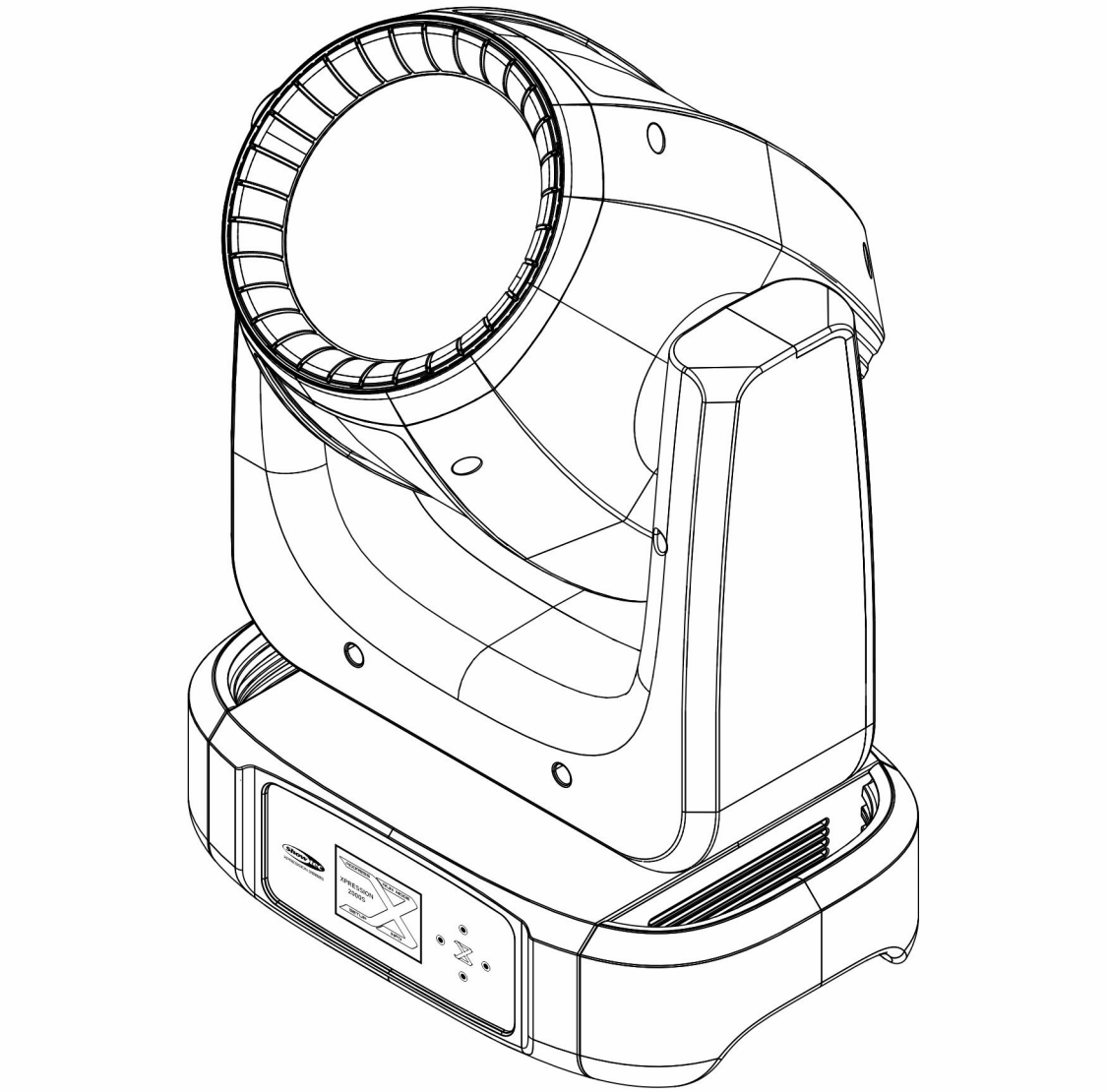
USER MANUAL

ENGLISH

V1.0



Xpression 2000B - Beam

Product code: 47020

Preface

Thank you for purchasing this Showtec product.

The purpose of this user manual is to provide instructions for the correct and safe use of this product.

Keep the user manual for future reference as it is an integral part of the product. The user manual shall be stored at an easily accessible location.

This user manual contains information concerning:

- Safety instructions
- Intended and non-intended use of the device
- Installation and operation of the device
- Maintenance procedures
- Troubleshooting
- Transport, storage and disposal of the device

Non-observance of the instructions in this user manual may result in serious injuries and damage of property.

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Highlite International B.V. – Vestastraat 2 – 6468 EX Kerkrade – the Netherlands

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1. Introduction

1.1. Before Using the Product

Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

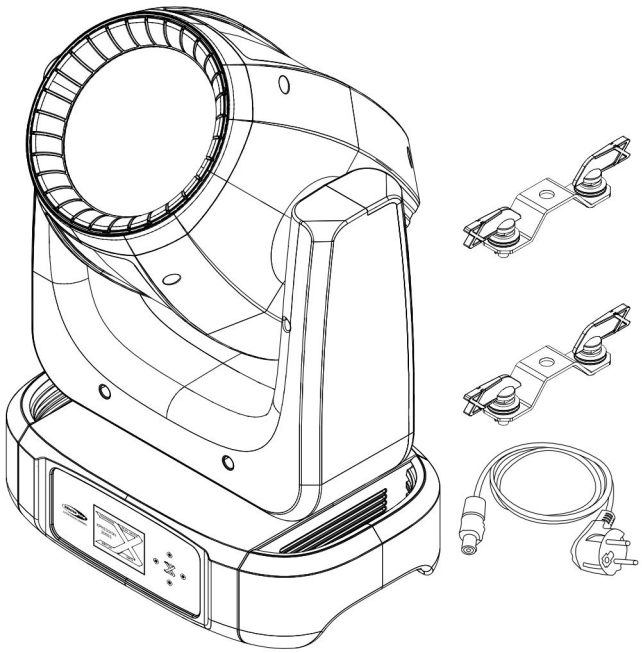
The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

After unpacking, check the contents of the box. If any parts are missing or damaged, contact your Highlite International dealer.

Your shipment includes:

- Showtec Xpression 2000B - Beam
- Schuko to Power Pro cable (1,5 m)
- 2 x quick-lock brackets
- User manual

Figure 1



1.2. Intended Use

This device is intended for professional use as a moving head. It can be installed only indoors. This device is not suitable for households and for general lighting.

Any other use, not mentioned under intended use, is regarded as non-intended and incorrect use.

1.3. LEDs Lifespan

The light output of the LEDs gradually decreases over time (lumen depreciation). High operating temperatures contribute to this process. You can extend the lifespan of the LEDs by providing adequate ventilation and operating the LEDs at the lowest possible brightness.

1.4. Text Conventions

Throughout the user manual the following text conventions are used:

- Buttons: All buttons are in bold lettering, for example "Press the **UP/DOWN** buttons"
- References: References to parts of the device are in bold lettering, for example: "turn the **adjustment handle (05)**". References to chapters are hyperlinked
- 0–255: Defines a range of values
- Notes: **Note:** (in bold lettering) is followed by useful information or tips

1.5. Symbols and Signal Words

Safety notes and warnings are indicated throughout the user manual by safety signs.

Always follow the instructions provided in this user manual.



DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.



Attention Indicates important information for the correct operation and use of the product.



Important Read and observe the instructions in this document.



Electrical hazard



Eye damage hazard



Provides important information about the disposal of this product.

1.6. Symbols on the Information Label

This product is provided with an information label. The information label is located on the base plate of the device.

The information label contains the following symbols:



This device is designed for indoor use.



This device shall not be treated as household waste.



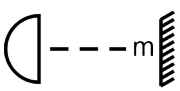
Read and follow the instructions in the user manual before installing, operating or servicing the device.



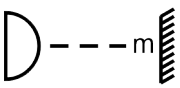
This device falls under IEC protection class I.



Caution: Risk of electric shock, Disconnect input power before opening.
Warning: This appliance must be earthed.



Minimum distance from lighted objects



Minimum distance from other objects

2. Safety



Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

2.1. Warnings and Safety Instructions



DANGER
Danger for children

For adult use only. The device must be installed beyond the reach of children.

- Do not leave any parts of the packaging (plastic bags, polystyrene foam, nails, etc.) within the reach of children. Packaging material is a potential source of danger for children.



DANGER
Electric shock caused by dangerous voltage inside

There are areas inside the device where dangerous touch voltage may be present.

- Do not open the device or remove any covers.
- Do not operate the device if the covers or the housing are open. Before operation, check if the housing is firmly closed and all screws are tightly fastened.
- Disconnect the device from the electrical power supply before service and maintenance, and when the device is not in use.



DANGER
Electric shock caused by short-circuit

This device falls under IEC protection Class I.

- Make sure that the device is electrically connected to ground (earth). Connect the device only to a socket-outlet with a ground (earth) connection.
- Do not cover the ground (earth) connection.
- Do not bypass the thermostatic switch or fuses.
- Replace fuses only with the same type and rating.
- Do not let the power cable come into contact with other cables. Handle the power cable and all connections with the mains with caution.
- Do not modify, bend, mechanically strain, put pressure on, pull or heat up the power cable.
- Make sure that the power cable is not crimped or damaged. Examine the power cable periodically for any defects.
- Do not immerse the device in water or other liquids. Do not install the device in a location where flooding may occur.
- Do not use the device during thunderstorms. Disconnect the device from the electrical power supply immediately.



WARNING
Risk of epileptic shock

Strobe lighting can trigger seizures in photosensitive epilepsy. Sensitive persons should avoid looking at strobe lights.



WARNING
Possible eye damage caused by high light intensity

Possibly hazardous optical radiation emitted from this device.

- Do not look at the operating light source. May be harmful to the eye.
- Do not look at the light source with optical instruments that may concentrate the light output.
- Make sure that persons are not looking directly into the light source when the device lights up suddenly. This can happen when the device is powered on, when it receives a DMX signal, or when certain menu items are selected.
- Disconnect power before servicing.
- Wear protective goggles if looking into the light source during service or maintenance.



CAUTION
Risk of injury due to movement of the device

The head of the device can move quickly. Persons standing near the device could get injured or scared.

- Make sure that there are no persons close to the device when you turn on the device and during operation.
- Keep body parts away from the moving parts of the device when servicing and during maintenance. Long hair or loose clothing can be entangled during the rotation of the moving head.



Attention
Power supply

- Before connecting the device to the power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.
- Make sure that the cross-sectional area of the extension cords and power cables is sufficient for the required power consumption of the device.



Attention
General safety

- Do not lift the device holding it by the projector head. This may damage the mechanics. Use the transport handles when handling the device.
- Do not insert objects into air vents.
- Do not connect the device to a dimmer pack.
- Do not switch the device on and off in short intervals. This reduces the device's life.
- Do not shake the device. Avoid brute force when installing or operating the device.
- Change the lens or the LEDs if they are visibly damaged to such an extent that their effectiveness is impaired, for example by cracks or deep scratches. Contact your Highlite International dealer for more information, as servicing can be performed only by instructed or skilled persons.
- If the device is dropped or struck, disconnect the device from the electrical power supply immediately.

- If the device is exposed to extreme temperature variations (e.g. after transportation), do not switch it on immediately. Let the device reach room temperature before switching it on, otherwise it may be damaged by the formed condensation.
- If the device fails to work properly, discontinue use immediately.

Attention
For professional use only
This device must be used only for the purposes it is designed for.

This device is intended for professional use as a moving head. Any incorrect use may lead to hazardous situations and result in injuries and material damage.

- This device is not suitable for households and for general lighting.
- This device is not designed for permanent operation.
- This device does not contain user-serviceable parts. Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Attention
Before each use, examine the device visually for any defects.

Make sure that:

- All screws used for installing the device or parts of the device are tightly fastened and are not corroded.
- The safety devices are not damaged.
- There are no deformations on housings, fixings and installation points.
- The lens is not cracked or damaged.
- The power cables are not damaged and do not show any material fatigue.

Attention
Do not expose the device to conditions that exceed the rated IP class conditions.

This device is IP20 rated. IP (Ingress Protection) 20 class provides protection against solid objects greater than 12 mm, such as fingers, and no protection against harmful ingress of water.

2.2. Requirements for the User

This product may be used by ordinary persons. Maintenance may be carried out by ordinary persons. Installation and service shall be carried out only by instructed or skilled persons. Contact your Highlite International dealer for more information.

Instructed persons have been instructed and trained by a skilled person, or are supervised by a skilled person, for specific tasks and work activities associated with the installation, service and maintenance of this product, so that they can identify risks and take precautions to avoid them.

Skilled persons have training or experience, which enables them to recognize risks and avoid hazards associated with the installation, service and maintenance of this product.

Ordinary persons are all persons other than instructed persons and skilled persons. Ordinary persons include not only users of the product but also any other persons that may have access to the device or who may be in the vicinity of the device.

2.3. Personal Protective Equipment

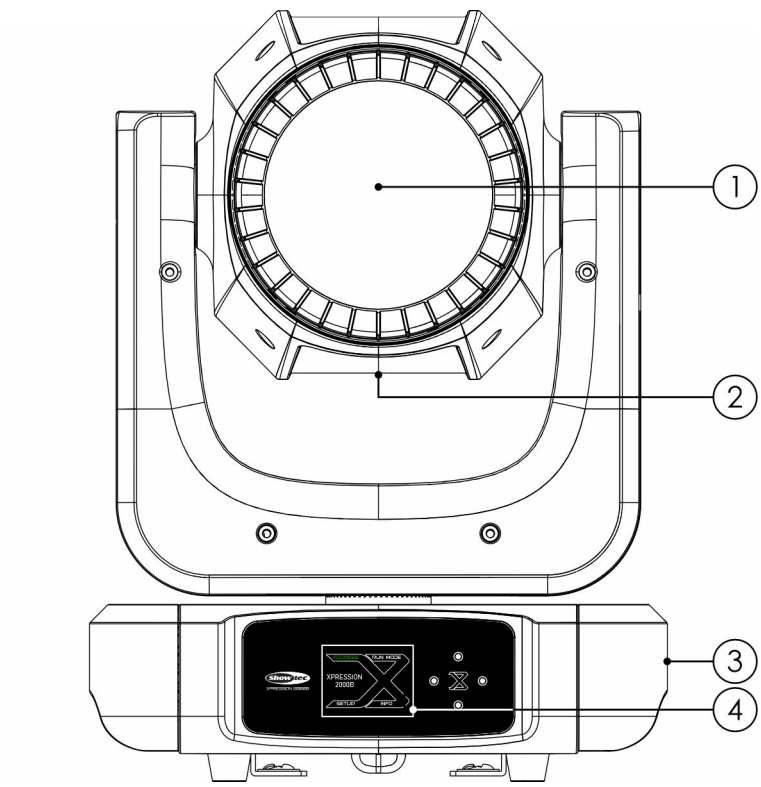
During installation, deinstallation and rigging wear personal protective equipment in compliance with the national and site-specific regulations.

3. Description of the Device

The Showtec Xpression 2000B - Beam is a LED moving head with a beam angle of 2°, a large lens (12.5 cm) and an output of 2392 lm. It features a dichroic color wheel with 14 colors + open, a static, metal gobo wheel with 13 gobos + open, and dual circular prisms with 8 and 48 facets, that can be overlaid and rotated. Other features include a frost effect, motorized focus, precise 16-bit pan and endless tilt, and adjustable PWM (1200–15000 Hz). Control modes include DMX/RDM, master/slave, manual, auto, built-in program, and stand-alone. The included 2 quick-locks can be adjusted to multiple positions for flexible mounting. The base features 2 transport handles.

3.1. Front View

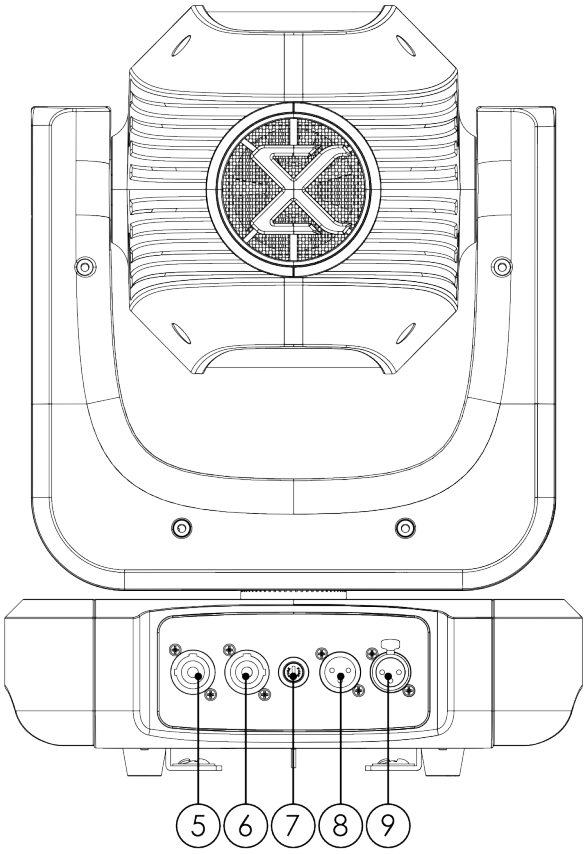
Figure 2



01) Lens
02) Cooling
03) 2 x Transport handles
04) Control panel: LCD screen and control buttons

3.2. Back View

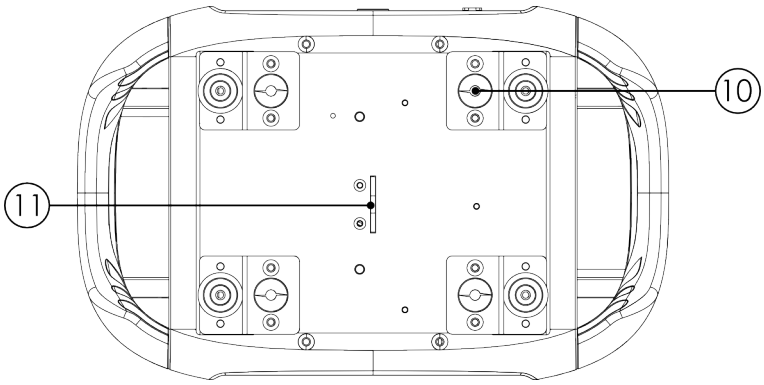
Figure 3



05) Power Pro power connector IN
06) Power Pro power connector OUT
07) Fuse (F5 A, 250 V)
08) 3-pin DMX signal connector IN
09) 3-pin DMX signal connector OUT

3.3. Base Plate

Figure 4



10) 4 x Mounting holes for quick-lock brackets
11) Opening for a safety cable

3.4. Product Specifications

Model:	Xpression 2000B - Beam

Source:	
Light source type	LED
Light source quantity	1
Light source power	150 W
Refresh rate	1200 Hz
Refresh rate (max.)	15 kHz
Illuminance @ 2 m	686071 lx
Illuminance @ 3 m	304920 lx
Illuminance @ 5 m	109771 lx
Luminous flux (total)	2392 lm
CRI	70

Optical:	
Beam angle minimum (circular)	2°
Frost	Yes
Focus	Motorized

Control and Programming:	
Control mode	Auto / Built-in Program / DMX / Manual / Master Slave / RDM / Stand Alone
DMX channels	14 / 18
Protocols	DMX / RDM
Display	LCD
Fan mode	Yes
Dim curve	Linear / Square / I-Square / S-Curve

Dynamic Effects:	
Dimmer	0–100 %
Shutter	Yes
Prism 1	8-facet circular
Prism 2	48-facet circular
Prism overlay	Yes
Prism index & rotate	Yes
Animation wheel	No
Framing shutters	No
Colour system	Color wheel
Colour wheel index & rotate	Yes
Dichroic color wheel	14 + open
Gobo system	Metal
Gobo wheel index & rotate	No
Gobo wheel	13 + open

Movement:	
Pan	540°
Tilt	360°

Pan/tilt resolution	16-bit
Continuous movement	Yes

Electrical Specifications and Connections:	
Power supply	100–240 V AC 50/60 Hz
Power consumption	152 W
Fuse	5 A
Power connector IN	Power Pro blue
Power connector OUT	Power Pro grey
DMX connector	XLR 3P IN/OUT
DMX connector IN	XLR 3P
DMX connector OUT	XLR 3P

Mechanical Specifications:	
Length	198 mm
Width	310 mm
Height	446 mm
Weight	11,5 kg
IP rating	IP20 (indoor use only)
Housing	Metal / plastic
Color	Black

Product Properties:	
Cooling	Convection/axial fan

Rigging:	
Mounting options	Quick-lock
Safety attachment	Yes

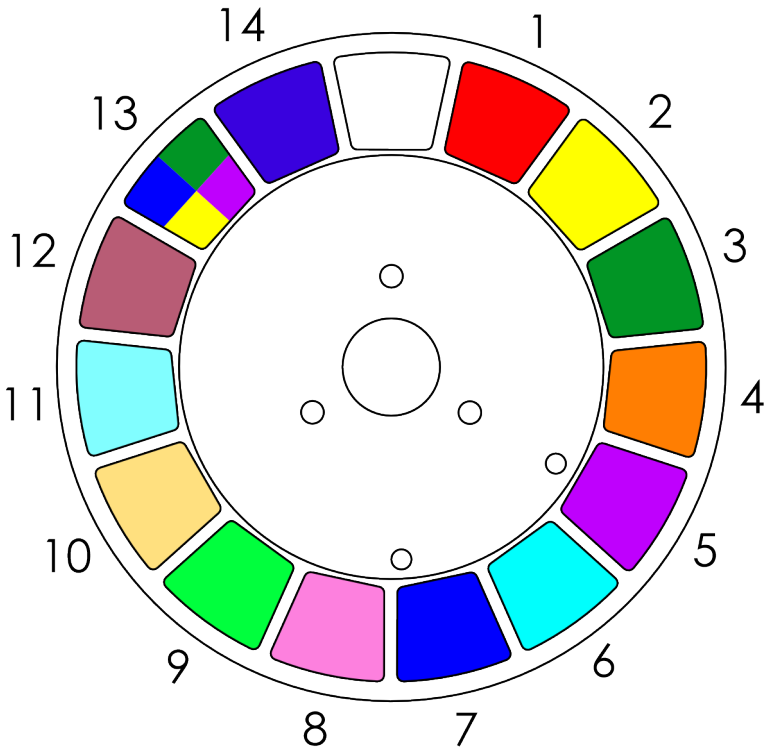
Thermal Specifications:	
Maximum ambient temperature	40 °C
Maximum surface temperature	70 °C

Included Items:	
Included cables	Power Pro cable
Included rigging	Quick-lock bracket

3.5. Effect Wheels

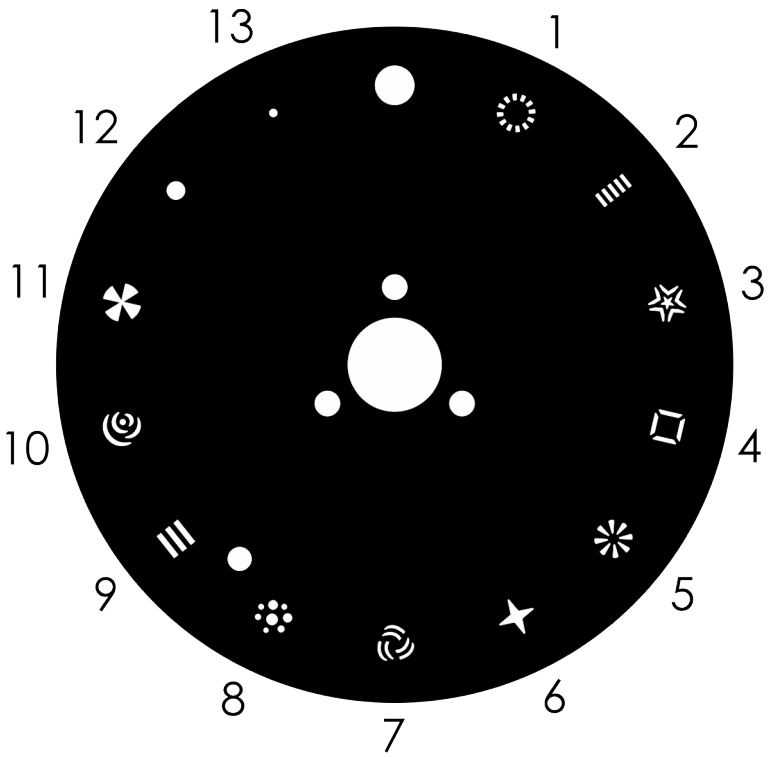
3.5.1. Color Wheel

Figure 5



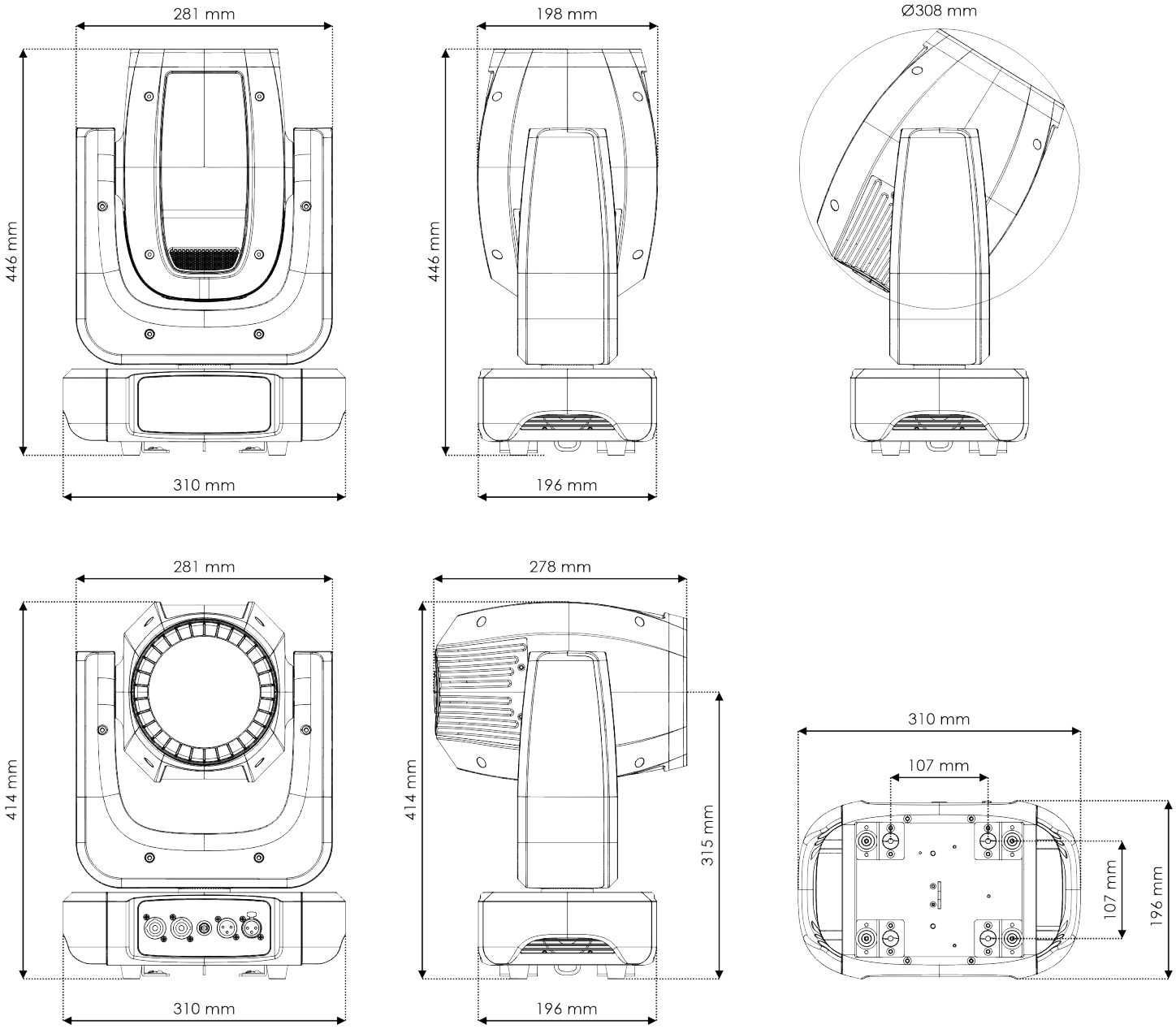
3.5.2. Static Gobo Wheel

Figure 6



3.6. Dimensions

Figure 7



3.7. Optional Accessories

You can additionally purchase the following accessory:

- 47090 Case for 4x Xpression
- 47099 Quicklock bracket for Xpression series

Contact your Highlite International dealer for more information.

4. Installation

4.1. Safety Instructions for Installation

WARNING
Incorrect installation can cause serious injuries and damage of property.

If trussing systems are used, installation must be carried out only by instructed or skilled persons.

Follow all applicable European, national and local safety regulations concerning rigging and trussing.

4.2. Personal Protective Equipment

During installation, deinstallation and rigging wear personal protective equipment in compliance with the national and site-specific regulations.

4.3. Installation Site Requirements

- The device can be used only indoors.
- The minimum distance to other objects must be bigger than 0,5 m.
- The maximum ambient temperature t_a = 40 °C must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40 °C.

4.4. Rigging

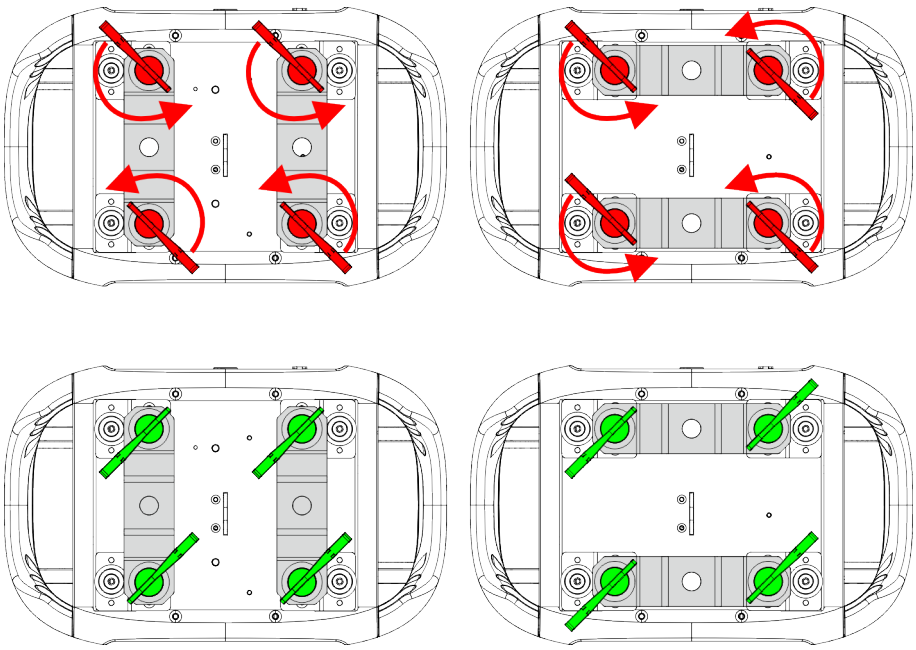
The device can be positioned on a flat surface or mounted to a truss or other rigging structure in any orientation. Make sure that all loads are within the pre-determined limits of the supporting structure.

CAUTION
Restrict the access under the work area during rigging/derigging.

To mount the device, follow the steps below:

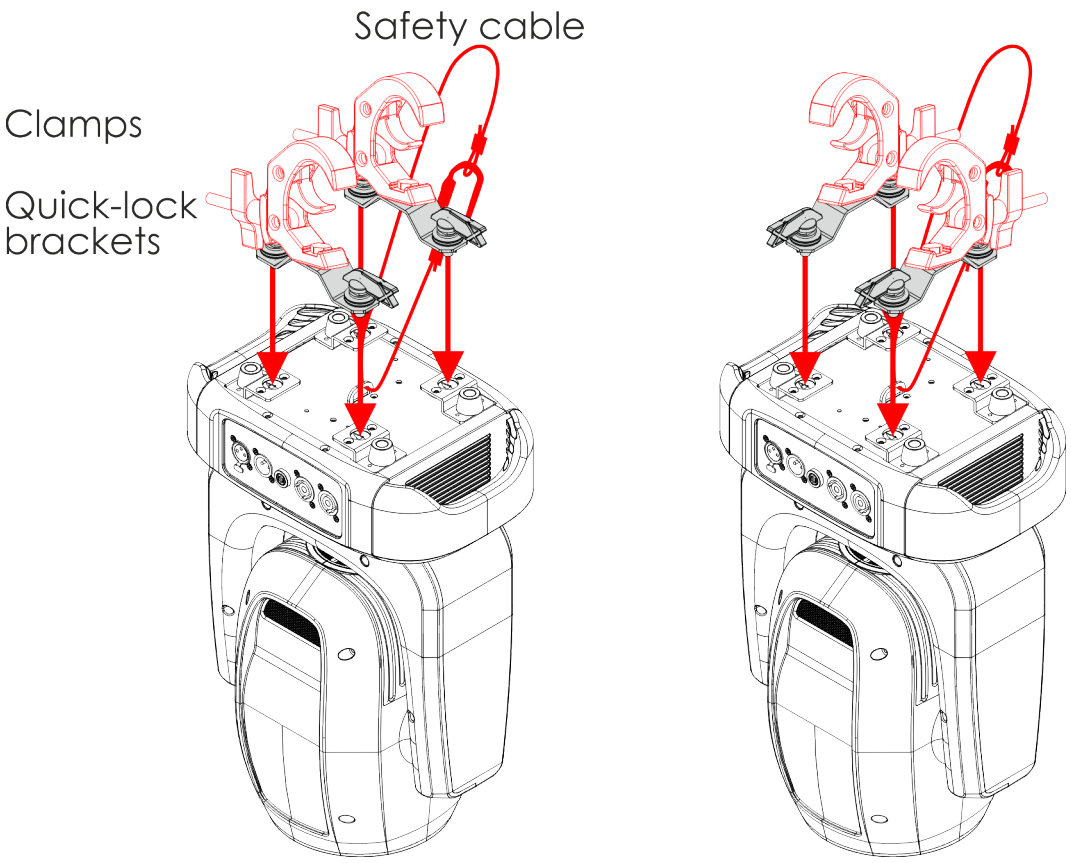
01) Fasten the 2 quick-lock brackets, supplied with the device, on the **mounting holes for quick-lock brackets (10)**. You can position the quick-lock brackets in 2 ways.
02) Lock the 2 quick-lock brackets by turning the locking mechanism of the quick-lock brackets clockwise.

Figure 8



03) Install the clamps. Make sure that you use clamps suitable for attaching the device to a truss.

Figure 9



04) Attach the device to the supporting structure. Make sure that the device cannot move freely.
05) Secure the device with a secondary suspension, for example a safety cable. Make sure that the secondary suspension can hold 10 times the weight of the device. If possible, the secondary suspension should be attached to a supporting structure independent of the primary suspension. Put the safety cable through the **opening for a safety cable (11)**.

4.5. Connecting to Power Supply



DANGER
Electric shock caused by short-circuit

The device accepts AC mains power at 100–240 V and 50/60 Hz. Do not supply power at any other voltage or frequency to the device.

This device falls under IEC protection class I. Make sure that the device is always electrically connected to the ground (earth).

Before connecting the device to the socket-outlet:
- Make sure that the power supply matches the input voltage specified on the information label on the device.
- Make sure that the socket-outlet has a ground (earth) connection.

Connect the device to the socket-outlet with the power plug. Do not connect the device to a dimmer circuit, as this may damage the device.

4.6. Power Linking of Multiple Devices

This device supports power linking. Power can be relayed to another device via the power OUT connector. Note that the input and the output connectors have different designs: one type cannot be connected to the other.

Power linking of multiple devices must be carried out only by instructed or skilled persons.



WARNING
Incorrect power linking may lead to overload of the electrical circuit and result in serious injuries and damage of property.

To prevent overload of the electrical circuit, when power linking multiple devices:

- Use cables with sufficient current-carrying capacity. The power cable supplied with the device is not suitable for power linking of multiple devices.
- Make sure that the total current draw of the device and all connected devices does not exceed the rated capacity of the power cables and the circuit breaker.
- Do not link more devices on one power link than the maximum recommended number.

Maximum recommended number of devices:
- at 100–120 V: 4 devices Xpression 2000B - Beam
- at 200–240 V: 8 devices Xpression 2000B - Beam

5. Setup

5.1. Warnings and Precautions

Attention
Connect all data cables before supplying power.
Disconnect power supply before connecting or disconnecting data cables.

5.2. Stand-alone Setup

When the Xpression 2000B - Beam is not connected to a controller or to other devices, it functions as a stand-alone device. It can be operated manually via the control panel or in auto mode.

For more information refer to Control Modes (see 6.2. Control Modes on page 21).

5.3. DMX Connection

5.3.1. DMX-512 Protocol

You need a DMX serial data link to run light shows of one or more devices using a DMX-512 controller.

The Xpression 2000B - Beam has 3-pin DMX signal IN and OUT connectors.

The pin assignment is as follows: pin 1 (ground), pin 2 (-), pin 3 (+).

Devices on a serial data link must be daisy-chained in a single line. The number of devices that you can control on one data link is limited by the combined number of the DMX channels of the connected devices and the 512 channels available in one DMX universe.

To comply with the TIA-485 standard, no more than 32 devices should be connected on one data link. In order to connect more than 32 devices on one data link, you must use a DMX optically isolated splitter/booster, otherwise this may result in deterioration of the DMX signal.

Note:

- Maximum recommended DMX data link distance: 300 m
- Maximum recommended number of devices on a DMX data link: 32 devices

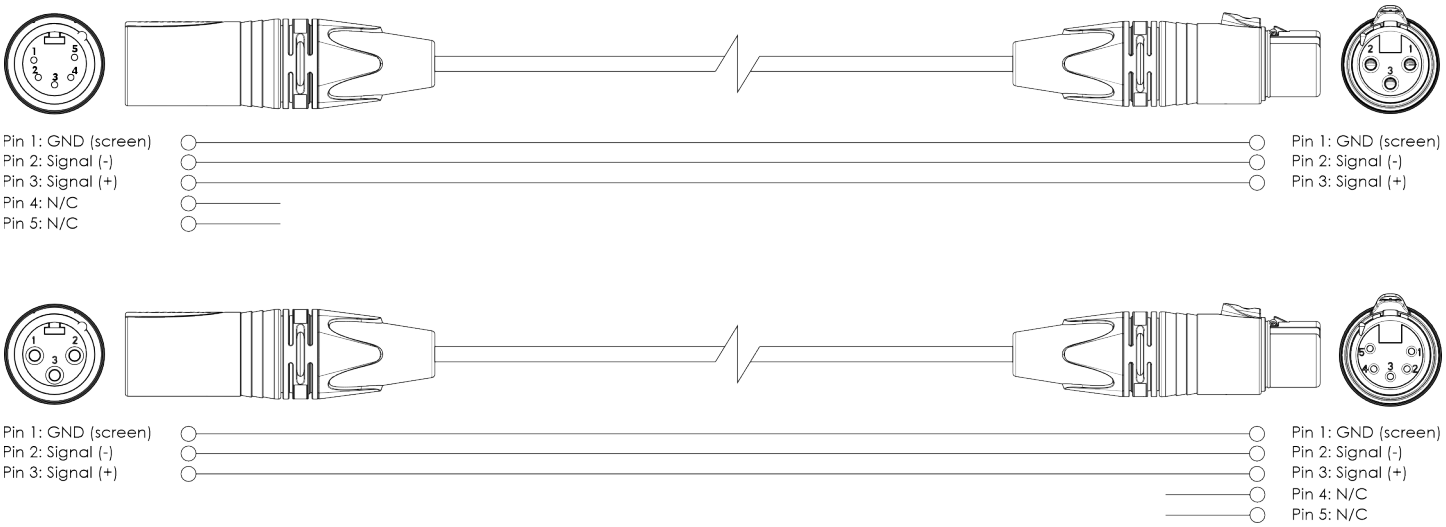
5.3.2. DMX Cables

Shielded twisted-pair cables with 3-pin XLR connectors must be used for reliable DMX connection. You can purchase DMX cables directly from your Highlite International dealer or make your own cables.

If you use XLR audio cables for DMX data transmission, this may lead to signal degradation and unreliable operation of the DMX network.

When you make your own DMX cables, make sure that you connect the pins and wires correctly as shown in the figure below.

Figure 10

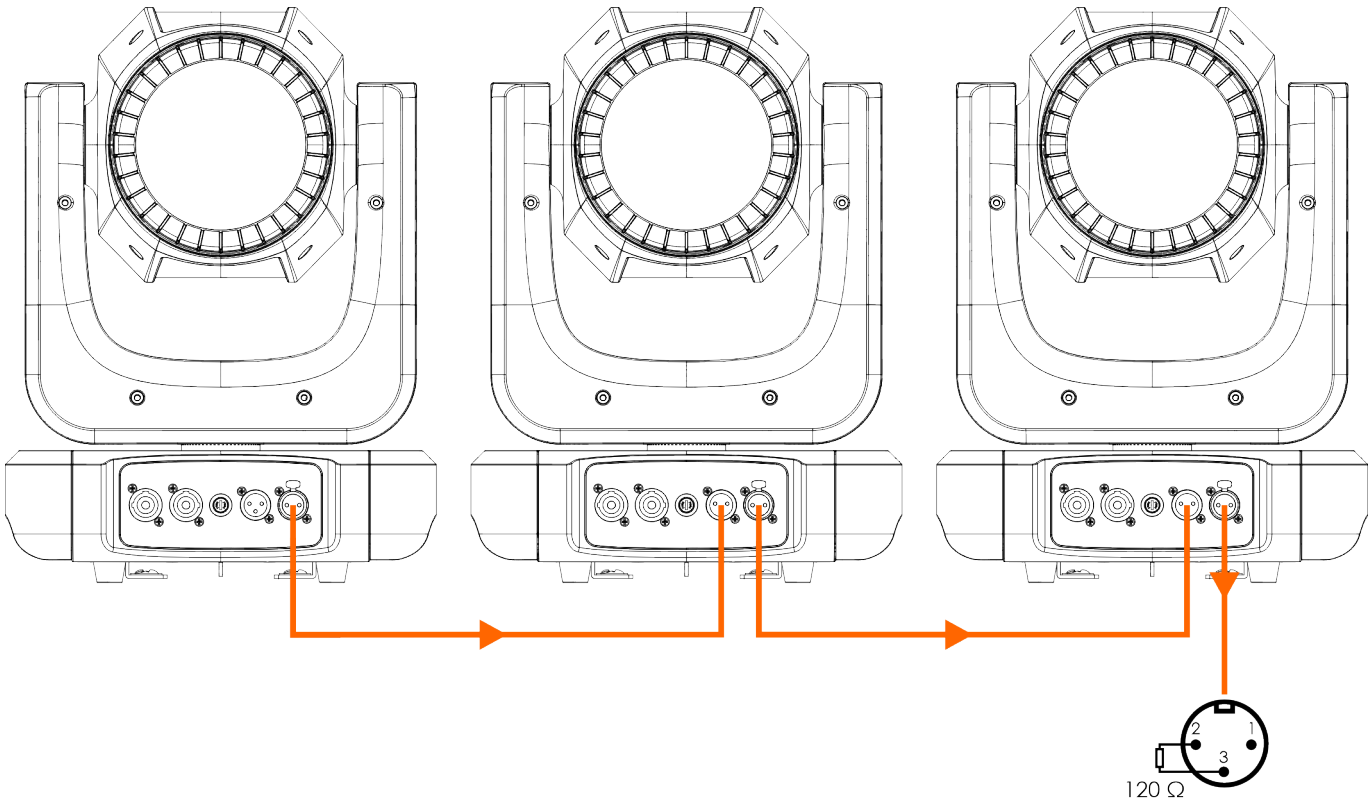


5.3.3. Master/Slave Setup

The Xpression 2000B - Beam supports master/slave control mode. To connect multiple devices in a master/slave setup, follow the steps below:

01) Connect the DMX OUT connector of the 1st device to the DMX IN connector of the 2nd device with a 3-pin DMX cable.
02) Repeat step 1 to connect all devices in a daisy-chain.
03) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device on the data link.
04) Set the 1st device on the data link as a master device (see 6.6.2.5. Slave on page 33).
05) Set the remaining devices as slave devices (see 6.6.2.5. Slave on page 33).

Figure 11

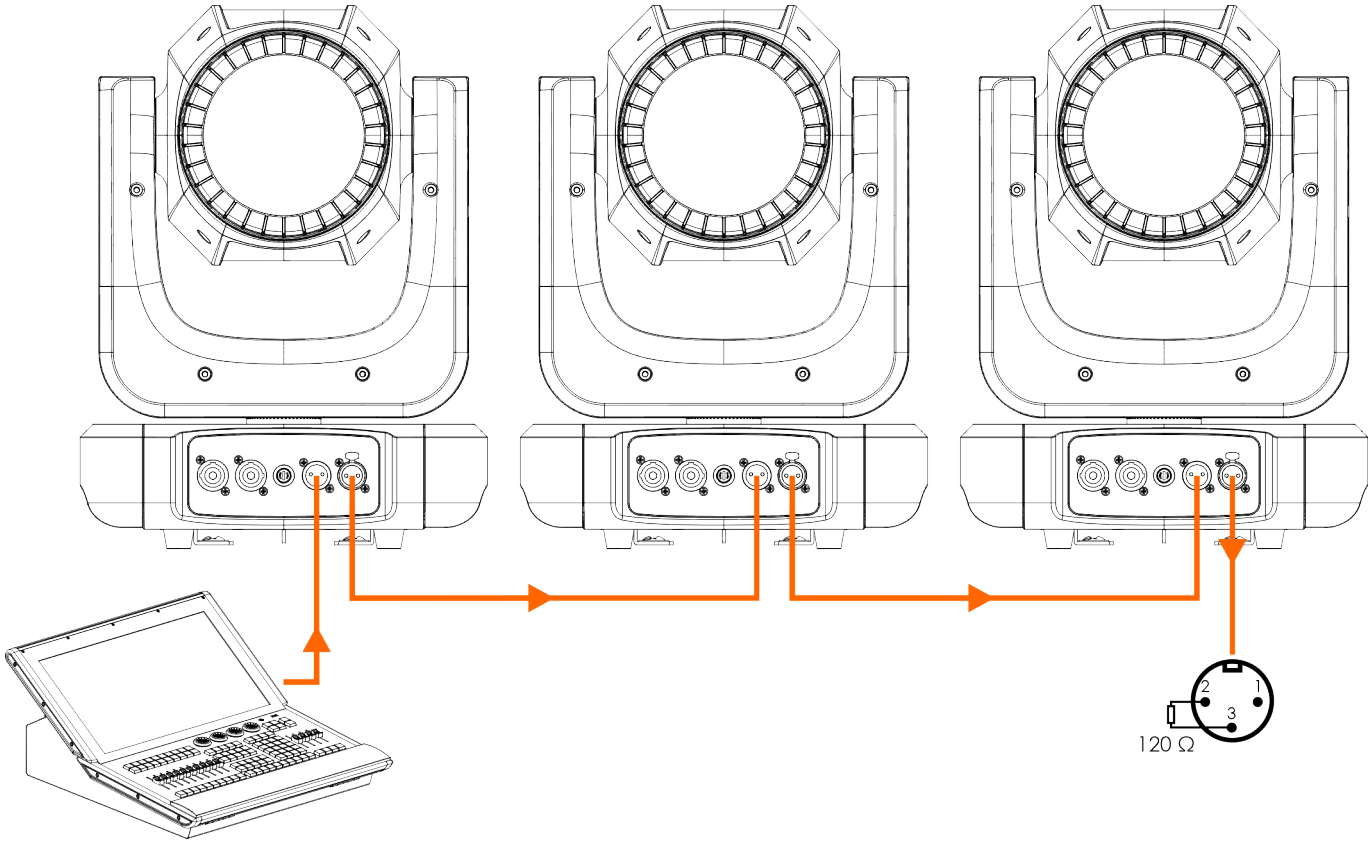


5.3.4. DMX Linking

To connect multiple devices on one DMX data link, follow the steps below:

01) Use a 3-pin DMX cable to connect the DMX OUT connector of the lighting controller to the DMX IN connector of the 1st device.
02) Connect the DMX OUT connector of the 1st device to the DMX IN connector of the 2nd device with a 3-pin DMX cable.
03) Repeat step 2 to connect all devices in a daisy-chain.
04) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device on the data link.

Figure 12



5.3.5. DMX Addressing

In a setup with multiple devices, make sure that you set the DMX starting address of each device correctly. The Xpression 2000B - Beam has 2 personalities: 14 channels and 18 channels.

If you want to connect multiple devices on one data link and use them in 18-channel mode, for example, follow the steps below:

01) Set the starting address of the 1st device on the data link to 1 (001).
02) Set the starting address of the 2nd device on the data link to 19 (019), as 1 + 18 = 19.
03) Set the starting address of the 3rd device on the data link to 37 (037), as 19 + 18 = 37.
04) Continue assigning the starting addresses of the remaining devices by adding each time 18 to the previous number.

Make sure that you do not have any overlapping channels in order to control each Xpression 2000B - Beam correctly. If two or more devices are addressed similarly, they will work similarly.

6. Operation

6.1. Safety Instructions for Operation

Attention
This device must be used only for the purposes it is designed for.

This device is intended for professional use as a moving head. It can be installed only indoors. This device is not suitable for households and for general lighting.

Any other use, not mentioned under intended use, is regarded as non-intended and incorrect use.

Attention
Power supply

Before connecting the device to the power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.

6.2. Control Modes

The Xpression 2000B - Beam supports the following control modes:

- Stand-alone: Manual mode, auto mode, custom program mode
- Master/slave: Manual mode, auto mode, custom program mode
- DMX-512: 14 channels, 18 channels

For more information about how to connect the devices, refer to Setup (see 5. Setup on page 18).

To operate the device manually as a stand-alone device:

Adjust the parameters of the device in the Manual menu (see 6.6.2.2. Manual on page 29).

To run the built-in programs in auto mode without a DMX controller:

Select one of the 5 auto programs in Auto Mode (see 6.6.2.3. Auto on page 30).

To run a custom program in program mode without a DMX controller:

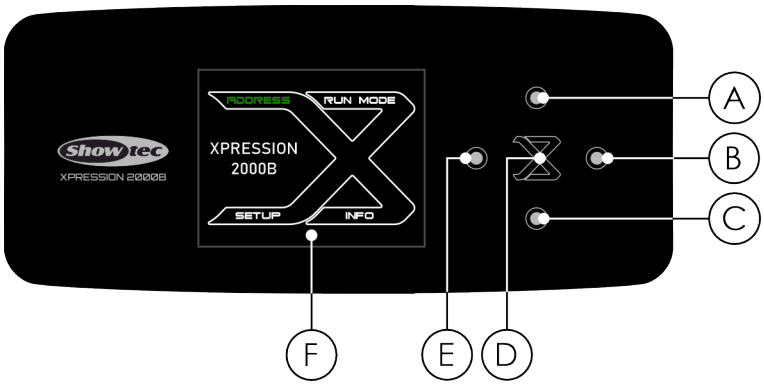
01) Create a custom program in Program Mode (see 6.6.2.4. Program on page 30).
02) Adjust the parameters of the selected built-in program.

To operate the device with a DMX controller:

01) Select DMX512 as control mode in the Run Mode menu (see 6.6.2. Run Mode on page 28).
02) Set the DMX starting address of the device in the DMX Address menu (see 6.6.1. DMX Address on page 28).
03) Select the DMX channel mode in the Run Mode menu (see 6.6.2. Run Mode on page 28). Refer to DMX Channels (see 6.7. DMX Channels on page 41) for a complete overview of all DMX channels.

6.3. Control Panel

Figure 13



A) UP touch button
B) RIGHT touch button
C) DOWN touch button
D) ENTER touch button
E) LEFT touch button
F) LCD display

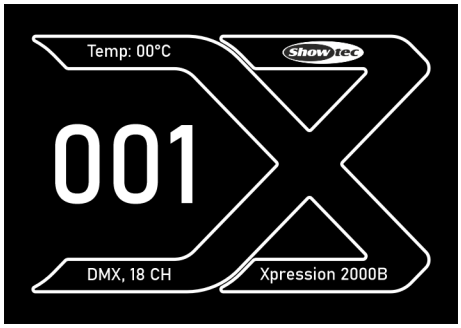
- Use the **LEFT** button to exit the current submenu, to return to the Main Menu and to return to the start screen.
- Use the **RIGHT** button to navigate through the menus.
- Use the **UP/DOWN** buttons to navigate through the menus or to increase/decrease numeric values.
- Use the **ENTER** button to open the desired menu, to confirm your choice or to set the currently selected value.

6.4. Start-up

After the device is connected to power supply, the device will perform a reset. During the reset the display shows a splash screen with the Showtec logo and the name of the device:



Immediately afterwards, the display shows the start screen. The start screen provides information about the current LED temperature and control mode of the device. For example:



Touch the **ENTER** button to enter the main menu.

Note:

If no button is pressed, after 60 seconds the display turns off. You can change this setting in the Display Time submenu (see 6.6.3. Setup on page 33). If the DMX signal is lost, the display blinks.

6.5. Menu Overview

Level 1	Level 2	Level 3	Level 4
Address (see 6.6.1. DMX Address on page 28)	Address Setting	001–499/495	
Run Mode (see 6.6.2. Run Mode on page 28)	1. DMX	14 CH	
		18 CH	
	2. Manual	1. Pan	000–255
		2. Pan Fine	000–255
		3. Tilt	000–255
		4. Tilt Fine	000–255
		5. Tilt Infinite	000–255
		6. Pan Tilt Speed	000–255
		7. Dimmer	000–255
		8. Strobe	000–255
		9. Color	000–255
		10. Gobo	000–255
		11. Prism 1	000–255
		12. Prism 1 Rotation	000–255
		13. Prism 2	000–255
		14. Prism 2 Rotation	000–255
		15. Focus	000–255
		16. Focus Fine	000–255
		17. Frost	000–255
	3. Auto	Auto 1	
		Auto 2	
		Auto 3	
		Auto 4	
		Auto 5	
	4. Program	Play Program	Program 1
			Program 2
			Program 3
			Program 4
			Program 5
			Continuous Play
		Record Program (For Level 5–8 (see 6.5.1. Menu overview Level 5-8))	1. Program 1
			2. Program 2
			3. Program 3
			4. Program 4
			5. Program 5
	5. Slave	Slave	
		Master	
Setup (see 6.6.3. Setup on page 33)	1. Pan Invert	Off	
		On	
	2. Tilt Invert	Off	
		On	

Level 1	Level 2	Level 3	Level 4
	3. Dim Curve	Linear	
		Square	
		Inv. Square	
		S-Curve	
	4. PWM	1,2 kHz	
		2 kHz	
		4 kHz	
		6 kHz	
		15 kHz	
	5. Tilt Range	280°	
		360°	
	6. DMX Fail	Hold	
		Manual	
		Auto	
		Program	
	7. Fan	Auto	
		Full	
	8. BO. P/T Move	Off	
		On	
	9. Pan Tilt Reset	No	
		Yes	
	10. Color Reset	No	
		Yes	
	11. Gobo Reset	No	
		Yes	
	12. Prism Reset	No	
		Yes	
	13. Focus Reset	No	
		Yes	
	14. Frost Reset	No	
		Yes	
	15. Reset All	No	
		Yes	
	16. Display Intensity	01–10	
	17. Display Invert	Auto	
		Yes	
		No	
	18. Display Time	On	
		1M	
		2M	
		3M	
		4M	
		5M	
	19. Factory Reset	No	
		Yes	

Level 1	Level 2	Level 3	Level 4
Info (see 6.6.4. Info on page 35)	1. Version		
	2. Running Mode		
	3. Address		
	4. LED Temp		
	5. Hours		
	6. Channels	1. Pan	
		2. Pan Fine	
		3. Tilt	
		4. Tilt Fine	
		5. Tilt Infinite	
		6. Pan Tilt Speed	
		7. Dimmer	
		8. Strobe	
		9. Colors	
		10. Gobo	
		11. Prism 1	
		12. Prism 1 Rotation	
		13. Prism 2	
		14. Prism 2 Rotation	
		15. Focus	
		16. Focus Fine	
		17. Frost	
		18. Control	
	7. Errors	No Errors	
	8. RDM UID		
Service Menu (password 6468) (see 6.6.5. Service on page 37)	1. Effect Adjust	1. Pan	-127–127
		2. Tilt	-127–127
		3. Color	-127–127
		4. Gobo	-127–127
		5. Prism 1	-127–127
		6. Prism 1 Rotation	-127–127
		7. Prism 2	-127–127
		8. Prism 2 Rotation	-127–127
		9. Focus	-127–127
		10. Frost	-127–127
	2. Color Adjust	1. Color1	-127–127
		2. Color2	-127–127
		3. Color3	-127–127
		4. Color4	-127–127
		5. Color5	-127–127
		6. Color6	-127–127
		7. Color7	-127–127
		8. Color8	-127–127
		9. Color9	-127–127

Level 1	Level 2	Level 3	Level 4
		10. Color10	-127–127
		11. Color11	-127–127
		12. Color12	-127–127
		13. Color13	-127–127
		14. Color14	-127–127
		15. Color15	-127–127
	3. Gobo Adjust	1. Gobo1	-127–127
		2. Gobo2	-127–127
		3. Gobo3	-127–127
		4. Gobo4	-127–127
		5. Gobo5	-127–127
		6. Gobo6	-127–127
		7. Gobo7	-127–127
		8. Gobo8	-127–127
		9. Gobo9	-127–127
		10. Gobo10	-127–127
		11. Gobo11	-127–127
		12. Gobo12	-127–127
		13. Gobo13	-127–127
	4. Reset Hours	Only for Highlite International Service personnel	
	5. Factory Reset	Only for Highlite International Service personnel	

6.5.1. Menu overview Level 5-8

Level 5	Level 6	Level 7	Level 8
1. Steps	Step 1	1. Pan	000–255
	Step 2	2. Pan Fine	000–255
	Step 3	3. Tilt	000–255
	Add step	4. Tilt Fine	000–255
		5. Tilt Infinite	000–255
		6. Pan Tilt Speed	000–255
		7. Dimmer	000–255
		8. Strobe	000–255
		9. Color	000–255
		10. Gobo	000–255
		11. Prism 1	000–255
		12. Prism 1 Rotation	000–255
		13. Prism 2	000–255
		14. Prism 2 Rotation	000–255
		15. Focus	000–255
		16. Focus Fine	000–255
		17. Frost	000–255
		18. Confirm	Are you sure?
		19. Delete Step	Are you sure?
2. Hold	0,0-10,0 sec		
3. Fade	0,0-10,0 sec		

6.6. Main Menu Options

The main menu has the following 5 options:

ADDRESS	DMX Address (see 6.6.1. DMX Address on page 28)
RUN MODE	Run Mode (see 6.6.2. Run Mode on page 28)
SETUP	Setup (see 6.6.3. Setup on page 33)
INFO	Information (see 6.6.4. Info on page 35)
SERVICE	Service (see 6.6.5. Service on page 37)

01) Touch the **LEFT/RIGHT/UP/DOWN** buttons to navigate through the main menu.
02) Touch the **ENTER** button to open the submenus.

6.6.1. DMX Address

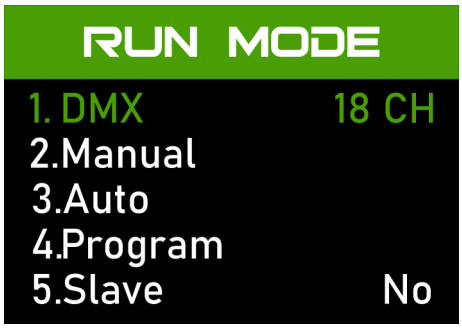
In this menu you can set the DMX starting address of the device.

01) Touch the **UP/DOWN** buttons to select the DMX starting address of the device. The selection range depends on the active DMX channel mode. The adjustment range is 001–499 (14 CH Mode) or 001–495 (18 CH Mode). For more information about the channel mode, refer to DMX Mode (see 6.6.2.1. DMX on page 28).
02) Touch the **ENTER** button to confirm the selection.

6.6.2. Run Mode

In this menu you can select the control modes of the device.

01) Touch the **UP/DOWN** buttons to scroll through the 5 available options:



- DMX (see 6.6.2.1. DMX)
- Manual (see 6.6.2.2. Manual)
- Auto (see 6.6.2.3. Auto)
- Program (see 6.6.2.4. Program)
- Slave (see 6.6.2.5. Slave)

02) Touch the **ENTER** button to confirm the selection.

6.6.2.1. DMX

In this submenu you can select the DMX channel mode.

01) Touch the **UP/DOWN** buttons to select the DMX channel mode. There are 2 options available:
- 14 channels
- 18 channels

02) Touch the **ENTER** button to confirm the selection. For more information, refer to DMX Channels.

6.6.2.2. Manual

In this submenu you can manually adjust the settings for the device.

01) Touch the **UP/DOWN** buttons to scroll through the 17 available options:



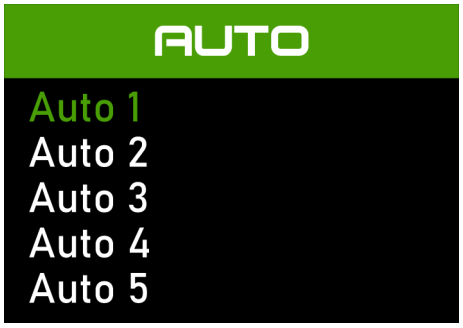
- Pan: Pan adjustment (000–255)
- Pan Fine: Pan Fine adjustment (000–255)
- Tilt: Tilt adjustment (000–255)
- Tilt Fine: Tilt Fine adjustment (000–255)
- Tilt Infinite: Tilt Infinite adjustment (000–255)
- Pan Tilt Speed: Pan Tilt Speed adjustment (000–255)
- Dimmer: Dimmer adjustment (000–255)
- Strobe: Strobe adjustment (000–255)
- Color: Color adjustment (000–255)
- Gobo: Gobo adjustment (000–255)
- Prism 1: Prism 1 adjustment (000–255)
- Prism 1 Rotation: Prism 1 Rotation adjustment (000–255)
- Prism 2: Prism 2 adjustment (000–255)
- Prism 2 Rotation: Prism 2 Rotation adjustment (000–255)
- Focus: Focus adjustment (000–255)
- Focus Fine: Focus Fine adjustment (000–255)
- Frost: Frost adjustment (000–255)

02) Touch the **ENTER** button to confirm the selection.
03) Touch the **UP/DOWN** buttons to increase/decrease the values. The adjustment range is 000–255.
04) Touch the **ENTER** button to confirm the selection.

6.6.2.3. Auto

In this submenu you can select an auto mode.

01) Touch the **UP/DOWN** buttons to select one of the 5 available options:



- Auto 1: Play Auto 1
- Auto 2: Play Auto 2
- Auto 3: Play Auto 3
- Auto 4: Play Auto 4
- Auto 5: Play Auto 5

02) Touch the **ENTER** button to confirm the selection.

6.6.2.4. Program

In this submenu you can select or record a program.

01) Touch the **UP/DOWN** buttons to select one of the 2 available options:



- Play Program (see 6.6.2.4.1. Play Program)
- Record Program (see 6.6.2.4.2. Record Program)

02) Touch the **ENTER** button to confirm the selection.

6.6.2.4.1. Play Program

In this submenu you can select a program.

01) Touch the **UP/DOWN** buttons to select one of the 6 available options:



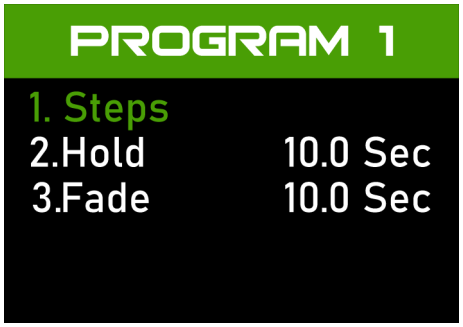
- Program 1: Play Program 1
- Program 2: Play Program 2
- Program 3: Play Program 3
- Program 4: Play Program 4
- Program 5: Play Program 5
- Continuous Play: Play all programs in a loop

02) Touch the **ENTER** button to confirm the selection.

6.6.2.4.2. Record Program

In this submenu you can record a program.

01) Touch the **UP/DOWN** buttons to select one of the 3 available options:



- Steps
- Hold: The adjustment range is 0,0–10,0 sec
- Fade: The adjustment range is 0,0–10,0 sec

02) Touch the **ENTER** button to confirm the selection.

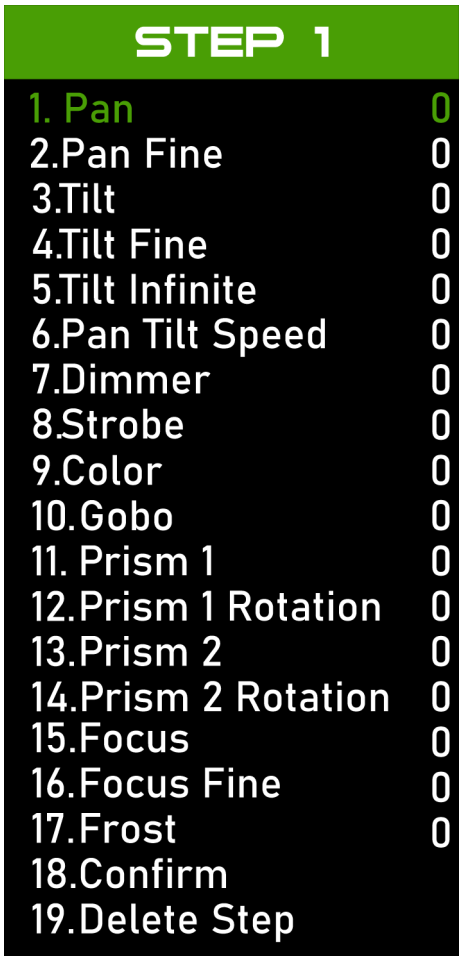
03) Touch the **UP/DOWN** buttons to select a specific step or add a new step. There are 3 options available:



- Step 1
- Step 2
- Add step

04) Touch the **ENTER** button to confirm the selection.

05) Touch the **UP/DOWN** buttons to adjust the parameters for a step, to confirm the step, or delete the step. There are 19 options available:



- Pan: Pan adjustment (000–255)
- Pan Fine: Pan Fine adjustment (000–255)
- Tilt: Tilt adjustment (000–255)
- Tilt Fine: Tilt Fine adjustment (000–255)
- Tilt Infinite: Tilt Infinite adjustment (000–255)
- Pan Tilt Speed: Pan Tilt Speed adjustment (000–255)
- Dimmer: Dimmer adjustment (000–255)
- Strobe: Strobe adjustment (000–255)
- Color: Color adjustment (000–255)
- Gobo: Gobo adjustment (000–255)
- Prism 1: Prism 1 adjustment (000–255)
- Prism 1 Rotation: Prism 1 Rotation adjustment (000–255)
- Prism 2: Prism 2 adjustment (000–255)
- Prism 2 Rotation: Prism 2 Rotation adjustment (000–255)
- Focus: Focus adjustment (000–255)
- Focus Fine: Focus Fine adjustment (000–255)
- Frost: Frost adjustment (000–255)
- Confirm: Confirm the newly made step
- Delete Step: Delete the current step

06) Touch the **ENTER** button to confirm the selection.
07) Touch the **UP/DOWN** buttons to increase/decrease the values. The adjustment range for parameters 1–17 is 000–255.
08) Touch the **ENTER** button to confirm the selection.
09) Select **18. Confirm** and touch the **ENTER** button to confirm.

6.6.2.5. Slave

In this submenu you can set the device as a slave device in a master/slave setup.

01) Touch the **UP/DOWN** buttons to select one of the 2 options:
- Yes: The device is set as a slave and reacts the same as the master device
- No: The device is set as the master device

02) Touch the **ENTER** button to confirm the selection.

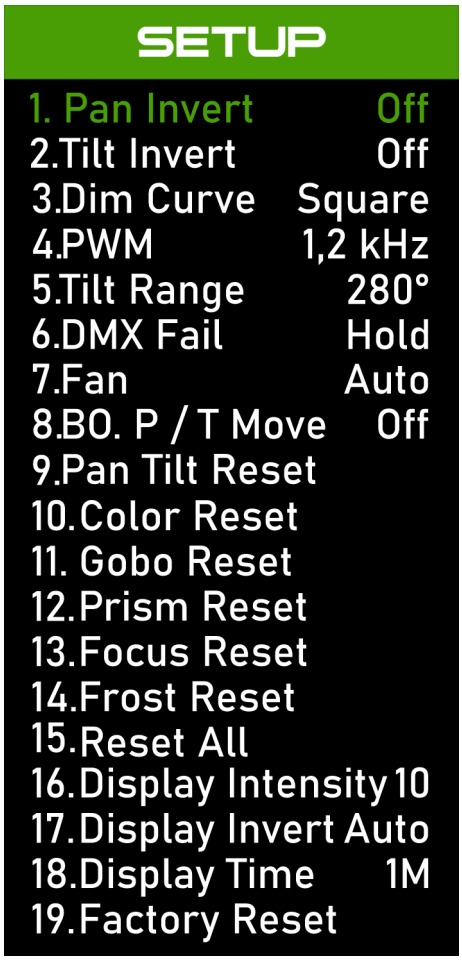
Note:

In a master/slave setup, make sure that only one device is set to master device and the remaining devices are set to slave devices. All slave devices follow the master device.

6.6.3. Setup

In this menu you can adjust the settings of the device.

01) Touch the **UP/DOWN** buttons to scroll through the 19 available options:



- Pan Invert: Invert the pan direction automatically, depending on the position of the device (ON/OFF)
- Tilt Invert: Invert the tilt direction automatically, depending on the position of the device (ON/OFF)
- Dim Curve (see 6.6.3.1. Dimmer Curve)
- PWM (see 6.6.3.2. PWM)
- Tilt Range: Set the tilt range (280°/360°)
- DMX Fail (see 6.6.3.3. DMX Fail)
- Fan (see 6.6.3.4. Fan)
- BO. P/T Move: The device will black out the light output when Pan/Tilt are active (NO/YES)
- Pan Tilt Reset: Reset the pan/tilt (NO/YES)
- Color Reset: Reset the color wheel (NO/YES)
- Gobo Reset: Reset the gobo (NO/YES)

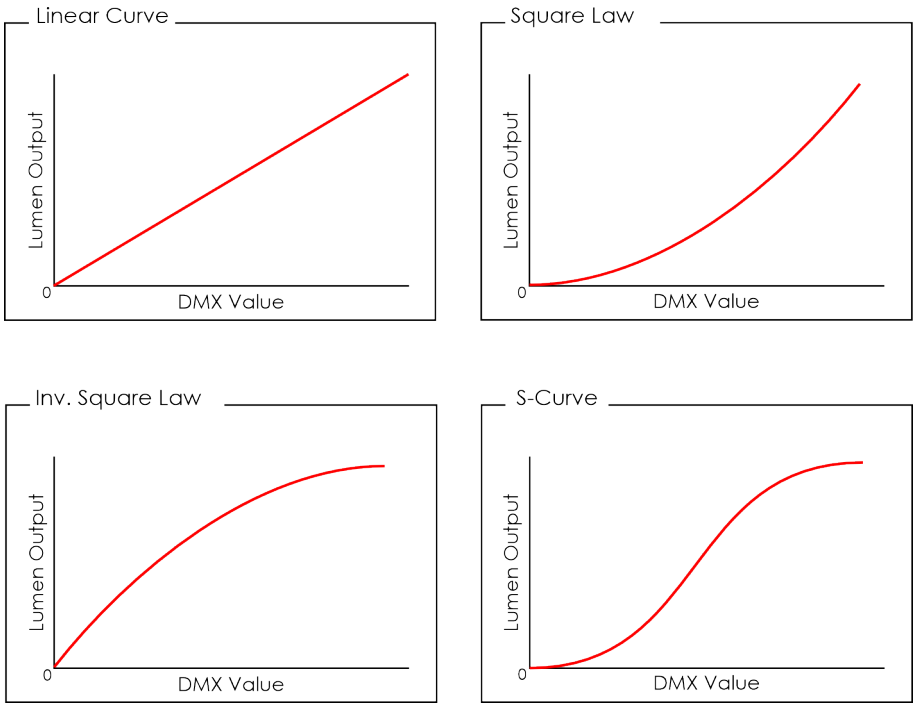
- Prism Reset: Reset the prism (NO/YES)
- Focus Reset: Reset the focus (NO/YES)
- Frost Reset: Reset the frost filter (NO/YES)
- Reset All: Reset all settings (NO/YES)
- Display Intensity: Set the intensity of the LCD display. The adjustment range is 01–10
- Display Invert Auto: Rotate the text on the display 180° when the device is mounted upside down (NO/YES/AUTO). If you select AUTO, the text on the display automatically rotates 180° when the device is turned upside down
- Display Time: Set the time after inactivity, before the display turns off (Off/1 min/2 min/3 min/ 4 min/5 min/ON). If you select ON, the display does not turn off
- Factory Settings: Restore the factory default settings (NO/YES)

02) Touch the **ENTER** button to confirm the selection.

6.6.3.1. Dimmer Curve

In this submenu you can select the dimming curve.

01) Touch the **UP/DOWN** buttons to select one of the 4 options:
- Linear
- Square
- Inverse Square
- S-Curve



02) Touch the **ENTER** button to confirm.

6.6.3.2. PWM

In this submenu you can adjust the PWM (pulse-width modulation) frequency of the LEDs.

01) Touch the **UP/DOWN** buttons to select one of the 5 options:
- 1200 Hz
- 2000 Hz
- 4000 Hz
- 6000 Hz
- 15000 Hz

02) Touch the **ENTER** button to confirm the selection.

6.6.3.3. DMX Fail

In this submenu you can determine the behavior of the device in case of a DMX failure.

01) Touch the **UP/DOWN** buttons to select one of the 4 options:
- Hold: The device will use the last properly received DMX signal
- Manual: The device will switch to Manual mode (see 6.6.2.2. Manual on page 29)
- Auto: The device will run the Auto programs (see 6.6.2.3. Auto on page 30)
- Program: The device will run the Recorded programs (see 6.6.2.4. Program on page 30)

02) Touch the **ENTER** button to confirm the selection.

6.6.3.4. Fan

In this submenu you can adjust the fan settings.

01) Touch the **UP/DOWN** buttons to scroll through the 2 available options:
- Auto: The fan speed is automatic, depending on the selected light output
- Full: The fan speed is full on

02) Touch the **ENTER** button to confirm the selection.

6.6.4. Info

In this menu you can view the currently installed firmware version, operation mode, DMX address and other parameters of the device.

01) Touch the **UP/DOWN** buttons to scroll through the 8 available options:



- Version: Shows the current software version
- Running Mode: Shows the current running mode
- DMX Address: Shows the current DMX address
- LED Temp: Shows the current LED temperature
- Hours: Shows the total amount of hours the device has been running
- Channels (see 6.6.4.1. Channels)
- Errors (see 6.6.4.2. Errors)
- RDM UID: Shows the current RDM UID address

02) Touch the **ENTER** button to confirm the selection.

6.6.4.1. Channels

In this submenu you can view the channel parameters.

Touch the **UP/DOWN** buttons to see all available parameters and their current value.



- Pan: Shows the Pan value (000–255)
- Pan Fine: Shows the Pan Fine value (000–255)
- Tilt: Shows the Tilt value (000–255)
- Tilt Fine: Shows the Tilt Fine value (000–255)
- Tilt Infinite: Shows the Tilt Infinite value (000–255)
- Pan Tilt Speed: Shows the Pan Tilt Speed value (000–255)
- Dimmer: Shows the Dimmer value (000–255)
- Strobe: Shows the Strobe value (000–255)
- Color: Shows the Color value (000–255)
- Gobo: Shows the Gobo value (000–255)
- Prism 1: Shows the Prism 1 value (000–255)
- Prism 1 Rotation: Shows the Prism 1 Rotation value (000–255)
- Prism 2: Shows the Prism 2 value (000–255)
- Prism 2 Rotation: Shows the Prism 2 Rotation value (000–255)
- Focus: Shows the Focus value (000–255)
- Focus Fine: Shows the Focus Fine value (000–255)
- Frost: Shows the Frost value (000–255)
- Control: Shows the Control value (000–255)

6.6.4.2. Errors

In this submenu you can view whether there are any system errors.

If you have selected Errors and there are no errors the display shows:



- No Errors

Note:

For more information about the complete list of error messages (see 7.1. Error Messages on page 46), refer to Error Messages. If you can not solve the problem, discontinue the use of the device and contact your Highlite International dealer for more information.

6.6.5. Service

In this menu you can adjust the service parameters.

01) Touch and hold down **ENTER** button for 5 seconds, the display shows:



02) Touch the **UP/DOWN** buttons to insert the password: 6468
03) Touch the **ENTER** button to confirm the password.
04) Touch the **UP/DOWN** buttons to select a service mode. There are 5 options:



- Effect Adjust (see 6.6.5.1. Effect Adjust)
- Color Adjust (see 6.6.5.2. Color Adjust)
- Gobo Adjust (see 6.6.5.3. Gobo Adjust)
- Reset Hours (only for Highlite International service personnel)
- Factory Reset (only for Highlite International service personnel)

05) Touch the **ENTER** button to confirm the selection.

6.6.5.1. Effect Adjust

In this submenu you can adjust the settings of the dynamic effects.

01) Touch the **UP/DOWN** buttons to scroll through the 10 available options:



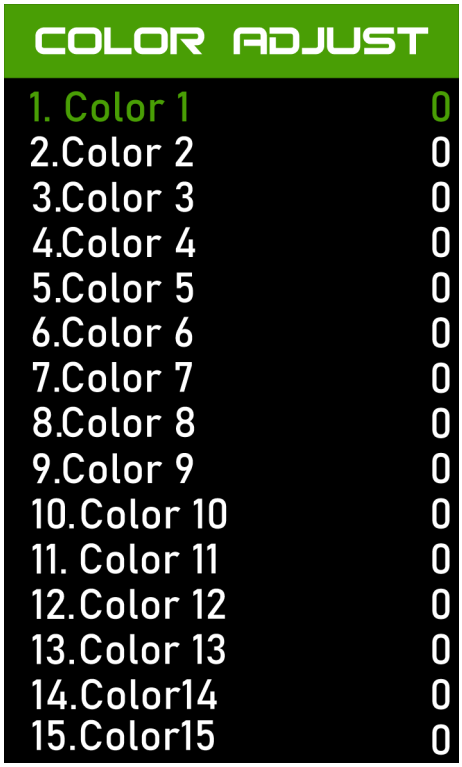
- Pan: Pan adjustment (-127 to 127)
- Tilt: Tilt adjustment (-127 to 127)
- Color: Color adjustment (-127 to 127)
- Gobo: Gobo adjustment (-127 to 127)
- Prism 1: Prism 1 adjustment (-127 to 127)
- Prism 1 Rotation: Prism 1 Rotation adjustment (-127 to 127)
- Prism 2: Prism 2 adjustment (-127 to 127)
- Prism 2 Rotation: Prism 2 Rotation adjustment (-127 to 127)
- Focus: Focus adjustment (-127 to 127)
- Frost: Frost adjustment (-127 to 127)

02) Touch the **ENTER** button to confirm the selection.
03) Touch the **UP/DOWN** buttons to increase/decrease the values in order to change the home position. The adjustment range is between -127 and 127.
04) Touch the **ENTER** button to confirm the selection.

6.6.5.2. Color Adjust

In this submenu you can adjust the color wheel settings.

01) Touch the **UP/DOWN** buttons to scroll through the 15 available options:



- Color 1
- Color 2
- Color 3
- Color 4
- Color 5
- Color 6
- Color 7
- Color 8
- Color 9
- Color 10
- Color 11
- Color 12
- Color 13
- Color 14
- Color 15

02) Touch the **ENTER** button to confirm the selection.
03) Touch the **UP/DOWN** buttons to increase/decrease the values in order to change the home position. The adjustment range is between -127 and 127.
04) Touch the **ENTER** button to confirm the selection.

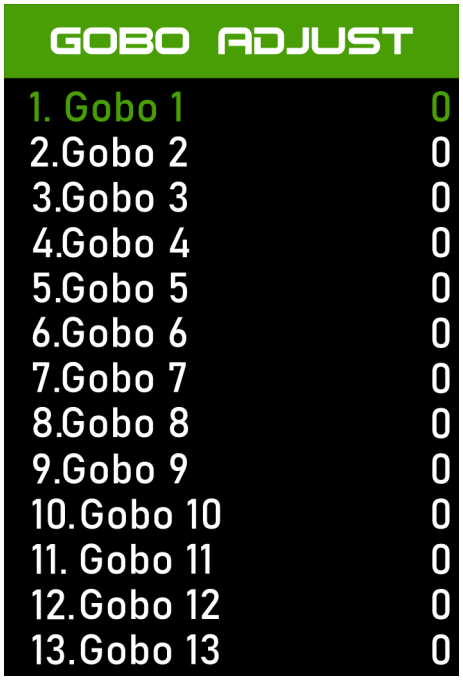
Note:

For more information about the colors, refer to Color Wheel (see 3.5.1. Color Wheel on page 13).

6.6.5.3. Gobo Adjust

In this submenu you can adjust the gobo wheel settings.

01) Touch the **UP/DOWN** buttons to scroll through the 13 available options:



- Gobo 1
- Gobo 2
- Gobo 3
- Gobo 4
- Gobo 5
- Gobo 6
- Gobo 7
- Gobo 8
- Gobo 9
- Gobo 10
- Gobo 11
- Gobo 12
- Gobo 13

02) Touch the **ENTER** button to confirm the selection.
03) Touch the **UP/DOWN** buttons to increase/decrease the values in order to change the home position. The adjustment range is between -127 and 127.
04) Touch the **ENTER** button to confirm the selection.

Note:

For more information about the gobos, refer to Static Gobo Wheel (see 3.5.2. Static Gobo Wheel on page 13).

6.7. DMX Channels

6.7.1. 14 Channels, 18 Channels

14 CH	18 CH	Function	Value	Setting	Color
1	1	Pan	000–255	Pan adjustment 0°–540°	
	2	Pan Fine	000–255	Pan adjustment, 16-bit	
2	3	Tilt	000–255	Tilt adjustment 0°–280°	
	4	Tilt Fine	000–255	Tilt adjustment, 16-bit	
3	5	Tilt Infinite	000–005	No function	
			006–130	Clockwise rotation (CW), from slow to fast	
			131–255	Counterclockwise color rotation (CCW), from slow to fast	
	6	Pan/Tilt Speed	000–255	From fast to slow	
4	7	Dimmer	000–255	From low to high intensity (0–100 %)	
5	8	Strobe	000–004	No function	
			005–009	Open	
			010–089	Synchronized strobe, from low to high frequency	
			090–169	Pulse strobe, from low to high frequency	
			170–250	Random strobe, from low to high frequency	
			251–255	Open	
6	9	Color Wheel	000–008	White	
			009–015	Color 1 (red)	
			016–022	Color 2 (yellow)	
			023–029	Color 3 (green)	
			030–036	Color 4 (orange)	
			037–043	Color 5 (magenta)	
			044–050	Color 6 (cyan)	
			051–057	Color 7 (blue)	
			058–064	Color 8 (rose red)	
			065–071	Color 9 (lime)	
			072–078	Color 10 (CTO)	
			079–085	Color 11 (CTB)	
			086–092	Color 12 (purple)	
			093–099	Color 13 (BGOM = blue, green, yellow, magenta)	
			100–106	Color 14 (congo blue)	
			107–113	White + color 1	
			114–120	Color 1 + color 2	
			121–127	Color 2 + color 3	
			128–134	Color 3 + color 4	
			135–141	Color 4 + color 5	
			142–148	Color 5 + color 6	
			149–155	Color 6 + color 7	
			156–162	Color 7 + color 8	
			163–169	Color 8 + color 9	
			170–176	Color 9 + color 10	
			177–183	Color 10 + color 11	

14 CH	18 CH	Function	Value	Setting	Color
			184–190	Color 11 + color 12	
			191–197	Color 12 + color 13	
			198–204	Color 13 + color 14	
			205–211	Color 14 + white	
			212–231	Clockwise color wheel rotation (CW), from fast to slow	
			232–235	Stop	
			236–255	Counterclockwise color wheel rotation (CCW), from slow to fast	
7	10	Static Gobo wheel	000–006	Open	
			007–013	Gobo 1	
			014–020	Gobo 2	
			021–027	Gobo 3	
			028–034	Gobo 4	
			035–041	Gobo 5	
			042–048	Gobo 6	
			049–055	Gobo 7	
			056–062	Gobo 8	
			063–069	Gobo 9	
			070–076	Gobo 10	
			077–083	Gobo 11	
			084–090	Gobo 12	
			091–097	Gobo 13	
			098–105	Gobo 1 (shaking)	
			106–113	Gobo 2 (shaking)	
			114–121	Gobo 3 (shaking)	
			122–129	Gobo 4 (shaking)	
			130–137	Gobo 5 (shaking)	
			138–145	Gobo 6 (shaking)	
			146–153	Gobo 7 (shaking)	
			154–161	Gobo 8 (shaking)	
			162–169	Gobo 9 (shaking)	
			170–177	Gobo 10 (shaking)	
			178–185	Gobo 11 (shaking)	
			186–193	Gobo 12 (shaking)	
			194–201	Gobo 13 (shaking)	
			202–211	Open	
			212–231	Clockwise gobo wheel rotation (CW), from fast to slow	
			232–235	Stop	
			236–255	Counterclockwise gobo wheel rotation (CCW), from slow to fast	
8	11	Prism 1 (8-facet circular)	000–005	No function	
			006–255	Prism effect	

14 CH	18 CH	Function	Value	Setting	Color
9	12	Prism 1 rotating	000–049	Prism indexing from 0 to 360°	
			050–125	Clockwise prism rotation (CW), from fast to slow	
			126–129	Stop	
			130–205	Counterclockwise prism rotation (CCW), slow to fast	
			206–255	Prism bouncing, from slow to fast	
10	13	Prism 2 (48-facet circular)	000–005	No function	
			006–255	Prism effect	
11	14	Prism 2 rotating	000–049	Prism indexing from 0 to 360°	
			050–125	Clockwise prism rotation (CW), from fast to slow	
			126–129	Stop	
			130–205	Counterclockwise prism rotation (CCW), slow to fast	
			206–255	Prism bouncing, from slow to fast	
12	15	Focus	000–255	Gradual focus adjustment, from far to near	
	16	Focus Fine	000–255	Fine adjustment	
13	17	Frost	000–255	Frost effect, 0–100 % frost	
14	18	Control	000–023	No function	
			024–031	Pan invert	
			032–039	Pan normal	
			040–047	Tilt invert	
			048–055	Tilt normal	
			056–063	No function	
			064–071	Dimmer curve Linear	
			072–079	Dimmer curve Square	
			080–087	Dimmer curve Inv-Square	
			088–095	Dimmer curve S-curve	
			096–103	No function	
			104–111	PWM 1200 Hz	
			112–119	PWM 2000 Hz	
			120–127	PWM 4000 Hz	
			128–135	PWM 6000 Hz	
			136–143	PWM 15000 Hz	
			144–151	No function	
			152–159	Tilt Range 280°	
			160–167	Tilt Range 360°	
			168–175	No function	
			176–183	Blackout during pan/tilt movement on	
			184–191	Blackout during pan/tilt movement off	
			192–199	No function	
			200–207	Pan Tilt Reset	
			208–215	Color Reset	
			216–223	Gobo Reset	
			224–231	Prism Reset	
			232–239	Focus Reset	
			240–247	Frost Reset	
			248–255	Reset All	

6.8. RDM Information

This device supports RDM (see 6.8.2. Supported RDM PIDs (Parameter IDs)).

6.8.1. RDM Details

- Responder ID: 29B4:104XXXXX
- Manufacturer's ID: Showtec (Highlite International B.V.)
- Manufacturer Label: Showtec
- Model Description: Xpression 2000B - Beam
- Model ID: 260 (104 hexadecimal)
- Device Label: Xpression 2000B - Beam

Note:

An RDM responder ID consists of 3 parts:

- 1st part – 4 digits – Manufacturer's ID
- 2nd part – 3 digits – Model ID
- 3rd part – 5 digits – Unique ID

The RDM responder IDs of all products of Highlite International start with the same 4 digits. The first 7 digits of the RDM responder ID for each model are the same. The last 5 digits are different for each device.

6.8.2. Supported RDM PIDs (Parameter IDs)

RDM Parameter ID	Value	Required	GET	SET
SUPPORTED_PARAMETERS	0x0050	*	*	
DEVICE_MODEL_DESCRIPTION	0x0080		*	
MANUFACTURER_LABEL	0x0081		*	
DEVICE_LABEL	0x0082		*	*
DMX_PERSONALITY	0x00E0		*	*
DMX_PERSONALITY_DESCRIPTION	0x00E1		*	
DMX_START_ADDRESS	0x00F0	*	*	*
DEVICE_HOURS	0x0400		*	*
PAN_INVERT	0x0600		*	*
TILT_INVERT	0x0601		*	*
PAN_TILT_SWAP	0x0602		*	*

7. Troubleshooting

This troubleshooting guide contains solutions to problems which can be carried out by an ordinary person. The device does not contain user-serviceable parts.

Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Refer servicing to instructed or skilled persons. Contact your Highlite International dealer in case the solution is not described in the table.

Problem	Probable cause(s)	Solution
The device does not function at all	No power to the device	• Make sure that the device is connected to power supply and the cables are plugged in
	Main fuse is blown	• Replace the fuse (see 8.3.1. Replacing the Fuse on page 48)
The device responds erratically	The factory settings of the device are changed	• Reset the parameters of the device to the default factory settings
The device does not respond to DMX control	The controller is not connected	• Connect the controller
	The signal is reversed. The 3-pin DMX OUT of the controller does not match the DMX IN of the device	• Install a phase-reversing cable between the controller and the device
	The controller is defective	• Try using another controller
The device responds erratically to DMX control	Connections are defective	• Examine connections and cables. Correct defective connections. Repair or replace damaged cables
	The data link is not terminated with a 120 Ω termination plug	• Insert a termination plug in the DMX OUT connector of the last device on the link
	Incorrect addressing	• Make sure that the address settings are correct
	In case of a setup with multiple devices, one of the devices is defective and disturbs data transmission on the link	• To find out the defective device, bypass one device at a time until normal operation is restored
No light or LEDs cut out intermittently	LEDs are damaged	• Disconnect the device and contact your Highlite International dealer, refer to Corrective Maintenance
	The input power parameters of the device do not match the local AC voltage and frequency	• Disconnect the device. Make sure that the local current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device

7.1. Error Messages

In case one of the error messages below appear on the error information screen, refer to Error Info (see 6.6.4.2. Errors on page 37). If you can not solve the problem, discontinue the use of the device and contact your Highlite International dealer for more information.

Error code	Explanation
CPU-B	CPU-B error (Pan/tilt)
CPU-C	CPU-C error (color/gobo)
EEPROM Error	EEPROM (Electrically Erasable Programmable Read-Only Memory) error
Temp High	Temperature too high
Temp Sensitive	Temperature error
Pan Encoder Error	Pan error
Tilt Encoder Error	Tilt error
Tilt Sensor	Tilt infinite error
Color Sensor	Color wheel error
Gobo Sensor	Gobo wheel error
Prism 2 Sensor	Prism 2 error
Focus Sensor	Focus error

8. Maintenance

8.1. Safety Instructions for Maintenance



DANGER
Electric shock caused by dangerous voltage inside

Disconnect power supply before servicing or cleaning.

8.2. Preventive Maintenance



Attention
Before each use, examine the device visually for any defects.

Make sure that:

- All screws used for installing the device or parts of the device are tightly fastened and are not corroded.
- The safety devices are not damaged.
- There are no deformations on housings, fixings and installation points.
- The lens is not cracked or damaged.

The power cables are not damaged and do not show any material fatigue.

8.2.1. Basic Cleaning Instructions

The external lens of the device must be cleaned periodically in order to optimize the light output. The cleaning schedule depends on the conditions at the site where the device is installed. When smoke or fog machines are used at the site, the device will need more frequent cleaning. On the other hand, if the device is installed in well-ventilated area, it will need less frequent cleaning. To establish a cleaning schedule, examine the device at regular intervals during the first 100 hours of operation.

To clean the device, follow the steps below:

01) Disconnect the device from the electrical power supply.
02) Allow the device to cool down for at least 15 minutes.
03) Remove the dust collected on the external surface with dry compressed air and a soft brush.
04) Clean the lens with a damp cloth. Use a mild detergent solution.
05) Dry the lens carefully with a lint-free cloth.
06) Clean the DMX and other connections with a damp cloth.



Attention

- Do not immerse the device in liquid.
- Do not use alcohol or solvents.

Make sure that the connections are fully dry before connecting the device to the power supply and to other devices.

8.3. Corrective Maintenance

The device does not contain user-serviceable parts. Do not open the device and do not modify the device.

Refer repairs and servicing to instructed or skilled persons. Contact your Highlite International dealer for more information.

8.3.1. Replacing the Fuse



DANGER
Electric shock caused by short-circuit

- Do not bypass the thermostatic switch or fuses.
- Replace fuses only with the same type and rating.

Power surges, short-circuit or incorrect electrical power supply may cause a fuse to burn out. If the fuse burns out, the device will not function anymore. If this happens, follow the steps below:

01) Disconnect the device from the electrical power supply.
02) Allow the device to cool down for at least 15 minutes.
03) Loosen the fuse cover with a screwdriver and remove the fuse holder.
04) If the fuse is brown or unclear, it is burned out. Remove the old fuse.
05) Insert a new fuse in the fuse holder. Make sure that the type and the rating of the replacement fuse are the same as the ones specified on the information label of the product.
06) Replace the fuse holder in the opening and tighten the fuse cover.

9. Deinstallation, Transportation and Storage

9.1. Instructions for Deinstallation

WARNING
Incorrect deinstallation can cause serious injuries and damage of property.

- Let the device cool down before dismounting.
- Disconnect power supply before deinstallation.
- Always observe the national and site-specific regulations during deinstallation and derigging of the device.
- Wear personal protective equipment in compliance with the national and site-specific regulations.

9.2. Instructions for Transportation

- Use the original packaging to transport the device, if possible.
- Always observe the handling instructions printed on the outer carton box, for example: "Handle with care", "This side up", "Fragile".

9.3. Storage

- Clean the device before storing (see 8.2.1. Basic Cleaning Instructions on page 47).
- Store the device in the original packaging, if possible.

10. Disposal



Correct disposal of this product

Waste Electrical and Electronic Equipment

This symbol on the product, its packaging or documents indicates that the product shall not be treated as household waste. Dispose of this product by handing it to the respective collection point for recycling of electrical and electronic equipment. This is to avoid environmental damage or personal injury due to uncontrolled waste disposal. For more detailed information about recycling of this product contact the local authorities or the authorized dealer.

11. Approval

Check the respective product page on the website of Highlite International (www.highlite.com) for an available declaration of conformity.