CONNECTION PERFECTION

HDMI 1:4 Video Wall Controller Scaler

User Manual ***English***

No. 38134

www.lindy.com

Tested to Comply with
FCC Standards
For Home and Office Use!

Introduction

Thank you for purchasing the LINDY HDMI Video Wall Controller Scaler. The HDMI Video Wall Controller Scaler allows an HDMI input source to be freely arranged on 4 displays (TV or monitor) and or cascaded using multiple units to extend the HDMI signal to even larger arrays.

This flexible feature rich product has been designed to be used in a number of different applications, such as:

- Public/Retail Advertisement
- Digital Presentation
- Broadcasting & Control
- Surveillance & Control
- Conference & Meeting Room

Package Contents

- HDMI 1:4 Video Wall Controller Scaler
- Includes Multi-Country (UK/EU/US/AUS) PSU 12V 3A
- 2 x 19” mounting brackets & screws

Features

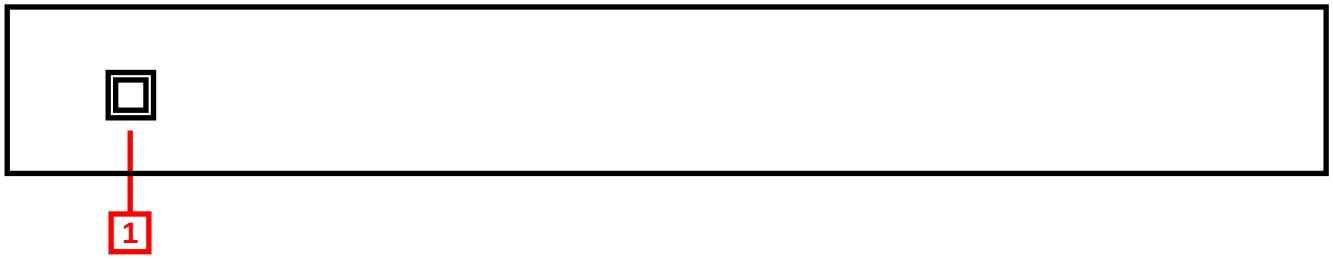
- Scales a single HDMI source across 4 HDMI displays
- Cascading feature allows the creation of larger video walls, up to 15 x 15
- User definable output scaling
- Controlled via Software Application, RS-232 and Telnet
- Bezel correction to aid screen blending
- Adjustable picture contrast, brightness, saturation and hue
- Memory function to store 4 user determined configurations
- Can be used with LINDY HDMI extenders to reach remote displays

Specification

- Input ports: 1 x HDMI Female
- Input resolution: 480i – 1080p
- Output ports: 4 x HDMI Female
- Output resolution: 480p – 1080p
- Audio support: LPCM 2CH, 6CH, 8CH, AC3, DTS, Dolby Digital Plus, Dolby TrueHD & DTS-HD
- Control Ports: RJ45 (Telnet) & Serial 9 Way Male (RS-232)
- Video bandwidth: 225MHz/6.75Gbps
- Power consumption: 12.3W
- Weight: 2.8Kg
- Dimensions: 436x247x44mm (WxDxH)

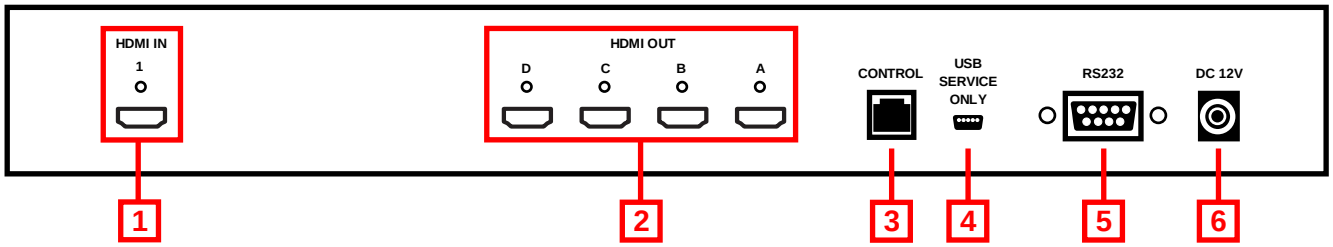
Overview

Front Panel



1. **Power**
   Switch the Scaler On/Off
   Press and hold for 3 seconds with the Scaler already powered on to reset to Factory Default

Rear Panel

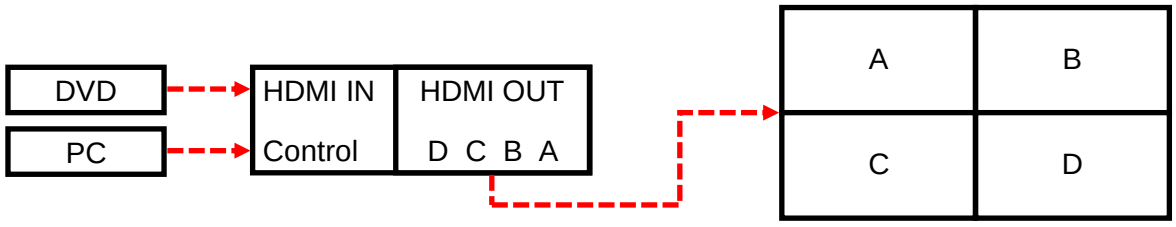


1. **HDMI In**
   Connect your HDMI source device such as PC, Blu-ray etc to this port
2. **HDMI Out A – D**
   Connect your HDMI displays to these ports
3. **Control**
   Connect to an Ethernet network for Telnet control
4. **USB Service Only**
   Reserved for Factory use only
5. **RS-232**
   For connection to a PC/Notebook or Remote Control Processing unit
6. **DC 12V**
   Connect the supplied 12V power supply here

Basic Operation

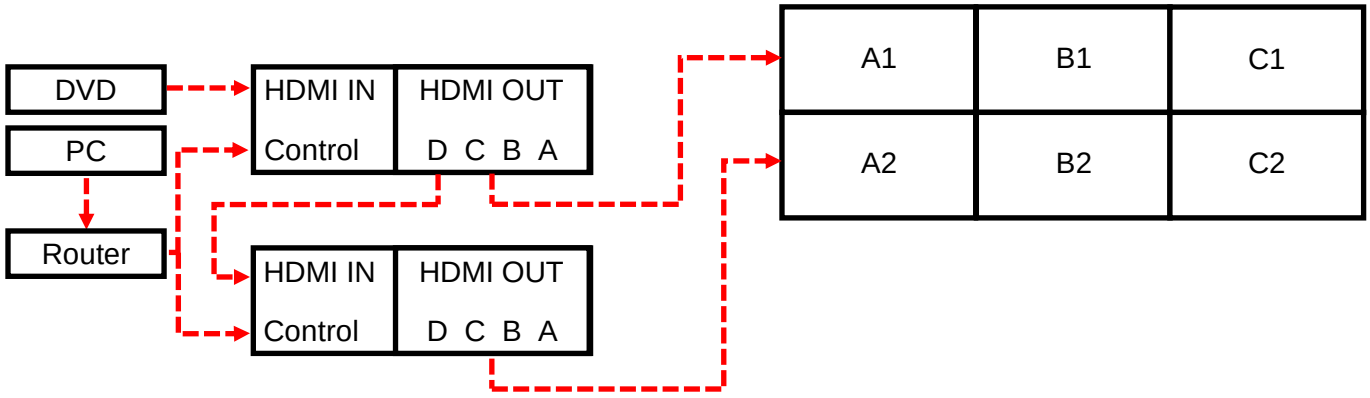
Important! It is strongly recommended that you use 4 identical (Brand and Model) displays for optimum performance.

To begin connect your HDMI source to the HDMI IN port, and 4 HDMI displays to the HDMI OUT ports A-D. By default the Scaler is set to output a 2 x 2 video wall as shown below



To configure the Video Wall further please refer to the following Configuration section of this manual.

To add expand upon the basic 2 x 2 video wall it is possible to cascade further Scalers by connecting Output D to the HDMI Input of the next Scaler, as shown below.



This cascading can be repeated up to 75 layers allowing a maximum of 225 displays to be connected.

Configuration

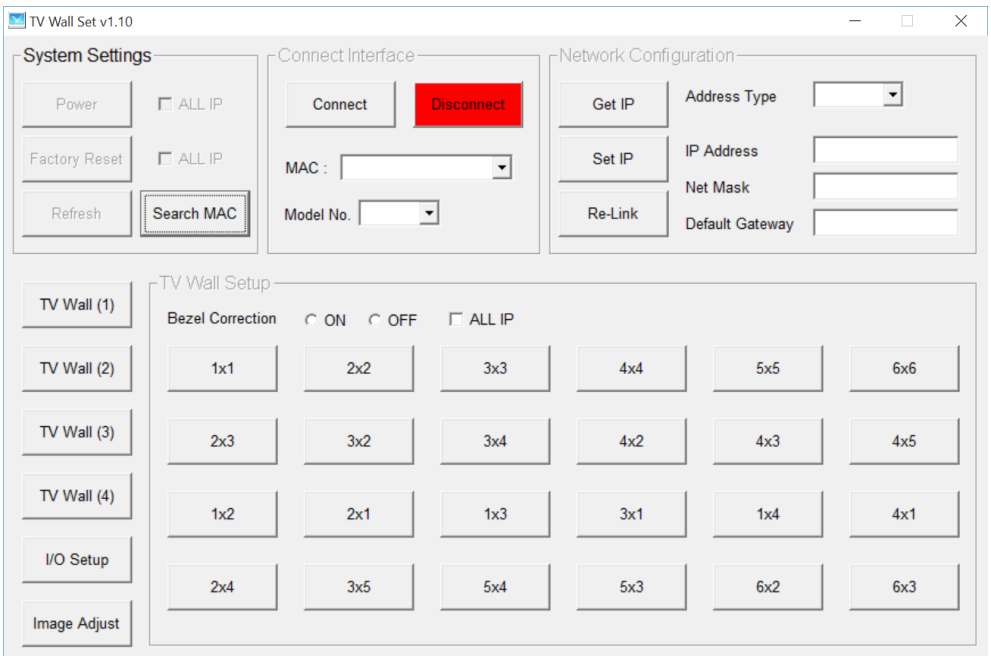
To begin the configuration process please download the software application from www.lindy.com, alternatively you can configure the Scaler using RS-232 or Telnet as described later in this section.

Please note: Before beginning the software installation, please ensure that any previous versions have been removed.

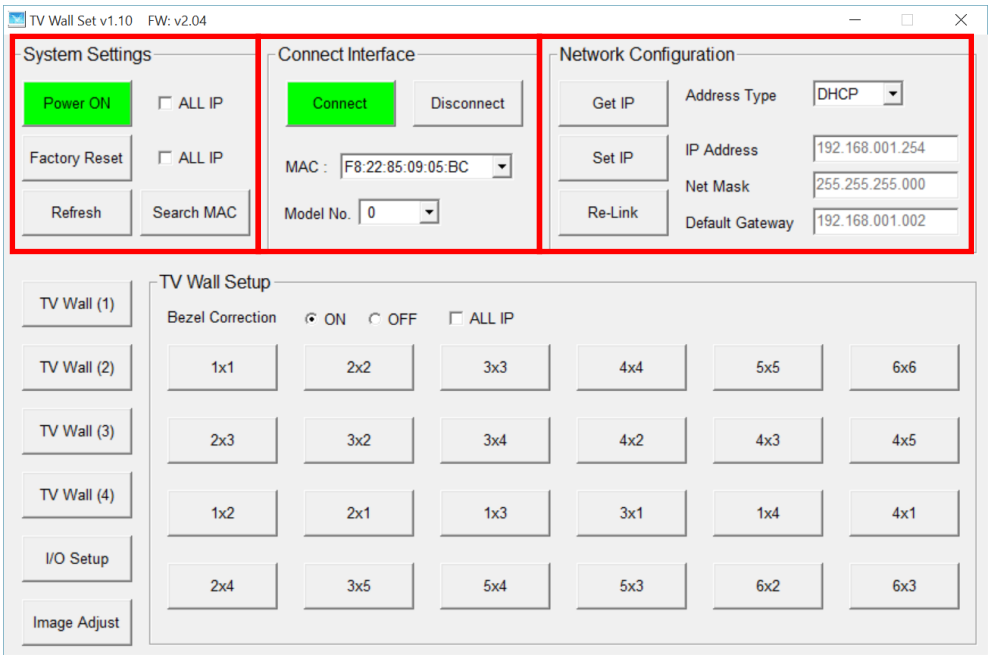
1. Navigate to the location that you saved the downloaded file and run the Setup.exe file.

2. When prompted by Windows allow the software access to your network.

3. You will now be presented with the TV Wall Set screen as show here, click **Search MAC** to find the Scaler on your network. You will need to repeat this step whenever the Scaler has been power cycled or reset. Once the software has found a Scaler you can begin configuring its settings.



System Configuration



Connect Interface

1. Click **Connect** to connect to the Scaler, at this point the settings will refresh (other than Image Adjust which is handled separately. If you are using multiple Scalers, select the Scaler you want to connect to using the **MAC** dropdown box and then press connect.
2. To disconnect a Scaler or multiple Scalers follow the step above but using **Disconnect**.
3. When using multiple Scalers it is important to be able to identify the location of the Scalers screens so that the image is correctly split. You can use the **Model No.** field to identify the Scaler, making configuration of the video wall more straight forward.

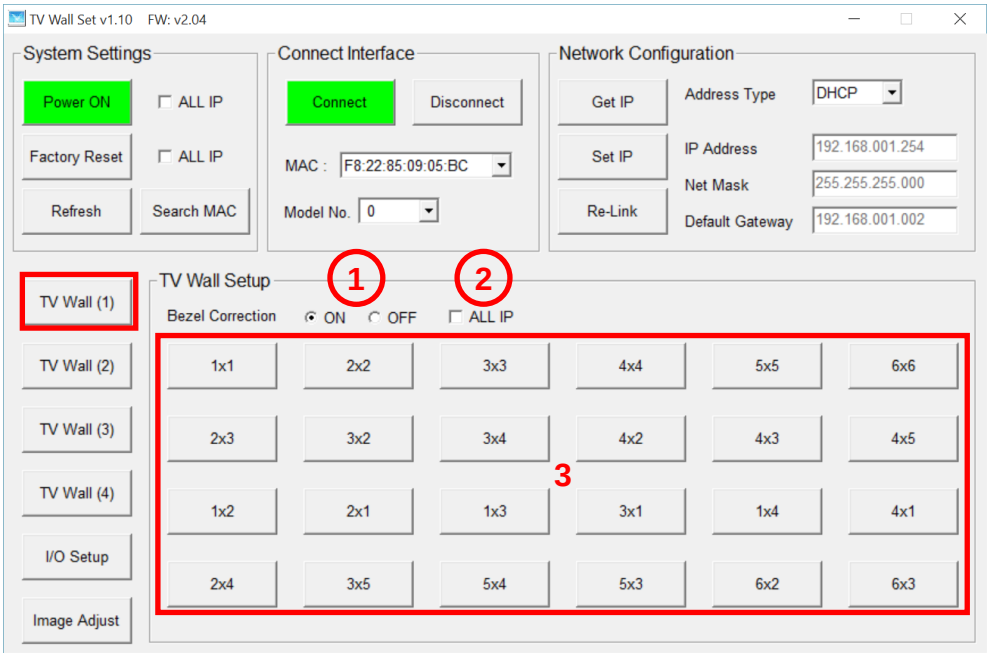
System Settings

1. Click **Power ON** to switch the Scaler on. If you're using multiple Scalers then check the **ALL IP** box next to Power ON and then click **Power ON** to switch all Scalers on.
2. Click **Factory Reset** to return the Scaler back to its default settings. If you're using multiple Scalers then check the **ALL IP** box next to Factory Reset and then click **Factory Reset** to reset all of the Scalers.
3. Click **Refresh** to re-read the configuration from the Scaler.

Network Configuration

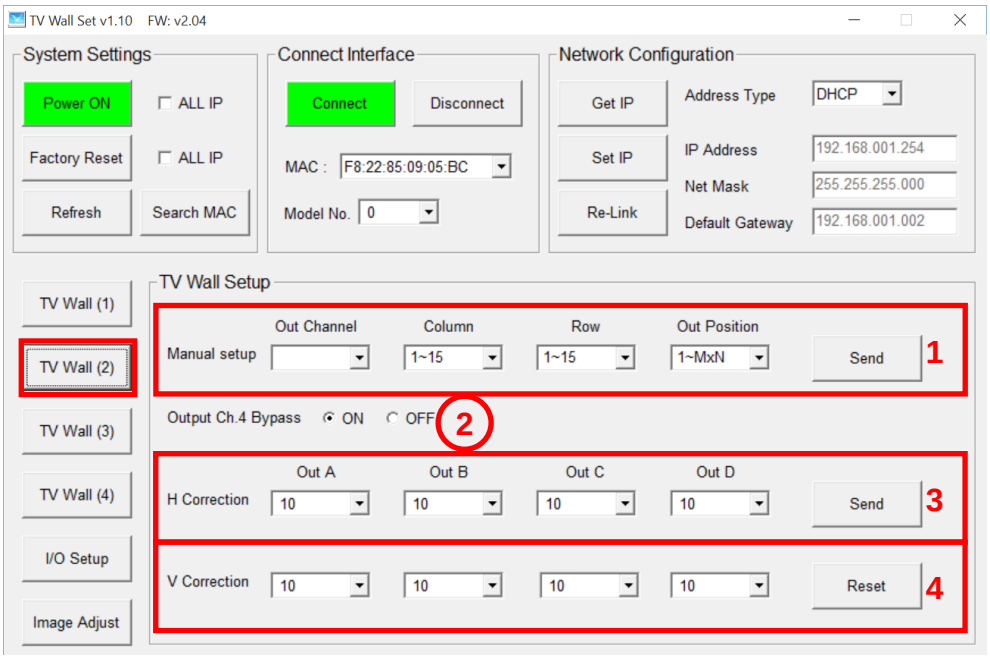
1. From the **Address Type** field drop down, choose either DHCP or STATIC and then click **Set IP** and wait for a few seconds for the setting to be applied.
2. If you are using a static IP complete the IP Address, Net Mask and Default Gateway fields and then click **Set IP** and wait for a few seconds for the setting to be applied.

Video Wall Configuration



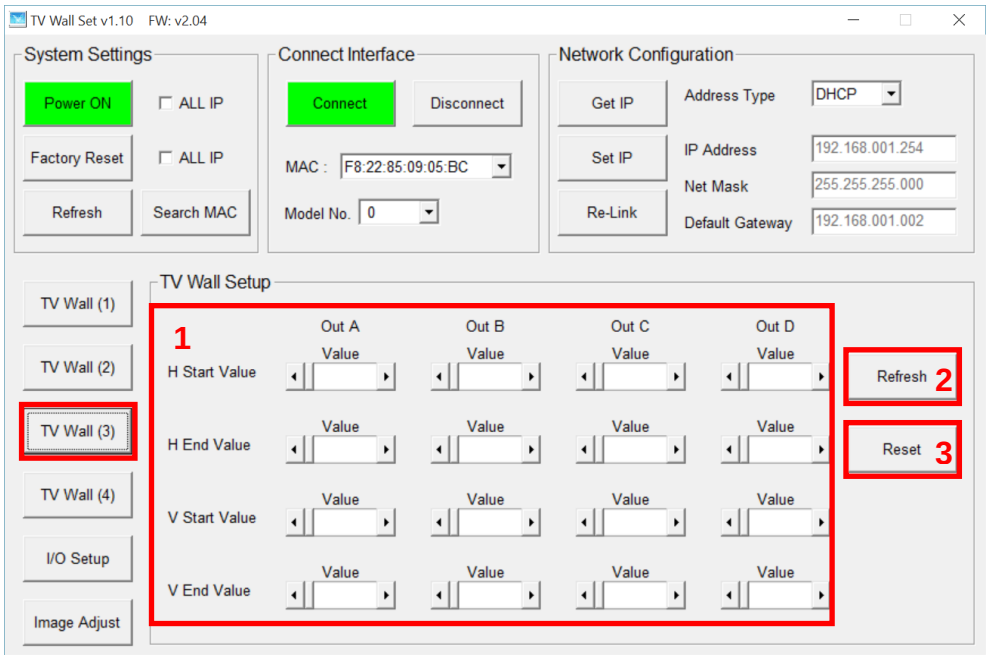
TV Wall (1)

1. Bezel Correction can be switched ON or OFF here according to your requirement
2. If you are using multiple Scalers ensure that you select ALL IP before setting Bezel Correction to ON/OFF
3. Quick Video wall layout options from 1 x 1 to 6 x 6, simply select the configuration you require.



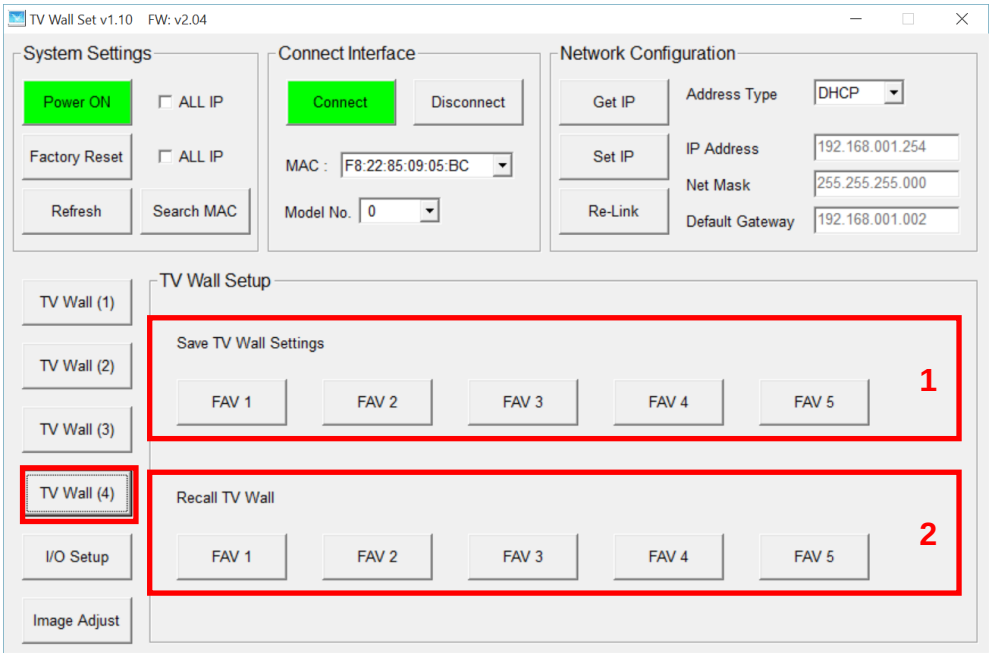
TV Wall (2)

1. Select an Output Channel A – D and then set the layout of the Video wall using Column (1 – 15) and Row (1 – 15). Finally select the position of this Output in the video wall and then click Send; Rows are counted from Top to Bottom and Columns from Left to Right. So in a 3 x 3 video wall configuration Out Position 1 would be the Top Left of the video wall and Out Position 9 would be bottom right.
2. Output Ch.4 Bypass ON/OFF allows you to determine whether Output D is used in Standard or Cascade mode.
3. H Correction allows the horizontal position of each Output's display to be adjusted for Bezels.
4. V Correction allows the vertical position of each Output's display to be adjusted for Bezels.



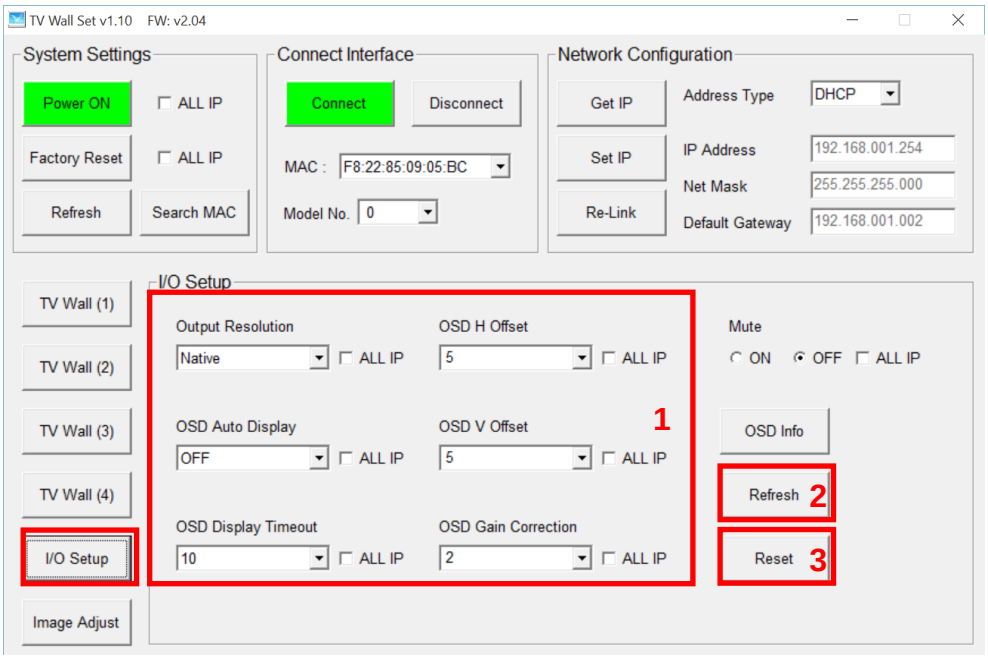
TV Wall (3)

1. Output H&V Value setup allows you to adjust individual outputs A – D to a specific position and from horizontal and vertical position of 0 – 255. This setting is used to fine tune your TV wall array in case of issues with the default set up.
2. Refresh just the TV Wall (3) page with one click, no other information is refreshed, click Refresh before adjusting the settings to ensure you have the correct base values.
3. Reset all the settings from the TV Wall (3) page back to factory defaults.



TV Wall (4)

1. After configuring your array in TV Wall (2), click on FAV 1 – 5 under Save TV Wall Settings to store these values.
2. Click FAV 1 – 5 under Recall TV Wall Settings to use one of the previously saved TV Wall configurations.



I/O Setup

1. All settings under I/O Setup can be amended for a single TV Wall Scaler or multiple TV Wall Scalers. If using multiple Scalers click on ALL IP for each setting which you want to use with all Scalers. Parameters and default value are as stated in RS-232 command section.
2. Refresh just the I/O page with one click, no other information is refreshed, click Refresh before adjusting the settings to ensure you have the correct base values.
3. Reset all the settings from the I/O page back to factory defaults.

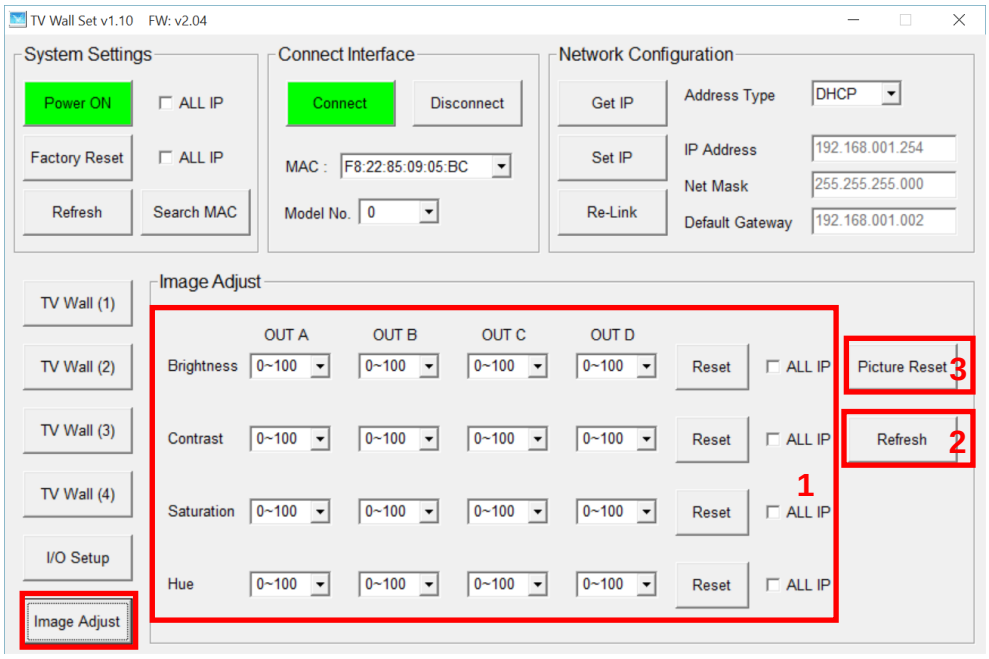


Image Adjustment

1. Brightness, Contrast, Saturation and Hue can all be amended for each output of a single TV Wall Scaler or multiple TV Wall Scalers. If using multiple Scalers click on ALL IP for each setting which you want to use with all Scalers. Parameters and default value are as stated in RS-232 command section.
2. Refresh just the Image Adjust page with one click, no other information is refreshed, click Refresh before adjusting the settings to ensure you have the correct base values.
3. Reset all the settings from the Image Adjust page back to factory defaults.

RS-232 &Telnet Control

RS-232 Protocols

TV Wall Scaler	
PIN	**Assignment**
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Remote Control	
PIN	**Assignment**
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate	115200bps
Data Bit	8
Parity	None
Flow Control	None
Stop Bit	1

RS-232 & Telnet Commands

- Commands will be not executed unless followed with a carriage return (0x0D) and commands are case-sensitive.
- RS-232 control is set to single device only, not for use with Cascade/Bypass output's connection device. To control multiple Scalers please use the control software.
- Bold values are the default setting.

Item	Command	Description	Parameter
Resolution	RRES	Request Resolution	0=480p 1=576p 2=720p50 3=720p60 4=1080p24 5=1080p25 6=1080p30 7=1080p50 8=1080p60 9=1024x768 60 10=1280x800 60 11=1280x1024 60 12=1366x768 60 13=1440x900 60 14=1600x900 60 15=1600x1200 60 16=1680x1050 60 17=1920x1200 60 18=**Native**
	SRES 0 – 18	Set Resolution	
OSD	ROSDD	Request OSD Status	0=**OFF**, 1=ON
	SOSDD 0/1	Set OSD Status	
	ROSDH	Request OSD H Position	0 – 20 **(5)**
	SOSDH 0~20	Set OSD H Position	
	ROSDV	Request OSD V Position	0 – 20 **(5)**

Item	Command	Description	Parameter
OSD (continued)	SOSDV 0~20	Set OSD V Position	
	ROSDT	Request OSD Display Timeout setting	0~20 **(50)**
	SOSDT 2~50	Set OSD Display Timeout in Second	
	ROSDG	Request OSD Gain Correction	0~10 **(2)**
	SOSDG 0~10	Set OSD Gain Correction	
	SOSDI	Set OSD Information Status	ON/OFF
	SOSDR	OSD reset to factory default "off"	
Image	RBRI 1~4	Request Brightness	Output 1~4
	SBRI 1~4 0~100	Set Brightness	Output 1~4, Brightness Value 0~100 **(50)**
	RCON 1~4	Request Contrast	Output 1~4
	SCON 1~4 0~100	Set Contrast	Output 1~4, Contrast Value 0~100 **(50)**
	RSAT 1~4	Request Saturation	Output 1~4
	SSAT 1~4 0~100	Set Saturation	Output 1~4, Saturation Value 0~100 **(50)**
	RHUE 1~4	Request Hue	Output 1~4
	SHUE 1~4 0~100	Set Hue	Output 1~4, Hue Value 0~100 **(50)**
	SIMRE 1~4	Reset Picture Setting	1->Brightness 2->Contrast 3->Saturation 4->Hue
	SPIRE	Reset All Picture Setting	
Ethernet	RIPM	Request IP Mode	**0->DHCP,** 1->Static
	SIPM 0/1	Set IP Mode	
	RIPA	Request IP Address	
	SIPA 0~255. 0~255. 0~255. 0~255	Set IP Address	IP ADDR : IPA3.IPA2.IPA1. IPA0
	RMAA	Request Mask Address	
	SMAA 0~255. 0~255. 0~255. 0~255	Set Mask Address	Mask ADDR : MAA3.MAA2. MAA1.MAA0
	RGAA	Request Gateway Address	
	SGAA 0~255.	Set Gateway Address	Gate ADDR : GAA3.GAA2.

Item	Command	Description	Parameter
Ethernet (continued)	0~255.		GAA1.GAA0
	0~255.		
	0~255		
	RETIME	Request Ethernet Timeout	**0=OFF,** 1=10min, 2=20min, 3=30min, 4=40min, 5=50min, 6=60min
	SETIME 0~6	Set Ethernet Timeout	
	RLINK	Read Link	IP000~255 IP010~255 IP020~255 IP030~255 MA000~255 MA010~255 MA020~255 MA030~255 GA000~255 GA010~255 GA020~255 GA030~255
System	RMUTE	Request Mute Status	0=UNMUTE, 1=MUTE
	SMUTE 0/1	Set Mute Status	
	RPOW	Request Power Status	0=UNMUTE, 1=MUTE
	SPOW 0/1	Set Power Status	0=Power off, 1=Power on
	RVER	Request Version	
	SREL	Set Re-Link	
	SDEF	Reset to factory default	
	RMNC 1~4	Request TV Wall Value	TV WALL M Value TV WALL N Value Output 1~4
	SMNC M N 0~4	Set TV Wall Output Value	
	RCO 1~4	Request Output TV Wall Position	Output 1~4
	SCO 1~4 Y	Set Output TV Wall Position	Output 1~4, TV Wall position(M*N)
	RCBH 1~4	Request H Bezel Value	Output 1~4
	SCBH 1~4 0~255	Set Output H Bezel Value	Output 1~4, H Bezel value
TV Wall	RCBV 1~4	Request V Bezel Value	Output 1~4
	SCBV 1~4 0~255	Set Output V Bezel Value	Output 1~4, V Bezel value
	RBEZ	Request Bezel Status	0=Bezel off, 1=Bezel on
	SBEZ 0/1	Set Bezel Status	
	RMDN	Request Device's Model No.	Unit model NO. Setting be 1~255
	SMDN 0~255	Set Device's Model No.	
	SWDE	Reset TV Wall Value	
	SHOT 0~23	Set Hot Setting	**0=1x1**, 1=2x2,

Item	Command	Description	Parameter
			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
TV Wall (continued)	SFAVE 1~5	Save Favorite Setting	
	RFAVE 1~5	Recall Favorite Setting	
	RBY	Request Bypass Setting	0=non Bypass, **1=Bypass**
	SBY 0/1	Set Bypass Setting	

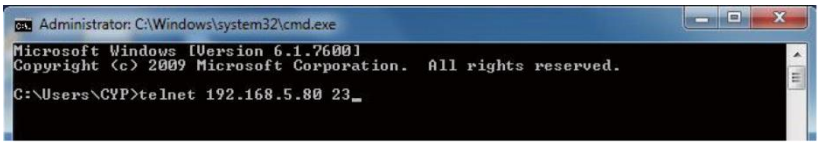
Telnet Control

Before attempting to use the Telnet control, please ensure that both the Scaler (via the 'CONTROL' port) and the PC/Laptop are connected to the same active network.

To access the Telnet control in Windows 7/10, 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

Once in the command line interface (CLI) type "telnet", then the "IP address" of the Scaler and hit enter. Only when the Telnet port (device port) is not set to 23 will the number "device port" then need to be entered after IP address (device IP) and before hit enter.



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

Please 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.

CE/FCC Statement

CE Certification

This equipment complies with the requirements relating to Electromagnetic Compatibility Standards EN55022/EN55024 and the further standards cited therein. It must be used with shielded cables only.
It has been manufactured under the scope of RoHS compliance.

CE Konformitätserklärung

Dieses Produkt entspricht den einschlägigen EMV Richtlinien der EU für IT-Equipment und darf nur zusammen mit abgeschirmten Kabeln verwendet werden.
Diese Geräte wurden unter Berücksichtigung der RoHS Vorgaben hergestellt.
Die formelle Konformitätserklärung können wir Ihnen auf Anforderung zur Verfügung stellen

FCC Certification

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.
This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

LINDY Herstellergarantie – Hinweis für Kunden in Deutschland

LINDY gewährt für dieses Produkt über die gesetzliche Regelung in Deutschland hinaus eine zweijährige Herstellergarantie ab Kaufdatum. Die detaillierten Bedingungen dieser Garantie finden Sie auf der LINDY Website aufgelistet bei den AGBs.

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Recycling Information

WEEE (Waste of Electrical and Electronic Equipment), Recycling of Electronic Products

Europe, United Kingdom

In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process.
Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose of any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.

Germany / Deutschland

Die Europäische Union hat mit der WEEE Direktive Regelungen für die Verschrottung und das Recycling von Elektro- und Elektronikprodukten geschaffen. Diese wurden im Elektro- und Elektronikgerätegesetz – ElektroG in deutsches Recht umgesetzt. Dieses Gesetz verbietet das Entsorgen von entsprechenden, auch alten, Elektro- und Elektronikgeräten über die Hausmülltonne! Diese Geräte müssen den lokalen Sammelsystemen bzw. örtlichen Sammelstellen zugeführt werden! Dort werden sie kostenlos entgegen genommen. Die Kosten für den weiteren Recyclingprozess übernimmt die Gesamtheit der Gerätehersteller.

France

En 2006, l'union Européenne a introduit la nouvelle réglementation (DEEE) pour le recyclage de tout équipement électrique et électronique.
Chaque Etat membre de l' Union Européenne a mis en application la nouvelle réglementation DEEE de manières légèrement différentes. Veuillez suivre le décret d'application correspondant à l'élimination des déchets électriques ou électroniques de votre pays.

Italy

Nel 2006 l'unione europea ha introdotto regolamentazioni (WEEE) per la raccolta e il riciclo di apparecchi elettrici ed elettronici. Non è più consentito semplicemente gettare queste apparecchiature, devono essere riciclate. Ogni stato membro dell' EU ha tramutato le direttive WEEE in leggi statali in varie misure. Fare riferimento alle leggi del proprio Stato quando si dispone di un apparecchio elettrico o elettronico.
Per ulteriori dettagli fare riferimento alla direttiva WEEE sul riciclaggio del proprio Stato.

LINDY No 38134

1st Edition, October 2015

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