




STAIRVILLE

DJ Lase
Pro Advanced 2000
showlaser

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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'*.

Cross-references






References to other locations in this manual are identified by an arrow and the specified page number. In the electronic version of the manual, you can click the cross-reference to jump to the specified location.

Example: See ↗ *'Cross-references'* on page 7.

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 – dangerous optical radiation.
	Warning – suspended load.
	Warning – danger zone.

2 Safety instructions

Intended use

This device is intended to be used for the projection of laser light effects. It has been designed exclusively for show applications. 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.

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-4 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 (e. g. the Technical Control Board TÜV) 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-4 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 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.



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.

3 Features

Professional RGB laser for use in all event areas:

- Colour mixing based on analogue diode modulation
- Laser power: 2000 mW
- Laser class: 4
- Control options:
 - DMX-512 (20 channels)
 - ILDA
 - IR remote control (included)
 - built-in buttons and display
 - USB keyboard (included)
- Sound-control with preprogrammed patterns
- Auto operation with preprogrammed patterns
- Manual control with text input and countdown via USB keyboard
- Simultaneous menu items indication on the display and as laser projection
- Key switch secured
- Suitable for truss or ceiling mounting

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.

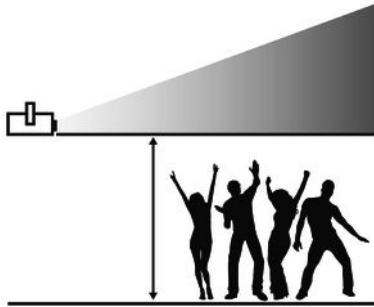
Work from a stable platform whenever you install or move the device or when you perform any kind of maintenance. Block access under the work area.

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).

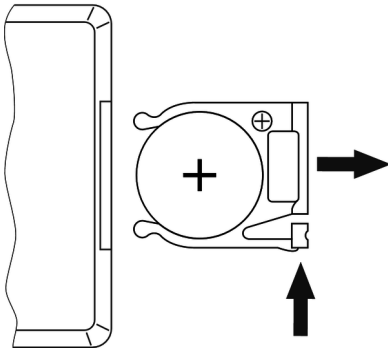
Always ensure sufficient ventilation.

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

Inserting the battery into the remote control

Press the lock of the battery holder to the centre of the housing and pull out the battery holder like a drawer. Insert the battery. The battery is correct if the positive pole points to the housing base of the remote control. Slide the battery holder back into the remote until it clicks into place.

When shipping, the battery is already installed in the remote and protected against discharge by a transparent plastic foil. Remove the plastic foil prior to first use.





NOTICE!

Possible damage by leaking batteries

Leaking batteries can cause permanent damage to the device.

Take batteries out of the device if it is not going to be used for a longer period.



NOTICE!

Risk of fire due to incorrect polarity

Incorrectly inserted batteries may destroy the device or the batteries.

Ensure that proper polarity is observed when inserting batteries.

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.



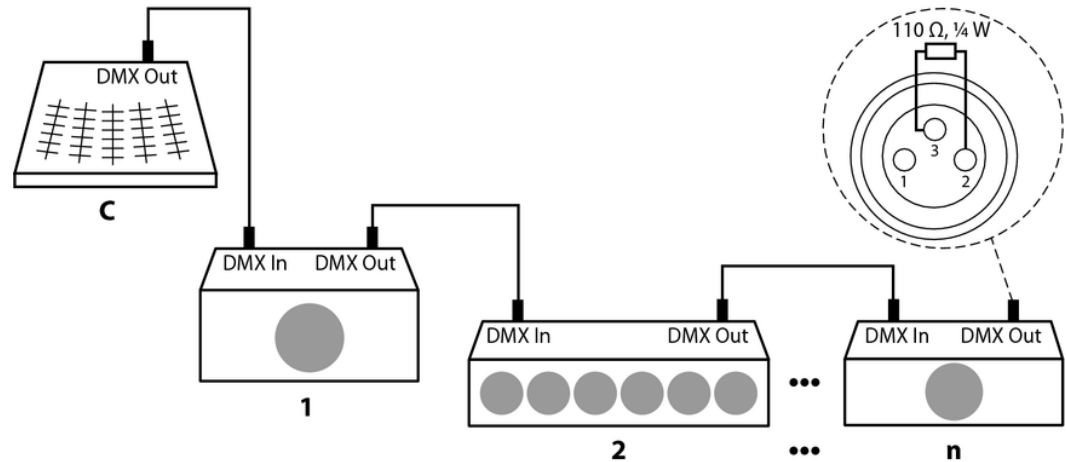
NOTICE!
Possible data transmission errors

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 ($110\ \Omega$, $\frac{1}{4}\text{ W}$).

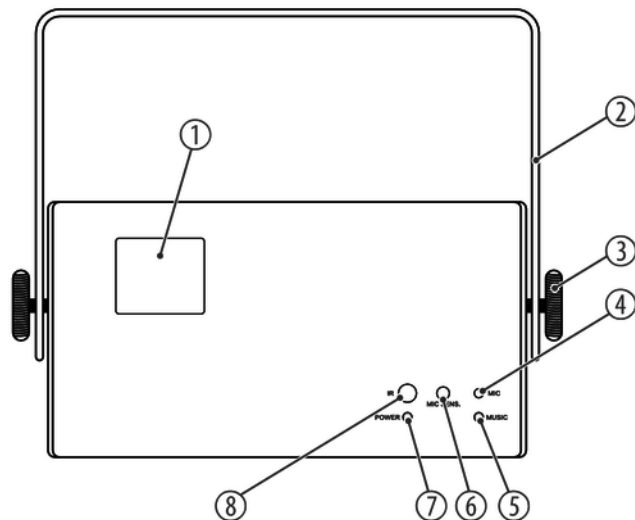


Connections in master/slave mode

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.

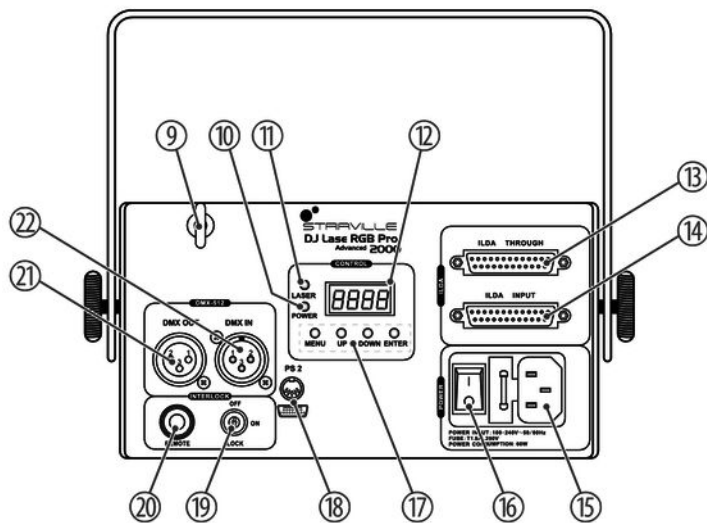
6 Connections and operating elements

Front panel



1	Laser aperture.
2	Retainer and mounting bracket
3	Locking screw for the retainer and mounting bracket
4	<i>[MIC]</i> Microphone for sound-controlled operation
5	<i>[MUSIC]</i> Indicator LED, flashes blue in sound-controlled operation
6	<i>[MIC SENS.]</i> Rotary control for adjusting the sensitivity of the built-in microphone for sound control
7	<i>[POWER]</i> Indicator LED, lights steady white when the unit is on
8	<i>[IR]</i> Infrared sensor for the signals from the included remote control

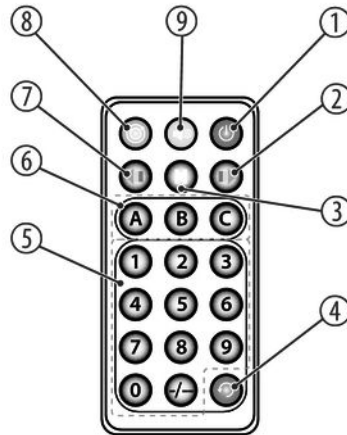
Rear panel



9	Safety cable eyelet.
10	<i>[POWER]</i> Indicator LED, lights steady white when the unit is on
11	<i>[LASER]</i> Indicator LED, lights steady red when the laser is on (key switch in <i>[ON]</i> position)
12	Display
13	<i>[ILDA THROUGH]</i> 25-pin ILDA output connector for looping through the ILDA signal to other devices
14	<i>[ILDA INPUT]</i> 25-pin ILDA input socket
15	IEC chassis plug for the mains cable with fuse holder
16	Mains switch. Turns the device on and off.

17	Function and control buttons <i>[MENU]</i> : Opens the main menu. Skips back to the previous menu item. <i>[UP]</i> : Increases the displayed value by one. <i>[DOWN]</i> : Decreases the displayed value by one. <i>[ENTER]</i> : Selects an option of the respective operating mode, confirms the set value.
18	<i>[PS 2]</i> Connection sockets for the supplied USB keyboard or the USB adapter
19	Safety key switch: switches the laser output on or off.
20	Connection for optional remote safety switch (emergency stop).
21	<i>[DMX OUT]</i> DMX output
22	<i>[DMX IN]</i> DMX input

IR remote control



1	<p>On / off switch. When the device is in the 'Auto Show' mode or is performing a self test, press the button for several seconds to enter the 'Remote control' mode.</p> <p>When the device is already in the 'Remote control' mode, this button switches the laser on or off.</p>
2	Colour selection button. Colour selection changing to the left, previous step
3	Stops or restarts a running show.
4	Changes the pattern in four different mirror directions. Release the button to confirm the desired setting.
5	Numeric keypad for direct input of values (microphone sensitivity or pattern number). To enter two-digit numbers, press before the first and before the second digit the [-/--].
6	<p>[A]: Press this button to switch to the TIME mode. Press the button again to select the display mode: time only, time and date.</p> <p>Press and hold the button for several seconds to adjust the time. The number to be set flashes. Select a button on the numeric key pad between [0] to [9] to set the desired value. Use one of the colour selection buttons to select the desired colour in which the settings are projected onto a surface. Press again [A] to save the settings.</p> <p>[B]: Press the button to switch to the COUNTDOWN mode.</p> <p>Press and hold the button for several seconds to set the countdown adjustment. On the numeric pad, select a button from [0] ... [9] to set the desired value. Press [B] to start the countdown, press to stop the countdown.</p>

	<p>[C]: Press the button to switch to the TEXT mode. Select a button on the numeric key pad between [0] ... [9] to select the desired preset text mode that will be projected onto a surface.</p>
7	<p>Colour selection button. Colour selection changing to the right, next step</p>
8	<p>Starts an automatic show in random order.</p>
9	<p>Starts a sound-controlled automatic show in random order. Press and hold the button for several seconds to access the sensitivity setting of the built-in microphone. Press one of the buttons [1] (low) to [9] (high) to set the sensitivity.</p>

7 Operating

7.1 Switching the device on / off

Switching on

Perform the following steps to switch the device on:

- 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 to the *[REMOTE]* connection (e.g. an emergency stop button) or another equivalent device with protection function.
- 3.** ▶ Insert the safety key into the lock.
- 4.** ▶ If not already done, connect the device to the mains.
- 5.** ▶ Switch the device on using the mains switch. 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 to the 'ON' position to turn the laser beam on.

Turning off

Perform the following steps to switch the device off:

1. ➤ Turn the safety key to the 'OFF' position to turn the laser beam off and remove the key. Keep the safety key under control.
2. ➤ Turn off the power using the mains switch.
3. ➤ Additionally, you can disconnect the device from the mains.

7.2 Main menu

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select one of the following menu items: AUTO, SOUND, TEXT, TIME, COUNTDOWN, DMX, SLAVE and SYSTEM. Press *[ENTER]* to open the selected menu.

Change the currently displayed value with *[UP]* and *[DOWN]* and confirm all new values again with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

All settings are saved, even if you disconnect the device from the power supply.

7.3 SYSTEM menu

In this menu, you can adjust various device settings.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the 'SYS' menu and confirm with *[ENTER]*.

Parameter	Meaning	Value range
'Nirr'	Position and direction of the X and the Y-axis on the projection surface	N-PP, N-PN, N-NP, N-NN
'SiZE'	Height and width of the projection	SX01 ... SX16, SY01 ... SY16
'N-En'	Master operation	on, oFF
'irEn'	IR mode, control via remote control	on, oFF
'rSET'	Reset to factory defaults	

Change the currently displayed value with *[UP]* and *[DOWN]* and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

7.4 Operating modes

Operating mode AUTO

In this mode, the device automatically projects programmed patterns in the selected mode onto a surface.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'Aut' and confirm with *[ENTER]*.

Use *[UP]* and *[DOWN]* to select the desired Auto mode (see chart) and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

Parameter	Meaning
'Aut 1'	Auto mode 1, show with programmed patterns, geometric shapes in random order
'Aut 2'	Auto mode 2, show with programmed patterns, geometric shapes in random order
'Aut 3'	Auto mode 3, show with programmed 'New Year' motto patterns
'Aut 4'	Auto mode 4, show with programmed 'Christmas' motto patterns

Parameter	Meaning
<i>'Aut 5'</i>	Auto mode 5, show with programmed 'Love' motto patterns
<i>'Aut 6'</i>	Auto mode 6, show with programmed 'Birthday' motto patterns
<i>'Aut 7'</i>	Auto mode 7, show with programmed 'Party' motto patterns
<i>'Aut 8'</i>	Auto mode 8, show with programmed 'Halloween' motto patterns
<i>'Aut 9'</i>	Auto mode 9, show with programmed 'Music' motto patterns

Operating mode SOUND

In this mode, the device projects programmed patterns sound-controlled onto a surface.

Set the sensitivity of the built-in microphone using the adjustment screw *[MIC SENS.]* on the front panel of the housing.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'Sou' and confirm with *[ENTER]*.

Use *[UP]* and *[DOWN]* to select the desired Sound mode (see chart) and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

Parameter	Meaning
'Sou 1'	Sound mode 1, show with programmed patterns, geometric shapes in random order.
'Sou 2'	Sound mode 2, show with programmed patterns, geometric shapes in random order.
'Sou 3'	Sound mode 3, show with programmed 'New Year' motto patterns
'Sou 4'	Sound mode 4, show with programmed 'Christmas' motto patterns

Parameter	Meaning
<i>'Sou 5'</i>	Sound mode 5, show with programmed 'Love' motto patterns
<i>'Sou 6'</i>	Sound mode 6, show with programmed 'Birthday' motto patterns
<i>'Sou 7'</i>	Sound mode 7, show with programmed 'Party' motto patterns
<i>'Sou 8'</i>	Sound mode 8, show with programmed 'Halloween' motto patterns
<i>'Sou 9'</i>	Sound mode 9, show with programmed 'Music' motto patterns

Operating mode TEXT

In this mode, the device projects text that has been entered and stored via the supplied keyboard (see [Chapter 7.7 'Operating via keyboard' on page 58](#)) onto a surface.

Press **[MENU]** to open the main menu.

Press repeatedly **[MENU]** or **[UP]** and **[DOWN]** to select the menu item 'tXt' and confirm with **[ENTER]**.

Use **[UP]** and **[DOWN]** to select the desired Text mode (see chart) and confirm with **[ENTER]**. To return to the main menu without making changes, press **[MENU]**.

Parameter	Meaning
'tEXt'	Text mode 1, texts 't-01' 't-09' are being projected in an endless loop.
't-01'	Text mode 2, text 't-01' is being projected.
:	:
't-09'	Text mode 9, text 't-09' is being projected.

Operating mode TIME

In this mode, the device consecutively projects time, date and the day of the week onto a surface.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'tiME' and confirm with *[ENTER]*.

Use *[UP]* and *[DOWN]* to select one of the following menu items and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

Parameter	Meaning
'tiME'	Confirm this selection with <i>[ENTER]</i> to let the device consecutively project time, date and the day of the week onto a surface.
'SNod'	Select the display mode here: only time or time and date.
'SEtt'	Use <i>[UP]</i> and <i>[DOWN]</i> to set the clock time values (display shows 'h-**': hour, 'N-**': minute, 'S-**': second), date and day of week (display shows '****': year, 'n **': month, 'd **': day) and confirm each set value with <i>[ENTER]</i> . To set the time display format, select '24h' or '12h' and confirm with <i>[ENTER]</i> . To return to the main menu without making changes, press <i>[MENU]</i> .

Operating mode COUNTDOWN

In this mode, the device projects a linked text ('t-01' ... 't-09') after a programmed countdown time onto a surface.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'Cut' and confirm with *[ENTER]*.

Use *[UP]* and *[DOWN]* to set the desired time in a range from '0000' ... '9999' and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

Operating mode DMX

In this mode the device is controlled via a DMX controller.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'dMX' and confirm with *[ENTER]*.

The display shows 'd001', the unit is now controlled via DMX channel 1. When the display flashes, no controller is connected. Use *[UP]* and *[DOWN]* to set the desired DMX channel between 'd001' ... '492' and confirm with *[ENTER]*.

To return to the main menu without making changes, press *[MENU]*.

Operating mode SLAVE

In this mode, the device exactly follows the operation of the master that it is connected to.

Press *[MENU]* to open the main menu.

Press repeatedly *[MENU]* or *[UP]* and *[DOWN]* to select the menu item 'SLA' and confirm with *[ENTER]*.

The display shows 'SLAV', the unit is now in Slave mode. When the display flashes, no master is connected.

To return to the main menu without making changes, or to change back to an active operating mode, press *[MENU]*.

7.5 Setting DMX channel

Switch to the DMX mode. The display shows 'd001'.

Press *[ENTER]*. The display shows '001'. Use *[UP]* and *[DOWN]* to set the desired DMX address in a range from '001' ... '492' and confirm with *[ENTER]*.

To return to the parent menu without making changes, press *[MENU]*.

7.6 Functions in DMX mode

Channel	Value	Function
1	Operating mode selection	
	0 ... 9	Laser off
	10 ... 49	Auto mode
	50 ... 99	Sound mode
	100 ... 149	Text mode
	150 ... 199	Selecting the first pattern
	200 ... 255	Selecting the second pattern
2	Auto mode, channel 1 = 10 ... 49	
	0 ... 29	AUTO1
	30 ... 59	AUTO2
	60 ... 89	AUTO3

Channel	Value	Function
	90 ... 119	AUTO4
	120 ... 149	AUTO5
	150 ... 179	AUTO6
	180 ... 209	AUTO7
	210 ... 239	AUTO8
	240 ... 255	AUTO9
	Sound mode, channel 1 = 50 ... 99	
	0 ... 29	MUSIC1
	30 ... 59	MUSIC2
	60 ... 89	MUSIC3
	90 ... 119	MUSIC4
	120 ... 149	MUSIC5
	150 ... 179	MUSIC6

Channel	Value	Function
	180 ... 209	MUSIC7
	210 ... 239	MUSIC8
	240 ... 255	MUSIC9
	Pattern mode, channel 1 = 150 ... 255	
	0 ... 31	Pattern group 1
	32 ... 63	Pattern group 2
	64 ... 95	Pattern group 3
	96 ... 127	Pattern group 4
	128 ... 159	Pattern group 5
	160 ... 191	Pattern group 6
	192 ... 223	Pattern group 7
	224 ... 255	Pattern group 8
3	Pattern selection, channel 1 = 150 ... 255, channel 2 = 0 ... 255	

Channel	Value	Function
	0 ... 255	Patterns 1 to 16 of the respectively selected group of channel 2 (16 patterns x 8 groups = 128 patterns)
4	Colour selection	
	0 ... 7	Automatic
	8 ... 15	Red
	16 ... 23	Green
	24 ... 31	Red + green = yellow
	32 ... 39	Blue
	40 ... 47	Red + blue = purple
	48 ... 57	Green + blue = cyan
	58 ... 63	Red + green + blue = white
	64 ... 111	Single colour conversion
112 ... 159	Multi-coloured motion above and below, increasing speed	

Channel	Value	Function
	160 ... 207	Multi-coloured motion left to right, increasing speed
	208 ... 255	Strobe effect, increasing speed
5	Drawing of pattern (clipping)	
	0	Original pattern, no Clipping effect
	1 ... 127	Build-up of patterns 0 % to 99 %
	128 ... 255	Clipping effect speed from slow to fast
6	Zoom	
	0 ... 127	100 % to 5 % Zoom effect of patterns
	128 ... 169	Zoom in
	170 ... 209	Zoom out
	210 ... 255	Zoom in / out in endless loop
7	Zoom speed	
	0 ... 255	Zoom effect speed from fast to slow

Channel	Value	Function
8	Y-axis rotation	
	0 ... 127	Fixed adjusted position of Y-axis
	128 ... 191	Y-axis rotation clockwise
	192 ... 255	Y-axis rotation counterclockwise
9	Rotation speed of Y-axis	
	0 ... 255	Rotation speed of Y-axis from fast to slow
10	X-axis rotation	
	0 ... 127	Fixed adjusted position of X-axis
	128 ... 191	X-axis rotation clockwise
	192 ... 255	X-axis rotation counterclockwise
11	Rotation speed of X-axis	
	0 ... 255	Rotation speed of X-axis from fast to slow
12	Z-axis rotation	


Channel	Value	Function
	0 ... 127	Fixed adjusted position of Z-axis
	128 ... 191	Z-axis rotation clockwise
	192 ... 255	Z-axis rotation counterclockwise
13	Rotation speed of Z-axis	
	0 ... 255	Rotation speed of Z-axis from fast to slow
14	Motion on X-axis	
	0 ... 127	128 fixed adjustable position on X-axis
	128 ... 191	Rotation around X-axis clockwise
	192 ... 255	Rotation around X-axis counterclockwise
15	Motion speed on X-axis	
	0 ... 255	Motion speed of X-axis from fast to slow
16	Y-axis moving	
	0 ... 127	128 fixed adjustable position on Y-axis

Channel	Value	Function
	128 ... 191	Rotation around Y-axis clockwise
	192 ... 255	Rotation around Y-axis counterclockwise
17	Motion speed on Y-axis	
	0 ... 255	Motion speed of Y-axis from fast to slow
18	Wave effect	
	0 ... 255	Increasing wave size
19	Wave effect	
	0 ... 255	Increasing wave frequency
20	Wave effect	
	0 ... 127	Wave position
	128 ... 255	Wave motion speed from slow to fast

7.7 Operating via keyboard

The functions of the device can also be controlled via the supplied keyboard. The following tables show the key layout in the different operating modes.

General functions

Button	Symbol	Function
Windows®		Start button, opens the main menu. Use the arrow keys ↑ and ↓ to switch between the menu options. Confirm to open a subordinate menu and to activate a selection with ↵.

Functions in AUTO mode






Button	Symbol	Function
[Pause]		Stops the running program in the motion of the currently projected pattern. Press the button again to let the programme continue.
[RGB Color]	RGB	Selects the most recently edited text.
[Mirror]	◀▶	Displays the stored text in an endless loop.





Functions in SOUND mode







Button	Symbol	Function
[Pause]		Stops the running program in the motion of the currently projected pattern. Press the button again to let the programme continue.
[RGB Color]	RGB	Manual switching between different colour effects while the projection is running.
[Mirror]	◀▶	Changes the pattern in four different mirror directions. Each time the button is pressed, the mirror direction changes. Release the button to confirm the desired setting.

Functions in TEXT mode

Button	Symbol	Function
[Flow]	⏪	Enables the Marquee function: the entered text will be projected circumferentially. The running speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[RGB Color]	RGB	Manual switching between different colour effects while the projection is running.
[Draw]	▶	Enables the Animation function: the individual letters of the entered text are being 'written' in succession on the projection surface. The animation speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[Zoom]	◻◻	Activates the Zoom function: the entered text is zoomed out, disappears and is zoomed out again. The zooming speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[X Move]	◻←	Activates the motion in the X direction: the entered text moves from right to left and back. The motion speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.

Button	Symbol	Function
[Y Move]		Activates the motion in the Y direction: the entered text moves up from below and back. The motion speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[X Roll]		Activates the rolling motion with stationary X-axis: the entered text rolls in the Y-axis. The motion speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[Y Roll]		Activates the rolling motion with stationary Y-axis: the entered text rolls in the X-axis. The motion speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[Z Roll]		Activates the rolling motion in the Z-axis: the entered text performs a clockwise circular motion on the projection surface. The motion speed can be adjusted with the arrow buttons ↑ and ↓. Press the button repeatedly to reverse the direction of the circular motion or to disable the function.
[Wave]		Activates the wave effect: the entered text is projected in waves. The wave effect speed can be adjusted with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.

Button	Symbol	Function
[Text Qty.]		Activates the selection of the number of characters: with the arrow buttons ↑ and ↓ the number of characters to be displayed (12, 10, 8, 6 or 4 characters) can be selected. Press the button again to deactivate the function.
[Play Time]		Activates the selection of the display duration: the entered text is projected onto a surface for the set time. The display time of the characters to be displayed can be selected with the arrow buttons ↑ and ↓. Press the button again to deactivate the function.
[Mirror]		Changes the pattern in four different mirror directions. Each time the button is pressed, the mirror direction changes. Release the button to confirm the desired setting.
[Del]		Delete key. Use this button to delete the text of the open program.
[Back Space]		Delete key. Use this button to delete the last character of the entered text.
[Home]		Use this button to jump to the beginning of the entered text.
[End]		Use this button to jump to the end of the entered text.

Button	Symbol	Function
[Save]		Save key. Hold down this key and use the number keys on the keyboard to set the desired memory location (1 ... 9). The entered text is now saved to this memory location.
[Play]		Save key. Hold down this key and use the number buttons on the keyboard to set the desired memory location (1 ... 9). The entered text is now saved to this memory location.
[Ctrl]+[Alt] +[del]		Press this key combination to delete the texts of all memory locations (1 ... 9).
[Loop playback]		Loop key. This key allows the endless loop playback of the text stored under 't-01' ... 't-09'.
[PgUP]		Browse key. Activates the previous program location where text is saved.
[PgDN]		Browse key. Activates the next program location where text is saved.
[Pause]		Stops the running program in the motion of the currently projected pattern. Press the button again to let the programme continue.

Functions in TIME mode

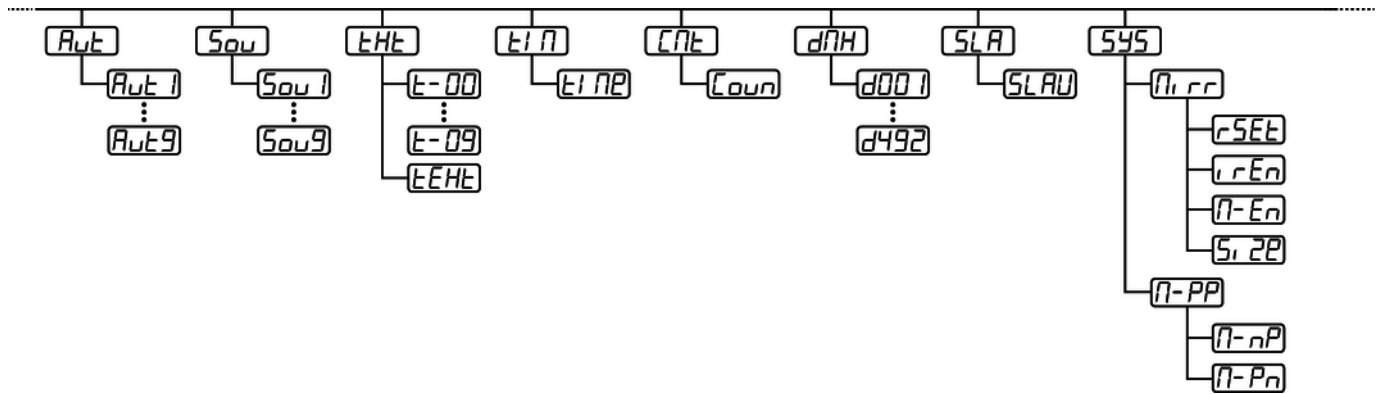
Button	Symbol	Function
[Show Mode]		Activates the display mode: use the arrow buttons ↑ and ↓ to select the display mode: only time or time and date. Press ← to store the setting.
[Setting]		Activates the time setting: use the arrow buttons ↑ and ↓ to set the date and time. Press ← to store the setting.
[ESC]	↵	Finishing editing. Press this button to return to the main menu without making changes.
[Mirror]	↔	Changes the pattern in four different mirror directions. Each time the button is pressed, the mirror direction changes. Release the button to confirm the desired setting.
[RGB Color]	RGB	Manual switching between different colour effects while the projection is running.

Functions in COUNTDOWN mode

The display flashes in the activated COUNTDOWN mode. Set the desired countdown using the number keys on the keyboard (1 ... 9). Press ← to store the setting.

Button	Symbol	Function
[Back Space]		Delete key. Use this button to delete the last character of the entered text.
[Space Key]/ [Pause]	■/	Stops the countdown. Press the button again to let the countdown continue.
[ESC]	⇧	Finishing editing. Press this button to return to the main menu without making changes.
[Mirror]	↔	Changes the pattern in four different mirror directions. Each time the button is pressed, the mirror direction changes. Release the button to confirm the desired setting.
[RGB Color]	RGB	Manual switching between different colour effects while the projection is running.

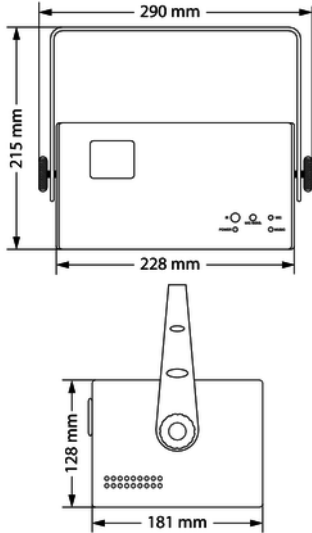
7.8 Menu overview



7.9 Reset to factory defaults

To reset the device to factory default settings, open the SYSTEM menu (see ↗ *Chapter 7.3 'SYSTEM menu' on page 40*), select the menu item 'rSET' and confirm with [ENTER]. All settings are reset immediately without prompting.

8 Technical specifications



Laser medium	Red: 638 nm (typical), LD
	Green: 520 nm (typical), LD
	Blue: 450 nm (typical), LD
Laser power	Red: 500 mW
	Green: 500 mW
	Blue: 1000 mW
Laser classification according to EN 60825-1 2015	4
Beam diameter at aperture	< 5 mm
Divergence (each beam)	< 2 mrad
Divergence (total light)	< 90°
Scanner speed	20 K

Deflection angle	1 ... 36°	
Input connections	Voltage supply	IEC chassis plug C14
	ILDA Input/ILDA Through	2 × 25-pin ILDA input socket
	DMX control	XLR chassis plug, 3-pin
Output connections	DMX control	XLR chassis socket, 3-pin
Number of DMX channels	20	
Operating supply voltage	100 ... 240 V ~ 50/60 Hz	
Power consumption	60 W	
Fuse	5 mm × 20 mm, 1.6 A, 250 V, slow-blow	
Dimensions (W × H × D)	290 mm × 128 mm × 181 mm (without bracket)	
	290 mm × 215 mm × 181 mm (with bracket)	
Weight	3.6 kg	

Further information

Colour spectrum	RGB
Animation laser	Yes
Grating laser	No
Analogue modulation	No

9 Plug and connection assignment

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!

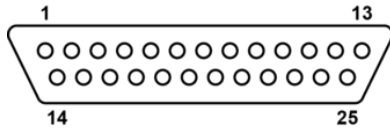
DMX connections



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')

ILDA interface



You can connect laser control units, that generate signals as standardized by the International Laser Display Association to the ILDA input. The ILDA output of the unit can be connected to other laser devices.

The ILDA interfaces are designed as 25-pin D-sub connectors. The drawing and table below show the pin assignment.

1	X+
2	Y+
3	Intensity+
4	Locking (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	Return signal from the unit
13	Shutter
14	X-
15	Y-
16	Intensity-
17	Locking (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

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.
No response to the remote control	1. Check to see that the unit is in operation mode 'Remote Control'. The display has to show r E n .

Symptom	Remedy
	<p>2. Try using the remote control at a different angle to the IR sensor on the front panel of the device. If the device receives a signal from the remote control the 'MUSIC' lights up briefly.</p> <p>3. Check the remote control battery.</p>

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 fed to a recovery. Please follow the notes and markings on the packaging.

Disposal of batteries



Batteries must not be disposed of as domestic waste or thrown into fire. Dispose of the batteries according to national or local regulations regarding hazardous waste. To protect the environment, dispose of empty batteries at your retail store or at appropriate collection sites.

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 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.



