User Manual

Fixture software version .92

GLP
GERMAN LIGHT
PRODUCTS

GLP® GT-1 User Manual – Revision B

This manual covers fixture software version .92

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1. Safety

Key to symbols

The following symbols are used in this manual:

Warning! Safety hazard. Risk of severe injury or death.

Warning! Hazardous voltage. Risk of lethal or severe electric shock.

Warning! See user manual for important safety information.

Warning! Fire hazard.

Warning! Risk of eye injury.

General safety information

Read this manual carefully before installing, using or servicing the product.

If you have any doubts or questions about how to use the product safely, contact your GLP® supplier for assistance. Your GLP supplier will be happy to help.

The user documentation for GLP® GT-1 lighting fixtures consists of:

- The GT-1 User Manual, available for download from www.glp.de. The User Manual explains features and control of GT-1 fixtures.
- The GT-1 DMX Channel Index, available for download from www.glp.de. The Channel Index is a separate guide to the DMX control channel layout and DMX commands available.

Both documents are available for download from www.glp.de.

The GT-1 is intended for use by experienced professionals with the knowledge and skills to set up, operate, and maintain high-powered, remotely controlled lighting equipment safely and efficiently. These operations require expertise that may not be provided in this manual.

- Respect all warnings and directions given in the product's user documentation and on the product. Read the user documentation and familiarize yourself with the safety precautions it contains before installing or using the product. GLP and affiliated companies will take no responsibility for damage or injury resulting from disregard for the information in the user documentation.
- Check the GLP website at www.glp.de and make sure that you have the latest version of this manual. Check the fixture software version indicated on page 2 of this

manual and then use the fixture's control panel to check the version installed in the fixture. If the versions are not the same, this manual may still cover the fixture, because software updates do not always affect the use of the fixture. However, it is possible that this manual does not match the fixture perfectly. Software release notes can help clarify this question. You can consult software release notes and download the correct version of this manual on the GLP website if necessary.

- Make all user documentation available to all installers and operators. Save user documentation for future reference.
- If you have any questions about the safe operation of the product, please contact an authorized GLP distributor (see list of distributors at www.glp.de).
- Use the product only as directed in this manual. Observe all markings in this manual and on the product.
- Refer all repairs and any service operation not described in this manual to a technician authorized by GLP.
- Read and follow the user documentation for all additional equipment.

Electrical safety

- Do not allow the product to come into contact with water or moisture.
- Use only a source of AC mains power that complies with local building and electrical codes and has both overload and ground fault (earth fault) protection.
- Ensure that the product is electrically connected to ground (earth).
- Disconnect the product from AC mains power before carrying out any installation or maintenance work and when the product is not in use.
- Disconnect the product from power immediately if any seal, cover, cable, connector or other component is damaged, defective, deformed or showing signs of overheating. Do not reapply power until the product has been repaired and made safe by a technician authorized by GLP.
- Check that all power distribution equipment, cables and connectors are in perfect condition, rated for the electrical requirements of all connected devices, suitable for their application and suitable for the installation environment.
- Use only a Neutrik PowerCON cable connector for AC mains power input at the product's Mains IN connector.
- Use a power cable that is minimum 14 AWG or 1.5 mm^2, minimum 16 A-rated and temperature-rated to suit the application. In the USA and Canada the cables must be UL-listed, type SJT or equivalent. In the EU the cables must be type H05VV-F or equivalent.
- Disconnect the fixture from power before attempting to replace the main fuse. Replace the fuse with one of the specified type only (see the product specifications at the end of this manual).

Fire safety and protection from burns

- Do not operate the product if the ambient temperature (Ta) exceeds 45° C (115° F).
- The surface of the product's casing can reach up to 65° C (149° F) during operation. Avoid contact by persons and materials. Do not install the product in a location where there is a risk of accidental contact. Allow the product to cool for at least 20 minutes before handling
- Keep the product well away from flammable materials.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 0.2 m (8 in.) away from the product.
- Ensure that there is free and unobstructed airflow around the product. Provide a minimum clearance of 100 mm (4 in.) around fans and air vents.
- Do not illuminate surfaces within 16 m (52.2 ft.) of the product. The light output from the product is powerful enough to cause burns or fire in illuminated objects at close range.
- Do not place any optical components other than GT-1 accessories from GLP onto the front of the fixture.
- Do not stick filters, masks or other materials onto the fixture. Do not block the light output in any way. The front surface becomes hot during operation and can melt or ignite objects that are in contact with the surface. Ensure that the front surface Is clean and unobstructed at all times in order to prevent a fire hazard and damage to the fixture.
- The product's optical components can focus the sun's rays, creating a risk of fire and damage. Do not expose the front of the product to sunlight or any other intense light source, even from an angle.

Eye safety

- The GT-1 is classified as a Risk Group 2 lighting fixture according to EN 62471. Possibly hazardous radiation emitted. Do not stare into the light output from the product. May be harmful to the eyes.
- Do not look at the product's light output with optical instruments or any device that may concentrate the light output.
- Make sure that persons near to or working on the product are not looking directly into the light output when the product lights up suddenly. This can happen when power is applied, when the product receives a DMX signal, or when certain control menu items are selected.
- Provide well-lit conditions to reduce the pupil diameter of anyone working on or near the product.

Strobe safety

- Flashing light, particularly at 5 - 30 Hz, may cause seizures in persons with photosensitive epilepsy. Do not use strobe effects for extended periods.
- Comply with local regulations on the use of strobe lighting and notify the public in advance with highly visible warning signs when strobe effects are used.
- If a seizure occurs, stop using strobe effects. Seek professional medical help. Note the time that the seizure starts and finishes. Call emergency medical help urgently if the seizure lasts more than five minutes, if it is the person's first seizure, or if the person is injured. While waiting for help to arrive, protect the affected person from injuring themselves on hard or sharp objects. If necessary, move the person to a safe place. Lay them on their side with their head supported to prevent it from hitting the floor. Loosen any tight clothing around their neck. Do not use force to hold the person or restrict their movements. Do not put anything in their mouth, including your fingers.

Lamp safety

- Do not exceed the lamp's specified lifetime or 1500 hours of lamp use, whichever comes first. The risk of damage from lamp explosion increases as the lamp approaches its specified lifetime. For best performance, replace the lamp after 1000 hours of operation.
- Do not get close to a hot or operating lamp. Discharge lamps operate at high internal pressure and can explode without warning. The extremely hot shards of broken glass from an unshielded lamp can cause serious injury.
- Do not operate the lamp unless all shields and covers around the lamp are in place.
- Do not look directly at an unshielded lamp. Wear safety goggles whenever the lamp is exposed.
- Do not allow an unshielded lamp to project light onto your skin. Direct exposure to UV radiation can cause skin burns.
- Turn off the lamp and allow the fixture to cool for at least 60 minutes before removing any head cover.
- The lamp contains a tiny amount of mercury. If a lamp bulb breaks or the lamp loses pressure for any other reason in a confined area, ventilate the area and avoid inhaling gas from the lamp. Put on protective gloves before handling the remains of a broken lamp. Pack the remains safely and send to a specialist waste facility for disposal.
- Send all used lamps to a specialist waste facility for appropriate disposal. Do not dispose of a used lamp with household or office waste.

Installation safety and protection from personal injury

- The lamp is heavy and requires two persons to lift it safely. Do not lift it alone.
- Installation must be performed by qualified personnel only and carried out in accordance with applicable regulations such as DIN VDE 0711-217.
- The product is not portable when installed.
- Ensure that the supporting structure and installation hardware used can hold at least ten times the weight of the load that they support.
- Fasten the product to a structure or surface only as directed in this manual and only with hardware that is specifically designed and rated for its purpose. Do not use a safety cable as the primary means of support. Check that installation hardware is in perfect condition. Fasteners must be steel grade 8.8 strength or better. Rigging clamps must be half-coupler type that completely encircle the rigging truss chord.
- If the product is installed in a location where it may cause injury or damage if it falls, install as directed in this manual a safety cable or similar secondary attachment that will hold the product if a primary attachment fails. The secondary attachment must be approved by an official body such as TÜV as a safety attachment for the weight that it secures, it must comply with EN 60598-2-17 Section 17.6.6, and it must be able to support a static suspended load that is ten times the weight that it secures.
- If the product is installed in a location where it may be exposed to forces such as wind pressure, vibration or movement, make sure that the installation can withstand these forces. Monitor weather forecasts constantly. Take down the installation immediately if there is any risk of weather conditions that could destabilize the installation.
- Check that all covers and items of rigging hardware are secure before using the product. Do not operate the product with missing or damaged covers, shields or any optical component.
- Restrict access below the work area and work from a stable platform whenever installing, servicing or moving the product.
- If the product becomes damaged, stop using it immediately and disconnect it from power. Do not attempt to use a product that is obviously damaged.
- Do not modify the product in any way not described in its user documentation.
- Install genuine GLP parts only.

2. Avoiding damage to the fixture

Important! Follow the directions in this section carefully, or the fixture may suffer damage that is not covered by the product warranty.

General precautions

Turn the power switch to OFF before connecting or disconnecting a live power cable, or you may cause arcing at the terminals that will negatively affect performance.

Check that the head is unlocked and that the head will be free of any obstacles through its full movement range before powering the fixture on.

Do not drop the fixture or expose it to mechanical stress.

Protect the LCD display and control panel from shocks, or they may suffer damage that is not covered by the product warranty.

Do not lift or carry the lamp by the front lens bezel.

Do not expose the fixture to heat (from other lighting fixtures for example).

Clean optical components only as directed in this manual. Oils, solvents, and other chemicals commonly used for cleaning can damage the lens coatings and surfaces.

Use only original spare parts. Do not make any structural modifications to the fixture or you will void the product warranty.

Avoiding damage from light sources

Do not point the front of the fixture towards the sun or other strong light sources. Strong light can cause internal damage to the fixture, melting components or starting an internal fire within seconds.

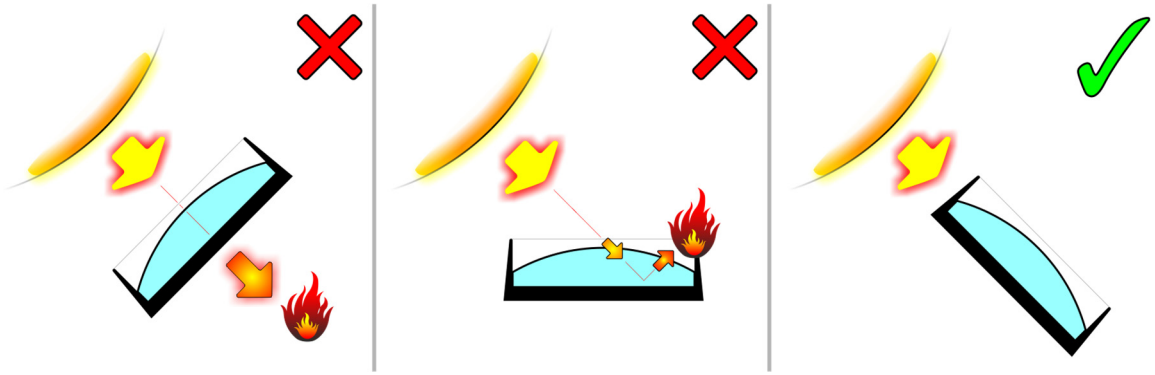


Figure 1. Avoiding damage from light sources

Damage can occur whether the fixture is powered on or off. See Figure 1. Damage can also occur if the light hits the front of the fixture at an angle: the fixture does not need to be pointing *directly* at the sun or other light source.

To avoid problems from strong light sources:

- Do not expose the front of the fixture to sunlight or any other strong light source.
- In outdoor applications during daylight, make sure that the front face of the fixture is shielded or points away from the sun, even when the fixture is not in use.

- Do not aim other high-powered beam lights directly at the fixture.

Avoiding damage from dust and airborne particles

- Carry out regular visual inspections of every fixture to make sure that there is no accumulation of dirt, especially on the front glass and on air vents.
- If cleaning is necessary, follow the instructions in '**Error! Reference source not found.**' on page **Error! Bookmark not defined.**.

Transportation and storage

- Transport the fixture either in a flightcase or in its original packaging to protect it from damage caused by shocks during transportation.
- Release the fixture's tilt lock before putting the fixture in its flightcase for transportation. Before closing the flightcase, check that the protective liner in the flightcase will hold the head and protect it from shocks.
- Store the fixture in a dry location when not in use.

3. Overview of features

Intended use

The GT-1 is for permanent or temporary indoor use in venues where the distance to illuminated surfaces is at least 16 m (52.5 ft.). It may be used outdoors if it is protected from moisture and precautions are taken to prevent damage from direct sunlight. It may be placed upright on a level surface or suspended from a suitable structure as described in this manual.

The GT-1 is not suitable for household use, wherever unattended children have access to it, for permanent outdoor installation, or in areas where the distance from the fixture to illuminated surfaces is less than specified.

The GT-1 shall be installed, operated, and maintained only by persons with the training, knowledge and skills to do so safely.

Lamp

The GT-1's OSRAM SIRIUS HRI 440W lamp is a compact reflector lamp with a very short arc and high light output optimized to create sparkling effects. The lamp was developed specifically for moving heads to perform in any position. It outputs 22,000 lumens at a color temperature of 7300 K with a color rendering index of 80. The lamp's average rated life is 1500 hours. To minimize the risk of lamp explosion and obtain the best light output, replace the lamp after 1000 hours of use.

Pan and tilt

The GT-1 pans through 640° and tilts through 262° with coarse and fine control channels and self-correcting position feedback. Position feedback can be disabled and control of pan and tilt can be reversed using the control panel or by DMX.

Color

CMY color mixing

The GT-1 provides CMY color mixing with progressively saturated cyan, magenta, and yellow wheels. The *Old CMY curve* setting is for use on prototype fixtures that had different CMY wheels.

Color wheel

A separate color wheel supplements the color mixing system with 11 color filters, including four color correction filters and a light frost filter. The wheel rotates in fixed color steps, scrolls continuously for split color effects, and rotates clockwise and counterclockwise with variable speed.

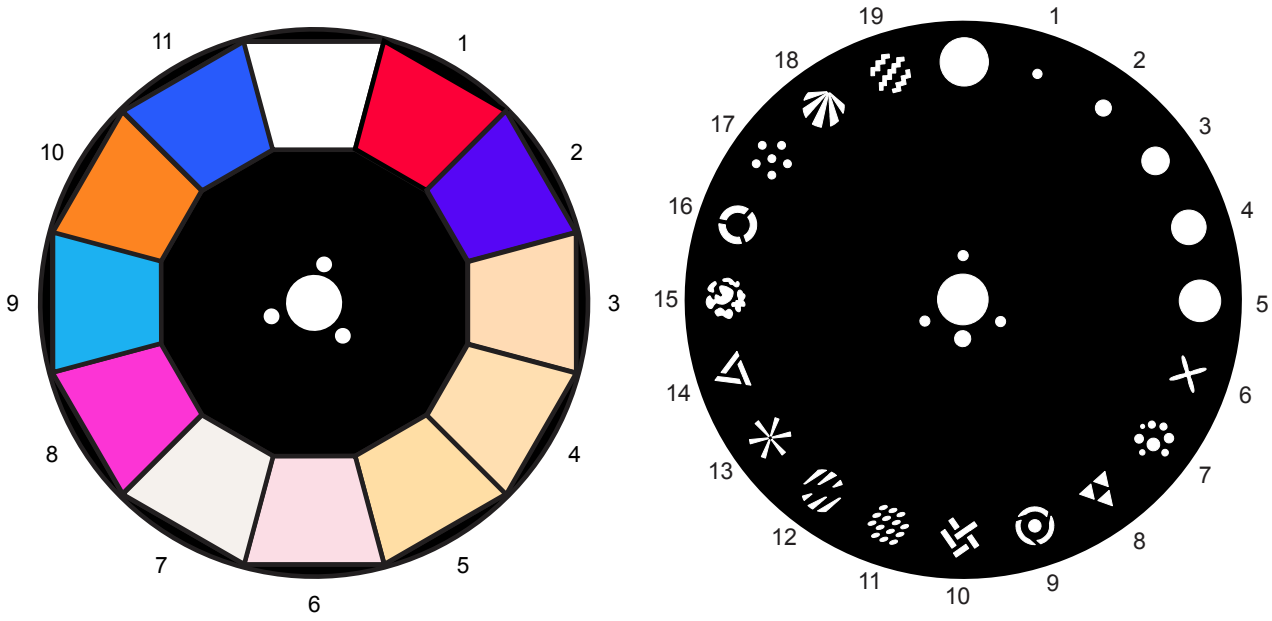


Figure 2. Color wheel and fixed gobo wheel

Gobos

Fixed gobos

Gobo wheel 2 is an aluminum wheel with 19 patterns, including five iris gobos. The wheel steps to fixed positions and rotates continuously clockwise and counterclockwise with variable speed.

Rotating gobos

Gobo wheel 1 provides eight user-replaceable rotating glass gobos that can be rotated to indexed positions or continuously with coarse and fine control channels. Custom gobos shall be 22.9 mm in diameter with a maximum image diameter of 13 mm. They may be manufactured in 0.8 mm 5052 aluminum or 1 mm litho/dichro coated quartz. See page 30 for the gobo replacement procedure.

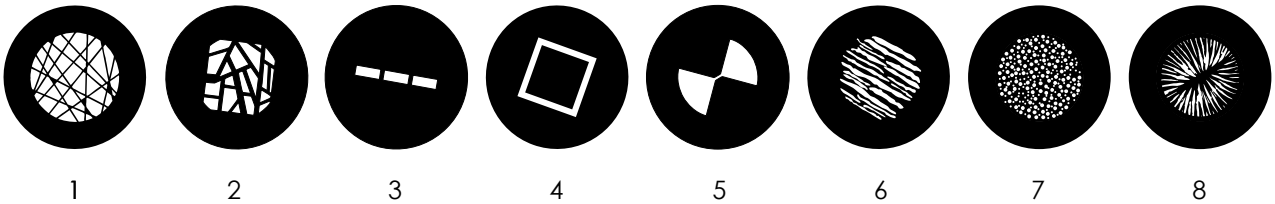
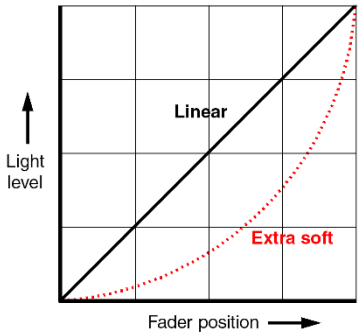


Figure 3. Stock rotating gobos

Dimming and shutter effects

The GT-1 features a combined dimmer and shutter system that provides full range dimming along with flashing pulse and strobe effects up to 10 flashes per second.

Two dimming curves are available: Linear and Esoft (Extra soft). The mode can be selected from the control panel or by DMX.



Focus and zoom

The GT-1 has a 3-element optical train with motorized front lens, zoom lens, and focus lens. The fixture's two-stage zoom system narrows the focused beam from 56° down to 3.5° by moving the zoom lens from front to back. It narrows the beam to 2.5° in Beam Mode by moving the front lens forward. The beam may be narrowed further by inserting iris gobos.

When inserted, the frost filter and prisms are in the path of the zoom lens. When either of these effects are applied, zoom is not continuous.

- Zoom channel values from 82 to 177 are disabled when frost is applied.
- Zoom channel values from 107 to 208 are disabled when a prism is inserted.

When taking zoom past these levels in either direction, the frost and prism effects are automatically removed momentarily.

Animation wheel

The GT-1's animation wheel can be inserted gradually to positions that, when combined with variable speed clockwise and counterclockwise rotation, give the appearance of vertical, diagonal, or horizontal movement in two directions.

Figure 4. Animation wheel

Prisms and frost

The GT-1 features three rotating prisms: a 3-facet, an 8-facet, and a 4-facet linear prism. The prisms can be rotated to indexed positions or continuously at variable speed. Inserting or removing a prism with zoom at a DMX level from 107-208 will cause a small change in the zoom lens position.

The GT-1 has a split-flag variable frost filter that provides a wide-angle wash effect. Inserting or removing frost at zoom levels from 82-177 will cause a small change in the zoom lens position.

Changing effect settings by DMX

The Control/Settings DMX channel (channel 23 in Normal DMX Mode) lets you change fixture settings, turn the lamp on/off, and perform a fixture reset from the control desk. To send a send a command on this channel, start from level 0 and hold the command for three seconds.

Display

The illuminated graphic LCD display with touch wheel control and self-charging battery allows you to change fixture settings quickly and intuitively under any conditions, even when the power is off.

Base and rigging options

The base of the fixture has Camlock attachment points for easy fastening of the included floor stand, omega clamp attachment brackets, and other rigging accessories. It also has two M10 threaded sockets for direct fastening of half-coupler clamps. Two M10 x 25 countersunk bolts for clamp attachment are supplied with the fixture.

4. Preparation for use

Warning! Read the chapter headed 'Safety' starting on page 5 before installing the GT-1.

Included items

The GT-1 package includes a floor stand, a power cord with PowerCON connector, and two M10 x 25 countersunk bolts for fastening half-couplers.

Cardboard packaging

To remove a GT-1 from cardboard packaging, open the top of the box and remove the floor stand and upper piece of foam packing material. Use the cutouts in the lower piece of foam located by the yoke and base to place hands under fixture. Lift fixture straight up, out of box, and lower gently onto workspace.

Flightcase

To remove a GT-1 from a flightcase, mount two omega brackets with handles to the base. The brackets mount with two Camlock quarter-turn pins. Line up and insert the pins into the base and turn 90° clockwise to lock. Lift the fixture straight up, out of the flightcase, and lower gently onto workspace.

Mounting

The GT-1 may be rigged in any orientation or placed on a stable horizontal surface.

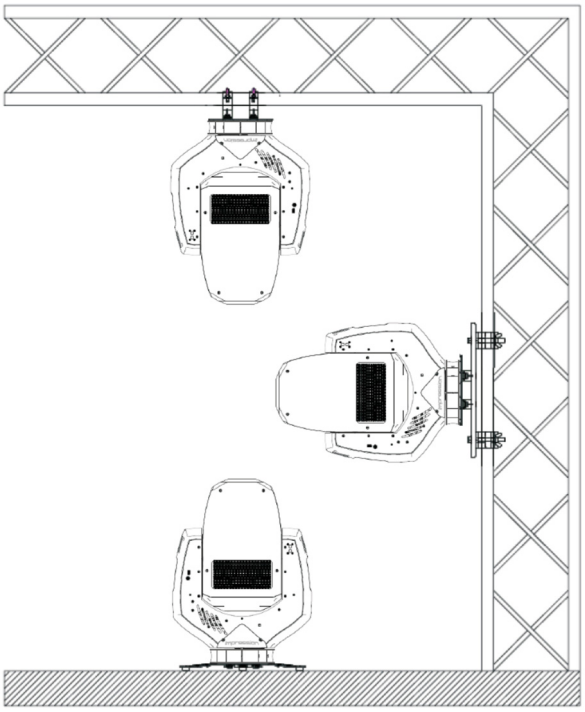


Figure 5. Mounting Options

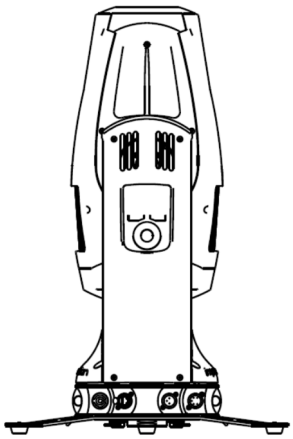
Warning! When installing, keep the head of the fixture at least 0.5 m (20 in.) from flammable materials including curtains and stage scenery. Secure the fixture with a safety cable as described on page 17.

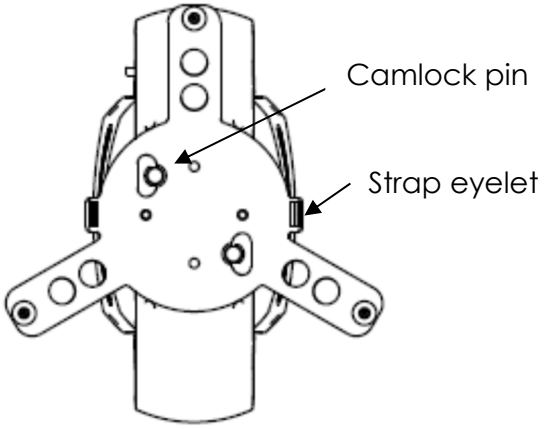
Accessories are available to mount the GT-1 in various positions. These fasten to the connectors on the base.

Mounting upright on a level surface

For upright installation on a stable horizontal surface, fasten the floor stand shipped with the fixture to the base. See drawings on right and below. The floor stand mounts to the base with two Camlock quarter-turn pins. Line up and insert the pins into the base and turn 90° clockwise to lock.

See drawing below. Eyelets are provided on both sides of the floor stand. If there is any danger that the fixture may fall over, pass a ratchet strap through the eyelets and fasten to a suitable anchoring point.





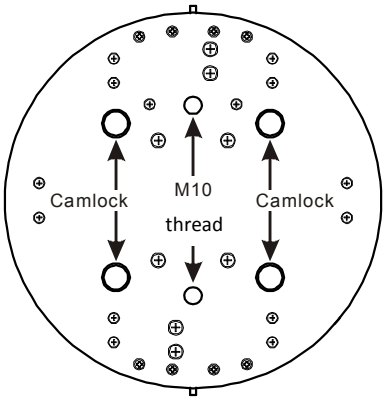


Figure 6. Upright Mounting Details

Securing the fixture with a safety cable

In any location where the fixture can cause injury or damage if it falls, secure it with a safety cable that is approved as a secondary attachment for the weight of the fixture.

To secure the fixture with a safety cable:

1. See illustration on right. Pass the safety cable through one of the two safety attachment eyes (arrowed) in the base of the fixture.
2. Pass the safety cable through or around the truss or supporting structure and take up as much slack as possible before closing the safety cable.
3. Check that the safety cable will catch the fixture safely if a primary attachment fails.

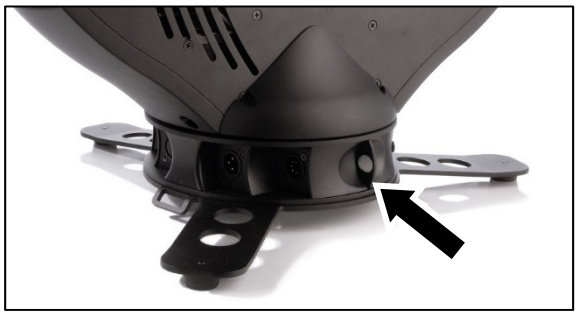


Figure 7. Safety attachment eye

Head-down mounting

Using omega brackets

To hang the GT-1 from a rigging truss or similar structure with the head hanging downwards using omega brackets and rigging clamps:

1. Obtain two omega brackets that are approved for the weight of the fixture. Line up the camlock quarter-turn pins in the brackets with the holes int the base and turn the locking levers a full 90° clockwise to lock.
2. Bolt a suitable rigging clamp to each omega bracket.
3. Fasten the rigging clamps to a rigging truss.
4. Secure the fixture as directed in 'Securing the fixture with a safety cable' earlier in this chapter.

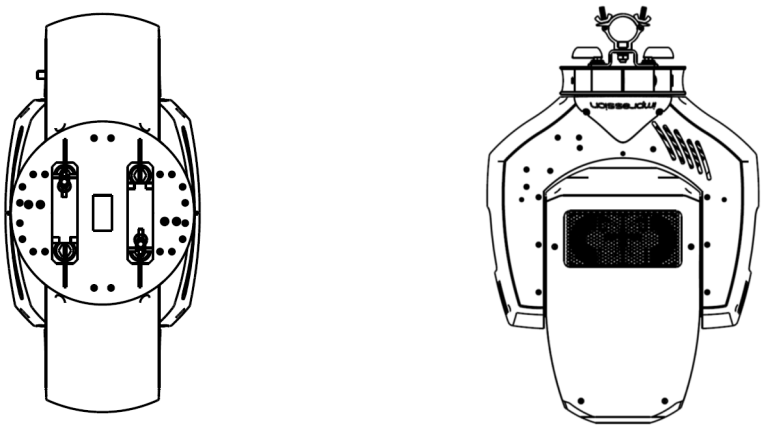


Figure 8. Using omega brackets

Bolting rigging clamps directly to the fixture

Warning! The threaded holes provided for fastening installation clamps to the base are 19 mm (3/4") deep. Use fasteners that extend at least 11 mm (7/16 in.) and no more than 19 mm (3/4 in.) into these holes.

To hang the GT-1 from a rigging truss or similar structure with the head hanging downwards using rigging clamps bolted to the fixture:

1. Obtain two suitable rigging clamps that are approved for the weight of the fixture
2. Bolt the rigging clamps directly to the base with suitable 12 mm diameter fasteners. Two countersunk 12 mm screws are shipped with the fixture for this purpose.
3. Fasten the rigging clamps to a rigging truss.
4. Secure the fixture as directed in 'Securing the fixture with a safety cable' earlier in this chapter.

Sideways Mounting

For sideways mounting, the fixture may be clamped to a vertical truss using two clamps. See above for clamp installation options. Do not attempt to mount the GT-1 sideways on a horizontal truss.

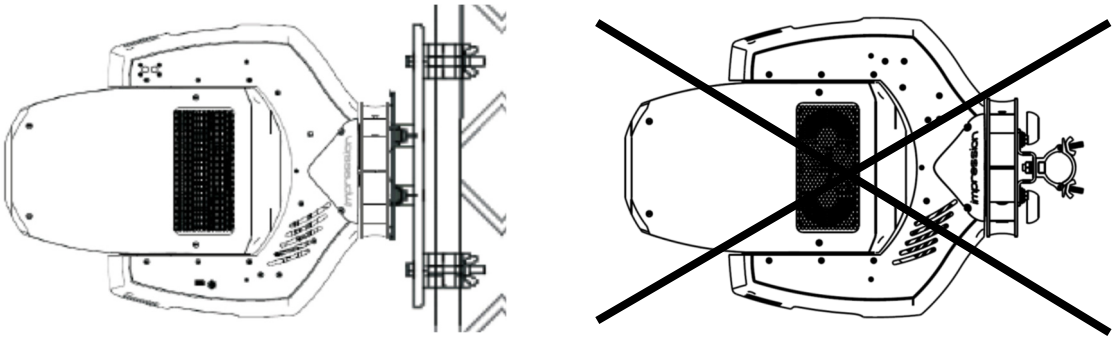


Figure 9. Sideways Mounting

5. Connections

Power

The GT-1 provides a 3-conductor, 20 A Neutrik powerCON socket for connection to AC power. The autosensing power supply accepts 100-240 V, 50/60 Hz AC power. Do not connect the fixture to any other voltage or an external dimmer.

To prevent arcing at the power connection, turn the power switch off before connecting or disconnecting a live power cable. Check that the head is unlocked before turning the fixture on.

The main fuse is located in a fuseholder in the base.

WARNING! Disconnect the fixture from the mains supply before replacing the fuse. Replace only with fuse of the specified type.

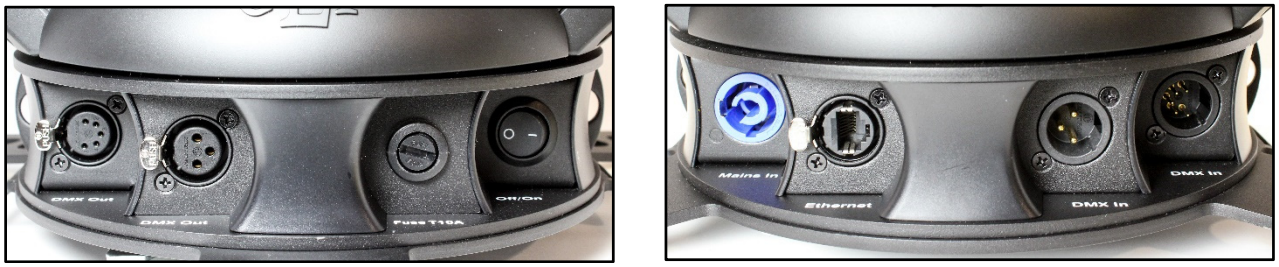


Figure 10. Connections

Control Data

The GT-1 provides both 3-pin and 5-pin XLR input/output sockets for connection to a USITT DMX-512 Standard data link. Use only one input and one output socket. The pin connections are Pin 1 = [Ground] / Pin 2 = [-] / Pin 3 = [+]. Pins 4 & 5 on the 5-pin sockets have no contact. Both DMX inputs are connected to both DMX outputs.

The fixture is ACN ready and provides a Neutrik RJ-45 socket for connection to an Art-Net II-compatible Ethernet network.

Starting and stopping operation

To start or stop operation, move the power switch to the “I” (on) or “O” (off) position.

6. Control panel

The LCD display provides access to user settings, readouts, lamp control, and utilities.

From left to right, the top line of the main menu displays:

- main CPU software version
- pan, tilt, and zoom modes: N(ormal) or I(inverse)
- DMX mode
- dimming mode: L(inear) or E(xtra Soft)

Figure 11. Menu display

In the example shown in Figure, the fixture is running software version .71; with normal pan, inverted tilt, and normal zoom; Normal 23 channel DMX mode; and linear dimming.

When booting up, the panel displays two screens of fixture information including component firmware and hardware versions and fixture and lamp hours before

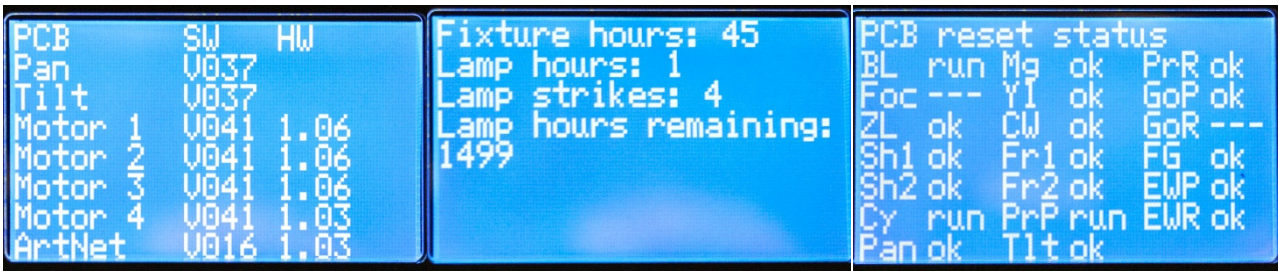


Figure 12: Example of boot sequence and reset displays

displaying the PCB reset status screen.

Following the label for each effect motor, the reset status screen displays either "---" (standby), "run", "ok", or "err" while the reset is in progress. When completed, the panel displays the main menu. A flashing display indicates loss of DMX.

Turn the control dial to scroll menu options. Press the Enter button to select a setting, issue a command, or enter a submenu. Press the Mode button to escape and return to the top of the menu.

DMX control is disabled when the menu is active.

7. Control menus

Menu Selection			Value	Remarks
DMX Start Address			**1-490**	Set the DMX start address
Special				
	Set dimming mode*			
		ESOFT	**-**	Softer, nonlinear dimming
		LIN	**-**	Linear dimming
	Show Errors		**-**	Display error messages
	DMX hold*		**ON/OFF**	Hold last values if DMX signal drops
	Test mode		**ON/OFF**	Run a test sequence
	Default*		**-**	Return all user settings to default values
	Temperature main		**XX**	Readout temperature on main PCB(°C)
	Temperature base		**XX**	Readout temperature in base (°C)
	Temperature head		**XX**	Readout temperature in head (°C)
	Boot count		**XX**	Read number of fixture starts
	Fixture hours		**XX**	Read total fixture hours
	Lamp strikes		**XX**	Read number of lamp starts
	Lamp hours		**XX**	Read number of lamp hours
	Reset lamp hours		**-**	Set hours and strikes counters to 0
	Adjust			
		Key Code	**0-255**	Enter code to access menu
		Pan offset	**-99 to 99**	Enter position offset values
		Tilt offset		
		Beam lens offset		
		Zoom offset		
		Frost1 offset		
		Frost2 offset		
		Prism Position offset		
		Prism Rotation offset		
		Focus offset		
		RotGobo Pos. offset		
		RotGobo Rot. offset		
		FixGobo offset		
		ColorWheel offset		
		Cyan offset		
		Cyan offset fine		
		Magenta offset		
		Magenta offset fine		
		Yellow offset		
		Yellow offset fine		

* May be set remotely by DMX

	Shutter1 offset		
	Shutter2 offset		
	LBAM test mode	**ON/OFF**	Initiate test
	Serial	**1-9999**	Enter user-defined ID number
Lamp on*		**-**	Switch lamp on
Lamp off*		**-**	Switch lamp off
Old CMY curve*		**ON/OFF**	Select dimming curve for early CMY flags
Position feedback*		**ON/OFF**	Toggle position feedback
Reverse pan*		**ON/OFF**	Reverse pan control
Reverse tilt*		**ON/OFF**	Reverse tilt control
Reverse zoom*		**ON/OFF**	Reverse zoom control
Reset pan/tilt only*		**-**	Reset pan/tilt movement
Reset head only*		**-**	Reset effects in head
Reset*		**-**	Reset everything

* May be set remotely by DMX

8. DMX control layout

Normal Mode (23 DMX channels)

Channel		Function	Time & Value	Percent	DMX
1	**Pan, MSB**	Coarse pan (high/8-bit)	0-640°	0-100%	0-255
2	**Pan, LSB**	Fine pan (low/16-bit)		0-100%	0-255
3	**Tilt, MSB**	Coarse tilt (high/8-bit)	0-262°	0-100%	0-255
4	**Tilt, LSB**	Fine tilt (low/16-bit)		0-100%	0-255
5	**Color wheel**	Color wheel position and rotation	(1) Open (2) Primary red (3) Primary blue (4) CTO 4200 (5) CTO 3200 (6) CTO 5600 (7) Half minus green (8) Light frost (9) Vivid pink (10) Cyan (11) Medium orange (12) Congo blue Color scroll / split colors Negative rotation, fast to slow Rotation stop Positive rotation, slow to fast	0-1% 2% 4% 5% 7% 8% 10% 12% 13% 15% 16% 18% 19-65% 66-82% 83% 84-100%	0-3 4-7 8-11 12-15 16-19 20-23 24-27 28-31 32-35 36-39 40-43 44-47 48-167 168-211 212 213-255
6	**Cyan**	Cyan color mixing	No cyan to full cyan	0-100%	0-255
7	**Magenta**	Magenta color mixing	No magenta to full magenta	0-100%	0-255
8	**Yellow**	Yellow color mixing	No yellow to full yellow	0-100%	0-255
9	**Gobo wheel 1**	Rotating gobo selection	(1) Open (2) Pick Up Sticks (3) Window Grills (4) Dotted Lines (5) Square Outline (6) Fan Flags (7) Linear (8) Speckle (9) Explosion	0-12% 14-23% 24-33% 35-44% 46-54% 56-65% 66-75% 77-86% 88-100%	0-33 34-60 61-87 88-114 115-140 141-167 168-194 195-221 222-255
10	**Gobo indexing / rotation, MSB**	Coarse gobo indexing & rotation	Coarse indexing, 0-360° Negative rotation, fast to slow Rotation stop Positive rotation, slow to fast	0-49% 50-74% 75% 76-100%	0-127 128-191 192 193-255
11	**Gobo indexing / rotation, LSB**	Fine gobo indexing & rotation	Fine indexing/rotation speed	0-100%	0-255

12 Gobo wheel 2	fixed gobo selection	(1) Open (2) Gobo 01 (3) Gobo 02 (4) Gobo 03 (5) Gobo 04 (6) Gobo 05 (7) Gobo 06 (8) Gobo 07 (9) Gobo 08 (10) Gobo 09 (11) Gobo 10 (12) Gobo 11 (13) Gobo 12 (14) Gobo 13 (15) Gobo 14 (16) Gobo 15 (17) Gobo 16 (18) Gobo 17 (19) Gobo 18 (20) Gobo 19 Negative rotation, fast to slow Rotation stop Positive rotation, slow to fast	0-1% 2% 4% 5% 7% 8% 10% 12% 13% 15% 16% 18% 19% 21% 22% 24% 25% 27% 29% 30% 32-65% 66% 67-100%	0-3 4-7 8-11 12-15 16-19 20-23 24-27 28-31 32-35 36-39 40-43 44-47 48-51 52-55 56-59 60-63 64-67 68-71 72-75 76-79 80-167 168 169-255
13 Shutter	Shutter and strobe effects	Closed Random pulse, slow to fast Fade-in pulse, random slow to fast Fade-out pulse, random slow to fast Fade-in/out pulse, random slow to fast Flash, delayed 5 sec. to 1 sec. Strobe effect, 1 to 10 hz Shutter open	0-5% 7-18% 19-30% 32-43% 44-55% 56-77% 79-93% 94-100%	0-15 16-47 48-79 80-111 112-143 144-199 200-239 240-255
14 Dimmer	Dimmer	Open to closed	0-100%	0-255
15 Focus, MSB	Coarse focus (low/8-bit)	Near to infinity	0-100%	0-255
16 Focus, LSB	Fine focus (high/16-bit)	Near to far	0-100%	0-255
17 Zoom	Zoom angle	Zoom angle, wide to near Beam mode	0-91% 92-100%	0-234 235-255
18 Frost	Insert frost filter	Full out to full in	0-100%	0-255
19 Prism	Prism selection	Open (no prism) 8-facet 3-facet 4-facet linear	0-25% 26-49% 50-73% 74-100%	0-66 67-127 128-188 189-255
20 Prism rotation	Prism indexing and rotation	Index 0-360° Negative rotation, fast to slow Rotation stop Positive rotation, slow to fast	0-49% 50-74% 75% 76-100%	0-127 128-191 192 193-255
21 Effect wheel	Insert effect wheel	Full out to full in	0-100%	0-255
22 Effect wheel rotation	Effect wheel rotation	Rotation stop Negative rotation, fast to slow Rotation stop Positive rotation, slow to fast	0% 1-49% 50% 51-100%	0 1-127 128 129-255

23 Control/Settings	Adjust fixture settings. *Set DMX value to level 0 before sending a command. Hold command for 3 seconds.*	Enable commands	0%	0
		No function	1-68%	1-175
		New CMY curve	69%	176-179
		Old CMY curve	71%	180-183
		Reset head (only)	72%	184-187
		Lamp Off	74%	188-191
		No function	76%	192-195
		Lamp On	77%	196-199
		Esoft dimmer curve	79%	200-203
		Linear dimmer curve	80%	204-207
		Disable position feedback	82%	208-211
		Enable position feedback	83%	212-215
		Disable DMX hold	85%	216-219
		Enable DMX hold	87%	220-223
		Zoom inverse Off	88%	224-227
		Zoom inverse On	90%	228-231
		Tilt inverse Off	91%	232-235
		Tilt inverse On	93%	236-239
		Pan inverse Off	94%	240-243
		Pan inverse On	96%	244-248
		Return fixture to factory defaults	97%	249-251
		Fixture reset	99-100%	252-255

9. Optional accessories

Accessory	Part Number	Notes
Omega bracket	87070	For attachment of rigging clamps. 2 required.
Omega bracket with handle	87072	For lifting. 2 required.
Trussbar	call	For sideways rigging.

10. Cleaning and maintenance

Suggested maintenance intervals

The cleaning schedule depends on the operating environment. The intervals below are suggestions from our experience with typical installations. Adjust as necessary.

Maintenance Task	Interval	How
Lamp replacement	1000 hours	See page **Error! Bookmark not defined.**.
Front lens	Weekly	Soft cloth and glass cleaning fluid
Metal gobos	Yearly	Vacuum cleaner, airbrush, etc.
Glass gobos	Yearly	Soft cloth and glass cleaning fluid
Prism	Yearly	Soft cloth and glass cleaning fluid
Animation wheel	Yearly	Vacuum cleaner, airbrush, etc.
Internal lenses	Yearly	Soft cloth and glass cleaning fluid
Fans and air channel	Monthly	Vacuum cleaner, airbrush, etc.
Focus/zoom rails	Yearly	Suitable lubricant (consult with GLP Service)

Cleaning

GT-1 components require occasional cleaning to prevent the buildup of dust, dirt, and smoke fluid residue. Pay special attention to the air vents and front lens. Failure to keep the fixture clean will significantly reduce light output and may cause damage. Do not let optical parts come into contact with oil or grease or touch with bare fingers.

Regular cleaning will ensure the maximum performance and reliable operation. The lenses and glass gobos may be cleaned with alcohol wipes or a soft cloth moistened with isopropyl alcohol.

Before running the fixture wait until all parts are dry.

Lubrication

The only parts that may require occasional lubrication are the focus/zoom rails. Contact GLP Service and Support for guidance on suitable lubricants.

Head maintenance

Removing head shells

Before removing the head shells, disconnect the fixture from power and allow it to cool for 60 minutes.

To remove the top head shell, orient the head as shown below with the front lens to the right and the yoke arm with the GT-1 logo facing you. To remove the bottom head shell, orient the head with the front lens to the left.

Remove the head shells as follows:

1. Release the four shell retaining pins by turning them a quarter turn counterclockwise with a slotted screwdriver.

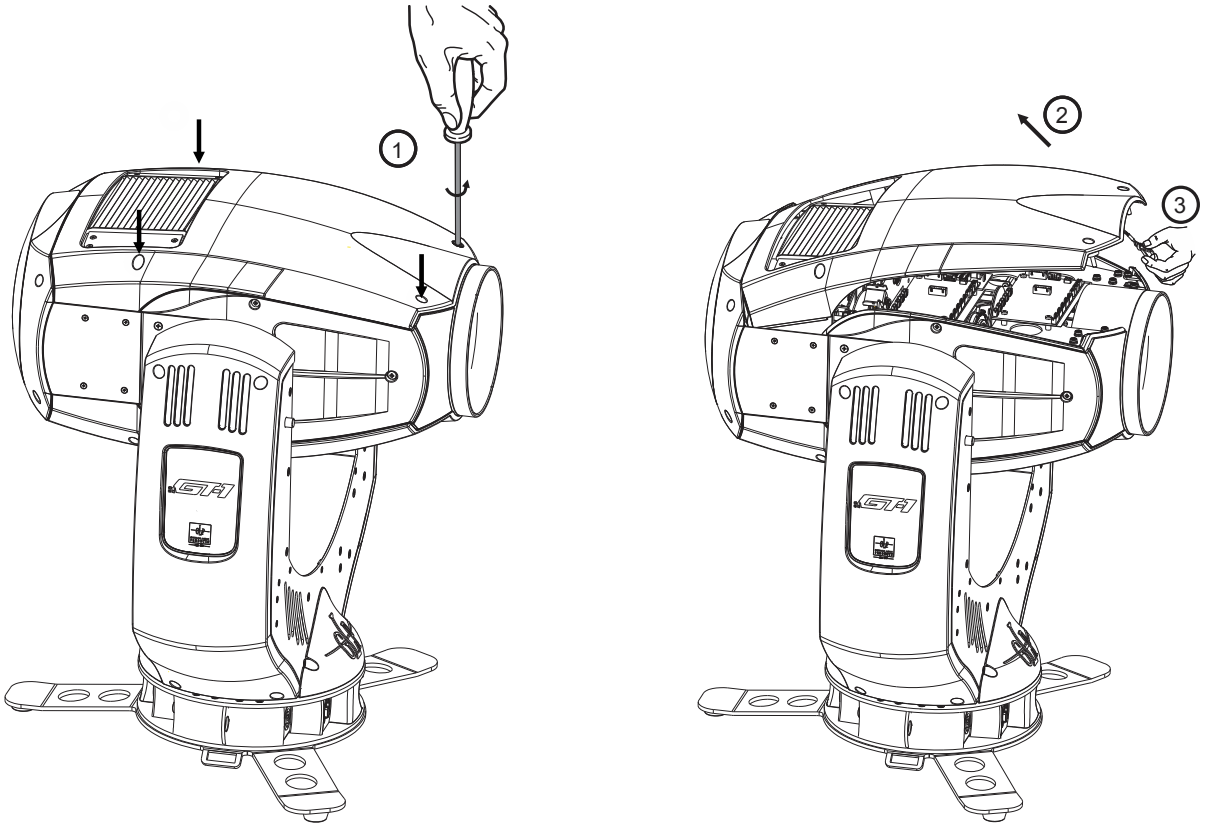


Figure 13. Head cover removal

2. Lift the head shell up from the front.
3. Release the shell safety cable.
4. Lift the head shell further to free it from the rear cover and remove.

Follow these steps in reverse to reinstall head shells. Start at the back of the head and align the opening in the head shell with the air vent to get started.

To remove the rear head cover, simply remove the screw in each corner.

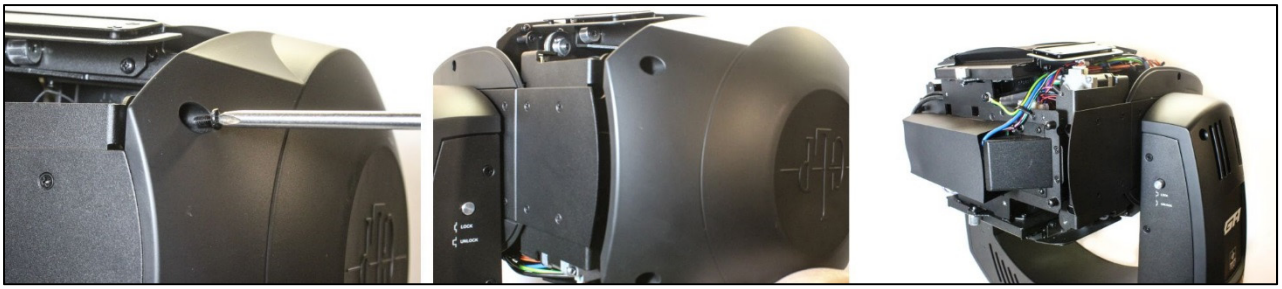


Figure 14. Rear head cover removal

Gobo change, single gobo

Note: Wear gloves when handling gobos. If replacing multiple gobos, it may be easier to remove the module.

To replace a single gobo, proceed as follows:

1. Remove the top head shell as described above.
2. Move the desired gobo slot to the access port. If selecting slots by DMX, select 3 slots ahead (select slot 5 to change the gobo in slot 2, select slot 3 to change the gobo in slot 9).
3. Turn the holder so the ends of the gobo spring are at the top of the plate as shown to left in Figure.
4. Using needle-nose pliers, compress and remove the gobo spring.
5. Using a small, soft tool such as a bent cotton swab, gently press the gobo up out of the holder as shown below to right, and remove.

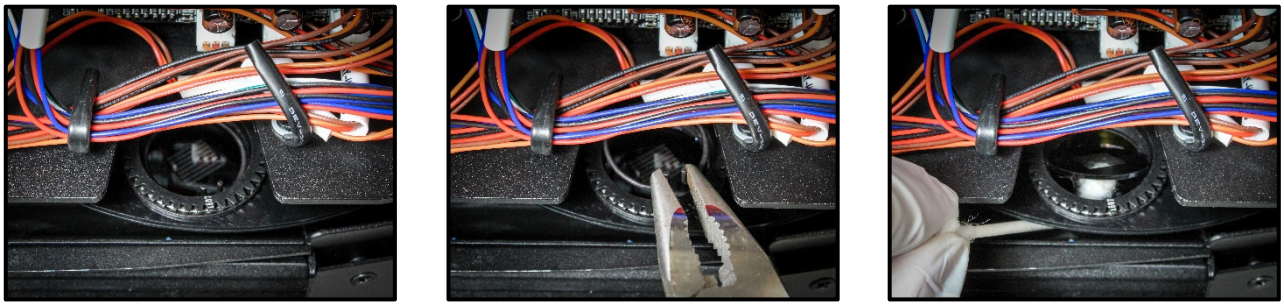


Figure 15. Removing a glass gobo

6. Insert the replacement gobo with the coated side facing the lamp.
7. Replace the gobo spring and rotate the holder to verify that the spring is fully seated against the disc.
8. Replace the top head shell.

Removing the gobo module

To remove the gobo module:

1. Remove the top and bottom head shells and the rear head cover.
2. See
   Figure 16. On the top side of the head, loosen the captive thumb screws on each side of the gobo module (**Error! Reference source not found.**panel 1).
3. Flip the head so that the bottom faces up.
4. Unplug the bottom fan assembly (panel 2).
5. Loosen the captive thumb screws on each side of the fan (panel 3) and the captive thumb screw at the back of the assembly. Remove the fan assembly.
6. Unplug the gobo module (panel 4).
7. Loosen the two captive thumb screws on the bottom of the module (panel 5).
8. Tilt the head down to slide the zoom lens clear of the module, then lift the module up and out of the head (panel 6).

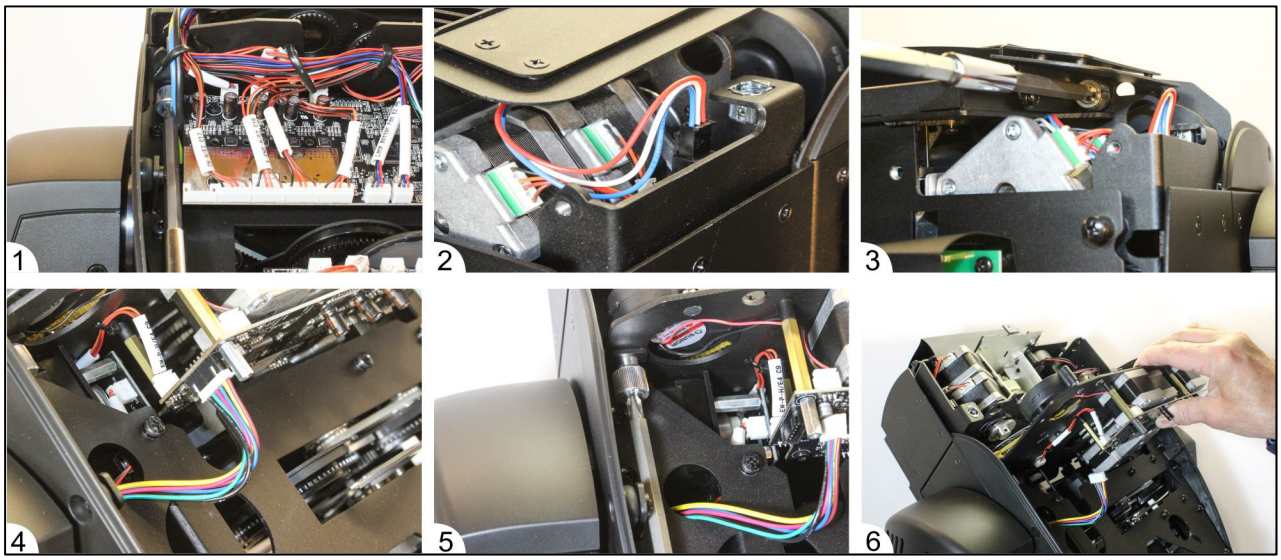


Figure 16. Removing the gobo module

When installing, insert the module plate into the slots behind the captive thumb screws.

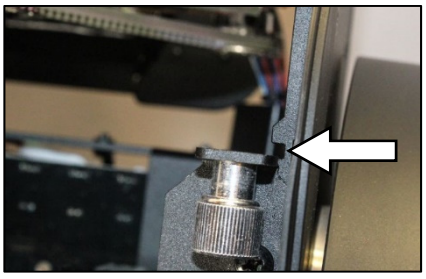


Figure 17: Module slot

Replacing the lamp

The specified lamp lifetime is 1500 hours. For best performance and to minimize the risk of lamp explosion, replace the lamp after 1000 hours of use.

To remove the lamp:

1. Remove the head shells and rear cover.
2. Disconnect and remove the fan assemblies from the top and bottom of the lamp housing (1).
3. Turn the head so the top faces up. Pull the top of the ballast cover to unhook from the stand-off spacers (2).
4. Unplug the lamp wires from the ballast (3).
5. Loosen the captive screws at each corner of the lamp housing assembly (4). Move the assembly out of the way without disconnecting it (5).
6. Loosen the four 5.5 mm nuts that secure the lamp retaining clips (6).
7. Pivot the top clip away from the lamp (7). (On some models the top-left nut may need to be fully removed.)
8. Remove the lamp and disconnect the lamp wires (8).
9. Inspect the UV shield and have it replaced if it is cracked or damaged (9). All optical components must be in good condition to prevent injury from UV radiation.

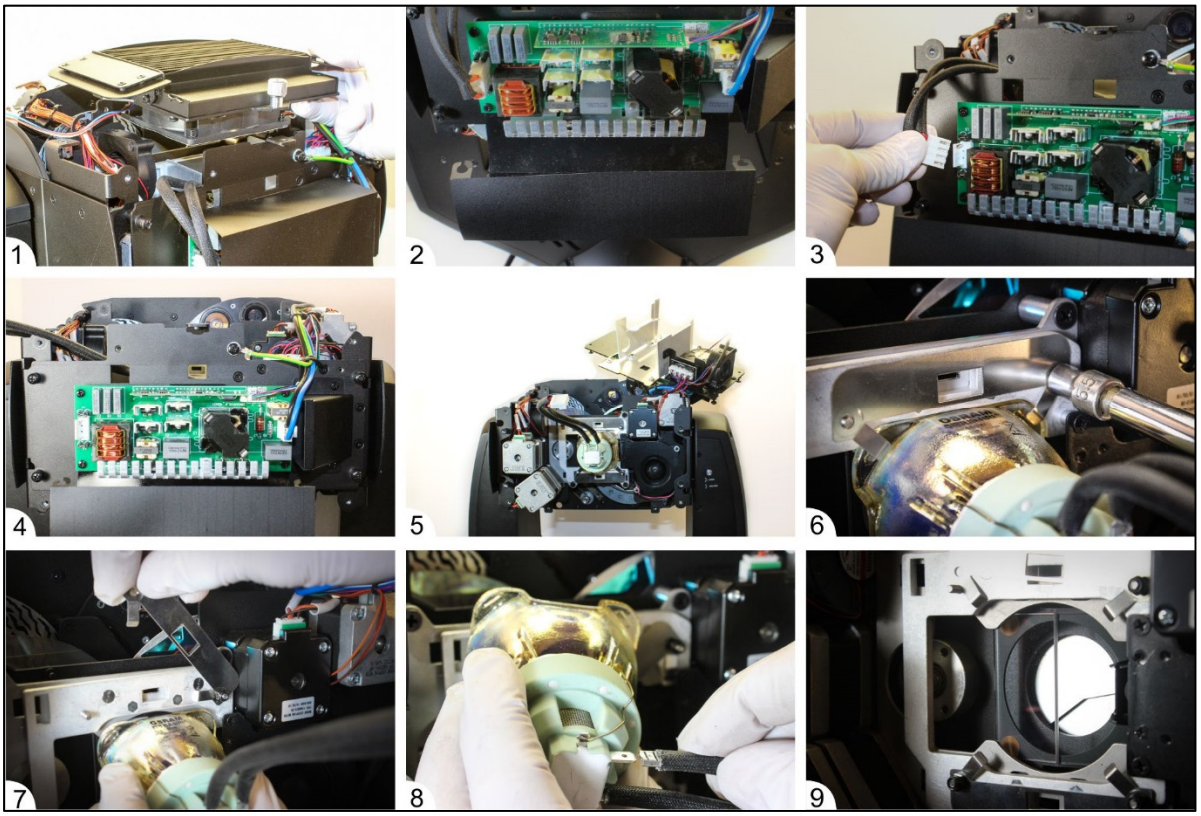


Figure 18. Lamp removal

To install a new lamp:

1. Connect the lamp wires to the lamp's spade terminals.
2. See Figure 19. Position the lamp in the housing with the wires leading towards the top of the head (1) and tighten the retaining clips.
3. Fasten the lamp housing assembly to the head (2).
4. Lead the lamp wires through the lamp housing assembly and connect to the ballast (3).
5. Hook the ballast cover onto the stand-off spacers (4).
6. Note the different fan wire connectors when reinstalling the fan assemblies: the top fan has the white connector (5). Lead the top fan wires under the larger wire bundle as shown to prevent it from being pinched (6).
7. Install the top and bottom head covers.
8. Reset the lamp hours counter from the display panel.
9. Before installing the rear head cover, you may want to check lamp alignment and adjust if necessary as described below.

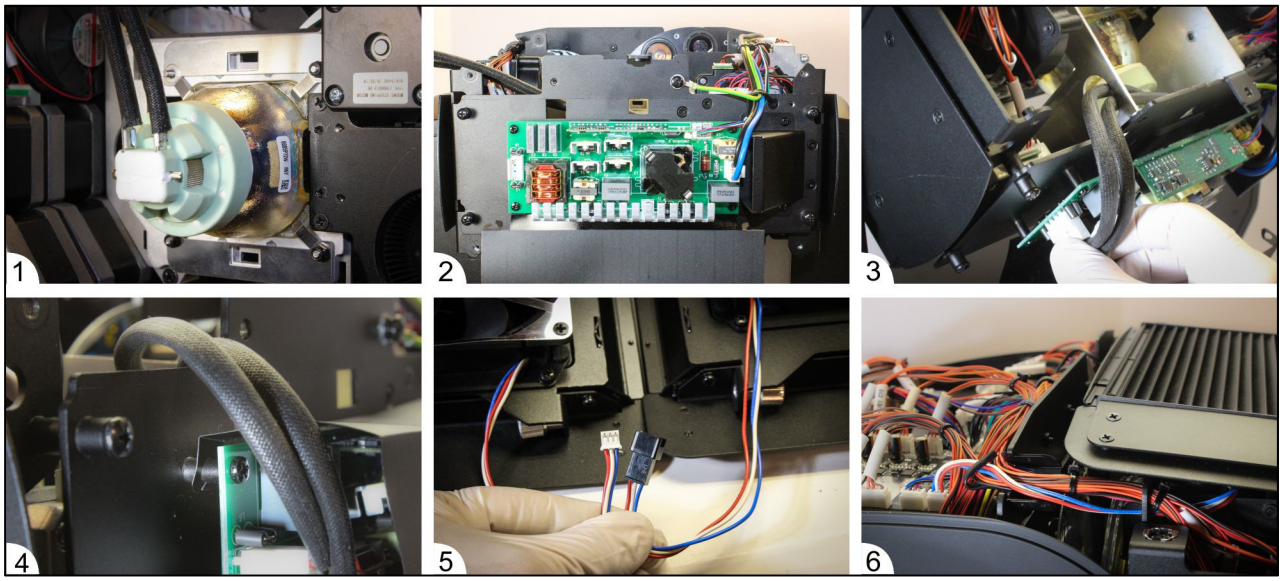


Figure 19: Lamp installation

Lamp adjustment

Warning! The lamp adjustment procedure requires unshielded exposure to the lamp and may result in serious injury. Use extreme caution, wear protective equipment, and avoid looking directly at the light output. Apply a strong color filter while performing the adjustment.

The position of the lamp can be adjusted to center the hotspot.

See Figure 20. There are five adjustment slots in the lamp holder (1). Move the lamp holder up, down, left, or right by twisting a slotted screwdriver inserted in a slot as shown in panel 2 (fan removed for clarity). The top-left slot can be used to move the holder to the left (using inside position) or right (using the outside position).

Perform the adjustment with the fans and head shells installed (3).

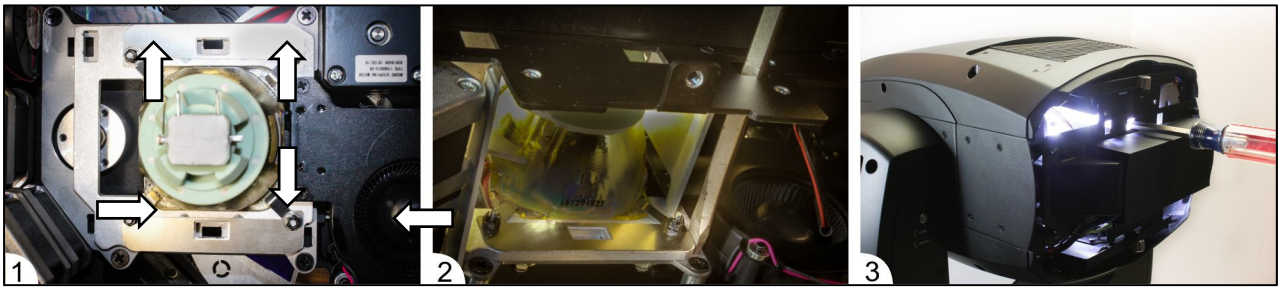


Figure 20: Lamp adjustment

GLP Service and Support

Contact information for the nearest GLP service and support is available online at www.glp.de/en/service, by email at info@glp.de, or by telephone at the following numbers:

- GLP Germany: +49 (7248) 927 1955
- GLP N. America: +1 818 767-8899
- GLP U.K.: +44 1392 690140
- GLP Asia: +852 (3151) 7730
- GLP Nordic: +46 737 57 11 40

11. Technical specifications

Light source

Lamp type: OSRAM SIRIUS HRI 440W
Lifetime : 1500 h
Color temperature: 7300 Kelvin

Optical system

Minimum zoom: 3.5°
Maximum zoom: 56.7°
Focus: Motorized, 2m - infinity
Beam mode: 2.5°

Movement

Resolution: 8 - 16 bit
Position feedback: Yes
Pan: 640°
Tilt: 262°

Control

Control modes: Normal
Display: Illuminated graphic LCD, auto-orientation
Display power: Self-charging buffer battery
Control panel: Intuitive touchwheel control,
Protocol: Art-Net, DMX-512, RDM
Wireless: Lumenradio CRMX DMX/RDM (optional)
Cooling: temperature-controlled overheat protection

Effects:

Gobo wheel 1: 8 x gobos, rotatable and indexable, interchangeable, dichroic color
Gobo wheel 2: 14 x fixed metal gobos plus 6 pinholes
Color temperature filter: mechanical, CTO 2500 K, CTB 9000 K
Color wheel: 11 x dichroic color filters, CTB Filter, CTO Filter
Color mixing: CMY
Effect wheel: Interchangeable, rotating and indexable
Frost: Yes
Prism: Rotating 3-way, 8-way, 4-way linear
Dimmer: 0-100% electromechanical
Shutter: Electromechanical

Connectors

Signal connection: 5-pin XLR and 3-pin XLR input & output
Power input: Neutrik PowerCon

Electrical

Mains voltage: 100-240 VAC, 50/60 Hz
Power consumption (@ 230V): 720 W
Fuse: 20 mm T 8 A

Operating conditions

Max. ambient temperature: 45° C / 115° F
Operating position: any

Mounting options:

Standing: Removable baseplate with eyelets for ratchet belt
Hanging (horizontal): Adjustable bar for sideways truss installation (optional)
Hanging (vertical): M10 sockets for rigging clamps, omega brackets
Safety wire attachment: 2 x eyelets

Shipping

Single fixture: Cardboard
Tourpack: 2-way incl. Flightcase and Omega w/Handle

Housing

Standard color: Black
Options: Special colors on request

Dimensions and weight

Length: 229 mm / 9 in
Width: 472 mm / 18.6 in
Height (head vertical): 618 mm / 24.3 in
Weight: 25 kg / 55 lbs

12. Dimensions

Dimensions are given in millimeters