

# LINDY®

## CONNECTION PERFECTION

### 4K HDMI 1:4 Video Wall Controller Scaler

*User Manual*

*English*



No. 38135

[www.lindy.com](http://www.lindy.com)

CE

FCC

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

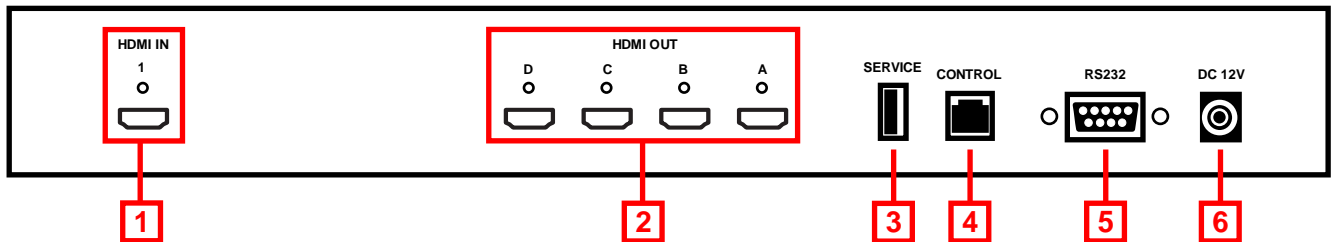


## 1. Power

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

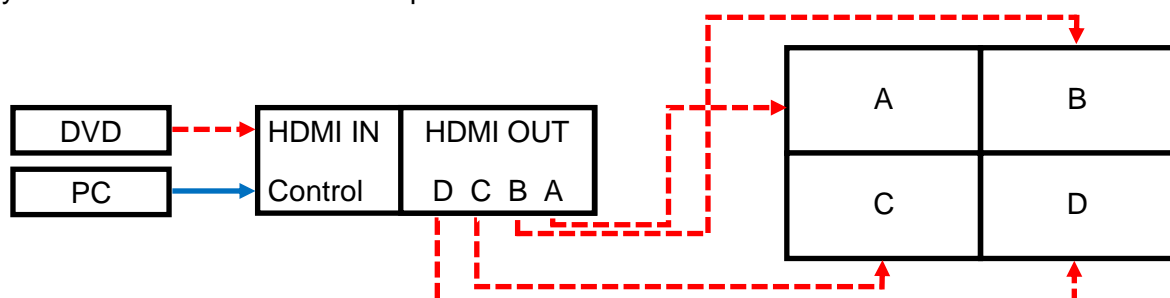
## 6. DC 12V

Connect the supplied 12V power supply here

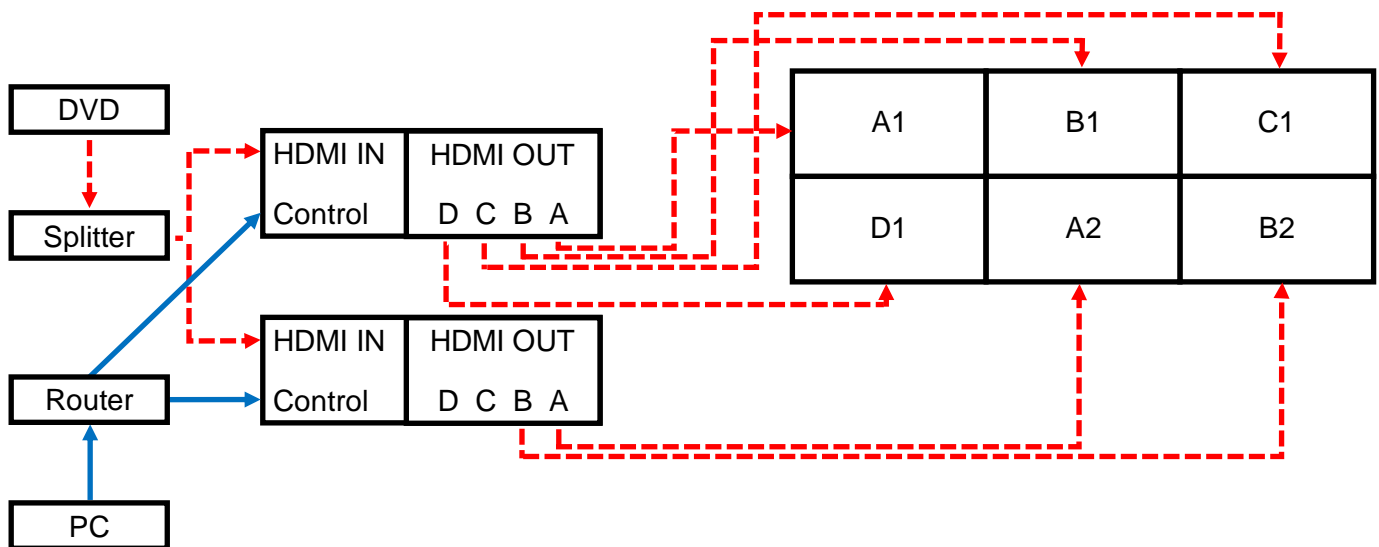
## Basic Operation

**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.



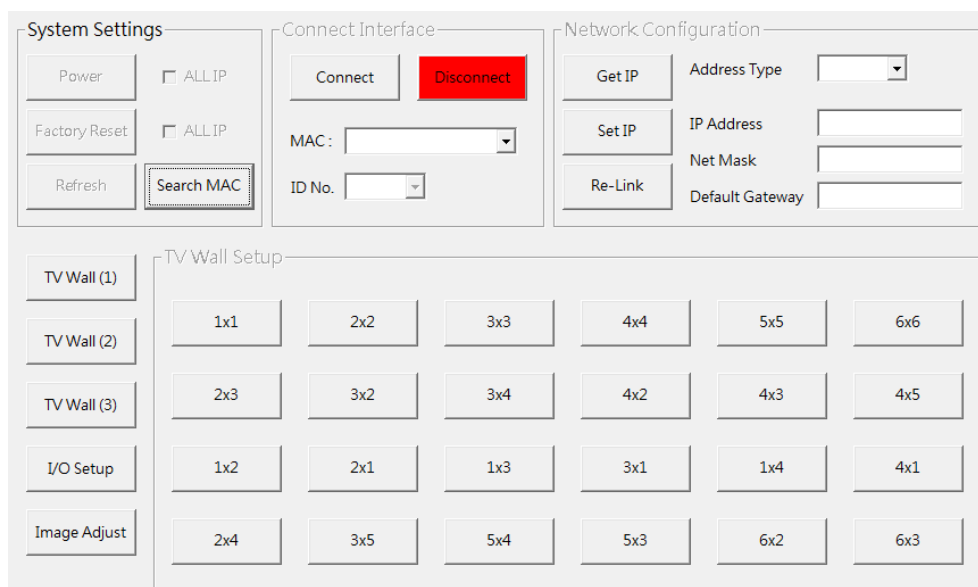
This cascading can be repeated to allow a maximum of 225 displays (15x15) to be connected. To configure the Video Wall further please refer to the following Configuration section of this manual.

## Configuration

To begin the configuration process please download the software application from [www.lindy.com](http://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

The screenshot shows the 'TV Wall Setup' section of the configuration interface. On the left, there is a sidebar with tabs: 'TV Wall (1)', 'TV Wall (2)', 'TV Wall (3)', 'I/O Setup', and 'Image Adjust'. The 'TV Wall (1)' tab is selected and highlighted with a red box. The main area displays a grid of layout options ranging from 1x1 to 6x6. A red box encloses the entire grid, and a red number '1' points to the '3x4' option.

## TV Wall (1)

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

The screenshot shows the 'TV Wall Setup' section with the 'TV Wall (2)' tab selected and highlighted with a red box. The main area contains three configuration sections, each highlighted with a red box and numbered:

- Section 1:** 'Manual setup' with 'Row' and 'Column' drop-down menus set to '1~15', a 'Send' button, and a red number '1'.
- Section 2:** 'Bezel Correction' with 'Horizon' and 'Vertical' drop-down menus set to '10', a 'Send' button, and a red number '2'.
- Section 3:** 'Bezel Correction' with radio buttons for 'ON' and 'OFF' (selected), an 'ALL IP' checkbox, and a 'TV Wall Reset' button, with a red number '3'.

## 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.



The screenshot displays the web interface of a device with the following sections:

- System Settings:** Includes buttons for Power ON, Factory Reset, Refresh, and Search MAC, along with checkboxes for ALL IP.
- Connect Interface:** Features Connect and Disconnect buttons, a MAC address field (F8:22:85:00:03:28), and an ID No. dropdown (0).
- Network Configuration:** Includes Get IP, Set IP, and Re-Link buttons, along with fields for Address Type (DHCP), IP Address (192.168.005.148), Net Mask (255.255.255.000), and Default Gateway (192.168.005.254).
- Image Adjust:** This section is highlighted with a red box. It contains:
  - Buttons for TV Wall (1), TV Wall (2), TV Wall (3), and I/O Setup.
  - A red box labeled '1' highlights the 'ALL IP' checkboxes for each output (A, B, C, D) and the 'ALL IP' checkbox for the entire section.
  - A red box labeled '2' highlights the 'Refresh' button.
  - A red box labeled '3' highlights the 'Picture Reset' button.
  - Adjustment sliders for Brightness, Contrast, Saturation, and Hue for each output (A, B, C, D), each with a 'Reset' button.

### Image Adjustment

- 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.
- 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.
- 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), <b>28(Native)</b>
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 = <b>(0 OFF)</b> , 1 (ON)
ROSDH	Request OSD H Position	NONE
SOSDH N1	Set OSD H Position	N1 = 0 – 20 <b>(5)</b>
ROSDV	Request OSD V Position	NONE
SOSDV N1	Set OSD V Position	N1 = 0 – 20 <b>(5)</b>
ROSDT	Request OSD Display Timeout setting	NONE
SOSDT N1	Set OSD Display Timeout in Second	N1 = 5 – 50 <b>(50)</b>
ROSDG	Request OSD Gain Correction	NONE
SOSDG N1	Set OSD Gain Correction	N1 = 0 – 10 <b>(2)</b>
SOSDI	Set OSD Information Status	NONE
SOSDR	OSD reset to factory default "off"	NONE
RBRI N1	Request Brightness	N1= 0 – 10 <b>(2)</b>
SBRI N1 N2	Set Channel N1 Brightness Value N2	N1 = 1 – 4 N2 = 0 – 100 <b>(50)</b>
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 <b>(50)</b>
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 <b>(50)</b>

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 <b>(50)</b>
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 = <b>0 (Static)</b> , 1 (DHCP)
RIPA	Request IP Address	
SIPA	Set IP Address	IP ADDR : IPA3.IPA2.IPA1. IPA0
0~255.		
0~255.		
0~255.		
0~255		
RMAA	Request Mask Address	NONE
SMAA X.X.X.X	Set Mask Address	X = 0 – 255
RGAA	Request Gateway Address	NONE
SGAA X.X.X.X	Set Gateway Address	X = 0 – 255
RETIME	Request Ethernet Timeout	NONE
SETIME N1	Set Ethernet Timeout	N1 = <b>0 (OFF)</b> , 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	NONW
SDEF	Reset to factory default	NONE
RMN	Request TV Wall Format	NONE
SMN N1 N2	Set TV Wall Output Format	N1 = 1 – 15 (Row), N2 = 1 – 15 (Column)

Command	Description	Parameter
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	Set Hot Setting	N1 = <b>0(1x1)</b> , 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	

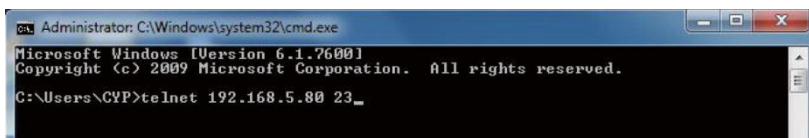
## Telnet Control

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" 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	

[illegible]

Output resolutions supported by the Scaler when the Input resolution is 4096 x 2160:

[illegible]







## **CE/FCC Statement**

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### ***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.

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## **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.

## **LINDY Herstelleradresse (EU) / LINDY Contact Address**

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## Recycling Information

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### 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 Richtlinie 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 38135

1<sup>st</sup> Edition, October 2015

[www.lindy.com](http://www.lindy.com)



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