




STAIRVILLE

DJ Lase
BlueStar MK-II LED
showlaser

Musikhaus Thomann
Thomann GmbH
Hans-Thomann-Straße 1
96138 Burgebrach
Germany
Telephone: +49 (0) 9546 9223-0
E-mail: info@thomann.de
Internet: www.thomann.de

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Table of contents

1	General information	5
	1.1 Further information.....	6
	1.2 Notational conventions.....	7
	1.3 Symbols and signal words.....	7
2	Safety instructions	10
3	Features	19
4	Installation	20
5	Starting up	25
6	Connections and controls	28
7	Handling	33
	7.1 Starting and stopping the device.....	33
	7.2 Main menu.....	34
	7.3 Menu overview.....	38
	7.4 Functions in DMX mode.....	39
8	Technical specifications	42

9	Plug and connection assignments.....	45
10	Troubleshooting.....	46
11	Cleaning.....	48
12	Protecting the environment.....	49

1 General information

This user manual contains important information on the safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device to another user, be sure that they also receive this manual.

Our products and user manuals are subject to a process of continuous development. We therefore reserve the right to make changes without notice. Please refer to the latest version of the user manual which is ready for download under www.thomann.de.

1.1 Further information

On our website (www.thomann.de) you will find lots of further information and details on the following points:

Download	This manual is also available as PDF file for you to download.
Keyword search	Use the search function in the electronic version to find the topics of interest for you quickly.
Online guides	Our online guides provide detailed information on technical basics and terms.
Personal consultation	For personal consultation please contact our technical hotline.
Service	If you have any problems with the device the customer service will gladly assist you.

1.2 Notational conventions

This manual uses the following notational conventions:

Letterings

The letterings for connectors and controls are marked by square brackets and italics.

Examples: *[VOLUME]* control, *[Mono]* button.



Displays




Texts and values displayed on the device are marked by quotation marks and italics.

Examples: *'24ch'*, *'OFF'*.

1.3 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this manual.

Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
WARNING!	This combination of symbol and signal word indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.
Warning signs	Type of danger
	Warning – high-voltage.
	Warning – laser radiation.

Warning signs	Type of danger
	<p>Warning – dangerous optical radiation.</p>
	<p>Warning – suspended load.</p>
	<p>Warning – danger zone.</p>

2 Safety instructions

Intended use

This unit is used to project laser light effects; it is intended for show applications only. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Extend the operating life of the device by regular breaks and by avoiding frequent switching on and off. The device is not suitable for continuous operation.

Laser safety basics

Laser safety requirements are based on DIN EN 60825-1:2015. The corresponding accident prevention regulation of the Accident Prevention and Insurance Association in Germany is BGV-B2.

This device contains a class-3B laser. It comes equipped with a safety key and a jack for connecting an external safety switch. Always remove the key when the device is not attended by a trained operator.

As an operator you are responsible for the safety of all persons present. Familiarize yourself with the laser safety regulations that apply in your country. To ensure safe operation, it is important to pay attention to the following instructions.

Prior to commissioning, the company/operator must appoint a qualified person as laser protection officer in writing and notify the operation of the laser equipment to the Accident Prevention and Insurance Association and to the authority responsible for occupational safety. In the event of public use, the complete laser equipment must be approved by an expert prior to commissioning.

Safety



DANGER!

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.



DANGER!

Electric shock caused by high voltages inside

Within the device there are areas where high voltages may be present. Never remove any covers.

There are no user-serviceable parts inside.

Do not use the device if covers, protectors or optical components are missing or damaged.



DANGER!

Electric shock caused by short-circuit

Always use proper ready-made insulated mains cabling (power cord) with a protective contact plug. Do not modify the mains cable or the plug. Failure to do so could result in electric shock/death or fire. If in doubt, seek advice from a registered electrician.



DANGER!

Laser radiation – avoid exposure to beam

The device contains a class-3B laser, classified according to EN 60825-1:2015. Do not look into the laser beam. The laser beam can injure your eyes when you directly look into it. Do not expose yourself to the laser beam. The laser beam can cause skin burns.

In this context take extreme care when using converging optical instruments.



WARNING!

Eye damage caused by high light intensity

Never look directly into the light source.



WARNING!

Risk of epileptic shock

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



NOTICE!

Laser radiation – risk of fire

Keep the area exposed to laser radiation free from flammable substances.



NOTICE!

Risk of fire

Do not block areas of ventilation. Do not install the device near any direct heat source. Keep the device away from naked flames.



NOTICE!

Operating conditions

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.

Only operate the device within the ambient conditions specified in the chapter 'Technical specifications' of this user manual. Avoid heavy temperature fluctuations and do not switch the device on immediately after it was exposed to temperature fluctuations (for example after transport at low outside temperatures).

Dust and dirt inside can damage the unit. When operated in harmful ambient conditions (dust, smoke, nicotine, fog, etc.), the unit should be maintained by qualified service personnel at regular intervals to prevent overheating and other malfunction.



NOTICE!

Power supply

Before connecting the device, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly injure the user.

Unplug the device before electrical storms occur and when it is unused for long periods of time to reduce the risk of electric shock or fire.



NOTICE!

Possible staining

The plasticiser contained in the rubber feet of this product may possibly react with the coating of your parquet, linoleum, laminate or PVC floor and after some time cause permanent dark stains.

In case of doubt, do not put the rubber feet directly on the floor, but use felt-pad floor protectors or a carpet.



NOTICE!

Possible damage due to installation of a wrong fuse

The use of different types of fuses can cause serious damage to the unit. Fire hazard!

Only fuses of the same type may be used.

3 Features

The showlaser is specially suited for discos, clubs, bars, small stages, etc. It allows smooth integration into light shows, but can also be operated as stand-alone device. The two laser diodes together with the LED background illumination provide extraordinary special effects.

Special features of the device:

- Control via DMX (7 channels) and via buttons and display on the unit
- Built-in automatic show programmes
- Sound control
- Master / slave mode
- Laser diodes:
 - Red: 100 mW
 - Green: 40 mW
- Blue LED background illumination with projection lens

For technological reasons, the light output of LEDs decreases over their lifetime. This effect increases with higher operating temperature. You can extend the service life of the illuminants by providing adequate ventilation and operating the LEDs with the lowest possible brightness.

4 Installation

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the product against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

You can install the device standing or hanging. When in use, the device must be mounted at a solid surface or clamped to an approved truss.

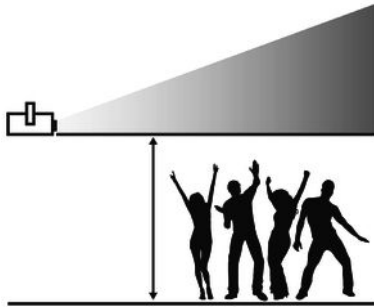
Work from a stable platform whenever you install or move the device or when you perform any kind of maintenance. Block access under the work area.

Safety switch (emergency stop)

Connect the external safety switch (not supplied) to the provided connection socket on the device. If you press the external switch, the laser beam will be switched off immediately.

Observe the safety instructions of the switch manufacturer and the regulations for the intended use.

Minimum height



In order to meet the limits for maximum irradiation (MZB limit value for the non-hazardous irradiation of the eye or the skin with a laser), the device must be installed at a height of at least 2.7 m according to the BGV-B2 valid in Germany.

The determination of the MZB limit values depends on the specific environmental conditions in individual cases and must be carried out by the responsible laser protection representative on site, based on the applicable standard DIN EN 60825-1.

**WARNING!****Risk of injury caused by falling objects**

Make sure that the installation complies with the standards and rules that apply in your country. Always secure the device with a secondary safety attachment, such as a safety cable or a safety chain.

**DANGER!**

Follow the instructions in the chapter titled "Safety Instructions" in the user manual.

To avoid laser emission, remove the safety key before you start to install the device.

**WARNING!****Stray laser radiation**

Inadequately secured additional components may cause stray laser radiation.
Make sure that all additional components are adequately secured.

**NOTICE!****Risk of overheating**

The distance between the light output and the illuminated surface must be more than 2.0 m (78.7 in).

Always ensure sufficient ventilation.

The ambient temperature must always be below 40 °C (104 °F).

5 Starting up

Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.



DANGER!
Laser radiation

Follow the instructions in the chapter titled "Safety Instructions" in this manual.



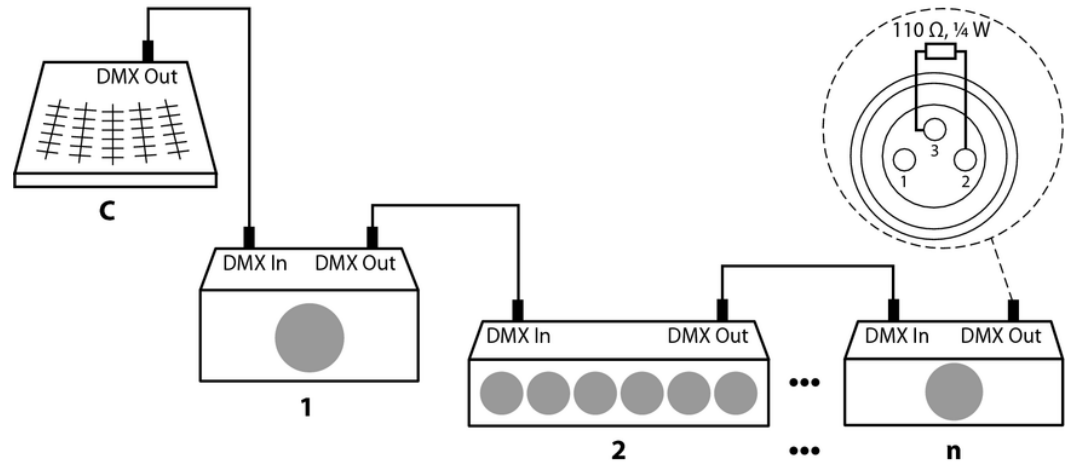
NOTICE!
Possible data transmission errors

For error-free operation make use of dedicated DMX cables and do not use ordinary microphone cables.

Never connect the DMX input or output to audio devices such as mixers or amplifiers.

Connections in DMX mode

Connect the DMX input of the device to the DMX output of a DMX controller or another DMX device. Connect the output of the first DMX device to the input of the second one, and so on to form a daisy chain. Always ensure that the output of the last DMX device in the daisy chain is terminated with a resistor ($110\ \Omega$, $\frac{1}{4}\text{ W}$).

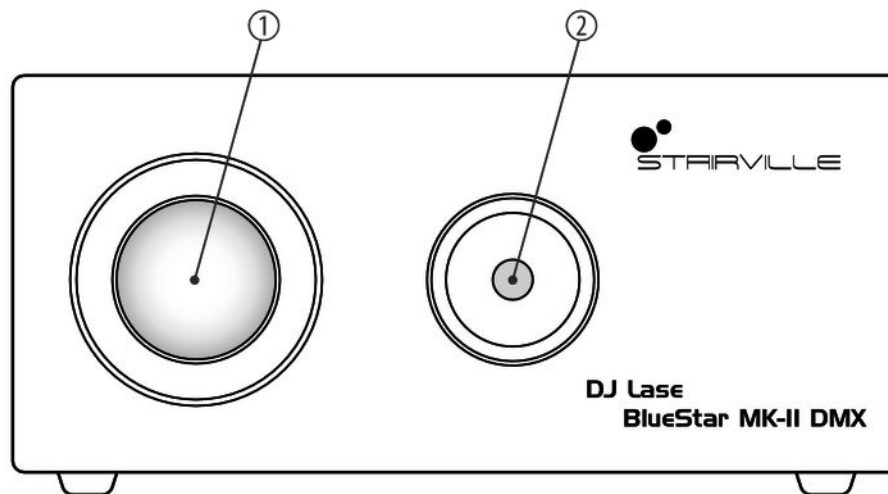


Connections in master/slave mode

When you configure a group of devices in master/slave mode, the first unit will control the other units for an automatic, sound-activated, synchronized show. This function is ideal when you want to start a show immediately. Connect the DMX output of the master device to the DMX input of the first slave device. Then connect the DMX output of the first slave device to the DMX input of the second slave device and so on.

6 Connections and controls

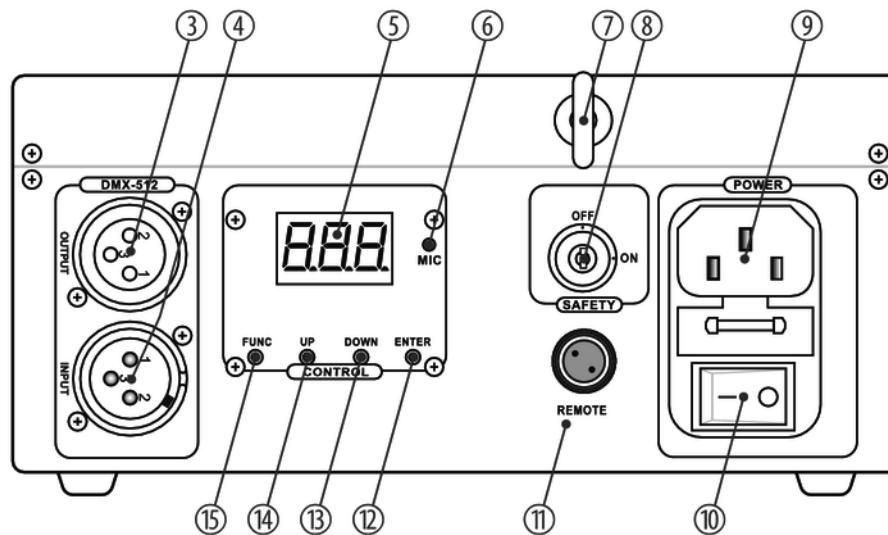
Front panel



1 Projection lens for LED background illumination

2 Laser aperture.

Rear panel



3	<i>[OUTPUT]</i> DMX output
4	<i>[INPUT]</i> DMX input
5	Display
6	<i>[MIC]</i> Microphone used for the sound mode
7	Safety cable eyelet.
8	<i>[SAFETY]</i> Safety key switch: Turns the laser output on or off.
9	IEC chassis plug for the mains cable with fuse holder
10	<i>[POWER]</i> Mains switch. Turns the device on and off.

11	<i>[REMOTE]</i> Jack for connecting an external safety switch (e.g. E-stop button)
12	<i>[ENTER]</i> Selects an option of the respective operating mode.
13	<i>[DOWN]</i> Decreases the displayed value by one.
14	<i>[UP]</i> Increases the displayed value by one.
15	<i>[FUNC]</i> Opens the main menu.

7 Handling

7.1 Starting and stopping the device

Starting

Perform the following steps to start up the device:

- 1.** ▶ Verify that all required laser safety precautions have been taken. Make sure that there is no one in the reach of the laser beam.
- 2.** ▶ Connect an external safety switch [*REMOTE*] (11) to the port (e.g. emergency stop) or any other installation using a protection function.
- 3.** ▶ Insert the safety key into the lock (8).
- 4.** ▶ If not already connected, connect the device to the mains (9).
- 5.** ▶ Using the main switch (10) turn the device on. After a few seconds, the fan and the motors start to work. The display shows the current operation mode. The device is now operational.
- 6.** ▶ Turn the safety key (8) to the “ON” position to turn the laser beam on.

Stopping

Perform the following steps to stop the device:

1. ➤ Turn the safety key (8) to the “OFF” position to turn the laser beam off and remove the key. Keep the safety key under control.
2. ➤ Using the main switch (10) turn the device off.
3. ➤ Optionally, disconnect the device from the mains (9).

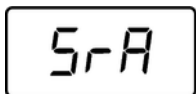
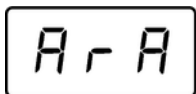
7.2 Main menu

Press *[FUNC]* to activate the main menu and select an operating mode.

When the display flashes, use the *[UP]* and *[DOWN]* buttons to change the displayed value. When the display shows the desired value, press *[ENTER]*. To return to the main menu without any changes, press *[FUNC]* or wait a minute.

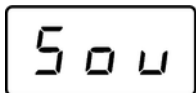
All previous settings are retained even when you disconnect the device from the mains.

Auto show mode



Press **[FUNC]** repeatedly until the display shows **ArA** or **SrA** and starts flashing. The device operates in stand-alone mode and displays a pre-programmed show. 'ArA' provides a show with fast effects, 'SrA' provides slow effects. Press **[ENTER]** to store the value and to start the operation in Auto-Show mode.

Operating mode 'Sound-controlled' and adjusting the response characteristic



Press **[FUNC]** repeatedly until the display shows **Sou** and starts flashing. The device operates in stand alone mode and displays a sound-controlled preprogrammed show. In this menu you can adjust the sensitivity and thus the response characteristic of the microphone. Press **[ENTER]** to store the setting.

The display shows **S 0**. Use the **[UP]** and **[DOWN]** buttons to select the settings S 0" (sensitivity = 0, sound-controlled mode off) or S 1 (low sensitivity) to S 9 (high sensitivity). Press **[ENTER]** to store the setting.

Operating mode 'Manual control'



Press *[FUNC]* repeatedly until the display shows MAN. Press *[ENTER]* to confirm.

In this mode you can set the laser diode and the LED for the backlight illumination manually. The following table shows the possible settings:

Display	Meaning
R 0...R 9	Red laser flash frequency, fast to slow
G 0...G 9	Green laser flash frequency, fast to slow
M10...M19	Laser dot movement, slow to fast
M20...M29	Blue LED backlight illumination movement, slow to fast
Lb0...Lb9	Blue LED backlight illumination brightness
LF0...LF9	Blue LED backlight illumination flash frequency, fast to slow

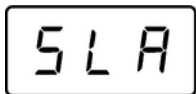
DMX mode



Press *[FUNC]* repeatedly until the display shows **001**. You can now set the number of the first DMX channel used by the device (DMX address). Use the *[UP]* and *[DOWN]* buttons to select a value between 1 and 511. Press *[ENTER]* to store the value and to start the operation in DMX mode.

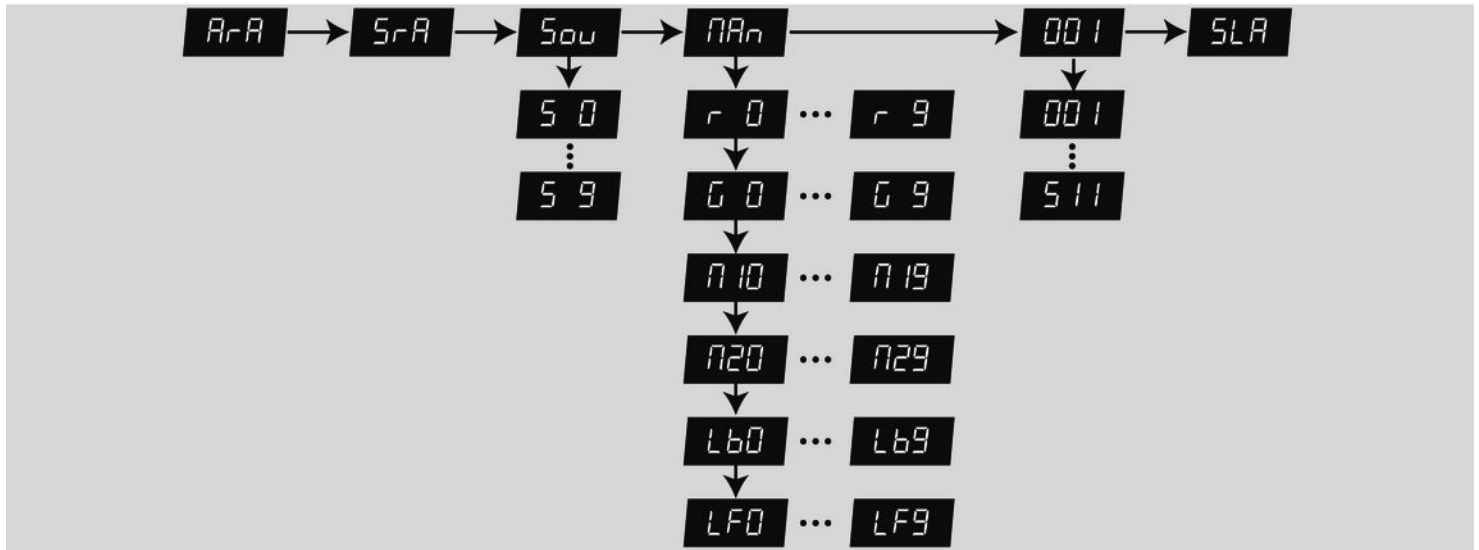
Make sure that this number matches the configuration of your DMX controller.

Master/slave mode



Press *[FUNC]* repeatedly until the display shows **SLA**. In this mode, the device exactly follows the operation of the master it is connected to. Press *[ENTER]* to confirm and to start the Master/Slave mode.

7.3 Menu overview



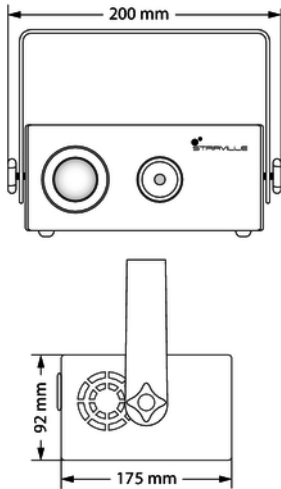
7.4 Functions in DMX mode

Channel	Value	Function
1	Operating mode selection	
	0...51	Laser off
	52...102	Automatic show in random order, fast
	103...154	Automatic show in random order, slow
	155...206	Sound controlled automatic show in random order
	207...255	DMX mode This setting enables the function of the other DMX channels
2	Red laser	
	0...4	Laser off
	5...127	Laser is constantly on
	128...254	Strobe effect (flashing), decreasing speed

Channel	Value	Function
	255	Sound controlled strobe effect (flashing)
3	Green laser	
	0...4	Laser off
	5...127	Laser is constantly on
	128...254	Strobe effect (flashing), decreasing speed
	255	Sound controlled strobe effect (flashing)
4	Rotation of the red and green laser around the Z-axis (rolling)	
	0...4	No rotation
	5...127	Clockwise rotating effect, speed increasing from slow to fast
	128...133	No rotation
	134...255	Anti-clockwise rotating effect, speed increasing from slow to fast
5	Rotation of the blue LED background illumination around the Z-axis (rolling)	

Channel	Value	Function
	0...4	No rotation
	5...127	Clockwise rotating effect, speed increasing from slow to fast
	128...133	No rotation
	134...255	Anti-clockwise rotating effect, speed increasing from slow to fast
6	Intensity of the blue LED background illumination	
	0...4	Background illumination off
	5...255	Increasing brightness (0 %...100 %)
7	Strobe effect (flashing) of the blue LED background illumination	
	0...4	Background illumination off
	5...127	Background illumination is constantly on
	128...254	Strobe effect (flashing), decreasing speed
	255	Sound controlled strobe effect (flashing)

8 Technical specifications



Laser medium	Red: 650 nm (typical), LD GaAlAs	
	Green: 532 nm (typical), DPSS Nd:YV04	
Laser power	Red: 100 mW	
	Green: 40 mW	
Laser classification acc. To EN 60825-1 2015	3B	
Beam diameter at aperture	< 5 mm	
Pulse data	All pulses <4 Hz (> 0.25 s)	
Divergence (each beam)	< 2 mrad	
Divergence (total light)	< 160°	
LED (background illumination)	Blue: 5 W	
Input connections	Power supply	IEC chassis plug C14

	DMX control	XLR chassis socket, 3-pin
Output connections	DMX control	XLR chassis socket, 3-pin
Number of DMX channels	7	
Power consumption	15 W	
Supply voltage	100 – 240 V ~ 50/60 Hz	
Fuse	5 mm × 20 mm, 1.0 A, 250 V, slow-blow	
Degree of protection	IP20	
Mounting options	Hanging, standing	
Dimensions (W × H × D)	200 mm × 92 mm × 175 mm	
Weight	1.5 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	50 %, non-condensing

Further information

Colour spectrum	RG
Animation laser	No
Gratin laser	Yes
ILDA	No
DMX	Yes
Power rating	Up to 100
Analog modulation	No

9 Plug and connection assignments

Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment so that a perfect light experience is guaranteed.

Please take our tips, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into a socket, the result of an incorrect connection may be a destroyed DMX controller, a short circuit or 'just' a not working light show!

DMX connections

The unit offers a 3-pin XLR socket for DMX output and a 3-pin XLR plug for DMX input. Please refer to the drawing and table below for the pin assignment of a suitable XLR plug.



Pin	Configuration
1	Ground, shielding
2	Signal inverted (DMX-, 'cold signal')
3	Signal (DMX+, 'hot signal')

10 Troubleshooting



DANGER!

Laser radiation inside

Follow the instructions in the chapter titled "Safety Instructions" in this manual.

Only qualified personnel may carry out service work on the (open) device.

Suitable laser protection glasses are required for any activities at the device.

In the following we list a few common problems that may occur during operation. We give you some suggestions for easy troubleshooting:

Symptom	Remedy
Device not working, no light, fan not working.	1. Check the power connection and main fuse.
	2. Check the safety key switch.
	3. Check the external safety switch (e.g. emergency stop).
No response to the DMX controller	1. If the display shows a flashing number, for example "001", no DMX signal is being received. Check the DMX connectors and cables to see if they are properly linked.
	2. If the display does not flash and there is no response, check the address settings and DMX polarity.
	3. Try using another DMX controller.
	4. Check whether the DMX cables run near or parallel to high-voltage cables that may cause damage or interference to the DMX interface circuit.

If the procedures recommended above do not succeed, please contact our Service Center. You can find the contact information at www.thomann.de.

11 Cleaning



DANGER!

Laser radiation

Follow the instructions in the chapter titled "Safety Instructions" in this manual.

To avoid laser emission, remove the safety key before you start to clean the device.

Optical lenses

Clean the optical lenses, that are accessible from the outside, regularly in order to optimize the light output. The frequency of cleaning depends on the operating environment: wet, smoky or particularly dirty surroundings can cause more accumulation of dirt on the optics of the device.

- Clean with a soft cloth using our lamp and lens cleaner (item no. 280122).
- Always dry the parts carefully.

12 Protecting the environment

Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.

Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) in its currently valid version. Do not dispose with your normal household waste.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.



