

User Manual

impression®
FRI



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GLP® impression® FR1 User Manual Revision E

This manual covers firmware version 1.15

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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 section carefully before installing or using 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 impression® FR1 and this user manual are 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 this user manual and on the product. Read this manual and familiarize yourself with the safety precautions it contains before installing or using the product. The manufacturer will take no responsibility for damages or harm resulting from disregard for the information in this manual.
- Check the GLP website at www.glp.de and make sure that you have the latest version of this user manual. Check also that the software version indicated on page 2 of the user manual matches the version installed in the product. You can download the correct version of this user manual if necessary.
- Make the user manual available to all installers and operators and save the manual for future reference.
- If you have questions about the safe operation of the impression FR1, please contact an authorized GLP distributor (see list of distributors at www.glp.de).

- Use the product only as directed in this user manual. Observe all markings in this user manual and on the product.
- Refer any service operation not described in this manual and refer all repairs to a technician authorized by GLP.
- The light source in this product must not be changed by the end user.
- 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.
- Neutrik powerCON connectors are not suitable for hot-plugging, so ensure that the power outlets or power switches on the circuits used to supply the product with power are located near the product and are easily accessible so that the product can easily be disconnected from power.
- Disconnect the product from power immediately if the power plug or any seal, cover, cable, or other component is damaged, defective, deformed, wet or showing signs of overheating. Do not reapply power until the product has been repaired and made safe by a technician authorized by GLP.
- Before using the product, check that all power distribution equipment and cables are in perfect condition and rated for the electrical requirements of all connected devices.
- Use only Neutrik powerCON cable connectors for input and throughput at the product's power connectors.
- Use minimum 14 AWG or 1.5 mm² power input and relay cables that are 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.
- Do not connect devices to power in a chain using their power throughput connectors if the total maximum current draw of all the devices in the chain when added together will exceed the current rating of any cable or connector used at any point in the chain. The supplied power input cable is rated as follows:
 - US power cable: 16 A, 14 AWG, UL listed, E304117, SJT, 4.9 ft.
 - EU power cable: 16 A, 1.5 mm², H05VV-F, 1.5 m

Do not connect more than sixteen (16) impression FR1 fixtures to power in a chain at 100-120 V, 60 Hz.

Do not connect more than thirty-two (32) impression FR1 fixtures to power in a chain at 200-240 V, 50 Hz.

- The voltage and frequency at the Mains Out socket are the same as the voltage and frequency applied to the Mains In socket. Only connect devices to the Mains Out socket that accept this voltage and frequency.
- If a fuse blows, replace it with one of the original type and rating only. If new fuses blow, disconnect the product from power and send it to a technician authorized by GLP for repair.



Fire safety and protection from burns

- Do not operate the product if the ambient temperature (T_a) exceeds 45° C (115° F).
- The surface of the product's casing can reach up to 55° C (131° 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 10 minutes before handling
- Keep the product well away from flammable materials.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 100 mm (4 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 500 mm (19.7 in.) of the product.
- Do not install a fuse that has a higher rating than the one originally installed in the product. Do not bypass fuses.
- Do not stick filters, masks or other materials onto optical components.
- 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 impression FR1 is classified as a Risk Group 2 product 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 working on or near 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, consider the following general advice for caring for a person who is having a seizure: 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.



Installation safety and protection from personal injury

- 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 10 times the weight of the load that they support.
- Suspend the product with hardware specifically designed and rated for the purpose. Check that the 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.
- Screws or bolts used for mounting hardware must protrude minimum 9 mm / 0.36 in. and maximum 11 mm / 0.43 ins. into the threaded holes in the base of the fixture.

- 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.
- Fasten the product to a structure or surface as directed in this user manual. Do not use safety cables as the primary means of support.
- Before applying power to the product, ensure that the moving head can move through its full range without risk of collision. Allow a minimum center-to-center distance of 360 mm / 14.2 in. between fixtures.
- Check that all covers and rigging hardware items are secure.
- 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 this user manual.
- Install genuine GLP parts only.

2. Avoiding damage

Do not point the front of the fixture towards the sun or other strong light sources. The front lens focuses and concentrates light just like a magnifying glass. Strong light can cause internal damage to the fixture, melting components or starting an internal fire within seconds.

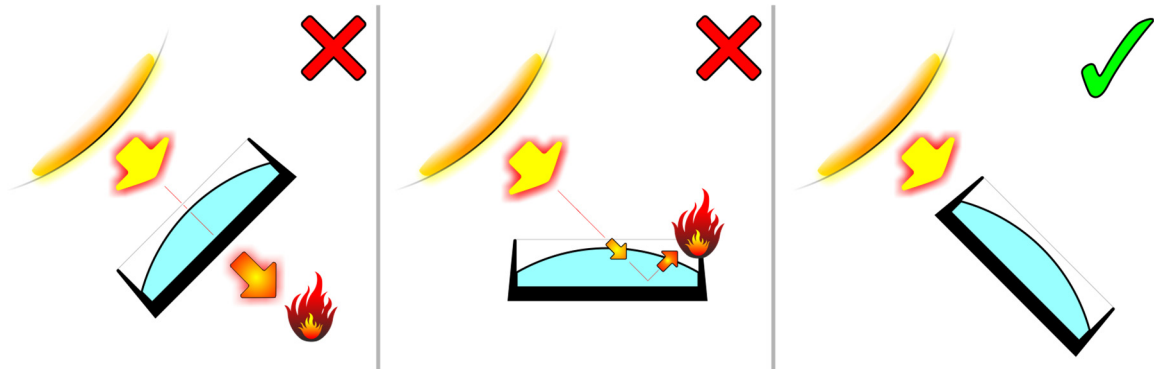


Figure 1. Avoiding damage from light sources

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 a fixture to sunlight or any other strong light source.
- For outdoor applications during daylight, make sure that the front face of any fixture is shielded or points away from the sun, even when not in use.
- Avoid pointing other high-powered beam lights directly at the fixture.

Do not pick up or carry the fixture by the front lens bezel. The LCD display is also fragile. Picking up or supporting the fixture in these spots could result in damage that is not covered by the product warranty.

Use only original spare parts. Any structural modification of the system will void the product warranty.

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

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

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

Transportation and storage

Transport the impression FR1 either in a flightcase or in its original packaging to protect the fixture from damage caused by shocks during transportation.

Store the fixture in a dry location when not in use.

3. Product overview

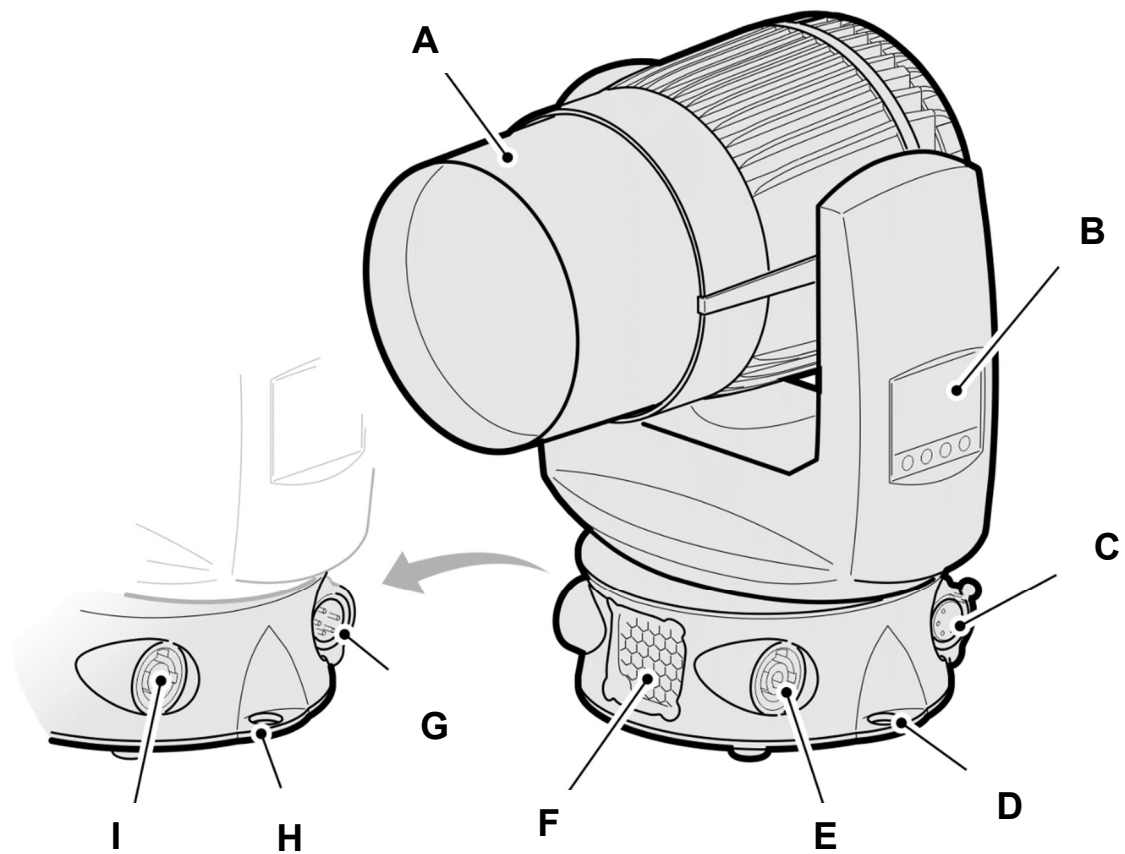


Figure 2: Product overview

- A – Front lens assembly
- B – Control panel with backlit LCD display
- C – DMX in
- D – Safety cable attachment point
- E – AC mains power in
- F – Cooling vent
- G – DMX out (thru)
- H – Safety cable attachment point
- I – AC mains power out (thru)

4. Product features

The impression FR1 from GLP® is a high-quality moving head lighting fixture with a 60 watt RGBW LED and advanced optics that give a powerful, homogenous and sharply defined beam throughout the fixture's 10:1 zoom range. Advanced German design allows exceptional performance and a versatile feature set to be packed into one of the most compact moving head lighting fixtures currently available, with GLP's familiar baseless format. The fixture is designed for ease of installation, with Neutrik powerCON IN and THRU connections allowing daisy-chained power lines.

The impression FR1 is designed for permanent or temporary indoor use. It can 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 impression FR1 is not suitable for household use, for use in any location where unattended children have access to it, or for use in permanent outdoor installations.

Light source

The impression FR1 is equipped with an OSRAM Ostar RGBW LED with a rated lifetime of up to 50 000 hours.

Removable micro-Fresnel lens

A detachable micro-Fresnel lens is fitted to the front of the fixture to give a smoother beam. It is possible to remove this lens to obtain a harder-edged beam (see page 27).

Pan and tilt

The impression FR1 pans through 540° and tilts through 220° with coarse and fine control channels and self-correcting position feedback.

Pan and tilt position feedback can be disabled using the control panel or the *Settings* DMX channel.

The direction of pan and tilt movement can be reversed by selecting *Invert* command using the control panel or the *Settings* DMX channel, and you can also swap pan and tilt via the control panel. Inverting and swapping movement is a fast way of obtaining symmetrical effects without reprogramming at the console.

The default settings for position feedback, inversion and swapping are OFF.

Continuous (endless) pan rotation is also available on a separate DMX channel.

Color

The impression FR1 provides both color presets and 0-100% continuous RGBW color mixing.

You should normally set RGBW levels to 100% when you begin to use the color presets channel, but after you have selected a color on the color preset channel you can fine-tune it using the RGBW channels.

CTC

The CTC DMX channel lets you adjust color temperature from 2500 to 10 000 K.

You should normally set RGBW levels to 100% when you begin to use the CTC channel, but after you have selected a color temperature on the CTC channel you can fine-tune it using the RGBW channels.

Shutter effects

The impression FR1 features an electronic dimmer / shutter system that provides pulse and strobe effects.

Dimming

0 – 100% continuous dimming is available.

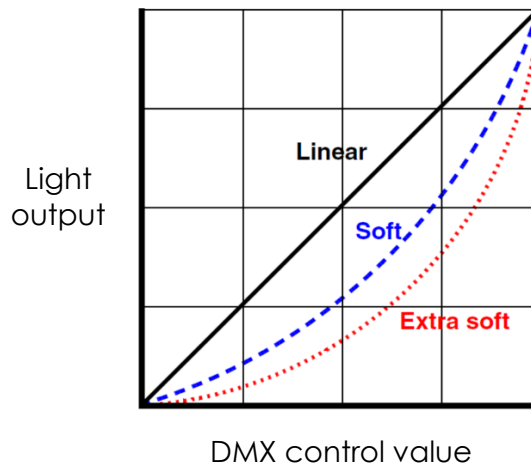


Figure 3. Dimming curves

See Figure 3. You can select from three different dimming curves using the control panel or the *Settings* DMX channel: **Linear**, **Soft** and **Extra soft**:

- Light output using the **Linear** curve will appear to increase and decrease evenly throughout the dimming range.
- The **Soft** and **Extra soft** curves give finer control at low light levels (where the eye is more sensitive to changes in light level) and coarser control at high levels.

The default setting is **Extra soft**.

Fan modes

The four different cooling fan modes give you a range of options to choose from depending on how much you want to give priority to high-intensity light output or to low fan noise:

- **Regulated** gives priority to light output. If the fixture is blacked out, fans run at minimum speed. When light output intensity is increased, temperature regulation

increases fan speed to the level necessary to keep the fixture at optimum temperature.

If light output is set to maximum intensity but the fans can keep the fixture at optimum temperature, there will be no regulation of light intensity. If the fixture begins to exceed optimum temperature, light intensity will be reduced until optimum temperature can be maintained.

- **High** mode is optimized for maximum light output and suits operation in high ambient temperatures. Fans are set to constant operation at high speed and light output intensity is regulated in order to keep fixture temperature at optimum level.

Besides maximizing light output in high ambient temperatures, you can use this mode to cool down a fixture quickly or to remove dust from cooling fans.

- **Medium** mode is suitable for low-noise operation in normal ambient temperatures. Fans are set to constant operation at medium speed and light output intensity is regulated in order to keep fixture temperature at optimum level.
- **Low** mode is optimized for minimum noise. Fans are set to constant operation at low speed and light output intensity is regulated in order to keep fixture temperature at optimum level.

This mode gives an extremely low fan noise level, but if you use it in high ambient temperatures there may be a noticeable reduction in light output intensity.

In all fan modes, if fixture temperature reaches a dangerous level, LEDs will be shut down for a period until the fans have brought the temperature down to a safe level.

You can set the cooling fan mode using the control panel or the *Settings* DMX channel.

Zoom

The impression FR1 has a 10:1 zoom range. You can narrow the beam angle from 35° in flood mode to 3.7° in spot mode.

Zoom can be inverted from flood → spot to spot → flood using the control panel and the *Settings* DMX channel. The default setting for zoom inversion is OFF.

Control panel

The control panel on the side of the yoke has a backlit graphic LCD display for setting up the fixture and changing fixture settings. See 'Control menu layout' on page 19 for a table showing the control menu structure and options available.

PWM frequency

You can change the LED dimming PWM frequency using either a DMX command or a control panel setting in order to avoid flicker and beat frequencies in video images.

The default PWM setting is 582 Hz. You can adjust the PWM frequency continuously from 582 to 618 Hz, or you can set it to either 1200, 2400, 4800 or 9600 Hz. Note that a higher PWM frequency may affect dimming performance.

The PWM frequency setting is stored in the fixture and is not affected by cycling power off and on. However, it will be affected if you use the Factory default command in the control menus.

You should set all the fixtures in an installation to the same PWM frequency in order to ensure the same performance. As described above, you can do this using the PWM frequency selection or Factory default commands in the control menus or using the PWM frequency DMX channel.

Installation options

The base has M10 threaded holes for direct fastening of half-coupler clamps. A countersunk M10 bolt for clamp attachment is supplied with the fixture.

Two eyelets are provided for safety cable attachment.

5. Preparation for use



Warning! Read 'Safety' starting on page 3 for important safety information that you must understand before you install or operate the fixture.

Included Items

The impression FR1 is supplied with a power cord with powerCON connector and an M10 x 11 countersunk bolt for fastening a half-coupler clamp to the base of the fixture.

Orientation and location

The impression FR1 may be rigged in any orientation or placed on a level surface.

Keep the head at least 0.5 m (20 in.) away from combustible materials (including curtains and stage scenery) when the fixture is installed.

Make sure that there is no risk of collision when the head pans and tilts. Allow a minimum center-to-center distance of 360 mm / 14.2 in. between impression FR1 fixtures.

Mounting on a rigging truss

To mount the impression FR1 on a rigging truss or similar support in any orientation:

1. Pass an M10 steel bolt or screw through a half-coupler type rigging clamp. See Figure 4. Check that the bolt will protrude minimum 9 mm / 0.35 in. and maximum 11 mm / 0.43 in. into the base of the fixture when tightened.

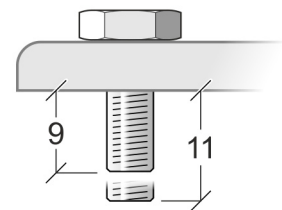


Figure 4. Bolt protrusion

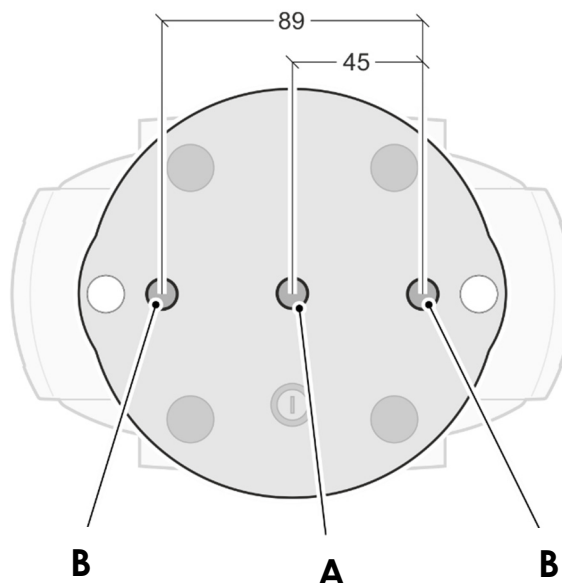


Figure 5. Mounting points in base

2. See Figure 5. Fasten the bolt through the rigging clamp into hole **A** in the center of the base of the fixture so that the rigging clamp is held securely. You can also install narrow half coupler clamps through holes **B**, but these extra clamps are not necessary.
3. Fasten the rigging clamp securely around a chord on a rigging truss or similar bar.
4. See Figure 6. Attach a safety cable to one of the safety cable attachment points in the fixture base and loop it around the truss chord or bar so that it will hold the fixture if the rigging clamp fails. Take up as much slack as possible in the safety cable (by looping it more than once around the truss, for example).
5. Make sure that the head will not collide with another fixture or any other object when it tilts and rotates.

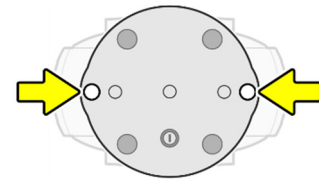


Figure 6. Safety cable attachment

Placing on a surface

You can stand the impression FR1 upright on its rubber feet on a flat, stable, horizontal surface.

If necessary to prevent the fixture from moving if the surface is slippery or falling, pass a ratchet strap, webbing or other bracing strap through the safety cable attachment points (see Figure 6) and fasten it to secure anchoring points.

Make sure that the head will not collide with anything when it tilts and rotates.

Connecting to power

The AC mains power supply must include a connection to ground / protective earth. It must be protected against ground / earth leakage and overload. The autosensing power supply accepts AC power at 100-240 V, 50/60 Hz. Do not connect the fixture to power at any other voltage or to an external dimmer.

The impression FR1 does not have a power ON/OFF switch. Power is applied to the fixture as soon as the power cable becomes live.

The impression FR1 has a 3-conductor Neutrik powerCON socket that accepts AC power from a Neutrik powerCON female cable connector.

Important! powerCON connectors do not support hot-plugging. Shut down power to the power cable before you connect it to the fixture, or you may cause arcing and deterioration of the contacts at the connector.

To connect the fixture to power:

1. Check that power to the power input cable is shut down.
2. See **I** in Figure 2 on page 9. Connect the power input cable to the *Mains In* socket by inserting and twisting clockwise to lock.
3. Before applying power, check that the head is unlocked and can move freely and check that nobody is looking directly into the front of the fixture.

Connecting multiple fixtures to power in a chain

You can connect fixtures to power in a daisy-chain to simplify your power circuit layout.



Warning! The power input cable supplied with the fixture is rated 16 A maximum. Add together the maximum current draw ratings of all the devices that you intend to connect to power in a daisy chain and do not create a chain with a total maximum current draw of more than 16 A, or you will create a risk of fire and electric shock. Do not connect more than sixteen (16) impression FR1 fixtures to power in a chain at 100-120 V, 60 Hz. Do not connect more than thirty-two (32) impression FR1 fixtures to power in a chain at 200-240 V, 50 Hz.

To connect fixtures to power in a chain:

1. Obtain power relay cables that have male and female Neutrik powerCON connectors. Cables must be minimum 14 AWG or 1.5mm², rated minimum 16 A and suitable for the environment and application.
2. Check that the total current draw of all the devices in the chain will not exceed 16 A.
3. Check that power is not applied to the input cable.
4. Connect the power input cable to the *Mains In* socket (see **I** in Figure 2 on page 9).
5. Connect a relay cable to the *Mains Out* socket (see **E** in Figure 2 on page 9) of the first fixture and to the *Mains In* socket of the next fixture in the chain. Continue until the chain is complete.
6. Before applying power, check that the heads are unlocked and can move freely and check that nobody is looking directly into the front of a fixture.

Installing power connectors

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 connector on a power cable, follow the instructions given in the Support area of 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

Main fuse

See Figure 7. The main fuse sits in a holder in the bottom of 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. Replace only with a fuse of the same type and rating.

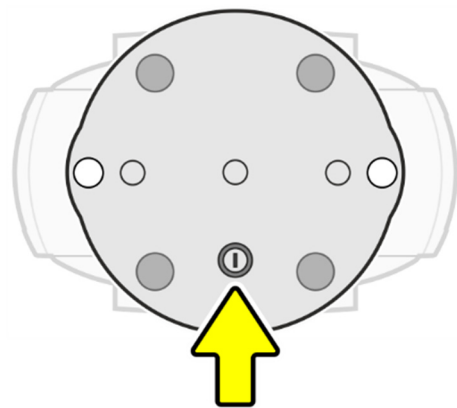


Figure 7. Main fuse

Connecting to a DMX control data link

The impression FR1 provides 5-pin XLR IN and THRU sockets for connection to a USITT DMX512 data link.

Connectors use standard DMX pinout:

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

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

6. Control menus and LCD display



Warning! DMX control is disabled when the control menus are active. Be prepared for the head to move as soon as you exit the control menus.

The control panel and LCD display provide access to user settings, readouts, and utilities.

When power is applied, the fixture resets and **impression** and **FR1** appear the display panel. After the reset has completed, the main menu is displayed:

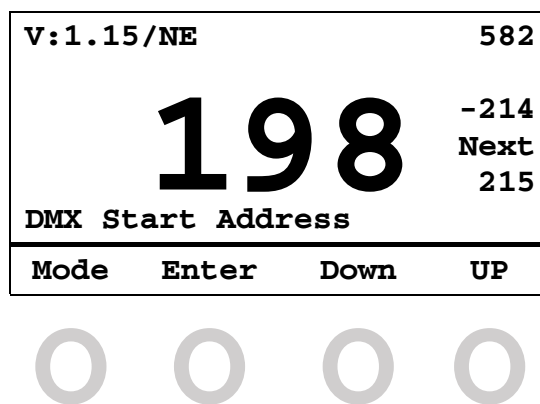


Figure 8. Main menu

See Figure 8. From left to right, the top line of the main menu displays:

- Main CPU software version
- DMX control mode: **N** (Normal)
- Dimming curve: **L** (Linear), **S** (Soft) or **E** (Extra Soft)
- PWM frequency.

In the example shown in Figure 8, the fixture is running CPU software version 1.15. The fixture is in Normal DMX control mode and set to the Extra-soft dimming curve. The current PWM frequency is 582.

A flashing display indicates loss of DMX.

To use the control panel:

- Use the **Down** and **Up** buttons to scroll between menu options.
- Press the **Enter** button to select a setting, confirm a command or enter a submenu.
- Press the **Mode** button to escape and return to the top of the menu.

7. Control menu layout

DMX Start Address	1 - 512		DMX start address	
Setup	DMX Mode	NORM		
Settings	Pan/Tilt	Invert Pan	ON / OFF	Invert pan left/right
		Invert Tilt	ON / OFF	Invert tilt up/down
		Swap Pan/Tilt	ON / OFF	Swap Pan/Tilt channels
		Position Feedback	ON / OFF	Disable position encoders for Pan/Tilt
		Pan Enable	ON / OFF	On: Enabled and controllable via DMX Off: Disabled and no motor current
		Tilt Enable	ON / OFF	On: Enabled and controllable via DMX Off: Disabled and no motor current
	Zoom	Invert Zoom	ON / OFF	Zoom inverted from Flood → Spot to Spot → Flood
	Shutter	Error Blackout	ON / OFF	Light output is stopped if an error occurs
		No DMX Blackout	ON / OFF	Light output is stopped if DMX fails for 3 seconds
	Init Positions	Save		Save current positions as initial positions after reset without DMX
		Reset		Reset initial positions after reset without DMX
	Dimming Curve	Linear		Select dimming curve option
		Soft		
		Extra Soft		
	DMX hold	Off		Fixture blacks out if DMX signal is lost
Fade Out		Fixture fades out if DMX signal is lost		
Hold		Last DMX values are held if signal is lost		

Settings (continued)	PWM Frequency	582-618 Hz / 1200 Hz / 2400 / 9600 Hz		Set LED PWM frequency	
	Display	Contrast	0 - 50 -100 %		Set display contrast
		Brightness	0 - 100 %		Set display brightness (Auto Brightness must be disabled)
		Blackout Time	1 - 10 -30 s		Set time until display blackout after last keystroke (Auto Blackout must be enabled)
		Display Orientation	Normal / Inverted		Flip display up/down
		No DMX Flash	ON / OFF		Display flashes if DMX fails
	Temperature Unit	°C / °F		Sets units shown in display	
	Fan Mode	Regulated		Temperature-regulated cooling fan operation	
		High		Constant cooling fan speed	
		Medium			
Low					
Reset Factory Settings	Confirm (Yes/No)		Reset all values (except serial number) to factory defaults		
Information	System Errors	List		Show all recent errors (permanent)	
	System Versions	Main (SW/HW)		Main fixture software (main application, boot loader) and hardware versions	
		Pan/Tilt (SW/HW)		Pan/tilt software and hardware versions	
		LED Driver (SW/HW)		LED driver and hardware versions	

Information (continued)	Temperatures	Main Temperature	Current	-128 - 127 °C/°F	Main head temperature sensor readouts
			Maximum resettable	-128 - 127 °C/°F	
			Maximum non-resettable	-128 - 127 °C/°F	
		LED Temperature	Current	-128 - 127 °C/°F	LED temperature readouts
			Maximum resettable	-128 - 127 °C/°F	
			Maximum non-resettable	-128 - 127 °C/°F	
	Fixture Information	Fixture Hours	Total hours	0-99999 h	Total operation time from new
			Resettable hours	0-99999 h	Resettable hours counter
		Boot count		0-99999	Number of times fixture has been started up (non-resettable)
	DMX Input Monitor	Pan rotation			DMX values received on each channel
		Zoom			
		Special			
		CTC			
		Dimmer			
		Shutter			
		White			
		Blue			
Green					
Red					
Color Wheel					
Tilt					
Pan					
Fans Monitor	PSU Fan	RPM (/U)		Fan speeds (and voltages)	
	Head Fan	RPM (/U)			

Manual Control	Reset	Full System Reset	Confirm (Yes/No)	Reset fixture
		Pan/Tilt Reset	Confirm (Yes/No)	Reset pan and tilt only
		LED Driver Reset	Confirm (Yes/No)	Reset LED driver only
	Manual DMX	Pan rotation	0 - 255	Manually apply DMX values (these commands are available if no DMX is present – values are overwritten by a DMX signal). Values are reset to initial values after a fixture reset.
		Zoom	0 - 255	
		Special	0 - 255	
		CTC	0 - 255	
		Dimmer	0 - 255	
		Shutter	0 - 255	
		White	0 - 255	
		Blue	0 - 255	
		Green	0 - 255	
		Red	0 - 255	
		Color Wheel	0 - 255	
	Tilt	0 - 255		
Pan	0 - 255			
Reset All Values	Confirm (Yes/No)	Set all manual DMX values to 0		

Test	Pan/Tilt	ON / OFF		Run test sequence	
	Colour	ON / OFF			
	All	ON / OFF			
Service	Key Code	0 - 255		Enter code to access Service Menu (resets automatically after fixture restart or after 10 min. with no control panel input)	
	Serial	0 - 99999		Last 5 digits of fixture's serial number. Needed for correct RDM operation	
	LED Calibration	Red	0 - 128 - 255		Adjust base RGBW intensity
		Green	0 - 128 - 255		
		Blue	0 - 128 - 255		
		White	0 - 128 - 255		
	Pan	0 - 128 - 255		Adjust pan home position	
	Tilt	0 - 128 - 255		Adjust tilt home position	
Zoom	0 - 128 - 255		Adjust zoom home position		
Clear EEPROM	0 - 255		Clear time and power on values		

Default values are shown **in bold type**.

User-settable values are displayed in grey boxes.

8. DMX channel layout

Normal mode (16 DMX channels)

Channel	Function	Description	DMX range	Default DMX	% Range*	Fade
1	Pan coarse	Left – right in 1.2° increments (16 bit)	0 – 65535	32768	0 – 100%	Fade
2	Pan fine					
3	Tilt coarse	Up – down in 1.2° increments (16 bit)	0 – 65535	32768	0 – 100%	Fade
4	Tilt fine					
5	Color presets (virtual color wheel)	RGBW control	0 – 7	0	0 – 2.5%	Snap
		Color 01 - Red	8 – 15		3 – 5.5%	
		Color 02 - Amber	16 – 23		6 – 9%	
		Color 03 - Warm yellow	24 – 31		9.5 – 12%	
		Color 04 - Yellow	32 – 39		12.5 – 15%	
		Color 05 - Green	40 – 47		15.5 – 19.5%	
		Color 06 - Turquoise	48 – 55		20 – 21.5%	
		Color 07 - Cyan	56 – 63		22 – 24.5%	
		Color 08 - Blue	64 – 71		25 – 27.5%	
		Color 09 - Lavender	72 – 79		28 – 31%	
		Color 10 - Mauve	80 – 87		31.5 – 34%	
		Color 11 - Magenta	88 – 95		34.5 – 37%	
		Color 12 - Pink	96 – 103		37.5 – 40.5%	
		White – CTO	104 – 111		41 – 43.5%	
	White	112 – 119	44 – 46.5%			
	White – CTB	120 – 127	47 – 49.5%			
	Rainbow effect stop	128	50.2%			
	Rainbow effect active	129 – 223	50.5 – 87.5%			
	Random colors slow – fast	224 – 255	88 – 100%			
6	Red	Color mixing - Red	0 – 255	255	0 – 100%	Fade
7	Green	Color mixing - Green	0 – 255	255	0 – 100%	Fade
8	Blue	Color mixing - Blue	0 – 255	255	0 – 100%	Fade
9	White	Color mixing - White	0 – 255	0	0 – 100%	Fade
10	Shutter / strobe	Shutter closed	0 – 15	255	0 – 5.5%	Snap
		Shutter pulse random	16 – 47		6 – 18.5%	Fade
		Fade on, snap off (random patterns)	48 – 79		19 – 31.5%	Fade
		Snap on, fade off (random patterns)				
		Fade on, fade off (random patterns)	80 – 111		32 – 43.5%	Fade
		Strobe with blackout pause	112 – 143		44 – 62.5%	Fade
		Strobe effect slow - fast	144 – 199		63 – 77.5%	Fade
		Shutter open	200 – 239		78 – 94.5%	Fade
			240 – 255		95 – 100%	Snap
11	Dimmer coarse	Intensity 0 – 100%	0 – 65535	0	0 – 100%	Fade
12	Dimmer fine					
13	CTC	RGBW raw	0 – 15	0	0 – 5.9%	Snap
		CTC 10 000 K – 2500 K	16 – 255		6 – 100%	Fade

14	Settings (see notes at end of this table)	Idle	0 – 11	0	0 – 4.3%	Snap
		<i>No function</i>	12 – 38		4.7 – 14.9%	
		Dimmer curve = Extra-soft*	39 – 41		15.3 – 16.1%	
		Dimmer curve = Linear*	42 – 44		16.5 – 17.3%	
		Dimmer curve = Soft*	45 – 47		17.6 – 18.4%	
		<i>No function</i>	48 – 56		18.8 – 22%	
		Display auto-off*	57 – 59		22.4 – 23.1%	
		Display permanently on*	60 – 62		23.5 – 24.3%	
		Display invert off*	63 – 65		24.7 – 25.5%	
		Display invert on*	66 – 68		25.9 – 26.7%	
		<i>No function</i>	69 – 71		27.1 – 27.8%	
		No DMX = Blackout*	72 – 74		28.2 – 29.0%	
		No DMX = Hold current effect*	75 – 77		29.4 – 30.2%	
		<i>No function</i>	78 – 86		30.6 – 33.7%	
		Fans temperature-regulated*	87 – 89		34.1 – 34.9%	
		Fans constant high*	90 – 92		35.3 – 36.1%	
		Fans constant medium*	93 – 95		36.5 – 37.3%	
		Fans constant low*	96 – 98		37.6 – 38.4%	
		<i>No function</i>	99 – 104		38.8 – 40.8%	
		P/T position feedback off*	105 – 107		41.2 – 42%	
		P/T position feedback on*	108 – 110		42.4 – 43.1%	
		<i>No function</i>	111 – 116		43.5 – 45.5%	
		Tilt invert off*	117 – 119		45.9 – 46.7%	
		Tilt invert on*	120 – 122		47.1 – 47.8%	
		Pan invert off*	123 – 125		48.2 – 49%	
		Pan invert on*	126 – 128		49.4 – 50.2%	
		Zoom invert off*	129 – 131		50.6 – 51.4%	
		Zoom invert on*	132 – 134		51.8 – 52.5%	
		<i>No function</i>	135 – 149		52.9 – 58.4%	
		<i>PWM frequency:</i>				
		582 Hz**	150		58.8%	
		583 Hz**	151		59.2%	
		584 Hz**	152		59.6%	
		585 Hz**	153		60%	
		586 Hz**	154		60.4%	
		587 Hz**	155		60.8%	
		588 Hz**	156		61.2%	
		589 Hz**	157		61.6%	
		590 Hz**	158		62%	
		591 Hz**	159		62.4%	
		592 Hz**	160		62.7%	
		593 Hz**	161		63.1%	
		594 Hz**	162		63.5%	
		595 Hz**	163		63.9%	
		596 Hz**	164		64.3%	
		597 Hz**	165		64.7%	
		598 Hz**	166		65.1%	
599 Hz**	167	65.5%				
600 Hz**	168	65.9%				
601 Hz**	169	66.3%				
602 Hz**	170	66.7%				
603 Hz**	171	67.1%				
604 Hz**	172	67.5%				
605 Hz**	173	67.8%				
606 Hz**	174	68.2%				
607 Hz**	175	68.6%				
608 Hz**	176	69.0%				
609 Hz**	177	69.4%				
610 Hz**	178	69.8%				
611 Hz**	179	70.2%				
612 Hz**	180	70.6%				

14 continued		613 Hz**	181		71.0%	
		614 Hz**	182		71.4%	
		615 Hz**	183		71.8%	
		616 Hz**	184		72.2%	
		617 Hz**	185		72.5%	
		618 Hz**	186		72.9%	
		No function	187 – 191		73.3 – 74.9%	
		1200 Hz**	192 – 194		75.3 – 76.1%	
		2400 Hz**	195 – 197		76.5 – 77.3%	
		4800 Hz**	198 – 200		77.6 – 78.4%	
		9600 Hz**	201 – 203		78.8 – 79.6%	
		No function	204 – 251		80 – 98.4%	
	Reset entire fixture*	252 – 255		98.8 – 100%		
15	Zoom	Flood wide – narrow	0 – 255	0	0 – 100%	Fade
16	Endless pan rotation	Stop	0	0	0%	Snap
		Pan rotation CW fast – slow	1 – 127		0.5 – 49.5%	Fade
		Stop	128		50.2%	Snap
		Pan rotation CCW slow – fast	129 – 254		50.5 – 99.5%	Fade
		Stop	255		100%	Snap

Notes:

Percentage values are calculated by dividing DMX values by 2.56 and rounding to the nearest 0.1%.

*To apply a command on Channel 14 (Settings), start at a value of zero, then move to the required value and hold it for at least 3 seconds. If you move to the required value from any other value than zero, the command will not be applied.

**To adjust the PWM frequency using the Settings channel, start at a value of zero, move to the required value and hold it for at least 5 seconds.

9. Service and maintenance



Warning! Read 'Safety' starting on page 3 for important safety information that you must understand before you service the fixture. Work in well-lit conditions. Do not look directly into the light output.

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
Clean front lens	Weekly	Wipe with soft cloth and glass cleaning fluid.
Clean fans and air channel	Monthly	Use soft brush and vacuum cleaner, compressed air, etc. Hold fans still with pen or screwdriver to avoid spinning them with vacuum or air jet.
Lubricate zoom rails	Yearly	Apply very small quantity of Klüber Barrierta to rails.

Cleaning

impression FR1 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.

Wait until all parts are dry before operating the fixture.

Lubrication

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

Removing and reinstalling the micro-Fresnel lens

If you would like to obtain a sharper-edged beam, you can remove the micro-Fresnel lens that is installed in the front of the head (bear in mind that this will result in a slight loss of evenness in the beam projection). The lens is held by three screws. A frost filter is installed immediately under the lens.

To remove the micro-Fresnel lens:

1. Shut down power to the fixture and allow it to cool.

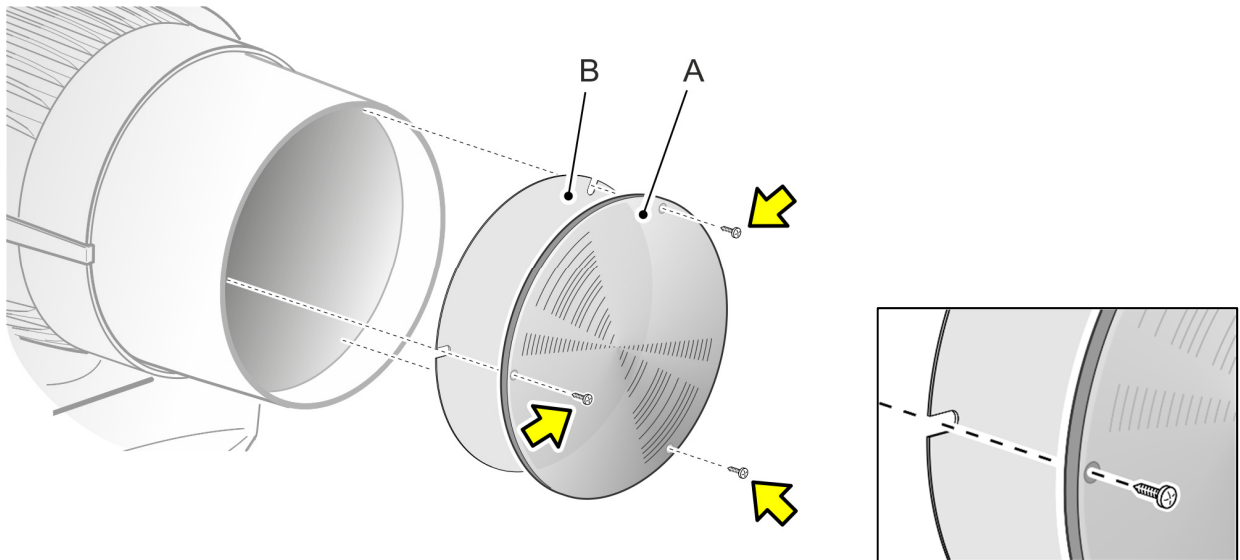


Figure 9. Removing a micro-Fresnel lens

2. See Figure 9. Remove the three Phillips #1 screws (arrowed) from the lens in the front of the head.
3. Tilt the head downwards and allow the lens **A** and frost filter **B** to slide out of the head. Store the lens for possible re-use.
4. Reinstall the frost filter in the head by passing the three screws through the notches in the filter and tightening them into their holes in the head.

If you reinstall the micro-Fresnel lens later, use the three Phillips screws to fasten it into its original position over the frost filter. See Figure 10. The smooth side of the lens must face inwards and the ridges must face out of the head.

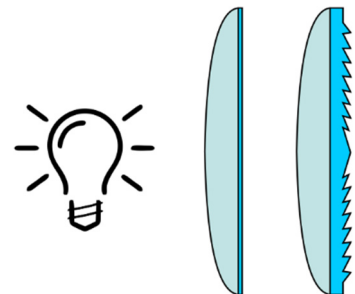


Figure 10. Lens orientation

GLP Service and Support

Contact information for the nearest GLP Service and Support is available online at www.glp.de/en/service, by request via 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

10. Technical specifications

Light source

LED type: Osram Ostar RGBW
LED lifetime: 50.000 hours
Number of LEDs: 1
CRI (Ra): 80
TLCI: 80
TM30-15 77/106

Optics

Min. zoom angle: 3.7°
Max. zoom angle: 35°
Zoom range: 10:1

Effects

Color mixing: RGBW continuous
Color presets: 12 + 3 whites, adjustable via RGBW
Color temperature correction: 2500 K – 10 000 K, electronic, adjustable via RGBW
Dimmer: 0-100% continuous, electronic
Shutter/strobe: Pulse and strobe effects, max. 14 Hz, electronic
Variable PWM frequency

Movement

Resolution: 8 - 16 bit
Positional feedback: Yes
Pan range: 540°
Tilt range: 220°
Endless movement: 360° endless pan rotation

Control

Control system: USITT DMX512
Onboard interface: Control panel with backlit LCD graphical display

Installation

Orientation: Any
Rubber feet for standing installation
Hanging vertical installation: M10 threaded sockets for fastening half-coupler rigging clamps
Eyelets for attaching safety cable

Connections

AC mains power in and out (thru): Neutrik powerCON
DMX data in and out (thru): 5-pin XLR

Electrical

AC power: 100-240 V, 50/60 Hz
Maximum power consumption @230 V: 80 W
Power consumption at idle: 14 W
Primary fuse: 20 mm T 2A
EEC (Energy Efficiency Class): E
EEI (Energy Efficiency Index): 1.193
Energy consumption (kWh/1 000 h): 68

Thermal

Temperature-regulated forced air cooling
Thermal protection system
Maximum ambient temperature: 45° C / 115° F
Minimum ambient temperature: 5° C / 41° F

Product color

Black (standard)

Included items

Power cable (depending on region):
- US power cable: 16 A, 14 AWG, UL listed, E304117, SJT, 4.9 ft.
- EU power cable: 16 A, 1.5mm², H05VV-F, 1.5 m
M10 x 11 bolt for rigging clamp attachment

Shipping options

Single product: Cardboard packing case
Tour packs: 6-fixture and 12-fixture flightcases

Dimensions and weight

Depth: 140 mm / 5,5 ins.
Width: 190 mm / 7,5 ins.
Height (head vertical, zoom at max. extension): 355 mm / 14.0 ins.
Weight: 4 kg / 8.8 lbs.

11. Dimensions

