DMX REFERENCE

Hercules

CLF Lighting

Manufacturer	CLF Lighting
GDTF file	CLF_Lighting_Hercules_23945.gdtf
GDTF revision	Convertion from MA Lighting (C-RevNum: 7; Date: 2020-03-10) · 2022-04-07
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1 About this manual

This document describes the Hercules by CLF Lighting. It was compiled from the GDTF file CLF_Lighting_Hercules_23945.gdtf from the GDTF-Share library.

File revision: “Convertion from MA Lighting (C-RevNum: 7; Date: 2020-03-10)”.

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 CLF Lighting; 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	105 W
Weight	5 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
12 channel	12	42	1, 13, 25, 37, ...
6 channel	7	73	1, 8, 15, 22, ...
8 channel	8	64	1, 9, 17, 25, ...
HSI	3	170	1, 4, 7, 10, ...
HSV	3	170	1, 4, 7, 10, ...

No light? Check these channels

- 12 channel: CH 1 Dimmer above 0; CH 8 Shutter at 20–24, 65–69, 85–89, 105–109, 125–129, 145–149, 165–169, 185–189, 205–209, 229 or 245–255 “Open”
- 6 channel: CH 7 Dimmer above 0
- 8 channel: CH 1 Dimmer above 0; CH 8 Shutter at 20–24, 65–69, 85–89, 105–109, 125–129, 145–149, 165–169, 185–189, 205–209, 229 or 245–255 “Open”
- HSI: CH 3 Dimmer above 0
- HSV: CH 3 Dimmer above 0


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: 110–240 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.

⚠ WARNING

- This device emits ultraviolet (UV) radiation, which can harm the eyes and skin.
- Do not look directly into the light source and avoid prolonged exposure of the eyes and skin at close range. Install the device so that people are not exposed at close range.
- People with increased sensitivity to light, including those taking medication that increases this sensitivity, should avoid UV exposure.

⚠ 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

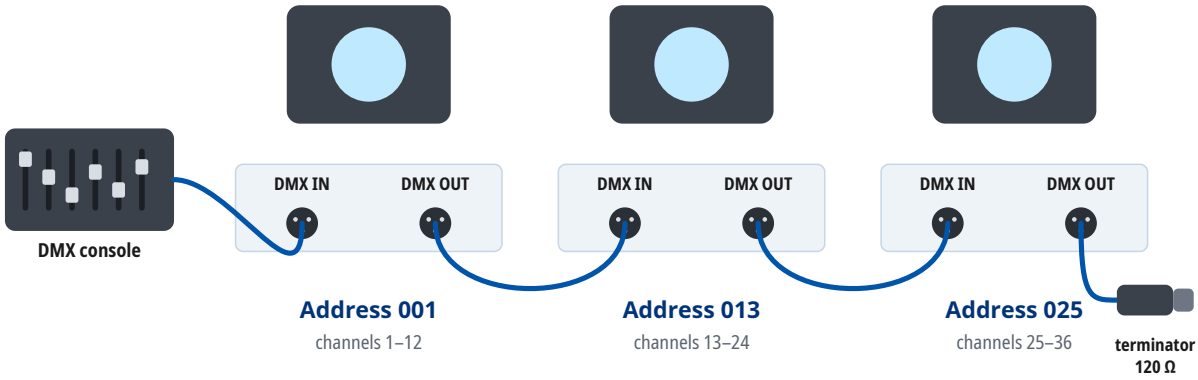
⚠ WARNING

- 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 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 12 channel: every unit occupies 12 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

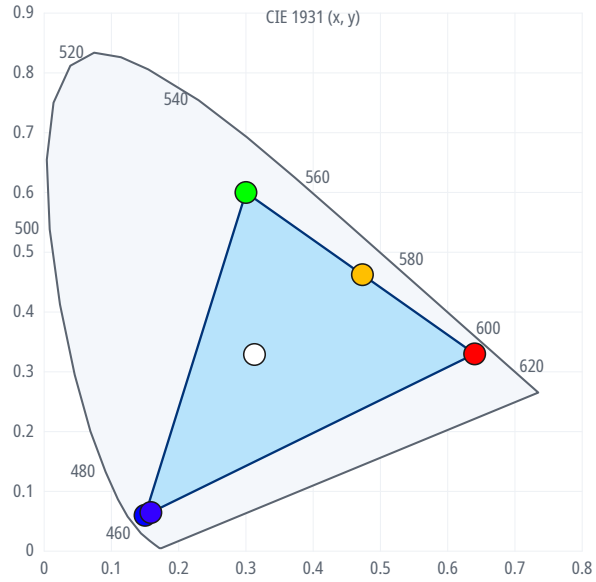
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “12 channel”: 12.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “12 channel”, you can use, for example, the start addresses 1, 13, 25, 37.
- 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

	12 channel 12 channels	6 channel 7 channels	8 channel 8 channels	HSI 3 channels	HSV 3 channels
Dimmer	1	7	1	3	3
Shutter / strobe	8		8		
Color mixing	2–7	1–6	2–7		
Effects / macros	9				

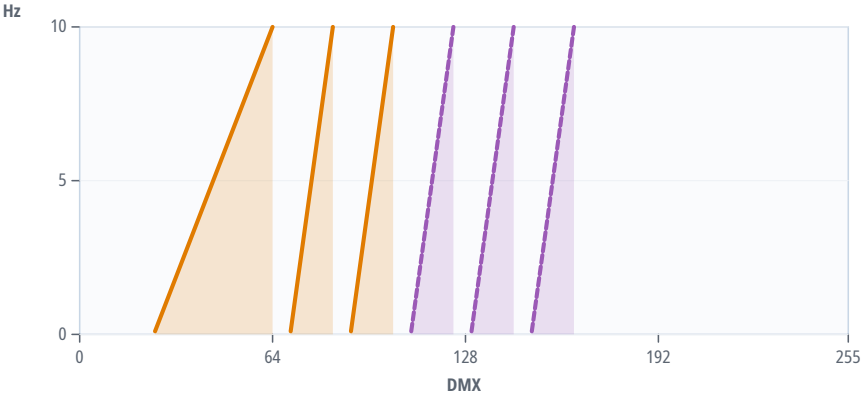
LED colors and the colors they mix



LED	x	y
R	0.640	0.330
G	0.300	0.600
B	0.150	0.060
White	0.313	0.329
Amber	0.473	0.463
UV	0.159	0.065

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

Strobe rate

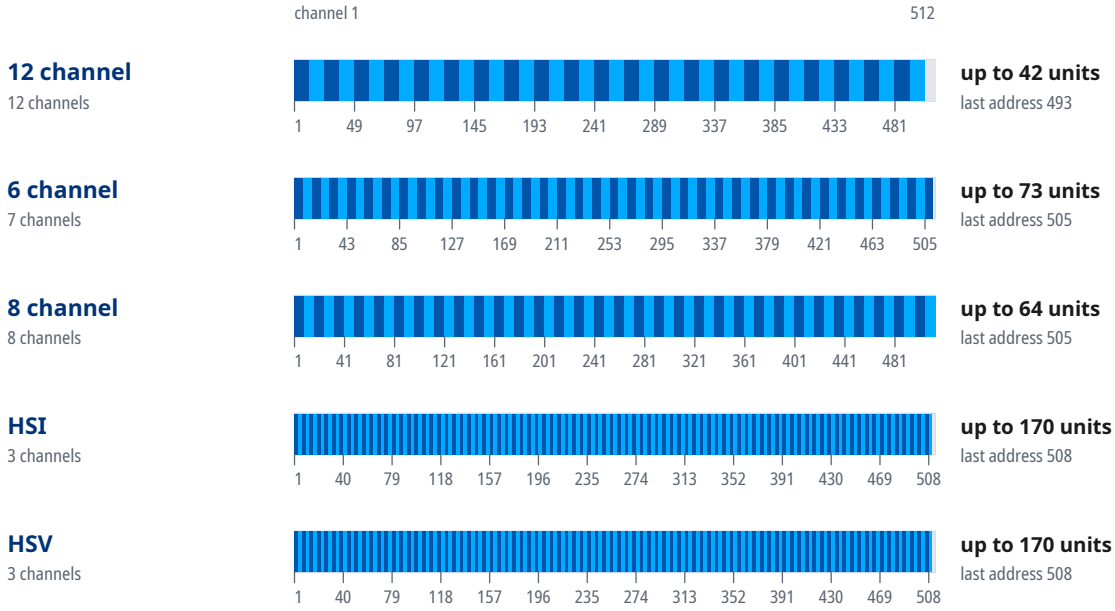


CH 8 · 12 channel

- 25–64: 0.1–10 Hz
  Shutter1Strobe 2
- 70–84: 0.1–10 Hz
  Shutter1StrobePulseOpen 4
- 90–104: 0.1–10 Hz
  Shutter1StrobePulseClose 6
- 110–124: 0.1–10 Hz
  Shutter1StrobeRandom 8
- 130–144: 0.1–10 Hz
  Shutter1StrobeRandomPulse 9
- 150–164: 0.1–10 Hz
  Shutter1StrobeRandomPulseClose 11

8 DMX channels

Units in one DMX universe



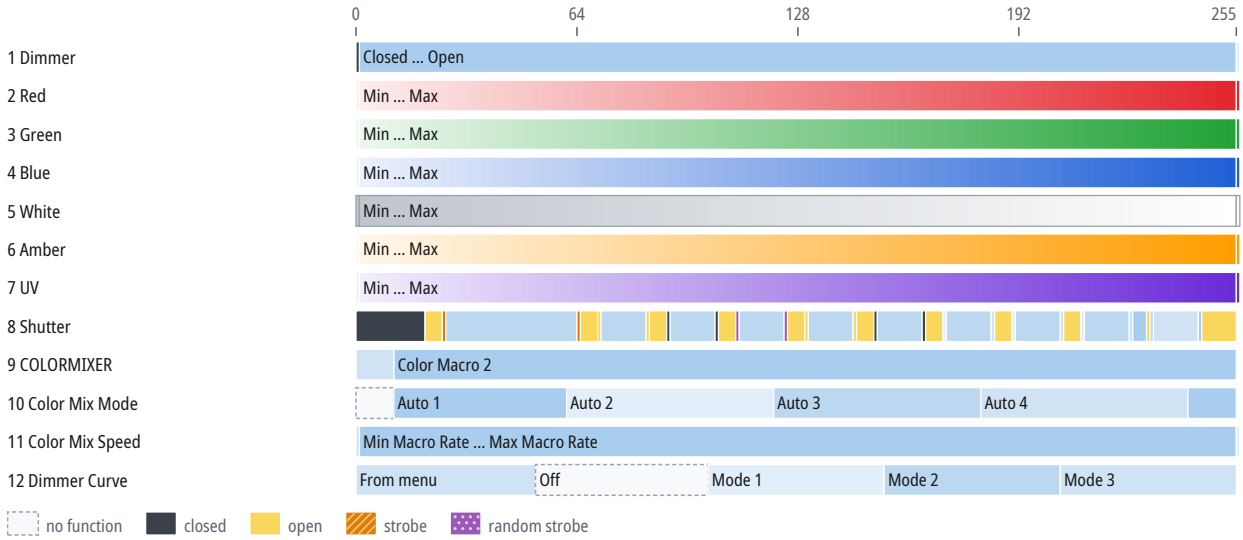
Start addresses of 20 units in the mode “12 channel”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	61	11	121	16	181
2	13	7	73	12	133	17	193
3	25	8	85	13	145	18	205
4	37	9	97	14	157	19	217
5	49	10	109	15	169	20	229

Mode 12 channel

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 8 Shutter at 20–24, 65–69, 85–89, 105–109, 125–129, 145–149, 165–169, 185–189, 205–209, 229 or 245–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Red 255, CH 3 Green 255, CH 4 Blue 255, CH 5 White 0, CH 6 Amber 0, CH 7 UV 0, CH 8 Shutter 22.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
2	Red	0	Min
		1–254	Min ... Max
		255	Max
3	Green	0	Min
		1–254	Min ... Max
		255	Max
4	Blue	0	Min
		1–254	Min ... Max
		255	Max
5	White	0	Min
		1–254	Min ... Max
		255	Max
6	Amber	0	Min
		1–254	Min ... Max
		255	Max
7	UV	0	Min
		1–254	Min ... Max
		255	Max
8	Shutter	0–19	Shutter: Closed

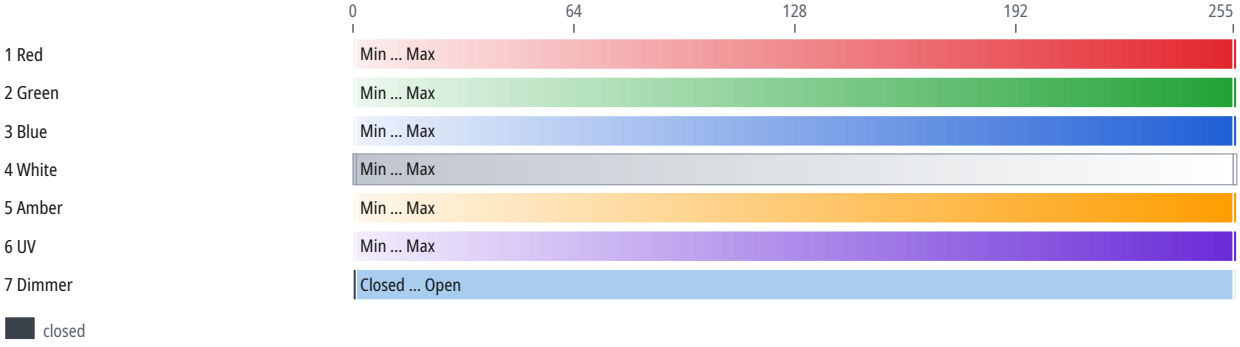
CH	Function	DMX	Description
8	Shutter (continued)	20–24	Shutter: Open
		25	Min Strobe
		26–63	Min Strobe ... Max Strobe
		64	Max Strobe
		65–69	Shutter 1: open
		70	Min Pulse Open
		71–83	Min Pulse Open ... Max Pulse Open
		84	Max Pulse Open
		85–89	Shutter 1: open
		90	Min Pulse Close
		91–103	Min Pulse Close ... Max Pulse Close
		104	Max Pulse Close
		105–109	Shutter 1: open
		110	Min Rnd
		111–123	Min Rnd ... Max Rnd
		124	Max Rnd
		125–129	Shutter 1: open
		130	Min Rnd Pulse Open
		131–143	Min Rnd Pulse Open ... Max Rnd Pulse Open
		144	Max Rnd Pulse Open
		145–149	Shutter 1: open
		150	Min Rnd Pulse Close
		151–163	Min Rnd Pulse Close ... Max Rnd Pulse Close
		164	Max Rnd Pulse Close
		165–169	Shutter 1: open
		170	STROBE_BURST: Min Burst
		171–183	STROBE_BURST: Min Burst ... Max Burst
		184	STROBE_BURST: Max Burst
		185–189	Shutter 1: open
		190	Min Burst Rnd
		191–203	Min Burst Rnd ... Max Burst Rnd
		204	Max Burst Rnd
		205–209	Shutter 1: open
		210	Min Sine Electronic
		211–223	Min Sine Electronic ... Max Sine Electronic
		224	Max Sine Electronic
		225–228	Shutter 1 18
		229	Shutter 1: open
		230	STROBE_BURST: Min Burst
		231–243	STROBE_BURST: Min Burst ... Max Burst
		244	STROBE_BURST: Max Burst
		245–255	Shutter 1: open

CH	Function	DMX	Description
9	COLORMIXER	0–10	Normal
		11–255	Color Macro 2
10	Color Mix Mode	0–10	No Function
		11–60	Auto 1
		61–120	Auto 2
		121–180	Auto 3
		181–240	Auto 4
		241–255	Auto 1 to 4
11	Color Mix Speed	0	Min Macro Rate
		1–254	Min Macro Rate ... Max Macro Rate
		255	Max Macro Rate
12	Dimmer Curve	0–51	From menu
		52–101	Off
		102–152	Mode 1
		153–203	Mode 2
		204–255	Mode 3

Mode 6 channel

If the device receives DMX in this mode but gives no light, check these channels: CH 7 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 0, CH 5 Amber 0, CH 6 UV 0, CH 7 Dimmer 255. CH 7 Dimmer multiplies CH 1–6 (Red, Green, Blue, White, Amber, UV).

Channel functions at a glance

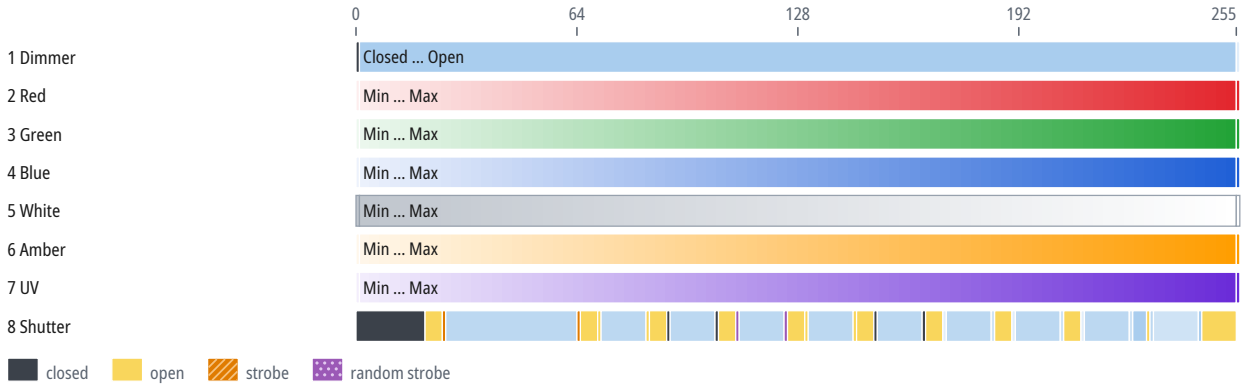


CH	Function	DMX	Description
1	Red		Same as CH 2 in the mode “12 channel” (p. 9)
2	Green		Same as CH 3 in the mode “12 channel” (p. 9)
3	Blue		Same as CH 4 in the mode “12 channel” (p. 9)
4	White		Same as CH 5 in the mode “12 channel” (p. 9)
5	Amber		Same as CH 6 in the mode “12 channel” (p. 9)
6	UV		Same as CH 7 in the mode “12 channel” (p. 9)
7	Dimmer		Same as CH 1 in the mode “12 channel” (p. 9)

Mode 8 channel

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0; CH 8 Shutter at 20–24, 65–69, 85–89, 105–109, 125–129, 145–149, 165–169, 185–189, 205–209, 229 or 245–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Red 255, CH 3 Green 255, CH 4 Blue 255, CH 5 White 0, CH 6 Amber 0, CH 7 UV 0, CH 8 Shutter 22.

Channel functions at a glance

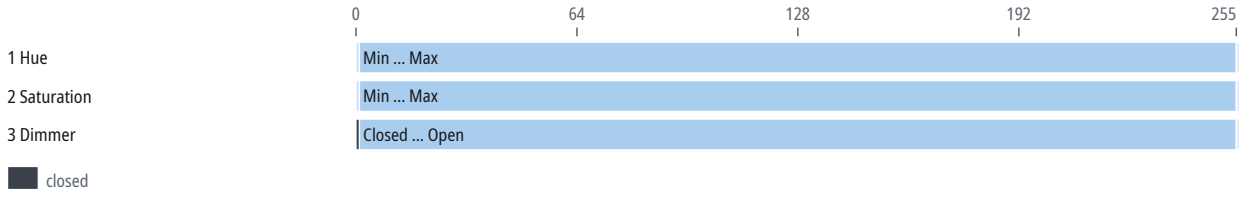


CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “12 channel” (p. 9)
2	Red		Same as CH 2 in the mode “12 channel” (p. 9)
3	Green		Same as CH 3 in the mode “12 channel” (p. 9)
4	Blue		Same as CH 4 in the mode “12 channel” (p. 9)
5	White		Same as CH 5 in the mode “12 channel” (p. 9)
6	Amber		Same as CH 6 in the mode “12 channel” (p. 9)
7	UV		Same as CH 7 in the mode “12 channel” (p. 9)
8	Shutter		Same as CH 8 in the mode “12 channel” (p. 9)

Mode HSI

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 3 Dimmer 255.

Channel functions at a glance

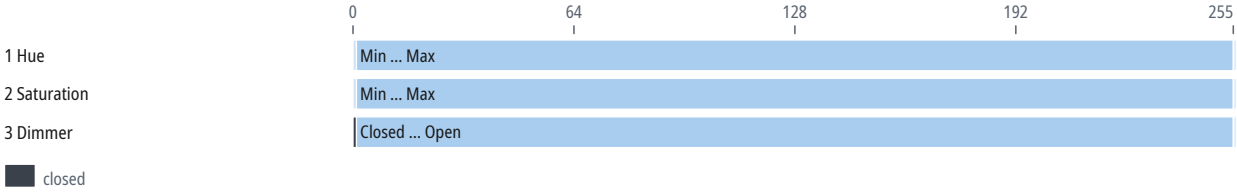


CH	Function	DMX	Description
1	Hue	0	Min
		1–254	Min ... Max
		255	Max
2	Saturation	0	Min
		1–254	Min ... Max
		255	Max
3	Dimmer		Same as CH 1 in the mode “12 channel” (p. 9)

Mode HSV

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 3 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Hue		Same as CH 1 in the mode “HSI” (p. 13)
2	Saturation		Same as CH 2 in the mode “HSI” (p. 13)
3	Dimmer		Same as CH 1 in the mode “12 channel” (p. 9)

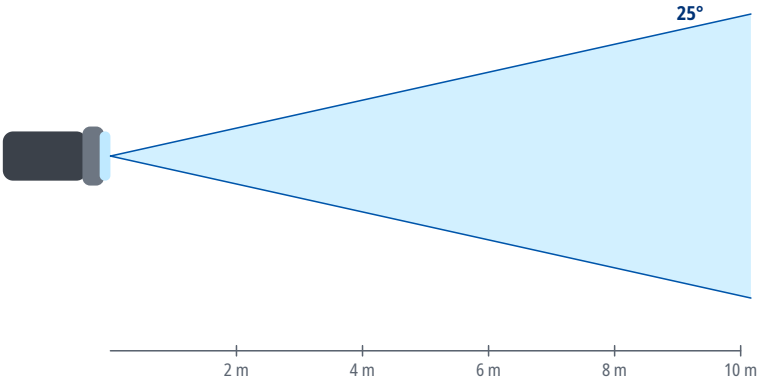
9 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	1,000 W
Luminous flux	1,000 lm
Color temperature	6,500 K
Color rendering index (CRI)	100
Optics	
Beam angle	25°
Control	
DMX connection	5-pin XLR
Electrical	
Power supply	110–240 V, 50/60 Hz
Power consumption	105 W
Dimensions and construction	
Weight	5 kg
Operating environment	
Operating temperature	5 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.1–10 Hz

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.

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.