DMX REFERENCE

Fresnel 180TW

CKC Lighting



Manufacturer	CKC Lighting
GDTF file	CKC_Lighting_Fresnel_180TW_91561.gdtf
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1 About this manual

This document describes the Fresnel 180TW by CKC Lighting. It was compiled from the GDTF file CKC_Lighting_Fresnel_180TW_91561.gdtf from the GDTF-Share library.

File revision: “V001”.

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 CKC 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	197 W
Weight	7.5 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
1CH Mode	1	512	1, 2, 3, 4, ...
3CH Mode1	3	170	1, 4, 7, 10, ...
3CH Mode2 HSI	3	170	1, 4, 7, 10, ...
3CH Mode3 CCT	3	170	1, 4, 7, 10, ...
6CH Mode Direct	6	85	1, 7, 13, 19, ...
11CH Mode2 HSI Fine	11	46	1, 12, 23, 34, ...
13CH Mode Direct Mode Fine	13	39	1, 14, 27, 40, ...


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: 100–240 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

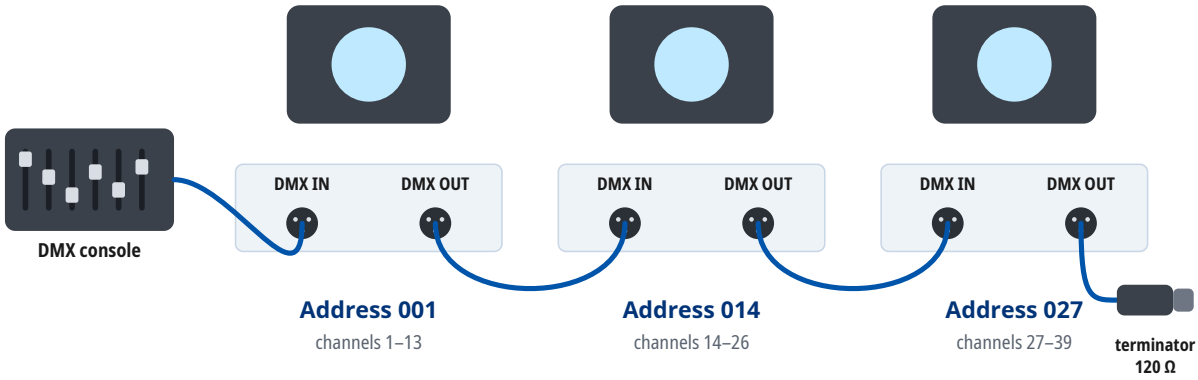
⚠ **WARNING**

- 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: 7.5 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 13CH Mode Direct Mode Fine: every unit occupies 13 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 “13CH Mode Direct Mode Fine”: 13.
- 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 “13CH Mode Direct Mode Fine”, you can use, for example, the start addresses 1, 14, 27, 40.
- 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

	1CH Mode 1 channel	3CH Mode1 3 channels	3CH Mode2 HSI 3 channels	3CH Mode3 CCT 3 channels	6CH Mode Direct 6 channels	11CH Mode2 HSI Fine 11 channels	13CH Mode Direct Mode Fine 13 channels
Dimmer	1	1	1	1	✓	1	1
Dimmer resolution	8 bit	16 bit	8 bit	8 bit		16 bit	16 bit
Shutter / strobe		3				3	3
Color mixing					1–6		4–9
Color temperature				2		8	10
Color wheel						10	12

Color wheel

1 Colour off
DMX 0–5

2 Red
DMX 6–13

3 Amber
DMX 14–21

4 Yellow warm
DMX 22–29

5 Yellow
DMX 30–37

6 Green
DMX 38–45

7 Turquoise
DMX 46–53

8 Cyan
DMX 54–61

9 Blue
DMX 62–69

10 Lavender
DMX 70–77

11 Mauve
DMX 78–85

12 Magenta
DMX 86–93

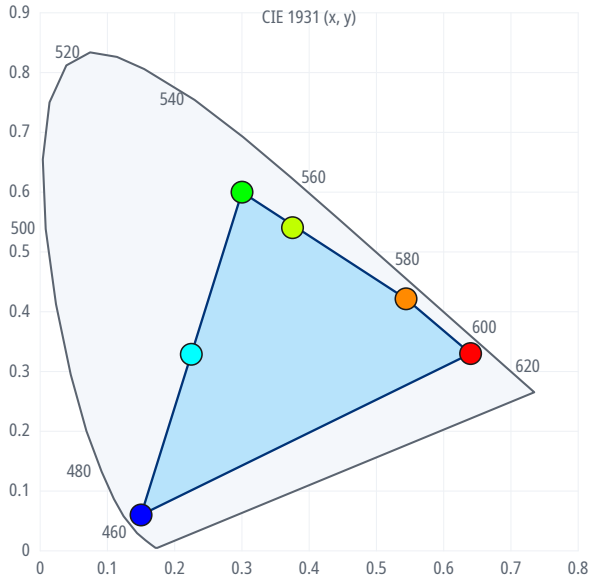
13 Pink
DMX 94–101

14 Warm White
DMX 102–109

15 White
DMX 110–117

16 Cold White
DMX 118–126

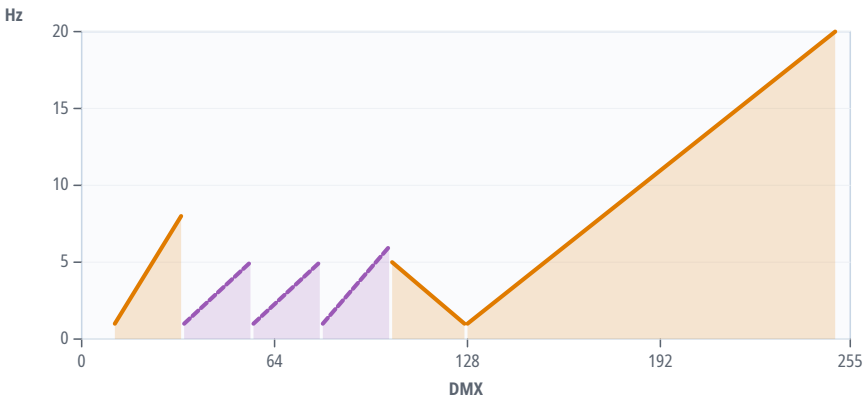
LED colors and the colors they mix



LED	x	y
Red	0.640	0.330
Green	0.300	0.600
Blue	0.150	0.060
Amber	0.544	0.422
Lime	0.375	0.541
Cyan	0.225	0.329

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

Strobe rate

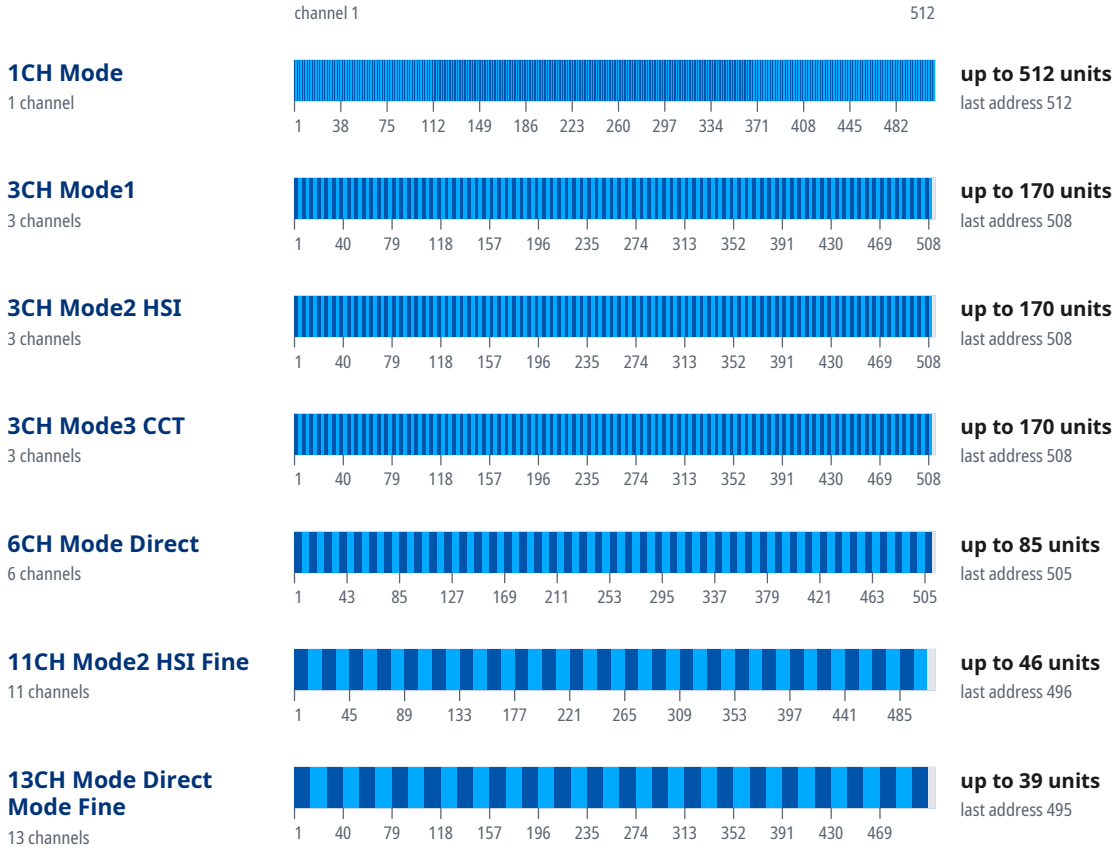


CH 3 · 13CH Mode Direct Mode Fine

- 11–33: 1–8 Hz
  Pulse
- 34–56: 1–5 Hz
  Ramp up
- 57–79: 1–5 Hz
  Ramp down
- 80–102: 1–6 Hz
  Random
- 103–127: 5–1 Hz
  StrobeEffect
- 128–250: 1–20 Hz

8 DMX channels

Units in one DMX universe



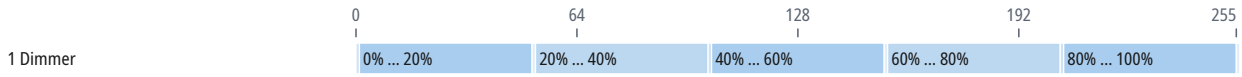
Start addresses of 20 units in the mode “13CH Mode Direct Mode Fine”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	66	11	131	16	196
2	14	7	79	12	144	17	209
3	27	8	92	13	157	18	222
4	40	9	105	14	170	19	235
5	53	10	118	15	183	20	248

Mode 1CH Mode

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	0%
		1–50	0% … 20%
		51	20%
		52–101	20% … 40%

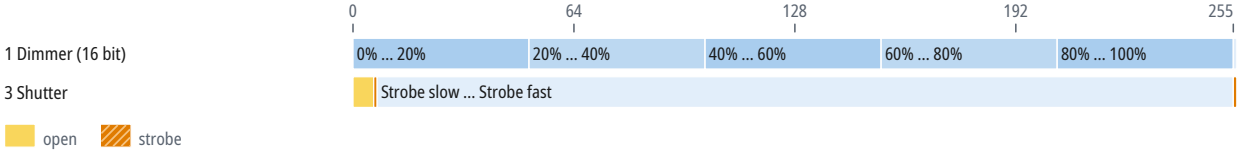
CH	Function	DMX	Description
1	Dimmer (continued)	102	40%
		103–152	40% … 60%
		153	60%
		154–203	60% … 80%
		204	80%
		205–254	80% … 100%
		255	100%

Mode 3CH Mode1

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance

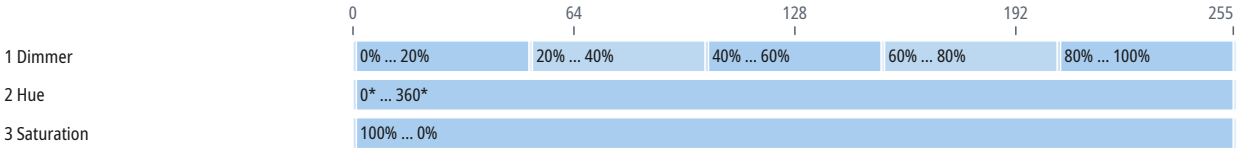


CH	Function	DMX	Description
1	Dimmer	0–51	0% … 20%
		51–102	20% … 40%
		102–153	40% … 60%
		153–204	60% … 80%
		204–255	80% … 100%
		255	100%
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter	0–5	Strobe open
		6	Strobe slow
		7–254	Strobe slow … Strobe fast
		255	Strobe fast

Mode 3CH Mode2 HSI

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance

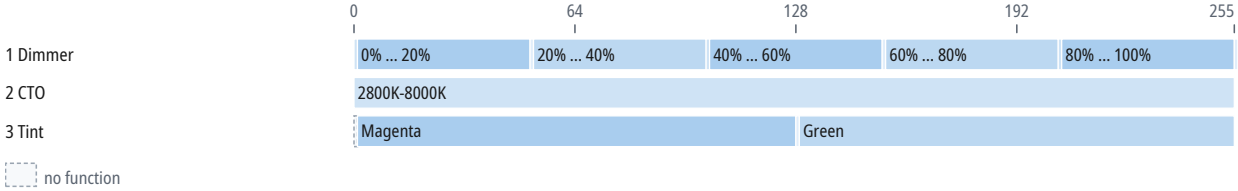


CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “1CH Mode” (p. 8)
2	Hue	0	0*
		1–254	0* ... 360*
		255	360*
3	Saturation	0	100%
		1–254	100% ... 0%
		255	0%

Mode 3CH Mode3 CCT

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance

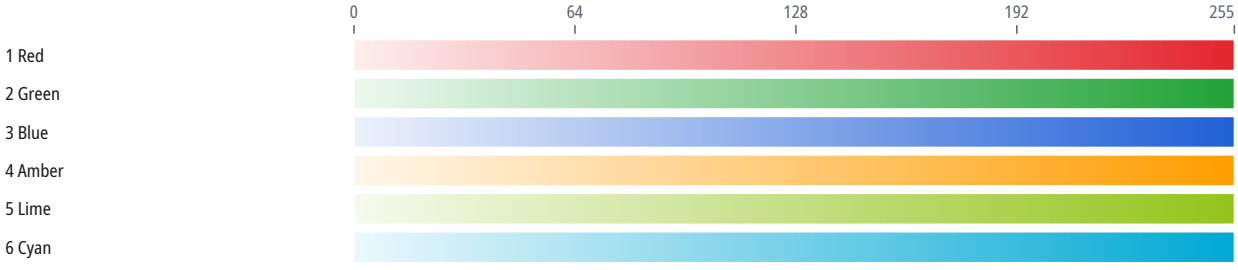


CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “1CH Mode” (p. 8)
2	CTO	0–255	2800K-8000K (2800–8000 K)
3	Tint	0	No function
		1–127	Magenta
		128	Neutral
		129–255	Green

Mode 6CH Mode Direct

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 Amber 255, CH 5 Lime 255, CH 6 Cyan 255.

Channel functions at a glance



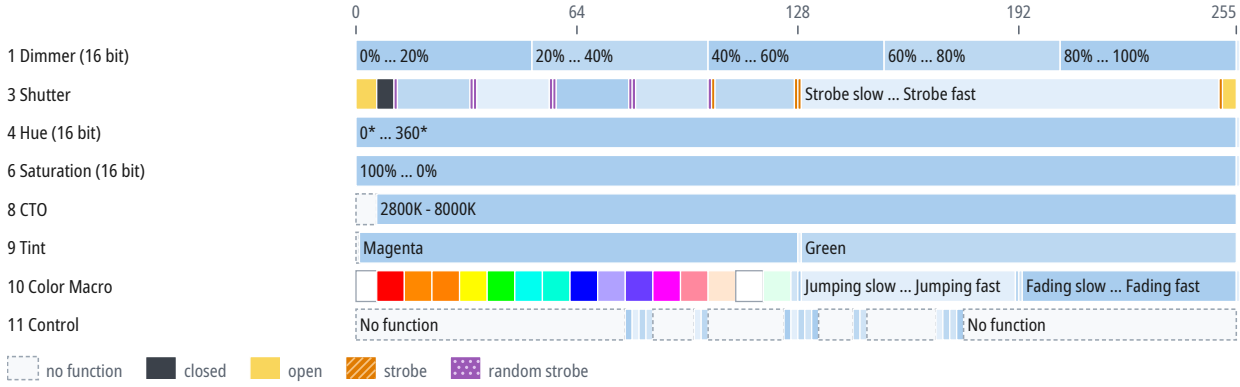
CH	Function	DMX	Description
1	Red	0–255	
2	Green	0–255	
3	Blue	0–255	
4	Amber	0–255	
5	Lime	0–255	
6	Cyan	0–255	

Mode 11CH Mode2 HSI Fine

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

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		Same as CH 1 in the mode “3CH Mode1” (p. 9)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter	0–5	Shutter: Strobe open
		6–10	Strobe closed
		11	Puls Random slow
		12–32	Puls Random slow ... Puls Random fast
		33	Puls Random fast
		34	Ramp up Random slow
		35–55	Ramp up Random slow ... Ramp up Random fast
		56	Ramp up Random fast
		57	Ramp down Random slow
		58–78	Ramp down Random slow ... Ramp down Random fast
		79	Ramp down Random fast
		80	Random slow
		81–101	Random slow ... Random fast
		102	Random fast
		103	Strobe Break Effect 5s
		104–126	Strobe Break Effect 5s ... Strobe Break Effect 1s

CH	Function	DMX	Description
3	Shutter (continued)	127	Strobe Break Effect 1s
		128	Strobe slow
		129–249	Strobe slow ... Strobe fast
		250	Strobe fast
		251–255	Shutter: Strobe open
4	Hue	0–255	0* ... 360*
		255	360*
5	Hue Fine	0–255	Fine adjustment of CH 4
6	Saturation	0–255	100% ... 0%
		255	0%
7	Saturation Fine	0–255	Fine adjustment of CH 6
8	CTO	0–5	No function
		6–255	2800K - 8000K (2800–8000 K)
9	Tint		Same as CH 3 in the mode “3CH Mode3 CCT” (p. 10)
10	Color Macro	0–5	Colour off
		6–13	Red
		14–21	Amber
		22–29	Yellow warm
		30–37	Yellow
		38–45	Green
		46–53	Turquoise
		54–61	Cyan
		62–69	Blue
		70–77	Lavender
		78–85	Mauve
		86–93	Magenta
		94–101	Pink
		102–109	Warm White
		110–117	White
		118–125	Cold White
		126–127	Colour Jumping Stop
		128	Jumping slow
		129–190	Jumping slow ... Jumping fast
		191	Jumping fast
		192	Fading slow
		193–254	Fading slow ... Fading fast
		255	Fading fast
11	Control	0–77	No function
		78–79	Dimmer Response LED (Hold 1*5s)
		80–81	Dimmer Response Halogen (Hold 1*5s)
		82–83	DTW (Redshift) on (Hold 1*5s)

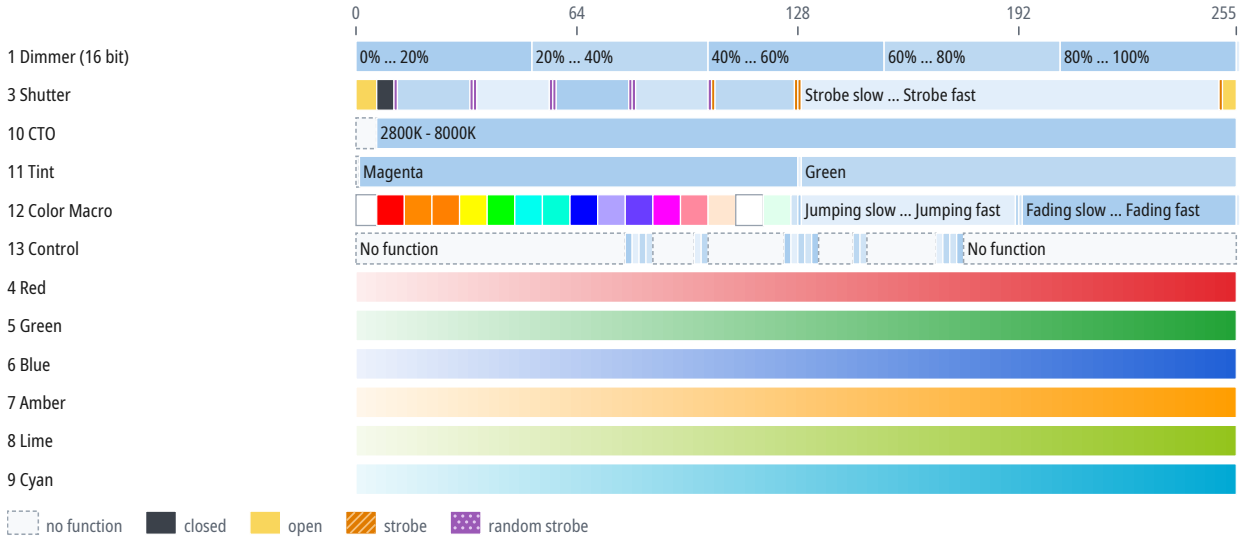
CH	Function	DMX	Description
11	Control (continued)	84–85	DTW (Redshift) off (Hold 1*5s)
		86–97	No function
		98–99	Silent Fan (Hold 3s)
		100–101	Auto Fan (Hold 3s)
		102–123	No function
		124–125	PWM 650 Hz (Hold 5s)
		126–127	PWM 1530 Hz (Hold 5s)
		128–129	PWM 3600 Hz (Hold 5s)
		130–131	PWM 12 kHz (Hold 5s)
		132–133	PWM 25 kHz (Hold 5s)
		134–143	No function
		144–145	Display on (Hold 3s)
		146–147	Display off (Hold 3s)
		148–167	No function
		168–169	Dimmer Curve Linear (Hold 3s)
		170–171	Dimmer Curve Exponential (Hold 3s)
		172–173	Dimmer Curve Logarithmic (Hold 3s)
		174–175	Dimmer Curve S-Curve (Hold 3s)
		176–255	No function

Mode 13CH Mode Direct Mode Fine

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 4 Red 255, CH 5 Green 255, CH 6 Blue 255, CH 7 Amber 255, CH 8 Lime 255, CH 9 Cyan 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “3CH Mode1” (p. 9)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “11CH Mode2 HSI Fine” (p. 11)
4	Red	0–255	
5	Green	0–255	
6	Blue	0–255	
7	Amber	0–255	
8	Lime	0–255	
9	Cyan	0–255	
10	CTO		Same as CH 8 in the mode “11CH Mode2 HSI Fine” (p. 12)
11	Tint		Same as CH 3 in the mode “3CH Mode3 CCT” (p. 10)
12	Color Macro		Same as CH 10 in the mode “11CH Mode2 HSI Fine” (p. 12)
13	Control		Same as CH 11 in the mode “11CH Mode2 HSI Fine” (p. 12)

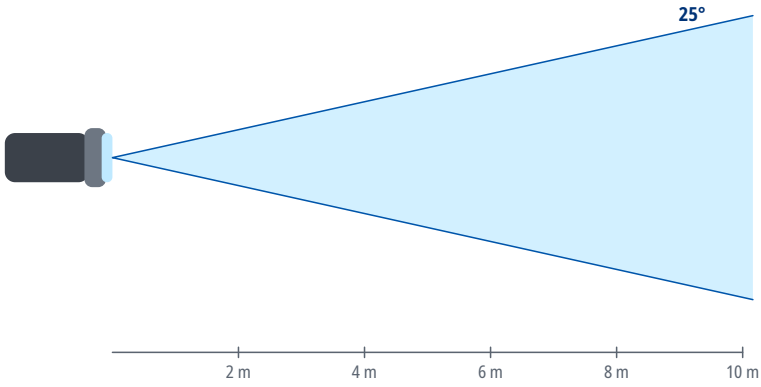
9 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	200 W
Luminous flux	12,000 lm
Color temperature	8,000 K
Color rendering index (CRI)	95
Optics	
Beam angle	25°
Control	
DMX connection	5-pin XLR IN/OUT, 3-pin XLR IN/OUT
Electrical	
Power supply	100–240 V, 50/60 Hz
Power consumption	197 W
Power connectors	powerCON TRUE1 IN
Dimensions and construction	
Weight	7.5 kg
Operating environment	
Operating temperature	-20 to 45 °C

Speeds and ranges

Parameter	Value
Color temperature range	2800–8000 K
Strobe frequency	1–20 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.