

SIM2 BV International Srl

# NERO4 UHD



## User Guide





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# 1 Important information

## About this User Guide

This User Guide describes how to set up and operate the following projectors:

- NERO4

Except where otherwise indicated, the information in this guide applies to all the projectors listed above, that will be referred to as “NERO4”.

Information contained in this User Guide may be updated from time to time due to product improvements and customer feedback. Visit [www.sim2.com](http://www.sim2.com) to find the latest version of this document.

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## Safety



To reduce the risk of electrocution, disconnect the power cord on the rear panel before removing the glass cover or side panels of the projector. For technical service refer to trained personnel authorized by the manufacturer.

### Read this manual

Read all chapters of this manual carefully before switching on the projector. This manual provides basic instructions for operating the NERO4 projector. Installation, preliminary adjustments and procedures that necessitate the removal of the glass cover and the contact with electrical components, must be performed by authorized trained technicians. To ensure safe operation and long term reliability use only the power cord supplied by the manufacturer. Observe all warnings and precautions. Keep the manual for future consultation.

### Do not touch internal parts of the projector

Inside the housing there are electrical parts carrying dangerously high voltages and parts operating at high temperature. Never open the housing. Entrust all servicing and repair work to a SIM2 Authorized Service Center. Opening the housing voids the warranty.

### Disconnect the projector from the power supply

The device that disconnects the projector from the electrical outlet, is the power plug. Ensure that the power cord plugs and the electrical outlets are easily accessible during installation operations. Pull the plug, not the cord, to disconnect the projector from

the electrical outlet. Use only the specified power supply. Connect the projector to the electrical supply with rated voltage of between 100-240 V AC, 50/60 Hz and equipped with a protective earth connection. If you are not sure of your domestic electrical outlet, contact an electrician. Take care to avoid overloading the power socket and any extension leads.

### **Switching the projector off**

Pay attention to the switch off procedure for the projector. The projector must always be brought back to the standby state to allow the projector to carry out the cooling procedure. Should this not happen, for example due to a power cut, the projector may enter a state of protection that leads to switch-on being blocked. This block will last until the internal components of the projector have completely cooled down. Allow 90 seconds for the projector to cool down.

### **Be careful with cables**

Make sure cables are routed so that people are not impeded or become a trip hazard. Keep all cables away from children. Install the projector as close to the wall socket as possible. Avoid stepping on power cords, make certain they do not become tangled, and never jerk or tug them; do not expose them to sources of heat, and make sure they do not become knotted or crimped. If the power cords become damaged, stop using the projector and request the assistance of an authorized technician.

### **Disconnect the projector from the electrical outlet during storms and when not in use**

To prevent damage from lightning strikes in the vicinity, disconnect the projector during storms or when the projector is going to be left unused for a long time.

### **Avoid contact with liquids and exposure to damp**

Do not use the projector near water (sinks, tubs and so on); do not place objects containing liquids on or near the projector and do not expose it to rain, humidity, drops of water or sprays; do not use water or liquid detergent to clean it.

### **Place the projector on a stable surface**

Place the projector on a stable surface or use a suitable ceiling mounting bracket. Never place the projector on its side or rear, on the lens or top panel or rear.

### **Do not allow the projector to overheat**

To prevent overheating, allow a free space of at least 0.20 m (5 in) on the rear, on the top, and on the right and left sides of the projector. Do not obstruct the ventilation slots. Do not place the projector near heat sources such as heaters, radiators or other devices (including amplifiers) that generate heat. Do not place the projector in an area where there is insufficient space (shelving units, bookshelves and so on) and in general avoid placing it in poorly ventilated areas as this may prevent sufficient cooling and significantly reduce lamp life.

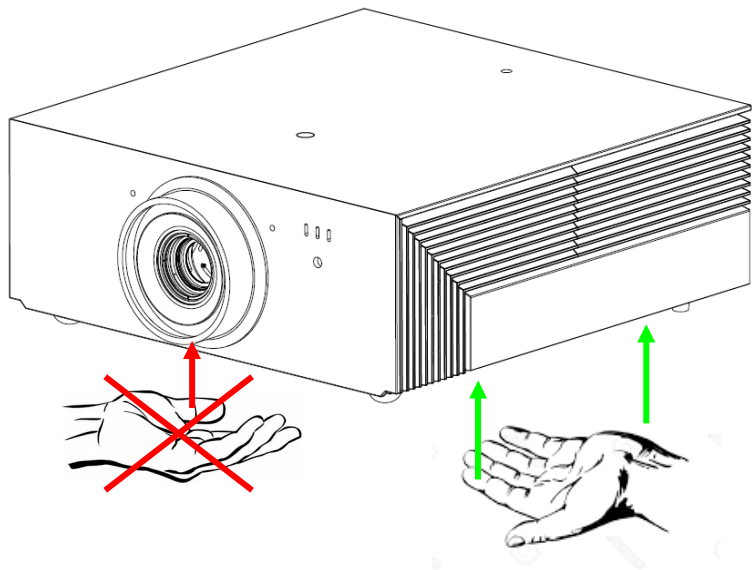
### **Take special care regarding movement of the lens**

Do not place objects in the slots on the side of the lens and also ensure that vertical lens movements are not impeded by external objects.

Do not hold the projector by its lens.

## NERO4 handling and transportation

Do not pickup the projector by its lens.



### Do not insert objects through the openings in the projector

Make sure that no objects are inserted inside the projector. If this should occur, disconnect the projector from the power supply immediately and call an authorized technician.

### Power saving

We advise disconnecting the projector from the power supply when not in use. In this way you will achieve considerable power savings while at the same time protecting internal electrical parts from wear.

### Do not use under the following conditions:

- In extremely hot, cold or humid environments
  - Ensure that the ambient room temperature is within 5°C ~ 35°C
  - Relative humidity is 10% ~ 85%
- In areas susceptible to excessive dust and dirt.
- Near any equipment generating a strong magnetic field.
- In direct sunlight.

## Environment

This product contains materials derived from natural resources during its manufacture. It may contain materials that constitute a health and environmental hazard. To prevent harmful materials from being released into the environment and to promote

the use of natural materials, SIM2 provides the following information regarding the disposal and recycling of the product.

Waste electrical and electronic materials (WEEE) should never be disposed of in normal urban waste disposal facilities.



The label on the product, shown here, indicating a canceled garbage can, is intended to remind you that the product requires special handling at the end of its service life. Materials such as glass, plastic and some chemical compounds are recoverable and can be recycled for reuse.

Observe the following instructions:

- When you no longer wish to use your electrical and electronic equipment, take it to your local waste disposal facility for recycling.
- You may return your old equipment to your SIM2 Authorized Dealer free of charge when you buy a new product that is equivalent or has the same functions as the old one. Contact SIM2 to find your local dealer.
- If you need more information regarding recycling, reuse and product exchanges, contact SIM2 customer service.

Lastly we suggest further measures to safeguard the environment, such as recycling of internal and external packaging (including that used for shipping) in which the product was delivered. With your help, we can reduce the amount of environmental resources required to make electric and electronic equipment, reduce the use of waste tips for used equipment and, in general, improve our quality of life by making sure that hazardous materials are correctly scrapped. Incorrect treatment of the product at the end of its service life and failure to follow the above disposal instructions are punishable under local legislation.

## Notice

The projector has been subjected to exhaustive operating tests by SIM2 to guarantee the highest quality. The projector light source life should thus initially be around 30-60 hours. In addition to the customary checks, the Quality Control department also runs additional statistical tests before shipment. In such cases, the packaging may show signs of having been opened, and the hours of light source operation may prove to be higher than those normally shown when only standard tests are performed.

As the optical system of the NERO4 is extremely compact and has the purpose of developing very high brightness and contrast, it is possible that a small quantity of light is visible outside of the projection area and will vary depending the zoom and shift setup. This characteristic of the optical system is to be deemed as normal. In order to reduce this effect SIM2 recommends that the area surrounding the projection screen is as dark as possible.

## 2 Introduction

- DLP Technology for a long life, 1 chip DMD DLP®
- 4K 8.3Million pixels UHD Resolution
- New, high precision telecentric optical path
- High Brightness: up to 5000 Ansi Lumens
- Adjustable iris with memory

The all-new NERO4 projector delivers classleading picture quality and graphic resolution through the partnership of the latest 4K UHD DLP® chipset from Texas Instruments, super high-precision and resolution optics and SIM2's advanced video processing technology, for a lucid and colorful viewing experience.

DLP® from Texas Instruments is the choice of technology for long lasting quality and conveys extraordinary image quality that brings out the smallest details .

A new high-power 450W lamp enables NERO4 to provide up to 5000 ANSI-lumens on-screen. In order to obtain the best projected image accuracy, a delicate balance is required between the light engine, the DLP® chipset and the video processing electronics. Building on its heritage of high-end light engine design, SIM2 has invested heavily in the development of a high precision telecentric optical system. The pure-glass lens provides an unprecedented resolution to guarantee exceptional on-screen clarity. Special coatings have been applied to the optical components to further enhance image and color performance. Installation aids include fully motorized zoom and focus, plus optical lens shift to adjust the position of the image up to 75% vertically and 30% horizontally. To aid calibration, the NERO4 projector features SIM2's advanced Live Colors Calibration 2.0 software that allows professional calibration of all projection parameters such as complete adjustment of the primary, secondary and white point color coordinates.

NERO4's crystal-glass cabinet adds a design touch to suit any environment style.

Any NERO4 is factory adjusted to reach the HDTV REC709 standard in SIM2 premises: selecting Display Mode "Natural", Color Gamut "HDTV" and Color Temperature "D65". These setup reproduce, as close as possible, the image the way the movie director intended; colors, color temperature, brightness and gamma settings are all configured to standard reference levels. However, some fine tuning would be necessary to adapt NERO4 to your screen, environment and sources.

## System Components

Your NERO4 projector ships with the following items:

- 1 x backlit remote control unit (with two AAA/LR03 batteries)
  - 1 x AC power cord - 2 m (6.6 ft.) long
  - 1 x User Guide (this document)
  - Allen Screw (of 2.5mm or 0.0984 inch) for manual adjustments of optical shift H,V
- If any items are missing or damaged, contact your SIM2 Authorized Dealer as soon as possible. Keep the original packaging in case anything has to be shipped.



# 3 Overview

## Remote Control



1	Power Off
2	Power On
3	Brightness
4	Gamma
5	Contrast
6	Lens
7	Color Settings
8	Iris
9	F1
10	F2
11	F3
12	Aspect
13	Pure Engine
15	Display Mode
14,16,17,18,20	Arrows for Menu
19	Menu
21	Info
22	Light
23	Re-Sync
24	HDMI 1
25	HDMI 2
26	HDMI 3
27	DP
28	VGA/YPbPr

1	<b>Power Off</b>	Turn Off the projector
2	<b>Power On</b>	Turn On the projector
3	<b>Brightness</b>	Adjust the brightness of the image
4	<b>Gamma</b>	Set up gamma curve type
5	<b>Contrast</b>	Control the degree of difference between the lightest and darkest parts of the picture
6	<b>Lens</b>	Configure the lens settings
7	<b>Color Settings</b>	Configure the color settings
8	<b>Iris</b>	Adjust the lens iris
9	<b>F1</b>	Function button, assignable, default is AV Mute
10	<b>F2</b>	Function button, assignable, default is Image Freeze
11	<b>F3</b>	Function button, assignable, default is Trigger 12V B (on/off)
12	<b>Aspect</b>	Select the aspect ratio of the displayed image
13	<b>Pure Engine</b>	The PureEngine is a collection of advanced image processing technologies that enhances the quality of the displayed image.
15	<b>Display Mode</b>	Select a display mode for optimized settings for different applications
14,16,17,18,20	<b>Arrows for Menu</b>	Four directional select keys – use these menu arrows to select items or make adjustments to your selection
19	<b>Menu</b>	Display or exit the on-screen display menus for projector
21	<b>Info</b>	View the projector information
22	<b>Light</b>	Turn on the backlight in the remote control
23	<b>Re-Sync</b>	Automatically synchronizes the projector to the input source
24	<b>HDMI 1</b>	Choose source from HDMI 1 connector
25	<b>HDMI 2</b>	Choose source from HDMI 2 (UHD) connector
26	<b>HDMI 3</b>	Choose source from HDMI 3 connector
27	<b>DP</b>	Choose source from Display Port connector
24	<b>VGA/YPbPr</b>	Choose source from VGA connector (RGB or YPbPr)

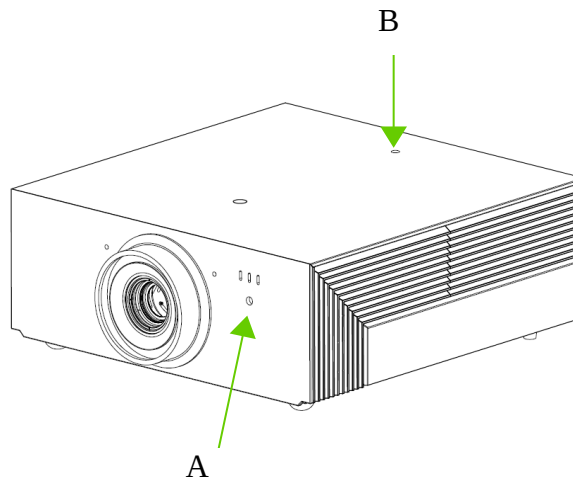
## Custom Remotes

You can use your own IR remote control to control your NERO4 projector.

- If you are using a remote control with learning capabilities, use the projector remote control to teach the commands to your remote.
- If you are using a programmable remote control, the setup software probably allows importing Hex codes. See “SIM2 NERO4 IR Control” document, for a list of all the projector codes.

## Operation

The NERO4 projector has two IR receivers (A , B) one on the front of the unit and one on the top. The operative range of the remote control is approximately 10 m (33 ft.) and  $\pm 15^\circ$ . Make sure that there is nothing obstructing the infrared beam between the remote control and the IR receiver you are pointing to. You can point the remote control towards the screen, as the IR beam is reflected by the screen towards front IR receiver of the projector. In this case the effective range of the remote control may be smaller than declared.



Item	Description
A	Front IR receiver
B	Top IR receiver

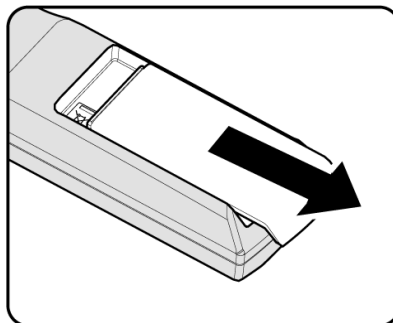
## Batteries

To install batteries in the remote control:

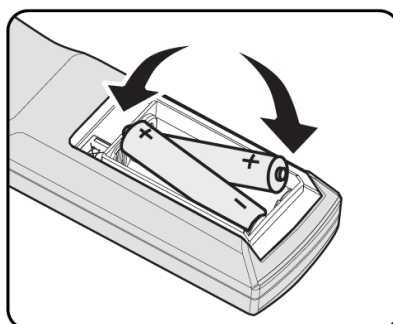
- Open the battery cover.
- Insert two AAA (LR03) batteries making sure the polarities match the + marks inside the battery compartment.
- Reinsert the cover.

Replace the batteries with new ones when the operating range of the remote control decreases. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to local regulations. Make sure you do not mix old and new batteries or different types of batteries.

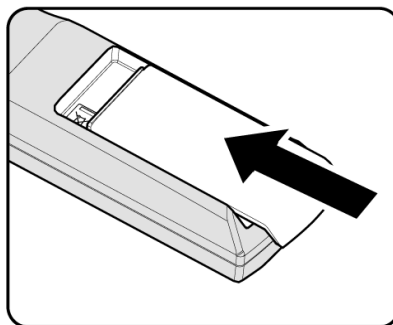
Remove the battery compartment cover by sliding the cover in the direction of the arrow.



Insert the batteries paying attention to the positive pole.

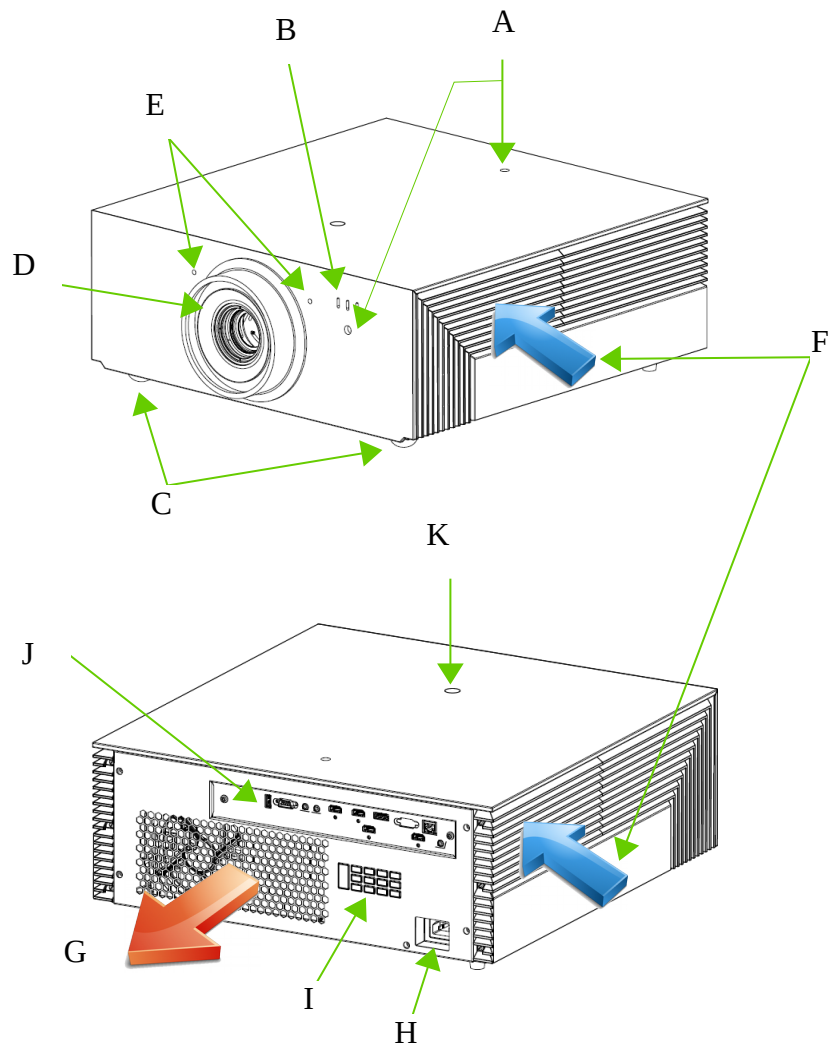


Reinsert the compartment cover by sliding the cover in the direction of the arrow.



**Warning:** If you will not use the remote control for a long time, remove the batteries to avoid battery leakage. When you dispose of the battery, you must obey the law in the relative area or country.

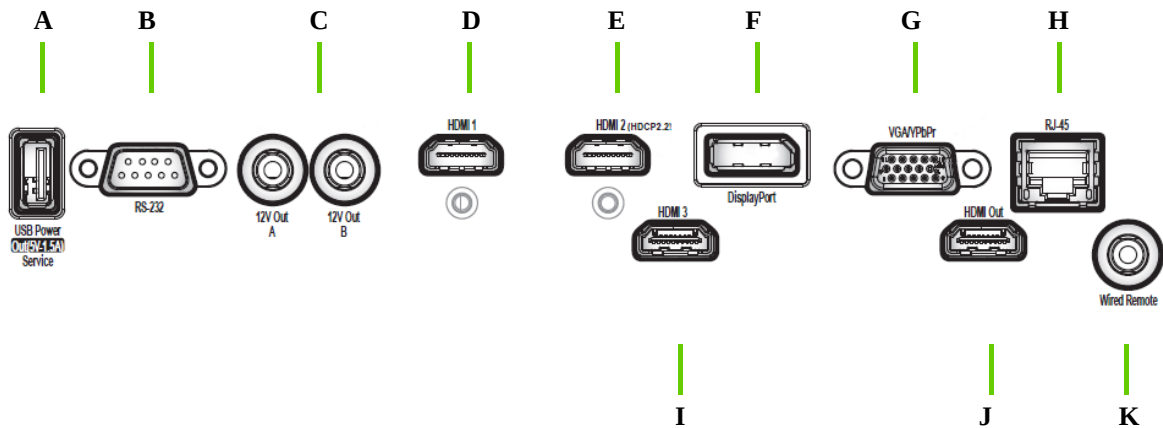
# Product overview



A	IR Receiver
B	LED Status Indicators
C	Tilt-Adjustment Feet
D	Lens
E	Optical Lens Shift
F	Ventilation Inlet

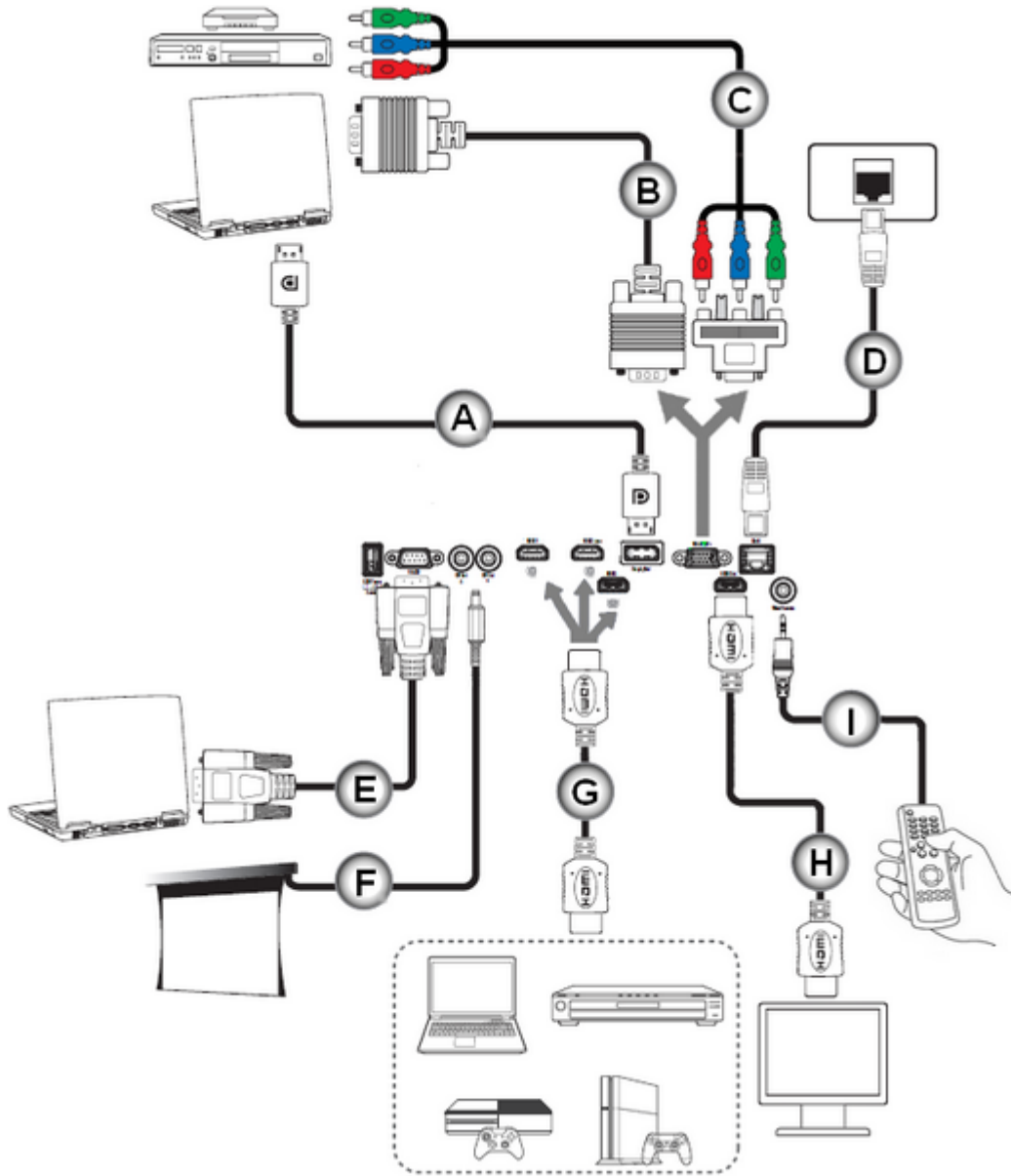
G	Ventilation Outlet
H	Power Socket
I	Keypad
J	Input / Output
K	Glass safety screw

## Connections



<b>Inputs</b>	D	HDMI 1	v1.4a, HDCP 1.4 FHD
	E	HDMI 2	v2.0, HDCP 2.2 UHD
	F	DisplayPort	v1.2
	G	VGA/YPbPr	VESA HD15. Support YpbPr.
	H	RJ45	Ethernet interface for commands and control. Support web control.
	I	HDMI 3	v1.4a, HDCP 1.4 FHD
	K	Wired RC	Wired IR receiver
<b>Control/Service</b>	A	USB	USB-A (Power out 5V-1,5A) for firmware upgrade.
	B	RS-232	RS232 (female D-Sub 9-pin) port for serial commands and firmware upgrade.
<b>Outputs</b>	C	12V TRIG A	12 V 150 mA $\pm 10\%$ max output, for motorized screen control. Activates when the projector is switched on.
		12V TRIG B	12 V 150 mA $\pm 10\%$ max output, for motorized screen. Activates when the projector is switched on. Activates also from the function buttons F1,F2 or F3.
	J	HDMI Out	HDMI3 loop through

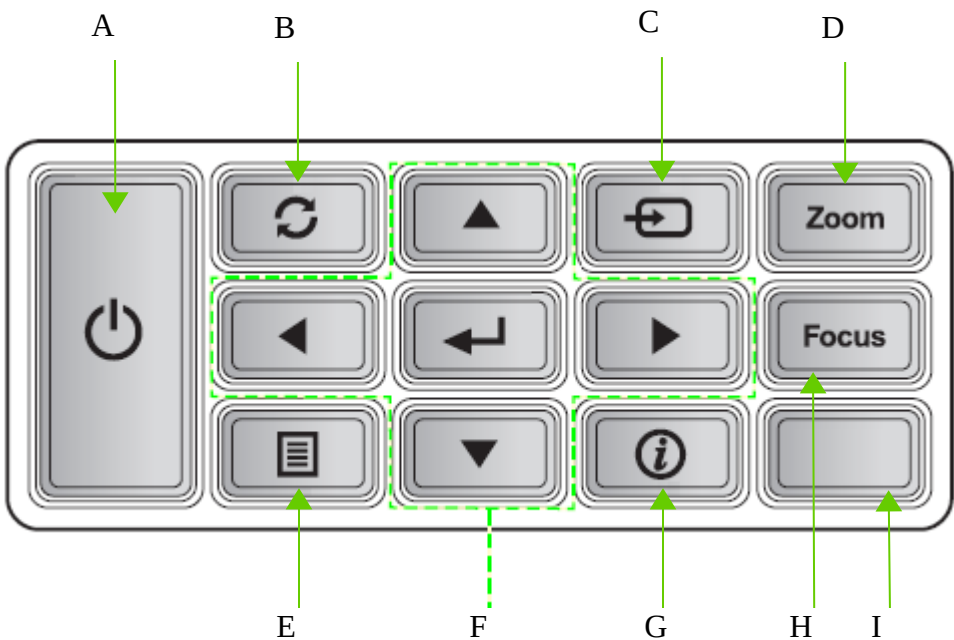
## Connecting sources to the projector



A	DisplayPort Cable
B	VGA Cable
C	RCA (YpbPr) Component Cable
D	RJ-45 Cable
E	RS232 Cable

F	12 V DC Jack
G	HDMI Cable Inputs
H	HDMI Cable Output
I	Wired Remote Control Cable

# Keypad



A	Power
B	Re-Sync
C	Source
D	Zoom
E	Menu

F	For Directional Select Keys
G	Information
H	Focus
I	Not Used



## 4 Installation

This section provides instructions for the installation of the NEOR4 projector.

**Important:** Installation procedures should be performed by a qualified AV system specialist.

### Location

When installing the NEOR4 projector, take the following considerations into account.

#### Installation Type

Select the installation type that best suits your needs:

- front or rear projection
- floor or ceiling mount

#### Cooling

Make sure that the planned location for the projector has adequate ventilation. Check that room temperature is below 35° C and that the projector is away from heating vents. Ensure a minimum 0.20 m (5 inch) clearance on the left, right and rear sides of the projector.

#### Power Outlets

Verify that the power outlets are grounded and preferably shielded from power surges and fluctuations. A UPS is optional. NEOR4 power supply operates on any nominal line voltage between 100-240 V AC, 50-60 Hz.

#### Cables

Check planned cable lengths for video and control cables and make sure these lengths do not exceed specifications.

#### Ambient Light

Avoid or minimize light sources directed at the screen to preserve the quality of the projected image.

## Mounting

The projector can be Floor mounted (upright) or Ceiling mounted (inverted). Choose the method that best suits your installation.

The NERO4 projector has been design to be submit the EN60950/UL950 Safety Norms with it's glass cabinet.

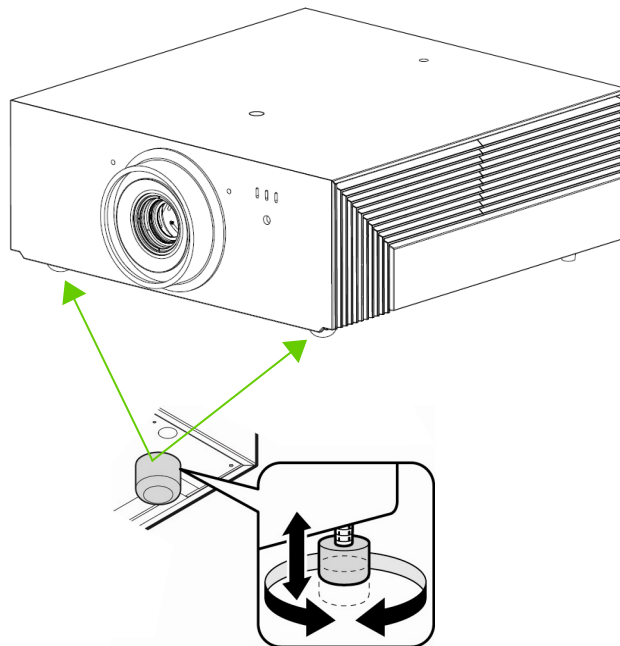
Nevertheless, even if the best materials and adhesives available in the market, in order to guarantee a safe application on the long long run, exclusively for the ceiling mounting applications, SIM2 has equipped the projector with glass safety screw that are aesthetic part of its cabinet (see K at page 12).

To determine where to position the projector, consider the size and shape of your screen, the location of your power outlets, and the distance between the projector and the rest of your equipment.

**Important:** The projection lens is centered to the chassis . Make sure the centerline of the lens is centered horizontally to the center of the screen.

### Floor Mounting

Place the projector on a secure and flat surface (such as a table or a shelf). Adjust the two elevator feet at the bottom of the projector until the projector is level on all sides. Rotate the adjustable feet counter clockwise to raise the projector or clockwise to lower it. Repeat with the remaining feet as needed.



## Ceiling Mounting

Invert the projector and suspend it from the ceiling using a specific brkt4 bracket, described in the chapter 10, at page 52.

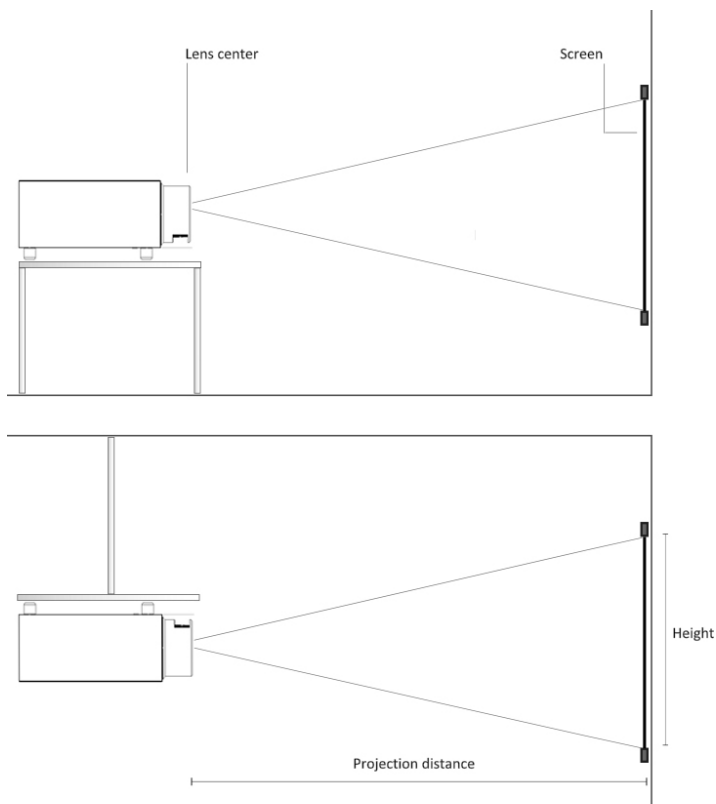
## Orientation

By default, the NERO4 is configured for a Front installation (projector installed upright and in front of the screen). If the projector is installed behind the screen or inverted, you can use the image orientation function of the projector .

## Vertical Lens Shift

Ideally, the projector should be positioned at a right angle to the screen and in such a way that:

- the lens center and screen center are aligned with each other
- the projected image fills the screen perfectly



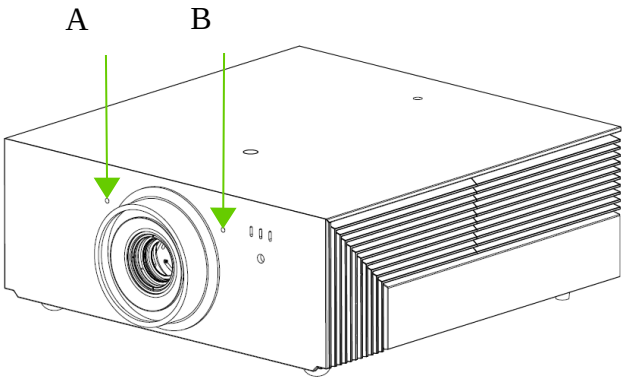
## Keystone

If the projector is ceiling-mounted and the screen is lower than the projector, you may need to tilt the projector by adjusting the ceiling mount. If you do so:

- the top and bottom borders of the image will be unequal in length
- the sides of the image will be inclined

**Mechanical Lens Shift**

The NERO4 provides manual Horizontal and Vertical Shift controls.

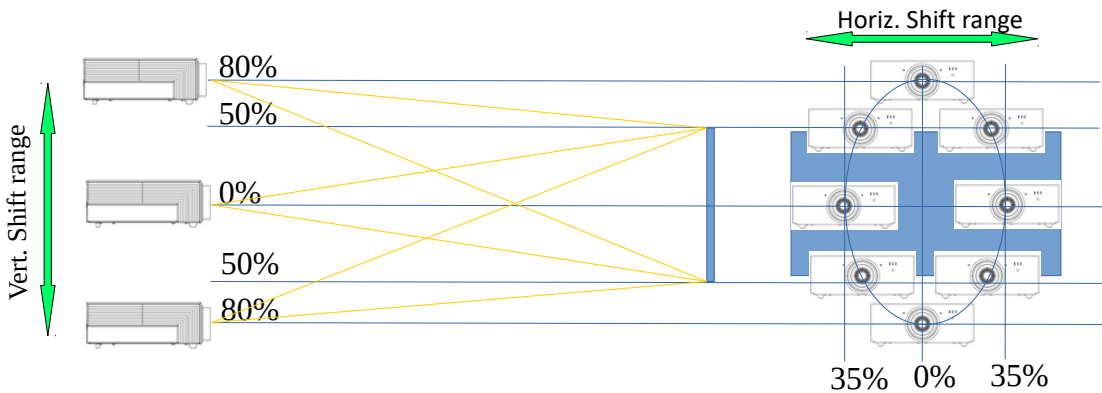


Horizontal:  $\pm 30\%$  offset (with tolerance  $\pm 5\%$ ), when Vertical has 0% offset  
Vertical:  $+75\% \sim -75\%$  offset (with tolerance  $\pm 5\%$ ), when Horizontal has 0% offset.

Use the Allen Screw (of 2.5mm or 0.0984 inch) available in the standard accessories in the package. When the horizontal and vertical shifts are centered to the lens, the leds signal this status with a flashing.

Item	Description
A	Vertical Lens Shift
B	Horizontal Lens Shift

If you want to use the Perfect-Fit function, your setup should not have any horizontal optical shift.



## Connections

Proceed as follows to connect the NERO4 to video sources, control devices, screen control systems and AC power.

When connecting your equipment:

- turn off all equipments before making any connections
- use the correct signal cables for each source
- make sure cables are routed so that people are not impeded or become a trip hazard
- ensure that the cables are securely connected (tighten the thumbscrews on connectors that have them)

**HDMI** The major benefits of this signal type are:

- best image quality, because the signal is carried in the digital domain throughout the entire signal path
- highest available resolution, because video sources can deliver full resolution content via HDMI only
- optimization of several image parameters (color space, aspect, signal range, over scan), thanks to auxiliary information (AVI infoframe) sent by the source device together with the signal.

If your source has dual HDMI outputs, we would recommend direct connection to the projector from one of the HDMI connections and the second HDMI output to the input of an appropriate AV receiver/processor for audio.

Sources with a DVI-D output can be connected to the HDMI input of the projector using a suitable DVI-D to HDMI cable. In this case no auxiliary information is sent from the source to the projector.

**Note:** HDMI uses a code known as HDCP (High-bandwidth Digital Copy Protection), which protects the recorded supports from being copied illegally. The connection between the source and display requires that the two devices perform a handshake and exchange code keys before being able to display an image. The InstaPort technology allows a simultaneous pre-authentication of every attached device at the same it is connected, reducing drastically the time required for HDMI source switching. For this reason you may note a slight delay before the image appears on the screen, but it is perfectly normal.

- **DisplayPort** is a digital display interface developed by the Video Electronics Standards Association (VESA). The interface is primarily used to connect a video source to a display device. DisplayPort can be used to transmit audio and video simultaneously, but each one is optional and can be transmitted without the other.
- **Graphics RGB** Input for Personal Computer and other sources that outputs RGB or YPrPb signals. These sources must be able to provide separate H/V sync or composite H+V sync.

## Control

You can connect the NERO4 projector to a Personal Computer or a control system through one of the following methods:

- RS-232 port, using a standard 9-pin straight serial cable
- RS-232 port, using a USB to serial converter cable. In this case, installation of a device driver provided by the cable manufacturer may be required.

**Note:** RS-232 communications are limited to max 15 m (50 ft.), VGA communication are limited to max 20 m (65 ft.), HDMI communication are limited to max 20 m (65 ft.), CVBS & YPbPr are limited to max 20 m (65 ft.).

## Triggers

Some Home Theater devices can be controlled through a 12 V signal. The projector can output two 12 V (150mA  $\pm$ 10%) signals:

- 12V TRIG A provides a standard trigger for motorized screens control
- 12V TRIG B provides a trigger for motorized screen.

## USB

USB-A for 5V, 1.5A for service functions.

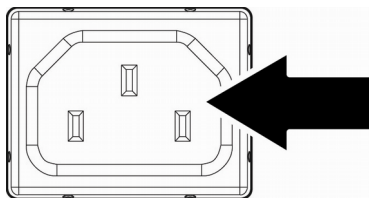
## AC Power


Plug the female end of the power cord to the AC receptacle located on the left hand side of the projector (100-240 V AC, 50-60 Hz) and the other end into a grounded AC outlet. An high-quality surge protector is recommended while a UPS is optional.

## Switching On and Off

### Switching On



- I. Securely connect the power cord supplied and the signal cable. When connected, the Power LED will turn red.

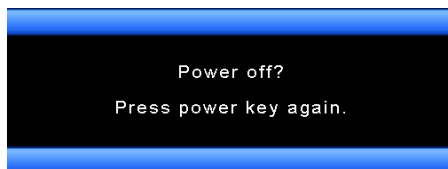





- II. Turn on the projector by pressing  button either on the back panel of the projector or the “|” button on remote control. The power LED will now turn blue. The startup screen will display in approximately 10 seconds.
- III. Turn on and connect the source that you want to display on the screen (computer, notebook, video player, etc). The projector will detect the source automatically. If not, read the following note.


**Note:** if you connect multiple sources at the same time, press the “SOURCE” button on the back panel or the direct source keys on the remote control to switch between inputs.

### Switching Off

- I. Press the  button on the remote control or  button on the back panel of the projector one time. The following message will be displayed on the screen.



Press the  button on the remote control, or the  on the back panel again to confirm, otherwise the message will disappear after 15 seconds. When you press the  button for the second time, the projector will shut down (the interval between pressing has to be around one second to turn off the projector).






- II. The cooling fans continue to operate for about 10 seconds for cooling cycle and the Power LED will flash blue. When the Power LED lights solid red, the projector has entered in standby mode. If you wish to turn the projector back on, you must wait until the projector has completed the cooling cycle and has entered standby mode. Once in standby mode, simply press the  button on the back panel or the “|” on the remote control to restart the projector.
- III. Disconnect the power cord from the electrical outlet and the projector.

**Warning:** Do not turn on the projector immediately following a power off procedure.




## Temperature LED indicator

Power LED is bi-color (Blue and Red).

When the warning indicators come on, the projector will automatically shutdown:

1. “ ” LED indicators flashes red.
2. “ ” LED indicator is lit red and if “ ” LED indicator flashes red. This indicates the projector has overheated. Under normal conditions, the projector can be switched back on.
3. “ ” LED indicator flashes red and if “ ” LED indicator flashes red.

Unplug the power cord from projector, wait for 30 seconds and try again. If the warning indicator light up again, please contact your nearest service center for assistance.

MESSAGE	POWER LED  (Red)	POWER LED  (Blue)	TEMP LED  (Red)
<b>Standby State</b> (Input power cord)	Steady Light*	Off	Off
<b>Power On</b> (Warming)	Off	Flashing	Off
<b>Power On and Lamp Lighting</b>	Off	Steady Light	Off
<b>Power Off</b> (Cooling)	Off	Flashing	Off
<b>Error</b> (Lamp fail)	Flashing	Off	Off
<b>Error</b> (Fan fail)	Flashing	Off	Flashing
<b>Error</b> (Over Temperature)	Flashing	Off	Steady Light





\* ON/STANDBY LED be ON when OSD appears, be OFF when OSD disappears.



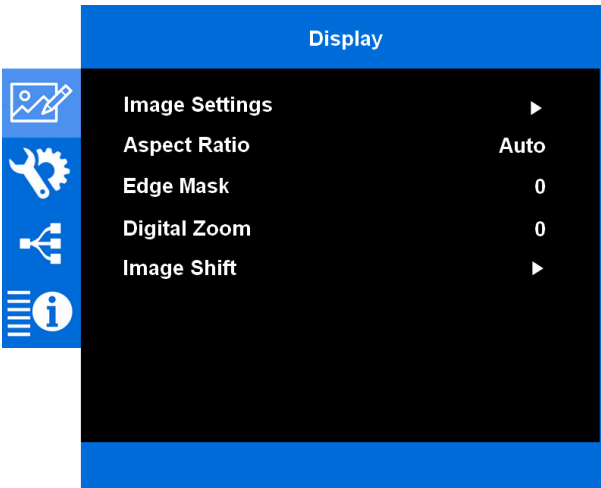
# 5 Operation






## Main Menu

The main menu gives access to all projector adjustments. It is divided in four main sections:

Display	
Setup	
Network	
Information	

with various item and submenus in each of them.



To enter the main menu and select the desired section press  on the remote control.  
To enter a submenu (when available) press  on the remote control.  
Use  or  to select an item on a list either in the main menu and the submenu.  
To return to the previous menu when in a submenu press  on the remote control.

To select menu items press ◀ ▶ on the remote control. To turn off the main menu press ≡ on the remote control. Use ◀, ▶ to change settings on a selected item.

**Note:** Depending on the selected input source and signal characteristics, some adjustments may not be available.

**Display** and **Setup** menu sections provide access to most commonly-used projector adjustments. Note that, in **Display** menu:

- you can enter these sections only when an image is displayed;
- the controls in these sections only operate on the active input;
- when you select another input all the settings in these sections are automatically saved;
- each time you select an input the previously saved settings for that input or mode will be automatically recalled;

**Setup** section provide access to installation and OSD adjustments. The settings in these sections are global (for all inputs and modes, not just the active one).

### **Live Colors Calibration software (LCC)**

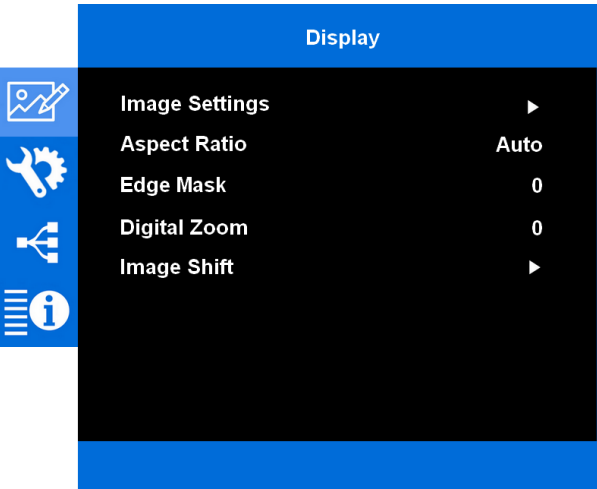
To aid calibration, the NERO4 projector, feature the new SIM2's advanced Live Colors Calibration 2.0 software that enables professional calibration of many projection parameters such as complete adjustment of the primary, secondary and white point color coordinates. This PC-based software gives calibration experts unprecedented control over the projector image quality.

SIM2 recommends the use of LCC software to calibration experts only, by using spectrophotometers or color probes to correctly analyze and adjust the colorimetry.

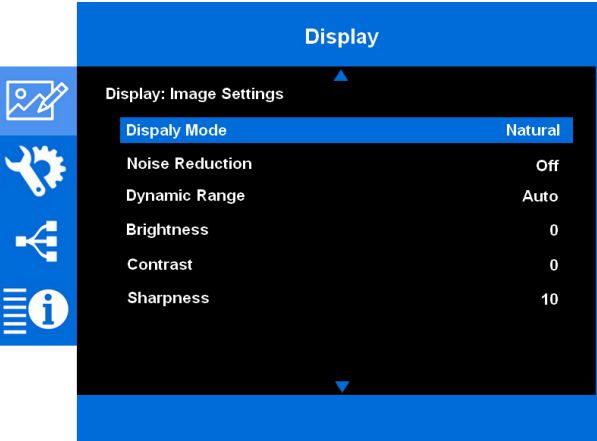
Any NERO4 is factory adjusted to reach the HDTV REC709 standard in SIM2 premises: selecting Display Mode "Natural", Color Gamut "HDTV" and Color Temperature "D65". These setup reproduce, as close as possible, the image the way the movie director intended; colors, color temperature, brightness and gamma settings are all configured to standard reference levels. However, some fine tuning would be necessary to adapt NERO4 to your screen, environment and sources.

# Display

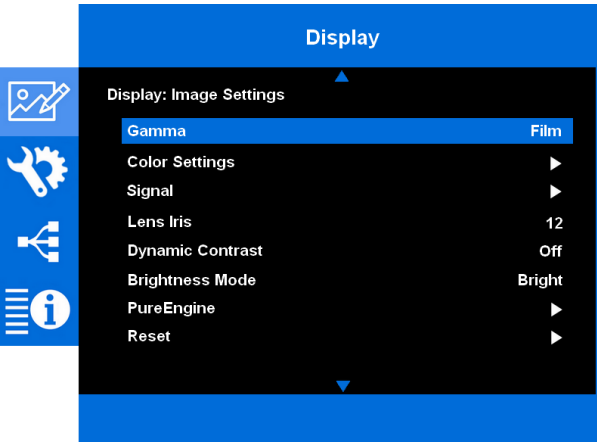
This menu section provides access to common image quality adjustments.



## Display – Image Settings



Page 1



Page 2

## Display Mode

There are many factory presets optimized for various types of images:

**NATURAL:** this mode is intended to reproduce, as close as possible, the image the way the movie director intended.

**DYNAMIC:** this mode is suitable for showing PowerPoint presentations when the projector is connected to the PC.

**BRIGHT:** maximum brightness from PC input.

**CINEMA:** default settings for home theater.

**SPORT:** select this mode to increase the brightness and response time level for enjoying sporting events and video games.

**HDR:** this mode is intended to reproduce the images in High Dynamic Range. This mode is the default mode for the HDR images and it will be recalled every time the projector will detect an HDR content inside the signal.

**USER:** user's settings.

**UserHDR:** user's settings for the HDR signals.

**Note:** When the projector recognizes an HDR content, in the signal, it will switch the Display Mode in HDR or UserHDR. Between these two last modes, it will select the last one selected from the user. Example: if the projector is displaying a video, not HDR, and the present Display Mode is Natural, when the user will switch to an HDR signal, also the projector will change the present Display Mode in HDR or UserHDR. At the moment that the user will come back to the signal without HDR content, also the projector will select the previous Display Mode, for this example, the Natural.

**Note:** The HDR signals are processed only if they come from the HDMI2 input, that is compliant with the standard HDMI v.2.0a - HDCP 2.2.

**Note:** The Display Mode depends on the input source and timings. For example, the display mode will be different from HDMI and VGA. If you change any of the image settings, the display mode presets will be changed and saved automatically. If you want to return to the factory default display mode, select RESET from the menu SETUP.

**Note:** Any NERO4 is factory adjusted to reach the HDTV REC709 standard in SIM2 premises: selecting Display Mode "Natural", Color Gamut "HDTV" and Color Temperature "D65". These settings reproduce, as close as possible, the image the way the movie director intended; colors, color temperature, brightness and gamma settings are all configured to standard reference levels. However, some fine tuning would be necessary to adapt NERO4 to your screen, environment and sources.

## Noise Reduction

This adjustment lets you choose the value of the noise reduction filter. The Noise Reduction reduces the amount of visible interlaced signals.

Press ◀ to decrease the noise reduction

Press ▶ to increase the noise reduction

Range [Off, 1, 2, 3]

## Dynamic Range

This adjustment lets you choose the standard SMPTE 2084 curve, that better match the characteristic of your installation.

**AUTO:** this mode selects one EOTF SMPTE 2084 curve preset, between HDR1, HDR2, HDR3 and HDR4, depending of signal content.

**SDR:** this mode is suitable for showing images without HDR contents.

**HDR1:** this mode is suitable for showing HDR contents with the SMPTE 2084 curve for the following setup: screen dimensions of 100 inches and projector's lens set in wide angle.

**HDR2:** as HDR1, but for screen dimensions of 120 inches.

**HDR3:** as HDR1, but for screen dimensions of 140 inches.

**HDR4:** as HDR1, but for screen dimensions of 160 inches.

This Menu is enabled only in Display Mode HDR and UserHDR. With the lens in tele angle, it is necessary to select a preset greater than the default for that screen dimension. Example: in tele angle, with screen dimensions of 100 inches, selects the preset HDR3.

## Brightness

Adjust the brightness of the image.

Use this control to adjust the darker areas of the picture (black level), without affecting bright areas. Increasing the value will give more detail in darker parts of the picture. For correct adjustment it may prove useful to display a gray scale test pattern with at least twenty bands. Now try to reduce the brightness of the black band as much as possible while ensuring that it can still be distinguished from the adjacent band with brightness slightly higher than black. Alternatively use a scene composed of black objects alongside other dark colored objects and try to ensure that all the objects can be separately identified.

Press ◀ to darken the image

Press ▶ to lighten the image

Range [-50 .. 50]

## Contrast

The contrast controls the degree of difference between the lightest and darkest parts of the picture. Use this control to adjust the image's white level without affecting its dark areas. For correct adjustment it may prove useful to display a gray scale test pattern with at least twenty bands. Now try to increase the brightness of the white band as much as possible while ensuring that it can still be distinguished from the adjacent band with brightness slightly less than white. Alternatively use a scene composed of well-lit white objects surrounded by light objects with lower level lighting, and try to ensure that all the objects can be separately identified.

Press ◀ to decrease the contrast

Press ▶ to increase the contrast

Range [-50 .. 50]

## Color

Adjust a video image from black and white to fully saturated color.

This control (also called Saturation) increases or decreases the picture color intensity. When set to zero, color images are shown in black and white. Increase the value until the colors appear natural: suitable references include skin tones and the green in grass in landscape shots.

Press ◀ to decrease the color saturation in the image

Press ▶ to increase the color saturation in the image

Range [-50 .. 50]

**Note:** Color is only supported for composite and component sources.

## Tint

Adjust the color balance of red and green

This adjustment controls the purity of colors. Basically it determines the red-green ratio of the picture. Decreasing the value increases the red content of the image, increasing it increases the green content. For this adjustment use skin tones or a test card image with color bars as a reference. This adjustment is primarily used for NTSC sourced material.

Press ◀ to increase the amount of green in the image

Press ▶ to increase the amount of red in the image

Range [-50 .. 50]

**Note:** Tint is only supported for composite and component sources.

## Sharpness

Adjust the sharpness of the image.

This adjustment increases or decreases the level of picture detail. When the sharpness value is reduced the image details appear less pronounced, while increasing the value raises image definition, making the outline of objects sharper. Note that an excessively large value may result in a noisy picture and the outline of images will have a high amount of edge enhancement.

Press ◀ to decrease the sharpness

Press ▶ to increase the sharpness

Range [1 .. 15]

## Gamma

Determines the projector response to the gray scale, emphasizing or attenuating the different grades of brightness (blacks, dark, medium and light grays, whites) in the projected image. Choose the setting that is appropriate to the type of video source, the ambient lighting and your subjective preferences.

This allow you to set up gamma curve type. After the initial setup and fine tuning is completed, utilize the Gamma adjustment steps to optimize you image output.

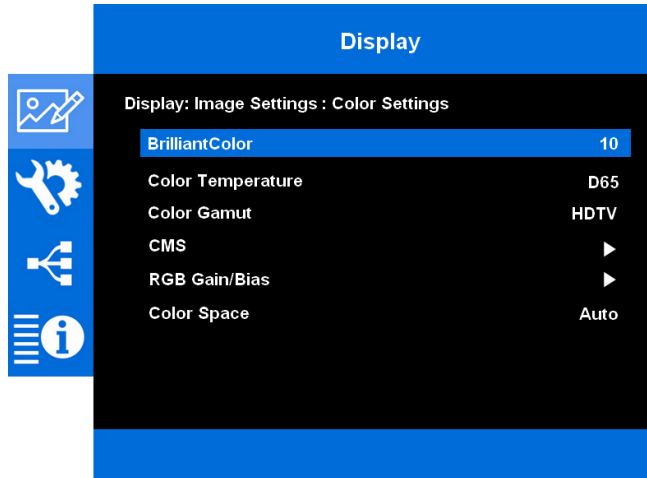
The available settings are:

- **Film:** for home theater
- **Video (2.6):** for video or TV source

- **Graphics:** for PC/Photo source
- **Standard (2.2):** for standardized setting
- **1.8/2.0/2.4:** for specific PC/Photo source

## Color Settings

Press the  $\leftarrow$  to enter the menu and then use  $\blacktriangle$  or  $\blacktriangledown$  to select item.



- **BrilliantColor™**  
This adjustable item utilizes a new color-processing algorithm and enhancements to enable higher brightness while providing true, more vibrant colors in picture.  
Range [1 .. 10]
- **Color Temperature**  
Select a color temperature from D55, D65, D75, D83, D94 or Native.
  - **Native** the projector native white point
  - **D55, D65, D75, D83, D94** the C standard CIE illuminants
- **Color Gamut**  
The Color Gamut are the whole values of the primaries (red, green and blue), secondaries (yellow, cyan and magenta), the white color coordinates and the brightness. Each NERO4 projector is individually calibrated taking in account the projector hardware and optics to reach the best HDTV REC709 Color Gamut.  
Select an appropriate color gamut from Native, HDTV, User, Cinema and LCC.
  - **Native:** the projector native color gamut.
  - **HDTV:** the color gamut defined by the standards.
  - **LCC:** the color gamut defined by the user through the LCC software. The default starting value is the HDTV REC709 standard. When selected the

LCC color gamut, the CMS menu and the Color Temperature are dimmed. With Live Color Calibration (LCC) you can change any of the color gamut directly entering absolute values.

- **User:** this mode is dedicated for the user, where he is able to change the whole relative values of the color gamut through the On Screen Display, in the CMS menu.
- **Cinema:** the color gamut nearest to the DLP Cinema. As for the User mode, the user could change the whole relative values of the color gamut through the On Screen Display, in the CMS menu.

**Note:** Any NERO4 is factory adjusted to reach the HDTV REC709 standard.

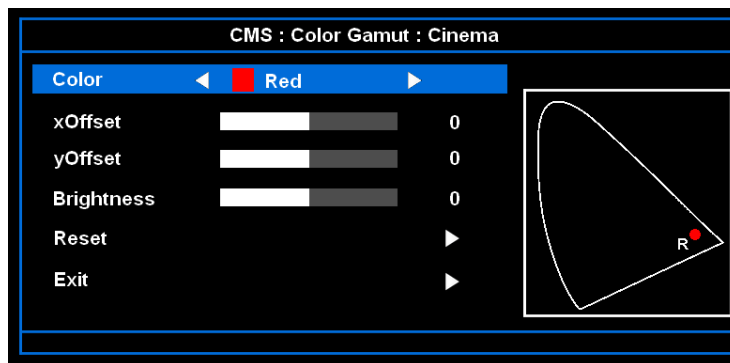
This calibration is stored in the Color Gamut “HDTV” and it was obtained selecting the Display Mode “Natural”, Color Temperature “D65” and Gamma “2.2”.

- **Color Management System (CMS)**

This function allow to customize the Color Gamut by the user, when it is selected the Color Gamut “User” or “Cinema”.

Press the  $\leftarrow$  to enter the menu and then use  $\blacktriangle$  or  $\blacktriangledown$  to select item.




Select one of the colors (Red/Green/Blue/Cyan/Magenta/Yellow/White) to adjust its x & y offset and brightness.





- **Color:** use  $\blacktriangleleft$  or  $\blacktriangleright$  to select from Red, Green, Blue, Cyan, Magenta, Yellow or White colors.
- **x Offset:** use  $\blacktriangleleft$  or  $\blacktriangleright$  to adjust the x offset value of selected color.
- **y Offset:** use  $\blacktriangleleft$  or  $\blacktriangleright$  to adjust the y offset value of selected color.
- **Brightness:** use  $\blacktriangleleft$  or  $\blacktriangleright$  to adjust the brightness value of selected color (not available for White).
- **Reset:** choose “YES” to apply the factory default settings for color adjustments.
- **Exit:** to exit from the CMS settings.



- **RGB Gain/Bias**

Press the  to enter the menu and then use  or  to select item.

Use  or  to adjust the Red, Green or Blue brightness (Gain) and contrast (Bias).

- **RESET:** choose “YES” to apply the factory default settings for color adjustments.
- **EXIT:** to exit from the RGB Gain/Bias settings.

- **Color Space**

Determines the signal data range of HDMI signals. It is available when the HDMI signal comes from a RGB source or when the AVI (Auxiliary Video Information) infoframe of the HDMI signal is missing or inconsistent.

Select an appropriate color matrix type from AUTO, RGB (0-255) RGB (16-235) or YUV.

Color Space is available also for non-HDMI inputs.

- **Auto** determines the signal range using the information provided by the AVI infoframe of the HDMI signal. If the AVI infoframe is missing or inconsistent, the projector uses values 0-255. Auto (which is the default setting) usually selects the correct signal range but you can force either 16-235 or 0-255
- **RGB (0-255)** sets black at R, G, B = 0 and white at R, G, B = 255
- **RGB (16-235)** sets black at R, G, B = 16 and white at R, G, B = 235, to match the luminance values of digital component standards
- **YUV:** YUV signals are typically created from RGB (red, green and blue) source. Weighted values of R, G, and B are summed to produce Y', a measure of overall brightness or luminance. U and V are computed as scaled differences between Y' and the B and R values.

## Signal

Press the  $\leftarrow$  to enter the menu and then use  $\blacktriangle$  or  $\blacktriangledown$  to select item. This function is available only for analog input signal (RGB or Component) and permit to adjust the signal options.

- **Automatic**  
Configure automatically the signal (the frequency and phase items are grayed out). If automatic is disabled, the frequency and phase items will appear for tuning and saving the settings.
- **Frequency**  
Change the display data frequency to match the frequency of your computer's graphic card. Use this function only if the image appears to flicker vertically.
- **Phase**  
Synchronize the signal timing of the display with the graphic card. If the image appears to be unstable or flickers, use this function to correct it.
- **H. Position**  
Adjust the horizontal positioning of the image.
- **V. Position**  
Adjust the vertical positioning of the image.
- **Exit**  
Exit from the "Signal" menu.

## Lens Iris

Press the  $\leftarrow$  to enter the menu and then use  $\blacktriangle$  or  $\blacktriangledown$  to select item.

This function adjust the lens iris.

Press  $\blacktriangleleft$  to decrease the Iris

Press  $\blacktriangleright$  to increase the Iris

Range [1 .. 12]

## Dynamic Contrast

Press the  $\leftarrow$  to enter the menu.

Dynamic Contrast enables the projector to automatically optimize the brightness of the display during dark / light movie scenes to be shown in incredible detail.

Press  $\blacktriangleleft$  or  $\blacktriangleright$  to select its status.

Range [On, Off]

## Brightness Mode

Press the ← to enter the menu. This item activate or not an automatic dimmer lamp function.

Press ◀ or ▶ to select its status.

Range [Bright, Eco]

- **Eco:** dim the projector lamp which will lower power consumption and extend the lamp life.
- **Bright:** do not dim the projector lamp

## Pure Engine

Press the ← to enter the menu and then use ▲ or ▼ to select item.

The Pure Engine is a collection of advanced image processing technologies that enhances the quality of the displayed image.

- **Ultra Detail**

UltraDetail is an edge enhancement tool that enables the edges in the projected image is be enhanced thus providing more perceived detail.

Range [Off, 1, 2, 3]

- **PureColor**

This adjustable item utilizes a new color- processing algorithm and enhancements to enable the picture's vividness to be significantly increased.

Range [Off, 1, 2, 3, 4, 5]

- **PureMotion**

Pure Action uses sophisticated algorithms to ensure that the natural in the image is preserved.

Range [Off, 1, 2, 3]

**Note:** Turn the PureMotion feature to “Off” to reduce the response lag during game/sport play.

## Reset

Press the ← to return the factory default settings for display menu parameters.

## Display – Aspect Ratio

Press the  $\leftarrow$  to enter the menu.

Press  $\blacktriangleleft$  or  $\blacktriangleright$  to select the status.

Range [4:3, 16:9, LBX, Superwide, Native, Auto]

This adjustment changes the dimensions and aspect ratio (relationship between width and height) of the displayed image. There are six default aspects available. You can select a different aspect for each source: the selected aspect ratio will be automatically applied the next time the relative source is displayed.

The following aspects are available:

- **4:3:** this format is for 4x3 input sources.
- **16:9:** this format is for 16x9 input sources, like HDTV and DVD enhanced for Widescreen TV.
- **LBX (Letterbox):** this format is for non-16x9, letterbox source and for users who use external anamorphic lens to display 2.35:1 aspect ratio using full resolution. It displays a 4:3 letterbox image (source signal with black bands above and below the picture) in such a way that it fills the 16:9 screen and maintains the correct aspect. This aspect ratio is also recommended when using Anamorphic Lenses. Some letter box format DVDs are not enhanced for 16x9 played in 16:9 mode. In this situation, please try to use the 4:3 mode to view the DVD. If the content is not 4:3, there will be black bars around the image in 16:9 display. For this type of content, you can use LBX mode to fill the image on the 16:9 display. If you use an external anamorphic lens, this LBX mode also allows you to watch a 2.35:1 content (include Anamorphic DVD and HDTV film source) that support anamorphic wide is enhanced for 16x9 Display in a wide 2.35:1 image. In this case, there are no black bars. LED power and vertical resolution are fully utilized.
- **Superwide:** use this special 2.0:1 aspect ratio to display both 16:9 and 2.35:1 aspect ratio.
- **Native:** this format displays the original image without scaling.
- **Auto:** automatically selects the appropriate display format.

**Note:** some **LBX** aspect format DVDs are not enhanced for 16x9 TVs. In this situation, the image will not look right when displaying image in 16:9 mode. In this situation, please try to use the 4:3 mode to view the DVD. If the content is not 4:3, there will be black bars around the image in 16:9 display. For this type of content, you can use LBX mode to fill the image on the 16:9 display. If you use an external anamorphic lens, this LBX mode also allows you to watch a 2.35:1 content (include Anamorphic DVD and HDTV film source) that supports anamorphic wide is enhanced for 16x9 Display in a wide 2.35:1 image. In this case, there are no black bars. Lamp power and vertical resolution are fully utilized.

**Note:** to use the **Superwide** format, set the screen aspect ratio to 2.0:1, then select “Superwide” format and final, align the projector image correctly on the screen.

<b>Scaling Table</b>					
<b>16:9 Screen</b>	<b>480i/p</b>	<b>576i/p</b>	<b>720p</b>	<b>1080i/p</b>	<b>2160p</b>
<b>4:3</b>	Scale to 2880 x 2160				
<b>16:9</b>	Scale to 3840 x 2160				
<b>LBX</b>	3840 x 1620 center, then scale to 3840 x 2160 for display				
<b>Native</b>	No resize image, 1:1 mapping and centered. This format shows original image without scaling.				
<b>Auto</b>	If this format is selected, screen type will auto become 16:9 (3840 x 2160) If source is 4:3, auto resize to 2880 x 2160 If source is 15:9, auto resize to 3600 x 2160 If source is 16:10, auto resize to 3456 x 2160				

<b>Auto Mapping Rule</b>				
	<b>Input resolution</b>		<b>Auto/Scale</b>	
	<b>H resolution</b>	<b>V resolution</b>	<b>3840</b>	<b>2160</b>
<b>4:3</b>	640	480	2880	2160
	800	600	2880	2160
	1024	768	2880	2160
	1280	1024	2880	2160
	1400	1050	2880	2160
	1600	1200	2880	2160
<b>Wide Laptop</b>	1280	720	3840	2160
	1280	768	3600	2160
	1280	800	3456	2160
<b>SDTV</b>	720	756	2700	2160
	720	480	3240	2160
<b>HDTV</b>	1280	720	3840	2160
	1920	1080	3840	2160

## Display – Edge Mask

Edge mask the image to remove video encoding noise on the edge of video source. It removes the outer edges of the image and magnifies the remaining portion of the image to fill the display area. It is useful with sources that output images with imperfections around their borders.

**Note:** Each I/O has different setting of “Edge Mask”.

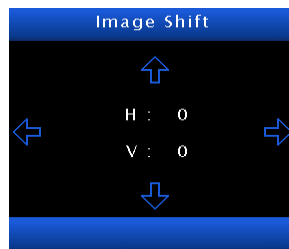
## Display – Digital Zoom

Press ◀ to reduce the size of an image

Press ▶ to magnify an image on the projection screen

## Display – Image Shift

Press the ↵ to enter the menu.



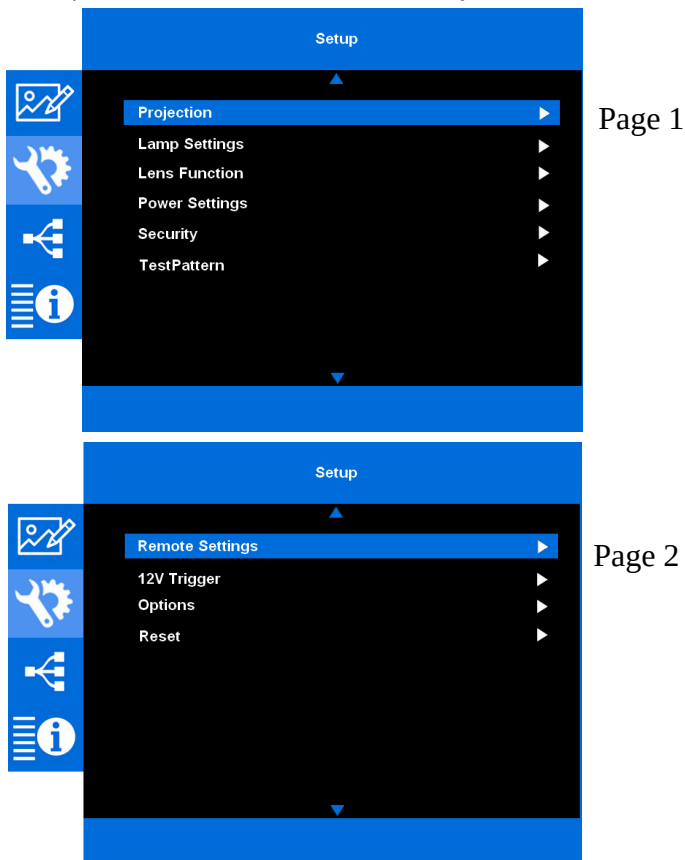
H: press the ◀ ▶ to shift the projected image position horizontally

V: press the ▲ ▼ to shift the projected image position vertically

This Image Shift is a digital image shift, inside the DMD active pixels area.

## Setup

This menu section provides access to installation adjustments.



### Projection

Selects the orientation of the projected image.

Press ← to select one of the four preset orientations. Use arrow buttons to switch between the four presets.

- **Front-Projection:** this is the default selection. The image is projected straight on the screen.
- **Rear-Desktop:** when selected, the image will appear reversed
- **Front-Ceiling:** when selected, the image will turn upside down
- **Rear-Ceiling:** when selected, the image will appear reversed in upside down position

**Note:** Rear-Desktop and Rear-Ceiling are to be used with a translucent screen.

### Lamp Settings

- **Lamp Reminder:** choose this function to show or to hide the warning message when the changing lamp message is displayed. The message will appear 30 hours before suggested replacement of lamp.
- **Lamp Reset:** resets the lamp hour counter after replacing the lamp.

## Lens Function

- **Zoom/Focus:** this item enables or disables the zoom and focus functions. It has two status: Lock and Unlock.
- **Zoom:** adjust the zoom in the projected image.
- **Focus:** adjust the focus in the projected image.
- **Lens Memory Load:** load one of the Zoom&Focus&Image Shift memory.
- **Lens Memory Save:** save the present configuration of Zoom, Focus and Lens Shift, in one of ten available memories.

Lens Memory Load and Save functions implements the Perfect-Fit feature. See the relative chapter at page 45.

Press ◀ to reduce the zoom or focus of an image

Press ▶ to magnify the zoom or focus of an image

## Power Settings

- **Direct Power On:** choose “On” to activate Direct Power mode. The projector will automatically power on when AC power is supplied, without pressing the “Power” key on the projector keypad or on the remote control.
- **Auto Power Off :** sets the countdown timer interval. The countdown timer will start when there is no signal being sent to the projector. The projector will automatically power off when the countdown has finished (in minutes). Range [0 .. 180], with minimum increments step of 5 minutes.
- **Sleep Timer :** sets the countdown timer.
  - **Sleep Timer (min.):** sets the countdown timer interval. The countdown timer will start with or without a signal being sent to the projector. The projector will automatically power off when the countdown has finished (in minutes). The Sleep Timer is reset every time when the projector is powered off. Range [0 .. 990], with minimum increments step of 30 minutes.
  - **Always On:** Check to set the sleep timer always on.
- **Power Mode (Standby):** set the power mode setting.
  - **Active:** choose “Active” to return to normal standby.
  - **Eco:** choose “Eco.” to save power dissipation further < 0.5W.

## Security

Enable this function to prompt for a password before using the projector. Choose “On” to use security verification when the turning on the projector. In this status appear a quick menu to select the 4 digit password.

Choose “Off” to be able to switch on the projector without password verification.

The default Security password is “1234”.



## Test Pattern

Enters internal test patterns, that are needed for installation or calibration purposes. Select the test pattern from green grid, magenta grid, white grid, white or disable this function (off). They are DMD's Test Patterns.

**Note:** OSD menus are not available while test patterns are displayed.

## Remote Settings

Set the IR function setting.

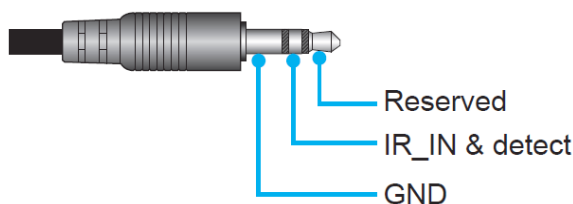
- **IR Function:** choose from which IR receivers the projector can be operated by remote control. The projector has two receivers: top and front.
  - **On :** operated from top and front receivers.
  - **Front:** operated from the front receiver.
  - **Top:** operated from the top receiver.
  - **Off:** the projector can't be operated by the remote control, you will be able to use only the keypad keys.
- **F1, F2, F3 buttons function:** assign the default function for F1, F2, or F3 between AV mute, Freeze, Trigger 12V B, Test Pattern, Lens memory 1 Load / Sleep Timer / CMS / Color Temp / Auto Source / Lens memory 2 Load / Lamp Settings / Zoom / Focus / Lens memory 3 Load.

## Trigger 12V A & B

Some Home Theater devices can be controlled through a 12V signal.

The projector can output two 12V (150mA  $\pm$ 10% max) signals: Trigger A and Trigger B. Choose "Off" to disable the trigger and "On" to enable it.


The Trigger 12V B is available from the direct function button F3, in the Remote Control.



## Options

Set the IR function setting.

- **Language:** selects the desired OSD language. It can display the menus in Multilanguage. Use ▲ or ▼ to select your preferred language. Press ↵ to finalize the selection. Select a language between English, Spanish, French, German, Portuguese, simplified Chinese, Italian, Russian.
- **Menu Settings:** Set the menu location on the screen and configure menu timer settings.
  - **Menu Location :** select the menu location on the display screen. There are 5 possible positions, the 4 corners and the center.

- **Menu Timer:** set the duration where the OSD menu stay visible on the screen. Select “Off” to keep the OSD menu, until you change the OSD status, pressing a button in the remote control or keypad. Select 5 or 10 seconds to insert a countdown timer.
- **Auto Source:** If you set this option “On” and press the button  on the projector keypad, then the next available input source is selected automatically. Set “Off” to disable auto source function.
- **Input Source:** select the input source between HDMI1, HDMI2, HDMI3, VGA, and DisplayPort.
- **High Altitude:** when “On” is selected, the fans will spin faster. This feature is useful in high altitude areas where the air is thin.
- **Display Mode Lock:** choose “On” or “Off” to lock or unlock adjusting display mode settings.
- **Keypad Lock:** when the keypad lock function is “On”, the Keypad will be locked. However, the projector can be operated by the remote control. By selecting “Off”, you will be able to reuse the Keypad.
- **Information Hide:** select “On” to hide the info message or choose “Off” to show the “Searching” message.
- **Logo:** use this function to set the desired startup screen. If changes are made, they will take effect the next time the projector is powered on. Select “Default” for the SIM2 startup screen or “Neutral” to do not have the logo displayed on startup screen.
- **Background Color:** use this function to display a blue, red, green, grey color, or none when no signal is available.
- **HDMI 2 Setting:** choose the HDCP configuration about the compatible input signal. Select EDID1 for 480i/p, 576i/p, 720p, 1080i/p, or 2160p input signal. Select EDID2 for non-interlaced signals only.
- **HDMI 1 EQ:** is to set HDMI 1 equalizer value for short or long HDMI cable to ensure all compatible signals passed between devices. Range [1..7].
- **HDMI 2 EQ:** is to set HDMI 2 equalizer value for short or long HDMI cable to ensure all compatible signals passed between devices. Range [1..7].
- **HDMI 3 EQ:** is to set HDMI 3 equalizer value for short or long HDMI cable to ensure all compatible signals passed between devices. Range [1..7].
- **Detail Filter:** is a sharpness function. It can adjust image display from softer to sharper. Range [0..2], where value 0 identify the Off status.

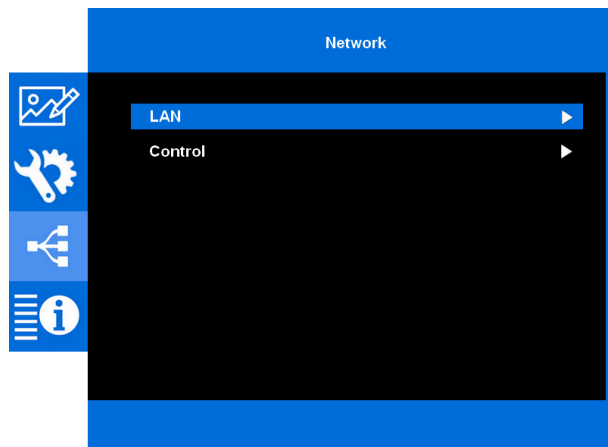
## Reset

Return the factory default settings for specified submenu.

- **Reset OSD:** default settings for all OSD menus, except for the following parameters: projection, Power mode, Security, Language, Networks items, Bright Mode, Eco Mode, Total Lamp Hours.
- **Reset to Default:** default settings for all OSD menus.

# Network

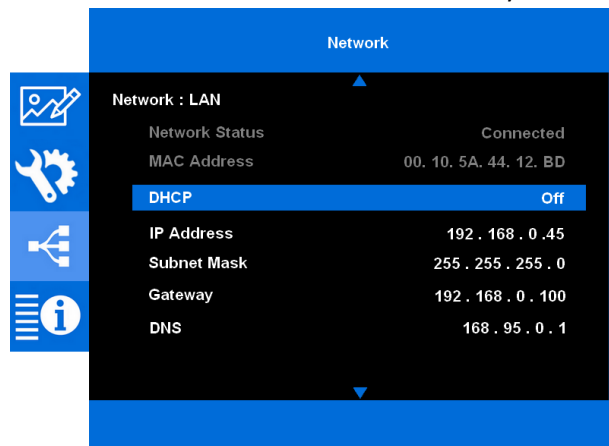
This menu section provides access to the Ethernet connection installation. The projector provides diverse networking and remote management features. The LAN / RJ45 function of the projector through a network, such as remotely manage: Power On / Off, brightness, and contrast settings. Also, you can view the projector status information.



This projector can be controlled by using a PC (laptop) or other external device via LAN / RJ45 port and compatible with Crestron, Extron, AMX (Device -Discovery) or PJLink.

## LAN

This sub-menu allows to setup Ethernet connection parameters. Select the DHCP in “On” if the IP Address assignment of the projector has to be done from an external DHCP server automatically. In DHCP mode IP Address, Subnet Mask, Default Gateway are not selectable because the server automatically assign a reference number. With DHCP in “Off” status, enter the IP Address, Subnet Mask, Default Gateway if user need to insert the address manually.



- **DHCP:** choose “On” for an automatic IP assignment from an external DHCP server.
- **IP Address:** select an IP address
- **Subnet Mask:** select subnet mask number
- **Gateway:** select the default gateway of the network connected to the projector.
- **DNS:** select the Domain Name System (DNS), a hierarchical decentralized naming system.
- **Reset:** choose “Ok” to reset to their default values the items in this sub-menu.

## Control

Enable specific communication protocol.

- **Crestron:** choose “On” to enable it.
- **Extron:** choose “On” to enable it.
- **PJLink:** choose “On” to enable it.
- **AMX Device Discovery:** choose “On” to enable it.
- **HTTP:** choose “On” to enable it.

## Extron

Is a registered trademark of Extron Electronics, Inc. of the United States.

NERO4 is compliant to support Extron device(s) for reference. For more info see the web site <http://www.extron.com/>.

Ethernet communication port number is 2023.

## Crestron

Is a registered trademark of Crestron Electronics, Inc. of the United States.

The NERO4 projector is supported by the specified commands of the Crestron Electronics controller and related software, for example RoomView® ([www.crestron.com/getroomview](http://www.crestron.com/getroomview)). For more info see the web site <http://www.crestron.com/>.

Ethernet communication port number is 41794.

## AMX

Is a registered trademark of AMX LLC of the United States.

This projector is supported by AMX ( Device Discovery ), see <http://www.amx.com/>.

Ethernet communication port number is 9131.

## PJLink

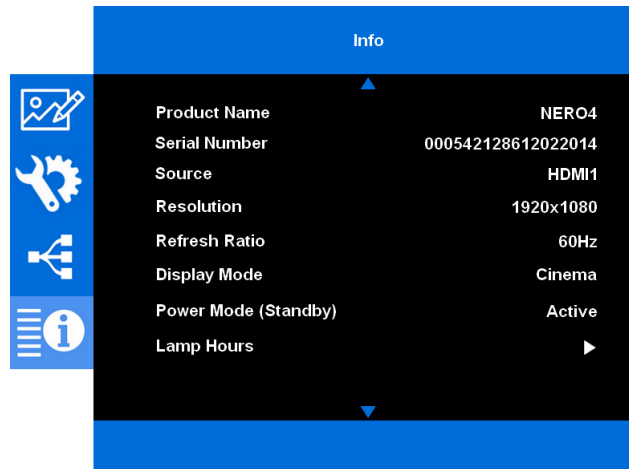
Applied for trademark and logo registration in Japan, the United States of America, and other countries by JBMIA.

This projector supports all commands of PJLink Class1 (Version 1.00), see <http://pjlink.jbmia.or.jp/english/>.

Ethernet communication port number is 4352.

## Info

This menu section provides access to many projector information. It collect the main information from the other menu (Display, Setup and Network) and firmware versions.



View the projector information as listed below:

- Product Name
- Serial Number
- Source
- Resolution
- Refresh Rate
- Display Mode
- Power Mode (Standby)
- Lamp Hours
  - Bright
  - Eco
  - Total
- Network Status
- IP Address
- Brightness Mode
- FW versions
  - System
  - LAN
  - MCU

## 6 Perfect-Fit

The Perfect-Fit function improves the optical light engine including a fully-programmable zoom, focus and lens shift feature, which enables a lens-free option to create 2,40:1 images.

There is the possibility to save the settings for the positions of zoom and focus corresponding to a video format for 10 different configurations.

To set the custom settings zoom and focus is necessary to enter the SETUP menu and then in the Lens Functions menu.

To set the custom settings lens shift is necessary to enter the DISPLAY menu.

In the case of off-axis projection, zooming in and out, you get a changing of the center of the image corresponding to the amount of the off-axis. This changing amount must be compensated with the vertical and/or horizontal shift (regulated manually).

For non standard video formats such as 1,33:1 and 2,6:1 you need to accept compromise for the final aspect ratio.

A correct setup for 2,35:1 image format, with a 16:9 format inside, is to do not have an horizontal optical shift. The digital vertical lens shift has at maximum the 15% of regulation, without loose in image resolution. The vertical optic lens shift reduces this value.

The Lens Memory Save menu give you the possibility to store ten different configuration of Zoom&Focus& Image Shift. Similarly, in the Lens Memory Load menu there are ten different recall configurations: they are disabled until you will saved one. The number of enabled memories, in the Load menu, corresponding to the number of filled memories in the Save menu.

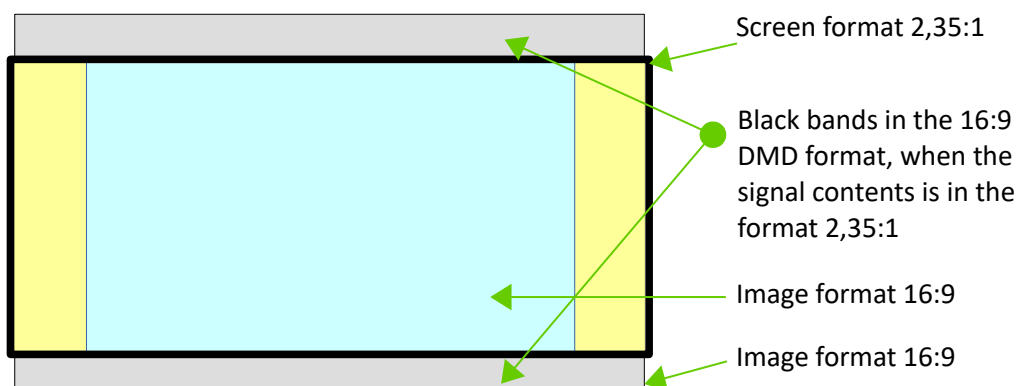
The F1, F2 and F3 buttons function, in the RC, have the possibility to recall one of the first three Zoom&Focus&Image Shift memories.

### **Save and Load the Lens Memories**

Follow the procedure below:

- 1) Install the projector (see the installation chapter) in your room.
- 2) Adjust the Zoom and Focus to match your screen format at 2,35:1.
- 3) Store this configuration, by the Lens Memory Save menu, in one of ten possible positions.
- 4) Display a source format at 16:9.
- 5) Adjust the Zoom, Focus and Image Shift, in order to match your vertical screen dimensions, and center it.
- 6) Store this new configuration, by the Lens Memory Save menu, in a different position compared to previous.
- 7) Recall the two lens memories by the Lens Memory Load menu, or by one of Remote Control buttons function (if programmed), or by an RS232 command.

Below the typical setup when there is a screen format of 2,35:1.



### Warning



After you have selected and confirmed the lens position, the lens starts to move. Do not touch, or place anything near, the lens, otherwise it may cause injury or a malfunction.

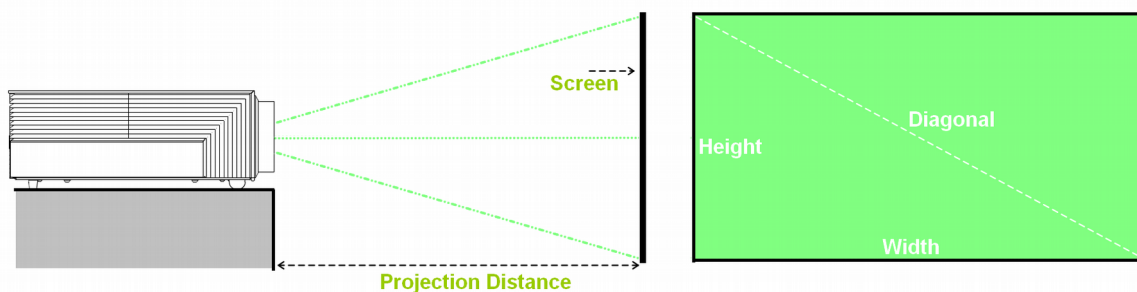
With some setting positions, the range of lens shift may be restricted, even though the unit is installed within the specified parameters.

## 7 Image size and projection distance

Diagonal Size (inch)	Screen Size W x H				Projection Distance (D)			
	meter		inch		meter		inch	
	Width	Height	Width	Height	Wide	Tele	Wide	Tele
80	1.86	1.05	73.21	41.2	2.5	5	8.2	16.4
90	1.99	1.12	78.4	44.1	2.68	5.36	8.79	17.59
100	2.21	1.25	87.2	49.0	2.98	5.96	9.78	19.55
110	2.44	1.37	95.9	53.9	3.28	6.56	10.76	21.52
120	2.66	1.49	104.6	58.8	3.58	7.16	11.75	23.46
130	2.88	1.62	113.3	63.7	3.87	7.74	12.70	25.43
140	3.10	1.74	122.0	68.6	4.17	8.34	13.68	27.36
150	3.32	1.87	130.7	73.5	4.47	9.94	14.67	29.33
180	3.98	2.24	156.9	88.2	5.36	10.72	17.59	35.20
200	4.43	2.49	174.3	98.1	5.96	11.92	19.55	39.11
220	4.87	2.74	191.8	107.9	6.56	13.12	21.52	43.01
250	5.53	3.11	217.9	122.6	7.45	14.90	24.44	48.88
280	6.20	3.49	244.0	137.3	8.34	16.68	27.36	54.76
300	6.64	3.74	261.5	147.1	8.94	17.88	29.33	58.66

**Note:** Zoom ratio is 2.0 x.

**Note:** Diagonal size is relative to a 16:9 screen dimension.



<i>Focal Length (f) (mm)</i>	19.975(Wide) ~ 39.811 @ 2.98m
<i>F Number</i>	1.71(Wide) ~ 2.59 (Tele) @ 2.98m
<i>Zoom Range (ratio); Lens Shift</i>	1.96x; Horiz. +/-30% (+/- 5%), Vert. +75% ~ -75% (+/- 5%)
<i>Throw Ratio (2160p)</i>	1.346 ~ 2.637 @2.988m 100"
<i>Throw Distance (2160p)</i>	2.5m ~ 9m for focus range, optimized@2.98m



## 8 Compatibility Modes

### Computer/Video/HDMI/Mac Compatibility

Signal	Resolution	Refresh Rate (Hz)	Video	Analog	HDMI	Mac
NTSC	720 x 480	60	✓	-	-	-
PAL/SECAM	720 x 576	50	✓	-	-	-
SDTV (576i/p)	720 x 576	50	✓	-	✓	-
SDTV (480i/p)	720 x 480	60	✓	-	✓	-
VGA	640 x 480	60	-	✓	✓	✓
	640 x 480	67	-	✓	-	-
	640 x 480	72.8/ 85	-	✓	-	✓
SVGA	800 x 600	56.3	-	✓	-	-
	800 x 600	60.3/ 72.2	-	✓	✓	✓
	800 x 600	75	-	✓	-	-
	800 x 600	85.1	-	✓	✓	✓
	800 x 600	120	-	-	✓	-
XGA	1024 x 768	60/ 70.1/ 75/ 85	-	✓	✓	✓
	1024 x 768	120	-	✓	✓	-
HDTV (720p)	1280 x 720	50	✓	✓	✓	-
	1280 x 720	60	✓	✓	✓	✓
	1280 x 720	120	-	✓	✓	-
WXGA	1280 x 768	60 / 75 / 85	-	✓	✓	✓
	1280 x 800	60	-	✓	✓	✓
	1366 x 768	60	-	-	✓	-
WXGA+	1440 x 900	60/ 120(RB)	-	-	✓	-
SXGA	1280 x 1024	60/ 75	-	✓	✓	✓
	1280 x 1024	85	-	✓	✓	-
SXGA+	1400 x 1050	60	-	✓	✓	-
	1400 x 1050	85	-	-	✓	-
UXGA	1600 x 1200	60	-	✓	✓	-
	1600 x 1200	65/ 70/ 75/ 85	-	-	✓	-
HDTV (1080p)	1920 x 1080	24	✓	✓	✓	-
	1920 x 1080	30	-	-	✓	-
	1920 x 1080	50	✓	✓	✓	-
	1920 x 1080	60	✓	✓	✓	✓
HDTV (1080i)	1920 x 1080	50/ 60	✓	✓	✓	-
	1920 x 1080	75/ 85	-	-	✓	-
WUXGA	1920 x 1200	60 <sup>1</sup>	-	✓	✓	✓
WQHD	2560 x 1440	60 <sup>1</sup>	-	-	✓	-
UHD	3840 x 2160	24/ 30	-	-	✓	✓
	3840 x 2160	50/ 60	-	-	✓	-
4K	4096 x 2160	24	-	-	✓	✓
	4096 x 2160	30/ 50/ 60	-	-	✓	-

<sup>1</sup>: 1920 X 1200 @ 60 Hz only support RB (reduced blanking).

## Computer Compatibility for MAC

Resolution	Hz	Macbook		Macbook Pro		Power Mac G5		Power Mac G4	
		Digital	Analog	Digital	Analog	Digital	Analog	Digital	Analog
800 x 600	60	✓	✓	✓	✓	-	-	✓	-
800 x 600	72	✓	✓	✓	✓	-	✓	✓	✓
800 x 600	75	✓	✓	✓	✓	-	✓	✓	✓
800 x 600	85	✓	✓	-	✓	-	✓	✓	✓
1024 x 768	60	✓	✓	✓	✓	-	✓	✓	✓
1024 x 768	70	✓	✓	✓	✓	-	✓	✓	✓
1024 x 768	75	✓	✓	✓	✓	-	✓	✓	✓
1024 x 768	85	✓	✓	✓	✓	-	✓	✓	✓
1280 x 720	60	✓	✓	✓	✓	-	✓	✓	✓
1280 x 768	60	✓	✓	✓	✓	-	-	-	✓
1280 x 768	75	-	✓	-	✓	-	✓	✓	✓
1280 x 768	85	-	✓	-	✓	-	-	-	✓
1280 x 800	60	-	✓	-	✓	-	✓	✓	✓
1280 x 1024	60	✓	-	-	✓	-	✓	✓	✓
1280 x 1024	75	✓	-	-	✓	-	✓	✓	-
1920 x 1080	60	✓	-	-	✓	-	✓	✓	✓
1920 x 1200 <sup>1</sup>	60	✓	-	-	✓	-	✓	✓	✓
3840 x 2160	60	-	-	-	-	-	-	-	-

<sup>1</sup>: 1920 X 1200 @ 60 Hz only support RB (reduced blanking).

## 9 Replacing the lamp

This menu section provides the instruction to replace the projector lamp. The projector automatically detects the lamp life. When the lamp life is nearing the end of use a warning message will appear on the screen:

Lamp Warning: Lamp life exceeded.

When you see this message, please contact your local reseller or service center to change the lamp as soon as possible. Make sure the projector has been cooled down for at least 30 minutes before changing the lamp.

### Warning



If ceiling mounted, please use caution when opening the lamp access panel. It is recommended to wear safety glasses if changing the lamp while ceiling mounted. Caution must be used to prevent any loose parts from falling out of projector.



Lamp compartment is hot! Allow it to cool down before changing lamp!



To reduce the risk of personal injury, do not drop or touch the lamp module. It may shatter and cause injury if it is dropped.

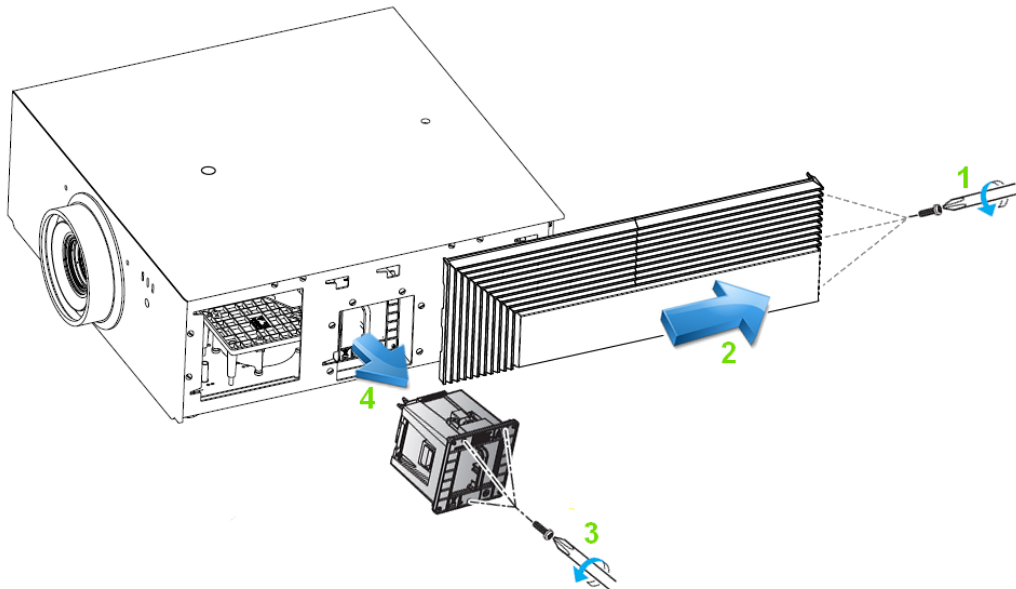
### Procedure:

1. Switch off the power to the projector by pressing the "⏻" button on the remote control or the projector keypad.
2. Allow the projector to cool down for at least 30 minutes.
3. Disconnect the power cord.
4. Unscrew the screws on the lamp module. (1)
5. Slightly flip the cover to release the hinges. (2)
6. Remove the cover. (2)
7. Unscrew the screws on the lamp module. (3)
8. Remove the lamp module carefully. (4)
9. To replace the lamp module, reverse the previous steps.
10. Turn on the projector and reset the lamp timer.
11. Reset the lamp timer. Open the OSD "Menu" and select "Setup" main menu and then "Lamp Settings" sub-menu. Here there is the "Lamp Reset" function, select "Yes" to reset lamp timer.

**Note:** the screw on the lamp cover and the lamp cannot be removed.

**Note:** the projector cannot be turned on if the lamp cover has not been placed back on the projector.

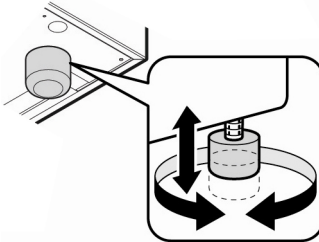
**Note:** do not touch the glass area of the lamp. Hand oil can cause the lamp shatter. Use a dry cloth to clean the lamp module if it was accidentally touched.



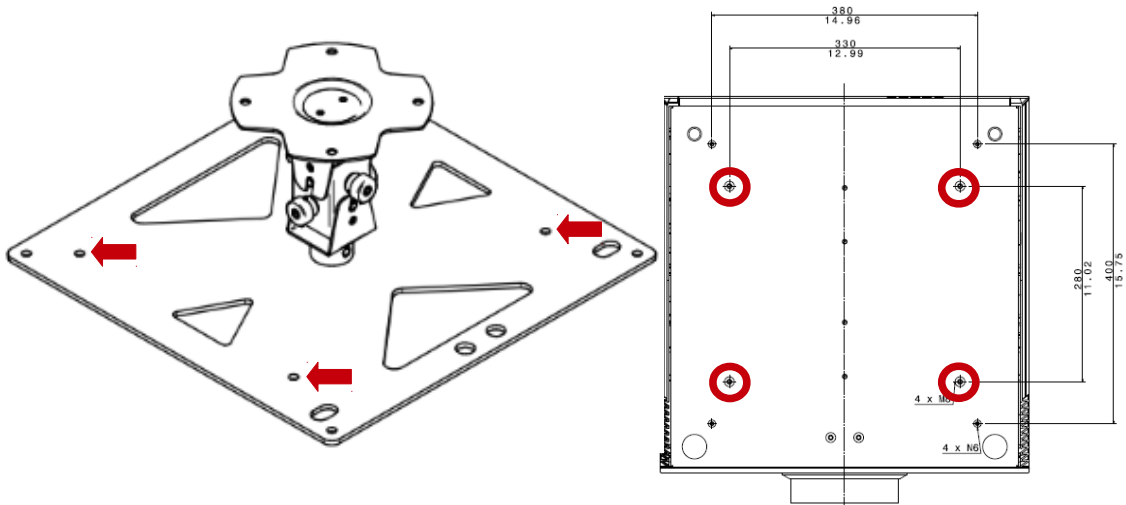
## 10 How to install the brkt4 bracket

This quick guide explain how to install the brkt4 bracket to the NERO4 projector.

- To fit the bracket unscrew and remove the 2 front elevator feet



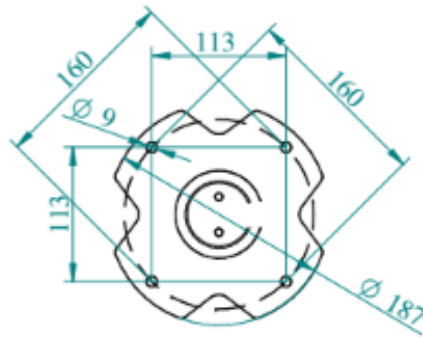
- Unscrew and remove the 4 screws under need the projector, indicated by the red circles.



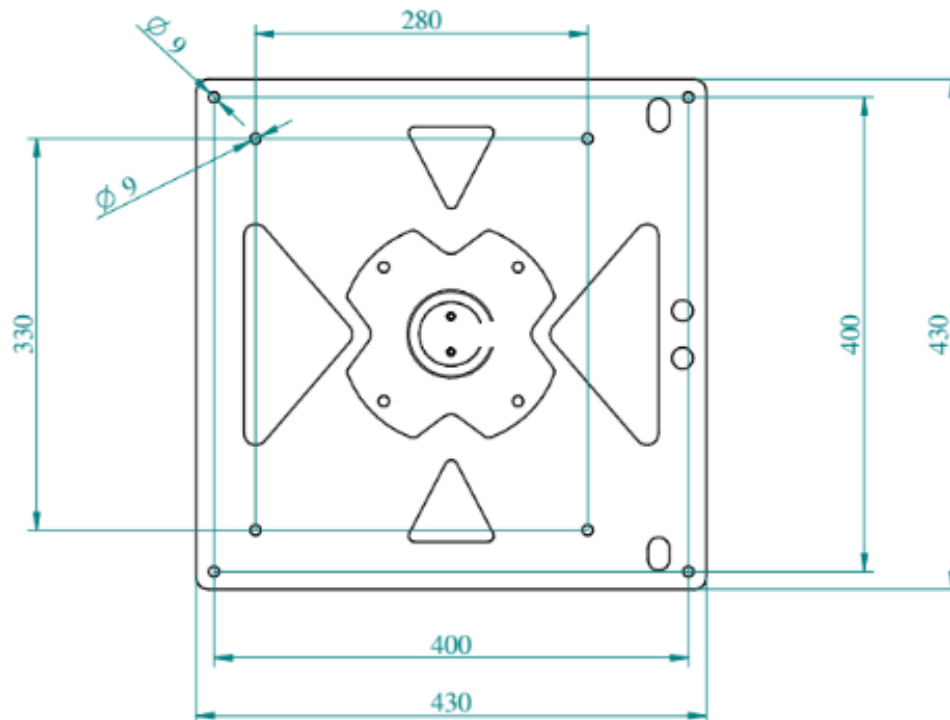
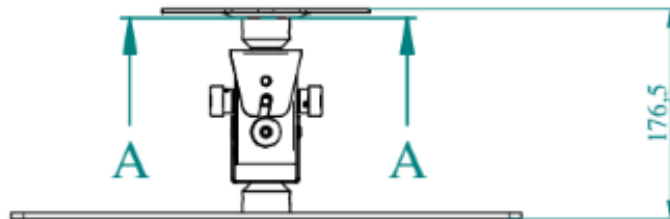
- Attach bracket by using 4 x M8 screws (provided with the bracket kit) not exceeding 15 mm in thread length



For ceiling mounting use only SIM2-approved ceiling brackets and adhere to the installation instructions and safety guidelines provided with the bracket. Do not over-tighten the screws.



**Section A-A**





# 11 Specifications

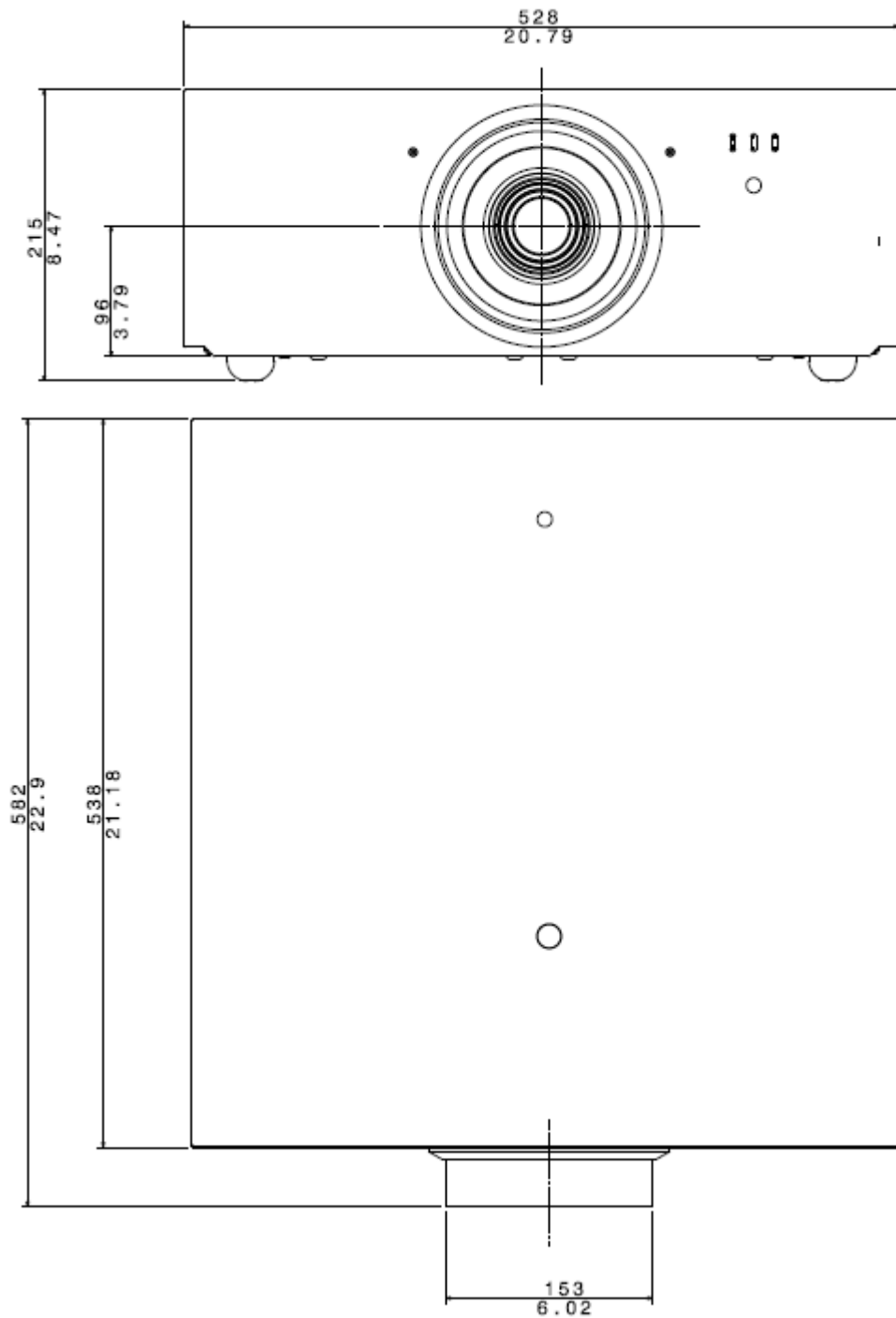
Projection Type	Digital Light Processing (DLP Type 0.66 in.) 1-chip 3840x2160
Projection Lens	High-quality glass 1.36 ÷ 2.68 ± 5% Zoom range (ratio): 1.96x Throw Distance 2,5m ÷ 9m for focus range, optimized@2.98m Focal Length (f) (mm) 19.975(Wide) ~ 39.811 @ 2.98m F Number 1.71(Wide) ~ 2.59 (Tele) @ 2.98m
Image Resolution	4K UHD (support to 3840x2160@60Hz, 4096x2160@60Hz) <sup>1</sup>
Dynamic Range	HDR compliant, with dedicated Display Modes and 4 presets to cover the screen size from 100 to 160 inches.
Lens shift	Manual Horizontal: ± 30% offset, ± 5% Vertically: ± 75% offset, ± 5%
Zoom and Focus Adjustment	By OSD menu
Perfect-Fit	Setup zoom, focus and digital lens shift (H,V) values in ten different memories.
Light Source	450W lamp (dimmable) – up to 5.000 Ansi Lumens
Lamp life expectancy	3000 hours typical in ECO mode
Inputs/Outputs	<ul style="list-style-type: none"> <li>▪ 1 x RGBHV / YCbCr (D-Sub 15-pin female)</li> <li>▪ 2 x HDMI v.1.4a, supp. to 3840x2160@30Hz HDMI1, HDMI3</li> <li>▪ 1 x HDMI v.2.0a - HDCP 2.2 UHD HDMI2</li> <li>▪ 1 x HDMI out v.1.4 – HDCP 1.4, HDMI3 loop through</li> <li>▪ 1 x Display Port v.1.2</li> <li>▪ 1 x USB type A for Fw upgrade</li> <li>▪ 1 x RJ45 for control communications and internal web pages</li> <li>▪ 1 x RS232 (D-sub 9 pin) for control communications</li> <li>▪ 2 x IR receivers</li> <li>▪ 2 x 12V, 150mA ±10%, Triggers output</li> <li>▪ 1 x Wired IR receiver</li> </ul>
Controls	<ul style="list-style-type: none"> <li>▪ IR remote control</li> <li>▪ Keypad on rear panel</li> <li>▪ RS-232 Serial commands</li> <li>▪ RJ45 ethernet commands and internal web pages</li> </ul>
Frequency	<ul style="list-style-type: none"> <li>▪ Horizontal: 15.375~91.146 kHz, Vertical: 24~120Hz</li> </ul>

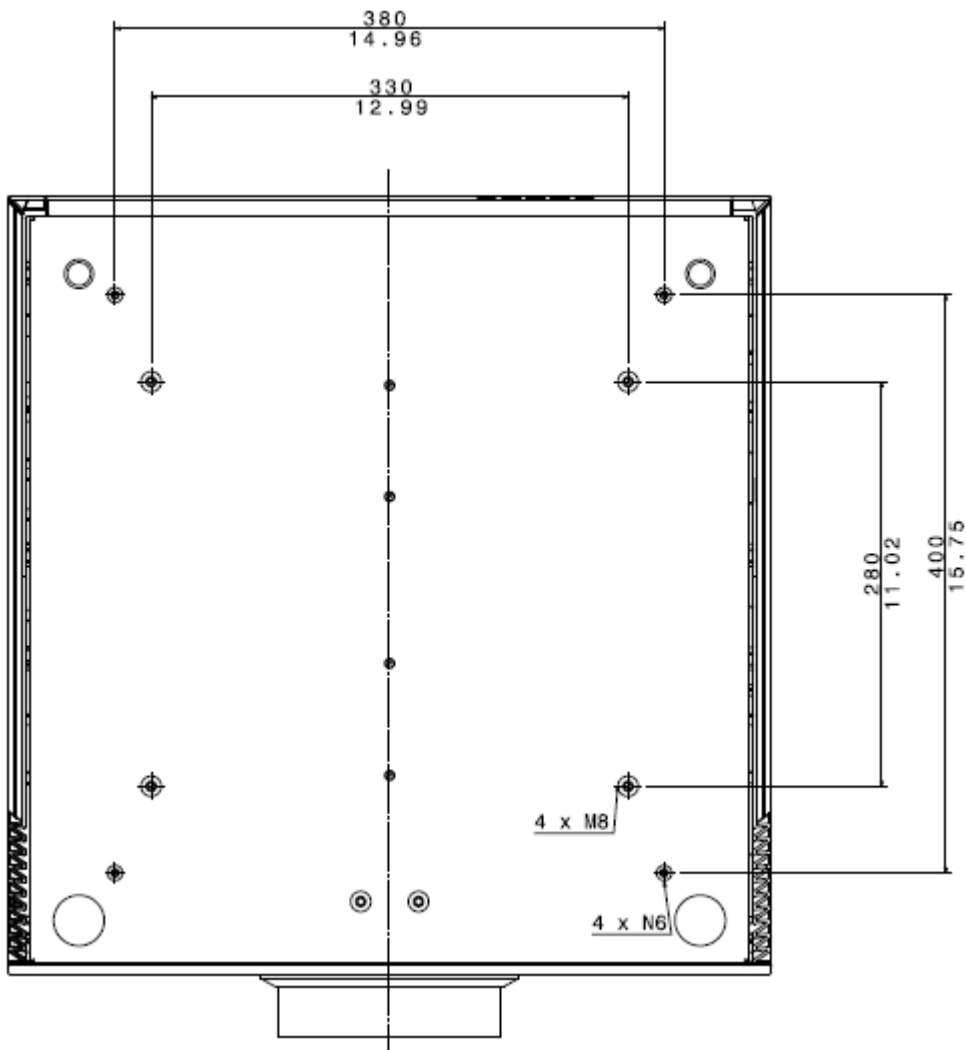
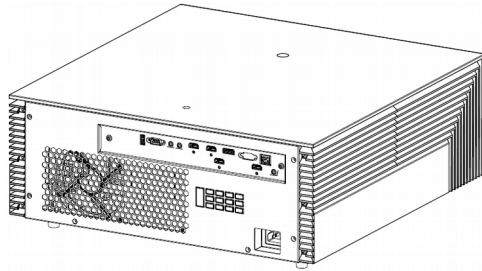
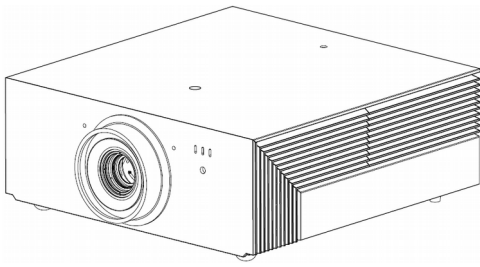


Power	<ul style="list-style-type: none"> <li>▪ Requirement: 100~240 V AC <math>\pm</math>10% @ 50-60 Hz</li> <li>▪ Power Consumption: <ul style="list-style-type: none"> <li>Bright Typ. 585W, max 644W @110VAC,</li> <li>Typ. 555W, max 611W @220VAC;</li> <li>Eco Typ. 470W, max 517W @110VAC,</li> <li>Typ. 450W, max 495W @220VAC</li> </ul> </li> <li>▪ Standby Consumption: &lt; 0.5 W @110/220VAC</li> </ul>
Size and Weight	<ul style="list-style-type: none"> <li>▪ Depth: 582 mm (22.9 in.)</li> <li>▪ Width: 528 mm (20.8 in. - lens included )</li> <li>▪ Height: 215 mm (8.47 in. - lever feet included)</li> <li>▪ Weight: 32 kg (70.5 lb.) approx.</li> </ul>
Operating Temperatures	5 ~ 35 °C
Altitude Operating	for 0 ÷ 2500 ft, 5 ~ 35 °C for 2500 ÷ 5000 ft, 5 ~ 30 °C for 5000 ÷ 10000 ft, 5 ~ 25 °C
Humidity Operating	10% ~ 85%, non-condensing

## 12 Dimensions

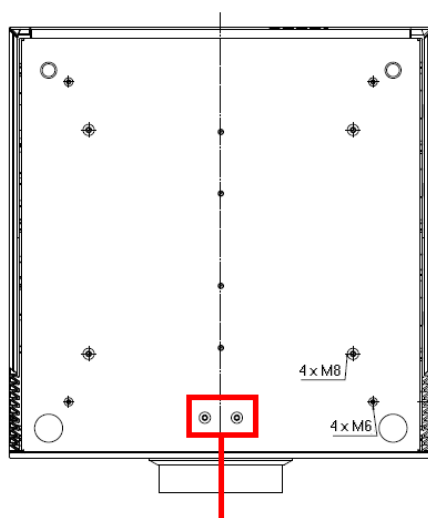
NERO4 dimensions in millimeters and inches.





## 13 Holding rings

In case of ceiling installation, to help you on holding the product or to add a fixing security, you can install the two security rings included on accessory box. You can use these security rings during ceiling installation or leave them after the installation to prevent any accidental dislodge.



remove two screws  
and install the holding ring





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