DMX REFERENCE

KL Core IP

Elation



Manufacturer	Elation
GDTF file	Elation_KL_Core_IP_168937.gdtf
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1 About this manual

This document describes the KL Core IP by Elation. It was compiled from the GDTF file Elation_KL_Core_IP_168937.gdtf from the GDTF-Share library.

File revision: “26-11-11 Release”.

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 Elation; 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	10 kg
Ingress protection	IP67

DMX modes

Mode	Channels	Units in one universe	First start addresses
1 ch	1	512	1, 2, 3, 4, ...
4 ch	4	128	1, 5, 9, 13, ...
5 ch	5	102	1, 6, 11, 16, ...
6 ch	6	85	1, 7, 13, 19, ...
10 ch	10	51	1, 11, 21, 31, ...
11 ch	11	46	1, 12, 23, 34, ...
19 ch	19	26	1, 20, 39, 58, ...
9 ch	9	56	1, 10, 19, 28, ...
15 ch	15	34	1, 16, 31, 46, ...
13 ch	13	39	1, 14, 27, 40, ...
1 ch (+2 Gobo)	3	170	1, 4, 7, 10, ...
4 ch (+2 Gobo)	6	85	1, 7, 13, 19, ...
5 ch (+2 Gobo)	7	73	1, 8, 15, 22, ...
6 ch (+2 Gobo)	8	64	1, 9, 17, 25, ...
10 ch (+2 Gobo)	12	42	1, 13, 25, 37, ...
11 ch (+2 Gobo)	13	39	1, 14, 27, 40, ...
19 ch (+2 Gobo)	21	24	1, 22, 43, 64, ...
9 ch (+2 Gobo)	11	46	1, 12, 23, 34, ...
15 ch (+2 Gobo)	17	30	1, 18, 35, 52, ...
13 ch (+2 Gobo)	15	34	1, 16, 31, 46, ...



Read the manual before use



Do not stare into the light

3 Safety instructions



Read the manual before use



Do not stare into the light

⚠ 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.

⚠ CAUTION

- The device is rated IP67 and may be used outdoors within the limits of this rating.
- This protection is effective only when all connectors are mated or closed with their protective caps and all seals are intact. Use cables and connectors with the same or a higher protection rating.
- Do not open the housing; opening it breaks the seals and the protection rating can no longer be guaranteed.
- Install the device so that water cannot collect around connectors and cable glands, and inspect seals and cables regularly.

⚠ 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 Product description

Description in the GDTF file

“The KL CORE IP LED engine offers nearly endless functionality in a rugged and adaptable design. Central to the performance of the device is its high-output, 400W Full-Spectrum LED that is capable of delivering over 15,000 lumens of output. The KL CORE IP’s fully homogenized light source makes it incredibly adaptable. For ellipsoidal applications, the fixture can be paired with an optional KL CORE IP Shutter Barrel and used with any of the IP67-sealed lens tubes, functioning as a traditional LED ellipsoidal.”

5 Installation

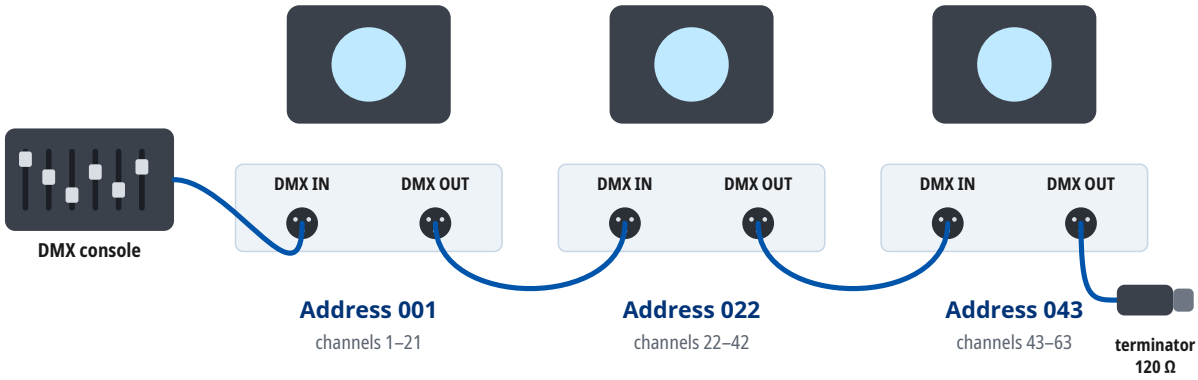
⚠ **WARNING**

- 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: 10 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.

6 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 19 ch (+2 Gobo): every unit occupies 21 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.

7 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 “19 ch (+2 Gobo)”: 21.
- 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 “19 ch (+2 Gobo)”, you can use, for example, the start addresses 1, 22, 43, 64.
- 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.

8 Functions at a glance

Functions in each DMX mode

	1 ch 1 channel	4 ch 4 channels	5 ch 5 channels	6 ch 6 channels	10 ch 10 channels	11 ch 11 channels	19 ch 19 channels	9 ch 9 channels
Dimmer	1	1	✓	1	✓	1	1	1
Dimmer resolution	8 bit	16 bit		16 bit		16 bit	16 bit	16 bit
Shutter / strobe				3		3	3	3
Color mixing			1–5		5× (1–9)	4–8	5× (4–12)	4–6
Color temperature		3		4		9	14	7
Color wheel				5		10	17	8

Color wheel 1

1 Pale Yellow DMX 1
2 Straw DMX 2
3 Gold Tint DMX 3
4 Spring Yellow DMX 4
5 Medium Yellow DMX 5
6 Yellow DMX 6
7 Deep Amber DMX 7
8 Deep Straw DMX 8
9 Loving Amber DMX 9
10 Gold Amber DMX 10
11 Orange DMX 11
12 Deep Orange DMX 12
13 Dark Amber DMX 13
14 Millennium Gold DMX 14
15 Deep Golden Amber DMX 15
16 Scarlet DMX 16
17 Primary Red DMX 17
18 Bright Red DMX 18
19 Medium Red DMX 19
20 Fire DMX 20
21 Pink DMX 21
22 Medium Pink DMX 22
23 Dark Pink DMX 23
24 Bright Pink DMX 24
25 Bright Rose DMX 25
26 Special Rose Pink DMX 26
27 Vanity Fair DMX 27
28 Magenta DMX 28
29 Dark Magenta DMX 29
30 Rose Purple DMX 30
31 Mauve DMX 31
32 Medium Purple DMX 32
33 Lavender DMX 33
34 Palace blue DMX 34
35 Dark Blue DMX 35
36 Medium Blue DMX 36
37 Deep Blue DMX 37
38 Daylight Blue DMX 38
39 Slate Blue DMX 39
40 Light Blue DMX 40
41 Sky Blue DMX 41
42 Pale Navy Blue DMX 42
43 Marine Blue DMX 43
44 Peacock Blue DMX 44
45 Lagoon Blue DMX 45
46 Medium Blue Green DMX 46
47 Dark Yellow Green DMX 47
48 Primary Green DMX 48

49 Fern Green **DMX 49**

50 Moss Green **DMX 50**

51 Dark Green **DMX 51**

52 Lime Green **DMX 52**

53 Pale Green **DMX 53**

54 Quarter CT Blue **DMX 54**

55 Half CT Blue **DMX 55**

56 Full CT Blue **DMX 56**

57 Double CT Blue **DMX 57**

58 Quarter CT Orange **DMX 58**

59 Half CT Orange **DMX 59**

60 LEE 204 - Full C T Orange **DMX 60–61**

61 Open **DMX 0–1**

Color wheel 2

1 CTC Open: Open **DMX 0–22**

2 2400 K

3 2500 K

4 2600 K

5 2700 K

6 2800 K

7 2900 K

8 3000 K

9 3100 K

10 3200 K

11 3300 K

12 3400 K

13 3500 K

14 3600 K

15 3700 K

16 3800 K

17 3900 K

18 4000 K

19 4100 K

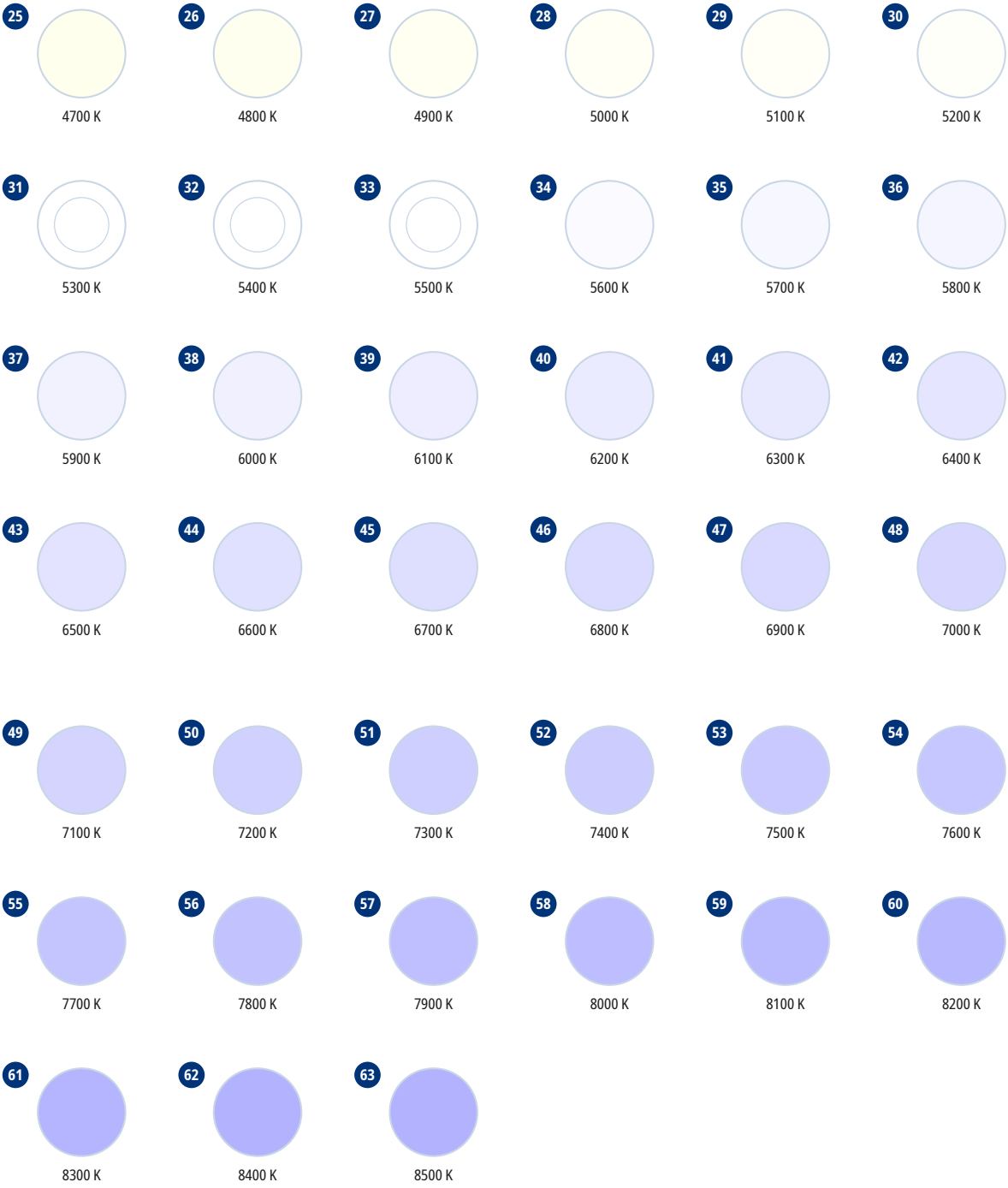
20 4200 K

21 4300 K

22 4400 K

23 4500 K

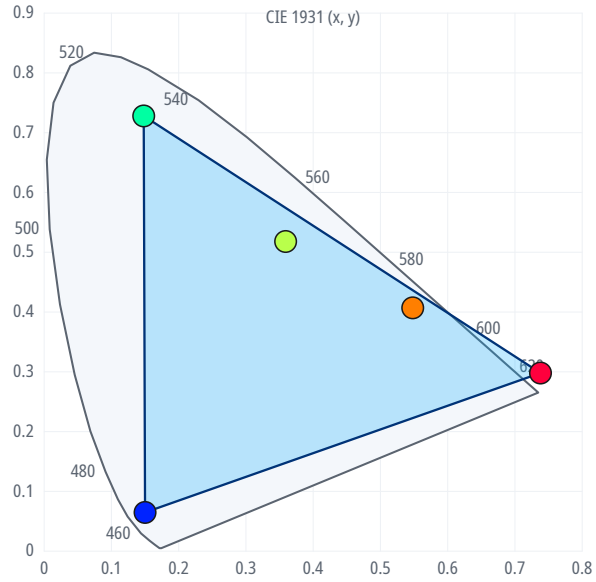
24 4600 K


25
4700 K
26
4800 K
27
4900 K
28
5000 K
29
5100 K
30
5200 K
31
5300 K
32
5400 K
33
5500 K
34
5600 K
35
5700 K
36
5800 K
37
5900 K
38
6000 K
39
6100 K
40
6200 K
41
6300 K
42
6400 K
43
6500 K
44
6600 K
45
6700 K
46
6800 K
47
6900 K
48
7000 K
49
7100 K
50
7200 K
51
7300 K
52
7400 K
53
7500 K
54
7600 K
55
7700 K
56
7800 K
57
7900 K
58
8000 K
59
8100 K
60
8200 K
61
8300 K
62
8400 K
63
8500 K

Gobo wheel


1
Gobo 1

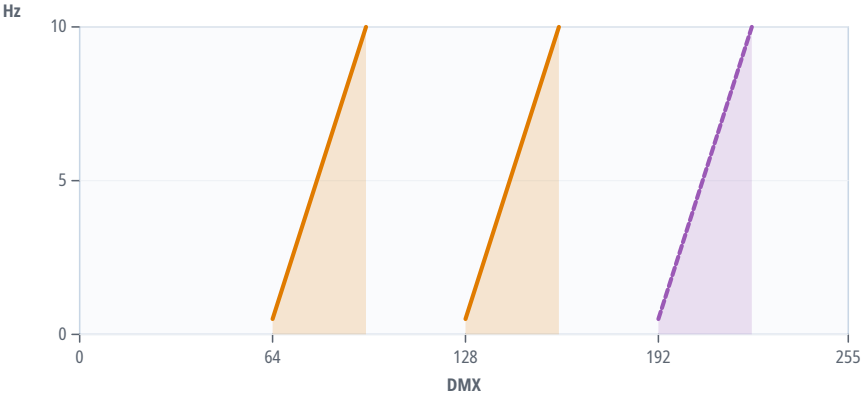
LED colors and the colors they mix



LED	x	y	nm
Red	0.738	0.298	624
Green	0.148	0.728	524
Blue	0.150	0.065	456
Mint	0.359	0.518	561
Amber	0.548	0.407	591

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

Strobe rate

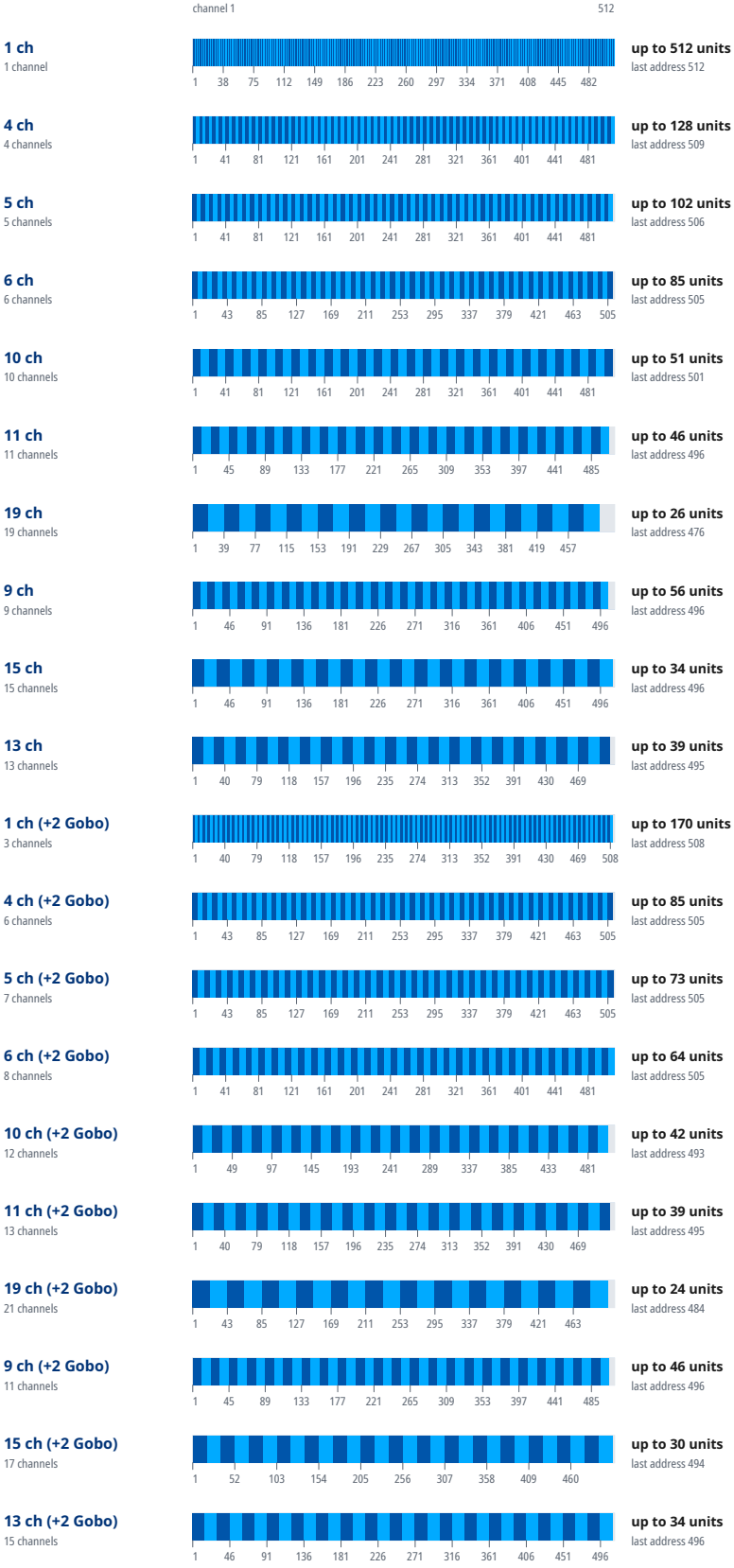


CH 3 · 19 ch (+2 Gobo)

- 64–95: 0.5–10 Hz
  Strobe Min to Max
- 128–159: 0.5–10 Hz
  Strobe Pulse Min to Max
- 192–223: 0.5–10 Hz
  Random Strobe Min to Max

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “19 ch (+2 Gobo)”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	106	11	211	16	316
2	22	7	127	12	232	17	337
3	43	8	148	13	253	18	358
4	64	9	169	14	274	19	379
5	85	10	190	15	295	20	400

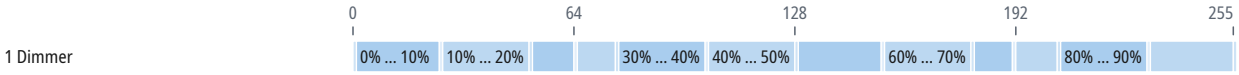
RDM personalities

Mode	Channels	RDM personality
1 ch	1	1
4 ch	4	2
5 ch	5	3
6 ch	6	4
10 ch	10	5
11 ch	11	6
19 ch	19	7
9 ch	9	8
15 ch	15	9
13 ch	13	16
1 ch (+2 Gobo)	3	17
4 ch (+2 Gobo)	6	18
5 ch (+2 Gobo)	7	19
6 ch (+2 Gobo)	8	20
10 ch (+2 Gobo)	12	21
11 ch (+2 Gobo)	13	22
19 ch (+2 Gobo)	21	23
9 ch (+2 Gobo)	11	24
15 ch (+2 Gobo)	17	25
13 ch (+2 Gobo)	15	32

Mode 1 ch

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%
		1–24	0% … 10%
		25	10%
		26–50	10% … 20%
		51	20%

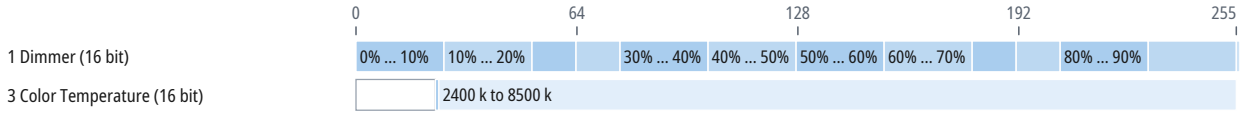
CH	Function	DMX	Description
1	Dimmer (continued)	52–63	20% … 25%
		64	25%
		65–75	25% … 30%
		76	30%
		77–101	30% … 40%
		102	40%
		103–127	40% … 50%
		128	50%
		129–152	50% … 60%
		153	60%
		154–178	60% … 70%
		179	70%
		180–190	70% … 75%
		191	75%
		192–203	75% … 80%
		204	80%
		205–229	80% … 90%
		230	90%
		231–254	90% … 100%
		255	100%

Mode 4 ch

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 3 Color Temperature 0.

Channel functions at a glance



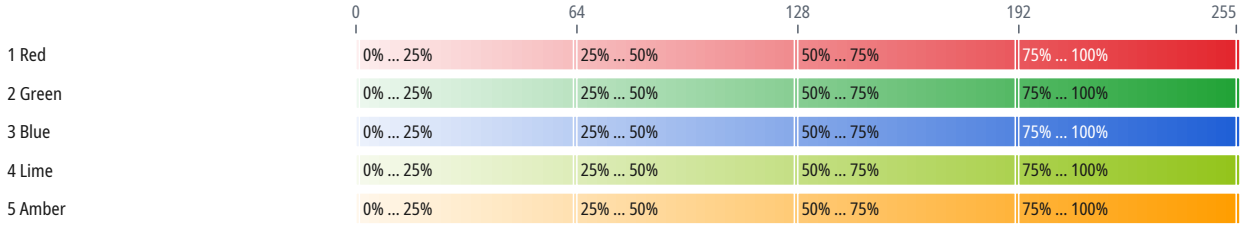
CH	Function	DMX	Description
1	Dimmer	0–25	0% … 10%
		25–51	10% … 20%
		51–63	20% … 25%
		64–76	25% … 30%
		76–102	30% … 40%
		102–127	40% … 50%
		128–153	50% … 60%
		153–179	60% … 70%
		179–191	70% … 75%
		191	75%
		192–204	75% … 80%

CH	Function	DMX	Description
1	Dimmer (continued)	204–230	80% … 90%
		230–255	90% … 100%
		255	100%
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Color Temperature	0–23	CTC Open: Open
		23–24	CTC Open
		24–255	2400 k to 8500 k (2400–8500 K)
4	Color Temperature Fine	0–255	Fine adjustment of CH 3

Mode 5 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 Lime 255, CH 5 Amber 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Red	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
2	Green	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
3	Blue	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%

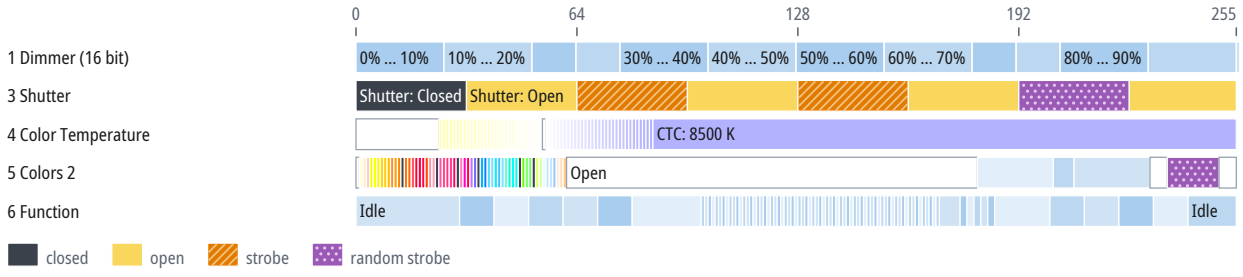
CH	Function	DMX	Description
3	Blue (continued)	127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
4	Lime	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
5	Amber	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%

Mode 6 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Color Temperature 0, CH 5 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter	0–31	Shutter: Closed
		32–63	Shutter: Open

CH	Function	DMX	Description
3	Shutter (continued)	64–95	Strobe Min to Max (0.5–10 Hz)
		96–127	Shutter Open: Open
		128–159	Strobe Pulse Min to Max (0.5–10 Hz)
		160–191	Shutter Open_: Open
		192–223	Random Strobe Min to Max (0.5–10 Hz)
		224–255	Shutter Open__: Open
4	Color Temperature	0–23	CTC Open: Open
		24	2400 K
		25	2500 K
		26	2600 K
		27	2700 K
		28	2800 K
		29	2900 K
		30	3000 K
		31	3100 K
		32	3200 K
		33	3300 K
		34	3400 K
		35	3500 K
		36	3600 K
		37	3700 K
		38	3800 K
		39	3900 K
		40	4000 K
		41	4100 K
		42	4200 K
		43	4300 K
		44	4400 K
		45	4500 K
		46	4600 K
		47	4700 K
		48	4800 K
		49	4900 K
		50	5000 K
		51	5100 K
		52	5200 K
		53	5300 K
		54	5400 K
		55	5500 K
		56	5600 K
		57	5700 K
		58	5800 K

CH	Function	DMX	Description
4	Color Temperature (continued)	59	5900 K
		60	6000 K
		61	6100 K
		62	6200 K
		63	6300 K
		64	6400 K
		65	6500 K
		66	6600 K
		67	6700 K
		68	6800 K
		69	6900 K
		70	7000 K
		71	7100 K
		72	7200 K
		73	7300 K
		74	7400 K
		75	7500 K
		76	7600 K
		77	7700 K
		78	7800 K
		79	7900 K
		80	8000 K
		81	8100 K
		82	8200 K
		83	8300 K
		84	8400 K
		85	CTC continuous: 8500 K
		86–255	CTC: 8500 K
5	Colors 2	0	Open
		1	Pale Yellow
		2	Straw
		3	Gold Tint
		4	Spring Yellow
		5	Medium Yellow
		6	Yellow
		7	Deep Amber
		8	Deep Straw
		9	Loving Amber
		10	Gold Amber
		11	Orange
		12	Deep Orange
		13	Dark Amber

CH	Function	DMX	Description
5	Colors 2 (continued)	14	Millennium Gold
		15	Deep Golden Amber
		16	Scarlet
		17	Primary Red
		18	Bright Red
		19	Medium Red
		20	Fire
		21	Pink
		22	Medium Pink
		23	Dark Pink
		24	Bright Pink
		25	Bright Rose
		26	Special Rose Pink
		27	Vanity Fair
		28	Magenta
		29	Dark Magenta
		30	Rose Purple
		31	Mauve
		32	Medium Purple
		33	Lavender
		34	Palace blue
		35	Dark Blue
		36	Medium Blue
		37	Deep Blue
		38	Daylight Blue
		39	Slate Blue
		40	Light Blue
		41	Sky Blue
		42	Pale Navy Blue
		43	Marine Blue
		44	Peacock Blue
		45	Lagoon Blue
		46	Medium Blue Green
		47	Dark Yellow Green
		48	Primary Green
		49	Fern Green
		50	Moss Green
		51	Dark Green
		52	Lime Green
		53	Pale Green
		54	Quarter CT Blue
		55	Half CT Blue

CH	Function	DMX	Description
5	Colors 2 (continued)	56	Full CT Blue
		57	Double CT Blue
		58	Quarter CT Orange
		59	Half CT Orange
		60	Full CT Orange
		61–179	Open
		180–201	CCW fast to slow (360–10 °/s)
		202–207	Color 1 Wheel Spin: Stop
		208–229	CCW slow to fast (10–360 °/s)
		230–234	Open
		235–249	Random Fast to Slow
		250–255	Open
6	Function	0–29	Idle
		30–39	Fan Mode Auto
		40–49	Fan Mode Silent
		50–59	Fan Mode High
		60–69	Reset: Idle
		70–79	Gobo Rotator Reset
		80–99	Reset: Idle
		100	900
		101	910
		102	920
		103	930
		104	940
		105	950
		106	960
		107	970
		108	980
		109	990
		110	1000
		111	1010
		112	1020
		113	1030
		114	1040
		115	1050
		116	1060
		117	1070
		118	1080
		119	1090
		120	1100
		121	1110
		122	1120

CH	Function	DMX	Description
6	Function (continued)	123	1130
		124	1140
		125	1150
		126	1160
		127	1170
		128	1180
		129	1190
		130	1200
		131	1210
		132	1220
		133	1230
		134	1240
		135	1250
		136	1260
		137	1270
		138	1280
		139	1290
		140	1300
		141	1310
		142	1320
		143	1330
		144	1340
		145	1350
		146	1360
		147	1370
		148	1380
		149	1390
		150	1400
		151	1410
		152	1420
		153	1430
		154	1440
		155	1450
		156	1460
		157	1470
		158	1480
		159	1490
		160	1500
		161	2500
		162	4000
		163	5000
		164	6000

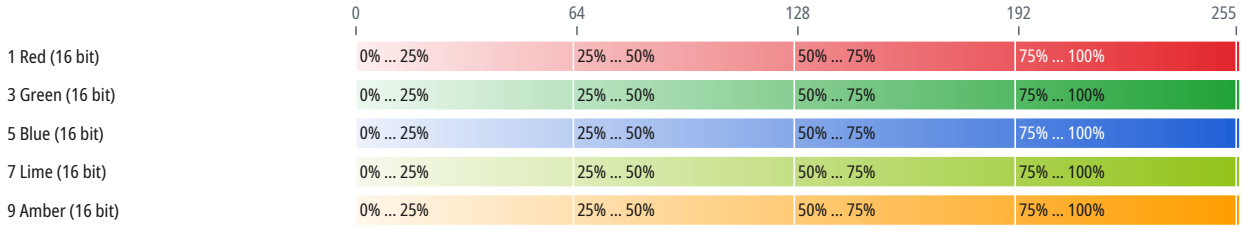
CH	Function	DMX	Description
6	Function (continued)	165	10000
		166	15000
		167	20000
		168	25000
		169–174	Color tuning/ Output Balance: Idle
		175–176	Highest Fidelity
		177–178	Balanced Output and Fidelity
		179–180	Highest Output (Default)
		181–182	Bright (Highest Output Default)
		183–184	Uniform (Elation Full Spectrum Match)
		185–200	Color tuning/ Output Balance: Idle
		201–210	Dimmer Curve Linear (Default)
		211–220	Dimmer Curve Square
		221–230	Dimmer Curve Inverse Square
		231–240	Dimmer Curve S-Curve
		241–255	Idle

Mode 10 ch

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 Red 255, CH 3 Green 255, CH 5 Blue 255, CH 7 Lime 255, CH 9 Amber 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Red	0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
2	Red Fine	0–255	Fine adjustment of CH 1
3	Green	0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
4	Green Fine	0–255	Fine adjustment of CH 3

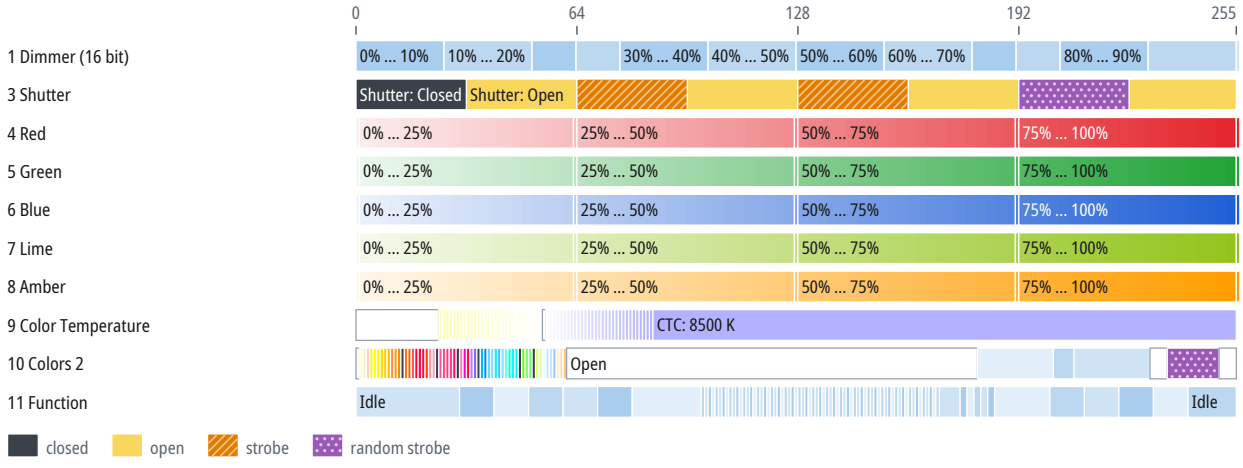
CH	Function	DMX	Description
5	Blue	0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
6	Blue Fine	0–255	Fine adjustment of CH 5
7	Lime	0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
8	Lime Fine	0–255	Fine adjustment of CH 7
9	Amber	0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
10	Amber Fine	0–255	Fine adjustment of CH 9

Mode 11 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Red 255, CH 5 Green 255, CH 6 Blue 255, CH 7 Lime 255, CH 8 Amber 255, CH 9 Color Temperature 0, CH 10 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)

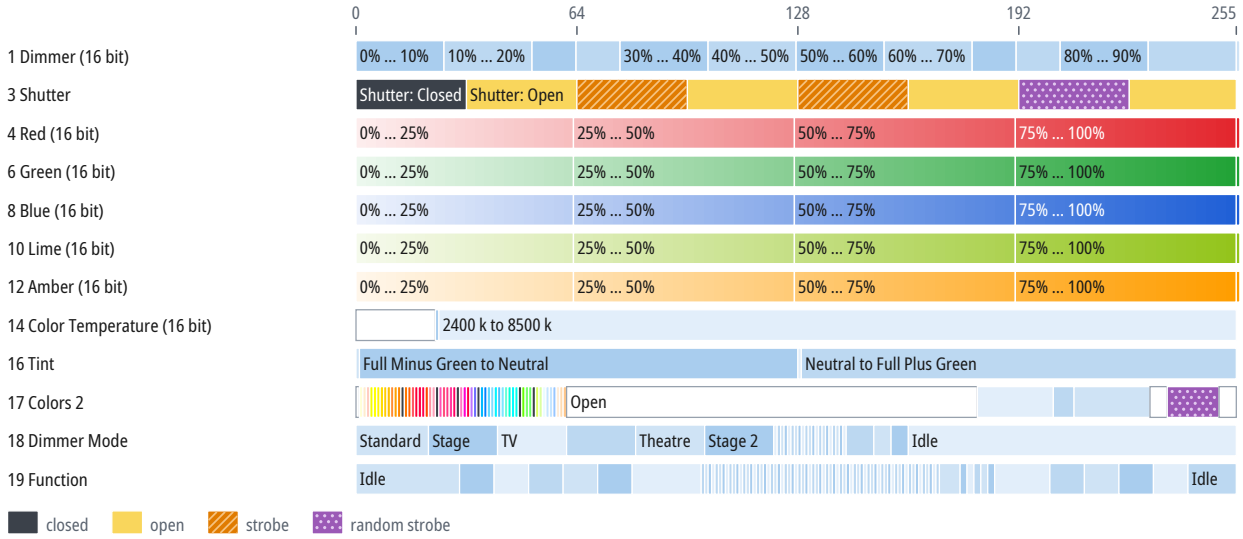
CH	Function	DMX	Description
4	Red		Same as CH 1 in the mode “5 ch” (p. 14)
5	Green		Same as CH 2 in the mode “5 ch” (p. 14)
6	Blue		Same as CH 3 in the mode “5 ch” (p. 14)
7	Lime		Same as CH 4 in the mode “5 ch” (p. 15)
8	Amber		Same as CH 5 in the mode “5 ch” (p. 15)
9	Color Temperature		Same as CH 4 in the mode “6 ch” (p. 16)
10	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
11	Function		Same as CH 6 in the mode “6 ch” (p. 19)

Mode 19 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Red 255, CH 6 Green 255, CH 8 Blue 255, CH 10 Lime 255, CH 12 Amber 255, CH 14 Color Temperature 0, CH 17 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Red		Same as CH 1 in the mode “10 ch” (p. 21)
5	Red Fine	0–255	Fine adjustment of CH 4
6	Green		Same as CH 3 in the mode “10 ch” (p. 21)
7	Green Fine	0–255	Fine adjustment of CH 6
8	Blue		Same as CH 5 in the mode “10 ch” (p. 22)
9	Blue Fine	0–255	Fine adjustment of CH 8
10	Lime		Same as CH 7 in the mode “10 ch” (p. 22)
11	Lime Fine	0–255	Fine adjustment of CH 10
12	Amber		Same as CH 9 in the mode “10 ch” (p. 22)

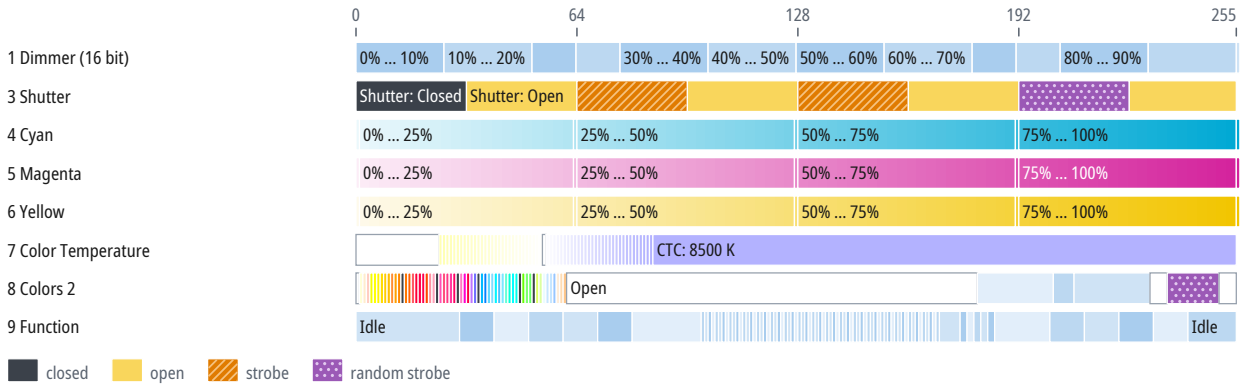
CH	Function	DMX	Description
13	Amber Fine	0–255	Fine adjustment of CH 12
14	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
15	Color Temperature Fine	0–255	Fine adjustment of CH 14
16	Tint		Green Shift
		0	Idle
		1–127	Full Minus Green to Neutral
		128	Neutral White
		129–255	Neutral to Full Plus Green
17	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
18	Dimmer Mode	0–20	Standard
		21–40	Stage
		41–60	TV
		61–80	Architectural
		81–100	Theatre
		101–120	Stage 2
		121–130	0...9s
		131	1s
		132	1*5s
		133–141	2...10s
		142–149	Idle
		150–154	DTW ON
		155–159	DTW OFF
		160–255	Idle
19	Function		Same as CH 6 in the mode “6 ch” (p. 19)

Mode 9 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Cyan 0, CH 5 Magenta 0, CH 6 Yellow 0, CH 7 Color Temperature 0, CH 8 Colors 2 0.

Channel functions at a glance



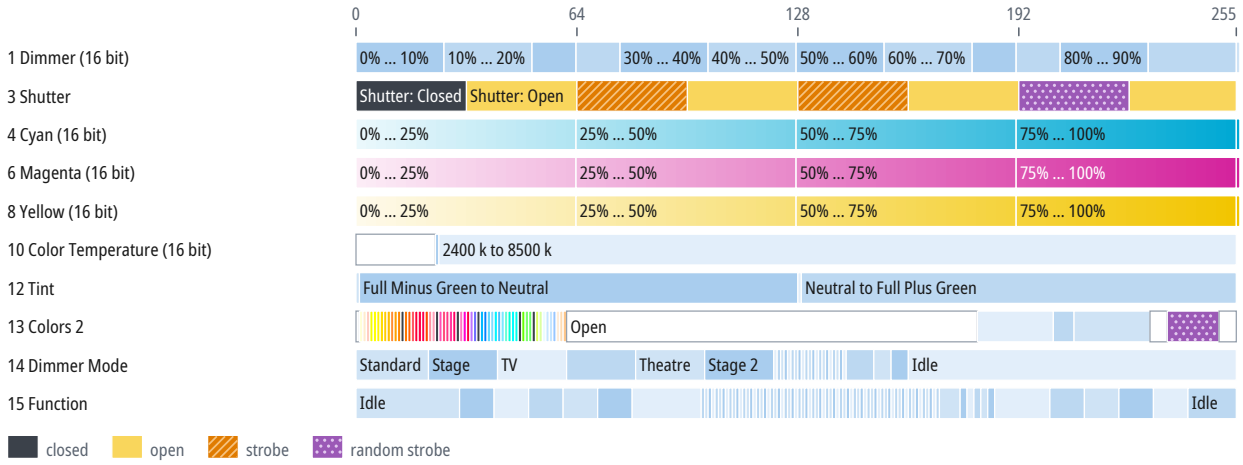
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Cyan	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
5	Magenta	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
6	Yellow	0	0%
		1–62	0% … 25%
		63	25%
		64–126	25% … 50%
		127	50%
		128–190	50% … 75%
		191	75%
		192–254	75% … 100%
		255	100%
7	Color Temperature		Same as CH 4 in the mode “6 ch” (p. 16)
8	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
9	Function		Same as CH 6 in the mode “6 ch” (p. 19)

Mode 15 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Cyan 0, CH 6 Magenta 0, CH 8 Yellow 0, CH 10 Color Temperature 0, CH 13 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Cyan	0–63	0% ... 25%
		63	25%
		64–127	25% ... 50%
		127	50%
		128–191	50% ... 75%
		191	75%
		192–255	75% ... 100%
		255	100%
5	Cyan Fine	0–255	Fine adjustment of CH 4
6	Magenta	0–63	0% ... 25%
		63	25%
		64–127	25% ... 50%
		127	50%
		128–191	50% ... 75%
		191	75%
		192–255	75% ... 100%
		255	100%
7	Magenta Fine	0–255	Fine adjustment of CH 6
8	Yellow	0–63	0% ... 25%

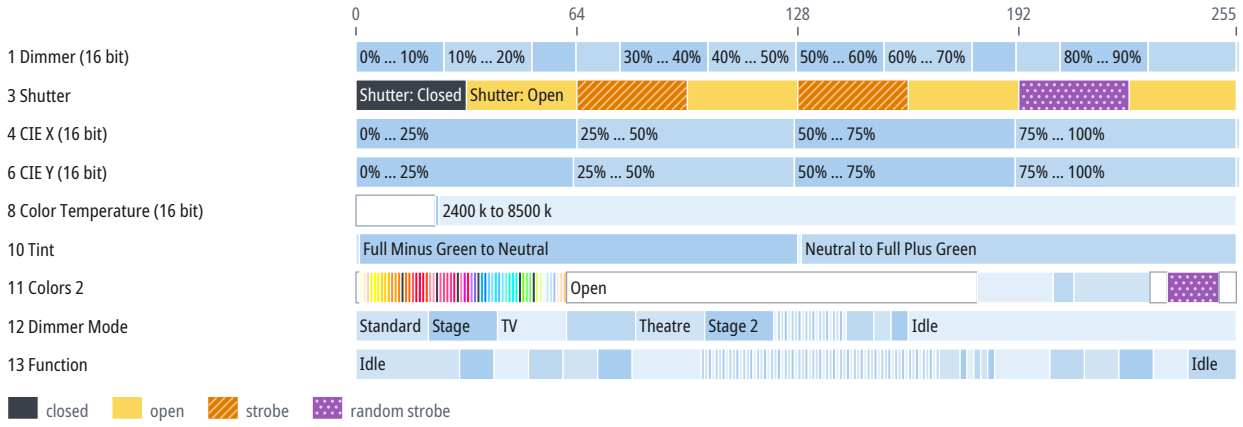
CH	Function	DMX	Description
8	Yellow (continued)	63	25%
		64–127	25% … 50%
		127	50%
		128–191	50% … 75%
		191	75%
		192–255	75% … 100%
		255	100%
9	Yellow Fine	0–255	Fine adjustment of CH 8
10	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
11	Color Temperature Fine	0–255	Fine adjustment of CH 10
12	Tint		Same as CH 16 in the mode “19 ch” (p. 24)
13	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
14	Dimmer Mode		Same as CH 18 in the mode “19 ch” (p. 24)
15	Function		Same as CH 6 in the mode “6 ch” (p. 19)

Mode 13 ch

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 8 Color Temperature 0, CH 11 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	CIE X		Coordinate X
		0–64	0% … 25%
		64–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%

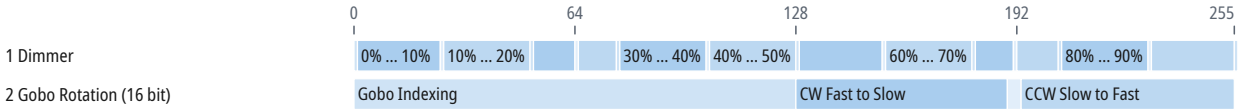
CH	Function	DMX	Description
5	CIE X Fine	0–255	Fine adjustment of CH 4
6	CIE Y		Coordinate Y
		0–63	0% … 25%
		63–127	25% … 50%
		127–191	50% … 75%
		191–255	75% … 100%
		255	100%
7	CIE Y Fine	0–255	Fine adjustment of CH 6
8	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
9	Color Temperature Fine	0–255	Fine adjustment of CH 8
10	Tint		Same as CH 16 in the mode “19 ch” (p. 24)
11	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
12	Dimmer Mode		Same as CH 18 in the mode “19 ch” (p. 24)
13	Function		Same as CH 6 in the mode “6 ch” (p. 19)

Mode 1 ch (+2 Gobo)

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



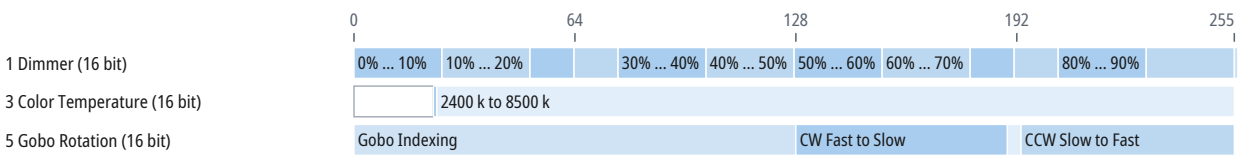
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “1 ch” (p. 12)
2	Gobo Rotation	0–128	Gobo Indexing (360°)
		128–189	CW Fast to Slow (360–10 °/s)
		190–193	Gobo 1 Pos Rotate: Stop
		194–255	CCW Slow to Fast (10–360 °/s)
3	Gobo Rotation Fine	0–255	Fine adjustment of CH 2

Mode 4 ch (+2 Gobo)

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 3 Color Temperature 0.

Channel functions at a glance



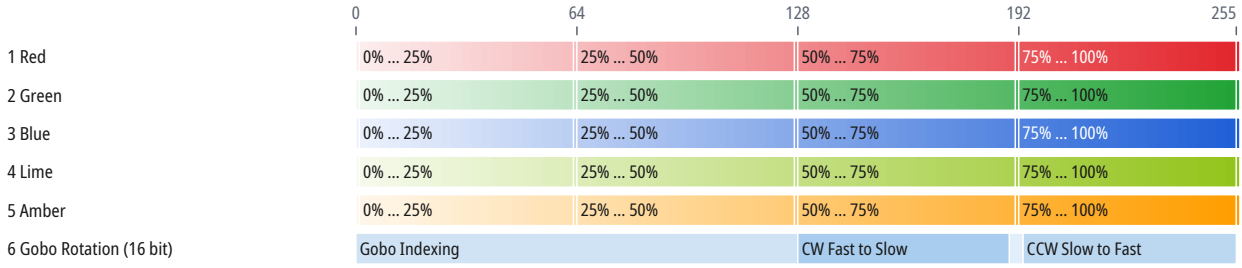
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
4	Color Temperature Fine	0–255	Fine adjustment of CH 3
5	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
6	Gobo Rotation Fine	0–255	Fine adjustment of CH 5

Mode 5 ch (+2 Gobo)

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 Red 255, CH 2 Green 255, CH 3 Blue 255, CH 4 Lime 255, CH 5 Amber 255.

Channel functions at a glance



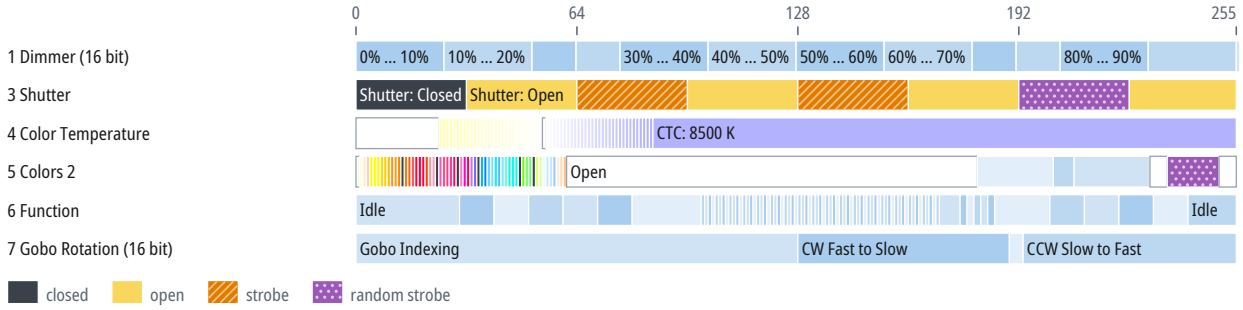
CH	Function	DMX	Description
1	Red		Same as CH 1 in the mode “5 ch” (p. 14)
2	Green		Same as CH 2 in the mode “5 ch” (p. 14)
3	Blue		Same as CH 3 in the mode “5 ch” (p. 14)
4	Lime		Same as CH 4 in the mode “5 ch” (p. 15)
5	Amber		Same as CH 5 in the mode “5 ch” (p. 15)
6	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
7	Gobo Rotation Fine	0–255	Fine adjustment of CH 6

Mode 6 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Color Temperature 0, CH 5 Colors 2 0.

Channel functions at a glance



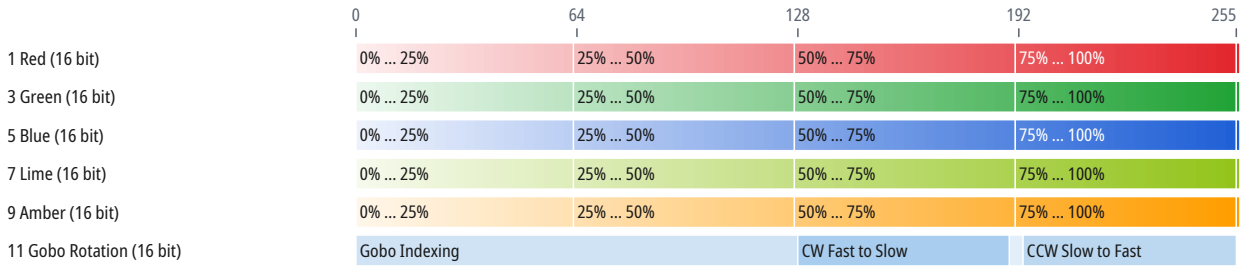
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Color Temperature		Same as CH 4 in the mode “6 ch” (p. 16)
5	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
6	Function		Same as CH 6 in the mode “6 ch” (p. 19)
7	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
8	Gobo Rotation Fine	0–255	Fine adjustment of CH 7

Mode 10 ch (+2 Gobo)

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 Red 255, CH 3 Green 255, CH 5 Blue 255, CH 7 Lime 255, CH 9 Amber 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Red		Same as CH 1 in the mode “10 ch” (p. 21)
2	Red Fine	0–255	Fine adjustment of CH 1
3	Green		Same as CH 3 in the mode “10 ch” (p. 21)
4	Green Fine	0–255	Fine adjustment of CH 3

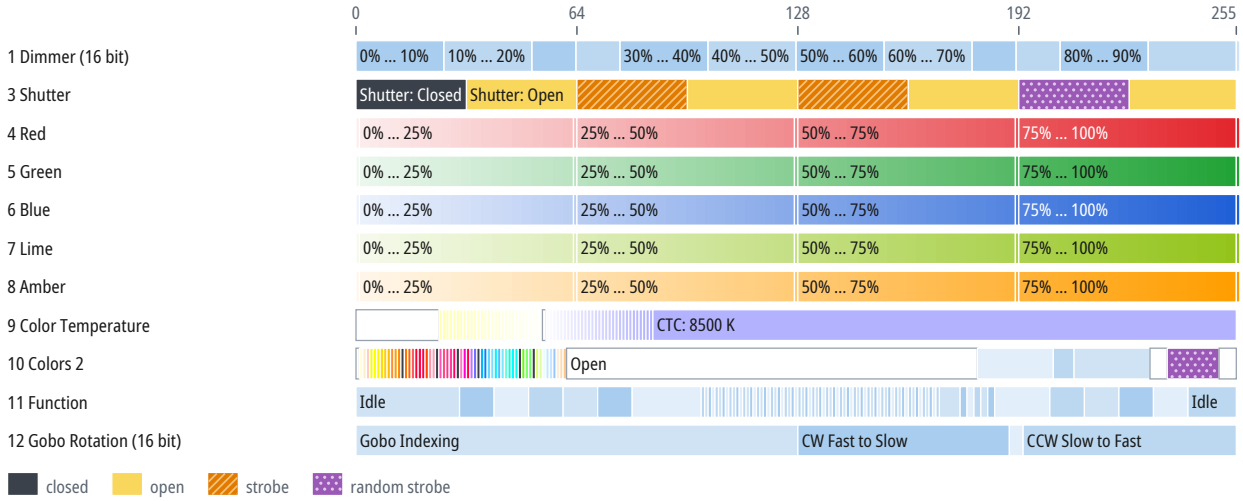
CH	Function	DMX	Description
5	Blue		Same as CH 5 in the mode “10 ch” (p. 22)
6	Blue Fine	0–255	Fine adjustment of CH 5
7	Lime		Same as CH 7 in the mode “10 ch” (p. 22)
8	Lime Fine	0–255	Fine adjustment of CH 7
9	Amber		Same as CH 9 in the mode “10 ch” (p. 22)
10	Amber Fine	0–255	Fine adjustment of CH 9
11	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
12	Gobo Rotation Fine	0–255	Fine adjustment of CH 11

Mode 11 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Red 255, CH 5 Green 255, CH 6 Blue 255, CH 7 Lime 255, CH 8 Amber 255, CH 9 Color Temperature 0, CH 10 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Red		Same as CH 1 in the mode “5 ch” (p. 14)
5	Green		Same as CH 2 in the mode “5 ch” (p. 14)
6	Blue		Same as CH 3 in the mode “5 ch” (p. 14)
7	Lime		Same as CH 4 in the mode “5 ch” (p. 15)
8	Amber		Same as CH 5 in the mode “5 ch” (p. 15)
9	Color Temperature		Same as CH 4 in the mode “6 ch” (p. 16)
10	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)

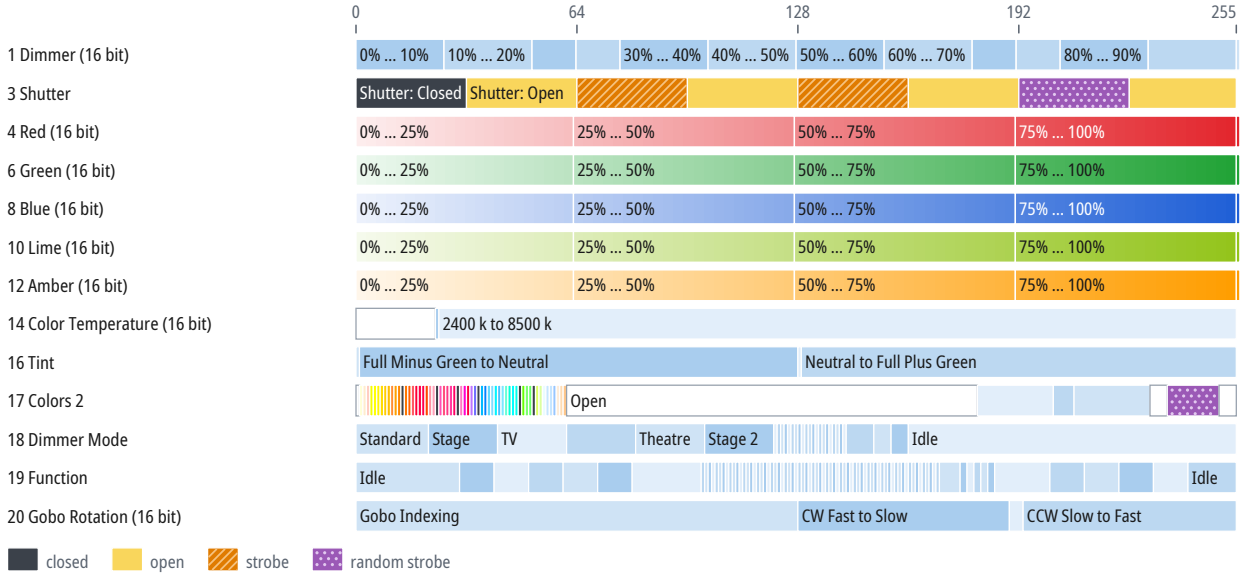
CH	Function	DMX	Description
11	Function		Same as CH 6 in the mode “6 ch” (p. 19)
12	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
13	Gobo Rotation Fine	0–255	Fine adjustment of CH 12

Mode 19 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Red 255, CH 6 Green 255, CH 8 Blue 255, CH 10 Lime 255, CH 12 Amber 255, CH 14 Color Temperature 0, CH 17 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Red		Same as CH 1 in the mode “10 ch” (p. 21)
5	Red Fine	0–255	Fine adjustment of CH 4
6	Green		Same as CH 3 in the mode “10 ch” (p. 21)
7	Green Fine	0–255	Fine adjustment of CH 6
8	Blue		Same as CH 5 in the mode “10 ch” (p. 22)
9	Blue Fine	0–255	Fine adjustment of CH 8
10	Lime		Same as CH 7 in the mode “10 ch” (p. 22)
11	Lime Fine	0–255	Fine adjustment of CH 10
12	Amber		Same as CH 9 in the mode “10 ch” (p. 22)
13	Amber Fine	0–255	Fine adjustment of CH 12
14	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)

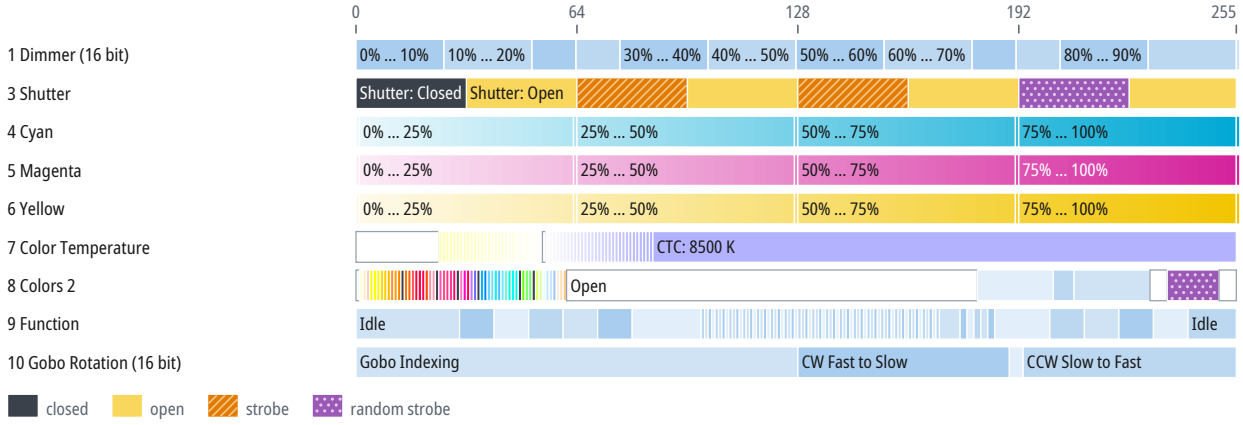
CH	Function	DMX	Description
15	Color Temperature Fine	0–255	Fine adjustment of CH 14
16	Tint		Same as CH 16 in the mode “19 ch” (p. 24)
17	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
18	Dimmer Mode		Same as CH 18 in the mode “19 ch” (p. 24)
19	Function		Same as CH 6 in the mode “6 ch” (p. 19)
20	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
21	Gobo Rotation Fine	0–255	Fine adjustment of CH 20

Mode 9 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Cyan 0, CH 5 Magenta 0, CH 6 Yellow 0, CH 7 Color Temperature 0, CH 8 Colors 2 0.

Channel functions at a glance



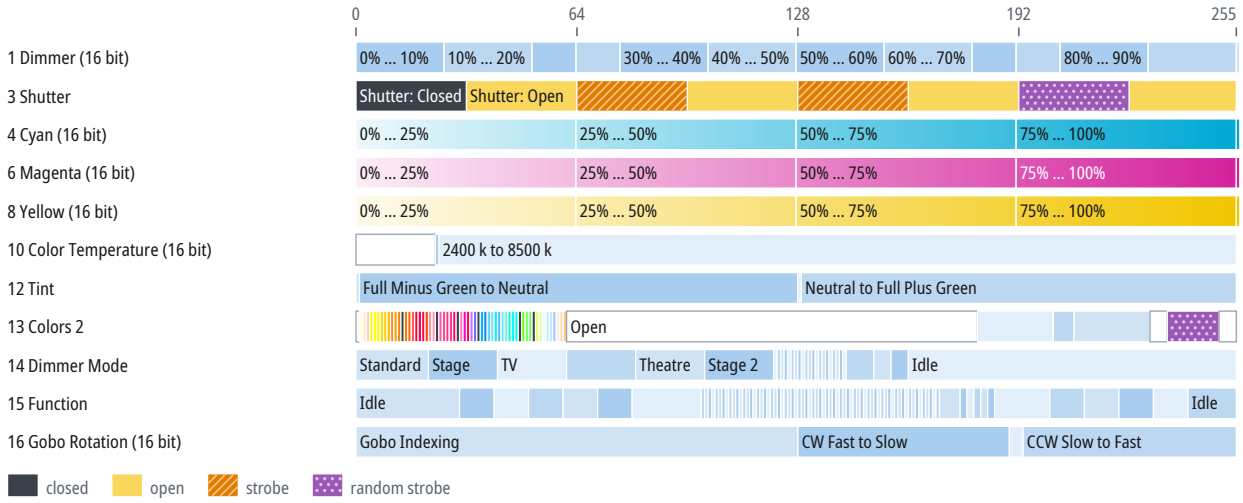
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Cyan		Same as CH 4 in the mode “9 ch” (p. 25)
5	Magenta		Same as CH 5 in the mode “9 ch” (p. 25)
6	Yellow		Same as CH 6 in the mode “9 ch” (p. 25)
7	Color Temperature		Same as CH 4 in the mode “6 ch” (p. 16)
8	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
9	Function		Same as CH 6 in the mode “6 ch” (p. 19)
10	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
11	Gobo Rotation Fine	0–255	Fine adjustment of CH 10

Mode 15 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 4 Cyan 0, CH 6 Magenta 0, CH 8 Yellow 0, CH 10 Color Temperature 0, CH 13 Colors 2 0.

Channel functions at a glance



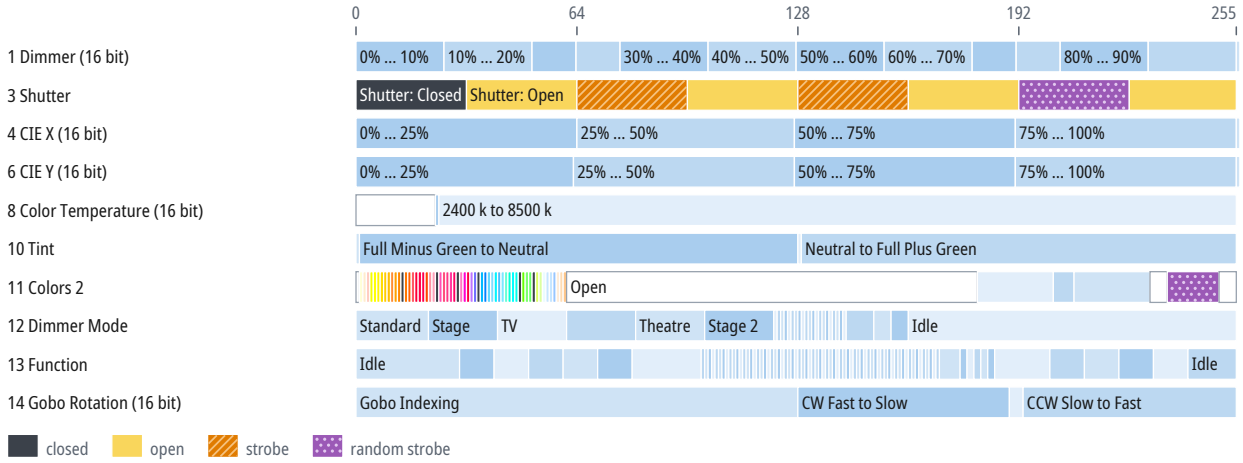
CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	Cyan		Same as CH 4 in the mode “15 ch” (p. 26)
5	Cyan Fine	0–255	Fine adjustment of CH 4
6	Magenta		Same as CH 6 in the mode “15 ch” (p. 26)
7	Magenta Fine	0–255	Fine adjustment of CH 6
8	Yellow		Same as CH 8 in the mode “15 ch” (p. 26)
9	Yellow Fine	0–255	Fine adjustment of CH 8
10	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
11	Color Temperature Fine	0–255	Fine adjustment of CH 10
12	Tint		Same as CH 16 in the mode “19 ch” (p. 24)
13	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
14	Dimmer Mode		Same as CH 18 in the mode “19 ch” (p. 24)
15	Function		Same as CH 6 in the mode “6 ch” (p. 19)
16	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
17	Gobo Rotation Fine	0–255	Fine adjustment of CH 16

Mode 13 ch (+2 Gobo)

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

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Shutter 50, CH 8 Color Temperature 0, CH 11 Colors 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “4 ch” (p. 13)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter		Same as CH 3 in the mode “6 ch” (p. 15)
4	CIE X		Same as CH 4 in the mode “13 ch” (p. 27)
5	CIE X Fine	0–255	Fine adjustment of CH 4
6	CIE Y		Same as CH 6 in the mode “13 ch” (p. 28)
7	CIE Y Fine	0–255	Fine adjustment of CH 6
8	Color Temperature		Same as CH 3 in the mode “4 ch” (p. 14)
9	Color Temperature Fine	0–255	Fine adjustment of CH 8
10	Tint		Same as CH 16 in the mode “19 ch” (p. 24)
11	Colors 2		Same as CH 5 in the mode “6 ch” (p. 17)
12	Dimmer Mode		Same as CH 18 in the mode “19 ch” (p. 24)
13	Function		Same as CH 6 in the mode “6 ch” (p. 19)
14	Gobo Rotation		Same as CH 2 in the mode “1 ch (+2 Gobo)” (p. 28)
15	Gobo Rotation Fine	0–255	Fine adjustment of CH 14

10 Technical specifications

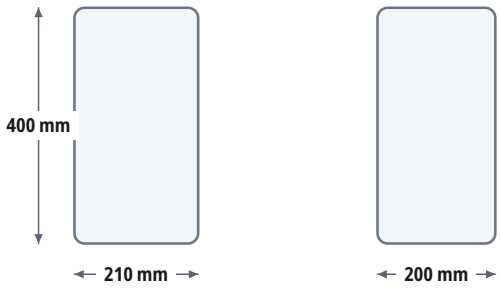
Parameter	Value
Light	
Light source	LED
LED power	460 W
Luminous flux	3,380 lm
Color temperature	6,500 K
Color rendering index (CRI)	80
Optics	
Beam angle	7°
Control	
RDM	yes (manufacturer ID 0x22A6, device model ID 0x004D)
Dimensions and construction	
Weight	10 kg
Operating environment	
Ingress protection	IP67
Meaning of the IP code (IEC 60529)	Dust-tight; protected against the effects of temporary immersion in water (up to 1 m)
Operating temperature	0 to 40 °C

Speeds and ranges

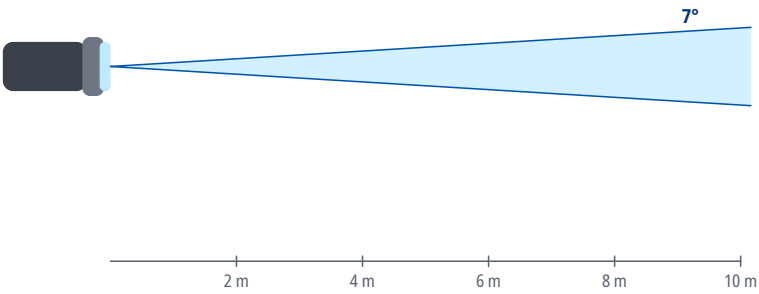
Parameter	Value
Color temperature range	2400–8500 K
Strobe frequency	0.5–10 Hz
LED frequency	900–25000 Hz
Color wheel 1 rotation	up to 7200 °/s (1200 rpm)
Gobo rotation	up to 360 °/s (60 rpm)

Dimensions

weight 10 kg



Spot diameter



Distance	Ø 7°
2 m	0.24 m
4 m	0.49 m
6 m	0.73 m
8 m	0.98 m
10 m	1.2 m
15 m	1.8 m

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

11 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.

12 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.

13 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.