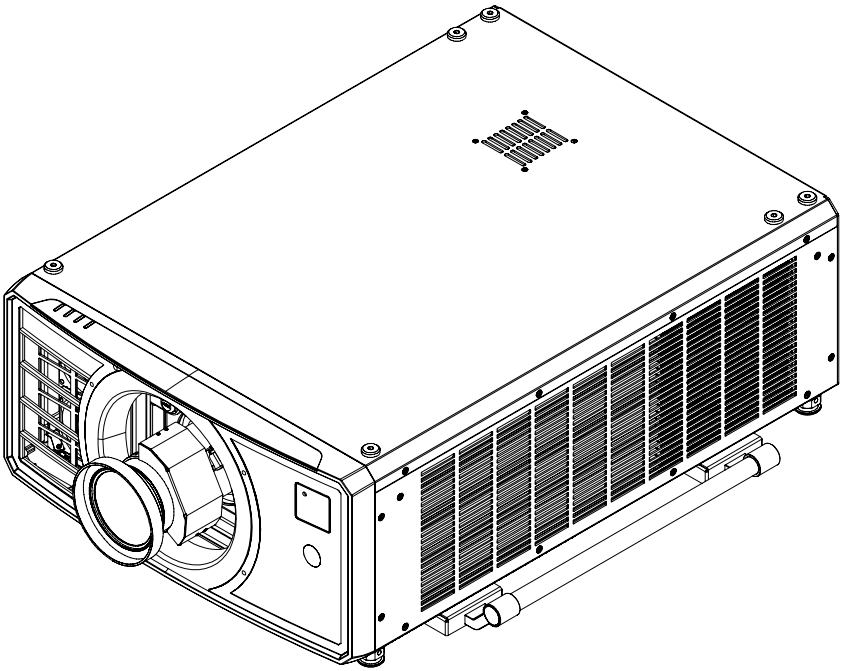
DIGITAL PROJECTION

M-Vision 23000 Series

IMPORTANT INFORMATION



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Contents

Symbols used in this document

Some information in this document may be accompanied by the following symbols:

LASER WARNING: this symbol indicates that there is a potential hazard of eye exposure to laser radiation unless the instructions are closely followed.

LIGHT HAZARD WARNING: this symbol indicates that there is a danger of exposure to intensive light that may result in personal injury unless the instructions are closely followed.

ELECTRICAL WARNING: this symbol indicates that there is a danger of electrical shock unless the instructions are closely followed.

WARNING: this symbol indicates that there is a danger of physical injury to yourself and/or damage to the equipment unless the instructions are closely followed.

NOTE: this symbol indicates that there is some important information that you should read.

Additional Documentation

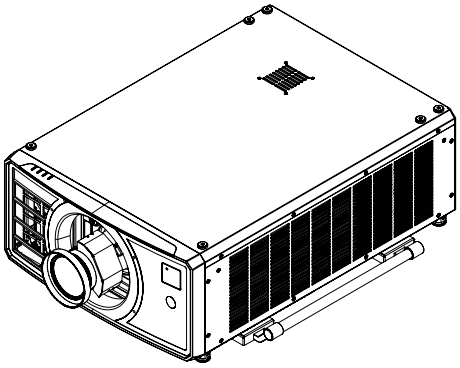
Full information about operating, connecting and setting up the projector can be found in the User Guides.

Please use the QR code (also located on the projector) to access the latest M-Vision projector user guides and other documentation via the Digital Projection website.

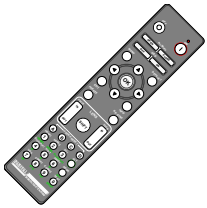
Or visit the products specification page on the Digital Projection website to download the latest user guide and other documentation.

Legal notice

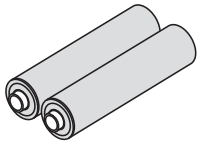
What's in the box?



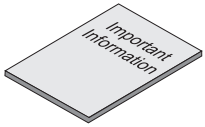
Projector



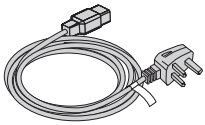
Remote Control



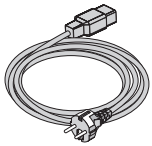
Batteries (2xAAA)



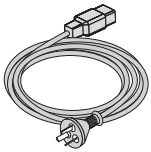
Important Information Book



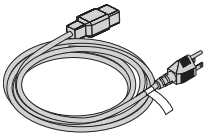
Power Cable, UK



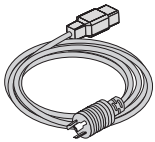
Power Cable, Europe



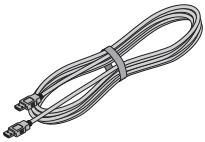
Power Cable, China



NEMA 5-15P - C19 Power Cable, North America



NEMA L6-20P - C19 Power Cable, North America



HDMI Cable

Electrical and Physical Specifications

Mains Voltage	110-240 VAC 50/60Hz
Operating Temperature	0°C to 40°C (32 F to 104 F), 40°C to 45°C (104 F to 113 F) with reduced light output
Storage Temperature	-20°C to 60°C (-4 F to 140 F)
Operating Humidity	10% to 90% non-condensing
Storage Humidity	10% to 90% non-condensing
Dimensions	W 748 mm (29.4 in), H 248 mm (9.8 in), D 530 mm (20.9 in)
Weight	54 kg (119 lb) without lens
Power Consumption	at 100VAC: typical 1250 W in Normal mode at 100VAC: typical 1000 W in Eco mode at 200VAC: typical 1900 W in Normal mode at 200VAC: typical 1200 W in Eco mode
Standby Power	<0.5W in Saving mode, <6W in Normal mode
Thermal Dissipation	at 110 VAC: typical 4334 BTU/hr in Normal mode at 110 VAC: typical 3412 BTU/hr in ECO mode at 240 VAC: typical 4146 BTU/hr in Normal mode at 240 VAC: typical 3276 BTU/hr in ECO mode
Fan Noise	typical 48dB, max 50db in Normal mode typical 46dB, max 48dB in ECO mode

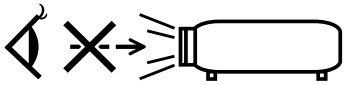
Specifications are subject to change without notice.

Laser Precautions

Projector

Class 1 RG3 Laser Product.

No direct exposure to the beam shall be permitted, RG3 IEC 62471-5:2015.



Operators shall control access to the beam within the hazard distance or install the product at a height that will prevent exposure of the spectator's eyes within the hazard distance.

Not for household use.

The product should be installed and operated in accordance with the provisions of IEC 62471-5:2015 and the Important Information document or User Manual by instructed and skilled persons only (IEC 62368-1:2020).

Lens Change should only be carried out by instructed and skilled persons in accordance with the Important Information document or User Manual.

If in doubt consult your dealer.

Laser Parameters

Wavelength (Red)	635-647nm
Wavelength (Blue)	450-460nm
Mode of operation	Pulsed, due to frame rate
Pulse duration (Red)	1.77ms
Pulse duration (Blue)	0.87ms
Pulse repetition rate	180Hz
Maximum pulse energy (Red)	0.77mJ
Maximum pulse energy (Blue)	0.45mJ
Total internal power	<100W

Compliance with International Standards

RF Interference

FCC

The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT those specified by Digital Projection in this manual. Failure to comply with this government regulation could void your right to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

Noise

GSGV Acoustic Noise Information Ordinance

The sound pressure level is less than 50 dB (A) according to ISO 3744 or ISO 7779.

European Waste Electrical and Electronic Equipment (WEEE) Directive

Digital Projection Ltd is fully committed to minimising Waste Electrical and Electronic Equipment. Our products are designed with reuse, recycling and recovery of all components in mind. To this end, at end of life, your projector may be returned to Digital Projection Ltd or its agent so that the environmental impact can be minimised.

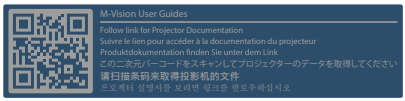
Product Labels

Projector

Manufacturers ID Label

Explanatory Label

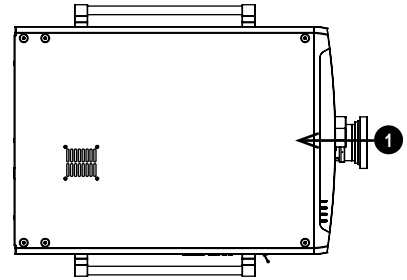
Laser Aperture Label

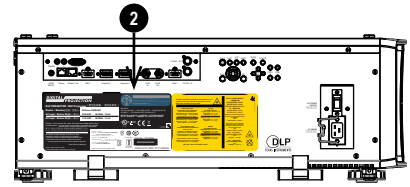


User Guides Label

Label Locations

1. Location of Hazard Warning Symbol and Laser Aperture Label on the body of the projector.
2. Location of Manufacturer's ID Label, User Guides Label and Explanatory Label with Certification Statement and Risk Statement on the body of the projector.

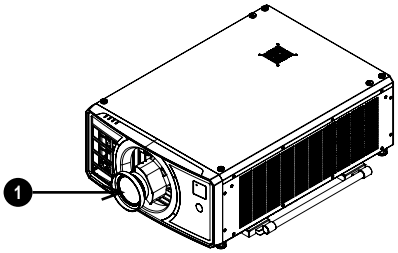




Location of Laser Aperture

1. The laser aperture is located as indicated below.

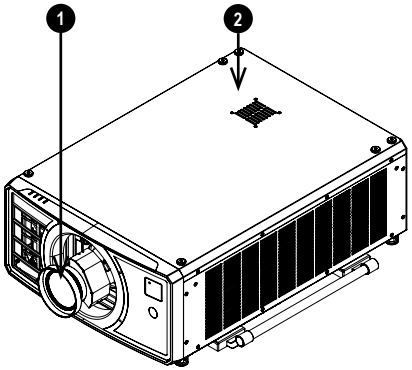
Be careful not to expose the eye to direct laser light.



Interlock Switches

Interlock switches are installed at the main frame, inside the cover. These will power-off the system individually when activated.

1. Will be activated when the projection lens is removed or misplaced.
2. Will be activated when the top cover is removed.



General Precautions

The unit is never to be operated if the unit is defective or the cover or seal is damaged.

No maintenance allowed by end user.

Do not open the cabinet. There are no user serviceable parts inside.

No service is allowed except by authorized personnel.

Use only the power cable provided.

Ensure that the power outlet includes a Ground connection, as this equipment MUST be earthed.

Take care to prevent small objects such as paper or wire from falling into the projector. If this does happen, switch off immediately, and have the objects removed by authorised service personnel.

Do not expose the projector to rain or moisture, and do not place any liquids on top of the projector.

Unplug before cleaning, and use a damp, not wet, cloth.

Do not touch the power plug with wet hands.

Do not touch the power plug during a thunder storm.

Handle the power cable carefully and avoid sharp bends. Do not use a damaged power cable.

Do not touch the ventilation outlets, as they will become hot in use.

Do not cover or obstruct the ventilation outlets or inlets.

Do not cover the lens whilst the projector is switched on. This could cause a fire.

Always allow the projector to cool for 5 minutes before disconnecting the power or moving the projector.

Never use strong detergents or solvents such as alcohol or thinners to clean the projector and lens.

Installation Precautions

The projector must be installed only by suitably qualified personnel, in accordance with local building codes.

The projector is heavy. Use safe handling techniques when lifting the projector.

Do not drop or knock the projector.

Do not install the projector close to anything that might be affected by its operational heat, for instance, polystyrene ceiling tiles, curtains etc.
Place the projector in a dry area away from sources of dust, moisture, steam, smoke, sunlight or heat.

Ensure that the intake vents do not recycle hot air from the exhaust vent.
When operating the projector in an enclosed space, ensure that the surrounding air temperature within the enclosure does not exceed operation temperature while the projector is running, and the air intake and exhaust vents are unobstructed.

All enclosures should pass a certified thermal evaluation to ensure that the projector does not recycle exhaust air, as this may cause the device to shutdown even if the enclosure temperature is with the acceptable operation temperature range.

Avoid installing at high temperature, insufficient cooling and heavy dust locations. Keep your product away from fluorescent lamps (>1 Meter) to avoid malfunction caused by IR interference.

Avoid installing near an air conditioner duct or a subwoofer.

The projector should be installed as close to the power outlet as possible.

The power connection should be easily accessible, so that it can be disconnected in an emergency.

Please pay attention to projector installation with respect to other staging laser light equipment set-up. These systems can cause permanent damage to the DMD imaging devices used in our projectors. This damage is not covered by our warranty.

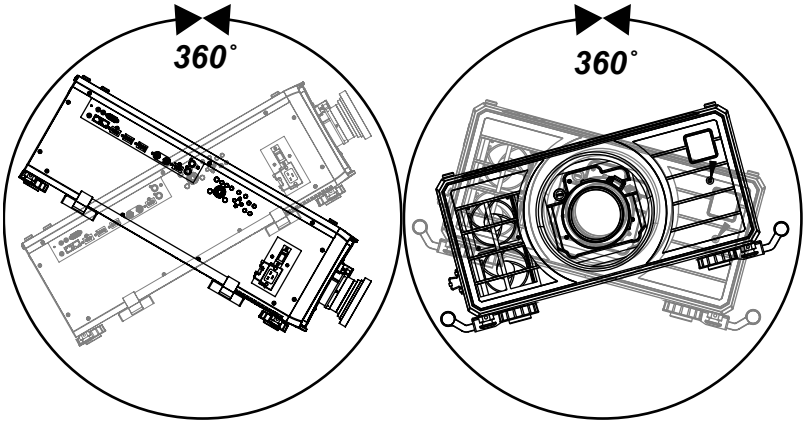
When using projectors in environments with third party high power laser systems avoid direct laser beams pointing towards the projection lens. This may cause incident light to converge into the optical engine and cause damage to the DLP DMD.

Before installation, make sure that the surface, ceiling or rigging that is to support the projector is capable of supporting the combined weight of the projector and lens.

Backup safety chains or wires should always be used with ceiling mount installations.

When installing a ceiling mount, make sure the weight limit is not exceeded and the projector is firmly secured.

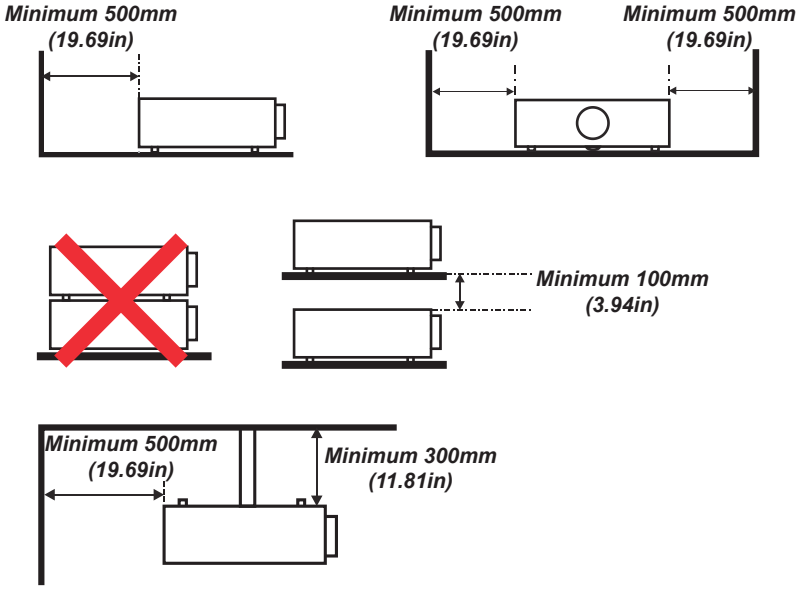
The projector can be operated any position, as shown in the diagram:



Tilt (Left) and Roll (Right)

The following positions are to be avoided as they can reduce motor life:
Lens facing down
Inputs and outputs facing up

Allow at least 50cm (19.7in) of space between the ventilation outlets and any wall, and 30cm (11.8in) on all other sides.



Example Positioning

Make sure the lens cap is removed from the lens before operating the projector. Light energy levels have been known to cause damage to both the lens and projector optics. This damage is not covered by our warranty.

Make sure the lens cap is removed from the rear of the lens before it is inserted into the projector.

Connect the LAN cable only to a computer LAN connection. Other similar connectors may have a dangerously high voltage source.

The power cord and signal cable should be connected before the projector is powered on. During startup and operation, DO NOT insert or remove the signal cable or the power cord to avoid damaging the projector.

Turn on High Fan Speed Mode when located in high altitude areas.

The projector generates heat during use. The internal fans dissipate the heat of the projector when shutting down, which could continue for a certain period. After the projector enters STANDBY MODE, remove the power cord. DO NOT remove the power cord during shutdown as it may cause damage to the projector and may affect the service life of the projector.

Do not place heavy objects on top of the projector chassis.

Risk Group 3 Laser Hazard Installation Precautions

This product is a risk group 3 laser product. It must be installed in a safe place and must be handled by qualified and professionally trained personnel.

Do not attempt to access the internal hardware of the projector. Do not a attempt to modify or remove the laser module.

Do not operate the projector without its protective covers.

Do not operate the projector without a lens installed.

Please consult with a qualified professional to install or remove the lens.

FDA regulations require that a lens hood is permanently fitted when using the 4.0-7.0:1 lens with the projector in the United States of America. Fitting can be provided by your reseller or System Integrator.

Light Hazard Warning

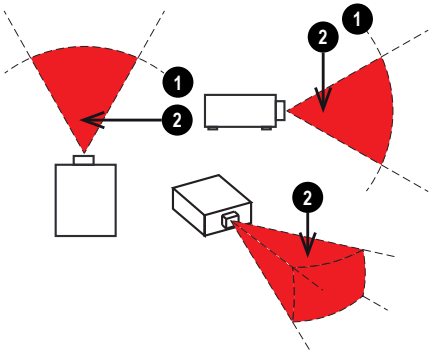
No direct exposure to the beam is permitted, RG3 IEC 62471-5:2015.

Light Hazard Distance and Hazard Zone

The hazard distance is the distance measured from the projection lens at which the intensity or energy per unit of surface is lower than the applicable exposure limit on the cornea or skin. 1

The hazard zone is the area from the projection lens up to the hazard distance that encompasses where the projected beam is considered hazardous. 2

If the person is within the hazard zone, the beam is considered unsafe for exposure.



Operators should control access to the beam within the hazard distance or install the projector at sufficient height to prevent exposures of spectators' eyes within the hazard area.

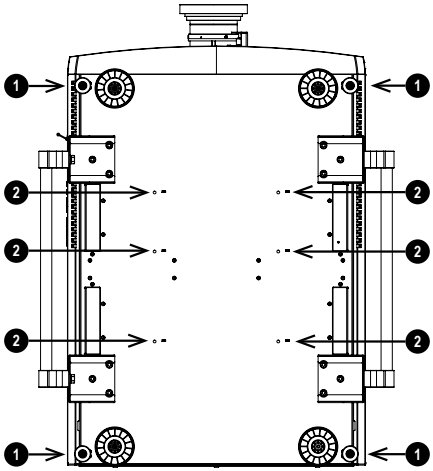
When the projector is installed overhead, allow a minimum of 3m between the floor surface and the Light Hazard Zone.

The hazard distance for this projector is 4m.

Positioning the screen and projector

1. Install the screen, ensuring that it is in the best position for viewing by your audience.
2. Mount the projector, ensuring that it is at a suitable distance from the screen for the image to fill the screen. Set the adjustable feet so that the projector is level, and perpendicular to the screen.

The drawing shows the positions of the feet for table mounting, and the fixing holes for ceiling mounting.



1. Four adjustable feet ❶.
2. **Six M6 holes for ceiling mount ❷.** The screws should not penetrate more than 15 mm into the body of the projector.

Do not use the threaded holes for the adjustable feet to hang or mount the projector.

Stacking

The projectors must be in a vertical position when they are stacked. This will ensure that the stresses are distributed to all four corners of the chassis.

Do not use the threaded holes for the adjustable feet to hang or mount the projector.

Do not use the carry handles to hang or mount the projector.

Do not stack more than two projectors.

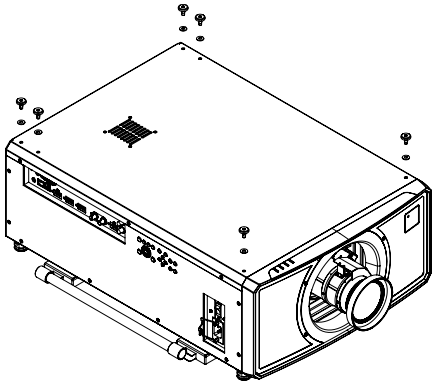
Do not use the provided eye bolts to suspend stacked projectors. The eye bolts can only carry the weight of one projector.

Use only the provided screws with a torque of 25-30 kgf cm (2.45 - 2.94 Nm).

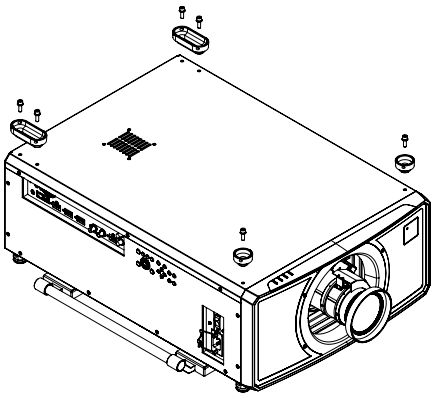
It is the customer's responsibility to ensure that the assembly is carried out securely.

Pin and cup stacking

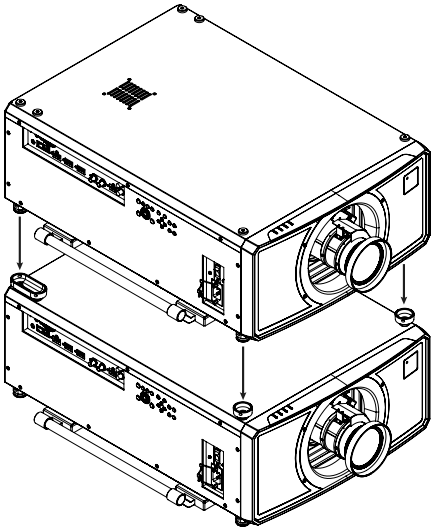
1. Remove the six screws on the top side of the projector that will be on the bottom of the stack.



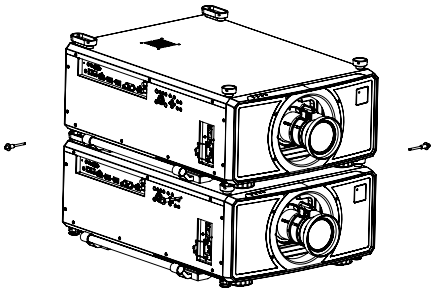
2. Insert and secure the stacking tops in place of the removed screws.



3. Remove the adjustable feet from the projector that will be stacked on the top.
4. Mount the projector on top of the other projector. Ensure that all four cups are placed over the pins on the bottom projector.



5. Use the provided holding pins to secure each connection.



Changing the lens

The projector must be fully turned off prior to attempting a lens change.

When changing the lens, avoid using excessive force as this may damage the equipment.
Avoid touching the surface of the lens as this may result in image impairment.

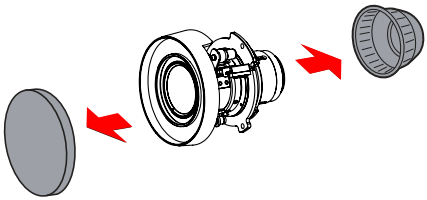
FDA regulations requires that a lens hood is permanently fitted when using the 4.00 - 7.00 : 1 zoom lens with the M-Vision Laser range of projectors in the United States of America. Fitting can be provided by your reseller or System Integrator.

The lens is shipped separately.
Take care to preserve the original lens packaging and protective caps for future use.

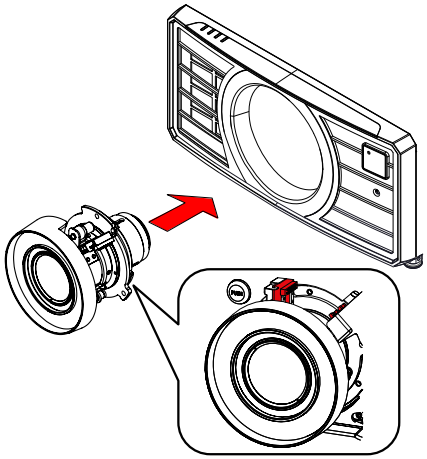
The projector will not power on without the lens fitted.

Inserting a new lens

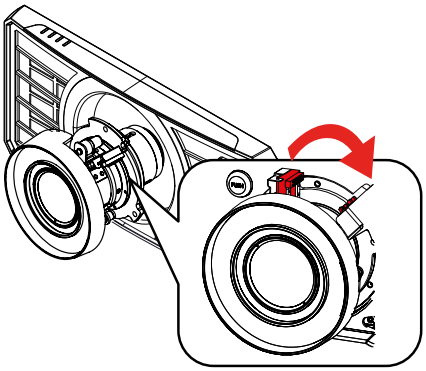
1. Remove the front and rear lens caps



2. Insert the lens with the connector in upright position.

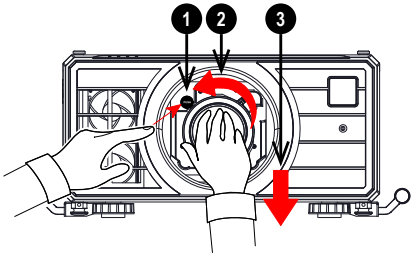


3. Rotate the lens clockwise until it clicks into place.



Removing the lens

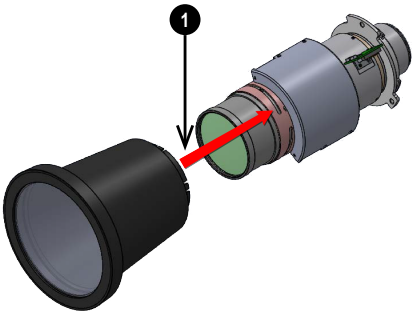
1. Push the lens release button all the way in
2. Turn the lens anti-clockwise until it disengages
3. Slowly remove the lens.



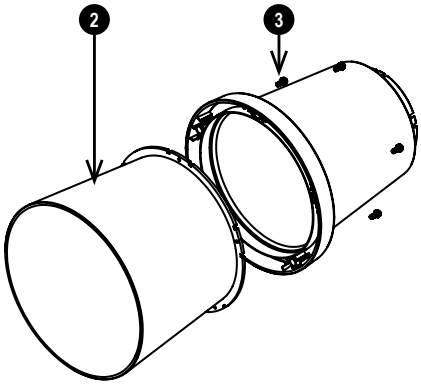
Fitting a lens hood

A lens hood can be fitted to the lens before the lens is inserted.

1. Push-fit the lens hood onto the lens. ❶



2. Fit the lens hood extension to the lens hood. ❷
3. Screw in five screws to secure the lens hood extension to the lens hood. ❸



Operation and Configuration Precautions

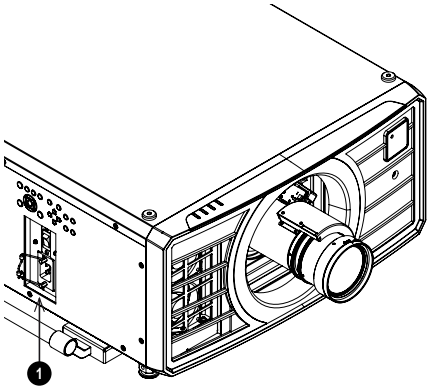
Do not make changes to the networking configuration unless you understand what you are doing, or have taken advice from your Network Manager. If you make a mistake, it is possible that you will lose contact with the projector. Always double-check your settings before pressing the APPLY button. Always keep a written note of the original settings, and any changes you have made.

Software updates should NOT be carried out except by, or with the supervision of, Digital Projection Service personnel.

Basic Operating Instructions

Connecting the power supply

1. Lift the cable lock up
2. Firmly push the mains connector into the AC In socket ❶
3. Push the lock down to secure the cable



Use only the power cable provided.

Ensure that the power outlet includes a ground connection as this equipment MUST be earthed.

Handle the power cable carefully and avoid sharp bends. Do not use a damaged power cable.

Switching the projector on

1. Ensure a lens is fitted. Connect the power cable between the mains supply and the projector.
2. Switch on at the switch next to the power connector.

   The **POWER** indicator lights red to signal that the projector is in STANDBY mode.
3. Press one of the following buttons:
   - On the remote control, the **ON** button
   - On the projector control panel, the **POWER** button.

The **POWER** indicator begins flashing green and the fans start working. The flashing stops and the **POWER** and **LIGHT** indicators both light steady green. The projector is now switched on.

Switching the projector off

1. Press **OFF** on the remote control or **POWER** on the control panel, then press again to confirm your choice.
   The **POWER** indicator on the control panel will start flashing amber, the system will go out and the cooling fans will run for a short time until the **POWER** indicator goes steady red to indicate that the projector has entered STANDBY mode.
2. If you need to switch the projector off completely, switch off at the mains power switch next to the power connector and then disconnect the power cable from the projector.

Selecting an input signal

1. Connect one or more image sources to the projector.
2. Select the input you want to display:
   - Press one of the input buttons on the remote control.
   - Alternatively, open the On-screen display (OSD) by pressing **MENU**. Highlight **Input** from the main menu, press **ENTER/OK** and then select an input signal using the **UP** and **DOWN** arrow buttons. Press **ENTER/OK** to confirm your choice.

Selecting a test pattern

The following test patterns are available:*White, Black, Red, Green, Blue, Checkerboard, Crosshatch, V Burst, H Burst, Color Bar, Pluge, Off.*

To display a test pattern:

- Press **TEST** on the remote control.
  Change the test pattern using the **LEFT** and **RIGHT** arrow buttons.
- Alternatively, open the OSD by pressing **MENU**. Highlight **Test Patterns** from the main menu, then select a test pattern using the **LEFT** and **RIGHT** arrow buttons.

After the final test pattern, the projector exits test pattern mode and returns to the main image. To view test patterns again, you need to press **TEST** again. If you wish to exit the test patterns before you reach the final one, press **TEST** or **EXIT** at any time.

Adjusting the lens

You can use the following options to adjust the lens:

- Control panel. See Control panel on page 31
- Remote control. See Remote control on page 33
- On screen display (OSD). See Lens menu on page 1

OSD Lens menu

The **Lens** menu provides access to the **Lens Control** setting and the **Lens Center** command.

Lens Control allows **Zoom**, **Focus** and **Shift** adjustments using the arrow buttons. The setting operates in **Zoom/Focus Adjustment** and **Shift Adjustment** mode.

Press **ENTER/SELECT** to switch between the two modes.

Adjusting the image

Orientation

This can be set from the **Setup** menu.

Highlight **Orientation** and choose from **Front Tabletop**, **Front Ceiling**, **Rear Tabletop**, **Rear Ceiling** and **Auto-front**.

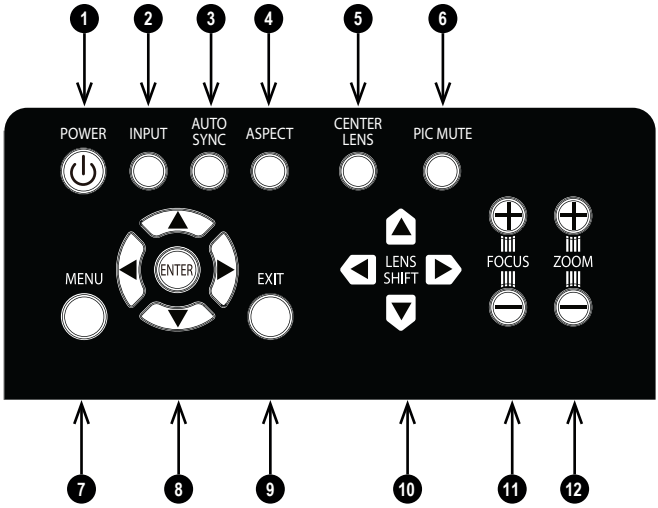
Geometry

Settings such as **Keystone**, **Rotation**, **Pincushion / Barrel** and **Arc** can be set from the **Geometry** menu.

Picture

Settings such as **Gamma**, **Brightness**, **Contrast**, **Saturation**, **Hue** and **Sharpness** can be set from the **Image** menu.

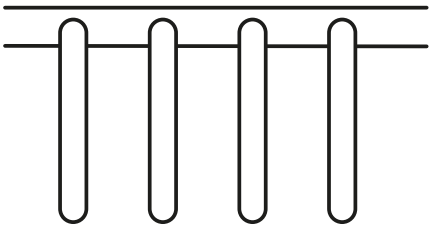
Control panel



Control Panel

1. **POWER**
   Switches the projector on and off (STANDBY).
2. **INPUT**
   Switches to the next input source.
3. **AUTO SYNC**
   Re-synchronises with the current input signal.
4. **ASPECT**
   Changes the aspect ratio.
5. **CENTER LENS**
   Centers the lens.
6. **PIC MUTE** Shows and hides the projected image. When muted, the light source is completely switched off and the screen is black.
7. **MENU**
   Displays and exits the OSD.
8. **Arrow buttons & ENTER**
   Navigation buttons used to highlight menu entries in the OSD. Press **ENTER** to open or execute the highlighted menu entry.
9. **EXIT**
   Exits the current OSD page and enters the level above.
10. **LENS SHIFT**
    Arrow buttons move the lens in the specified direction.
11. **FOCUS**
    Plus and minus buttons move the focus in and out.
12. **ZOOM**
    Plus and minus buttons zoom in and out.

Projector indicators

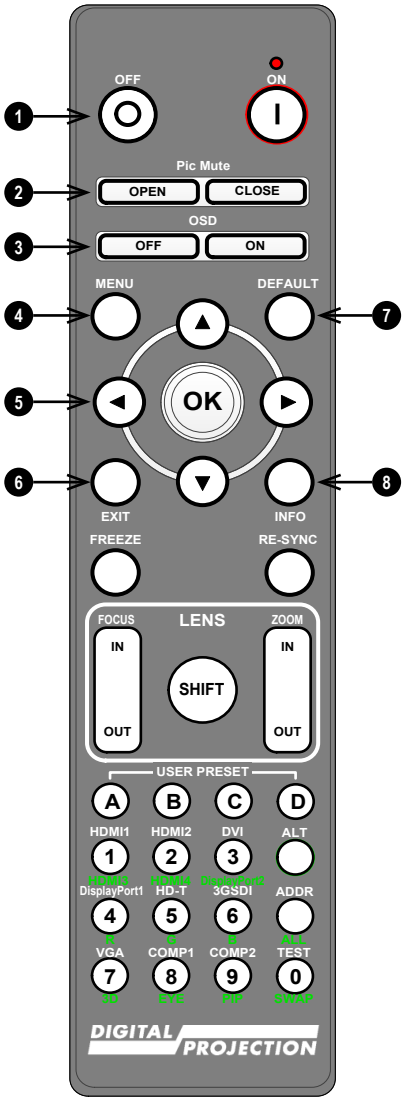


Indicators

1. **TEMP**
   Off = no error
   Flashing red = temperature error
2. **LIGHT**
   Off = light is switched off
   On, amber = light is on (forced ECO mode)
   On, green = light is switched on
   Flashing red (cycle of single flashes) = failed to light up during power up
   Flashing red (cycles of double flashes) = light source failed while projector is on
   Flashing green (cycles of single flashes) = light source is temporarily off as shutter is closed
3. **STATUS**
   Off = no error
   On, amber = firmware update mode
   On, red = system error
   Flashing green (cycles of double flashes) = lens calibration mode
   Flashing amber (cycles of double flashes) = request to recalibrate the lens
   Flashing red (cycle of single flashes) = cover error
   Flashing red (cycles of double flashes) = TEC/Color sensor problem
   Flashing red (cycles of four flashes) = fan error
4. **POWER**
   Off = the projector is switched off
   Flashing green = the projector is warming up
   Flashing amber = the projector is cooling down
   Flashing red = the projector is preparing to enter network standby mode
   On, green = the projector is switched on
   On, amber = the projector is in network standby mode
   On, red = the projector is in superECO standby mode

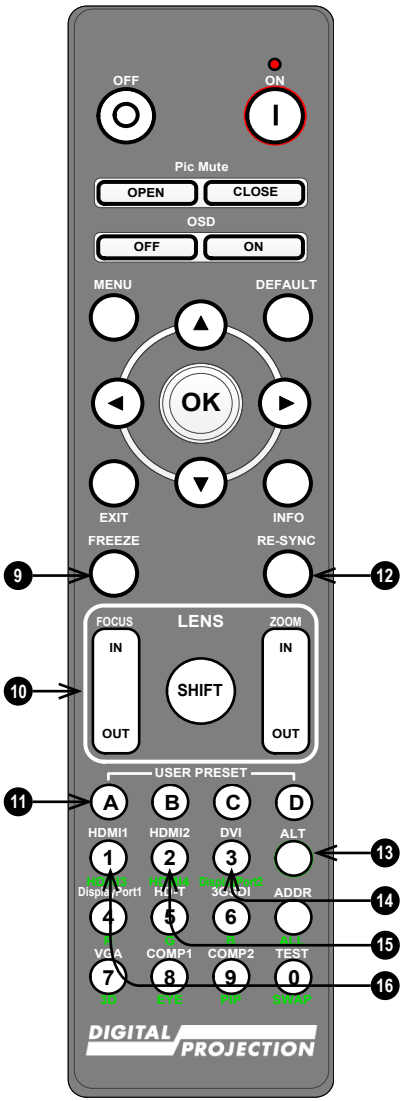
Remote control

1. **Power ON / OFF**
   Turns power on and off.
2. **Pic Mute OPEN / CLOSE**
   Shows and hides the projected image. There are two PIC Mute settings:
   - Laser. When off, the laser is switched off and no image is projected
   - DMD Blanking. When off, the laser remains on and a black image is projected
3. **OSD ON / OFF**
   Enable and disable screen timeout messages and control whether to show the OSD during projection.
4. **MENU**
   Access the on screen display (OSD). If the OSD is open, press this button to go back to the previous menu.
5. **Navigation (arrows and OK)**
   Navigate through the menus with the arrows, confirm your choice with **OK**. In lens adjustment modes, the arrows are used to shift, zoom or focus the lens.
   See **11** below. In lens adjustment modes, or when the OSD is not showing, the OK button switches between modes: **Shift Adjustment** and **Zoom / Focus Adjustment**.
6. **EXIT**
   Go up one level in the OSD. When the top level is reached, press to close the OSD.
7. **DEFAULT**
   When editing a parameter, press this button to restore the default value.
8. **INFO**
   Access information about the projector.



Remote Control

9. **FREEZE**
   Freeze the current frame.
10. **LENS adjustment**
    - **FOCUS IN / OUT**: adjust focus.
    - **SHIFT**: press and hold this button, then use the Navigation arrow buttons to move the lens.
    - **ZOOM IN / OUT**: adjust zoom.
11. **USER PRESET A, B, C, D**
    Load user presets.
12. **RE-SYNC**
    Re-synchronise with the current input signal
13. **ALT**
    Press and hold this button to access alternative functions for all buttons with a green label.
14. **DVI / DisplayPort2 / numeric input 3**
    There is no DVI input on this projector. Use with **ALT** to select the DisplayPort 2 input.
15. **HDMI 2 / HDMI 4 / numeric input 2**
    Select the HDMI 2 input.
    There is no HDMI 4 input on this projector
16. **HDMI 1 / HDMI 3 / numeric input 1**
    Select the HDMI 1 input.
    There is no HDMI 1 input on this projector



Remote Control

17. **DISPLAYPORT 1 / R / numeric input 4**
    Select DisplayPort 1 input.
18. **HD-T / G / numeric input 5**
    Select the HDBaseT input.
19. **ADDR / ALL (with red indicator at the top)**
    Assign and unassign an IR remote address.
    To assign an IR remote address:
    1. Press and hold this button until the red indicator starts flashing.
    2. Release this button and while the red indicator is still flashing, enter a two-digit address using the numeric input buttons. The indicator will flash three times quickly to confirm the change.

    To unassign an address and return to the default address 00:
    1. Press and hold ALT and this button simultaneously until the red indicator flashes to confirm the change.
20. **3GSDI / B / numeric input 6**
    Select the 3G-SDI input.

Remote Control

21. **VGA / 3D / numeric input 7**
Select the VGA input.There is no VGA input on this projector.
Use with **ALT** to toggle the 3D Format setting between Off and Auto.
22. **COMP1 / EYE / numeric input 8**
There is no Component 1 input on this projector.
Use with **ALT** to switch between left and right eye 3D dominance.
23. **TEST / SWAP / numeric input 0**
Show a test pattern. Press again to show the next test pattern: *White, Black, Red, Green, Blue, Checkerboard, Crosshatch, V Burst, H Burst, Color Bar, Pluge, Off.*
When **PIP** mode is on, use this button with **ALT** to swap the main and sub images.
24. **COMP2 / PIP / numeric input 9**
There is no Component 2 input on this projector.
Use with **ALT** to switch on **Picture In Picture (PIP)** mode.

Remote Control