DMX REFERENCE

LED Flash Matrix 250

LED Flash Matrix 250 Strobe Chaser Blinder

Cameo

Manufacturer	Cameo
GDTF file	Cameo_LED_Flash_Matrix_250_27969.gdtf
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1 About this manual

This document describes the LED Flash Matrix 250 Strobe Chaser Blinder by Cameo. It was compiled from the GDTF file Cameo_LED_Flash_Matrix_250_27969.gdtf from the GDTF-Share library.

File revision: “v006”.

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 Cameo; 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	3 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
30ch	30	17	1, 31, 61, 91, ...
25ch	25	20	1, 26, 51, 76, ...
9ch	9	56	1, 10, 19, 28, ...
5ch	5	102	1, 6, 11, 16, ...
3ch	3	170	1, 4, 7, 10, ...
2ch	2	256	1, 3, 5, 7, ...
1ch	1	512	1, 2, 3, 4, ...

No light? Check these channels

- 30ch: CH 1 Dimmer 1 above 0; CH 2 Shutter at 0 “Shutter open”; CH 6 Dimmer above 0 (the same in each of the 25 cells)
- 25ch: CH 1 Dimmer above 0 (the same in each of the 25 cells)
- 9ch: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”
- 5ch: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”
- 3ch: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”
- 2ch: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”


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

- This device produces very intense flashes of light.
- Flash rates of about 3 to 30 flashes per second carry the highest risk for people with photosensitive epilepsy.
- Do not aim the device into the eyes of the audience or performers at close range.
- At public events, always give clear advance notice that strobe effects will be used.

4 Installation

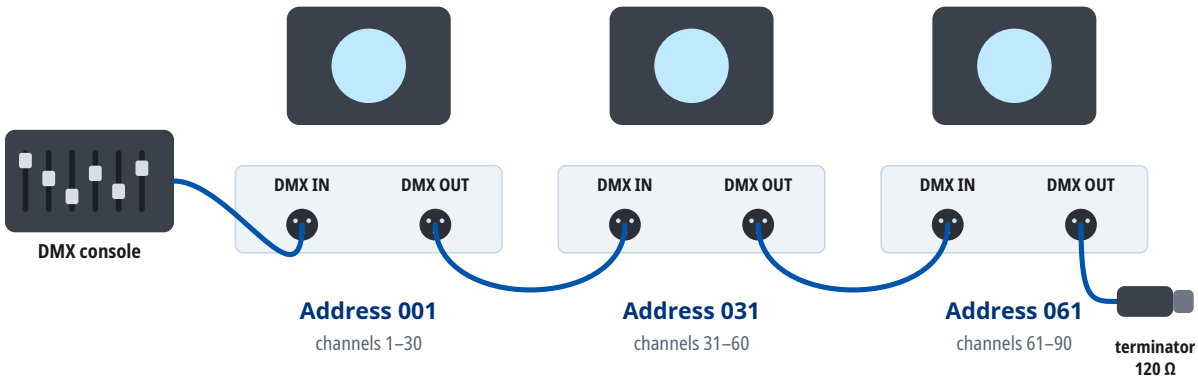
⚠ WARNING

- 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 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 30ch: every unit occupies 30 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

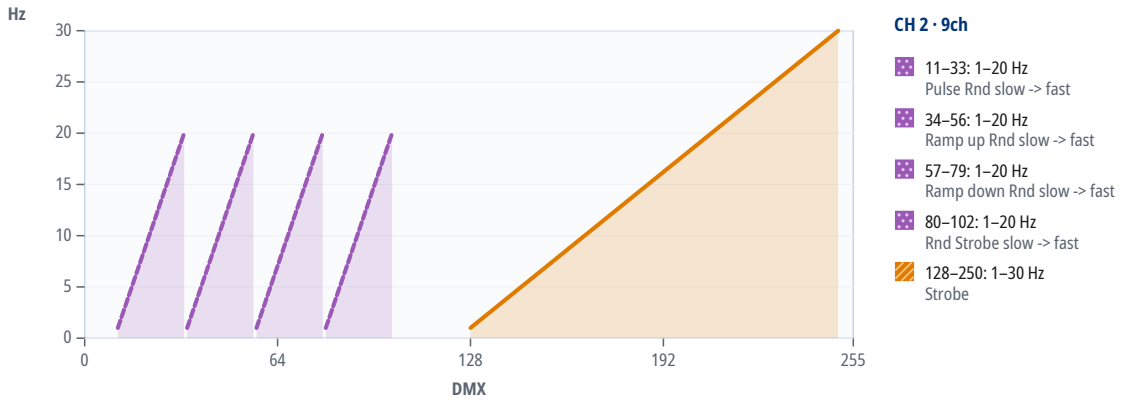
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “30ch”: 30.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “30ch”, you can use, for example, the start addresses 1, 31, 61, 91.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

7 Functions at a glance

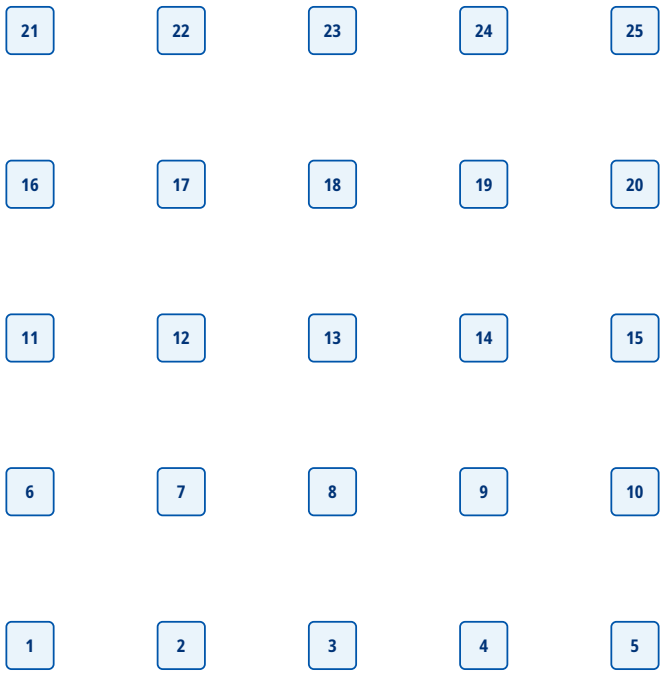
Functions in each DMX mode

	30ch 30 channels	25ch 25 channels	9ch 9 channels	5ch 5 channels	3ch 3 channels	2ch 2 channels	1ch 1 channel
Dimmer	1, 6–30	1–25	1	1	1	1	
Shutter / strobe	2, 3		2	2, 3	2, 3	2	
Animation wheel			5				
Effects / macros	4, 5			4, 5			1

Strobe rate



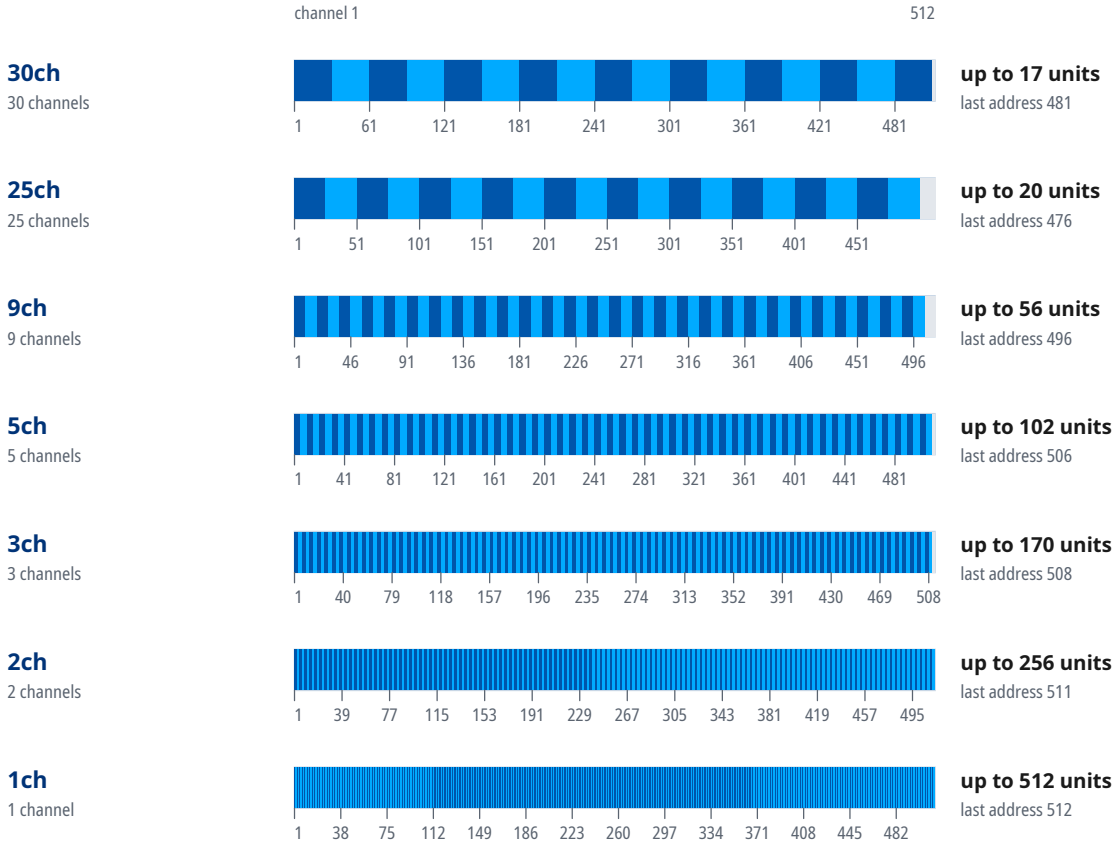
Cells (pixels)



Cells where the GDTF file places them (seen from above), 25 in all; numbered in the order of their first DMX channel in the mode “9ch”.

8 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “30ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	151	11	301	16	451
2	31	7	181	12	331	17	481
3	61	8	211	13	361	18	U2 · 1
4	91	9	241	14	391	19	U2 · 31
5	121	10	271	15	421	20	U2 · 61

Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 30ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer 1 above 0; CH 2 Shutter at 0 “Shutter open”; CH 6 Dimmer above 0 (the same in each of the 25 cells). The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 1 255, CH 2 Shutter 0, CH 6 Dimmer 255 (the same in each of the 25 cells).

CH	Function	DMX	Description
1	Dimmer 1	0	Closed
		1–254	Closed ... Open
		255	Open

CH	Function	DMX	Description
2	Shutter	0	Shutter open
		1–5	Shutter 1 open
		6	Slow strobe
		7–254	Slow strobe ... fast strobe
		255	Fast strobe
3	Strobe Duration	0–64	Short flash
		65–192	Medium flash
		193–255	Long flash
4	Effects	0–5	Auto Programs off
		6–23	Auto Programs 1
		24–41	Auto Programs 2
		42–89	Auto Programs 3
		90–107	Auto Programs 4
		108–125	Auto Programs 5
		126–143	Auto Programs 6
		144–161	Auto Programs 7
		162–179	Auto Programs 8
		180–197	Auto Programs 9
		198–215	Auto Programs 10
		216–233	Auto Programs 11
		234–255	Sound Mode
5	Effects Speed		When CH 4 is 0–233:
		0	Slow
		1–254	Slow ... fast
		255	Fast
			When CH 4 is 234–255:
		0–255	
6	Dimmer 2	0	Closed
		1–254	Closed ... Open
		255	Open

CH 6–30: 25 cells of 1 channel each. Every cell works as cell 1 in the table above (CH 6); the table below gives each cell's channel numbers.

Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer
1	6	2	7	3	8	4	9	5	10	6	11
7	12	8	13	9	14	10	15	11	16	12	17
13	18	14	19	15	20	16	21	17	22	18	23
19	24	20	25	21	26	22	27	23	28	24	29
25	30										

Mode 25ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0 (the same in each of the 25 cells). The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255 (the same in each of the 25 cells).

CH	Function	DMX	Description
1	Dimmer 1	0	Closed
		1–254	Closed ... Open
		255	Open

CH 1–25: 25 cells of 1 channel each. Every cell works as cell 1 in the table above (CH 1); the table below gives each cell's channel numbers.

Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer
1	1	2	2	3	3	4	4	5	5	6	6
7	7	8	8	9	9	10	10	11	11	12	12
13	13	14	14	15	15	16	16	17	17	18	18
19	19	20	20	21	21	22	22	23	23	24	24
25	25										

Mode 9ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0.

CH	Function	DMX	Description
1	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
2	Shutter	0–5	Shutter open
		6–10	Shutter closed
		11–33	Pulse Rnd slow -> fast (1–20 Hz)
		34–56	Ramp up Rnd slow -> fast (1–20 Hz)
		57–79	Ramp down Rnd slow -> fast (1–20 Hz)
		80–102	Rnd Strobe slow -> fast (1–20 Hz)
		103–127	Break Effect (0.2–1 Hz)
		128–249	Shutter Strobe slow -> fast
		250	Strobe
		251–255	Shutter open: Open
3	Media Folder 1	0–5	No Media
		6–131	Letters
		132–255	Numbers + Symbols
4	Media Content		When CH 3 is 6–131:
		0–4	A
		5–9	B
		10–14	C

CH	Function	DMX	Description
4	Media Content (continued)	15–19	D
		20–24	E
		25–29	F
		30–34	G
		35–39	H
		40–44	I
		45–49	J
		50–54	K
		55–59	L
		60–64	M
		65–69	N
		70–74	O
		75–79	P
		80–84	Q
		85–89	R
		90–94	S
		95–99	T
		100–104	U
		105–109	V
		110–114	W
		115–119	X
		120–124	Y
		125–129	Z
		130–255	No function
			When CH 3 is 132–255:
		0–4	0
		5–9	1
		10–14	2
		15–19	3
		20–24	4
		25–29	5
		30–34	6
		35–39	7
		40–44	8
		45–49	9
		50–54	+
		55–59	-
		60–64	:
		65–69	%
		70–74	Exclamation Mark
		75–79	Question Mark
		80–84	=

CH	Function	DMX	Description
4	Media Content (continued)	85–89	<
		90–94	>
		95–99	Accent up
		100–104	Accent down
		105–109	(
		110–114	)
		115–119	Arrow up
		120–124	Arrow right
		125–129	Arrow left
		130–134	Arrow down
		135–139	Arrow top left
		140–144	Arrow top right
		145–149	Arrow bottom left
		150–154	Arrow bottom right
		155–159	All LEDs on
		160–255	No function
			When CH 3 is 0–5:
		0–255	
5	Pattern Mode	0–5	Pattern Stop
		6–47	Pattern Rotate (315°)
		48–69	Pattern Stop
		70–101	Top > Bottom
		102–133	Bottom > Top
		134–165	Left > Right
		166–197	Right > Left
		198–229	Pattern Stop
		230–255	Sound Trigger
6	Pattern Transition	0–5	Off
		6–255	0s > 5s (0–5 s)
7	Pattern Fade	0–5	Fade/Wake off
		6–127	Fade Effect less > more
		128–255	Wake Effect less > more
8	Pattern Invert	0–5	Off
		6–84	Invert
		85–163	Swap
		164–255	Swap + Invert
9	Dimmer Invert	0	Invert 0%
		1–254	Invert 0% ... Invert 100%
		255	Invert 100%

Mode 5ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0.

CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “9ch” (p. 10)
2	Shutter		Same as CH 2 in the mode “9ch” (p. 10)
3	Strobe Duration		Same as CH 3 in the mode “30ch” (p. 9)
4	Effects		Same as CH 4 in the mode “30ch” (p. 9)
5	Effects Speed		Same as CH 5 in the mode “30ch” (p. 9)

Mode 3ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0.

CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “9ch” (p. 10)
2	Shutter		Same as CH 2 in the mode “9ch” (p. 10)
3	Strobe Duration		Same as CH 3 in the mode “30ch” (p. 9)

Mode 2ch

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 2 Shutter at 0–5 “Shutter open” or 251–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Shutter 0.

CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “9ch” (p. 10)
2	Shutter		Same as CH 2 in the mode “9ch” (p. 10)

Mode 1ch

CH	Function	DMX	Description
1	Effects		Same as CH 4 in the mode “30ch” (p. 9)

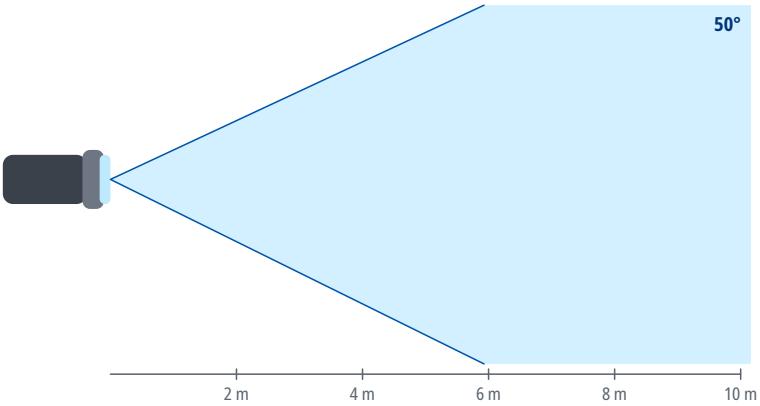
9 Technical specifications

Parameter	Value
Light source	LED
Weight	3 kg
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–30 Hz
Strobe flash duration	0–0.51 s

Spot diameter



Distance	Ø 50°
2 m	1.9 m
4 m	3.7 m
6 m	5.6 m
8 m	7.5 m
10 m	9.3 m
15 m	14 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.