items listed above are for the Matrix Switcher only.

2.4 SWITCHER

Figures 2-1 and 2-2 show the front and back panels of the Switcher. Tables 2-1 and 2-2 describe their components.

2.4.1 FRONT PANEL

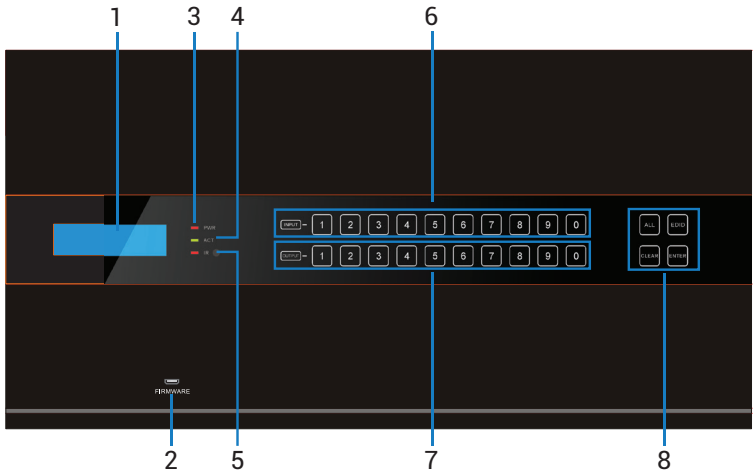


FIGURE 2-1. SWITCHER FRONT PANEL

TABLE 2-1. SWITCHER FRONT-PANEL COMPONENTS

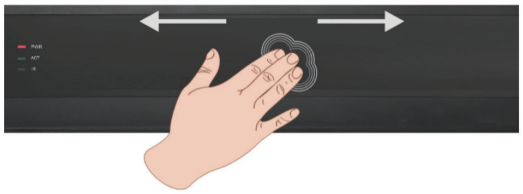
NUMBER IN FIGURE 2-1	COMPONENT	DESCRIPTION
	Touchscreen	• Touch any button to wake up the touchscreen and a white backlight will appear. If without any operation within 8 seconds, the touchscreen will enter sleep mode and the white backlight will go out. NOTE: If you cannot touch the buttons successfully; the touchscreen will not wake up. In this case, refer to the diagram shown below to slide your finger left and right.  • When the touch screen is waking up, press any button and the white backlight of the button will turn blue. • Press the button of IR remote and the corresponding button's backlight will light blue.
1	LCD Screen	Display real-time operation status.
2	Firmware	Micro USB port, used for firmware update.
3	Power LED	• OFF: No power • RED: Working normally • Green: Standby

TABLE 2-1 (CONTINUED). SWITCHER FRONT-PANEL COMPONENTS

NUMBER IN FIGURE 2-1	COMPONENT	DESCRIPTION
4	ACT LED	RS232 Link indicator: • OFF: No RS-232 serial signal. • Blinking Green: Transmit RS-232 serial signal
5	IR LED	• OFF: No IR signal • Blinking red: The built-in IR sensor is receiving an IR signal
6	Inputs	Back-lit buttons for input selection, ranges from 0–9, 24 selectable channels total
7	Outputs	Back-lit buttons for output selection, ranges from 0–9, 32 selectable channels total
8	Menu	• ALL: Select all inputs/ outputs • EDID: EDID management button, enables the input port to learn the EDID data from output devices • CLEAR: Withdraw an operation before it comes into effect/exit inquiry mode • ENTER: Confirm operation/long-press (3 seconds or more) to enter inquiry mode

NOTES:

• Input/ output channels are recognized as double-digits, so press channel 1–9 as 01–09 within 8 seconds.

• Operations will be automatically canceled 8 seconds later unless you press ENTER to confirm.

2.4.2 SWITCHER BACK PANEL

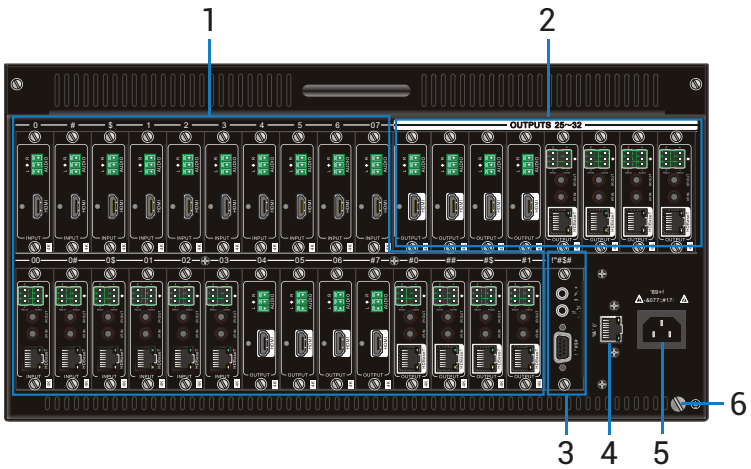


FIGURE 2-2. SWITCHER BACK PANEL

TABLE 2-2. SWITCHER BACK-PANEL COMPONENTS

NUMBER IN FIGURE 2-2	COMPONENT	DESCRIPTION
1	1–24 Card Slots	Flexible card slots, 24 total, insert input/output signal cards here
2	25–32 Card Slots	8 total, insert output signal cards here
3	RS-232	Serial control port, connects to the RS-232 port of control device to control the Matrix Switcher or the third-party device connected to the AVS-HDB-4KI and AVS-HDB-4KO
4	TCP/IP	TCP/IP control port, connect to control device (e.g. a PC)
5	Power port	Connect to 100–240 V AC outlet
6	Ground	Connect to ground

2.5 I/O CARDS

The Matrix Switcher uses 12 card slots for flexible input and output signal card combinations, and 4 card slots for output signal cards. Select from HDMI, HDBT and VGA signal cards. All the signal cards support seamless distribution and hot-plug.

TABLE 2-3. I/O SIGNAL CARDS

INPUT		OUTPUT	
CARD	PORTS	CARD	PORTS
AVS-HDMI2-4KI	4K HDMI and Analog Audio	AVS-HDMI2-4KO	4K HDMI and Analog Audio
AVS-HDB-4KI	4K HDBT, Analog Audio, RS-232, and IR	AVS-HDB-4KO	4K HDBT, Analog Audio, RS-232, and IR
AVS-VGA-HDI	VGA and Analog Audio	AVS-AUD-IO	MIC/LINE IN, MIX OUT, and PGM OUT

2.5.1 AVS-HDMI2-4KI AND AVS-HDMI2-4KO

These are Single 4K seamless HDMI I/O signal cards (refer to Chapter 1 for detailed specifications). The cards are HDMI 1.4 and HDCP 2.2 compliant, and can transmit an HDMI/ DVI-I/DVI-D signal. Features include:

- Auto-detect input resolution
- Max resolution: 4K ×2 K @ 60 Hz 4:2:0
- The default output resolution is 4K × 2K @ 30 Hz and it can be adjusted via commands or GUI. Resolutions supported include 4K × 2K @ 60 Hz, 1024 × 768 @ 60 Hz, 1920 × 1080p @ 60 Hz and 1280 × 720 @ 60 Hz.
- Support EDID Management; default EDID: 4K × 2K @ 30 Hz and DDC communication
- Input audio source selectable via command or GUI, including HDMI embedded audio (default), and external analog audio

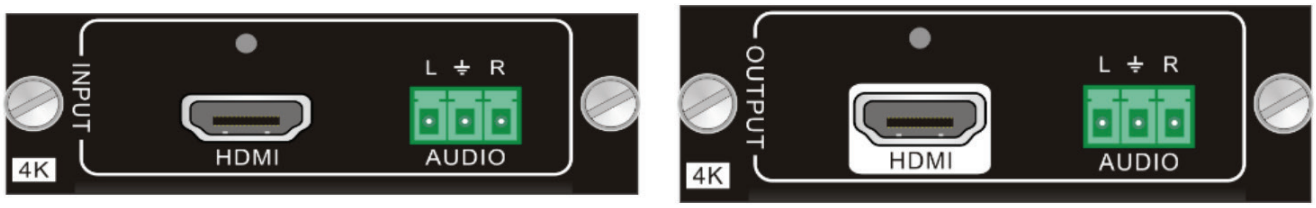
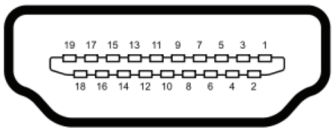


FIGURE 2-3. AVS-HDMI2-4KI (LEFT) AND AVS-HDMI2-4KO (RIGHT) I/O SIGNAL CARDS

The pin layout of the HDMI female connector is shown next.

TABLE 2-4. PIN LAYOUT OF HDMI FEMALE CONNECTOR

HDMI FEMALE CONNECTOR	NUMBER	SIGNAL	NUMBER	SIGNAL
	1	TMDS Data 2+	11	TMDS Clock Shield
	2	TMDS Data 2 Shield	12	TMDS Clock-
	3	TMDS Data 2-	13	CEC
	4	TMDS Data 1+	14	Not connected
	5	TMDS Data 1 Shield	15	SCL
	6	TMDS Data 1-	16	SDA
	7	TMDS Data 0+	17	DDC/CEC Ground
	8	TMDS Data 0 Shield	18	+5V Power
	9	TMDS Data 0-	19	Hot Plug Detect
	10	TMDS Clock+		TMDS Clock Shield

2.5.2 AVS-HDB-4KI AND AVS-HDB-4KO

These are Single 4K seamless HDBT I/O signal cards (refer to Chapter 1 for detailed specifications). Features include:

- Max resolution: 4K × 2K @ 60 Hz
- Adaptive HDCP input and supports HDCP 2.2, the output signal supports HDCP 1.4
- Work with HDBT transmitter/receiver to attain long-distance transmission (up to 229 feet [70 meters] via qualified CAT6 cable for 1080P or 131 feet [40 meters] for 4K signal)
- Real-time work status indicators: yellow LED blinks once powered on; green LED lights when the port is connected to HDBT devices
- HDBT port supports PoE
- Input audio source selectable via command or GUI, including HDMI embedded audio (default), and external analog audio
- The default output resolution is 4K × 2K @ 30 Hz and it can be adjusted via commands or GUI, supports 4K × 2K @ 60 Hz, 1024 × 768 @ 60 Hz, 1920 × 1080p @ 60 Hz, 1280 × 720 @ 60 Hz
- Support bi-directional RS232 control
- Support bi-directional IR control, compatible with 5V/24V IR receiver (default: 5V)
- Support EDID Management: default EDID is 4K × 2K @ 30 Hz, and DDC communication

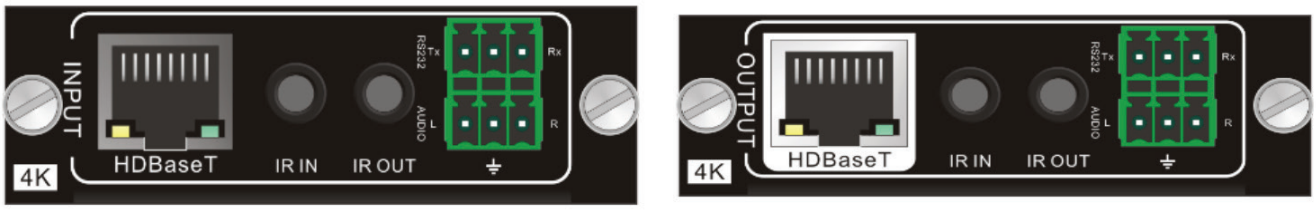
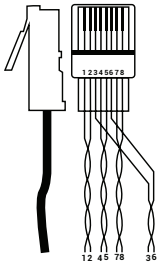


FIGURE 2-4. AVS-HDB-4KI (LEFT) AND AVS-HDB-4KO (RIGHT) I/O SIGNAL CARDS

The pin layout of the HDBT female connector is shown next.

TABLE 2-5. PIN LAYOUT OF HDBT CONNECTOR

HDBT CONNECTOR	PIN	COLOR
	1	Orange/White
	2	Orange
	3	Green/White
	4	Blue
	5	Blue/White
	6	Green
	7	Brown/White
	8	Brown

NOTE: Twist the pure-color cables with their half-color cables.

2.5.3 AVS-VGA-HDI

This is a 4K seamless VGA signal input card (refer to Chapter 1 for detailed specifications). Features include:

- Max VGA input resolutions: 1920 × 1200 @ 60 Hz
- External analog audio input for VGA video signal;
- Work with AVS-HDMI2-4KO and AVS-HDB-4KO output cards to switch a video and audio input signal, and the video signal can be adjusted as 4K @ 30 Hz 4:4:4.

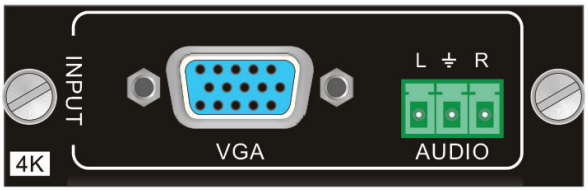


FIGURE 2-5. AVS-VGA-HDI OUTPUT SIGNAL CARD

NOTE; When one PC is used as an input source, because some models aren't compatible with this input signal card, the video image may not be displayed fully.

2.5.4 AVS-AUD-IO

This is an audio signal output card (refer to Chapter 1 for detailed specifications). Features include:

- Supports external MIC or LINE audio input;
- Has MIX OUT port to output MIC/LINE & source audio simultaneously
- Uses PGM OUT port to output MIC/LINE & source audio simultaneously, and then the mixed sound volume and channel can be controlled via web-based GUI
- Works with AVS-HDMI2-4KI, AVS-HDB-4KI, and AVS-VGA-HDI to output the de-embedded audio.

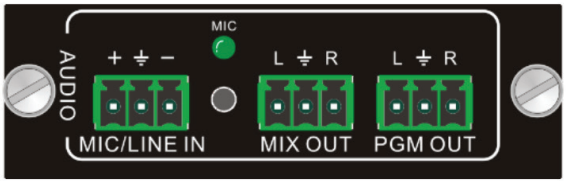


FIGURE 2-6. AVS-AUD-IO OUTPUT SIGNAL CARD

CHAPTER 3: SYSTEM CONNECTION

3.1 USAGE PRECAUTIONS

- Verify all components and accessories are 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.
- All devices should be connected before power on.

3.2 SYSTEM DIAGRAM

The following diagram illustrates typical input and output connections that can be used with the switcher.

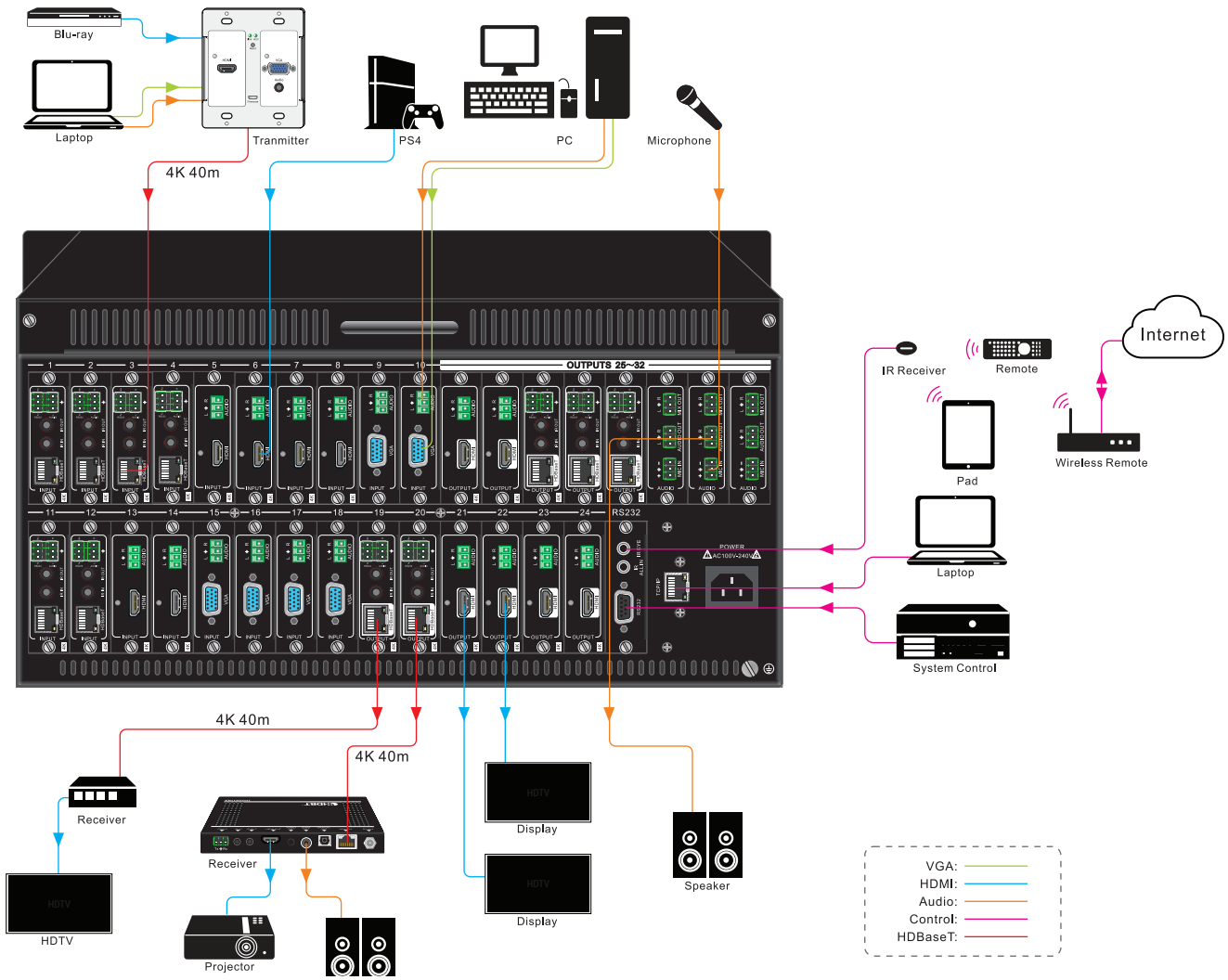


FIGURE 3-1. TYPICAL APPLICATION

NOTE: This system diagram is only an example; your installation may differ.

3.3 CONNECTION PROCEDURE

STEP 1: Insert the necessary signal cards into the card slots.

STEP 2: Connect the source device(s) (e.g. Blu-ray™ DVD) to the corresponding input ports.

STEP 3: Connect the displays to the corresponding output ports.

STEP 4: Connect the amplifier/speaker to the audio output ports.

STEP 5: Connect an IR Receiver to IR EYE to enable IR control.

STEP 6: Connect a control device (e.g. a PC) to the RS-232 port to enable serial control..

STEP 7: Connect a control device (e.g. a PC) to the TCP/IP port to enable TCP/IP control.

STEP 8: Plug the included power cord into the 100–240 VAC outlet.

NOTES:

1. When connecting to HDMI 2.0 sources, make sure the HDMI cable is compliant with HDMI 2.0 to ensure reliable transmission;

2. Connect amplifiers that can decode HDMI audio to the SPDIF ports, or there will be no output on the amplifiers.

3.4 SYSTEM APPLICATIONS

Because of its flexible card design, the Matrix Switcher is an all-in-one solution that is ideal for different applications, such as public displays, educational demos, professional presentations, advertising displays or control centers. The switcher can handle all the audio-visual management, including the switching, driving, scaling, etc.

CHAPTER 4: FRONT-PANEL CONTROL

The Matrix Switcher provides convenient front panel button control for I/O switching, EDID management, and system inquiry.

4.1 SWITCHING I/O CONNECTION

Input/output channels are recognized in double-digit, press 01–09 for channel 1–9.

1. To convert one input to an output:

Operation: “INPUT”+“OUTPUT”+“ENTER”

Example: transfer input 1 to output 5:

INPUT: 0 1 —> OUTPUT 0 5 —> ENTER

2. To convert an input to several outputs:

Operation: “INPUT” + “OUTPUT” + “OUTPUT” +… + “ENTER”

Example: Switch input 2 to output 4, 5

INPUT: 0 2 —> OUTPUT —> 0 4 0 5 —> ENTER

3. To convert an input to all outputs:

Operation: “input” + “ALL” + “ENTER”

Example: Convert input 2 to all outputs

INPUT: 0 2 —> ALL —> ENTER

4.2 EDID LEARNING

The Matrix Switcher features EDID management to maintain compatibility between all devices.

- One input port learns the EDID data of one output port:

Operation: “EDID”+“INPUT”+“OUTPUT”+“ENTER”.

Example: Input 1 learns EDID data from output 10.

EDID —> INPUT: 0 1 —> OUTPUT: 1 0 —> ENTER

- All input ports learn EDID data from one output port:

Operation: “EDID”+“ALL”+“OUTPUT”+“ENTER”

Example: All input ports learn EDID data from output 6

EDID —> ALL —> OUTPUT: 0 6 —> ENTER

4.3 INQUIRY

Press and hold the “ENTER” button for 3 seconds to enter system inquiry mode. The chart below shows information that can be inquired.

TABLE 4-1. INQUIRY

FUNCTION ITEMS	DESCRIPTION	EXAMPLE
Check customer serial	Interface shown after entering inquiry mode, customer serial can be changed via RS-232 command.	K181201E01A15070 001 customer
Check output resolution	In inquiry mode, press an output channel to check its resolution	Resolution: out02 1920 x 1080P
Correspondence between inputs and outputs	OUTPUT + ENTER	Matrix Switch AV: 06 -> 08

4.4 CLEAR OPERATION

Function: Clear the previous operation before pressing ENTER to enforce it. Pressing CLEAR can only erase the operations not confirmed by pressing ENTER.

- Input/output channels are recognized as double-digits; press 01–09 instead of 1–9.
- The input delay time between two numbers of every input and output channel must be less than 8 seconds; otherwise, the operation will be cancelled.
- The input/output channels on the rear panel are counting from left to right, whether or not there is signal card.

CHAPTER 5: RS-232 CONTROL

The Matrix Switcher has one RS-232 port for serial port control. Connect the Matrix Switcher to the control device (e.g. a PC) with RS-232 cable and set the correct parameters. The control device can control the Matrix Switcher via designed software.

5.1 RS-232 CONTROL SOFTWARE

- Installation: Copy the control software file to the computer connected with the Matrix Switcher.
- Uninstallation: Delete all the control software files in corresponding file path.

5.2 BASIC SETTINGS

Connect the switcher to the necessary input devices and output devices. Then, connect it with a PC installed RS-232 control software. Double-click the software icon to run this software.

Here we show an example using the software CommWatch.exe. The icon is shown next.

FIGURE 5-1. COMMWATCH ICON

The interface of the control software is shown next.

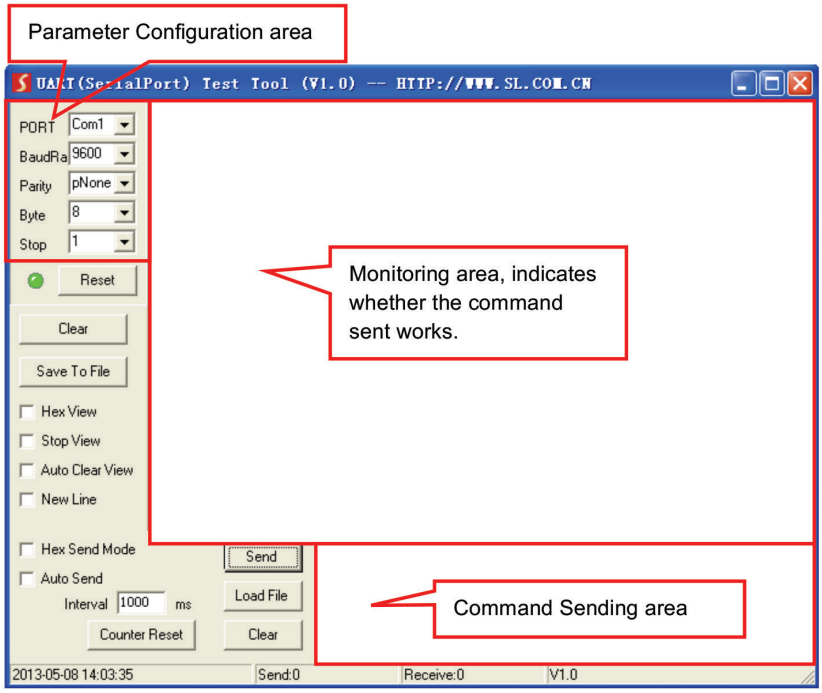


FIGURE 5-2. CONTROL INTERFACE

Set the parameters (baud rate = 9600, data bit = 8, stop bit = 1 and parity bit = none) correctly to ensure reliable RS-232 control.

5.3 RS-232 COMMUNICATION COMMANDS

Case-sensitive

- "[", "]"in the commands are for easy recognition only and not necessary in real operations.
- Type in the complete commands including ending symbol "." or ";".
- For input/output channels 1–9 in the commands, type in 01–09 instead of 1–9.
- After sending command "%0911." to restore factory default, wait for 10 seconds or so before you reboot the device. Or the restoration may fail, and it will prompt "Default failed, please try again!" in the feedback.

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: None

TABLE 5-1. RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
SYSTEM COMMANDS		
/*Type;	Query the model	AVS-3200-R2
/^Version;	Query the version of firmware	VX.X.X
/%Lock;	Lock the front panel buttons	System Locked!
/%Unlock;	Unlock the front panel buttons	System Unlock!
/:MessageOff;	Turn off the feedback from the com port. It only shows "switcher OK".	/:MessageOff;
/:MessageOn;	Turn on the feedback from the com port.	/:MessageOn;
OPERATION COMMANDS		
Undo.	Cancel the previous operation.	Undo Ok!
Demo.	Switch to the "demo" mode, 02->01, 2->2, 3->3 … and so on.	Demo Mode AV: 02-> 01 ……
[x]All.	Transfer signal from Input [x] to all outputs	02 to all
All@.	Switch on all the outputs	All Open.
All$.	Switch off all the outputs	All Closed.
[x]@.	Switch on output [x]	02 Open.
[x]$.	Switch off output [x]	01 Closed.
S[x1]V[x2],[x3],[x4]…	Transfer signal from input [x1] to output [x2],[x3],[x4].., separate output channels with ","	AV: 01->07 AV: 01->08 …
Save[Y].	Save the present operation to the preset command [Y], [Y]=0–9	Save To F1
Recall[Y].	Recall the preset command [Y]	Recall From F1 AV: 02->04 AV: 02->06 …
Clear[Y].	Clear the preset command [Y]	Clear F1

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
OPERATION COMMANDS (CONTINUED)		
EDIDMInit.	Reset factory default EDID	EDIDMInit.
EDIDM[X]B[Y].	Manage EDID, enable input [Y] learn EDID data from output [X]	EDIDM07B03
PWON.	Work normally	PWON
PWOFF.	Enter standby mode	PWOFF
STANDBY.	Enter standby mode, wake up via front panel button operation	STANDBY
/+[Y]/[X]:******. /+N[Y]/[X]:******. /+F[Y]/[X]:*****.	Set communication between PC and HDBaseT receiver. Y is for RS232 port (connect with RS232 port of HDBaseT receiver), Y=1-32 X is for baud rate, its value ranges from 1 to 7 (1=2400; 2=4800; 3=9600; 4=19200; 5=38400; 6=57600; 7=115200 ***** is for data (max 48 Byte) Send "/+[Y]/[X]. *****." to the corresponding HDBaseT receiver to control far-end device when the Matrix Switcher is working properly. Send "/+N[Y]/[X]. *****." to the corresponding HDBaseT receiver when the Matrix Switcher is PWON. Send "/+F[Y]/[X]:*****." to the corresponding HDBaseT receiver whe the Matrix Switcher is PWOFF.	601% Volume of MIC : 60 (****** and feedback from HDBT receiver)
CustomerSerial:111111111111111111.	Set the customer serial number	customer serial is 111111111111111111
HDCPON.	Open HDCP for all output cards.	HDCP ON
HDCPOFF.	Close HDCP for all output cards.	HDCP OFF
%0911.	Reset factory default	Factory Default
INQUIRY COMMANDS		
Status[x].	Inquire the respective input for output [x]	AV:01-> 02
Status.	Inquire respective inputs for all outputs	AV:01->02 AV:03->06 … …
CheckInKatype.	Get the input signal card type *-- no available input signal card/output card, 1--VGA, 2--DVI, 4--BT, 5--SDI, 6--HDMI	Channel IN:*11*4**11*4*.
CheckOutKatype.	Get the output signal card type *-- no available output signal card/input card, 1--VGA, 2--DVI, 4--BT, 6--HDMI	Channel OUT: ***4*62**1**.
%9961.	Get current keylock status	System Unlock!/ System Locked!
%9962.	Inquire current working status	PWON/STANDBY/PWOFF
%9963.	Return all input& output connection status	Port 01 02 03 04 Mode In In In In Port 05 06 07 08 Mode In Ou In In .....

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
INQUIRY COMMANDS (CONTINUED)		
%9964.	Inquire the IP	IP: 192.328.0.178
%9973.	Return resolutions of all outputs	Resolution Out02 1920x1080P 60 Resolution Out04 1920x1080P 60 … …
%9974.	Get current HDCP Status of output port. “X” means input port or no signal cards. “Y” means the output signal traffic with HDCP; “N” means not.	Out 01 02 03 04 HDCP X X X X Out 05 06 07 08 HDCP X N X X Out 09 10 11 12 … …
%9975.	Get current input and output card correspondence status	Out 01 02 03 04 In 00 00 00 00 Out 05 06 07 08 In 00 01 00 00 Out 09 10 11 12 … …
%9976.	Get the output card type.	Channel 6 output mode is Digital Channel 9 output mode is Digital … …
%9978.	Inquire output resolution configuration mode (manual/ auto EDID).	Channel xx is auto/manual signal format.
%9979.	Inquire the customer serial number.	customer serial is 1111111111111111111
%9981.	Inquire input/output type of current inserted cards. NOTE: If there is no card inserted in a slot, it will show “Nc” instead of In/Out.	Port 01 02 03 04 Mode In In In In Port 05 06 07 08 Mode In Ou In In Port 09 10 11 12 …. …. Channel status has changed.

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
INQUIRY COMMANDS (CONTINUED)		
%8800.	Get the command sent to port 1 when PWON.	Port 1: 1A1. when PWON
%8801.	Get the command sent to port 2 when PWON.	Port 2: 1A1. when PWON
%8802.	Get the command sent to port 3 when PWON.	Port 3: 1A1. when PWON
%8803.	Get the command sent to port 4 when PWON.	Port 4: 1A1. when PWON
%8804.	Get the command sent to port 5 when PWON.	Port 5: 1A1. when PWON
%8805.	Get the command sent to port 6 when PWON.	Port 6: 1A1. when PWON
%8806.	Get the command sent to port 7 when PWON.	Port 7: 1A1. when PWON
%8807.	Get the command sent to port 8 when PWON.	Port 8: 1A1. when PWON
%8808.	Get the command sent to port 9 when PWON.	Port 9: 1A1. when PWON
%8809.	Get the command sent to port 10 when PWON.	Port 10: 1A1. when PWON
%8810.	Get the command sent to port 11 when PWON.	Port 11: 1A1. when PWON
%8811.	Get the command sent to port 12 when PWON.	Port 12: 1A1. when PWON
%8812.	Get the command sent to port 13 when PWON.	Port 13: NO Data when PWON
%8813.	Get the command sent to port 14 when PWON.	Port 14: NO Data when PWON
%8814.	Get the command sent to port 15 when PWON.	Port 15: NO Data when PWON
%8815.	Get the command sent to port 16 when PWON.	Port 16: NO Data when PWON
%8816.	Get the command sent to port 17 when PWON.	Port 17: NO Data when PWON
%8817.	Get the command sent to port 18 when PWON.	Port 18: NO Data when PWON
%8818.	Get the command sent to port 19 when PWON.	Port 19: NO Data when PWON
%8819.	Get the command sent to port 20 when PWON.	Port 20: NO Data when PWON
%8820.	Get the command sent to port 21 when PWON.	Port 21: NO Data when PWON
%8821.	Get the command sent to port 22 when PWON.	Port 22: NO Data when PWON
%8822.	Get the command sent to port 23 when PWON.	Port 23: NO Data when PWON
%8823.	Get the command sent to port 24 when PWON.	Port 24: NO Data when PWON
%8824.	Get the command sent to port 25 when PWON.	Port 25: NO Data when PWON
%8825.	Get the command sent to port 26 when PWON.	Port 26: NO Data when PWON
%8826.	Get the command sent to port 27 when PWON.	Port 27: NO Data when PWON
%8827.	Get the command sent to port 28 when PWON.	Port 28: NO Data when PWON
%8828.	Get the command sent to port 29 when PWON.	Port 29: NO Data when PWON
%8829.	Get the command sent to port 30 when PWON.	Port 30: NO Data when PWON
%8830.	Get the command sent to port 31 when PWON.	Port 31: NO Data when PWON
%8831.	Get the command sent to port 32 when PWON.	Port 32: NO Data when PWON
%8832.	Get the command sent to port 1 when PWOFF.	Port 1: 2A1. when PWOFF
%8833.	Get the command sent to port 2 when PWOFF.	Port 2: 2A1. when PWOFF
%8834.	Get the command sent to port 3 when PWOFF.	Port 3: 2A1. when PWOFF
%8835.	Get the command sent to port 4 when PWOFF.	Port 4: 2A1. when PWOFF
%8836.	Get the command sent to port 5 when PWOFF.	Port 5: 2A1. when PWOFF

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
INQUIRY COMMANDS (CONTINUED)		
%8837.	Get the command sent to port 6 when PWOFF.	Port 6: 2A1. when PWOFF
%8838.	Get the command sent to port 7 when PWOFF.	Port 7: 2A1. when PWOFF
%8839.	Get the command sent to port 8 when PWOFF.	Port 8: 2A1. when PWOFF
%8840.	Get the command sent to port 9 when PWOFF.	Port 9: 2A1. when PWOFF
%8841.	Get the command sent to port 10 when PWOFF.	Port 10: 2A1. when PWOFF
%8842.	Get the command sent to port 11 when PWOFF.	Port 11: 2A1. when PWOFF
%8843.	Get the command sent to port 12 when PWOFF.	Port 12: 2A1. when PWOFF
%8844.	Get the command sent to port 13 when PWOFF.	Port 13: 2A1. when PWOFF
%8845.	Get the command sent to port 14 when PWOFF.	Port 14: 2A1. when PWOFF
%8846.	Get the command sent to port 15 when PWOFF.	Port 15: 2A1. when PWOFF
%8847.	Get the command sent to port 16 when PWOFF.	Port 16: 2A1. when PWOFF
%8848.	Get the command sent to port 17 when PWOFF.	Port 17: 2A1. when PWOFF
%8849.	Get the command sent to port 18 when PWOFF.	Port 18: 2A1. when PWOFF
%8850.	Get the command sent to port 19 when PWOFF.	Port 19: 2A1. when PWOFF
%8851.	Get the command sent to port 20 when PWOFF.	Port 20: 2A1. when PWOFF
%8852.	Get the command sent to port 21 when PWOFF.	Port 21: 2A1. when PWOFF
%8853.	Get the command sent to port 22 when PWOFF.	Port 22: 2A1. when PWOFF
%8854.	Get the command sent to port 23 when PWOFF.	Port 23: 2A1. when PWOFF
%8855.	Get the command sent to port 24 when PWOFF.	Port 24: 2A1. when PWOFF
%8856.	Get the command sent to port 25 when PWOFF.	Port 25: 2A1. when PWOFF
%8857.	Get the command sent to port 26 when PWOFF.	Port 26: 2A1. when PWOFF
%8858.	Get the command sent to port 27 when PWOFF.	Port 27: 2A1. when PWOFF
%8859.	Get the command sent to port 28 when PWOFF.	Port 28: 2A1. when PWOFF
%8860.	Get the command sent to port 29 when PWOFF.	Port 29: 2A1. when PWOFF
%8861.	Get the command sent to port 30 when PWOFF.	Port 30: 2A1. when PWOFF
%8862.	Get the command sent to port 31 when PWOFF.	Port 31: 2A1. when PWOFF
%8863.	Get the command sent to port 32 when PWOFF.	Port 32: 2A1. when PWOFF

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
COMMANDS FOR I/O SIGNAL CARDS		
AVS-HDMI2-4KI		
USER/I/[x]:0706%;	Set the audio source of input [x] to HDMI embedded audio.	Channel 04 in audio command is:0706%
USER/I/[x]:0707%;	Set the audio source of input [x] to analog audio.	Channel 04 in audio command is:0707%
USER/I/[x]:0408%;	Restore the signal card to its factory default settings.	
AVS-HDMI2-4KO		
USER/O/[x]:0804%;	Set the resolution of output [x] to 720P 60Hz.	Resolution Out08 1280x720P
USER/O/[x]:0813%;	Set the resolution of output [x] to 1080P 60Hz.	Resolution Out08 1920x1080P
USER/O/[x]:0824%;	Set the resolution of output [x] to 1024x768 60Hz.	Resolution Out08 1024x768
USER/O/[x]:0840%;	Set the resolution of output [x] to 3840x2160 30Hz.	Resolution Out08 3840x2160 30Hz
USER/O/[x]:0841%;	Set the resolution of output [x] to 3840x2160 60Hz.	Resolution Out08 3840x2160 60Hz
USER/I/[x]:0408%;	Restore the signal card to its factory default settings.	
AVS-HDB-4KI		
USER/I/[x]:0706%;	Set the audio source of input [x] to HDMI embedded audio.	Channel 04 in audio command is: 0706%
USER/I/[x]:0707%;	Set the audio source of input [x] to analog audio.	Channel 04 in audio command is: 0707%
USER/I/[x]:0408%;	Restore the signal card to its factory default settings.	
USER/I/[x]:0409%;	RS-232 pass-through control mode 1: Control far-end device from the RS-232 port of this input card.	
USER/I/[x]:0410%;	RS-232 pass-through control mode 2(factory default): Control far-end Device from the RS-232 port of this Matrix Switcher.	
AVS-HDB-4KO		
USER/O/[x]:0804%;	Set the resolution of output [x] to 720P 60Hz.	Resolution Out08 1280x720P
USER/O/[x]:0813%;	Set the resolution of output [x] to 1080P 60Hz.	Resolution Out08 1920x1080P
USER/O/[x]:0824%;	Set the resolution of output [x] to 1024x768 60Hz..	Resolution Out08 1024x768
USER/O/[x]:0840%;	Set the resolution of output [x] to 3840x2160 30Hz..	Resolution Out08 3840x2160 30Hz
USER/O/[x]:0841%;	Set the resolution of output [x] to 3840x2160 60Hz.	Resolution Out08 3840x2160 60Hz

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
COMMANDS FOR I/O SIGNAL CARDS		
AVS-HDB-4KO (CONTINUED)		
USER/O/[x]:0408%;	Restore the signal card to its factory default settings.	
USER/O/[x]:0409%;	RS-232 pass-through control mode 1: Control far-end device from the RS-232 port of this output card.	
USER/O/[x]:0410%;	RS-232 pass-through control mode 2(factory default): Control far-end device from the RS232 port of this Matrix Switcher.	
AVS-AUD-IO SETUP COMMANDS		
PortXX/InputMic.	Switch the audio input channel of port xx to MIC.	Port XX Switch to mic.
PortXX/InputLine.	Switch the audio input channel of port xx to LINE.	Port XX Switch to line.
PortXX/SetMicVol:XX.	Set the MIC volume of port xx to xx..	Port XX Volume of MIC: xx. (xx can be 0–60)
PortXX/SetSourceVol:XX.	Set the source volume of port xx to xx.	Port XX Volume of SOURCE : xx. (xx can be 0-60)
PortXX/MicVolume+.	Increase the MIC volume of port xx.	Port XX Volume of MIC: xx. (xx can be 0–60)
PortXX/MicVolume-.	Decrease the MIC volume of port xx.	Port XX Volume of MIC: xx. (xx can be 0–60)
PortXX/SourceVolume+.	Increase the source volume of port xx.	Port XX Volume of SOURCE : xx.
PortXX/SourceVolume-.	Decrease the source volume of port xx.	Port XX Volume of SOURCE : xx.
PortXX/SetStereo.	Switch the output audio mode of port xx to stereo.	Port XX Output is stereo mode..
PortXX/SetMono.	Switch the output audio mode of port xx to mono.	Port XX Output is mono mode..
PortXX/MicMute.	Mute the MIC audio of port xx.	Port XX Mic Mute.
PortXX/MicUnmute.	Unmute the MIC audio of port xx.	Port XX Mic Unmute.
PortXX/SourceMute.	Mute the source audio of port xx.	Port XX Source Mute.
PortXX/SourceUnmute.	Unmute the source audio of port xx.	Port XX Source Unmute.

TABLE 5-1 (C0NTINUED). RS-232 COMMANDS

COMMAND	FUNCTION	FEEDBACK EXAMPLE
AVS-AUD-IO INQUIRE COMMANDS		
%9921.	Inquire the input audio channel.	Port XX Switch to mic. Port XX Switch to line.
%9922.	Inquire the output audio mode.	Port XX Output is stereo mode. Port XX Output is mono mode.
%9923	Inquire the mute status of MIC audio.	Port XX Mic Mute. Port XX Mic Unmute.
%9925.	Inquire the mute status of source audio.	Port XX Source Mute. Port XX Source Unmute.
%9926.	Inquire the volume of MIC audio.	Port XX Volume of MIC :xx.
%9928.	Inquire the volume of source audio.	Port XX Volume of SOURCE : xx.

CHAPTER 6: TCP/IP CONTROL

The Matrix Switcher uses a TCP/IP port for IP control.

Default settings:

- IP: 192.328.0.178;
- Subnet Mast: 255.255.255.0;
- Gateway: 192.168.0.1;
- Serial Port: 4001.

IP and gateway can be changed as you need, but the Serial Port cannot be changed.

Connect the Ethernet port of control device and TCP/IP port of the Matrix Switcher, and set same network segment for the two devices. Users can control the device via web-based GUI or designed TCP/IP communication software.

6.1 CONTROL MODES

The Matrix Switcher can be controlled by a PC without Ethernet access or PC(s) within a LAN.

- Controlled by PC without Ethernet access: Connect a computer to the TCP/IP port, and set its network segment to the same as the Matrix Switcher's.

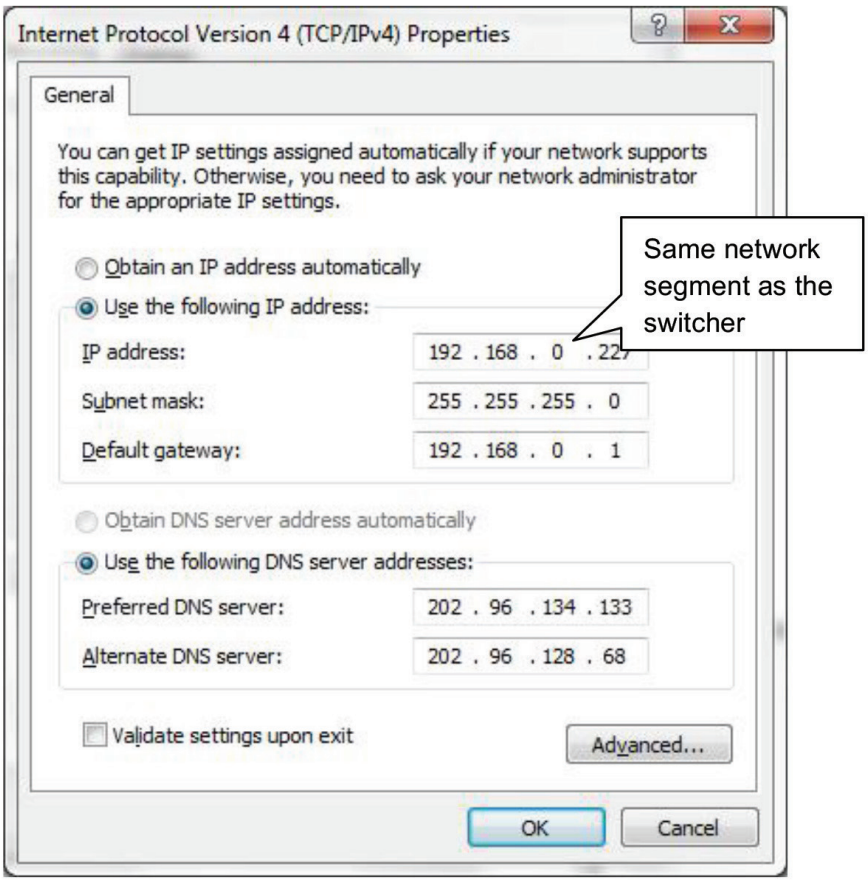


FIGURE 6-1. MATRIX SWITCHER CONTROLLED BY A PC WITHOUT ETHERNET ACCESS

- Controlled by PC(s) in LAN: The switcher can be connected with a router to make up a LAN with the PC(s); this makes it able to be controlled in a LAN. Just make sure the switcher's network segment is the same as the router. Connect as shown in the following figure for LAN control.

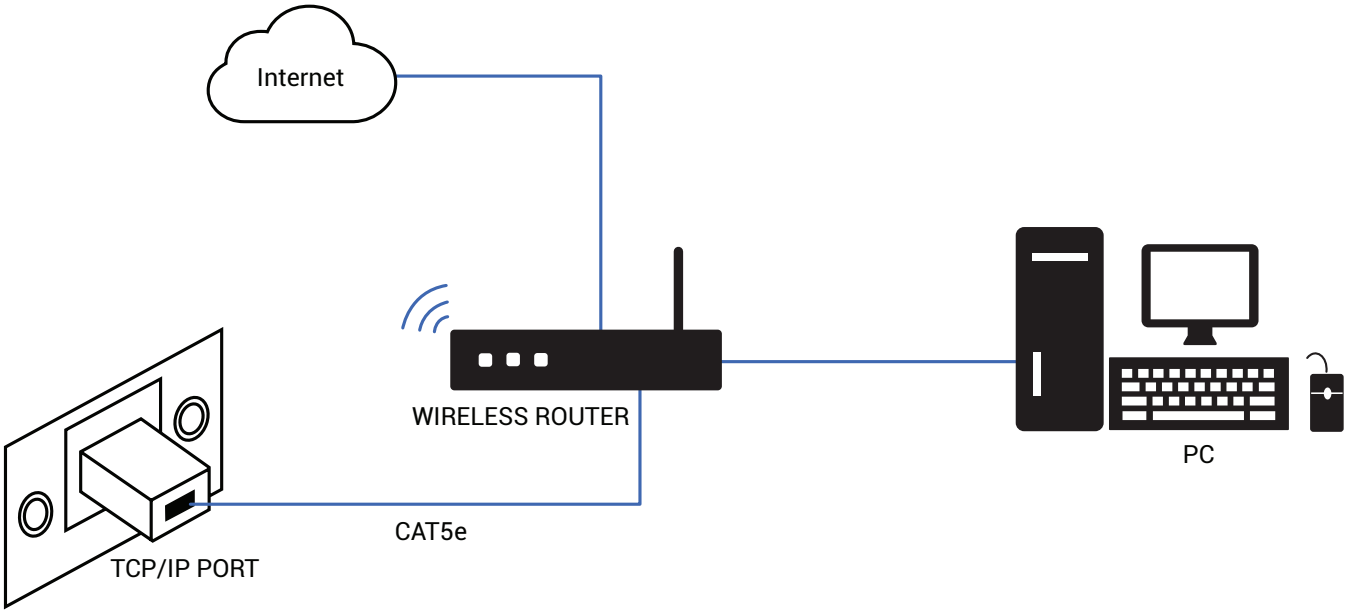


FIGURE 6-2. CONNECT TO LAN

STEP 1: Connect the TCP/IP port of the Switcher to the Ethernet port of the PC with straight-thru twisted pair.

STEP 2: Set the PC's network segment to the same as the the Switcher. Remember the PC's original network segment.

STEP 3: Set the Switcher's network segment to the same as the router.

STEP 4: Set the PC's network segment to the original one.

STEP 5: Connect the Switcher and PC(s) to the router. In the same LAN, each PC is able to control the Switcher asynchronously. Then it's able to control the device via TCP/IP communication software.

6.2 TCP/IP COMMUNICATION SOFTWARE CONTROL

(Example of TCPUDP software)

1. Connect a computer with TCPUDP software to the Switcher. Open the TCPUDP software (or any other TCP/IP communication software) and create a connection, then enter the IP address and port of Switcher (default IP: 192.168.0.178, port:4001):

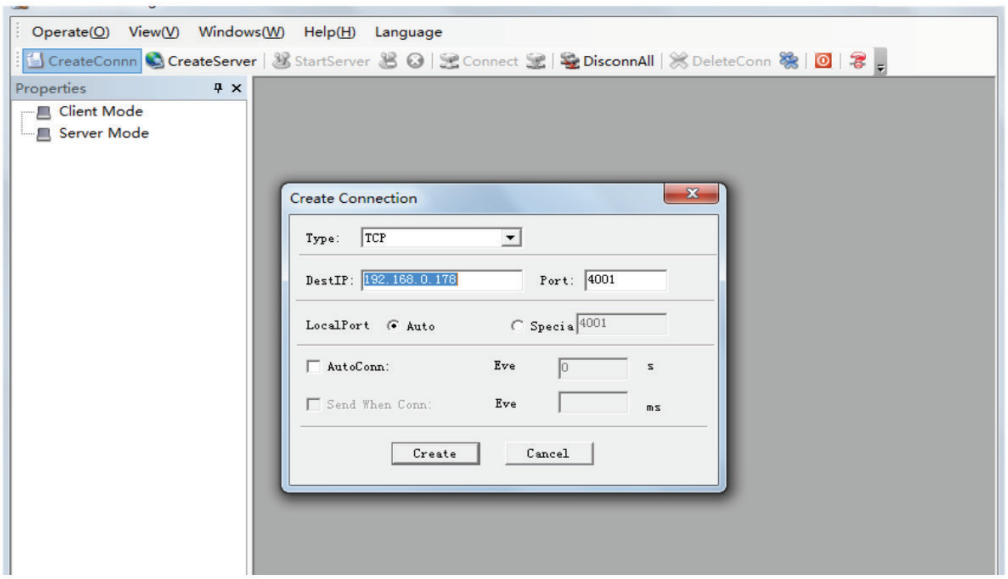


FIGURE 6-3. CONNECT TO TCPUDP

2. Enter commands in designed area to control the switcher.

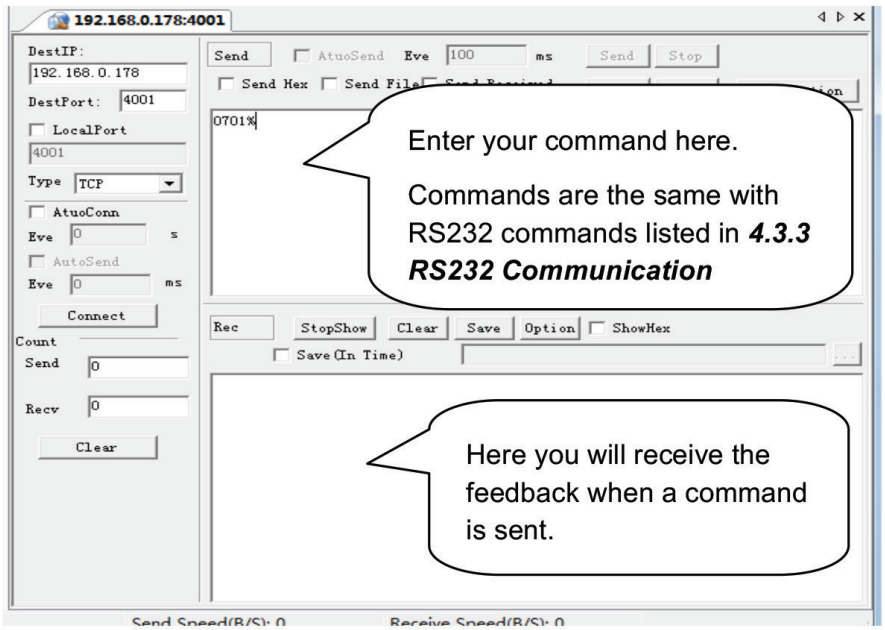


FIGURE 6-4. CONTROL INTERFACE OF TCPUDP

6.3 WEB-BASED GUI CONTROL

The switcher can be controlled via web-based GUI. It allows users to interact with the switcher through graphical icons and visual indicators.

Access the GUI interface through any one of the following methods:

- Access through web browser: Type the default IP 192.168.0.178 in the browser at first login.
- Access through UPnP: Go to My Network Place in your PC, and click the icon as below:

PCs running Windows XP may have issues in finding the UPnP icon. Follow these steps to switch on UPnP protocol:

1. Add UPnP component: go to “Control Panel” -> double-click “Add/Delete Programs” -> double-click “Add/Delete windows component” ->tick “UPnP” ->click “Next” -> click “OK”
2. Enable Windows Firewall: go to “Control Panel” -> double-click “Windows Firewall” -> click “Others” -> tick “UPnP framework”
3. Enable UPnP auto-starting: go to “Control Panel” -> double-click “Administrative Tools ” -> double-click “Services” -> find and click SSDP Discovery Servic and Universal Plug and Play Device Host -> click “OK” UPnP will now automatically start when you turn on your computer.
4. Reboot the device.

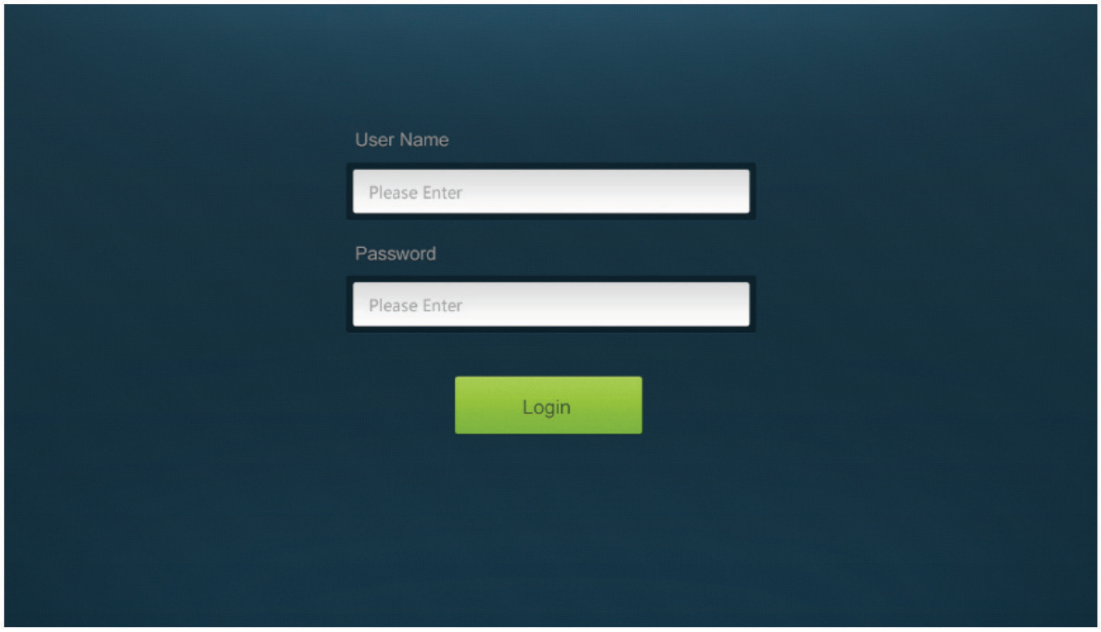


FIGURE 6-5. LOGIN TO GUI

CHAPTER 6: TCP/IP CONTROL

This system divides into administrator and user mode.

- Administrator mode: User name: admin; Password: admin (default setting, changeable via GUI)
- User mode: User name: user; Password: user (default setting, changeable via GUI)

NOTE: Log in as admin can access more configuration interfaces than user. Here is a brief introduction to the interfaces.

It will enter the scene management interface (left) after login. This provides a direct scene switch. The chart below illustrates the main structure of the GUI interfaces.

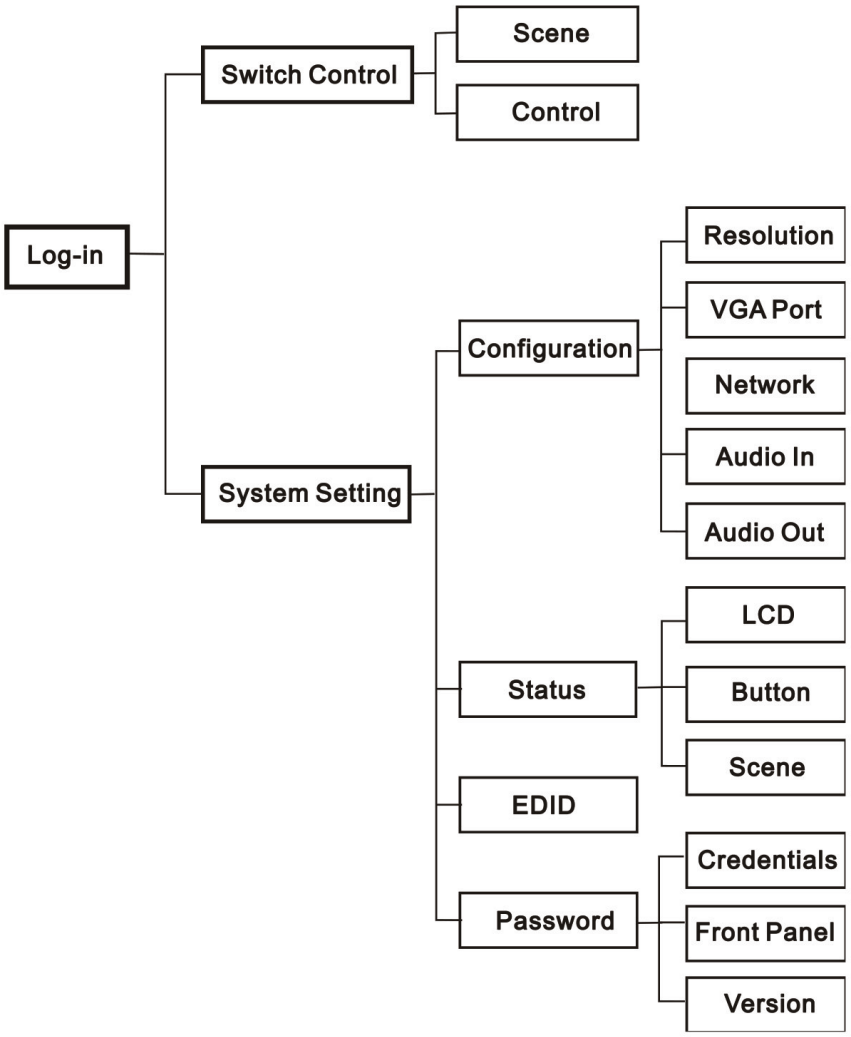


FIGURE 6-6. GUI INTERFACES MAIN STRUCTURE

The web-based GUI system can be divided into Switch Control and System Setting menu, but log in as user will only access Switch Control.

- Click the arrow rectangle icon at the left-bottom corner to enter Switch Control menu.
- Click the gear icon at the left-bottom corner to enter System Setting menu.

6.3.1 SWITCH CONTROL

This menu has 3 selectable interfaces in total, including a scene switch interface and an I/O switch interface.

Scene Switch

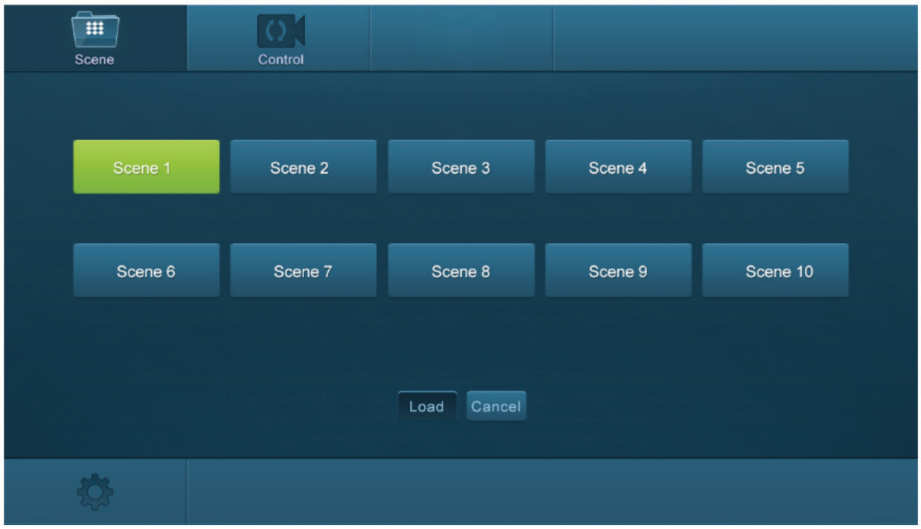


FIGURE 6-7. SCENE MENU

All ten scenes are shown in above interface.

Select a scene and then click “Load” to invoke the selected scene.

Click “Cancel” to cancel the current operation.

I/O Switch

FIGURE 6-8. CONTROL MENU

The button matrix displays every possible connection between every input and output. Users can carry out the connections by clicking the corresponding button.

For example:

STEP 1: Select button 1 in the INPUT column.

STEP 2: Select button 10 in the OUTPUT column (If all OUTPUT ports in needed, you only need to click “All”)

STEP 3: Choose a scene that you want to save.

STEP 4: Click “Confirm” to save the setting, or Click “Clear” to clear setup.

6.3.2 SYSTEM SETTING

This menu has four submenu items total, including configuration, status, EDID and password.

Configuration

The Configuration menu has 6 submenu items total, including Resolution, VGA Port, Network, Audio In, Audio Out and Audio port.

1. Configure Output Resolution

FIGURE 6-9. CONFIGURE OUTPUT RESOLUTION MENU

In this interface, you can set the output resolution.

AVS-HDMI2-4KIO and AVS-HDB-4KIO: Support 4K × 2K @ 60 Hz, 4K × 2K @ 30 Hz, 1024 × 768 @ 60 Hz, 1920 × 1080p @ 60 Hz, 1280 × 720 @ 60 Hz.

AVS-AUD-IO: Unavailable.

2. Configure VGA Port

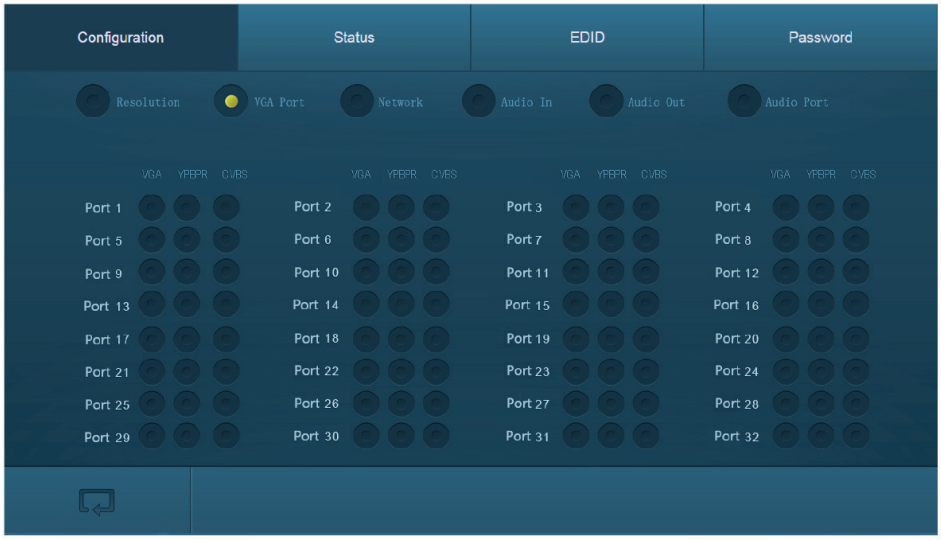


FIGURE 6-10. CONFIGURE VGA PORT

Set the VGA port of the AVS-VGA-HDI card, including VGA, YPbPr, and CVBS.

3. Configure Network

FIGURE 6-11. CONFIGURE NETWORK

In this interface, you can set DHCP (automatically assign IP by router) or static IP (manually set IP).

4. Configure Audio Input

FIGURE 6-12. CONFIGURE AUDIO INPUT

In this interface, you can switch on/off the audio input port of AVS-HDMI2-4KI, AVS-HDB-4KI, and AVS-VGA-HDI.

AVS-AUD-IO: Unavailable.

5. Configure Audio Output

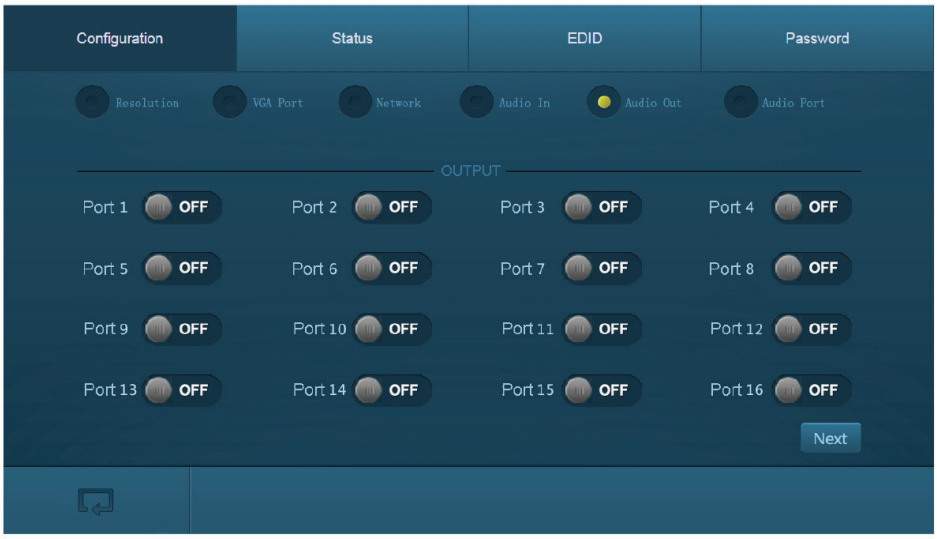


FIGURE 6-13. CONFIGURE AUDIO OUTPUT

Enable or disable the audio output port.

NOTE: AVS-HDMI2-4KO, AVS-HDB-4KO, AVS-AUD-IO: Unavailable.

6. Configure PGM OUT Audio Port

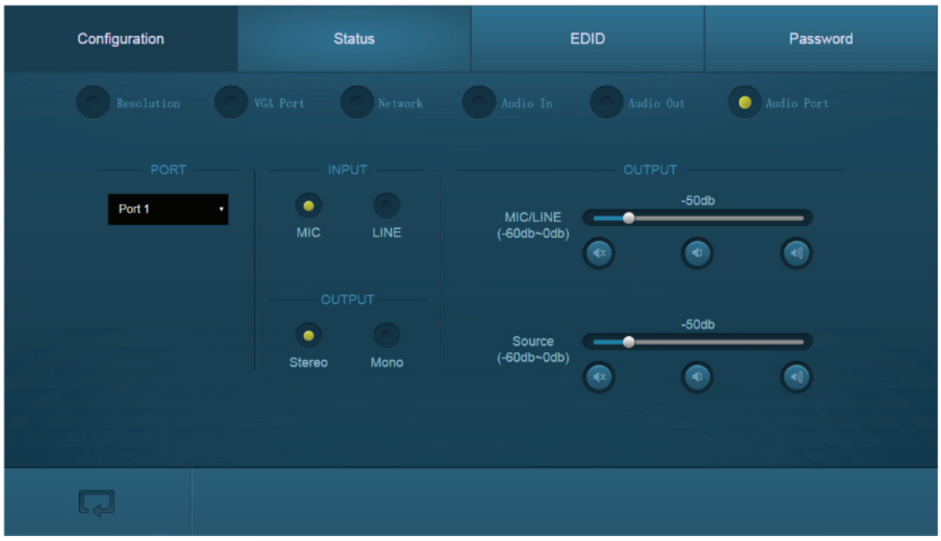


FIGURE 6-14. CONFIGURE PGM OUT AUDIO PORT

In this interface, you can adjust the mixed audio volume, select stereo or mono audio channel, and select mic or line audio input.

This menu is only used for controlling the PGM port of AVS-AUD-IO signal card.

Status

There are 3 submenu items total, including LCD, Button, and Scene.

1. Configure LCD Display

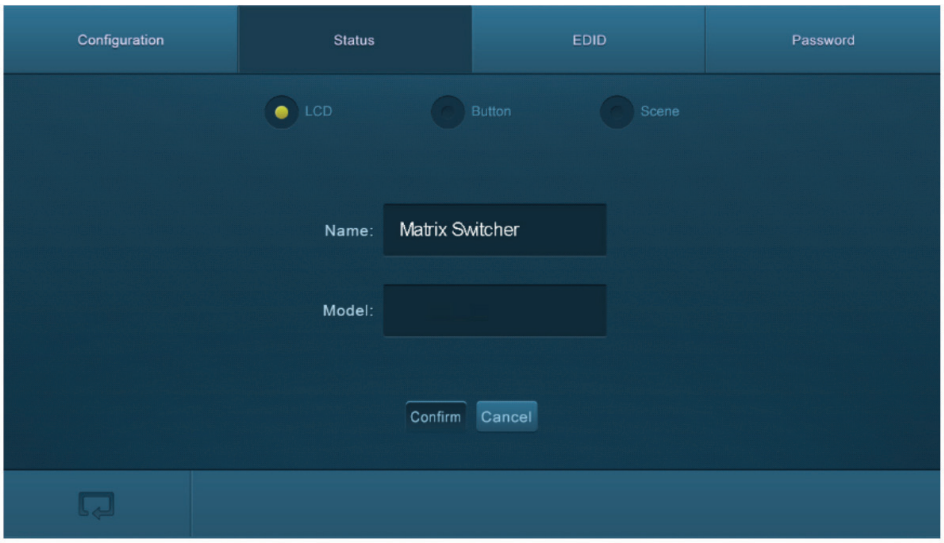


FIGURE 6-15. CONFIGURE LCD DISPLAY

In this interface, you can configure LCD display information: max of 16 numbers/letters.

2. **Set button labels**

FIGURE 6-16. CONFIGURE LCD DISPLAY

In this interface, you can set button labels: max of 7 numbers/letters/Chinese characters.

3. Name Scene

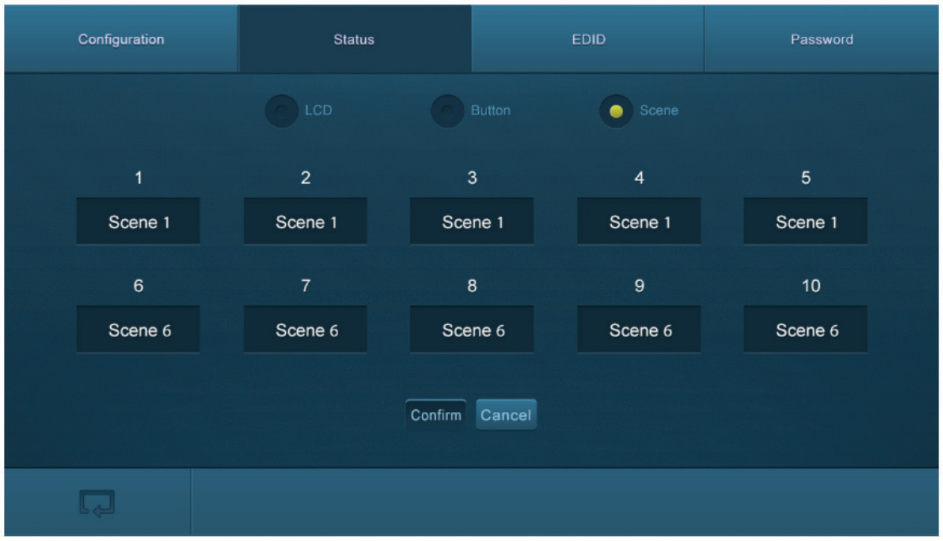


FIGURE 6-17. NAME SCENE DISPLAY

In this interface, you can set name scenes: max of 7 numbers/letters/Chinese characters.

EDID

In the EDID management interface, enable 1/all input(s) capture and learn the EDID data from 1 output.

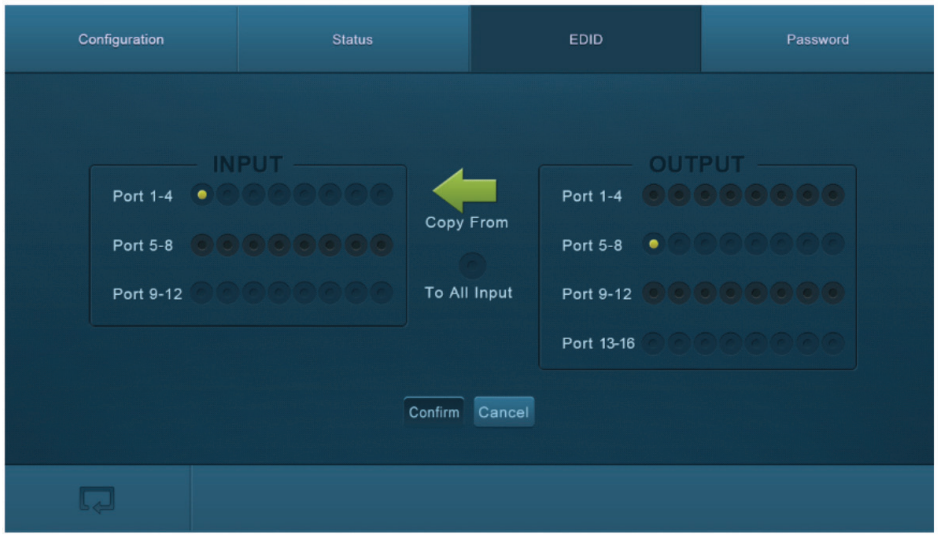


FIGURE 6-18. EDID INTERFACE

- 1 input learns EDID from 1 output: Output + Input + Confirm
- All inputs learn EDID from 1 output: Output + To All Inputs
- Undo the previous input: click Cancel

Password

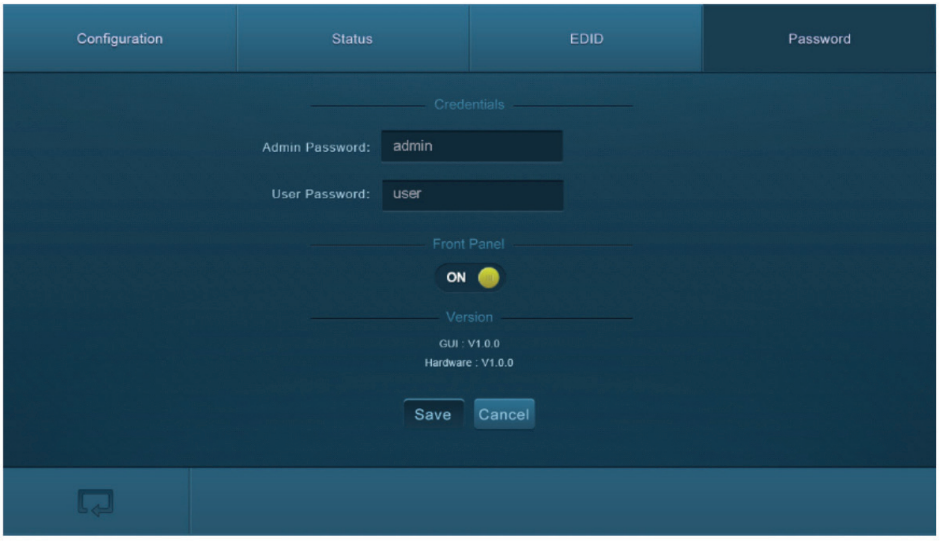


FIGURE 6-19. PASSWORD

In this interface, you can:

- Set password: max of 10 numbers/letters
- Configure front panel lock status
- Inquire about GUI and Hardware versions

NOTE: Remember to click Save to save the settings.

Notes on the front panel icon:

- ON icon: Front panel button unlocked
- OFF icon: Front panel button locked

Press the button to switch between the 2 states.

NOTE: Clear the cache of the browser beforehand to ensure reliable GUI operation.

6.4 PORT MANAGEMENT

IP address, subnet mask, and Gateway of the switcher can be modified via GUI from the above description, but beyond that users can configure the IP port, including IP reset, password reset, and IP module firmware update on the WebServer.

1. Type the designed website (Default: 192.168.0.178:100, changeable) in your browser.
2. Enter correct username and password to log in the WebServer:

   Username: admin; Password: admin

Here is the main configuration interface of the WebServer:

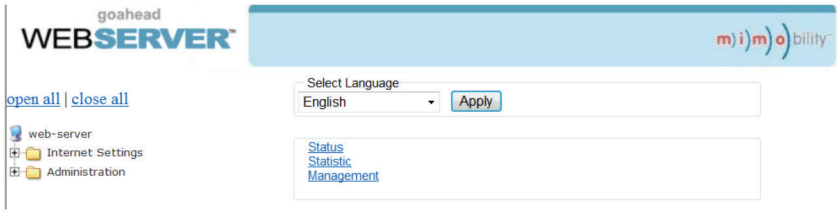


FIGURE 6-20. TCP/IP CONFIGURATION

- In this interface, you can:
- Change website display language.
- Modify network settings: Go to Internet Settings -> WAN.
- Upgrade TCP/IP module: Go to Administration -> Upload Program -> Select program file -> Start upgrading.
- Reboot the device after upgrading.

CHAPTER 7: FIRMWARE UPGRADE THROUGH USB PORT

The matrix switcher has a USB port for online firmware upgrade on the front panel.

Follow these steps to upgrade firmware:

STEP 1: Copy the upgrade software and the latest upgrade file (.bin) to PC.

STEP 2: Connect the USB ports of the matrix switcher and the PC via USB cable.

STEP 3: Double-click the update software icon (see below).

FIGURE 7-1. UPDATE SOFTWARE ICON

It will enter the upgrade interface shown below.

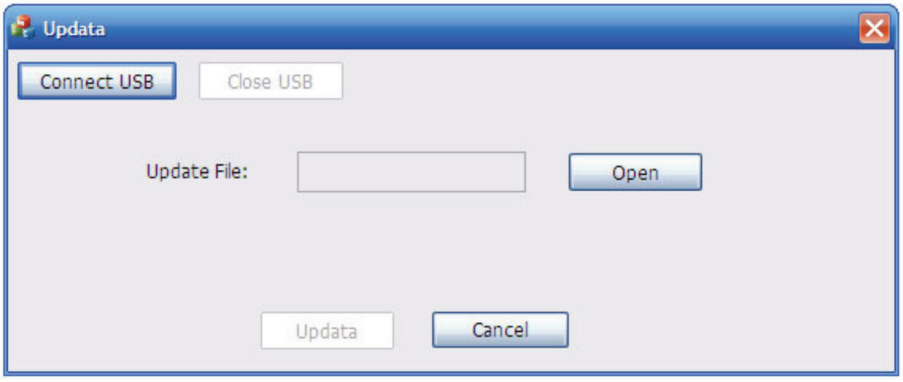


FIGURE 7-2. UPGRADE INTERFACE

STEP 4: Click Connect USB.

STEP 5: Click Open to load the upgrade file, then click Update to start firmware upgrading.

NOTE: To ensure available control, the COM number of the PC should be 1–9.

NOTE: If the update progress bar stops, cut power, restart the machine, and begin firmware update process again.

CHAPTER 8: DIMENSIONAL DRAWING

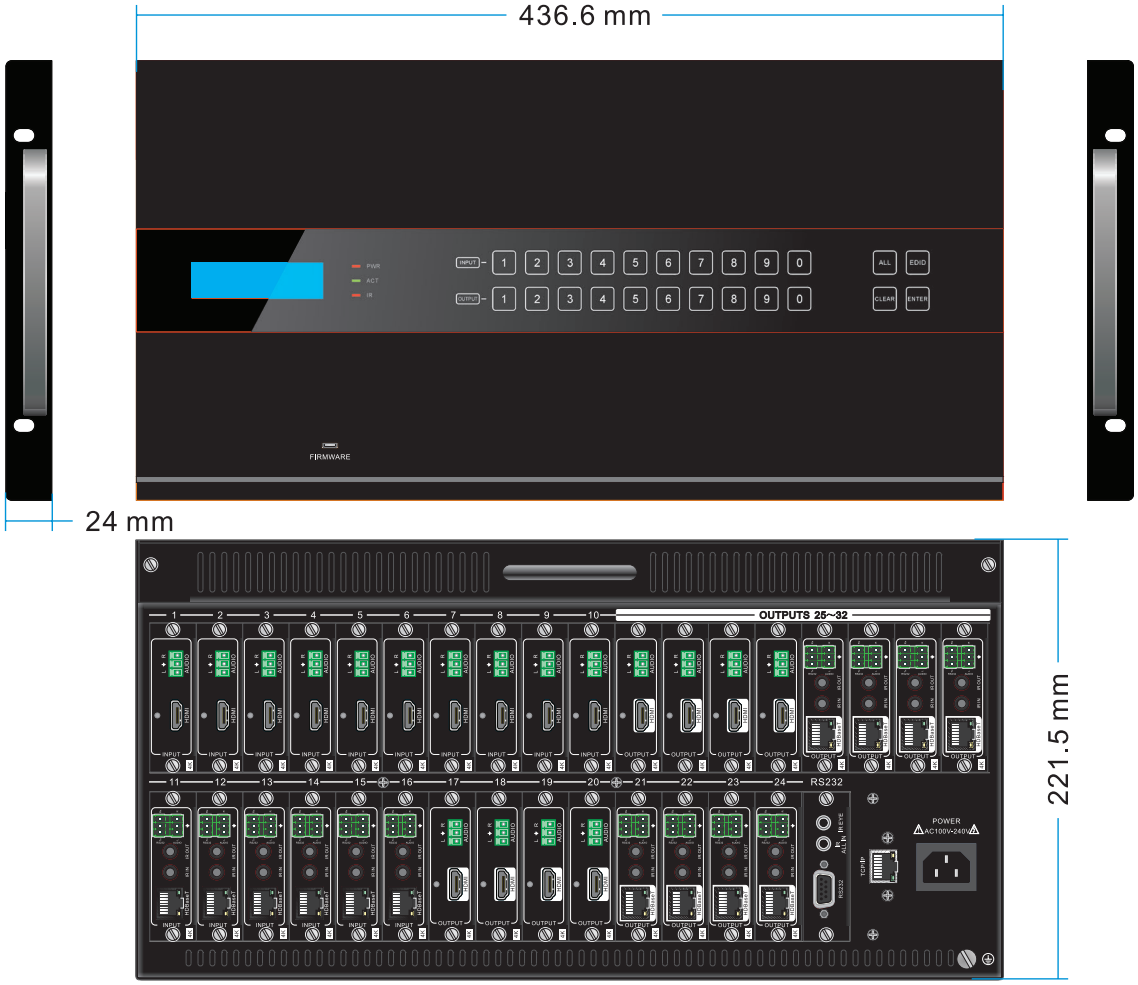


FIGURE 8-1. DIMENSIONAL DRAWING

TABLE 9-1. PROBLEMS/CAUSES/SOLUTIONS

PROBLEM	POTENTIAL CAUSE	SOLUTION
Losing color or no video signal output in HDMI display	1. The cables may not be connected correctly or may be broken. 2. Failed or loose connection.	1. Check whether the cables are connected correctly and are in working condition. 2. Make sure the connection is good.
No HDMI signal output in display while local output is working normally	1. Loose cable connection. 2. The display doesn't support the resolution	1. Reconnect the devices and make sure they're well contacted. 2. Set the output resolution to another supported resolution or to Auto.
No splash screen in output devices	1. Poor quality of the connecting cable. 2. Poor contact at the input/output end.	1. Change for another cable of good quality. 2. Reconnect the devices and make sure they're well contacted.
Cannot control the device via front panel buttons	Front panel buttons are locked.	Send command /%Unlock; to unlock.
Cannot control the switcher via a control device (a PC) through the RS-232 port	1. Wrong RS-232 communication parameters. 2. The switcher is broken.	1. Make sure the RS-232 communication parameters are correct. 2. Contact Black Box Technical Support at 877-877-2269 or info@blackbox.com
Static becomes stronger when connecting the video connectors	Bad grounding.	Check the grounding and make sure it is connected well.

NOTE: If the problem persists after following the above troubleshooting steps, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com

APPENDIX A: REGULATORY INFORMATION

A.1 FCC STATEMENT

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. 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. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

A.2 CE AND ROHS2

This product complies with CE and ROHS2 certifications.

APPENDIX A: REGULATORY INFORMATION

A.3 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
24. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
32. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
    A: El cable de poder o el contacto ha sido dañado; u
    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
    C: El aparato ha sido expuesto a la lluvia; o
    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
    E: El aparato ha sido tirado o su cubierta ha sido dañada.

APPENDIX B: DISCLAIMER/TRADEMARKS

B.1 DISCLAIMER

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Corporation may revise this document at any time without notice.

B.2 TRADEMARKS USED IN THIS MANUAL

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