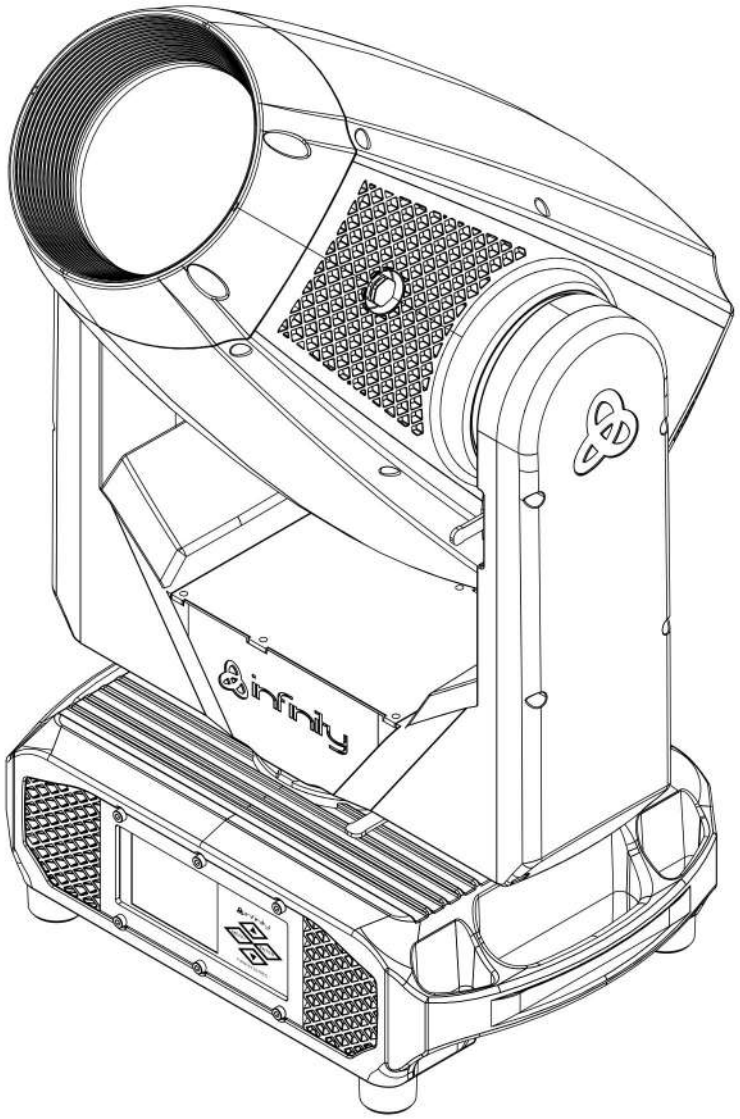
infinity

USER MANUAL

ENGLISH

V1.0



Furion S402 Spot

Product code: 41450

Preface

Thank you for purchasing this Infinity 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.

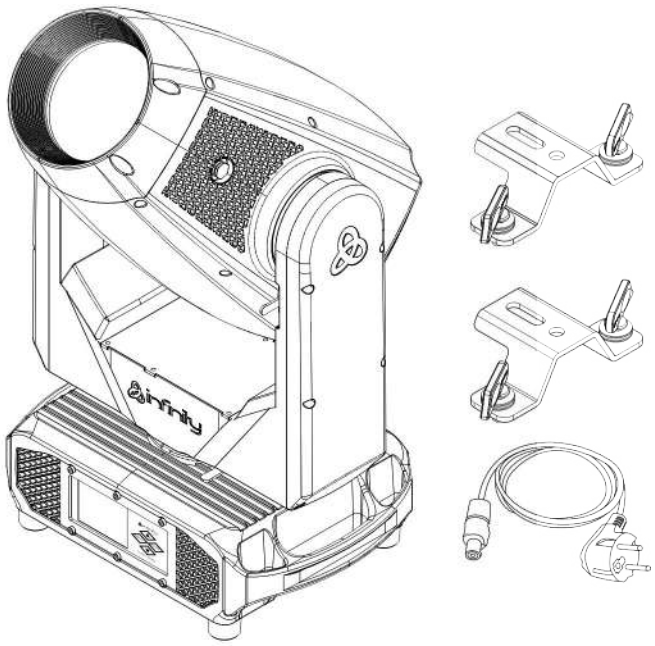
The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

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

Your shipment includes:

- Infinity Furion S402 Spot
- Schuko to Power Pro True 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 indoors and outdoors. 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 shall not be treated as household waste.

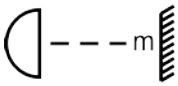


Read and follow the instructions in the user manual before installing, operating or servicing the device.

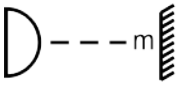


This device falls under IEC protection class I.

IP65 This devices is rated IP65.



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.
- Keep the connectors sealed with the rubber caps when the connectors are not in use.
- Do not connect the cables from above the connectors, if the device is installed outdoors. Make a ‘drip loop’ in the cable so that rain water cannot enter the device.



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 IP65 rated. IP (Ingress Protection) 65 class means that the device is dust-tight and protected against harmful effect of water jets.

Keep the connectors sealed with the rubber caps when the connectors are not in use.

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

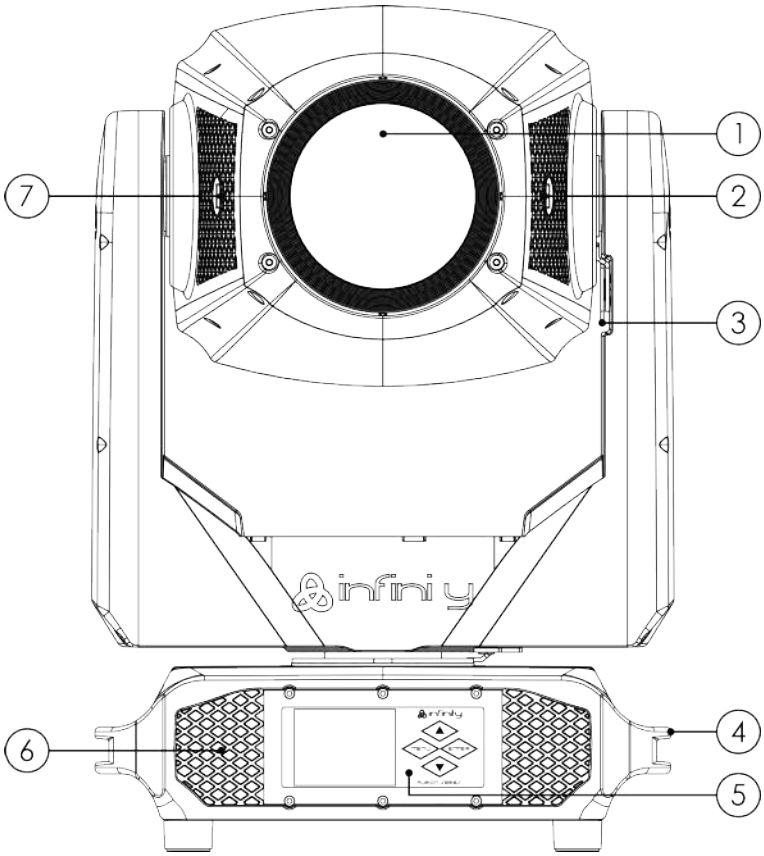
During installation, deinstallation and rigging wear personal protective equipment in compliance with the national and site-specific regulations.

3. Description of the Device

The Infinity Furion S402 Spot is an IP65-rated moving head with a 350 W flat-field LED. This device has a motorized zoom that enables seamless transitions between a slender 5,1° beam and a wide 32,5° wash. This device has a color wheel with 8 colors, plus an open position, a rotating gobo wheel with 7 gobos and a static gobo wheel with 9 gobos. Layers can be added to the light beam with a rotating 5-facet circular prism, an animation wheel or via virtual animation. This device also has a light frost filter. The device also offers 16-bit dimming capabilities, 4 different fan speeds and 6 different PWM frequencies. The control options include basic, advanced and customized DMX, CRMX, W-DMX, Art-Net, sACN and RDM.

3.1. Front View

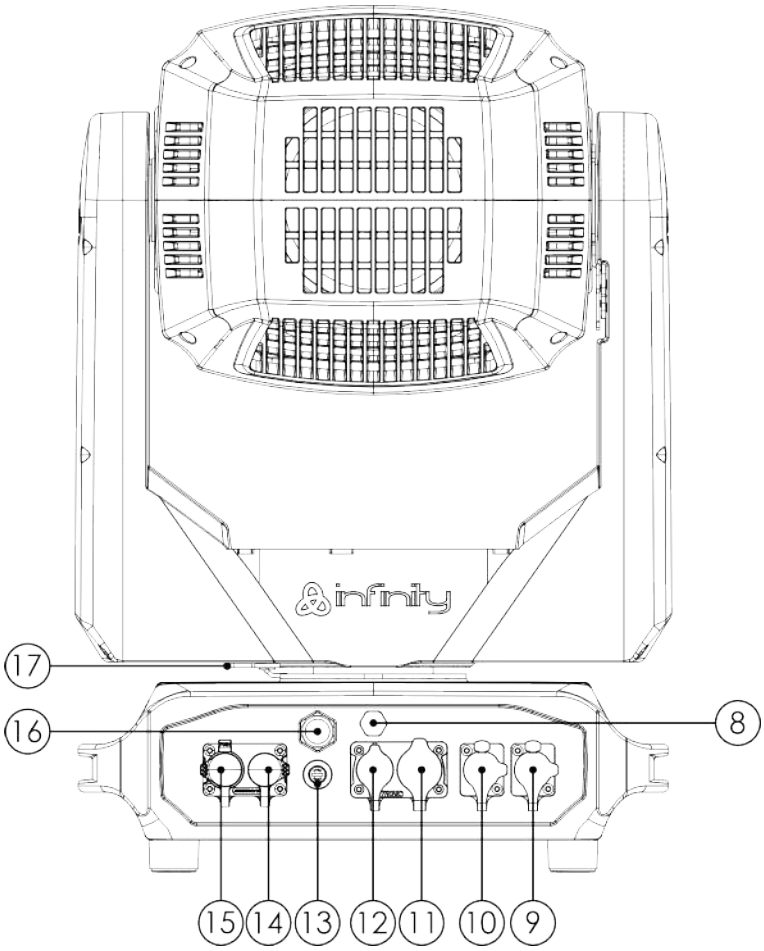
Figure 2



01) Lens
02) Drain plug
03) Yoke locking mechanism
04) 2 x Transport handles
05) Control panel: TFT screen and control buttons
06) Cooling
07) Protective vent (M12x1,5)

3.2. Back View

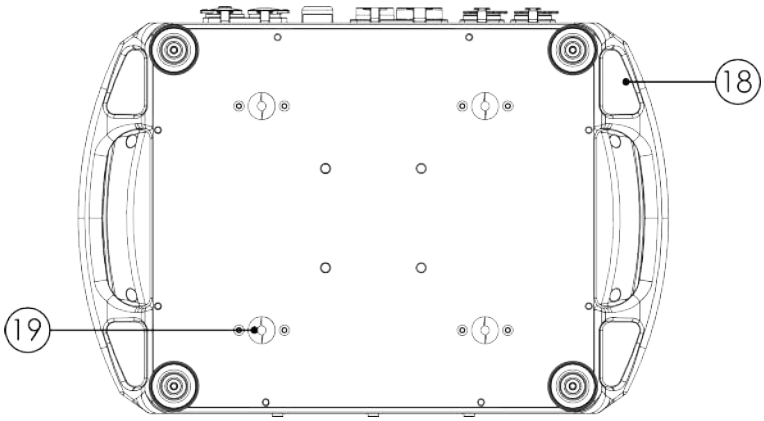
Figure 3



08) Protective vent (M12x1,5)
09) IP65-rated RJ45 connector
10) IP65-rated RJ45 connector
11) IP65-rated Seetronic power connector OUT
12) IP65-rated Seetronic power connector IN
13) Fuse (F10 AL, 250 V)
14) IP65-rated 5-pin DMX signal connector IN
15) IP65-rated 5-pin DMX signal connector OUT
16) W-DMX Antenna
17) Base locking mechanism

3.3. Base Plate

Figure 4



18) 4 x Openings for a safety cable
19) 4 x Mounting holes for quick-lock brackets

3.4. Product Specifications

Model:	Furion S402 Spot

Source:	
Light source type	LED
Light source quantity	1
Light source power	350 W
Refresh rate	600 Hz
Refresh rate (max.)	15 kHz
Luminous flux (total)	11525 lm
CRI	73,5
CCT	7400 K

Optical:	
Beam angle minimum (circular)	5,1°
Beam angle maximum (circular)	32,5°
Cutoff angle minimum (circular)	6,1°
Cutoff angle maximum (circular)	51,8°
Field angle minimum (circular)	5,9°
Field angle maximum (circular)	48,7°
Zoom type	Motorized
Zoom ratio	1:8
Frost	Yes
Focus	Motorized
Iris	Motorized

Control and Programming:	
Control mode	Auto / DMX / Manual
DMX channels	25 / 35
Protocols	CRMX Classic / DMX / W-DMX / RDM
Wireless	LumenRadio
Display	Battery / Gravity Sensor / TFT
Fan mode	Yes
Dim curve	Linear / Square / I-Square / S-Curve
Dimmer resolution	16-bit
Focus resolution	16-bit
Zoom resolution	16-bit
Frost resolution	8-bit
Iris resolution	16-bit

Dynamic Effects:	
Dimmer	0–100 %
Strobe	0–20 Hz
Prism 1	5-facet circular
Prism index & rotate	Yes
Animation wheel	Yes + Digital Motion FX
Framing shutters	N/A

Color system	Color wheel CMY
Dichroic color wheel 1	8 + open
Gobo system	Glass + metal
Gobo wheel 1	7 + open
Gobo wheel 2	9 + open
Gobo size	20 mm
Image diameter	15 mm

Movement:	
Pan	540°
Tilt	260°
Pan/Tilt resolution	16-bit

Electrical Specifications and Connections:	
Power supply	100–240 V AC 50/60 Hz
Power consumption	450 W
Fuse	F10 AL, 250 V
Power connector IN	Power Pro True
Power connector OUT	Power Pro True
DMX connector	XLR 5P IN/OUT
DMX connector IN	XLR 5P
DMX connector OUT	XLR 5P
Data connector	etherCON IN/OUT
Data connector IN	RJ45
Data connector OUT	RJ45

Mechanical Specifications:	
Length	254 mm
Width	374 mm
Height	662 mm
Weight	23 kg
IP rating	IP65
Housing	Magnesium die-cast
Color	Black

Product Properties:	
Cooling	Forced convection

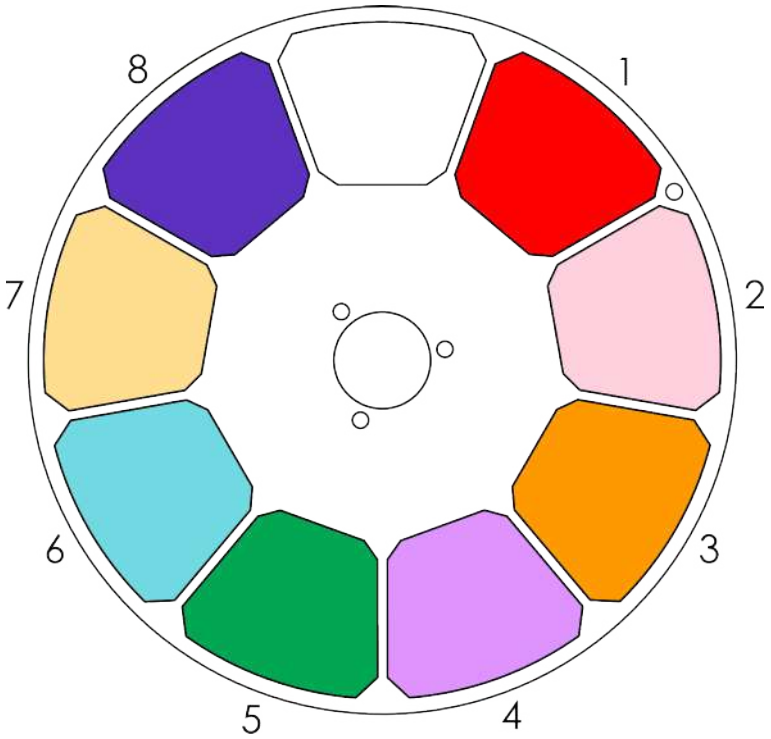
Thermal Specifications:	
Maximum ambient temperature	45 °C
Minimum operating temperature	-10 °C

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

3.5. Effect Wheels

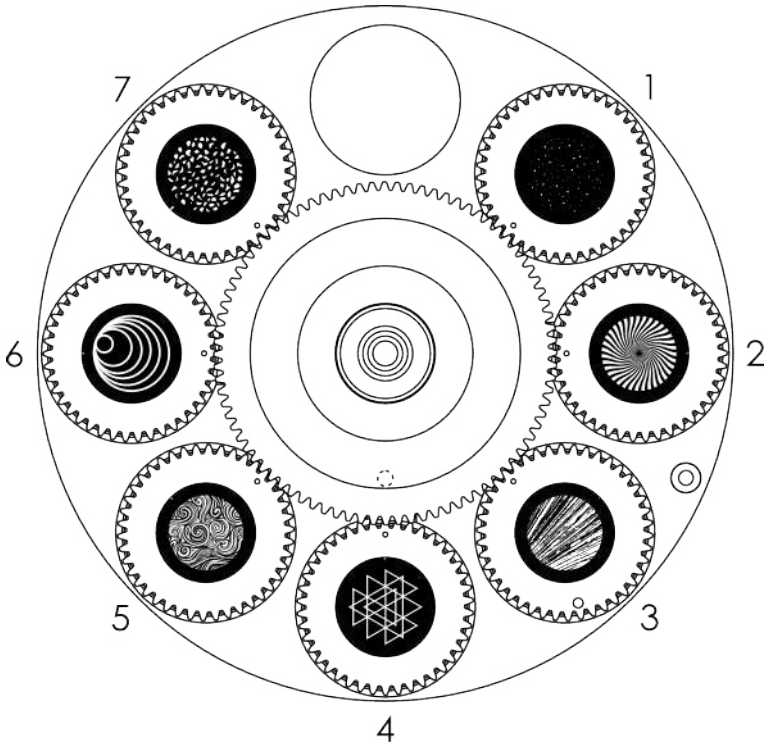
3.5.1. Color Wheel

Figure 5



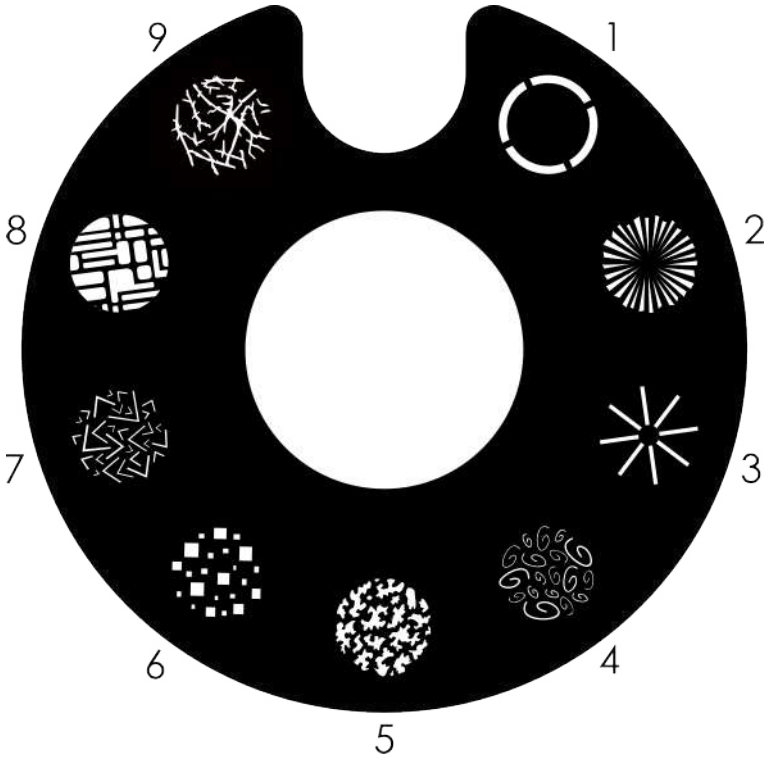
3.5.2. Rotating Gobo Wheel

Figure 6



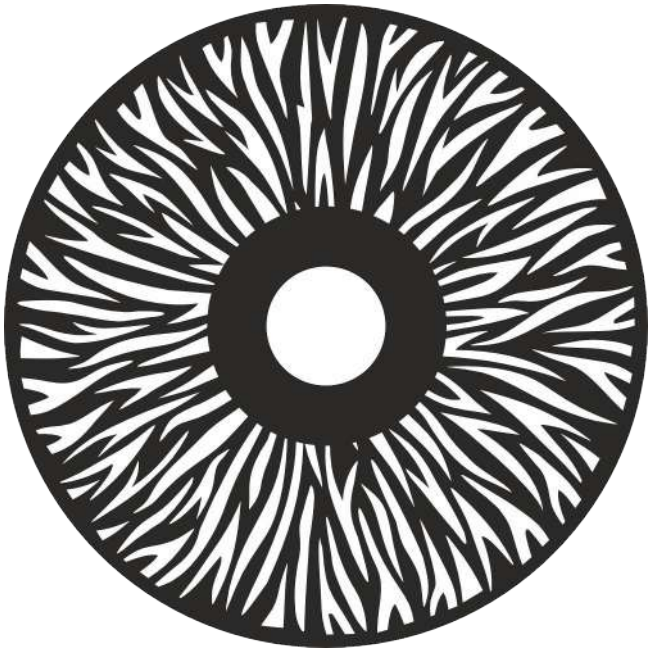
3.5.3. Static Gobo Wheel

Figure 7



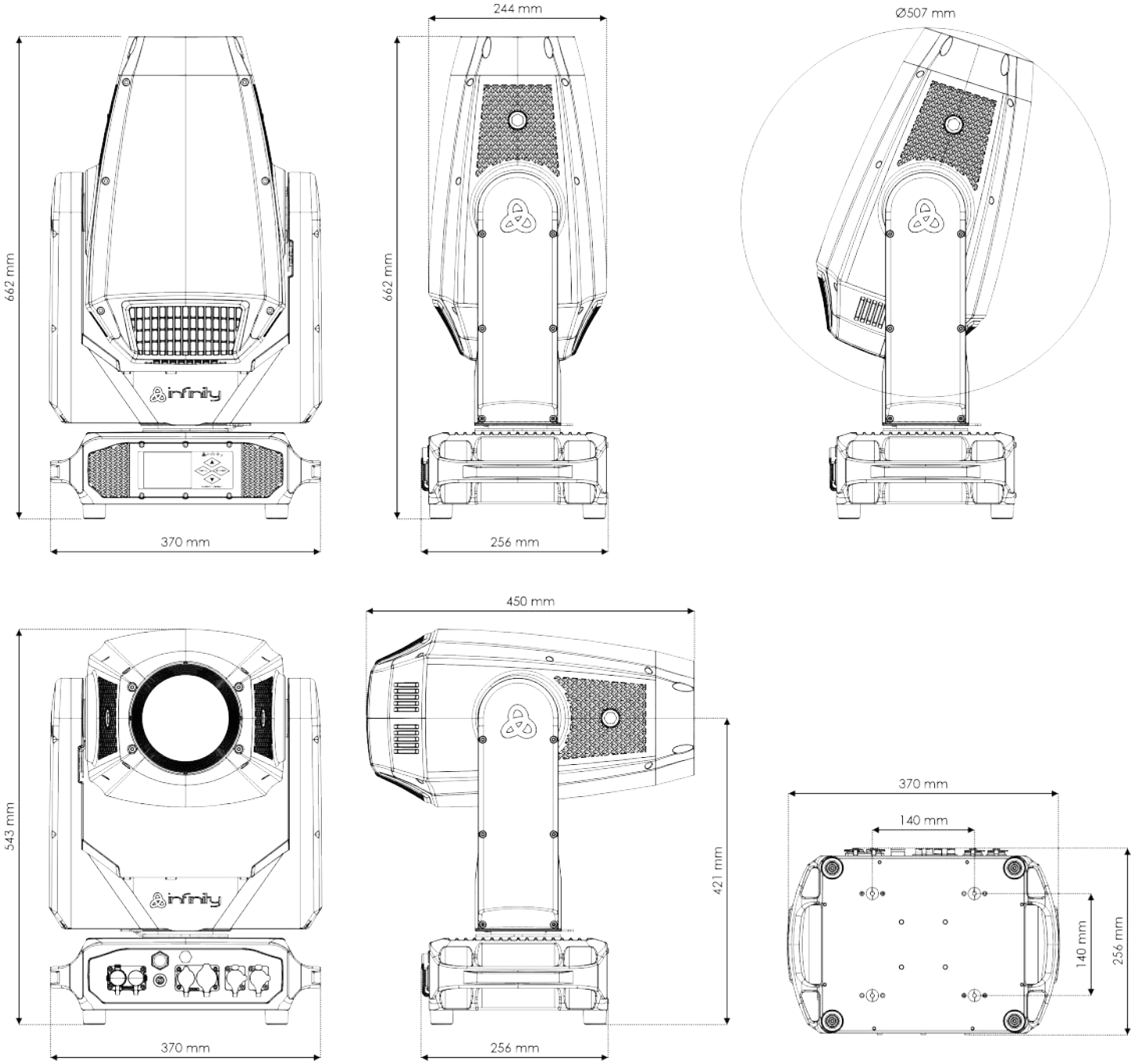
3.5.4. Animation Wheel

Figure 8



3.6. Dimensions

Figure 9



3.7. Optional Accessories

You can additionally purchase the following accessory:

- D7279 Case for 2x Furion S402 Spot or P402 Profile
- 41549 Infinity IP Tester for Furion

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 indoors and outdoors.
- The minimum distance between the light output and the illuminated surface must be bigger than 2 m.
- The minimum distance to other objects must be bigger than 0,5 m.
- The maximum ambient temperature t_a = 45 °C must never be exceeded.

4.4. Rigging

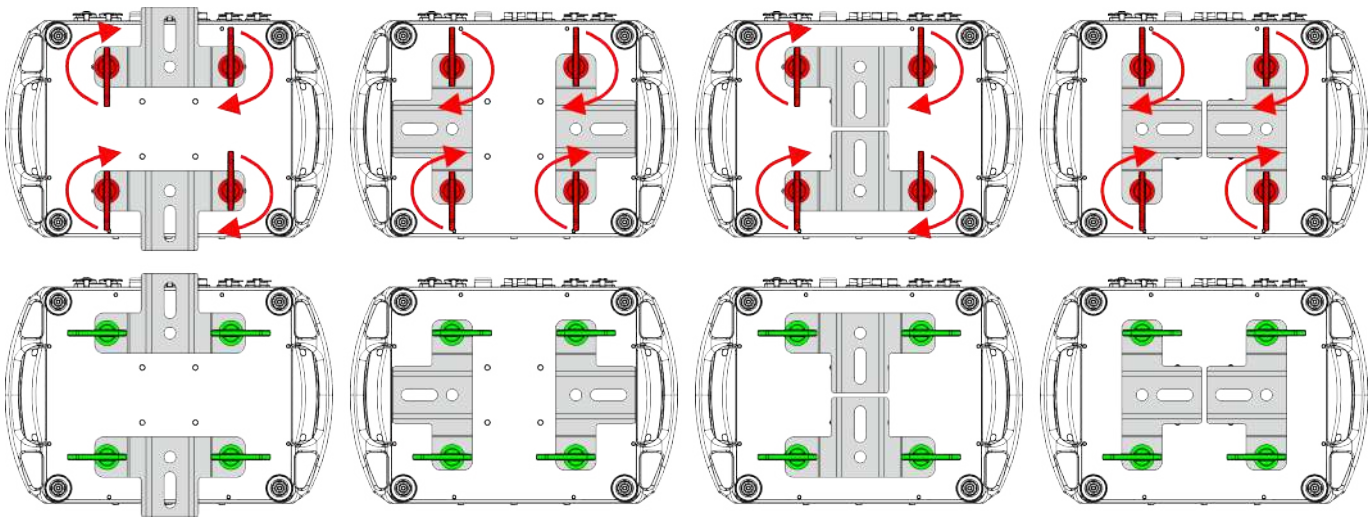
The device can be positioned on a flat surface or mounted to a truss or other rigging structure in any orientation. Make sure that all loads are within the pre-determined limits of the supporting structure.

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 (19)**. You can position the quick-lock brackets in 4 ways.
02) Lock the 2 quick-lock brackets by turning the locking mechanism of the quick-lock brackets clockwise.

Figure 10



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

Figure 11

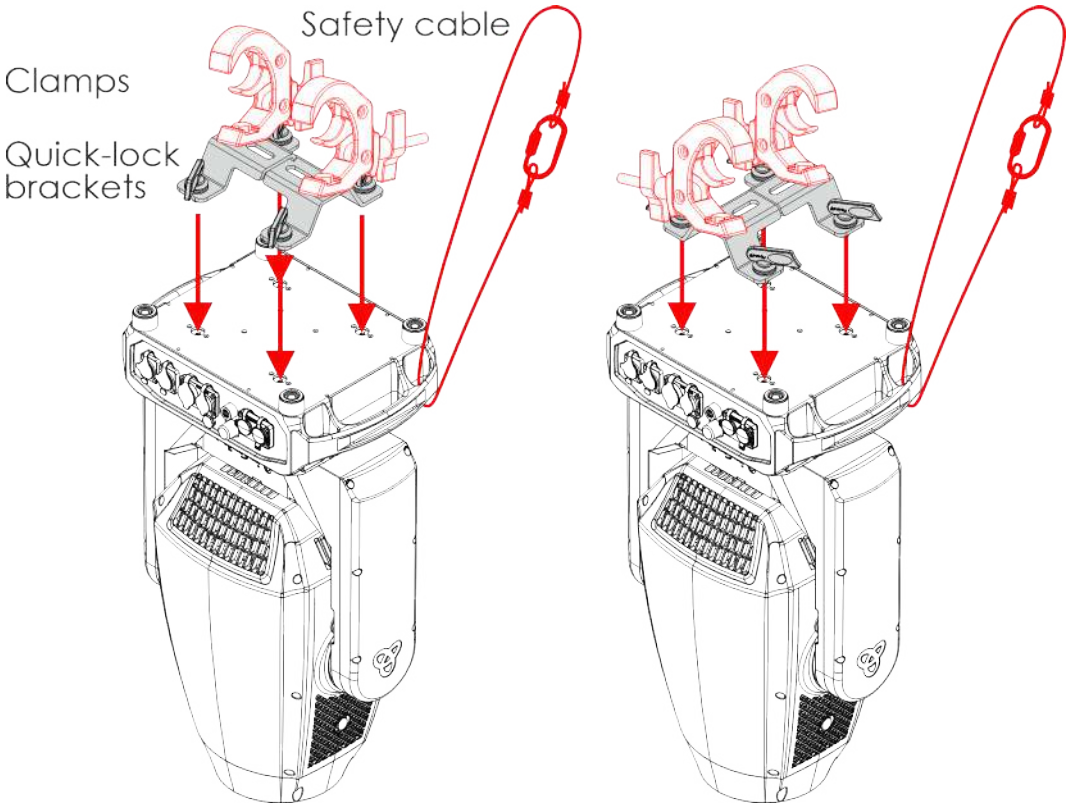
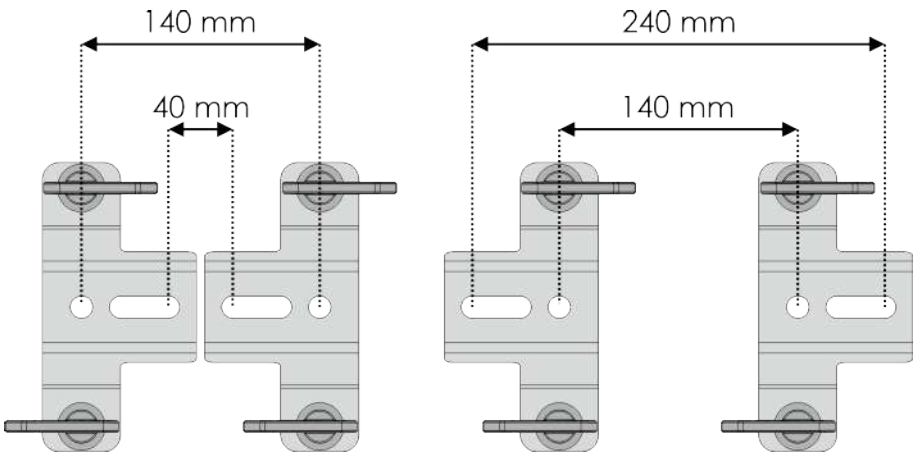


Figure 12



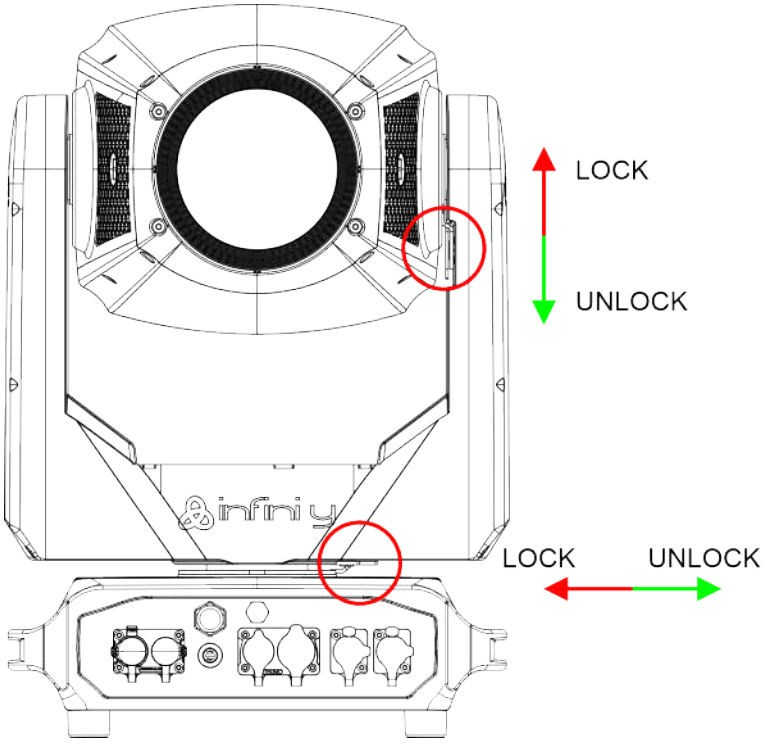
04) Attach the device to the supporting structure. Make sure that the device cannot move freely.
05) Secure the device with a secondary suspension, for example a safety cable. Make sure that the secondary suspension can hold 10 times the weight of the device. If possible, the secondary suspension should be attached to a supporting structure independent of the primary suspension. Put the safety cable through the **openings for a safety cable (18)**.

4.5. Lock/Unlock the Device

The device has a locking mechanism on the yoke and on the base.

- To unlock the device, slide the **base locking mechanism (17)** to the the right or slide the **yoke locking mechanism (03)** downwards.
- To lock the device, slide the **base locking mechanism (17)** to the left or slide the **yoke locking mechanism (03)** upwards.

Figure 13



Note:

Do not operate the device with the locking mechanisms locked.

4.6. 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 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.

This device is IP65 rated.

- Do not expose the device to conditions that exceed the rated IP class conditions.
- Keep the connectors sealed with the rubber caps when the connectors are not in use.
- Do not connect the cables from above the connectors, if the device is installed outdoors. Make a 'drip loop' in the cable so that rain water cannot enter the device.
- Make sure that the cable run is not too heavy. A heavy cable run can cause damage to the connectors. If the connectors are damaged, their ingress protection (IP) can deteriorate.

4.7. 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 Furion S402 Spot
- at 200–240 V: 8 devices Furion S402 Spot

5. Setup

5.1. Warnings and Precautions



DANGER
Electric shock caused by short-circuit

This device is IP65 rated.

- Do not expose the device to conditions that exceed the rated IP class conditions.
- Keep the connectors sealed with the rubber caps when the connectors are not in use.
- Do not connect the cables from above the connectors, if the device is installed outdoors. Make a 'drip loop' in the cable so that rain water cannot enter the device.
- Make sure that the cable run is not too heavy. A heavy cable run can cause damage to the connectors. If the connectors are damaged, their ingress protection (IP) can deteriorate.



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

5.2. Stand-alone Setup

When the Furion S402 Spot 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 25).

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 Furion S402 Spot has 5-pin DMX signal IN and OUT connectors.

The pin assignment is as follows: pin 1 (ground), pin 2 (-), pin 3 (+), pin 4 (N/C), pin 5 (N/C).

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

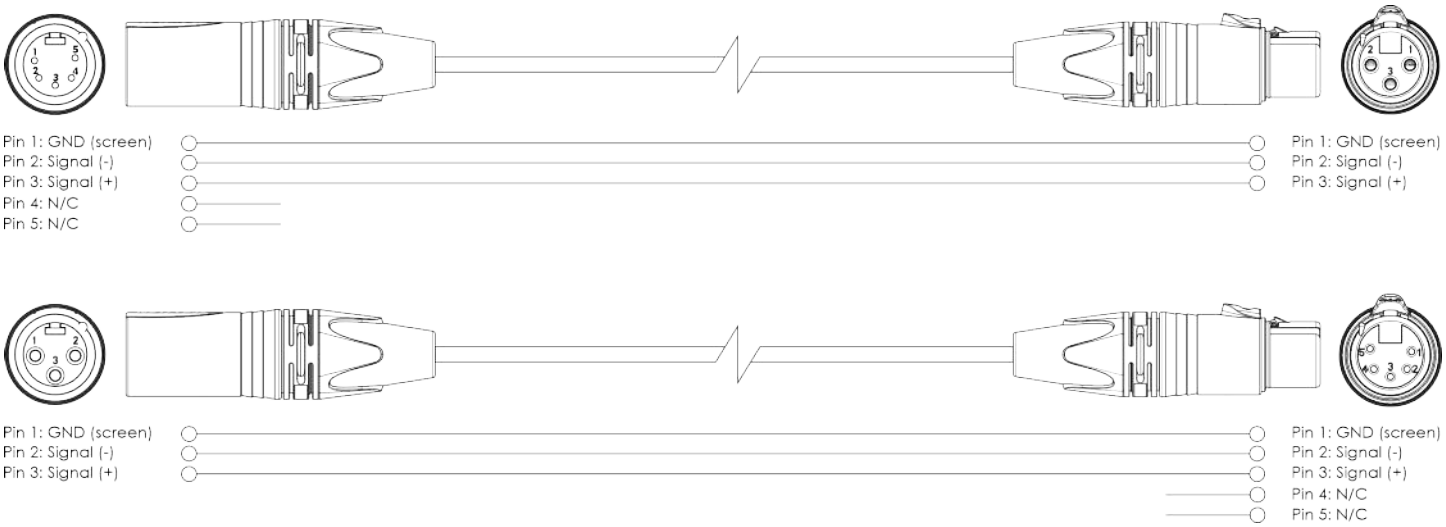
5.3.2. DMX Cables

Shielded twisted-pair cables with 5-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 14

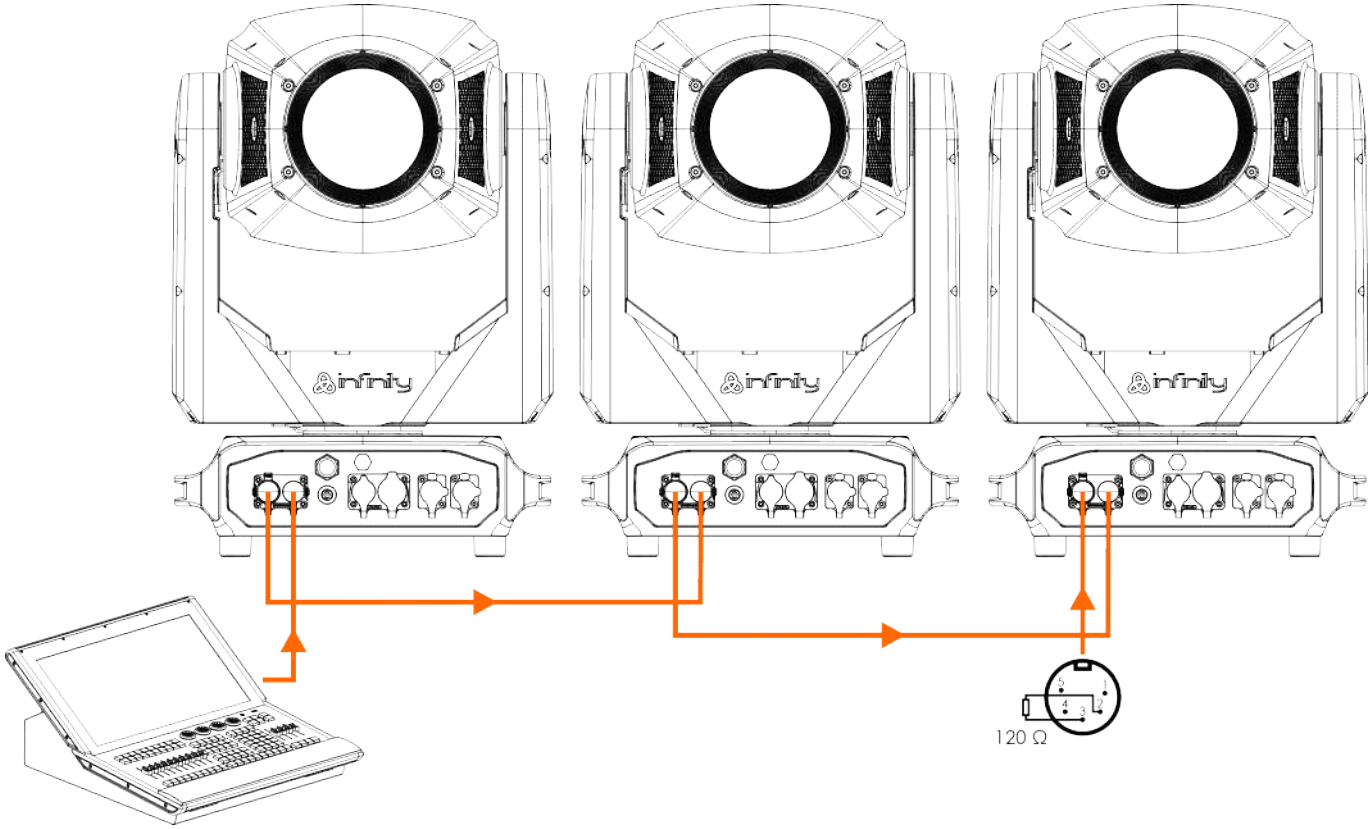


5.3.3. DMX Linking

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

01) Use a 5-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 5-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 15



5.3.4. DMX Addressing

In a setup with multiple devices, make sure that you set the DMX starting address of each device correctly. The Furion S402 Spot has 3 personalities: Basic (25 channels), Advanced (35 channels) and User (35 channels).

If you want to connect multiple devices on one data link and use them in 35-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 36 (036), as 1 + 35 = 36.
03) Set the starting address of the 3rd device on the data link to 71 (071), as 36 + 35 = 71.
04) Continue assigning the starting addresses of the remaining devices by adding each time 35 to the previous number.

Make sure that you do not have any overlapping channels in order to control each Furion S402 Spot correctly. If two or more devices are addressed similarly, they will work similarly.

5.4. Wireless Connection

The device is equipped with a 2,4 GHz wireless receiver from LumenRadio. The W-DMX receiver is compatible only with other W-DMX devices. It can be paired only with transceivers and transmitters with a W-DMX module.

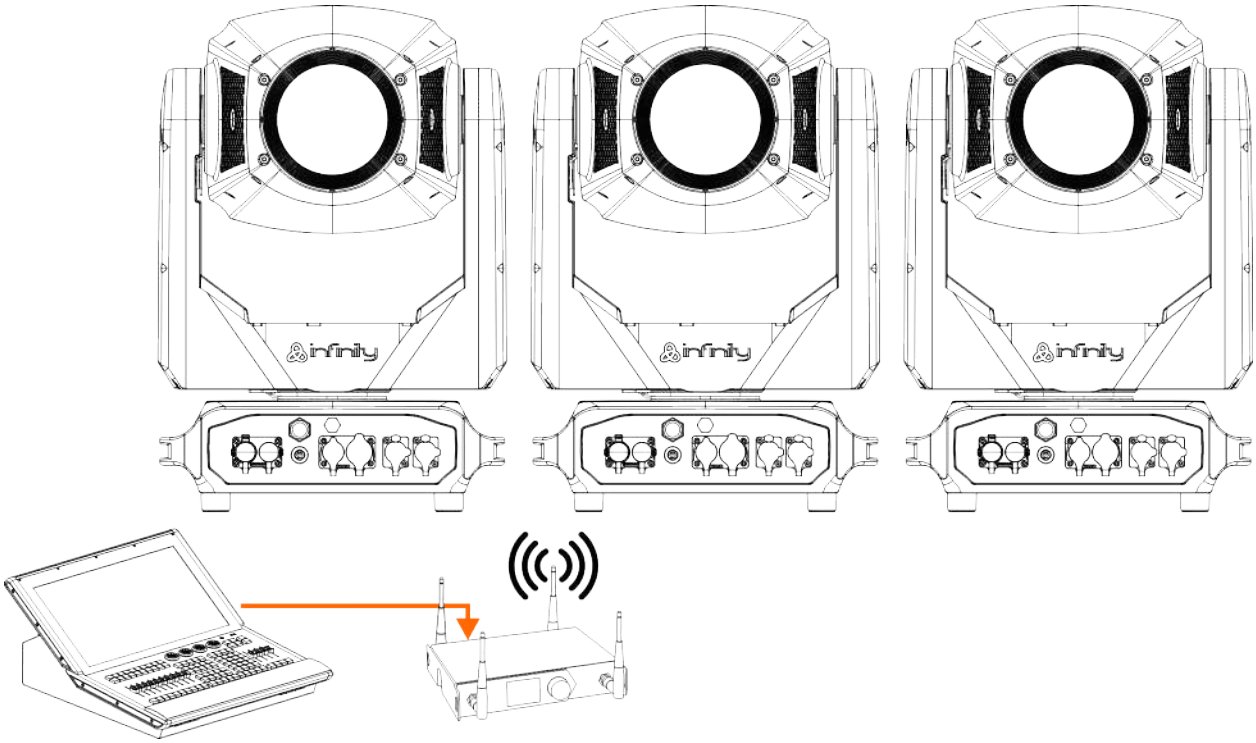
Communication distance	**Depending on the transmitting power or transmitter module**
Test conditions	WDMX TRx Transmitter module, 2 dBi Antenna, transmitting power 20 dBm (100 mW)
Range indoor	60 m
Range outdoor	250 m

Recommended transceiver: 51503 Lumenradio Stardust (G3, G4s, CRMX)

To connect multiple devices via wireless DMX, follow the steps below:

01) Set the devices to receive wireless DMX signal, refer to Control Mode (see 6.7.4. Control Mode on page 41).
02) Connect the transceiver/transmitter to the lighting controller.
03) Follow the user manual supplied with the transceiver to pair the devices.

Figure 16



5.5. Ethernet Connection

5.5.1. Art-Net/sACN Protocol

Art-Net is a protocol that uses TCP/IP to transfer a large amount of DMX-512 data over an Ethernet network. Art-Net 4 can support up to 32768 universes. Art-Net™ is designed by and copyright of Artistic Licence Holdings Ltd.

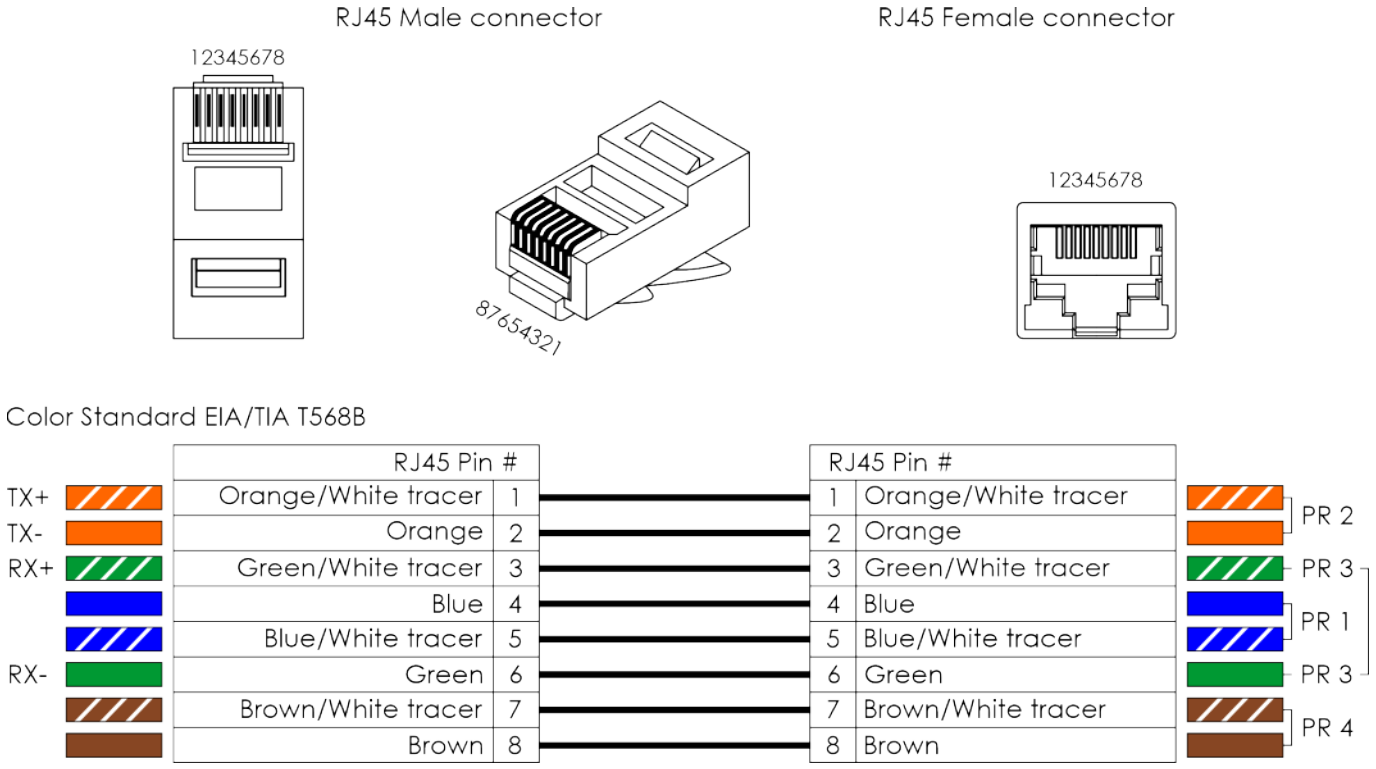
sACN (streaming Architecture for Control Networks), also known as ANSI E1.31, is a protocol developed by ESTA (Entertainment Services and Technology Association) for sending DMX-512 data over IP networks. It supports up to 63999 universes and uses multicasting.

5.5.2. Network Cables

Standard twisted-pair Ethernet cables (CAT-5/CAT-5E/CAT-6) can be used to connect the device to a computer or to a lighting controller that supports Art-Net or sACN.

If you make your own network cables, make sure that you connect the pins and wires correctly. Use RJ45 (8P8C) connectors and patch the cables according to the T568B color standard.

Figure 17

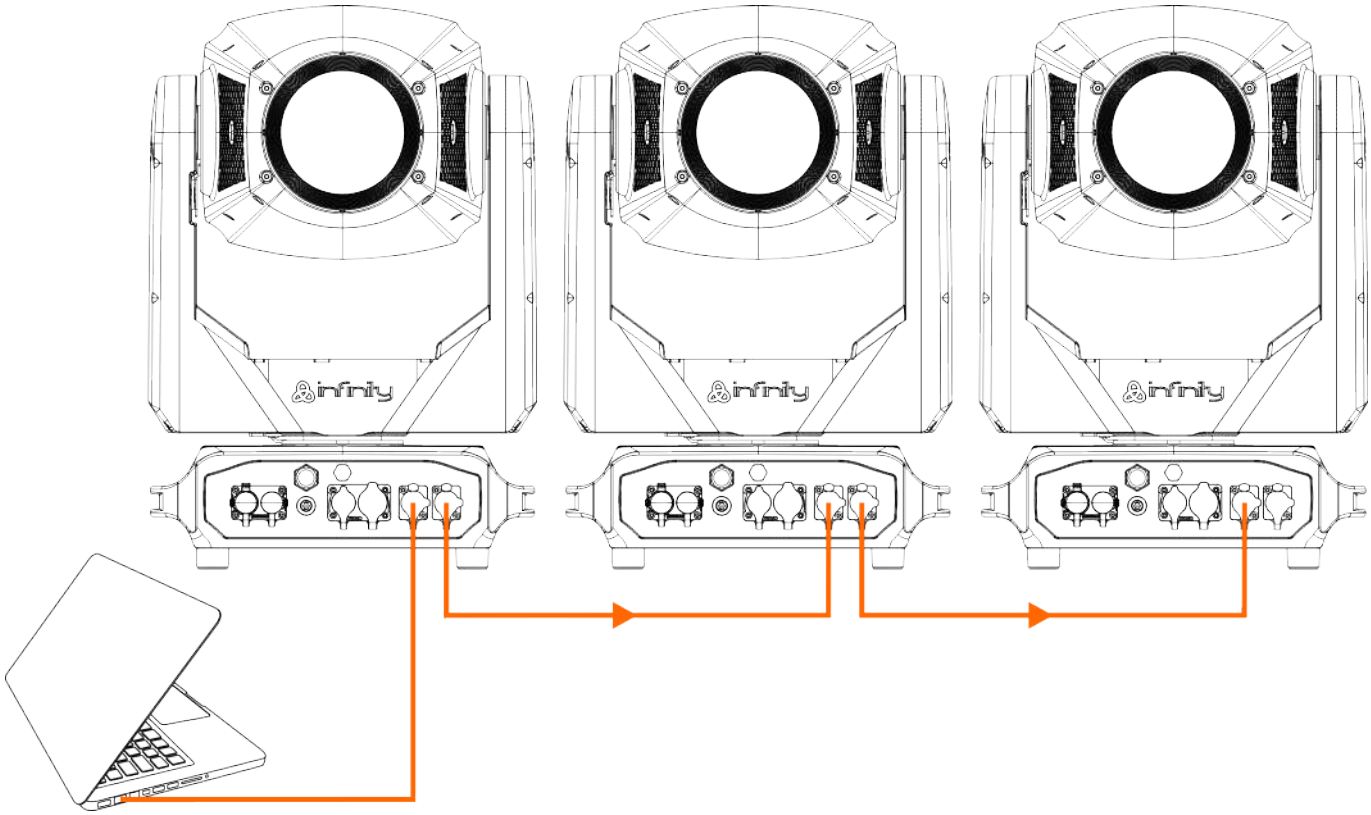


5.5.3. Art-Net/sACN Linking

To connect multiple devices on one Art-Net/sACN data link, follow the steps below:

01) Use a CAT-5/CAT-6 cable to connect the RJ45 connector of the computer/lighting controller to one of the RJ45 connectors of the 1st device.
02) Connect the 2nd RJ45 connector of the 1st device to the 1st RJ45 connector of the 2nd device with a CAT-5/CAT-6 cable.
03) Repeat step 2 to connect all devices in a daisy-chain.

Figure 18



5.5.4. Art-Net Settings

You need an Art-Net data link to run light shows of one or more devices using a computer/light controller.

If you want to connect multiple devices on one Art-Net/RDM data link, follow the steps below:

01) Set the IP address of your computer/light controller to 2.x.x.x or 10.x.x.x, depending on the Art-Net settings. All devices in the network must have a unique IP address. To change the IP address, the IP Mode, the Subnet mask, and the Universe of the device, refer to Network Setup (see 6.7.2.4. Network Setup on page 38).
02) Set the Subnet mask to 255.0.0.0. on all devices.
03) Set the universe of the 1st device to 1.
04) Set the DMX address of the 1st device to 001.
05) Map all the connected devices in the Art-Net-based software. To change the Art-Net protocol of the device, refer to Art-Net/sACN Protocol (see 5.5.1. Art-Net/sACN Protocol on page 23).

5.5.5. sACN Settings

To run your device using sACN protocol:

01) Set the IP address of your computer/light controller. sACN does not have restrictions on the IP address. To change the IP address, the IP Mode, the Subnet mask, and the Universe of the device, refer to Network Setup (see 6.7.2.4. Network Setup on page 38).
02) Select sACN Protocol in the Control Mode menu (see 6.7.4. Control Mode on page 41).
03) Set the universe in the Network Setup menu (see 6.7.2.4. Network Setup on page 38).

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 indoors and outdoors. 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 Furion S402 Spot supports the following control modes:

- Stand-alone: Stand-alone mode (built-in programs), manual control
- DMX-512: Basic (25 channels), Advanced (35 channels), User (35 channels)
- WDMX: Basic (25 channels), Advanced (35 channels), User (35 channels)
- Art-Net: Basic (25 channels), Advanced (35 channels), User (35 channels)
- sACN: Basic (25 channels), Advanced (35 channels), User (35 channels)

For more information about how to connect the devices, refer to Setup (see 5. Setup on page 20).

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

Adjust the parameters of the device in the Manual Control menu (see 6.7.5. Manual Control on page 42).

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

Select the control mode of the device in the Stand Alone menu (see 6.7.3. Stand Alone on page 41). If you select Program 1–9, the device will run the built-in program.

To operate the device with a DMX controller:

01) Select DMX512 as control mode in the Control Mode menu (see 6.7.4. Control Mode on page 41).
02) Set the DMX starting address of the device in the DMX Address menu (see 6.7.1. DMX Address on page 35).
03) Select the DMX channel mode in the Control Mode menu (see 6.7.4. Control Mode on page 41). Refer to DMX Channels (see 6.8. DMX Channels on page 46) for a complete overview of all DMX channels.

To operate the device wireless with a DMX controller in combination with a wireless transceiver:

01) Select WDMX as control mode in the Control Mode menu (see 6.7.4. Control Mode on page 41).
02) Set the DMX starting address of the device in the DMX Address menu (see 6.7.1. DMX Address on page 35).
03) Select the DMX channel mode in the Control Mode menu (see 6.7.4. Control Mode on page 41). Refer to DMX Channels (see 6.8. DMX Channels on page 46) for a complete overview of all DMX channels.

To operate the device via Art-Net with a computer/lighting controller:

01) Select ArtNet as control mode in the Control Mode menu (see 6.7.4. Control Mode on page 41).
02) Set the DMX starting address of the device in the DMX Address menu (see 6.7.1. DMX Address on page 35).

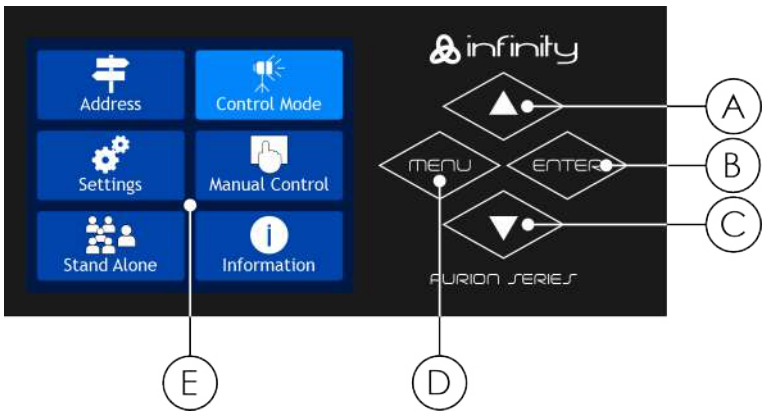
03) Select the DMX channel mode in the Control Mode menu (see 6.7.4. Control Mode on page 41). Refer to DMX Channels (see 6.8. DMX Channels on page 46) for a complete overview of all DMX channels.

To operate the device via sACN with a computer/lighting controller:

01) Select sACN as control mode in the Control Mode menu (see 6.7.4. Control Mode on page 41).
02) Set the DMX starting address of the device in the DMX Address menu (see 6.7.1. DMX Address on page 35).
03) Select the DMX channel mode in the Control Mode menu (see 6.7.4. Control Mode on page 41). Refer to DMX Channels (see 6.8. DMX Channels on page 46) for a complete overview of all DMX channels.

6.3. Control Panel

Figure 19



A) UP touch button
B) ENTER touch button
C) DOWN touch button
D) MENU touch button
E) TFT display

- Use the **MENU** button to exit the current submenu, to return to the Main Menu and to return to the start screen.
- 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 Infinity logo and the name of the device:



During the reset procedure it is possible to enter the menu to change the DMX address.
After the reset is completed, the device is ready to be operated. The display shows the start screen. The start screen provides information about the DMX starting address, the IP address, the universe and the selected DMX channel mode of the device:



I. DMX starting address of the device.
   - If the DMX connection is lost or the device is not connected, the DMX starting address is red.
   - If the device is receiving DMX signal, the DMX starting address is white.

II. Control protocol and channel mode

III. IP address and assigned universe

IV. W-DMX indicator: if the control protocol of the device is set to W-DMX (Wireless DMX), the W-DMX indicator appears on the display.
   - If the device is not assigned to a transmitter, the indicator is gray.
   - If the device is assigned to a transmitter but DMX is not present, the indicator is blinking slowly.
   - If the device is assigned to a transmitter and DMX is present, the indicator is green.
   - If the device is being linked to a transmitter or lost the connection with the transmitter, the indicator is blinking quickly.

V. Art-Net/sACN indicator: if the control protocol of the device is set to Art-Net or sACN, the Art-Net/sACN indicator appears on the display.
   - If the Ethernet connection is lost or the device is not connected, the Art-Net/sACN indicator is gray.
   - If the Ethernet connection is properly working, the Art-Net/sACN indicator is green.

VI. Enter/Unlock button. By default the display of the device is locked (see 6.5. Display Lock on page 27).

VII. Warning icon: if there is an error message (see 7.1. Error Messages on page 55), the warning icon starts blinking in the top left corner of the display.

Note:

If no button is pressed, after 5 seconds the display is locked.

6.5. Display Lock

In this screen you can lock/unlock the display of the device.

There are 3 options to lock/unlock the device:

- Locking Option (see 6.5.1. Locking)
- Unlocking without Password (see 6.5.2. Unlocking without Password)
- Unlocking with Password (see 6.5.3. Unlocking with Password)

6.5.1. Locking

In this screen you can lock the display of the device.

01) Press and hold down the **MENU** button and **ENTER** button for 3 seconds.
02) The display shows:

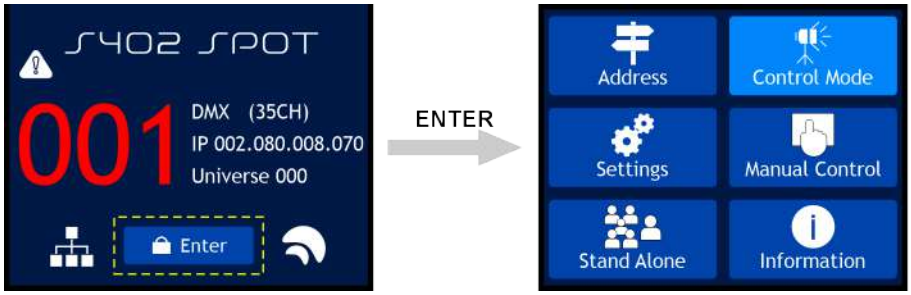


03) To unlock the device, refer to Unlocking Option.

6.5.2. Unlocking without Password

6.5.2.1. Option 1

Press the **ENTER** button to unlock the device. The display shows:



6.5.2.2. Option 2

01) Press the **MENU** button.
02) Press the **ENTER** button to unlock the device. The display shows:



6.5.3. Unlocking with Password

01) Press and hold down the **MENU** button and **ENTER** button for 3 seconds.
02) Press the **ENTER** button to unlock the device. The display shows:



6.6. Menu Overview

Level 1	Level 2	Level 3	Level 4
Address (see 6.7.1. DMX Address on page 35)	Address Setting	001–512	
Settings (see 6.7.2. Settings Menu on page 36)	Screen Reverse	NO	
		YES	
		AUTO	
	Pan Reverse	NO	
		YES	
	Tilt Reverse	NO	
		YES	
	Pan Angle	540	
		360	
		180	
	Tilt Angle	260	
		180	
		90	
	Auto Pan Invert	OFF	
		ON	
	Backlight Timer	30S	
		1M	
		5M	
		ON	
	Dimmer Curve	Linear	
		Square	
		I Squa	
		SCurve	
	Dimmer Speed	Smooth	
		Fast	
	PWM Option	600 Hz	
		1200 Hz	
		2000 Hz	
		4000 Hz	
		6000 Hz	
		15000Hz	
	WDMX	OFF	
		ON	
	Wireless Unlink	NO	
		YES	
	DMX Fail	Hold	
		OFF	
	Fans	Auto	
		Full	
		Silent	
		Studio	

Level 1	Level 2	Level 3	Level 4
	Network Setup	IP Mode	Manual
			DHCP
		Universe	000–255
			001–256
		IP Address	002.243.075.222
		SubMask	255.000.000.000
	Lock Code	Activate Lock Code	NO
			YES
		Enter Lock Code	SET
	BL.O.P/T Move	NO	
		YES	
	BL.O.Color Move	NO	
		YES	
	BL.O.Gobo Move	NO	
		YES	
	Service Menu (6468)	PAN	128
		TILT	128
		COLOR	128
		GOBO	128
		GOBO ROTATE	128
		GOBO2	128
		ANIMATION	128
		FOCUS-GOBO	128
		FOCUS-GOBO2	128
		ZOOM	128
		PRISM	128
		IRIS	128
		FROST	128
		CYAN	128
		MAGENTA	128
		YELLOW	128
		DIMMER	128
		MAC4	000
		MAC5	000
		MAC6	000
		RDM ID4	000
		RDM ID5	000
		RDM ID6	000
	Reset User Hours	NO	
		YES	
	Reset Function	Pan/Tilt	NO
			YES
		Iris/Prism	NO
			YES
		Color/CMY	NO

Level 1	Level 2	Level 3	Level 4
			YES
		Gobo/Gobo Rotate	NO
			YES
		Frost/Animation	NO
			YES
		All	NO
			YES
	Factory Settings	NO	
		YES	
Stand Alone (see 6.7.3. Stand Alone on page 41)	Program Number	1–9	
Control Mode (see 6.7.4. Control Mode on page 41)	Control Mode	DMX	
		WDMX	
		ArtNet	
		sACN	
	Personality	Basic	
		Advance	
		User	
	User Personality	Pan	NO/1~Advance Num
		Pan Fine	NO/1~Advance Num
		Tilt	NO/1~Advance Num
		Tilt Fine	NO/1~Advance Num
		P/T Speed	NO/1~Advance Num
		Dimmer	NO/1~Advance Num
		Dimmer Fine	NO/1~Advance Num
		Shutter	NO/1~Advance Num
		Color	NO/1~Advance Num
		Cyan	NO/1~Advance Num
		Cyan Fine	NO/1~Advance Num
		Magenta	NO/1~Advance Num
		Magenta Fine	NO/1~Advance Num
		Yellow	NO/1~Advance Num
		Yellow Fine	NO/1~Advance Num
		Virtual Colorwheel	NO/1~Advance Num
		Gobo	NO/1~Advance Num
		Gobo Rotate	NO/1~Advance Num
		Gobo Rotate Fine	NO/1~Advance Num
		Gobo2	NO/1~Advance Num
		Prism	NO/1~Advance Num
		Prism Rotate	NO/1~Advance Num
		Prism Rotate Fine	NO/1~Advance Num
		Zoom	NO/1~Advance Num
		Zoom Fine	NO/1~Advance Num
		Iris	NO/1~Advance Num
		Iris Fine	NO/1~Advance Num

Level 1	Level 2	Level 3	Level 4
		Iris Macro	NO/1~Advance Num
		Focus	NO/1~Advance Num
		Focus Fine	NO/1~Advance Num
		Focus Auto	NO/1~Advance Num
		Frost	NO/1~Advance Num
		Animation	NO/1~Advance Num
		Virtual Animation	NO/1~Advance Num
		Control	NO/1~Advance Num
Manual Control (see 6.7.5. Manual Control on page 42)	Auto Test	Apply	
	Manual Test	Pan	000–255
		Pan Fine	000–255
		Tilt	000–255
		Tilt Fine	000–255
		P/T Speed	000–255
		Dimmer	000–255
		Dimmer Fine	000–255
		Shutter	000–255
		Color	000–255
		Cyan	000–255
		Cyan Fine	000–255
		Magenta	000–255
		Magenta Fine	000–255
		Yellow	000–255
		Yellow Fine	000–255
		Virtual Colorwheel	000–255
		Gobo	000–255
		Gobo Rotate	000–255
		Gobo Rotate Fine	000–255
		Gobo2	000–255
		Prism	000–255
		Prism Rotate	000–255
		Prism Rotate Fine	000–255
		Zoom	000–255
		Zoom Fine	000–255
		Iris	000–255
		Iris Fine	000–255
		Iris Macro	000–255
		Focus	000–255
		Focus Fine	000–255
		Focus Auto	000–255
		Frost	000–255
		Animation	000–255
		Virtual Animation	000–255
		Control	000–255

Level 1	Level 2	Level 3	Level 4
Information (see 6.7.6. Information on page 43)	Fixture Info	Ver	V2. XXXXXX
		Running Mode	DMX
		DMX Address	001
		Temperature	025
		Fixture Hours	00000
		User Hours	00000
		IP Address	002.243.075.222
		SubMask	255.000.000.000
		UID	29B40E6XXXXX
		MAC	34.29.8F.82.4B.4A
	Fan Info	BASE FAN1 Speed	2000
		DFAN2 Speed	2000
		MFAN1 Speed	2000
		ZFAN1 Speed	2000
		ZFAN2 Speed	2000
		ZFAN3 Speed	2000
		AFAN1 Speed	2000
	Error Info		
	Channel Info	DMX Frequency	000
		Pan	000–255
		Pan Fine	000–255
		Tilt	000–255
		Tilt Fine	000–255
		P/T Speed	000–255
		Dimmer	000–255
		Dimmer Fine	000–255
		Shutter	000–255
		Color	000–255
		Cyan	000–255
		Cyan Fine	000–255
		Magenta	000–255
		Magenta Fine	000–255
		Yellow	000–255
		Yellow Fine	000–255
		Virtual Colorwheel	000–255
		Gobo	000–255
		Gobo Rotate	000–255
		Gobo Rotate Fine	000–255
		Gobo2	000–255
		Prism	000–255
		Prism Rotate	000–255
		Prism Rotate Fine	000–255
		Zoom	000–255
		Zoom Fine	000–255
		Iris	000–255

Level 1	Level 2	Level 3	Level 4
		Iris Fine	000–255
		Iris Macro	000–255
		Focus	000–255
		Focus Fine	000–255
		Focus Auto	000–255
		Frost	000–255
		Animation	000–255
		Virtual Animation	000–255
		Control	000–255

6.7. Main Menu Options

The main menu has the following 6 options:



DMX Address



Settings Menu



Stand Alone



Control Mode



Manual Control



Information

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

6.7.1. DMX Address

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

01) Press the **UP/DOWN** buttons to select the DMX starting address of the device. The adjustment range is between 001–512.
02) Press the **ENTER** button to confirm the selection.

6.7.2. Settings Menu

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

01) Press the **UP/DOWN** buttons to scroll through the 23 available options:



- Screen Reverse: 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 will automatically rotate 180° when the device is turned upside down
- Pan Reverse: Turn off/on the inverted pan direction (NO/YES)
- Tilt Reverse: Turn off/on the inverted tilt direction (NO/YES)
- Pan Angle: 540°/360°/180°
- Tilt Angle: 260°/180°/90°
- Auto Pan Invert: Invert the pan direction automatically, depending on the position of the device (ON/OFF)
- Backlight Timer: Set the time after inactivity, before the display turns off (30 s/1 min/5 min/ON). If you select ON, the display will not turn off
- Dimmer Curve (see 6.7.2.1. Dimmer Curve)
- Dimmer Speed: Dimmer Speed: Set the dimmer speed (Smooth/Fast)
- PWM Option (see 6.7.2.2. PWM Option)
- WDMX: Activate/deactivate Wireless DMX (ON/OFF)

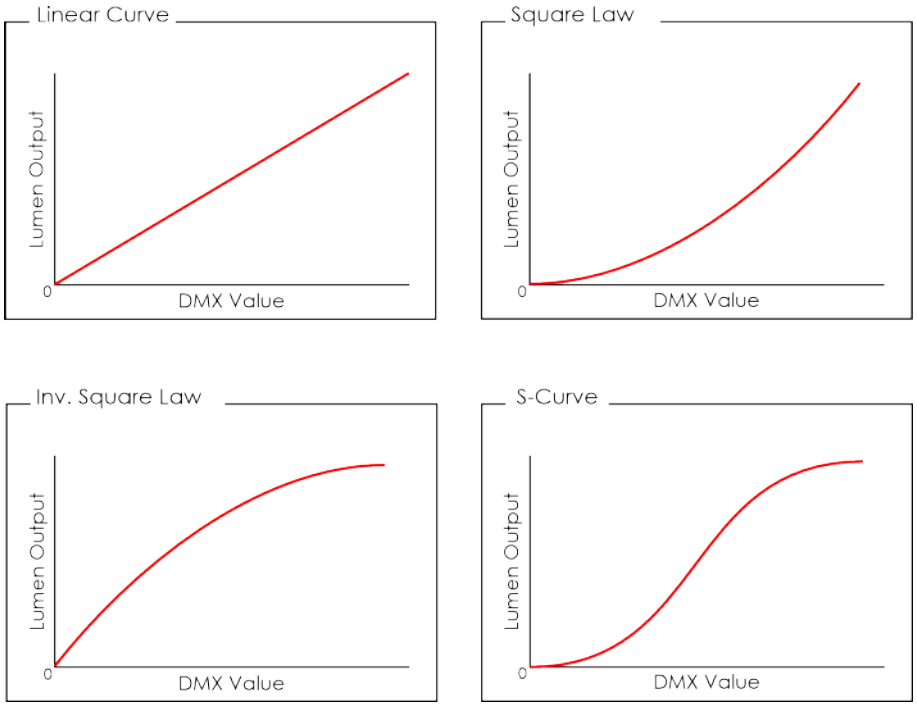
- Wireless Unlink: Terminate the connection between the device and the transmitter (NO/YES)
- DMX Fail: Set the behavior of the device in case of a DMX failure. There are 2 options: OFF (the device will black out the light output) and HOLD (the device will use the last properly received DMX signal which ensures undisrupted performance)
- Fans (see 6.7.2.3. Fans)
- Network Setup (see 6.7.2.4. Network Setup)
- Lock Code (see 6.7.2.5. Lock Code)
- BL.O. P/T Move: The device will black out the light output when Pan/Tilt are active (NO/YES)
- BL.O. Color Move: The device will black out the light output during the color wheel movement (NO/YES)
- BL.O. Gobo Move: The device will black out the light output during the gobo wheel movement (NO/YES)
- Service Menu (see 6.7.2.6. Service Menu)
- Reset User Hours: Reset the total operation time counter (NO/YES)
- Reset Function (see 6.7.2.7. Reset Function)
- Factory Settings: Restore the factory default settings (NO/YES)

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

6.7.2.1. Dimmer Curve

In this submenu you can select the dimming curve.

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



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

6.7.2.2. PWM Option

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

01) Press the **UP/DOWN** buttons to select one of the 6 options:
- 600 Hz
- 1200 Hz
- 2000 Hz
- 4000 Hz
- 6000 Hz
- 15000 Hz

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

6.7.2.3. Fans

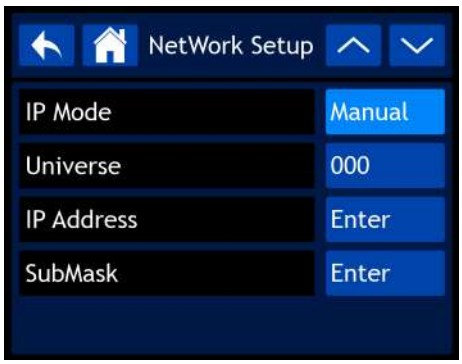
In this submenu you can adjust the fan settings.

01) Press the **UP/DOWN** buttons to scroll through the 4 available options:
- Auto: The fan speed is automatic, depending on the selected light output
- Full: The fan speed is full on
- Silent: The fan speed is silent
- Studio: The fan speed is set for studio use. The light output will be reduced to guarantee a constant reduced fan speed

6.7.2.4. Network Setup

In this submenu you can adjust the network settings.

01) Press the **UP/DOWN** buttons to scroll through the 4 available options:



- IP Mode: Set the configuration of the IP Address manually or automatically by a network server (DHCP)
- Universe: Set the Universe. The range is 000–255 for Art-Net/001–256 for sACN
- IP Address: Set the IP address
- SubMask: Set the Subnet Mask

02) Press the **ENTER** button to confirm the selection.
03) Press the **UP/DOWN** buttons to increase/decrease the value.
04) Press the **ENTER** button to confirm the selection.

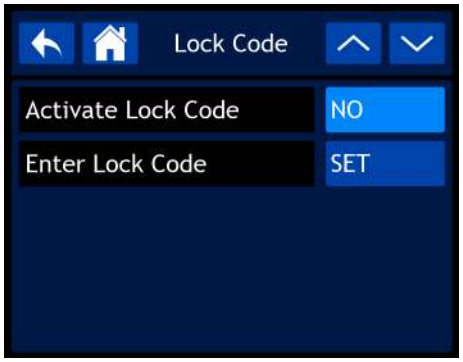
6.7.2.5. Lock Code

In this submenu you can set a personal lock code or change the current lock code.

01) Press the **UP/DOWN** buttons to insert the master code: 6468:



02) Press the **ENTER** button to confirm.
03) Press the **UP/DOWN** buttons to select the desired mode. There are 2 options:



- Activate Lock Code: Activate the lock code (NO/YES)
- Enter Lock Code (see 6.7.2.5.1. Enter Lock Code)

6.7.2.5.1. Enter Lock Code

In this menu you can set Enter Lock Code for the device.

01) Press the **UP/DOWN** buttons to increase/decrease the values in order to create your personal code. Set the lock code 0000–9999.
02) Press the **ENTER** button to confirm the selection.



Note:

If you forget your personal code, you can still insert the **master code: 6468** which overrides your personal code.

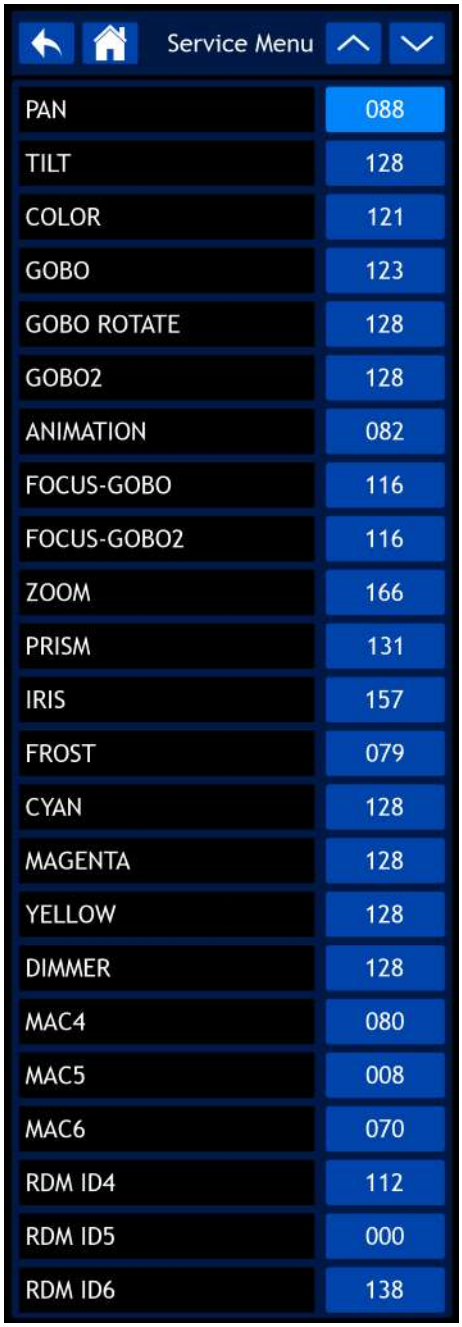
6.7.2.6. Service Menu

In this submenu you can make fine adjustments of the home position of all moving parts or change the MAC address and the RDM identification number of the device.

Note:

If you forget your previously set personal lock code, you can still insert the **master code: 6468** which overrides the personal code.

01) Press the **UP/DOWN** buttons to insert the personal code or if you forgot that, insert the master code: 6468.
02) Select **ENTER** to confirm.
03) Press the **UP/DOWN** buttons to scroll through the 23 available options:



04) Once you have selected the desired option, press the **ENTER** button to confirm the selection.
05) Press the **UP/DOWN** buttons to adjust the values to change the home position of all moving parts, the MAC addresses and the RDM identification numbers of the device. The adjustment range is 000–255.
06) Press the **ENTER** button to confirm the selection.

6.7.2.7. Reset Function

In this submenu you can reset the settings of the device.

01) Press the **UP/DOWN** buttons to scroll through the 6 available options:



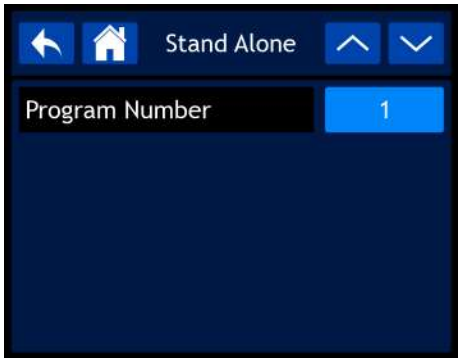
- Pan/Tilt: Reset Pan/Tilt (NO/YES)
- Iris/Prism: Reset Iris/Prism (NO/YES)
- Color/CMY: Reset Color/CMY (NO/YES)
- Gobo/Gobo Rotate: Reset Gobo/Gobo Rotate (NO/YES)
- Frost/Animation: Reset Frost/Animation (NO/YES)
- All: Reset all settings (NO/YES)

02) Press the **UP/DOWN** buttons to select NO or YES. If you select YES, the function in question will reset.
03) Press the **ENTER** button to confirm the selection.

6.7.3. Stand Alone

In this menu you can set the built-in program.

Press the **UP/DOWN** buttons to start one of the 9 built-in programs. The display shows:



6.7.4. Control Mode

In this menu you can set the control mode, personality and user personality.

01) Press the **UP/DOWN** buttons to scroll through the 3 available options:



- Control Mode: DMX, WDMX, Art-Net, sACN

- Personality: Basic (25 channels), Advance (35 channels), User (up to 35 channels)
- User Personality (see 6.7.4.1. User Personality)

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

6.7.4.1. User Personality

In this menu you can customize the device by changing the order of the 35 DMX channels and/or leaving some channels out. These functions are the same as the 35 DMX channels in Advance personality. For more information, refer to DMX Channels (see 6.8. DMX Channels on page 46).

01) Press the **UP/DOWN** buttons to scroll through the 35 available options:

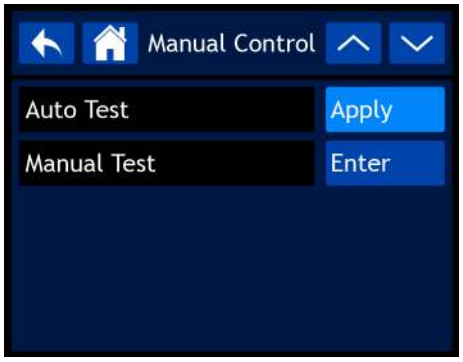


02) Press the **ENTER** button to confirm the selection.
03) Press the **UP/DOWN** buttons to increase/decrease the numeric value in order to assign a DMX channel to this function. The adjustment range is between 001–035. Select NO if you want to exclude a function.
04) Press the **ENTER** button to confirm the selection.

6.7.5. Manual Control

In this menu you can set Auto Test or Manual Test.

01) Press the **UP/DOWN** buttons to scroll through the 2 available options:



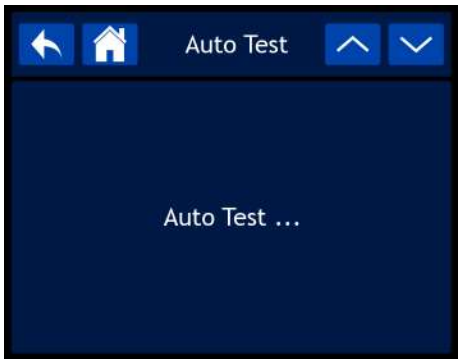
- Auto Test (see 6.7.5.1. Auto Test)
- Manual Test (see 6.7.5.2. Manual Test)

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

6.7.5.1. Auto Test

In this submenu you can automatically run an auto test of the functions of the device.

(If you have selected Auto Test in the previous menu and pressed the **ENTER** button) The device automatically runs an auto test of the functions of the device and the display shows:



6.7.5.2. Manual Test

In this submenu you can test each function of the device individually or as a group.

It is possible to customize the device by changing the value of each function manually. These functions are the same as the 35 DMX channels in Advance personality. For more information, refer to DMX Channels (see 6.8. DMX Channels on page 46).

01) Press the **UP/DOWN** buttons to scroll through the 35 available options:

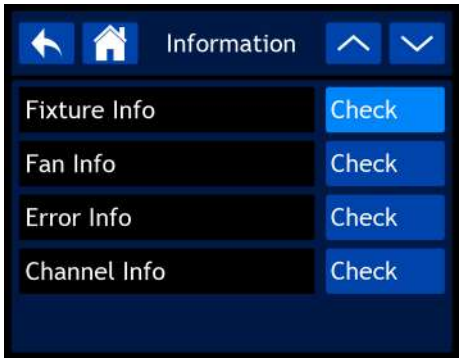


02) Press the **ENTER** button to confirm the selection.
03) Press the **UP/DOWN** buttons to adjust the values in order to test each function of the device individually or as a group. The adjustment range is between 000–255.
04) Press the **ENTER** button to confirm the selection.

6.7.6. Information

In this menu you can view the parameters of the device.

01) Press the **UP/DOWN** buttons to scroll through the 4 available options:



- Fixture Info (see 6.7.6.1. Fixture Info)

- Fan Info (see 6.7.6.2. Fan Info)
- Error Info (see 6.7.6.3. Error Info)
- Channel Info (see 6.7.6.4. Channel Info)

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

6.7.6.1. Fixture Info

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

Press the **UP/DOWN** buttons to see all available parameters.



- Ver: Shows the current software version
- Running Mode: Shows the current running mode
- DMX Address: Shows the current DMX address
- Temperature: Shows the current temperature
- Fixture Hours: Shows the total amount of hours the device has been running
- User Hours: Shows the total amount of hours the device has been running the current day
- IP Address: Shows the current IP address
- SubMask: Shows the current SubMask address
- UID: Shows the UID address of the device
- MAC: Shows the current MAC address

6.7.6.2. Fan Info

In this submenu you can view the parameters of the fans and other parameters of the device.

Press the **UP/DOWN** buttons to see all available parameters.

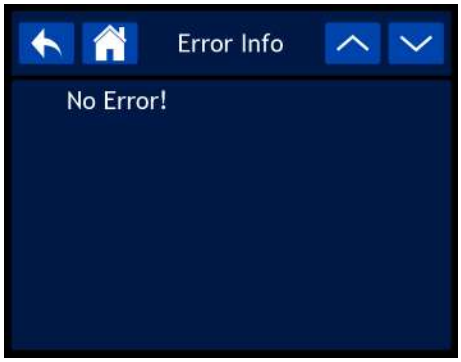


- Base Fan1 Speed: Shows the current speed of the base fan
- DFAN2 Speed: Shows the current speed of the pan fan
- MFAN1 Speed: Shows the current speed of the gobo fan
- ZFAN1 Speed: Shows the current speed of the internal fan
- ZFAN2 Speed: Shows the current speed of CMY fan 2
- ZFAN3 Speed: Shows the current speed of CMY fan 3
- AFAN1 Speed: Shows the current speed of the head fan

6.7.6.3. Error Info

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

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



Note:

In case of an error message, discontinue the use of the device and contact your Highlite International dealer for more information.

For more information about the complete list of error messages, refer to Error Messages (see 7.1. Error Messages on page 55).

6.7.6.4. Channel Info

In this submenu you can view the current value of all signal input channels.

Press the **UP/DOWN** buttons to see all current channel values.



6.8. DMX Channels

6.8.1. DMX Channels Overview

Function	Basic 25 CH	Advance 35 CH	DMX Value	Setting	Default	Highlight
Pan	1	1	000–255	0°–540°	128	
Pan Fine 16-bit	2	2	000–255	Fine positioning		
Tilt	3	3	000–255	0°–260°	128	
Tilt Fine 16-bit	4	4	000–255	Fine positioning		
Pan/Tilt Speed		5	000–255	From fast to slow	0	
Dimmer	5	6	000–255	0–100 %	0	255
Dimmer Fine 16-bit		7	000–255	Fine adjustment		
Strobe	6	8	000–255	Check channel details	6	6
Color Wheel	7	9	000–255	Check channel details	0	0
Cyan	8	10	000–255	0–100 %	0	0
Cyan 16-bit		11	000–255	Fine adjustment		
Magenta	9	12	000–255	0–100 %	0	0
Magenta 16-bit		13	000–255	Fine adjustment		
Yellow	10	14	000–255	0–100 %	0	0
Yellow 16-bit		15	000–255	Fine adjustment		
CMY Macro	11	16	000–255	Check channel details	0	0
Rotating Gobo wheel 1	12	17	000–255	Check channel details	0	0
Gobo index/rotating 1	13	18	000–255	Check channel details	128	
Gobo index/rotating 1 16-bit		19	000–255	Fine adjustment		
Static Gobo wheel	14	20	000–255	Check channel details	0	0
Prism (5-facet Round)	15	21	000–255	Check channel details	0	0
Prism rotating	16	22	000–255	Check channel details	128	
Prism rotating 16-bit		23	000–255	Fine adjustment		
Zoom	17	24	000–255	Check channel details	128	
Zoom 16-bit		25	000–255	Check channel details		
Iris	18	26	000–255	Big to small	0	
Iris 16-bit		27	000–255	Fine adjustment		
Iris Macro	19	28	000–255	Check channel details	0	
Focus	20	29	000–255	Far to near	128	
Focus 16-bit		30	000–255	Fine adjustment		
Auto Focus	21	31	000–255	Check channel details	0	
Light Frost	22	32	000–255	0–100 %	0	
Animation Wheel	23	33	000–255	Check channel details	0	
Virtual Animation	24	34	000–255	Check channel details	0	
Control	25	35	000–255	Check channel details	0	

6.8.2. Basic (25 Channels), Advance (35 Channels)

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
1	1	**Pan**	000–255	Pan adjustment 0°–540°		
2	2	**Pan Fine**	000–255	Pan adjustment, 16-bit		
3	3	**Tilt**	000–255	Tilt adjustment 0°–260°		
4	4	**Tilt Fine**	000–255	Tilt adjustment, 16-bit		
	5	**Pan/Tilt Speed**	000–255	From fast to slow		
5	6	**Dimmer**	000–255	From low to high intensity (0–100 %)		
	7	**Dimmer Fine**	000–255	Fine adjustment		
6	8	**Strobe**	000–003	No function		
			004–006	Open		step
			007–066	Syncronized strobe, from low to high frequency		proportional
			067–127	Pulse strobe, from low to high frequency		proportional
			128–188	Ramp-down, from low to high frequency		proportional
			189–249	Random strobe, from low to high frequency		proportional
			250–255	Open		step
7	9	**Color Wheel**	000–006	White		
			007–012	Color 1 (RED)		step
			013–018	Color 2 (LIGHT PINK)		step
			019–024	Color 3 (AMBER)		step
			025–030	Color 4 (DARK LAVENDER)		step
			031–036	Color 5 (PRIMARY GREEN)		step
			037–042	Color 6 (AQUAMARINA)		step
			043–048	Color 7 (CTO)		step
			049–054	Color 8 (CONGO BLUE)		step
			055–069	White + color 1		proportional
			070–084	Color 1 + color 2		proportional
			085–099	Color 2 + color 3		proportional
			100–114	Color 3 + color 4		proportional
			115–129	Color 4 + color 5		proportional
			130–144	Color 5 + color 6		proportional
			145–159	Color 6 + color 7		proportional
			160–174	Color 7 + color 8		proportional
			175–189	Color 8 + white		proportional
			190–221	Color scroll, fast to slow		proportional
			222–223	Stop		step
			224–255	Reverse color scroll, slow to fast		proportional
8	10	**Cyan**	000–255	0–100%		
	11	**Cyan 16-bit**	000–255	Fine adjustment		
9	12	**Magenta**	000–255	0–100%		
	13	**Magenta 16-bit**	000–255	Fine adjustment		
10	14	**Yellow**	000–255	0–100%		

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
	15	**Yellow 16-bit**	000–255	Fine adjustment		
11	16	**CMY Macro**	000–009	No function		
			010–127	CMY preset		proportional
			128–255	CMY macro, fast to slow		proportional
12	17	**Rotating Gobo wheel 1**	000–004	Open		step
			005–006	Gobo 1 (index) Astroids		step
			007–008	Gobo 2 (index) Psycho		step
			009–010	Gobo 3 (index) Brushed		step
			011–012	Gobo 4 (index) Triangles		step
			013–014	Gobo 5 (index) Baroque		step
			015–016	Gobo 6 (index) Spiral		step
			017–018	Gobo 7 (index) Stones		step
			019–024	Open		step
			025–026	Gobo 1 (rotating)		step
			027–028	Gobo 2 (rotating)		step
			029–030	Gobo 3 (rotating)		step
			031–032	Gobo 4 (rotating)		step
			033–034	Gobo 5 (rotating)		step
			035–036	Gobo 6 (rotating)		step
			037–038	Gobo 7 (rotating)		step
			039–044	Open		step
			045–052	Gobo 1 shake, slow to fast (index)		proportional
			053–060	Gobo 2 shake, slow to fast (index)		proportional
			061–068	Gobo 3 shake, slow to fast (index)		proportional
			069–076	Gobo 4 shake, slow to fast (index)		proportional
			077–084	Gobo 5 shake, slow to fast (index)		proportional
			085–092	Gobo 6 shake, slow to fast (index)		proportional
			093–100	Gobo 7 shake, slow to fast (index)		proportional
			101–124	Open		step
			125–132	Gobo 1 shake, slow to fast (rotating)		proportional
			133–140	Gobo 2 shake, slow to fast (rotating)		proportional
			141–148	Gobo 3 shake, slow to fast (rotating)		proportional
			149–156	Gobo 4 shake, slow to fast (rotating)		proportional
			157–164	Gobo 5 shake, slow to fast (rotating)		proportional
			165–172	Gobo 6 shake, slow to fast (rotating)		proportional
			173–180	Gobo 7 shake, slow to fast (rotating)		proportional
			181–195	Open		step
			196–225	CW gobo scroll, fast to slow		proportional
			226–255	CCW gobo scroll, slow to fast		proportional

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
13	18	Gobo wheel 1 index/ rotate		**gobo index selected - set by CH 13/19**		
			000	No function		
			001–255	Gobo indexing from 0 to 360°		proportional
				gobo rotating selected - set by CH 13/19		
			000–014	No function		
			015–127	CW gobo rotating, fast to slow		proportional
			128	Stop		step
			129–241	CCW gobo rotating, slow to fast		proportional
			242–255	Gobo swiveling, fast to slow		proportional
	19	Gobo wheel 1 index/ rotate 16-bit	000–255	Fine adjustment		
14	20	Static Gobo wheel	000–005	Open		step
			006–011	Gobo 1 (Circle)		step
			012–017	Gobo 2 (Radial Lines)		step
			018–023	Gobo 3 (Spokes)		step
			024–029	Gobo 4 (Twist)		step
			030–035	Gobo 5 (Organic)		step
			036–041	Gobo 6 (Digi Blocks)		step
			042–047	Gobo 7 (Vector)		step
			048–053	Gobo 8 (Maze)		step
			054–059	Gobo 9 (Branches)		step
			060–063	Open		step
			064–069	Gobo 1 shaking, slow to fast		proportional
			070–075	Gobo 2 shaking, slow to fast		proportional
			076–081	Gobo 3 shaking, slow to fast		proportional
			082–087	Gobo 4 shaking, slow to fast		proportional
			088–093	Gobo 5 shaking, slow to fast		proportional
			094–099	Gobo 6 shaking, slow to fast		proportional
			100–105	Gobo 7 shaking, slow to fast		proportional
			106–111	Gobo 8 shaking, slow to fast		proportional
			112–117	Gobo 9 shaking, slow to fast		proportional
			118–127	Open		step
			128–191	CW gobo scroll, fast to slow		proportional
			192–255	CCW gobo scroll, slow to fast		proportional
15	21	Prism (5-facet Round)	000–004	No function		
			005–127	Prism effect (index)		step
			128–255	Prism effect (rotating)		step
16	22	Prism rotating		**prism index selected - set by CH 16/23**		
			000	No function		
			001–255	Prism indexing from 0 to 360°		proportional
				prism rotating selected - set by CH 16/23		

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
			000–014	No function		
			015–127	CW prism rotating, fast to slow		proportional
			128	Stop		step
			129–241	CCW prism rotating, slow to fast		proportional
			242–255	Prism swiveling, fast to slow		proportional
	23	**Prism rotating 16-bit**	000–255	Fine adjustment		
17	**24**	**Zoom**	000–255	Wide to narrow		
	25	**Zoom 16-bit**	000–255	Fine adjustment		
18	**26**	**Iris**	000–255	Big to small		
	27	**Iris 16-bit**	000–255	Fine adjustment		
			000–063	No function		
19	**28**	**Iris macro**	064–127	Auto change, slow to fast		proportional
			128–191	Slow open fast close, slow to fast		proportional
			192–255	Slow close fast open, slow to fast		proportional
20	**29**	**Focus**	000–255	Far to near		
	30	**Focus 16-bit**	000–255	Fine adjustment		
			000	No function		
			001–011	0–5 m, auto focus gobo wheel 1		step
			012–022	6 m, auto focus gobo wheel 1		step
			023–033	7 m, auto focus gobo wheel 1		step
			034–044	8 m, auto focus gobo wheel 1		step
			045–055	9 m, auto focus gobo wheel 1		step
			056–066	10 m, auto focus gobo wheel 1		step
			067–077	12.5 m, auto focus gobo wheel 1		step
			078–088	15 m, auto focus gobo wheel 1		step
			089–099	17.5 m, auto focus gobo wheel 1		step
			100–110	20–60 m, auto focus gobo wheel 1		step
21	**31**	**Auto Focus**	111–127	Auto detect distance gobo wheel 1		step
			128–138	0–5 m, auto focus gobo wheel 2		step
			139–149	6 m, auto focus gobo wheel 2		step
			150–160	7 m, auto focus gobo wheel 2		step
			161–171	8 m, auto focus gobo wheel 2		step
			172–182	9 m, auto focus gobo wheel 2		step
			183–193	10 m, auto focus gobo wheel 2		step
			194–204	12.5 m, auto focus gobo wheel 2		step
			205–215	15 m, auto focus gobo wheel 2		step
			216–226	17.5 m, auto focus gobo wheel 2		step
			227–237	20–60 m, auto focus gobo wheel 2		step
			238–255	Auto detect distance gobo wheel 2		step
22	**32**	**Light Frost**	000–255	0–100% Light frost		
23	**33**	**Animation Wheel**	000–001	No function		
			002–126	Animation rotating, fast to slow		proportional

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
			127–130	Stop		proportional
			131–255	Reverse animation rotating, slow to fast		proportional
24	34	Virtual Animation	000–001	No function		
			002–126	Shaking effect, fast to slow		proportional
			127–130	Stop		proportional
			131–255	Fade effect, slow to fast		proportional
25	35	Control	000–004	No function		
			005–009	Pan reverse		step
			010–014	Pan normal		step
			015–019	Tilt reverse		step
			020–024	Tilt normal		step
			025–029	Auto pan invert OFF		step
			030–034	Auto pan invert ON		step
			035–039	BO PT OFF		step
			040–044	BO PT ON		step
			045–049	BO Color OFF		step
			050–054	BO Color ON		step
			055–059	BO Gobo OFF		step
			060–064	BO Gobo ON		step
			065–084	Reserved		
			085–089	Fans Auto		step
			090–094	Fans Full		step
			095–099	Fans Silent		step
			100–104	Fans Studio (TV35)		step
			105–109	DMX Fail: Hold		step
			110–114	DMX Fail: Off		step
			115–119	Dimmer mode FAST		step
			120–124	Dimmer mode SMOOTH		step
			125–129	Reserved		
			130–134	Dimmer Linear		step
			135–139	Dimmer Square		step
			140–144	Dimmer Inv-Square		step
			145–149	Dimmer S-curve		step
			150–154	PWM 600 Hz		step
			155–159	PWM 1200 Hz		step
			160–164	PWM 2000 Hz		step
			165–169	PWM 4000 Hz		step
			170–174	PWM 6000 Hz		step
			175–179	PWM 15000 Hz		step
			180–199	Reserved		
			200–204	Reset P/T		step
			205–209	Reset Iris/Prism		step
			210–214	Reset Color/CMY		step

Basic 25 CH	Advance 35 CH	Function	Value	Setting	Color	Control Type
			215–219	Reset Gobo/Gobo rotate		step
			220–224	Reset Zoom/Focus		step
			225–229	Reserved		
			230–234	Reset Frost/Animation		step
			235–239	Reset All		step
			240–244	Reserved		step
			245–249	Reserved		step
			250–255	No function		

6.9. RDM Information

This device supports RDM (see 6.9.2. Supported RDM PIDs (Parameter IDs)).

6.9.1. RDM Details

- Responder ID: 29B4:0E6XXXXX
- Manufacturer's ID: Infinity (Highlite International B.V.)
- Manufacturer Label: Infinity
- Model Description: Furion S402 Spot
- Model ID: 230 (0E6 hexadecimal)
- Device Label: Furion S402 Spot

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.

6.9.2. Supported RDM PIDs (Parameter IDs)

RDM Parameter ID	Value	Required	GET	SET
SUPPORTED_PARAMETERS	0x0050	*	*	
PARAMETER_DESCRIPTION	0x0051	*	*	
DEVICE_MODEL_DESCRIPTION	0x0080		*	
MANUFACTURER_LABEL	0x0081		*	
DEVICE_LABEL	0x0082		*	*
FACTORY_DEFAULTS	0x0090		*	*
DMX_PERSONALITY	0x00E0		*	*
DMX_PERSONALITY_DESCRIPTION	0x00E1		*	
DMX_START_ADDRESS	0x00F0	*	*	*
SENSOR_DEFINITION	0x0200		*	
SENSOR_VALUE	0x0201		*	*
CURVE	0x0343		*	*
CURVE_DESCRIPTION	0x0344	*	*	
MODULATION_FREQUENCY	0x0347		*	*
MODULATION_FREQUENCY_ DESCRIPTION	0x0348	*	*	
DEVICE_HOURS	0x0400		*	*
DISPLAY_INVERT	0x0500		*	*
PAN_INVERT	0x0600		*	*
TILT_INVERT	0x0601		*	*
RESET_DEVICE	0x1001			*

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 57)
The device responds erratically	The factory settings of the device are changed	• Reset the parameters of the device to the default factory settings (see 6.7.2.7. Reset Function on page 41)
The device does not respond to DMX control	The controller is not connected	• Connect the controller
	The signal is reversed. The 5-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
No wireless connection	The device is not connected to the transmitter, when the W-DMX indicator on the display of the device is gray.	• Create a wireless connection, refer to Wireless Connection (see 5.4. Wireless Connection)
	The device is trying to connect to the transmitter, when the W-DMX indicator on the display is blinking quickly. This will take 30 seconds.	• Create a wireless connection, refer to Wireless Connection (see 5.4. Wireless Connection)
	This device cannot receive a wireless DMX signal and a DMX cable signal at the same time.	• Remove the DMX cable

7.1. Error Messages

In case one of the error messages below appears on the error information screen, discontinue the use of the device and contact your local dealer.

For more information, refer to Error Info (see 6.7.6.3. Error Info on page 45).

Error code	Explanation
Focus	Focus error
Zoom	Zoom error
Prism	prism error
Gobo	rotating gobo wheel error
Gobo.R	gobo rotate error
Gobo2	static gobo wheel error
Color	color wheel error
Cyan	Cyan error
Magenta	Magenta error
Yellow	Yellow error
X_cm	pan magnetic sensor error
X_op	pan optocoupler error
Y_cm	tilt magnetic sensor error
Y_op	tilt optocoupler error
CPU-A	CPU-A error (display)
CPU-B	CPU-B error (Pan/tilt)
CPU-C	CPU-C error (color/gobo)
CPU-D	CPU-D error (prism)
CPU-E	CPU-E error (Static gobo)
DFAN2	pan fan 2 error
MFAN1	gobo fan 1 error
ZFAN1	internal fan 1 error
ZFAN2	CMY fan 2 error
ZFAN3	CMY fan 3 error
AFAN1	head fan error
BASE FAN1	base fan 1 error
R-OPEN	thermistor open
R-SHORT	thermistor short
LED_HOT	LED over heat

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.

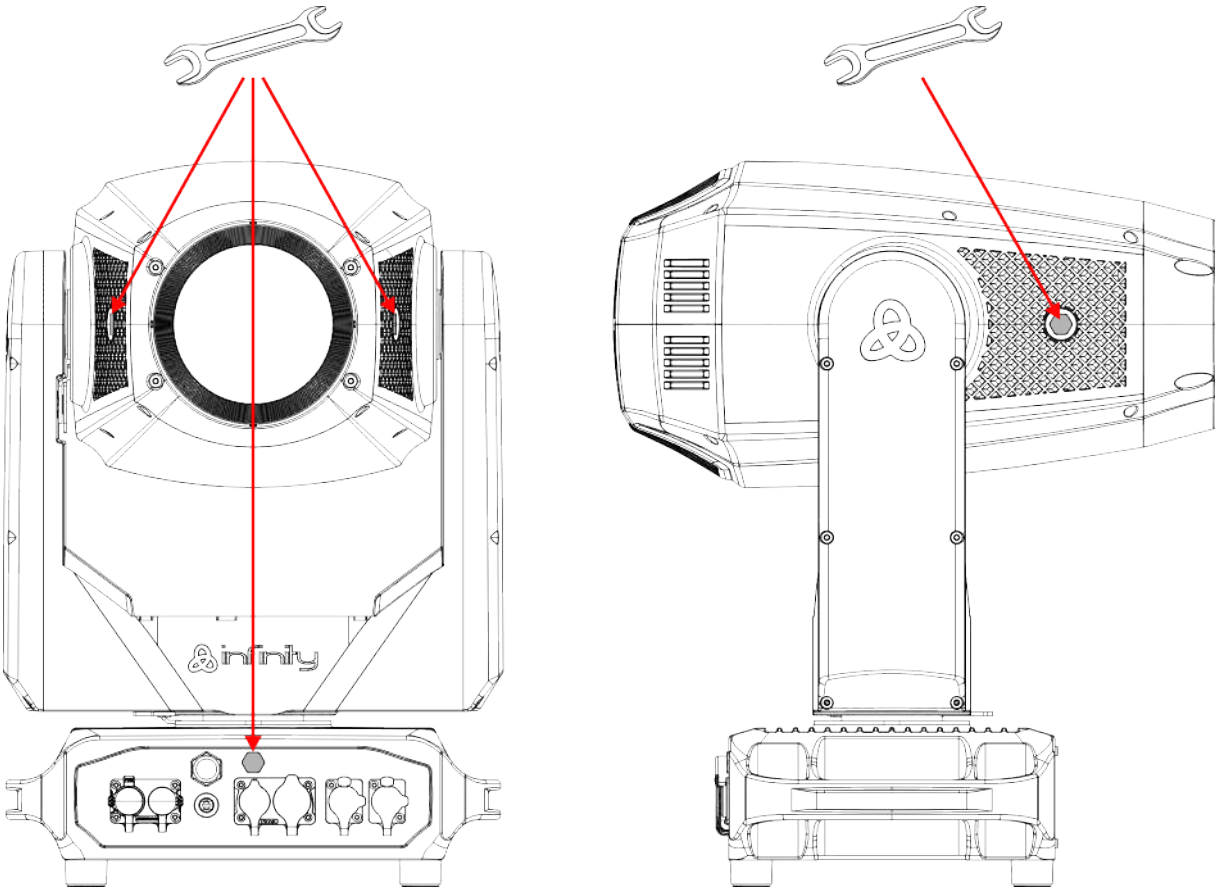
8.3.2. Draining Condensation Water

The Furion S402 Spot is IP65 rated. The device can resist water jets. If the device is exposed to extreme humid conditions during use, condensation may collect inside the device. This can happen also during transportation, if the device is exposed to extreme temperature variations.

If condensation water collects inside the device, follow the steps below to remove the condensation water:

01) Carefully remove the **protective vents (07+08)** and the **drain plug (02)** with a wrench (16 mm).
02) Let the device operate with the lamp at full output for 60 minutes.
03) Let the device cool down for 30 minutes.
04) Reinstall the **protective vents (07+08)** and the **drain plug (02)**. Make sure that you do not overtighten them.

Figure 20



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 56).
- 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

Hereby, Highlite International declares that the device Furion S402 Spot, product code 41450, is in compliance with Directive 2014/53/EU (RED – Radio Equipment Directive).

The full text of the EU declaration of conformity is available on the respective product page on the website of Highlite International (www.highlite.com).