SEADA

Showing the World

SD-MV-0501

4K 5X1 Seamless Switcher with Multiview

User Manual

VER 1.0

⚠️**Warning**

- ■ Do not expose this device to Rain, Moisture, and Dripping
- ■ Only use accessories specified by the manufacture
- ■ Unplug this device during Lightning Storms
- ■ The manual is for reference only, maybe updated without further notice

Content

Introduction

SD-MV-0501 is a HDMI 2.0 and DP 1.2 Seamless Video Switcher with Multiview function. It supports 3x HDMI, 1x DP and 1x USB-C (video only) inputs, one HDMI and one HDBaseT video mirror output. One 3.5mm audio jacket can output analogue stereo audio. User can use Front Buttons or RS232 commands to control the switcher
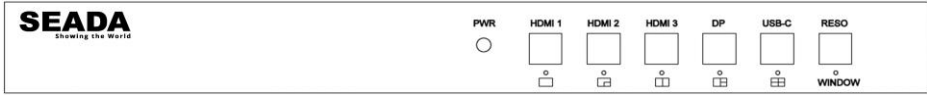
1. Features

- Seamless Switching on single display window mode
- Support 5 Multiview display modes
- Support HDMI 2.0, DP 1.2 input
- Scaling output with multiple resolution options, up to 4096x2160@60
- Extensive EDID and HDCP control
- HDBaseT transmission length up to 70m @1080p, or 40m @4K
- Support PCM and bitstream audio format up to 5.1 channel
- Audio extraction, 3.5mm L/R output
- Provide 24V/10watt PSE (POC) for HDBaseT receiver
- Support firmware upgrade with U disk by side of the switcher

2. Package Contents

Item	Quantity
Switcher Unit	1
24V/1A power adapter	1
3-way male captive screw connector	1
Download Card	1
Quick Start Manual	1
HDBaseT RX (only with Kit)	1

3. Connectors and Controls

Front

Name	Description
HDMI 1	Press HDMI 1 button to select HDMI 1 as the input source. Long press it for 3 seconds to enter **SINGLE** mode, ▭. Note, when works on non-SINGLE mode, directly short press input buttons will be invalid.
HDMI 2	Press HDMI 2 button to select HDMI 2 as the input source. Long press it for 3 seconds to enter PIP Multiview mode, ▭.
HDMI 3	Press HDMI 3 button to select HDMI 3 as the input source. Long press it for 3 seconds to enter PBP Multiview mode, ▭▭.
DP	Press DP button to select DP as the input source. Long press it for 3 seconds to enter **3xWIN** mode, ▭.
USB-C	Press USB-C button to select USB-C (video only) as the input Long press it for 3 seconds to enter **4xWIN** mode, ▦
RESO	Press RESO (short for Resolution) button to select different output resolution. The resolution info will be shown on screen. Long press this button for 3 seconds the screen will show up one yellow border on window 1. Continue press this button the border will be shown on window 2 or 3... then press one input button such as HDMI 1, and then HDMI 1 will be displayed on the current selected window.

Please note: Press HDMI 3 and DP at the same time can enable/disable AUTO SWITCH function in **SINGLE** window display mode

Rear
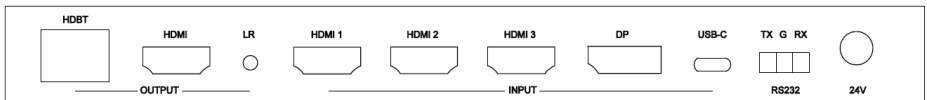
Name	Description
HDBT out	HDBaseT Scaling output up to 3840x2160@60-4:2:0 Act as 24V POC-PSE
HDMI out	HDMI scaling output up to 3840x2160@60
LR out	3.5mm LR stereo audio output, 20Hz ~ 20kHz, 1.5Vrms max
INPUTs	**HDMI 1**, **HDMI 2**, **HDMI 3**, **DP, USB-C**
RS232	Baud Rate: 9600, Data Bits:8, Parity: None Stop Bits:1 3 way 3.5mm phoenix connector **TX** means Switcher→ PC; **RX** means Switcher ← PC **G** means Ground
24V	24V power adapter to plug in

4. EDID and HCDP handle

The switcher support following EDID modes for source to detection, user can select it by RS232 command

Number	EDID mode	Number	EDID mode
1	4K60-2.0CH	9	1680x1050
2	4K60-5.1CH	10	1600x1200
3	4K30-2.0CH	11	1440x900
4	4K30-5.1CH	12	1360x768
5	1080P-2.0CH	13	1280x1024
6	1080P-5.1CH	14	1024x768
7	720P	15	AUTO
8	1920x1200		

The switcher support 3 HDCP options for HDMI output setting
FORCE-1.4, FORCE-2.2, FORCE-OFF
The default selection is FORCE-1.4, User can select it by RS232 command

5. Video and Audio output

The switcher support following video output resolution

Number	Output Resolution	Number	Output Resolution
1	4096x2160p 60Hz	8	1920x1080p 60Hz
2	4096x2160p 50Hz	9	1920x1080p 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	1920x1200P 60Hz RB	14	1024x768 60Hz

Audio output is always extracted from the source displayed on the window 1

6. Multiview

The Switcher support 5 Multiview display modes
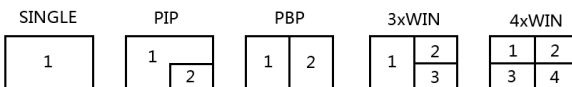SINGLE, PIP, PBP, 3xWIN, 4Xwin
Users can select different operations for different Multiview modes as following:
SINGLE and 4xWIN: Inputs selection
PBP and 3xWIN: Inputs selection, Display Ratio selection
PIP: Inputs selection, Display Ratio selection, Sub window size and position selection

Multiview window distribution as following

User can use RS232 commands to do detail window layout.

7. Specification

RS232	9600 baud rate, 8 data bits, 1 stop bit, no parity
Power Supply	24V/1A ,14W max
Operating Temperature	0 to +40°C (+32 to +104 °F)
Operating Humidity	10 to 50 % RH (non-condensing)
Dimensions	L225 x W100 x H25 mm
Mass (Main Unit)	0.75kg

8. RS232 command

Note: All the commands begin with SET or GET, end with Carriage Return (CR).
↵ Represents Carriage Return (CR).
All return messages are always end with CR.

HELP command

This command returns the complete list of supported control commands

Command	Details
GET HELP↵	Get the Commands list
	Example: Send: GET HELP↵ Receive: Command list

Firmware version command

Command	Details
GET VERSION↵	Get firmware version
	Example: Send: GET VERSION↵ Receive: 20210824↵

Switching and Input command

The following commands are used for input selection or querying input information
These commands only be valid on SINGLE mode

Commands	Details
SET AUTO SWITCH w↵	w is ON or OFF, default OFF
	Example: Send: SET AUTO SWITCH ON ↵ Receive: AUTO SWITCH ON ↵

GET AUTO SWITCH↵	Return AUTO SWITCH setting status
	Example: Send: GET AUTO SWITCH ↵ Receive: AUTO SWITCH ON ↵
SET IN SOURCE w↵	w is one of the following: HDMI1, HDMI2, HDMI3, DP, USB-C
	Example: Send: SET IN SOURCE HDMI1↵ Receive: IN SOURCE HDMI1↵
GET IN SOURCE↵	Get current source selection
	Example: Send: GET IN SOURCE↵ Receive: IN SOURCE HDMI1↵
GET IN RESOLUTION↵	Get current source resolution
	Example: Send: GET IN RESOLUTION↵ Receive: IN RESOLUTION 1920x1080p60↵

Set output resolution command

The following commands are used to select the output resolution:

Commands	Details
SET OUT RESOLUTION w↵	w is one of the following 4096x2160p60, 4096x2160p50, 3840x2160p60, 3840x2160p50, 3840x2160p30, 3840x2160p25, 1920x1200p60RB, 1920x1080p60, 1920x1080p50, 1360x768p60, 1280x800p60, 1280x720p60, 1280x720p50, 1024x768p60 Default: 3840x2160p60
	Example: Send: SET OUT RESOLUTION 3840x2160p60↵ Receive: OUT RESOLUTION 3840x2160p60↵
GET OUT RESOLUTION↵	Get current output resolution setting
	Example: Send: GET OUT RESOLUTION↵ Receive: OUT RESOLUTION 3840x2160p60↵

Multiview command

The following commands used to select Multiview modes, windows layout and so on

Commands	Details
SET MULTIVIEW w⏎	Select one Multiview mode for current display w is one of the following, default SINGLE SINGLE, ▢ PIP, ▣ PBP, ▭▭ 3xWIN, ▭▤ 4xWIN, ⊞
	Example: Send: SET MULTIVIEW PIP⏎ Receive: MULTIVIEW PIP⏎
GET MULTIVIEW⏎	Get the current Multiview mode
	Example: Send: GET MULTIVIEW⏎ Receive: MULTIVIEW 3xWIN⏎
SET WINDOWx IN y⏎	Select one input for one display window for the current Multiview mode. x is one of 1, 2, 3 or 4 y is one of the following: HDMI1, HDMI2, HDMI3, DP, USB-C
	Example: Send: SET WINDOW1 IN HDMI1⏎ Receive: WINDOW1 IN HDMI1⏎
GET WINDOWx IN⏎	This command to get which is the input source for one display window for the current Multiview mode
	Example: Send: GET WINDOW1 IN⏎ Receive: WINDOW1 IN HDMI1⏎
SET PIP POS w⏎	This command to select the PIP sub window position. w is one of the following, default RightBottom LeftTop, LeftBottom, RightTop, RightBottom
	Example: Send: SET PIP POS LeftTop⏎ Receive: PIP POS LeftTop⏎
GET PIP POS⏎	This command to get the PIP sub window position
	Example: Send: GET PIP POS⏎ Receive: PIP POS LeftTop⏎

SET PIP SIZE w⏎	This command to select the PIP sub window size. w is one of the following, default LARGE SMALL, MIDDLE, LARGE
	Example: Send: SET PIP SIZE SMALL⏎ Receive: PIP SIZE SMALL⏎
GET PIP SIZE⏎	Get the PIP window size.
	Example: Send: GET PIP SIZE⏎ Receive: PIP SIZE SMALL⏎
SET PBP RATIO w⏎	Set the PBP window display ratio w is one of the following, default 2:1 2:1, 1:1
	Example: Send: SET PBP RATIO 1:1⏎ Receive: PBP RATIO 1:1⏎
GET PBP RATIO⏎	Get the PBP window display ratio
	Example: Send: GET PBP RATIO⏎ Receive: PBP RATIO 1:1⏎
SET 3xWIN RATIO w⏎	Set the 3xWIN window display ratio w is one of 2:1 or 1:1, default 2:1
	Example: Send: SET 3xWIN RATIO 1:1⏎ Receive: 3xWIN RATIO 1:1⏎
GET 3xWIN RATIO⏎	Get the 3xWIN window display ratio
	Example: Send: GET 3xWIN RATIO⏎ Receive: 3xWIN RATIO 1:1⏎

Output HDCP command

The following commands are used to select the HDMI Output HDCP modes:

Commands	Details
SET OUT HDCP w↵	w is one of following, default FORCE-OFF FORCE-1.4,FORCE-2.2,FORCE-OFF
	Example: Send: SET OUT HDCP FORCE-1.4↵ Receive: OUT HDCP FORCE-1.4↵
GET OUT HDCP↵	Get the output current HDCP mode
	Example: Send: GET OUT HDCP↵ Receive: OUT HDCP FORCE-1.4↵

EDID command

The following commands are used to set EDID mode for the inputs

Commands	Details
SET IN EDIDMODE w↵	w is one of the following: 4K60-2.0, 4K60-5.1, 4K30-2.0, 4K30-5.1, 1080p60-2.0 1080p60-5.1, 1920x1200, 1680x1050, 1600x1200, 1440x900, 1360x768, 1280x1024, 1024x768, 720p, AUTO Default: 4K60-2.0
	Example: Send: SET IN EDIDMODE 4K60-2.0↵ Receive: IN EDIDMODE 4K60-2.0↵
GET IN EDIDMODE↵	Get the current EDID mode
	Example: Send: GET IN EDIDMODE↵ Receive: IN EDIDMODE 4K60-2.0↵

Video Keep Alive (VKA) command

When there is no signal present, 3 options are available for selection:
Output blue screen, Output black screen, No timing output (VKA off)

Commands	Details
SET OUT VKA w↵	w is one of the following, default BLACKSCREEN BLUESCREEN, BLACKSCREEN,NOTIMING
	Example: Send: SET OUT VKA BLUESCREEN↵ Receive: OUT VKA BLUESCREEN↵
GET OUT VKA↵	Get current VKA mode
	Example: Send: GET OUT VKA↵ Receive: OUT VKA BLUESCREEN↵

4K-AUTO command

If we set 4K output to a displayer which can't support 4K, 4K-AUTO command can be enabled, switcher will change the output resolution according to displayer's capability

Commands	Details
SET OUT 4K-AUTO w↵	w is one of ON or OFF, default ON
	Example: Send:　 SET OUT 4K-AUTO ON↵ Receive: OUT 4K-AUTO ON↵
GET OUT 4K-AUTO↵	Get current OUT 4K-AUTO mode
	Example: Send:　 GET OUT 4K-AUTO↵ Receive: OUT 4K-AUTO　ON↵