DMX REFERENCE

hybrid 380

bsw 380

Mvg



Manufacturer	Mvg
GDTF file	Mvg_hybrid_380_117298.gdtf
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1 About this manual

This document describes the bsw 380 by Mvg. It was compiled from the GDTF file Mvg_hybrid_380_117298.gdtf from the GDTF-Share library.

File revision: “v4444”.

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 Mvg; 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	23 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
22ch	22	23	1, 23, 45, 67, …

No light? Check these channels

- 22ch: CH 19 Shutter at 104–107, 208–212 or 252–255 “Open”; CH 20 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.

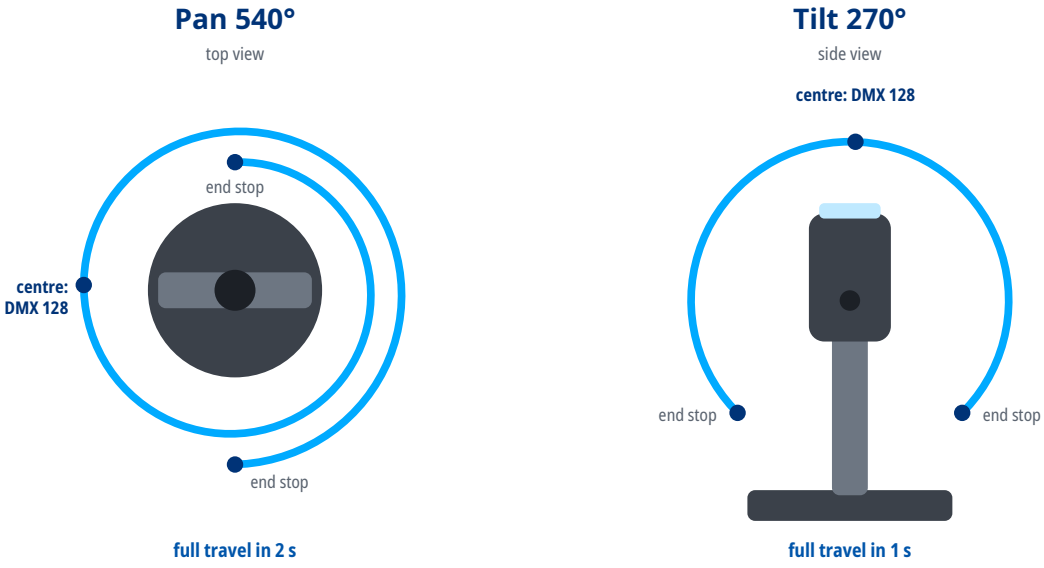
⚠ CAUTION

- 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



Full-travel times as stated in the GDTF file.

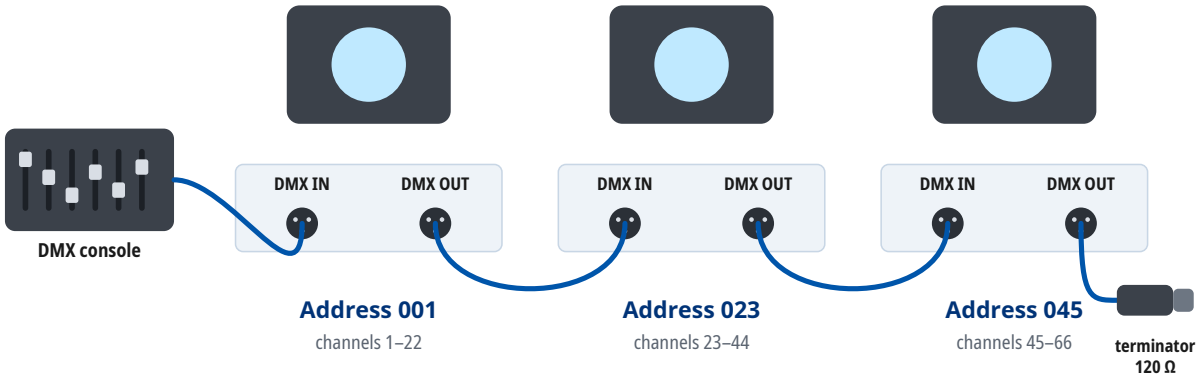
5 Installation

> ⚠ **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: 23 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 22ch: every unit occupies 22 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

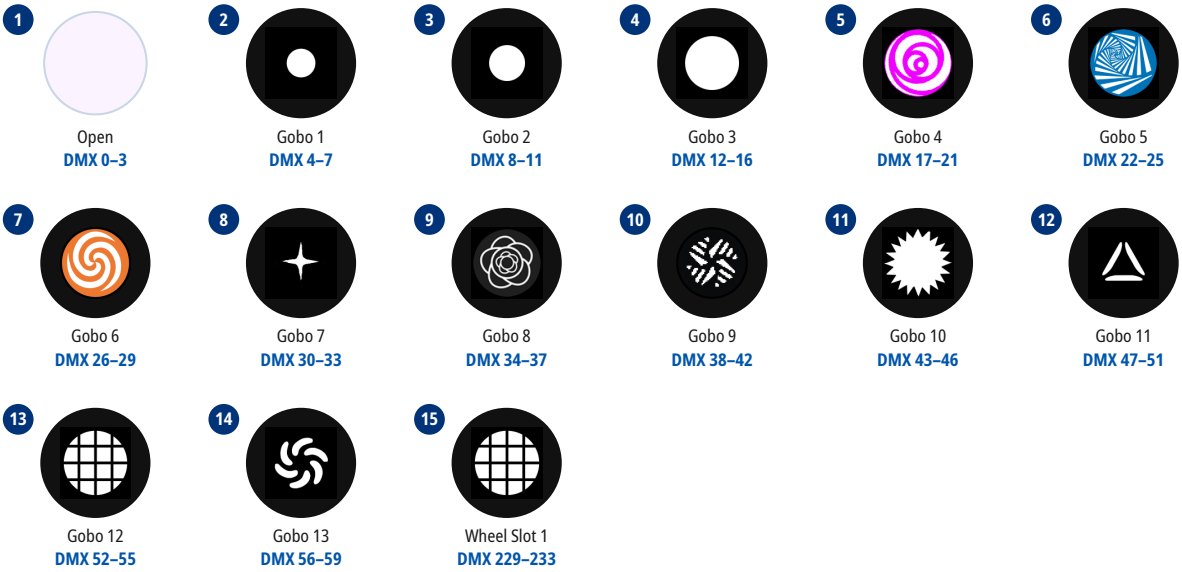
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “22ch”: 22.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “22ch”, you can use, for example, the start addresses 1, 23, 45, 67.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.
- The device supports RDM (Remote Device Management), two-way communication with the controller over the DMX line.

8 Functions at a glance

Functions in each DMX mode

	22ch 22 channels
Pan / Tilt	1, 3
Dimmer	20
Shutter / strobe	19
Color wheel	7
Gobo wheel	9
Gobo rotation	9–11
Prism	12–14
Frost	22
Zoom	15
Focus	17

Gobo wheel 1



1 Open
DMX 0–3

2 Gobo 1
DMX 4–7

3 Gobo 2
DMX 8–11

4 Gobo 3
DMX 12–16

5 Gobo 4
DMX 17–21

6 Gobo 5
DMX 22–25

7 Gobo 6
DMX 26–29

8 Gobo 7
DMX 30–33

9 Gobo 8
DMX 34–37

10 Gobo 9
DMX 38–42

11 Gobo 10
DMX 43–46

12 Gobo 11
DMX 47–51

13 Gobo 12
DMX 52–55

14 Gobo 13
DMX 56–59

15 Wheel Slot 1
DMX 229–233

Prism 1



1 Open
DMX 0–20

2 Prism 24 facet
DMX 255

Gobo wheel 2

1 Open

2 
Animation Wheel

Color wheel

1 Open
DMX 0–4

2 Red
DMX 9–12

3 Orange
DMX 18–21

4 Blue
DMX 26–29

5 Green
DMX 35–38

6 Magenta
DMX 43–46

7 Yellow
DMX 52–55

8 Cyan
DMX 60–63

9 Light Green
DMX 69–72

10 Pink
DMX 75–81

11 Ctw
DMX 86–89

12 Uv
DMX 94–98

13 Cto1
DMX 103–106

14 Cto2
DMX 111–115

15 Ctb
DMX 120–123

Gobo wheel 3

1 Open
DMX 0

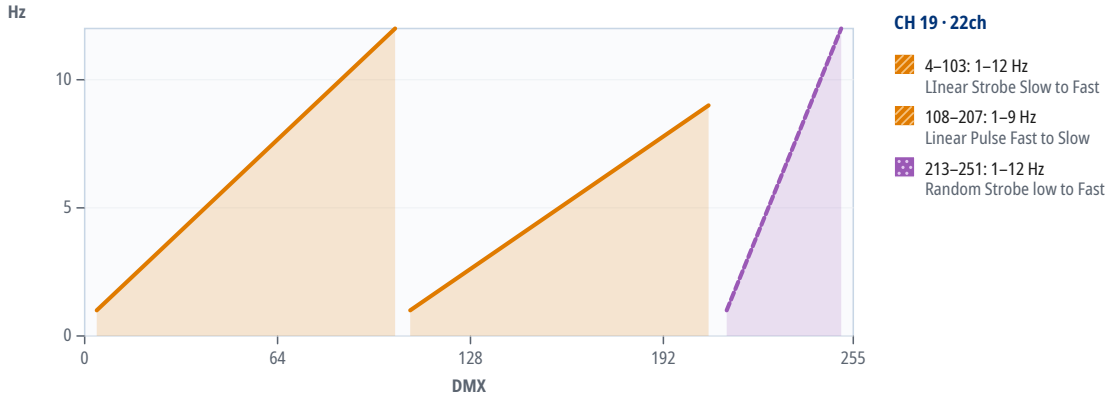
2 
Frost
DMX 255

Prism 2

1 Open
DMX 0–127

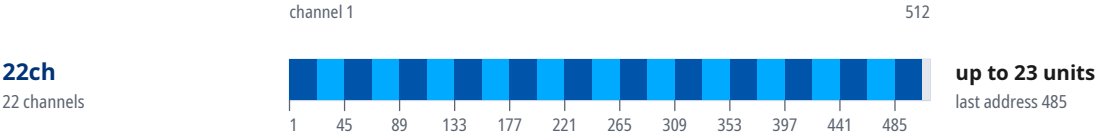
2 
6 facets
6 facet
DMX 128–255

Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “22ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	111	11	221	16	331
2	23	7	133	12	243	17	353
3	45	8	155	13	265	18	375
4	67	9	177	14	287	19	397
5	89	10	199	15	309	20	419

RDM personalities

Mode	Channels	RDM personality
22ch	22	1

Mode 22ch

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 19 Shutter at 104–107, 208–212 or 252–255 “Open”; CH 20 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 7 Colors 54, CH 19 Shutter 255, CH 20 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan
		128	Home
		128–255	Pan
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Tilt
		128	Home
		128–255	Tilt
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Function		Unused Range 1
		0–255	Unused Range 1
6	Reset	0–25	Unused Range
		26–76	Effect Reset
		77–127	Pan / Tilt Reset
		128–255	Fixture Reset
7	Colors		Color Wheel (1)
		0–4	Open
		5–8	White/Red
		9–12	Red

CH	Function	DMX	Description
7	Colors (continued)	13–17	Red/Orange
		18–21	Orange
		22–25	Orange/Blue
		26–29	Blue
		30–34	Blue/Green
		35–38	Green
		39–42	Green/Magenta
		43–51	Magenta
		52–59	Yellow
		60–68	Cyan
		69–74	Light Green
		75–85	Pink
		86–93	Ctw
		94–102	Uv
		103–110	Cto1
		111–119	Cto2
		120–127	Ctb
		128–255	Color Wheel (1)
8	Colors Fine	0–255	Fine adjustment of CH 7
9	Gobo	0–3	Gobo: OPEN
		4–7	GOBO 1
		8–11	GOBO 2
		12–16	GOBO 3
		17–21	GOBO 4
		22–25	GOBO 5
		26–29	GOBO 6
		30–33	GOBO 7
		34–37	Gobo 8
		38–42	Gobo 9
		43–46	Gobo 10
		47–51	Gobo 11
		52–55	Gobo 12
		56–59	Gobo 13
		60–71	Gobo
		72	<<<
		73–92	<<< ... <<
		93	<<
		94–112	<< ... <
		113	<
		114–117	Gobo 1 Wheel Speed: Stop
		118	>
		119–138	> ... >>

CH	Function	DMX	Description
9	Gobo (continued)	139	>>
		140–158	>> ... >>>
		159	>>>
		160–165	Gobo 1 Shake: GOBO 1 (1–10 Hz)
		166–170	Gobo 1 Shake: GOBO 2 (1–10 Hz)
		171–175	Gobo 1 Shake: GOBO 3 (1–10 Hz)
		176–181	Gobo 1 Shake: GOBO 4 (1–10 Hz)
		182–186	Gobo 1 Shake: GOBO 5 (1–10 Hz)
		187–191	Gobo 1 Shake: GOBO 6 (1–10 Hz)
		192–196	Gobo 7 (1–10 Hz)
		197–202	Gobo 1 Shake: Gobo 8 (1–10 Hz)
		203–207	Gobo 1 Shake: Gobo 9 (1–10 Hz)
		208–212	Gobo 1 Shake: Gobo 10 (1–10 Hz)
		213–218	Gobo 1 Shake: Gobo 11 (1–10 Hz)
		219–223	Gobo 1 Shake: Gobo 12 (1–10 Hz)
		224–228	Gobo 1 Shake: Gobo 13 (1–10 Hz)
		229–233	Gobo 14 (1–10 Hz)
		234–239	Gobo 15 (1–10 Hz)
		240–244	Gobo 16 (1–10 Hz)
		245–249	Gobo 17 (1–10 Hz)
		250–255	Gobo 18 (1–10 Hz)
10	Gobo Spin	0–255	
11	Gobo Rotation Speed	0–255	
12	Prism		Prism 4 Faced
		0–20	Open
		21–254	Open ... 24 Facet Prism
		255	24 Facet Prism
13	Prism 2		Prism 8 Facet
		0–127	Open
		128–255	Prism 8 Facet
14	Prism Rotation Speed	0–21	CW 0 TO 90
		22–42	CW 90 to 180
		43–63	CW 180 to 270
		64–84	CW 270 to 360
		85–105	CW 360 to 450
		106–127	CW 450 to 540
		128	CW
		129–190	CW ... Stop
		191	Pos Rot Prism 4 facet: Stop
		192–254	Stop ... CCW
		255	CCW
15	Zoom	0–128	Min ... Home

CH	Function	DMX	Description
15	Zoom (continued)	128–255	Home … Max
		255	Max
16	Zoom Fine	0–255	Fine adjustment of CH 15
17	Focus	0–255	Min … Max
		255	Max
18	Focus Fine	0–255	Fine adjustment of CH 17
19	Shutter	0–3	Closed
		4	1Hz
		5–102	1Hz … 25Hz
		103	25Hz
		104–107	Open
		108	Linear Pulse Fast to Slow: Fast
		109–206	Linear Pulse Fast to Slow: Fast … Slow
		207	Linear Pulse Fast to Slow: Slow
		208–212	Open
		213–225	Random Strobe low to Fast: Fast
		226–238	Med
		239–251	Random Strobe low to Fast: Slow
		252–255	Open
20	Dimmer	0–255	Close … Open
		255	Open
21	Dimmer Fine	0–255	Fine adjustment of CH 20
22	Frost	0	Open
		1–254	Open … Frost
		255	Frost

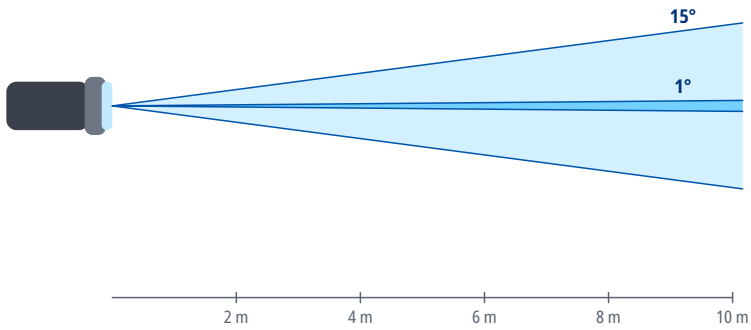
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	600 W
Luminous flux	12,000 lm
Color temperature	8,000 K
Color rendering index (CRI)	70
Optics	
Zoom	1–15°
Movement	
Pan	540°
Tilt	270°
Control	
DMX connection	5-pin XLR IN/OUT
RJ45 connectors	RJ45
RDM	yes (manufacturer ID 0x4350, device model ID 0x10B0)
Electrical	
Power connectors	powerCON TRUE1 IN
Dimensions and construction	
Weight	23 kg
Operating environment	
Operating temperature	-10 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–12 Hz
Prism 1 rotation	up to 570 °/s (95 rpm)

Spot diameter



Distance	Ø 1°	Ø 15°
2 m	0.03 m	0.53 m
4 m	0.07 m	1.1 m
6 m	0.1 m	1.6 m
8 m	0.14 m	2.1 m
10 m	0.17 m	2.6 m
15 m	0.26 m	3.9 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.