



HDWall-100 Owner's Manual

2x2 Multi-input Video Wall Processor



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1-1 Package Contents

Please make sure all of the following items are included in the package:

- 1) HDWall-100
- 2) 12V/2.5A DC Power Adapter
- 3) Owner's Manual
- 4) Remote controller
- 5) 38KHz IR Receiver Cable
- 6) RS232 Cable

1-2 General Specification

Welcome!

Congratulations on your purchase of the PureLink HDWall-100 2x2 video wall processor. This manual contains information that will assist you in installing and operating the product.

PureLink HDWall-100 support CVBS/VGA/HDMI/USB play input sources to be freely arranged on 4 displays. The embedded scaler converts signals from the input sources to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to 1920x1080. All the operation and control can be done through IR, Ethernet and RS-232.

The HDMI TV Wall is widely used in KTV, hotels, bars, leisure centers, shopping malls, cinemas, product displays, media advertising, education and training, brand stores, airports, subway and ETC.

Item	Description
Model	HDWall-100
Input type	1 x HDMI, 1 x USB, 1 x VGA, 1 x CVBS+ L/R
Output type	5 x HDMI. 1 x Coaxial, 2xL/R
Supported Input Resolution	<p>CVBS: PAL,NTSC,SECAM with stereo audio input,</p> <p>VGA: 640x480@60Hz, 800x 600@60Hz, 1024x768@60Hz, 1280x1024@60Hz, 1280x720@60Hz, 1360x768@60hz, 1440x900@60Hz, 1680x1050@60Hz</p> <p>HDMI: 1080p@50/60Hz, 1080i@50/60Hz, 720x50@60Hz, 576i, 576p, 480i, 480p, 640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x1024@60Hz, 1280x720@60Hz, 1360x768@60Hz, 1440x900@60Hz, 1680x1050@60Hz, 1920x1080@60</p> <p>USB: MPEG, H.264. RM/RMVB movie decode, JPEG, BMP, PNG picture decode and MPEG 1/2, MP3 audio decode</p>
Output Resolution	Supports up to 1080p@60Hz
Supported format	HDMI 1.3a DVI 1.0

HDCP Compliant	Yes
Audio format	PCM2, 5.1, 7.1 CH, Dolby 5.1, DTS 5.1
Power	12V/2.5A DC 7.5W
Dimension (WxDxH)	9.84" x 4.64" x 1.25" (250 x 118 x 32 mm)
Weight	2.31 lbs (1.05 kg)

Connector Pin Assignment

Part No.	Pin No.	Description	Remarks
HDMI 19pin	1	TMDS DATA 2P	
	2	TMDS DATA 2 Shield	
	3	TMDS DATA 2M	
	4	TMDS DATA 1P	
	5	TMDS DATA 1 Shield	
	6	TMDS DATA 1M	
	7	TMDS DATA 0P	
	8	TMDS DATA 0 Shield	
	9	TMDS DATA 0M	
	10	TMDS Clock P	
	11	TMDS Clock Shield	
	12	TMDS Clock M	
	13	CEC	
	14	RESERVED	
	15	DDC Clock	
	16	DDC DATA	
	17	GND	
	18	+5v	
	19	Hot Plug Detect	

1-3 Operation and Reliability Specification

1. Operating Environment

Temperature : 32F ~ 104F (0°C ~ 40°C)
Humidity : 20% ~ 90%
Altitude : 3,000m Max.

2. Transit Environment

Temperature : -13F ~ 140F (-25°C ~ 60°C)
Humidity : 5% ~ 95%
Altitude : 15,000m Max.

3. Storage Environment

Temperature : -4F ~ -140F (-20°C ~ 60°C)
Humidity : 20% ~ 90%
Altitude : 3,000m Max.

1-4 Main Features

1. High Quality Picture - No Signal Loss and Digital Noise Free

HDWall-100 is built to deliver the highest quality picture preserving the native resolutions of the video sources without any signal loss. At the same time, the digital noises that may affect the picture quality will be eliminated. Due to the nature of the digital signals and passing through multiple stages of connection when using distribution amplifiers, it is important to eliminate the digital noises and boost the signal strength to preserve/enhance the video signal quality.

2. HDMI (High Definition Multimedia interface) v1.3a

HDWall-100 is fully compatible with HDMI version 1.3a.

3. HDMI loop-out

Additional HDMI loop-out for cascading/linking multiple processor.

4. Multi-format video wall Output

Split and scale a single HD source to four displays. Multi-format functionality supports HDMI, USB,VGA and SVBS inputs.

5. Adjustable bezel correction

6.HDCP compliance

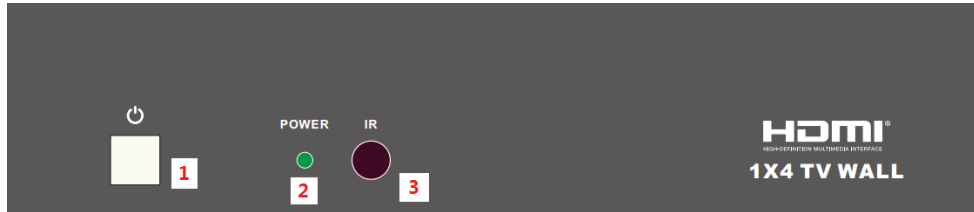
7. 3 ways to control

- RS232C
- IR
- Remote

8. Compact and Practical Design

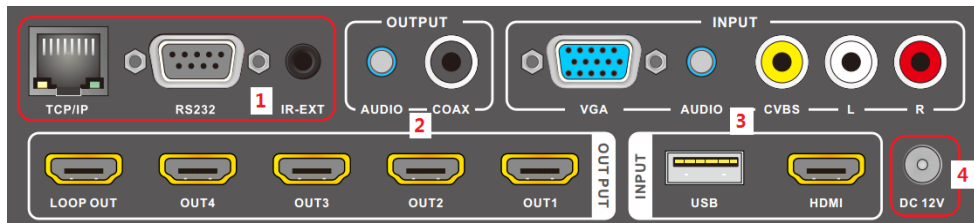
HDWall-100 has all of the ports, power supply jack and RS232 port in the back of the unit allowing it be mounted on any racks or with any other components.

1-5 Operation & Installation Guide



<Front View>

1. **Power Button** : Turn on/off power of the device
2. **Power LED** : The LED will illuminate green when the power is on, red when it is in 'Stand by' mode.
3. **IR Receiver window** : Accepts the remote control signal of this device only



<Rear View>

1. Control

- **TCP/IP** : The port that links with TCP/IP controls. Connect to an active Ethernet link with an RJ 45 terminated cable.
- **RS-232** : Connect to a PC or control system with D-sub 9-pin cable for RS-232 control.
- **IR EXT** : If the panel sensor is obstructed or the unit is installed in a closed area out of infrared line of sight, the IR RX receiver included can be inserted into the IR EXT port at the rear to extend the IR sensor range and enable local control of the TV wall.

2. Output

- **HDMI out** : Connect with HDMI TV/display for output image/video display. It is suggested that the connection sequence should be placed as diagram showed for TV wall set up. LOOP OUT is the nominated port for cascading the input signal.
- **Audio out** : The coax and audio out to connect to the digital or analog audio amplifier.

3. Input

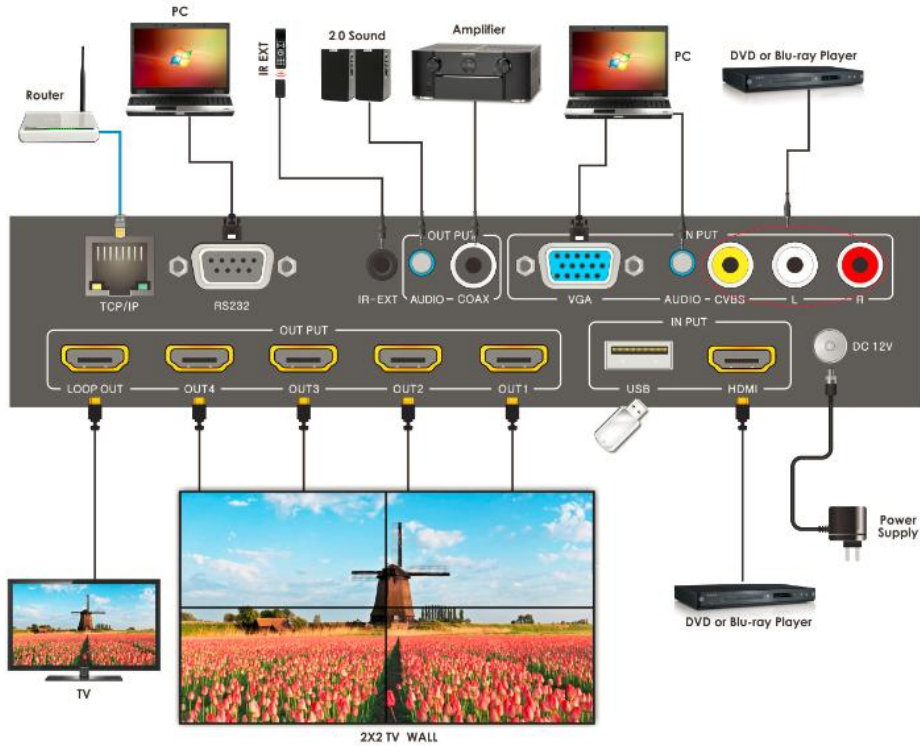
- Connect to a source equipment such as DVD/Blue-ray player, PC, game console, or USB devices to CVBS, VGA, HDMI, USB input port.

4. DC 12V

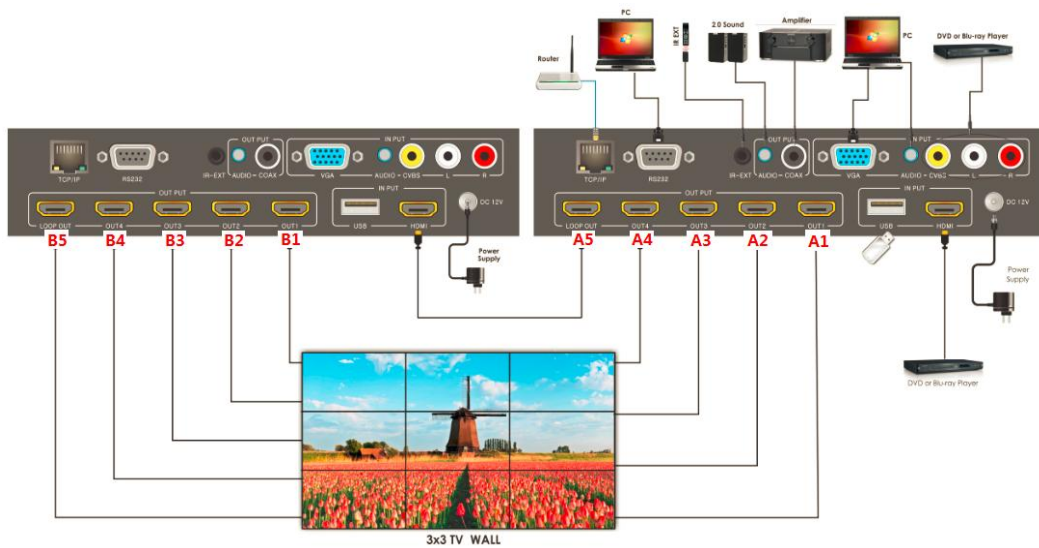
- Plug the 12V/2.5A DC power supply into the DC12V power in.

Connections

- 2 x 2 TV wall



- 3 x 3 TV wall



TV wall connection sequence diagram

1x2(H)	A1	A2		
1x3(H)	A1	A2	A3	
1x4(H)	A1	A2	A3	A4
1x2(V)	A1	A2		
1x3(V)	A1	A2	A3	
1x4(V)	A1	A2	A3	A4
2x1	A1			
	A2			
3x1	A1			
	A2			
	A3			

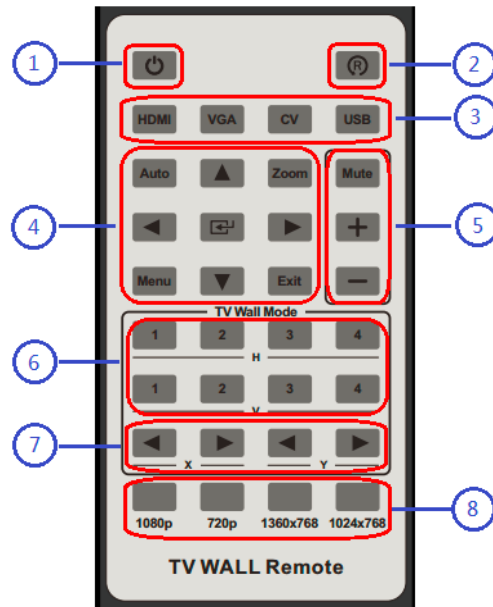
4x1	A1		
	A2		
	A3		
	A4		
2x2	A1	A2	
	A3	A4	

Cascade 2

2x3	A1	A2	A3	
	B1	B2	B3	
3x2	A1	B1		
	A2	B2		
	A3	B3		
2x4	A1	A2	A3	A4
	B1	B2	B3	B4

4x2	A1	B1		
	A2	B2		
	A3	B3		
	A4	B4		
3x3	A1	A2	A3	
	A4	B1	B2	
	B3	B4	B5	

Remote Control operation guide



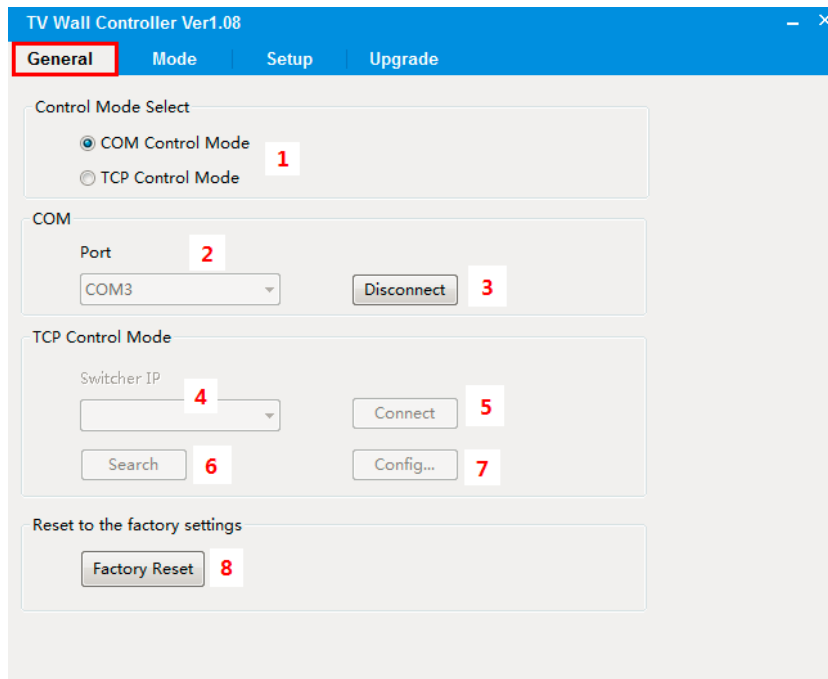
- 1. Power** : power on the device or to set it to standby mode
- 2. Rotate** : rotate to 90 degree more, only for 1x2, 1x3, 1x4 TV wall mode
- 3. Input select** : select the input source
- 4. Auto** : auto adjustment function for VGA
Zoom : zoom in/out function for all input sources
Arrows : move up/down/sideway
Menu : enter menu option
Exit : exit current option
- 5. Audio** : adjust audio volume / mute
- 6. TV wall mode** : TV wall mode selection - H=horizontal, V=vertical
- 7. TV wall picture bezel correction** : set the bezel size of the images in zoom-in model
- 8. TV wall output resolution selection** : select the output resolution

TV wall controller guide

Installation :

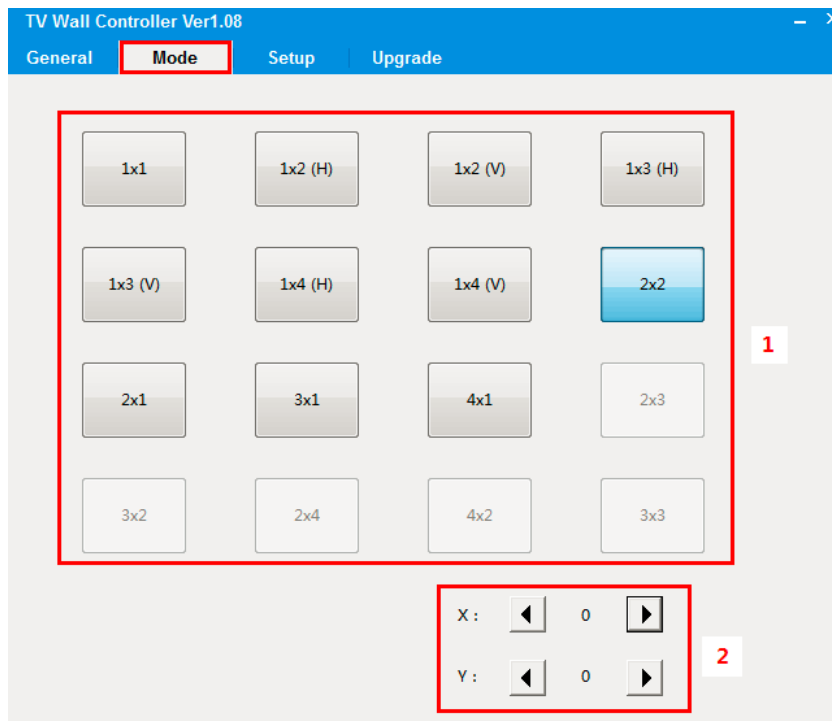
Down load the software TVwallcontroller.exe to a PC.
The software can be controlled with TCP/IP or RS-232.

General page



1. Select RS232 COM or TCP/IP mode.
2. Select RS 232 COM port.
3. Connect/disconnect PC/controller with the unit(RS232 only).
4. Select IP address of the unit
5. Connect/disconnect PC/controller with the unit(IP only)
6. Search TV wall IP
7. Configure IP settings - set as Static/dynamic, set IP address, set MAC address
8. Factory reset to factory default settings
 - Input source : HDMI
 - Output resolution : 1080p@60Hz
 - Output mode : HDMI
 - Audio volume : 80
 - TV Wall mode : 1x1
 - Bezel correction : X=0, Y=0

Mode page



1. TV Wall mode selection
2. TV Wall picture bezel correction adjustment.

See below PIC1 and PIC2 for the different between original image and image adjusted using bezel correction

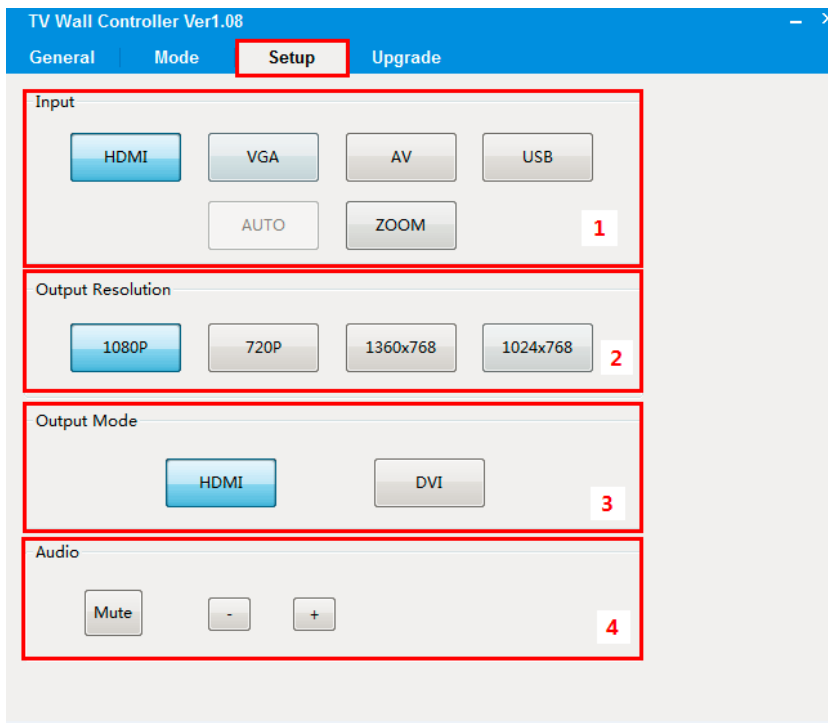


<PIC1. Original image>



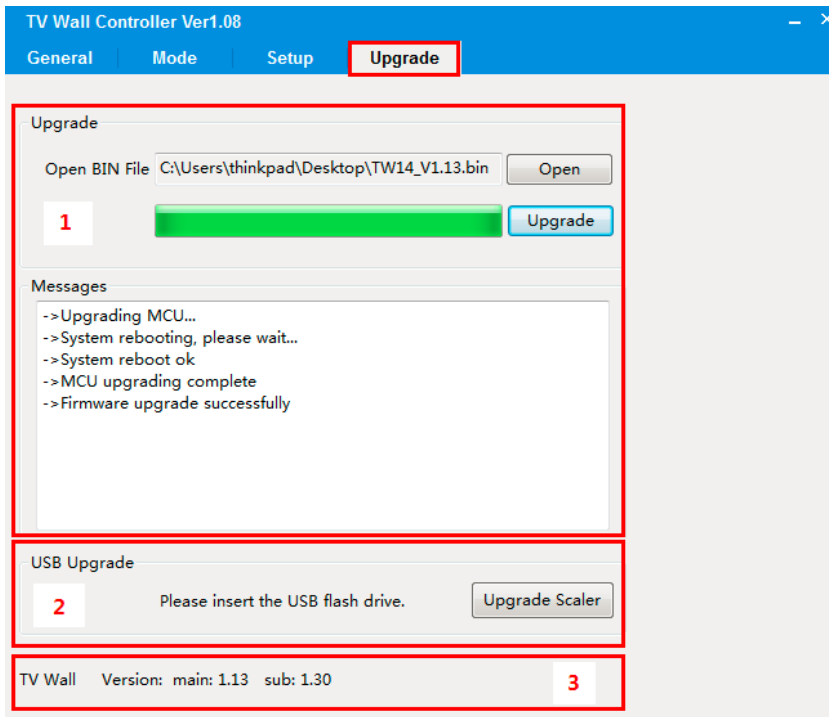
<PIC2. Image adjusted with bezel correction>

Setup page



1. Input source selection
2. Output resolution selection
3. Output mode selection
4. Audio out volume adjustment

Upgrade page



Unit has two MCU(main and sub) which can be upgraded.

1. Main MCU upgrade

- Press Open to select the FW file.(file extension is ".bin")
- Press Upgrade to upload the file.
- It will display a message once completed. (see image above)

2. Sub MCU upgrade

- Copy sub MCU FW file to a USB flash drive
- Insert the USB flash drive to the USB port located on the unit
- Press "upgrade scaler"

*NOTE : Any interruption during the firmware upgrade process may engage the system to malfunction.

Command operation

1.RS-232 Command:

Baudrate : 115200

Data width : 8bit

Parity: none

Stop: 1bit

Mode configure command package length is 18byte:

[0x50+0x56+0x54+0x13+0x01+**Modeindex(1~16)**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+**checksum**]

All you need to change is just "mode index", "checksum"

Checksum=0x50+0x56+0x54+0x13+0x01+**Modeindex(1~16)**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00

For example: Set mode 1 command:

50 56 54 13 01 01 00 00 00 00 00 00 00 00 00 00 00 09

Mode query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query mode

Send package: 50 56 54 13 02 00 00 00 00 00 00 00 00 00 00 00 00 0F

Receive package: 50 56 54 13 02 **02** 00 00 00 00 00 00 00 00 00 00 00 11

The red **02** mean the mode index, it should be 1~16.

Mode index list:

1x1	1;
1x2(H)	2;
1x2(V)	3;
1x3(H)	4;
1x3(V)	5;
1x4(H)	6;
1x4(V)	7;
2x2	8;
2x1	9;
3x1	10;
4x1	11;
2x3	12;
3x2	13;
2x4	14;

4x2	15;
3x3	16;

Video wall X configure command package length is 18byte:

0x50+0x56+0x54+0x15+0x04+0x01+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x14

The red 01 mean the X value increases,if 02 mean decrease.

Video wall Y configure command package length is 18byte:

0x50+0x56+0x54+0x15+0x05+0x01+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x15

The red 01 mean the Y value increases,if 02 mean decrease.

Video wall X and Y query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query X and Y

Send package: 50 56 54 15 03 00 00 00 00 00 00 00 00 00 00 00 12

Receive package: 50 56 54 13 03 14 00 16 00 00 00 00 00 00 00 00 3C

The red 14 mean the the X value,the blue 16 mean the the Y value.

Resolution configure command package length is 18byte:

0x50+0x56+0x54+0x0A+0x06+
resolution(1~4)+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+checksum

For example: Set resolution 720P command:

50 56 54 0A 06 02 00 00 00 00 00 00 00 00 00 00 00 0C

Resolution query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query Resolution

Send package: 50 56 54 90 06 00 00 00 00 00 00 00 00 00 00 00 90

Receive package: 50 56 54 90 06 02 00 00 00 00 00 00 00 00 00 00 92

The blue 02 mean the resolution is 720P, it should be 1~4.

Resolution index list

1080P	1;
720P	2;
1360X768	3;
1024X768	4;

Output Mode configure command package length is 18byte:

0x50+0x56+0x54+0x02+0x05+**DVI/HDMI**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+ **checksum**

For example: Set output mode DVI command:

50 56 54 02 05 **F0** 00 00 00 00 00 00 00 00 00 00 00 00 00 F1

The red **F0** mean DVI,if **0F** mean HDMI.

Output Mode query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query **Output Mode**

Send package: 50 56 54 02 06 00 00 00 00 00 00 00 00 00 00 00 00 02

Receive package: 50 56 54 02 06 **F0** 00 00 00 00 00 00 00 00 00 00 00 00 F2

The blue **F0** mean DVI, if **0F** mean HDMI.

Input configure command package length is 18byte:

0x50+0x56+0x54+0x0A+0x01+**input(1~4)**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+0x00+ **checksum**

For example: Set input VGA command:

50 56 54 0A 01 **02** 00 01 00 00 00 00 00 00 00 00 00 08

Input query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query **Input**

Send package: 50 56 54 90 01 00 00 01 00 00 00 00 00 00 00 00 00 8C

Receive package: 50 56 54 90 01 **02** 00 01 00 00 00 00 00 00 00 00 00 8E

The blue **02** mean VGA, it should be 1~4.

Input index list

HDMI	1;
VGA	2;
AV	3;
USB	4;

Input AUTO configure command package length is 18byte:

50 56 54 0A 0E 00 00 01 00 00 00 00 00 00 00 00 00 13

Input ZOOM configure command package length is 18byte:

50 56 54 0A 0F 00 00 01 00 00 00 00 00 00 00 00 00 14

Audio + configure command package length is 18byte:

50 56 54 17 07 01 00 00 00 00 00 00 00 00 00 00 00 19

Audio - configure command package length is 18byte:

50 56 54 17 07 02 00 00 00 00 00 00 00 00 00 00 00 1A

Audio Mute configure command package length is 18byte:

50 56 54 17 08 0F 00 00 00 00 00 00 00 00 00 00 00 28

The red 0F mean Mute enable,if 00 mean Mute Disable.

Mute query command package length is 18byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query **Mute**

Send package: 50 56 54 17 09 00 00 00 00 00 00 00 00 00 00 00 00 1A

Receive package: 50 56 54 17 09 0F 00 00 00 00 00 00 00 00 00 00 00 29

The red 0F mean Mute enable,if 00 mean Mute Disable.

Reset sys configure command package length is 18byte:

50 56 54 08 0A 00 00 00 00 00 00 00 00 00 00 00 00 0C

USB Upgrade command package length is 18byte:

50 56 54 07 07 00 00 00 00 00 00 00 00 00 00 00 00 08

1-8 Warranty

2 (Two) Year Warranty

Dtrovision warrants this PureLink HDWall-100 to be free from defects in workmanship and materials, under normal use and service, for a period of two (2) year from the date of purchase from Dtrovision or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Dtrovision shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product.

All products that are replaced will become the property of Dtrovision.

Replacement products may be new or reconditioned.

Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Dtrovision shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to Dtrovision for repair under warranty or not.

Warranty Limitation and Exclusion

Dtrovision shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Dtrovision or its authorized agents, causes other than from ordinary use or failure to properly use the Product in the application for which said Product is intended.

1.1 FCC/CE Statement

This device complies with part 15 of FCC Rules and EN 55022/55024/61000-3 for CE certification. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must not accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 and 2 of FCC Rules and EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.2 UL Statement

This device has completed a UL Commercial Inspection and Testing Services for the multimode HDMI cable complied with VW-1 under UL 758. It is validated by the UL file number SV2038 and project number 04CA05353.