User Manual

MP-SC-6E

Compact Scaler Switcher 6x1

Version: MP-SC-6E_2016V1.0

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

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 insure 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 optical 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.

Contents

1. Introduction

1.1 Introduction to MP-SC-6E

MP-SC-6E is a compact 6x1 mini unit with 6 video inputs (4 HDMI, 2 VGA), 2 auxiliary audio inputs (switched following VGA), 1 HDMI output and 3 audio outputs (1 dual-mono analog audio, 1 3.5mm stereo audio, 1 optical audio).

MP-SC-6E switches VGA or HDMI/DVI input signal to HDMI output. Besides, the unit up-scales VGA to HDMI output and supports resolution adjustment (6 types in total). It bypass HDMI and provides comprehensive resolution capacities up to 4K& 1080p 3D. The unit also supports RS232&IR control and EDID management.

1.2 Features

- Control -- via Front panel buttons, RS232 commands and IR Remote
- Switch -- select 6 input source to HDMI output
- Scale – scale VGA to HDMI output, Output resolutions selectable to assure preferred output, and supports various output resolutions, such as 1920x1200，1920x1080，1360x768，1280x800，1024x768，1280x720
- Support HDMI 1.4, 4Kx2K&1080P 3D, compliance with HDCP1.4.
- Transmit 4Kx2K signal up to 15m.
- Support EDID management
- Two input switching modes: auto-switching or manual-switching
- Intuitive indicator for power connect states & source selection & output resolution selection
- Support audio & video output management via OUTPUT BLACK button.
- Support online software upgrading
- Compact design for easy operation
- Support power-off memory
- Support hot plug

1.3 Package List

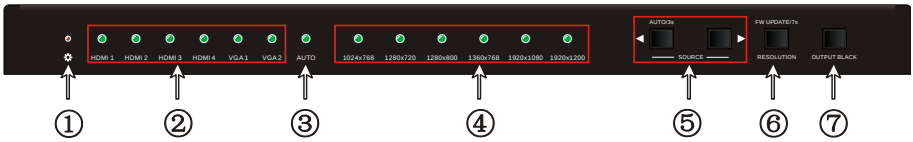
- 1 x MP-SC-6E
- 2 x Mounting ears (separate from MP-SC-6E)
- 4 x Screws
- 4 x Plastic cushions
- 1 x Power adapter (DC 5V 3A)
- 2 x 3-pin Pluggable terminal blocks (pitch:3.81mm)
- 1 x IR Receiver
- 1 x IR Remote (Cell battery is not included)

- 1 x User manual

Notes：Confirm all the accessories are included, if not, please contact with the dealers.

2. Panel Description

2.1 Front Panel



No.	Name	Description
①	Power LED	Indicator for power status ● Off when no power. ● Constantly green when the system is in working. ● Constantly red when the system is enter in standby.
②	Inputs LED	Constantly green when choosing the corresponding audio source.
③	Auto-switching LED	Constantly green when enter in auto-switching mode.
④	Output resolution selection LED	Constantly green when choosing the corresponding output resolution (Input is VGA).
⑤	SOURCE/AUTO	● Audio source selection button: switching circularly between HDMI1, HDMI2, HDMI3, HDMI4, VGA1, VGA2. dial ◄ to select the previous one, dial ► to select the next one. ● Switching mode selection button ◄: Press and hold for 3 seconds or more to enter in **auto-switching** mode, press and hold for 3 seconds or more again to enter in **manual-switching** mode.
⑥	RESOLUTION/FW UPDATE	● Output resolution manual switching button for VGA input: selection circularly among 1920×1200, 1920×1080, 1360×768, 1280×800, 1024×768, 1280×720.default resolution:1920×1080. ● Firmware updating button: press and hold for 7 seconds or more to enter in software updating procedure. All LED blinking when the system is loading firmware

⑦	OUTPUT BLACK	Press to switch on/off audio & Video output. All LED turn off except power LED when switch off output.

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

2.2 Rear Panel

No.	Name	Description
①	INPUTS	● **HDMI**: 4 HDMI/DVI video source input ports(embedded HDMI audio format：PCM). ● **VGA**: 2 VGA video source input ports. ● **AUDIO**: 2 3.5mm stereo audio source input ports, switched following the corresponding VGA.
②	OUTPUTS	● **HDMI**: HDMI video output port. ● **3P AUDIO**: Dual-Mono analog audio output port. ● **3.5mm AUDIO**: stereo audio output port. ● **OPTICAL**: optical audio output port.
③	Control	● **FIRMWARE**: Type-A USB port for updating firmware. ● **RS232**: Serial port, 3-pin pluggable terminal block, connect with control terminal (e.g. a PC) to control MP-SC-6E. ● **IR IN**: connect to an IR Receiver, to receive IR signal send by corresponding IR remote.
④	DC 5V	Connect to a DC 5V 3A power adapter.

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment that has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safe.

3) All devices should be connected before power on.

3.2 System Diagram

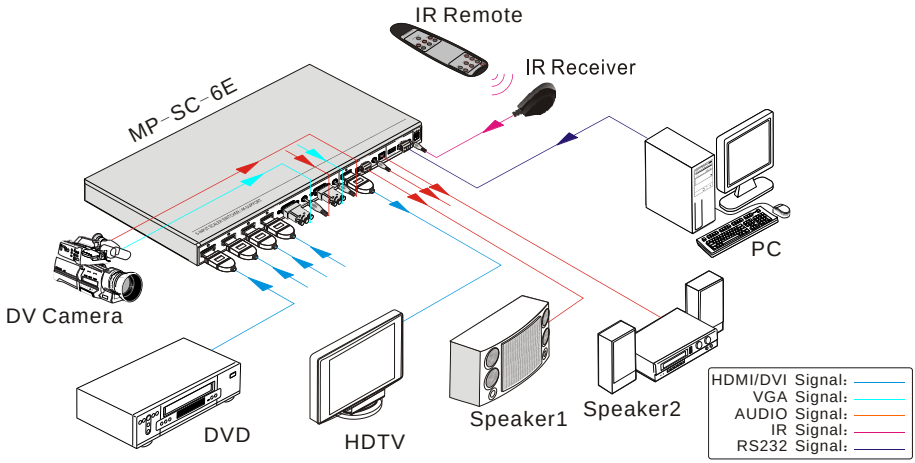


Figure 3- 1 Connection Diagram

3.3 Connection Procedures

Step1. Connect HDMI/DVI sources (e.g. DVD) to **HDMI** input ports of MP-SC-6E with HDMI cables.

Step2. Connect VGA sources (e.g. DV Camera) to **VGA** input ports of MP-SC-6E with VGA cables.

Step3. Connect sources to the **AUDIO** input ports of MP-SC-6E with audio cables.

Step4. Connect a HDMI display (e.g. HDTV) to **HDMI** output port of MP-SC-6E.

Step5. Connect audio amplifiers (e.g. speaker/earphone) to audio outputs of MP-SC-6E.

Step6. Connect a control device (e.g. PC) to the **RS232** port of MP-SC-6E

Step7. Connect an IR Receiver（working voltage:5V）to the **IR IN** port of MP-SC-6E.

Step8. Plug DC 5V 3A power adapter to MP-SC-6E.

3.4 Application

MP-SC-6E has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart home etc.

4. System Operations

4.1 Front Panel Button Control

Front panel buttons can be used for source selections, output resolution adjusting, front panel buttons management, software updating and output screen setting. (Please refer to chapter 2.1).

Here is the detail information for source selections:

There are 6 sources for choose in total, including HDMI1, HDMI2, HDMI3, HDMI4, VGA1, VGA2. Video signals support auto-switching and manual-switching (factory default). Press and hold for **SOURCE/AUTO** for **3 seconds or more** to enter in auto-switching/ manual-switching mode.

Manual-switching:

Dial ◄ to select the previous source, dial ► to select the next source.

Auto-switching:

In this mode, select input source via front panel button (◄ ►) is not available, but RS232 command and IR remote are able to switch mode. The auto LED turn green and keep on.

The auto-switching mode abides by the following principles:

- **New input principle**

Once detecting a new input signal, MP-SC-6E would switch to this new signal automatically.

- **Rebooting device principle**

MP-SC-6E have the ability of power-off memory. If the last switching mode is auto-switching, once rebooted, MP-SC-6E will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future rebooting using. If the last displayed signal is still available, MP-SC-6E will output the signal. If not, the unit will detect all the inputs signals with priority from HDMI1 to VGA2. When detected the first signal, it will transfer to output.

- **Signal removing principle**

Once removing the current display signal, MP-SC-6E will detect all input signals with priority from HDMI1 to VGA2. It will transfer the signal firstly detected to be available to output devices

Operation Examples:

- Connect HDMI2, HDMI4, and VGA2 ports with source devices, select HDMI4 to outputs.
- Press and hold for the front button **SOURCE/AUTO** for **3 seconds or more** to enter in auto-switching mode.
- Connect HDMI3 with a source device, and then it will choose HDMI3 to output.
- Remove the signal of HDMI3, MP-SC-6E will detect from HDMI1 to VGA2. And when it detects that HDMI2 is available, it will choose HDMI2 to output.
- Cut off the power of MP-SC-6E, then reboot. As the unit is in auto-switching mode, it will choose HDMI2 to output.

4.2 RS232 Control

Here we take the software **CommWatch.exe** as example.

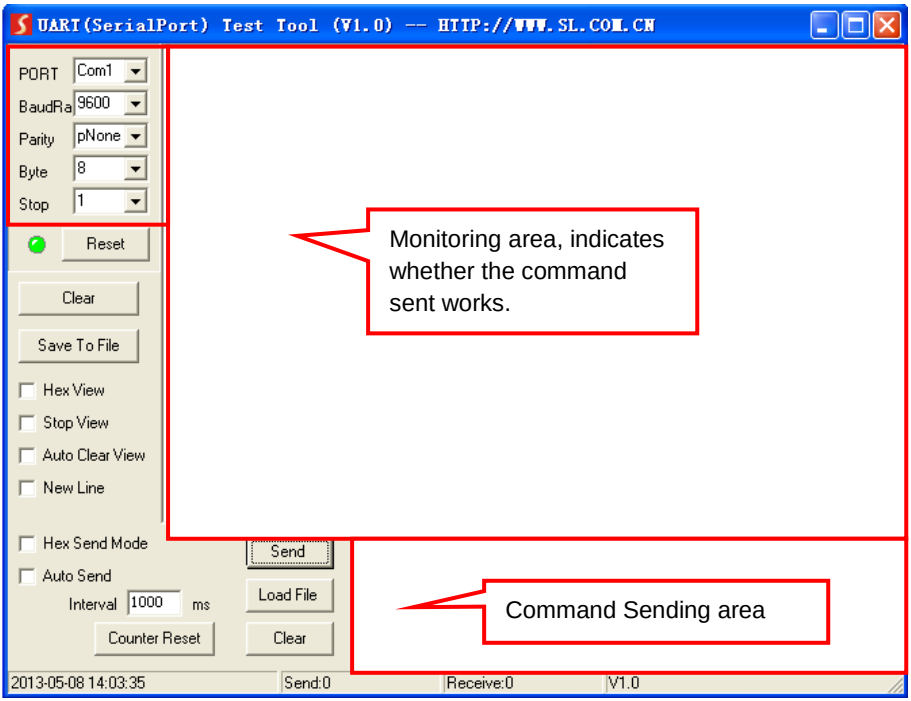
4.2.1 Control Software Operation

- **Installation** Copy the control software file to the computer connected with MP-SC-6E.
- **Uninstallation** Delete all the control software files in corresponding file path.

4.2.2 Basic Settings

Firstly, connect MP-SC-6E with an input device and an output device. Then, connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software. The icon is showed as below:

The interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, only then will you be able to send command in Command Sending Area.

4.2.3 RS232 Communication Commands

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

Command	Function	Feedback Example
Switch Commands		
50701%	Switch to HDMI 1 Input	Switch to HDMI 1
50702%	Switch to HDMI 2 Input	Switch to HDMI 2
50703%	Switch to HDMI 3 Input	Switch to HDMI 3
50704%	Switch to HDMI 4 Input	Switch to HDMI 4
50705%	Switch to VGA 1 input	Switch to VGA 1
50706%	Switch to VGA 2 input	Switch to VGA 2
50785%	Enable auto-switching	Auto Switching
50786%	Disable auto-switching	Manual Switching
Resolution Select Commands for VGA Input		
50619%	Change the resolution to 1360X 768	Resolution: 1360x768
50620%	Change the resolution to1920X1200 WUXGA	Resolution: 1920x1200
50626%	Change the resolution to 1024X768 XGA	Resolution: 1024x768
50627%	Change the resolution to 1280X720 720P	Resolution: 1280x720
50628%	Change the resolution to 1280X800 WXGA	Resolution: 1280x800
50629%	Change the resolution to 1920X1080 1080P	Resolution: 1920x1080
Setup Commands		
50604%	Lock the front panel buttons	Front Panel lock
50605%	Unlock the front panel buttons	Front Panel Unlock
502xx%	Set the brightness to xx (xx ranges from 0 to 99) for VGA input	Brightness: xx
503xx%	Set the contrast to xx (xx ranges from 0 to 99) for VGA input	Contrast: xx
504xx%	Set the saturation to xx (xx ranges from 0 to 99) for VGA input	Saturation: xx
505xx%	Set the sharpness to xx (xx ranges from 0 to 99) for VGA input	Sharpness: xx

50607%	Adjust the color temperature for VGA input	Color Temperature: xx (xx= Cool/ Medium/ Warm/ User.)
50608%	Set the aspect ratio for VGA input	Aspect Ratio: xx (xx= 16:9/ 4:3/ auto/)
50614%	Set the picture mode for VGA input	Picture Mode: xx (xx= dynamic/ standard/ mild/ user)
50615%	Set SM audio mode for VGA input	Sound Mode: xx Sound Mode: xx (xx= standard/ music/ movie/ sports/ user)
50648%	Enable HDMI embedded audio output	Embedded Audio Output: enable
50649%	Disable HDMI embedded audio output	Embedded Audio Output: disable
50606%	Auto-adjust the input parameter for (VGA only)	VGA Input Auto
50699%	Check the system version	Version Vx.x.x
50697%	Exit standby mode	Wake up!
50797%	Enter standby mode	Go to standby!
50698%	Software update	
50617%	Reset to factory defaults	Factory Reset
50707%	Change the horizontal polarity to the opposite,1 means positive polarity,0 means negative polarity	Hpolarity:0/1
50708%	Change the vertical polarity to the opposite,1 means positive polarity,0 means negative polarity	Vpolarity:0/1
50769%	Read the EDID file(the file must be named EDID.bin) to the flash from U flash disk	
50772%	Set the EDID date of all input ports: bypass mode	EDID: bypass mode
50773%	Set the EDID date of all input ports: 1080P&PCM 2ch	EDID:1080P&PCM 2ch
50774%	Set the EDID date of all input	EDID:1080P&5.1ch

	ports:1080P&5.1ch	
50775%	Set the EDID date of all input ports: 1080P 3D&5.1ch	EDID:1080P3d&5.1ch
50776%	Set the EDID date of all input ports: 1080i&PCM 2ch	EDID:1080i&PCM 2ch
50777%	Set the EDID date of all input ports: 4K&PCM 2ch	EDID:4K&PCM 2ch
50787%	Set the EDID date of all input ports: user	EDID:user
50653%	Switch off audio & video output	Output black: enable
50654%	Switch on audio & video output	Output black:disable Switch to VGA2
Inquire Commands		
50631%	Check the input source	Input: xx
50632%	Check the output resolution	Resolution: xx
50633%	Check the image mode	Picture Mode: xx
50634%	Check the audio mode	Sound Mode: xx
50635%	Check the image aspect ratio	Aspect Ratio: xx
50636%	Check the brightness	Brightness: xx
50637%	Check the contrast	Contrast: xx
50638%	Check the saturation	Saturation: xx
50639%	Check sharpness	Sharpness: xx
50640%	Check the color temperature	Color Temperature: xx
50652%	Check Digital audio output status	Embedded Audio Output: enable/disable
50655%	Check video & audio output status	50655% Black screen Disable/ Black screen Enable
50709%	Check the present resolution and polarity	1920x1080 Hpolarity:1 Vpolarity:0
50754%	Check the panel locked status	Front Panel Lock/UnLock
50778%	Inquire EDID s	EDID: xx
Adjustment Commands for VGA input		
50670%	Move the image to left	Output Position Adjust X xx

50671%	Move the image to right	Output Position Adjust X xx
50672%	Move the image up	Output Position Adjust Y xx
50673%	Move the image down	Output Position Adjust Y xx
50674%	Stretch left from left side (increase image width)	Output Width Adjust xx
50675%	Pull right from left side (decrease image width)	Output Width Adjust xx
50676%	Stretch upwards from top side (increase image height)	Output Height Adjust xx
50677%	Stretch downwards from top side(decrease image height)	Output height adjust xx
50678%	Enable screen output adjusting	Enter Output Position Adjust
50679%	Disable screen output adjusting	Exit Output Position Adjust

Notes:

1 Please remember to end the commands with the ending symbol “%”.

2 EDID commands are for HDMI sources only.

3 The procedure of upgrading EDID data for user:

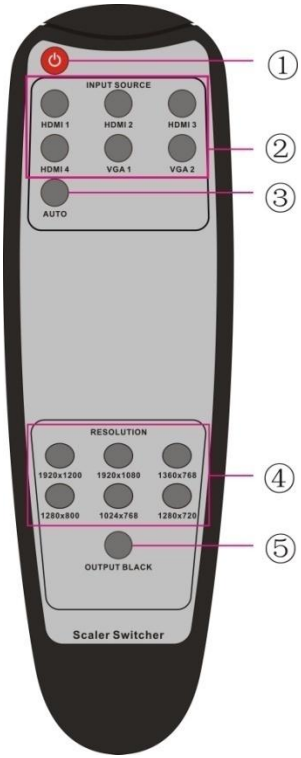
Step1.Copy the file (the file must be named EDID.bin) to the root directory of a USB flash disk.

Step2.Plug the USB flash disk to the MP-SC-6E **Firmware** port on its rear panel.

Step3.Send command 50769% to read EDID data from U flash disk, then, send command 50787% to update EDID.

4.3 IR control

The unit enables to use the IR remote to control it. Here is brief description of IR remote.



① **Standby button**

Enter/ exit standby mode.

② **Input channel selection buttons**

Selection video source via pressing corresponding button (audio switched following the corresponding VGA).

③ **Auto button**

Enter/ exit auto-switching mode.

④ **Resolution selection buttons**

Select resolution via pressing corresponding button.

⑤ **Output black button**

Press to switch on/off Audio& Video output

4.4 Firmware Updating

MP-SC-6E supports firmware updating via USB flash disk. The procedures as follows:

Step1. Copy the file "**MERGE.bin**" to the root directory of a USB flash disk. (Make sure the file is copied to the root directory for normal use. The "MERGE.bin" file is provided/ authorized.

Step2. Plug the USB flash disk to MP-SC-6E **FIRMWARE** port on its rear panel.

Step3. Press the button "**RESOLUTION/FW UPDATE**" for **7 seconds or more** to update the firmware automatically. Or send command **50698%** to update software.

5. Specification

Video Input		**Video Output**	
Input	4 HDMI, 2 VGA	Output	1 HDMI
Input Connector	4 female HDMI (Type-A) 2 female VGA (15Pin)	Output connector	1 female HDMI

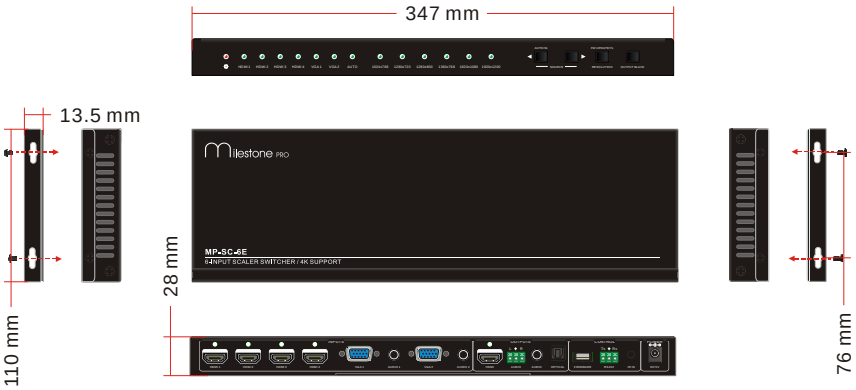
Video Signal	HDMI/DVI,VGA	Video Signal	HDMI
Resolution	HDMI: up to 4Kx2K VGA: output resolution selectable		
Standard	Compliant with VGA&DVI HDMI1.4, HDCP 1.4		
Audio Input		**Audio Output**	
Input	2 stereo audio for VGA	Output	1 Dual-Mono analog audio 1 stereo audio 1 optical audio
Input Connector	1 3.5mm jack	Output Connector	1 3-pin pluggable terminal block (3.81mm) 1 3.5mm jack 1 SPF fiber connector
Control parts			
Control Ports	RS232, IR remote	Pin configuration	2 = TX, 3 = RX, 5 = GND
Panel Control	Front Panel Button		
General			
Power Supply	DC 5V 3A	Power Consumption	3.8（Max）
Dimension (W*H*D)	W347 x H28 x D110 mm	Weight	0.63Kg
Temperature	0℃ ~ 50℃	Reference Humidity	10% ~ 90%
Transmit Distance	4Kx2K≤15m		

Note: MP-SC-6E supports 4k&1080p 3D HDMI signal, please adopt quality HDMI cables compliant with HDMI1.4 for reliable transmission when connecting

Supported Input Resolutions

Format	Resolution
HDMI/DVI	800x600@60Hz, 800x600@72Hz, 800x600@75Hz, 1024x768@42Hz, 1024x768@60Hz, 1024x768@70Hz, 1024x768@75Hz, 1024x768@85Hz, 1152x864@75Hz, 1280x768@60Hz, 1280x768@75Hz, 1280x768@85Hz, 1280x960@60Hz, 1280x960@85Hz, 1280x1024@60Hz, 1280x1024@75Hz, 1280x1024@85Hz, 1365x1024@60Hz, 1365x1024@60Hz, 1600x1024@60Hz, 1600x1200@60Hz, 1600x1200@65Hz, 1600x1200@70Hz, 1600x1200@75Hz, 1600x1200@85Hz, 1680x1050@60Hz, 1792x1344@60Hz, 1856x1392@60Hz, 1856x1392@75Hz, 1920x1080@60Hz, 1920x1200@60Hz, 1920x1440@60Hz, 3840x2160@24Hz, 3840x2160@30Hz, 3840x2160@25Hz, 4096x2160@24Hz, 4096x2160@25Hz, 4096x2160@30Hz,
VGA	800x600@60Hz, 800x600@72Hz, 800x600@75Hz, 1024x768@60Hz, 1024x768@70Hz, 1024x768@75Hz, 1280x768@60Hz, 1280x768@75Hz, 1280x960@60Hz, 1280x1024@60Hz, 1280x1024@75Hz, 1365x1024@60Hz, 1365x1024@75Hz, 1600x1024@60Hz, 1600x1200@60Hz, 1600x1200@65Hz, 1600x1200@70Hz, 1600x1200@75Hz, 1680x1050@60Hz, 1792x1344@60Hz, 1920x1080@60Hz, 1920x1200@60Hz

6. Panel Drawing



7. Troubleshooting & Maintenance

Problems	Causes	Solutions
Power LED doesn't work or no response to any operation	Fail connection of power cord	Make sure the power cord connection is normal
	Power adapter doesn't suitable	Please replace the power adapter with factory default
No output image on display when switching	Fail or loose connection	Make sure the connection is enable
Output image with snowflake or ghost	Bad quality of the connecting cable	Please replace high quality cable.
	Over the transmission distance	please replace the proper distance cable
Cannot control the device via front panel button	Front panel buttons are locked	Send command 50605% to unlock it
Cannot select source via SOURCE/AUTO buttons	In auto-switching mode	Press it and hold for 3 seconds or more to enter in manual-switching mode
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Type in correct RS232 communication parameters.
	Broken RS232 port	Send it to authorized dealer for checking.
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.
Cannot control the device	The device has already been broken.	Send it to authorized dealer for repairing.

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

8. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual.

1) **Product Limited Warranty:** We warrants that its products will be free from defects in materials and workmanship for **three years,** which starts from the first day the product leaves warehouse (check the SN mark on the product).
   Proof of purchase in the form of a bill of sale or receipted invoice must be presented to obtain warranty service.
2) **What the warranty does not cover:**
   - 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.
     - Other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

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Remarks: For any questions or problems, please try to get help from your local distributor.