DMX REFERENCE

LM-19R

lumen

Manufacturer	lumen
GDTF file	Lumen_LM-19R_136088.gdtf
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1 About this manual

This document describes the LM-19R by lumen. It was compiled from the GDTF file Lumen_LM-19R_136088.gdtf from the GDTF-Share library.

File revision: “LM-19R”.

The DMX modes, the channel functions and the technical data are given as the GDTF file states them. Installation, operation from the device's control panel, service and safety instructions are described in the manufacturer's original user manual, which takes precedence over this document.

This document was not issued or endorsed by lumen; product names and trademarks belong to their owners.

Safety notices are marked with signal words according to the severity of the hazard: DANGER – an imminent hazard that will result in death or serious injury; WARNING – a potential hazard that could result in death or serious injury; CAUTION – a potential hazard that could result in minor injury or property damage; NOTE – additional information for correct and safe use.

> **NOTE** This product is designed for stage and effect lighting. It is not suitable for household room illumination.

2 Quick reference

Parameter	Value
Weight	44.1 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
16CH	16	32	1, 17, 33, 49, ...

No light? Check these channels

- 16CH: CH 7 Strobe at 104–109 or 208–212; CH 8 Dimmer above 0



Read the manual before use



Do not stare into the light



Indoor use only

3 Safety instructions



Read the manual before use



Do not stare into the light



Indoor use only

⚠ WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

⚠ WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

⚠ CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

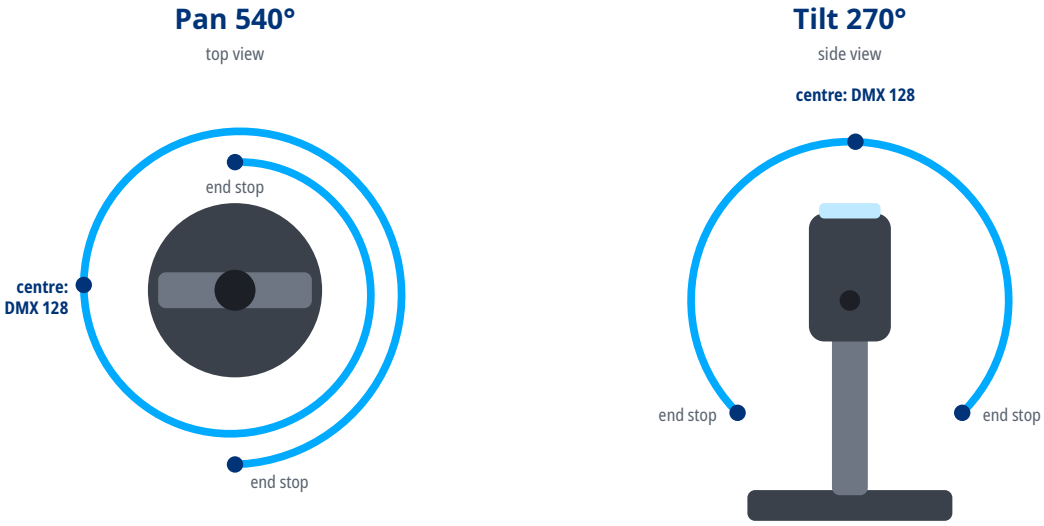
⚠ CAUTION

- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them longer than necessary.

> ⚠ **WARNING**
>
> - The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
> - Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
> - Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

4 Product description

Range of movement



5 Installation

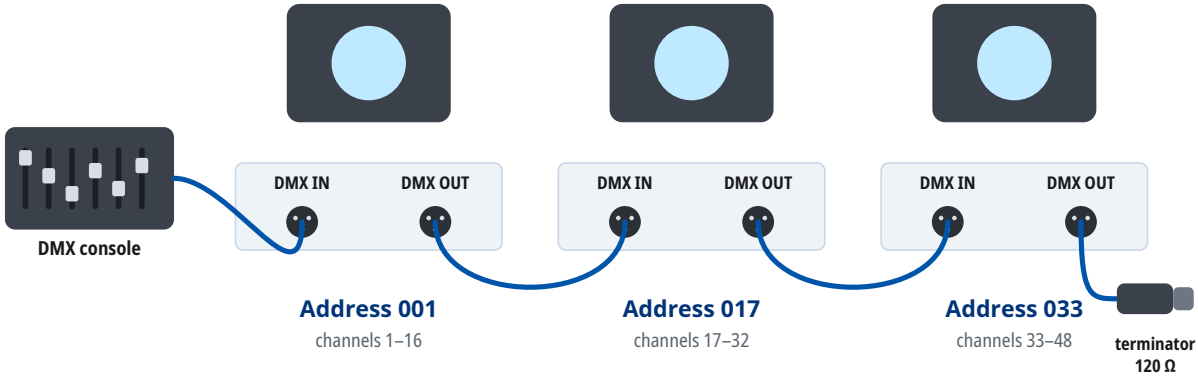
> ⚠ **WARNING**
>
> - Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
> - The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
> - Weight of the device: 44.1 kg.
> - Use suitable mounting hardware (for example truss clamps) and tighten all screw connections properly.
> - Always secure the suspended device against falling with a safety cable of adequate load capacity, routed through a fixed point of the device and around the supporting structure.
> - During installation and removal, keep people out of the area below the work position.
> - Regularly inspect the fixings and the safety cable for damage, corrosion and loosening.

6 Connections

- Use shielded cable designed for DMX512 with an impedance of 110 Ω. Ordinary microphone cable is not suitable for DMX, especially over longer distances.

- Connect the devices in a daisy chain: connect the DMX OUT of one device to the DMX IN of the next. Do not split the line with Y-cables or wire it in a star; the line may be split only with a DMX splitter.
- Connect the shield to pin 1 only. Do not connect the shield (ground) to the metal shell of the connector; this can cause short circuits or erratic behavior.
- XLR pin assignment: pin 1 – shield (ground), pin 2 – Data- (Data Complement), pin 3 – Data+ (Data True). On 5-pin connectors, pins 4 and 5 are not connected; a 5-pin connector can be connected to a 3-pin one with a cable adapter.
- Terminate the end of the line (for impedance matching): plug an XLR connector with a 120 Ω, ¼ W resistor between pins 2 and 3 into the DMX OUT of the last device. This reduces the risk of erratic behavior.
- Connect no more than 32 devices to one DMX line. For more devices or longer runs, use a DMX splitter or booster.

DMX line



Mode 16CH: every unit occupies 16 channels from its address. At most 32 units on one line; for more units or longer runs use a DMX splitter. A 120 Ω terminator closes the last DMX OUT.

7 Operation

Setting the DMX address

- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “16CH”: 16.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “16CH”, you can use, for example, the start addresses 1, 17, 33, 49.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

8 Functions at a glance

Functions in each DMX mode

	16CH 16 channels
Pan / Tilt	1, 2
Dimmer	8
Shutter / strobe	7
Color wheel	9
Gobo wheel	11
Prism	10, 12, 14, 15
Frost	6
Focus	13

Color wheel

1. Color 1: open — DMX 0–9
2. Red — DMX 15–19
3. Yellow — DMX 25–29
4. Blue — DMX 35–39
5. Green — DMX 45–49
6. Magenta — DMX 55–59
7. red2 — DMX 65–69
8. Cyan — DMX 75–79
9. Uv — DMX 85–89
10. Orange — DMX 95–99
11. Blueviole — DMX 105–109
12. Cto — DMX 115–119
13. Pink — DMX 125–129
14. Greenyellow — DMX 135–139

Gobo wheel

1 
Gobo 1: open
DMX 0–4

2 
Gobo 1
DMX 5–9

3 
Gobo 2
DMX 10–14

4 
Gobo 3
DMX 15–19

5 
Gobo 4
DMX 20–24

6 
Gobo 5
DMX 25–29

7 
Gobo 6
DMX 30–34

8 
Gobo 7
DMX 35–39

9 
Gobo 8
DMX 40–44

10 
Gobo 9
DMX 45–49

11 
Gobo 10
DMX 50–54

12 
Gobo 11
DMX 55–59

13 
Gobo 12
DMX 60–64

14 
Gobo 13
DMX 65–69

15 
Gobo 14
DMX 70–74

16 
Gobo 15
DMX 75–79

17 
Gobo 16
DMX 80–84

18 
Wheel Slot 18
DMX 85–90

Prism 1

1
Wheel Slot 1
DMX 0–63

2 
8 facets
Wheel Slot 2
DMX 64–160

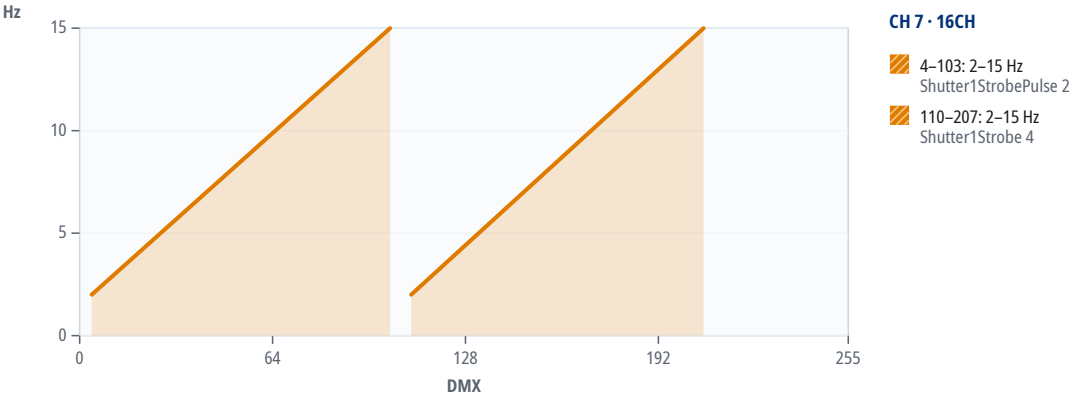
3 
16 facets
Wheel Slot 3
DMX 161–255

Prism 2

1
Wheel Slot 1
DMX 0–127

2 
16 facets
Wheel Slot 2
DMX 128–255

Strobe rate



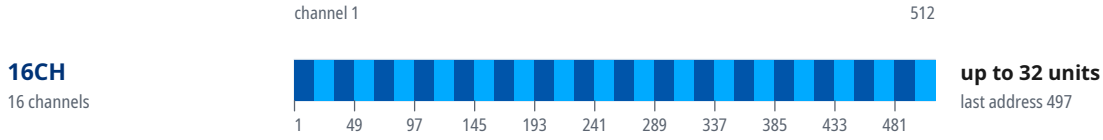
CH 7 · 16CH

4–103: 2–15 Hz
Shutter1StrobePulse 2

110–207: 2–15 Hz
Shutter1Strobe 4

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “16CH”

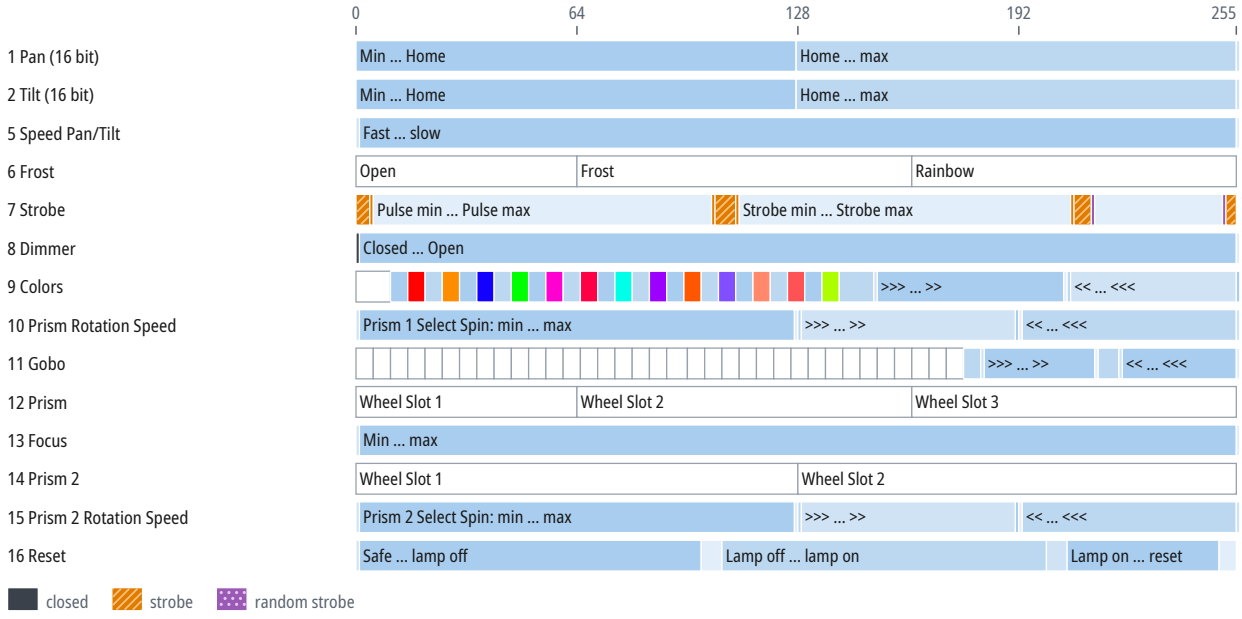
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	81	11	161	16	241
2	17	7	97	12	177	17	257
3	33	8	113	13	193	18	273
4	49	9	129	14	209	19	289
5	65	10	145	15	225	20	305

Mode 16CH

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 7 Strobe at 104–109 or 208–212; CH 8 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 7 Strobe 255, CH 8 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Min ... Home
		128–255	Home ... max
		255	Max
2	Tilt	0–127	Min ... Home
		128–255	Home ... max

CH	Function	DMX	Description
2	Tilt (continued)	255	Max
3	Pan Fine	0–255	Fine adjustment of CH 1
4	Tilt Fine	0–255	Fine adjustment of CH 2
5	Speed Pan/Tilt	0	Fast
		1–254	Fast ... slow
		255	Slow
6	Frost	0–63	Open
		64–160	Frost
		161–255	Rainbow
7	Strobe	0–3	Drak
		4	Pulse min
		5–102	Pulse min ... Pulse max
		103	Pulse max
		104–109	Open 1
		110	Strobe min
		111–206	Strobe min ... Strobe max
		207	Strobe max
		208–212	Open 2
		213	Random min
		214–250	Random min ... Random max
		251	Random max
		252–255	open3
8	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
9	Colors	0–9	Color 1: open
		10–14	Open ... red
		15–19	Red
		20–24	Red ... yellow
		25–29	Yellow
		30–34	Yellow ... blue
		35–39	Blue
		40–44	Blue ... green
		45–49	Green
		50–54	Green ... magenta
		55–59	Magenta
		60–64	Magenta ... red2
		65–69	red2
		70–74	red2 ... cyan
		75–79	Cyan
		80–84	Cyan ... uv
		85–89	Uv

CH	Function	DMX	Description
9	Colors (continued)	90–94	Uv ... orange
		95–99	Orange
		100–104	Orange ... blueviole
		105–109	Blueviole
		110–114	Blueviole ... cto
		115–119	Cto
		120–124	Cto ... pink
		125–129	Pink
		130–134	Pink ... greenyellow
		135–139	Greenyellow
		140–149	Color 1 1
		150	>>>
		151–204	>>> ... >>
		205	>>
		206	<<
		207–254	<< ... <<<
		255	<<<
10	Prism Rotation Speed	0	Prism 1 Select Spin: min
		1–126	Prism 1 Select Spin: min ... max
		127	Prism 1 Select Spin: max
		128	>>>
		129–190	>>> ... >>
		191	>>
		192	<<
		193–254	<< ... <<<
		255	<<<
11	Gobo	0–4	Gobo 1: open
		5–9	Gobo 1
		10–14	Gobo 2
		15–19	Gobo 3
		20–24	Gobo 4
		25–29	Gobo 5
		30–34	Gobo 6
		35–39	Gobo 7
		40–44	Gobo 8
		45–49	Gobo 9
		50–54	Gobo 10
		55–59	Gobo 11
		60–64	Gobo 12
		65–69	Gobo 13
		70–74	Gobo 14
		75–79	Gobo 15

CH	Function	DMX	Description
11	Gobo (continued)	80–84	Gobo 16
		85–89	Gobo 17
		90–95	Wheel Slot 2 (1–1.44 Hz)
		96–100	Wheel Slot 3 (1.44–1.89 Hz)
		101–105	Wheel Slot 4 (1.89–2.33 Hz)
		106–110	Wheel Slot 5 (2.33–2.78 Hz)
		111–115	Wheel Slot 6 (2.78–3.22 Hz)
		116–120	Wheel Slot 7 (3.22–3.67 Hz)
		121–125	Wheel Slot 8 (3.67–4.11 Hz)
		126–130	Wheel Slot 9 (4.11–4.56 Hz)
		131–135	Wheel Slot 10 (4.56–5 Hz)
		136–140	Wheel Slot 11 (5–5.44 Hz)
		141–145	Wheel Slot 12 (5.44–5.89 Hz)
		146–150	Wheel Slot 13 (5.89–6.33 Hz)
		151–155	Wheel Slot 14 (6.33–6.78 Hz)
		156–160	Wheel Slot 15 (6.78–7.22 Hz)
		161–165	Wheel Slot 16 (7.22–7.67 Hz)
		166–170	Wheel Slot 17 (7.67–8.11 Hz)
		171–175	Wheel Slot 18 (8.11–8.56 Hz)
		176–180	White
		181	>>>
		182–213	>>> ... >>
		214	>>
		215–220	White
		221	<<
		222–254	<< ... <<<
		255	<<<
12	Prism	0–63	Wheel Slot 1
		64–160	Wheel Slot 2
		161–255	Wheel Slot 3
13	Focus	0	Min
		1–254	Min ... max
		255	Max
14	Prism 2	0–127	Wheel Slot 1
		128–255	Wheel Slot 2
15	Prism 2 Rotation Speed	0	Prism 2 Select Spin: min
		1–126	Prism 2 Select Spin: min ... max
		127	Prism 2 Select Spin: max
		128	>>>
		129–190	>>> ... >>
		191	>>
		192	<<

CH	Function	DMX	Description
15	Prism 2 Rotation Speed (continued)	193–254	<< ... <<<
		255	<<<
16	Reset	0	Safe
		1–99	Safe ... lamp off
		100–105	Lamp off
		106–199	Lamp off ... lamp on
		200–205	Lamp on
		206–249	Lamp on ... reset
		250–255	Reset

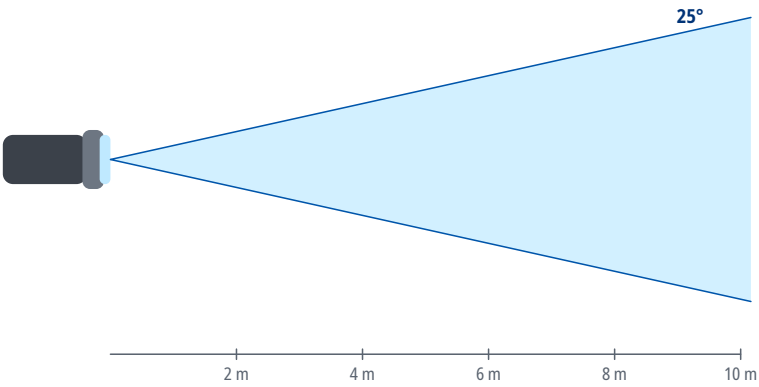
10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	700 W
Luminous flux	1,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	85
Optics	
Beam angle	25°
Movement	
Pan	540°
Tilt	270°
Dimensions and construction	
Weight	44.1 kg
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	2–15 Hz
Prism 1 rotation	up to 45 °/s (7.5 rpm)

Spot diameter



Distance	Ø 25°
2 m	0.89 m
4 m	1.8 m
6 m	2.7 m
8 m	3.5 m
10 m	4.4 m
15 m	6.7 m

Spot diameter square to the beam axis, calculated from the beam angle.

11 Maintenance and cleaning

- Before cleaning and maintenance, switch the device off, disconnect it from the power supply and let it cool down.
- Clean the housing with a soft, dry or slightly damp cloth. Do not use solvents, abrasive cleaners or pressure washers, and make sure no liquid gets into the device.
- Clean optical parts (lenses, front glass), if the device has any, with a soft lint-free cloth and a cleaner intended for optics or glass.
- Regularly inspect the housing, cables, connectors and fixings. Have damaged parts replaced by a service center.
- How often to clean depends on the environment; dust, smoke and fog make the device dirty much faster.

12 Troubleshooting

Problem	Remedy
The device does not switch on	Check the supply voltage, the cables and the fuse, if the device has one.
The device does not respond to DMX	Check the start address, the selected DMX mode and whether it matches the profile in the controller, the cable connection to DMX IN, and the controller output (universe).
The device behaves erratically or flickers	Check the terminator at the end of the line, the condition and wiring of the cables (shield on pin 1 only), the number of devices on the line (32 at most), and that the line is not split without a splitter.
Only some devices on the line respond	Check the cable and connectors between the last working and the first non-working device, and make sure all devices on the line are switched on.
Devices respond to the wrong channels or affect each other	Check that the addresses do not overlap and that the DMX mode on the devices matches the patch in the controller.
The device or the connected load does not light up although it receives DMX	Check the values of the dimmer, shutter and strobe channels against the DMX channel table. For the DMX modes for which the sources state it, the chapter DMX channels gives under the mode's heading which channels must be open.
Movement is reversed	Check whether Pan/Tilt inversion is enabled in the device menu or in the controller.
Moving parts do not reach the correct position after power-on or transport	Switch the device off and on again to reset the position, and make sure the transport lock, if any, is released. If this does not help, contact a service center.
Movement is jerky	Check the value of the Pan/Tilt speed channel, if the device has one, and the stability of the DMX signal.

13 Disposal

The crossed-out wheeled bin symbol on the product, in the manual or on the packaging means that the product must not be disposed of with unsorted household waste at the end of its life.

Take the end-of-life equipment to a collection point, for example a municipal collection site or a retailer. Proper disposal enables materials to be recycled and helps prevent possible negative effects on the environment and human health.

Follow the regulations applicable in your country; in the Czech Republic, take-back is governed by Act No. 542/2020 Coll., on End-of-Life Products.

Recycle the packaging materials according to their type.