DMX REFERENCE

ACME DOTCHAIN 640 (BAR 640)

DOTCHAIN 640(BAR 640)

ACME



Manufacturer	ACME
GDTF file	ACME_ACME_DOTCHAIN_640_BAR_640_71745.gdtf
GDTF revision	ACME DOTCHAIN 640 (BAR 640) · 2024-08-22
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1 About this manual

This document describes the DOTCHAIN 640(BAR 640) by ACME. It was compiled from the GDTF file ACME_ACME_DOTCHAIN_640_BAR_640_71745.gdtf from the GDTF-Share library.

File revision: “ACME DOTCHAIN 640 (BAR 640)”.

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 ACME; 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	5.6 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Mode1 26DMX	26	19	1, 27, 53, 79, ...
Mode2 10DMX	10	51	1, 11, 21, 31, ...
Mode 3 8DMX	8	64	1, 9, 17, 25, ...
Mode 4 6DMX	6	85	1, 7, 13, 19, ...

No light? Check these channels

- Mode1 26DMX: CH 1 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 2 Dimmer above 0
- Mode2 10DMX: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 Dimmer above 0
- Mode 3 8DMX: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 Dimmer above 0
- Mode 4 6DMX: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 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.

4 Installation

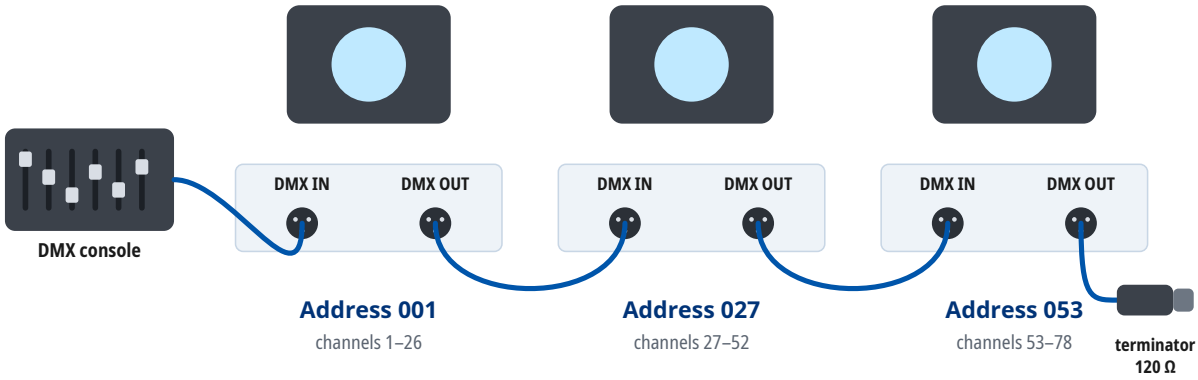
⚠ **WARNING**

- 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: 5.6 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



Mode1 26DMX: every unit occupies 26 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 “Mode1 26DMX”: 26.
- 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 “Mode1 26DMX”, you can use, for example, the start addresses 1, 27, 53, 79.
- 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.

7 Functions at a glance

Functions in each DMX mode

	Mode1 26DMX 26 channels	Mode2 10DMX 10 channels	Mode 3 8DMX 8 channels	Mode 4 6DMX 6 channels
Dimmer	2	6	6	6
Shutter / strobe	1	5	5	5
Color mixing	3–26	1–4	1–4	1–4
Color temperature		7	7	
Color wheel		8	8	
Effects / macros		9, 10		

Color wheel

1 Color: Open
DMX 0–9

2 Color 1
DMX 10–14

3 Color 2
DMX 15–19

4 Color 3
DMX 20–24

5 Color 4
DMX 25–29

6 Color 5
DMX 30–34

7 Color 6
DMX 35–39

8 Color 7
DMX 40–44

9 Color 8
DMX 45–49

10 Color 9
DMX 50–54

11 Color 10
DMX 55–59

12 Color 11
DMX 60–64

13 Color 12
DMX 65–69

14 Color 13
DMX 70–74

15 Color 14
DMX 75–79

16 Color 15
DMX 80–84

17 Color 16
DMX 85–89

18 Color 17
DMX 90–94

19 Color 18
DMX 95–99

20 Color 19
DMX 100–104

21 Color 20
DMX 105–109

22 Color 21
DMX 110–114

23 Color 22
DMX 115–119

24 Color 23
DMX 120–124

25 Color 24
DMX 125–129

26 Color 25
DMX 130–134

27 Color 26
DMX 135–139

28 Color 27
DMX 140–144

29 Color 28
DMX 145–149

30 Color 29
DMX 150–154

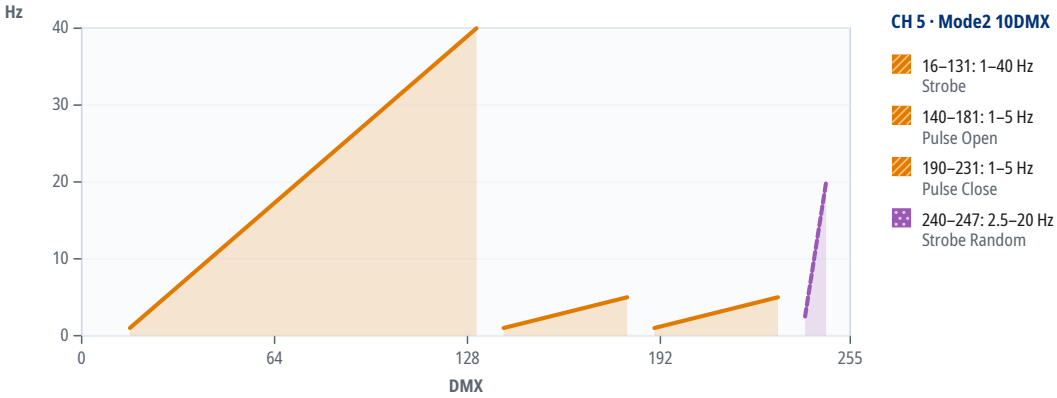
31 Color 30
DMX 155–159

32 Color 31
DMX 160–164

33 Color 32
DMX 165–169

34 Color 33
DMX 170–175

Strobe rate



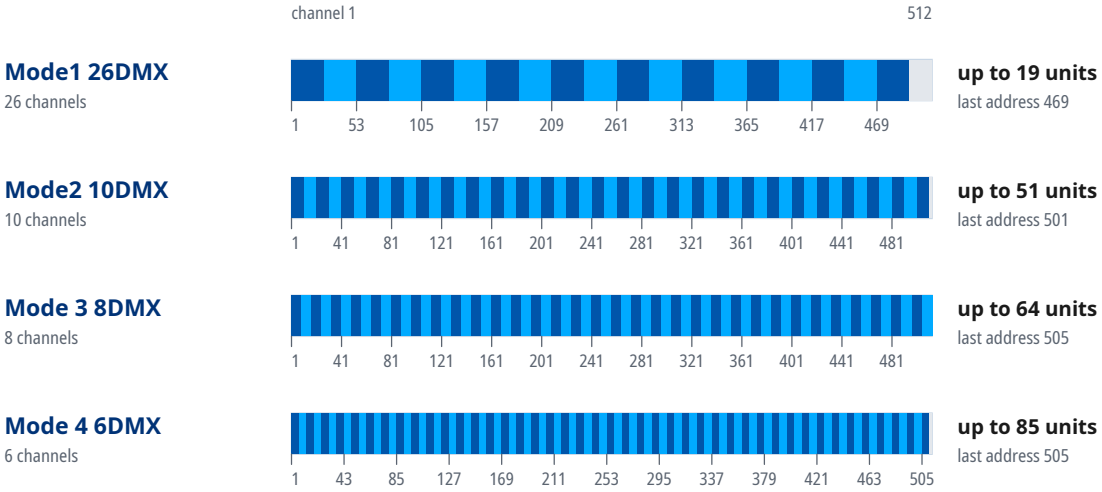
Cells (pixels)



6 cells where the GDTF file places them (seen from above), numbered by their first DMX channel (CH) in the mode “Mode2 10DMX”.

8 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Mode1 26DMX”

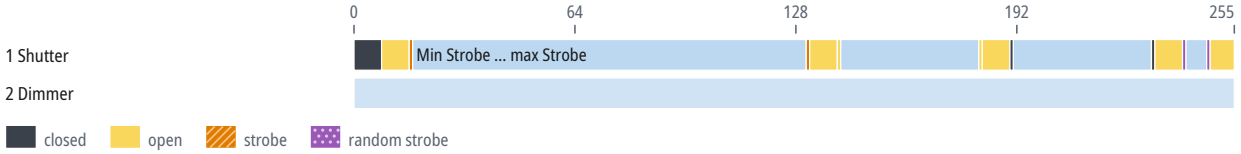
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	131	11	261	16	391
2	27	7	157	12	287	17	417
3	53	8	183	13	313	18	443
4	79	9	209	14	339	19	469
5	105	10	235	15	365	20	U2 · 1

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.

Mode1 26DMX

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 2 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Shutter 255, CH 2 Dimmer 255, CH 3 Red 1 255, CH 4 Green 1 255, CH 5 Blue 1 255, CH 7 Red 2 255, CH 8 Green 2 255, CH 9 Blue 2 255, CH 11 Red 3 255, CH 12 Green 3 255, CH 13 Blue 3 255, CH 15 Red 4 255, CH 16 Green 4 255, CH 17 Blue 4 255, CH 19 Red 5 255, CH 20 Green 5 255, CH 21 Blue 5 255, CH 23 Red 6 255, CH 24 Green 6 255, CH 25 Blue 6 255.

Channel functions at a glance



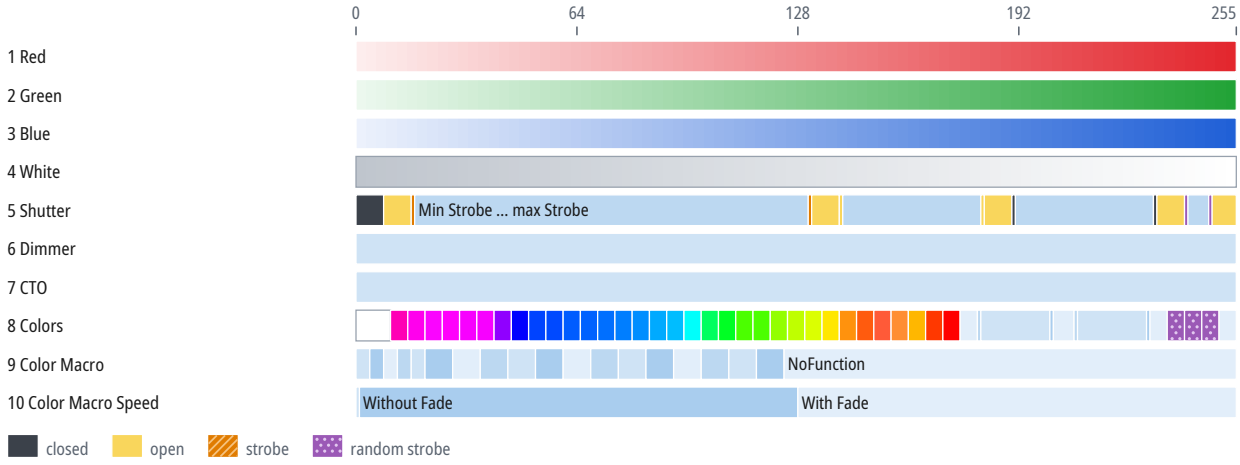
CH	Function	DMX	Description
1	Shutter	0–7	Closed
		8–15	Open
		16	Min Strobe
		17–130	Min Strobe ... max Strobe
		131	Max Strobe
		132–139	Open 2
		140	Min Pulse Open
		141–180	Min Pulse Open ... max Pulse Open
		181	Max Pulse Open
		182–189	Open 3
		190	Min Pulse Close
		191–230	Min Pulse Close ... max Pulse Close
		231	Max Pulse Close
		232–239	Open 4
		240	Min Strobe Ran
		241–246	Min Strobe Ran ... max Strobe Ran
		247	Max Strobe Ran
		248–255	Open 5
2	Dimmer	0–255	
3	Red 1	0–255	
4	Green 1	0–255	
5	Blue 1	0–255	
6	White 1	0–255	
7	Red 2	0–255	
8	Green 2	0–255	
9	Blue 2	0–255	
10	White 2	0–255	
11	Red 3	0–255	
12	Green 3	0–255	

CH	Function	DMX	Description
13	Blue 3	0–255	
14	White 3	0–255	
15	Red 4	0–255	
16	Green 4	0–255	
17	Blue 4	0–255	
18	White 4	0–255	
19	Red 5	0–255	
20	Green 5	0–255	
21	Blue 5	0–255	
22	White 5	0–255	
23	Red 6	0–255	
24	Green 6	0–255	
25	Blue 6	0–255	
26	White 6	0–255	

Mode2 10DMX

If the device receives DMX in this mode but gives no light, check these channels: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 Dimmer above 0. 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, CH 5 Shutter 255, CH 6 Dimmer 255, CH 8 Colors 0.

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	
5	Shutter		Same as CH 1 in the mode “Mode1 26DMX” (p. 9)
6	Dimmer	0–255	
7	CTO	0–255	8000–2500 K
8	Colors	0–9	Color: Open

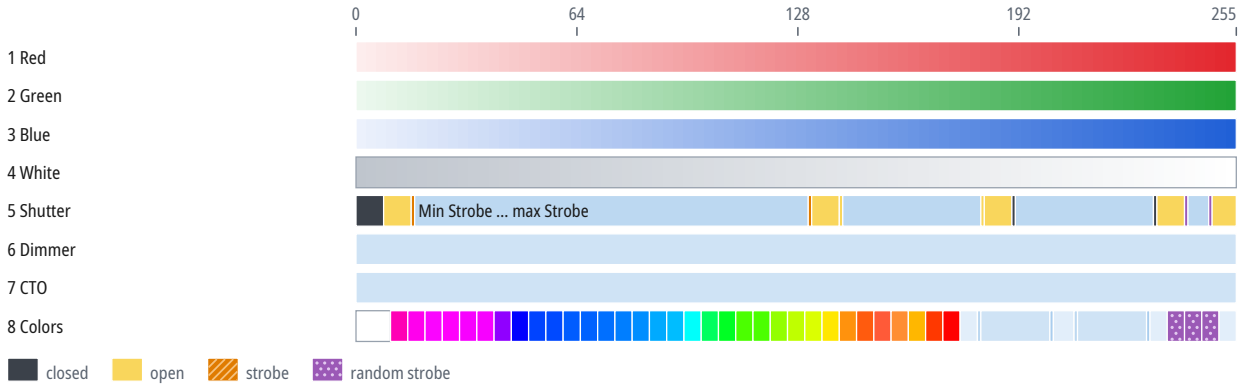
CH	Function	DMX	Description
8	Colors (continued)	10–14	Color 1
		15–19	Color 2
		20–24	Color 3
		25–29	Color 4
		30–34	Color 5
		35–39	Color 6
		40–44	Color 7
		45–49	Color 8
		50–54	Color 9
		55–59	Color 10
		60–64	Color 11
		65–69	Color 12
		70–74	Color 13
		75–79	Color 14
		80–84	Color 15
		85–89	Color 16
		90–94	Color 17
		95–99	Color 18
		100–104	Color 19
		105–109	Color 20
		110–114	Color 21
		115–119	Color 22
		120–124	Color 23
		125–129	Color 24
		130–134	Color 25
		135–139	Color 26
		140–144	Color 27
		145–149	Color 28
		150–154	Color 29
		155–159	Color 30
		160–164	Color 31
		165–169	Color 32
		170–174	Color 33
		175–179	Open
		180	Max CW
		181–200	Max CW ... Min CW
		201	Min CW
		202–207	Stop
		208	Min CCW
		209–228	Min CCW ... Max CCW
		229	Max CCW
		230–234	Open

CH	Function	DMX	Description
8	Colors (continued)	235–239	Random Fast
		240–244	Random Medium
		245–249	Random Slow
		250–255	Open
9	Color Macro	0–3	NoFunction
		4–7	Macro 1
		8–11	Macro 2
		12–15	Macro 3
		16–19	Macro 4
		20–27	Macro 5
		28–35	Macro 6
		36–43	Macro 7
		44–51	Macro 8
		52–59	Macro 9
		60–67	Macro 10
		68–75	Macro 11
		76–83	Macro 12
		84–91	Macro 13
		92–99	Macro 14
		100–107	Macro 15
		108–115	Macro 16
		116–123	Macro 17
		124–255	NoFunction
10	Color Macro Speed	0	NoFunction
		1–127	Without Fade
		128–255	With Fade

Mode 3 8DMX

If the device receives DMX in this mode but gives no light, check these channels: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 Dimmer above 0. 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, CH 5 Shutter 255, CH 6 Dimmer 255, CH 8 Colors 0.

Channel functions at a glance

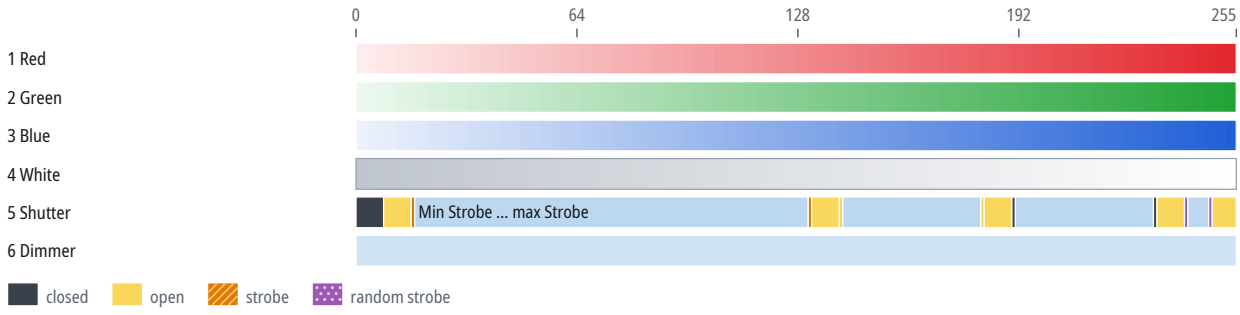


CH	Function	DMX	Description
1	Red	0–255	
2	Green	0–255	
3	Blue	0–255	
4	White	0–255	
5	Shutter		Same as CH 1 in the mode “Mode1 26DMX” (p. 9)
6	Dimmer	0–255	
7	CTO	0–255	8000–2500 K
8	Colors		Same as CH 8 in the mode “Mode2 10DMX” (p. 10)

Mode 4 6DMX

If the device receives DMX in this mode but gives no light, check these channels: CH 5 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 6 Dimmer above 0. 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 5 Shutter 255, CH 6 Dimmer 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	
5	Shutter		Same as CH 1 in the mode “Mode1 26DMX” (p. 9)
6	Dimmer	0–255	

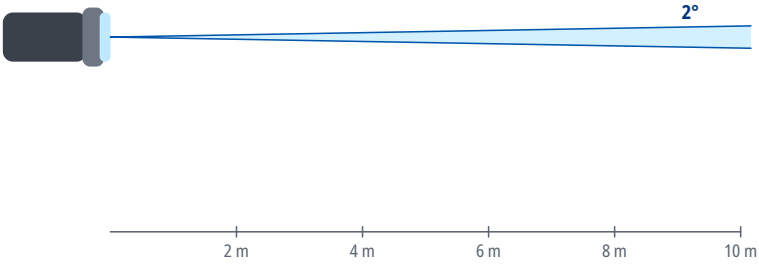
9 Technical specifications

Parameter	Value
Light source	LED
RDM	yes (manufacturer ID 0x3806, device model ID 0x1298)
Weight	5.6 kg
Operating temperature	0 to 45 °C

Speeds and ranges

Parameter	Value
Color temperature range	2500–8000 K
Strobe frequency	1–40 Hz
Color wheel rotation	up to 120 °/s (20 rpm)

Spot diameter



Distance	Ø 2°
2 m	0.07 m
4 m	0.14 m
6 m	0.21 m
8 m	0.28 m
10 m	0.35 m
15 m	0.52 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.