

BLACK WING mk2024



User manual
R599910

Changes

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TABLE OF CONTENTS

1.0	SAFETY INSTRUCTIONS	5
1.1	Important Information	5
1.2	Important Safeguards	5
1.3	Laser Classification	6
1.4	European Specific Information	7
1.5	USA and Canada Specific Information	8
2.0	INSTALLATION GUIDELINES	8
2.1	Carrying and installing this unit	8
2.2	Precaution during installation	8
2.3	Air-Flow and Space Requirements	9
2.4	Installing the projection screen	9
2.5	When to use the High Altitude mode	9
2.6	Ceiling Mounting the Unit	10
2.7	Projection Distance	10
2.8	Setting the Lens and using Lens Memories	11
3.0	REMOTE CONTROL UNIT (RCU)	13
4.0	GETTING STARTED	14
4.1	General View	14
4.2	Connecting the Power Cord	15
5.0	CONNECTIONS	15
5.1	Caution when connecting a Device to HDMI Input	15
5.2	Connecting a Video Source to the Projector	16
5.3	Connecting an Automation or Control device	16
5.4	Back Panel and Operating Buttons	17
6.0	FIRST START UP	17
6.1	Turn the power ON	17
6.2	Turn the Power Off	18
7.0	MENU STRUCTURE	19
8.0	PICTURE ADJUST	22
8.1	Picture Modes and Color Profiles	22
8.2	Advanced Picture Mode	24
8.3	Color Management (TSL adjustments)	24
8.4	Color Temperature Presets	24
8.5	Advanced Color Temperature	25
8.6	Gamma	25
8.7	Advanced Gamma	25
8.8	Multiple Pixel Control Level (MPC Level)	26
8.9	Motion Control	26
8.10	Contrast	27
8.11	Brightness	27
8.12	Color	27
8.13	Tint	27
9.0	UHD AND 8K SETTINGS	27
9.1	Important Information	27
9.2	Choosing the correct Input level	27
9.3	High Dynamic Range sources	27
9.4	Frame Adapt HDR (Dynamic Tone Mapping)	28
9.5	Panasonic UHD BD Player DP-UB9000	28
9.6	HDR Processing	28
9.7	Theater Optimizer	29
9.8	HDR Level	29
9.9	Auto Tone Mapping Level	30

9.10	Manual Tone Mapping Adjustment	30
10.0	INPUT SIGNAL	30
10.1	Input Level	30
10.2	Color Space	30
10.3	Auto Pic. Mode Select.....	31
10.4	HDMI EDID Setting	31
11.0	3D CONTENT AND 3D PROJECTION	31
11.1	General Information about 3D playback	31
11.2	3D Settings	32
11.3	Operating the 3D Glasses	32
12.0	INSTALLATION	33
12.1	Installation Mode.....	33
12.2	Lens Control	33
12.3	Pixel Adjust	34
12.4	Mask	34
12.5	Anamorphic.....	34
12.6	Screen Setting.....	35
12.7	Installation Style.....	35
12.8	Keystone.....	35
12.9	Aspect.....	36
13.0	DISPLAY SETUP	36
14.0	FUNCTION	36
14.1	Trigger	36
14.2	Off-Timer.....	36
14.3	ECO Mode.....	36
14.4	Network.....	37
14.5	Remote Code A or B.....	37
14.6	High Altitude Mode.....	37
14.7	Hide Mode.....	37
14.8	Factory Reset.....	37
14.9	Software Update	37
14.10	License.....	37
15.0	INFORMATION MENU	37
16.0	CINEMASCOPE SETUPS	38
16.1	Lens Zoom or Static Cinemascope kit	38
16.2	Cinemascope setup using the lens Zoom	38
16.3	Installing a 2.35:1 screen with the Static Cinemascope kit.....	39
17.0	MAINTENANCE	40
17.1	LEDs indicators.....	40
17.2	Cleaning dust Filter every 2000 hours	40
17.3	Dirt on the Lens.....	41

1.0 SAFETY INSTRUCTIONS

1.1 Important Information

Information for Users on Disposal of Old Equipment



This symbol indicates that the electrical and electronic equipment should not be disposed of as general household waste at its end of life. Instead, the product should be handed over to the applicable collection point for the recycling of electrical and electronic equipment for proper treatment, recovery and recycling in accordance with your national legislation.

For more information about collection point and recycling of this product, please contact your local municipal office, your household waste disposal service or the shop where you purchased the product. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

1.2 Important Safeguards

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. **IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD.** In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service.



The power input is auto-ranging from 110 to 240 VAC.

- Place the projector near a wall outlet where the plug can be easily unplugged.
- This apparatus must be earthed.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use attachments not recommended by the product manufacturer as they may be hazardous.
- Do not use this product near water. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation, which may result in fire, electric shock, or other hazards.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. The product should be mounted according to the manufacturer's instructions, and should use a mount recommended by the manufacturer.
- When the product is used on a cart, care should be taken to avoid quick stops, excessive force, and uneven surfaces which may cause the product and cart to overturn, damaging equipment or causing possible injury to the operator.



Slots and openings are provided for ventilation must not be blocked or covered. Do not place this unit on a bed, sofa, rug or other similar surface.

- This product should be operated only with the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
- This product is equipped with a three-wire plug. This plug will fit only into a grounded power outlet. If you are unable to insert the plug into the outlet, contact your electrician to install the proper outlet. Do not defeat the safety purpose of the grounded plug.
- Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at doors, plugs, receptacles, and the point where they exit from the product.
- For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the product due to lightning and power line surges.
- Do not overload wall outlets, extension cords, or convenience receptacles on other equipment as this can result in a risk of fire or electric shock.
- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages and other hazards. Refer all service to qualified service personnel.
- Unplug this product from the wall outlet and refer service to qualified service personnel under the following

conditions:

- a) When the power supply cord or plug is damaged.
- b) If liquid has been spilled, or objects have fallen on the product.
- c) If the product has been exposed to rain or water.
- d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the Operation Manual, as an improper adjustment of controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
- e) If the product has been dropped or damaged in any way.
- f) When the product exhibits a distinct change in performance - this indicates a need for service.
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or with same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
- The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.
- When connecting other products such as VCR's, and personal computers, you should turn off the power of this product for protection against electric shock.
- Do not place combustible behind the cooling fan. For example, cloth, paper, matches, aerosol cans or gas lighters that present special hazards when over heated.

About the installation place

Do not install the projector in a place that cannot support its weight securely. If the installation place is not sturdy enough, the projector could fall or overturn, possibly causing personal injury.



To reduce the risk of electric shock, do not remove cover. Refer servicing to qualified service personnel. This projector is equipped with a 3 blades grounding type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

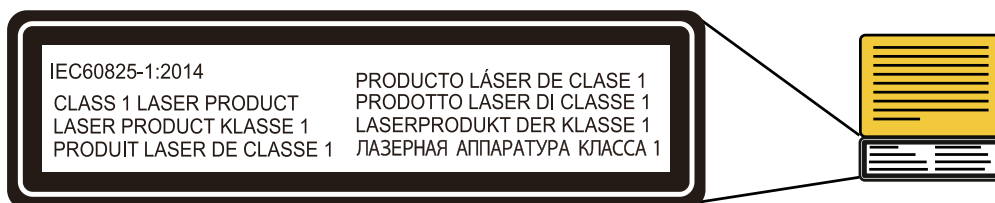


To prevent fire or shock hazards, do not expose this appliance to rain or moisture. This apparatus must be earthed.

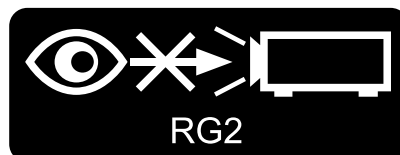
1.3 Laser Classification



This unit is a **CLASS 1 Laser Product** that meets the standards IEC60825-1:2014. For more information, please refer to the Caution label located on the side of this unit.



The Laser Caution label is located on the side of this unit.



IEC62471-5 labels located at the top front of this unit.



As with any bright light source, do not stare into the beam when this unit is operating. This unit is rated **RG2** from the IEC 62471-5 classification.

Laser specifications



Laser radiations: avoid direct eye exposure CLASS 1 Laser Product. Do not look into the lens while in use. Light source specifications:

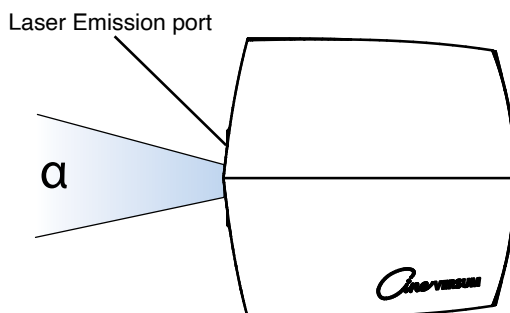
-105W Laser diodes x 1

-Wavelength 455 nm

-Maximum output is 105W.

Beam divergence angle from lens of this unit:

Beam divergence angle from lens



- **Blackwing 1-L and Blackwing 2-L:**

α Tele = 39° / α Wide = 71°

- **Blackwing Elite-L**

α Tele = 33.5° / α Wide = 62.7°

Laser Energy



The Laser Energy label is located on the side of this unit.
WARNING: EXPOSURE NEAR APERTURE MAY CAUSE BURNS.

Specific cautions

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser radiation exposure.
- Do not stare into the projector beam at any distance from the projector.
- Be careful to beam from lens when using the remote control for starting the projector while in front of the projection lens.
- Do not use of optical aids such as binoculars or telescopes inside the beam.

1.4 European Specific Information

CE mark and Directive 2011/65/EU - ROHS 2 (Europe only)

In accordance with Article 7 and the adoption into national law by 2nd January 2013, this product has been designed and manufactured in accordance with Article 4. The technical documentation and the written declaration of conformity that assesses the product conformity can be provided to the competent National Authority upon an email request to: rohs2@cineversum.com

Other countries: if you wish to dispose of this product, please do so in accordance with applicable national legislation or other rules in your country for the treatment of old electrical and electronic equipment.

1.5 USA and Canada Specific Information

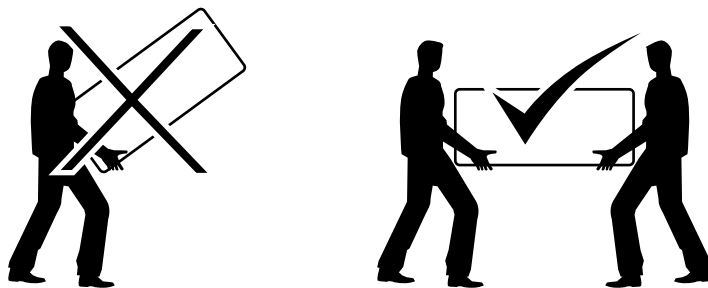
FCC Information

Changes or modification not approved by Cineversum could void the user's authority to operate the equipment. Note: This equipment has been tested and found to comply with the limits for Class B digital devices, 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.

2.0 INSTALLATION GUIDELINES

2.1 Carrying and installing this unit

This unit weights more than 20 kg, at least two persons are necessary for carrying and installing.



Make sure have at least 2 persons to carry and install this unit

2.2 Precaution during installation

Do not install in this following conditions

This unit is a precision device. Please refrain from installing or using it at the following locations. Otherwise, it may cause fire or malfunction.

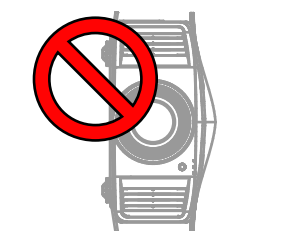
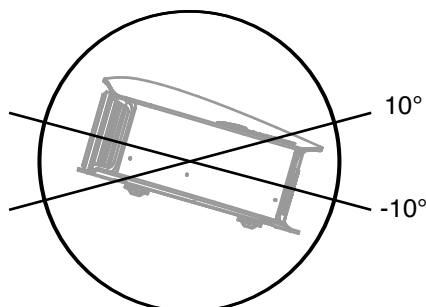
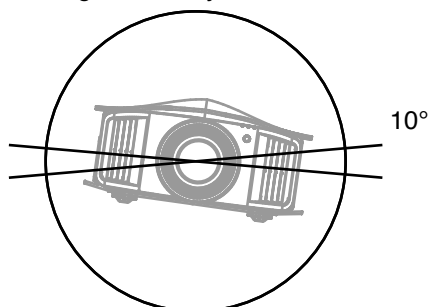
- Dusty, wet and humid places
- Places subject to oily smoke or cigarette smoke
- On top of a carpet or bedding, or other soft surfaces
- Places exposed to direct sunlight
- Places with a high or low temperature
- Do not install this unit in a room that is oily or subject to cigarette smoke. Even a small quantity of smoke or oiliness can have a long-term impact on this unit.



This unit produces a great amount of heat, and is designed to take in cool air to cool its optical components. Using the unit at the above locations may cause dirt to attach to the light path, thereby resulting in dark images or dull colors. Dirt that sticks to the optical components cannot be removed.

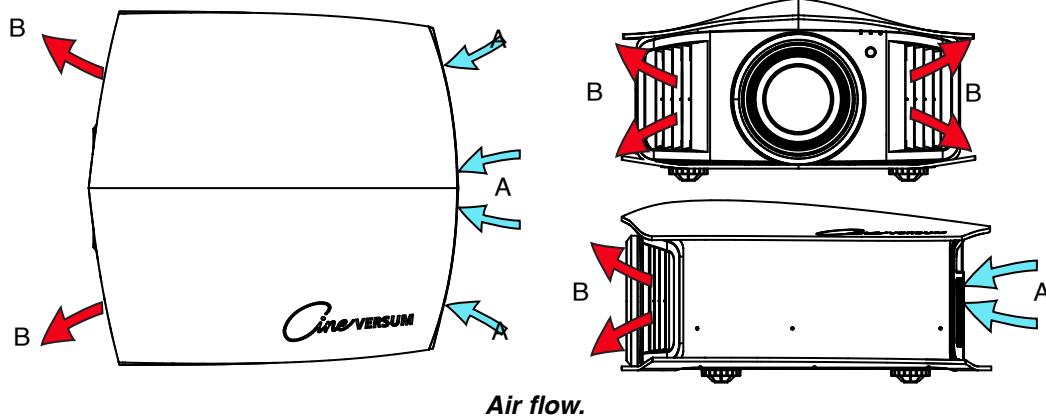
Allowed Inclination during operation

Due to the lamp position and operating angle, this unit cannot operate with more than 5° angle horizontally and 15° angle vertically. This unit cannot be operated on the side.



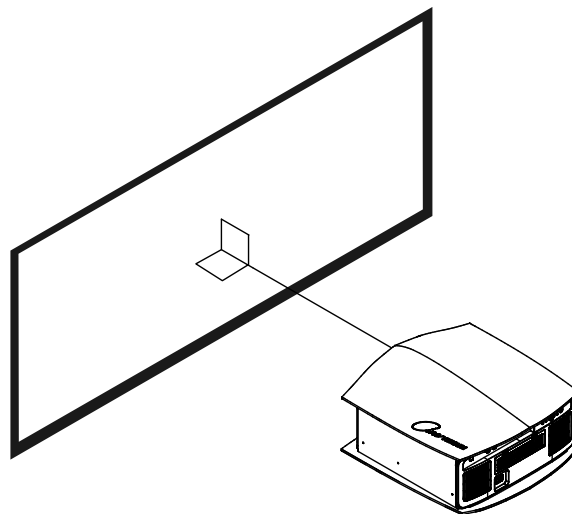
2.3 Air-Flow and Space Requirements

This unit can be installed in table, ceiling, rear table or rear ceiling position. Make sure that the unit is installed within the space requirements described below (A: air inlets, B: air outlets). This unit needs at least 30 cm of non-obstructed space on each sides and 15 cm on top to allow sufficient air flow.



2.4 Installing the projection screen

Install the projection screen and this unit such that they are perpendicular to each other as showed in the picture below.



Place this unit perpendicular to the screen.



Use the electronic shift and zoom to correct the picture size and position as needed. You can also use the feet to adjust the projected picture level.

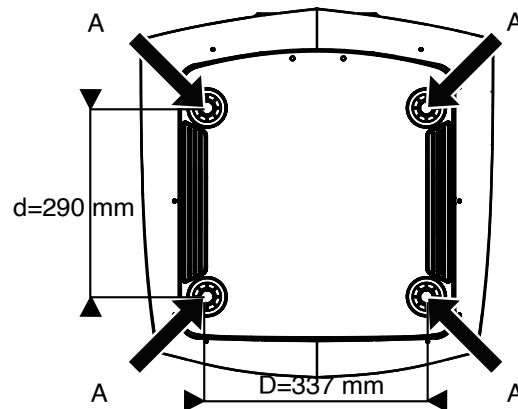
Screen material suitable for 4K/8K projection.

To optimize the sharpness and detailing of the picture, please choose a screen material optimized for ultra High resolution (UHD 4K) or 8K. Avoid any material with uniform patterns as checks that may cause interference artefacts to occur. If this is the case, you can try to slightly change the size of the projected image to make the interference patterns less noticeable.

2.5 When to use the High Altitude mode

When using this unit at a location that is higher than 900 meters or 3000 feet above sea level and making the air pressure low enough to decrease its efficacy cooling this unit, set the "High Altitude Mode" to "On".

2.6 Ceiling Mounting the Unit



When mounting of this unit is required, make use of the 4 screw holes (M5 x 20 mm screws) at the bottom of this unit indicated by the letter A. You must remove the feet to insert the ceiling mount screws. To properly tighten the screws, set the torque between 1.5 Nm to 2.0 Nm.

Allow sufficient space around the air inlets to avoid blocking the air flow.

If you do not feel confident, you can ask your dealer to install the unit for you. Installing the unit on your own may cause the unit to fall resulting in injury.

Precautions for Ceiling-mount

- To ceiling-mount this unit, special expertise and techniques are necessary. Be sure to ask your dealer or specialist to perform mounting.
- Do not mount at places that may be subjected to vibration and shock.
- Depth of the screw holes (A) is 23 mm. Use at least 13 mm long screws but not longer than 23 mm as you may damage inside the projector.
- Install at a safe place in case this unit or a part of it may drop. If the light-source lamp is broken, small pieces of glass from the mesh of the filter may appear outside the unit.
- Regardless whether the unit is still under guarantee, Cineversum is not liable for any product damage caused by mounting the unit with third party ceiling mount or when the environment is not suitable for ceiling-mount.

Dimensions

- Distances between left and right holes is $D = 337$ mm.
- Distances between front and back holes is $d = 290$ mm.

2.7 Projection Distance

Blackwing 1-L and Blackwing 2-L specifications

Projection Screen Diagonal Size (Aspect Ratio 16:9)	Projection Screen Base Size (Aspect Ratio 16:9)	Projection Screen Height (Aspect Ratio 16:9)	Blackwing Series Projection Distance
60" (152 cm)	52.3" (133 cm)	29.4" (747 cm)	188 cm - 385 cm
70" (178 cm)	61.0" (155 cm)	34.3" (872 cm)	220 cm - 450 cm
83" (211 cm)	72.3" (184 cm)	40.7" (103 cm)	261 cm - 534 cm
110" (279 cm)	95.9" (244 cm)	53.9" (137 cm)	349 cm - 710 cm
138" (350 cm)	120.3" (306 cm)	67.7" (172 cm)	438 cm - 891 cm
150" (350 cm)	130.7" (332 cm)	73.5" (187 cm)	477 cm - 970 cm
180" (457 cm)	156.9" (306 cm)	88.2" (224 cm)	573 cm - 1165 cm
200" (508 cm)	174.3" (443 cm)	98.1" (249 cm)	638 cm - 1295 cm

- The projection screen sizes and projecting distances in the table above are provided only as a guide. Please use them as reference during installation.

Blackwing Elite-L specifications

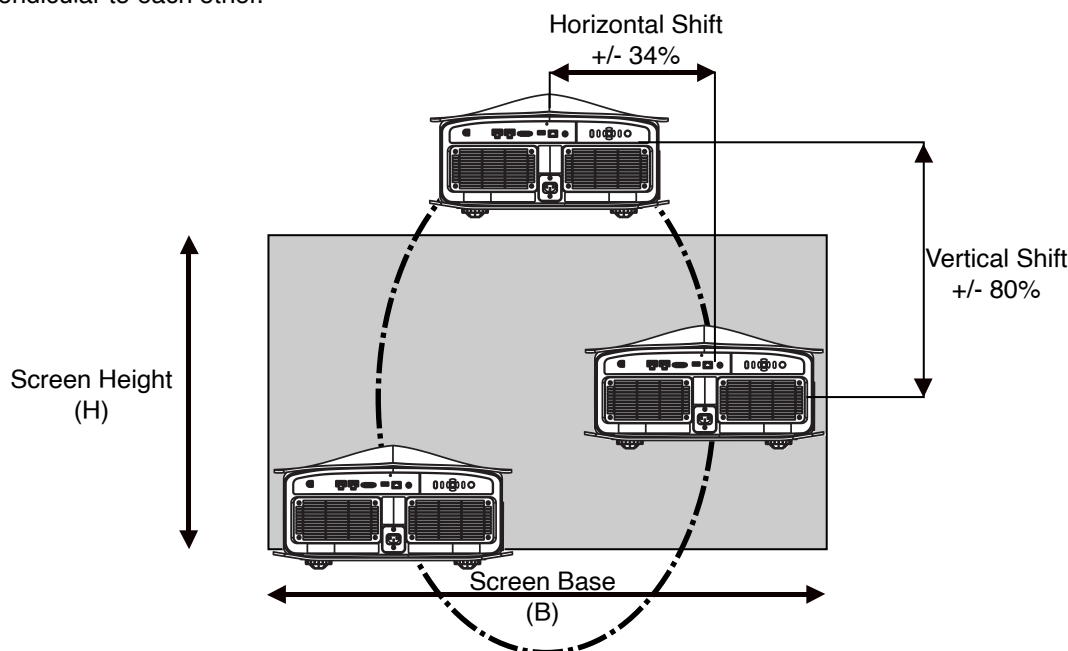
Projection Screen Diagonal Size (Aspect Ratio 16:9)	Projection Screen Base Size (Aspect Ratio 16:9)	Projection Screen Height (Aspect Ratio 16:9)	Blackwing Series Projection Distance
60" (152 cm)	52.3" (133 cm)	29.4" (747 cm)	178 cm - 366 cm
70" (178 cm)	61.0" (155 cm)	34.3" (872 cm)	209 cm - 428 cm
83" (211 cm)	72.3" (184 cm)	40.7" (103 cm)	251 cm - 507 cm
110" (279 cm)	95.9" (244 cm)	53.9" (137 cm)	331 cm - 675 cm
138" (350 cm)	120.3" (306 cm)	67.7" (172 cm)	418 cm - 843 cm
150" (350 cm)	130.7" (332 cm)	73.5" (187 cm)	453 cm - 860 cm
180" (457 cm)	156.9" (306 cm)	88.2" (224 cm)	545 cm - 1107 cm
200" (508 cm)	174.3" (443 cm)	98.1" (249 cm)	606 cm - 1230 cm
230" (584 cm)	200.5" (509 cm)	112.8" (286 cm)	694 cm - 1405 cm
250" (635 cm)	217.9" (553 cm)	122.6" (311 cm)	755 cm - 1528 cm
280" (711 cm)	244.0" (620 cm)	137.3" (349 cm)	846 cm - 1713 cm

- The projection screen sizes and projecting distances in the table above are provided only as a guide. Please use them as reference during installation.
- 230" up to 280" diagonal screens available with Blackwing Elite-L model only.

2.8 Setting the Lens and using Lens Memories

Adjust the picture position

The optimum image can be obtained when the centre of this projector's lens and the screen are placed perpendicular to each other.



This unit comes with a vertical and horizontal shift to suit most installations. Make sure that your installation does not exceed 80% vertical offset and 34% horizontal offset to avoid trapezoidal correction.

This unit comes with an optical shift that features vertical and horizontal adjustment of the projection screen position.

Adjust the picture to your screen.

- The Vertical Shift level is between -80% and 80% of the Screen Height ($0.80 \times H$).
- The Horizontal Shift level is between -34% and 34% of the Screen Base ($0.34 \times B$).
- If the projector is not installed perpendicularly to the screen, use keystone correction to fulfill your screen. Note that using keystone correction, may be disabled by 3D projection. If you want the best possible 3D pictures, It is not recommended to use trapezoidal correction.

- If you plan to use the vertical and horizontal shifts without keystone correction, make sure to not exceed the values contained in the tab below for the Blackwing 1-L and Blackwing 2-L:

Left / Right shift	0%	10%	20%	25%	30%	34%
max. up / down shift	80%	66%	47%	34%	18%	0%

- The Blackwing Elite-L has an extended shift range as follow:

Left / Right shift	0%	10%	20%	25%	30%	35%	43%
max. up / down shift	100%	87%	72%	58%	45%	22%	0%

• Adjust the picture position

The projector has motorized vertical and horizontal shifts. Browse into the Menu to the [Lens Control] setting into the Installation menu, select the shift adjustment. Or use the direct access button on the Remote Control Unit [Lens Control] to make the lens adjustment. You can use self-generated test pattern of the projector or an external pattern, from a calibration DVD by example, by setting the Adjust pattern option to Off.

• Adjust the picture Zoom

Into the [Lens Control] menu, press the [Ok] button to access the Zoom adjustment. Use the up and down buttons to adjust the picture size until the screen is completely filled.

• Adjust the Picture Focus

From the [Lens Control] menu, press the [Ok] button to access the Focus adjustment. Use the up and down buttons to adjust the picture focus

Using Installation Modes

You can save the current picture position, zoom and focus into one of the 10 Installation Modes. Each Installation Mode uses a memory that stores the current position, zoom, focus of the lens. Additionally, you can set a custom name of 10 characters or less.

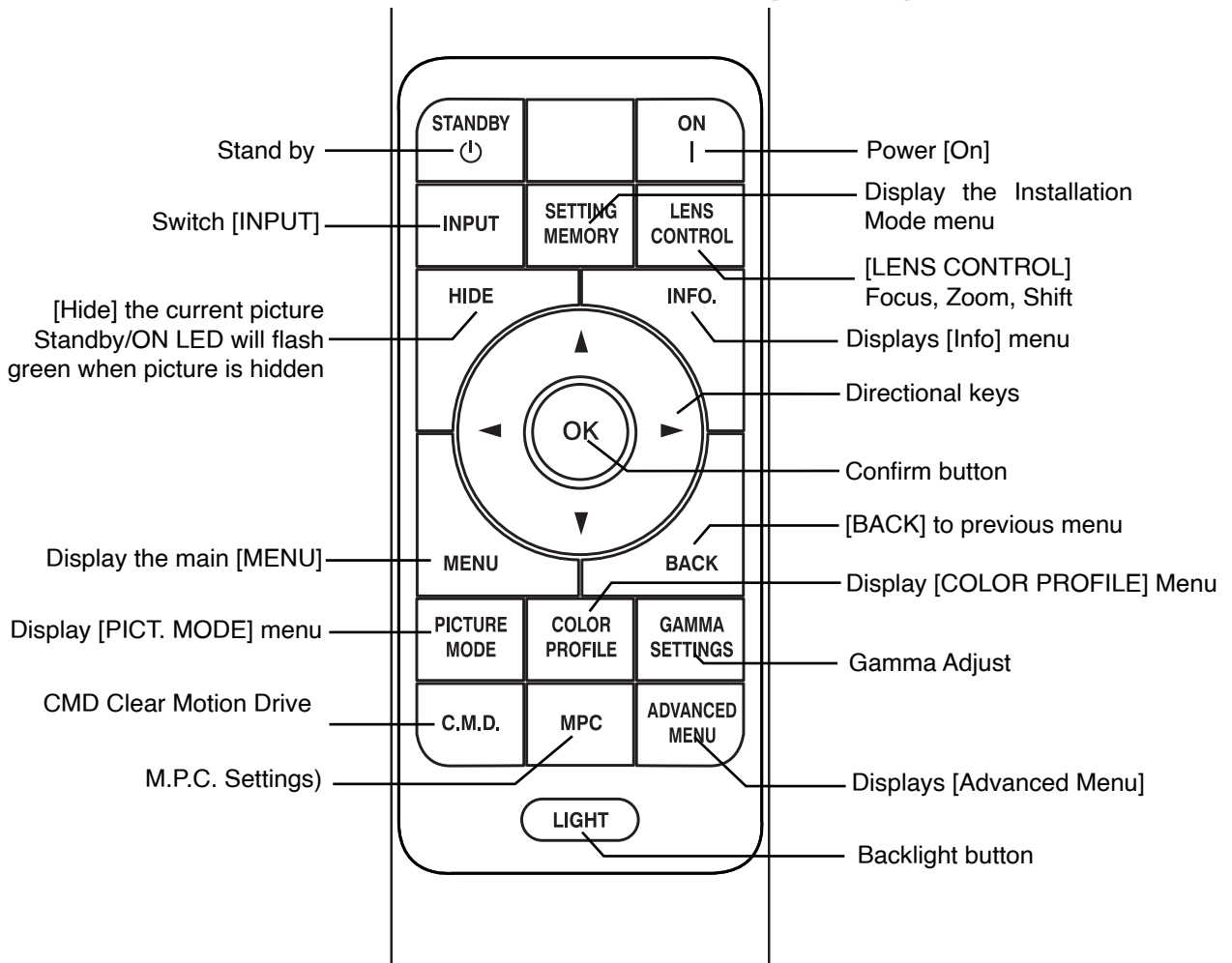
• Current lens setup

All the lens settings will be stored by default into the Installation Mode 1. You can also copy a Mode into another using the Mode Copy function. Menu > Installation > Installation Mode > Mode Copy. Then you can call back anytime later the current lens setup using the direct access button [Mode 1] up to [Mode 3] on the RCU.

• Limitations of use

Each memory can store a different picture size and position, but there are limitations on the possible pictures sizes and positions because of the projector being at a fixed location. In order to calculate the best position of the projector toward the screen, the installer has to make sure that among the different desired pictures, the smaller one with the smaller zoom, is within the offset limits (horizontal and vertical shifts) of the projector. Once the position of the projector is determined by the smallest possible picture, double check that the larger one does not exceed the zoom capacity.

3.0 REMOTE CONTROL UNIT (RCU)



Remote Control Unit buttons

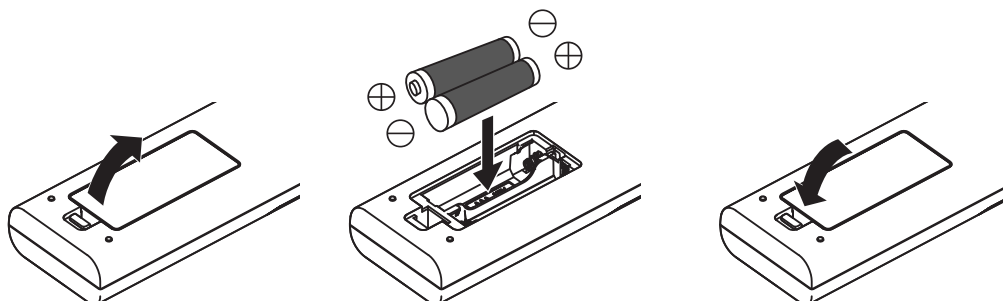


The remote control unit can be used by having the signal reflected off a screen, as the effect of signals reflected differs with the type of screen used, operable distance may decrease.



If the remote control has to be brought closer to the projector to operate, it means that the batteries are wearing out. When this happens, replace the batteries. Always insert the batteries according to the + and - marks.

Changing the RCU batteries

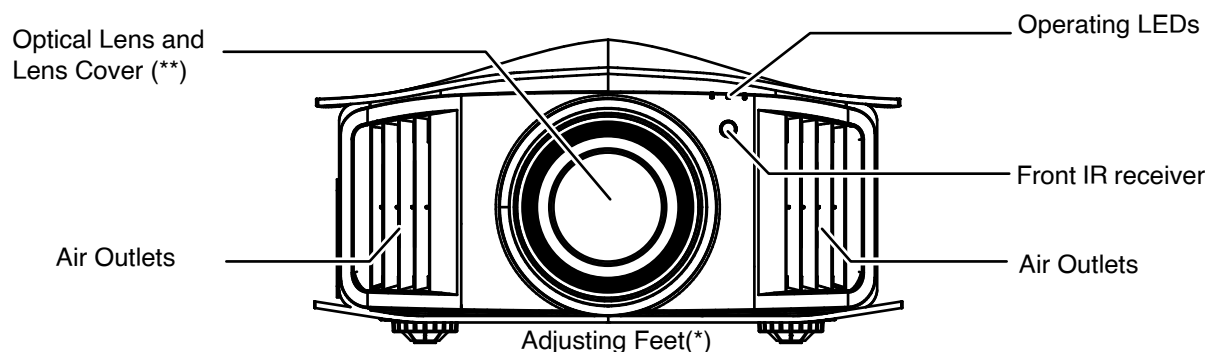


Insert the batteries according to the + and - marks. Be sure to insert the - end first. When removing the battery, do so from the + end. If an error occurs while using the remote control, remove the batteries and wait for five minutes. Load the batteries again before operating the remote control.

4.0 GETTING STARTED

4.1 General View

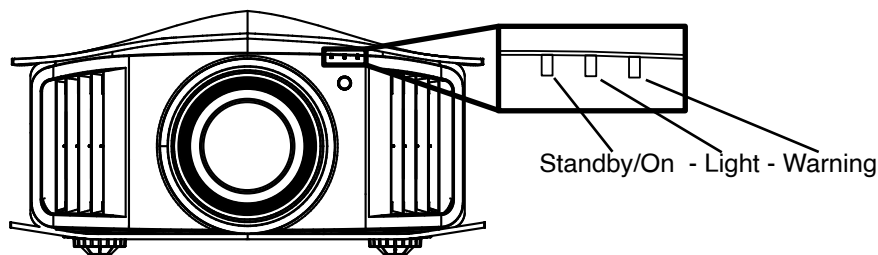
Front side



(*) The height of this unit may be adjusted by turning the adjusting feet from 0 up to 5 mm. This may be used to finely adjust the picture (horizontal) level.

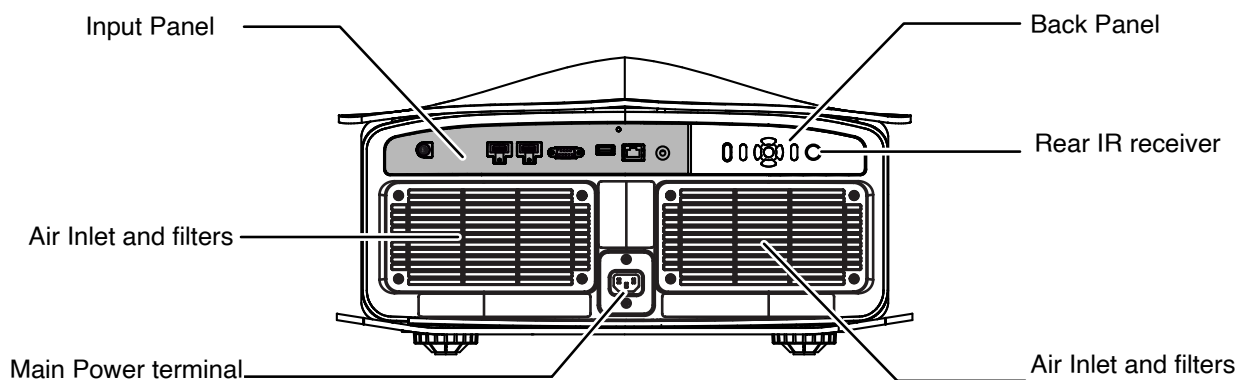
(**) Always remove the Lens Cover before turning ON the projector.

Operating LEDs position



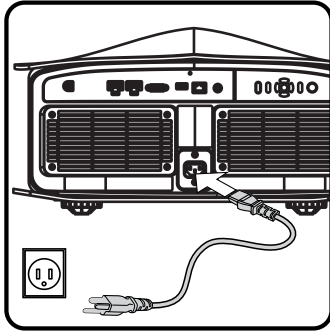
From left to right: Standby/On, Light, Warning.

Rear side



- Input Panel: connect your video source to the correct input.
- Main Power terminal: connect the main power cord as shown below.
- Back panel and operation buttons.

4.2 Connecting the Power Cord



- Before plugging in the Power Cord, ensure that all devices have been connected to their respective inputs of this unit.
- Connect the power cord to the power input terminal of the projector.

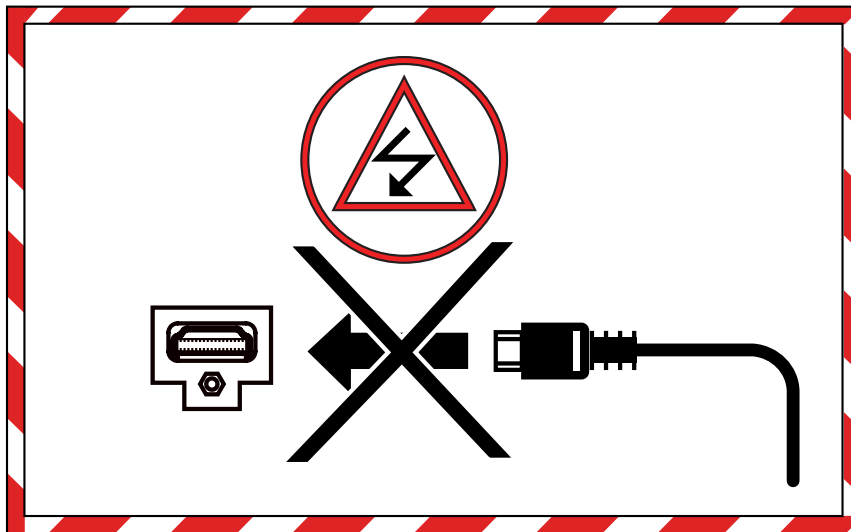


To prevent Fire and Electric shocks:

- 1) The power consumption of this unit is large. Please connect it directly to the wall outlet.
- 2) When you are not using the projector, please unplug the power cord from the outlet.
- 3) Connect it using only the power cord supplied.
- 4) Do not use a voltage other than the indicated power voltage.
- 5) Do not place a heavy object on the power cord, or heat or pull it.
- 6) Do not unplug the power cord with wet hands.

5.0 CONNECTIONS

5.1 Caution when connecting a Device to HDMI Input

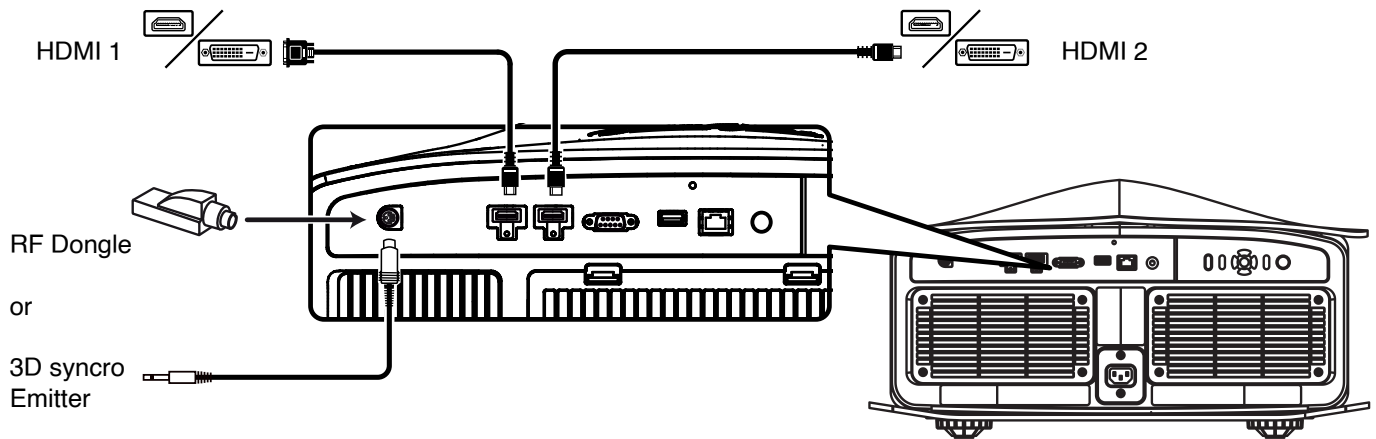


Prior to connecting any device to this unit, switch the projector in standby mode. Never connect a HDMI source to this unit when the projector is in operate mode. The HDMI termination is a self-powered connection and can cause electric discharges.



The HDMI 1 input is HDMI 2.1 compatible with HDCP 2.3 and supports video signals up to 48 Gbps. HDMI 2 input is HDMI 2.0 compatible with HDCP 2.2 and supports video signals up to 18 Gbps. It is strongly recommended to use exclusively cables rated for 48 Gbps bandwidth to watch 8K contents and 18 Gbps to watch 4K contents, otherwise this unit will suffer from handshake issues and video freezes.

5.2 Connecting a Video Source to the Projector

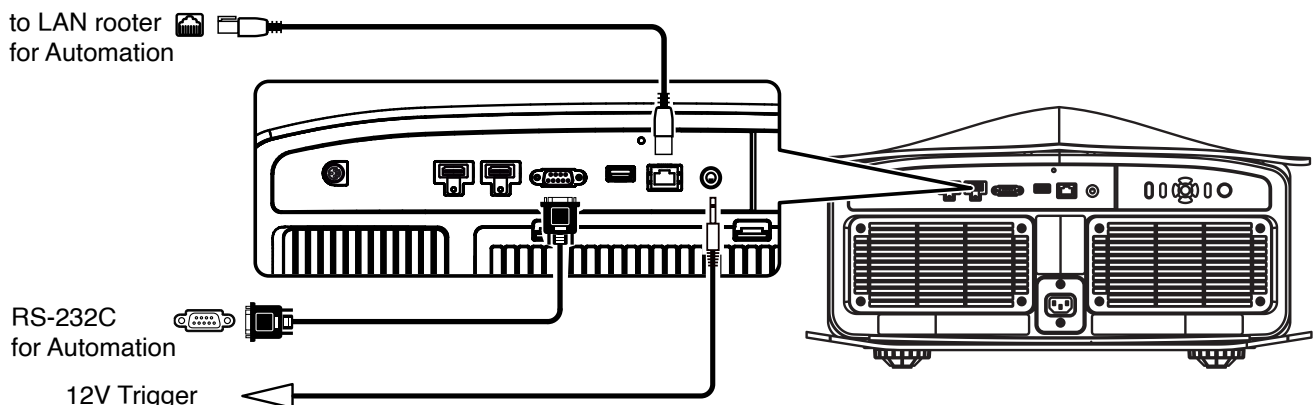


Audio/Video Connection	Device to connect
HDMI 1, HDMI 2 (DVI compatible)	HDMI or DVI-D sources: Blu-ray Disc player, DVD-player equipped with an HDMI output, Game Console, Computer with DVI-D output.
RF Dongle or 3D Synchro Emitter	Connect the RF Dongle emitter to control the active 3D shutter glasses or any other 3D Synchro apparel. 3-PIN mini-DIN interface, 12V.



This unit supports up high bandwidth inputs, make sure to use high quality HDMI cables rated for at least 8K HDMI 2.1 standards (48 Gbps).

5.3 Connecting an Automation or Control device



Connection	Device to connect
RS-232 C	Automation Device, Control Device or Computer with RS-232 capability.
12V Trigger	DC power supply output 12V@100mA to control either a screen or an anamorphic lens motorization.
LAN	Automation Device, Control Device or Computer with RJ-45.
USB	This terminal is used only for service and software update. The terminal is compatible with standard USB flash drive.



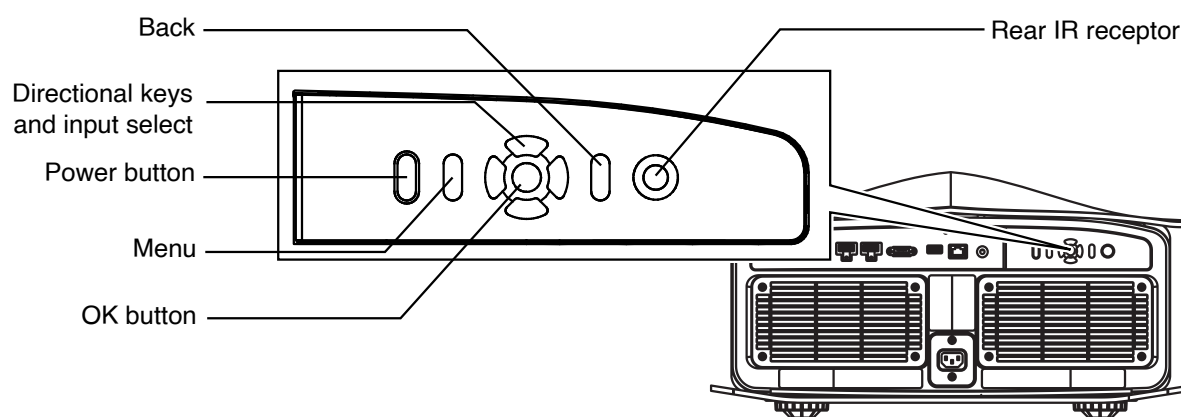
CONNECTING AN AUTOMATION/CONTROL DEVICE

This unit can control or be controlled by using several input/output terminals. Each terminal is ruled by specific protocols. Please refer to Appendix for more information.



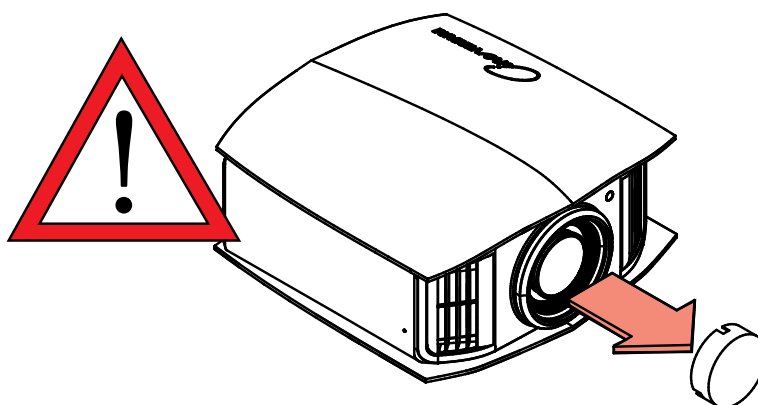
ECO Mode turn to On prevents this unit to receive and to respond to automation commands when it is in standby. Turn Off ECO mode if you plan to take full control of this unit with an automation system.

5.4 Back Panel and Operating Buttons



Button	Description
Back	To return to previous menu or cancel action.
Directional keys and input select	Use the Navigation Keys to navigate into the On Screen Display (OSD) Menu. Up and Down keys may be used to switch Inputs between HDMI1 and HDMI2 when no OSD menu is shown.
Power button	To display the On Screen Display (OSD) Menu.
Menu	To display the On Screen Display (OSD) Menu.
OK button	To select or to confirm action.

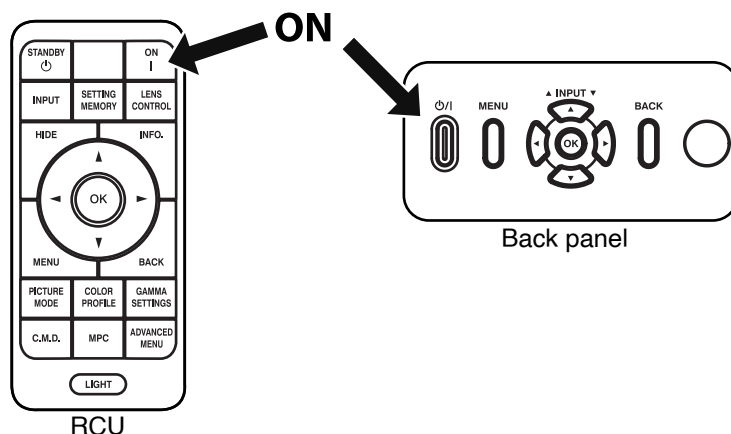
6.0 FIRST START UP



Always remove the lens cover or lens protection before powering up this unit. To power up this unit, make sure that the power cord is connected to the power input terminal.

6.1 Turn the power ON

You can turn ON this unit with the remote control unit (RCU) or directly pressing the power button located on the back panel. During startup procedure, this unit Standby/Power LED will blink green. Wait until complete power ON indicated by a steady green light on the Standby/Power LED.



If “Eco mode” is On, the standby led will not be light up red during Standby mode.

Select the correct Input

Once this unit is powered ON, please select the correct Input by pressing the corresponding button on the Remote Control Unit or the O/I button on the back panel of this unit.

6.2 Turn the Power Off

You can turn OFF this unit by using either the RCU or the Power button on the rear control button panel. Press the Standby button and a message appears on the screen to ask to confirm the command. You can cancel the command by pressing the “Back” button or turn off the device by pressing the “Standby” button again. The Standby LED will switch from steady green to blinking red light and the fans will run for about 10 seconds to finish the shutdown procedure. During this Cool-down sequence, do not disconnect the power cord. The cool-down procedure is finished when the “Standby/On” LED indicator stops blinking red and switches to a solid red.



The power cannot be turned off within approximately 80 seconds after it has been turned on. The power cannot be turned On again until the Cool-down sequence (10 seconds) is complete.



It is recommended to disconnect the power plug when the unit is not to be used for a prolonged period of time (superior to one week) to avoid any electrical hazards.

7.0 MENU STRUCTURE

MAIN MENU	SUBMENU	AVAILABLE OPTIONS
Picture Adjust	Content Type	Auto, SDR, HDR10+, HDR10, HLG
	Picture Modes for Auto	(Auto mode switches the video type automatically according to the input video system) Auto Pic. Mode Select
	Picture Modes for SDR	(Video and drama programs) Natural (Vivid colors suitable for all movies) Cinema (Movie films) Film (User defined without Pana_PQ) User 1 - 3
	Picture Modes for HDR10+	(HDR10+ movies, auto-detected) HDR10+
	Picture Modes for HDR10 (HDR10 is also ST2084)	(HDR10 with Tone mapping) Frame Adapt HDR (Bluray HDR contents) HDR10 (matches Panasonic UHDBD) Pana_PQ (User defined with Pana_PQ) User 4 - 6
	Picture Modes for HLG	(suited for HLG contents) HLG Pana_PQ (User defined with Pana_PQ) User 4 - 6
	More Settings	LD Power Low, Mid, High Dynamic Control Off, Mode 1, Mode 2 Aperture -15 +0 Contrast -50 +50 Brightness -50 +50 Color -50 +50 Tint (reddish to greenish) -50 +50 User Name Edit (if f User 1 - 6 selected) edit name 10 char. max
	Color Profiles the list varies upon the selected Picture Mode	(Color auto detection) Auto (HDTV REC-709) BT.709 (Movies REC 2020 with filter) BT.2020(Wide) (Movies REC 2020 w/o filter) BT.2020(Normal) (Movies REC 2020) BT.2020 (High Luminance Projector) Pana_PQ_HL (Basic Luminance Projector) Pana_PQ_BL (Eastman Kodak movies) Film1 (Fujifilm movies) Film2 (Cinema DCI-P3) DCI (Animations) Anime (Movies with enhanced colors) Cinema (Color filter configured to Wide) Off (Wide) (Color filter configured to Normal) Off (Normal) (*) require individual adjustment and/or calibration (if no Color filter available: Blackwing 1-L) Off Custom 1 - 4(*)
	Advanced Color Profile	Color Management: Off / On Color selection Axis Position -30 +30 Hue -30 +30 Saturation -30 +30 Brightness -30 +30 Reset Confirm
	Color Temp	Xenon Modes (Film projector) Xenon1 (DCI projector) Xenon2 Preset value: 5500K - 6500K - 7500K - 9300K High Bright - HDR10+ - HDR10 - HLG Custom 1-2

MENU STRUCTURE

Picture Adjust	Advanced Color Temp	If Custom 1-2, choose Correction Value Gain and Offset Reset		settings Confirm
	HDR Processing	If Picture Mode is "Frame Adapt HDR" Frame by Frame Scene by Scene Static HDR10+		
	Gamma and Tone Mapping	If Color Profile is Film1 to 2 (standard) (more contrasted)		Film1 Film2
		If Color Profile is Cinema or Natural Normal, .2.2, 2.4, 2.6, Cinema 1, Cinema 2		
		If Color Profile is HDR10		HDR(Auto), HDR(PQ)
		If Color Profile is HLG		HDR(HLG)
	Advanced Gamma	Color Selection	White / Red / Green / Blue	
		Picture Tone		-16 +16
		Dark Level		-7 +7
		Bright Level		-7 +7
		Reset		Confirm
	Theater Optimizer	On, Off		Screen Size Diagonal Screen Aspect Screen Gain
	HDR Level	if Frame Adapt HDR otherwise	Auto, -2, -1, 0, 1, 2 High Mid, Low	
	Mapping Level	-7 +7		
	MPC Level	8K e-shift		On, Off
		Graphic Mode:	Standard, High res 1; High res 2	
		Enhance		0 - 10
		Noise Reduction		0 - 10
		BNR		0 - 3
		MNR		0 - 3
		Reset		Confirm
	Motion Control	Low Latency (Game Mode)		On, Off
		Clear Motion Drive (NA if Low Latency is On)	Off, Low, High, Inv. telecine	
		Motion Enhance	Off, Low, High	
	Reset Profile settings			Confirm
Input Signal	Input level		Auto (16 - 235) Video (0 - 255) PC (16 - 255) S. White	
		Color Space	Auto, YCbCr(4:4:4) YCbCr(4:2:2) RGB	
	3D Setting	3D format	Auto / Side-by-Side / Top & Bottom / 2D	
		Parallax		-15 +15
		Crosstalk Cancel		-8 +8

Input Signal	Auto Picture Mode Select	SDR(2D)/SDR(3D) Last Setting, Natural, Cinema Film, User 1 to User 3 HDR10 Last Setting, Frame Adapt HDR HDR10, Pana_PQ, User 4 to User 6 HLG Last Setting, HLG, User 4 to User 6	
	HDMI EDID Setting	Mode A (8K, 4K) B (up to 4K) C (up to 1080p) DSC On, Off HDR10+ On, Off	
Installation	Installation Mode	Mode Select Name Edit Mode Copy	Mode 1 - Mode 10
	Lens Control	Focus Zoom Shift Image Pattern Lock Lens Center	On, Off On, Off Confirm
	Pixel Adjust	Adjust Adjust Area Adjust Color Adjust Pattern Adjust Pattern Color Adjust (Pixel) Adjust (Fine) Reset	On, Off Whole, Zone Red, Blue On, Off White - Cyan/Yellow Confirm
	Mask	On, Off Top, Bottom, Left, Right	0 - 220
	Anamorphic		Off, A, B, C, D
	Screen Setting (Color Profile must be On)	Screen No.	000 - 255 On, Off
	Installation Style	Front, Ceiling Mount, Rear, Ceiling Mount (Rear)	
	Keystone (vertical)		-7 +7
	Aspect		Zoom, Auto, Native
	Back Color (when no signal)		Blue, Black
	Menu Position		select position
	Signal Display (active input)		On, Off
	Logo		On, Off
	Language		select between 12 languages
Function	Trigger		Off Power Anamo Inst. Mode 1 - Inst. Mode 10
	Off Timer (in hours)		1H, 2H, 3H, 4H, Off
	ECO Mode		On, Off
	Network	DHCP Client IP Address Subnet Mask Default Gateway Mac Address Set Control4 SDDP	On, Off 192.168.0.2 255.255.255.0 192.168.0.254 Display MAC Confirm On, Off

Function	Remote Code	Press [Menu] + [Back]	A, B
	High Altitude Mode		On (above 900m), Off
	Hide Mode		On, Off
	Factory Reset		Confirm
	Software Update		
	License		
Information	Input		
	Source		
	Resolution		
	H, V Freq		
	Color Space		
	Colorimetry		
	HDR		
	Max CLL/Maxx FALL		
	Light Source Time		
	Soft Version		

8.0 PICTURE ADJUST

8.1 Picture Modes and Color Profiles

The preset Picture Modes are available through this menu and can be applied to any input. A picture mode retains the picture adjustments. When adjusting the Picture Mode, you can also select pre-configured Color Profiles.

Available Video types and their picture modes

Video Type	SDR	HDR10+	HDR10	HLG
Picture Modes	Natural	HDR10+	Frame Adapt HDR	HLG
	Cinema		HDR10	User 4 to User 6
	Film		Pana_PQ	
	User 1 to User 3		User 4 to User 6	



Accurate color temperature may require professional tools such as dedicated software and colorimeter. Wait at least 15 minutes after startup before modifying the picture settings.

Picture modes

- **Natural**

Image quality that focuses on natural color and gradation reproduction. For drama footage and TV series.

- **Cinema**

Reproduces the image in vivid colors. Suitable for all movies shot for cinemas.

- **Film (only available on Blackwing 2-L and Blackwing Elite-L)**

Reproduces faithfully the texture of movie films.

- **HDR10+**

Picture mode suitable for viewing HDR10+ content. Tone mapping is optimally performed for each scene

according to the dynamic metadata to faithfully reproduce HDR video images according to the intentions of the video producer.

- **Frame Adapt HDR**

Picture mode that analyzes and automatically adjusts the HDR Tone Mapping of each frame in the HDR10 content. It employs an original analysis algorithm that allows users to enjoy HDR10 content with different levels of brightness in the optimal picture quality.

- **HDR10**

Making full use of the wide color gamut and contrast, this mode is suited for viewing HDR10 content such as Ultra HD Blu-ray and streaming service.

- **Pana_PQ**

Picture mode used exclusively for Panasonic UHDBD players.

- **HLG**

Best image quality settings recommended and certified by THX. Expert calibration and a computer with RS-232 port is required to enable the two dedicated THX profiles.

- **User 1 to User 3**

Enables user-defined image quality data to be saved and retrieved on demand. User 1 to User 3 don't have the PAAna_PQ_HL and PAAna_PQ_BL color profiles.

- **User 4 to User 6**

Enables user-defined image quality data to be saved and retrieved on demand. User 4 to User 6 have the PAAna_PQ_HL and PAAna_PQ_BL color profiles.

Color Profiles

For each picture mode, you may choose one of the Color Profile presets or one of the 4 custom color profiles:

- Auto Switches the color profile automatically based on the color gamut information of the input content.
- BT.709 color space that is calibrated to best match BT.709
- BT.2020(Wide) available only on Blackwing 2-L and Blackwing Elite-L. Color space that is suitable for HDR viewing. The cinema filter is configured to Wide.
- BT.2020(Normal) available only on Blackwing 2-L and Blackwing Elite-L. Color space that is suitable for HDR viewing. The cinema filter is configured to Normal.
- BT.2020 (Blackwing 1-L) color space that is suitable for HDR viewing.
- DCI available with Cinema Picture Profile and adjusted to DCI-P3 color space.
- Video color gamut that reproduces video footage such as dramas and live images in bright and vivid colors.
- Anime: Best suited for CG animation works with bright colors.
- Cinema available with Cinema Picture Profile and adjusted to movie sources with bright, saturated colors.
- Film1: This is available with Film Picture Profile, uses the Xenon filter and adjusted to Eastman Kodak film tone
- Film2: This is available with Film Picture Profile, uses the Xenon filter and adjusted to Fujifilm film tone.
- Off (Wide) Disables color space adjustment. The cinema filter is configured to Wide.
- Off (Normal) Disables color space adjustment. The cinema filter is configured to Normal.
- Pana_PQ_HL Use this option when the player display setting is configured to High Luminance Projector.
- Pana_PQ_BL Use this option when the player display setting is configured to Basic Luminance Projector.
- Custom 1 to 4 For saving the color profile data created using the projector calibration software.
- Off Disables color space adjustment.



Accurate color temperature may require professional tools such as dedicated software and colorimeter. Wait at least 15 minutes after startup before modifying the picture settings.

8.2 Advanced Picture Mode

Dynamic CTRL

Expands dynamically the brightness range of a video source directly through the laser light source. Turn it Off, set to Mode 1 for a low correction or to Mode 2 for stronger effect.

LD Power

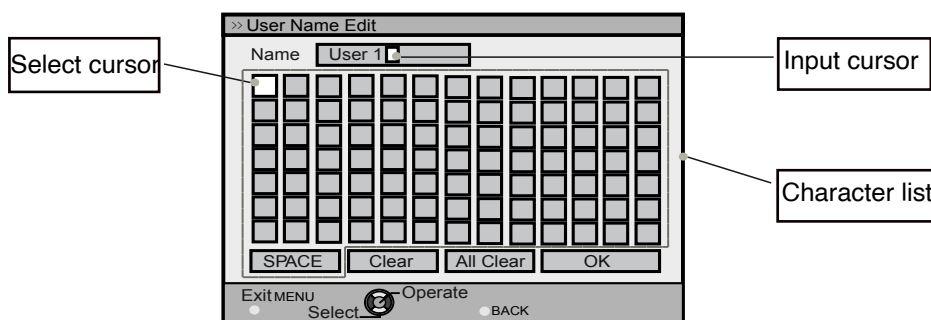
Set the laser LED power used by the current Picture Profile. For standard viewing conditions, the LED power is set to Mid. Depending on the screen size and the ambient light, you may set it to Low to obtain a dimmer image, or to set it to High for a much brighter image.

Aperture and High Contrast images

The lens is equipped with a variable electronic aperture. This function is used with a real time analysis of the video picture projected that optically adjusts the light output depending on the viewing conditions by controlling the aperture dynamically. Thanks to sensitive and perfectly controlled adjustments, the contrast image is drastically boosted. When set to Auto 1, this setting makes the iris to automatically set to the optimal opening to enhance the picture contrast. The Auto 2 setting, the result obtained is altered so that the gradation is more visible. The Manual setting sets the iris to a fixed position, adjust the aperture from partially closed (-15) to fully opened (0).

User Name Edit

You can edit the picture mode names User 1 to 6 using a maximum length of 10 characters. You can use alphabet letters, numbers and symbols:



- Select the user name you want to edit from User 1 to User 6. Press [OK] to enter the edit mode.
- The input cursor displays the place where the new character will be insert. It moves automatically as a character is selected. Use [UP], [DOWN], [LEFT] or [RIGHT] to select a character and press [OK] to insert.
- Press [BACK] to exit edit mode.

Clear: To delete a character: Move the cursor to the desired location and press [OK] to delete the specific character.

All Clear: To delete all characters. OK: To save the current name, a save confirmation will appear.

8.3 Color Management (TSL adjustments)

The Color Management gives the installer an unique calibration ease with the integrated Color Adjustment menu: each primary, secondary colors can be independently calibrated to obtain a precise color balance in a snap. Adjust the Red, Green, Blue, Yellow, Cyan, Magenta tints, their saturations and luminances and store them into Custom profiles. Available adjustments: Axis Position, Hue, Saturation and Brightness.

8.4 Color Temperature Presets

Color temperature stands for the spectral properties of a light source. Low color temperature implies warmer ambiance (more yellow/red) while high color temperature implies a colder light (more blue). Depending on the Picture Profile selected, this setting can be set to:

- Xenon 1 uses the Xenon filter and color compensation to reproduce a film projector
- Xenon 2 uses the Xenon filter and color compensation to reproduce a digital cinema projector
- Preset: from 5500K / warm colors, 6500K, 7500K and 9300K / colder colors.
- High Bright used for maximum brightness output available.
- HDR saturated colors that matches HDR standards.

- Custom 1 and Custom 2 that can be used to adjust color temperature to specific environment.

A Custom setting allows a fine adjustment of a Color Temperature by selecting it in the Correction Value menu. Adjust the Gain values (bright part) and Offset values (dark part) for each color Red, Green and Blue.

Picture mode	Natural	Cinema	Film	HDR
Color Temp.	5500K - 9300K	Xenon 1	Xenon 1	5500K - 9300K
	High Bright	Xenon 2	Xenon 2	High Bright
	HDR	5500K - 9300K		HDR
		High Bright		
		HDR		

8.5 Advanced Color Temperature

When selecting a Custom color temperature, you can manually set the Gains and Offsets of each primary color: red, green and blue to finely adjust the color balance.

8.6 Gamma

Gamma is the relationship between the color values of the data and the color values displayed. The Gamma coefficient makes it possible to adjust the brightness of the mid tones only without affecting the very bright and very dark areas. If gamma is set too high, middle tones appear too dark. If it's set too low, middle tones appear too light. Depending on the current active Picture mode, the Gamma setting can be set to:

- Numeric value of 2.2, 2.4 or 2.6
- Film1: standard gamma (Blackwing 2-L and Blackwing Elite-L only)
- Film2: slightly more contrasted gamma (Blackwing 2-L and Blackwing Elite-L only)
- Cinema 1: emphasis on gradations
- Cinema 2: emphasis on contrast
- HDR(Auto) Automatically corrects "Picture Tone" "Dark Level" "Bright Level" from Max CLL/Max FALL with "HDR(PQ)" as the base.
- HDR(PQ) Suited for viewing HDR content such as UHD BD (HDR10).
- HDR(HLG) Suited for viewing HDR content such as HDR broadcast.
- Pana_PQ Tone mapping used exclusively for Panasonic UHDBD players.
- Custom 1 to Custom 3 fine tune the gamma setting according to the user's preference.

Picture mode	Film	Cinema and Natural	HDR10+ and Frame Adapt HDR	HDR10	Pana_PQ	HLG
Gamma.	Film 1	2.2, 2.4, 2.6	HDR(Auto)	HDR(Auto)	Pana_PQ	HDR(HLG)
	Film 2	Cinema 1 or 2		HDR(PQ)		

8.7 Advanced Gamma

Correction Value

The Custom data can be set to a correction value: a numeric value that will act as a gamma coefficient between Film 1, Film 2, Cinema 1, Cinema 2, HDR, 1.8-2.6 or Import.

Color Selection

Select the color to which the Picture Tone, Dark / Bright Level settings would apply. Choose between White, Red, Green and Blue.

Picture Tone

It allows a fine adjustment steps of the global picture brightness while maintaining the correct contrast level to keep good black and bright levels. Sets the overall exposure from -16 (under-exposed, darker) up to +16 (over-exposed, brighter)

Dark / Bright Level

This setting modifies the gamma curve locally in the dark and bright areas.

- Dark Level adjust gamma curve between 0 IRE and 15 IRE, each color can be adjusted from -7 to +7.

- Bright Level adjust gamma curve between 85 IRE and 100 IRE, each color can be adjusted from -7 to +7.

Reset Gamma

Prompt a confirmation to reset the current Gamma settings to default.

8.8 Multiple Pixel Control Level (MPC Level)

The MPC Level control enables the use and fine tune all the aspects of the rendition of native 8K contents, UHD disc videos or 4K Interpolated processing.

8K e-shift

Set On to enable 8K display resolution.

Graphic Mode

Select whether the content needs a high precision (strong sharpness) or if it is a graphic. Preferably sets this setting to High res 1 when viewing UHD material or mastered in 8K/4K contents. Set to High res 2 to perform less enhancement processing. Use Standard setting with 2K contents.

Enhance

Enhance: enhances the sharpness of foreground objects detected in the picture. Setting range: 0 - 10.

Noise Reduction

Noise Reduction: reduces the digital noise of the video picture. Setting to 0 for a weak noise reduction, up to 10 for a stronger one.

Block Noise Reduction

Reduce the block noise in the video content, set to 0 for a weak reduction up to 3 for a stronger reduction.

Mosquito Noise Reduction

Reduce the mosquito noise in the video content, set to 0 for a weak reduction up to 3 for a stronger reduction.

Toggling between states before and after adjustment

Pressing the [Hide] button on the RCU enables you to toggle between the state before adjustment and after adjustment.

8.9 Motion Control

Low Latency

To set drop the latency drastically to the cost of picture enhancement process. Set to On when playing video games or when installed for real-time simulators. If set to On, Clear Motion Drive is disable.

- Low Latency cannot be set when "Picture Mode" is set to "HDR10+"/"Frame Adapt HDR".
- "Low Latency" cannot be configured when "Dynamic CTRL" is configured to a setting other than "Off".
- "Clear Motion Drive" cannot be set when "Low Latency" is set to "On".
- Even when "Low Latency" is set to "On", delay will not become zero.

Clear Motion Drive (400Hz)

The Clear Motion function uses up to 400Hz video processing to render a smooth motion for movies shot at 24Hz or HD movies at 60Hz. Set the correct level between:

- Off: Frame interpolation is disable.
- Low: light frame interpolation with reduced artifacts equivalent to a 200Hz processing rate.
- High: strong interpolation up to 400Hz processing rate.
- Inverse Telecine: dedicated interpolation for 60i and 60p sources originally shot in 24p.

Motion Enhance

This setting enhances the responsiveness of each video frame by reducing the image blurring.

- Off: correction is disable.
- Low: this setting reduces image blurring.
- High: stronger reduction of image blurring.

8.10 Contrast

The contrast function is used to adjust the contrast between the light and dark areas of the displayed image. A correct contrast setting is important for good image reproduction. Adjust the Contrast value between -50 and 50.

8.11 Brightness

The brightness function is used to adjust the overall light output. Adjust the Brightness value between -50 and 50.

8.12 Color

The Color function is used to adjust the saturation levels. Adjust the Color value between -50 and 50.

8.13 Tint

The hue function is used to adjust the color tint to obtain true color reproduction. Adjust the Tint value between -50 (more red) and 50 (more green).

9.0 UHD AND 8K SETTINGS

9.1 Important Information

It is important to clearly identify that your video source is encoded in 4K/UHD resolution, then determine if it supports High Dynamic Range (HDR logo should be displayed on the UHD box or on the program) and/or if it also uses REC-709, DCI-P3 or BT-2100 color profiles.

Choosing the correct color profile is very important to obtain the best performances from your source and to have a perfect colorimetry with a greater sense of depth.

9.2 Choosing the correct Input level

Because the Input level of 4K sources are generally “(0-255) PC” input levels, and at the contrary, classic Blu-Ray discs and HDTV programs use “(16-235) Video” Input levels. It is important to clearly identify and to select the correct input level to achieve perfect blacks.



To identify the correct level, you can for example select a dark scene from your movie and switch between Standard and Enhanced Input levels. The correct Input level would be “Enhanced” if this setting gives the deepest blacks. If both settings give the same result, then your source uses “Standard” levels.



Generally UHD sources use Enhanced levels: You may try to configure your UHD player to output Standard levels to be consistent settings with Blu-Ray playback.

Menu > Input Signal > Input level > (0-255) Enhanced

9.3 High Dynamic Range sources

What is HDR content ?

HDR (High Dynamic Range) refers to images with a significant difference in brightness between the highlight and shadow areas (dynamic range). It is a technology that enables faithful and realistic reproduction of the original colors

HDR can largely be divided into two different formats, namely HDR10 which is employed by UHD-BD and video streaming services, and Hybrid Log-Gamma which is employed for broadcasting. Compared to the conventional SDR, the standard HDR format HDR10 delivers a higher resolution, higher luminance and higher gradation as

well as a wider color gamut to reproduce images more realistically in combination with the wide dynamic range. HDR10+, which is an extension of the HDR10 standard, embeds brightness information for each scene into the content as metadata. This allows tone mapping based on the scene, and makes it possible to faithfully reproduce the HDR video according to the intention of the producer.

Identifying HDR sources by Content Type

HDR format contents cannot be displayed correctly unless it is viewed in the appropriate picture mode. Configuring Content Type to “Auto” on this unit enables selection of only the Picture Mode suited for the content. Doing so allows users to enjoy optimal HDR videos without the need to deal with the complex settings.

HDR sources are almost exclusively from the latest UHD discs or TV programs that come with an HDR logo. If your player supports this format, this unit should automatically detect the HDR format thanks to the HDMI handshake and the projector should apply automatically the correct color profile.

Applying the correct Gamma settings in the Information menu

Mastering information contained in the content can be displayed when playing HDR10 content such as those on UHD Blu-ray. With this information, you can be sure that HDR content is being played back. Also, based on the information of Max CLL and Max FALL, customized changes according to the content can be performed by adjusting the picture tone.

Please check into the Projector Menu > Information:

- Colorimetry : Displays the color gamut information of the input signals.
- HDR : Displays the gamma information when HDR packet is received.
- Max CLL/Max FALL : Displays the mastering information of the content during HDR playback.
- Max CLL: Maximum Content Light Level
- Max FALL: Maximum Frame Average Light Level



The picture mode might not switch automatically depending on the playback content and player in use. If that happens, you may have to set manually the correct color profile.

9.4 Frame Adapt HDR (Dynamic Tone Mapping)

Each HDR movie or title is designed for peak brightness that will change from scene by scene or frame by frame. The Frame Adapt HDR feature enables the HDR tone mapping to be adjusted in real time automatically. This feature does not require any mastering information, it will analyze each frame of the HDR image in real time to achieve the almost same mastering information as the original director's cut. This feature works across all HDR platforms from streaming devices to 4K UHD players.

9.5 Panasonic UHD BD Player DP-UB9000

If you are using this BD-Player, you can select one of the Color profiles below to improve gradation accuracy by tone mapping HDR video to match the your projector:

- Pana_PQ_HL High Luminance Projector Prioritizes highest image brightness with good color.
- Pana_PQ_BL Basic Luminance Projector Prioritizes best color reproduction with slightly reduced brightness.

Then select and configure the Tone Mapping to “Pana_PQ” setting.

9.6 HDR Processing

This is a feature for configuring the content analysis method using “Tone Mapping” when “Picture Mode” is configured to “Frame Adapt HDR”.

- a) This item is not available when “Content Type” is set to “SDR”.
- b) When “Picture Mode” is configured to “HDR10+”, “HDR Processing” is fixed at “HDR10+”. “HDR10+” is used only when the Picture Mode is configured to “HDR10+”.
- c) When “Picture Mode” is configured to “HDR10” “Pana_PQ” “HLG” “User 4 to User 6”, “HDR Processing” is fixed at “Static”.

Set HDR processing to the values below:

- Frame by Frame Automatically adjusts the HDR tone mapping after analyzing the peak brightness of each frame.
- Scene by Scene Automatically adjusts the HDR tone mapping after analyzing the peak brightness of each scene.
- Static Configures based on the mastering information (MaxCLL/FALL) of the content and does not make any

dynamic adjustment.

- HDR10+ Automatically adjusts the brightness for each scene based on the HDR10+ image information.

9.7 Theater Optimizer

The brightness of the projector screen varies not only with the screen size, gain and projection distance but also with the frequency of use and various settings. When “Picture Mode” is configured to “Frame Adapt HDR”, the “Theater Optimizer” function automatically analyzes the environment in which the projector is used and adjusts the tone mapping to allow viewing in the appropriate brightness according to the details of the screen entered in advance. This allow you to enjoy HDR video optimized for your personalized usage environment.

Using the Theater Optimizer

To enable this function:

- Press the Menu button on your RCU, then browse into the Menu > Installation > Screen Setting menu.
- In the Screen Setting menu, select the Screen Size Diagonal to configure the size of your screen when projecting 16:9 picture.
- Fill the other settings such as Screen Aspect, Screen Gain.
- Set the Picture Mode to Frame Adapt HDR and then set Theater Optimizer to On.

9.8 HDR Level

This is a feature for adjusting the overall brightness during tone mapping. For configuring the auto correction intensity of the “Theater Optimizer” feature when “Theater Optimizer” is configured to “On”.

- This option does not appear in the menu when “Content Type” is configured to “SDR”.
- This can be configured only when “Picture Mode” is configured to “Frame Adapt HDR” or “HDR10+”.
- The higher the nit level of the image the lower the HDR Level will be.

Settings when Picture mode is configured to Frame Adapt HDR and Theater Optimizer is Off

- Auto Automatically selects an appropriate tone mapping based on the mastering information (MaxCLL/FALL) of the content.
- -2 Displays in a tone map with 600 nits as the clip point.
- -1 Displays in a tone map with 400 nits as the clip point.
- 0 Displays in a tone map with 300 nits as the clip point.
- 1 Displays in a tone map with 200 nits as the clip point.
- 2 Displays in a tone map with 150 nits as the clip point.

Settings when Picture Mode is configured to Frame Adapt HDR and Theater Optimizer” is On

- Auto Automatically corrects the overall brightness level based on the mastering information (MaxCLL/FALL) of the content.
- -2 to 2 For configuring the overall brightness level during auto correction.-2 (dark) to 2 (bright)

Settings when “Picture Mode” is set to “HDR10+”

- High Displays the tone map when the overall brightness is configured to the high level. This is suited for large-sized screens.
- Mid Displays the tone map when the overall brightness is configured to the medium level. This is suited for medium-sized screens.
- Low Displays the tone map when the overall brightness is configured to the low level. This is suited for small-sized screens.

Recommended screen diagonal sizes for HDR10+ viewing

HDR Level High: 109” to 116” diagonal

HDR Level Medium: 93” to 99” diagonal

HDR Level Low: 80” to 86” diagonal

9.9 Auto Tone Mapping Level

Grading varies diversely with the video work, with some content being made brighter and others darker.

You can automatically adjust the Tone Mapping as described below:

- a) Set the Content Type to “Auto”.
- b) Configure the Picture Mode to HDR10 or User 4 to User 6
- c) Press “Tone Mapping” in the “Picture Adjust” menu to display the Tone Mapping menu, followed by configuring “Tone Mapping” to “HDR(Auto)”. Alternatively, configure “Tone Mapping” to “Custom 1 to Custom 3”, followed by configuring “Correction Value” to “HDR(Auto)”.
- d) Configure to “Mapping Level” in the “Picture Adjust” menu”

9.10 Manual Tone Mapping Adjustment

In addition to the “Auto Tone Mapping” function, tone mapping adjustment can also be performed manually on this unit. Fine-tuning according to the playback content and viewing environment is possible by using “Picture Tone” to determine the overall brightness, “Dark Level” to adjust the gradation of shadows, and “Bright Level” to adjust the gradation of highlights.

Tweaking the Tone Mapping for 400 NITS sources

- Picture Tone: +5
- Dark Level: 0
- Bright Level: +7

Tweaking the Tone Mapping for 1,000 NITS sources

HDR Gamma default values matches an EOTF for HDR sources up to 1,000 NITS such as UHD Blu-Ray video discs. The default advanced adjustments are as follow:

- Picture Tone: -7
- Dark Level: 0
- Bright Level: +7

Tweaking the Tone Mapping for 2,000 NITS sources

- Picture Tone: -9
- Dark Level: 0
- Bright Level: +7

Tweaking the Tone Mapping for 4,000 NITS sources

- Picture Tone: -13
- Dark Level: 0
- Bright Level: +7

10.0 INPUT SIGNAL

10.1 Input Level

Sets the dynamic rang of the video input:

- Auto: The input dynamic range is automatically detected and configured.
- 16-235(Video): Force dynamic range to 16-235.
- 0-255(PC): Force dynamic range to 0-255.
- 16-255(S.White) Super White: Force dynamic range to 16-255.

10.2 Color Space

Sets the color space of the input signal.

- Auto: The source color space is automatically detected and configured.
- YCbCr(4:4:4): Set color space to YCbCr 4:4:4.
- YCbCr(4:2:2): Set color space to YCbCr 4:2:2.

- RGB: Set color space to RGB video signals.
Use preferably a video source of 4K if available to obtain higher resolution and richer colors.

10.3 Auto Pic. Mode Select

This option is for configuring “Picture Mode” setting when the video type switches automatically while “Content Type” is configured to “Auto”.

- **SDR(2D)/SDR(3D)**

Automatically configure the “Picture Mode” when a SDR (2D) or SDR (3D) signal is detected. Possible values: Last Setting switches to the “Picture Mode” that was last configured when viewing SDR (2D) or SDR (3D) content. Other settings: Natural, Cinema; Film and User 1 to User 3.

- **HDR10**

Automatically configure the “Picture Mode” when a HDR10 signal is detected. Possible values: Last Setting switches to the “Picture Mode” that was last configured when viewing such signal. Other settings: Frame Adapt HDR, HDR10, Pana_PQ and User 4 to User 6.

- **HLG**

Automatically configure the “Picture Mode” when a HLG signal is detected. Possible values: Last Setting switches to the “Picture Mode” that was last configured when viewing such signal. Other settings: HLG or User 4 to User 6.

10.4 HDMI EDID Setting

Mode

This setting changes the EDID information for HDMI inputs to make them compatible with older hdmi sources. If this unit is not able to display a picture, try different values:

A: Configures the EDID mode to “A” Supports up to 8K60p and 4K120p.

B: Configures the EDID mode to “B” Supports up to 4K60p.

C: Configures the EDID mode to “C” Supports up to 1080p60.

DSC (Display Stream Compression)

For configuring whether DSC transmission is allowed. Set to “On” under normal condition to allow compressed video transmission. Set Off to prohibit compressed video transmission.

HDR10+

For configuring whether HDR10+ transmission is allowed. To enjoy HDR10+ content, configure to “On”. Set to On to allow HDR10+ transmission or Off to prohibit HDR10+ transmission

11.0 3D CONTENT AND 3D PROJECTION

11.1 General Information about 3D playback

Comfort and Caution with 3D Content

The closer one looks at stereoscopic images, the greater the binocular disparity, which means greater perception of outward projection. At the same time, the spectator must focus on these outward objects on the screen. The projecting image and the real focus distance cause a great contradiction, this strain contributes to fatigue and discomfort.



Please stop watching if you do not feel well and consult a physician if necessary. People who already have a kind of photosensitivity, sufferers from heart disease, and people in poor physical condition should not watch 3D stereoscopic images. It is also recommended that you take a break periodically.

Prevent child under 5 years old to watch 3D

The comprehensive brain function to judge stereoscopic vision which includes the feeling for real distances,

develops while growing up by touching and seeing real objects, but in early childhood, it is still in an underdeveloped state. Even though there are individual differences, children under 5 are still developing. Letting them frequently watch virtual 3D video images can be an obstacle for the development of a comprehensive three-dimensional feel. Additionally, younger children may suddenly become sick, because they continue watching without realizing symptoms like 3D sickness or deterioration of health. Please accompany your child while it watches 3D programs.

11.2 3D Settings

3D Formats

Use this function to choose the correct 3D input format. Some input signals may contain 3D data such as 1080p Side-by-Side but encoded as if they were in 2D. This unit may treat them as standard 2D signals and will not project correctly. In such cases, configure the signal manually between Side-by-Side, Top & Bottom and 2D. In other cases, you may select Auto setting.

Parallax

Use this function to adjust the amount of misalignment of the left and right 3D video images. Adjust settings according to your preference between -15 and +15.



Parallax is an important parameter for 3D movies that directly affects comfort during 3D projection. Because the parallax value changes with the screen size, it is important to set this parameter to a value with which everyone feels comfortable with the 3D effect. In general, women and children will feel better with a smaller parallax value. Do not hesitate to alter this settings if you feel eye-strains or headaches.

Due to the large screens used in home theaters compared to flat screen TVs, we recommend a negative value of -6 for computer sources and video games in native 3D with large parallax. This setting is best at 0 for Blu-Ray movies aimed for Digital-Cinema audience.

Crosstalk Cancel

Can be adjust with a 3D signal input. This function lessens the residual cross-talk found between 3D left and right images. Adjust the Parallax value and then the Cross-talk settings in order to cancel the residual cross-talk without losing picture quality. Adjustments: -8 +8

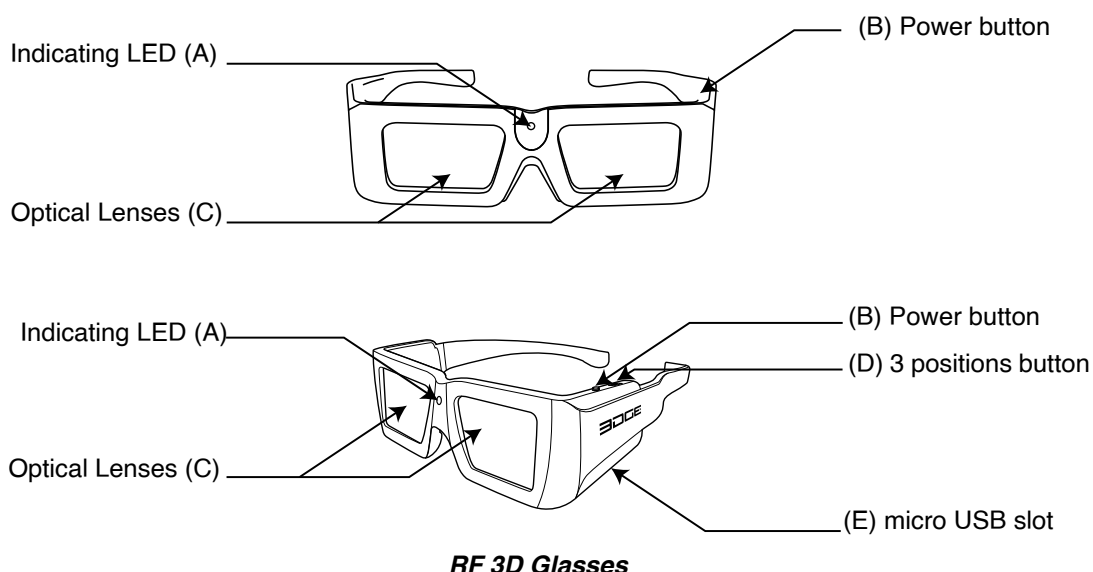


Negative values reduce visible Crosstalk, positive values bring a brighter 3D picture at the cost of more Crosstalk.

Connecting the 3D synchro emitter

Make sure that the RF dongle or IR Emitter is correctly connected to the "3D synchro" output located at the rear panel of this unit.

11.3 Operating the 3D Glasses



Charging the 3D Glasses

The 3D Glasses come with a USB rechargeable battery that is charged using the USB to micro USB cable. Connect the cable to the micro USB slot (E). The indicating LED (A) will light On red continuously during the charge. The glasses are fully charged when the indicating LED (A) switches Off.

Turning On your 3D Glasses

- Press the Power Button (B) once.
- The indicating LED (A) will light On and the Optical Lenses (C) will blink alternately left and right to indicate that they are ready to synchronize with the 3D synchro emitter.

Turning Off your 3D Glasses

To turn Off the glasses, press and hold the Power button (B) for 3 seconds until the indicating LED (A) switches Off.

3D Glasses battery level

The battery allows up to 75 hours of continuous power. A low power level, below 30%, is indicated by a single flash of the Indicating LED (A) at the 3D glasses switch On. Power level between 30% and 90% is indicated by 2 flashes. 3 flashes indicates that the power is above 90%

Auto Power Off

The 3D Glasses are programmed to automatically stop functioning after 5 minutes of immobilization or 10 minutes without a 3D synchro signal. To turn them back On, just press the Power Button (B) once.

12.0 INSTALLATION

12.1 Installation Mode

An Installation Mode is a memory slot that collectively manages the setting values of “Lens Control”, “Pixel Adjust”, “Mask”, “Anamorphic” and “Screen Adjust”. There are a total of 10 Installation Modes.

Mode Select

Selects a specific memory amongst the 10 available. Setting values can be set from Mode 1 up to Mode 10.

Name Edit

Each Installation Mode can be renamed using “Name Edit”. You can use up to 10 characters that can be alphabets (upper or lower case), numeric characters and/or symbols.

Mode Copy

The Mode Copy can be used to easily duplicate a selected Mode into the current Mode. Select the mode to copy to and press the [OK] button to confirm.

12.2 Lens Control

Focus / Zoom / Shift

Adjust the lens focus / Zoom or Shift to obtain a clear picture.

Image Pattern

If set to On, an internal pattern will be generated to adjust the current setting. If you want to use an external generator, turn this option to Off.

Lock

Once the Lens is correctly set, you may lock this setting menu by turning the Lens control Lock to On. Any attempt to access the Lens control menu will lead to the display of a warning message.

Lens Center

Reset the lens position to the original, central position.

12.3 Pixel Adjust

Adjust

Disables with the setting Off, to enable the pixel adjustment turn this setting to On.

Adjust Area

Whole: the entire screen is selected for adjustment.

Zone: the screen is divided into 121 adjustment zones.

Adjust Color

Select the color to adjust: Red or Blue. The green color is fixed.

Adjust Pattern

Enables a third party adjust pattern to be used for pixel alignment.

Adjust Pattern Color

Select a pattern to help the pixel alignment. Settings: White or Green+adjusting Color. Yellow for red, Cyan for blue.

Adjust (Pixel)

This function is enable when the Adjust Area is set to Zone only. You can adjust the selected color position horizontally and vertically by 1-pixel steps.

- H settings: -2 +2
- V settings: -2 +2.

Adjust (Fine)

Use this function to move the selected color within smaller steps.

- H settings: -31 +31
- V settings: -31 +31

Reset

Reset all pixel adjustments to default factory settings.



RCU SHORTCUTS DURING PIXEL ADJUSTMENT:

[GAMMA] button on the RCU switches adjust color parameter between Red and Blue.

[PIC. ADJ.] button on the RCU switches the adjust area parameter between whole and zone. At the same time, the zone cursor will appear on the adjust pattern.

[COLOR SPACE] button on the RCU changes the adjust pattern from white to green+adjust color.

Use the [COLOR TEMP] button on the remote control to change adjustment method from Pixel to Fine tune and switch to the fine tune window.

[BACK] button will exit the Pixel Adjust mode.

12.4 Mask

This setting turns off the active pixels on the screen borders. Default value is Off.

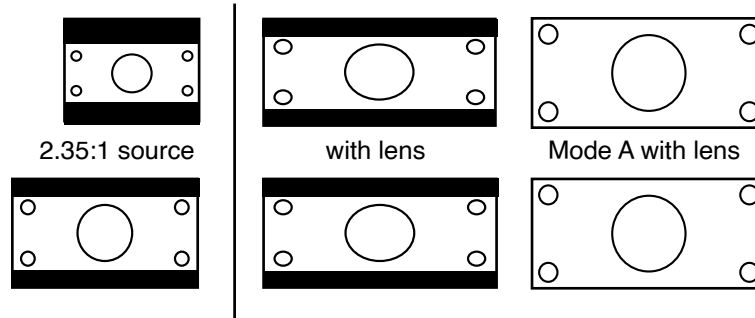
Turn it On to hide specified ranges on Top, Bottom, Left and Right borders from 0 up to 220 pixels.



To adjust the 17:9 native format of the D-ILA panels to 16:9 screens, you can set the left and right masks to 64 pixels.

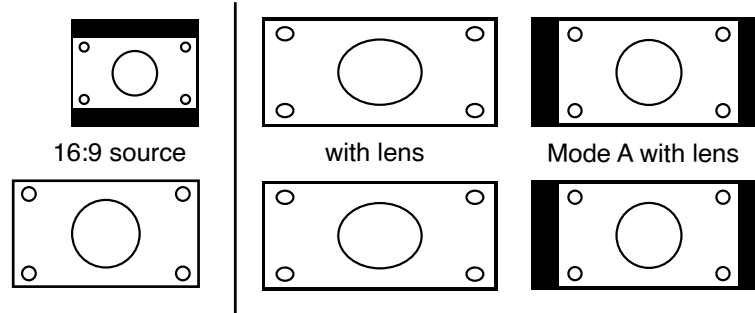
12.5 Anamorphic

- Off: No modification to original picture.
- Mode A: The picture is vertically stretched to fit an installation with anamorphic lens. A cinemascope picture is stretched to use 3840 pixel width.



Anamorphic Mode A.

- **Mode B:** This setting squeezes horizontally the picture to fit a 16:9 image into a cinemascope screen. This setting is to be used with an anamorphic installation where the lens is permanently fixed in front of the unit and to watch 16:9 content in its original format.



Anamorphic Mode B

- **Mode C:** This is a mode used exclusively for the DCR lens of Panamorph. It projects the image by stretching 2.35:1 video images in the vertical direction and enlarging them in the horizontal direction to the maximum panel width of 4096 pixels. Note that this is configured to “A” in the 3D mode.
- **Mode D:** This is a mode used exclusively for the DCR lens of Panamorph. It projects the 16:9 image with it compressed in the horizontal direction only.

12.6 Screen Setting

Enabling Screen Setting

Set to On, to enable the advanced screen setting and to enable the Theater Optimizer.

Screen No

This setting corrects the color balance derived from the reflective characteristics of the screen without altering the global picture settings. You may select the best template available in the Screen No.

- 001 - 009: select a profile between 001 and 009 when watching 3D content with 3D shutter glasses. Profile 001 is recommended when using Cineversum's active 3D glasses.
- 010 to 255: select the best compensation profile depending on your screen and environment.

Screen Size, Aspect and Gain.

Enter the different values that best describes your screen so that the Theater Optimizer performs accurately.

12.7 Installation Style

Flip the image to the left or right, up or down according to the projection state of the projector:

Front, Ceiling Mount (F), Rear or Rear Ceiling mount (R)

12.8 Keystone

Compensate for trapezoidal distortion caused by installation. Independently to the screen orientation, make sure that the projector is not tilt more than 5% up/down.

- Vertical Keystone from -7 to +7.

12.9 Aspect

Because this unit uses 4K panels with a native aspect ratio of roughly 17:9 the “Aspect” ratio correction settings may help obtaining the best screen filling. The default value “Auto” let this unit to decide the best fill ratio.

- Zoom: Magnifies the input image to maximize the width size while maintaining the original aspect ratio. Part of the image that runs off the edge vertically will not be displayed. Displayed in 3840 width in 3D mode.
- Auto: Magnifies the input image horizontally or vertically to the maximum while maintaining its aspect ratio for display.
- Native: Magnifies the input image 4 times from the center of the screen if the resolution is smaller than 2048 x 1080. If the screen size of the input image is larger than 1920x1080 Full-HD, the image is displayed at the center without modification.



If you are not satisfied with the default value, you can manually select the best aspect ratio depending on your source. Note that the panels aspect ratio is approx. 17:9 and is a little wider than 16:9

13.0 DISPLAY SETUP

Back Color

Configures the screen color displayed when there is no active input. Set to Blue or Black.

Menu Position

Upper left, Upper right, Center, Lower right, Lower left.

Signal Display

On: Display the source of the input signals after input selection. Off: Don't display.

Logo

On: Display D-ILA logo during startup for 5 seconds. Off: Don't display.

Language

Choose the OSD language between: English, German, Spanish, Italian, French, Portuguese, Dutch, Swedish, Norwegian, Russian and Chinese.

14.0 FUNCTION

14.1 Trigger

The 12V trigger output can be used to control any compatible devices such as motorized screens or anamorphic kits: The 12V trigger output is 12Vcc, 100mA. Select the trigger output behavior:

- Off: 12V trigger voltage state is always low.
- Power: 12V trigger state is high when the projector is powered ON. To be used with motorized screens.
- Anamo: 12V trigger is high only when Anamorphic Mode A or Mode B is engaged. To be used with motorized anamorphic kits.
- Inst. Mode 1 up to 10: 12V trigger state is high when the selected Installation Mode is the same as the Mode number configured.

14.2 Off-Timer

You can configure this automatic power Off function that will switch off the projector when there is no operation or after a determined timer. Choose the duration of the timer between: Off, 1 hour, 2 hours, 3 hours and 4 hours.

14.3 ECO Mode

This setting when set to On will minimizes the power consumption in the Standby Mode. Additionally, it will

automatically switch Off this unit whenever the input signal is interrupted for 15 minutes.



If you plan to control this unit using RS232 or LAN protocols, set the ECO Mode to Off.

14.4 Network

When the Communication Terminal selected is LAN, this unit will be visible on the local Network and the following parameters need to be configured.

Control 4 Simple Device Discovery Protocol (SDDP)

Set to "On" to allow Control 4 SDDP to detect this unit. When this unit is not connected to a Control 4 environment you can leave this setting to "Off".

Network Password

You can now configure a network password to increase the LAN security. The password must contain at least 8 characters and not more than 10 characters.

14.5 Remote Code A or B

Select in the projector menu the code A or B according to the code selected on the RCU. You can change the code used by the RCU to communicate with the projector from A to B. To do so, press and hold for 3 sec simultaneously [MENU]+[BACK] buttons on the RCU. All the buttons on the RCU will blink.

- Two blinks indicate that B code is used.
- Three blinks indicate that A code is used.

14.6 High Altitude Mode

Set High Altitude Mode to "On" when using this unit at a place with a low atmospheric pressure or located at an altitude of 900 meters (3,000 ft) above sea level or higher. This will improve the fan efficiency and help in preventing the projector to overheat.

14.7 Hide Mode

This setting is used to temporarily hide the current image by switching Off the Laser alimentation. You can also use the [Hide] button on the RCU to set this function.

14.8 Factory Reset

Confirm to reset all this unit settings to default settings at once.

14.9 Software Update

Confirm to start the update procedure. Make sure that a valid software file must be loaded on a USB stick and that this stick is fully inserted in the USB/Update input located at the rear of this unit.

14.10 License

Displays the current license in use.

15.0 INFORMATION MENU

Input Terminal

Displays the active video input.

Input Source

Displays the type of the current video input signal.

Resolution

If the active input is PC input, its resolution is displayed.

H. and V. Frequency

In the case of PC signal, the horizontal and vertical frequencies are displayed.

Color Space

Displays the color space and color bit depth of the input video signal. Not displayed with YCbCr422 signals.

Colorimetry

Displays the color space and color depth of the input signal.

HDR

Displays the EOTF information when HDR source packets are received. Displays HDR10+ when HDR10+ packets are received.

Max CLL / Max FALL

Displays the mastering information of the content during HDR playback.

Light source time

Displays the accumulated hours of usage of the lamp.

Soft. Ver.

Display the current software version.

16.0 CINEMASCOPE SETUPS

16.1 Lens Zoom or Static Cinemascope kit

The centralizes the controls and automation commands for a unique, versatile and unexpectedly simple to operate 2.35:1 theatre experience using Lens Zoom or the Static Cinemascope kit.

- Up to 10 lens position memories when using Installation Mode 1 up to Mode 10.
- Integrated Constant Image Width (CIW) scaler using anamorphic mode A and mode B.
- Dedicated commands to control the Static Cinemascope kit and picture size on a 2.37:1 screen.

16.2 Cinemascope setup using the lens Zoom

Select “Menu => Installation => Mode 1”

Zoom in, until the left and right borders of the picture fits the 2.37:1 screen borders. Save the lens position in the Installation Mode 1. You can also edit the memory 1 name to “Cinemascope”.

Select “Menu => Installation => Mode 2”

Switch the current Installation Mode from Mode 1 to Mode 2. Make sure to project a 16:9 picture, zoom out until the picture top and bottom fit the top and bottom of the screen. Adjust the focus and offset if required, then save this position into the Installation Mode 2. You can additionally edit the memory name to “Standard”.

Switch format using the Remote Control Unit.

You can now switch between Cinemascope and standard formats easily by using the Installation [Mode] buttons on the RCU and selecting the lens configuration according to the source format.



You can access directly on the remote control unit (RCU) only to the 3 first Installation Modes. If you need to access to more Modes, you must use the main Menu or access them through automation.

16.3 Installing a 2.35:1 screen with the Static Cinemascope kit

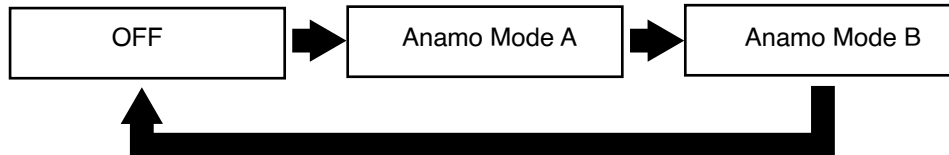
Video source is 16:9: set [Anamo]rphic to Off

When you select a 16:9 input choose the anamorphic OFF to obtain move the anamorphic lens out. Menu "Installation => Anamorphic => Off"

Video source is Cinemascope: set [Anamo]rphic to Mode A

Select Anamorphic mode A for this input in the menu Input "Installation => Anamorphic => Mode A".

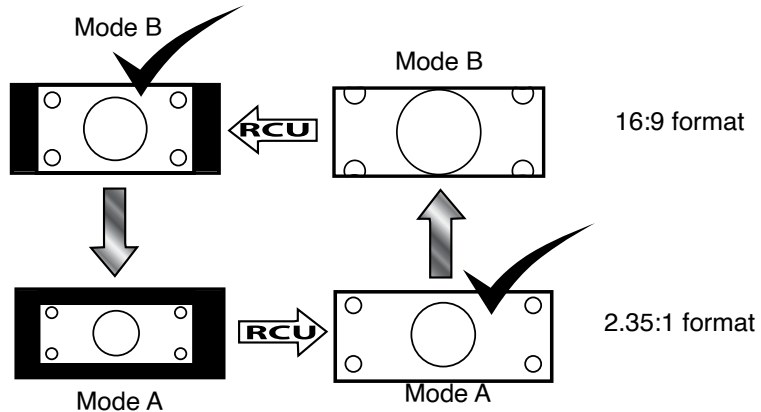
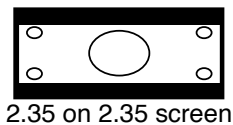
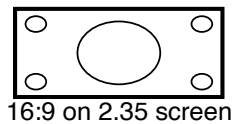
[Anamo]rphic modes



When you press sequentially the [Anamo]rphic button, you change the mode from OFF, Mode A and Mode B.

- Mode A is intended to be used with an anamorphic lens to watch 2.35:1 content on a 2.35:1 screen.
- Mode B is intended to be used to watch 16:9 content on a 2.35:1 screen and with the Static Cinemascope kit.

Anamo Kit installed 2.35 screen

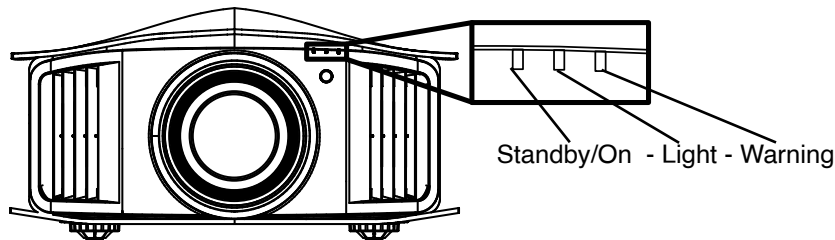


➡ When the source switches format...

RCU ➡ ... press [Anamo] button to obtain the correct anamorphic mode.

17.0 MAINTENANCE

17.1 LEDs indicators



LED indicator during normal operation

STANDBY/ON (Green or Red LED)	LIGHT (Orange LED)	WARNING (Red Led)	OPERATION
On Red	Off	Off	The unit is in standby mode
On Green	Off	Off	This unit is starting up
Off	Off	Off	During projection or Standby mode and ECO mode is set
Blinking Green	Off	Off	The picture is temporarily hidden (Hide is On)
Blinking Red	Off	Off	This unit is shutting down (cool-down) mode

LED indicator malfunction warnings

STANDBY/ON (Green or Red LED)	LIGHT (Orange LED)	WARNING (Red Led)	OPERATION OR WARNING
On/Blinking	On/Blinking	On/Blinking	This unit processing a software update
Off	Off	Blinking 1x	Software update failed, please check USB card
Off	Off	Blinking 2x	Cooling fan stopped abnormally
Off	Off	Blinking 3x	Internal temperature is abnormally high
Off	Off	Blinking 4x	External temperature is abnormally high
Off	Blinking 1x	Blinking 1x	Abnormal DD board operation
Off	Blinking 2x	Blinking 2x	Abnormal Fan motor board operation
Off	Blinking 3x	Blinking 3x	Abnormal CPU board operation
Off	Blinking 4x	Blinking 4x	Abnormal Power board operation
Off	Blinking 1x 2x 3x	On	Abnormality with the light source
Off	Blinking 4x	On	Safety switch activated, maintenance check is required
Blinking Green	Off	Off	The remote control code is set to the wrong A/B setting, please change the remote code.

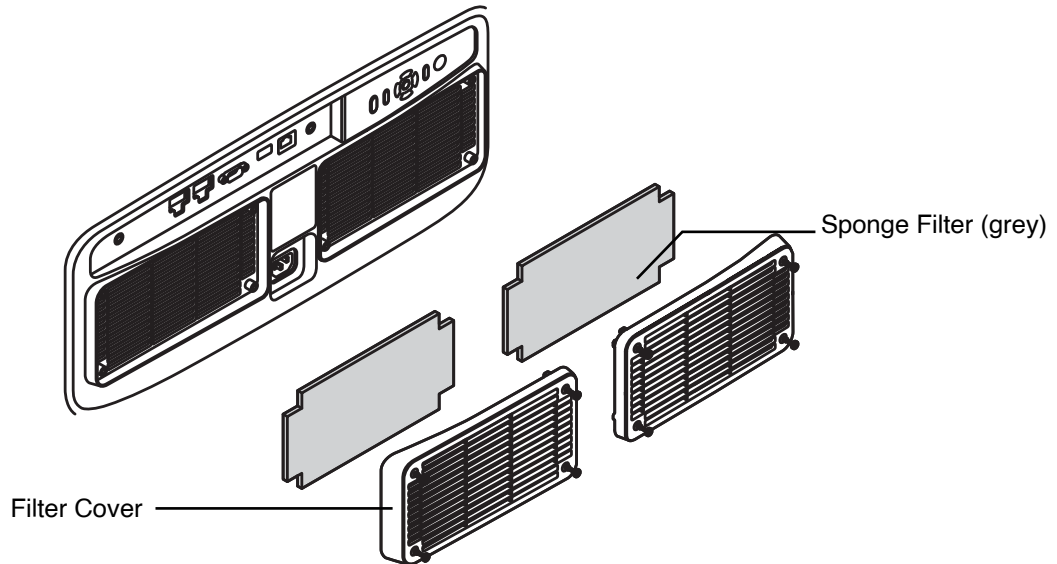
17.2 Cleaning dust Filter every 2000 hours

The filters must be cleaned regularly every 2000 hours to allow an efficient air intake. Otherwise, dirt may enter the unit and appear as shadows on the screen. If this unit is operated in dirty environment, please perform the filter cleaning more frequently.

If dirt has entered the unit or if you need information about the filter, please consult your authorized dealer.

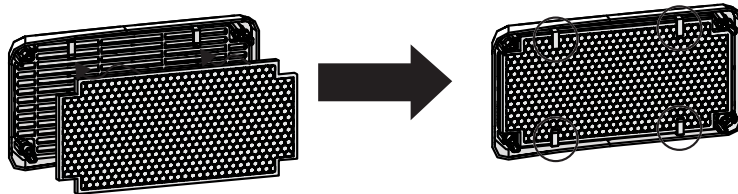
Cleaning procedure

- Pull out the power plug from the outlet while the projector is in standby mode.
- Loosen the 4 screws for each sides and remove the covers.
- Remove the sponge filter.



Remove and clean the two sponge filters.

- Use a vacuum cleaner to remove dirt from the sponge filter carefully
- Restore the sponge filter to their original positions.



- Restore the cover and fasten the 4 screws on each sides.



Do not wash the air filter with water. Doing so may cause the filter to deteriorate. Make sure to attach the air filter first and sponge filter last to ensure the best dust filtration possible.



If you need to replace the Sponge Spacer (J3K-0134-00) or Sponge Filter (J3K-0094-00) because they are broken or if they are too dirty please contact your re-seller or the nearest Cineversum distributor.

17.3 Dirt on the Lens

The lens shall be cleaned using commercial blowers or lens cleaning papers (for cleaning glasses and cameras). Do not use fluid-type cleaning agents. This may lead to peeling of the surface coating film. The lens surface is fragile. Avoid rubbing it hard or knocking.

