

User Manual

MP-SC-5D

Compact Scaler Switcher



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Version: MP-SC-5D_2016V1.0

Safety Operation Guide

In order to guarantee the reliable operation of the equipment and safety of the staff, please abide by the following proceeding in installation, using and maintenance:

- 1) The system must be earthed properly. Please do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.
- 2) Do not put the device in a place of too hot or too cold.
- 3) As the power generating heat when running, the working environment should be maintained fine ventilation, in case of damage caused by overheat.
- 4) Cut off the general power switch in humid weather or left unused for long time.
- 5) Before following operation, ensure that the alternating current wire is pull out of the power supply:
 - Take off or reship any components of the equipment.
 - Take off or rejoin any pin or other link of the equipment.
- 6) As to non-professional or without permission, please DO NOT try to open the casing of the equipment, DO NOT repair it on your own, in case of accident or increasing the damage of the equipment.
- 7) DO NOT splash any chemistry substance or liquid in the equipment or around.

Table of Contents

| | |
|--------------------------------------------------------------------|----|
| 1. Introduction | 1 |
| 1.1 Introduction to MP-SC-5D..... | 1 |
| 1.2 Features | 1 |
| 1.3 Package Contents | 1 |
| 2. Product Appearance of MP-SC-5D | 2 |
| 2.1 Front Panel..... | 2 |
| 2.2 Rear Panel..... | 3 |
| 3. System Connection..... | 4 |
| 3.1 Usage Precautions | 4 |
| 3.2 System Diagram | 5 |
| 3.3 Connection Procedure..... | 5 |
| 3.4 Connection of Microphone..... | 5 |
| 3.5 Application | 7 |
| 4. System Operations | 7 |
| 4.1 Operations of Buttons..... | 7 |
| 4.1.1 Resolution Adjusting | 7 |
| 4.1.2 Switching Operations..... | 8 |
| 4.1.3 Software Updating | 9 |
| 4.1.4 Volume Adjusting | 9 |
| 4.1.5 Operations in OSD Menus..... | 9 |
| 4.2 Operations of IR | 10 |
| 4.2.1 IR Remote | 10 |
| 4.3 Operations of CEC Function..... | 11 |
| 4.4 Operations of RS232 Control..... | 11 |
| 4.4.1 Installation/ uninstallation of RS232 Control Software | 12 |
| 4.4.2 Basic Settings..... | 12 |
| 4.4.3 RS232 Communication Commands | 13 |
| 4.5 Operations in OSD Menu..... | 20 |
| 4.5.1 Option | 20 |
| 4.5.2 Picture | 22 |
| 4.5.3 Sound | 23 |

| | |
|------------------------------------------------|----|
| 4.5.4 Setup | 23 |
| 4.6 Instructions of VGA Converting Cable | 24 |
| 5. Specification | 26 |
| 6. Panel Drawing | 27 |
| 7. Troubleshooting & Maintenance | 28 |
| 8. After-sales Service | 30 |

1. Introduction

1.1 Introduction to MP-SC-5D

MP-SC-5D is a compact mini scaler switcher with 5 video inputs (3 HDMI, 2 VGA) and 6 audio inputs (3 HDMI audio & 2 VGA audio: switched following the video; 1 MIC audio input). As the VGA input supports VGA, YPbPr and C-video, so the scaler switcher is compliant with multiple video signals.

MP-SC-5D scales & switches any video signal to HDMI output. MP-SC-5D supports various control methods including front panel control, IR control and RS232 command control.

1.2 Features

- Compliant with HDCP.
- Supports CEC, with commands to enable/disable this function.
- Supports video source auto-switching function.
- Output resolutions selectable to assure preferred output, and supports various output resolutions, such as 1920x1200, 1920x1080, 1600x1200, 1360x768, 1280x800, 1280x720, 1024x768.
- VGA video supports C-video, YPbPr and VGA.
- Supports online software upgrading.
- 48V phantom power to support condenser microphone.
- MIC port supports balance/unbalance signal, suppress the external noise effectively.
- 3-level MIC inputs, supports condenser microphone, dynamic microphone and wireless microphone.
- Controllable via button, IR & RS232.
- Powerful OSD operations.

1.3 Package Contents

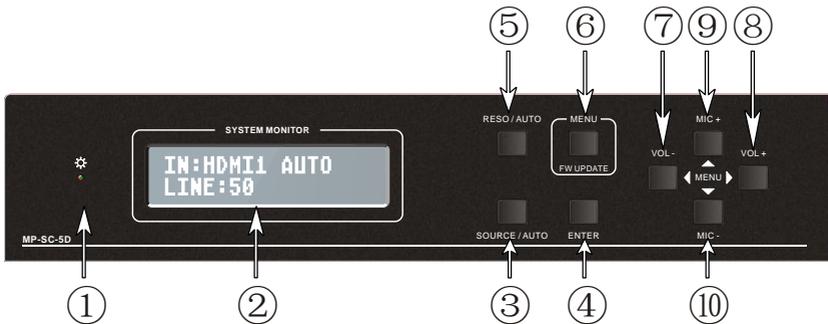
- 1 x MP-SC-5D
- 2 x Mounting ears (separate from MP-SC-5D)
- 8 x Screws (for mounting ears)
- 7 x Captive screw connectors
- 2 x VGA to YPbPr cables
- 1 x IR receiver
- 1 x RS232 cable
- 4 x Plastic cushions

- 1 x Power Adapter (DC 12V)
- 1 x IR remote
- 1 x Warranty Card
- 1 x Conformity Certificate
- 1 x User Manual

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Product Appearance of MP-SC-5D

2.1 Front Panel



- ① Power indicator
Turn red when power on, turn green when in standby mode.
- ② LCD screen
Show the real-time system working status.
- ③ SOURCE/AUTO
 - Use as video source selection button, press to select one source, press again to select next source, switching circularly between HDMI1, HDMI2, HDMI3, VGA1 and VGA2. The LCD screen will show the name of selected source.
 - Use as switching mode selection button, press and hold on for **7 seconds or more** to enter in Auto-switching mode, press and hold on for **7 seconds or more** again to enter in Manual-switching mode.

Note: Setting any VGA port to AV or YPbPr in Manual-switching mode, the system will not be able to enter in Auto-switching mode. While in Auto-switching mode, setting any VGA port to AV or YPbPr will force the system to enter in Manual-switching mode with LCD screen and RS232 control software prompting “Not support!”.

- ④ ENTER
Press to confirm selection in menu.
- ⑤ RESO/AUTO

- Manual-switching mode: Press this button to select the resolution of HDMI output manually. The resolution can be selected among 1360x768, 1280x800, 1280x720, 1024x768, 1920x1200, 1920x1080 and 1600x1200.
- Auto-switching mode: Press and hold this button for **7 seconds or more** to enter this mode. This Scaler Switcher will automatically select the highest resolution of HDMI display device.

Press and hold for **7 seconds or more** again can back to Manual-switching mode.

⑥ MENU/FWUPDATE

- Use as menu button, press it to enter in OSD menu.
- Use as software updating button, press and hold on for **7 seconds or more** to enter in software updating procedure.

⑦ VOL-

- Volume down button, press it to turn down the volume
- Use as direction button NEXT when in menus.

⑧ MIC+

- MIC volume up button, press it to turn up the volume of the microphone.
- Use as direction button MOVE UP when in menus.

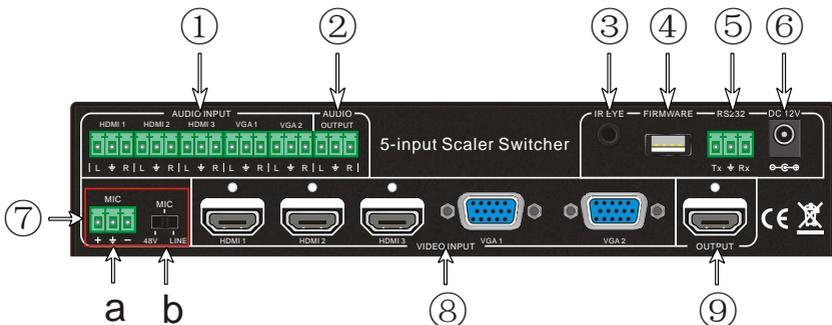
⑨ VOL+

- Volume up button, press it to turn up the volume.
- Use as direction button PREVIOUS when in menus.

⑩ MIC-

- MIC volume down button, press it to turn down the volume of the microphone.
- Use as direction button MOVE DOWN when in menus.

2.2 Rear Panel



① AUDIO INPUT

Including 3 HDMI audio & 2 VGA audio inputs corresponding to the 5 video inputs,

users can choose any one audio (embedded HDMI audio or external input audio) for HDMI audio input by sending RS232 commands.

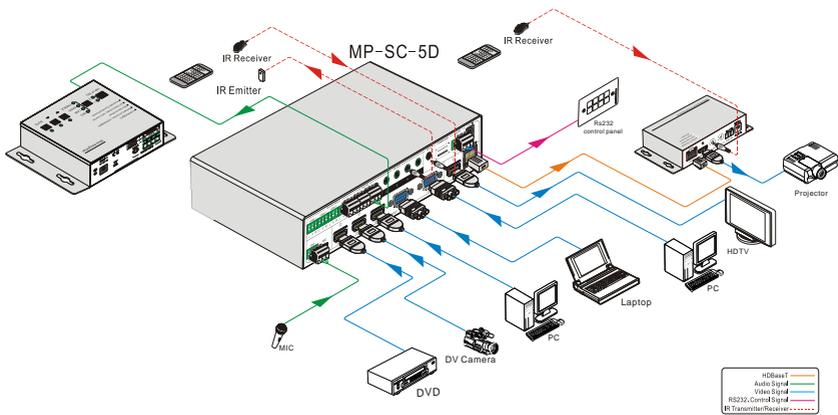
- ② **AUDIO OUTPUT**
1 Audio output port, connect with an amplifier. The audio comes from the input audio corresponding to the selected video source and mixed with MIC audio.
- ③ **IR EYE**
Connect with an IR receiver to receive IR signal sent by the IR remote.
- ④ **FIRMWARE**
USB port, connect with USB flash disk or other storage with update file to update the system firmware.
- ⑤ **RS232**
Serial control port, 3p captive screw connector, connect with a control device (such as a computer) to control MP-SC-5D.
- ⑥ **12V DC**
Power port, connect with the 12V DC power adapter.
- ⑦ **MIC**
 - a) MIC port, connect with microphone
 - b) MIC Dial switch: 3 levels: 48V phantom power mode (connect with condenser microphone), MIC mode (connect with dynamic microphone) and LINE mode (connect with wireless microphone or line audio).
- ⑧ **VIDEO INPUT**
Video input ports, includes 3 HDMI inputs & 2 VGA inputs. VGA ports support YPbPr, C-video and VGA format. Factory default is VGA format.
- ⑨ **OUTPUT**
1 HDMI local output, connect with a HDMI displayer.

3. System Connection

3.1 Usage Precautions

- 1) System should be installed in a clean environment and 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



3.3 Connection Procedure

- Step1.** Connect HDMI source devices (e.g. Blue-ray DVD) to HDMI input ports of MP-SC-5D with HDMI cable. Connect VGA source devices (e.g. PC) to VGA input ports of MP-SC-5D with VGA cable.
- Step2.** Connect the corresponding audio source to the corresponding AUDIO INPUT port of MP-SC-5D with audio cable accordingly. The audio of HDMI can be set as embedded or external by sending right commands.
- Step3.** Connect a HDMI display device to HDMI output port of MP-SC-5D with HDMI cable.
- Step4.** Connect speakers, headphones or amplifiers to AUDIO OUTPUT port of MP-SC-5D.
- Step5.** Connect control device (e.g. PC) to the RS232 port of MP-SC-5D.
- Step6.** Select MIC level and connect right microphone to the MIC input port. MIC audio will be transmitted to AUDIO OUTPUT port and mixed with source audio.
- Step7.** Connect DC12V power adaptor to the power port.

3.4 Connection of Microphone

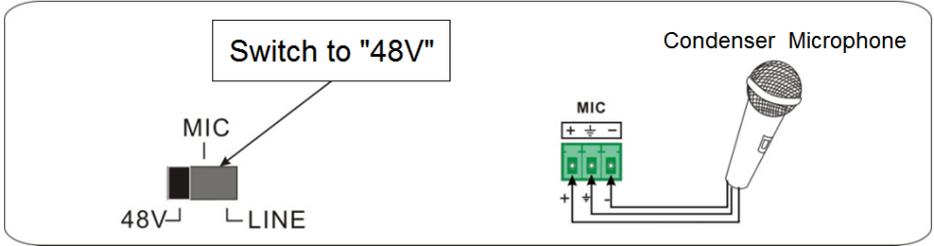
MP-SC-5D provides one 3-level microphone input to accommodate different microphone input modes, including 48V phantom power mode, MIC mode & LINE mode.

➤ 48V phantom power input

When switch to “48V” (It has a good frequency characteristic, high input impedance and high sensitivity in this mode), the MIC input will offer a 48V phantom power. This is only used for **condenser microphone**.

Connect the microphone this way: “+” connects to positive, “-” connects to negative and

“” to ground.



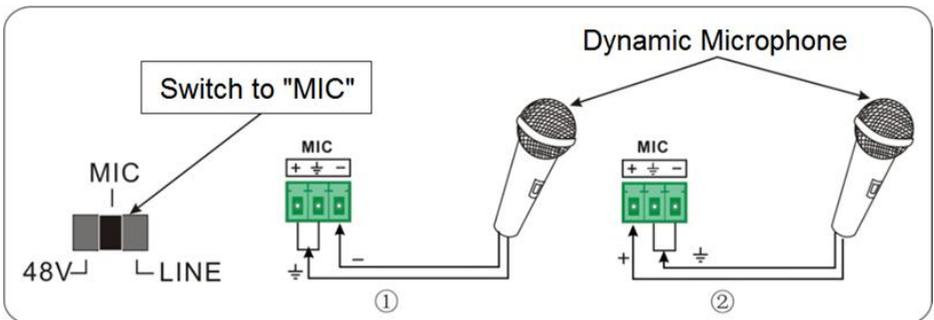
➤ MIC input

When switch to “MIC” (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting with **dynamic microphone**. There are two different connections:

1) Unbalanced connection:

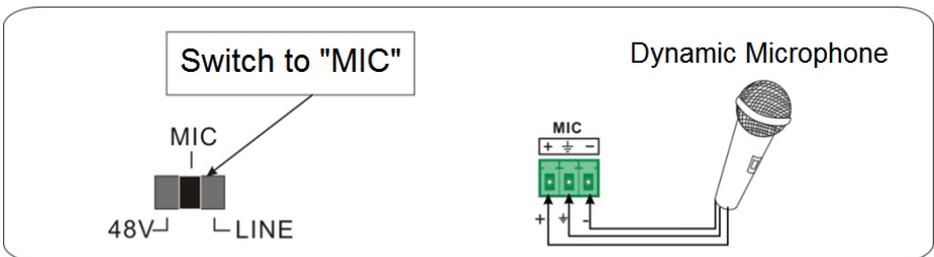
“+” and “” connect to ground, and “-” connects to signal.

“-” and “” connect to ground, and “+” connects to signal.



2) Balanced connection:

“+” connects to positive, “-” connects to negative and “” connects to ground.



➤ LINE input

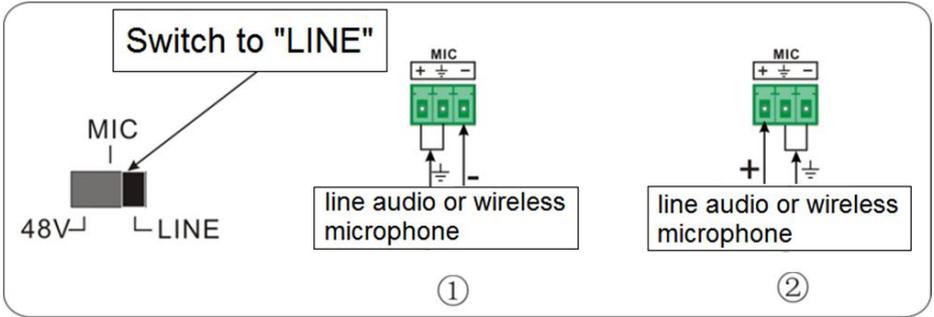
When switch to “LINE” (It has a low frequency characteristics, and wide frequency

response in this mode), the microphone input is used for connecting with line audio or wireless microphone output. There are two different connections:

1) Unbalanced connection:

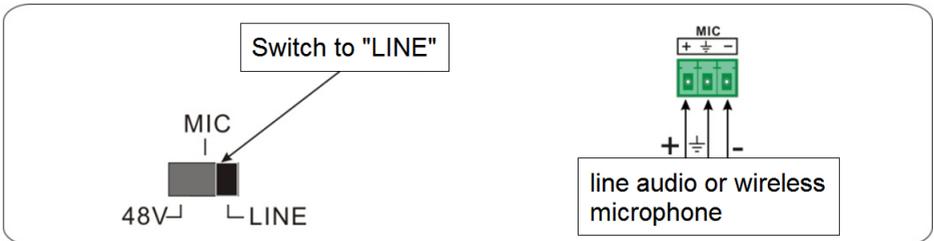
“+” and “ \perp ” connect to ground, and “-” connects to signal.

“-” and “ \perp ” connect to ground, and “+” connects to signal.



b) Balanced connection:

“+” connects to positive, “-” connects to negative and “ \perp ” connects to ground.



3.5 Application

MP-SC-5D has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart house etc.

4. System Operations

4.1 Operations of Buttons

The buttons can be used for output resolution adjusting, switching operations, software updating, volume adjusting and operations in menus.

4.1.1 Resolution Adjusting

Support auto-adjusting and manual-adjusting. Press and hold on **RESO/AUTO** button for **7 seconds or more** to enter in auto-adjusting/manual-adjusting mode.

Notice:

1. In auto-adjusting mode, MP-SC-5D will choose the resolution of the display device as the preferred resolution.
2. In auto-switching mode, front panel button control is not available, but IR and RS232 control is able to switch modes.

4.1.2 Switching Operations

Support auto-switching and manual-switching. Press and hold on **SOURCE/AUTO** button for **7 seconds or more** to enter in auto-switching/manual-switching mode.

The display result is showed as below:



The display result will be showed for **2 seconds**.

Auto-switching function

The auto-switching mode follows the listed principles:

➤ **New input principle**

Once detecting a new input signal, MP-SC-5D would switch to this new signal automatically.

➤ **Power rebooting principle**

MP-SC-5D offers the function to remember the signal last displayed when rebooting. Once rebooting, MP-SC-5D will automatically enter in auto-switching mode, and then detect all inputs and memorize their connection status for future rebooting using.

And if the signal last displayed is still available, then MP-SC-5D will output the signal. If not, there will be no signal on outputs.

➤ **Signal removing principle**

Once removing the current display signal, MP-SC-5D will detect all input signals with priority (from INPUT 1 to INPUT 5). It will output the signal firstly detected to be available.

Notice: Auto-switching function works only when there is new input signal, or when users remove a signal or power rebooting. With any VGA port set to AV or YPbPr, the system will be not able to enter in Auto-switching mode.

Operation Examples:

- Connect the INPUT 2, INPUT 4, and INPUT 5 ports to the source devices, select INPUT 4 to outputs.
- Press and hold on the front key **SOURCE/AUTO** for **7 seconds or more** to enter in

auto-switching mode.

- With no signal removing or new input, MP-SC-5D just works in auto-switching mode, and take no action (Output from INPUT 4).
- Connect INPUT 3 with a source device, and then it will choose INPUT 3 to output.
- Remove the signal of INPUT 3, MP-SC-5D will detect from INPUT 1 to INPUT 5. And when it detects that input 2 is available, it will choose INPUT 2 to output.
- Cut off the power of MP-SC-5D, then reboot. As MP-SC-5D is in auto-switching mode, then it will choose INPUT 2 to output.

4.1.3 Software Updating

Software updating means to update the inside program of this scaler switcher.

MP-SC-5D supports software updating via USB flash disk. The Operation is:

- 1) Copy the file "**MERGE_51D.bin**" to the root directory of a USB flash disk. (Make sure the file is copied to the root directory for normal use.
- 2) Plug the USB flash disk to the MP-SC-5D USB port on its front panel.
- 3) Press the button "MENU" for **7 seconds or more** to update the software automatically.

Or press this button for 1 second to open the OSD menu "Option" → Select "Software Update" to enter in update procedure.

Or send command **50698%** to update software.

4.1.4 Volume Adjusting

Not in OSD menu, press VOL -- to decrease line volume, VOL + to increase.

Not in OSD menu, press MIC – to decrease MIC volume, MIC + to increase.

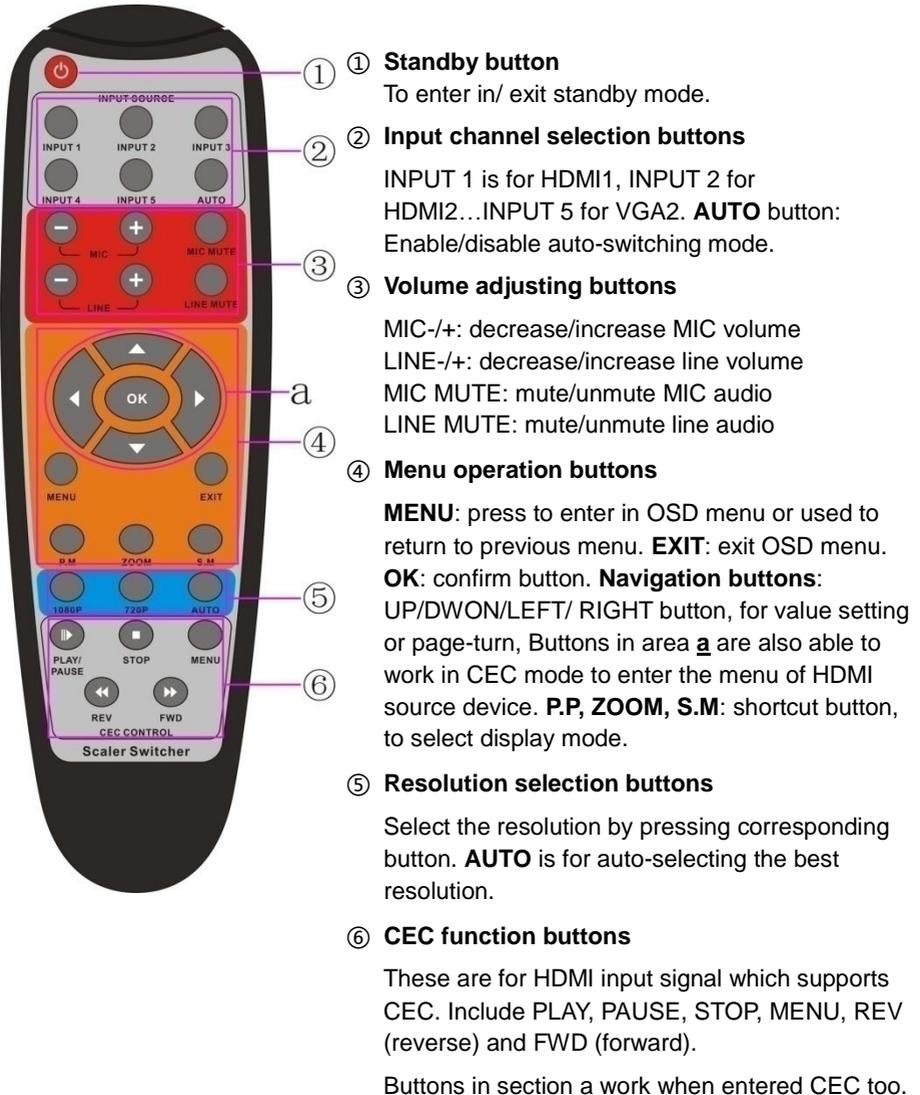
4.1.5 Operations in OSD Menus

Press **MENU** button to enter in the OSD menu, and use **UP, DWON, LEFT, RIGHT** button to select, press **ENTER** button to confirm selection. **MENU** button also can be used to exit present menu level by level until exiting the OSD menu.

4.2 Operations of IR

4.2.1 IR Remote

With its CEC function, users are able to control the MP-SC-5D and source devices synchronously via one IR remote.



4.3 Operations of CEC Function

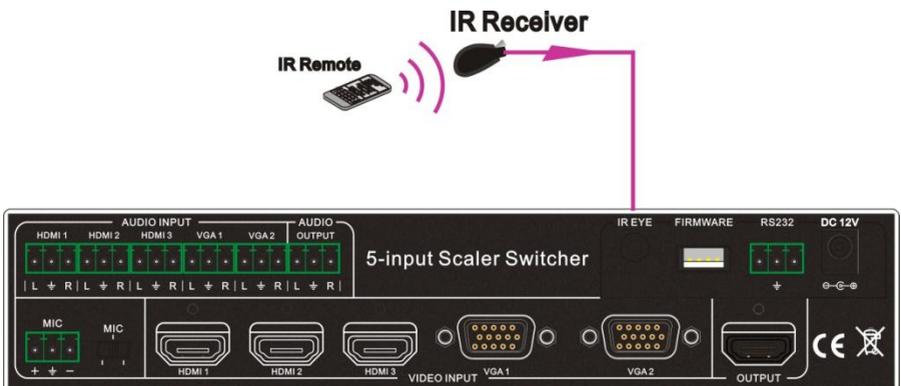
MP-SC-5D supports CEC and CEC standby functions, and can be enabled/ disabled through RS232 commands or OSD menu. If the HDMI source device supports CEC and its CEC is on, and when MP-SC-5D enter in standby/startup mode, then source device will automatically enter in standby/startup mode.

And due to CEC function, user can control HDMI source device with basic operations (play, pause, fast forward, fast reverse, menu etc.). So user is able to control MP-SC-5D and HDMI source device via the IR remote of MP-SC-5D.

Commands for CEC function: “50686%” (enable CEC) and “50687%” (disable CEC).

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

| Situation | Working Status |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CEC: on, Standby: on | Press STANDBY button on IR remote, MP-SC-5D enters in standby mode, so do all HDMI source devices. Press STANDBY button again on IR remote, MP-SC-5D exits standby mode, only the HDMI source device switched to starts working. |
| CEC: on, Standby: off | Press STANDBY button on IR remote, MP-SC-5D enters in standby mode, HDMI 1~3 source devices keep on. |
| CEC: on | Use CEC function buttons, ▲, ▼, ◀, ▶ and OK buttons on IR remote to control HDMI source devices, include play, pause, fast forward, fast reverse and operations in menu. |
| CEC: off | Unable to control HDMI source devices through IR remote. |



CEC: Control HDMI source devices by IR remote of MP-SC-5D

4.4 Operations of RS232 Control

MP-SC-5D can be controlled by sending RS232 commands. Connect the RS232 port of

MP-SC-5D and the RS232 port of control device (e.g. a PC). Install the RS232 control software to the control device, then users are able to control the MP-SC-5D by sending RS232 commands. Here is an operation guidance for RS232 control.

4.4.1 Installation/ uninstallation of RS232 Control Software

- **Installation** Copy the control software file to the computer connected with MP-SC-5D.
- **Uninstallation** Delete all the control software files in corresponding file path.

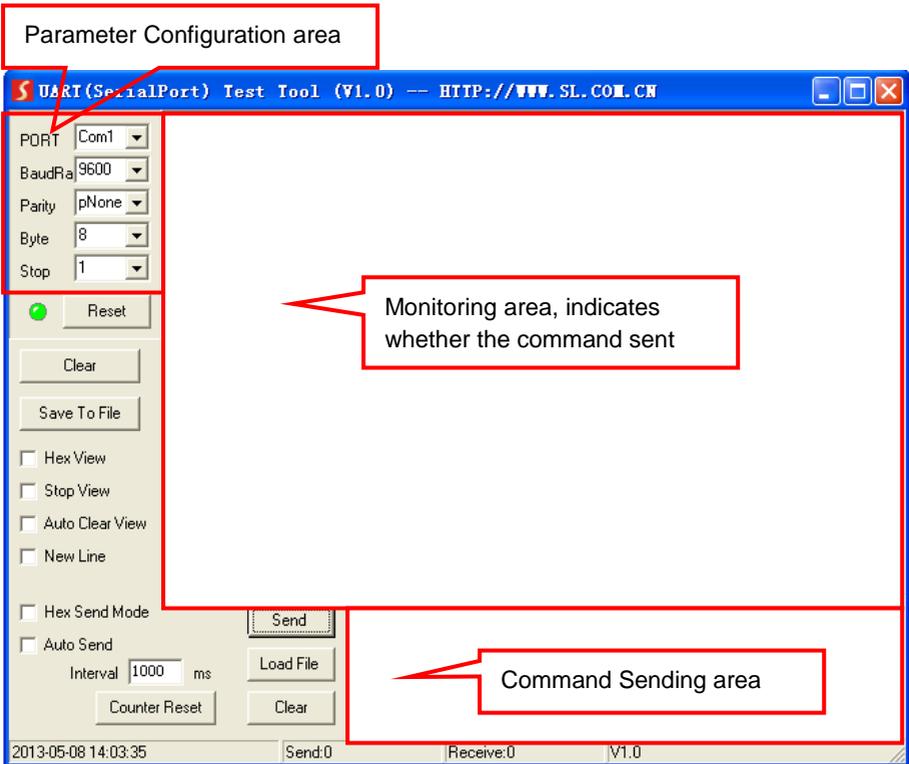
4.4.2 Basic Settings

First to connect MP-SC-5D with all input devices and output devices needed, then to connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software.

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



The interface of the control software is showed as below:



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

4.4.3 RS232 Communication Commands

Communication protocol: RS232 Communication Protocol.

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

| Command | Function | Feedback Example |
|------------------------|------------------------------------|-------------------------------|
| Switch Commands | | |
| 50701% | Switch to 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 VGA 1/YPbPr 1/AV 1 input | Switch to VGA 1/YPbPr 1/AV 1 |
| 50705% | Switch to VGA 2/YPbPr 2/AV 2 input | Switch to VGA 2/YPbPr 2/AV 2 |
| 50680% | Select VGA 1 for INPUT 4 | Input 4 Set & Switch to VGA 1 |
| 50681% | Select YPbPr 1 for INPUT 4 | Input 4 Set & Switch to AV 1 |

Compact Scaler Switcher

| Command | Function | Feedback Example |
|-----------------------|---------------------------------------------|---------------------------------|
| 50682% | Select AV 1 for INPUT 4 | Input 4 Set & Switch to AV 1 |
| 50683% | Select VGA 2 for INPUT 5 | Input 5 Set & Switch to VGA 2 |
| 50684% | Select YPbPr 2 for INPUT 5 | Input 5 Set & Switch to YPbPr 2 |
| 50685% | Select AV 2 for INPUT 5 | Input 5 Set & Switch to AV 2 |
| 50785% | Enable auto-switching | Auto Switching |
| 50786% | Disable auto-switching | Manual Switching |
| Audio Commands | | |
| 50600% | MUTE line audio | LINE Mute |
| 50601% | UnMute line audio | LINE Unmute |
| 50602% | Line audio volume up | LINE Volume: xx |
| 50603% | Line audio volume down | LINE Volume: xx |
| 50720% | Mute LINE audio & MIC audio | LINE Mute |
| | | MIC Mute |
| 50721% | Unmute LINE audio & MIC audio | LINE Unmute |
| | | MIC Unmute |
| 50722% | Mute MIC audio | MIC Mute |
| 50723% | Unmute MIC audio | MIC Unmute |
| 50694% | Enable Mic precedence | Mic precedence: enable |
| 50695% | Disable Mic precedence | Mic precedence: disable |
| 50696% | Check Mic precedence status | Mic precedence: XXXX |
| 50724% | MIC volume up | MIC Volume: xx |
| 50725% | MIC volume down | MIC Volume: xx |
| 508xx% | Set MIC volume | MIC Volume: xx |
| 50706% | Choose embedded audio as HDMI 1 audio input | HDMI 1 Audio from Embedded |
| 50707% | Choose external audio as HDMI 1 audio input | HDMI 1 Audio from LINE |
| 50708% | Choose embedded audio as HDMI 2 audio input | HDMI 2 Audio from Embedded |
| 50709% | Choose external audio as HDMI 2 | HDMI 2 Audio from LINE |

| Command | Function | Feedback Example |
|----------------------------|--------------------------------------------------|----------------------------|
| | audio input | |
| 50710% | Choose embedded audio as HDMI 3 audio input | HDMI 3 Audio from Embedded |
| 50711% | Choose external audio as HDMI 3 audio input | HDMI 3 Audio from LINE |
| Resolution Commands | | |
| 50619% | Change the resolution to 1360X768 HD | Resolution: 1360x768 |
| 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 |
| 50620% | Change the resolution to 1920X1200 WUXGA | Resolution: 1920x1200 |
| 50621% | Change the resolution to 1600X1200 UXGA | Resolution: 1600x1200 |
| Setup Commands | | |
| 50604% | Lock the front panel buttons | Front Panel lock |
| 50605% | Unlock the front panel buttons | Front Panel Unlock |
| 501xx% | Set the volume to xx. XX ranges from 0 to 60 | LINE Volume: xx |
| 502xx% | Set the brightness to xx. XX ranges from 0 to 99 | Brightness: xx |
| 503xx% | Set the contrast to xx. XX ranges from 0 to 99 | Contrast: xx |

| Command | Function | Feedback Example |
|----------------|--------------------------------------------------|--------------------------------|
| 504xx% | Set the saturation to xx. XX ranges from 0 to 99 | Saturation: xx |
| 505xx% | Set the sharpness to xx. XX ranges from 0 to 99 | Sharpness: xx |
| 50607% | Adjust the color temperature | Color Temperature: xx |
| 50608% | Set the aspect ratio | Aspect Ratio: xx |
| 50614% | Set the picture mode | Picture Mode: xx |
| 50615% | Set SM audio mode | Sound Mode: xx |
| 50655% | Freeze output image | Freeze: enable |
| 50656% | Cancel the freezing of output image | Freeze: disable |
| 50646% | Enable MIC Volume Icon display | Volume Icon: enable |
| 50647% | Disable MIC Volume Icon display | Volume Icon: disable |
| 50648% | Enable HDMI embedded audio output | Embedded Audio Output: enable |
| 50649% | Disable HDMI embedded audio output | Embedded Audio Output: disable |
| 50761% | Not display mute icon of LINE audio | LINE Mute Icon: disable |
| 50762% | Display mute icon of LINE audio | LINE Mute Icon: enable |
| 50763% | Not display mute icon of MIC audio | MIC Mute Icon: disable |
| 50764% | Display mute icon of MIC audio | MIC Mute Icon: enable |
| 50765% | Display freeze icon | Freeze Icon: enable |
| 50766% | Not display freeze icon | Freeze Icon: disable |
| 50644% | Display channel status | Input Icon: enable |
| 50645% | Not display channel status | Input Icon: disable |
| 50650% | Check the channel status | Input Icon: xx |
| 50606% | Auto-adjust the input parameter(VGA only) | VGA Input Auto |
| 50699% | Check the system version | Version Vx.x.x |
| 50688% | Enable MIC noise detecting | MIC detect: enable |
| 50689% | Disable MIC noise detecting | MIC detect: disable |
| 50690% | Check MIC noise detecting statue | MIC detect: XXXX |

| Command | Function | Feedback Example |
|-------------------------|----------------------------------------------------------------------------|-----------------------------------------|
| 50791% | HDCP Active | HDCP Active |
| 50792% | HDCP Manual | HDCP Manual |
| 50793% | Enable HDCP output | HDCP ON |
| 50794% | Disable HDCP output | HDCP OFF |
| 50795% | Inquire HDCP/ Active HDCP | HDCP Active |
| | Inquire HDCP/ Manual HDCP | HDCP Manual HDCP OFF/ON |
| 50782% | EDID management, copy the best resolution data of one output to HDMI input | Manage HDMI input with preferred timing |
| | | timing table=[1] |
| | | Resolution:1920x1080 |
| 50697% | Exit standby mode | Wake up! |
| 50797% | Enter standby mode | Go to standby! |
| 50698% | Software update | |
| 50617% | Reset to factory defaults | Factory Reset |
| Menu Commands | | |
| 50609% | OK for OSD selection | Key: ok |
| 50610% | LEFT button | Key: left |
| 50611% | RIGHT button | Key: right |
| 50612% | UP button | Key: up |
| 50613% | DOWN button | Key: down |
| 50616% | MENU button (enter OSD) | OSD: Enter |
| 50618% | EXIT button (exit OSD) | OSD: Exit |
| Inquire Commands | | |
| 50630% | Check the volume level | LINE Volume: xx |
| | | MIC Volume: xx |
| 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 |

Compact Scaler Switcher

| Command | Function | Feedback Example |
|----------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 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 |
| 50651% | Check Volume Icon display status | Volume Icon: xxxx |
| 50652% | Check Digital audio output status | Embedded Audio Output: enable/disable |
| 50712% | Check the audio input sources for HDMI 1, 2, 3 | HDMI1 Audio from XXXX port |
| | | HDMI2 Audio from XXXX port |
| | | HDMI3 Audio from XXXX port |
| 50751% | Check whether the LINE audio is mute or not | LINE Mute/Unmute |
| 50752% | Check whether the MIC audio is mute or not | MIC Mute/Unmute |
| 50753% | Check the freeze status | Freeze: enable/disable |
| 50754% | Check the panel locked status | Front Panel Lock/UnLock |
| 50783% | Display statuses including MIC, LINE audio, Resolution, Output Audio on/off, Manual/ Auto-switching modes | Line Volume:XX |
| | | Mic Volume:XX |
| | | Source:XXXX |
| | | Resolution:XXXX |
| | | Digital Sound Output: XXXX |
| | | Switch status: XXXX |
| Adjustment Commands | | |
| 50678% | Enable screen output adjusting | Enter Output Position Adjust |
| 50679% | Disable screen output adjusting | Exit Output Position Adjust |
| 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 |

Compact Scaler Switcher

| Command | Function | Feedback Example |
|---------------------|-------------------------------------------------------|-----------------------------|
| 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 |
| CEC Commands | | |
| 50687% | Disable CEC | HDMI CEC OFF |
| 50686% | Enable CEC | HDMI CEC ON |
| 50901% | Play&pause | CEC cmd: play&pause |
| 50902% | Stop | CEC cmd: stop |
| 50903% | Menu | CEC cmd: menu |
| 50904% | Retreat | CEC cmd: rev |
| 50905% | Forward | CEC cmd: fwd |
| 50906% | Up | CEC cmd: up |
| 50907% | Down | CEC cmd: down |
| 50908% | Left | CEC cmd: left |
| 50909% | Right | CEC cmd: right |
| 50910% | Conform command | CEC cmd: select |
| 50911% | Exit command | CEC cmd: exit |

Note:

1. Turn on/ off HDCP auto-management by sending serial commands.
 - a) When HDCP is set to active, whether output source is with HDCP depends on input source. If the input source is with HDCP, so is the output and vice versa.
 - b) When HDCP is set to Manual, whether the output is with HDCP depends on the statue of HDCP. Turn off HDCP, then the output is without HDCP and vice versa.
2. Screen output adjusting avails only when the screen output adjusting is on. Send command 50678% to turn on.
3. CEC commands with grey background avails only when CEC is on.
4. MIC precedence: In Mute mode, if the MIC noise detecting is on, the device will unmute MIC automatically given the outer noise exceeds the limit of noise detecting. Send 50696% to enable MIC precedence, then the device will not be able to change the mute mode no matter how loud the noise is.

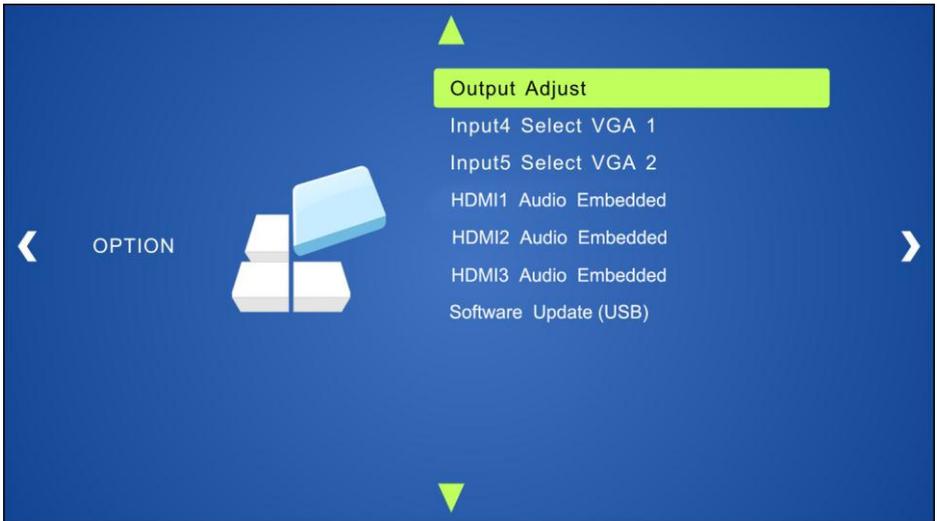
4.5 Operations in OSD Menu

MP-SC-5D provides a powerful OSD operation menu, contains 4 parts: optional settings, image settings, audio settings and system setting etc.

Press MENU button on front panel (or MENU button on IR remote/send command **50616%**) to enter in OSD menu, so it is able to do some settings through the OSD menu.

4.5.1 Option

Includes Output Adjust, Input4/5 Select, HDMI1/2/3 Audio select, and Software Update (USB).



Output Adjust: Adjust output image position (X: horizontal direction and Y: vertical direction) and ratio aspect (width and height).

Input4 Select: Select video source format for VGA input, includes AV 1 (C-video signal), VGA 1 (VGA signal) and YPbPr 1 (Component video signal). Use ENTER button to select the desired source format.

Input5 Select: Select video source for VGA input, includes AV 2 (C-video signal), VGA 2 (VGA signal) and YPbPr 2 (Component video signal). Use ENTER button to select the desired source format.

For INPUT4 & INPUT5, when change for new format signal:

1. Firstly, please select a format through this menu (the signal format changed while the video source is still the same).
2. Secondly, switch off the present signal channel (e.g. switch to another channel).
3. Thirdly, switch to channel INPUT4/INPUT5 again.

HDMI1 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI1.

HDMI2 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI2.

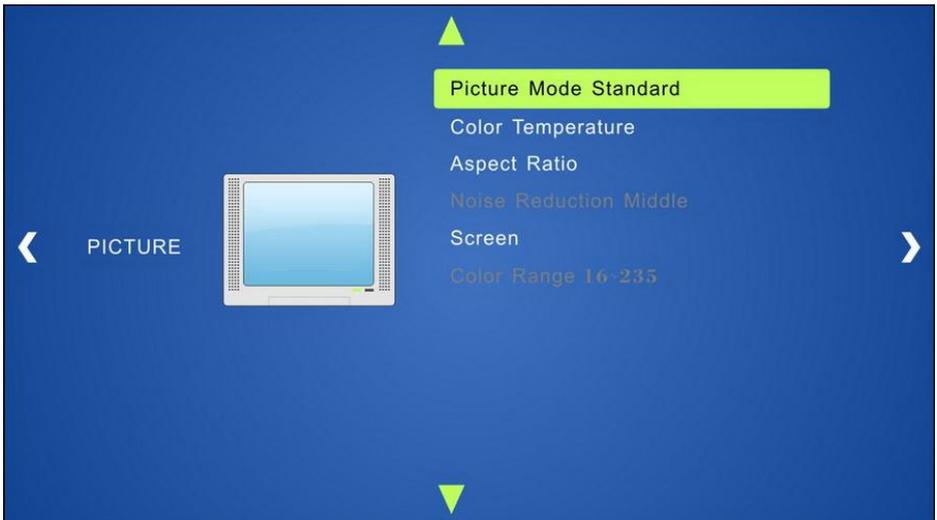
HDMI3 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI3.

Software Update (USB): Insert the USB flash disk with updating file to USB port of MP-SC-5D, to update the software through this menu.

4.5.2 Picture

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

Please check the picture below:



Picture mode: Includes Dynamic, Standard, Mild, and User. Only in User mode, will it be able to set the image contrast, brightness, color and sharpness.

Color Temperature: Includes Cool, Medium, Warm and User. And only in User mode, it is able to set values for Red, Green and Blue (RGB).

Aspect Ratio: Includes Auto, 4:3, 16:9, Zoom1, Zoom2, Just Scan, Panorama, and Point To Point. VGA format only supports 4:3, 16:9 and Point to Point.

Noise Reduction (not for VGA format): Includes Off, Low, Middle, High and Default.

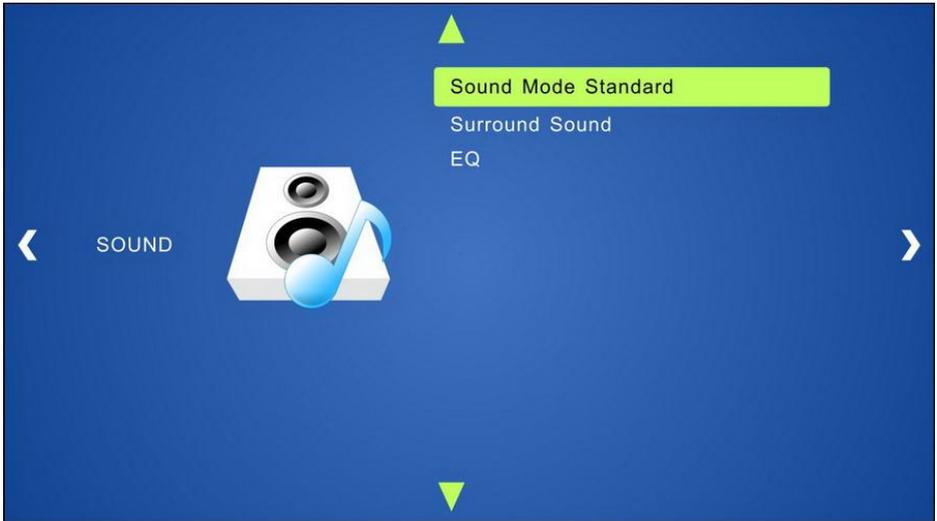
Screen: (not for HDMI source): Includes Auto Adjust, Horizontal, Vertical, Size, and Phase.

Color Range (not for VGA format): Includes 0~255 and 16~235, use ENTER button to select the color range.

4.5.3 Sound

Including Sound Mode, Surround Sound and EQ

Please check the picture below:



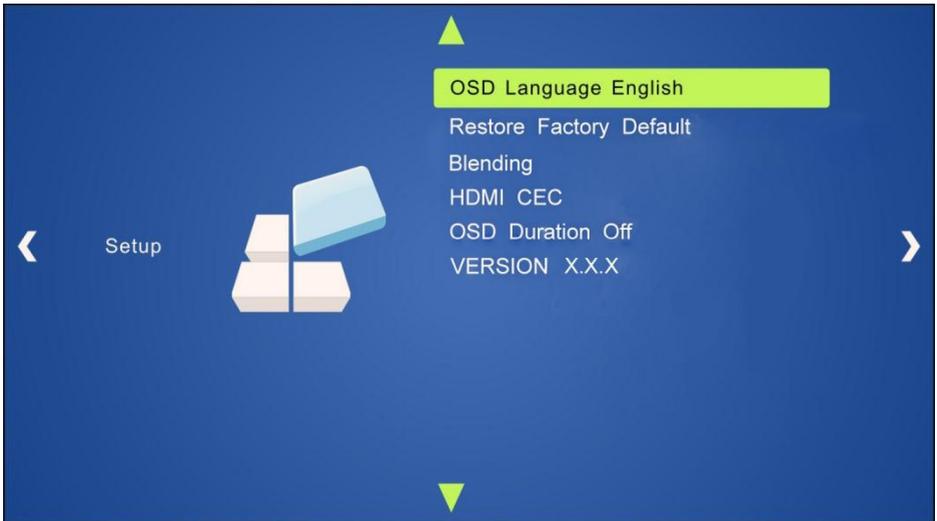
Sound mode: Includes Standard, Music, Movie, Sports and User. Only User mode supports to set treble and bass.

Surround Sound: Includes Off and Surround.

EQ: To adjust the sound balance.

4.5.4 Setup

Including OSD Language, Blending, HDMI CEC and OSD Duration



OSD Language: Supports 7 languages, including English (default), Chinese etc.

Restore Factory Default: Restores to original system state

Blending: Includes Low, Middle, High and Off. Use ENTER button to select.

HDMI CEC: Enable/disable CEC and auto-standby function. Default: CEC on, STANDBY on.

OSD Duration: Includes 5 s, 10 s, 15 s and Off. “s” is for Second.

VERSION: Displays software version.

4.6 Instructions of VGA Converting Cable

As VGA source supports YPbPr and C-video source, MP-SC-5D provides with 2 VGA converting cables to compliant with these signals.

When need to select these signals as input source, please switch to channel INPUT 4 (or INPUT 5), and then set the signal type in OSD. And then switch to other input channel and connect INPUT 4 (or INPUT 5) with corresponding source device. At last, please switch to INPUT4 (or INPUT 5) again.

● Connect with Component Video (YPbPr) Source

A. Operation Examples:

1. Via front panel buttons & OSD

Press **MENU** button on front panel to enter in OSD, and then enter in **OPTION** setting menu: set “INPUT 4 Select” to **YPbPr1**, and “INPUT 5 Select” to **YPbPr2**. After setting, press **SOURCE/AUTO** button on front panel to switch to YPbPr1 or YPbPr2 source.

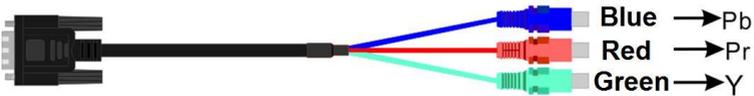
2. Via RS232 commands

Send command **50681%** (or **50684%**) to switch to YPbPr1 (or YPbPr2) source.

3. Via IR remote & OSD

Press **MENU** button on IR remote to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **YPbPr1**, and "INPUT 5 Select" to **YPbPr2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to YPbPr1 (or YPbPr2) source.

B. Connecting the VGA converting cable like this:



● **Connect with Composite Video (C-VIDEO) Source**

A. Operation Examples:

1. Via front panel buttons & OSD

Press **MENU** button on front panel to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **SOURCE/AUTO** button on front panel to switch to AV1 or AV2 source.

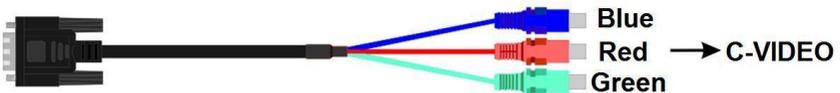
2. Via RS232 commands

Send command **50682%** (or **50685%**) to switch to YPbPr1 (or YPbPr2) source.

3. Via IR remote & OSD

Press **MENU** button on IR remote to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to AV1 (or AV2) source.

B. Connecting the VGA converting cable like this:

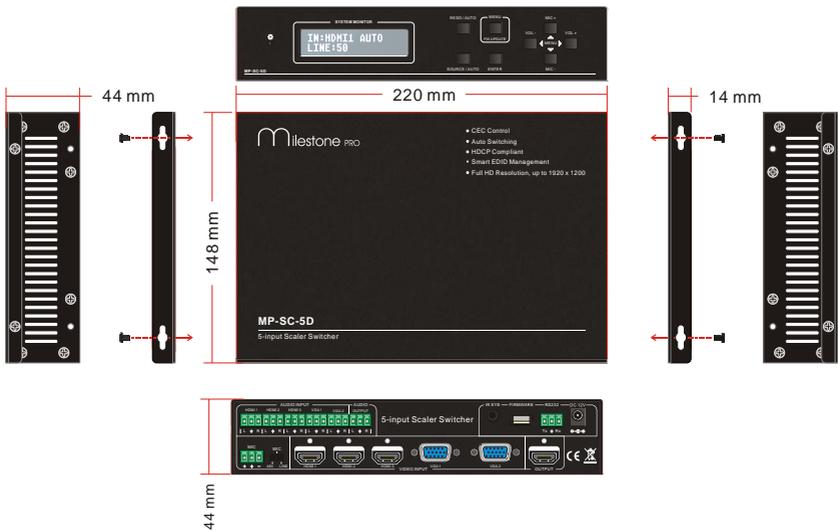


5. Specification

| Video Input | | Video Output | |
|---------------------|--------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------|
| Input | 3 HDMI 2 VGA | Output | 1 HDMI 1 HDBaseT |
| Input Connector | 3 female HDMI 2 female VGA (15 pin) | Output Connector | 1 female HDMI 1 RJ45 |
| Video Signal | HDMI, YPbPr, C-video, VGA | Video Signal | 1 HDMI 1 HDBaseT |
| IR Input | | IR Output | |
| Input | 1 IR IN | Output | 5 IR OUT |
| Input Connector | 3.5mm mini jack | Output Connector | 3.5mm mini jack |
| Video General | | | |
| Resolution Range | 1024x768, 1280x720, 1280x800, 1920x1080, 1600x1200, 1920x1200 | Bandwidth | HDMI:4.95Gbps(1.65Gb ps per color) C-Video:150MHz YPbPr: 170MHz VGA: 375MHz |
| Maximum Pixel Clock | 165MHz | Video Impedance | 75Ω |
| Gain | 0dB | Input / Output Level | 0.5V~2.0Vp-p |
| HDCP | Compliant with DVI & HDMI 1.3 standards | | |
| Audio Input | | Audio output | |
| Input | 3 Dual-mono stereo audio for HDMI 2 Dual-mono stereo audio for VGA (Support C-VIDEO, YPbPr, VGA) | Output | 1 stereo |
| Input Connector | 3P captive (3.81mm) | Output Connector | 3P captive (3.81mm) |
| Input Impedance | >4.7kΩ | Output Impedance | 75Ω |
| Audio General | | | |
| Frequency Response | 20Hz~20K Hz | Stereo Channel Separation | >80dB @1KHz |
| CMRR | >90dB @20Hz to 20K Hz | | |
| Control Parts | | | |

| | | | |
|-------------------|----------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------|
| Control/Remote | IR remote, Buttons & RS232 | Pin Configuration | 2 = TX, 3 = RX, 5 = GND |
| General | | | |
| Temperature | -10 ~ +40°C | Humidity | 10% ~ 90% |
| Power Supply | DC12V ± 0.5V | Power Consumption | 8W , supply power to MP-SC-5D and TPHD402PR separately 16W , MP-SC-5D supplies power to MPTP-T70R. |
| Dimension (W*H*D) | 220x 44x 148mm | Weight | 0.65Kg |

6. Panel Drawing



7. Troubleshooting & Maintenance

| Problems | Causes | Solutions |
|----------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Output image with snowflake | Bad quality of the connecting cable | Try another high quality cable. |
| | Fail or loose connection | Make sure the connection is good. |
| No output image when switching | No signal at the input / output end | Check with oscilloscope or multimeter if there is any signal at the input/ output end. |
| | Fail or loose connection | Make sure the connection is good. |
| | The switcher is broken | Send it to authorized dealer for repairing. |
| POWER indicator doesn't work or no respond to any operation | Fail connection of power cord. | Make sure the power cord connection is good. |
| EDID management does not work normally | The HDMI cable is broken at the output end. | Change for another HDMI cable which is in good working condition. |
| There is a blank screen on the display when switching | The display does not support the resolution of the video source. | Switch again. |
| | | Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution. |
| Static becomes stronger when connecting the video connectors | Bad grounding | Check the grounding and make sure it is connected well. |
| 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 by front panel buttons while can control it through RS232 port | The front panel buttons are locked | Send command 50605% to unlock the front panel buttons. |
| Cannot control the device by RS232 / IR remote / front panel buttons | 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

- 1) If there appear some problems when running MP-SC-5D, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.
- 2) You can email to our after-sales department or make a call, please tell us the following information about your cases.
 - Product version and name.
 - Detailed failure situations.
 - The formation of the cases.
- 3) We offer products for **three-year warranty**, which starts from the first day you buy this product (The purchase invoice shall prevail).
- 4) Any problem is same with one of the following cases listed, we will not offer warranty service but offer for charge.
 - Beyond the warranty.
 - Damage due to incorrectly usage, keeping or repairing.
 - Damage due to device assembly operations by the maintenance company non-assigned.
 - 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.

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