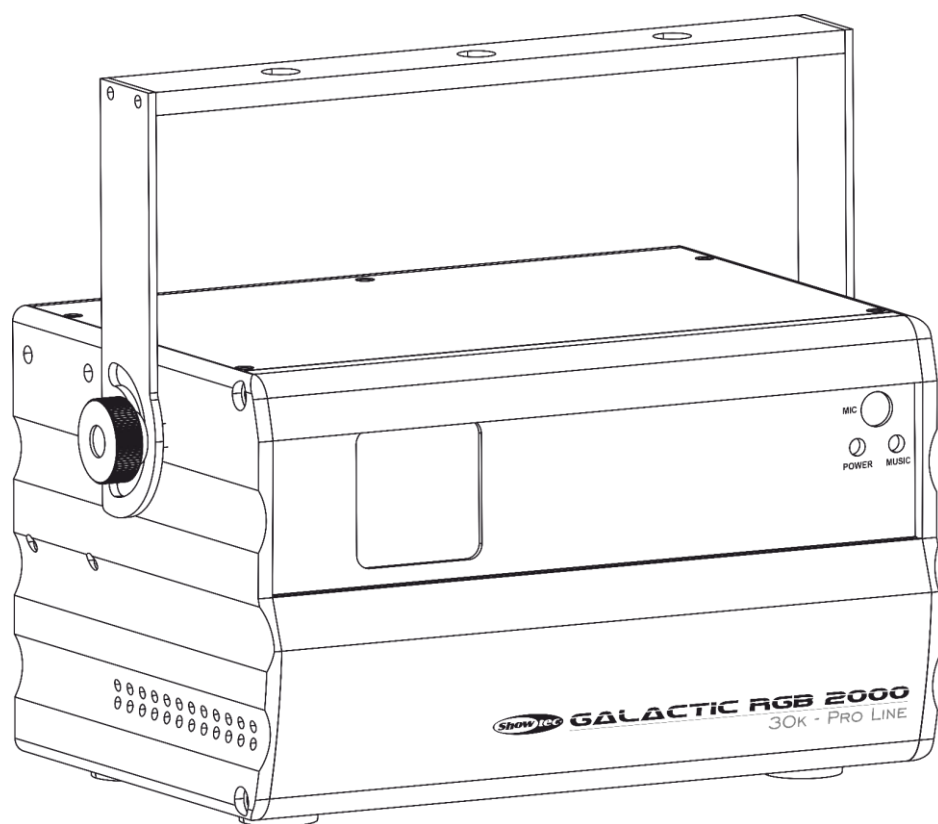




USER MANUAL



ENGLISH

Galactic RGB-2000

V1

Product code: 51346

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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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 Galactic RGB-2000
- Schuko to Pro power cable – 1,3 m
- Pro power connector OUT
- Remote interlock test connector
- 2 keys for key switch
- SD card Kingston (4GB)
- User manual

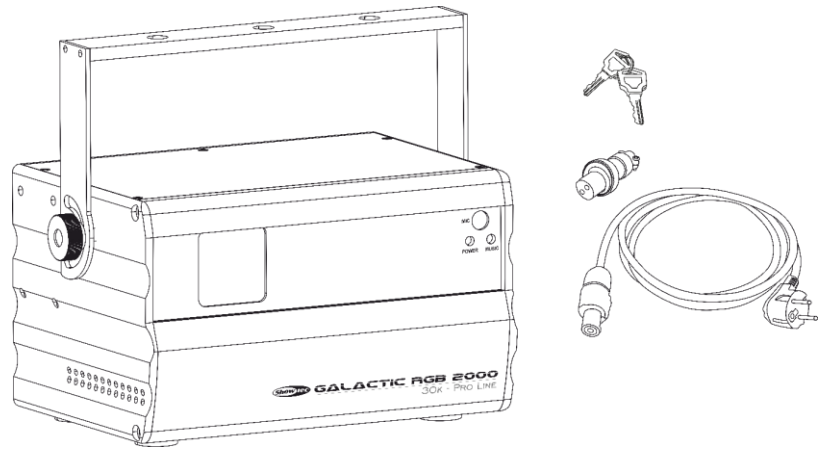


Fig. 01

1.2. Intended Use

This device is intended for professional use as a laser projector to produce laser displays or show effects. It is suitable only for indoor installation. This device is not suitable for households.

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

1.3. Product Lifespan

This device is not designed for permanent operation. Disconnect the device from the electrical power supply when the device is not in operation. This will reduce the wear and will improve the device's lifespan.

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 chapters and parts of the device are in bold lettering, for example: "Refer to **2. Safety**", "turn the **adjustment screw (02)**"
- 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.



Attention

Indicates that eye protection must be used.



Important

Read and observe the instructions in this document.



Electrical hazard



Laser beam hazard



Provides important information about the disposal of this product.

1.6. Labels

This device is a class 4 laser device and is provided with the following labels and hazard warnings. Refer to Fig. 02 for the position of the labels.



CAUTION

Class 4 laser light when open
Avoid eye or skin exposure to direct or scattered radiation and interlocks defeated



Laser Light

Avoid eye or skin exposure to direct or scattered radiation
Class 4 laser product



Avoid exposure – laser radiation is emitted from this aperture

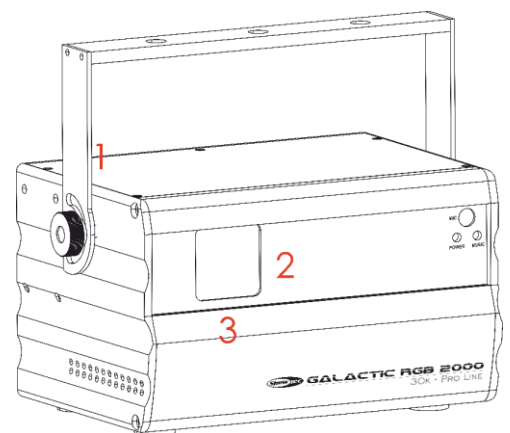


Fig. 02

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 various parts of the packaging (plastic bags, polystyrene foam, nails, etc.) within children's reach. Packaging material is a potential source of danger for children.



DANGER

Electric shock caused by dangerous voltage inside

There are areas within 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 is open. Before operation, check if the housing is firmly closed and all screws are tightly fastened.
- Disconnect the device from 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 ground (earth) connection.
- Do not cover the ground (earth) connection.
- Do not bypass the thermostatic switch or fuses.
- For replacement use fuses of the same type and rating only.
- 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.



DANGER
Laser radiation
Avoid eye or skin exposure to direct or scattered radiation

This device is a class 4 laser device according to the classification in NEN-EN-IEC 60825-1:2014. It emits visible radiation in the wavelength range 400–700 nm. Exposure to the direct or scattered laser beam can result in severe eye damage and serious skin injuries.

Check all applicable national and international regulations concerning laser safety before using this device. The user is responsible for the safety of all persons present during the use of the laser device.

- Do not look into the laser beam.
- Do not expose users of telescopic optics, such as binoculars, to this device.
- Do not open the device and do not modify the device.
- Do not use the device if the housing or the optics are damaged.
- Do not point the laser beam at people or animals.
- Make sure that the beam is terminated on a non-reflective and non-combustible surface.
- Do not point the laser beam at reflective surfaces such as windows, mirrors and shiny metal.
- Do not operate the device without supervision.



Attention
Risk of fire

If the beam is continuously pointed at one place from a close distance, the laser beam can burn materials.

- Do not point the laser beam at materials susceptible to burning.



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 insert objects into the air vents.
- Do not connect the device to a dimmer pack.
- Do not switch the device on and off in short intervals. This decreases the device's life.
- Do not shake the device. Avoid brute force when installing or operating the device.
- 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 the use immediately.



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

This device is designed to be used as a professional laser projector. Any incorrect use may lead to hazardous situations and result in injuries and material damage.

- This device is not suitable for households.
- 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, fixations 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 only by instructed or skilled persons. Installation and maintenance can be carried out by instructed or skilled persons. Service shall be carried out only by skilled persons. Contact your Highlite International dealer for more information.

This product may not be used by ordinary persons. Users, operators and installers should have received sufficient training in laser safety to be able to accurately assure that the maximum permissible exposure (MPE) is not exceeded in spectator occupied areas and that the required separations are maintained between spectators and projections that exceed the MPE.

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 operation, 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 to avoid hazards associated with the operation, installation, service and maintenance of this product.

Ordinary persons are all persons other than instructed persons and skilled persons.

2.3. Laser Safety

**CAUTION**

Use of controls or adjustments, or performance of procedures, other than those specified in this manual, may result in hazardous radiation exposure.

Check all applicable national and international regulations concerning laser safety before using this device. In some countries, there may be specific requirements, such as government permissions or notifications of shows, or prohibitions, such as against laser scanning of spectators without appropriate safeguards.

Laser displays and shows, where class 3B and/or class 4 lasers are used, should be supervised by a laser safety officer (LSO). LSOs are trained to evaluate and control laser hazards and are responsible for overseeing the control of laser hazards. An LSO is recommended but not required for laser displays and shows, where only class 1, 1M, 2, 2M and/or 3R lasers are used.

During laser displays and shows the applicable eye and skin maximum permissible exposure (MPE) may not be exceeded. Under no circumstance should any person be exposed to laser radiation exceeding the applicable eye and skin MPE. MPE for spectators, ancillary personnel and performers is specified in IEC 60825-14, IEC 60825-3, and in the applicable local laser regulations.

Each time before operation of the device, make sure that:

- The beam is aligned and properly terminated
- All controls, including scan failure safeguards and emergency stop controls, are properly working
- Warning signs and barriers are in place as appropriate
- All components are securely mounted and locked into position

The device should be secured and protected against misalignment or maladjustment between alignment completion and the beginning of the laser display or show.

2.4. Safety Devices

This device is equipped with a key switch and a remote interlock connector. The key switch prevents that unauthorized and untrained persons can operate the device. If the key is removed, you cannot operate the device.

The remote interlock connector permits the connection of a remote interlock (not supplied). When you press the remote interlock, the laser radiation is terminated immediately. We recommend that you purchase a remote interlock. Check the local regulations, as in some countries it is not allowed to operate the device without a remote interlock.

For testing and programming purposes you may use the supplied test connector. If the test connector is not inserted into the remote interlock connector, you cannot operate the device.

2.5. Personal Protective Equipment

**Attention**

Use laser protective eyewear during alignment and setup.

Wearing of laser protective eyewear is necessary for Class 4 lasers. Make sure you follow any applicable national and site-specific regulations.

During alignment and setup use protective eyewear that complies with the requirements of EN 208. In all other cases laser protective eyewear must be in compliance with EN 207.

3. Description of the Device

The Showtec Galactic RGB-2000 is a laser projector with high output and great effects.

3.1. Front View

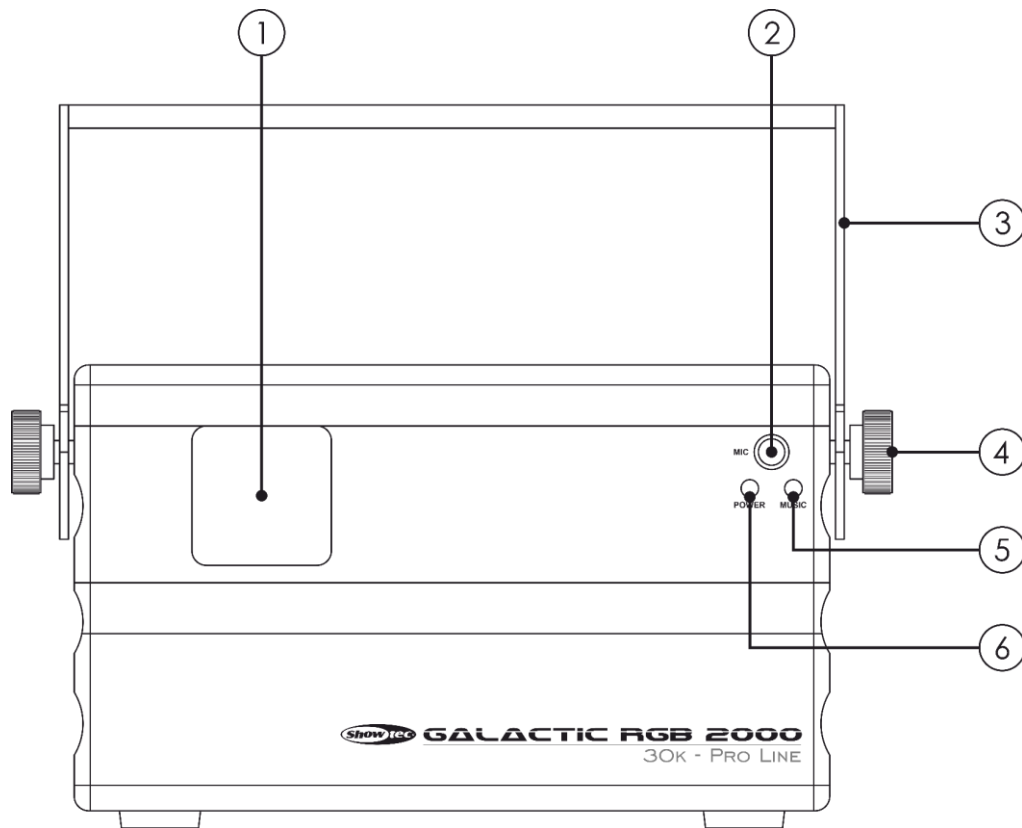


Fig. 03

- 01) Laser beam aperture
- 02) Built-in microphone
- 03) Mounting bracket
- 04) 2 adjustment screws
- 05) Sound control LED indicator
- 06) Power LED indicator

3.2. Back View

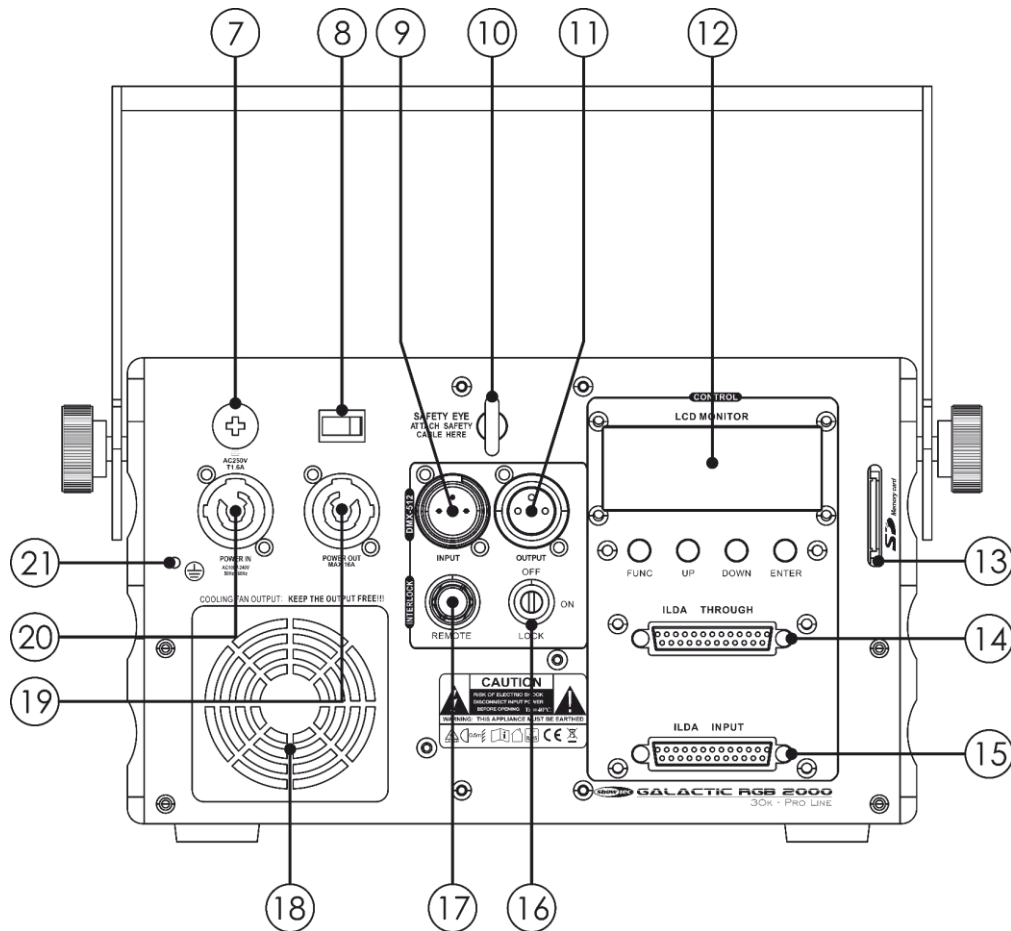


Fig. 04

- 07) Fuse 5KT1,6AL/250 V
- 08) Power switch ON/OFF
- 09) 3-pin DMX signal connector IN
- 10) Safety eye
- 11) 3-pin DMX signal connector OUT
- 12) Control panel: LCD display + control buttons
- 13) SD slot
- 14) ILDA-compatible DB-25 connector THROUGH
- 15) ILDA-compatible DB-25 connector IN
- 16) Key switch
- 17) Remote interlock connector
- 18) Cooling fan
- 19) 100–240 V pro power connector (Gray) OUT
- 20) 100–240 V pro power connector (Blue) IN
- 21) Ground (earth) connection

3.3. Product Specifications

Model:	Galactic RGB-2000	
Electrical:		
Input voltage:	100–240 V AC, 50/60 Hz	
Power consumption:	42 W	
Fuse:	5KT1,6AL/250 V	
Physical:		
Dimensions:	211 x 296 x 247 mm (LxWxH)	
Weight:	4,9 kg	
Laser:		
Laser class:	4	
Laser power:	638 nm = 500 mW (red) 520 nm = 500 mW (green) 450 nm = 1000 mW (blue)	
Laser modulation:	TTL	
Beam diameter at aperture:	7 mm	
Beam divergence:	1,8 mrad	
NOHD:	275,7 m (P total output power all beams = 2000 mW)	
MPE:	25 W·m ⁻² for exposure duration of 0,25 s	
Scanning system:		
Scanner speed:	30K	
Scan angle:	± 36°	
Operation and control:		
Control:	Stand-alone (auto, sound-controlled, SD) Master/Slave (auto, sound-controlled, SD) DMX-512 ILDA-compatible DB-25	
DMX channels:	1, 13 channels	
Control panel:	LCD display + control buttons	
Connections:		
Power connections:	Pro power connector IN (Blue)/OUT (Gray), 100–240 V	
Data connections:	3-pin DMX connectors IN/OUT	
Signal pinouts:	pin 1 (ground), pin 2 (-), pin 3 (+)	
Construction:		
Housing:	Metal and flame-retardant plastic	
Color:	Black	
IP rating:	IP20	
Cooling:	Cooling fan	
Thermal:		
Maximum ambient temperature t_a :	40 °C	
Minimum ambient temperature:	0 °C	

3.4. Dimensions

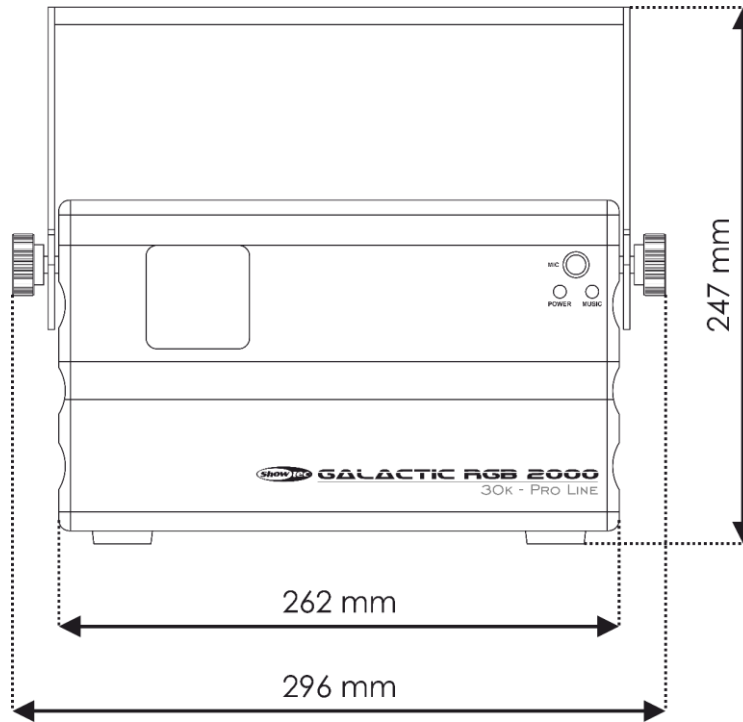


Fig. 05

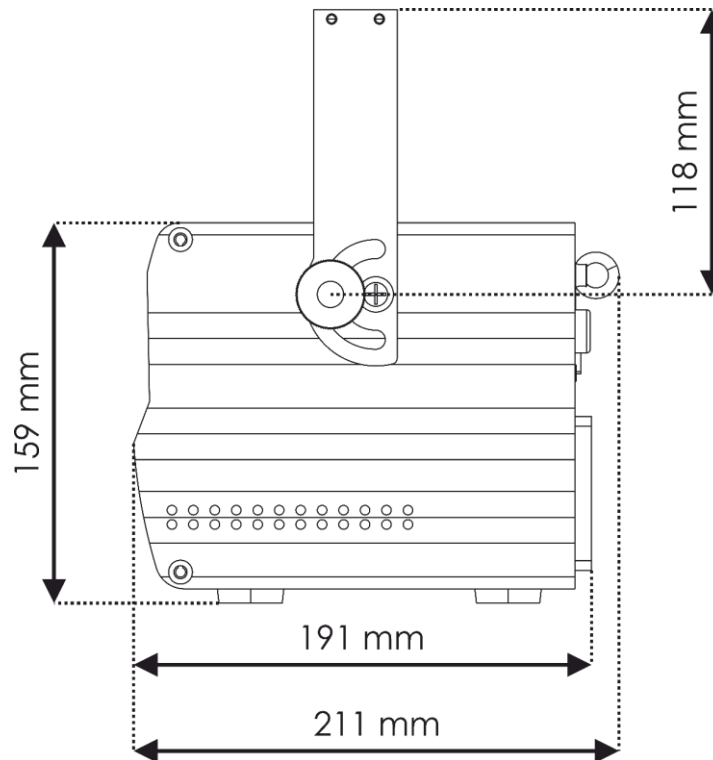


Fig. 06

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.

- Make sure that the device is rigidly mounted to prevent movement due to vibration or jarring.
- Follow all applicable European, national and local safety regulations concerning rigging and trussing.

The device should be installed in such a way that there is at least 3 m distance in height and 2,5 m laterally between the laser beam that exceeds the spectator MPE and the surface where spectators are expected to stand.

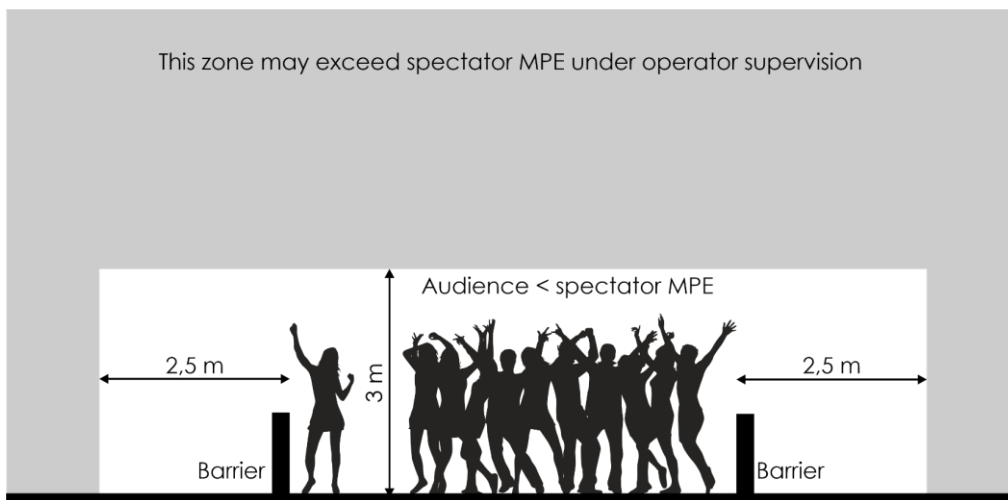


Fig. 07

If the laser display or show is not under the continuous control of an operator who can immediately terminate laser radiation in the event of a problem, the MPE shall not exceed 5 times the spectator MPE in the space between 3 m and 6 m above the surface where spectators are expected to stand.

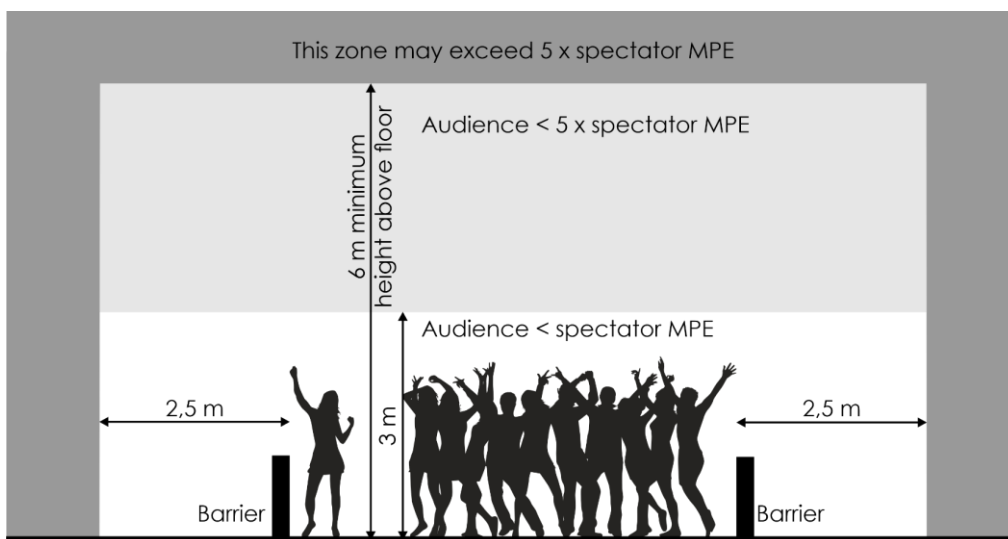


Fig. 08

4.2. Personal Protective Equipment

During installation 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 $t_a = 40\text{ °C}$ 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. 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 and/or derigging.

To mount the device, follow the steps below:

- 01) Use a clamp to attach the device to the supporting structure, as shown in Fig. 09. Make sure that the device cannot move freely.
- 02) 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 **safety eye (10)**, as shown in Fig. 09.

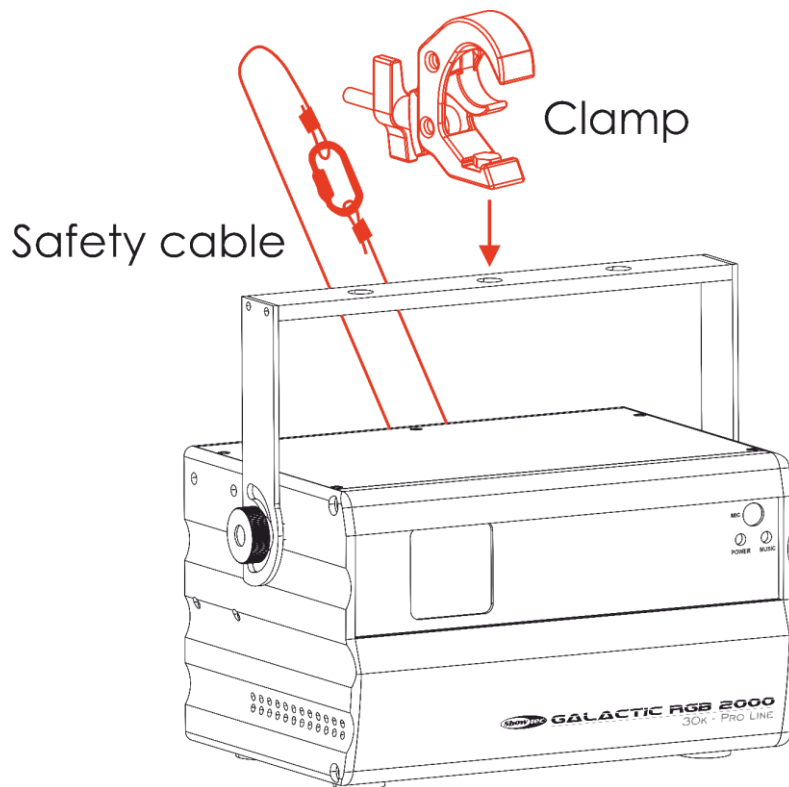


Fig. 09

4.4.1. Angle Adjustment

You can adjust the angle of the device with the **adjustment screws (04)**.

- 01) Turn the **adjustment screws (04)** counterclockwise to release them.
- 02) Tilt the device at the desired angle (see Fig. 10).
- 03) Turn the **adjustment screws (04)** clockwise to tighten them. Make sure that the device cannot move freely after the **adjustment screws (04)** are tightened.

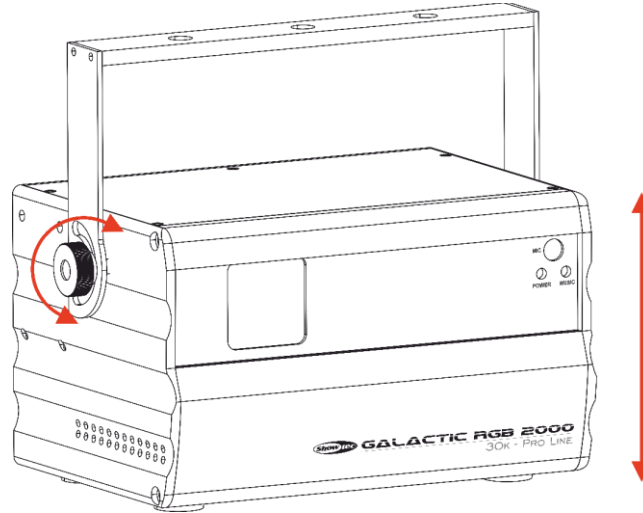


Fig. 10

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 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 device.
- 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: 40 devices
- at 200–240 V: 80 devices

5. Setup

5.1. Warnings and Precautions



DANGER
Laser radiation
Avoid eye or skin exposure to direct or scattered radiation



Attention
Use laser protective eyewear during alignment and setup.

Wearing of laser protective eyewear is necessary for Class 4 lasers. Make sure you follow any applicable national and site-specific regulations.

During alignment and setup use protective eyewear that complies with the requirements of EN 208. In all other cases laser protective eyewear must be in compliance with EN 207.

During alignment and setup the access of unauthorized persons to the area, where the laser radiation exceeds the spectator MPE, must be restricted. The temporary laser controlled area must be marked accordingly.

Follow all applicable national and site-specific regulations regarding laser safety.

5.2. Stand-alone Setup

When the Galactic RGB-2000 is not connected to a controller or to other devices, it functions as a stand-alone device. It can be operated manually with the control panel.

5.3. DMX Connection



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

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 or to run synchronized shows of two or more devices set in a master/slave operating mode.

The Galactic RGB-2000 has 3-pin DMX signal IN and OUT connectors.

The pin assignment is as follows:

- 3-pin: 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 Fig. 11.

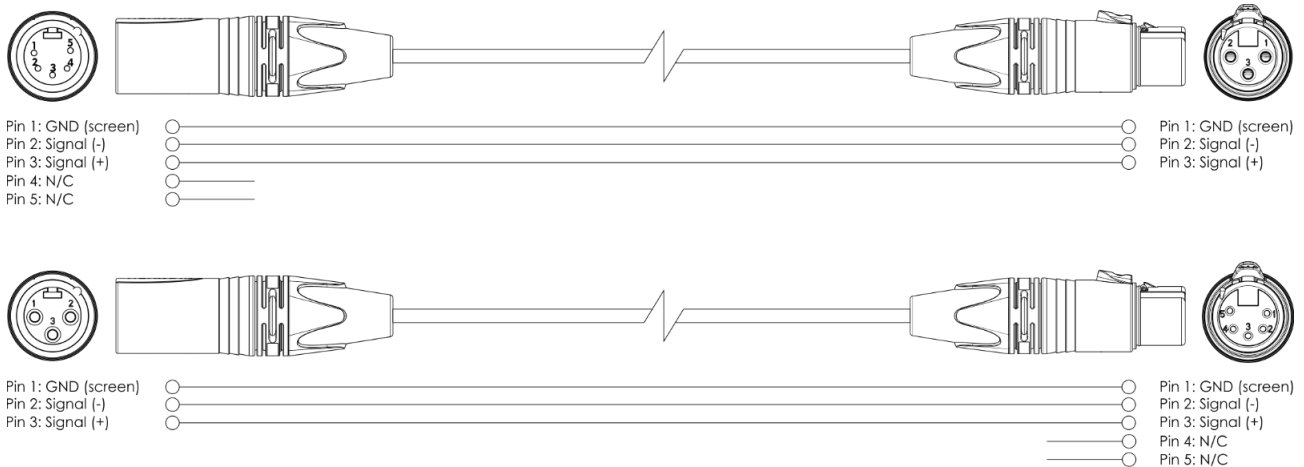


Fig. 11

5.3.3. Master/Slave Setup

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

- 01) Connect the first device's DMX OUT connector to the second device's DMX IN connector with a 3-pin DMX cable.
- 02) Repeat step 1 to connect all devices as shown in Fig. 12.
- 03) Insert the included SD card into the **SD slot (13)** on each connected device.
- 04) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device in the setup.
- 05) Set the first device on the data link as a master device.
- 06) Set the remaining devices as slave devices. See **6.6.4. Master/Slave Mode** on page 29 for more information.

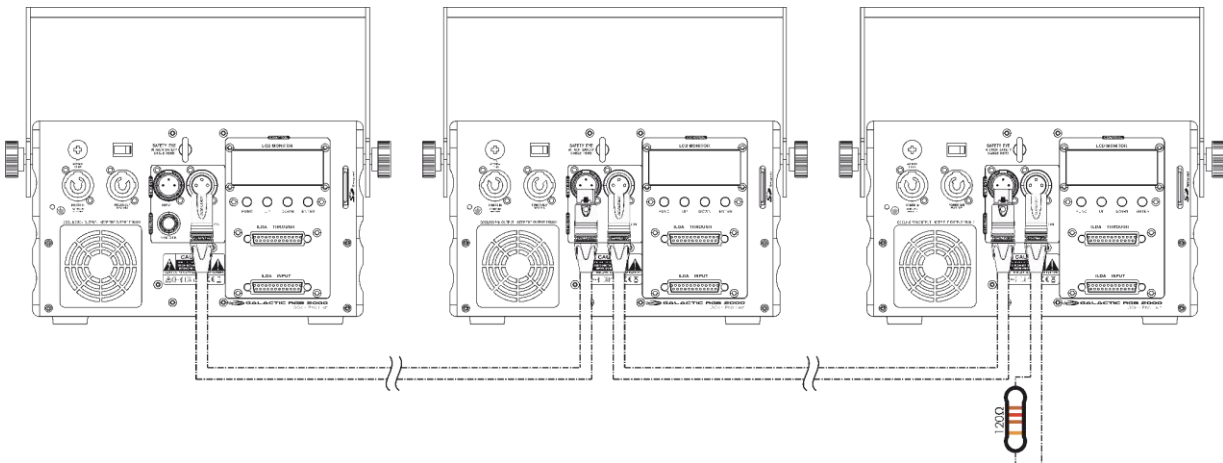


Fig. 12

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 first device.
- 02) Connect the first device's DMX OUT connector to the second device's DMX IN connector with a 3-pin DMX cable.
- 03) Repeat step 2 to connect all devices in a daisy-chain as shown in Fig. 13.
- 04) Insert the included SD card into the **SD slot (13)** on each connected device.
- 05) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device on the data link.

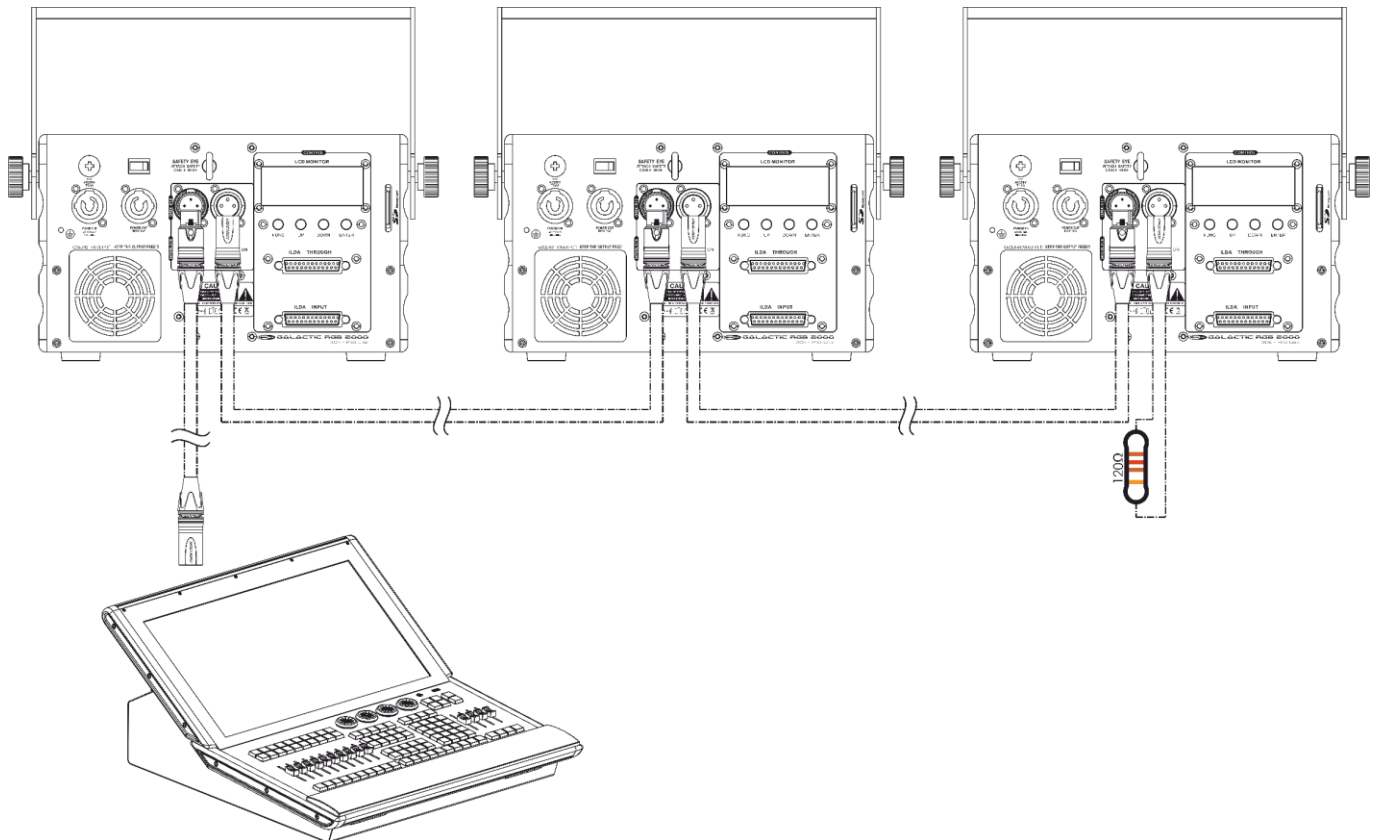


Fig. 13

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 Galactic RGB-2000 has 2 personalities: 1 channel and 13 channels.

If you want to connect multiple devices on one data link, 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 14 (014), as $1 + 13 = 14$.
- 03) Set the starting address of the 3rd device on the data link to 27 (027), as $14 + 13 = 27$.
- 04) Continue assigning the starting addresses of the remaining devices by adding each time 13 to the previous number.

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

5.4. DB-25 Connection



Attention

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

5.4.1. ILDA

ILDA connection employs the DB-25 connector for parallel signal transmission. It is a low-level transmission that only modulates the voltage on every pin, usually in a range of 5 V difference (from -2,5 V to +2,5 V or 0–5 V).

5.4.2. DB-25 Connector

The DB-25 is an ILDA-compatible connector used for transmission of laser graphics signals to laser graphics projectors.

Laser signal sources should use a DB-25 female connector. Laser graphics projectors should use a DB-25 male connector.

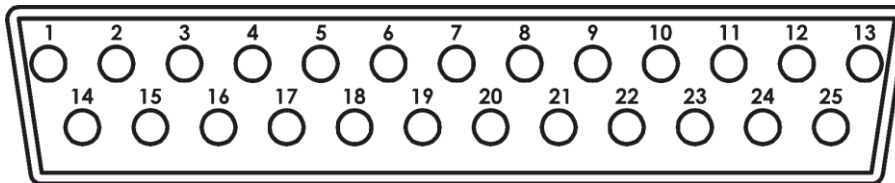


Fig. 14

Pin	Signal
1	X+
2	Y+
3	Intensity+
4	Interlock A
5	R+
6	G+
7	B+
8	User-defined signal 1+
9	User-defined signal 2+
10	User-defined signal 3+
11	User-defined signal 4+
12	Projector return signal
13	Shutter
14	X-
15	Y-
16	Intensity-
17	Interlock B
18	R-
19	G-
20	B-
21	User-defined signal 1-
22	User-defined signal 2-
23	User-defined signal 3-
24	User-defined signal 4-
25	Ground

5.4.3. DB-25 Linking

Because the ILDA signal is parallel, the computer control signal (serial) needs to be converted to ILDA. In order to do so, use a digital analogue converter (laser interface) in combination with laser software.

The Galactic RGB-2000 has 2 DB-25 connectors, one input and one throughput. To connect multiple devices with the DB-25 connectors, follow the steps below:

- 01) Connect the laser interface to the computer.
- 02) Use an ILDA-compatible DB-25 cable to connect the laser interface to the DB-25 input connector of the first device.
- 03) Use an ILDA-compatible DB-25 cable to connect the DB-25 throughput connector of the first device to the DB-25 input connector of the second device.
- 04) Repeat step 3 to connect all devices as shown in Fig. 15.

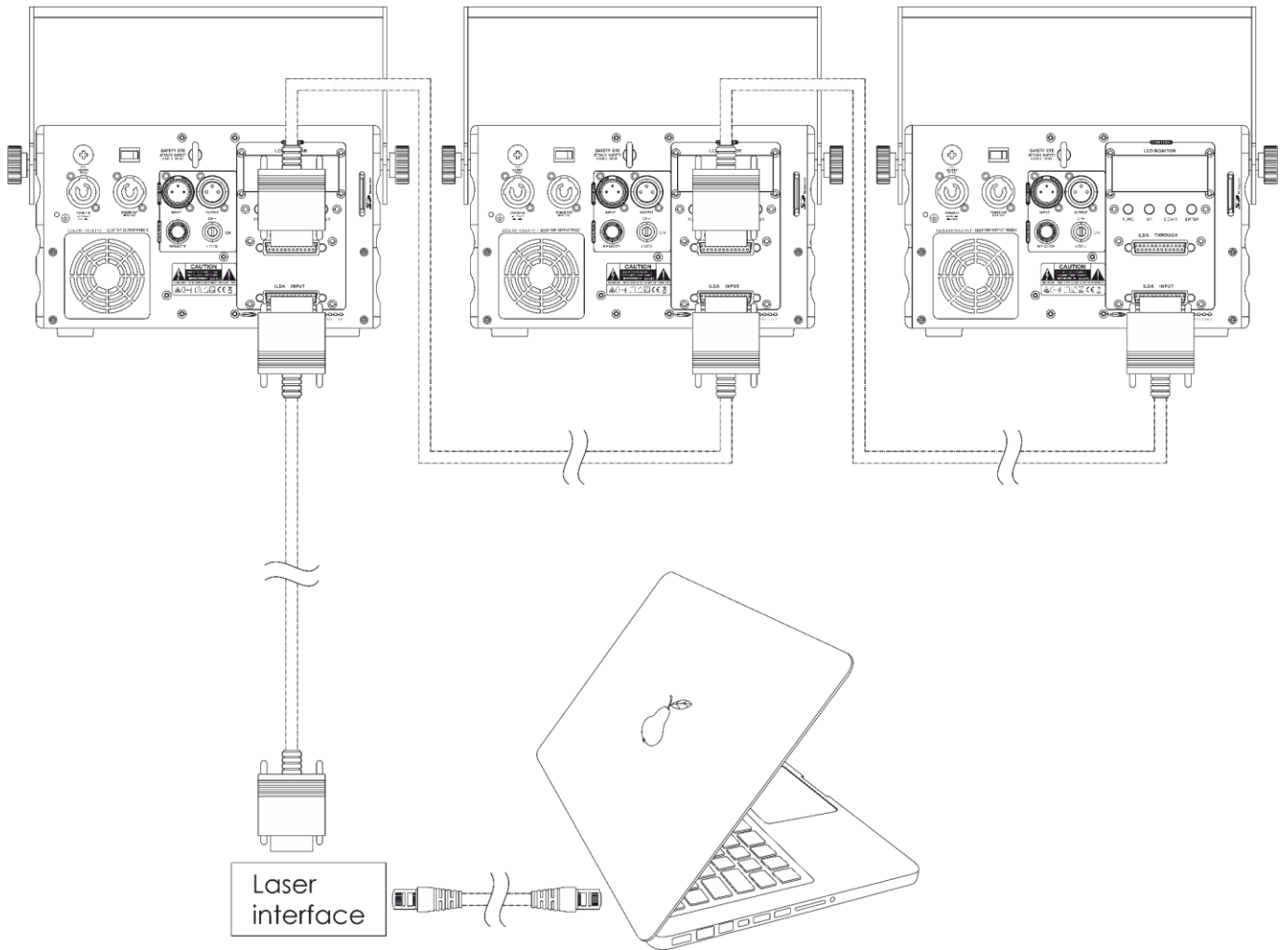


Fig. 15

6. Operation

6.1. Safety Instructions for Operation



WARNING
Laser radiation
Avoid exposure to beam.

This device is a class 4 laser device according to the classification in NEN-EN-IEC 60825-1:2014. The device can be operated only by instructed or skilled persons.

- Check all applicable national and international regulations concerning laser safety before operating this device.



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

This device is intended for professional use as a laser projector to produce laser displays or show effects. It is suitable only for indoor installation. This device is not suitable for households.

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 Galactic RGB-2000 supports the following control modes:

- Stand-alone: Built-in shows (Auto show 1 and 2), sound-controlled mode (Music show 1 and 2)
- SD Show
- Master/Slave: Built-in shows (Auto show 1 and 2), sound-controlled mode (Music show 1 and 2), SD Show
- DMX-512: 1 channel, 13 channels
- ILDA-compatible DB-25

6.3. Control Panel

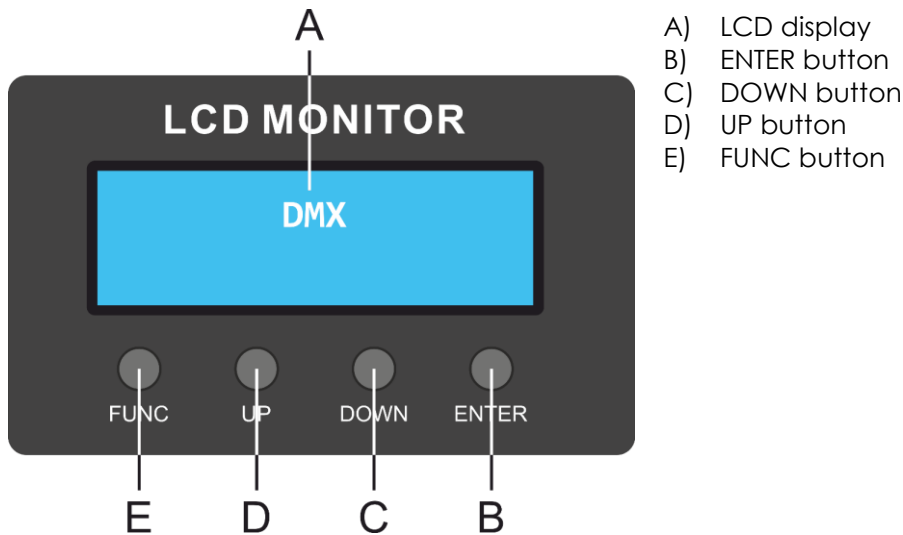


Fig. 16

- Use the **FUNC** button to exit the current submenu, to return to the main menu and to navigate through the main menu.
- 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.

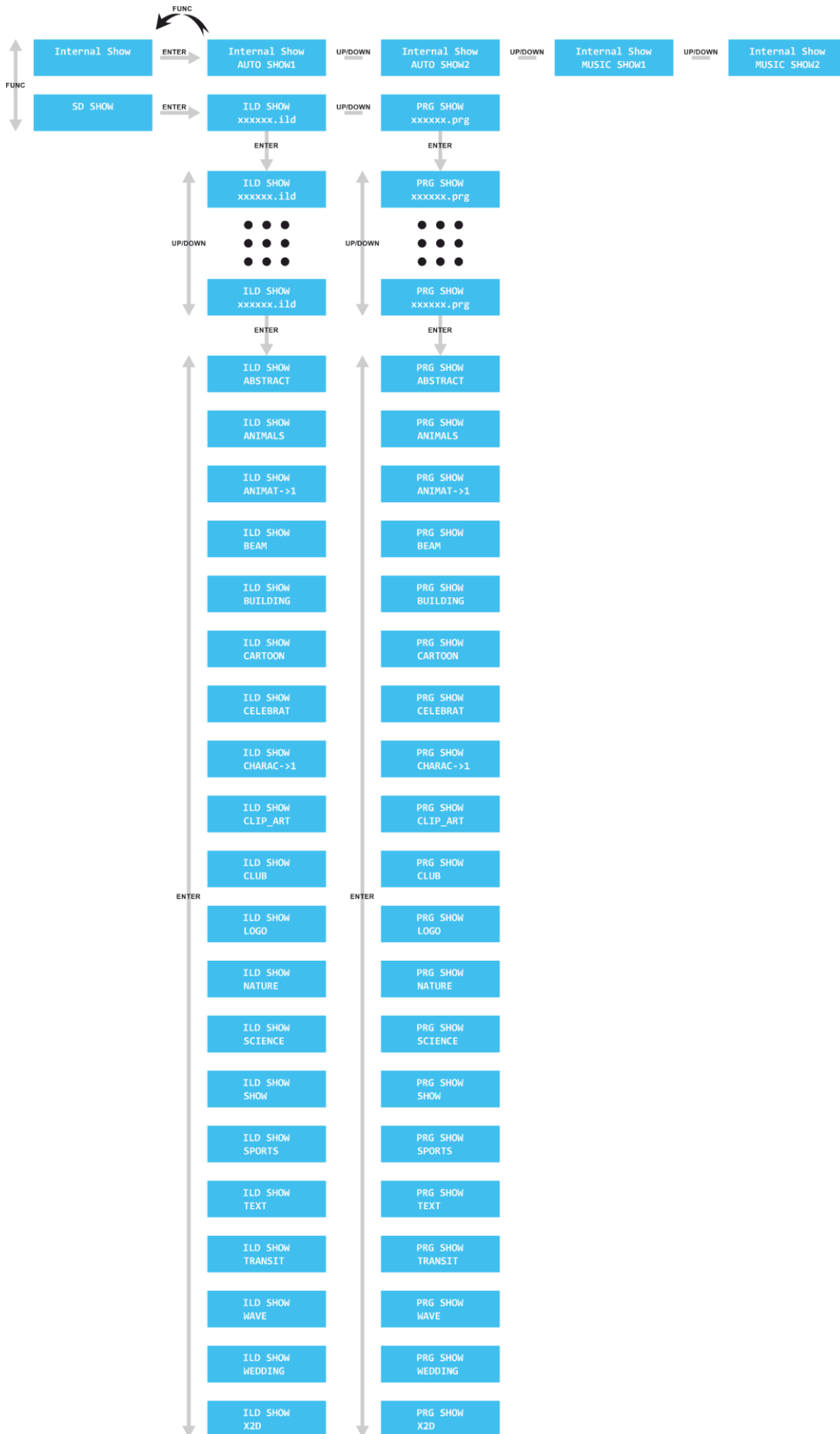
6.4. Starting the Device

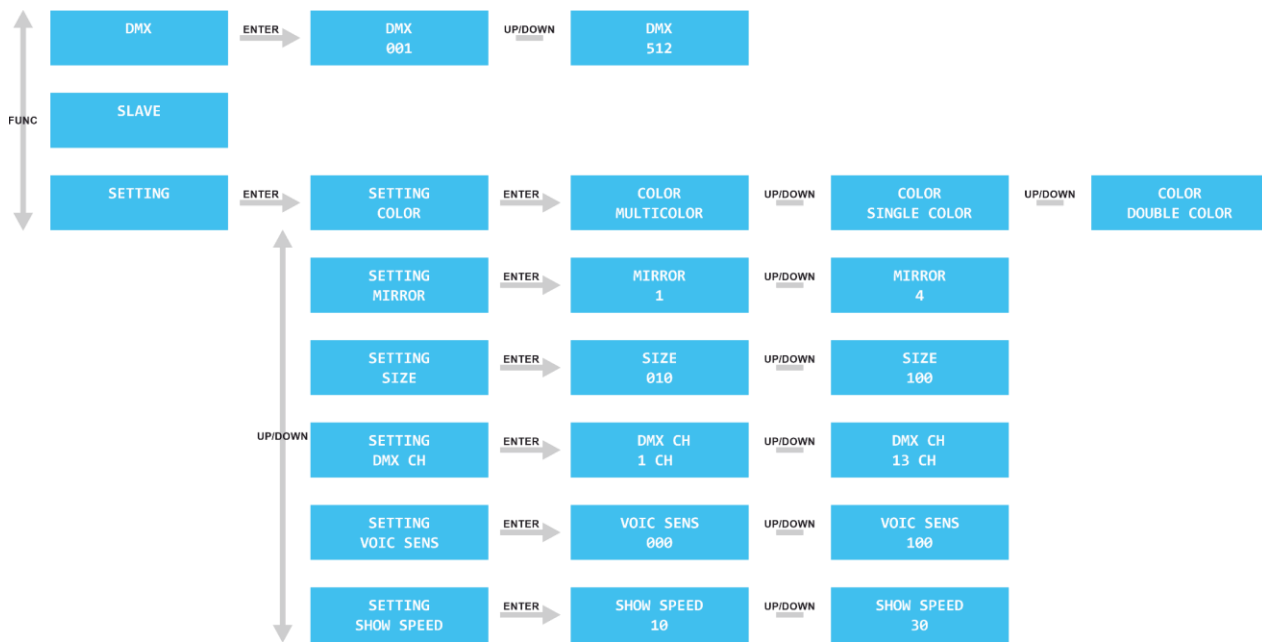
- 01) Make sure that all laser safety measures are in place and working. See **2.3. Laser Safety** on page 9 for more information.
- 02) Connect all data cables, if applicable. See **5.3. DMX Connection** on pages 18–20 for more information.
- 03) Connect the remote interlock (or emergency switch) to the **remote interlock connector (17)**. See **2.4. Safety Devices** on page 9 for more information. For programming purposes you may use the supplied test connector.

Note:

- If the test connector is not inserted into the remote interlock connector, you cannot operate the device. The device will power up, but it will not produce a laser beam.
 - The remote interlock is not supplied. You can purchase a remote interlock from your Highlite International dealer. Check your local regulations, as in some countries it is not allowed to operate the device without a remote interlock.
- 04) Connect the device to the socket-outlet with the power plug. See **4.5. Connecting to Power Supply** on page 16 for more information.
 - 05) Press the **power switch (08)** in ON position to power on the device. The **power LED indicator (06)** turns on.
 - 06) Insert the key into the **key switch (16)**. The device is now operational. Turn the **key switch (16)** to ON position to turn on the laser beam. See **2.4. Safety Devices** on page 9 for more information.

6.5. Menu Overview





6.6. Main Menu Options

From the main menu you can access the following operating modes:

Internal Show	1. Auto/Sound shows
SD SHOW	2. SD show
DMX	3. DMX mode
SLAVE	4. Master/Slave mode
SETTING	5. Settings

If the device is not connected to a DMX controller, you can operate the device using the control panel.

If the laser beam is turned on, any changes are displayed in real time.

6.6.1. Auto/Sound Shows

In this menu you can play the auto shows and the sound-controlled shows.

- 01) Press the **FUNC** button, until the display shows INTERNAL SHOW.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose the desired built-in program. The available programs are:
 - AUTO SHOW 1
 - AUTO SHOW 2
 - MUSIC SHOW 1
 - MUSIC SHOW 2
- 04) Set the show speed. See **6.6.5.6. Show Speed** on page 30 for more information.
- 05) Set the sound sensitivity. See **6.6.5.5. Voic Sens (Sound Sensitivity)** on page 30 for more information.

Note:

- If you have chosen MUSIC SHOW 1 or 2, the device will play the show, reacting to the beat of music. When there is no music for 3 seconds, the laser will turn OFF.

6.6.2. SD Show

In this menu you can play the ILD/PRG shows.

- 01) Insert the included SD card into the **SD slot (13)** on the rear of the device.
- 02) Press the **FUNC** button, until the display shows SD SHOW.
- 03) Press the **ENTER** button to open the menu.
- 04) Press the **UP/DOWN** buttons to choose one of the 2 options:
 - ILD SHOW: Runs individual laser shows (ILD files) from the SD card.
 - PRG SHOW: Runs PRG files. PRG files are programs (chases) consisting of multiple ILD files.
- 05) Press the **ENTER** button to open the desired menu.
- 06) Press the **UP/DOWN** buttons to toggle through the ILD files (if you have chosen ILD SHOW) or through the PRG files (if you have chosen PRG SHOW). The laser will run the shows/chases in real time.
- 07) Press the **ENTER** button to proceed to the folder selection.
- 08) Repeatedly press the **ENTER** button to toggle through the folders. (See pages 35–37 for the complete list of the available folders and files.)

Note:

- Each folder name has to consist of a maximum of 8 characters. Any folder name longer than 8 characters will not be shown correctly on the LCD display.
- Save **ONLY** ILD laser shows on the SD card. **DO NOT** save any other files on it.
- The SD card supports up to 100 folders (255 files per folder).
- The SD card has to be FAT32 formatted.

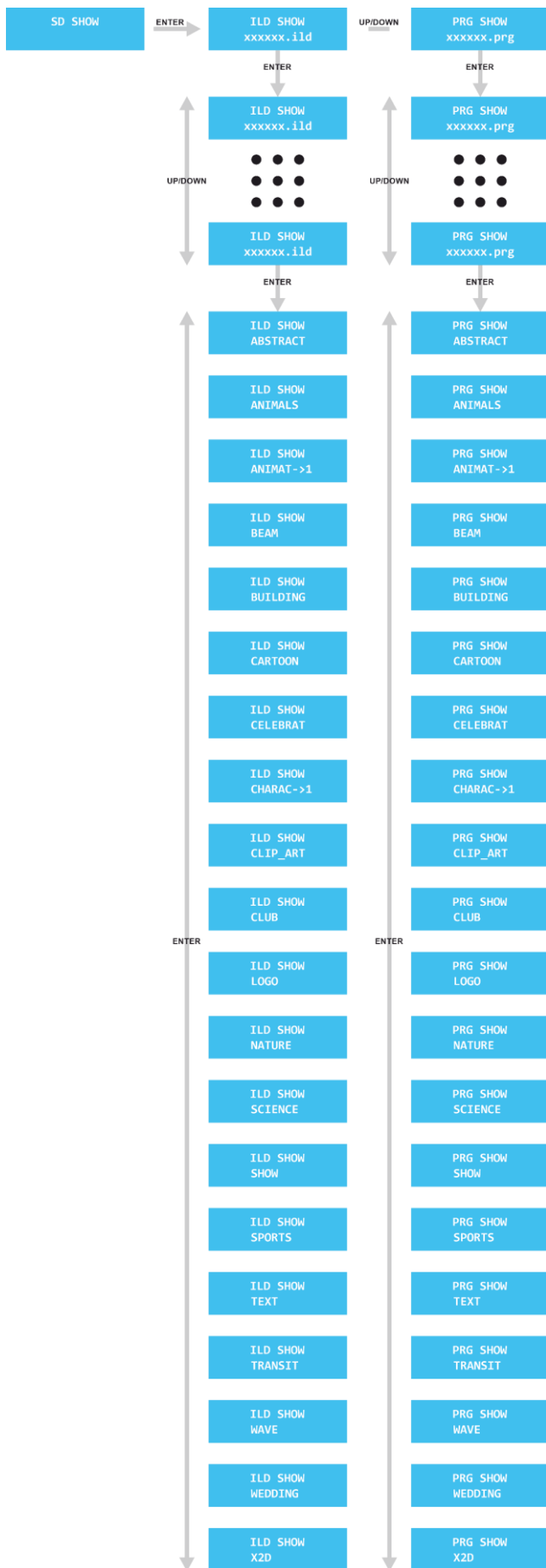
6.6.2.1. Create Your Own Show

On the SD card, in TEXT folder, there are 3 ILD files: birthday.ild, crazy.ild, love.ild.

- 01) If you want to create your own preprogrammed show with these 3 files, you should create a TXT file with the following contents:
 - birthday.ild,12,3
 - crazy.ild,20,1
 - love.ild,18,4
- 02) Save this TXT file with name TEXT.TXT.
- 03) Change the extension of the file from TEXT.TXT to TEXT.PRG

Explanation: birthday.ild,12,3

Birthday.ild is the **ILD** show name, **12** is the scanner speed, **3** is how many times this show will be repeated.



6.6.3. DMX Mode

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

- 01) Press the **FUNC** button, until the display shows DMX.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to select the DMX starting address. The selection range is 001–512.
- 04) Press the **ENTER** button to enable DMX control mode. The display shows the current DMX starting address. If there is no DMX connection, the display is blinking.

Note: If you exit DMX mode, the DMX connection will be discontinued and the device will not react to the DMX controller.

6.6.4. Master/Slave Mode

In this menu you can set the fixture as a slave device.

- 01) Press the **FUNC** button, until the display shows SLAVE.
- 02) The device is now operating in Master/Slave mode. It means that it will react the same as the master device.

6.6.5. Settings

In this menu you can set the device's settings.

- 01) Press the **FUNC** button, until the display shows SETTING.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose one of the 6 submenus:
 - COLOR
 - MIRROR
 - SIZE
 - DMX CH
 - VOIC SENS
 - SHOW SPEED
- 04) Press the **ENTER** button to open the desired submenu.

6.6.5.1. Color

In this menu you can choose the color of the laser beam.

Press the **UP/DOWN** buttons to choose MULTICOLOR, SINGLE COLOR or DOUBLE COLOR.

6.6.5.2. Mirror

In this menu you can mirror the laser output.

Press the **UP/DOWN** buttons to choose one of the 4 mirror options:

- 1: Normal view
- 2: Vertical mirror effect
- 3: Horizontal and vertical mirror effect
- 4: Horizontal mirror effect

6.6.5.3. Size

In this menu you can set the size of the laser beam.

Press the **UP/DOWN** buttons to set the size of the laser beam. The adjustment range is 10–100, from small to big.

6.6.5.4. DMX Ch (DMX Channel Modes)

In this menu you can choose the desired DMX channel mode.

Press the **UP/DOWN** buttons to choose one of the 2 DMX channel modes:

- 1 channel
- 13 channels

6.6.5.5. Voic Sens (Sound Sensitivity)

In this menu you can set the sound sensitivity of the device.

Press the **UP/DOWN** buttons to set the sound sensitivity. The adjustment range is 0–100, from low to high sensitivity.

6.6.5.6. Show Speed

In this menu you can set the show speed.

Press the **UP/DOWN** buttons to set the show speed. The adjustment range is 10–30, from slow to fast.

6.7. DMX Channels

6.7.1. 1 Channel

CH	Function	Value	Setting
1	Mode Selection	000–073	No laser output
		074–110	PRG show (SD card)
		111–147	ILD show (SD card)
		148–165	Auto show 1
		166–184	Auto show 2
		185–202	Music show 1
		203–255	Music show 2

6.7.2. 13 Channels

The device has 13 DMX channels. In CH 1 you can select the operating mode of the device. Depending on the selection made in CH 1, the rest of the channels have different functions in the different operating modes.

CH	Function	Value	Setting
1	Mode Selection	000–073	No laser output
		074–110	PRG show (SD card)
		111–147	ILD show (SD card)
		148–165	Auto show 1
		166–184	Auto show 2
		185–202	Music show 1
		203–221	Music show 2
		222–255	DMX mode

6.7.2.1. PRG Show (SD card)

Set CH 1 between 74 and 110 to select PRG show mode.

CH	Function	Value	Setting
2	Folders	000-011	Folder 1
		012-023	Folder 2
		024-035	Folder 3
		036-047	Folder 4
		048-059	Folder 5
		060-071	Folder 6
		072-083	Folder 7
		084-095	Folder 8
		096-107	Folder 9
		108-119	Folder 10
		120-131	Folder 11
		132-143	Folder 12
		144-155	Folder 13
		156-167	Folder 14
		168-179	Folder 15
		180-191	Folder 16
		192-203	Folder 17
		204-215	Folder 18
		216-227	Folder 19
		228-255	Folder 20
3	Files	000-255	PRG files




6.7.2.2. ILD Show (SD card)

Set CH 1 between 111 and 147 to select ILD show mode.

CH	Function	Value	Setting
2	Folders	000-011	Folder 1
		012-023	Folder 2
		024-035	Folder 3
		036-047	Folder 4
		048-059	Folder 5
		060-071	Folder 6
		072-083	Folder 7
		084-095	Folder 8
		096-107	Folder 9
		108-119	Folder 10
		120-131	Folder 11
		132-143	Folder 12
		144-155	Folder 13
		156-167	Folder 14
		168-179	Folder 15
		180-191	Folder 16
		192-203	Folder 17
		204-215	Folder 18
		216-227	Folder 19
		228-255	Folder 20
3	Files	000-255	ILD files

6.7.3. DMX Mode

Set CH 1 between 222 and 255 to select DMX mode.

CH	Function	Value	Setting	
2	Patterns	000–255	Laser patterns (See 6.7.3.1. Pattern Selection Chart on page 34 for the list of patterns.)	
3	Shutter/Strobe	000–005	No laser output	
		006–010	Laser on	
		011–199	Laser on + strobe, from low to high frequency	
		200–255	Laser on + sound-controlled strobe	
4	X Movement	000–125	126 fixed positions on the X axis	
		126–155	Movement from left to right, from slow to fast	
		156–185	Movement from right to left, from slow to fast	
		186–225	Horizontal movement, from slow to fast	
		226–245	Random horizontal movement, from slow to fast	
		246–255	Sound-controlled horizontal movement	
5	Y Movement	000–125	126 fixed positions on the Y axis	
		126–155	Movement up – down, from slow to fast	
		156–185	Movement down – up, from slow to fast	
		186–225	Vertical movement, from slow to fast	
		226–245	Random vertical movement, from slow to fast	
		246–255	Sound-controlled vertical movement	
6	Zoom Effect	000–010	Original size	
		011–087	Fixed zooming, from small to big	
		088–150	Zoom out, from slow to fast	
		151–200	Zoom in, from slow to fast	
		201–255	Zoom in and out, from slow to fast	
7	Y Rotation	000–010	No rotation	
		011–128	Fixed rotating 0–359°	
		129–255	Continuous rotation, from slow to fast	
8	X Rotation	000–010	No rotation	
		011–128	Fixed rotating 0–359°	
		129–255	Continuous rotation, from slow to fast	
9	Z Rotation	000	No rotation	
		001–128	Fixed rotating 0–359°	
		129–192	Continuous counterclockwise rotation, from slow to fast	
		193–255	Continuous clockwise rotation, from slow to fast	
10	Drawing/Clipping	000–010	Original pattern	
		011–074	Fixed clipping, 100–0 %	
		075–104	Continuous drawing, 0–100 %, from slow to fast	
		105–144	Continuous clipping, 100–0 %, from slow to fast	
		145–184	Continuous drawing + clipping, from slow to fast	
		185–224	Continuous reversed clipping, 100–0 %, from slow to fast	
		225–255	Continuous reversed drawing, 0–100 %, from slow to fast	
11	Wave	000–010	Original pattern	
		011–189	Wave amplitude, from small to big, from slow to fast	
		190–255	Wave frequency, from low to high	
12	Colors	000–016	White	
		017–033	Red	
		034–050	Green	
		051–067	Blue	
		068–084	Yellow	
		085–101	Magenta	

CH	Function	Value	Setting
		102-118	Cyan
		119-135	White, Red, Green, Blue (fixed colors)
		136-152	Blue, Yellow, Magenta, Cyan (fixed colors)
		153-169	White, Red, Green, Blue, Yellow, Magenta, Cyan (fixed colors)
		170-186	White, Red, Green, Blue (color flow)
		187-203	Blue, Yellow, Magenta, Cyan (color flow)
		204-220	White, Red, Green, Blue, Yellow, Magenta, Cyan (color flow)
		221-237	Random color
		238-255	Sound-controlled color change
13	Pattern drawing style	000-063	Default style
		064-127	Default style+bright points
		128-191	Dashed line
		192-255	Bright points

6.7.3.1. Pattern Selection Chart

To select a pattern, follow the steps below:

- 01) Activate the 13-channel mode on the device. See **6.6.5.4. DMX Ch (DMX Channel Modes)** on page 30 for more information.
- 02) Set CH 1 in the range 222–255 to activate DMX mode.
- 03) Set CH 2 in the range 000–255 to toggle through the available 85 patterns.

1		18		35		52		69	
2		19		36		53		70	
3		20		37		54		71	
4		21		38		55		72	
5		22		39		56		73	
6		23		40		57		74	
7		24		41		58		75	
8		25		42		59		76	
9		26		43		60		77	
10		27		44		61		78	
11		28		45		62		79	
12		29		46		63		80	
13		30		47		64		81	
14		31		48		65		82	
15		32		49		66		83	
16		33		50		67		84	
17		34		51		68		85	

6.8. List of Files and Folders on the SD Card

Abstract

abs01.ild
abs02.ild
abs03.ild
abs04.ild
abs05.ild
abs06.ild
abs07.ild
abs08.ild
abs09.ild
abs10.ild
Abstract.PRG
Glow.ild
SWIRLY.ild
WAVLG.ild

Animals

3D2DRudy.ild
3monkey.ild
abird.ild
adler.ild
Animals.PRG
Bat.ild
Batfl.ild
batfly.ild
bear.ild
BELUGAS.ild
bigcat.ild
bird.ild
bird1.ild
BIRDS.ild
birdsil.ild
birdy.ild
Bpanther.ild
bugfly.ild
bullpen.ild
Caged.ild
camel.ild
carp.ild
cateyes1.ild
catfish.ild
chchuk.ild
Cheeta.ild
chorsetk.ild
clam.ild
coka2.ild
crabrun.ild
deer.ild
dinosaur.ild
DinRin.ild
Dog.ild
dragfire.ild
dragon1.ild
dragon2.ild
eagle.ild

eagle1f.ild
Eaglee.ild
eleph.ild
Elepha.ild
fisbite1.ild
fisch.ild
fische.ild
fish1.ild
fishbig.ild
fishbite.ild
FISHEAT.ild
fishlil.ild
fishswim.ild
fishtrmp.ild
FLY.ild
Flying.ild
ghofer.ild
ghound.ild
Heron.ild
hippo.ild
horse3.ild
hound.ild
ilddolf.ild
jumbo.ild
kangaroo.ild
koala.ild
kroo.ild
kroo1.ild
lion1.ild
lion2.ild
lion3.ild
liontmp.ild
lionwtk.ild
MINGO.ild
mouse.ild
octypus2.ild
octypuss.ild
octyrun.ild
octywave.ild
OSTRIH.ild
owl.ild
parott.ild
PeaceDo.ild
Pelican.ild
pitbull.ild
plough.ild
RHINO.ild
Roo.ild
runrab.ild
sardine.ild
Seamonst.ild
shark.ild
Shark1a.ild
sharkatt.ild
sheep.ild

singlion.ild
slion.ild
snake.ild
snake2.ild
spider.ild
squak.ild
starabit.ild
tdaktyl.ild
trex.ild
tronto.ild
walrus.ild
wolf.ild
wombat.ild

Animation

Animation.PRG
arro3f.ild
Balaim.ild
banaroll.ild
blindsHZ.ild
bonerot.ild
boom.ild
Brkthru.ild
broom.ild
celuloid.ild
circwipe.ild
claww.ild
closing.ild
comet.ild
curl.ild
diamdizz.ild
dissolv.ild
fire.ild
fire1.ild
fire2.ild
flag1.ild
flag2.ild
flowerop.ild
floweroq.ild
ghost2f.ild
GHOSTY.ild
glass.ild
HOROSCOP.ild
LA^TERNR.ild
PLANKS.ild
set2.ild
skullrot.ild
tregrow.ild
wkinlite.ild
zipper.ild

Beam

2_circle.ild
8_circle.ild
8_flower.ild

9pm.ild
AYAG.ild
Barry.ild
Beam.PRG
beat.ild
cir_roat.ild
cir_zoom.ild
c_cirle.ild
c_Line.ild
d_circle.ild
fan.ild
Feelup.ild
flying.ild
GRIDDOTS.ild
KLF.ild
launch.ild
lines.ild
Line_cir.ild
line_x.ild
Lovely.ild
mainsho.ild
Moby.ild
p_cross.ild
radiance.ild
rect.ild
spat3.ild
Sun.ild
turbine.ild
x3.ild
XDOTS.ild
x_circle.ild

Building

acencity.ild
airfield.ild
ArcD.ild
bagdad.ild
barn1.ild
beltwer1.ild
bigben.ild
brikwall.ild
Building.PRG
caslerok.ild
Castle.ild
castle2.ild
chur360.ild
Citsloet.ild
Dizzy.ild
Dwntown.ild
easterl.ild
easterlL.ild
eifell.ild
Factory.ild
Flyover.ild

GCoast.ild
Ggate.ild
ggate1.ild
glassoff.ild
grewall.ild
GTwallo.ild
halrotat.ild
henge.ild
HydroEle.ild
liberty.ild
Lighthou.ild
litehous.ild
Ltower.ild
Malaysia.ild
Observat.ild
olchurch.ild
oldhouse.ild
pyramids.ild
RomColum.ild
russia.ild
spcity.ild
Sphinxx.ild
sphinxxx.ild
sydneop.ild
tajmahal.ild
tower2.ild
Twrbrdge.ild
uluru2.ild

Cartoon

ATTACK.ild
bacter1.ild
bear.ild
bizmon.ild
brain.ild
BUGSb.ild
cart01.ild
cart02.ild
cart03.ild
cart04.ild
cart05.ild
Cartoon.PRG
cow_ild
dduck.ild
Dickdas.ild
duck.ild
fakir1.ild
genie.ild
goat_ild
Goofy.ild
ham_nail.ild
hippo1.ild
kitty.ild
lion.ild
Magoo.ild

monkey.ild
moose.ild
newsboy.ild
nova2.ild
nova3e.ild
npaper.ild
Oscar.ild
pencil.ild
pinky&B.ild
skunk.ild
sweeper.ild
vulture.ild
zippy.ild

Celebrat

baby.ild
Beer F.ild
beer.ild
bell.ild
bimmel.ild
candle.ild
candles.ild
Candy.ild
Celebrat.PRG
Cheers.ild
clap.ild
Clapping.ild
confetti.ild
count.ild
creeping.ild
crowds.ild
Elf.ild
elfrun.ild
FIREWKS1.ild
FIREWKS2.ild
FIREWKS3.ild
FIREWRK4.ild
Food.ild
fwbang.ild
Games.ild
North.ild
play.ild
Presents.ild
santa.ild
Santa2.ild
Santaf.ild
santapop.ild
santlaf.ild
SantList.ild
santread.ild
sleigh.ild
snoflake.ild
snotip.ild
Solider.ild
SPKG.ild
stremers.ild
SWIRL.ild

tree.ild
tree2.ild
treednce.ild
xmas.ild
xmastree.ild
yes.ild

Character

alice.ild
Babyl.ild
bazooka1.ild
BELLE.ild
bikini.ild
boss.ild
cardgive.ild
chainsa.ild
Character.PRG
Chef.ild
Coolie.ild
demon.ild
eskimo.ild
eyeblnk.ild
Facemorf.ild
fistslam.ild
gradg.ild
handle.ild
jogger.ild
king&Q.ild
kite.ild
mageye.ild
maggymay.ild
MAGIC.ild
Mofsteel.ild
moses.ild
neptune.ild
ontheph.ild
Pamela.ild
peek.ild
Pirate1.ild
Pirate2.ild
pullgun.ild
rhood.ild
runna.ild
salute.ild
shake50.ild
smann.ild
stepup.ild
thboss.ild
torchand.ild
Vampress.ild
warrior.ild
wife.ild
witch1.ild
wizard1.ild
XTEMCLIF.ild

CLIP_ART

2face.ild
3dhall.ild
alien1.ild
Ark.ild
Attache.ild
bach.ild
ballons.ild
batz.ild
bookop.ild
bug1.ild
capsicum.ild
CLIP_ART.PRG
corpse.ild
curtains.ild
Deckchr.ild
fishskel.ild
flower.ild
FRANKN.ild
ghost.ild
Goul.ild
Griffin.ild
Iguana.ild
lizz.ild
LovArro.ild
morff.ild
mumhead.ild
optical.ild
pagerip1.ild
redstar.ild
skull1.ild
unicorn.ild
yingyang.ild

Club

ANI017.ild
ANI055.ild
ANI066.ild
bass.ild
bbcmic.ild
behind.ild
bells.ild
blam.ild
brekdce.ild
calnder.ild
clapper.ild
Club.PRG
clubber.ild
clubbera.ild
conduct.ild
conduct1.ild
conga.ild
convict.ild
dblbass.ild
flik.ild
give.ild
gwalk.ild

hamhitt.ild
heartbrk.ild
hiphop.ild
Hiphop2.ild
instrum.ild
keyb.ild
keybord.ild
keys.ild
Led.ild
mmann.ild
NEON.ild
notemv.ild
ohmike.ild
PIANO.ild
robo.ild
spin.ild
strip.ild
taenzer.ild
tomtom.ild
Vbearid.ild
WOODDOOR.ild

Logo

Ace.ild
Alfa.ild
AQUA.ild
Audi.ild
belfas.ild
Benz.ild
bmw.ild
Cadillac.ild
Coke.ild
eagles.ild
ferrari.ild
FOOTYT.ild
Ford.ild
Harley.ild
Holden.ild
ILPLOGO.ild
Jaguar.ild
keno.ild
klm.ild
Logo.PRG
mvworld.ild
plez.ild
Qantas.ild
qcon1.ild
redbull.ild
rollsroy.ild
ruski.ild
Shell.ild
TAB.ild
tabcorp.ild
Toyota.ild

Nature

3palms.ild

bubbles.ild
cldown.ild
Cloudpan.ild
clouds.ild
Desert.ild
earthrot.ild
falls.ild
falls1.ild
falls2.ild
falls3.ild
grassmv.ild
grfire.ild
h20splsh.ild
lightnin.ild
Nature.PRG
Oaktree.ild
ovthhil1.ild
planet.ild
RAIN.ild
rain1.ild
sea.ild
SEAROLL.ild
seashore.ild
SLSTARS1.ild
Stars.ild
waterfal.ild
wavcrash.ild
wavedraf.ild
wavez.ild
wavroll1.ild
wavrush.ild
wfalani1.ild
wfalanim.ild
wfall.ild
wfallzom.ild

Science

acog.ild
atemp.ild
bang.ild
bellfel.ild
book.ild
BOOKOP.ild
CableJ.ild
cameras.ild
cellph.ild
cell_phs.ild
circ_saw.ild
Claw.ild
cog1.ild
coggbigg.ild
crash.ild
cyberman.ild
e3dsimp.ild
Earth3d.ild
earth60v.ild
evolu.ild

fax.ild
 gridpers.ild
 lantern.ild
 light.ild
 lighthouse.ild
 movcam.ild
 oilderek.ild
 ph.ild
 Phring.ild
 pliers.ild
 plnetexp.ild
 pour.ild
 reelcam.ild
 robofoot.ild
 robot1.ild
 saveth.ild
 Science.PRG
 ship.ild
 shutter1.ild
 sparkx.ild
 SPtank.ild
 SSHIP1.ild
 sship2.ild
 sship3.ild
 sship4.ild
 sshipA.ild
 sshipb.ild
 starexp.ild
 teargas.ild
 thermo.ild

Show

afed.ild
 aforest.ild
 children.ild
 fable.ild
 floyd.ild
 gangsta.ild
 Gas.ild
 Hendrix.ild
 ISPY.ild
 kiss.ild
 liftoff.ild
 loveis.ild
 Mambo.ild
 MMDemo.ild
 passoa.ild
 relax.ild
 rmiles.ild
 shell.ild
 Show.PRG
 snoopy.ild
 turfclub.ild
 vanessa.ild
 Where.ild

Sports

arotrget.ild
 athlete.ild
 baseball.ild
 bearer.ild
 Boarder.ild
 bowling.ild
 BRONCO.ild
 bskball.ild
 catch.ild
 cricket.ild
 cyclist.ild
 Golfer.ild
 golfswin.ild
 gymfloor.ild
 gymnast.ild
 HO_P.ild
 hurdle.ild
 Jockey.ild
 Jockey1.ild
 kick.ild
 lifter.ild
 para.ild
 skate.ild
 skirace.ild
 snoboard.ild
 snooker.ild
 soccer.ild
 Sports.PRG
 sprinter.ild
 style.ild
 surfer2.ild
 swingg.ild
 volball.ild
 windsur.ild

TEXT

birthday.ild
 crazy.ild
 Dance.ild
 disco.ild
 good.ild
 happy.ild
 ILOVEYOU.ild
 love.ild
 music.ild
 party.ild
 ready.ild
 stary.ild
 stop.ild
 Text.PRG
 thank.ild
 welcome.ild
 win.ild
 worldcup.ild
 xmas.ild

Transit

747.ild
 ambulance.ild
 balloon.ild
 biplane.ild
 biplane1.ild
 boat.ild
 caddy.ild
 Camero.ild
 carbike.ild
 carjump.ild
 chase.ild
 Classic.ild
 crane.ild
 DAYBOAT.ild
 driveby.ild
 express.ild
 f11.ild
 formula1.ild
 frigate.ild
 gallsea.ild
 heli.ild
 helibig.ild
 hor&carr.ild
 jeepdus1.ild
 jeepdust.ild
 Jet.ild
 plane.ild
 rikshaw.ild
 skydive.ild
 subpop.ild
 subway32.ild
 tanker.ild
 train.ild
 Transit.PRG
 turrtgun.ild
 WIWil.ild

Wave

2wave.ild
 circle_w.ild
 dot_wave.ild
 d_wave.ild
 free.ild
 m_wave.ild
 swiming.ild
 tri_wave.ild
 Wave.PRG
 wave2.ild
 xwave.ild

Wedding

2heart.ild
 diamond.ild
 diaring.ild
 flower.ild
 rose.ild

Valen.ild
 Wedding.PRG

X2D

3Dcity.ild
 3_cube.ild
 maze.ild
 molecule.ild
 mystify.ild
 PLASMA.ild
 SPIND.ild
 spiral.ild
 stargrid.ild
 SWIRL.ild
 tunnel.ild
 wall.ild
 WUERFEL.ild
 X2D.PRG

7. Troubleshooting

This troubleshooting guide contains actions which can be carried out by the user. 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 power up	No power to the device	<ul style="list-style-type: none"> Check if power is switched on and cables are plugged in
	Main fuse is blown	<ul style="list-style-type: none"> Replace the fuse. See 8.3.1. Replacing the Fuse on page 40
The device does not produce a laser projection	The key switch is not in ON position	<ul style="list-style-type: none"> Insert the key switch and turn it in ON position. See 2.4. Safety Devices on page 9
	The remote interlock or the test connector is not connected	<ul style="list-style-type: none"> Connect the remote interlock or the test connector. See 2.4. Safety Devices on page 9
The device does not respond to DMX control	The controller is not connected	<ul style="list-style-type: none"> Connect the controller
	The device is not in DMX mode	<ul style="list-style-type: none"> Activate DMX mode from the main menu
	The signal is reversed. The 3-pin DMX OUT of the controller does not match the DMX IN of the device	<ul style="list-style-type: none"> Install a phase-reversing cable between the controller and the device
	The controller is defective	<ul style="list-style-type: none"> Try using another controller
The device responds erratically to DMX control	Bad data link connection	<ul style="list-style-type: none"> Examine connections and cables. Correct poor connections. Repair or replace damaged cables
	The data link is not terminated with a 120 Ω termination plug	<ul style="list-style-type: none"> Insert a termination plug in the DMX OUT connector of the last device on the link
	Incorrect addressing	<ul style="list-style-type: none"> Check address settings and correct, if necessary
	In case of a setup with multiple devices, one of the devices is defective and disturbs data transmission on the link	<ul style="list-style-type: none"> To find out which is the defective device, bypass one device at a time until normal operation is restored

8. Maintenance

8.1. Safety Instructions for Maintenance



DANGER
Electric shock caused by dangerous voltage inside

Disconnect power supply before servicing or cleaning.



WARNING
Laser radiation
Avoid exposure to beam.

This device is a class 4 laser device according to the classification in NEN-EN-IEC 60825-1:2014.

Maintenance can be carried out by instructed or skilled persons. Service shall be carried out only by skilled persons. Contact your Highlite International dealer for more information.

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, fixations 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



WARNING
Laser radiation
Avoid exposure to beam

To avoid laser emission, remove the key before cleaning the device.

The external lens of the device must be cleaned periodically in order to optimize the laser 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 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.
- For replacement use fuses of the same type and rating only.

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. Follow the cleaning instructions in chapter **8.2.1. Basic Cleaning Instructions** on page 39.
- 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.

This product is in compliance with IEC60825-1:2014.



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