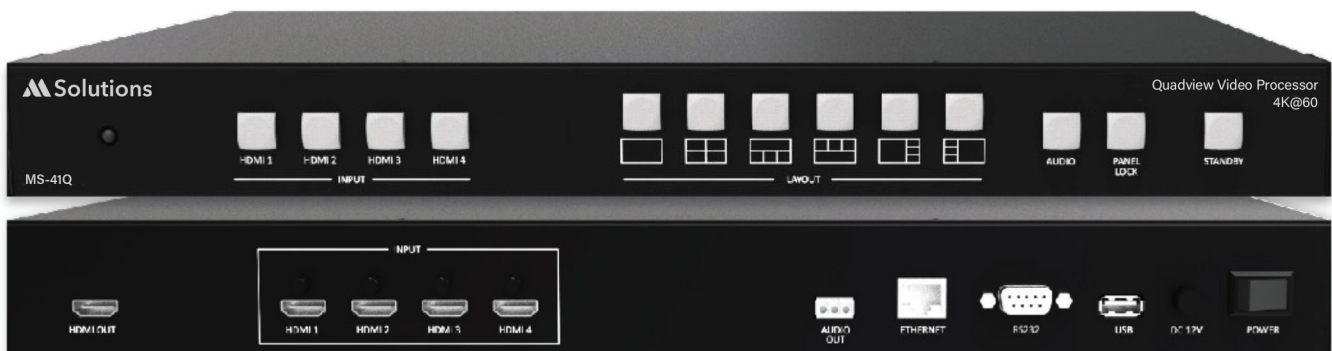


Solutions

User Guide

MS-41Q

Quadview Video Processor



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Notices

- This MSolutions product contains electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection is highly recommended in order to protect and extend the life of your equipment.
- The transmission distances of data over Cat cables are measured using TE CONNECTIVITY 1427071-6 EIA/TIA-568B termination (T568B) of cables is recommended for optimal performance. To minimise interference of unshielded twisted pairs in the CAT5e/6 cable, do not run the Cat5e/6/6a cabling with or in close parallel proximity to mains power cables.
- Do not substitute or use any other power supply other than the enclosed unit, or an MSolutions approved replacement. Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.
- MSolutions reserves the right to change the specifications of this unit without prior notice. As a result of this, physical representations or graphical elements contained within this user guide may not be accurate.

Introduction

The Quadview 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 and 1 HDMI output.

Key Features

- 4K@60 display output which does full screen/PIP/POP/quadview
- 6 pre-defined screen layouts and extra 8 customized screen layouts which can be modified easily anytime by user
- Input resolution up to 4K@60Hz, 4:4:4 color sampling.
- Output resolution up to 4K@60Hz, 4:4:4 color sampling
- Upscaling up to 4K@60Hz, 4:4:4 color sampling
- Deep Color and HDCP 1.4 / 2.2
- Fast switching between input channels or screen layout modes
- Rotation R90o/ L90o or flip output in full screen layout
- Stereo audio output
- Front panel button, IR remote control, RS232/TELNET
- User friendly Web UI control
- USB port firmware upgrade

Specifications

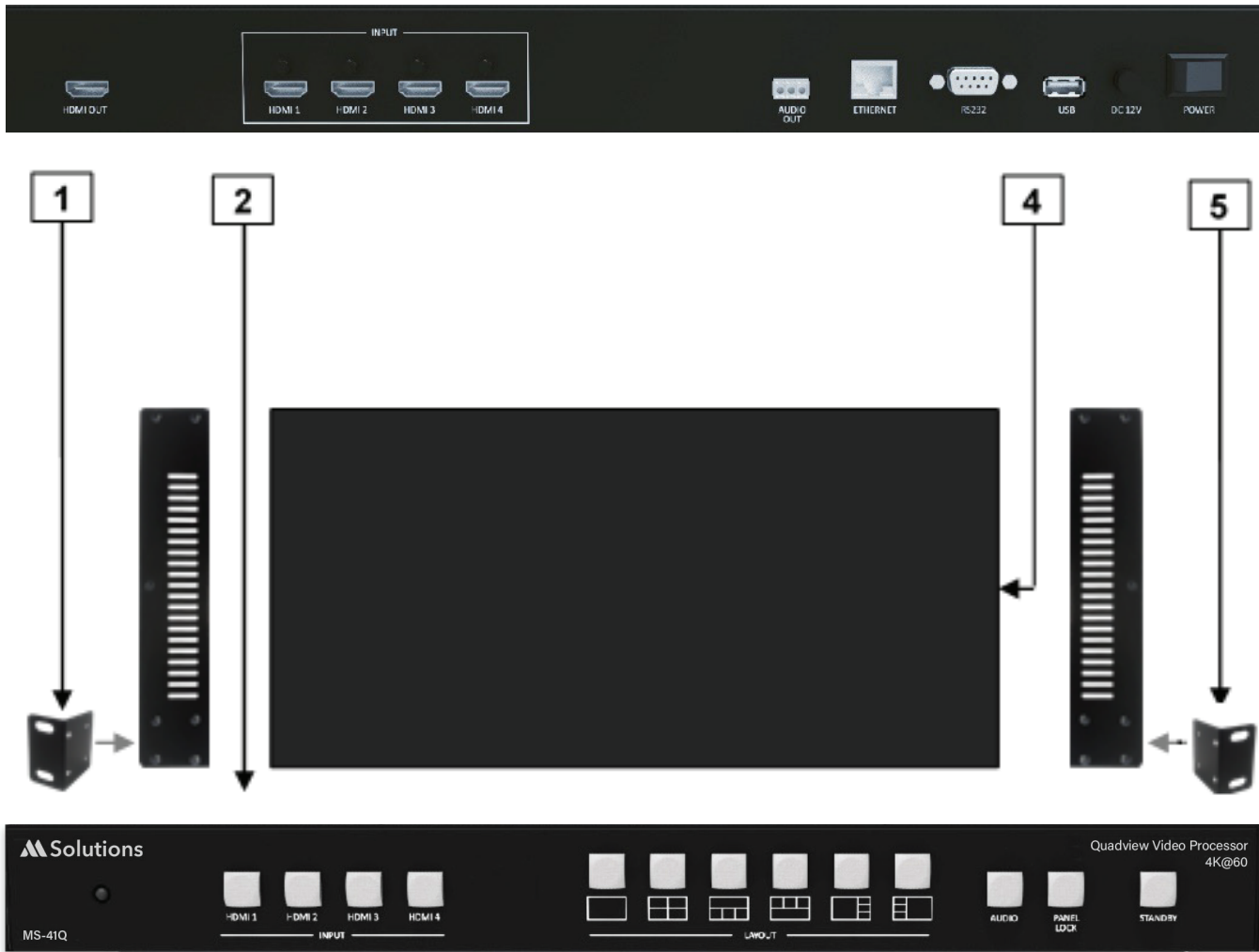
The Quadview Video Processor is a simple, cost-effective video scaler designed to enable a true 4K@60Hz UHD, HD, SD video display device, virtually handling any input resolution up to 4K@60Hz. It provides 4 HDMI inputs and 1 HDMI output.

Product hardware information	
System structure	Pure hardware
Startup	<12 seconds
Input/Output	
Input	4 x HDMI 2.0 with locking
Output	1 x HDMI 2.0 with locking
Image Processing	
Display mode	Full screen, Quad view, PIP, POP
Max input resolution	Up to 3840 x 2160@60Hz, 4:4:4 color sampling
Input resolutions	3840x2160 - 60Hz, 50Hz, 30Hz, 25Hz 1920x1080 - 60Hz, 50Hz, 30Hz, 25Hz 1280x720 - 60Hz, 50Hz, 30Hz, 25Hz 720x480 - 60Hz, 50Hz, 30Hz, 25Hz 480i, 576i - 24Hz to 60 Hz
Output color format	4:4:4, 4:2:2, 4:2:0
Max output resolution	Up to 4K @60Hz, 4:4:4 color sampling
Output resolutions	4096 x 2160p - 60Hz 3840x2160 - 60Hz, 50Hz, 30Hz, 25Hz 3440x1440 - 60Hz 1920x1080 - 60Hz, 50Hz 1920x1200 - 60Hz, 50Hz 1600x1200 - 60Hz 2048x2048 - 57Hz 1280x720 - 60Hz 640x480 - 60Hz
Output color format	4:4:4
Output color depth	8 bpc (24 bit/px)
Scaler	Scaling up to 4K@60Hz, 4:4:4 color sampling and downscaling as well
Video bandwidth	Up to 18 Gbps
HDMI compliance	HDMI 1.4 and HDMI 2.0
HDCP compliance	HDCP 1.4 and HDCP 2.2
Control Methods	
Front panel buttons	4 x select HDMI 1,2,3,4 input and/or audio, 6 x display layout, 1 x Audio Selection, 1 x Panel lock, 1x Standby
IR	1 x IR remote control
RS 232 / Telnet	1 x D9 Female Connector
Ethernet port	1 x RJ45
Web UI	Browser / Compatible with third party control system

Specifications (cont.)

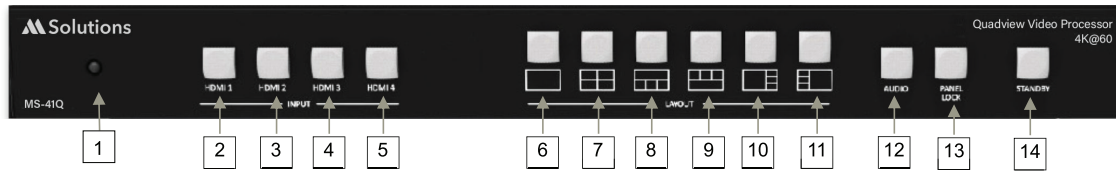
Stability	
Running time	24/7 365 days
Firmware	
Possible upgrade	1 x USB 2.0
LED Indicator	
INPUT	Blue backlight
OUTPUT	Blue backlight
PANEL LOCK	Blue backlight
STANDBY on	Red backlight
STANDBY off	Green backlight
Power	
Internal power supply	DC 12V/2A, locking barrel connector
Power consumption	15W
Power adaptor	Universal power adaptor
Environment	
Operating temperature	0°C ~ 45°C
Operating humidity	20% ~ 90% RH
Storage temperature	-20°C ~ 60°C
Physical	
Dimensions	440.4 x 230 x 45 mm (L x W x H, standard 1U)
Fixing components	Rear bracket, footpad and screws
Weight	3.0 kg







Product Appearance



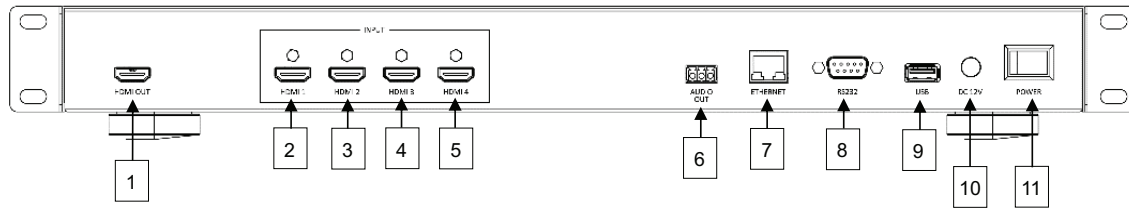
No.	Feature	Description
1	Rack Mount Bracket	Attach the bracket to the left side of the system chassis for rack mount installation
2	Front Panel	Control Quadview Video Processor or directly via the front panel push Buttons
3	Rear Panel	Connect Video and Audio signal via rear panel input connectors
4	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

Product Appearance – Front Panel



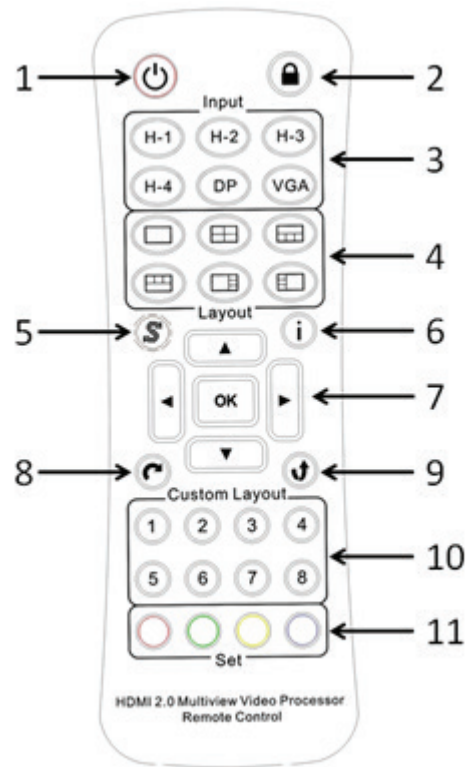
No.	Feature	Description
1	IR Receiver	Receives signals from the remote control transmitter
2	INPUT	HDMI1 Select the HDMI 1 input in full screen mode Select HDMI 1 audio in quadview mode
3		HDMI2 Select the HDMI 2 input in full screen mode Select HDMI 2 audio in quadview mode
4		HDMI3 Select the HDMI 3 input in full screen mode Select HDMI 3 audio in quadview mode
5		HDMI4 Select the HDMI 4 input in full screen mode Select HDMI 4 audio in quadview mode
6	LAYOUT	 Select Layout A (full screen mode)
7		 Select Layout B
8		 Select Layout C
9		 Select Layout D
10		 Select Layout E
11		 Select Layout F
12	AUDIO	Select audio source in full screen mode
13	PANEL LOCK	Lock or unlock the front panel buttons
14	STANDBY	Put the system into standby mode or wake up the system

Product Appearance – Rear Panel





No.	Feature		Description
1	OUTPUT	HDMI	Connect to the HDMI display device, connector on rear panel with locking
2	INPUT	HDMI1	Connect to the HDMI source, connector on rear panel with locking
3		HDMI2	Connect to the HDMI source, connector on rear panel with locking
4		HDMI3	Connect to the HDMI source, connector on rear panel with locking
5		HDMI4	Connect to the HDMI source, , connector on rear panel with locking
6	AUDIO OUT		Connect to the audio amplifier (Connectivity: L-G-R)
7	ETHERNET		Connect to PC, NB or other Controllers through IP network
8	RS232/TELNET		Connect to PC, NB or other Controllers
9	USB		Attach a USB flash drive for firmware upgrade
10	12V DC		Connect to the 12V/2A power supply, connector on rear panel with locking
11	POWER ON/OFF		Power switch for turn ON or OFF the Quadview Video Processor

Product Appearance – IR Remote Control

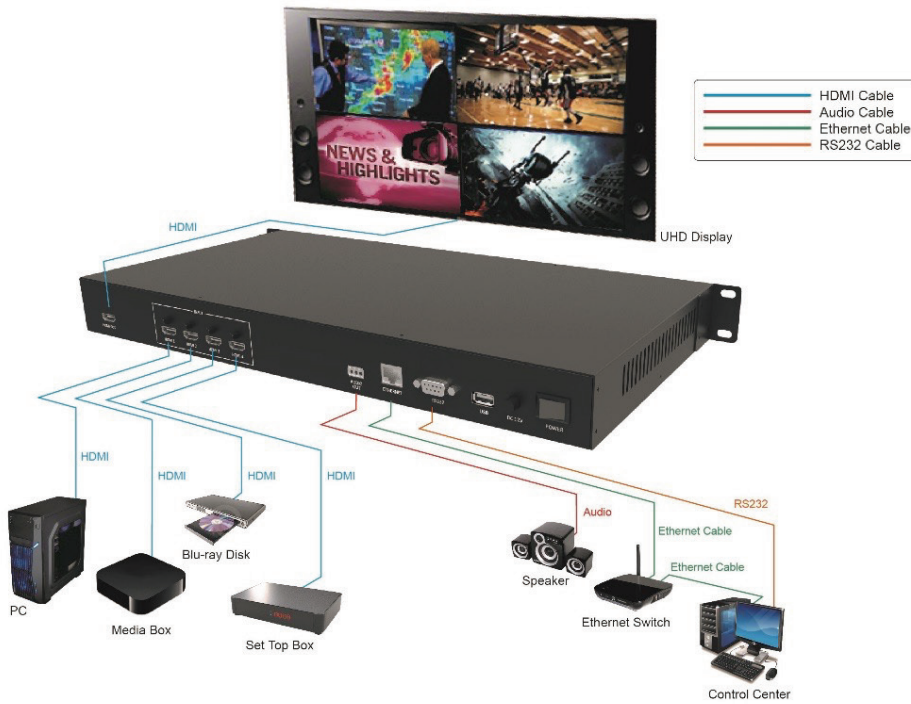


No.	Feature		Description
1	Standby		Press to set system into standby mode or wake up the system
2	Lock		Press to Lock or unlock the front panel buttons
3	Input	H-1	Select HDMI 1 in full screen mode Select HDMI 1 audio in quadview mode
		H-2	Select HDMI 2 in full screen mode Select HDMI 2 audio in quadview mode.
		H-3	Select HDMI 3 in full screen mode Select HDMI 3 audio in quadview mode
		H-4	Select HDMI 4 in full screen mode Select HDMI 4 audio in quadview mode
		DP	Reserved
		VGA	Reserved
4	Layout*		Select Layout A (full screen mode)
			Select Layout B
			Select Layout C
			Select Layout D
			Select Layout E
			Select Layout F

No.	Feature		Description
5		S	Reserved
6	Info.	i	System information *INFO OSD won't be shown if NO VIDEO INPUT window message displays.
7	OK	OK	Reserved
	Up	▲	Reserved
	Down	▼	Reserved
	Left	◀	Reserved
	Right	▶	Reserved
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 custom screen layout 1
		2	Select custom screen layout 2
		3	Select custom screen layout 3
		4	Select custom screen layout 4
		5	Select custom screen layout 5
		6	Select custom screen layout 6
		7	Select custom screen layout 7
		8	Select 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

Installation – Wiring Diagram



Do the following steps for device connections:

- a. Connect an HDMI source to the HDMI 1 input connector.
- b. Connect an HDMI source to the HDMI 2 input connector.
- c. Connect an HDMI source to the HDMI 3 input connector.
- d. Connect an HDMI source to the HDMI 4 input connector.
- e. Connect the HDMI output connector to a HDMI display device
- f. Connect the audio output connector to the audio amplifier, as required.
- g. Connect the 12V/2A adapter to 12V DC connector.

Installation – Rack Mount

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 mounting the Quadview 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 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.

Configurations

Front Panel Buttons: Please see Page 8.

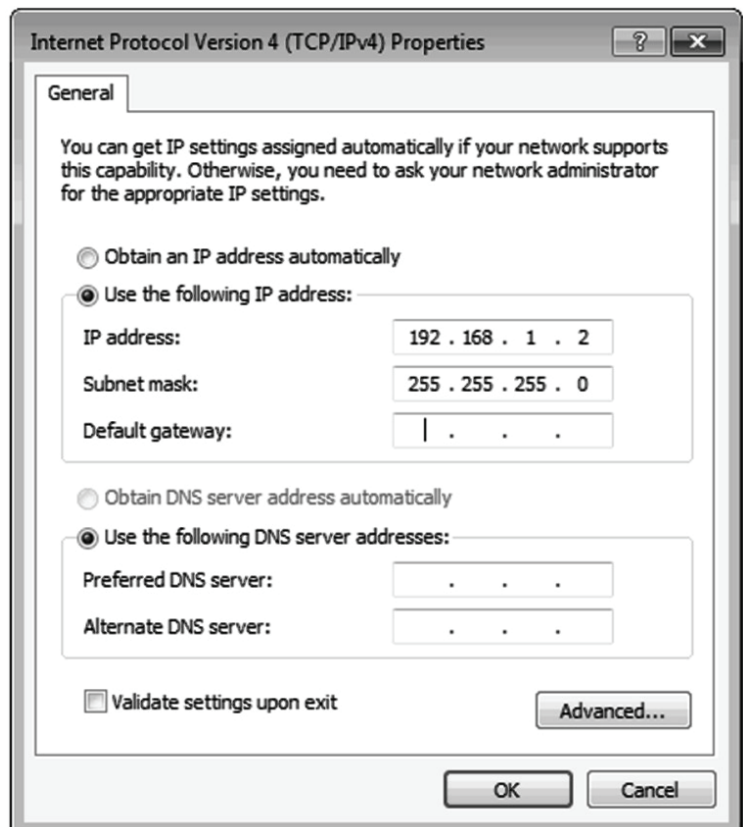
Remote Control: Please see Page 10

Configurations – Web UI

You can connect the Ethernet directly from PC to Quadview Video Process. Please do the following steps to configure your PC Ethernet setting:

Directly Connect to PC via Ethernet Cable

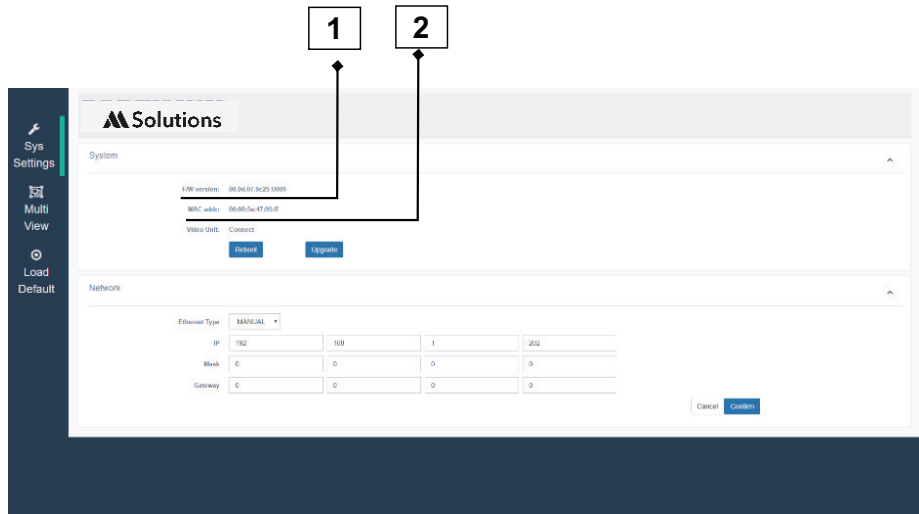
- a. Click Start > Control Panel > Network and Sharing Center
- b. Click "Change Adapter Settings"
- c. Highlight the network adapter you want to use to connect to the device and click "Change Settings" of this connection. The "Local Area Connection Properties" window for the selected network adapter.
- 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 steps a. through h. successfully, you can click into Web UI by typing the 192.168.1.202 IP address in IE or Chrome.



Ethernet Hub or Router

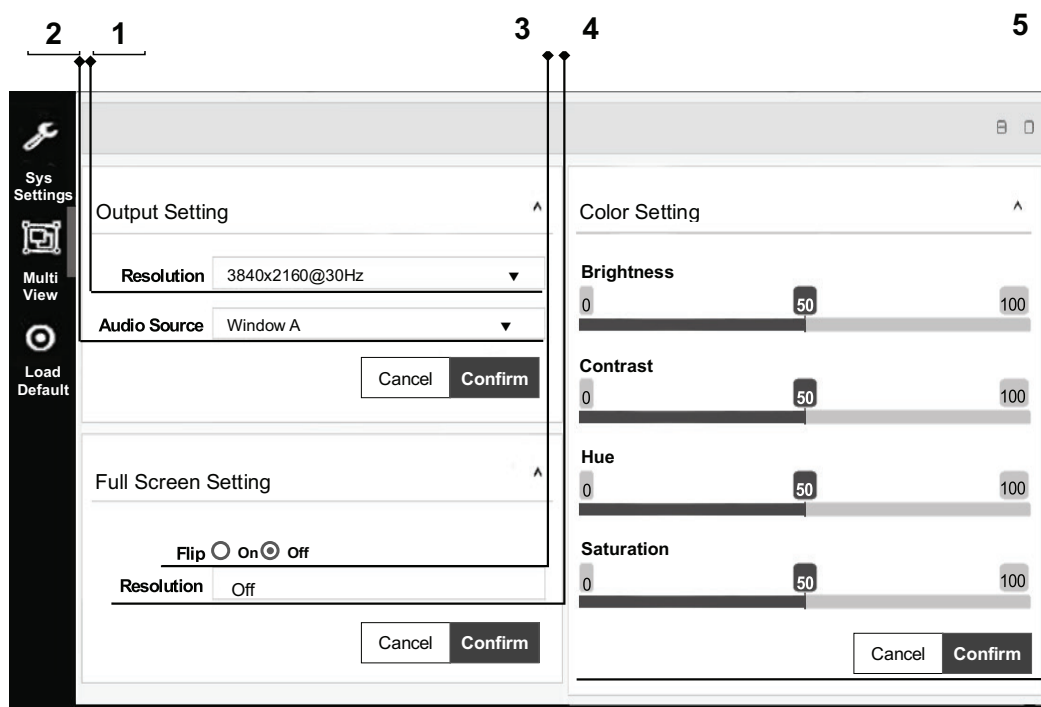
At first, please follow the above section (a through i) and open web browser. Then follow the instructions below to set the Ethernet type to DHCP. You can connect the Ethernet port of the Quadview Video Processor to the Ethernet port on a network hub or network router, via an Ethernet cable with RJ-45 connector.

System Setting Page in Web UI



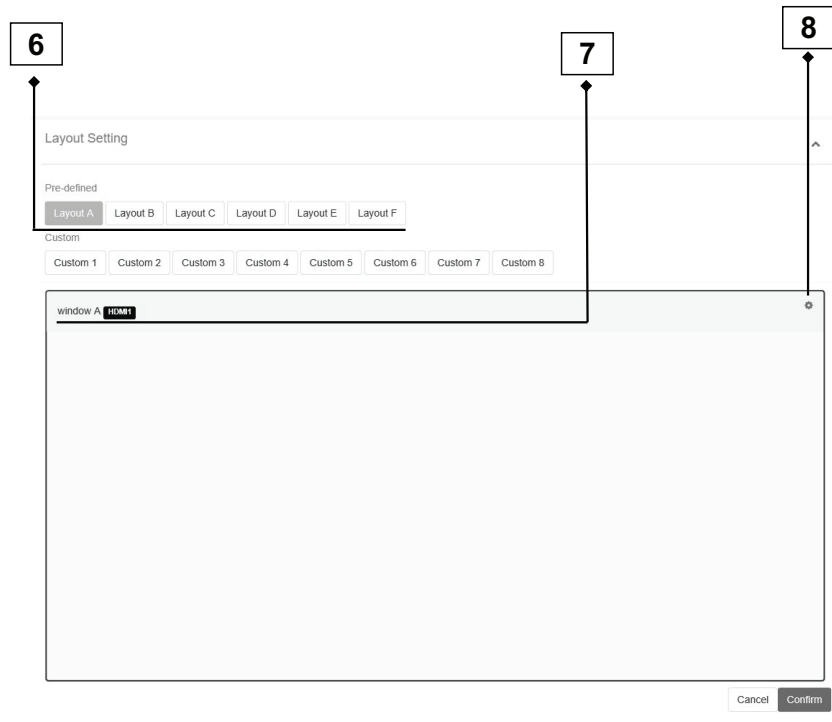
No.	Feature	Description
1	System	FW version
		MAC addr.
2		Reboot
		Upgrade
3	Network	Ethernet Type

Multi View Page in Web UI

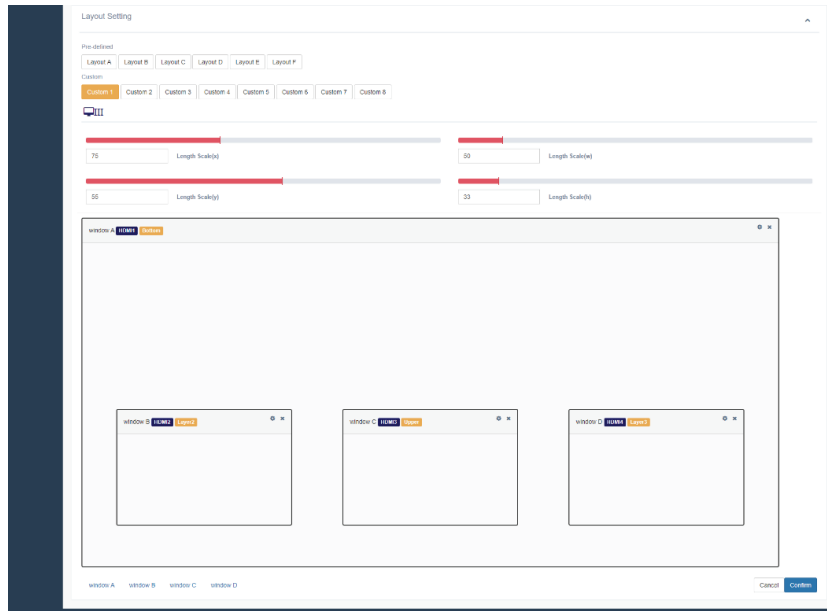


No.	Feature		Description
1	Output Setting	Resolution*	Select output resolution Auto 4096 x 2160p 60Hz 3840 x 2160p 60Hz 3840 x 2160p 50Hz 3840 x 2160p 30Hz 3840 x 2160p 25Hz 3840 x 1080p 60Hz 3840 x 1080p 30Hz 3840 x 1076p 60Hz 3440 x 1440 60Hz 2048 x 2048 57Hz 1920 x 1080 60Hz 1920 x 1080 50Hz 1920 x 1200 60Hz 1920 x 1200 50Hz 1600 x 1200 60Hz 1280 x 720 60Hz 640 x 480 60Hz Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
2		Audio Source	Select audio output source 1: HDMI1 (default) 2: HDMI2 3: HDMI3 4: HDMI4 5: 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.

* Please see Appendix 1



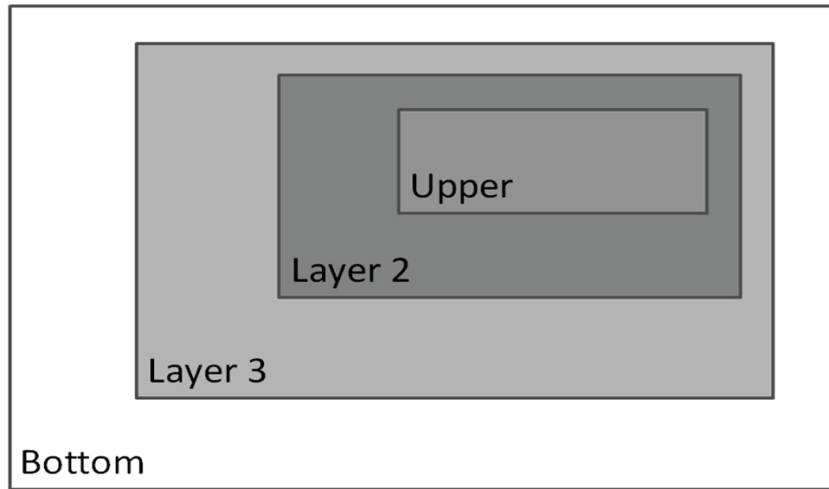
No.	Feature		Description
6	Layout Setting	Pre-defined*	Select display layout type on monitor 1: Layout A (default, full screen) 2: Layout B 3: Layout C 4: Layout D 5: Layout E 6: Layout F Press "Confirm" after setting has finished or press "Cancel" to ignore the modification.
7		Window Info.	Main Screen: 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: HDMI4 (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



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.
		Adjustment Bar(Position and window size)	Control Position and Window Size adjustment bar to set window position and size.
11		Gear icon	-Label: Define Windows name -Select Input Source 1: HDMI1 (default) 2: HDMI2 3: HDMI3 4: HDMI4
12		x icon	Press to close the window.
13		Open/Close Window	Press to open or close the window.

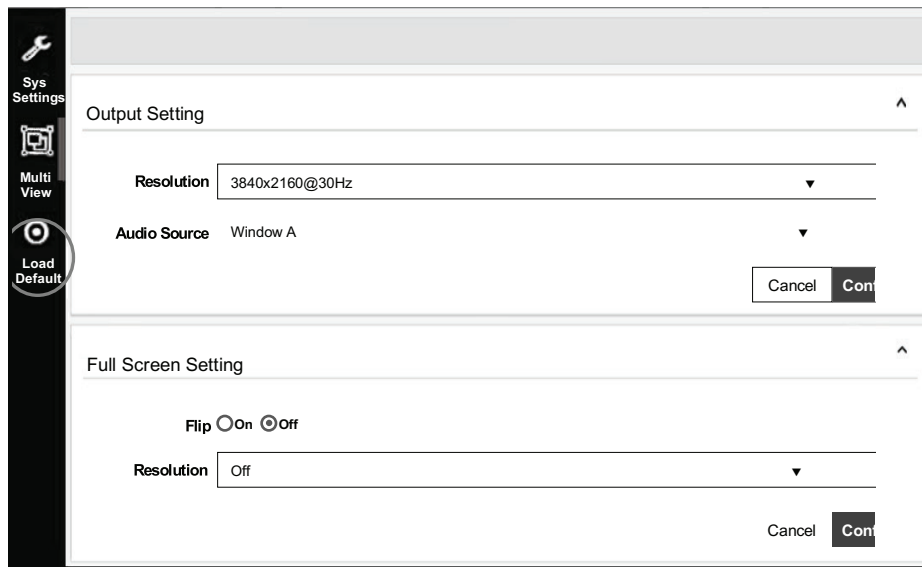
* Please see Appendix 1

** “Orange mark”: layer definition



Load Default in Web UI

6.3.5 Load Default in Web UI



Press to load default setting in Web UI.

* Please see Appendix 1
 ** "Orange mark": layer definition

Configurations – RS232/TELNET

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

Commands

Command	Description	Parameter
SPOW 0/1	Set the unit power on/off	0=off, 1=on
RPOW	Show power state	
SRES 0~14	Set output resolution	0: Auto 1: 3840 x 2160p 60Hz 2: 3840 x 2160p 30Hz 3: 1920 x 1080 60Hz 4: 1280 x 720 60Hz 5: 640 x 480 60Hz 6: 3840 x 2160p 50Hz 7: 3840 x 2160p 25Hz 8: 4096 x 2160p 60Hz 9: 1920 x 1200 60Hz 10: 1600 x 1200 60Hz 11: 1920 x 1200 50Hz 12: 1920 x 1080 50Hz 13: 2048 x 2048 57Hz 14: 3440 x 1440 60Hz 15: 3840 x 1076p 60Hz 16: 3840 x 1080p 60Hz 17: 3840 x 1080p 30Hz
RRES	Show output resolution	
SIOSDD 0~2	Onscreen information display	0: off 1: always on

Commands (cont.)

	*INFO OSD won't be shown if NO VIDEO INPUT window message displays.	2: show 5 sec.
SPROMPT 1/0	Set "NO VIDEO INPUT" OSD message	1 = ON, 0 = OFF
SBRI N	Set brightness	N=0~100 default 50
RBRI	Show brightness	
SCON N	Set contrast	N=0~100 default 50
RCON	Show contrast	
SSAT N	Set saturation	N=0~100 default 50
RSAT	Show saturation	
Command	Description	Parameter
SHUE N	Set hue	N=0~100, default 50
RHUE	Show hue	
SIMRE 0~4	Reset color settings to default	0 = all
		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=1~4, 1:HDMI1, 2:HDMI2, 3:HDMI3, 4:HDMI4
SHSIZE N M ³	Set window horizontal size	window N=1~4, 1: A, 2: B, 3: C, 4: D
		horizontal size M=30~240
RHSIZE ³	Show window horizontal size	
SVSIZE N M ³	Set image vertical size	window N=1~4, 1: A, 2: B, 3: C, 4: D
		vertical size M=30~120
RVSIZE ³	Show window vertical size	
SHPOS N M ³	Set window horizontal position	window N=1~4, 1: A, 2: B, 3: C, 4: D
		position M=0~210

Commands (cont.)

RHPOS ³	Show window horizontal position	
SVPOS N M ³	Set window vertical position	window N=1~4, 1: A, 2: B, 3: C, 4: D position M=0~90
RVPOS ³	Show window vertical position	
SWIN N M [M M M] ³	Set window on/off. Use N=0 to set all windows in one command when using custom layout	window N=0~4, 1: A, 2: B, 3: C, 4: D 0: all windows M=0~1, 0: off, 1: on
Command	Description	Parameter
RWIN ³	Show window states	
SPRI N M	Set window layer priority. Window A is fixed to bottom and cannot be changed.	window N=1~4, 1: A, 2: B, 3: C, 4: D layer priority M=2~4, 2 = layer 3 3 = layer 2 4 = upper
RPRI ³	Show window layer priority	
SRECALL 1~10	Set layout	1 = layout A, 2 = layout B, 3 = custom 1, 4 = custom 2, 5 = custom 3, 6 = custom 4, 7 = custom 5, 8 = custom 6, 9 = custom 7, 10 = custom 8
SROTATE 0~4 ¹	Set video rotation. Select full screen mode before rotation	0 = rotate off, 1 = L90, 2 = R90, 3 = Flip on, 4 = Flip off
RROTATE	Show video rotation state	
SIPM 0/1 ⁴	Set IP mode	0=DHCP, 1=static,
RIPM	Show IP mode	
SIPADD N M X Y ⁵	Set IP address	192 168 1 202 N=0~255, M=0~255, X=0~255, Y=0~255
RIPADD	Show IP address	
SMAADD N M X Y ⁵	Set subnet mask	255 255 255 0

Commands (cont.)

		N=0~255, M=0~255, X=0~255, Y=0~255
RMAADD	Show subnet mask	
SGAADD N M X Y ⁵	Set gateway address	N=0~255, M=0~255, X=0~255, Y=0~255
RGAADD	Show gateway address	
IPCONFIG ⁶	Show network settings. This command can also be used to set all network settings in one command	
Command	Description	Parameter
DEFAULT	Reset the unit to factory defaults	
SMUTE 0/1	Mute/Unmute audio	0=unmute, 1=mute
RMUTE	Show mute state	
SAUDIO N	Set audio source	audio source N=1~4, 1 = HDMI1 2 = HDMI2 3 = HDMI3 4 = HDMI4
RAUDIO	Show audio source	
SWICORE ³	Reset all window settings to default layout	
RFW	Show firmware version	
REBOOT	Reboot system	
READEDID	Read EDID info. from sink device	
SWATTS	Set window attributes. A list of parameters separated by space shall be provided. (w1 h1 w2 h2 w3 h3 w4 h4 x1 y1 x2 y2 x3 y3 x4 y4)	w1~w4: horizontal size h1~h4: vertical size x1~x4: horizontal position y1~y4: vertical position
SASPECT N	SET ASPECT MODE	N=0~2 0: full (default) 1: aspect 2: 1by1
SBF N	SET BORDER	N=0~1 0: disable (default) 1: enable
RASPECT	SHOW ASPECT MODE AFTER COMMAND	
SBFC N	SET BORDER COLOR	N=0~9 0: white (default) 1: grey 2: yellow 3: blue 4: green

Commands (cont.)

		5: red 6: purple 7: orange 8: pink 9: black
RBF	SHOW BORDER STATUS	
SHP N	Turn HDCP On/Off	N=0,1 0: HDCP Off 1: HDCP On
<p>Notes:</p> <ol style="list-style-type: none"> 1. Please see Appendix 1 for limitations. 2. This command only works on layout A(single full screen) and custom layout. 3. This command only works on custom layout. 4. If Quadview video processor is going to be removed from a DHCP network, change IP mode to static IP before removing the device from the network. 5. Only use this command when IP mode is static. 6. These command formats are also available. (use space to separate parameters) IPCONFIG <IP> IPCONFIG <IP> <subnet> IPCONFIG <IP> <subnet> <gateway> (e.g., IPCONFIG 192 168 1 202 255 255 255 0 192 168 1 1) 		

Package Contents

- 1 x Quadview Video Processor
- 1 x Remote Control
- 1 x DC 12V/2A output power adapter
- 2 x Rack Mount Bracket
- 4 x Rubber Pad
- 1 x Screws bag
- 1 x User manual

Appendix 1: Function NA List

Input Resolution	Layout A	Layout B	Custom Layout	Output Resolution	Layout A	Layout B	Custom Layout
4K60	Rotate NA	Rotate NA Flip NA	Rotate NA Flip NA	4K60			
4K30	Rotate NA	Rotate NA Flip NA	Rotate NA Flip NA	4K30			
1080p		Rotate NA Flip NA	Rotate NA Flip NA	1080p			
720p		Rotate NA Flip NA	Rotate NA Flip NA	720p			HDMI Output NA
480p		Rotate NA Flip NA	Rotate NA Flip NA	480p		HDMI Output NA	HDMI Output NA



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