STAIRVILLE

DJ Lase RGB Pro Advanced 3000

User Manual

Showlaser

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für Laserstrahlung
Outlet for laser beam
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1 General information

This document contains important instructions for the safe operation of the product. Read and follow the safety instructions and all other instructions. Keep the document for future reference. Make sure that it is available to all those using the product. If you sell the product to another user, be sure that they also receive this document.

Our products and documentation are subject to a process of continuous development. They are therefore subject to change. Please refer to the latest version of the documentation, which is ready for download under *www.thomann.de*.

1.1 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 document.

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 signs	Type of danger
	Warning – suspended load.
	Warning – danger zone.

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.

Safety

DANGER!

Risk of injury and choking hazard for children!

Children can suffocate on packaging material and small parts. Children can injure themselves when handling the device. Never allow children to play with the packaging material and the device. Always store packaging material out of the reach of babies and small children. Always dispose of packaging material properly when it is not in use. Never allow children to use the device without supervision. Keep small parts away from children and make sure that the device does not shed any small parts (such knobs) that children could play with.

DANGER!

Risk of injury from laser!

The device contains a class 4 laser, classified according to EN 60825-1:2014+A11:2021. The laser may only be installed and operated by a laser protection representative who is familiar with the legal regulations at the operating location. Familiarise yourself with the regulations applicable in the country of operation. The accessible laser radiation is in a wavelength range of between 302.5 nm and 1 µm, the output higher than 500 mW. Looking into the laser beam or its reflections poses a significant risk of injuries to the eyes and can result in irreversible damage, especially if the beam cross-section is bundled by optical collecting instruments. Skin contact can result in burns. Highly flammable and explosive materials within the range of the laser radiation can ignite. When work is performed on the laser system while it is functional, unintentional contact with the laser beam is possible. As the operator, observe the applicable legal duties regarding safe operation before putting the device into service. Install the laser system in such a way that persons are not at risk while it is in operation. The laser may only be installed and operated by a laser protection representative who is familiar with the legal regulations at the operating location. Only operate the laser system in separate supervised areas. If necessary, use technical protection measures to reduce the range of the laser or reduce the beam intensity. Do not look into the laser beam or its reflections. Do not use optical collecting instruments (such as magnifying glasses or lenses) to look into the laser beam, and ensure that laser beams are not directed to areas where optical collecting instruments are used. Do not expose any limbs to the laser beam. Keep the range of the laser beams and areas that can be reached by reflected laser beams free from flammable and explosive materials. Always wear laser safety glasses in line with DIN EN 207 when working on the functional laser system. Have all work and repairs on class 4 lasers performed by trained experts. Never open a class 4 laser and do not make any technical changes.

DANGER!

Risk of injury due to stray laser radiation!

Additional components inadequately secured to the device as well as reflective objects and surfaces at the operating location can cause stray laser radiation, which can cause injuries. Make sure that additional components are always secured adequately. Make sure there are no reflective objects or surfaces in the range of the laser beams.

DANGER!

Danger to life due to electric current!

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 when covers, safety equipment or optical components are missing or damaged.

DANGER!

Danger to life due to electric current!

A short circuit could lead to a fire hazard and risk of death. Always use proper ready-made insulated triple-core mains cable with a safety plug. Do not modify the mains cable or the plug. In case of isolation damage, disconnect immediately the power supply and arrange repair. If in doubt, seek advice from a qualified electrician.

WARNING!

Risk of eye damage caused by high light intensity!

The device generates highly intense light radiation. Looking directly into the light source can damage the eyes. Never look directly into the light source.

WARNING!

Risk of epileptic fit due to flashing lights!

The device emits flashing lights (strobe effects). Flashing lights can trigger epileptic fits in specific people. If you are at risk of epilepsy, avoid spending longer periods of time subjected to flashing lights and looking into strobing light.

NOTICE!

Risk of fire due to covered vents and neighbouring heat sources!

If the vents of the device are covered or the device is operated in the immediate vicinity of other heat sources, the device can overheat and burst into flames. Never cover the device or the vents. Do not install the device in the immediate vicinity of other heat sources. Never operate the device in the immediate vicinity of naked flames.

NOTICE!

Damage to the device if operated in unsuitable ambient conditions!

The device can be damaged if it is operated in unsuitable ambient conditions. Only operate the device indoors within the ambient conditions specified in the “Technical specifications” chapter of this user manual. Avoid operating it in environments with direct sunlight, heavy dirt and strong vibrations. Avoid operating it in environments with strong temperature fluctuations. If temperature fluctuations cannot be avoided (for example after transport in low outside temperatures), do not switch on the device immediately. Never subject the device to liquids or moisture. Never move the device to another location while it is in operation. In environments with increased dirt levels (for example due to dust, smoke, nicotine or mist): Have the device cleaned by qualified specialists at regular intervals to prevent damage due to overheating and other malfunctions.

NOTICE!

Damage to the device due to high voltages!

The device can be damaged if it is operated with the incorrect voltage or if high voltage peaks occur. In the worst case, excess voltages can also cause a risk of injury and fires. Make sure that the voltage specification on the device matches the local power grid before plugging in the device. Only operate the device from professionally installed mains sockets that are protected by a residual current circuit breaker (FI). As a precaution, disconnect the device from the power grid when storms are approaching or it the device will not be used for a longer period.

NOTICE!

Risk of fire due to installation of a wrong fuse!

Using fuses of a different type than compatible with the device may cause a fire and seriously damage the device. Only use fuses of the same type. Observe the labelling on the device casing and the information in the "Technical data” chapter.

NOTICE!

Risk of fire due to incorrect polarity!

Incorrectly inserted batteries may cause fires and destroy the device and the batteries. Observe the markings on the batteries and on the device. Ensure that proper polarity is observed when inserting batteries.

NOTICE!

Possible damage due to leaking batteries!

Batteries can leak and cause permanent damage to the device. Take the batteries out of the device if it is not going to be used for an extended period of time.

NOTICE!

Possible staining due to plasticiser in rubber feet!

The plasticiser contained in the rubber feet of this product may react with the coating of the floor and cause permanent dark stains after some time. If necessary, use a suitable mat or felt slide to prevent direct contact between the device's rubber feet and the floor.

Duties of the operator

As the operator of the laser system, you must comply with legal occupational safety obligations as per the OStrV (in Germany). The following applies in particular:

- Before putting into service, draw up an assessment of the risk posed by the direct and indirect effects of laser beams in line with the regulations applicable at the operating location.
- Report the operation of the laser system to the responsible authorities and professional associations in line with the legislation. If the laser system is to be operated outdoors, where it could pose a risk to public traffic spaces, involve the traffic authorities responsible at the operating location (for example air traffic control) in your planning.
- Make sure that a registered laser safety representative is appointed in writing before the device is put into service, and that this person ensures the safe operation of the laser system, in particular if persons unable to assess the dangers of a class 4 laser can enter the area of the laser beams.
- Take adequate measures to prevent the risk of fire and explosion.
- Apply appropriate technical safety measures (e.g. shielding, protective walls, barriers) on the basis of the exposure limits determined in the risk assessment.
- Restrict the range of the laser beams to a limited area in order to reduce the risk to persons as much as possible.
- Apply safety measures (e.g. extraction) if the effects of laser radiation can generate harmful concentrations of hazardous substances (e.g. gases, mists, aerosols).
- Mark the danger zone in the immediate vicinity of the laser with appropriate signage if the event requires persons to have direct access to the laser system (e.g. stage, studio).
- Use technical and organisational safety measures to restrict access to the running laser system for unauthorised persons.
- Indicate the use of the laser by means of audible or visible warning signals (e.g. warning light) in the danger zone.

- Use an additional safety switch (emergency stop switch) installed in an easily accessible central monitoring location (e.g. control room) that switches off the laser immediately and safely in the event of danger.
- Always remove the key from the key switch when not using the laser, in order to prevent unintentional laser radiation and unauthorised use.
- Instruct staff on the basis of the risk assessment and familiarise them with the necessary safety measures.
- Provide staff with the required personal protective equipment (PPE).

3 Features

Professional RGB laser for use in all event areas:

- Colour mixing based on analogue diode modulation
- Laser power: 3000 mW
- Laser class: 4
- Control options:
  - DMX-512 (20 channels)
  - ILDA
  - Infrared 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.

DANGER!

Risk of injury due to missing or incorrectly dimensioned laser safety glasses!

When work is performed on the laser system while it is functional, unintentional contact with the laser beam is possible.

There is a risk of injury to the eyes and the risk of irreversible damage.

Always wear correctly dimensioned laser safety glasses in line with DIN EN 207 when working on the functional laser system.

DANGER!

Risk of injury due to improper installation!

If the laser is set up incorrectly and the installation point is too low or too close to persons, there is a significant risk of injury due to the high intensity of the laser beam.

The laser may only be installed by a laser protection representative who is familiar with the legal regulations at the operating location.

In order to comply with the maximum legal exposure limits, determine the actual radiation intensities at the operating location as well as the distances for laser attachment, and install the laser in line with the ambient conditions.

Make sure the laser is firmly attached, and prevent the laser beam from leaving the planned laser beam area (e.g. through screens, housings or software-specific direction restrictions).

Shield laser beams from each other if multiple lasers are operated simultaneously.

Install the laser in such a way that the laser beam does not enter any traffic zones.

DANGER!

Risk of injury due to stray laser radiation!

Additional components inadequately secured to the device as well as reflective objects and surfaces at the operating location can cause stray laser radiation, which can cause injuries.

Make sure that additional components are always secured adequately.

Make sure there are no reflective objects or surfaces in the range of the laser beams.

DANGER!

Risk of injury in case of operation without a safety switch!

There is a risk of injury if the laser is operated without a safety switch.

Connect an approved external safety switch (not included in the scope of delivery) to the designated connection socket on the device.

It must be possible to switch off the laser safely in the event of danger by pressing the safety switch.

DANGER!

Risk of injury due to inadequate warning signals!

Persons unable to assess the dangers of a class 4 laser are at significant risk of injury and irreversible damage if such persons are not informed of the use of the laser.

Indicate the use of the laser by means of audible or visible warning signals (e.g. warning light) in the danger zone.

WARNING!

Risk of injury from falling devices that were inadequately secured!

If devices are not properly secured during assembly, they can cause severe injury and considerable damage by falling.

When installing and operating, make sure to follow the standards and regulations that apply in your country.

Always secure the device with a secondary safety attachment, such as a safety cable or a safety chain.

NOTICE!

Risk of overheating and fire due to inadequate distance and bad ventilation!

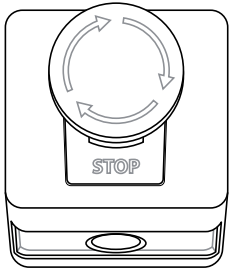
If the distance between the light source and the illuminated surface is too short or the device is badly ventilated, the device can overheat and cause fires.

Make sure that illuminated surfaces are more than 2 m away.

Do not operate the device in ambient temperatures above 40 °C.

Always ensure sufficient ventilation at the operating location.

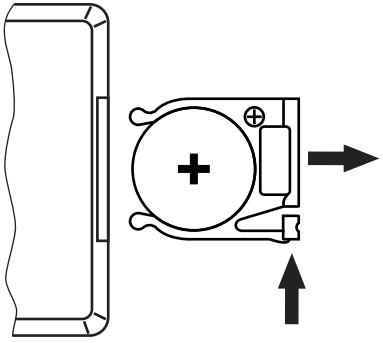
Safety switch (emergency stop)



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.

Inserting the battery into the remote control



Push the lock of the battery holder towards the centre of the housing and pull out the battery holder like a drawer. Insert the batteries. 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 film. Remove the plastic film before initial use.

NOTICE!

Risk of fire due to incorrect polarity!

Incorrectly inserted batteries may cause fires and destroy the device and the batteries.

Observe the markings on the batteries and on the device.

Ensure that proper polarity is observed when inserting batteries.

NOTICE!

Possible damage due to leaking batteries!

Batteries can leak and cause permanent damage to the device.

Take the batteries out of the device if it is not going to be used for an extended period of time.

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.

NOTICE!

Data transfer errors due to improper wiring!

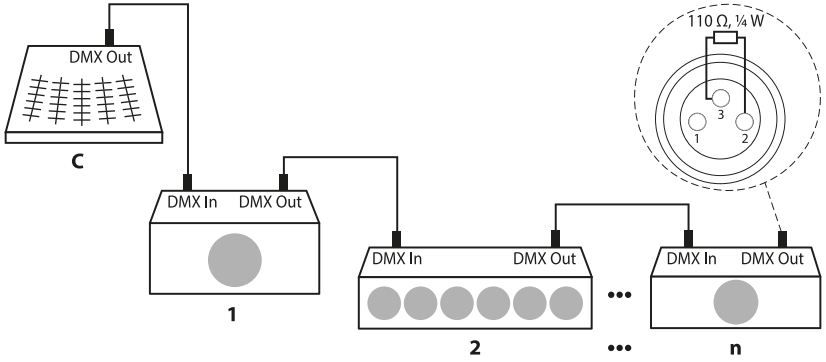
If the DMX connections are wired incorrectly, this can cause errors during the data transfer.

Do not connect the DMX input and output to audio devices, e.g. mixers or amplifiers.

Use special DMX cables for the wiring instead of normal microphone cables.

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 Ω, ¼ W).

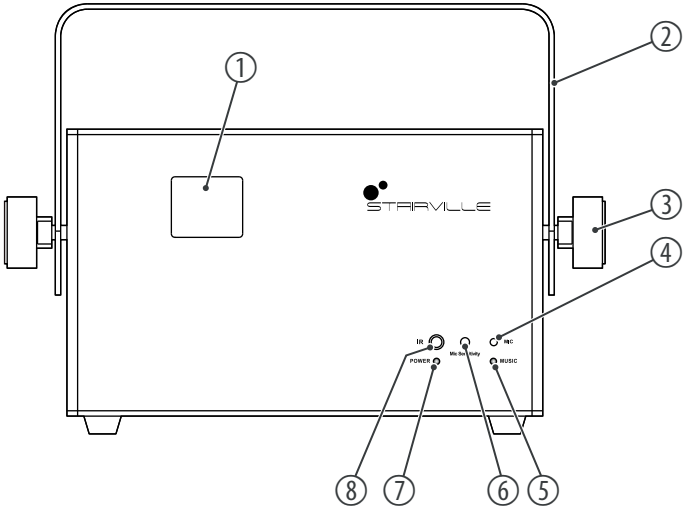


Connections in master/slave mode

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.

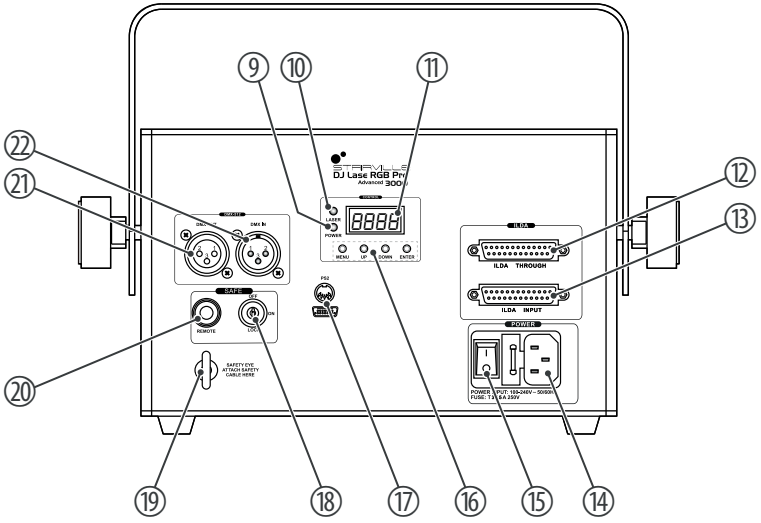
6 Connections and operating elements

Front



1	Laser aperture
2	Retainer and mounting bracket
3	Locking screw for the retainer and mounting bracket
4	*[MIC]* | Microphone for sound-controlled operation
5	*[MUSIC]* | Indicator LED, flashes blue in sound-controlled operation
6	*[Mic Sensitivity]* | Rotary control for adjusting the sensitivity of the built-in microphone for sound control
7	*[POWER]* | Indicator LED, lights up red permanently when the device is on
8	*[IR]* | Infrared receiver for the signals from the included remote control

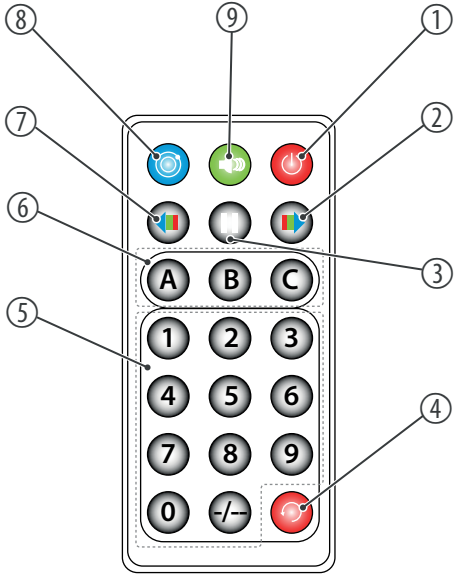
Back



9	*[POWER]* | Indicator LED, lights up white permanently when the device is on
10	*[LASER]* | Indicator LED, lights up red permanently when the laser is on (key switch in the *[ON]* position)
11	Display

12	*[ILDA THROUGH]* | 25-pin ILDA output socket for looping through the ILDA signal to other devices
13	*[ILDA INPUT]* | 25-pin ILDA input socket
14	IEC chassis plug for the mains cable with fuse holder
15	Mains switch. Turns the device on and off.
16	Function and control buttons *[MENU]* | Opens the main menu. Skips back to the previous menu item. *[UP]* | Increases the displayed value by one *[DOWN]* | Decreases the displayed value by one *[ENTER]* | Selects an option of the respective operating mode, confirms the set value
17	*[PS 2]* | Connection sockets for the supplied USB keyboard or the USB adapter
18	*[LOCK]* | Safety key switch: switches the laser output on or off.
19	Safety cable eyelet
20	*[REMOTE]* | Connection for an optional remote safety switch (emergency stop)
21	*[DMX OUT]* | DMX output, designed as XLR chassis socket, 3-pin
22	*[DMX IN]* | DMX input, designed as XLR chassis plug, 3-pin

Infrared remote control



1	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. When the device is already in the 'Remote control' mode, this button switches the laser on or off.
2	Colour selection button. Colour selection changing to the right, next 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 digit and before the second digit.
6	*[A]* | Press this button to switch to *'TIME'* mode. Press the button again to select the display mode: time only, time and date. Press and hold the button for several seconds to adjust the time. The number to be set flashes. Use a button from *[0]* to *[9]* on the number pad to set the required value. Use one of the colour selection buttons to select the desired colour in which the settings are projected onto a surface. Press *[A]* again to save your settings.
	[B] | Press the button to switch to *'COUNTDOWN'* mode. Press and hold the button for several seconds to set the countdown adjustment. On the numeric pad, select a key from *[0]* … *[9]* to adjust the required value. Press *[B]* to start the countdown, press ⏸ to stop the countdown.
	[C] | Press the button to switch to *'TEXT'* mode. On the number pad, select a key between *[0]* … *[9]* to select the required pre-set text mode to be projected on a surface.
7	Colour selection button. Colour selection changing to the left, previous step

8	Starts an automatic show in random order. Press the button again to toggle between the shows.
9	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 adjust the sensitivity.

7 Operating

7.1 Switching the device on and off

DANGER!

Risk of injury due to improper operation!

There is a risk of injury if the device is not operated properly.

Only operate the laser after approval has been granted, and under the supervision of a laser protection representative.

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 (e.g. emergency stop switch) or an equivalent system with a protection function to the *[REMOTE]* connection.
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 in a secure place.
2. Turn off the power using the mains switch.
3. Additionally, you can disconnect the device from the mains.

7.2 Operating on the unit

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* to switch between the menu items.
3. To activate the displayed menu item, press *[ENTER]*.
4. Press *[UP]* or *[DOWN]* to change the displayed value.
5. To confirm the displayed value, press *[ENTER]*.
6. Press *[MENU]* to return to the parent menu level.

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

7.2.1 Operating mode AUTO

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

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'Aut'*. Confirm the selection with *[ENTER]*.
3. Use *[UP]* or *[DOWN]* to select the required auto mode.

   The following Auto modes are available:

Parameter	Meaning
'Aut1'	Auto mode 1, show with programmed patterns, geometric shapes in random order
'Aut2'	Auto mode 2, show with programmed patterns, geometric shapes in random order
'Aut3'	Auto mode 3, show with programmed 'New Year' motto patterns
'Aut4'	Auto mode 4, show with programmed 'Christmas' motto patterns
'Aut5'	Auto mode 5, show with programmed 'Love' motto patterns
'Aut6'	Auto mode 6, show with programmed 'Birthday' motto patterns
'Aut7'	Auto mode 7, show with programmed 'Party' motto patterns

Parameter	Meaning
'Aut8'	Auto mode 8, show with programmed 'Halloween' motto patterns
'Aut9'	Auto mode 9, show with programmed 'Music' motto patterns

4. Confirm the selection with *[ENTER]*.

7.2.2 Sound control

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

1. Set the sensitivity of the built-in microphone with *[Mic Sensitivity]* on the front of the device.
2. Press *[MENU]* to activate the main menu.
3. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'Sou'*. Confirm the selection with *[ENTER]*.
4. Use *[UP]* or *[DOWN]* to select the required sound mode.

   The following sound modes are available:

Parameter	Meaning
'Sou1'	Sound mode 1, show with programmed patterns, geometric shapes in random order.
'Sou2'	Sound mode 2, show with programmed patterns, geometric shapes in random order.
'Sou3'	Sound mode 3, show with programmed 'New Year' motto patterns
'Sou4'	Sound mode 4, show with programmed 'Christmas' motto patterns
'Sou5'	Sound mode 5, show with programmed 'Love' motto patterns
'Sou6'	Sound mode 6, show with programmed 'Birthday' motto patterns

Parameter	Meaning
'Sou7'	Sound mode 7, show with programmed 'Party' motto patterns
'Sou8'	Sound mode 8, show with programmed 'Halloween' motto patterns
'Sou9'	Sound mode 9, show with programmed 'Music' motto patterns

5. Confirm the selection with *[ENTER]*.

7.2.3 TEXT mode

In this mode, the device projects text that has been entered and saved via the supplied keyboard (see *Chapter 7.5 'Operating via keyboard' on page 51*) onto a surface.

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'tXt'*. Confirm the selection with *[ENTER]*.
3. Use *[UP]* or *[DOWN]* to select the required text mode.

   The following text modes are available:

Parameter	Meaning
'tEXt'	Text mode 1, texts *'t-00'* … *'t-09'* are projected in an endless loop.
't-00'	Text mode 2, text *'t-00'* is projected.
⋮	⋮
't-09'	Text mode 10, text *'t-09'* is projected.

4. Confirm the selection with *[ENTER]*.

7.2.4 TIME mode

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

1. Press *[MENU]* to activate the main menu.

2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'tiM'*. Confirm the selection with *[ENTER]*.

3. Use *[UP]* or *[DOWN]* to select one of the following menu items:

Parameter	Meaning
'tiME'	Confirm this selection with *[ENTER]* to let the device consecutively project the time, date and day of the week onto a surface.
'SNod'	Here you can select the display mode: only time (display : *'d--t'*) or time and date (display: *'d-dt'*).
'SEtt'	Use *[UP]* and *[DOWN]* here to set the values for the time (display shows *'h-**'*: hour, *'N-**'*: minute, *'S-**'*: second), date and day of the week (display shows *'****'*: year, *'n **'*: month, *'d **'*: day) and confirm each set value with *[ENTER]*. To set the time display format, select *'24h'* or *'12h'* and confirm with *[ENTER]*. To return to the main menu without making changes, press *[MENU]*.

7.2.5 Operating mode COUNTDOWN

In this mode, the device projects a linked text (*'t-00'* … *'t-09'*) onto a surface after the programmed countdown time has elapsed.

1. Press *[MENU]* to activate the main menu.

2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'Cut'*. Confirm the selection with *[ENTER]*.

3. Use *[UP]* and *[DOWN]* to set the required time in a range from *'0000'* … *'9999'*.

4. Confirm the selection with *[ENTER]*.

7.2.6 DMX operating mode

This setting is only relevant if the device is controlled via a DMX controller.

1. Press *[MENU]* to activate the main menu.

2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'dMX'*. Confirm the selection with *[ENTER]*.

⇨ The display shows *'d001'*, the device is now controlled via DMX channel 1. When the display flashes, no controller is connected.

3. Use *[UP]* and *[DOWN]* to select the required DMX channel between *'d001'* … *'d492'*.

4. Confirm the selection with *[ENTER]*.

7.2.7 Setting the DMX address

1. Switch to the DMX mode. The display shows *'d001'*.
2. Press *[ENTER]*. The display shows *'001'*
3. Use *[UP]* and *[DOWN]* to set the required DMX address between *'001'* … *'492'*.
4. Confirm the selection with *[ENTER]*.

7.2.8 SLAVE mode

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

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'SLA'*. Confirm the selection with *[ENTER]*.

   ⇨ The display shows *'SLAV'*, the device is now in slave mode. When the display flashes, no master is connected.

7.3 SYSTEM menu

In this menu, you can adjust various device settings.

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'SYS'*. Confirm the selection with *[ENTER]*.

   The following submenus are available:

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	

3. Change the currently displayed value with *[UP]* and *[DOWN]* and confirm the selection with *[ENTER]*.

7.4 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 … 200	Selecting the first pattern
	201 … 255	Selecting the second pattern
2	Auto mode, channel 1 = 10 … 49	
	0 … 29	AUTO1
	30 … 59	AUTO2
	60 … 89	AUTO3
	90 … 119	AUTO4
	120 … 149	AUTO5

Channel	Value	Function
	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
	180 … 209	MUSIC7
	210 … 239	MUSIC8
	240 … 255	MUSIC9
	Pattern mode, channel 1 = 150 … 255	

Channel	Value	Function
	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	
	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

Channel	Value	Function
	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
	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

Channel	Value	Function
	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
8	Y axis rotation	
	0 … 127	Fixed adjusted position of Y-axis
	128 … 191	Y-axis rotation clockwise
	192 … 255	Y-axis rotation counter-clockwise
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 counter-clockwise

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

Channel	Value	Function
	0 … 127	128 fixed adjustable position on Y-axis
	128 … 191	Rotation around Y-axis clockwise
	192 … 255	Rotation around Y-axis counter-clockwise
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

7.5 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 with ↵ to open a subordinate menu and to activate a selection.

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.

Button	Symbol	Function
[Zoom]		Activates the Zoom function: the entered text is zoomed out, disappears and is zoomed out again. The zoom 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.
[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.

Button	Symbol	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.
[Text Qty.]		Activates the selection of the number of characters: use the arrow buttons ↑ and ↓ to select the number of characters to be displayed (12, 10, 8, 6 or 4 characters). 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.

Button	Symbol	Function
[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.
[Save+No]	💾	Save key. Press and hold this button and use the number keys on the keyboard to set the required memory slot (1 … 9). The entered text is now saved to this memory location.
[Play+No]	▶	Save key. Press and hold this button and use the number keys on the keyboard to set the required memory slot (1 … 9). The entered text is now saved to this memory location.
[Ctrl]+[Alt] +[del]		Press this button combination to delete the texts of all memory slots (1 … 9).
[Loop playback]	⏎	Loop key. This button is used to start an endless loop playback of the text saved 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

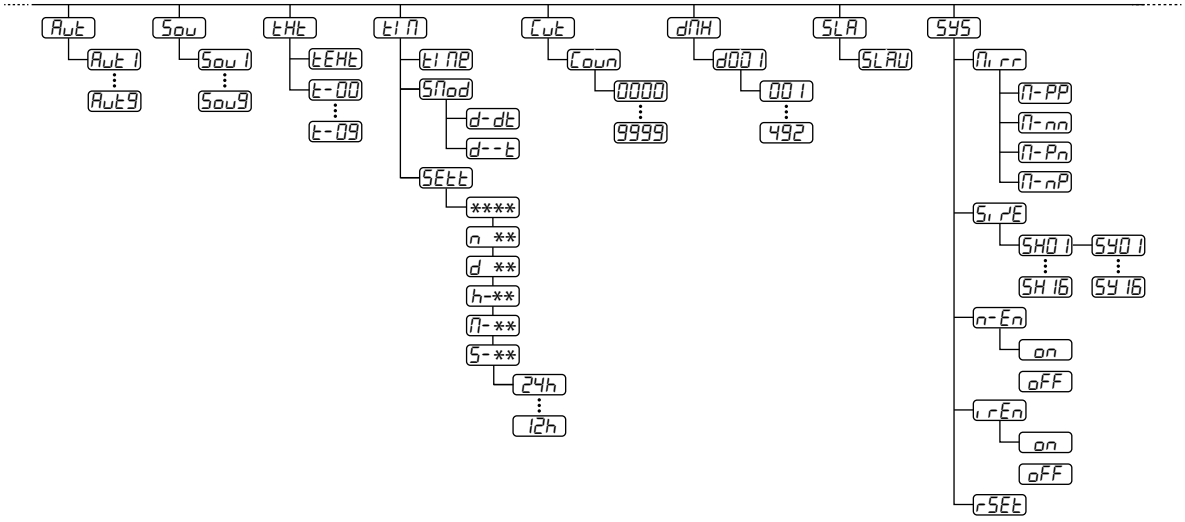
Button	Symbol	Function
[Show Mode]		Activates the display mode: use the arrow buttons ↑ and ↓ to select the display mode: only time or time and date. Press ↵ to save the setting.
[Setting]		Activates the time setting: use the arrow buttons ↑ and ↓ to set the date and time. Press ↵ to save the setting.
[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. Use the number keys on the keyboard to set the required countdown (1 … 9). Press ↵ to save 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.

7.6 Menu overview

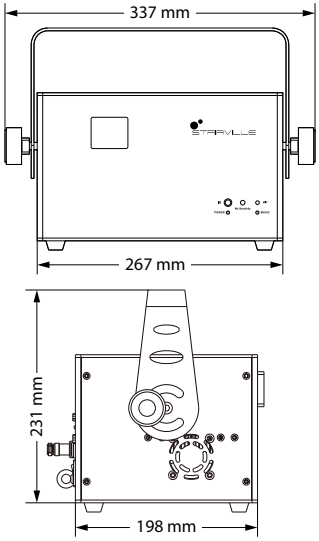


7.7 Resetting the device to factory defaults

1. Press *[MENU]* to activate the main menu.
2. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'SYS'*. Confirm the selection with *[ENTER]*.
3. Press *[UP]* or *[DOWN]* repeatedly until the display shows *'rSET'*. Confirm the selection 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: 800 mW	
	Green: 1,000 mW	
	Blue: 2,000 mW	
Laser class	4	
Beam diameter at the aperture	< 5 mm	
Divergence (each beam)	< 2 mrad	
Divergence (total light)	< 90°	
Scanner speed	> 30 Kpps @ ±20°	
Deflection angle	1 … 36°	
Input connections	Power supply	IEC chassis plug C14
	ILDA Input/ILDA Through	2 × 25-pin ILDA input sockets

	DMX control	XLR chassis plug, 3-pin
Output connections	DMX control	XLR chassis socket, 3-pin
Number of DMX channels	20	
Control	DMX, infrared remote control, ILDA, buttons and display on the device, USB keyboard	
Supply voltage	100 - 240 V ~ 50/60 Hz	
Power consumption	80 W	
Fuse	5 mm × 20 mm, 1.6 A, 250 V, slow blow	
Battery remote control	Lithium-ion button cell CR2025, 3 V	
Mounting options	Hanging, standing	
Dimensions (W × H × D)	337 mm × 231 mm × 198 mm	
Weight	5.3 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20%…80% (non-condensing)

Further information

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

9 Plug and pin 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

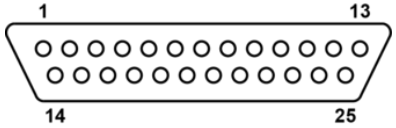
The unit offers a 3-pin XLR socket for DMX output and a 3-pin XLR plug for DMX input. Please refer to the drawing and table below for the pin assignment of a suitable XLR plug.

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

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!

Risk of injury due to improper troubleshooting!

There is a risk of injury if troubleshooting is not performed properly.

Have all work and repairs on class 4 lasers performed by trained experts.

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

Symptom	Remedy
The device is not working, no light, the fan is not running	1. Check the power supply and the main fuse.
	2. Check the safety key switch.
	3. Check the external safety switch (e.g. emergency stop button)
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 for proper connection.
	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 a DMX interface circuit.
No response to the remote control	1. Check whether the device is in “remote control” mode. The display has to show [rEM].
	2. Try using the remote control at a different angle to the IR sensor on the front panel of the device. When the unit receives a signal from the remote control the LED ‘MUSIC’ lights up briefly.
	3. Check the remote control battery.

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!

Risk of injury due to improper cleaning!

There is a risk of injury if cleaning is not performed properly.

To avoid unintentional laser radiation, always remove the key from the key switch before you start cleaning 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.

Fan grids

The fan grids of the device must be cleaned of any contamination, such as dust, etc. on a regular basis. Before cleaning, switch off the device and disconnect mains-operated devices from the mains. Only use pH-neutral, solvent-free and non-abrasive cleaning agents. Clean the unit with a slightly damp lint-free cloth.

12 Protecting the environment

Disposal of the packaging material

For the 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 batteries

Batteries must not be thrown away or incinerated; they must be disposed of in accordance with local regulations for the disposal of hazardous waste. Use the existing collection points for this.

Only dispose of lithium batteries when they are discharged. Remove replaceable lithium batteries from the device before disposal. Protect used lithium batteries against short circuits, for example by covering the poles with adhesive tape. Permanently built-in lithium batteries must be disposed of together with the device. Please inquire about an appropriate collection point.

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.