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.

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


### PureLink by Dtrovision

<table>
<thead>
<tr>
<th>HDCP Compliant</th>
<th>Yes</th>
</tr>
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<tbody>
<tr>
<td>Audio format</td>
<td>PCM2, 5.1, 7.1 CH, Dolby 5.1, DTS 5.1</td>
</tr>
<tr>
<td>Power</td>
<td>12V/2.5A DC 7.5W</td>
</tr>
<tr>
<td>Dimension (WxDxH)</td>
<td>9.84” x 4.64” x 1.25” (250 x 118 x 32 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>2.31 lbs (1.05 kg)</td>
</tr>
</tbody>
</table>

#### Connector Pin Assignment

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Pin No.</th>
<th>Description</th>
<th>Remarks</th>
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<tr>
<td>1</td>
<td>1</td>
<td>TMDS DATA 2P</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>TMDS DATA 2 Shield</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>TMDS DATA 2M</td>
<td></td>
</tr>
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<td>4</td>
<td>TMDS DATA 1P</td>
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<td>5</td>
<td>5</td>
<td>TMDS DATA 1 Shield</td>
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<td>6</td>
<td>6</td>
<td>TMDS DATA 1M</td>
<td></td>
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<td>7</td>
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<td>8</td>
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<td>10</td>
<td>TMDS Clock P</td>
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<tr>
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<td>CEC</td>
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</tr>
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<tr>
<td>19</td>
<td>19</td>
<td>Hot Plug Detect</td>
<td></td>
</tr>
</tbody>
</table>
1-3 Operation and Reliability Specification

1. Operating Environment
   - Temperature: 32F ~ 104F (0℃ ~ 40℃)
   - Humidity: 20% ~ 90%
   - Altitude: 3,000m Max.

2. Transit Environment
   - Temperature: -13F ~ 140F (-25℃ ~ 60℃)
   - Humidity: 5% ~ 95%
   - Altitude: 15,000m Max.

3. Storage Environment
   - Temperature: -4F ~ -140F (-20℃ ~ 60℃)
   - 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

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

1. Control
   - TCP/IP : The port that links with TCP/IP controls. Connect to an active Ethernet link with and RJ 46 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 suggest 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

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<thead>
<tr>
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**Cascade 2**

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</tr>
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<tr>
<td>A4</td>
<td>B1</td>
<td>B2</td>
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<tr>
<td>B3</td>
<td>B4</td>
<td>B5</td>
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</tbody>
</table>
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:
Download 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>
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+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

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:

<table>
<thead>
<tr>
<th>Mode index</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x1</td>
<td>1;</td>
</tr>
<tr>
<td>1x2(H)</td>
<td>2;</td>
</tr>
<tr>
<td>1x2(V)</td>
<td>3;</td>
</tr>
<tr>
<td>1x3(H)</td>
<td>4;</td>
</tr>
<tr>
<td>1x3(V)</td>
<td>5;</td>
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<td>1x4(H)</td>
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<td>3x2</td>
<td>13;</td>
</tr>
<tr>
<td>2x4</td>
<td>14;</td>
</tr>
</tbody>
</table>
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+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 00 12
Receive package: 50 56 54 13 03 14 00 16 00 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+
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 00 90
Receive package: 50 56 54 90 06 02 00 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 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 00 02
Receive package: 50 56 54 02 06 F0 00 00 00 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+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 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 00 8C
Receive package: 50 56 54 90 01 02 00 01 00 00 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 F0 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 F0 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 reminder 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.