

**HD RESOLUTION Matrix System**

# **16x16 HD Matrix Switcher**

**User Manual**

**HDMI Matrix Switcher**

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Please read this manual before using the equipment



### Security Operation Direction

To ensure the equipment stable and keep operator safe, please follow the rules below before using, installation and repairing the equipment:

**1.**

Make sure the GND of power cord is well connected with the ground, do not use the 2-pin plug and make the voltage is 100V-240V 50/60Hz.

**2.**

Please don't put the equipment in an extreme cold or hot place.

**3.**

Please keep the working environment ventilation, so that the equipment won't be too hot to be broken.

**4.**

Please do not use the equipment in a wet or frozen place.

**5.**

Please cut the power off when using the equipment under below conditions:

- A. Reconnect or repair the parts of the equipment.
- B. Disconnect or reconnect the other electronic equipment.

**6.**

Please do not open or fix the equipment unless you're professional.

**7.**

Please do not use any corrosive chemical or liquid drop on the equipment or nearby.

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## Part 1. Introduction



16x16 HDMI is an HD AV switching matrix. It allows 16 HDMI Inputs to be routed to 16 Outputs, users can choose several different ways to control the matrix: by using IPAD app, Pushing front buttons, RS232 or remote control.

16x16 HDMI Matrix offers solutions for digital entertainment center, HDTV retail and show site, HDTV, STB, DVD and projector factory, noise, space and security concerns, data center control, information distribution, conference room presentation, school and corporate training environments.

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## Part 2. Packing

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16x16 HD Matrix 1 pcs

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RS-232 cable 1 pcs

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Power cord 1 pcs

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Remote control 1 pcs

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## Part 3. Installation

Using mental chassis, it can be installed or connected with other equipment.

## Part 4. Front Pannel

### 4.1 HDMI1616



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## Part 5. Rear Panel

### 5.1 HDMI1616



## Part 6. Connection

### 6.1 RS-232 port and connection

RS-232 port is 9-pin female connector, instruction is as below:

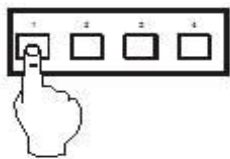
Number	Pin	Instruction
1	N/u	Empty
2	Tx	Transmit
3	Rx	Receive
4	N/u	Empty
5	Gnd	Ground
6	N/u	Empty
7	N/u	Empty
8	N/u	Empty
9	N/u	Empty

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## Part 7. Instruction of Front Panel

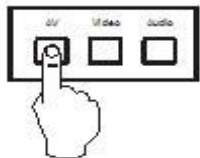
### 7.1 Front buttons operation:

**Eg1: Switch the AV of input 1 to output 3 and output 4:**



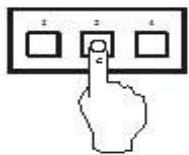
Input Command:  
1

1. Press "1", the LCD shows Input command "1", then please select the switching ways



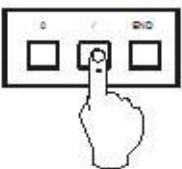
Input Command:  
1B

2. Press "AV", LCD shows "1B", then please select the output ports



Input Command:  
1B3

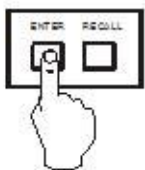
3. Press "3", the LCD shows "1B3", then please press "/"



Input Command:  
1B3,

4. After pressing "/", the LCD shows "1B3,"

5. Then please press "4", the LCD show "1B3,4"



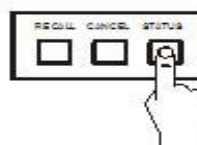
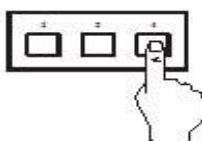
1B3,4.  
Switch OK

6. Then press "END", the LCD will show "1B3,4."

7. Press "Enter" to make sure operating the switching. LCD display "1B3, 4." switch OK!

Conclusion: "1" → Select "AV" or "Audio" or "Video" → "3" → "/" → "4" → "END" → "ENTER"

**Eg2: Check out the status of output4:**



VIDEO: 3 → 4  
AUDIO: 2 → 4

## Part 8. Communication Protocol and Command Code

The command system communication protocol:

**Baud:9600 Data bit: 8 Stop bit: 1 Check bit: None**

Command type	Control command	Function description
System command	/*Type;	Check the matrix type
	/+xxxxxxxx;	Change the keyboard unlock password, set up 8 numbers as the new password.
	/%Lock;	Lock the keyboard
	/%Unlock;	Unlock the keyboard
	/:BellOff;	Turn off the buzzer
	/:BellOn;	Turn of the buzzer
	/^Version;	Check the version of the software
	/~EXTRON;	Set up as the compatibility command system,only supports “! \$ % &” this four ending command.
	/:MessageOff;	Close the return back of the serial port, only send back“SWITCH OK! ”and so on information
	/:MessageOn;	Open the return back information of the serial port, all the operation detailed information will be sent back.
	/%Backlightxxx;	Set up the background light of the LCD display, the range can be 001-240 minutes ( <b>the default is 30 minutes</b> )
Operation Command	[x1]All.	[x1] input switch to all the outputs
	All#.	Sett all the inputs to all the outputs, eg.1->1, 2->2, 3->3...
	All\$.	Close all the outputs channels
	[x1]#.	[x1] input switch to [x1] outputs
	[x1]\$.	Close [x1] outputs
	[x1] V[x2].	Switch the video of [x1] input to [x2] output
	[x1] V[x2],[x3],[x4].	Switch the video of [x1] input to [x2]、[x3]、[x4] outputs
	[x1] A[x2].	Switch the Audio of [x1] input to [x2] output
	[x1] A[x2],[x3],[x4].	Switch the Audio of [x1] input to [x2]、[x3]、[x4] outputs
	[x1] B[x2].	Close the AV of [x1] input to [x2] output
	[x1] B[x2],[x3],[x4].	Switch the AV of [x1] input to[x2]、[x3]、[x4]output
	[x1]P[x2].	Switch [x1] inputs to [x2] group output
	[x1]PP[x2],[x3],[x4]	Set up channel [x2],[x3],[x4] outputs into the [x1] group.
	.	
	S[x].	Check out all the output channels in group[x]
	Status[x1].	Check the status of [x1] outputs



	Status.	Check all the outputs status
	Save[Y].	Save the current status to[Y], [Y] can any numbers from 0 - 9.
	Recall[Y].	Recall the saved status of the [Y]
	Clear[Y].	Clear all the data of the saved [Y] and the output will be closed
Compatibility command	[X1]*[X2]!	Switch the AV of [x1] input to[x2] output
	[X1]*[X2]\$	Switch the AV of [x1] input to[x2] output
	[X1]*[X2]%	Switch the AV of [x1] input to[x2] output
	[X1]*[X2]&	Switch the AV of [x1] input to[x2] output

- Notice:** 1. [x1]、[x2]、[x3]、[x4] are the number of the inputs and outputs numbers, the effective range are 1~8/16/24/32/64/96/128/256(depends on the matrix)
2. All those "[" and "]" are not the sending characters
3. All the commands can not forget the character, such as ".","",

## Part 9. Remote Control

**Eg1: Switch the AV of input 1 to output 3 and output 4:**



1. Press "1", the LCD shows Input command "1", then please select the switching ways
2. Press "AV", LCD shows "1B", then please select the output ports
3. Press "3", the LCD shows "1B3", then please press "/"
4. After pressing "/", the LCD shows "1B3,"
5. Then please press "4", the LCD show "1B3,4"
6. Then press "END", the LCD will show "1B3,4."
7. Press "Enter" to make sure operating the switching. LCD display "1B3, 4." switch OK!

Conclusion: "1" → Select "AV" or "Audio" or "Video" → "3" → "/" →

"4" → "END" → "ENTER"

**Eg2: Check out the status of output 4:**

Press "4", then press "STATUS". LCD screen will show the switching info of output 4

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## Part 10. RS 232/ LAN Control

### 1.1 Instruction for the control software

This control software can be used to different ranges of the inputs and outputs matrix.

#### 1.1.1 Introduction:

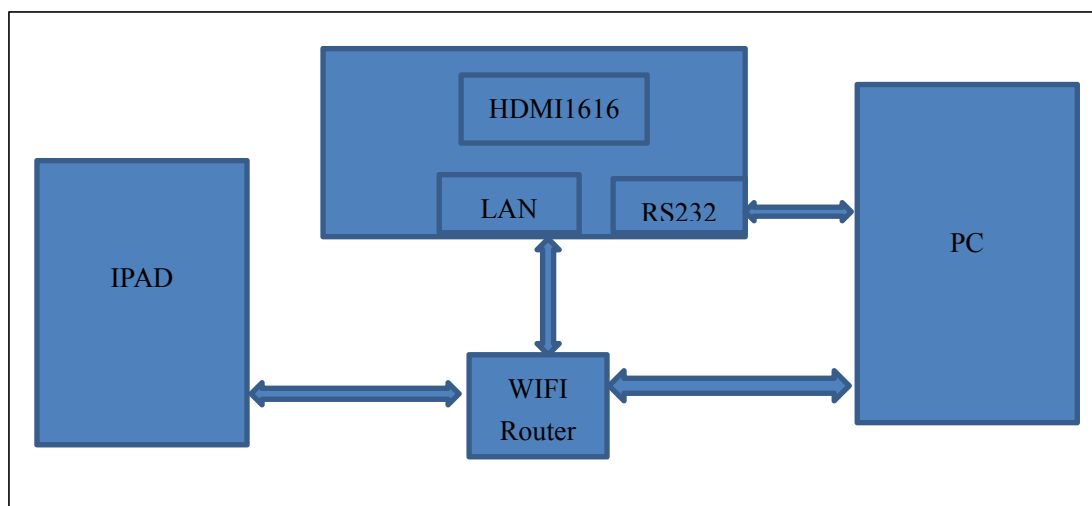
Operation environment:

Window98/2000/NT/XP , internal storage above 32M, hard diver space above 10M, CD-ROM and at least one serial communication port.

#### 1.1.2 Start the software

Please power off the matrix and the computer, then use the RS232 cable to connect the matrix and computer, and power on the matrix and computer

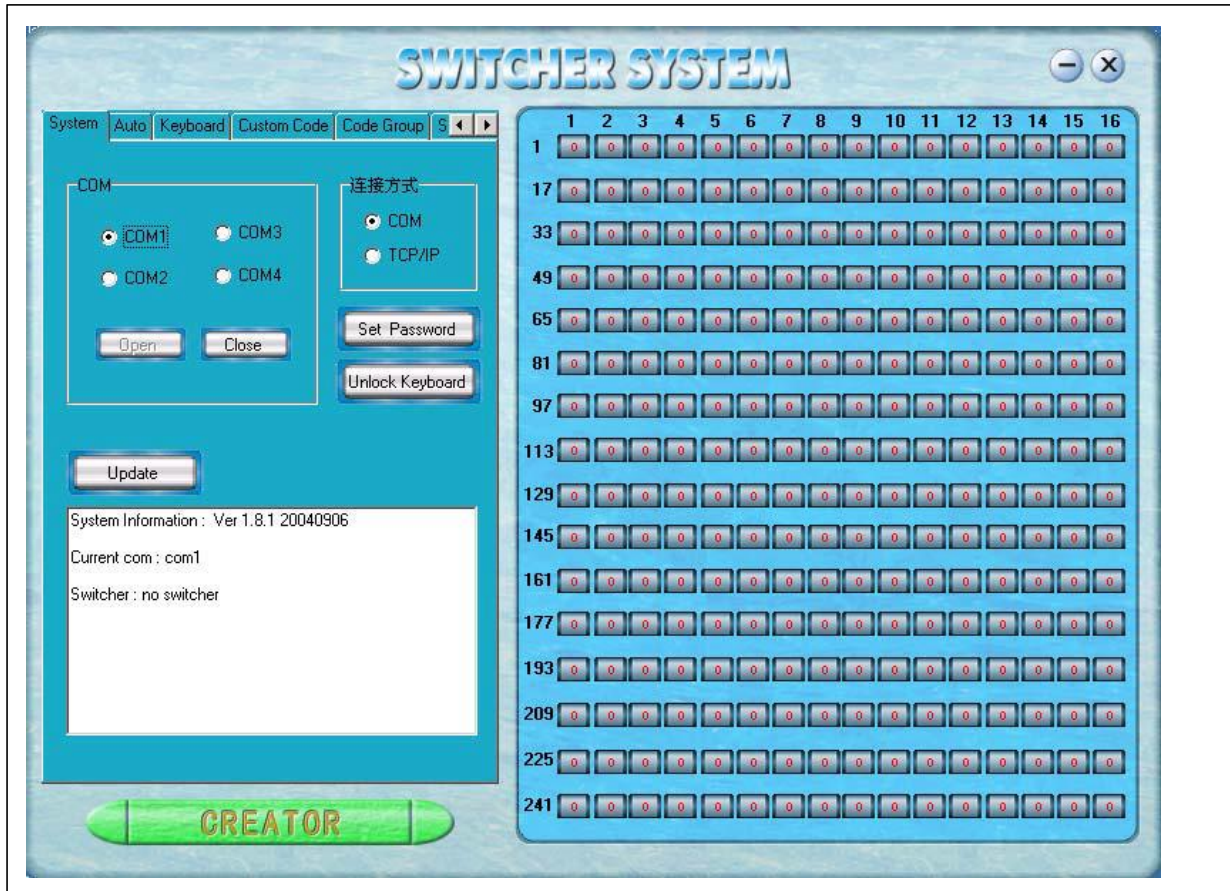
Find the file “Switcher 2.0.exe” in the full size CD. And click to install the software and enter into the user interface.



## 1.2 Control software function introduction:

There are several control ways we can choose from the Auto switching control, keyboard control, enter control command and customized command.

Main control interface is as below:



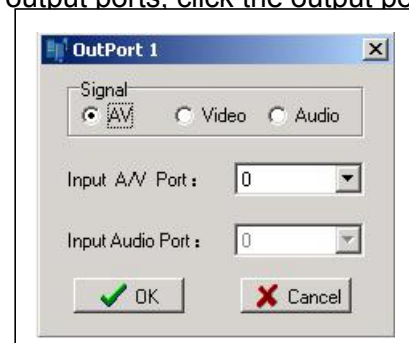
### 1.2.1 Main control interface introduction:

One the right part of the operation interface shows the 1-256 output ports. click the output port will show the interface as below:

“SIGNAL” Select: Can select “AV”、“VIDEO” or “AUDIO”

“INPUT A/V PORT”: Select the Audio input port

“INPUT AUDIO PORT”: Select the Audio output port



### 1.2.2 SYSTEM function introduction:

Connection ways: Select“COM” or “TCP/IP” control port

COM: Select which COM port of the computer have connected with the matrix.COM1,COM2,COM3 or COM4.

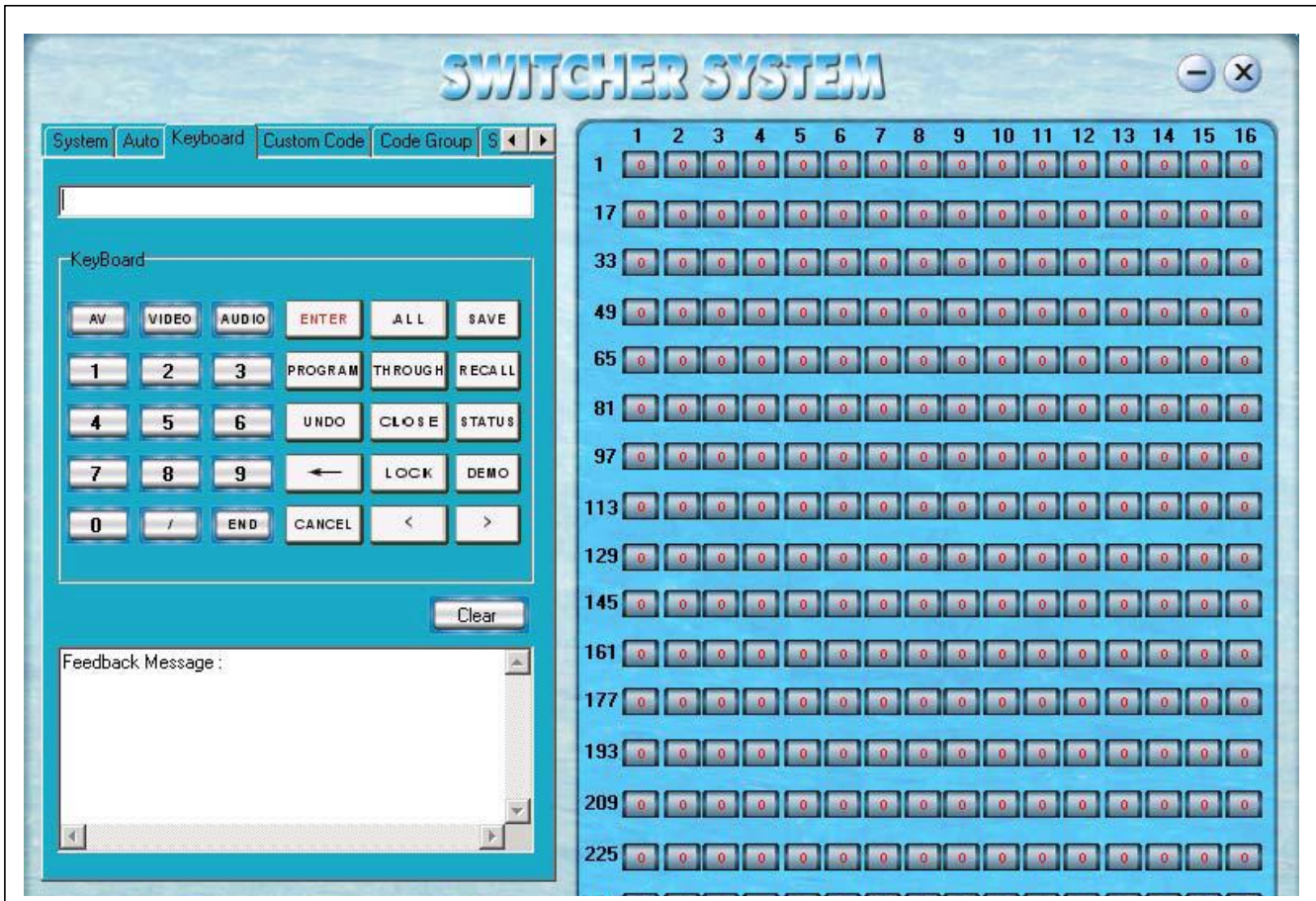
TCP/IP: Before selecting this control way, please make sure already configured the Ethernet extend the adapter. Please enter the IP address of the matrix when select this way to control.

Password: Set up the unlock password of the control panel, and the password need to be 8 numbers.

Unlock Keyboard: Enter the password to unlock the control panel.

### 1.2.3 KEYBOARD switching function introduction:

Click Keyboard on the main interface, will show below interface:

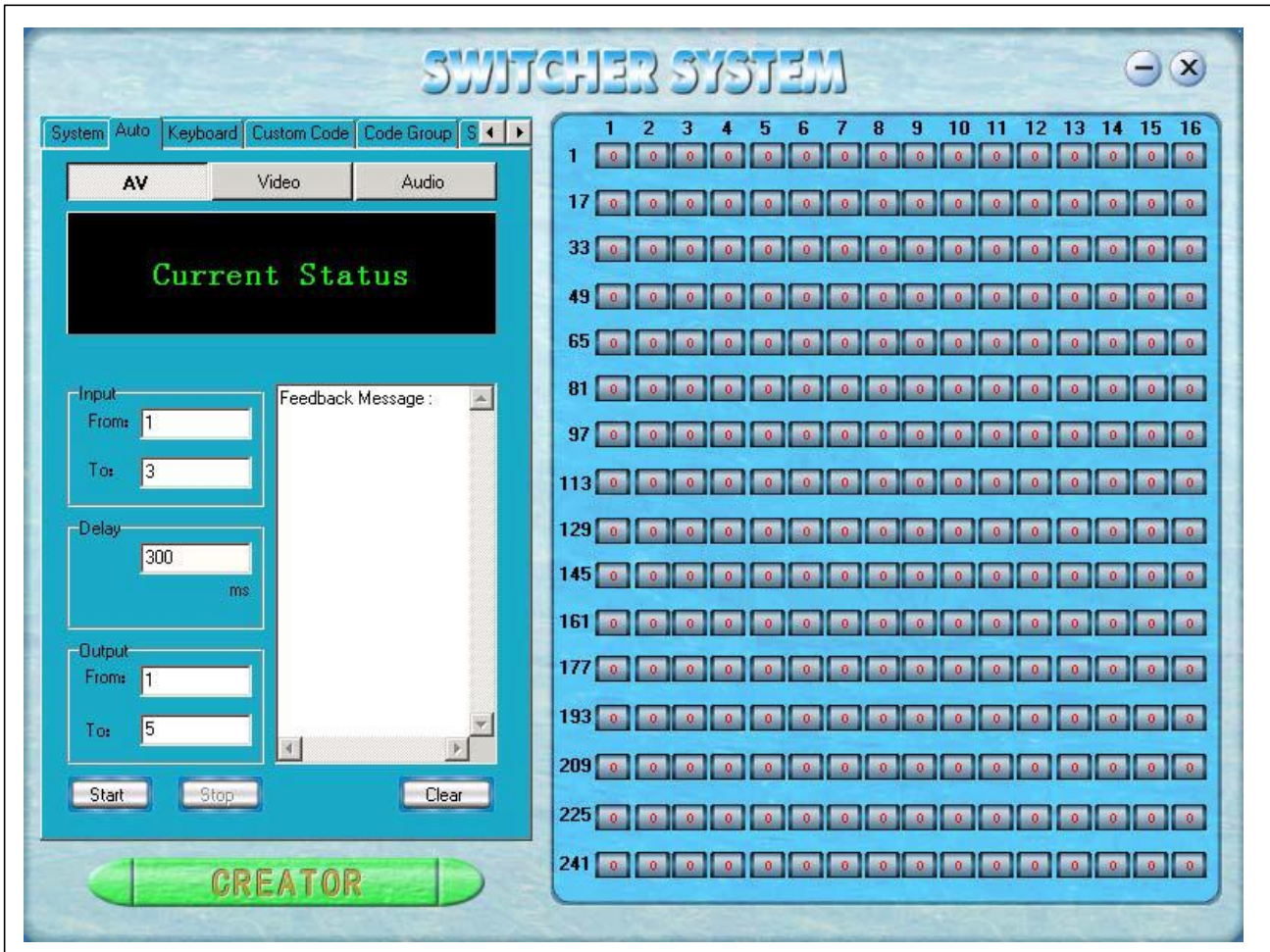


The control methods will be the same as Front buttons control.



### 1.2.4 Automatic switching function

After clicking the Auto will show below interface:



Specific operation examples:

Eg: There is an 8x8 HDMI matrix, and all the inputs and outputs are well connected. Now, users are going to check the status of all the ports are working good or not:

Signal select: "AV"

INPUT port: "1-8"

OUTPUT port: "1-8"

Time delay: 1000 ms

START

Input 1 switching to output 1(1 1);

Input 2 switching to output 2(2 2);

.....

Input 8 switching to output 8(8 8)

Setting up like this, then the matrix will switch automatically by 1000ms

### 1.2.5 Custom Code: Manually enter commands

Click Custom Code will show below interface:

The interface is titled "SWITCHER SYSTEM". It features a tabbed menu at the top with options: System, Auto, Keyboard, Custom Code (selected), and Code Group. Below the tabs, there is a "Code:" input field. Underneath the input field are two radio buttons: "ASCII" (selected) and "HEX". To the right of these are "Help" and "Send" buttons. Below these buttons is a "Feedback Message" text area with a "Clear" button at the bottom right. At the bottom left of the interface is a green button labeled "CREATOR". On the right side of the interface is a 16x16 grid of buttons, each labeled with a number from 1 to 241. Each button has a red "0" in the center.

ASCII: Input commands will be ASCII characters (hardly use the Hex)

HEX: Input commands will be Hex

Help: Press this icon will show the introduction of the common commands format

Send: Send the codes

Specific Operation examples:

Eg: Users have one 8x8 HDMI matrix, all the inputs and outputs ports are well connected, set up Audio and Video of input 1 switch to output 7, only audio of input 2 switch to output 4.

Select "ASCII" icon

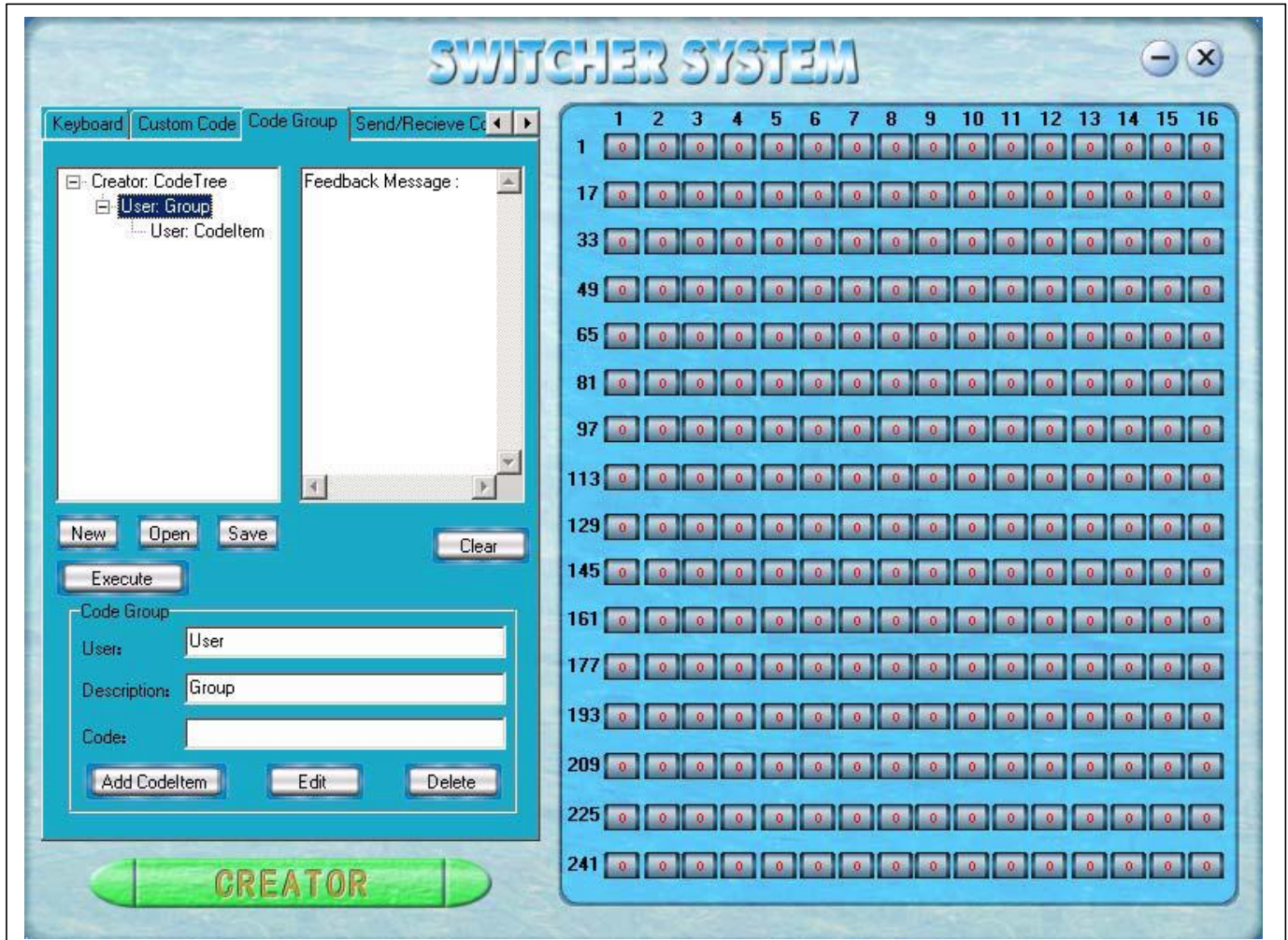
Enter the below command in the Command Line

"1B7.2A4." then press "SEND"



### 1.2.6 Code Group User code group

After clicking “Code Group” will show below interface:



New: Set up new code group

Open: Open the saved code group

SRGBE: Save the current code group

Execute: Operate all the selected commands or code groups

Clear: Clear all the feedback information

Add CodeItem: Add more commands to distinguish the different commands

(When select the “Code Tree” , Will show “Add Group” to add more code groups to distinguish different groups)

Edit: Edit the User name, description and code

Delete: Delete all the selected codes

### 1.2.7 Send/receive Code List

Select the “Code Group” will show below interface:

The interface is titled "SWITCHER SYSTEM" and features a tabbed menu with "Custom Code", "Code Group", and "Send/Receive Code List". The "Send/Receive Code List" tab is active, showing two text areas: "Send List" and "Receive List". The "Send List" contains the text: `/*Type;`, `/*Version;`, `Status.`, and `1B2.`. Below each text area is a "Clear" button. At the bottom left is a green button labeled "CREATOR". On the right is a 16x16 grid of buttons, each labeled with a number from 1 to 241 (skipping 18, 22, 28, 32, 38, 42, 48, 52, 58, 62, 68, 72, 78, 82, 88, 92, 98, 102, 108, 112, 118, 122, 128, 132, 138, 142, 148, 152, 158, 162, 168, 172, 178, 182, 188, 192, 198, 202, 208, 212, 218, 222, 228, 232, 238, 242) and a small red circle containing a "0".

Send list means the codes which have been sent

Receive List means the codes have been received

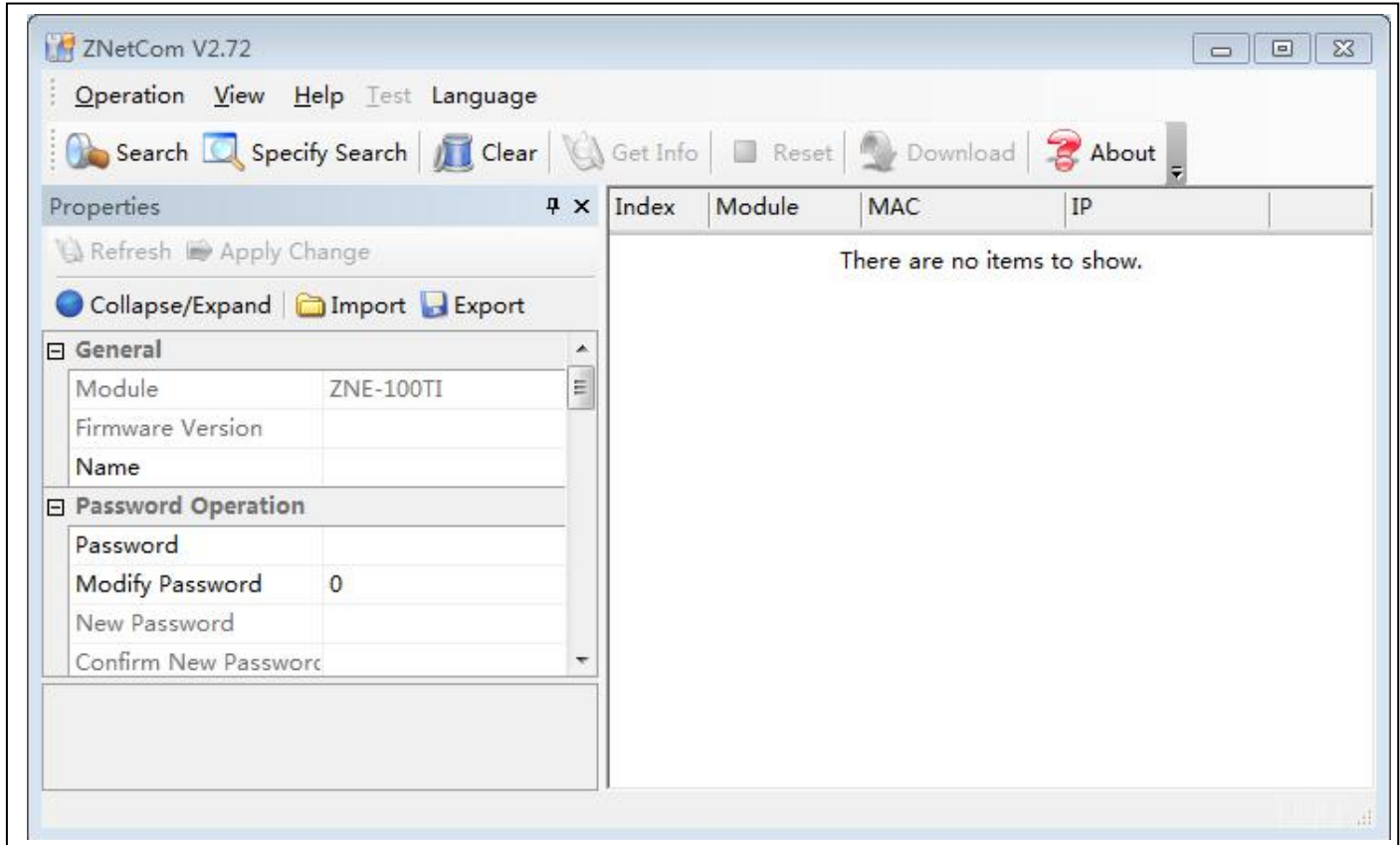
Press “Clear” to clean the send/receive list



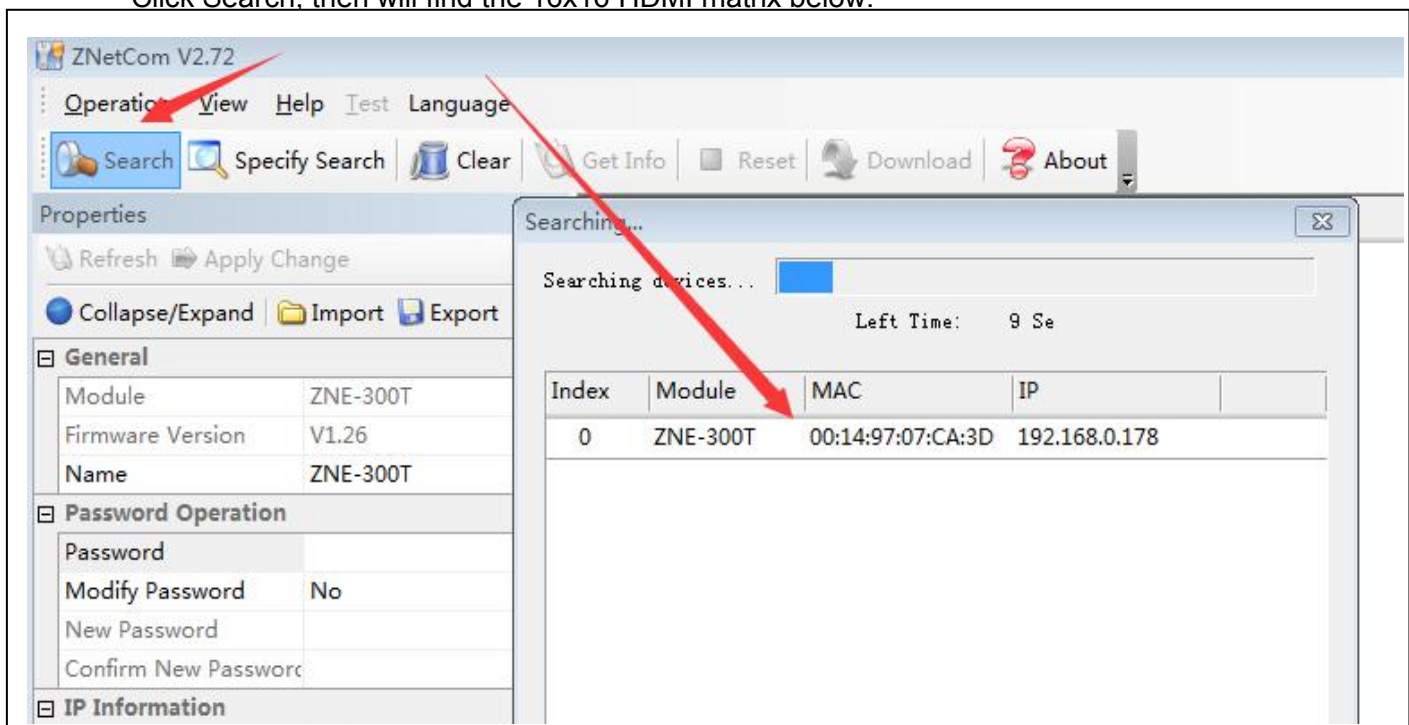
# Part 11. IOS App Control

## 1. Configuration for the LAN Port:

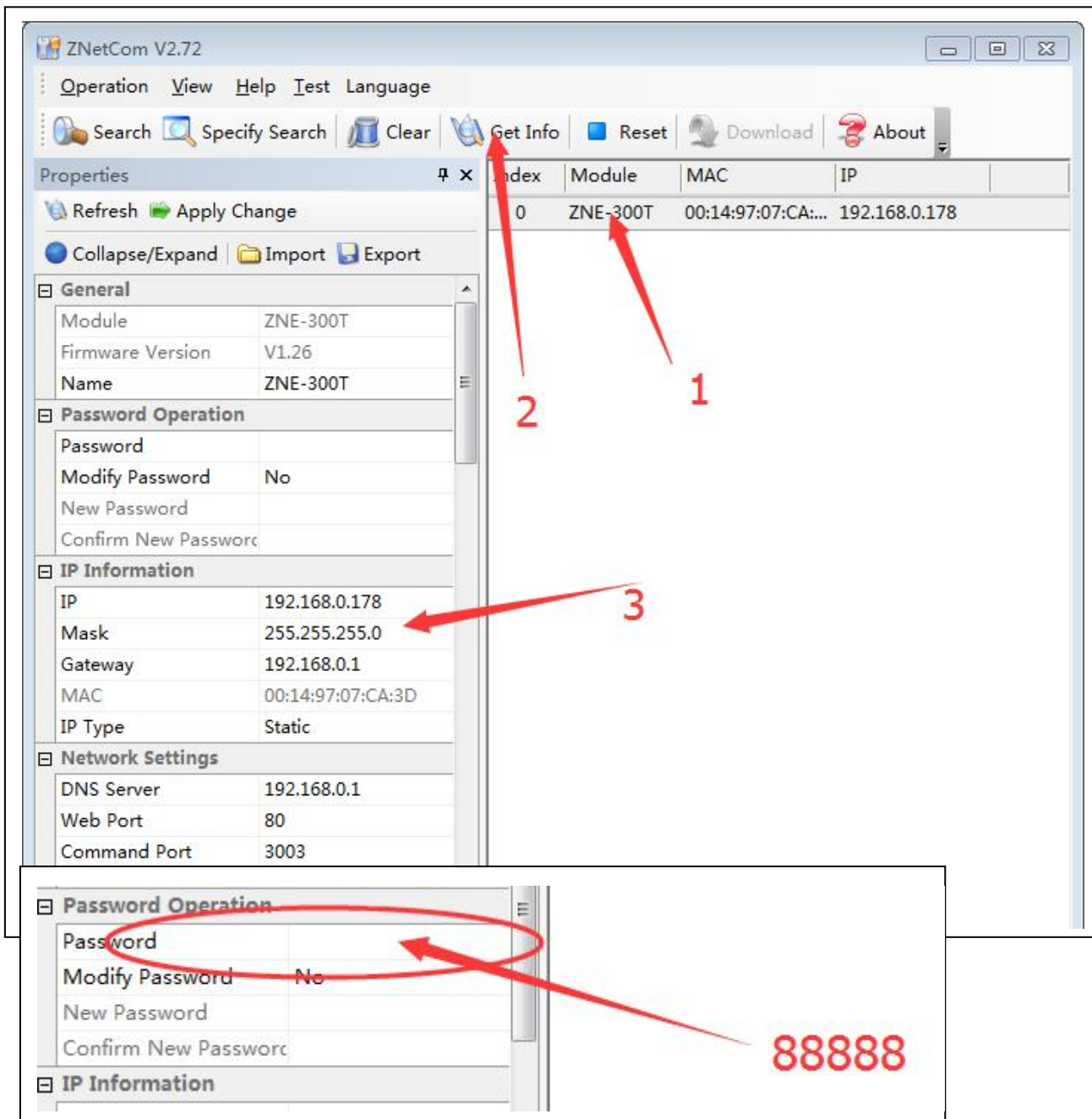
Open the ZNetCom2 software, showing as below:



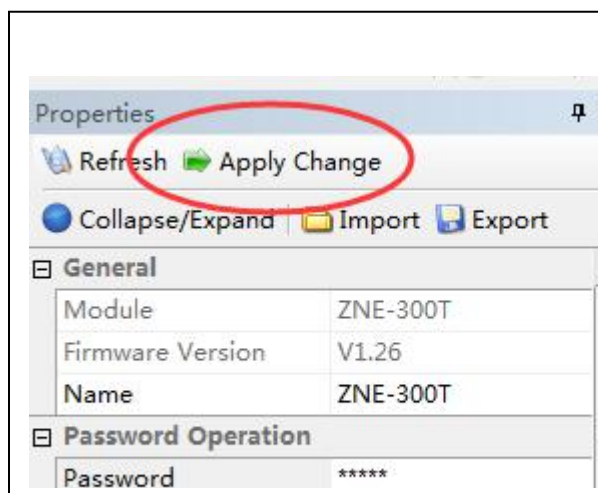
Click Search, then will find the 16x16 HDMI matrix below:



After find out the equipment, need to choose “ZNE-300T”(1), and then click “Get Info”(2), then the configuration of the LAN port will be showing on the left part as (3)



After changing the parameter, will need to click “Apply Change”



The parameter which are needed to change are as below:

1. Work Type: TCP Server
2. Work Port: 15000
3. Baudrate: 115200
4. Data Bits: 8
5. Stop Bits: 1
6. TCP Connection: 4.
7. IP: 192.168.0.78

The others will be the default settings.

**General**

Module	ZNE-300T
Firmware Version	V1.26
Name	ZNE-300T

**Password Operation**

Password	
Modify Password	No
New Password	
Confirm New Password	

**IP Information**

IP	192.168.0.178
Mask	255.255.255.0
Gateway	192.168.0.1
MAC	00:14:97:07:CA:3D
IP Type	Static

**Network Settings**

DNS Server	192.168.0.1
Web Port	80
Command Port	3003
Seep/Duplex	Auto Negotiation
IP Filter 1	<input type="checkbox"/>
IP Filter 2	<input type="checkbox"/>
IP Filter 3	<input type="checkbox"/>

**COM1 Settings**

Set the other COMs same with this.

Work Type	TCP Server
Work Port	15000
Timeout to Disconnect	6000
TCP Alive Check Times	20
The First Byte of a Frame	<input type="checkbox"/>
The Last Byte of a Frame	<input type="checkbox"/>
Baudrate	115200
Data Bits	8
Stop Bits	1
Parity	None
Frame Length	500
Frame Interval(ms)	50
Clear COM Buffer	Never
TCP Turbo	Disable
TCP Disconnect	Keep Connection
TCP Connection Password	None
TCP Connection Info	None
TCP Connection Condition	None
TCP Connection Count	4
Target Port 1	6001
Target IP 1	0.0.0.0

**Timeout to Disconnect**  
10ms per unit, from 0 to 60000

## 2. Instruction for the HD16 App

Please kindly search HD16 in Apple Store, and download the HD16 app

Then please kindly find HD16 in the setting of the IOS devices, and change the IP and Port number the same as IP information on the matrix. Please kindly see as below:

Network Parameter

Collapse/Expand   Import   Export	
<b>General</b>	
Module	ZNE-300T
Firmware Version	V1.26
Name	ZNE-300T
<b>Password Operation</b>	
Password	
Modify Password	No
New Password	
Confirm New Password	
<b>IP Information</b>	
IP	192.168.0.178
Mask	255.255.255.0
Gateway	192.168.0.1
MAC	00:14:97:07:CA:3D
IP Type	Static
<b>Network Settings</b>	
DNS Server	192.168.0.1
Web Port	80
Command Port	3003

Set the other COMs same with this.	
Work Type	TCP Server
Work Port	15000
Timeout to Disconnect	0
TCP Alive Check Time(s)	20
The First Byte of a Frar	<input type="checkbox"/>
The Last Byte of a Fran	<input type="checkbox"/>
Baudrate	115200
Data Bits	8
Stop Bits	1
Parity	None

IOS Devices Setting Parameter

设置 HD16

“HD16”设置

BUTTON SUOND

BUTTON SUOND SELECT Sound0 >

BUTTON SUOND ENABLE ☒

SYSTEM SETTINGS 系统设置

中控主机IP: 192.168.0.178

端口号PORT: 15000

VERSION

1.0

After all the setting as above, then users can use the IOS App “HD16” to control the matrix.

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## Part 12. Specification

Operating Temperature Range	0 to +35°C (32 to +95°F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Video Format Supported	1080P
Audio Format Supported	DTS-HD、Dolby HD
Output Video	HDMI 1.3
Maximum Transmission Distance	15m over HDMI cable
Power Consumption	55 Watts (Max.)
Dimensions	485(L)X245(W)X100mm(H)
Mass (Main unit)	4.5Kg

## Part 13. Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzine to clean this unit.

- Provided Service

1) Damage Requiring service: The unit should be serviced by qualified service personnel if:

The DC power supply cord or AC adapter has been damaged;

Objects or liquids have gotten into the unit;

The unit has been exposed to rain;

The unit does not operate normally or exhibits a marked change in performance;

The unit has been dropped or the cabinet damaged.

2) Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.

3) Replacement parts: When parts need replacing ensure the service uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.

4) Safety check: After repairs or service, ask the service to perform safety checks to confirm that the unit is in proper working condition.

- Mail-In Service

When shipping the unit, carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a daytime phone and/or email address where you can be reached.

If repair is needed during the limited warranty period the purchaser will be required to furnish a sales receipt/proof of purchase indicating date of purchase, amount paid and place of purchase. Customer will be charged for the repair of any unit received without such proof of purchase.

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- Warranty

If your product does not work properly because of a defect in materials or workmanship, We (referred to as “the warrantor”) will, for the length of the period indicated as below, (Parts (3) Years, Labor(3) years)which starts with the date of original purchase (“Limited Warranty period”), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

During the “Labor” Limited Warranty period there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

- Warranty Limits And Exclusions

1)This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, maladjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service Center or other Authorized Service, or damage that is attributable to acts of God.

2)There are no express warranties except as listed under “limited warranty coverage”. The warrantor is not liable for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service location, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.)

3)Parts and service, which are not covered by this limited warranty, are your responsibility.