

SD-MV-CMU51

4K 5x1 Multiviewer with USB Capture Streaming



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1. Overview

SD-MV-CMU51 is a 4K@60Hz multiviewer designed to display multiple video inputs on a single screen and USB capture & streaming simultaneously. It features with 4 HDMI 2.0 and 1 USB Type-C inputs, along with 1 HDMI 2.0 output, 1 3.5mm audio and USB 2.0 capture. The resolution of both inputs and outputs supports up to 4K@60Hz 4:4:4 with a bandwidth up to 18Gbps. The unit accommodates up to 8 predefined layouts including full-screen viewing with seamless switching and side-by-side split viewing, which simplifies the system management. Control of SDC-MV-CMU51 is also quick and easy, which allows operating via front panel push buttons, IR remote control and RS232 commands.

Overall, SD-MV-CMU51 is highly flexible and capable of seamless switching, making it ideal for applications such as broadcasting, security, boardrooms, TV studios, and more.

Key Features

- Support 4 HDMI 2.0 input and 1 USB Type-C input
- Support 1 HDMI 2.0 output
- Support 1 3.5mm jack for audio
- Support 1 USB 2.0 for video capture
- Support up to 3840x2160@60Hz for both input and output
- Support 8 predefined layouts
- Support seamless switching on single window layout
- Auto scaler on each input
- Support audio embedding and de-embedding
- Support multiple control methods, including front panel buttons, IR remote and the RS232 control
- Support USB upgrading

Package Content

Unit x1	Power Adapter x1
Remote Control x1	Download Card x1


2. Specification

Video Input Interface	4x HDMI 2.0 and 1x USB Type-C	
Video Input Resolution	HDMI 2.0: Up to 3840x2160@60Hz USB-C: Up to 3840x2160@30Hz	
Video Output Interface	1x HDMI 2.0	
Video Output Resolution	HDMI 2.0: Up to 3840x2160@60Hz UVC (USB 2.0): Up to 1920x1080@60	
Audio Input Interface	4x HDMI and 1x USB Type-C	
Audio Input Signal	RAW PCM, 16bit, 32/44.1/48KHz sps; PCM2.0	
Audio Output Interface	1x HDMI, 1x 3.5mm Audio and 1x USB 2.0	
Audio Output Signal	RAW PCM, 16bit, 32/44.1/48KHz sps; PCM2.0	
Front Control	IN1: Input 1 IN2: Input 2 IN3: Input 3 IN4: Input 4 IN5: Input 5	Single View
	田: Input 1 to input 4	Quad-view
IR Control	Remote control	
Serial Port Control	DB9	
Operating Temperature	0 to 45°C (32 to 113 °F)	
Storage Temperature	-20 to 70°C (-4 to 158°F)	
Humidity	10% to 90%	
Static Protection	Human body discharge mode: ±8kV (air gap discharge)/ ±4kV (contact discharge)	
Power Adapter	DC 12V 1.5A	
Power Consumption	10W (Max)	
Product Dimension	240x124x28 (mm)	
Weight	2kg	

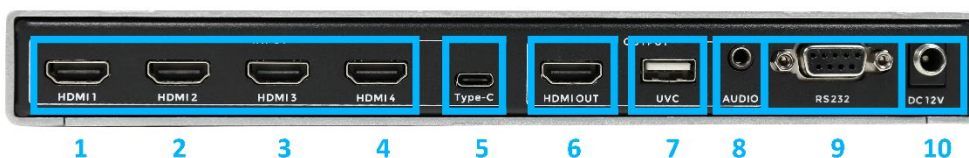
3. Panel Layout

3.1 Hardware Interface – Front



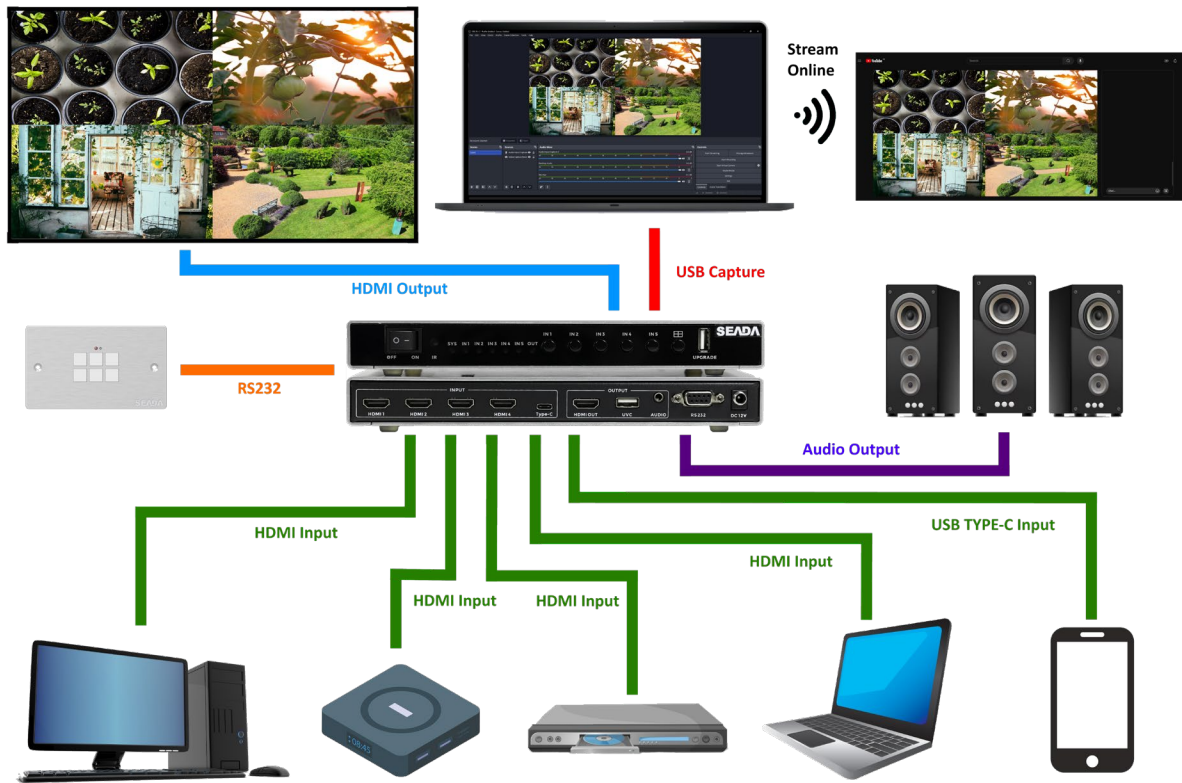
ID	Name	Description
1	OFF/ON	For power ON/OFF switch
2	IR	Remote control receiver
3	SYS	For the power and system indicator
4	IN1/2/3/4/5	LED illuminates when the device is connected to the input source.
5	OUT	For the HDMI output cable connection indicator
6	IN1/IN2/IN3/IN4/IN5/ 	Push buttons for the 5 inputs selection to be one full screen and for a quick quad-view mode
7	Upgrade	For the USB-A firmware upgrading

3.2 Hardware Interface – Back



ID	Name	Description
1-4	HDMI Input	HDMI input ports, all support 4K60
5	Type-C Input	Type-C input port, supports 4K30
6	HDMI Output	HDMI output port, supports 4K60 with scaling
7	UVC Capture	US 2.0 port for UVC capture
8	Audio	Audio port for de-embedded audio
9	RS232	Support RS232 commands control
10	DC12V	DC12V power adapter

4. System Diagram



5. Working Modes



6. IR Remote Control

Reset: Press RESET 6 times. (By default, the output will be on a quad multiview with 1920x1080@60Hz output resolution)

Remote control lock: Press RES3 and then press RECALL 3 times.

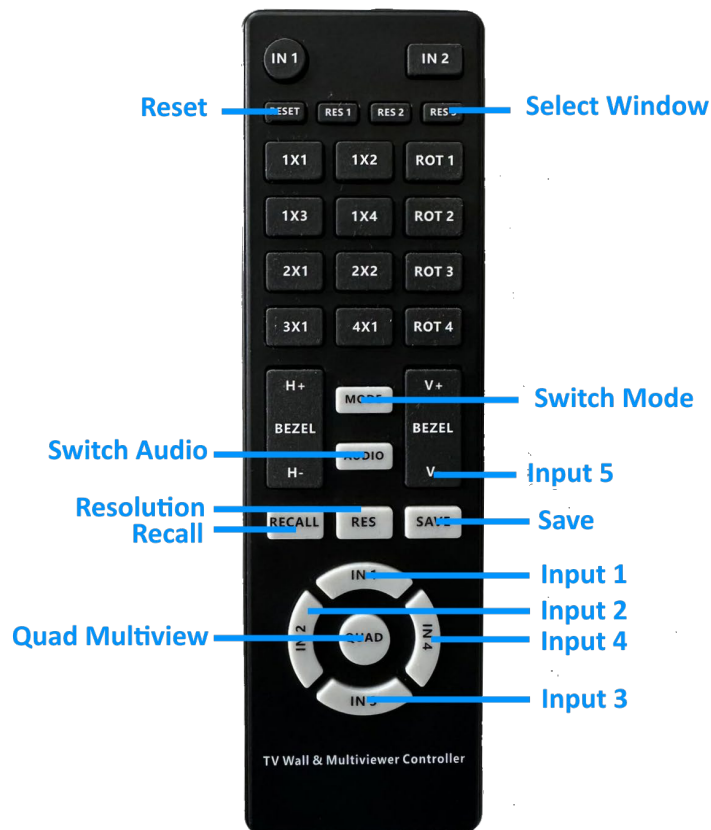
Remote control unlock: Press RES3 and then press RECALL 3 times.

Scene Save/Recall: Press SAVE/RECALL and select from IN1 to IN4.

Signal Switch: Press RES3 to select the window and then switch the input by pressing IN1-IN4 and V-.

Note: There is no need to press RES3 when the output is on a single window mode.

RES3	Select window
MODE	Switch between 8 different working modes
AUDIO	Switch output audio between each input
RES	Switch output resolution (720P60, 1080P60, 4K30 and 4K60)
QUAD	Quad Multiview mode



7. RS232 Control Commands

RS232 cable with straight-through connection

Communication protocol:

Baud rate: 115200

Data bit: 8

Stop bit: 1

Check bit: None

Commands in ASCII format:

1. All commands start with GET or SET, end with .(point)
2. Command ignore letter case. For example, 'GET HELP.' is same as 'get help.'
3. Command 'SET WIN1 IN1.' or 'SET WIN 1 IN 1.' or 'Set Win1 In1.' are the same
4. Command parameters show as '_'

-----SYSTEM-----

```
GET HELP.          //Get command list
GET VERSION.       //Get Software verion
SET RESET.         //Set to factory reset
SET REBOOT.        //Set machine to reboot
GET IN STATUS      //Set input1~4 cable status
```

-----RESOLUTION-----

```
SET OUT RES ____.  //Set output resolution
    SET OUT RES 1920 1080 60.
GET OUT RES.       //Get current output resolution
SET IN_ RES RESET. //Set input y resolution to default
    SET IN1 RES RESET.
SET INS RES RESET. //Set all input resolution to default
SET IN_ RES ____.  //Set input y resolution
    SET IN1 RES 1920 1080 60.
```


SET INS RES ____. //Set all input resolution

SET INS RES 1920 1080 60.

-----**WINDOWS**-----

SET WIN_ IN_. //Set win x to in y

SET WIN1 IN1. -> Set win1 to in1

SET WINS IN_. //Set win1~4 to input1~y

SET WINS IN1. ->Set win 1~4 to in1

SET WINS IN1 2. ->Set win 1 2 to in 1 2

SET WINS IN1 2 3. ->Set win 1 2 3 to in 1 2 3

SET WINS IN1 2 3 4. ->Set win 1 2 3 4 to in 1 2 3 4

SET WINS IN4 3 2 1. ->Set win 1 2 3 4 to in 4 3 2 1

SET WIN_ CROP ON. //Enable win x current input crop

SET WIN1 CROP ON.

SET WIN_ CROP OFF. //Disable win x current input crop

SET WIN1 CROP OFF.

SET WIN_ CROP _____. //Enable and set win x current input crop(Hstart,Vstart,Hsize,Vsize)

SET WIN1 CROP 0 0 960 540.

SET WIN_ POS SIZE _____. //Set win x coordinate(Hstart,Vstart,Hsize,Vsize)

SET WIN1 POS SIZE 0 0 800 600.

SET WIN_ POS ___. //Set win x position(Hstart,Vstart)

SET WIN1 POS 0 0.

SET WIN_ SIZE ___. //Set win x size(Hsize,Vsize)

SET WIN1 SIZE 800 600.

SET _WIN MODE_. // Set multi- x win mode N

SET 1WIN MODE1. -> 1WIN MODE1

SET 2WIN MODE1. -> 2WIN MODE1 to N

SET 3WIN MODE1. -> 3WIN MODE1 to N

SET 4WIN MODE1. -> 4WIN MODE1 to N

```

SET TEMPLATE_ . //Set multi-win template 1 to 8
    SET TEMPLATE 1.
SET WIN_ ROT _ . //Set win x rotation y, y can be 0 90 180 270
    SET WIN1 ROT 270. ->win1 rot 270
SET WINS ROT _ . // Set win 1~4 rotation, rotation can be 0 90 180 270
    SET WINS ROT 270. ->win1~4 rot 270
    SET WINS ROT 270 90. ->win1 rot 270, win2 rot 90
    SET WINS ROT 270 90 180. ->win1 rot 270, win2 rot 90, win3 rot 180
    SET WINS ROT 270 90 0 180. ->win1 rot 270, win2 rot 90, win3 rot 0, win4 rot 180

```

-----**MOSAIC**-----

```

SET WIN_ MOSAIC _x_ __. //Enable and set winx mosaic (hUnit,vUnit,hPos,vPos)
    SET WIN1 MOSAIC 4x4 2 2.
SET WIN_ MOSAIC ON. //Enable win x mosaic
    SET WIN1 MOSAIC ON.SET WIN_ MOSAIC OFF. //Disable win x mosaic
    SET WIN1 MOSAIC OFF.

```

-----**COLOR**-----

```

SET BRIGHTNESS_ . //Set brightness value 0~255, default: 128
    SET BRIGHTNESS 200.
SET BRIGHTNESS RGB ___ //Set brightness R/G/B value 0~255, default 200 100 50. ->Set
brightness t: 128
    SET BRIGHTNESS RGB 200. ->Set brightness R t 100. ->Set brightness RG to 200
    SET BRIGHTNESS RGB 200o 200 100
    SET BRIGHTNESS RGBRGB to 200 100 50
SET CONTRAST _ . //Set contrast value 0~100, default: 50
    SET CONTRAST 80.

```

-----**MODE**-----

```

SET LOAD MODE_ . // Load mode 1 ~ 10
    SET LOAD MODE1.

```

SET SAVE MODE_. // Save mode 1 ~ 10

SET SAVE MODE1.

-----**AUDIO**-----

SET AUDIO MUTE ON. //Audio mute

SET AUDIO MUTE OFF. //Audio Unmute

SET AUDIO VOL_. //Set audio volume value 0 ~ 100, default: 100

SET AUDIO VOL 80.

SET AUDIO VOL+. //Audio volume+1

SET AUDIO VOL-. //Audio volume-1

SET AUDIO WIN_. //Set Audio to win x

SET AUDIO WIN1.

SET AUDIO IN_. //Set Audio to in y

SET AUDIO IN1.