



4K HDMI 1:4 Video Wall Controller Scaler

User Manual

English



No. 38135

lindy.com



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

Introduction

Thank you for purchasing the LINDY 4K 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 in combination with an HDMI Splitter(s) 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

- 4K 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

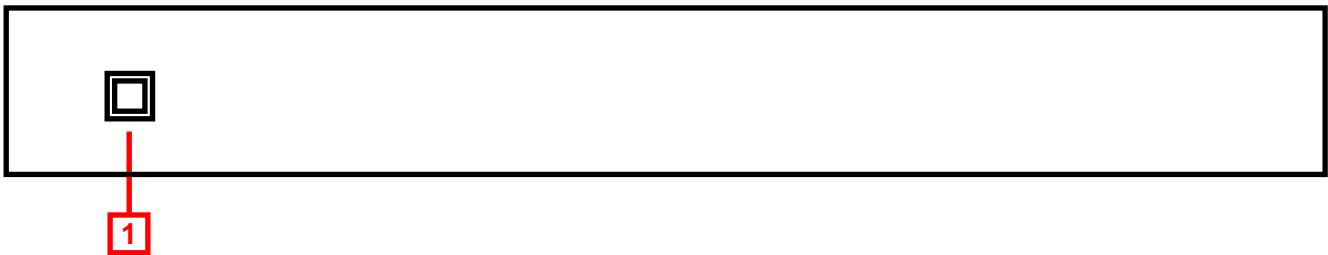
Specification

- Input ports: 1 x HDMI Female
- Input resolution: 480i – 3840x2160p24/25/30 & 4096x2160p24*
- Output ports: 4 x HDMI Female
- Output resolution: 480p – 1080p/1200pRB*
- 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: 300MHz/9Gbps
- Power consumption: 12.98W
- Weight: 2.9kg
- Dimensions: 438x269x44mm (WxDxH)

*For a full list of supported Input/Output resolutions and timings, and a breakdown of supported video wall configurations please see the final section of this user manual.

Overview

Front Panel

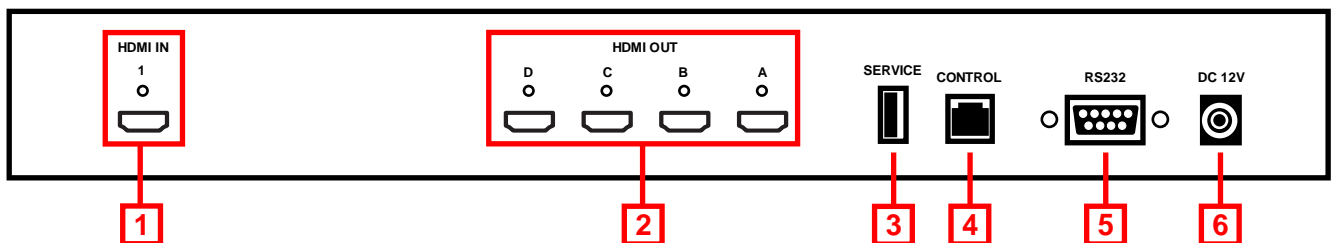


1. Power

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. Service

Reserved for Factory use only

4. Control

Connect to an Ethernet network for Telnet control

5. RS-232

For connection to a PC/Notebook or Remote Control Processing unit

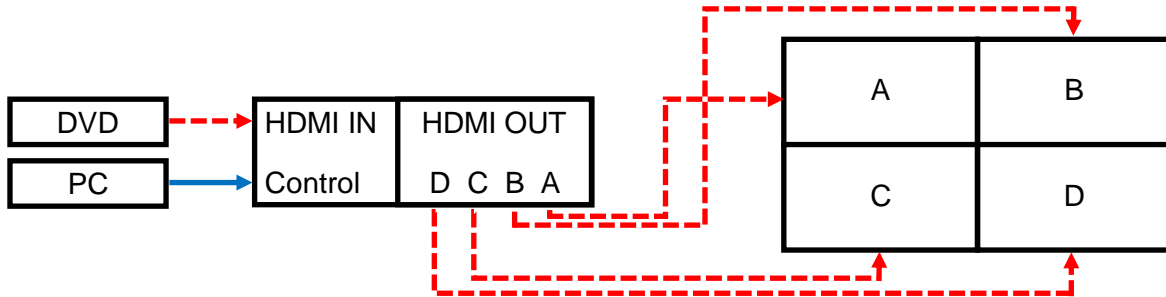
6. DC 12V

Connect the supplied 12V power supply here

Basic Operation

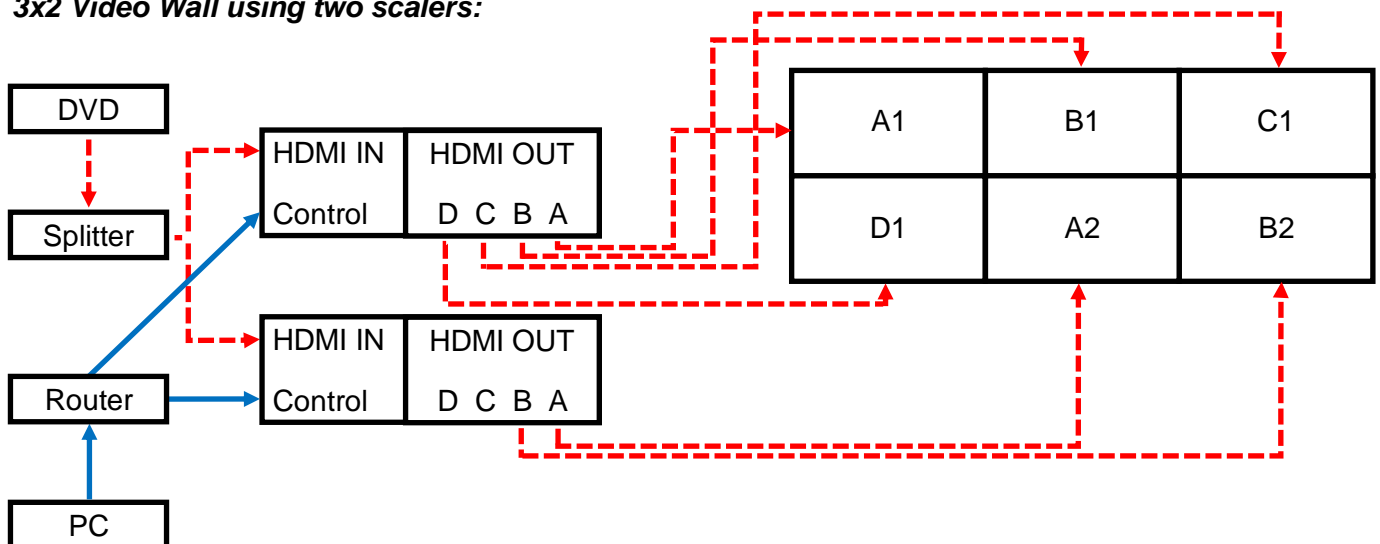
Important! It is strongly recommended that you use 4 identical (Brand and Model) displays for optimum performance.

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

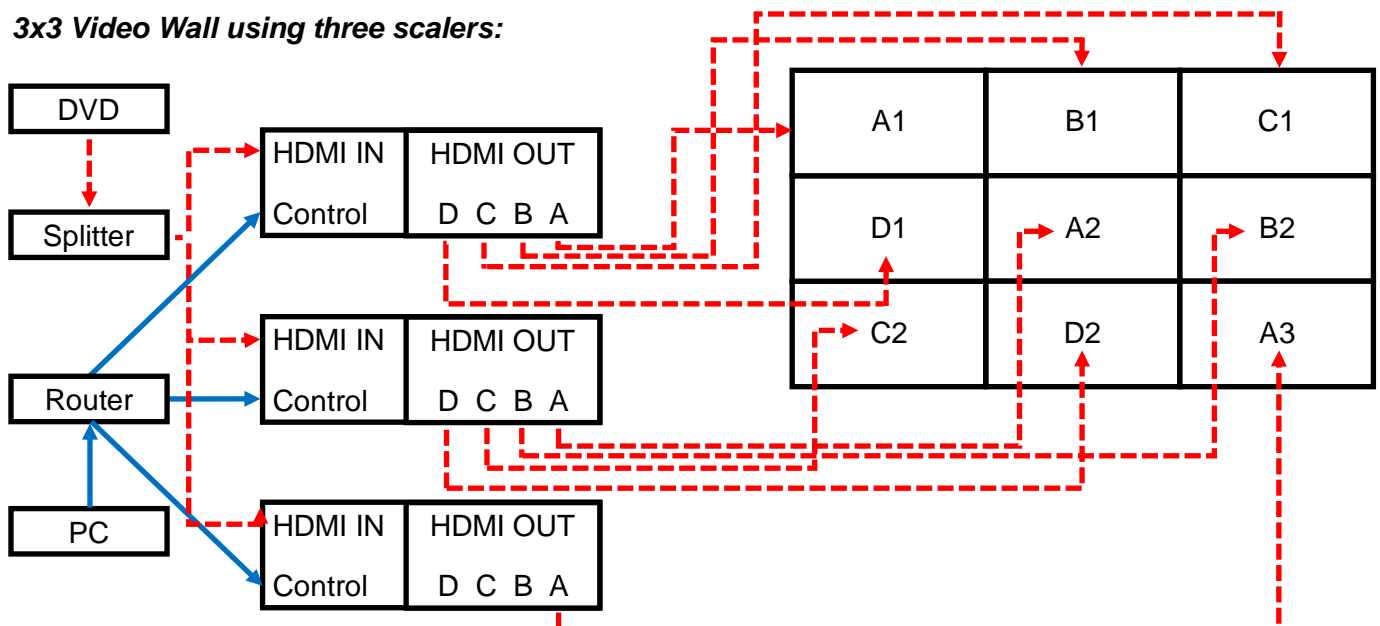


To add expand upon the basic 2 x 2 video wall it is possible to add further Scalers by using a HDMI splitter between the source and the Scalers, as shown below.

3x2 Video Wall using two scalers:



3x3 Video Wall using three scalers:



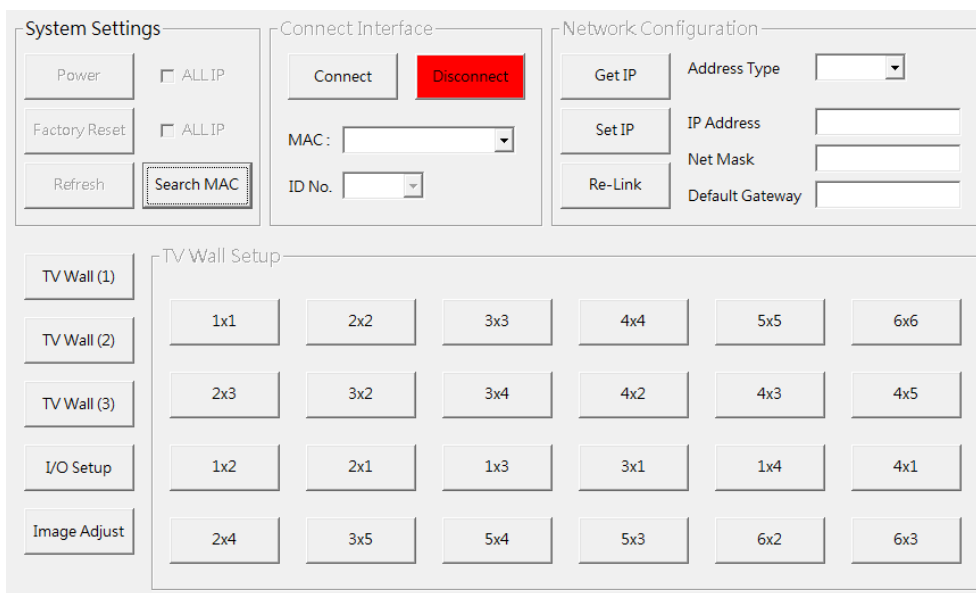
This cascading can be repeated to allow a maximum of 225 displays (15x15) to be connected. To configure the Video Wall further please refer to the following Configuration section of this manual.

Configuration

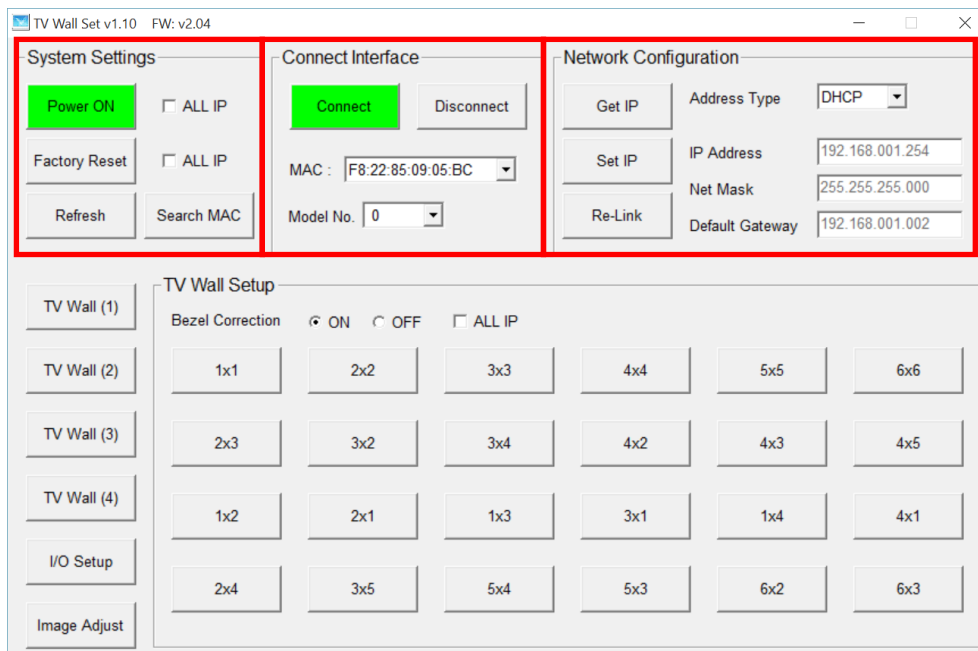
To begin the configuration process please download the software application from www.lindy.com, alternatively you can configure the Scaler using RS-232 or Telnet as described later in this section.

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 **ID No.** field to identify the Scaler, making configuration of the video wall more straight forward.

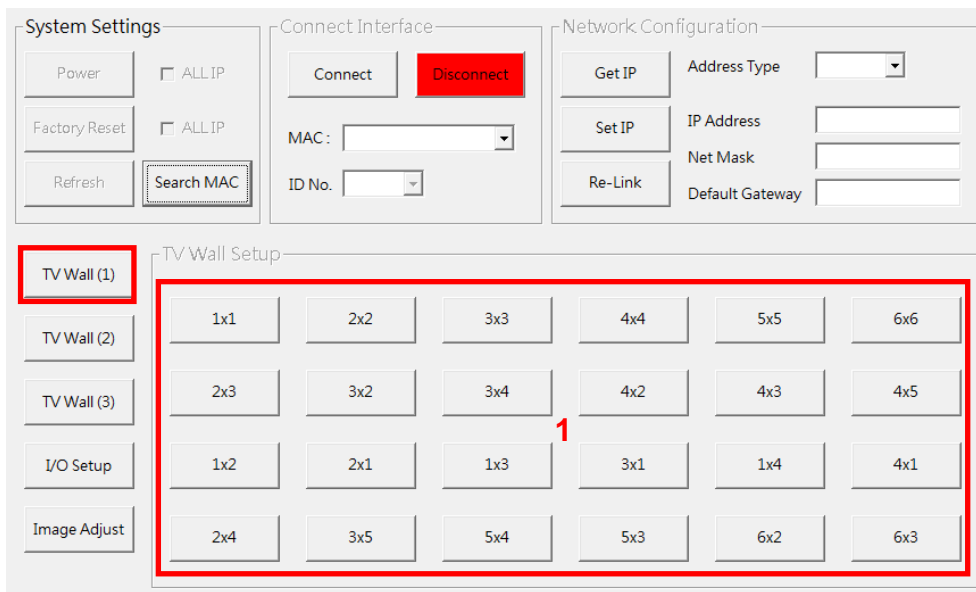
System Settings

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

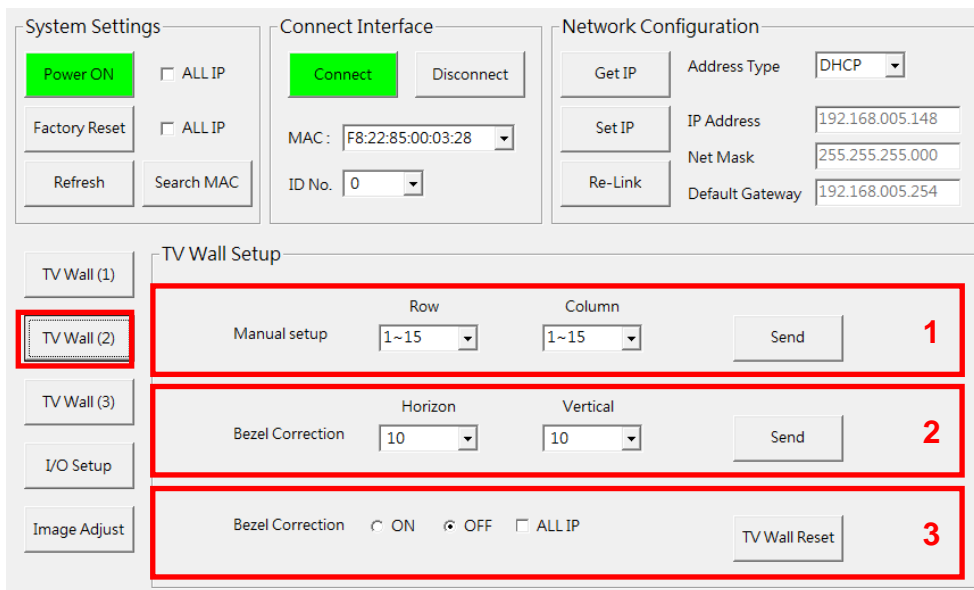
1. From the **Address Type** field drop down, choose either DHCP or STATIC and then click **Set IP** and wait for a few seconds for the setting to be applied.
2. If you are using a static IP complete the IP Address, Net Mask and Default Gateway fields and then click **Set IP** and wait for a few seconds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

Video Wall Configuration



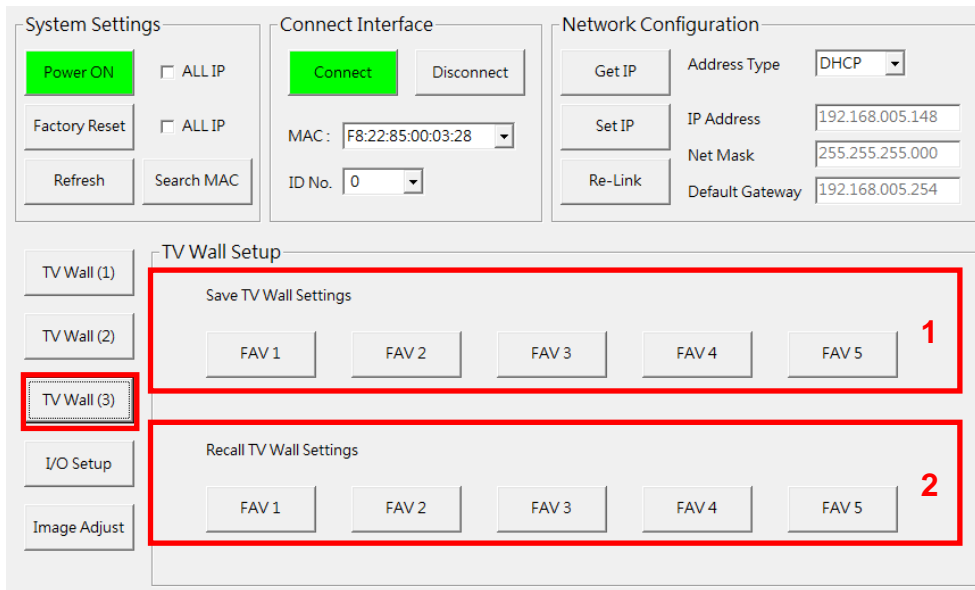
TV Wall (1)

1. Quick Video wall layout options from 1 x 1 to 6 x 6, simply select the configuration you require.



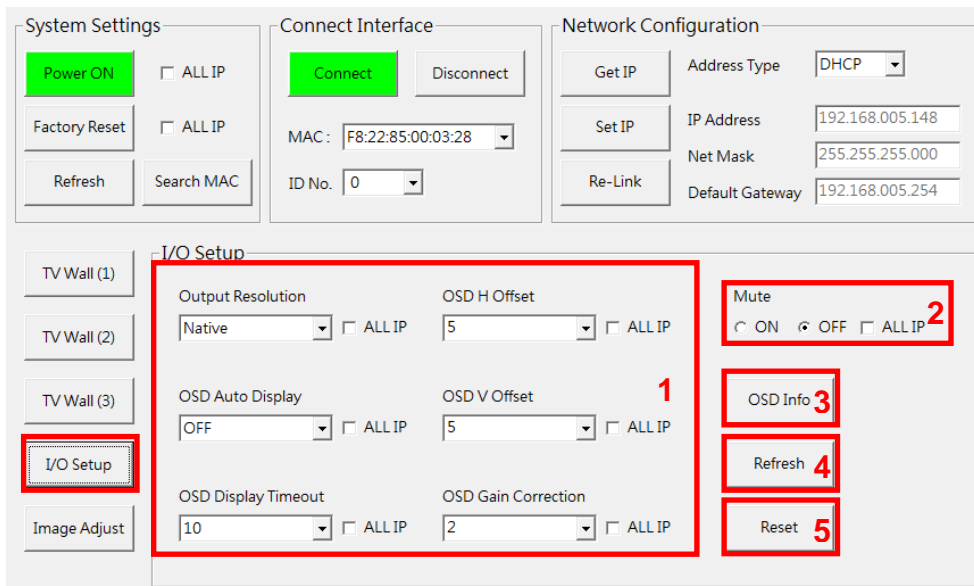
TV Wall (2)

1. Use the Row and Column drop down boxes to create a bespoke video wall size 1 – 15 x 1 – 15 and then click on Send to confirm the setting.
2. Bezel Correction allows the horizontal/Vertical position of all Output's on the current Scaler (as defined in the MAC/ID No. fields) to be adjusted for Bezels, click Send to confirm the setting.
3. When Field 2 is populated Bezel Correction will turn on automatically, here you can switch it Off. If you want to apply this setting to multiple Scalers select the All IP check box and the apply the setting. It is recommended to use Bezel Correction when using content containing motion/movement, if you are using static content then the Bezel Correction can be switched off.



TV Wall (3)

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. Set Mute to On or Off, if using multiple Scalers click on ALL IP to use this setting with all Scalers.
3. 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.
4. Reset all the settings from the I/O page back to factory defaults.

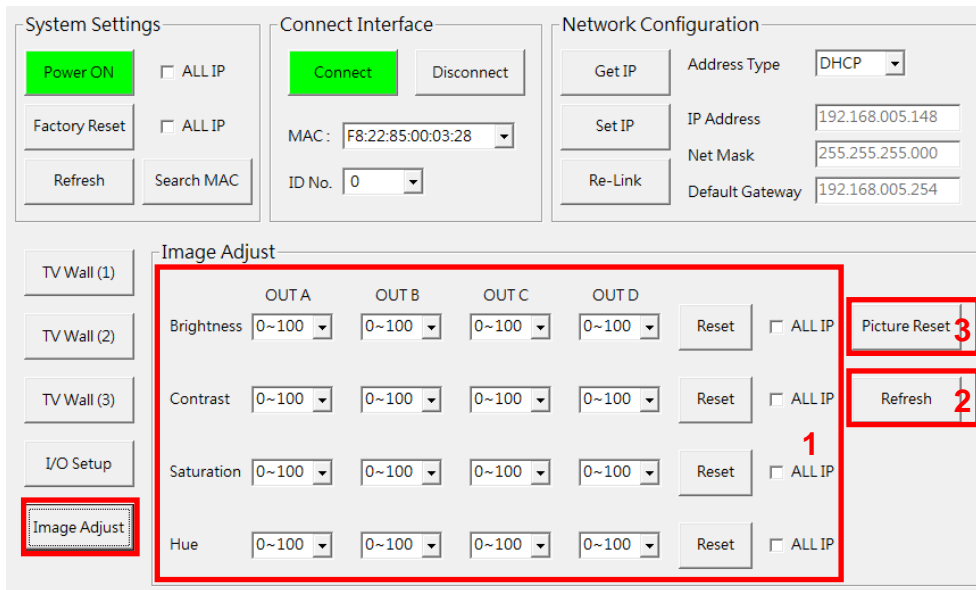


Image Adjustment

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

| 4K 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.

| Command | Description | Parameter |
|-----------|-----------------------------------|---|
| HELP(?) | Show Command list | NONE |
| HELP(?) N | Show Command description | N= Command name |
| RRES | Request Current Output Resolution | NONE |
| SRES N1 | 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) |
| RINS | Request Current Input Resolution | 0(VGA60), 1(VGA72), 2(VGA75), 3(VGA85), 4(WXGA60), 5(WXGA75), 6(XGA60), 7(XGA70), 8(XGA75), 9(XGA85), 10(SXGA60), 11(SXGA75), 12(SVGA56), 13(SVGA60), 14(SVGA72), 15(SVGA75), 16(SVGA85), 17(DTV_480P60), 18(DTV_576P50), 19(DTV_480I60), 20(DTV_576I50), 21(HDTV_720P50), 22(HDTV_720P60), 23(HDTV_1080I50), 24(HDTV_1080I60), 25(HDTV_1080P24), 26(HDTV_1080P50), 27(HDTV_1080P60), 28(V848_480_60), 29(V852_480_60), 30(V854_480_60), 31(V1024_852_60), 32(V1024_1024_60), 33(V1280_800_60), |

| Command | Description | Parameter |
|------------|-------------------------------------|---|
| | | 34(V1280_960_60), 35(V1360_768_60), 36(V1366_768_60), 37(V1440_900_60), 38(V1400_1050_60), 39(V1360_1024_60), 40(V1600_900_60), 41(V1600_1200_60), 42(V1680_1050_60), 43(V1920_1200_60), 44(V2048_1080_24_1), 45(V2048_1080_24_2), 46(V2048_1080_60), 47(V2048_1152_1), 48(V2048_1152_2), 49(V2048_1152_3), 50(V3840_2160_24), 51(V3840_2160_25), 52(V3840_2160_30), 53(V4096_2160_24), 54(K_NO_SIGNAL), 55(K_NO_SUPPORT) |
| ROSDD | Request OSD Status | NONE |
| SOSDD N1 | Set OSD Status | N1 = (0 OFF) , 1 (ON) |
| ROSDH | Request OSD H Position | NONE |
| SOSDH N1 | Set OSD H Position | N1 = 0 – 20 (5) |
| ROSDV | Request OSD V Position | NONE |
| SOSDV N1 | Set OSD V Position | N1 = 0 – 20 (5) |
| ROSDT | Request OSD Display Timeout setting | NONE |
| SOSDT N1 | Set OSD Display Timeout in Second | N1 = 5 – 50 (50) |
| ROSDG | Request OSD Gain Correction | NONE |
| SOSDG N1 | Set OSD Gain Correction | N1 = 0 – 10 (2) |
| SOSDI | Set OSD Information Status | NONE |
| SOSDR | OSD reset to factory default "off" | NONE |
| RBRI N1 | Request Brightness | N1= 1 – 4 (2) |
| SBRI N1 N2 | Set Channel N1 Brightness Value N2 | N1 = 1 – 4 N2 = 0 – 100 (50) |
| RCON N1 | Request Channel N1 Contrast Value | N1 = 1 – 4 |
| SCON N1 N2 | Set Channel N1 Contrast Value N2 | N1 = 1 – 4 N2 = 0 – 100 (50) |
| RSAT N1 | Request Channel N1 Saturation Value | N1 = 1 – 4 |
| SSAT N1 N2 | Set Channel N1 Contrast Value N2 | N1 = 1 – 4 N2 = 0 – 100 (50) |

| Command | Description | Parameter |
|--------------|---|--|
| RHUE N1 | Request Channel N1 Hue Value | N1 = 1 – 4 |
| SHUE N1 N2 | Set Channel N1 Contrast Value N2 | N1 = 1 – 4 N2 = 0 – 100 (50) |
| SIMRE N1 | Reset Picture Setting to default | N1 = 1 (Brightness) 2 (Contrast) 3 (Saturation) 4 (Hue) |
| SPIRE | Reset All Picture Setting on all Channels | NONE |
| RIPM | Request IP Mode | NONE |
| SIPM N1 | Set IP Mode | N1 = 0 (Static) , 1 (DHCP) |
| RIPA | Request IP Address | |
| SIPA X.X.X.X | Set Static IP Address | X = 0 – 255 (192.168.1.50) |
| RMAA | Request Mask Address | NONE |
| SMAA X.X.X.X | Set Mask Address | X = 0 – 255 (255.255.255.0) |
| RGAA | Request Gateway Address | NONE |
| SGAA X.X.X.X | Set Gateway Address | X = 0 – 255 (192.168.1.50) |
| RETIME | Request Ethernet Timeout | NONE |
| SETIME N1 | Set Ethernet Timeout | N1 = 0 (OFF) , 1 (10min), 2 (20min), 3 (30min), 4 (40min), 5 (50min), 6 (60min) |
| RLINK | Request Ethernet Address | IP000~255 IP010~255 IP020~255 IP030~255 MA000~255 MA010~255 MA020~255 MA030~255 GA000~255 GA010~255 GA020~255 GA030~255 |
| RMUTE | Request Mute Status | N1 = 0 (UNMUTE), 1 (MUTE) |
| SMUTE N1 | Set Mute Status | |
| RPOW | Request Power Status | N1 = 0=Power Off, 1=Power On |
| SPOW N1 | Set Power Status | |
| RVER | Request Version | NONE |
| SREL | Set Re-Link | NONE |
| SDEF | Reset to factory default | NONE |
| RMN | Request TV Wall Format | NONE |
| SMN N1 N2 | Set TV Wall Output | N1 = 1 – 15 (Row), |

| Command | Description | Parameter |
|----------|---|---|
| | Format | N2 = 1 – 15 (Column) |
| RBH | Request H Bezel Value | N1 = 0 – 255 |
| SBH N1 | Set H Bezel Value | |
| RBV | Request V Bezel Value | N1 = 0 – 255 |
| SBV N1 | Set V Bezel Value | |
| RBEZ | Request Bezel Status | N1 = 0 (Bezel Off), 1 (Bezel on) |
| SBEZ N1 | Set Bezel Status | |
| RMDN | Request Device's ID No. | N1 = 0 – 255 |
| SMDN N1 | Set Device's ID No. to N1 | |
| SWDE | Reset TV Wall Value | NONE |
| SHOT N1 | Fast Setting TV Wall format from hot key number | 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), 3(2x1), 14(1x3), 15(3x1), 6(1x4), 17(4x1), 18(2x4), 9(3x5), 20(5x4), 21(5x3), 2(6x2), 23(6x3) |
| SFAVE N1 | Save Favourite Setting | N1 = 1 – 5 |
| RFAVE N1 | Recall Favourite Setting | |

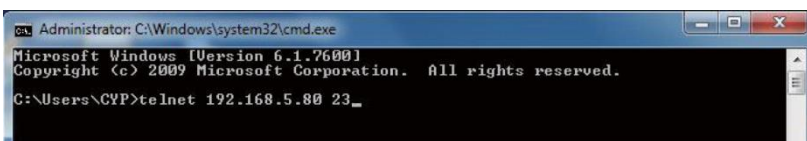
Telnet Control

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" (default address is 192.168.1.50) 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.

Input/Output Resolutions

Input and Output resolutions supported by the Scaler:

| Input Resolutions | Output Resolutions |
|------------------------|--------------------|
| 640x480@60/72/75/85 | 640x480 |
| 1280x768@60/75 | 480p@60 (720x480) |
| 1024x768@60/70/75/85 | 576p@50 (720x576) |
| 1280x1024@60/75 | 800x600 |
| 800x600@56/60/72/75/85 | 848x480 |
| 480p@60 | 1024x768 |
| 576p@50 | 720p@50 (1280x720) |
| 480i@60 | 720p@60 (1280x720) |
| 576i@50 | 1280x768 |
| 720p@50/60 | 1280x800 |
| 1080i@50/60 | 1280x960 |
| 1080p@24/50/60 | 1280x1024 |
| 848x480@60 | 1360x768 |
| 852x480@60 | 1366x768 |
| 854x480@60 | 1400x1050 |
| 1024x852@60 | 1440x900 |
| 1024x1024@60 | 1600x900 (RB) |
| 1280x800@60 | 1600x1200 |
| 1280x960@60 | 1680x1050 |
| 1360x768@60 | 1080p@50/60 |
| 1366x768@60 | 1920x1200 (RB) |
| 1440x900@60 | 2048x1152 (RB) |
| 1400x1050@60 | 1080i@50/60 |
| 1360x1024@60 | 1080p@24/25/30 |
| 1600x900@60 | |
| 1600x1200@60 | |
| 1680x1050@60 | |
| 1920x1200@60 | |
| 2048x1080@24 | |
| 2048x1152@60 | |
| 3840x2160@24/25/30 | |
| 4096x2160@24 | |

CE/FCC Statement

CE Certification

This equipment complies with the requirements relating to Electromagnetic Compatibility Standards. 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.

Hersteller / Manufacturer (EU):

LINDY-Elektronik GmbH
Markircher Str. 20
68229 Mannheim
GERMANY
Email: info@lindy.com , T: +49 (0)621 470050

LINDY Electronics Ltd
Sadler Forster Way
Stockton-on-Tees, TS17 9JY
United Kingdom
postmaster@lindy.co.uk , T: +44 (0)1642 754000

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

Rücknahme Elektroschrott und Batterie-Entsorgung

Die Europäische Union hat mit der WEEE Richtlinie Regelungen für die Verschrottung und das Recycling von Elektro- und Elektronikprodukten geschaffen. Diese wurden im Elektro- und Elektronikgerätegesetz – ElektroG in deutsches Recht umgesetzt. Das Entsorgen von Elektro- und Elektronikgeräten über die Hausmülltonne ist verboten! Diese Geräte müssen den Sammel- und Rückgabesystemen zugeführt werden! Dort werden sie kostenlos entgegen genommen. Die Kosten für den weiteren Recyclingprozess übernehmen die Gerätehersteller.

LINDY bietet deutschen Endverbrauchern ein kostenloses Rücknahmesystem an, beachten Sie bitte, dass Batterien und Akkus den Produkten vor der Rückgabe an das Rücknahmesystem entnommen werden müssen und über die Sammel- und Rückgabesysteme für Batterien separat entsorgt werden müssen. Ausführliche Informationen zu diesen Themen finden Sie stets aktuell auf der LINDY Webseite im Fußbereich.

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 38135

2nd Edition, August 2017

lindy.com



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