HIGHLANDER
WASH

Quick Start and Safety Manual

Fixture software version 26

-GLP-

GLP® Highlander Wash Quick Start and Safety Manual – Revision A (this revision is prelíminary).
This document covers fixture software version 26

Manufacturer's head office:
German Light Products GmbH (GLP), Industriestrasse 2, 76307 Karlsbad, Germany
Tel (Germany): +49 7248 92719 - 0

Service & Support EMEA:
GLP, Industriestrasse 2, 76307 Karlsbad, Germany
Tel. (Germany): +49 7248 9271955
Email: support@glp.de
www.glp.de

Service & Support USA:
GLP USA, 1145 Arroyo St., Ste. A, 91340 San Fernando, California
Tel (USA): +1 818 767 8899
Support (US): info@germanlightproducts.com
www.germanlightproducts.com

Table of Contents

1. Safety

Key to symbols

The following symbols are used in this product's user documentation:

⚠	**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.	✋	**Warning!** Hot surface. Risk of burn injury.

General safety information

Read this manual carefully before installing, operating or servicing the GLP Highlander Wash lighting fixture.

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

The user documentation for the Highlander Wash consists of:

● The Highlander Wash Quick Start and Safety Manual, supplied with Highlander Wash fixtures and available for download from www.glp.de. The Quick Start and Safety Manual contains important safety information and installation instructions that the installer and user must read.

● The Highlander Wash User Manual, available for download from www.glp.de. The User Manual explains features and control of Highlander Wash fixtures.

● The Highlander Wash 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.

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

The Highlander Wash 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 the fixture's user documentation.

● Respect all warnings and directions given in the fixture's user documentation and on the fixture. Read the user documentation and familiarize yourself with the safety

precautions it contains before installing or using the fixture. GLP and affiliated companies will take no responsibility for damage or injury resulting from disregard for the information in the fixture's 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 fixture, please contact an authorized GLP distributor (see list of distributors at www.glp.de).

●   Use the fixture only as directed in this manual. Observe all markings in this manual and on the fixture.

●   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 fixture 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 fixture is electrically connected to ground (earth).

●   Disconnect the fixture from AC mains power before carrying out any installation or maintenance work and when the fixture is not in use.

●   Disconnect the fixture 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 fixture 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 TRUE1 cable connector for AC mains power input at the fixture's MAINS IN connector. If the connector and its keys are not in perfect condition, install a new TRUE1 connector on the cable following the instructions available on the Neutrik website before connecting the cable to power. Send the old connector for waste recycling.

- Use a power cable that is minimum 14 AWG or 1.5 mm², 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 fixture's specifications at the end of this manual).

Fire safety and protection from burns

- Do not operate the fixture if the ambient temperature exceeds 45° C (115° F).

- The hottest parts of the fixture's surface can reach up to 100° C (212° F) during operation. Avoid contact by persons and materials. Do not install the fixture in a location where there is a risk of accidental contact. Allow the fixture to cool for at least 30 minutes before handling it.

- Keep the fixture well away from flammable materials.

- Do not illuminate surfaces within 8 m (26.3 ft.) of the fixture. The light output from the fixture is powerful enough to cause burns or fire in illuminated objects at close range.

- Keep all combustible materials (e.g. fabric, wood, paper) at least 1 m (3.3 ft.) away from the fixture.

- Ensure that there is free and unobstructed airflow around the fixture. Provide a minimum clearance of 1000 mm (39.4 in.) around fans and air vents.

- Do not place any optical components other than Highlander Wash 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 fixture's optical components can focus the sun's rays, creating a risk of fire and damage. Do not expose the front of the fixture to sunlight or any other intense light source, even from an angle.

Eye safety

- The Highlander Wash is classified as a Risk Group 3 lighting fixture according to EN 62471. Possibly hazardous radiation emitted. Do not stare into the light output from the fixture. May be harmful to the eyes.

- Do not look at the fixture'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 fixture are not looking directly into the light output when the fixture lights up suddenly. This can happen when power is applied, when the fixture 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 fixture.

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 of 750 hours of lamp use. The risk of damage from lamp explosion increases as the lamp approaches its specified lifetime.

- 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 30 minutes before opening any door or 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 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 fixture is heavy and requires two persons to lift and carry it safely. Do not try to lift or carry the fixture alone. Use the two handles on the sides of the yoke to carry the fixture.

- The handles on the yoke are for use by persons carrying the fixture only. Do not use these handles for hoisting, primary attachment or secondary attachment.

- Installation must be performed by qualified personnel only and carried out in accordance with applicable regulations such as DIN VDE 0711-217.

- The fixture 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 fixture to a structure or surface only as directed in this manual and only with hardware that is specifically designed, approved 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. Nuts must be self-locking type and in good condition. Rigging clamps must be half-coupler type that completely encircle the rigging truss chord.

- Allow a minimum center-to-center distance of 730 mm / 28.8 in. between fixtures when installed.

- If the fixture 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 fixture 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 fixture 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 fixture. Do not operate the fixture 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 fixture.
- If the fixture becomes damaged, stop using it immediately and disconnect it from power. Do not attempt to use a fixture that is obviously damaged.
- Do not modify the fixture 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

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 use the handles on the yoke for hoisting, primary attachment or secondary attachment.

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.
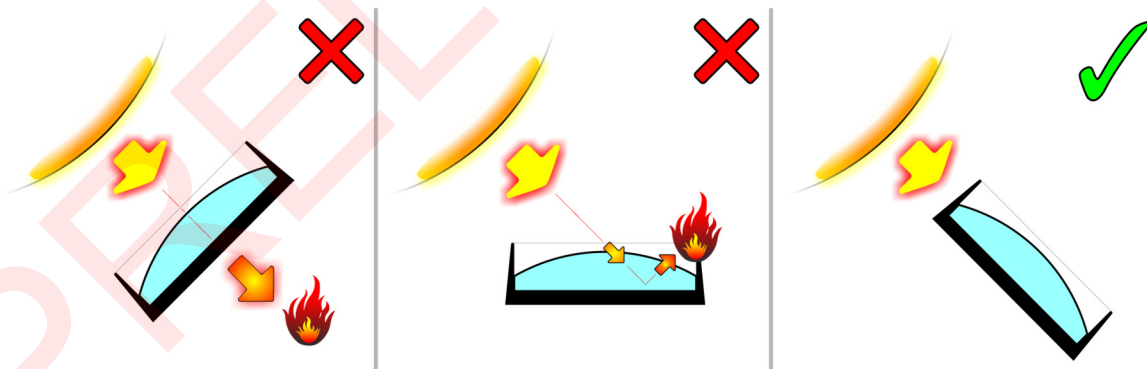
Figure 1. Avoiding damage from light sources

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.

HIGHLANDER WASH

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

Avoiding damage to the lamp

● If power has been applied to the lamp and then the lamp is powered off, wait for minimum 5 minutes – or until the HOT message disappears from the display – before you try to restrike it.

● Before shutting down power to the fixture, shut down lamp power but leave power applied to the fixture for at least 30 minutes. This will allow the cooling fans to cool the lamp down in a controlled manner and avoid hotspots that can damage the lamp.

● Keep the lamp perfectly clean. Wear clean gloves when changing the lamp.

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 'Service and maintenance' on page 23.

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
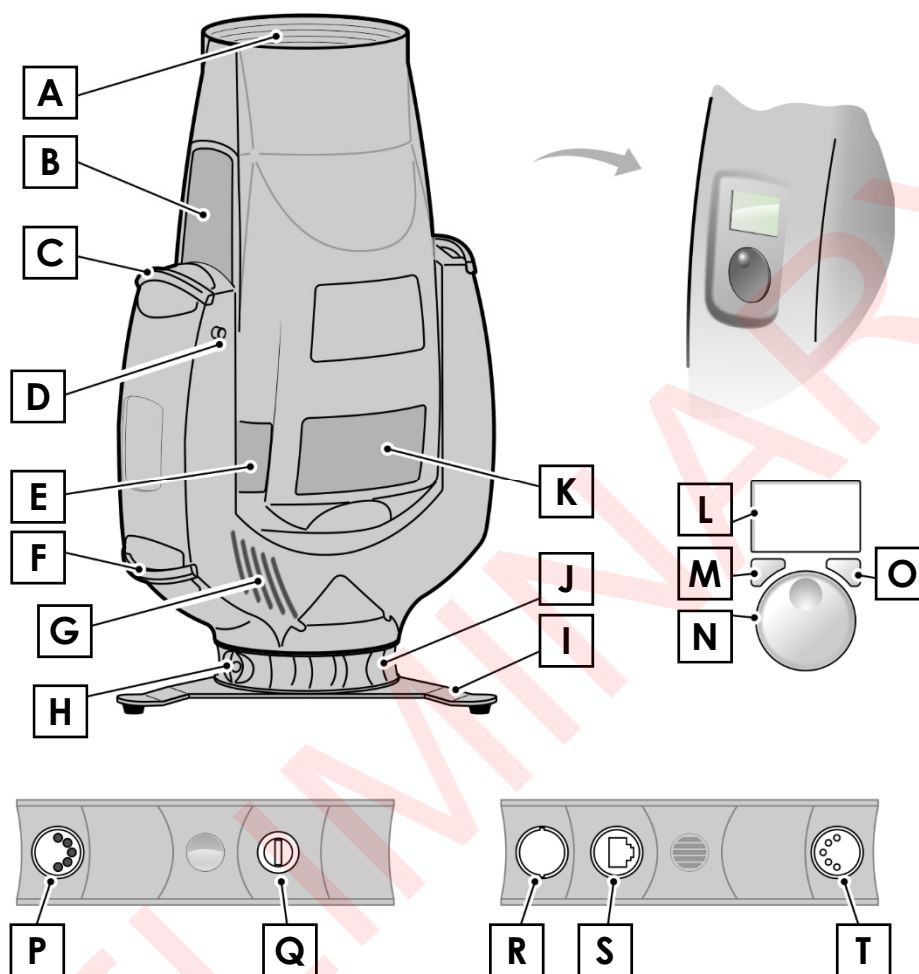
A – Front glass

B – Cooling vent

C – Carrying handles

D – Tilt lock

E – Cooling fan vent

F – Carrying handle

G – Cooling vent

H – Safety cable attachment point

I – Floor stand

J – Mini-base

K – Cooling vent

L – Backlit LCD display

M – Quick Menu / ESC button

N – Jog wheel

O – ENTER button

P – DMX OUT (THRU), 5-pin XLR

Q – Fuseholder

R – AC mains power IN
(Neutrik powerCON TRUE1)

S – Neutrik EtherCON port for Art-Net/sACN
control data IN

T – DMX IN, 5-pin XLR

4. Overview of features

The Highlander Wash is for permanent or temporary indoor use in venues where the distance to illuminated surfaces is at least 8 m (26.3 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 Highlander Wash 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 Highlander Wash shall be installed, operated, and maintained only by persons with the training, knowledge and skills to do so safely.

Lamp

The Highlander Wash's OSRAM Lok-It! 1400/PS Brilliant lamp is a compact, short arc 1400 watt discharge lamp that performs in any orientation. It puts out 27,000 lumens at a color temperature of 6700 K with a Color Rendering Index of 95. The lamp's average rated lifetime is 750 hours. To minimize the risk of lamp explosion and obtain the best light output, replace the lamp before it reaches its rated lifetime.

Lamp power

The lamp can be operated at two power levels:

- At the **NORMAL** power setting, the lamp runs at 1400 W
- At the **ECO** power setting, the lamp runs at 1000 W.

You can toggle between these two settings under **Lamp Power** in the **Fixture Settings** control menu.

The lamp will only operate at the **NORMAL** power level of 1400 W if the fixture is connected to AC power at 200 – 240 V. If the fixture senses that it is receiving AC power at 100-180 V, it will automatically switch the lamp to the **ECO** power level of 1000 W. If the line voltage increases to above 195 V, the fixture will automatically switch lamp power back to the **NORMAL** level.

If **Lamp Power** is set to **ECO**, the fixture will keep lamp power at 1000 W regardless of the AC power voltage that the fixture is receiving.

Control panel and display

The control panel with jog wheel control, backlit graphic LCD display 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 brackets for clamp attachment and other rigging accessories. It also has two M10 threaded sockets for direct fastening of half-coupler rigging clamps using suitable machine screws or bolts.

5. Preparation for use

Warning! Read 'Safety' starting on page 5 before installing the Highlander Wash.

Included items

The Highlander Wash is supplied with an OSRAM Lok-It 1400/PS Brilliant lamp, a power cable with a Neutrik powerCON TRUE1 connector and a floor stand.

Handling

The Highlander Wash has two handles on each side of the yoke to make carrying the fixture easier. The fixture must be lifted and carried by two people. Do not try to lift or carry the fixture alone. The handles are for use when carrying the fixture only. Do not use the handles on the yoke for hoisting, primary attachment or secondary attachment.

To remove the fixture from a flightcase and prepare for installation on a truss or similar structure, fasten two omega brackets with handles to the fixture using the camlock bracket attachment points in the base of the fixture. Lift the fixture straight up out of the flightcase and hang it on the truss chord.

To remove the fixture from a flightcase and place it on the ground or horizontal surface that can hold the weight of the fixture, fasten the fixture's floor stand (supplied) to the fixture using the camlock bracket attachment points in the base of the fixture. Lift the fixture straight up out of the flightcase, turn it upside down and place it onto the surface.

Orientation and location

The fixture may be rigged in any orientation following the instructions in this chapter or placed on a level surface in locations where it is safe to stand the fixture.

Make sure that the head will be at least 1 m / 3.3 ft. away from combustible materials (wood, paper, textiles, etc.) including curtains and stage scenery when the fixture is installed.

Make sure that there will be a minimum of 8 m / 26.3 ft. between the fixture and any surface to be illuminated.

Make sure that there is no risk of collision when the head pans and tilts. Allow a minimum center-to-center distance of 730 mm / 23.7 in. when installing fixtures side by side.

Identifying the front of the fixture

To identify the front of the fixture, look at the safety attachment points in the fixture's mini-base. The attachment point colored grey is on the *back* of the fixture with pan centered at 0°.

Mounting

The Highlander Wash may be rigged in any orientation or placed on a stable horizontal surface.

Accessories are available to mount the Highlander Wash in various positions. These fasten to the connectors on the base.

HIGHLANDER WASH

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 the Camlock pins with two Camlock sockets in the base, then insert the pins fully and turn their handles 90° clockwise to lock.

See Figure 2. Slots are provided on the bottom of the floor stand. To eliminate any risk that the fixture may fall over during sudden head movements, pass a ratchet strap through the slots and fasten it to a suitable anchoring point.
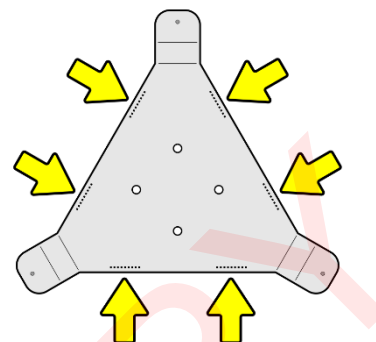
Figure 2. Strap attachment points in floor stand

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 eyelets (arrowed) in the base of the fixture. If the fixture's floor stand is installed on the fixture, do not use any part of the stand for safety cable attachment. If you do this, you will leave the fixture unsecured.

2. Pass the safety cable through or around a secure anchoring point such as the truss or supporting structure and take up as much slack as possible, then lock the safety cable closed.

Figure 3. Safety cable attachment point

3. Check that the safety cable will hold the fixture safely if a primary attachment fails.

Mounting fasteners in base

See Figure 4. The base of the fixture has two threaded holes **A** that accept M10 bolts or machine screws, and four mounting points **B** that accept standard camlock quarter-turn fasteners. The camlock center-to-center distance is 90 mm (3.54 in.).
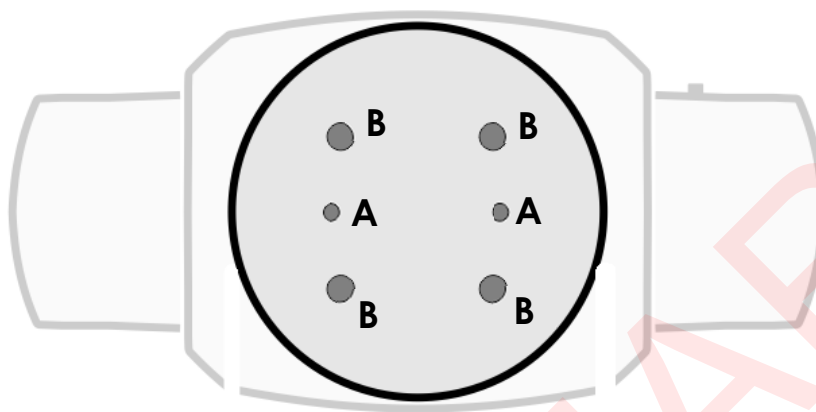

Figure 4. Mounting points in base

Mounting directly with rigging clamps

To install the Highlander Wash in any orientation on a rigging truss or similar support:

1. Obtain two half-coupler type rigging clamps that are in perfect condition and approved for the weight of the fixture.

2. See Figure 5. Pass two M10 grade 8.8 steel bolts or screws through the two rigging clamps and check that the bolts will protrude minimum 9 mm / 0.35 in. and maximum 11 mm / 0.43 in. into the base of the fixture when tightened.

3. See Figure 4. Fasten the bolts or screws through the half-coupler clamps and into holes **A** in the base of the fixture so that the clamps are held securely.

Figure 5. Min./max. bolt protrusion into fixture base (millimeters)

4. Fasten the rigging clamps securely around a rigging truss chord or similar bar.

5. Secure the fixture against clamp failure following the instructions in 'Securing the fixture with a safety cable' on page 16.

6. Make sure that the head will not collide with another fixture or any other object when it moves through its full pan and tilt ranges.

Mounting with omega brackets and rigging clamps

To suspend the Highlander Wash from a rigging truss or similar structure with the head hanging downwards using omega brackets and rigging clamps:

1. Obtain two omega brackets and two rigging clamps that are in perfect condition and approved for the weight of the fixture.

HIGHLANDER WASH

2. Bolt a rigging clamp to each omega bracket using a suitable grade 8.8 minimum steel bolt and self-locking nut.

3. See Figure 4. Line up the two camlock quarter-turn pins in each of the two omega brackets with the camlock fastener points **B** in the base of the fixture and turn all locking levers a full 90° clockwise to lock the brackets to the fixture.

4. Fasten the rigging clamps securely around a rigging truss chord or similar bar.

5. Secure the fixture against clamp failure as described in 'Securing the fixture with a safety cable' on page 16.

6. Make sure that the head will not collide with another fixture or any other object when it moves through its full pan and tilt ranges.
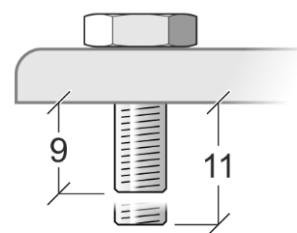
Sideways Mounting

For sideways mounting (i.e. mounting with the fixture's yoke pointing horizontally), the Highlander Wash may be clamped to a vertical truss on condition that you:

- use two half-coupler type rigging clamps that completely encircle the truss chord and that can hold the weight of the fixture securely, and

- install the fixture with one half-coupler rigging clamp directly above the other on a vertical truss chord.

See 'Mounting directly with rigging clamps' on page 17 for instructions on how to install the fixture using rigging clamps.

Do not attempt to mount the Highlander Wash sideways on a horizontal truss.

6. Connections

Warning! Read 'Safety' starting on page 5 before connecting the Highlander Wash to power.

AC power

The Highlander Wash has a Neutrik powerCON TRUE1 socket for connection to AC mains power from a Neutrik powerCON TRUE1 female cable connector. The autosensing power supply accepts 100-240 V, 50/60 Hz AC power. Do not connect the fixture to AC power at any other voltage.

Note that, if the fixture is connected to AC mains power at 180 V or less, the lamp is automatically switched to **ECO** mode, where it uses 1000 W. See 'Lamp power' on page 14.

The AC mains power distribution circuit must include a connection to ground / protective earth. It must be protected against ground / earth leakage and overload.

Do not connect the fixture to a power distribution circuit that is equipped with an external dimmer.

Powering the fixture on

The fixture does not have an ON/OFF switch. It is powered on as soon as power is applied to the power input cable. Before applying power, check that the head is unlocked, check that the head will not collide with anything, and check that nobody will be looking directly at the fixture if it lights up suddenly.

Powering the fixture off

Turn off the lamp but leave the fixture connected to power for 30 minutes before powering the fixture off. After allowing the fixture to cool down with the lamp turned off, power the fixture off by shutting down power to the power input cable.

Connecting to power

Although powerCON TRUE1 connectors support hot-plugging, it is still good practice to shut down power to power cables before connecting them to fixtures.

To connect the fixture to power:

1. Check that the Neutrik powerCON TRUE1 connector on the power input cable is in perfect condition, paying attention to the keys on the connector. If the connector or its keys show signs of damage, replace the connector with a new item.
2. Line up the keys in the TRUE1 connector correctly with the keyways in the MAINS IN socket.
3. Insert the connector into the socket. Do not use force. If you feel any more than light resistance when you try to push the connector into the socket, something is wrong. You may have lined up keys and keyways incorrectly. Remove the connector and check the positions of keys and keyways before trying to insert the connector again.
4. Twist the connector fully clockwise to lock. Listen for a 'click' that indicates that the connector is locked.

5. Release the tilt lock, check the clearance around the head and make sure that nobody is looking directly at the fixture. Then apply power to the power input cable.

Installing power connectors on the input cable

It is possible to install a cord cap / mains power plug that is suitable for your local convenience receptacles / power sockets on the supplied power input cable. If you do this, check that the cord cap / plug is rated minimum 250 V, 16 A, that it has a connection to ground / earth and that it has an integral cable grip. Follow the cord cap / plug manufacturer's assembly instructions.

If you need to install a Neutrik powerCON TRUE1 connector on a power cable, follow the instructions given on the Neutrik website at www.neutrik.com.

Respect the color coding used in the supplied power cable and in your local mains power wiring system. US and EU systems use the color coding shown below:

	Live or L	Neutral or N	Ground / Earth or ⏚
US system	Black	White	Green
EU system	Brown	Blue	Yellow/green

Setting up fixture control

The Highlander Wash can be controlled via USITT512 DMX over a standard DMX cable link, Art-Net network or sACN network.

If you would like advice with planning and installing a suitable control link, your GLP supplier will be happy to provide assistance.

DMX

See 'Overview' on page 13. The fixture has 5-pin XLR IN and THRU sockets for connection to a DMX cable link.

Connectors use standard DMX pinout:

- Pin 1 = Ground
- Pin 2 = Negative / data cold
- Pin 3 = Positive / data hot.
- Pins 4 and 5 are not used.

To configure the fixture for DMX control over a DMX cable link, open the menus in the fixture's control panel and make the following adjustments:

1. In the first menu (root menu), set the fixture's DMX address to a suitable address.

2. In the **Control Protocol** menu, set the control protocol to **DMX** (the default setting).

These settings will not be affected if you apply a **Load Default Settings** command in the fixture's control panel, but they will be returned to factory defaults if you apply a **Load Factory Backup** command in the fixture's control panel.

To link fixtures in cabled DMX daisy-chains using their XLR connectors, use certified DMX cable only.

Art-Net

The fixture's Ethernet port is suitable for connection to an Art-Net network.

To configure the fixture to receive control data via Art-Net, open the menus in the fixture's control panel and make the following adjustments:

1. In the first menu (root menu), set the fixture's DMX address to a suitable address.

2. In the **Control Protocol** menu, set the control protocol to **Art-Net**.

3. Configure all fixtures with their own unique IP addresses. To do this, you can either:

   - set fixtures to generate their own IP addresses by choosing the ranges 2.x.x.x or 10.x.x.x (Art-Net specification),

   - set fixtures to acquire IP addresses automatically by DHCP, or

   - assign IP addresses manually by entering individual IP addresses and Subnet mask.

4. Select an Art-Net port/universe from 00000 (Network 0 / Subnet 0 / Universe 0) to 32767 (Network 7 / Subnet 15 / Universe 255). Note that the first Art-Net universe is considered to be universe number 00000, not 00001.

These settings will not be affected if you apply a **Load Default Settings** command in the fixture's control panel, but they will be returned to factory defaults if you apply a **Load Factory Backup** command in the fixture's control panel.

Note that it is possible to transmit DMX data as broadcast or unicast packages via Art-Net. If a large number of universes (more than 30) is broadcast, data loss can occur. If you suspect that this is happening, configure your console to unicast Art-Net DMX packages to fixtures, or switch to sACN.

To link fixtures in Art-Net daisy-chains, use CAT 6 or higher Ethernet cable.

sACN

The fixture's Ethernet port is suitable for connection to an sACN network.

To configure the fixture to receive control data via sACN, open the menus in the fixture's control panel and make the following settings:

1. In the first menu (root menu), set the fixture's DMX address to a suitable address.

2. In the **Control Protocol** menu, set the control protocol to **sACN**.

3. Configure all fixtures with their own unique IP addresses. To do this, you can either:

   - set fixtures to generate their own IP addresses by choosing the ranges 2.x.x.x or 10.x.x.x (Art-Net specification),

   - set fixtures to acquire IP addresses automatically by DHCP, or

   - assign IP addresses manually by entering individual IP addresses and Subnet mask.

4. Select an sACN universe from 00001 to 63999.

These settings will not be affected if you apply a **Load Default Settings** command in the fixture's control panel, but they will be returned to factory defaults if you apply a **Load Factory Backup** command in the fixture's control panel.

To link fixtures in sACN daisy-chains, use CAT 6 or higher Ethernet cable.

7. Using the fixture

For guidance on using the Highlander Wash, see the latest version of the fixture's User Manual, available for download from www.glp.de.

Check that the software version given at the front of the user manual matches the software version installed in the fixture.

8. Service and maintenance

Regular maintenance and cleaning is essential to get the best performance and service lifetime from your fixture.

Suggested maintenance intervals

We suggest the maintenance schedule below, but bear in mind that cleaning intervals depend on the operating environment. Our suggested cleaning intervals are based on our experience with typical installations – please check the fixture to assess the need for cleaning and adjust intervals as necessary.

Maintenance Task	Interval	How
Lamp replacement	750 hours	See directions in this chapter.
Front lens	Weekly	Soft cloth and glass cleaning fluid
Color filters	Yearly	Soft cloth and glass cleaning fluid
Internal lenses	Yearly	Soft cloth and glass cleaning fluid
Fans and air vents	Monthly	Vacuum cleaner and soft brush (holding fans still while applying suction)
Focus/zoom rails	Yearly	Suitable lubricant (consult with GLP Service)

Cleaning

The buildup of dust, dirt and other airborne particles will reduce the fixture's light output. It will also prevent the fixture from cooling correctly, and this will reduce the fixture's lifetime. The rate of dirt buildup will vary depending on environmental factors such as airborne dust, use of smoke machines, airflow from ventilation systems, etc. The fixture's cooling fans will accelerate buildup, and any smoke particles that are present in the atmosphere will increase the tendency for dirt to clog.

To get the best performance and lifetime from the fixture, inspect it regularly and clean it as soon as you see signs of dirt buildup. Assess the operating environment each time you begin to use the fixture. In dusty or smoky conditions, inspect the fixture after a few hours and check it frequently – the fixture may attract dirt faster than you expect. Draw up a cleaning schedule that will make sure that dirt is removed before it can build up.

Use the following guidelines:

- Disconnect the fixture from power and allow it to cool completely before cleaning.

- Do not use solvents, abrasives or any other aggressive product to clean the fixture.

- Use a vacuum cleaner and soft brush to remove dust and loose particles from surfaces and air vents. Prevent the blades of cooling fans from turning before you aim a vacuum at them, or you may spin the fan too fast and damage it.

www.glp.de

- Do not let optical components come into contact with oil or grease. Put on clean, dry lint-free gloves before you touch them.

- Clean glass components by wiping gently with alcohol wipes or a soft, clean, lint-free cloth moistened with a weak detergent solution. Put the solution on the cloth, not on the surface to be cleaned. Avoid rubbing glass surfaces. If particles are stuck to the glass, try to lift them off by dabbing them repeatedly with a cotton swab or moistened lint-free cloth.

- Dry the fixture with a soft, clean, lint-free cloth or low-pressure compressed air before reapplying power.

Replacing the lamp

The specified lamp lifetime is 750 hours. For best performance and to minimize the risk of lamp explosion, replace the lamp before it reaches the end of its lifetime.

Do not touch the lamp with bare fingers. If you get any grease or oil on the lamp, clean it carefully with an alcohol wipe and wipe it dry with a clean, soft, dry, lint-free cloth.
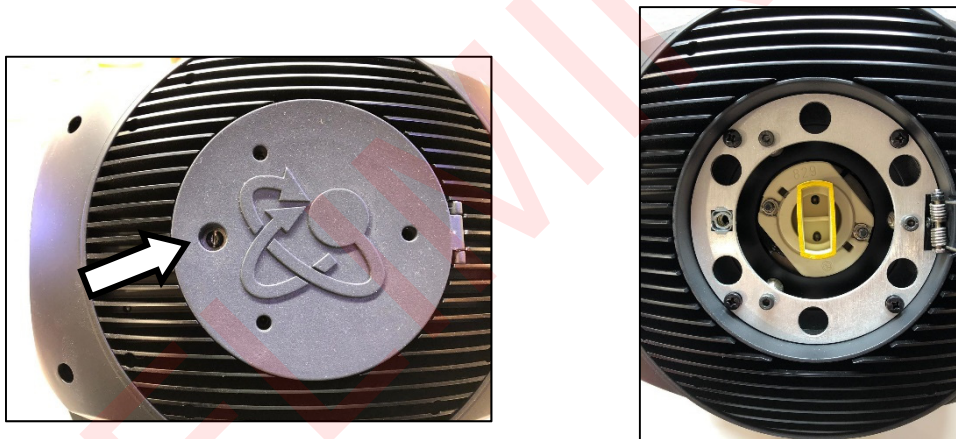

Figure 6. Opening the lamp compartment

To replace the lamp:

1. If the lamp has been in use, turn the lamp off but leave the fixture connected to power for 30 minutes so that the cooling fans continue to operate.

2. Disconnect the fixture's power input cable.

3. See Figure 6. Tilt the head so that you have access to the lamp door on the back of the head with the top of the head facing upwards: the lamp door screw (arrowed) must be on the on the left-hand side when you look at the back of the head. The door opens to the right. To make it easier to work we recommend that you apply the tilt lock.

4. Release the lamp door screw (arrowed in Figure 6) and open the lamp door. You can now see the lamp base in the lampholder.
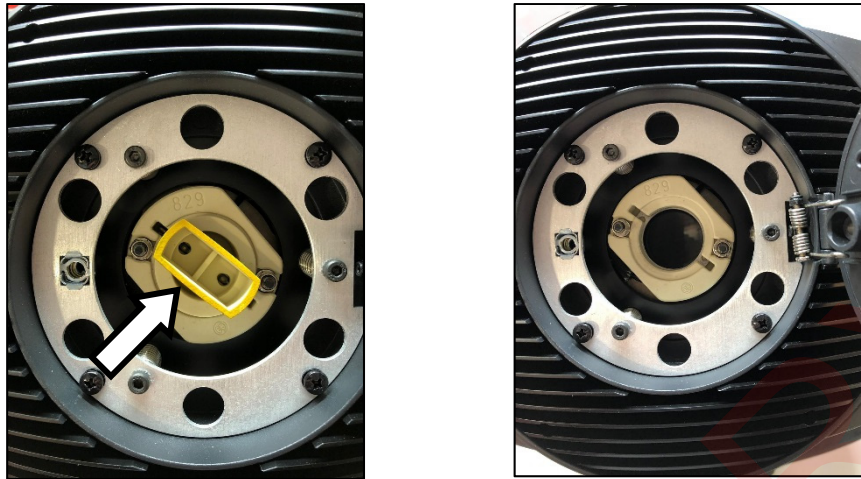
Highlander Wash Quick Start and Safety Manual

Figure 7. Removing the lamp

5. See Figure 7. Twist the lamp base (arrowed) counterclockwise to release its bayonet mount, then remove the lamp from the fixture.

Figure 8. Metal rod on lamp must face upwards

6. Take a new lamp of the type specified for the fixture. See Figure 8. Position the lamp so that the metal rod (arrowed) on the lamp will face upwards, and line up the bayonet mount pins with the pin slots in the lampholder. Insert the lamp into the lampholder and twist clockwise until locked into position. Do not touch the glass bulb of the lamp with your fingers or let it become dirty. If you get any dirt, grease or oil from your fingers on the bulb, clean it with an alcohol wipe.

7. Close the lamp door and fasten it with its locking screw (arrowed in Figure 6).

8. Release the tilt lock and be prepared for the fixture to light up and move suddenly. You can now reapply power.

9. Reset the lamp hours counter using the control panel (see the fixture's User Manual available for download from www.glp.de).

10. Carry out lamp adjustment as described below.

Adjusting the lamp

1. With the lamp door closed and fastened with its locking screw, apply power to the fixture.

2. The back of the head and lamp door will now become hot. Do not touch them, or you may burn yourself.

3. Aim the fixture directly at an even, light-colored surface.

4. See Figure 9. The fixture has three lamp adjustment screws (arrowed). Each screw tilts the lampholder assembly in the direction of the screw. Turn the screws to adjust the lampholder position and obtain the most even projection.
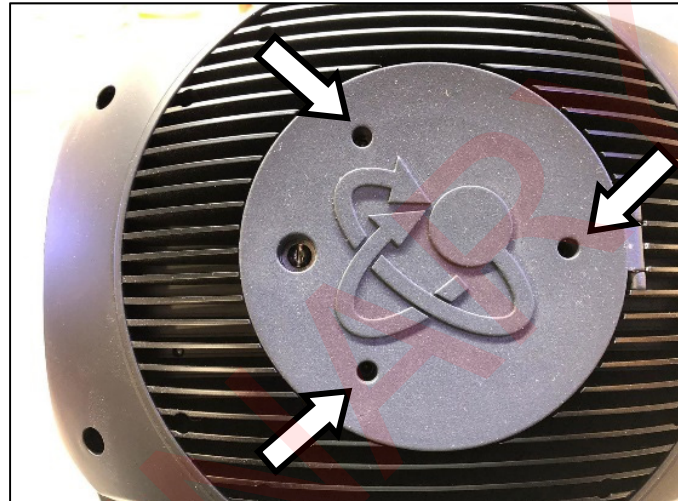

Figure 9. Lamp adjustment screws

Main fuse

See Figure 10 on right and see 'Overview' on page 13. The main fuse sits in a fuseholder in the base.

If the fixture appears to be completely shut down even though power is applied, the main fuse may have blown. Disconnect the fixture from power before replacing the fuse. You can open the fuseholder with a flat-headed screwdriver. Replace only with a fuse of the same type and rating.

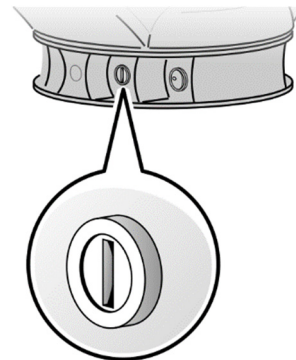If the fuse blows repeatedly, disconnect the fixture from power and contact GLP for service and repair.

Figure 10. Main fuse

Lubrication

The fixture does not normally need lubrication. If any effects or moving parts show signs of rough movement, consult a GLP service partner.

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

HIGHLANDER WASH

9. Technical specifications

Light source

Lamp type: OSRAM Lok-It 1400/PS Brilliant
Lamp output: 120 000 lumens
Color temperature: 6000 K
CRI (Color Rendering Index): 95
CQS (Color Quality Scale: 90
TLCI (Television Lighting Consistency Index): 90
TM-30 Rf (IES TM-30-15 Fidelity Index): >85
TM-30 Rg (IES TM-30-15 Gamut Index): >90
Lamp lifetime: 750 hours
Lamp mount: PGJX28

Optical system

Total fixture output: 27 500 lumens
Output color temperature: 6700 K
Min. zoom: 5° beam angle (50%), 10° field angle (10%), 14° cutoff angle (3%)
Max. zoom: 44° beam angle (50%), 63° field angle (10%), 70° cutoff angle (3%)
Zoom ratio: 7:1
Focus: Motorized, 2m – infinity
Zoom-focus linking system
Output lens diameter: 230 mm (9 in.)

Movement

Resolution: 8 - 16 bit
Position feedback: Yes
Pan: 640°
Tilt: 262°
Effect movement: Fast, Normal and Smooth performance options

Control

Pan and tilt control: 16-bit
Display: Backlit graphic LCD, manual or automatic inversion
Display power: Self-charging buffer battery
Integrated control panel: Intuitive jog wheel control
Control protocols: DMX-512, RDM, Art-Net, sACN
Wireless: Lumenradio CRMX DMX/RDM (optional)
Fixture setup and addressing: Integrated control panel, DMX, RDM
Lamp power options: Normal 1400 W and Reduced 1000 W (Eco mode)
Lamp power on/off: Auto and manual options

Effects

Color mixing: CMY 0-100% variable
Color temperature: Open - 2700 K variable
Color wheel 1: 7 x dichroic color filters + open
Color wheel 2: 7 x dichroic color filters with pastel colors, color correction and half minus green + open

Beam shaping: 4-blade framing system, fully closing, +/- 30° blade tilt, +/- 45° framing module indexing, position and indexing control options

Iris effect: Deploys framing blades

Dimmer: Electromechanical, 0-100% variable, soft and linear dimming curve options

Shutter: Electromechanical, regular and random strobe and pulse effects, instant open and blackout

Electrical

Internal power supply unit: Auto-ranging electronic switch mode 100-240 VAC, 50/60 Hz

Mains power 100-180 VAC, 50/60 Hz: 1000 W lamp power (ECO Mode)

Mains power 200-240 VAC, 50/60 Hz: 1400 W lamp power (NORMAL Mode) or 1000 W lamp power (ECO Mode)

Power and current at 230 V, 1400 W lamp power: 1750 W, 7.6 A, PF >0.9

Fuse: T 15 A, 250 V, 6x32 mm

EEC (Energy Efficiency Class): B

EEI (energy Efficiency Index): 0.82

Energy consumption (kWh/1000 hr.): 1733.0

Thermal

Cooling system: Combined convection and forced air, overheat protection

Cooling regulation: temperature-controlled or constant fan options

Max. ambient temperature: 45° C / 115° F

Min. ambient temperature: 5° C / 41° F

Max. surface temperature at 40° C ambient: 100° C / 212° F

Total heat dissipation at 230 V, 1400 W lamp power, calculated, +/-10°: 5980 BTU/hr.

Installation

Operating position: any

Location: Dry location only

Mounting: Fastened to surface or structure, or standing on supplied floor stand

Mounting points: Two pairs of camlock fastener points, 2 x M10 threaded holes

Safety cable attachment points: Two in fixture base

Floor stand stabilizing strap attachment points: Slots in supplied floor stand

Minimum center-to-center distance: 730 mm / 28.8 in.

Minimum distance to illuminated surfaces: 8 m / 26.3 ft.

Minimum distance to combustible materials: 1 m / 3.3 ft.

Connectors

DMX data IN and THRU via DMX cable: 5-pin XLR

DMX data IN via Art-Net and sACN: EtherCON

Power IN: Neutrik powerCON TRUE1

Construction

Ingress protection: IP20

Standard color: Black (custom on request)

Housing: High-impact flame-resistant thermoplastic, aluminum

Integrated yoke handles

Modular slide-in construction

Service-friendly lamp, air filter and UV filter change systems

HIGHLANDER WASH
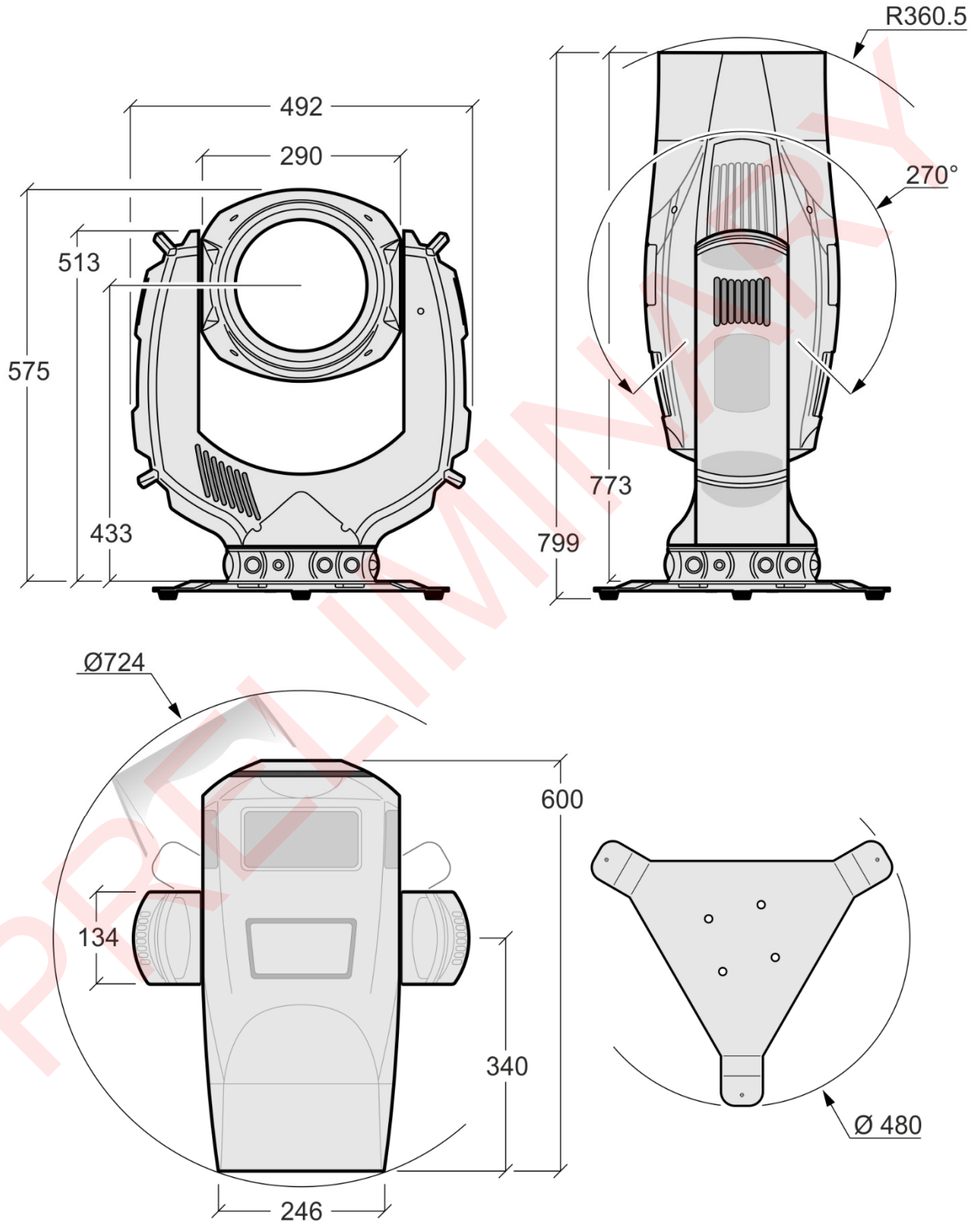
Accessories supplied

OSRAM Lok-It! 1400PS Brilliant lamp
Floor stand
Power cable with Neutrik powerCON TRUE1 connector

Dimensions and weight

Width (head at max. horizontal extension): 724 mm / 28.6 in.
Width across yoke: 492 mm / 19.4 in
Height (head vertical): 773 mm / 30.5 in
Height (head at max. vertical extension): 794 mm / 31.3 in.
Height incl. floor stand (head vertical): 799 mm / 31.5 in
Height incl. floor stand (head at max. vertical extension): 820 mm / 32.3 in.
Minimum center-to-center distance: 730 mm / 28.8 in.
Weight: 29.5 kg / 65.1 lbs.

10. Dimensions

Dimensions are given in millimeters