Video Wall 1 x 4 HDMI 4K UHD Splitter # 15379

Operation Manual

CONVERTERS.TV

Introduction

The 1 by 4 UHD TV Wall allows an HDMI 4K2K input source to be freely arranged on 4 displays (TV or monitor) with bezel correction function. Friendly control application that leads and leave the TV Wall control system never been easier. The device supports video timings up to WUXGA@60RB and 1080p@60Hz, audio format up to 7.1CH LPCM at 192kHz sampling rate based on input source EDID. All the operation and control can be done through Telnet and RS-232.

Features

- HDMI with 4K2K supported, HDCP and DVI compliant
- Output source signal to 4 displays as a full image with adjustable Bezel Correction
- Input PC resolutions support from VGA~WUXGA and HDTV from 480i~1080p and 4K2K@24/25/30Hz
- Supports different input resolutions and output resolutions selectable from TV wall application
- Supports AC3/DTS/Dolby Digital Plus/Dolby TrueHD and DTS-HD Master Audio
- Supports RS-232 and Telnet controls

Applications

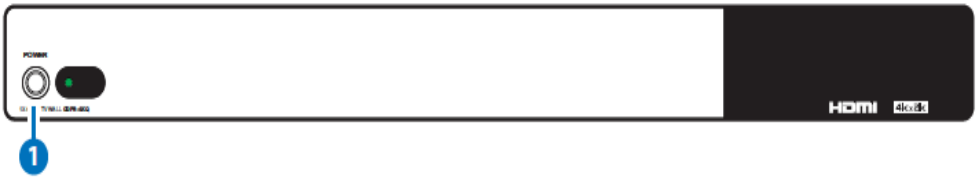
- Public Advertisement
- Digital Presentation
- Hypermarket Display
- Stock Market

System Requirements

Input Source such as DVD/Blu-ray players or any HDMI signal and output HD TV/displays.

Operation Controls and Functions

Front Panel



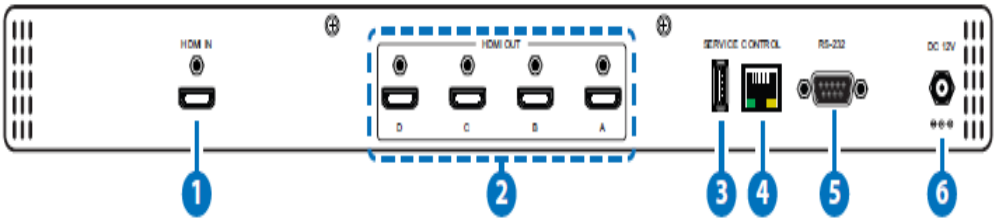
1. POWER: Press POWER button to power on the unit or set to standby mode.

When power is disconnected, presses this button and connected the power to reset the system back to default factory setting.

When power is on, long press this button for 3 seconds, output monitor will show “USB Host Update MCU Firmware Start…”, then plug USB (with Firmware upgrade bin file contained) to upgrade automatically. If monitor shows “Mass Storage Host Upgrade Running” it means that the upgrade is proceeding, after upgrade finished, the unit will reboot.

Note: If monitor didn’t show “Mass Storage Host Upgrade Running”, means firmware upgrade didn’t success, please power off the unit and try again.

Back Panel



1. HDMI IN: Connect with HDMI source equipment such as DVD/Blue-ray players and or PC/Laptop devices.

2. HDMI OUT A~D: Connect with HDMI TV/displays for output image display. It is suggest that the connection sequence should be placed as diagram showed below for TV wall set up.

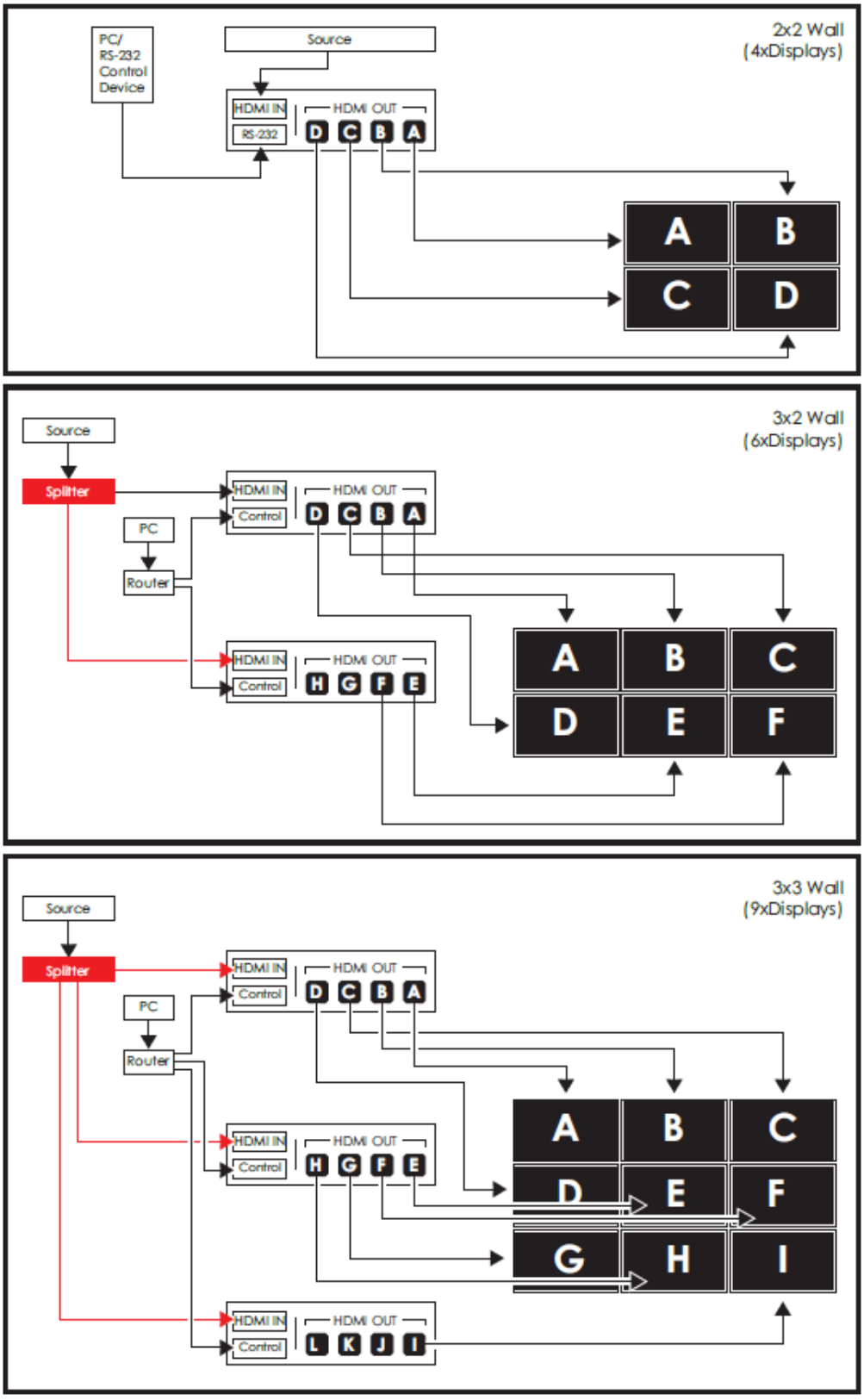
3. SERVICE: This slot is for firmware update use only, work in accordantly with Power button.

4. CONTROL: Connect to an active network for telnet control. Collocated with “CDPS-4KQ AP” application could do multi-device control.

5. RS-232: Connect from PC/Laptop with D-Sub 9pin cables for RS-232 command sending and controlling over the device.

Note: RS-232 control system is limited to a single Video Wall unit.

6. DC 12V: Plug 12V DC power supply which included in the package into the unit then connect the adaptor to an AC outlet.



RS-232 Pin Assignments

HDMI SPLITTER	
PIN	ASSIGNMENT
1	N/C
2	Tx
3	Rx
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

	REMOTE CONTROL(PC)	
	PIN	ASSIGNMENT
	1	N/C
	2	Rx
▶	3	Tx
	4	N/C
	5	GND
◀	6	N/C
	7	N/C
	8	N/C
	9	N/C

Baud Rate: 115200 bps
Data Bit: 8-bit
Flow Control: None

Parity: None
Stop Bit: 1-bit

RS-232 and Telnet Commands

COMMAND	DESCRIPTION	PARAMETER
HELP(?)	Show Command list	NONE
HELP(?) N	Show Command description	N=Command name
SRES N1	Request Current Output Resolution	NONE
ROSDD	Set Output Resolution to N1	N1=0(640x480@60), 1(480p60), 2(576p50), 3(800x600@60), 4(848x480@60), 5(1024x768@60), 6(720p50), 7(720p60), 8(1280x768@60), 9(1280x800@60),

		10(1280x960@60), 11(1280x1024@60), 12(1360x768@60), 13(1366x768@60), 14(1400x1050@60), 15(1440x900@60), 16(1600x900RB@60), 17(1600x1200@60), 18(1680x1050@60), 19(1080p50), 20(1080p60), 21(1920x1200RB@60), 22(2048x1152RB@60), 23(1080I50), 24(1080I60), 25(1080p24), 26(1080p25), 27(1080p30), 28(Native)
ROSDD	Request Current OSD Display State	NONE
SOSDD N1	Set OSD Display Enable/Disable	N1=0(OFF), 1(ON)
ROSDH	Request Current OSD Horizontal Position	NONE
SOSDH N1	Set OSD Horizontal Position to N1	N1=0~20 (5)
ROSDV	Request Current OSD Vertical Position	NONE
SOSDV N1	Set OSD Vertical Position to N1	N1=0~20 (5)
ROSDT	Request OSD Display Current Timeout Setting	NONE
SOSDT N1	Set OSD Display Timeout Setting	N1=0(Off), 5~50 (50)
ROSDG	Request OSD Gain Correction	NONE

SOSDG N1	Set OSD Gain Value	N1=0~10 (2)
SOSDI	Set OSD Gain Value	NONE
SOSDR	Show OSD Information On/Off	NONE
RBRI N1	Request Channel N1 Brightness Value	N1= 1~4
SBRI N1 N2	Set Channel N1 Brightness Value to N2	N1= 1~4, N2=0~100(50)
RCON N1	Request Chanel N1 Contrast Value	N1= 1~4
SCON N1 N2	Set Channel N1 Contrast Value to N2	N1= 1~4, N2=0~100(50)
RSAT	Request Current Saturation Value	NONE
RSAT N1	Request Channel N1 Current Saturation Value	N1= 1~4
SSAT N1 N2	Set Channel N1 Saturation Value to N2	N1= 1~4, N2=0~100(50)
RHUE N1	Request Channel N1 Current Hue Value	N1= 1~4
SHUE N1 N2	Set Channel N1 Hue Value to N2	N1= 1~4, N2=0~100(50)
SIMRE N1	Reset Brightness/Contrast/ Saturation/Hue Value to Default	N1=1(Brightness), 2(Contrast), 3(Saturation), 4(Hue)
SPIRE	Reset all Channels Brightness, Contrast, Saturation, Hue Value to Default	NONE
RIPM	Request Current IP Mode	NONE
SIPM N1	Set IP Mode to DHCP or Static	N1=0(Static), 1(DHCP)
RIPA	Request Current Static IP Address to Screen	NONE
SIPA X.X.X.X	Set Static IP Address	X=0~255

RMAA	Request Current Static Subnet Address	NONE
SMAA X.X.X.X	Set Static Subnet Address	X=0~255
RGAA	Request Current Static Gateway Address	NONE
SGAA X.X.X.X	Set Static Gateway Address	X=0~255
RETIME	Request Current Ethernet Timeout	NONE
SETIME N1	Set Ethernet Timeout	N1=0(OFF), 1(10 Minutes), 2(20 Minutes), 3(30Minutes), 4(40 Minutes), 5(50 Minutes), 6(60 Minutes)
RLINK	Request Ethernet Address	NONE
RMUTE	Request Current Mute	NONE
SMUTE N1	Set Mute Audio	N1=0(Unmute), 1(Mute)
RPOW	Request Current Power State	NONE
SPOW N1	Set the Unit Power On/Off	N1=0(Off), 1(On)
RVER	Request Version	NONE
SREL	Relink the Unit in 2 Seconds	NONE
SDEF	Reset the Unit to Factory Defaults	NONE
RMN	Request Current TV Wall Format	NONE
SMN N1 N2	Set TV Wall N1 Row and N2 Column	N1=1~15(Row), N2=1~15(Column)
RBH	Request TV Wall Horizontal Bezel Correction	NONE
SBH N1	Set TV Wall Horizontal Bezel Correction	N1=0~255
RBV	Request TV Wall	NONE

	Vertical Bezel Correction	
SBV N1	Set TV Wall Vertical Bezel Correction	N1=0~255
RBEZ	Request Current Bezel Correction State	NONE
SBEZ N1	Set Bezel Correction Enable/Disable	N1=0(Off), 1(On)
RMDN	Request Unit ID Number	NONE
SMDN N1	Set Unit ID Number to N1	N1=0~255
SWDE	Reset All TV Wall Settings	NONE
SHOT N1	Fast Setting TV Wall Format from Hotkey N1	N1=0(1x1), 1(2x2), 2(3x3), 3(4x4), 4(5x5), 5(6x6), 6(2x3), 7(3x2), 8(3x4), 9(4x2), 10(4x3), 11(4x5), 12(1x2), 13(2x1), 14(1x3), 15(3x1), 16(1x4), 17(4x1), 18(2x4), 19(3x5), 20(5x4), 21(5x3), 22(6x2), 23(6x3)
SFAVE N1	Save Current TV Wall Settings to N1	N1=1~5
RFAVE N1	Recall TV Wall Settings from N1	N1=1~5

Note:

All the RS-232 command will be not executed unless followed with a carriage return. All commands are insensitive.

RS-232 control is set to single device only, not for use with Cascade/Bypass output's connection device.

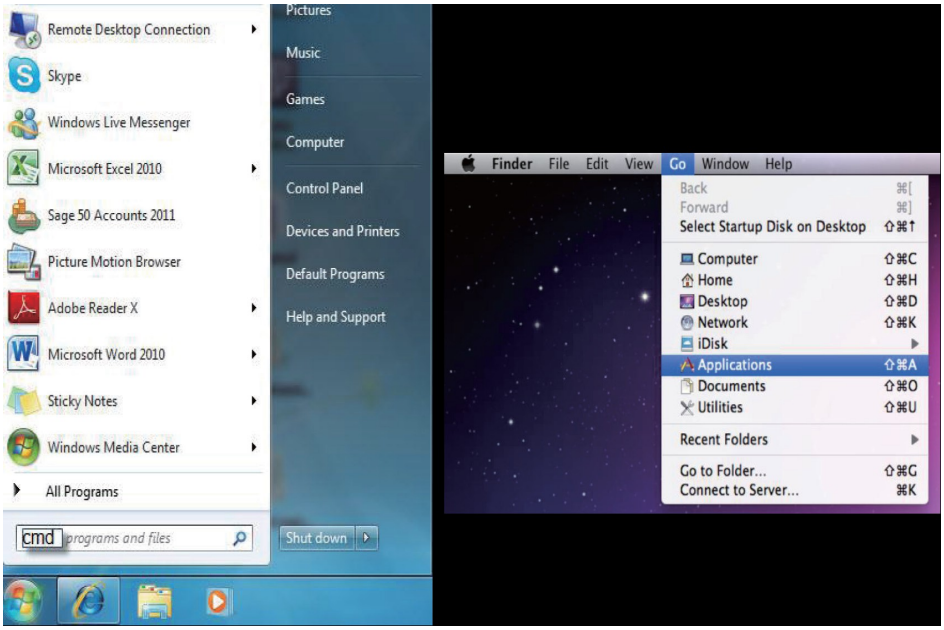
Bold values are the default settings.

Telnet Control

Before attempting to use the Telnet control, please ensure that both the HDMI Video Wall unit (via the ‘CONTROL’ port) and the PC/Laptop are connected to the active networks.

To access the Telnet control in Windows 7, click on the ‘Start’ menu and type “cmd” in the Search field then press Enter. Under Windows XP go to the ‘Start’ menu and click on “Run”, type “cmd” with then press Enter.

Under Mac OS X, go to Go→Applications→Utilities→Terminal. See below for reference.

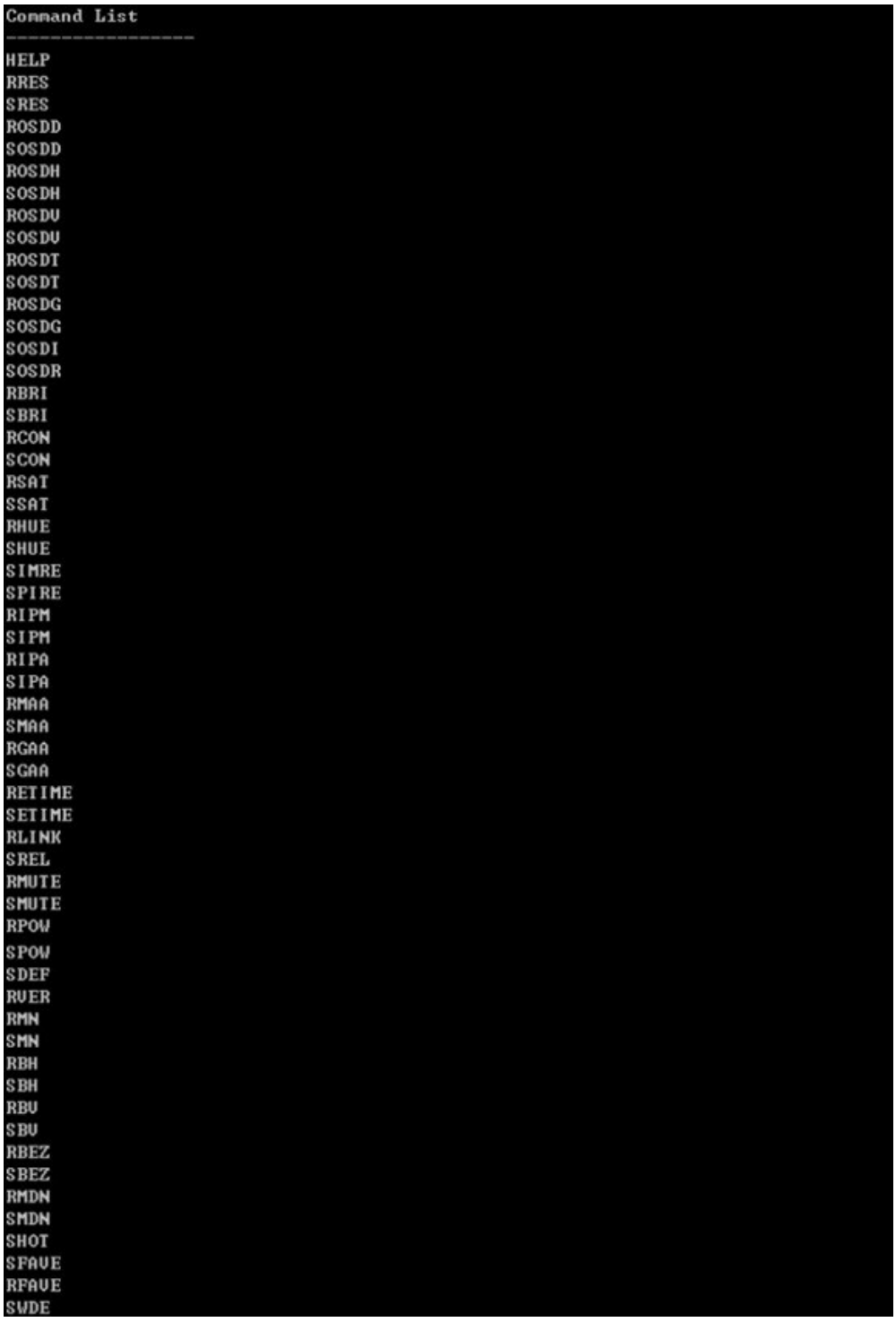


Once in the command line interface (CLI) type 'telnet', then the IP address of the unit and hit Enter. If the Telnet port (unit's port) is not set to the default of "23" then the correct port number will need to be entered after the IP address as shown below.

```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\CYP>telnet 192.168.5.80 23_
```

This will bring us into the unit which we wish to control. Type 'HELP' to list the available commands.



Note:

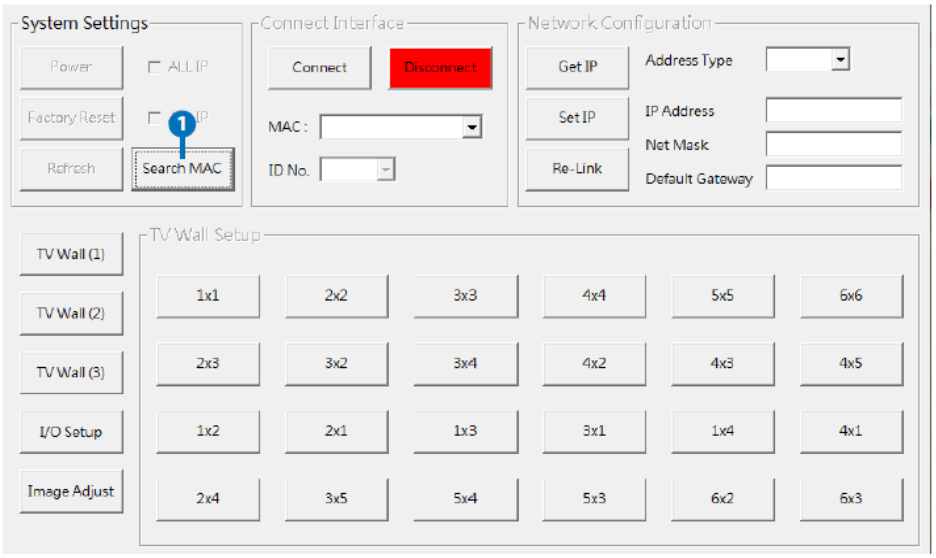
All the commands will be not executed unless followed by a carriage return. Commands are case-insensitive.

If the IP is changed then the IP Address required for Telnet access will also change accordingly.

Application Control

Navigate to the 1 by 4 HDMI 4K UHD Video Wall Splitter product page to download the software application installer.

Double click on the downloaded file to install the software. Once the application has installed successfully, click and open the application.



1. **Search MAC:** Click on "Search MAC" to confirm how many TV Wall unit(s) is within the network system then, select from here with the unit you wish to control.

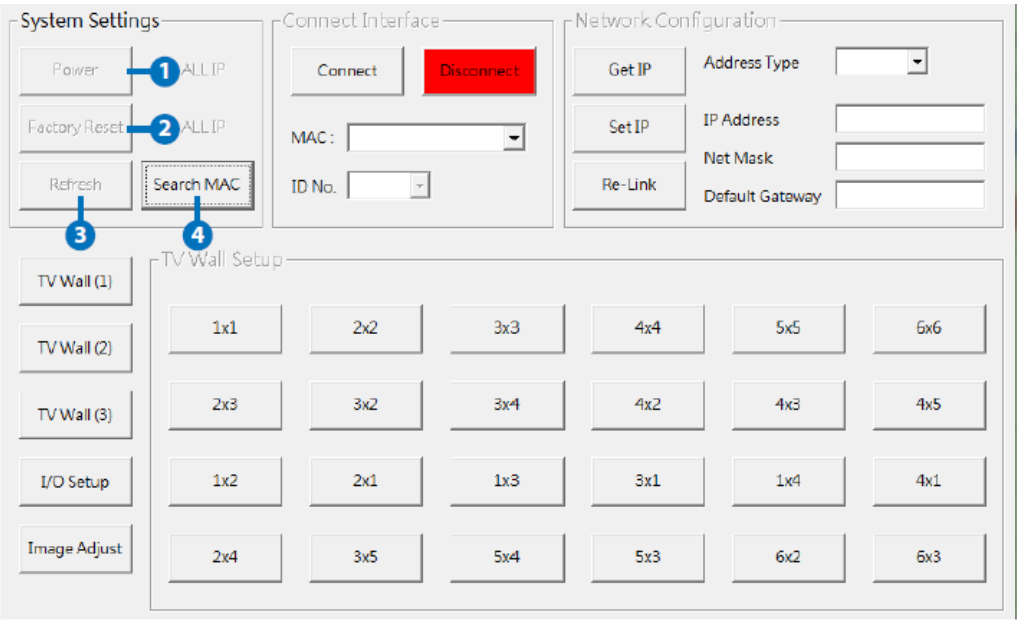
Note: This action should be executed every time when the unit is power On or reset or re-run the "CDPS-4KQ AP" application.

Select the unit that is to be adjusted then pressed "Connect" to connecting the unit.

Every time when the unit is connected successfully, a dialog will appear showing "refresh completed" base on the selected MAC and the application will display current unit's status. However, image display will not be refreshed automatically and can only be refreshed manually.

When using more than 1 unit for a TV Wall setting, set up unit's ID number is required to ensure the correct display of each single TV wall image.

System Settings



1. **Power:** Click on "Power" to power on/off the controlled unit. To control all connected units, click on "ALL IP" then click Power. From power ON to power OFF the application will disconnect the link, to power ON again please re-Connect.

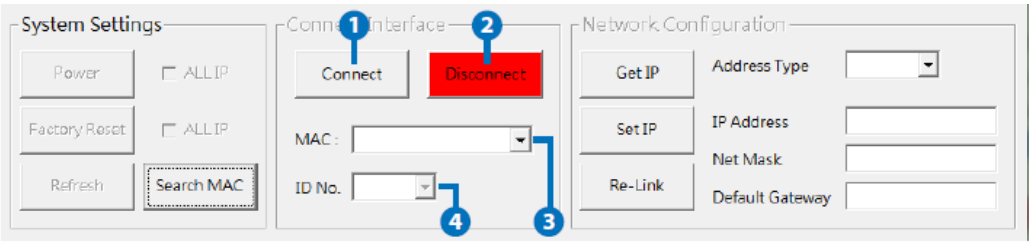
2. Factory Reset: Click on "Factory Reset" to set device settings to default, to switch all devices back to default setting click ALL IP and then"Factory Reset".

3. Refresh: Click on "Refresh" to read device current settings, all status of TV Wall Set will follow current choose device.

Note: Again Image Adjust will not be refresh, users have to click on "Image Adjust" to manually refresh to read Image Adjust current status.

4. Search MAC: Click on "Search MAC" to define on-line TV Wall units.

Connect Interface



1. **Connect:** Click "Connect" to link the unit.

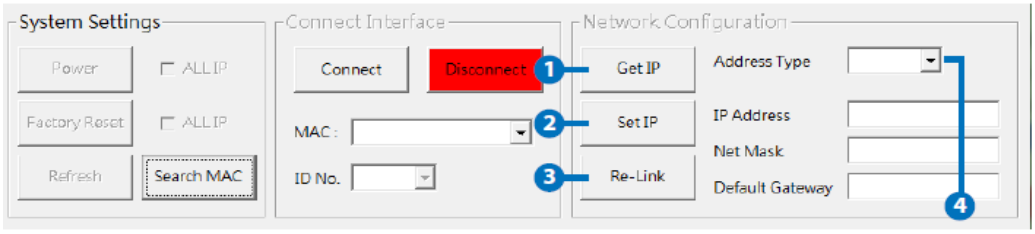
2. Disconnect: Click "Disconnect" to terminate the link.

3. MAC: Click on "MAC" with the arrow down button to show all the TV Wall units and select the nominated unit/MAC for connection.

4. ID No.: When more than one TV Wall unit is in use, it is important that ID No. is set correctly order to split and arrange the image correctly.

Note: All on-line units will show after running "Search MAC".

Network Configuration



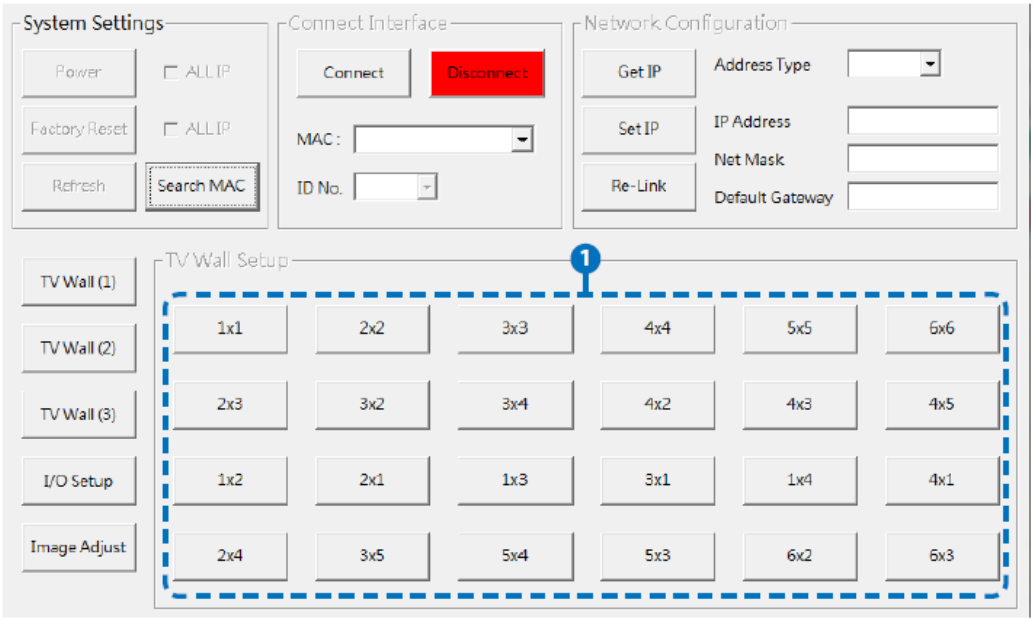
1. **Get IP:** Click "Get IP" to show current linking status.

2. Set IP: Click "Set IP" to adjust IP settings such as IP Type, IP Address…etc.

3. Re-Link: Click "Re-Link" to confirm Network Configuration settings changes.

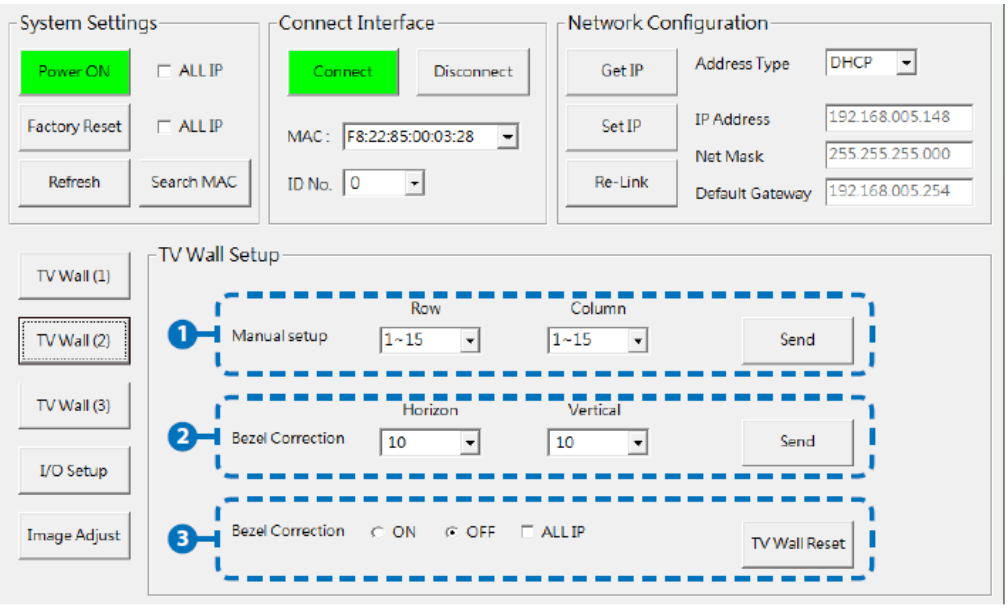
4. Address Type: Click on this drop-down menu to change the address type to DHCP/Static mode.

TV Wall Setup (1)



1. **Fast TV Wall Setting:** TV Wall's fast setting. Click on hot key to pre-set the TV Wall setup.

TV Wall Setup (2)

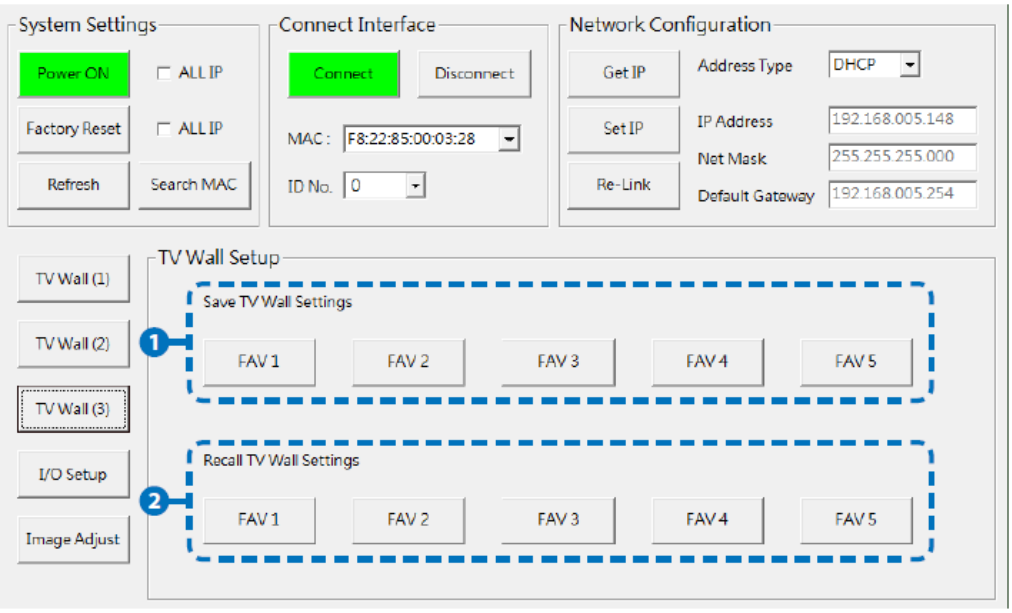


1 **Manual Setup:** Manually setup TV wall's setting by Rows and Columns from 1~15 and click on Send to confirm the setting.

2 Bezel Correction Horizon & Vertical: Set up Bezel Correction figures on the selected MAC/ID No. the correction will be made on all outputs of the selected unit in once.

3 Bezel Correction (ON/OFF): When the above action is taken Bezel Correction will switch to ON automatically, to switch it off click on OFF to terminate the function. To execute Bezel Correction on all units, click on ALL IP. It is suggested that when displaying moving contents on the TV Wall the Bezel Correction should be set ON and when displaying static contents, the Bezel correction can be set OFF.

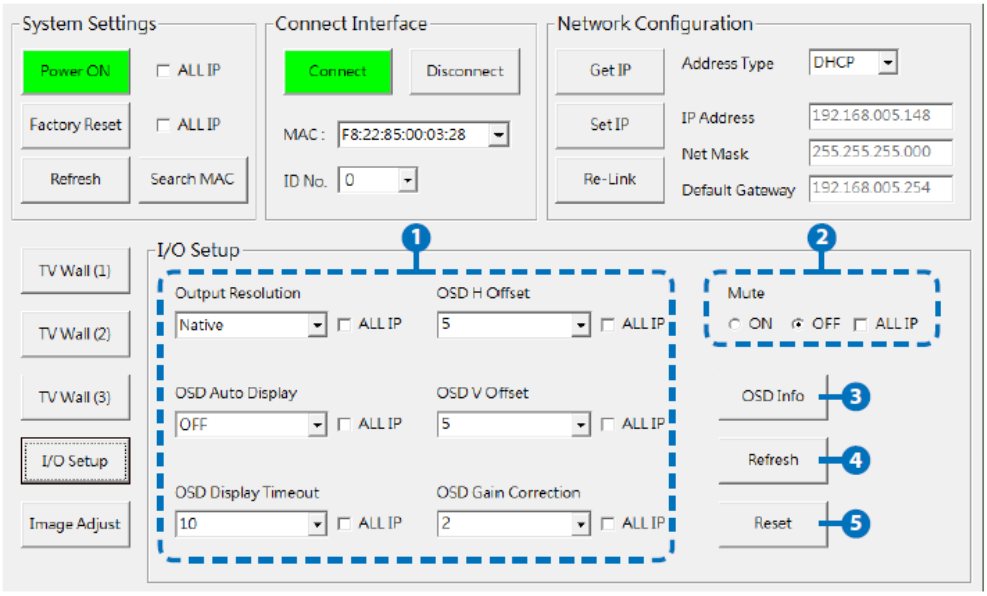
TV Wall Setup (3)



1 **Save TV Wall Settings:** Save current setting to Favorite up to 5 settings allows.

2 Recall TV Wall Settings: Recall restored TV Wall settings from 5 settings.

I/O Setup



1 **Output Resolution and OSD Menu Adjustment:** All settings under I/ O Setup can be done with single TV Wall unit or units with a single click on "ALL IP". Parameter and default value are as stated in RS- 232 description parameters.

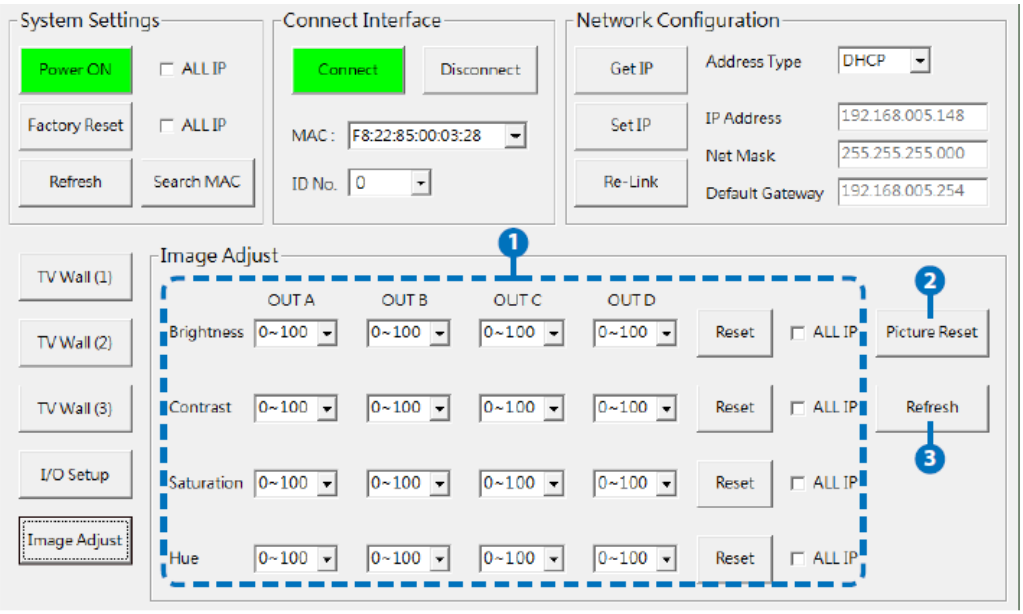
2 Mute: Set Audio Mute to ON/OFF.

3 OSD Info: Show/Close OSD Information.

Image Adjust

4 Refresh: Refresh current page.

5 Reset: Reset current page.



1 Brightness, Contrast, Saturation and Hue Adjustment: Again all settings under Image Adjust can be done with single TV Wall device or multiple TV Wall devices with single click on "ALL IP". Parameter and default value are as stated in RS-232 description.

2 Picture Reset: Picture Reset button is to reset all settings of Image Adjust back to factory default value.

3 Refresh: Refresh button is to refresh Image Adjust page only.

Note:

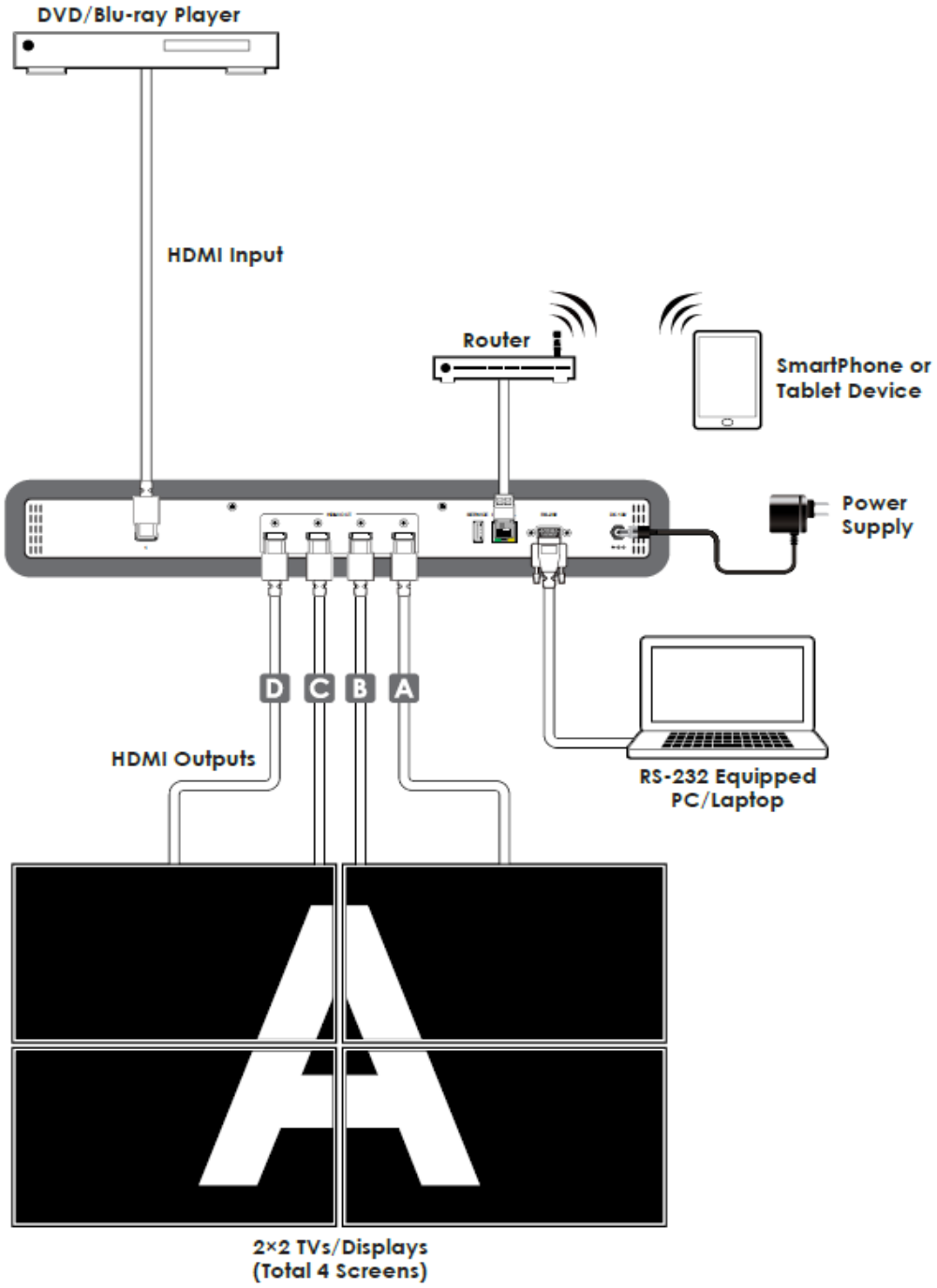
When Input signal is above 4K2K, device only support Color space RGB, YUV is not supported.

When on TV Wall split mode, different input/output resolution, signal is limited (please refer Timing Limitation).

Specifications

Video Bandwidth	300 MHz/9 Gbps
Input Ports	1×HDMI (Female type), 1×Control (RJ45), 1×RS-232 (D-sub 9-pin), 1×USB (Service only)
Output Ports	4×HDMI (Female type)
IR Frequency	30~50kHz
Baud Rate	115200bps
ESD Protection	Human body model: ± 8 kV (air-gap discharge) ± 4 kV (contact discharge)
Power Supply	12 V/3 A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	438 mm (W)×269 mm (D)44 mm (H)/Jacks Excluded 482 mm (W)×274 mm (D)×52 mm (H)/Jacks Included
Weight	2956 g
Chassis Material	Metal
Color	Black
Operating Temperature	0 ˚C~40 ˚C / 32 ˚F~ 04 ˚F
Storage Temperature	−20 ˚C~60 ˚C / −4 ˚F~140 ˚F
Relative Humidity	20~90 % RH (non-condensing)
Power Consumption	12.98 W

Connection Diagram



Connection Diagram