Black Wing Essential MK 2013

User manual

R599823

Cine VERSUM

Changes

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1.0 SAFETY INSTRUCTIONS

1.1 Important Information

Lead-free regulation

This product has a High Intensity Dixscharge (HID) lamp that contains a small amount of mercury. It also contains lead in some components.

Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: http://www.eiae.org.

Information for Users on Disposal of Old Equipment

This symbol indicates that the electrical and electronic equipment should not be disposed 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.

By disposing of this product correctly, you will help to conserve natural resources and will help prevent potential negative effects on the environment and human health which could otherwise be caused by inappropriate waste handling of this product.

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.

Other Countries outside the European Union:

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.

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.

CAUTION:

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

WARNING:

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

1.2 Important Safeguards

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. **But 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 100 to 240 VAC.

Please read these Important Safeguards carefully before use.

- All the safety and operating instructions should be read before the product is operated.

- All warnings on the product and in the operating instructions should be adhered to.

- All operating instructions should be followed.

- Place the projector near a wall outlet where the plug can be easily unplugged.

- 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 in the cabinet are provided for ventilation. These ensure reliable operation of the product and protect it from overheating. These openings must not be blocked or covered. (The openings should never be blocked by placing the product on bed, sofa, rug, or similar surface. It should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to). For proper ventilation, separate the product from other equipment, which may prevent ventilation and keep a distance of more than 5-9" (150 mm).

- 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.

- Do not look into the projection lens while the illumination lamp is turned on. Exposure of your eyes to the strong light can result in impaired eyesight.

- Do not look into the inside of this unit through vents (ventilation holes), etc. Do not look at the illumination lamp directly by opening the cabinet while the illumination lamp is turned on. The illumination lamp also contains ultraviolet rays and the light is so powerful that your eyesight can be impaired.

- Do not drop, hit, or damage the light-source lamp (lamp unit) in any way. It may cause the light-source lamp to break and lead to injuries. Do not use a damaged light source lamp. If the light-source lamp is broken, ask your dealer to repair it. Fragments from a broken light-source lamp may cause injuries.

- The light-source lamp used in this projector is a

high pressure mercury lamp. Be careful when disposing of the light source lamp. If anything is unclear, please consult your dealer.

· Do not ceiling-mount the projector to a place which tends to vibrate; otherwise, the attaching fixture of the projector could be broken by the vibration, possibly causing it to fall or overturn, which could lead to personal injury.

· Use only the accessory cord designed for this product to prevent shock.

· The power supply voltage rating of this product is AC120 V, AC100 V − AC240 V, the power cord attached conforms to the following power supply voltage. Use only the power cord designated by our dealer to ensure Safety and EMC.

· When it is used by other power supply voltage, power cable must be changed.

· Ensure that the power cable used for the projector is the correct type for the AC outlet in your country. Consult your product dealer.

· **Caution:** Do not allow any unqualified person to install the unit. Be sure to ask your dealer to install the unit (e.g. attaching it to the ceiling) since special technical knowledge and skills are required for installation. If installation is performed by an unqualified person, it may cause personal injury or electrical shock.

1.3 Regional 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

FCC Information (USA only)

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. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures:

· Reorient or relocate the receiving antenna.

· Increase the separation between the equipment and receiver.

· Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

· Consult the dealer or an experienced radio/TV technician for help.

 FCC

The Federal Communications Commission (FCC) is an independent United States government agency, created, directed, and empowered by Congressional statute.
The FCC was established by the Communications Act of 1934 as the successor to the Federal Radio Commission and is charged with regulating all non-Federal Government use of the radio spectrum, including radio and television broadcasting, and all interstate telecommunications like wire, satellite and cable as well as all international communications that originate or terminate in the United States. The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions.

2.0 INSTALLATION GUIDELINES

2.1 About 3D Content and 3D Projection

This unit is compatible with 3D playback. The source can be connected using one of the two available HDMI 1.4a inputs. The 3D effect is based on the binocular parallax which is the difference of the view on a single object when seen from the left and right eyes, respectively.

Binocular parallax
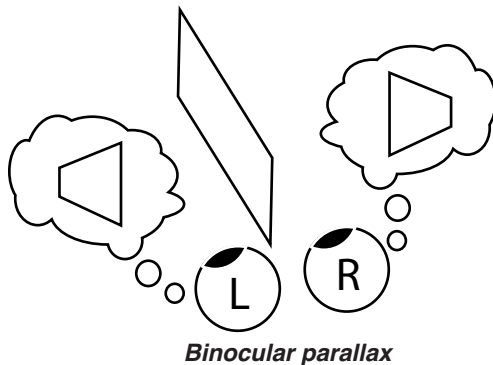
3D movies use two sets of images: one set for the left eye, the other set for the right eye. These images can be stored into three compatible formats: Frame packing, Top-&-Bottom or Side-by-Side.

This unit is compatible with the following 3D formats:

- 1080p @ 23.98/24Hz - Frame Packing, Top & Bottom and Side-by-Side
- 720p @ 50 or 59.94/60Hz - Frame Packing, Top & Bottom and Side-by-Side
- 1080i @ 50/60Hz - Frame Packing and Side-by-Side
- 1080p @ 50/60Hz Side by Side

The left and right images are produced alternatively. Therefore, the shutter glasses are used to separate the left eye images which will be only visible to the left eye, and the right eye images only visible to the right eye. The human brain then perceives stereo objects based on the visual differences between two images of the same object but taken from different angles.
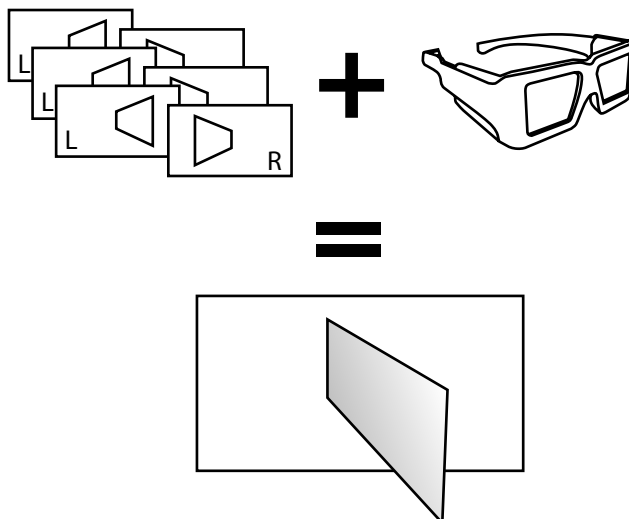
The 3D-glasses are used to separate the left and right image, therefore producing a 3D effect.

2.2 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 causes visual fatigue and discomfort. That means that the more 3D effect, the more outward effects, and the more your eyes will try to focus nearer than

where the objects are actually -really- located. This strain contributes to fatigue and discomfort.

ⓘ CAUTION ABOUT HEADACHES AND EYE STRAINS

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.

2.3 3D-Synchro Emitter and 3D Glasses

In order to match the timing of the displayed video images with the timing of the opening/closing 3D glasses shutters for each eye, the projector in 3D mode sends the correct synchro data to the 3D synchro emitter.

ⓘ INFRARED SYNCHRONIZATION

In regard to the Infrared 3D emitter, if you experience synchro issues with Infra Red glasses in an installation where the synchro signal is bouncing from the projection screen, please direct the 3D emitter in such a way towards the seats that the infrared rays can directly reach the 3D glasses. In a few cases the synchronization may not work correctly.
NB: To further avoid Infrared interferences or line-of-sight issues, you may also order the Radio-Frequency Synchronization Kit with RF-synchronized 3D Glasses. The RF kit cannot synchronize Infrared 3D Glasses.

2.4 Best seat position for 3D projection

A 3D projection that makes use of stereoscopic images is very similar to an illusionist show where the brain is tricked to perceive two pictures as a real 3D scene. The trick is easily revealed:

· If you move from one side to the other side of the screen, there will be a place where you will be off-axis enough to let you perceive the flatness of the projected pictures instead of interpreting them as a 3D object.

· If the parallax is not appropriate to the screen size, the two pictures will be perceived distinctly and therefore the brain will interpret the 3D-projection as two superposed pictures.

In general the perception of the 3D effect will vary according to your seat position and to the screen size. When a movie is produced for 3D projection, the director knows the exact distance where the 3D effect will be perceived. In general, the recommended distance is three times the height of the screen to obtain the best 3D effects.

H = Screen Height

Seat distance formula = 3 x H
(16:9 movies = 3 x H = 1.69 x B)
(2.37:1 movies = 3 x H = 1.26 x B)

Best seat position for 3D projection
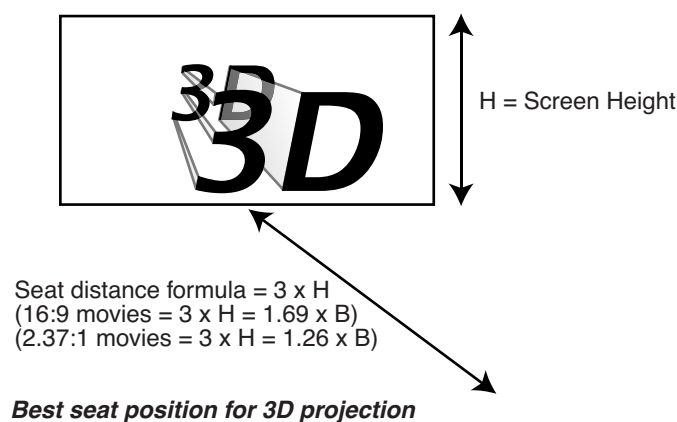
2.5 Environment of Use

Do not use this unit in rooms with cigarette smoke or oily smoke. This may cause the unit to malfunction. Check temperature during install. If there is a heater, the air may reach a higher temperature than expected.

Precautions of Usage

This unit makes use of a light source lamp that reaches a high temperature during projection. Do not allow projection under the following conditions:

· Projection with the unit laid on sides.

· Projection at a location that blocks the air inlets or exhaust vents.

· Projection at a place exposed to air blasts from an air conditioner.

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
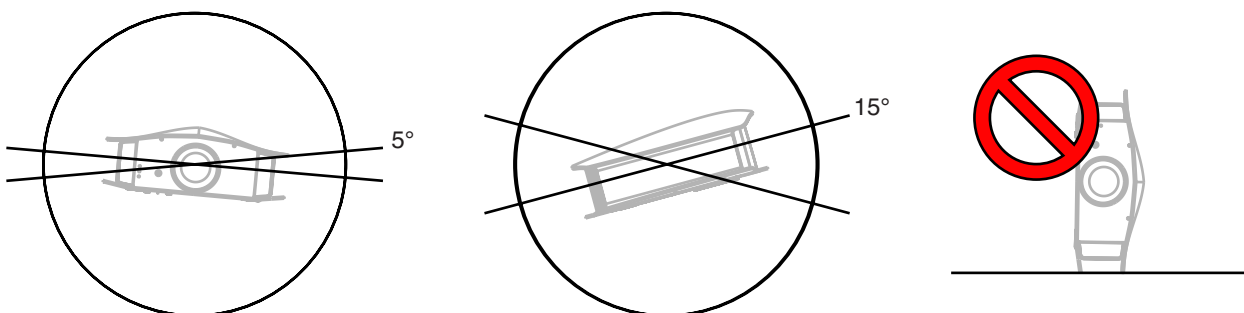
2.6   Air-Flow and Space Requirements

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).

Air flow

Space requirements
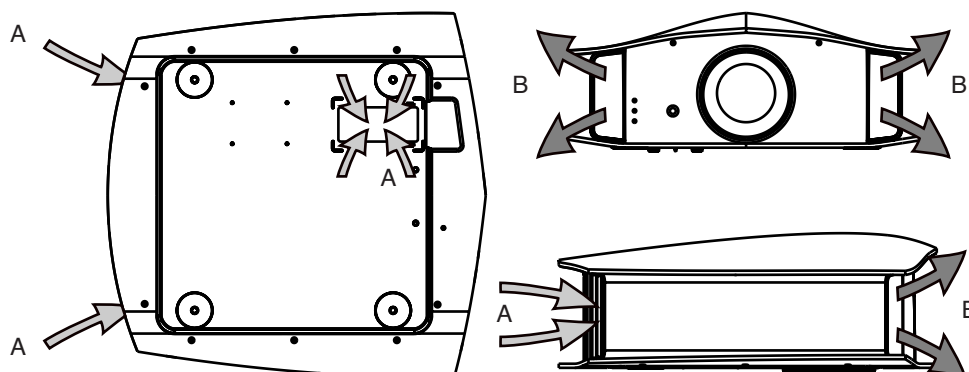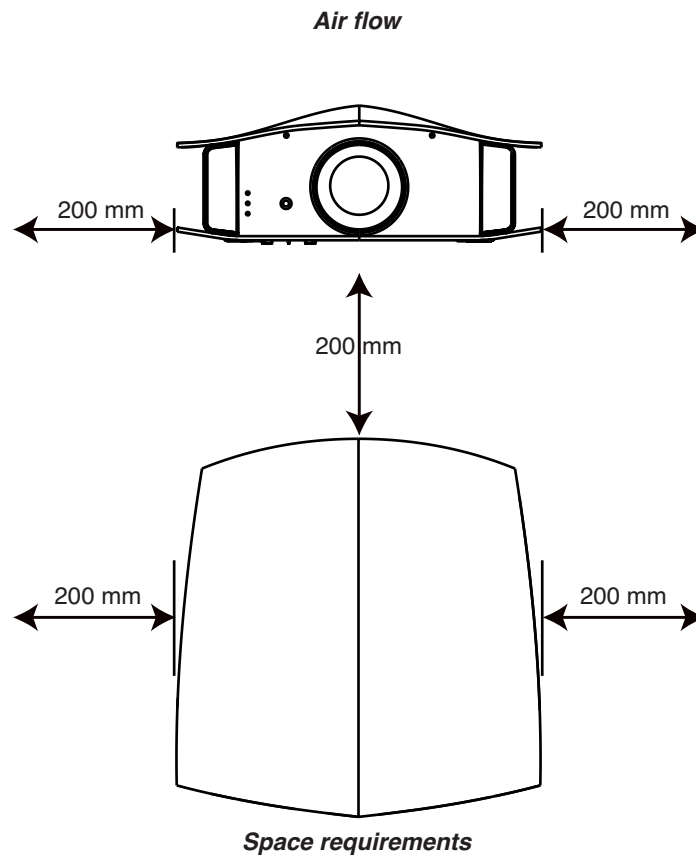
2.7   Ceiling Mounting the Unit

When mounting of this unit is required, make use of the 4 screw holes (M5x20 screws) at the bottom of this unit indicated by the letter A. Allow sufficient space around the air inlets to avoid blocking them.

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 13mm long screws but not longer than 23mm 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.
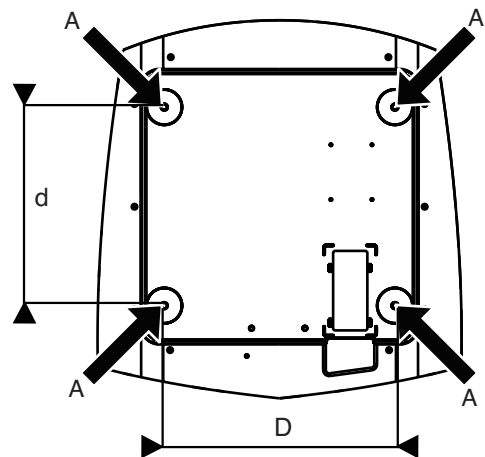
Dimensions

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

2.8   Projection Distance

Projection Distance Chart

Projection Screen Size Diagonal size (Aspect Ratio 16:9)	Projection Screen Size Base size (Aspect Ratio 16:9)	Projection Screen Height (Aspect Ratio 16:9)	Blackwing Essential mk2013 Projecting Distance minimum - maximum
50" (1270 mm)	43,6" (1107 mm)	24,5" (623 mm)	151 cm - 305 cm
60" (1524 mm)	52,3" (1328 mm)	29,4" (747 mm)	178 cm - 366 cm
70" (1778 mm)	61,0" (1550 mm)	34,3" (872 mm)	209 cm - 428 cm
83" (2108 mm)	72,3" (1837 mm)	40,7" (1034 mm)	251 cm - 507 cm
92" (2337 mm)	80,2" (2037 mm)	45,1" (1146 mm)	279 cm - 562 cm
100" (2540 mm)	87,2" (2214 mm)	49,0" (1245 mm)	301 cm - 613 cm
110" (2794 mm)	95,9" (2435 mm)	53,9" (1370 mm)	331 cm - 675 cm
138" (3505 mm)	120,3" (3055 mm)	67,7" (1718 mm)	418 cm - 843 cm
150" (3810 mm)	130,7" (3321 mm)	73,5" (1868 mm)	453 cm - 860 cm
180" (4572 mm)	156,9" (3985 mm)	88,2" (2241 mm)	545 cm - 1107 cm
200" (5080 mm)	174,3" (4428 mm)	98,1" (2491 mm)	606 cm - 1230 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.

- The distances are calculated for a projection image of 16:9 aspect ratio

2.9 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. Take note of the projection angle when placing them. You can also use up to +/- 15° up and down position and configure trapezoidal correction.
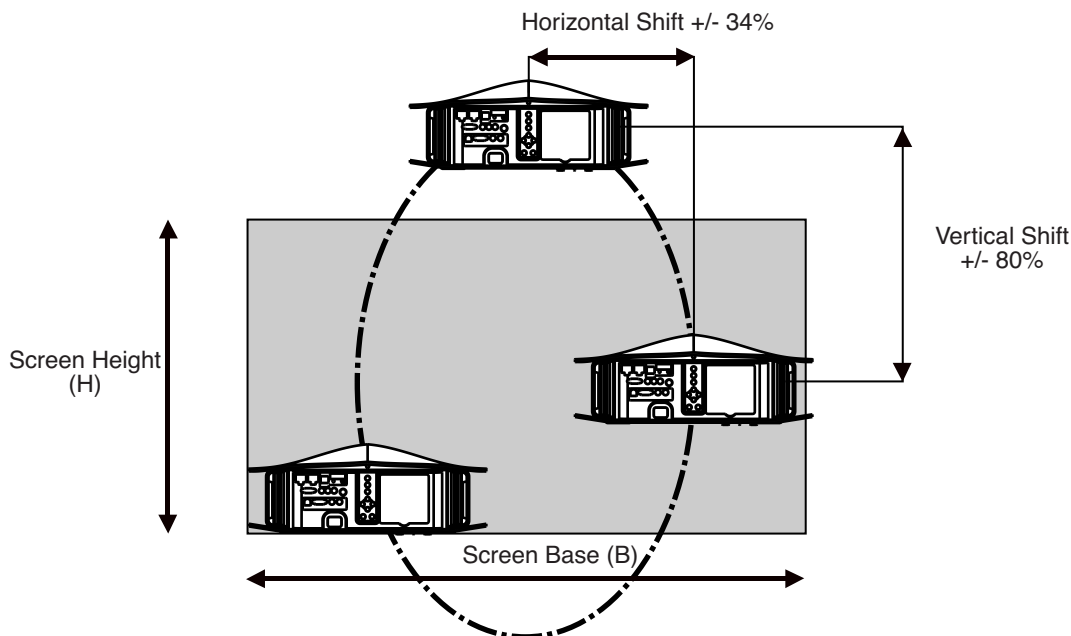
This unit comes with a vertical and horizontal shift to suit most installations. Make sure that your installation does not exceed 80% vertical offset and 34% horizontal offset to avoid trapezoidal correction.

This unit comes with a 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 x H).

- The Horizontal Shift level is between -34% and 34% of the Screen Base (0.34 x 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:

Left - Right shift	0%	5%	10%	15%	20%	25%	30%	34%
max. Up - Down shift	80%	74%	66%	57%	47%	34%	18%	0%

2.9.0.1   Adjust the picture position

The Blackwing Essential mk2013 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.

2.9.0.2   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.

2.9.0.3   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 Lens Memories

You can save the current picture position, zoom and focus in up to 5 different Lens Memories. Each memory stores the current position, zoom, focus of the lens and you can also set a custom name of 10 characters or less.

- Saving current lens setup

Fist step is to set the lens to fill the desired screen. Then go into the Menu ⇒ Installation ⇒ Lens Control, Select Lens Memory Save and choose one of the five available. You can call back anytime later this current lens setup using the direct access button [Lens Mem]ory 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)

3.1 General View

[Stand By] button	[Power On] button
Select [3D Format]	Select Active [Input]
Display [3D Setting] menu	[Anamo]rphic mode
[Lens control] Shift, Focus and Zoom	[Lens Ap]erture
[Hide] Display	Select a [Lens Memory]
Navigation buttons	Backlight button
Display [Menu]	Confirm button
Select a Picture Mode	[Back] to previous menu
Gamma Adj.	C.M.D. (Clear Motion Drive)
Color temp. Adj.	Basic Picture Adj.
	Color Profile

STAND BY
ON
INPUT
HDMI 1 HDMI 2 COMP
3D FORMAT 3D SETTING ANAMO.
LENS CONTROL LENS MEMORY LENS AP.
HIDE LIGHT
OK
MENU BACK
PICTURE MODE
FILM CINEMA ANIME
NATURAL STAGE 3D
USER INFO C.M.D.
GAMMA COLOR TEMP COLOR P.FILE PIC. ADJ.

3.2 Loading and replacing batteries

- Push the cover tab with the fingernail a little backwards and pull upwards the cover top. Slide the cover forward to remove.
- Push the battery body towards the spring and lift up to remove. Insert two AAA size batteries, making sure the polarities match the + and - marks inside the battery compartment.
- Insert the lower tab of the battery cover in the gap at the bottom of the remote control, and press the cover until it is firmly closed.
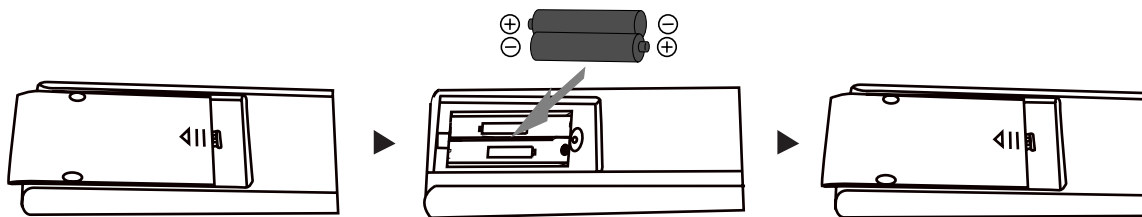
CAUTION WHEN USING BATTERIES

Do not mix new and old batteries.Do not mix different type of batteries as they are different in characteristics. Insert batteries according to the + and - marks on the battery case. Do not put batteries into fire or recharge them if they are not design to. Remove the batteries if the remote control is not to be used for a prolonged period. Use manganese batteries wherever possible, Do not use rechargeable batteries.

NOTICE

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. Insert the batteries according to the + and - marks.

3.3 How to use the Remote Control Unit

The operable distance of the remote control unit is about 7m for direct reception and within 30° angle with respect to the sensor.

Front InfraRed sensor

Back InfraRed sensor
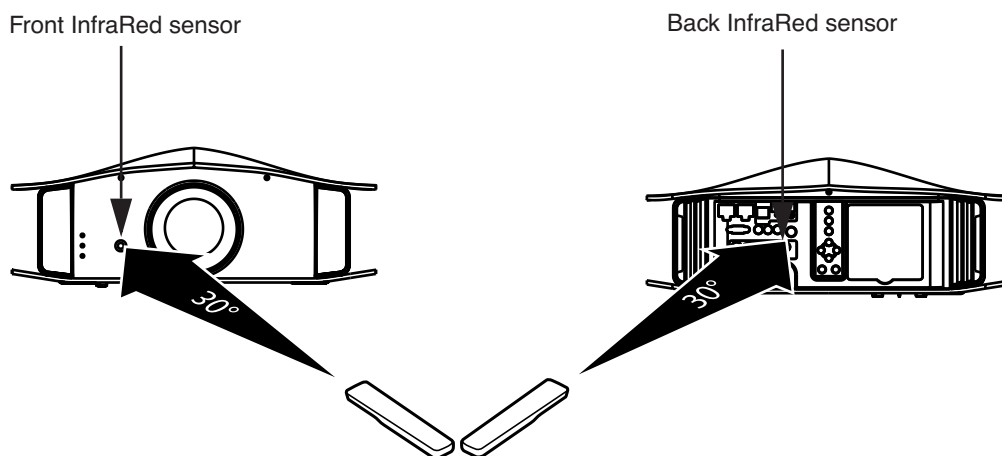
The remote control unit can be used by having the transmission signal reflected off a screen, as the effect of signals reflected from the RCU differ with the type of screen used, operable distance may decrease.

4.0 GETTING STARTED

4.1 General View

Front side

Optical Lens

Air Outlet

Operating LED

Front IR sensor
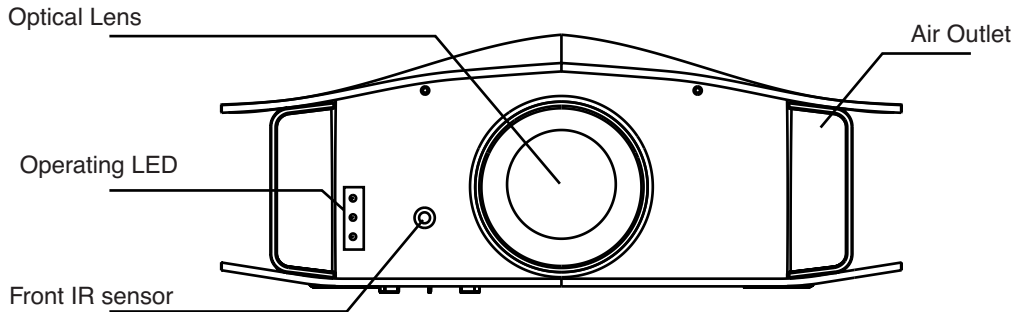
- Optical Lens from which the image is projected.
- Operating LEDs: see section 4.3, page 17 for more details.
- Air Outlets: see "Air-Flow and Space Requirements", page 10.

Rear side

Input Panel

Lamp trap

Operating buttons

Main Power

Air Inlet
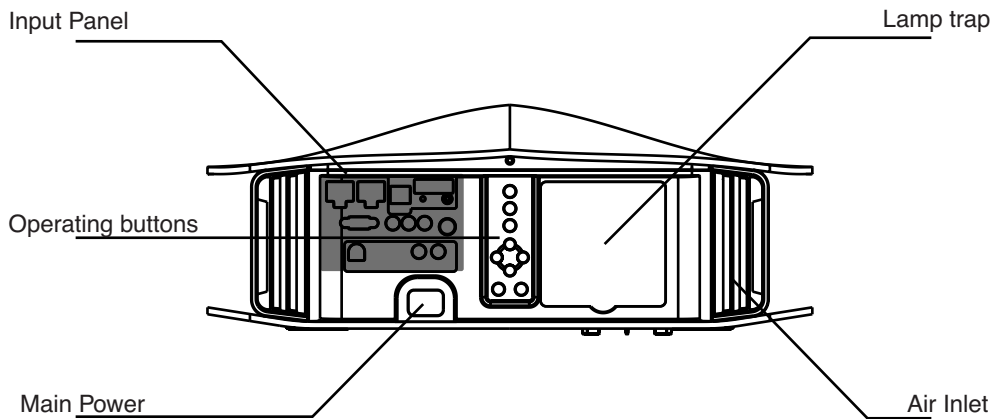
- Input Panel: connect your video source to the correct input.
- Operating and Navigation buttons described in section 4.4, page 18.
- Main Power: connect the power cord as shown below.
- Lamp trap: see "Procedure for Lamp Replacement", page 32 for more details about lamp replacement.
- Air Inlets: see "Air-Flow and Space Requirements", page 10.

4.2   Connecting the Power Cord

- Before plugging in the Power Cord, ensure that all devices have been connected to their respective inputs to this unit.
- Connect the power cord to the power input terminal of the projector.
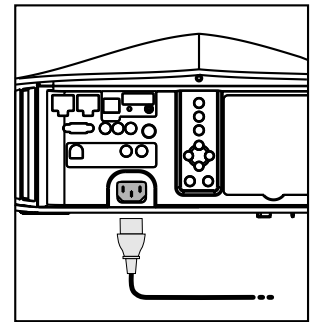
⚠ **CAUTION AGAINST FIRE AND ELECTRIC SHOCK**

Since the power consumption of this unit is high, insert the power plug directly into a wall outlet.
Do not use a power voltage different from that which is indicated. Do not cut, tear or modify the power cords. Also, do not place a heavy object on, heat or stretch the power cords as this may cause damage to the cords.

4.3   Operating LEDs

WARING 🔴/🟠
(orange/red LED)

LAMP (orange LED)

STANDBY/ON 🔴/🟢
(green/red LED)
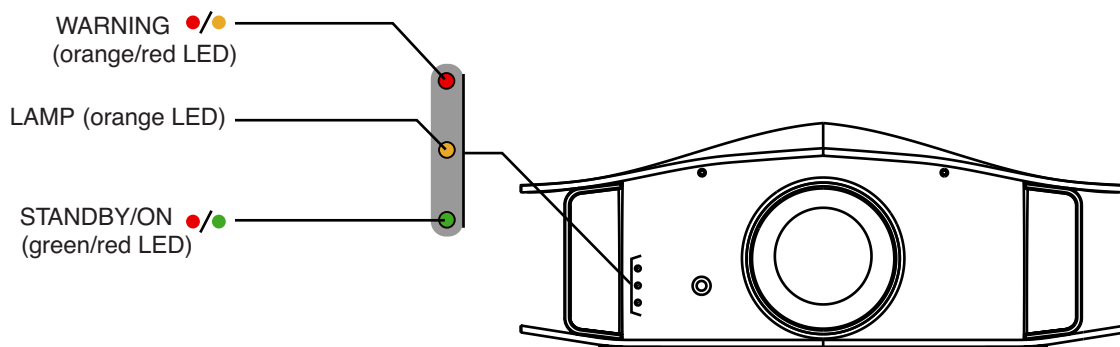
| ID	Operating LED				Description
	STANDBY/ON (green or red)	**LAMP (orange)**	**WARNING (orange/red)**	**Blinking**	
1	red	-	-	-	Unit is in standby mode
2	green	-	-	-	Unit is in operate mode (during projection)
3	blinking green	-	-	Yes	Unit is in operate mode, but HIDE is ON. Press again the HIDE button to obtain a picture.
4	blinking red	-	-	Yes	Unit is in cooldown mode. (switching off)
5/6	-	orange	-	-	Lamp time has reached 2900 hours, prepare to replace the lamp soon. If used in low power mode, replace the lamp before 4000 hours.

ℹ **CAUTION:**
When in Cool Down mode, do not pull out the plug from the outlet. Also, do not block the air inlets/exhaust vents by standing the projector on its end or laying it on its side.

ℹ **NB:**
When the projector is running for more than 1 minute, the Standby/ON LED will automatically switch OFF.

4.4 Operating and Navigation Buttons

Power button

Input source

OK

Up - down
Left - right

Menu

Back

Ф/I STANDBY/ON

INPUT

OK

MENU   BACK
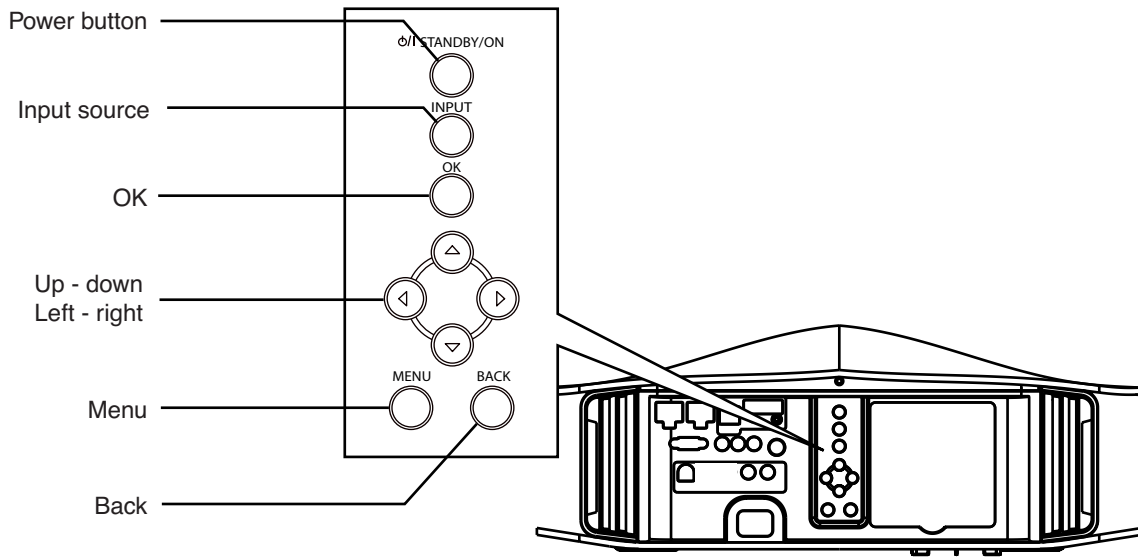
Button	Description
Power button	To turn On or Off the projector.
Input source	To switch input source.
OK (Enter)	To select or to confirm action.
Up - down - left - right	To navigate into On Screen Display (OSD) Menu.
Menu	To display On Screen Display (OSD) Menu.
Back	To return to previous menu or cancel action.

5.0 CONNECTIONS

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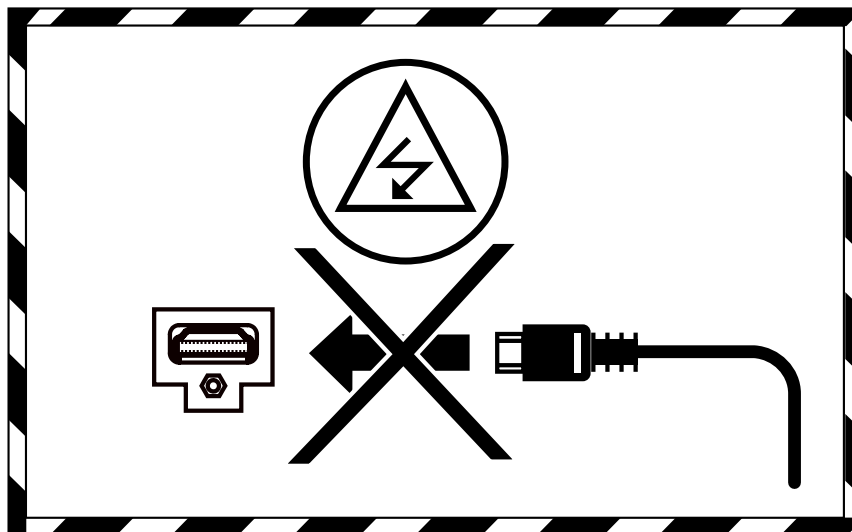
Prior to connecting any device to this unit, switch the projector in standby mode. Never connect a HDMI source to this unit when the projector is in operate mode. The HDMI termination is a self-powered connection and can cause electric discharges.

5.2   Connecting a Video Source to the Projector
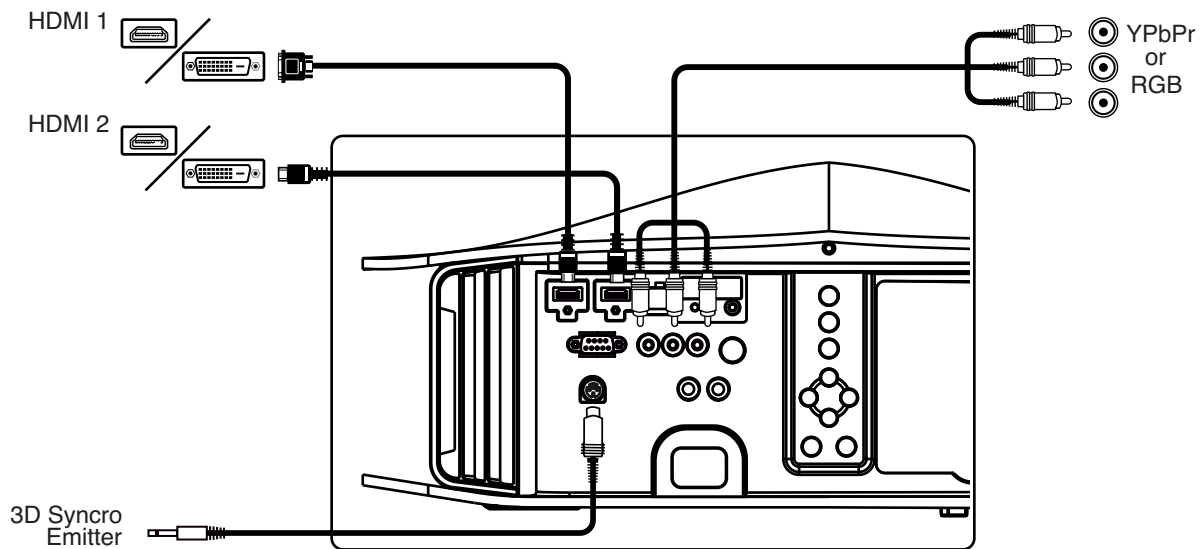
Connection	Device
HDMI1, HDMI2 **v1.4a with M3 lock hole**	HDMI or DVI-D sources: Blu-Ray Disc player, DVD-player with HDMI, Game Console, Computer with DVI-D output.
3D Synchro output	3D synchro emitter to control active shutter glasses. 3-PIN mini-DIN interface, 12V.
YPbPr or RGB (3x RCA)	DVD-Player, HDTV Receiver, Game Console (SD or HD), DVB-T receiver, Multimedia box, Analog Camera.

Make sure to use a certified HDMI cable, especially when the distance between the different devices are longer than 5 meters. If it is the case, the use of a split system or optical fiber cable is highly recommended.

5.3 Connecting an Automation or Control device

LAN * to Rooter
for Automation

Optional IR-receiver

RS-232C *
for Automation
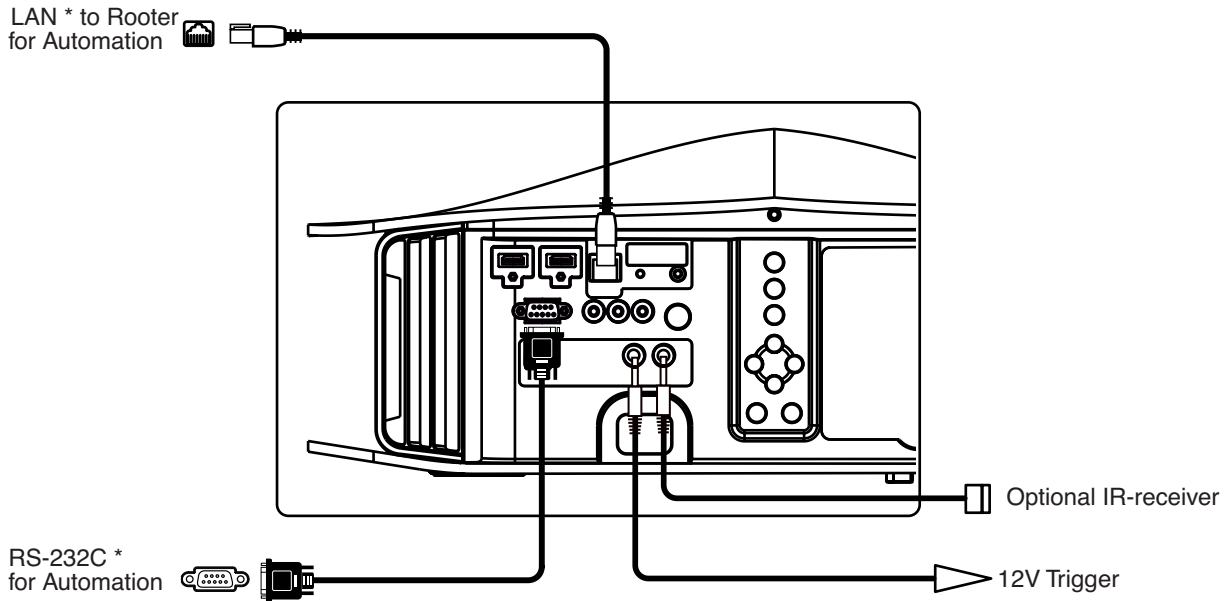
12V Trigger

Connection	Device
RS-232C	Automation Device, Control Device or Computer with RS-232 capability.
Optional IR-receiver	Can be used to connect an external IR receiver when this unit is used in a dedicated box or in rear projection setup.
12V Trigger	DC power supply output 12V@140-300mA to control either a screen or an anamorphic slider.
LAN	Automation Device, Control Device or Computer with RJ-45.

(*) USING RS-232 WITH A COMPUTER

The RS-232 Control and Automation may require specific software and tools. Ask your dealer or visit www.cineversum.com for more details on RS-232 cabling and protocol.

(*) USING LAN WITH A COMPUTER

When the LAN Control is selected, the RS-232 port cannot be used for automation. In addition, the control device must send specific functions to this unit using the Local Network (this is not a web interface) See "Network", page 31 for more details on the network configuration and protocol.

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.

6.0 MENU STRUCTURE

MAIN MENU	SUBMENU	AVAILABLE OPTIONS	
Picture Adjust	Picture Mode (6 + 5 User)	(Movies)	Film
		(Digital Cinema)	Cinema
		(SF movies or animes)	Animation
		(Video programs)	Natural
		(Concerts)	Stage
			3D
			User1
			User2
			User3
			User4
			User5
	Contrast		-50 +50
	Brightness		-50 +50
	Color		-50 +50
	Tint (reddish to greenish)		-50 +50
	Color Temp.	Preset value:	
			5500K
			6000K
			6500K
			7000K
			7500K
			8000K
			8500K
			9000K
			9500K
			High Brightness
		Custom1	Gain, Offset
		Custom2	Gain, Offset
		Custom3	Gain, Offset
	Gamma	If 2D input:	
		(neutral setting)	Normal
		(focus on tone)	A
		(film S curve)	B
		(more contrast than B)	C
		(bright and PC like picture)	D
		If 3D input:	
		(focus on tone)	A (3D)
		(film S curve)	B (3D)
		(more contrast than B)	C (3D)
		Custom1	
		Custom2	
		Custom3	
	Advanced	Sharpness:	
		Sharpness	0 - 50
		Detail Enhance	0 - 50
		Noise Reduction:	
		RNR	0 - 16
		MNR (SD only)	0 - 16
		BNR (SD only)	On, Off
		Color Space	
		(close to HDTV std.)	Standard
		(close to DCI std.)	Wide
		(natural colors no adj.)	Off
		Custom Gamma:	Custom1
			Custom2
			Custom3
		User Name Edit:	User1 - User5
		edit name	10 char. max

Picture Adjust	Advanced	Clear Motion Drive:	Off
			Low
			High
			Inverse Telecine
		Lens Aperture	-15 +0
		Lamp Power	Low / High
	Reset Profile		Confirm
Input Signal	HDMI	Input levels	(16 - 235) Standard
			(0 - 255) Enhanced
			(16 - 255) Super White
		Level Check	displays pattern
		Color Space	Auto
			YCbCr(4:4:4)
			YCbCr(4:2:2)
			RGB
		Control with HDMI (CEC)	On, Off
	COMP.	Color Space	YCbCr
			RGB
	Picture Position		Horizontal
			Vertical
	Aspect	Video	4:3 / 16:9 / Zoom
	if 3D, only 16:9 is available	PC	Auto / Just / Full
	Mask	5%, 2.5%, Off	
		Custom	Left 0% - 5%
			Right 0% - 5%
			Upper 0% - 5%
			Down 0% - 5%
	Progressive (480i, 576i, 1080i)		Auto, Off
	3D Setting	3D format	Auto
			Side-by-Side
			Top & Bottom
			2D
		2D to 3D Conversion	On, Off
		Parallax	-15 +15
		Crosstalk Cancel	-8 +8
		Intensity	-5 +5
		Subtitle Adjust	On, Off
Installation	Lens Control	Focus	
		Zoom	
		Shift	
		Image Pattern	On, Off
		Lock	On, Off
		Lens Memory Select	1 - 5
		Lens Memory Save	1 - 5
		Lens Memory Name Edit	10 char. max
		Lens Center	Confirm
	Pixel Adjust	Horiz. Red	1 - 5
		Horiz. Blue	1 - 5
		Vert. Red	1 - 5
		Vert. Blue	1 - 5
	Installation Style		Front
			Ceiling Mount (Front)
			Rear
			Ceiling Mount (Rear)
	Keystone (disable with 3D signal)	Horizontal	-40 +40
		Vertical	-30 +30
	Pincushion (disable with 3D signal)		-20 +20

Installation	Anamorphic	Off
	(vert. stretch)	A
	(hor. squeeze)	B
	Screen Adjust	A, B, C
	Black Level	0 - 10
Display Setup	Back Color	Blue, Black
	Menu Position	select position
	Menu Display	15sec, On
	Line Display (input setting)	5sec, Off
	Source Display (active input)	On, Off
	Logo	On, Off
	Language	Select between 12 languages
Function	Trigger	Off
		On (Power)
		On (Anamorphic)
	Off Timer (in hours)	1H, 2H, 3H, 4H, Off
	High Altitude Mode	On, Off
	ECO Mode	On, Off
	Communication Terminal	RS-232C
		LAN
	Network (LAN must be selected)	DHCP Client On, Off IP Address 192.168.0.2 Subnet Mask 255.255.255.0 Default Gateway 192.168.0.254 Mac Address Display MAC Set Display Network settings
	Remote Code	A, B
	Lamp Reset	Confirm
Information	Input Terminal	
	Input Source Format	
	Deep Color Depth	
	PC Resolution	
	PC H Freq.	
	PC V Freq.	
	Deep Color Depth	
	Lamp Time	
	Software Version	

7.0 PICTURE ADJUST SETTINGS

7.1   Picture Modes

The preset Picture Modes are available and they can be applied to any input. A picture mode retains the picture adjustments. Adjusting the Picture Mode according to the source content:

Video Source	Movies in general	Digital Cinema or HDTV	Animation or vivid movies	Dramas or Videos	Live Concerts or Spectacles	3D Movies
Recommended Picture mode	Film	Cinema	Animation	Natural	Stage	3D

There are 5 additionnal User defined profiles.

7.2   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.

7.3   Brightness

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

7.4   Color

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

7.5   Tint

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

7.6   Color Temperature

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:

- Preset: from 5500K / warm colors, up to 9500K / cold colors in steps of 500K.
- High Brightness used for maximum brightness output available.
- Custom1, Custom2 and Custom3 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.

> Accurate color temperature may require professional tools such as dedicated software and colormeter. Wait at least 10 minutes after startup before modifying the picture settings.

7.7   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 midtones 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:

- Normal: Standard setting for 2D
- Gamma A: focus on tone
- Gamma B: for film and movie with a great sense of depth.
- Gamma C: global picture is more contrasted compared to B setting.
- Gamma D: global picture has brighter midtones than "Normal" setting.
- Custom1
- Custom2
- Custom3

With a 3D signal input, Gamma can be set to the different values below if the Picture Mode is set to "3D":

- Gamma A (3D): Recommended setting for 3D movies.
- Gamma B (3D): Global picture will appear brighter than A (3D).
- Gamma C (3D): Global picture will appear to have a greater sense of depth than A (3D)

The Custom Gamma setting can be set only with 2D signal inputs:

- Correction Value: a unique value that will act as a gamma coefficient between 1.8 and 2.6.
- Gamma Adjustment: the gamma curve can be adjusted for each color Red, Green and Blue.
- Copy: copy the adjusted values to temporal memory.
- Paste: paste values stored in memory to current profile.

- Reset: reset to the default 2.2 gamma coefficient.

Gamma Adjustment can be copied from all modes. Paste can only be used for Custom modes.

7.8 Advanced Picture Settings

Sharpness

- Detail Enhancement: brings out small details in the image.
- Sharpness: Emphasizes the outline of the picture.

Noise Reduction

- RNR: Random Noise Reduction. You can set it from 0 up to 16 to reduce the picture random noise.
- MNR: Mosquito Noise Reduction function is used to reduce the Mosquito noise on the picture, generally found in compressed digital video signals such as television broadcast or encoded movies. Adjust the MNR value from 0 up to 16 to reduce the typical broadcast picture mosquito noise
- BNR: Block Noise Reduction uses a large portion of the picture to reduce the digital noise, this ensures a higher quality filter. Adjust the BNR value to On or Off.

Color Space

- Standard: Recommended color space for HDTV standard.
- Wide: Recommended for DCI-like sources (Digital Cinema).
- Off: Natural color space with no adjustments.

User Name Edit

You can edit the picture modes names User1 to 5 using a maximum length of 10 characters. You can use alphabet letters, numbers and symbols:
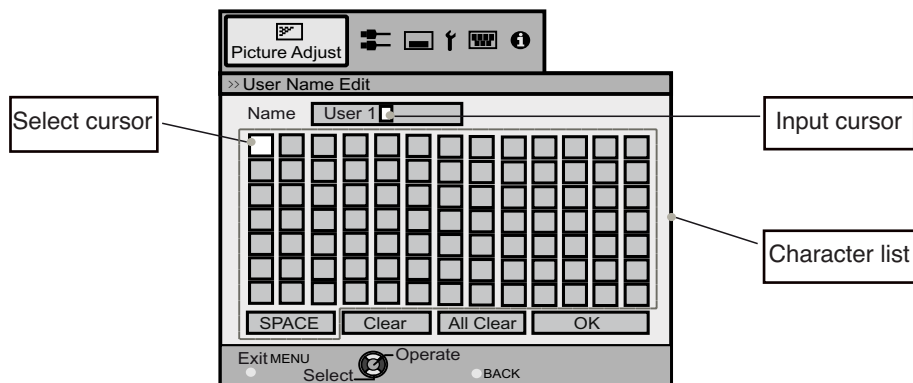
a) Select the user name you want to edit from User1 to User5. Press [OK] to enter the edit mode.

b) The input cursor displays the place where the new character will be insert. It will move automatically as a character is selected. Use [UP], [DOWN], [LEFT] or [RIGHT] to select a character and press [OK] to insert it.

c) 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.

Clear Motion Drive (120Hz)

The Clear Motion function uses a 120Hz video processing to render a smooth and clear 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
- High: strong interpolation
- Inverse Telecine: dedicated interpolation for 60i and 60p sources originally shot in 24p.

Lens Aperture

The lens is equipped with a variable electronic aperture. This function is used to optically adjust the light output depending on the viewing conditions and the light ambiance. Adjust from the correct aperture from partially closed to fully opened.

Lamp Power

Set the lamp power used by the current Picture Profile:
Low: lamp is set to 180W
High: lamp is set to 230W.
To avoid any damage to the lamp, you can't change the lamp power within 90 seconds from the projector startup or 60 seconds after lamp power change.

7.9　Reset Picture Profile

Prompt a confirmation to reset the current Picture Profile to default settings.

8.0　INPUT SIGNAL SETTINGS

8.1　HDMI Inputs

This menu is available if the selected active input is HDMI1 or HDMI2.

Input

- Auto: The input dynamic range is automatically detected and configured.
- Standard: Force dynamic range to 16-235.
- Enhance: Force dynamic range to 0-255.
- Super White: Force dynamic range to 16-255.

Check Input Levels

The following pattern is overlaid to current picture to confirm that the correct input level has been selected.

0	235
255	**16**

Use the Input Levels pattern to confirm the correct HDMI dynamic range setting.

Color Space

- 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 4:4:4.

Control with HDMI (CEC*)

- Off: By default the CEC(*) communications are disabled.
- On: Enables CEC(*) communications to be sent to the projector through HDMI cable.

(*) CEC stands for Consumer Electronic Control

8.2　Component

This menu is available if the selected active input is Component.

- Y Pb/Cb Pr/Cr: Select this option if the COMP. input is connected to a component video signal.
- RGB: Select this option if the COMP. input is used with a RGB video source.

8.3　Picture Position

Depending on your source, you may find that the picture should be adjusted into the screen, adjust the horizontal and vertical position of the picture into the screen. Some signals may not be fully displayed, adjust this setting properly when necessary.

8.4 Aspect Ratio

When watching a movie or video program, you can manually set the desired aspect ratio to fill your screen. Select the correct aspect ratio depending on your source:

For Video sources

a) 4:3. The original source is considered as 4:3 format. Generally SDTV broadcasts.

b) 16:9. The picture size is 16:9, generally most recent DVDs, Blu-Ray discs or HDTV broadcasts.

c) Zoom. The zoom function is useful to zoom in the picture and eliminate black bars.

> **i** When watching 3D content, only 16:9 aspect ratio is available.

For PC sources

a) Auto. Positions the image at the center with the entire image enlarged.

b) Just. Displays the input image in tthe actual size.

c) Full. Fills the entire screen with the image with the size (aspect) of the input image ignored.

8.5 Mask

Depending on your source, you may enable or disable this feature to hide the outer area of the picture. The Mask function can hide the unexpected scaling artefacts found in broadcast program. You can set it to Off, 2.5% or 5% globally or for each side of the screen.

8.6 Progressive (only 480i, 576i, 1080i)

Interlaced signals are converted to progressive signals using video images from the surrounding. This function is only available for interlaced input signals: 480i, 576i and 1080i.

8.7 3D Setting

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.

2D to 3D Conversion

You can use the 2D to 3D Conversion to convert 2D pictures into a quasi-3D picture. The quality of the result may differ from quality of original 2D picture. Turn it On or Off.

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.

> **i** The parallax is an important parameter for 3D movies that directly affects comfort during 3D projection. It is admitted that generally the maximum value of the parallax must not exceed 6,5 cm which is an average value of people's distance between their left and right eyes and 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 have smaller faces and may feel better with a smaller parallax value. Do not hesitate to alter this settings if you feel eye-strains or headaches.

The correct Parallax value also depends on your projection screen size. 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 but not when 2D to 3D Conversion is On. This function is to lessen the residual cross-talk found between 3D video images. Adjust the Parallax value and then the Cross-talk settings in order to cancel the residual cross-talk without loosing picture quality.

Adjustments White, Red, Green and Blue: -8 +8

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

Intensity (2D to 3D Conversion is On)

Because the 2D to 3D Conversion may not detect the correct depth of the picture elements, you can use this function to enhance the depth perception during the conversion. Adjust setting from 1 up to 5.

Subtitle Adjust (2D to 3D Conversion is On)

Use this function to automatically identify subtitles during 2D to 3D conversion. There may be instances where automatic identification does not work, or video images are accidentally identified as subtitles and therefore not converted into 3D. Set if On or Off.

9.0 INSTALLATION SETTINGS

9.1 Lens Control

This menu gives access to the control of the lens. Browse into this menu for the following adjustments.

Focus

Adjust the lens focus to obtain a clear picture.

Zoom

Adjust the lens zoom to fill the screen with the picture.

Shift

Adjust lens shift to center the picture into the screen.

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 Memory Select

Call up saved lens adjustment data to configure the lens to the save settings.

Lens Memory Save

Store into an available memory the lens focus, zoom and shift configuration. There are 5 memories for the BW Essential.

Lens Memory Name Edit

You can edit the Lens Memory Name within the limit of 10 characters. Same procedure as Section , "User Name Edit", page 25.

Lens Center

Reset the lens position to the original, central position.

9.2 Pixel Adjust

Each color can be adjust within 1 pixel steps in the horizontal and vertical directions.
Horiz. Blue/Red and Vert. Blue/Red adjustment range: 1 - 5.

9.3 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)

9.4   Keystone

Compensate for trapezoidal distortion caused by installation. Independently to the screen orientation, make sure that the projector is not tilt more than 5% left/right and 15% up/down.

· Vertical Keystone from -30 to +30.

· Horizontal Keystone from -40 to +40.

NB: When a 3D signal is fed the Keystone is inactive.

9.5   Pincushion

Compensate distortions that may appear with curved screens or anamorphic setups.
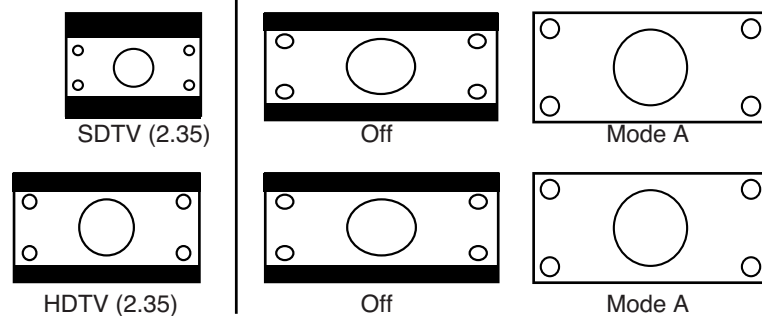
NB: When a 3D signal is fed the Pincushion correction is inactive.

9.6   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 completely fill the panels without black bands, using the optimum resolution and brightness.
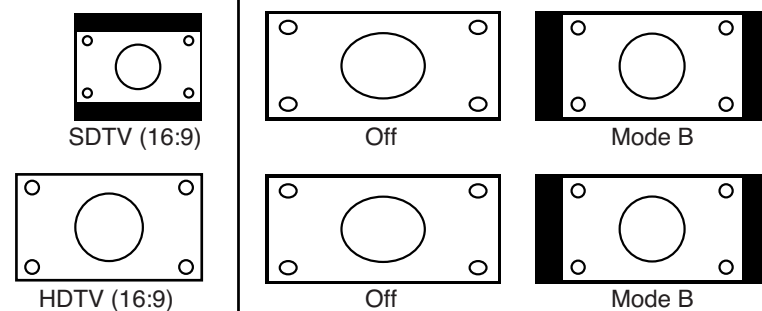

Anamorphic Mode A.

· Mode B: This setting squeezes horizontally the picture to fit a 16:9 image into 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.

NB: When a 3D signal is fed the Anamorphic mode is reset to Off

9.7   Screen Adjust

This setting corrects the color balance derived from the reflective characteristics of the screen without altering the global picture settings. You may select:

- Off: no modification.
- Mode A: slightly reddish.
- Mode B: slightly greenish.
- Mode C: slightly bluish.

9.8   Black Level

For setting the correct black level depending on the light environment. Set the Black Level between 0 and 10 such as the pattern shows on the left and the right two equally dark squares.

10.0 DISPLAY SETUP SETTINGS

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.

Menu Display

15sec: Display menu for 15 seconds before fade out.
On: Always display menu.

Line Display

5sec: Display the input settings for 5 seconds after input selection.
Off: Don't display.

Source 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, Japanese, German, Spanish, Italian, French, Portuguese, Dutch, Swedish, Norwegian, Russian and Chinese.

11.0 FUNCTION SETTINGS

11.1 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.
- On (Power):12V trigger state is high when the projector is powered ON. To be used with motorized screens.
- On(Anamo): 12V trigger is high only when Anamorphic Mode A or Mode B is engaged. To be used with motorized anamorphic kits.

11.2 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.

11.3 High Altitude Mode

Select this when the projector is in a location of low atmospheric pressure. On or Off.

11.4 ECO Mode

This setting when set to On will minimizes the power consumption in the Standby Mode. Additionally, this product will automatically switch Off whenever the input signal is interrupted for 30min.

NB: When Eco Mode is On, this unit may no longer be switched On from Standby Mode by using RS-232C or LAN communication.

11.5 Communication Terminal

Sets the input to which the control device is connected to. It is not possible to use both RS-232C and LAN inputs at the same time. Settings: RS-232C, LAN.

11.6 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.

11.7 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.

11.8 Lamp Reset

Resets the lamp use time to "0" during the lamp replacement procedure. See "Replacing the Lamp", page 32 for more details.

12.0 INFORMATION MENU

Input Terminal
Displays the active video input.

Input Source Format
Displays the type of the current video input signal. If PC input is selected, this item cannot be displayed.

Deep Color Depth
Display the bit depth (color depth) of the video signals input from the HDMI terminals. Deep Color is not displayed for YCbCr 4:2:2 signals.

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

H. Frequency
In the case of PC signal, the horizontal frequency is displayed.

V. Frequency
In the case of PC signal, the vertical frequency is displayed.

Lamp Time
Displays the accumulated hours of usage of the lamp.

Calibrator
Stores up to 18 ASCII characters set by the Calibrator. Shown only if set during ISF profile adjustment.

13.0 MAINTENANCE

13.1 Clean Dirt on the Cabinet

Always use a soft cloth. In case of heavy soiling, soak a cloth in neutral detergent diluted with water, wring dry and wipe, followed by wiping again using a dry cloth.

Caution

Pay attention to the following as the cabinet may deteriorate in condition, get damaged or paint may come off.

- Do not wipe with a stiff cloth.
- Do not wipe with force.
- Do not wipe with thinner or benzene.
- Do not spray volatile chemicals like insecticide.
- Do not allow prolonged contact with rubber or plastic products.

13.2 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.

13.3 Replacing the Lamp

Light-source Lamp and Lamp Usage Time

The life of light-source lamps used for this unit is about 4000 hours when running this unit in low lamp mode.

- When the lamp power is set to Low, the lamp life is approximately 4000 hours. This average lamp life is not guaranteed and may not reach 4000 hours depending on the operating conditions.
  Deterioration progresses rapidly when the remaining lamp usage time is short. Get ready or replace with a new lamp when the accumulated usage time exceeds 4000 hours. Depending on the operating conditions, the lamp may have to be exchanged earlier.
  If the image is dark or if the color tone is abnormal, replace the lamp as soon as possible.
- You can also check the accumulated hours of usage. Please refer to Lamp Time in the Information menu.

When the lamp usage time exceeds 2900 hours

The Lamp replacement message will be displayed on the screen the next three projection starts.

- Press the [BACK] button to clear the display.

ABOUT LAMP REPLACEMENT

If this unit is installed in a constricted place, attempting to replace the lamp in that place may cause injury. Move this unit to a place large enough to perform work.
Use only genuine replacement parts for the lamp unit. Otherwise, malfunction may occur. Also, never attempt to re-use an old lamp unit. This may cause marked performance deterioration or lamp blowout, thus leading to unit malfunction. Broken pieces of the lamp outside this unit may also cause injuries during lamp unit exchange.
Do not replace the lamp immediately after this unit has been used. The temperature of the lamp is still high and this may cause a burn. Allow a cooling period of 1 hour or more before replacement.
Before replacing the lamp unit, pull out the power plug from the outlet and wait until the STANDBY/ON led is still light red. Replacing a lamp with the plug connected to the outlet may cause injuries or electric shocks.
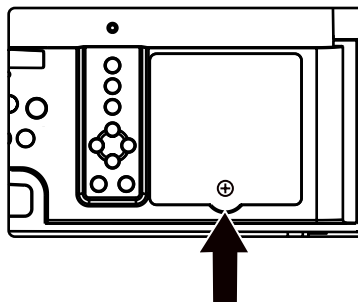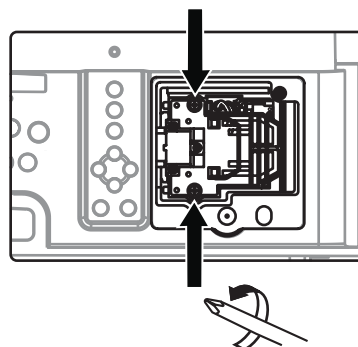
Procedure for Lamp Replacement

During the lamp replacement process, you may have access to sensitive parts of the projector.

- Loosen the screw on the lamp trap at the rear of this unit.

- Open the lamp Cover and loosen the 2 screws on the lamp unit to release it.

- Pull out the lamp unit using the handle.
- Insert the new lamp unit until it is firmly in place.
- Tighten the screws of the lamp unit.
- Attach the lamp cover and fasten the lamp trap screw.

Resetting Lamp Time

After installing a new lamp, reset the lamp time using the OSD menu.

a) Turn On the unit.
b) Browse into the menu Function => Reset Lamp Time.
c) Confirm time reset.

Alternative method in standby mode, using the remote control.

a) Plug this unit to Main power.
b) When the projector is in standby mode (red STANDBY/ON led), use the remote control and press sequentially the [BACK] - [OK] - [HIDE] within 1 second interval then [DOWN] for at least 2 seconds.
c) The sequence is successful if the STANDBY/ON and LAMP leds blink alternately for 3 seconds.

ⓘ CAUTION DURING RESET

Reset the lamp time only when you have replaced the lamp.
Never reset it when the lamp is still in use. Otherwise, the approximate standard for gauging replacement time may be inaccurate, lamp performance may deteriorate and lamp blowout may occur.

13.4 Cleaning and Replacing the Dust Filters

The filters must be cleaned regularly to allow an efficient air intake. Otherwise, dirt may enter the unit and appear on the screen, preventing you from enjoying the video fully. If dirt has entered the unit or if you need information about the filter, please consult your authorized dealer. A filter cleaning warning appears every 500 hours.

Cleaning procedure

Pull out the power plug from the outlet while the projector is in standby mode.
Push up and lift the claw of the filters, pull out the filters.
Clean the filters with water and dry them, avoiding direct sunlight. In extremely soiled cases, use of a neutral detergent is recommended. Insert the filters in their original positions and make sure that the claws are firmly

inserted.

Dust Filter
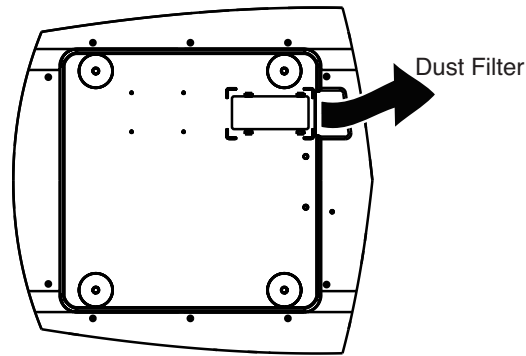
13.5 Troubleshooting

ID#	Operating LED				Description
	STANDBY / ON	LAMP orange LED	WARNING red LED	Blinking	
1	red	-	-	-	Unit is in standby mode
2	green	-	-	-	Unit is in operate mode (during projection)
3	blinking green	-	-	Yes	Unit is in operate mode, but HIDE is ON. Press again on HIDE button to obtain a picture.
4	blinking red	-	-	Yes	Unit is in cooldown mode. (switching off)

ID#	Operating LED				Description
	STANDBY / ON	LAMP orange LED	WARNING red LED	Blinking	
5/6	-	orange	-	-	Lamp time has reached 2900 hours and/or prepare to replace the lamp before 4000 hours.
7	-	blinking orange	continuous red	1 time	The lamp failed to ignite, restart the projector after a complete cooldown cycle.
8				2 times	Lamp has shut down during projection, restart the projector after a complete cooldown cycle.
9				3 times	Lamp cover is open. Check that the lamp cover is firmly closed and restart the projector.
10	-	-	blinking orange	1 time	Power Supply failed.
11				2 times	Cooling fans stop.
12				3 times	Internal thermal sensor detects overheating.
13				4 times	External thermal sensor detects overheating.
14	-	blinking orange	blinking red	1 time	Startup or drive circuits failed
15				2 times	Communication with drive circuit failed.
16				3 times	Scaler circuit failed
17				4 times	Electrical lens cover failure.

ABOUT WARNINGS AND COOL-DOWN MODE

After projection or when a warning occurred (cases 7-16), the unit will go through a 1 minute cool-down process known as the Cool Down mode. This function is to prevent lamp breakage and shortened lamp life but also damage to the internal components of the projector.

The Cool Down mode is indicated by the blinking red STANDBY/ON led. When in Cool Down mode, the projector cannot be turned ON. After the Cool Down process is completed, the unit will automatically switch to the Standby mode indicated by a red STANDBY/ON led.

CAUTION

When in Cool Down mode, do not pull out the plug from the outlet. Also, do not block the air inlets/exhaust vents by standing the projector on its end or laying it on its side.

14.0 MISCELLANEOUS

14.1 Specifications

The Blackwing Essential mk2013 uses the latest technology developed to provide the ultimate video-projection experience. LCoS (Liquid Crystal on Silicon) technology based on a reflective principle features an extremely high-definition picture and seamless color gradations.

|		
Emission Method	LCoS (Reflective Active Matrix Principle)	
Display Panel/Size	0.7" LCoS panels	
Native Resolution	3x 1920 x 1080 pixels	
Contrast Ratio	50,000:1	
Projection Lens	Throw Ratio 1.4:1 - 2.8:1 with 2.0x Zoom	
	Electronic zoom, focus and shift	
	Electronic aperture control (16-steps Aperture)	
Brightness	1300 ANSI Lumens	
Screen Size	60" to 250" (Aspect ratio 16:9)	
Distance range	from 1,50m to 12 m	
Input Signals		
	Component Input	3x RCA
	HDMI 1 Input	version 1.4a with HDCP and CEC
	HDMI 2 Input	version 1.4a with HDCP and CEC
Video processing	Full-HD Detail Enhancement and Sharpness, DNR, MNR, BNR, CMD 120 Hz	
Input Sync Frequency		
	Analog Inputs	74.5 Mhz
	Digital Inputs	150 Mhz
Light-source Lamp	230W NSH lamp	
Power Requirements	AC 110 V - 240 V AC, 50 Hz/60 Hz	
Power Consumption	<330W (0.4W in standby mode)	
Dimensions	530 x 200 x 550 mm - 20.9" x 7.9" x 21.7"	
(Width x Height x Depth)	(Excluding feet)	
Net Weight	14.8 Kg / 32.6 lbs	
Gross Weight	24Kg - 53 lbs	
Operation Environment	Temperature: 5°C to 35°C (Storage Temperature: -10°C to 60°C)	
	Humidity: 20% to 80% without condensation	

- Design and specifications are subject to change without prior notice.

- Please note that some of the pictures and illustrations may have been abridged, enlarged or contextualized in order to aid comprehension. Images may differ from the actual product.
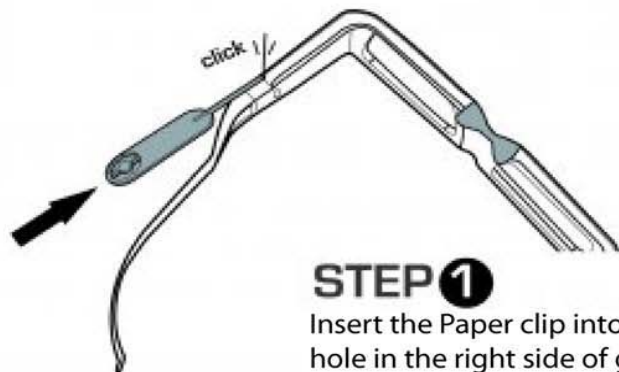
3-CHIP LCoS SYSTEM

LCoS is the abbreviation of Liquid Crystal on Silicon. The 3-Chip LCoS systems feature dedicated panels for each color channel and render seamless color graduations without any flickering or rainbow effect artifacts.
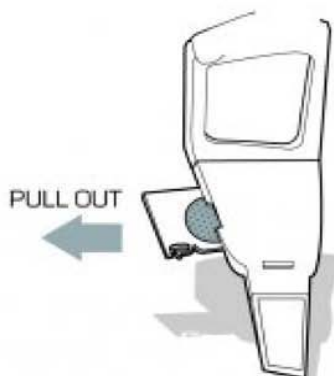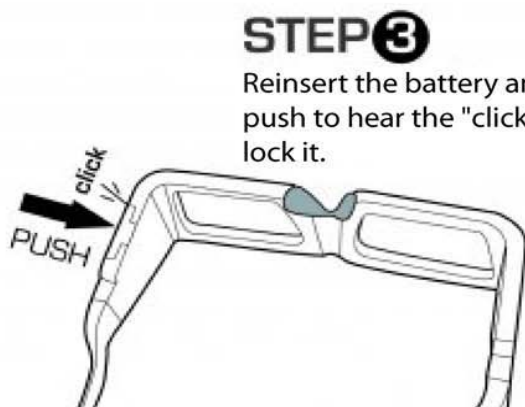
14.2 Dimensions

200 mm
7.9"

530 mm
20.9"

550 mm
21.7'

550 mm
21.7"

530 mm
20.9"
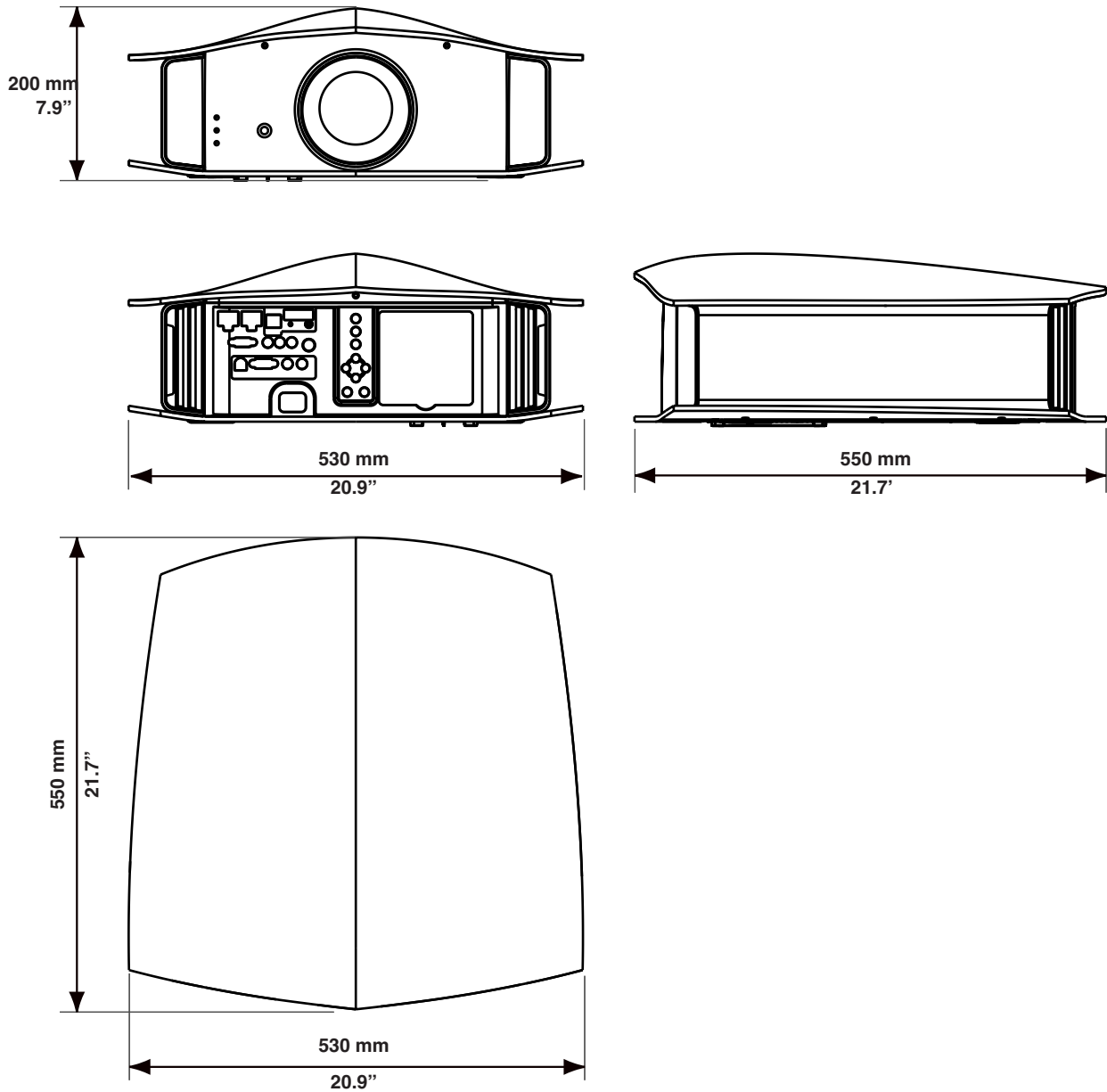
HOW TO REPLACE BATTERIES ON INFRA-RED 3D-GLASSES

STEP 1

Insert the Paper clip into the hole in the right side of glasses until you hear the "click".

STEP 2

Pull towards you with your nail to remove the battery tray

PULL OUT

STEP 3

Reinsert the battery and push to hear the "click" to lock it.

PUSH

RADIO FREQUENCY 3D-GLASSES

Radio-Frequency 3D-Glasses uses rechargeable batteries that can be recharge using the mini-USB connector.