DMX REFERENCE

BAC504

User Test



Manufacturer	User Test
GDTF file	User_Test_BAC504_39400.gdtf
GDTF revision	V1.9 by Gui · 2023-05-01
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1 About this manual

This document describes the BAC504 by User Test. It was compiled from the GDTF file User_Test_BAC504_39400.gdtf from the GDTF-Share library.

File revision: “V1.9 by Gui”.

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 User Test; 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
Power consumption	120 W
Weight	3.2 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
2 Ch	2	256	1, 3, 5, 7, ...
3 Ch	3	170	1, 4, 7, 10, ...
4A Ch	4	128	1, 5, 9, 13, ...
4 Ch	4	128	1, 5, 9, 13, ...
8 Ch	8	64	1, 9, 17, 25, ...

No light? Check these channels

- 2 Ch: CH 1 Dimmer above 0
- 4A Ch: CH 1 Dimmer above 0; CH 2 Shutter at 0 “Open”
- 8 Ch: CH 1 Dimmer above 0; CH 2 Shutter at 0 “Open”


Read the manual before use


Risk of electric shock


Do not stare into the light


Indoor use only

3 Safety instructions


Read the manual before use


Risk of electric shock


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

- Connect the device only to a properly installed mains outlet with a protective earth (ground) contact. The outlet or other means of disconnection must remain easily accessible.
- Power supply: 240 V, 50/60 Hz. Before connecting, make sure that the mains voltage matches this value and the value on the rating plate of the device.
- Do not connect the device to a dimmer or to a dimmed circuit.
- Use only the original power cable or a cable with identical ratings. Protect the cable from damage, do not run it over sharp edges, and never unplug it by pulling on the cable.
- When connecting several devices to one circuit, do not exceed its permitted load.
- Do not touch the device with wet hands.

⚠ 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.

4 Installation

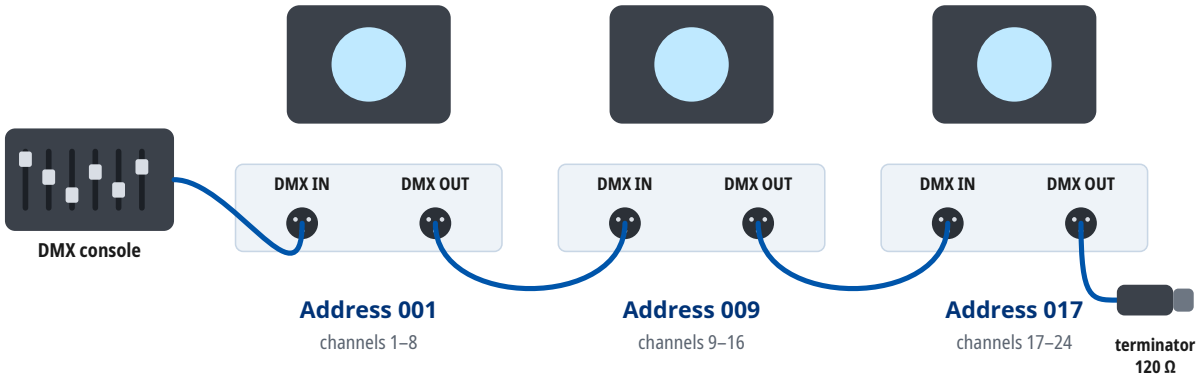
⚠ WARNING

- 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: 3.2 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.

5 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 8 Ch: every unit occupies 8 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.

6 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 “8 Ch”: 8.
- 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 “8 Ch”, you can use, for example, the start addresses 1, 9, 17, 25.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

7 Functions at a glance

Functions in each DMX mode

	2 Ch 2 channels	3 Ch 3 channels	4A Ch 4 channels	4 Ch 4 channels	8 Ch 8 channels
Dimmer	1	✓	1	✓	1
Shutter / strobe			2		2
Color mixing		1–3		1–4	3–6
Color wheel	2		3		7
Effects / macros			4		8

Color wheel

1 Black
DMX 0–9

2 Red
DMX 10–19

3 Green
DMX 20–29

4 Blue
DMX 30–39

5 White
DMX 40–49

6 Yellow
DMX 50–59

7 Magenta
DMX 60–69

8 Cyan
DMX 70–79

9 Dark Orange
DMX 80–89

10 Green Yellow
DMX 90–99

11 Salmon
DMX 100–109

12 Turquoise
DMX 110–119

13 Light Green
DMX 120–129

14 Orange
DMX 130–139

15 Straw
DMX 140–149

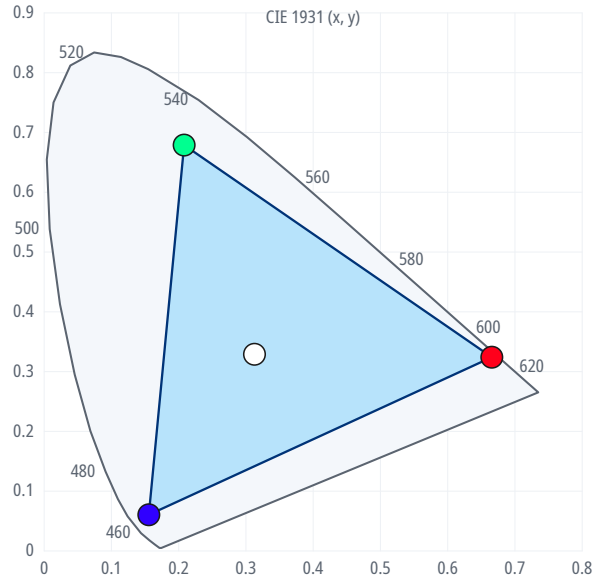
16 Lavender
DMX 150–159

17 Light Blue
DMX 160–169

18 Dark Blue
DMX 170–179

19 Pink
DMX 180–255

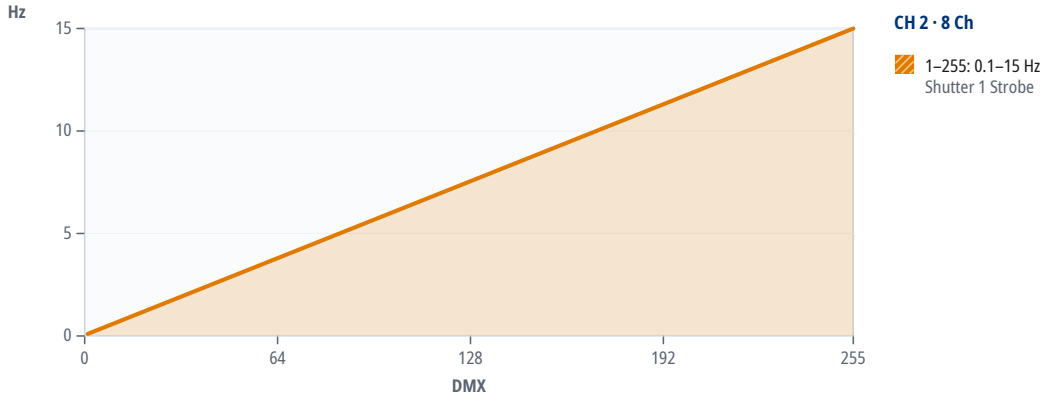
LED colors and the colors they mix



LED	x	y	nm
R	0.666	0.324	626
G	0.208	0.679	527
B	0.156	0.061	400
W	0.313	0.329	

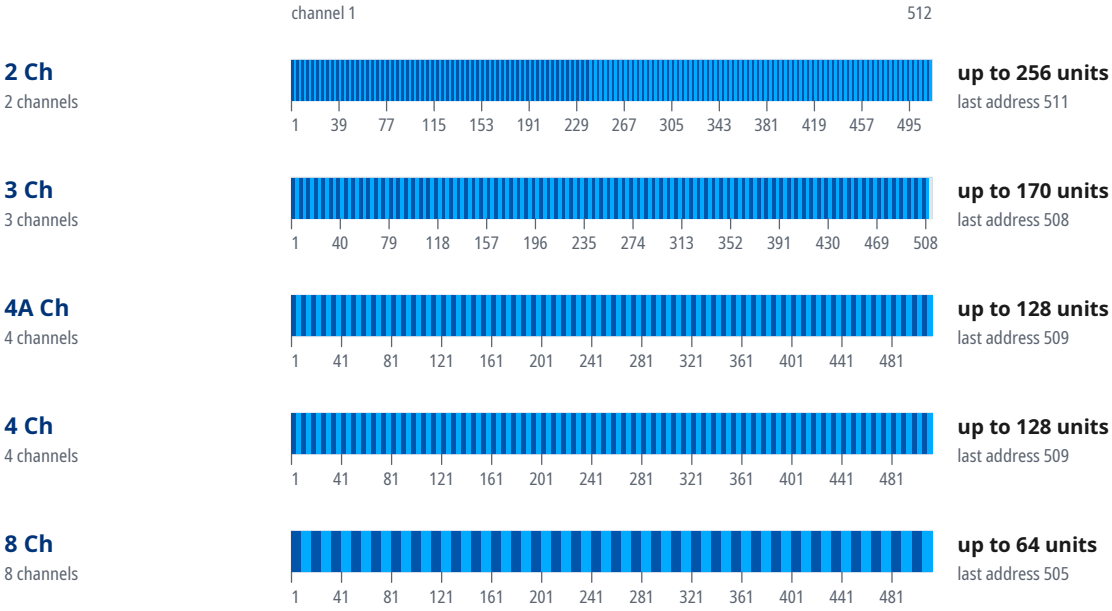
The shaded area holds the colors the LEDs can mix; the dots are the LED colors the GDTF file states.

Strobe rate



8 DMX channels

Units in one DMX universe



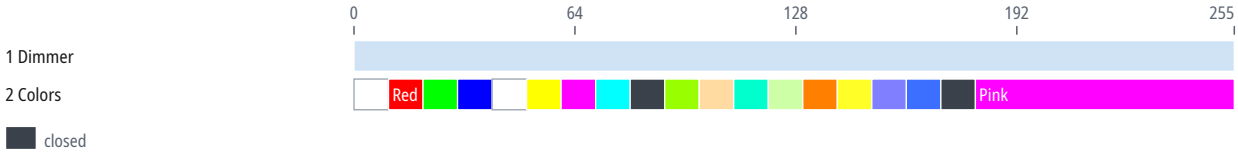
Start addresses of 20 units in the mode “8 Ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	41	11	81	16	121
2	9	7	49	12	89	17	129
3	17	8	57	13	97	18	137
4	25	9	65	14	105	19	145
5	33	10	73	15	113	20	153

Mode 2 Ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance

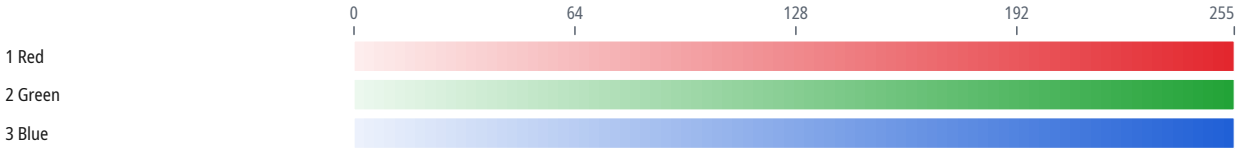


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Colors	0–9	Black
		10–19	Red
		20–29	Green
		30–39	Blue
		40–49	White
		50–59	Yellow
		60–69	Magenta
		70–79	Cyan
		80–89	Dark Orange
		90–99	Green Yellow
		100–109	Salmon
		110–119	Turquoise
		120–129	Light Green
		130–139	Orange
		140–149	Straw
		150–159	Lavender
		160–169	Light Blue
		170–179	Dark Blue
		180–255	Pink

Mode 3 Ch

The GDTF file gives these values for a console's Highlight function: CH 1 Red 255, CH 2 Green 255, CH 3 Blue 255.

Channel functions at a glance

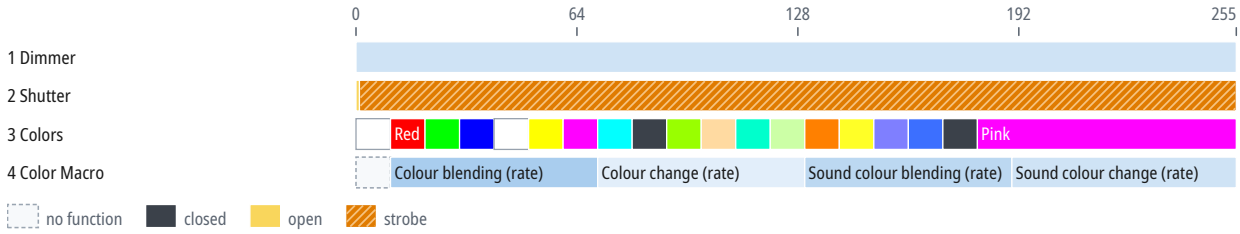


CH	Function	DMX	Description
1	Red	0–255	
2	Green	0–255	
3	Blue	0–255	

Mode 4A Ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0.

Channel functions at a glance

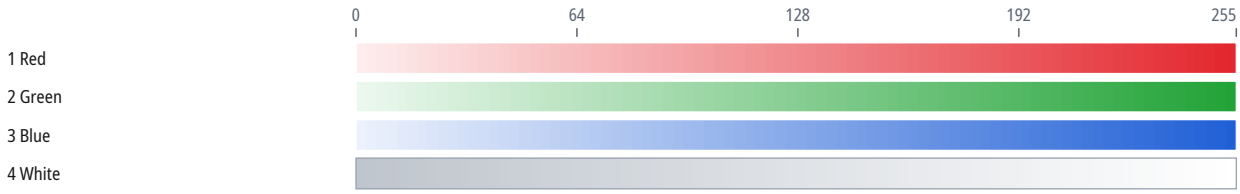


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Shutter	0	Shutter: Open
		1–255	Shutter 1 Strobe (0.1–15 Hz)
3	Colors		Same as CH 2 in the mode “2 Ch” (p. 9)
4	Color Macro	0–9	No Function
		10–69	Colour blending (rate)
		70–129	Colour change (rate)
		130–189	Sound colour blending (rate)
		190–255	Sound colour change (rate)

Mode 4 Ch

The GDTF file gives these values for a console's Highlight function: CH 1 Red 255, CH 2 Green 255, CH 3 Blue 255, CH 4 White 255.

Channel functions at a glance

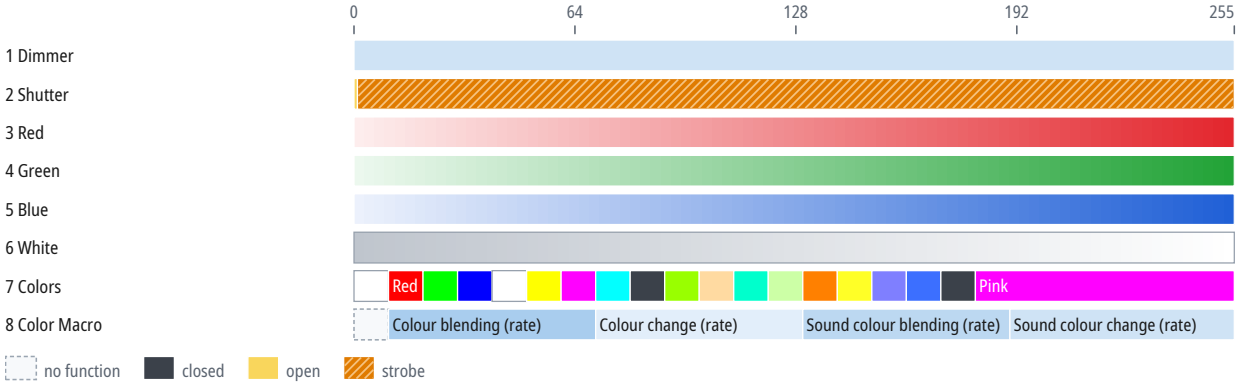


CH	Function	DMX	Description
1	Red	0–255	
2	Green	0–255	
3	Blue	0–255	
4	White	0–255	

Mode 8 Ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0, CH 3 Red 255, CH 4 Green 255, CH 5 Blue 255, CH 6 White 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0–255	
2	Shutter		Same as CH 2 in the mode “4A Ch” (p. 10)
3	Red	0–255	
4	Green	0–255	
5	Blue	0–255	
6	White	0–255	
7	Colors		Same as CH 2 in the mode “2 Ch” (p. 9)
8	Color Macro		Same as CH 4 in the mode “4A Ch” (p. 10)

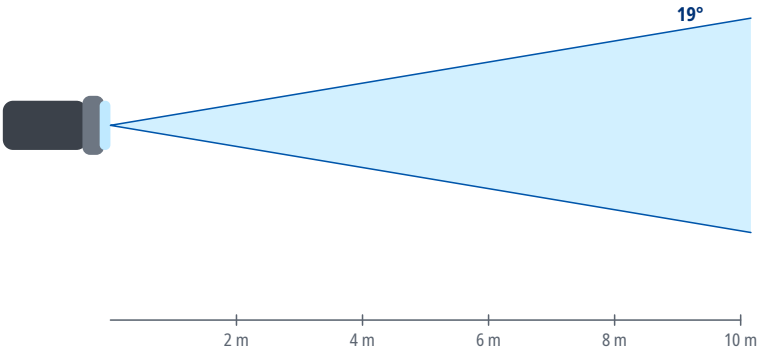
9 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	120 W
Luminous flux	1,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	100
Optics	
Beam angle	19°
Control	
DMX connection	3-pin XLR IN/OUT
Electrical	
Power supply	240 V, 50/60 Hz
Power consumption	120 W
Power connectors	powerCON TRUE1 IN/OUT
Dimensions and construction	
Weight	3.2 kg
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.1–15 Hz

Spot diameter



Distance	Ø 19°
2 m	0.67 m
4 m	1.3 m
6 m	2 m
8 m	2.7 m
10 m	3.3 m
15 m	5 m

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

10 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.

11 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.

12 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.