



COVID SH41-200MV HDMI 4×1 Switcher with Multiview User Manual

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COVID SH41-200MV HDMI 4×1 Switcher with Multiview



Thank you for purchasing the HDMI 4×1 Switcher with Multiview SH41-200MV. This user manual provides detailed instructions on how to connect, operate, and adjust the product for optimum performance and safety.

Surge Protection Device Recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shocks, lightning strikes, etc. To protect and extend the life of your equipment, it is highly recommended to use a surge protection system.

Product Information

The HDMI 4×1 Switcher with Multiview SH41-200MV is a versatile device that allows you to connect up to four HDMI sources (such as Blu-ray players, gaming consoles, or set-top boxes) to a single HDMI display. It supports resolutions up to 4K Ultra HD and provides seamless switching between the connected sources.

Product Usage Instructions

Installation

- **a.** Ensure that all devices (HDMI sources and HDMI display) are powered off before connecting.
- **b.** Connect the HDMI output of the switcher to the HDMI input of your display using a high-quality HDMI cable.
- **c.** Connect your HDMI sources to the HDMI inputs of the switcher using HDMI cables.
- **d.** Power on all the connected devices.

Switching Inputs

- **a.** Use the included remote control or the buttons on the front panel of the switcher to select the desired HDMI input.
- **b.** The selected input will be displayed on your HDMI display.

Adjusting Multiview

- **a.** The Multiview feature allows you to view multiple HDMI sources simultaneously on a single display.
- **b.** Press the Multiview button on the remote control or front panel to enable or disable Multiview mode.
- **c.** Use the remote control or front panel buttons to adjust the position, size, and layout of the displayed sources in Multiview mode.

Remote Control Usage:

- **a.** Ensure that the HDMI 4×1 Switcher with Multiview SH41-200MV is within range of the remote control.
- **b.** Use the remote control to switch between HDMI inputs, adjust Multiview settings, and control other functions of the switcher.

Troubleshooting

If you encounter any issues with the product, please refer to the troubleshooting section of this user manual for possible solutions.

Maintenance

- **a.** Keep the switcher and remote control away from moisture and direct sunlight.
- **b.** Clean the switcher and remote control with a soft, dry cloth when necessary.

Warranty Information

Please refer to the warranty information section of this user manual for details on the product's warranty coverage.

Contact Us

If you have any questions or need further assistance, please contact our customer support team using the contact information provided in this user manual.

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, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Introduction

The SH41-200MV is a 4K60 4×1 Multiviewer and seamless UHD video switcher which was developed for the purpose of supporting higher output resolutions such as 4K@60 for multiple sources on a single screen. It can combine up to four video signals onto a single UHD or HD display. This device supports a full range of input video resolutions up to 4K@60 as well as audio extraction via RCA or S/PDIF optical for external audio distribution systems.

This device can be controlled via front panel buttons, IR remote, RS-232 commands. Users can easily manage each input via control software and create various layouts and positions for any of the four inputs on a single monitor.

Features

- HDMI 2.0b, HDCP 2.2 and HDCP 1.x compliant
- 18G bps video bandwidth
- Input and output resolutions up to 4K@60Hz
- LPCM, AC3, DD+, DTS, DTS-HD, up to 7.1 audio channel
- Seamless switching between input channels and combine multiple images on a single UHD monitor

- Up to 8 display modes: SINGLE, PIP, PBP (1), PBP (2), Triple (1), Triple (2), Quad (1), Quad (2)
- Seamless switching on single screen display mode
- Fast switching on multiview display mode
- Audio de-embedding via analog and optical fiber audio ports
- Volume control and independent audio selection
- OS D navigation for advanced settings
- E DID management
- Control via front panel buttons, IR remote, RS-232 commands
- Compact design for easy and flexible installation

Packing List

- 1x 4K60 4×1 UHD Video Switcher
- 1 x IR Remote
- 1x 3 pin-3.81mm Phoenix Connector (male)
- 1x38KHzIR ReceiverCable(1.5m)
- 4 x Rubber Feet
- 2x Mounting Ears
- 1 x 12V /1 A Power Adapter
- 4x Machine Screws (KM3*4)
- 1x User Manual

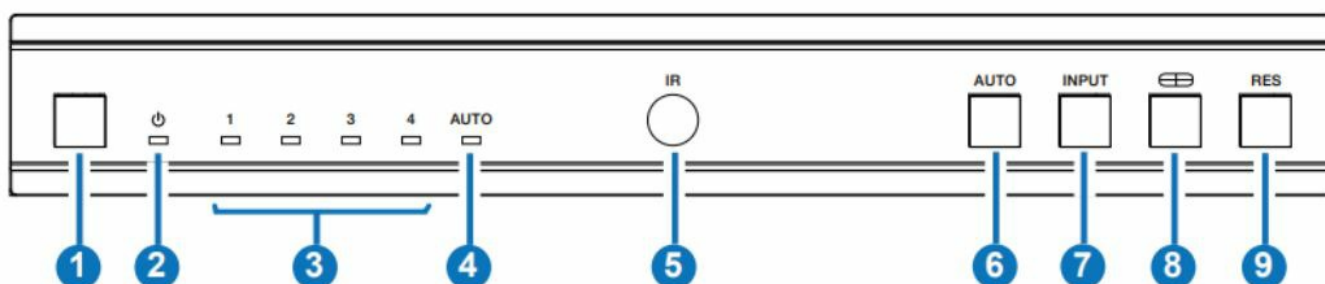
Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDC P Compliance	HDCP 2.2 / 1.x
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@60Hz
IR Level	SVp-p
IR Frequency	38KHz
Color Space	R GB, YC bCr 4:4:4, YC bCr 4:2:2, YC bCr 4:2:0
Color Depth	8bit
Audio Formats	HDMI: PCM2.0/S.1/7.1CH, Dolby Digital/Plus, DTS, DTS High Res Analog audio [3.5mm L/R]: PCM2.0; SPDIF (OPTICAL): Dolby Digital, DTS 5.1, PCM2.0. Note: It does not support HBR audio.

ESD Protection	Human body model – ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Input ports	4 x HDMI IN [Type A, 19-pin female]
Output ports	1 x HDMI OUT [Type A, 19-pin female] 1 x L/R OUTPUT [RCA] 1 x OPTICAL OUTPUT [S/PDIF]
Control ports	1 x RS-232 [3 pin-3.81mm phoenix connector] 1 x IR EXT [3.5mm Stereo Mini-jack]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	220mm [W] x 100mm [D] x 30mm [H]
Weight	620g
Power Supply	Input: AC 100 – 240V 50/60Hz Output: DC 12V/2.5A (US/EU standard, CE/FCC/UL certified)
Power Consumption	10W (Max)
Operating Temperature	32 – 104°F / 0 – 40°C
Storage Temperature	-4 – 140°F / -20 – 60°C
Relative Humidity	20 – 90% RH (no condensing)

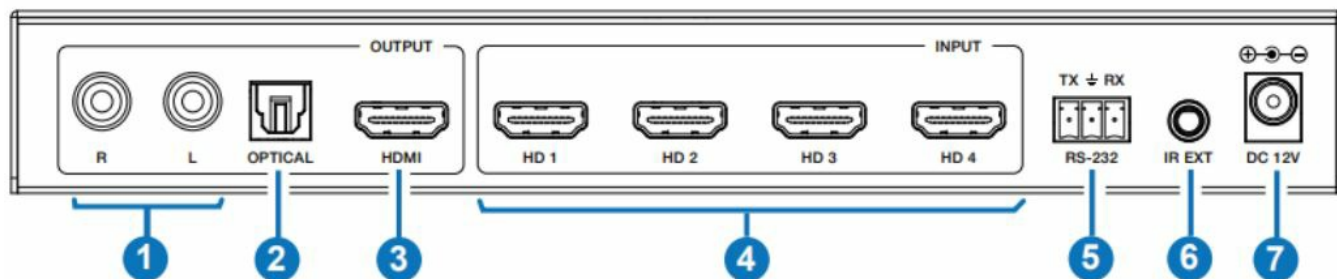
Controls and Functions

Front Panel



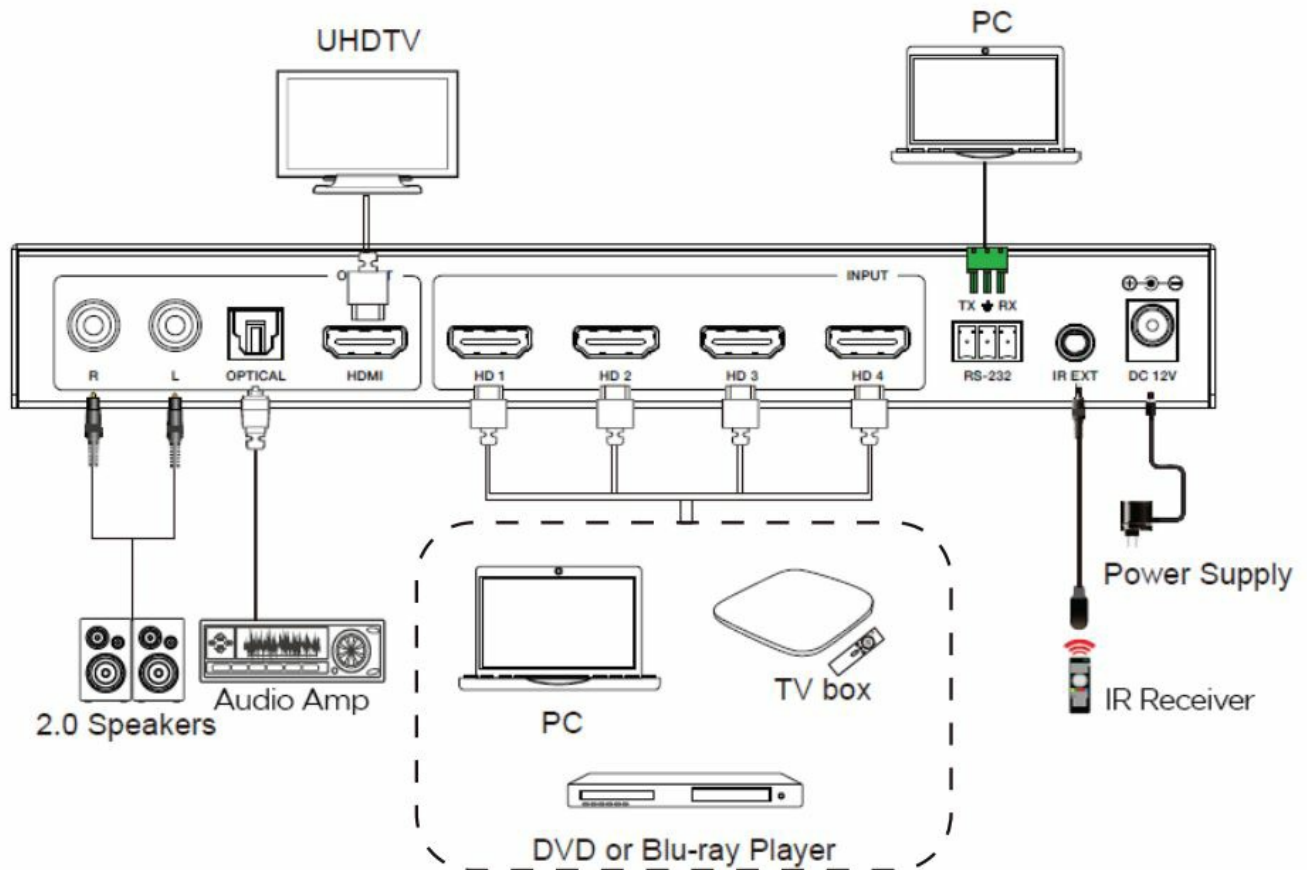
No.	Name	Function Description
1	Power button	• Short press this button to power on the device. • Long press this button for 1 second to enter standby mode.
2	Power LED	The Power LED will illuminate green when the product is powered on, and red when the product is on standby.
3	Input 1-4 LEDs	Input signal indicator lights. When the HD 1 /2/3/4 port connects to an active source device, the corresponding green LED will illuminate. Note: Only the LED of the selected input channel will illuminate green during single-screen display mode; all LEDs will illuminate green in multiview mode.
4	AUTO LED	When the device is set to AUTO mode, the AUTO LED will illuminate green, and the HDMI will be automatically identified, that is, when the currently displayed source signal is disconnected, the switcher will automatically identify the next connected HDMI input port.
5	IRWindow	IR signal receiving window.
6	AUTO button	Automatic switching button, only available on single screen display mode.
7	INPUT button	Input source switching button, only available on single screen display mode.
8	Multiview button	Multiview display mode switching button. • Short press this button to cycle select: SINGLE – PIP – PBP (1) – PBP (2) – Triple (1) – Triple (2) – Quad (1) – Quad (2). • Long press this button for 3 seconds to select the aspect ratio for PBP (1) / PBP (2) / Triple (1) / Triple (2) / Quad (1) / Quad (2).
9	RES button	Output resolution switching button. • Short press the RES button to cycle switch the output resolution of the HDMI OUTPUT port (Please refer to the output resolution list in the “Video & Audio” section of this manual). • Long press the RES button for 3 seconds to switch the output resolution to 720P60.

Rear Panel



No.	Name	Function Description
1	L/R port	PCM 2.0 Analog audio output port.
2	OPTICAL port	Optical fiber digital audio output port.
3	HDMI OUTPUT port	Connect to an HDMI display device such as a TV or Monitor with an HDMI cable.
4	HD 1-4 INPUT ports	Connect to HDMI source devices such as Game Consoles or Set-top boxes with HDMI cables.
5	RS-232 port	3-pin Phoenix connector, connected to a PC or control system for serial port upgrade or RS-232 command control.
6	IR EXT port	If the IR signal receiving window of the unit is blocked or the unit is installed in a closed area out of the infrared line of sight, the IR receiver cable can be inserted into the "IR EXT" port to receive the IR remote signal.
7	DC 12V	DC 12V/1 A power input port.

Application Diagram



IR Remote

1. power on or Standby: Press this button to power on the switcher or set it to standby mode.
2. HD 1/2/3/4: Press these buttons to select the input source on single-screen display modes and the corresponding input LED on the front panel will illuminate green.
 -  Press these buttons to cycle and select the last or next Input source on a single-screen display mode.
 -  Multiview display mode switching button.
 - Short press this button to cycle select: SINGLE – PIP – PBP (1)- PBP (2)- Triple (1)- Triple (2)- Quad (1)- Quad (2).
 - Long press this button for 3 seconds to select the aspect ratio for PB P (1} / PB P (2} / Triple (1} / Triple (2) / Quad (1) / Quad (2).
- Re:** Output resolution switching button.
 - Short press the RES button to cycle switch the output resolution of the HDMI OUTPUT port (Please refer to the output resolution list in the “Video & Audio” section).
 - Long press the RES button for 3 seconds to switch the output resolution to 720P60.
3. MENU, EXIT, LEFT, RIGHT, UP, DOWN, OK: OS D Menu navigation buttons.
4. **A-IN:** Press this button to pop up the audio channel selection OSD, then press the UP/
 - DOWN button to select the audio output channel. (the output audio follows the video source by default.)
 - **Mute:** Press this button to mute/ unmute the audio.
 - **VOL-, VOL+:** Press these buttons to increase/ decrease the audio output volume.

EDID Settings

Users can select the following EDID modes via the RS-232 command or OS D menu navigation.

No.	EDID Mode	No.	EDID Mode
	4K60-2.0C H	10	1920xl 200-2.0C H
2	4K60-5.1CH	11	1680x 1050- 2.0C H
3	4K60-7.1CH	12	1600xl 200-2.0C H
4	4K30-2.0C H	13	1440×900-2.0C H
5	4K30-5.1CH	14	1360×768- 2.0C H
6	4K30-7.1CH	15	1280xl 024-2.0C H
7	1080P-2.0C H	16	1024×768- 2.0C H
8	1080P-5.1CH	17	720P-2.0C H
9	1080P-7.1CH	18	AUTO

Video & Audio

- The switcher supports multiple resolutions up to 3840×2160@60 and supports multiple audio formats such as LPCM, AC3, DD+, DTS, DTS HD, and up to 7.1 channel pass-through functionality via HDMI cables.
- Users can control the volume of audio in LPCM format.
- The switcher supports following video output resolutions via a powerful scaling engine.

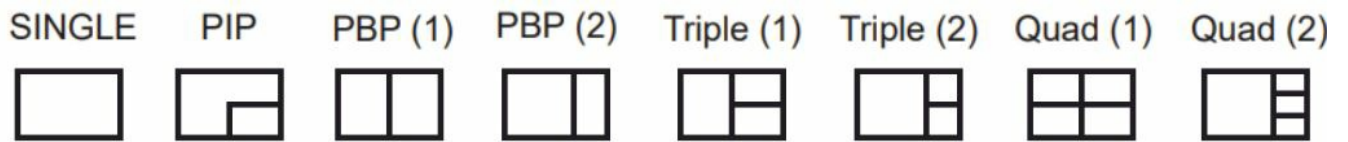
No.	Output Resolution	No.	Output Resolution
	4096x2160p 60Hz	8	1920xl 080p 60Hz
2	4096x2160p 50Hz	9	1920xl 080p 50Hz
3	3840x2160p 60Hz	10	1360x768p 60Hz
4	3840x2160p 50Hz	11	1280x800p 60Hz
5	3840x2160p 30Hz	12	1280x720p 60Hz
6	3840x2160p 25Hz	13	1280x720p 50Hz
7	1920xl 200p 60Hz RB	14	1024×768 60Hz

Multiview

- The switcher supports 8 different multiview display modes: SINGLE, PIP, PBP (1), PBP Triple (1), Triple (2), Quad (1), Quad (2) Users can select different operations for different Multiview modes as follows:
- **SINGLE:** Inputs selection
- **PIP:** Inputs selection, Sub windows ize and position selection PBP (1), PBP (2), Triple (1), Triple (2), Quad (1),

Quad (2): Inputs selection, Display mode selection, Display aspect selection

- Multiview window modes are as follows:



- User can select Multiview modes via RS-232 commands or OS D menu navigation.

OSD Menu Navigation

- A total of seven buttons on the IR Remote are used for OS D menu navigation, including
- MENU, EXIT, UP, DOWN, LEFT, RIGHT, OK.

Menu contents are as follows:

Output	Resolution	3840x2160p60	4096x2160p 60Hz/ 4096x2160p S0Hz/ 3840x2160p 60Hz/ 3840x2160p S0Hz/ 3840x2160p 30Hz/ 3840x2160p 25Hz/ 1920x1200p60Hz RB/ 1920x 1OSOp 60Hz/ 1920x 1OSOp S0Hz/ 1360x768p 60Hz/ 1280x800p 60Hz/ 1280x720p 60Hz/ 1280x720p S0Hz/ 1024x768 60Hz
	VKA	BLACK SCREEN	BLACK SCREEN, BLUESCREEN
	ETC	OFF	ON, OFF
Multiview	Single	Input select	HDMI1,HDMI2,HDMI3,HDMI4
	PIP	Win1 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win2 Select	HDMI1,HDMI2,HDMI3,HDMI4
		PIP Position	Right Bottom, RightTop, Left Bottom, Left Top
		PIP Size	Small, Middle, and Large
	PBP	Win1 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win2 Select	HDMI1,HDMI2,HDMI3,HDMI4
		MODE	1, 2
		Aspect	Full, 16:9

		Win1 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win2 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win3 Select	HDMI1,HDMI2,HDMI3,HDMI4

Multiview	3xWIN	MODE	1, 2
		Aspect	Full , 16:9
	4xWIN	Win1 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win2 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win3 Select	HDMI1,HDMI2,HDMI3,HDMI4
		Win4 Select	HDMI1,HDMI2,HDMI3,HDMI4
		MODE	1, 2
		Aspect	Full , 16:9
AUDIO	Audio Select	WIN1	WIN1,HDMI1,HDMI2,HDMI3, HDMI 4
	Volume	100	0..100
	AUDIO-MUTE	OFF	ON, OFF
	Language		English, cp 3t
			4K60-2.0,4K60-5.1CH,
			4K60-7.1C H,4K30-2.0C H ,
			4K30-5.1C H,4K30-7.1CH,
			1080P-2.0C H ,1080P-5.1CH,
	EDID	4K60-2.0	1080P-7.1CH,1920×1 200-2.0C H ,1680×1050-2.0C H ,
System			1600×1200-2.0C H ,1440×900-2.0C H , 1360×768-2.0C H ,
			1280×1024-2.0CH, 1024x
			768-2.0C H ,720P-2.0C H , AUTO

	Baud rate	115200	115200,57600,38400, 19200,9600
	Reset	Reset	Reset
	FW Version		Read-only

A total of four buttons on the IR Remote are used for audio settings on OS D menu navigation, including A-IN, Mute, VOL-, and VOL+.

Menu contents are as follows:

A-IN	Audio Input	WIN1	WIN1,HDMI1,HDMI2,HDMI3, HDMI4
Mute	Audio Mute	OFF	ON, OFF
VOL-NOL+	Audio Volume	100	0..100

RS-232 Commands

The SH41-200MV supports RS-232 command control. Connect the RS-232 port of the product to a PC with a 3-pin phoenix connector cable. Then, open a Serial Command tool on PC to send ASCII commands to control the product. The ASCII command list is shown below.

ASCII Commands
Serial port protocol. Baud rate: 115200 (default), 57600, 38400, 19200, 9600; Data bits: 8bit; Stop bits: 1; Check bit: 0
x – Parameter 1; y – Parameter 2; ! – Delimiter

Command Code	Function Description	Example	Feedback
System Setting			
help!	List all commands	help!	
r type!	Get device model	r type!	4×1 HDMI Multiviewer
r fw version!	Get Firmware version	r fw version!	MCU FW version x. xx.xx SCALER FW version x.xx.xx

power z!	Power on/off the device,z=0-1 (z=0 power off, z=1 power on)	power 1!	Power on System Initializing... Initialization Finished! MC U FW version x.xx . xx SCALER FW version x.xx . xx
r power!	Get current power state	r power!	power on/power off
reboot!	Reboot the device	reboot!	Reboot... System Initializing... Initialization Finished! MC U FW version x.xx.xx SCALER FW version x.xx.xx
reset!	Reset to factory defaults	reset!	Reset to factory defaults System Initializing... Initialization Finished! MCU FW version x.xx .xx SCALER FW version x.xx.xx
Output Setting			

s output res x!	Set Output Resolution (x=l-14) 1 . 4096x2160p60, 2. 4096x2160p50, 3. 3840x2160p60, 4. 3840x2160p50, 5. 3840x2160p30, 6. 3840x2160p25, 7. 1920x1200p60RB, 8. 1920x1080p60, 9. 1920x1080p50, 10.1360x768p60, 11.1280x800p60, 12.1280x720p60, 13.1280x720p50, 14. 1024x768p60,	s output res 3!	out resolution: 3840x2160p60
r output res!	Get output resolution	r output res!	out resolution: 3840x2160p60

Command Code	Function Description	Example	Feedback
s output hdc p x!	set output hdcp (x=l -3) 1. HDCP 1.4 2. HDCP 2.2 3. HDCP OFF	s output hdcp 2!	output HDCP: HDCP 1.4
r output hdcp!	Get output hdcp status.	r output hdc p!	output HDCP: HDCP 1.4
s output vka x!	Set output video keep active pat te rn. (x=l -2) 1. black screen 2. blue screen	s output vka 1!	output VKA pa tte rn: black screen
r output vka!	Get output video keep active pa tte rn.	r output vka!	output VKA pa tte rn: black screen

s output itc x!	Set output video mode (x=l -2) 1 : video mode 2: pc mode	s output itc 1!	output ITC : video mode
r output itc!	Get output video mode	r output itc!	output ITC: video mode
EDID Setting			
s input E DID x!	Set HDMI input EDID mode (x=18) 1. 4K2K 60_444, Stereo Audio 2.0 2. 4K2K 60_444, Dolby /DT S 5.1 3. 4K2K 60_444,HD Audio 7.1 4. 4K2K30 _444, Stereo Audio 2.0 5. 4K2K30 _444, Dolby/DTS 5.1 6. 4K2K30 _444, HD Audio 7.1 7. 1080P, Stereo Audio 2.0 8. 1080P, Dolby /DTS 5.1 9. 1080P , HD Audio 7.1 10.1920x 1200 ,Stereo Audio 2.0 11.1680x 1050,Stereo Audio 2.0 12.1600x 1200 ,Stereo Audio 2.0 13.1440x900,Stereo Audio 2.0 14.1360x768, Stereo Audio 2.0 15.1 280x 1024,Stereo Audio 2.0 16.1024x768, Stereo Audio 2.0 17. 720p,Stereo Audio 2.0 18.c opy from HDMI out	s input EDID 1!	input E DID:4K2K 60_444, Stereo Audio 2.0
r input EDID!	Get input E DID mode	r input EDID!	input E DID:4K2K 60_444, Stereo Audio 2.0
Audio Setting			

s output audio x!	Set output audio source (x=0-4) 0. follow window 1 selected the source 1. HDMI 1 input audio 2. HDMI 2 input audio 3. HDMI 3 input audio 4. HDMI 4 input audio	s output audio 0!	output audio: follow window 1 select the source
r output audio!	Get output audio source	r output audio!	output audio: follow window 1 video
s output audio vol+!	Increase output audio volume	s output audio vol+!	output audio volume: 50
s output audio vol-!	Decrease output audio volume	s output audio vol-!	output audio volume: 50
s output audio vol x!	Set output audio volume value (x=0-100)	s output audio vol 30!	output audio volume: 30
r output audio vol!	Get output audio volume	r output audio vol!	output audio volume: 30
s output audio mute x!	Set output audio mute on/off (x=0-1) 0. mute <i>off</i> 1. mute on	s output audio mute 0!	output audio mute: <i>off</i>

Command Code	Function Description	Example	Feedback
r output audio mute!	Get output audio mute on/off	r output audio mute!	output audio mute: off
Single Screen Mode Setting			

s auto switch x!	Enable/disable auto switch feature (x=0-1) 0. Disable auto switch 1. Enable auto switch	s auto switch 0!	auto switch off
r auto switch!	Get auto switch feature	r auto switch!	auto switch off
s in source x!	Route input source to output (1~4) 1. HDMI 1 2. HDMI 2 3. HDMI 3 4. HDMI 4	s in source 1!	HDMI 1
r in source!	Get output selected input source	r in source!	HDMI 1
Multi-viewer Mode Setting			
s multiview x!	Set multi-viewer display mode (x=1-5) 1. single screen 2. PIP 3. PBP 4. triple screen 5. quad screen	s multiview 1!	single screen
r multiview!	Get multi-viewer display mode	r multiview!	single screen

s window x in y!	Select one input for one display window for the current Multiview mode. (x=l-4) 1. window 1 2. window 2 3. window 3 4. window 4 (y=1-4) 1. HDMI 1 2. HDMI 2 3. HDMI 3 4. HDMI 4	s window 1 in 1!	window 1 select HDMI 1
r window x in!	Get Windows selected input source (x=0-4) 0. ALL 1. window 1 2. window 2 3. window 3 4. window 4	r window 1 in!	window 1 select HDMI 1
s PIP position x!	Set PIP window position (x=l-4) 1. Left Top 2. Left Bottom 3. Right Top 4. Right Bottom	s PIP position 3!	PIP on the right top
r PIP position!	Get PIP window position	r PIP position!	PIP on the right top
s PIP sizes!	Get PIP window size (x=l-3) 1. small 2. middle 3. large	s PIP size 3!	PIP size: large

r PIP size!	Get PIP window size	r PIP size!	PIP size: large
s PBP mode x!	Set PBP windows display mode (x=1-2) 1. PBP mode 1 2. PBP mode 2	s PBP mode 1!	PBPmode1

Command Code	Function Description	Example	Feedback
r PBP mode!	Get PBP windows display mode	rPBPmode!	PBP mode 1
s PBP aspect!	Set PBP windows display aspect ratio (x=1-2) 1. Full screen 2. 16:9	sPBPaspect!	PBP aspect: fullscreen
r PBP aspect!	Get PBP windows to display aspect ratio	r PBP aspect!	PBP aspect: fullscreen
s triple mode x!	Set triple windows display mode (x=1-2) 1. triple mode 1 2. triple mode 2	s triple mode 1!	triple mode 1
r triple mode!	Get triple windows display mode	r triple mode!	triple mode 1
s triple aspect x!	Set triple windows display aspect ratio (x=1-2) 1. Fullscreen 2. 16:9	s triple aspect 1!	triple aspect: fullscreen
r triple aspect!	Get triple windows display aspect ratio	r triple aspect!	triple aspect: fullscreen

s quad mode x!	Set quad windows display mode (x=1-2) 1. quad mode 1 2. quad mode 2	s quad mode 1!	quad mode 1
r quad mode!	Get quad Windows display mode	r quad mode!	quad mode 1
squad aspect x!	Set quad windows display aspect ratio (x=1 -2) 1. Fullscreen 2. 16:9	squad aspect 1!	quad aspect: fullscreen
r quad aspect!	Get quad windows display aspect ratio	r quad aspect!	quad aspect: fullscreen

Documents / Resources

 COVID HDMI 4x1 Switcher with Multiview SH41-200MV User Manual Ver 2.0	COVID SH41-200MV HDMI 4x1 Switcher with Multiview [pdf] User Manual SH41-200MV, SH41-200MV HDMI 4x1 Switcher with Multiview, HDMI 4x1 Switcher with Multiview, SH41-200MV HDMI 4x1 Switcher, HDMI 4x1 Switcher, 4x1 Switcher, Switcher
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