

Multiview Video Processor



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1. Overview

The Multiview Video Processor is a simple, cost-effective video scaler designed to enable a true 4K@60Hz UHD, HD, SD video display device, virtually handling any input resolution up to 4K@60Hz. It provides 4 HDMI inputs, 1 VGA input, 1 DisplayPort input, 1 analog audio input, 1 HDMI output and 1 DP loop out.

2. Features

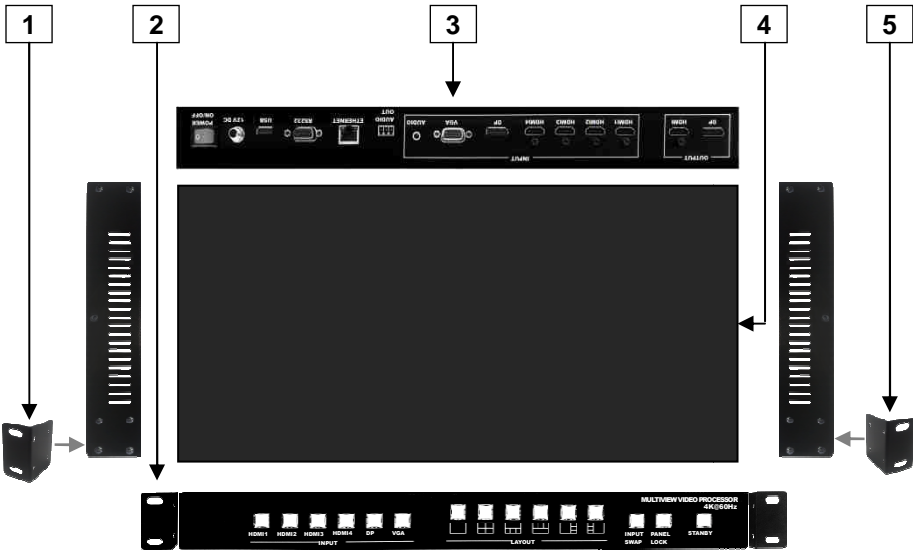
- Support 4K@60 dual display output, the primary display does full screen/PIP/POP/multi-view and secondary display does full screen.
- Support 14 different screen layouts including 6 preset screen layouts and extra 8 customized screen layouts
- Support input resolution up to 4K@60Hz, 4:4:4 color sampling
- Support output resolution up to 4K@60Hz, 4:4:4 color sampling
- Support upscaling up to 4K@60Hz, 4:4:4 color sampling
- Support Deep Color and HDCP 1.4/2.2
- Fast switching between input channels or screen layout modes
- Rotation R90°/L90° or flip output in full screen layout
- Receive Dolby Digital® 5.1, DTS® 5.1 and uncompressed 7.1 linear PCM audio includes stereo analog audio input
- Support stereo audio output
- Support front panel button, IR remote control, RS232/TELNET and Web UI control
- Support USB port firmware upgrade

3. Specifications

MODEL NO.	Multiview Video Processor
INPUT	4 x HDMI 2.0 with locking 1 x DP 1.2 1 x VGA Audio R/L
OUTPUT	1 x HDMI 2.0 with locking 1 x DP 1.2 Audio R/L
CONTROL	Front panel buttons IR remote control RS232/TELNET Web UI
FIRMWARE UPGRADE	1 x USB 2.0
VIDEO OUTPUT RESOLUTION	4096 x 2160@60Hz, 4:4:4 color sampling
ETHERNET PORT	1 x RJ45
LED INDICATOR	INPUT, blue backlight LAYOUT, blue backlight INPUT SWAP, blue backlight PANEL LOCK, blue backlight STANDBY on, red backlight STANDBY off, green backlight
POWER SUPPLY	DC 12V/2A, locking barrel connector
POWER CONSUMPTION	15W
ENVIRONMENT	Operating temperature 0 °C ~ 45 °C Operating humidity 20~90% RH Storage temperature -20 °C ~60 °C
DIMENSION	440.4 x 230 x 45 mm (L x W x H, standard1U)
WEIGHT	2.72 KG

4. Hardware Descriptions

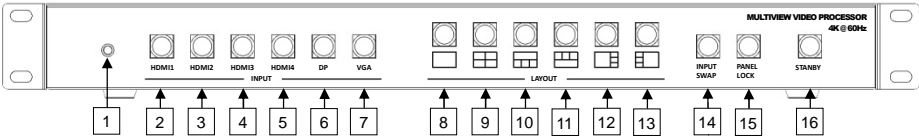
4.1 Product Appearance









No.	Feature	Description
1	Rack Mount Bracket *	Attach the bracket to the left side of the system chassis for rack mount installation
2	Front Panel	Control Multiview Video Processor or directly via the front panel push Buttons
3	Rear Panel	Connect Video and Audio signal via rear panel input connectors
4	System Chassis	Black metal housing and the size is 1 rack unit
5	Rack Mount Bracket *	Attach the bracket to the right side of the system chassis for rack mount installation

* Rack Mount Bracket: 4 screws per bracket are screwed on the unit in advance when the Multiview Video Processor is assembled. There are spare screws included in the package as accessories to screw the bracket.

4.2 Front Panel

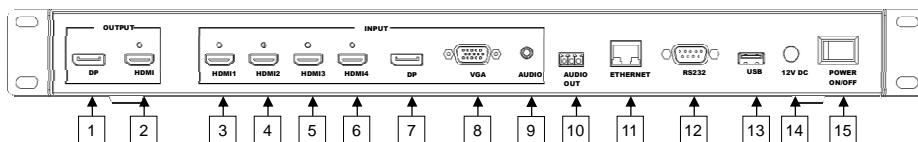


No.	Feature	Description
1	IR Receiver	Receives signals from the remote control transmitter
2	INPUT*	HDMI1 Press to select the HDMI 1 input in full screen Press to select HDMI 1 audio in multi-view screen
3		HDMI2 Press to select the HDMI 2 input in full screen Press to select HDMI 2 audio in multi-view screen
4		HDMI3 Press to select the HDMI 3 input in full screen Press to select HDMI 3 audio in multi-view screen
5		HDMI4 Press to select the HDMI 4 input in full screen
6		DP Press to select the DP input in full screen Press to select DP audio in multi-view screen
7		VGA Press to select the VGA input in full screen Select "VGA" for audio in multiview mode
8	LAYOUT*	 Press to select Layout A (full screen mode)
9		 Press to select Layout B
10		 Press to select Layout C
11		 Press to select Layout D
12		 Press to select Layout E

No.	Feature	Description
13	LAYOUT* 	Press to select Layout F
14	INPUT SWAP	Toggle the input source in Layout B, C, D, E and F mode
15	PANEL LOCK	Press to lock or unlock the front panel buttons
16	STANDBY	Press to put the system into standby mode or wake up the system

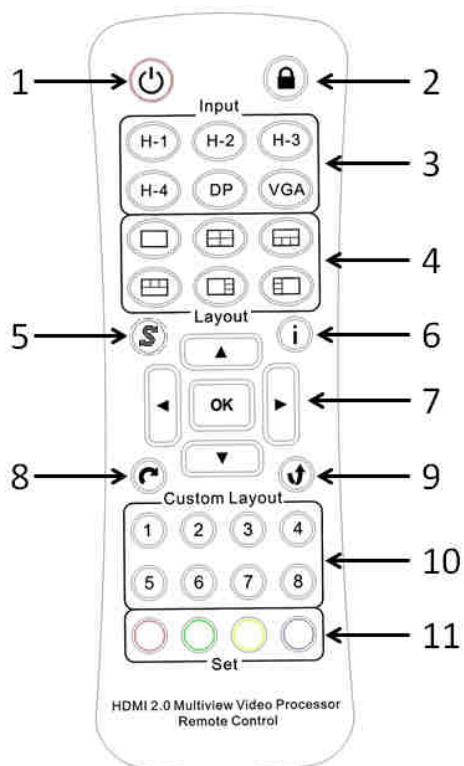
* Please see Appendix 1 and Appendix 2
















4.3 Rear Panel





No.	Feature		Description
1	OUTPUT	DP	Connect to the DP display device, video fellow window A.
2		HDMI	Connect to the HDMI display device, connector on rear panel with locking
3	INPUT	HDMI1	Connect to the HDMI source, connector on rear panel with locking
4		HDMI2	Connect to the HDMI source, connector on rear panel with locking
5		HDMI3	Connect to the HDMI source, connector on rear panel with locking
6		HDMI4	Connect to the HDMI source, , connector on rear panel with locking
7		DP	Connect to the DP source
8		VGA	Connect to the VGA source
9	AUDIO	Connect to the audio source	
10	AUDIO OUT		Connect to the audio amplifier
11	ETHERNET		Connect to PC, NB or other Controller through IP network
12	RS232/TELNET		Connect to PC, NB or other Controller
13	USB		Connect to PC for firmware upgrade
14	12V DC		Connect to the 12V/2A power supply, connector on rear panel with locking
15	POWER ON/OFF		Power switch for turn ON or OFF the Multiview Video Processor

4.4 IR Remote Control



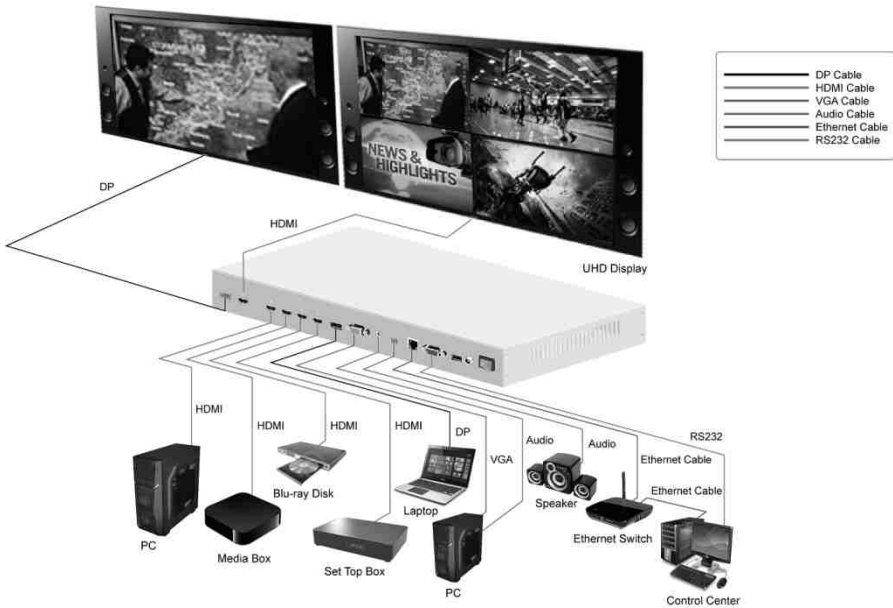
No.	Feature		Description
1	Standby		Press to set system into standby mode or wake up the system
2	Lock		Press to Lock or unlock the front panel buttons
3	Input*	H-1	Select HDMI 1 in full screen mode Select HDMI 1 audio in multiview mode
		H-2	Select HDMI 2 in full screen mode Select HDMI 2 audio in multiview mode.
		H-3	Select HDMI 3 in full screen mode Select HDMI 3 audio in multiview mode
		H-4	Select HDMI 4 in full screen mode
3	Input*	DP	Select DP in full screen mode Select DP audio in multiview mode
		VGA	Select VGA in full screen mode Select "VGA" for audio in multiview mode
4	Layout*		Select the Layout A (full screen mode)
			Select the Layout B
			Select the Layout C
			Select the Layout D
			Select the Layout E
			Select the Layout F
5	Input Swap*		Toggle the Input source in Layout B, C, D, E and F mode
6	Info.		System information
7	OK		Reserved
	Up		Reserved
	Down		Reserved
	Left		Reserved
	Right		Reserved

No.	Feature		Description
8	Rotate*		Rotate the video display R90°/ L90° in full screen mode
9	Flip		Flip display screen in full screen mode
10	Custom Layout*	1	Select the custom screen layout 1
		2	Select the custom screen layout 2
		3	Select the custom screen layout 3
		4	Select the custom screen layout 4
		5	Select the custom screen layout 5
		6	Select the custom screen layout 6
10	Custom Layout*	7	Select the custom screen layout 7
		8	Select the custom screen layout 8
11	Set	Red	Set output resolution to 3840x2160@60Hz(with Auto Detect)
		Green	Set output resolution to 3840x2160@30Hz
		Yellow	Set output resolution to 1920x1080@60Hz
		Blue	Set output resolution to 1280x720@60Hz

* Please see Appendix 1 and Appendix 2

5. Installation

5.1 Wiring Diagram



Do the following steps for device connections.

- Connect a HDMI source to the HDMI 1 input connector.
- Connect a HDMI source to the HDMI 2 input connector.
- Connect a HDMI source to the HDMI 3 input connector.
- Connect a HDMI source to the HDMI 4 input connector.
- Connect a DP source to the DP input connector.
- Connect a VGA video source to the VGA D-sub 15 pin input connector.
- Connect an audio source to the audio input connector.
- Connect the HDMI output connector to a HDMI display device
- Connect the DP output connector to a DP display device
- Connect the audio output connector to the audio amplifier, as required.
- Connect the 12V/2A adapter to 12V DC connector.

5.2 Rack Mount Installation

Take the following steps to attach the two brackets to the system chassis and install into rack.

- a. Remove all cables and power supply before mount the Multiview Video Processor in the rack
- b. Place the system chassis on a sturdy surface
- c. Attach bracket to the left side of the system chassis by using the screw driver and four screws
- d. Attach the other bracket to the right side of the system chassis by using the screw driver and four screws
- e. Use your tape measure and level to ensure that the supporting shelf and the chassis are installed straight and level
- f. Make sure that your path to the rack is unobstructed.
- g. Slide the unit into the rack and position using the attached L brackets so that the slots in the brackets are positioned over the appropriate mounting holes in the side rails of the rack
- h. Securely fasten the unit into the rack by using the four screws which are supplied with the rack mount kit, installing two of the screws on each side of the unit. Use a screw driver to tighten the screws on each side of the unit.

6. Configurations

6.1 Front Panel Buttons

Please see the section 4.2.

6.2 Front Panel Buttons

Please see the section 4.4

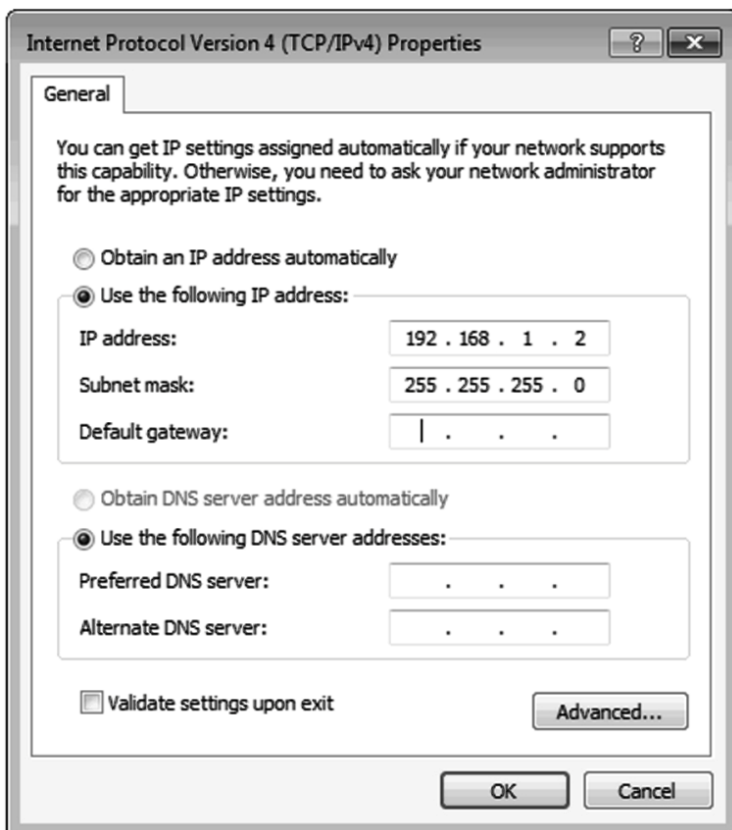
6.3 Web UI

You can connect the Ethernet directly from PC to Multiview Video Process.

Please follow below steps to configure your PC Ethernet setting.

6.3.1 Directly Connect to PC via Ethernet Cable

- a. Click Start > Control Panel > Network and Sharing Center
- b. Click “Change Adapter Settings”
- c. Highlight the network adapter you want to use to connect to the device and click “Change Settings” of this connection. The “Local Area Connection Properties” window for the selected network adapter.
- d. Highlight the Internet Protocol Version 4 (TCP/IPv4)
- e. Click Properties. The Internet Protocol Properties window is relevant to your IT system.
- f. Select “Use the following IP Address for static IP address” and fill in the details. For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.202).
- g. Subnet mask fills in 255.255.255.0.
- h. Click “OK”.

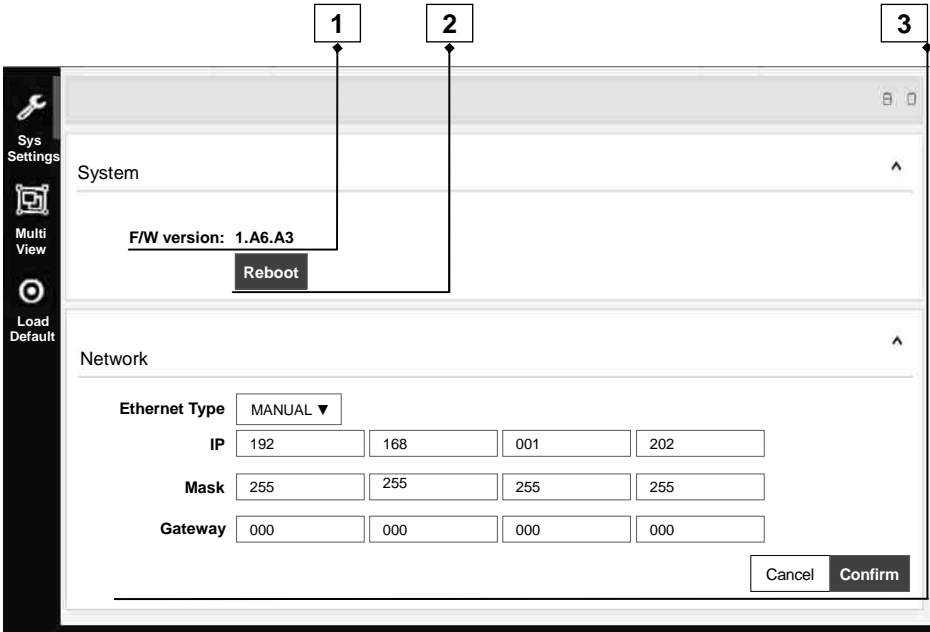


- i. After doing the steps from a. to h. successfully, you can click into Web UI by typing the 192.168.1.202 IP address in IE or Chrome.

6.3.2 Ethernet Hub or Router

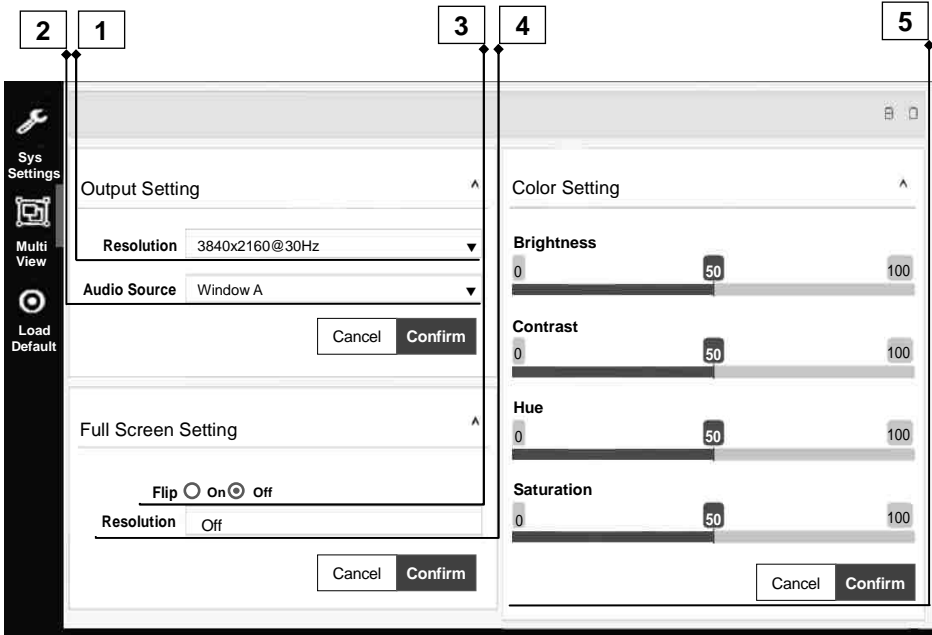
At first, please follow section 6.3.1 and open web browser then follow 6.3.3 to set the Ethernet type to DHCP. You can connect the Ethernet port of the Multiview Video Process to the Ethernet port on a network hub or network router, via an Ethernet cable with RJ-45 connector.

6.3.3 System Setting Page in Web UI



No.	Feature	Description
1	System	FW version
2		Reboot
3	Network	Ethernet Type Change the network type to Static IP or DHCP Press “Confirm” after setting has finished or press “Cancel” to ignore the modification.

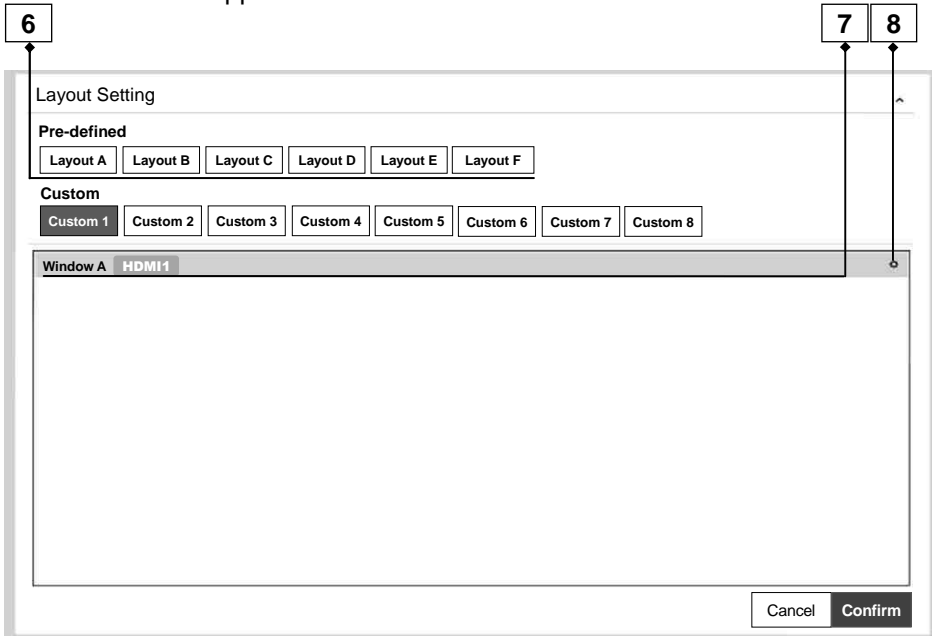
6.3.4 Multi View Page in Web UI



No.	Feature		Description
1	Output Setting	Resolution	Select output resolution 1: Auto (default) 2: 3840x2160@60Hz 3: 3840x2160@50Hz 4: 3840x2160@30Hz 5: 1920x1080@60Hz 6: 1280x720@60Hz 7: 480p@60Hz Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
2		Audio Source*	Select audio output source 1: Window A (default) 2: HDMI1 3: HDMI2 4: HDMI3 5: DP 6: VGA 7: Mute Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
3	Full Screen Setting	Flip	Flip video display in full screen mode 1: On 2: Off (default) Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
4		Rotate**	Rotate video display in full screen mode 1: Off (default) 2: L90° 3: R90° Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
5	Color Setting	Color Setting	Modify color setting 1: 50 (default) 2: 0~100 Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.

* HDMI4 audio NA in multi-view and custom layout mode

** Please see Appendix 1



No.	Feature		Description
6	Layout Setting	Pre-defined*	Select display layout type on monitor 1: Layout A (default, full screen) 2: Layout B 3: Layout C 4: Layout D 5: Layout E 6: Layout F Press “Confirm” after setting has finished or press “Cancel” to ignore the modification.
7		Window Info.	Main Screen: Window A Sub Screen: Window B, Window C, Window D Window A input source: HDMI1 (default) Window B input source: HDMI2 (default) Window C input source: HDMI3 (default) Window D input source: DP (default) Press “Confirm” after setting has finished or press “Cancel” to ignore the modification.
8	Layout Setting	Layout A Gear icon	Select Input Source 1: HDMI1 (default) 2: HDMI2 3: HDMI3 4: HDMI4 5: DP 6: VGA

* Please see Appendix 1 and Appendix 2

13 9

10 11 12

Layout Setting

Pre-defined

Layout A Layout B Layout C Layout D Layout E Layout F

Custom

Custom 1 Custom 2 Custom 3 Custom 4 Custom 5 Custom 6 Custom 7 Custom 8

Window A HDMI1 Bottom	Window B HDMI2 Layer3
Window C HDMI3 Layer2	Window D DP Upper

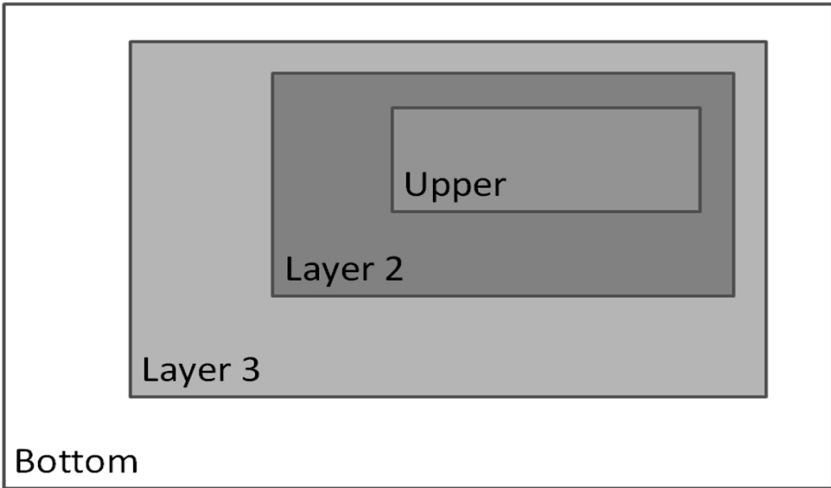
Window A Window B Window C Window D

Cancel Confirm

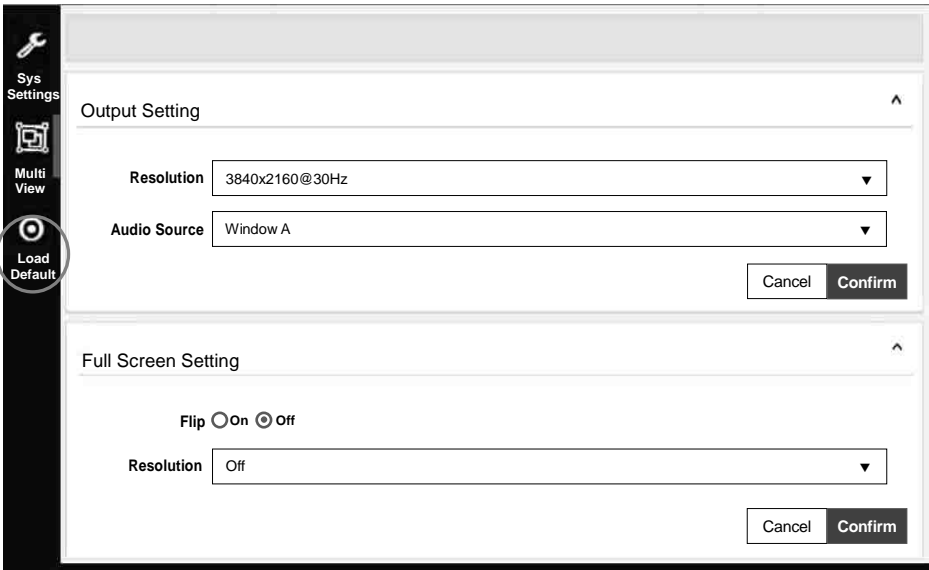
No.	Feature		Description
9	Layout Setting	Custom *	Select display custom layout type on monitor Press “Confirm” after setting has finished or press “Cancel” to ignore the modification.
10	Layout Setting	Window **	Window Information in upper left side of the window. 1. Window name: Window A, B, C and D 2. Blue mark: Indicates the Input source (it can be changed in “Gear icon”). 3. Orange mark: Indicates the display layer. The Window A to D position can be moved when clicking mouse left button. The size of Window A to D can be modified when moving mouse cursor to right or bottom of the window corner.
11		Gear icon	Select Input Source 1: HDMI1 (default) 2: HDMI2 3: HDMI3 4: DP 5: VGA
12		x icon	Press to close the window.
13		Open/Close Window	Press to open or close the window.

* Please see Appendix 1 and Appendix 2

** “Orange mark”: layer definition.



6.3.5 Load Default in Web UI



Press to load default setting in Web UI.

6.4 RS232/TELNET

6.4.1 Serial Port Settings

Apply the following settings to set up the serial port communication.

Baud rate: 115200

Data bits: 8

Stop bits: 1

Parity: None

Flow control: None

6.4.2 Commands

Command	Description	Parameter
SPOW 0/1	SET THE UNIT POWER ON/OFF	0=OFF,1=ON
RPOW	SHOW CURRENT POWER STATE	
SRES 0~6	SET OUTPUT RESOLUTOIN	0: AUTO (Default) 1: 3840x2160@60 2: 3840x2160@30 3: 1920x1080@60 4: 1280x720@60 [*] 5: 640x480@60 [*] 6: 3840x2160@50
RRES	SHOW CURRENT OUTPUT RESOLUTION	
SIOSDD	ENABLE ONSCREEN INFORMATION DISPLAY	
SBRI N	SET BRIGHTNESS VALUE FOR OUTPUT	N=0~100, Default 50
RBRI	SHOW BRIGHTNESS CURRENT VALUE FOR OUTPUT	
SCON N	SET CONTRAST VALUE FOR OUTPUT	N=0~100, Default 50
RCON	SHOW CONTRAST CURRENT VALUE!!	
SSAT N	SET SATURTATION VALUE FOR OUTPUT	N=0~100, Default 50
RSAT	SHOW SATURTATION CURRENT VALUE	

Command	Description	Parameter
SHUE N	SET HUE VALUE FOR OUTPUT	N=0~100, Default 50
RHUE	SHOW HUE CURRENT VALUE	
SIMRE 0~4	RESET COLOR SETTING VALUE TO DEFAULT	0 = ALL, BRIGHTNESS+CONTRAST+SATURATION+HUE
		1=BRIGHTNESS,
		2=CONTRAST,
		3=SATURATION, 4=HUE,
SIN2CH N M**	SET INPUT SOURCE M TO WINDOW N	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		INPUT SOURCE M=1~6, 1:HDMI1, 2:HDMI2, 3:HDMI3, 4:HDMI4, 5:DP, 6:VGA
SHSIZE N M**	SET WINDOW HORIZONTAL SIZE	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		HORIZONTAL SIZE M=1~60
RHSIZE**	SHOW WINDOW HORIZONTAL SIZE CURRENT VALUE WINDOW A~D=WINDOW 1~4 HORIZONTAL SIZE 1~60	
SVSIZE N M**	SET IMAGE VERTICAL SIZE	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		VERTICAL SIZE M=1~60
RVSIZE**	SHOW WINDOW VERTICAL SIZE CURRENT VALUE WINDOW A~D=WINDOW 1~4 VERTICAL SIZE 0~17	
SHPOS N M**	SET HORIZONTAL POSITION OF SPECIFIED CHANNEL	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		HORIZONTAL POSITION M=0~59
RHPOS**	SHOW WINDOW HORIZONTAL POSITION CURRENT VALUE WINDOW A~D=WINDOW 1~4 HORIZONTAL SIZE 0~59	
SVPOS N M**	SET VERTICAL POSITION OF SPECIFIED WINDOW	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		VERTICAL POSITION M=0~59

Command	Description	Parameter
RVPOS**	SHOW WINDOW VERTICAL POSITION CURRENT VALUE WINDOW A~D=WINDOW 1~4 VERTICAL SIZE 0~59	
SWIN N M**	SET OUTPUT WINDOW ON/OFF	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		M=0/OFF, 1/ON
RWIN N**	SHOW OUTPUT WINDOW	WINDOW N=0~4, 1: A, 2: B, 3: C, 4: D 0: ALL
SPRI N M**	SET WINDOW LAYER PRIORITY	WINDOW N=1~4, 1: A, 2: B, 3: C, 4: D
		LAYER PRIORITY M= 1~4, 1=BOTTOM, 2=LAYER 3, 3=LAYER2, 4=UPPER
RPRI N**	SHOW WINDOW LAYER PRIORITY	WINDOW N=0~4, 1: A, 2: B, 3: C, 4: D 0: ALL
SRECALL 1~14	SET AN OUTPUT WINDOW TO LAYOUT A~CUSTOM 8.	1 = LAYOUT A, 2 = LAYOUT B, 3 = LAYOUT C, 4 = LAYOUT D, 5 = LAYOUT E, 6 = LAYOUT F, 7 = CUSTOM 1, 8 = CUSTOM 2, 9 = CUSTOM 3, 10 = CUSTOM 4, 11 = CUSTOM 5, 12 = CUSTOM 6, 13 = CUSTOM 7, 14 = CUSTOM 8
SROTATE 0~4	SET VIDEO ROTATION SRECALL 1 MUST BE ENABLE BEFORE SROTATE	0=ROTATE OFF, 1 = L90, 2 = R90, 3 = Flip on, 4 = Flip off Default 0
RROTATE	SHOW VIDEO ROTATION CURRENT	
SIPM 0/1	SET IP MODE TO DHCP OR STATIC	0=DHCP, 1=STATIC, Default 1
RIPM	SHOW CURRENT IP MODE	
SIPADD N M X Y	SET STATIC IP ADDRESS	N=0~255, M=0~255, X=0~255, Y=0~255

Command	Description	Parameter
RIPADD	SHOW STATIC CURRENT IP ADDRESS	
SMAADD N M X Y	SET STATIC SUBNET ADDRESS	N=0~255, M=0~255, X=0~255, Y=0~255
RMAADD	SHOW STATIC CURRENT SUBNET ADDRESS	
SGAADD N M X Y	SET STATIC GATEWAY ADDRESS	N=0~255, M=0~255, X=0~255, Y=0~255
RGAADD	SHOW STATIC CURRENT GATEWAY ADDRESS	
IPCONFIG	SHOW ETHERNET ADDRESS	
DEFAULT	RESET THE UNIT TO FACTORY DEFAULTS	
SMUTE 0/1	SET MUTE AUDIO	0=UNMUTE, 1= MUTE
RMUTE	SHOW CURRENT MUTE	
SAUDIO N	SET OUTPUT AUDIO TO SPECIFIED SOURCE	AUDIO SELECT N=0~6, 0 = WINDOW A, 1 = HDMI1, 2 = HDMI2, 3 = HDMI3, 4 = reserved, 5 = DP, 6 = VGA
RAUDIO	SHOW OUTPUT AUDIO SOURCE	
SWICORE**	RESET THE WINDOW A ~ WINDOW D SETTINGS TO FACTORY DEFAULTS	
RFW	SHOW FIRMWARE VERSION	
REBOOT	SYSTEM REBOOT	
READEDID	READ EDID INFO FROM SINK DEVICE	

* Please see Appendix 1 for the condition for this output resolution.

** This command only works on custom layout.

7. Package Contents

- 1) 1 x Multiview Video Processor
- 2) 1 x Remote Control
- 3) 1 x DC 12V/2A output power adapter
- 4) 2 x Rack Mount Bracket
- 5) 4 x Rubber Pad
- 6) 1 x Screws bag
- 7) 1 x User manual

A. Appendix 1: Function NA list

Input Resolution	Layout A	Layout B	Layout C	Layout D	Layout E	Layout F	Custom Layout
4K60	Rotate NA INPUT SWAP NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA
4K30	Rotate NA INPUT SWAP NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA
1080p	INPUT SWAP NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA
720p	INPUT SWAP NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA
480p	INPUT SWAP NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA	Rotate NA Flip NA HDMI4 NA

Output Resolution	Layout A	Layout B	Layout C	Layout D	Layout E	Layout F	Custom Layout
4K60							
4K30							
1080p							
720p					HDMI Output NA	HDMI Output NA	HDMI Output NA
480p		HDMI Output NA	HDMI Output NA	HDMI Output NA	HDMI Output NA	HDMI Output NA	HDMI Output NA

B. Appendix 2: Front Panel Screen Layout Indicator

Screen Layout	Layout A Indicator	Layout B Indicator	Layout C Indicator	Layout D Indicator	Layout E Indicator	Layout F Indicator
Layout A	V					
Layout B		V				
Layout C			V			
Layout D				V		
Layout E					V	
Layout F						V
Custom Layout	V	V				