



LED Derby ST

LED effect

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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'*.

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 – dangerous optical radiation.

Warning signs	Type of danger
 A yellow triangular warning sign with a black border. Inside the triangle is a black silhouette of a crane hook lifting a rectangular load.	Warning – suspended load.
 A yellow triangular warning sign with a black border. Inside the triangle is a large black exclamation mark.	Warning – danger zone.

2 Safety instructions

Intended use

This device is intended for use as an electronic lighting effect by means of LED technology. The device is designed for professional use and is not suitable for use in households. 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 life of the device by regular breaks in operation and avoid switching it on and off frequently. This device is not suitable for continuous use.

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.



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!

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.

3 Features

The LED-effect is suitable for almost all applications, for example in clubs, bars, small stages and theatres.

Special features of the device:

- 2-in-1 Derby effect for individual colour LEDs
- 4 × RGBW LEDs (each 3 W)
- Motor to direct the light beams
- 16 white LEDs for strobe applications (each 0.5 W)
- Control via DMX (two modes), via the supplied remote control and via buttons and display on the unit
- Automatic mode and sound control
- Master / Slave operation

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

4 Installation

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



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.



NOTICE!

Risk of overheating

The distance between light output and the illuminated surface must be more than 1.5 m (19.7in).

Provide sufficient ventilation.

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



NOTICE!

Use of stands

When mounting the device onto a stand, ensure that the stand is in a safe and stable position and that the weight of the device does not exceed the maximum permissible load capacity of the stand.



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.

Mounting options

You can install the unit in hanging or standing position. When in use, the device must always be attached to a solid surface or an approved truss. Use the openings provided on the two-piece bracket for attaching.

Always work from a stable platform whenever installing, moving or servicing the unit. In doing so, the area underneath the unit must be cordoned off.

The safety cable must be threaded through the safety eyelet on the rear side of the unit.

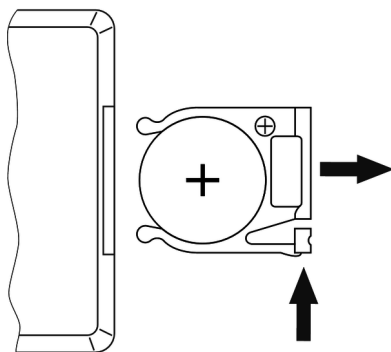


Please note that this device must not be connected to a dimmer.

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.

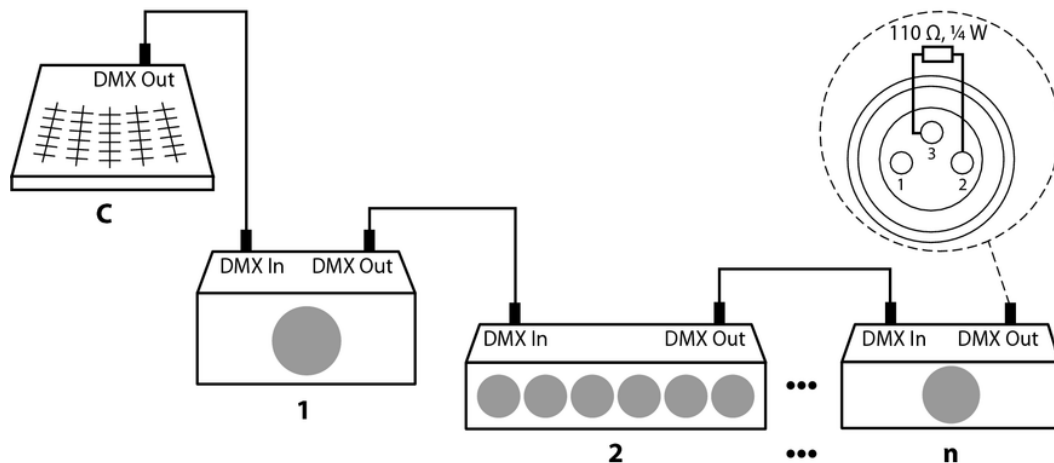
Ensure that proper polarity is observed when inserting batteries.

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.

Connections in DMX mode

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

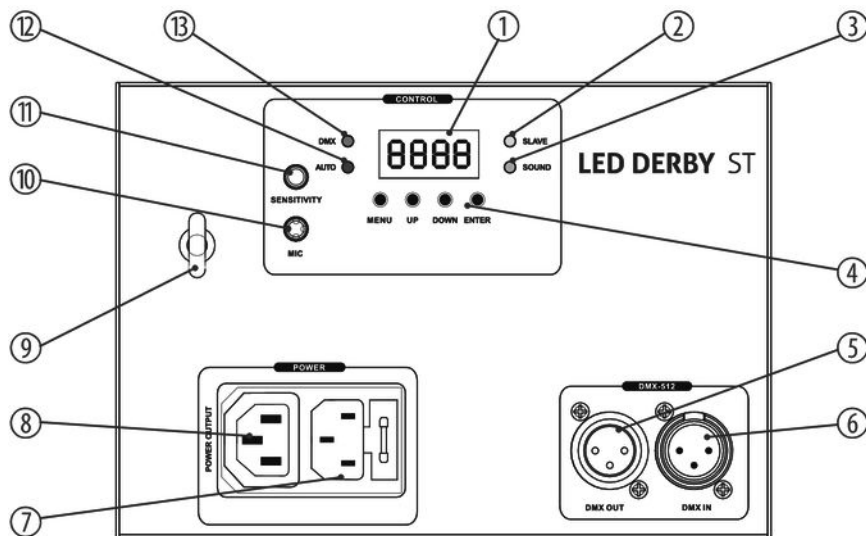


Connections in master/slave mode

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

6 Connections and controls

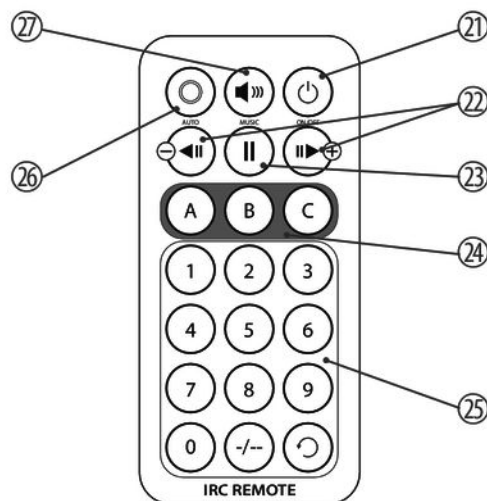
Rear panel



1	Display
2	<i>[SLAVE]</i> Indicates that the device is in 'Slave' mode.
3	<i>[SOUND]</i> Indicates that sound control (sound-to-light) is active.
4	Control buttons <i>[MENU]</i> : Calls up the main menu or a submenu. <i>[UP]</i> : Button to increase the displayed value by one. <i>[DOWN]</i> : Button to decrease the displayed value by one. <i>[ENTER]</i> : Confirms a selected value.
5	<i>[DMX OUT]</i> DMX output
6	<i>[DMX IN]</i> DMX input

7	IEC chassis plug for power supply with fuse holder
8	<i>[POWER OUTPUT]</i> IEC chassis socket to power another device with mains voltage
9	Safety cable eyelet
10	<i>[MIC]</i> Microphone for sound control
11	<i>[SENSITIVITY]</i> Rotary control for setting the microphone sensitivity
12	<i>[AUTO]</i> Indicates that the device is in 'Automatic' mode
13	<i>[DMX]</i> Indicates that the device is receiving a DMX signal

Remote control



21	Main switch, turns the device on and off
22	Colour change, forward or backward
23	Pause
24	<ul style="list-style-type: none">■ A: Turns the derby effect of the four-colour LEDs on and off■ B: Selects a strobe program for the white LEDs■ C: Turns the strobe program for the white LEDs on and off
25	Numeric buttons to set the progress speed (0: slow, 9: fast)
26	Activates the 'Automatic' mode (playback of preprogrammed automatic shows)
27	Activates the 'Sound-control' mode (playback of sound-controlled automatic shows)

7 Operating

7.1 Starting the device

Connect the device to the power supply to start operation. After a few seconds the unit is ready for use.

7.2 Main menu

Press *[MENU]* to activate the main menu. Use *[UP]* or *[DOWN]* to change the respectively displayed value. When the display shows the desired value, press *[ENTER]*.

DMX address

Press *[MENU]*. Then use *[UP]* or *[DOWN]* to select the menu item 'dMH'. Press *[ENTER]*. Select either the 1-channel DMX mode (display '01Ch'), the 4-channel DMX mode (display '04Ch') or change to the input of the DMX address (display 'dxxx'). Confirm with *[ENTER]*.

If you have selected the menu item 'dxxx', set the number of the first DMX channel used by the device (DMX address). Use *[UP]* and *[DOWN]* to select a value between 1 and 512 (display shows 'A001' ... 'A512').

When the display shows the desired value, press *[ENTER]* to confirm the selection and then *[MENU]* to return to the parent menu.

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

Operating mode 'Automatic'

Press *[MENU]*. Then use *[UP]* or *[DOWN]* to select the menu item 'AUT'. Press *[ENTER]*. Use *[UP]* or *[DOWN]* to choose between 'AutM' (automatic show), 'AutP' (automatic program) or 'AutF' (strobe program). When the display shows the desired value, press *[ENTER]*.

To set the speed, select a value between 'S01' (slow) and 'S99'.

When the display shows the desired value, press *[ENTER]* to confirm the selection and then *[MENU]* to return to the parent menu.

Sound control

Press *[MENU]*. Use *[UP]* or *[DOWN]* to select the menu item 'SOU'. Press *[ENTER]*. Use *[UP]* or *[DOWN]* to choose between 'SouM' (sound-controlled automatic show), 'SouP' (sound-controlled automatic program) or 'SouF' (sound-controlled strobe program). When the display shows the desired value, press *[ENTER]*.

When the display shows the desired value, press *[ENTER]* to confirm the selection and then *[MENU]* to return to the parent menu.

Manual settings

Press *[MENU]*. Use *[UP]* or *[DOWN]* to select the menu item 'COL'. Press *[ENTER]*. The display shows 'CoLo'. Press *[ENTER]*. Use *[UP]* or *[DOWN]* to choose between 'rxxx' (red intensity), 'Gxxx' (green intensity), 'bxxx' (blue intensity), 'Uxxx' (white intensity) and 'Sxx' (speed of the strobe effect). When the display shows the desired value, press *[ENTER]*. Set the corresponding value with *[UP]* or *[DOWN]*.

When the display shows the desired value, press *[ENTER]* to confirm the selection and then *[MENU]* to return to the parent menu.

Strobe effect

Press *[MENU]*. Use *[UP]* or *[DOWN]* to select the menu item 'Str'. Press *[ENTER]*. The display shows 'Stro'. Press *[ENTER]*. Use *[Up]* and *[Down]* to select a strobe effect between 'St01' and 'St18'.

When the display shows the desired value, press *[ENTER]* to confirm the selection and then *[MENU]* to return to the parent menu.

Operating mode 'Slave'

Press *[MENU]*. Use *[UP]* or *[DOWN]* to select the menu item 'SLA'. Press *[ENTER]*. The display shows 'SLAv'.

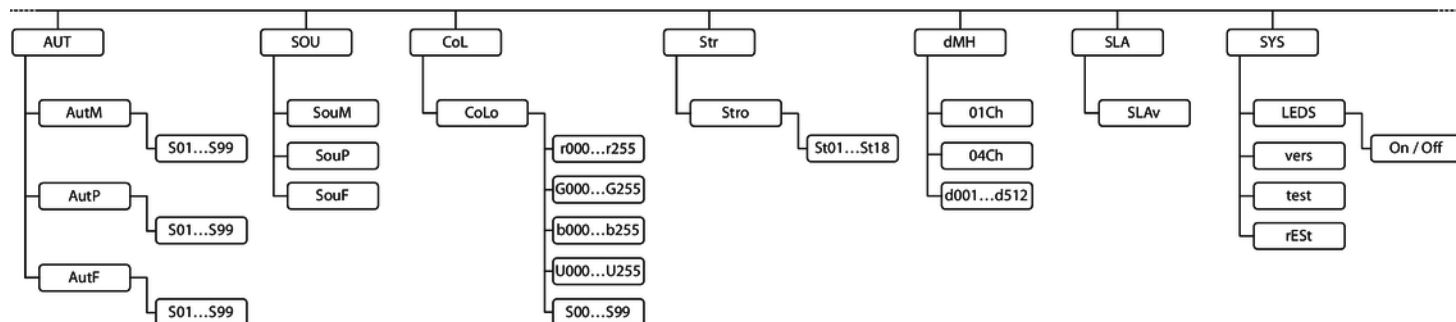
Confirm with *[ENTER]*. The slave device now exactly follows the specifications of the master device. Then press *[MENU]* to return to the higher-level menu.

System menu

Press *[MENU]*. Use *[UP]* or *[DOWN]* to select the menu item 'SYS'. Press *[ENTER]*. Use *[UP]* or *[DOWN]* to select one of the following menu items and then press *[ENTER]*:

- 'LEDS': Choose between 'On' and 'Off' to turn all LEDs on or off
- 'vers': The display shows the current software version used by the device.
- 'test': A test program is started.
- 'rESt': All device settings are reset.
-

7.3 Menu overview



7.4 Functions in 1-channel DMX mode

Channel	Value	Function
1	0...9	No function
	10...50	Auto show
	51...90	Automatic program
	91...130	Strobe program
	131...170	Sound-controlled automatic show
	171...210	Sound-controlled automatic program
	211...255	Sound-controlled strobe program

7.5 Functions in 4-channel DMX mode

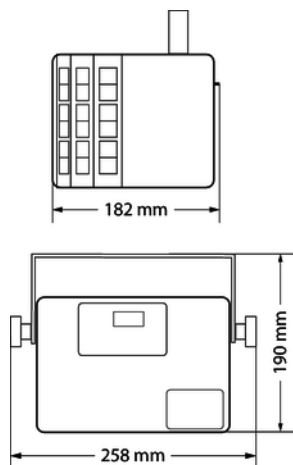
Channel	Value	Function
1	Derby effect of the four-colour LEDs	
	0...5	No function
	6...20	Red
	21...35	Green
	36...50	Blue
	51...65	White
	66...80	Red / green
	81...95	Red / blue
	96...110	Red / white
	111...125	Green / blue
	126...140	Green / white

Channel	Value	Function
	141...155	Blue / white
	156...170	Red / green / blue
	171...185	Red / green / white
	186...200	Green / blue / white
	201...215	Red / green / blue / white
	216...230	Colour change 1
	231...255	Colour change 2
2	0...5	No function
	6...255	Strobe effect, increasing speed
3	Motor for moving light beams	
	0	No function
	1...127	Fixed position (indexing)
	128...255	Rotation

Channel	Value	Function
4	Strobe effect (white LEDs)	
	0...9	No function
	10...19	Strobe pattern 1, increasing speed
	20...29	Strobe pattern 2, increasing speed
	30...39	Strobe pattern 3, increasing speed
	40...49	Strobe pattern 4, increasing speed
	50...59	Strobe pattern 5, increasing speed
	60...69	Strobe pattern 6, increasing speed
	70...79	Strobe pattern 7, increasing speed
	80...89	Strobe pattern 8, increasing speed
	90...99	Strobe pattern 9, increasing speed
	100...109	Strobe pattern 10, increasing speed
	110...119	Strobe pattern 11, increasing speed

Channel	Value	Function
	120...129	Strobe pattern 12, increasing speed
	130...139	Strobe pattern 13, increasing speed
	140...149	Strobe pattern 14, increasing speed
	150...159	Strobe pattern 15, increasing speed
	160...169	Strobe pattern 16, increasing speed
	170...179	Strobe pattern 17, increasing speed
	180...255	Full brightness, without strobe effect

8 Technical specifications



Light source	4 × RGBW-LEDs, each 3 W	
	16 white LEDs for strobe effects, each 0.5 W	
Optical properties	Beam angle	140°
Control	DMX, infrared remote control, buttons and display on the device	
Number of DMX channels	1 or 4	
Input connections	Power supply	IEC chassis plug C14
	DMX control	XLR chassis socket, 3-pin
Output connections	Power supply of further devices	IEC chassis plug C13
	DMX control	XLR chassis socket, 3-pin
Power consumption	28 W	
Supply voltage	100 – 240 V ~ 50/60 Hz	

Fuse	5 mm × 20 mm, 1 A, 250 V, slow blow	
Protection class	IP20	
Mounting options	Hanging, standing	
Dimensions (W × H × D)	258 mm × 190 mm × 182 mm	
Weight	2.0 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	50 %, non-condensing

Further information

Similar design	Combined device
DMX control	Yes
Master/Slave	Yes
Remote control	included
Sound control	Yes
Display	Yes

9 Plug and connection assignments

Introduction

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

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

DMX connections



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

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

10 Troubleshooting



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.

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 unit does not work, no light	Check the mains connection.
Apparently no function despite proper power supply	Check if the unit is in DMX mode or in 'slave' mode. If so, check the unit in another mode.
No response to the DMX controller	1. Check whether the DMX controller is switched on. Check the DMX connectors and cables for proper connection.
	2. Check the address settings and the DMX polarity.
	3. Try using another DMX controller.
	4. Check to see if the DMX cables run near or alongside to high voltage cables that may cause damage or interference to DMX interface circuits.

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

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 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 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.

