



HDMI Pattern Generator

User Guide

English



LINDY No. 32627

www.lindy.com

Introduction

Thank you for purchasing the LINDY HDMI Pattern Generator. This compact desktop unit allows you to test a range of different display devices such as LCD, Plasma TVs Projectors and Monitors that support HDMI inputs. The high performance HDMI output supports a multitude of test patterns, screen resolutions and diagnostic functions to assist in the testing and calibration of your display devices.

Features

- Compact metal desktop design
- HDMI v 1.2, HDCP 1.1 and DVI 1.0 compliant
- HDMI frequency bandwidth: 1.65Gbps (Single link)
- Supports HDCP signal verification and authentication
- On screen display menu operation
- Remote control operation
- Output connector: HDMI female
- Output format: PC and HDTV screen resolutions
VGA 60Hz → SVGA 60Hz → XGA 60Hz → SXGA 60Hz → UXGA 60Hz →
WUXGA 60Hz → 576p 50Hz → 480p 60Hz → 720p 50Hz → 720p 60Hz →
1080i 50Hz → 1080i 60Hz → 1080p 50Hz → 1080p 60Hz
- Audio input: Optical TosLink
- Dimensions: 125 x 123 x 30mm (WxDxH)
- Weight: 334g

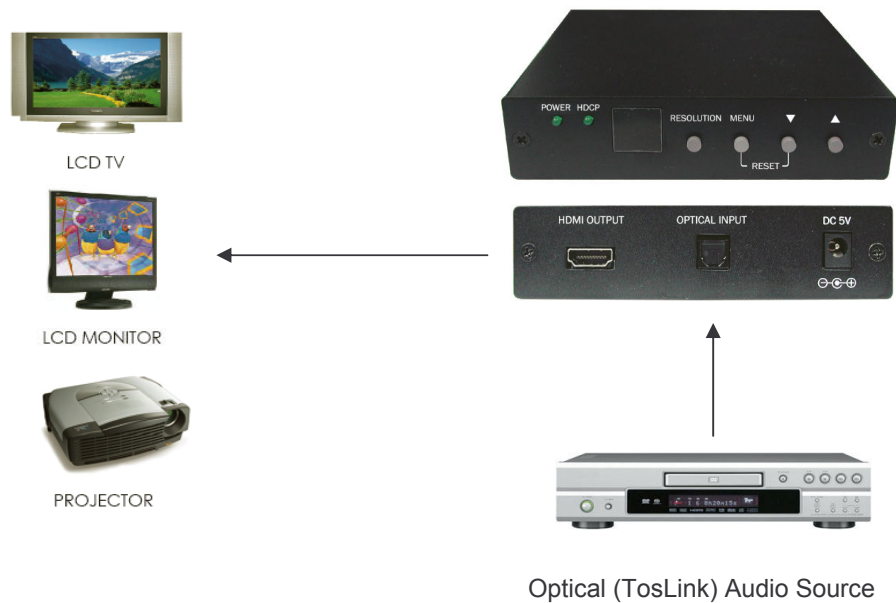
Package Contents

- HDMI Pattern Generator
- Remote control (Includes CR2025 3v Lithium Battery)
- Multi-country switching power adapter: 100~240V AC 50-60Hz / +5V DC / 2.6 Amp centre positive, includes Euro, US, UK & Australian adapters
- This user guide



Installation

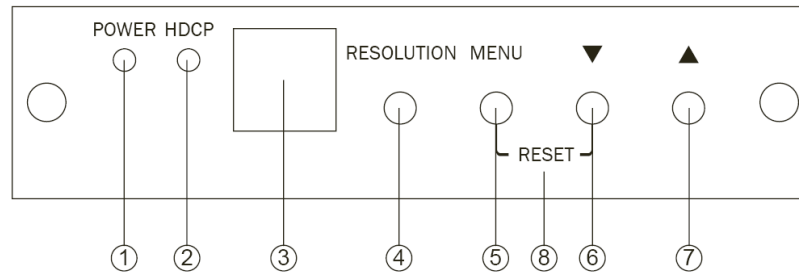
The LINDY HDMI Pattern generator can be connected to a variety of HDMI and DVI-D compatible display devices. Simply connect an HDMI or HDMI to DVI-D cable to the unit and your HDMI or DVI-D display device. You may also wish to connect an external audio source using the Optical (TosLink) audio input. The diagram below shows how to connect the HDMI Pattern Generator to your PC Monitor, HDTV or Projector.



Power up Sequence

Ensure all equipment is turned off before connecting the pattern generator. Once all cables are connected, apply power to the display device, then apply power to the pattern generator and select the required resolution and test pattern.

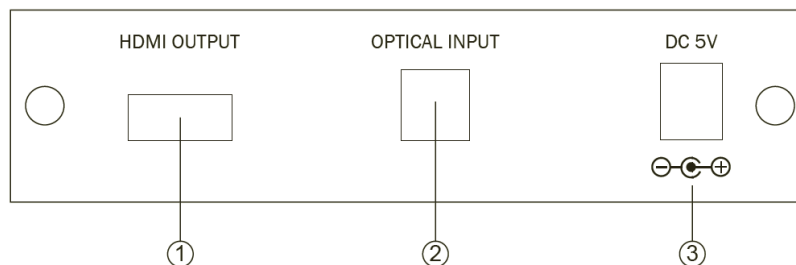
Front Panel Controls and Functions



1. Power On/Off indicator
2. HDCP activity indicator (Press the HDCP button on the remote to turn On/Off)
3. Infra Red receiver
4. Resolution selection (Press this button to cycle through the screen resolutions)
 VGA 60Hz → SVGA 60Hz → XGA 60Hz → SXGA 60Hz → UXGA 60Hz →
 WUXGA 60Hz → 576p 50Hz → 480p 60Hz → 720p 50Hz → 720p 60Hz →
 1080i 50Hz → 1080i 60Hz → 1080p 50Hz → 1080p 60Hz
5. Menu (Enter) press to view the OSD menu or press to enter the functions
6. ▼ Press this button to move the on screen cursor down or to select the next pattern
7. ▲ Press this button to move the on screen cursor up or to select the previous pattern
8. RESET: Press both buttons to reset the unit back to default settings

Rear Panel Connectors

The rear panel of the HDMI Pattern Generator has the HDMI output connector, an optical (TosLink) audio input and the DC jack socket. Please ensure that you only use the power supply provided with the unit. Damage may result if any other power supply is used.

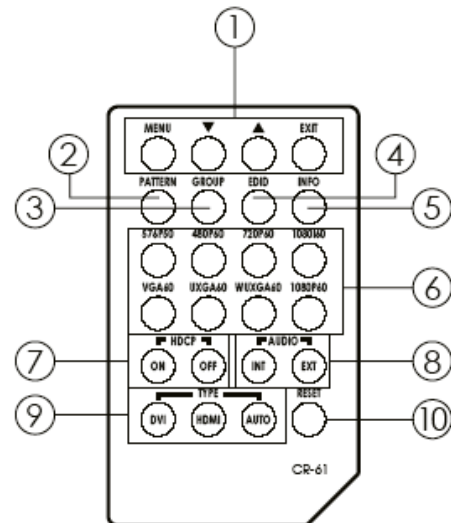


1. HDMI output connector
2. Optical audio input
3. DC 5V power input

Overview of Remote Control Functions

The LINDY HDMI pattern generator can be easily controlled using either the front panel buttons or with the supplied remote control. Push buttons select and control all aspects of the output display, resolution and available test patterns. Refer to the following list of button functions to control the pattern generator and display a wide variety of output patterns to assist in the testing and calibration of your display devices.

1. OSD menu navigation keys
2. Test pattern selection
3. Selects a group of patterns
4. Displays EDID information
5. Displays system information
6. Hot keys select the following output resolutions
VGA 60Hz, UXGA 60Hz, WUXGA 60Hz
576p 50Hz, 480p 60Hz, 720p 60Hz
1080i 60Hz, 1080p 60Hz
7. HDCP On/Off
8. Selects internal or external audio source
9. Selects output signal type DVI, HDMI or Auto Detect
10. Reset button (Resets the unit to factory defaults)



Using the On Screen Menu

Patterns: Press the ▲/▼ buttons to move the cursor and then press **[Menu]** to enter the pattern mode. There are 8 different pattern groups. Move the cursor and press **[Menu]** to enter each pattern group. Press the [↑/↓] buttons to select the previous/next pattern.

MAIN MENU

PATTERN
AUDIO SOURCE
HDCP SETUP
EDID ANALYSIS
RESOLUTION
SIGNAL TYPE
INFORMATION
EXIT

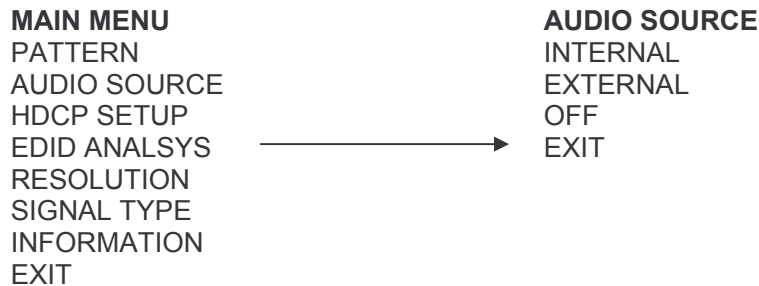
PATTERN

COLOUR BARS
GREY SCALE
PURITY
BLACK/WHITE LINE
GRADIENT
GRID
HDCP PATTERN
OTHERS
EXIT

Press **[Exit/Menu]** to return to the previous page. Or press **[Exit/Menu]** twice to return to the main menu.

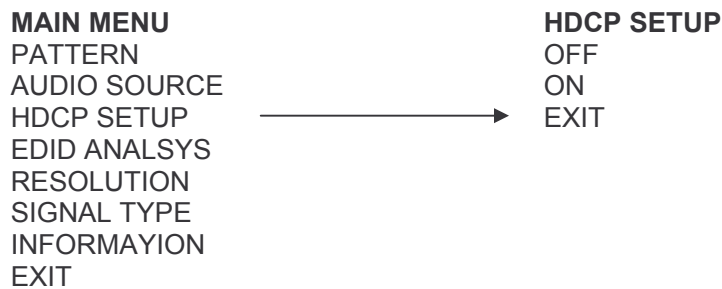
Using the On Screen Menu

Audio Source: Press the ▲/▼ buttons to move the cursor and then press **[Menu]** to enter the audio source. After the audio source has been selected press **[Menu]** to confirm the selection.



Press **[Exit/Menu]** to return to the main menu.

HDCP Setup: Press the ▲/▼ buttons to move the cursor and then press **[Menu]** to enter the DHCP setup. After the HDCP setup has been selected press **[Menu]** to confirm the selection.



Press **[Exit/Menu]** to return to the main menu.

Using the On Screen Menu

EDID Analysis: Press the ▲/▼ buttons to move the cursor and then press **[Menu]** to enter the EDID analysis function. After entering the analysis sub menu move the cursor and press **[Menu]** to view the EDID information.

MAIN MENU

PATTERN
AUDIO SOURCE
HDCP SETUP
EDID ANALSYS
RESOLUTION
SIGNAL TYPE
INFORMATION
EXIT



EDID ANALYSIS

BK0. Binary List
BK0. Vendor/Product ID
BK0. Basic Display Parameters
BK0. Colour Characteristics
BK0. Established Timings
BK0. Standard Timings
BK1. Binary List
BK1. DTV Monitor Support
BK1. Video Data Block
BK1. Audio Data Block
BK1. Other Data Block
BK1. Detail Timings
EXIT

Press **[Exit/Menu]** to return to the previous page. Or press **[Exit/Menu]** twice to return to the main menu.

Resolution: Press the ▲/▼ buttons to move the cursor and then press **[Menu]** to enter the resolution setup. After the resolution setup has been selected press **[Menu]** to confirm the selection.

MAIN MENU

PATTERN
AUDIO SOURCE
HDCP SETUP
EDID ANALSYS
RESOLUTION
SIGNAL TYPE
INFORMATION
EXIT

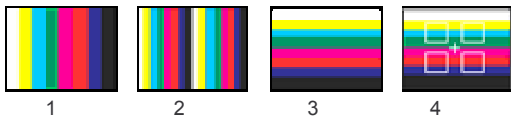
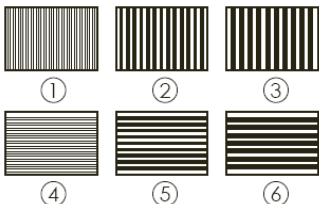


RESOLUTION

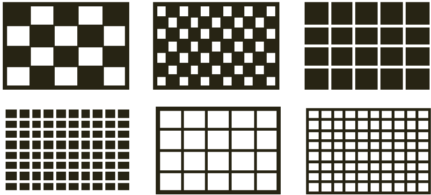
PC Mode: VGA 60Hz → SVGA 60Hz → XGA 60Hz →
SXGA 60Hz → UXGA 60Hz → WUXG A60
HD Mode: 576p 50Hz → 480p 60Hz → 720p 50Hz →
720p 60Hz → 1080i 50Hz → 1080i 60Hz →
1080p 50Hz → 1080p 60Hz
EXIT

Press **[Exit/Menu]** to return to the main menu.

Available Test patterns (8 Groups 36 Patterns)

Group	Pattern	Comment
Colour Bars		Vertical and Horizontal Colour Bars
	The Colour Bar test patterns provide a good overall check on Colour performance. This includes, checks on burst keying, subcarrier regeneration, RGB amplifiers, chrominance/luminance and saturation. Please note that patterns 3, 4 are not available when displaying 1080i 50/60Hz.	
Grey Scale		Step 8 / 16 / 32
	The Grey Scale patterns are used to highlight any linearity problems associated with the video amplifier or Grey Scale settings. Non-linearity issues mainly result in a compression of the white level.	
Purity		White, Blue, Red, Magenta, Green, Cyan, Yellow, Black
	This group of patterns displays solid colours and checks overall Colour performance. The Red and Green patterns are most frequently used. The presence of any other Colour would indicate that the Colour purity needs adjustment.	
Black/White Lines		
	Vertical and Horizontal test patterns provide a quick check of the Vertical and Horizontal bandwidth as well as the video amplifier, colour temperature and the phase behaviour of the video signal. Please note that patterns 4, 5, and 6 are not available when displaying 1080i 50/60Hz.	

Available Test Patterns

Group	Pattern	Comment
Gradient		Black-White, Red-White, Green-White, Blue-White
	Colour Gradients check decoders, in particular de-emphasis and bell filters.	
Grid		Checker Board, Grid, Inverse Grid
	Grid and Checker Board patterns are used for checking alignment, and corner convergence. Please note that these patterns are not available when displaying 1080i 50/60Hz.	
HDCP		HDCP and link integrity test
	The HDCP function analyses and tests the DVI/HDMI transmitter and receiver communications link for correct authentication. The results are displayed on screen.	
Other Patterns		H, Dot, Cross and Moving Square Patterns
	This group of patterns are useful for checking alignment, convergence and any geometric distortion. The moving square checks digital video processing and A to D conversion.	

CE, FCC & WEEE Statements

CE Statement

This device complies with the European Regulations for Electromagnetic Compatibility (EMC) of the European Union and it is equipped with the CE mark. This unit has to be used with high quality shielded connection cables. Only if such high quality shielded cables are used can you be sure that the EMC compatibility is not adversely influenced.

FCC Statement

Shielded cables must be used with this equipment to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

FCC Warning

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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced technician for help

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.



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

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 permitted 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 umfassende Regelungen für die Verschrottung und das Recycling von Elektro- und Elektronikprodukten geschaffen. Diese wurden von der Bundesregierung im Elektro- und Elektronikgerätegesetz – ElektroG in deutsches Recht umgesetzt.

Dieses Gesetz verbietet vom 24. März 2006 an 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.



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