MS-HV51B

4K 5x1 Multi-format Presentation Switcher

SEADA

Showing the World

User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

MS-MV51B is 4K Multi inputs & Multi formats presentation switcher with scaler built-in. It supports 5 inputs of 4×HDMI and 1×VGA (YPbPr, CVBS) and 1 HDMI output. The input source is capable of switching and scaling to adopt resolution then transmit over HDMI output. The HDTV resolution is achievable. The system could be controlled and configure easily by the panel button, IR remote and RS-232. This switcher is a suitable solution for presentation purpose in the classroom or conference room.

2. Features

- ☆ Compliant with HDMI 2.0/1.4b, HDCP 2.2/1.4
- ☆ Support multi inputs: 4×HDMI, 1×VGA(YPbPr, CVBS)
- ☆ Support HDMI inputresolutions up to 4K UHD 4:4:4 @50/60
- ☆ Support output resolutions up to 4K UHD 4:4:4 @60
- ☆ Support two input switching modes: auto or manual
- ☆ Support EDID management
- ☆ Support pass-through of PCM 2CH
- ☆ Device could be controlled via panel button, IR remote and RS-232
- ☆ Support USB online software upgrading

3. Package Contents

① 1 × MS-MV51B Switcher
② 2 × Mounting Ears
③ 1 × Remote Control
④ 1 × IR Receiver Cable
⑤ 1 × 12V/1APower Adapter
⑥ 1 × 3RCA (Female) to D-SUB (Male) Cable
⑦ 1 × 3.5m Jack (Male) to 2RCA (Female) Cable
⑧ 1 × User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0/1.4b
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Input Resolutions	HDMI: up to 4K2K@50/60Hz (4:4:4)
	C-Video: PAL/NTSC3.58/NTSC4.43/SECAM/PAL M/PAL N
	YPBPR: 480i to1080p
	VGA: 640×480 to1920×1200
HDMI Output Resolutions	4K2K60, 4K2K30, 1920×1080p/50, 1920×1080p/60, 1280×720p/50, 1280×720p/60, 1024×768/60, 1280×800/60, 1360×768/60, 1400×1050/60, 1680×1050/60, 1920×1200/60
Audio Formats	LPCM 2.0CH
ESD Protection	Human-body Model: ±8kV (Air-gap discharge), ±4kV (Contact discharge)

Connection	
Input	4×HDMI Type A [19-pin female] 1×VGA [female] 1×Micro USB [5-pin female], optional for Power Supply
Output	1×HDMI Type A [19-pin female] 1×3.5m Mini Jack
Control	1×IR IN 1×RS-232 1×USB Service (Update)
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	110mm(W)×288mm(D)×32mm(H)
Weight	880g
Power Supply	DC 12V/1A Adapter (US/EU standards, CE/FCC/UL certified)
Power Consumption	9W (Max)
Operating Temperature	0°C~40°C/32°F~104°F
Storage Temperature	-20°C~60°C/-4°F~140°F
Relative Humidity	20%~90% RH (non-condensing)

5. Operation Controls and Functions

5.1 Front Panel

1 Power button and indicator

Switch between standby and working mode. Switch to the standby mode, and the indicator turns red. Switch to the working mode, and the indicator turns blue.

2 IR Window

Receive IR signal from remote control which come with this device.

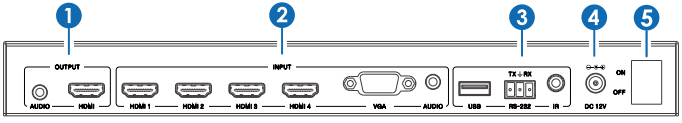
3 Input Source & Auto buttons

Press these buttons to select input sources. The corresponding indicator will be on when the source device is selected. AUTO button is used to switch the auto switching mode (the indicator is in blue) and manual switching mode (the indicator is off) for input sources.

4 Output Resolution buttons

Press these buttons to select output resolutions: 4K60, 4K30, 1080P60, 720P60. For more resolution options, please use the remote control or RS-232 control tools.

5.2 Rear Panel



1 Output

Connect to an HDMI display device through the HDMI OUTPUT port to output video. Connect to an AV Receiver through the AUDIO OUTPUT port to output audio.

2 Input

4 HDMI and 1 VGA input ports. The VGA port supports YPbPr, C-video and VGA input format.

3 Control

USB: Used to update the system firmware.

RS-232: Serial control port (3-pin Phoenix connector). Connects to a control device to control this device, with the remote control or RS-232 control tools.

IR: Connect with the IR receiver cable to receive IR signals sent by the IR remote or remote controller of other devices.

4 Power

Plug the 12V DC power supply into the unit and connect the adaptor to an AC outlet.

5 ON/OFF

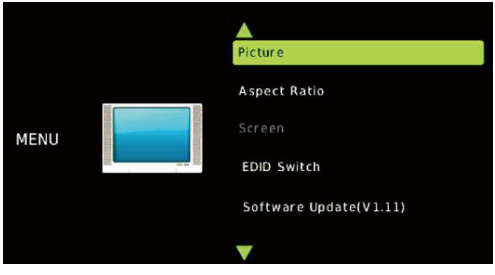
Power ON/OFF switch.

5.3 OSD MENU

This switcher provides a powerful OSD operation menu. Press MENU button on the IR remote to enter the OSD menu. You can change the settings through the OSD menu.

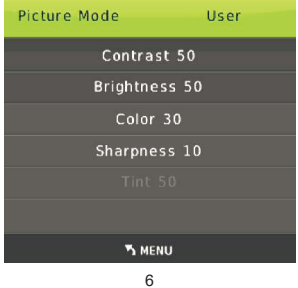
5.3.1 Main MENU

The Main MENU includes Picture, Aspect Ratio, Screen, EDID Switch and Software Update options.



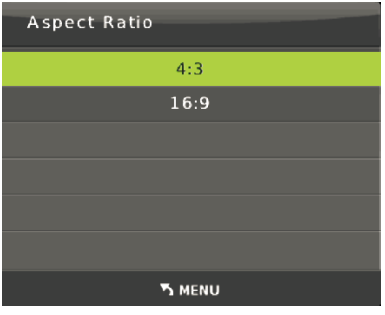
5.3.2 Picture

You can adjust picture contrast (default: 50), brightness (default: 50), color (default: 30), sharpness (default: 10), etc.



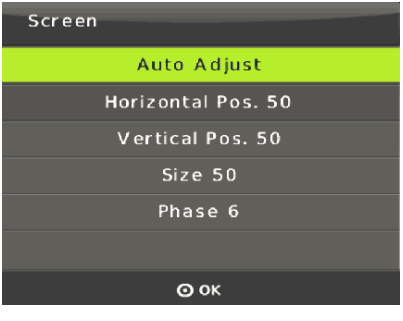
5.3.3 Aspect Ratio

You can adjust a picture's output aspect ratio between 4:3 and 16:9.



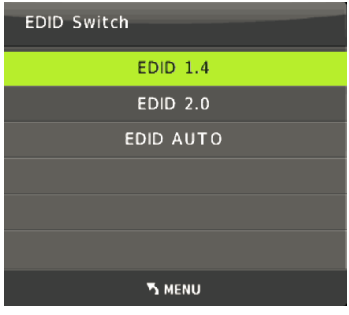
5.3.4 Screen

The screen MENU is for VGA input adjustment only. You can adjust horizontal, vertical position, size and phase in this section.



5.3.5 EDID

EDID 1.4 corresponds to the HDMI 1.4 standard, EDID 2.0 corresponds to the HDMI 2.0 standard, and EDID AUTO indicates copying the EDID mode of the connected display device.



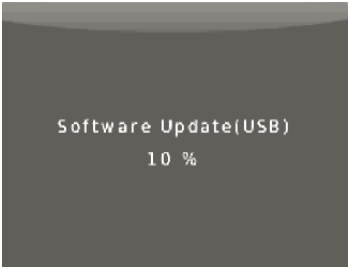
5.3.6 Software Update

This switcher supports software update via USB flash disk. The procedure is as follows:

1) Copy the file “MERGE.bin” to the root directory of a USB flash disk. (Make sure the file is copied to the root directory. The “MERGE.bin” file is provided/ authorized by our engineer or from our website)

2) Plug the USB flash disk into the switcher's USB port on the rear panel.

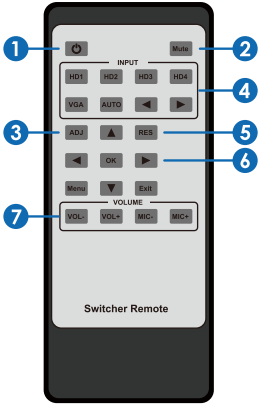
3) Click "MENU -->software update-->YES" to start updating. The OSD will display the update process.



5.3.7 Resolutions

This switcher supports multiple HDMI output resolutions. Press the “RES” button on the IR remote, the resolution menu will be displayed. You can select a suitable resolution for your display device.
Auto means that the HDMI output resolution will be based on the EDID information copied from the display device.

5.4 Remote Control



1. Press this button to power on the switcher or set it to standby mode.
2. Press this button to mute or unmute the audio output.
3. Press this button to operate VGA input auto adjustment function.
4. Press this button to select the input source.
5. Press this buttont to select the HDMI output resolution.
   (**Note:** Press and hold for 5 seconds or more, the HDMI output resolution will be reset to 720p60Hz.)
6. Menu operation buttons:
   Menu: Press to enter into the OSD menu.
   Exit: Press to exit OSD menu.
   OK: Press to confirm.
   UP/DWON/LEFT/RIGHT arrow: Used to set OSD values.
7. **VOL-/+:** Decrease or increase the audio volume.

5.5 Auto-Switching Function

This switcher has auto-switching and manual-switching modes. When you select auto-switching mode, it will follow these rules:

5.5.1 New Input principle

Once a new input signal is detected, the switcher will switch to this new signal automatically.

5.5.2 Power rebooting principle

This switcher offers the function to remember the signal last used after rebooting. Once rebooted, it will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future reboots. If the last used input signal is still available, then it will choose and display that signal. If that signal is not available, it will detect all input signals with priority on HDMI1->HDMI2->HDMI3->HDMI4->VGA(YPbPr/CVBS).

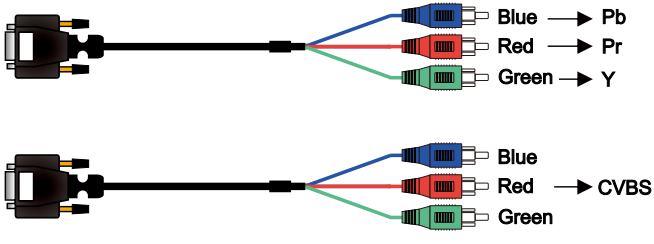
5.5.3 Signal removing principle

Once the current signal is removed, the switcher will detect all input signals with priority on HDMI1->HDMI2->HDMI3->HDMI4->VGA(YPbPr/CVBS). It will transfer the first signal detected to the output.

Note: Auto-switching function works only when there is a new input signal or when the current input signal is removed.

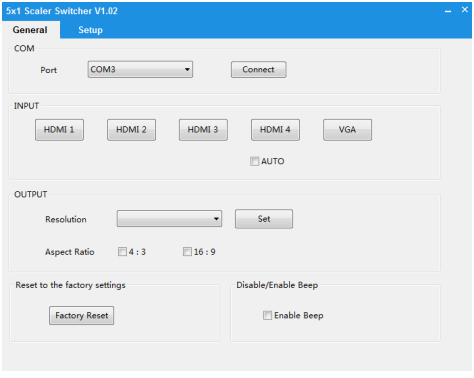
5.6 VGA/YPbPr/CVBS Input

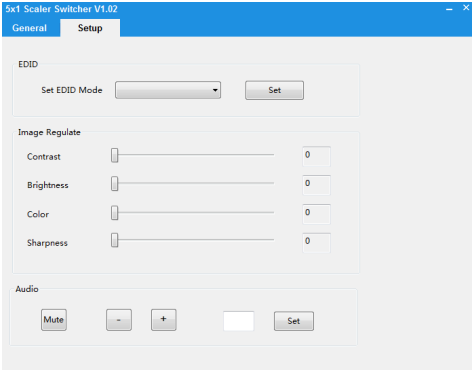
The VGA input port supports multiple signal formats, such as VGA/YPbPr/CVBS. The switcher will auto-detect the input signal type and format. You can use the convert cable for YPbPr or CVBS signal input.



5.7 Operations of RS-232 Control

Please connect the switcher to input devices and output devices needed, and then connect it to a computer installed RS-232 control software which can be downloaded from SEADA website (www.seada.co.uk/downloads) using a RS232 cable. Double-click the software icon to run this software on your computer. The interface of the control software is showed as below:


5x1 Scaler Switcher V1.02
General
Setup
COM
Port
COM3
Connect
INPUT
HDMI 1
HDMI 2
HDMI 3
HDMI 4
VGA
AUTO
OUTPUT
Resolution
Set
Aspect Ratio
4 : 3
16 : 9
Reset to the factory settings
Factory Reset
Disable/Enable Beep
Enable Beep


5x1 Scaler Switcher V1.02
General
Setup
EDID
Set EDID Mode
Set
Image Regulate
Contrast
0
Brightness
0
Color
0
Sharpness
0
Audio
Mute
-
+
Set

6. Connection Diagram

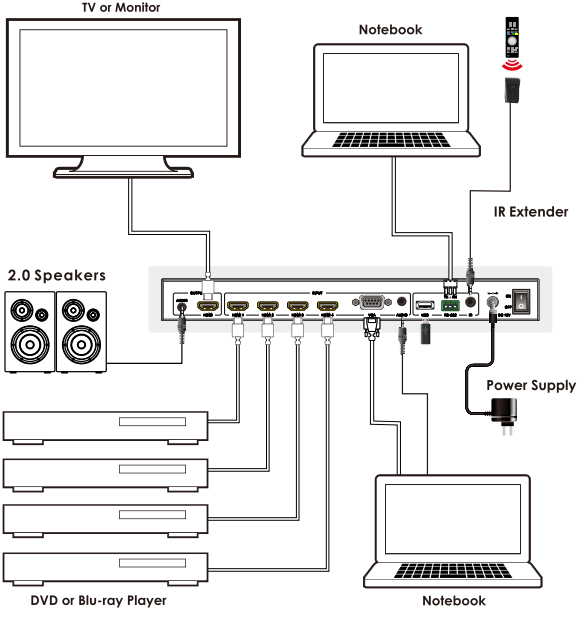
1.Connect HDMI source devices (such as Blu-ray DVD) to HDMI input ports with HDMI cables. Connect a VGA source device (such as PC/Laptop) to VGA input port with a VGA cable.

2. Connect the HDMI display to the HDMI output port with a HDMI cable.

3. Connect a speaker, headphone,or specialized amplifier to AUDIO output port.

4. Connect control device (e.g. PC) to RS-232 port.

5. Connect the DC12V power adapter to the power port.



7. API Control Command

This switcher can be controlled by 3rd party controller via RS-232 commands.

Baudrate：9600　Data width：8bit　Parity: none　Stop: 1bit

Item	Command	Description
1	s factory reset!	Return to factory reset setting
2	r version!	Read current FW version
3	xyz!	Upgrade the switcher FW
4	r power!	Read the switcher power on/off status
5	s power on!	Power on the switcher
6	s power off!	Power off the switcher
7	r lock!	Read the switcher panel lock status
8	s lock on!	Lock on the panel control
9	s lock off!	Lock off the panel control
10	s beep on!	Enable the switcher Beep
11	s beep off!	Disable the switcher Beep
12	r source!	Read current input source
13	s source 1!	Switch HDMI1 input(1:HDMI1,2:HDMI2,3:HDMI3, 4:DisplayPort,5:VGA/YPBPR/C-VIDEO)
14	r auto switch!	Read auto switch function status
15	s auto switch on!	Enable auto switch function
16	s auto switch off!	Disable auto switch function
17	r output!	Read output resolution

Item	Command	Description
18	s output 1!	Setup output resolution at 3840x2160@30Hz (1:3840x2160@30Hz,2:3840x2160@25Hz, 3:1920x1080@60Hz,4:1920x1080@50Hz, 5:1280x720@60Hz,6:1280x720@50Hz, 7:1920x1200@60Hz,8:1680x1050@60Hz, 9.1400x1050@60Hz,10.1360x768@60Hz, 11.1280x800@60Hz,12.1024x768@60Hz, 13.Out display EDID native resolution
19	r contrast!	Read picture contrast status
20	s contrast 0!	Setup picture contrast 0(range:0-100)
21	r brightness!	Read picture brightness status
22	s brightness 0!	Setup picture brightness 0(range:0-100)
23	r color!	Read picture color status
24	s color 0!	Setup picture color 0(range:0-60)
25	r sharpness!	Read picture sharpness status
26	s sharpness 0!	Setup picture sharpness 0(range:0-20)
27	r tint!	Read picture tint status
28	s tint!	Setup picture tint 0(range:0-100,for CVBS NTSC format only)
29	r aspect ratio!	Read current input source output picture aspect ratio
30	s aspect ratio 1!	Setup current input source output picture aspect ratio at 16:9 (1:16:9 , 2:4:3)
31	r h size!	Read current input source output horizontal overscan value
32	s h size X!	Set output horizontal overscan to (100+X)%(the default X value is 0 and the range is -10~10,the value is set for current input source.)
33	r v size!	Read current input source output vertical overscan value
34	s v size X!	Set output vertical overscan to (100+X)%(the default X value is 0 and the range is -10~10,the value is set for current input source.)

Item	Command	Description
35	r edid!	Read switcher input port EDID status
36	s edid 1!	Setup input port EDID at HDMI1.4 standard (1: EDID1.4,2:EDID2.0,3:EDID AUTO)
37	s vga auto!	Enable VGA auto adjust function
38	r vga hpos!	Read VGA horizonal position
39	s vga hpos up!	Setup VGA horizonal position up
40	s vga hpos down!	Setup VGA horizonal position down
41	r vga vpos!	Read VGA vertical position
42	s vga vpos up!	Setup VGA vertical position up
43	s vga vpos down!	Setup VGA vertical position down
44	r vga clock!	Read VGA input ADC sampling clock value
45	s vga clock up!	Increase VGA input ADC sampling clock value
46	s vga clock down!	Decrease VGA input ADC sampling clock value
47	r vga phase!	Read VGA picture phase
48	s vga phase up!	Setup VGA picture phase up
49	s vga phase down!	Setup VGA picture phase down
50	r out vol!	Read output audio volume
51	s out vol 0!	Setup output audio volume 0
52	s out vol up 1!	Increase output audio volume 1 level
53	s out vol down 1!	Decrease output audio volume 1 level
54	s audio mute on!	Mute source input audio
55	s audio mute off!	Un-mute source input audio