DMX REFERENCE

Dynamo 19M

Leding

Manufacturer	Leding
GDTF file	Leding_Dynamo_19M_60856.gdtf
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1 About this manual

This document describes the Dynamo 19M by Leding. It was compiled from the GDTF file Leding_Dynamo_19M_60856.gdtf from the GDTF-Share library.

File revision: “V1.0”.

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 Leding; 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

DMX modes

Mode	Channels	Units in one universe	First start addresses
HSIC	20	25	1, 21, 41, 61, ...
SPP	18	28	1, 19, 37, 55, ...
TOUR	22	23	1, 23, 45, 67, ...
TR16	29	17	1, 30, 59, 88, ...
CMY	23	22	1, 24, 47, 70, ...
ZONE	28	18	1, 29, 57, 85, ...

No light? Check these channels

- HSIC: CH 6 Dimmer 1 above 0; CH 11 Shutter at 0–9, 100–109 or 180–189 “open”; CH 19 Dimmer 2 above 0
- SPP: CH 8 Dimmer 1 above 0; CH 9 Shutter at 0–9, 100–109 or 180–189 “open”; CH 17 Dimmer 2 above 0
- TOUR: CH 8 Dimmer 1 above 0; CH 9 Shutter at 0–9, 100–109 or 180–189 “open”; CH 21 Dimmer 2 above 0
- TR16: CH 14 Dimmer 1 above 1; CH 16 Shutter at 0–9, 100–109 or 180–189 “open”; CH 28 Dimmer 2 above 0
- CMY: CH 9 Dimmer 1 above 0; CH 10 Shutter at 0–9, 100–109 or 180–189 “open”; CH 22 Dimmer 2 above 0
- ZONE: CH 13 Dimmer 1 above 0; CH 15 Dimmer 2 above 0; CH 16 Shutter at 0–9, 100–109 or 180–189 “open”


Read the manual before use


Do not stare into the light


Indoor use only

3 Safety instructions



Read the manual before use



Do not stare into the light



Indoor use only

⚠ WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

⚠ WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

⚠ CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

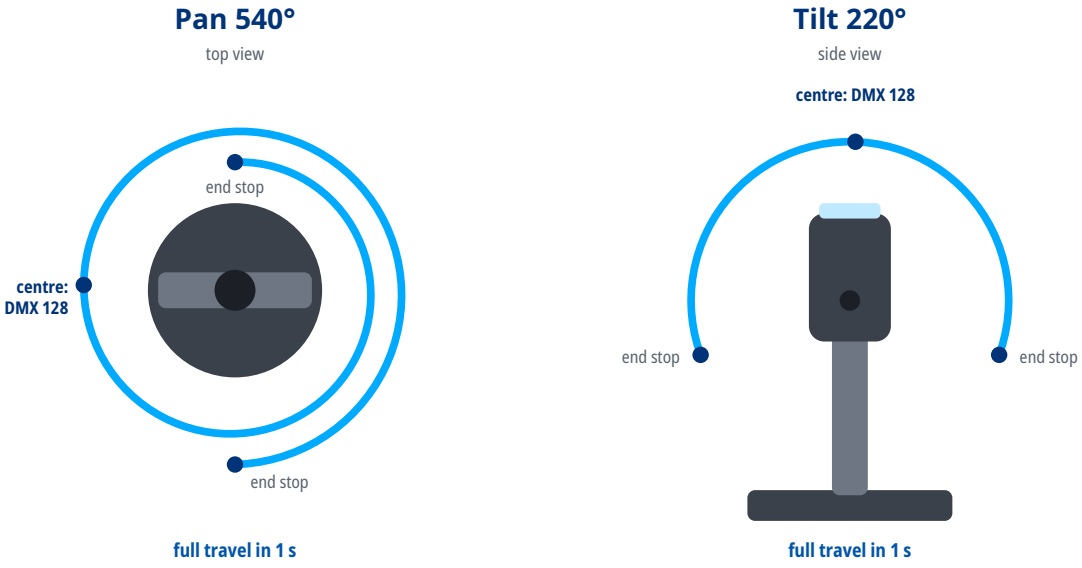
⚠ CAUTION

- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them longer than necessary.

> ⚠ **WARNING**
>
> - The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
> - Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
> - Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

4 Product description

Range of movement



Full-travel times as stated in the GDTF file.

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.
> - 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.

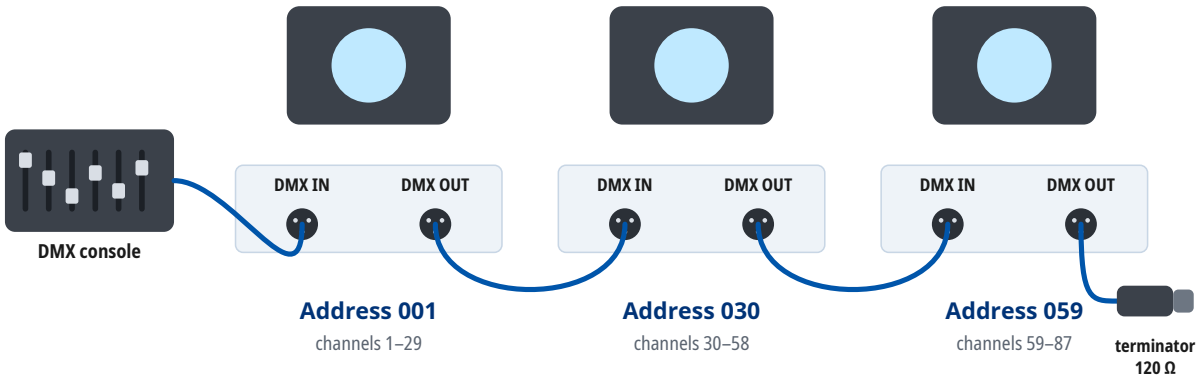
6 Connections

- 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 TR16: every unit occupies 29 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

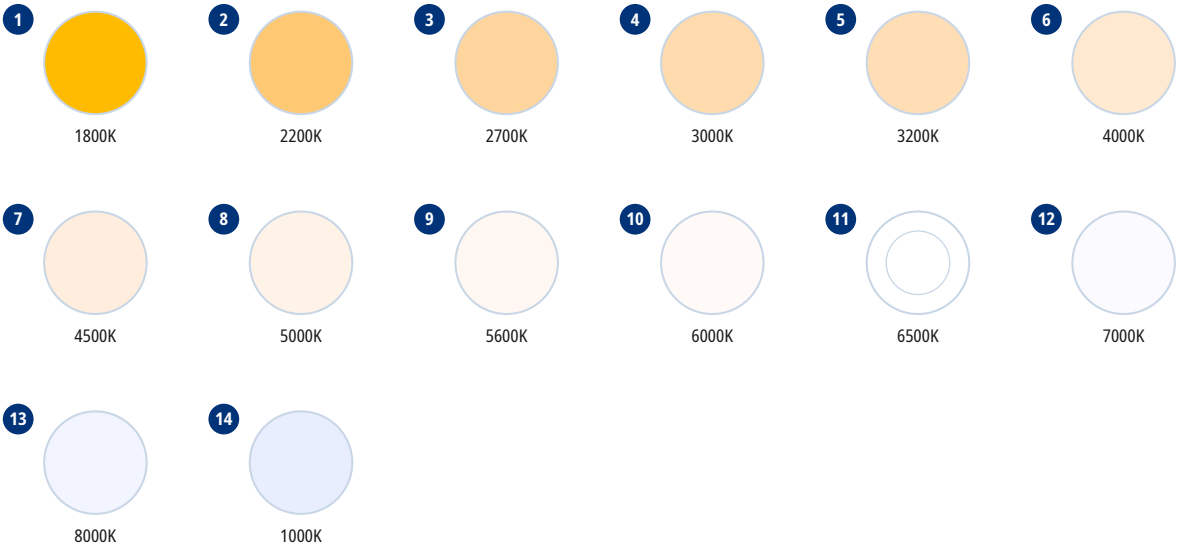
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “TR16”: 29.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “TR16”, you can use, for example, the start addresses 1, 30, 59, 88.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

8 Functions at a glance

Functions in each DMX mode

	HSIC 20 channels	SPP 18 channels	TOUR 22 channels	TR16 29 channels	CMY 23 channels	ZONE 28 channels
Pan / Tilt	1, 3	1, 2	1, 2	1, 3	1, 3	1, 3
Pan / Tilt resolution	16 bit	8 bit	8 bit	16 bit	16 bit	16 bit
Dimmer	6, 19	8, 17	8, 21	14, 28	9, 22	13, 15
Dimmer resolution	8 bit	8 bit	8 bit	16 bit	8 bit	8 bit
Shutter / strobe	11	9	9	16	10	16
Color mixing	13–15	4–7, 11–13	4–7, 15–17	7 channels (6–24)	6–8, 16–18	7–9, 17–28
Color temperature	10		11	18	12	
Zoom	12	10	14	21	15	6
Pixel control						✓

Color wheel 1



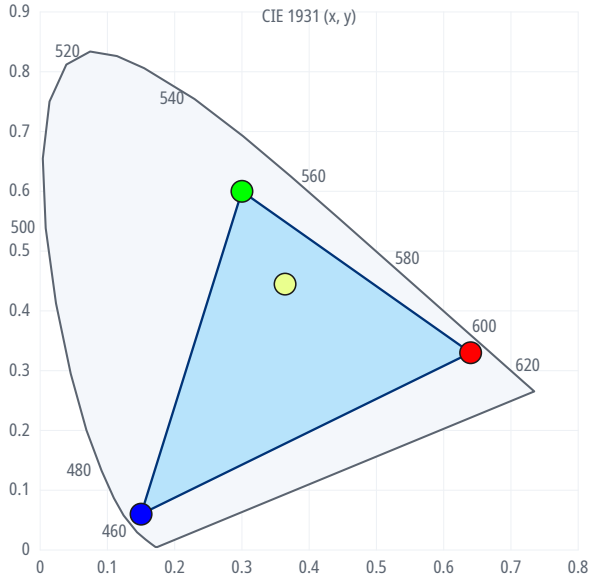
Color wheel 2

1 L176 Loving Amber
2 R40 Light Salmon
3 L24 Scarlet
4 L164 Flame Red
5 L747 Easy White
6 R303 Warm Peach
7 L08 Dark Salmon
8 L25 Sunset Red
9 L04 Medium Bastard Amber
10 L237 CID(To Tungsten)
11 R321 Soft Golden Amber
12 L652 Urban Sodium
13 L212 LCT Yellow(Y1)
14 L765 LEE Yellow
15 L513 Ice And A Slice
16 L100 Spring Yellow
17 L244 LEE Plus Green
18 R4430 CalColor 30 Green
19 L122 Fern Green
20 L90 Dark Yellow Green
21 L243 LEE Fluorescent3600K
22 R92 Turquoise
23 R94 Kelly Green
24 L327 Forest Green
25 L191 Cosmetic Aqua Blue
26 L728 Steel Green
27 L117 Steel Blue
28 L354 Special Steel Blue
29 L53 Paler Lavender
30 L501 New Colour Blue
31 L174 Dark Steel Blue
32 L165 Daylight Blue
33 L136 Pale Lavender
34 L194 Surprise Pink
35 L142 Pale Violet
36 L700 Perfect Lavender
37 L35 Light Pink
38 L794 Pretty'n Pink
39 L328 Follies Pink
40 L795 Magical Magenta
41 L154 Pale Rose
42 L127 Smokey Pink
43 L192 Flesh Pink
44 L332 Special Rose Pink
45 L790 Moroccan Pink
46 L157 Pink
47 R332 Cherry Rose
48 L128 Cool LED Bright Pink

49

BLK

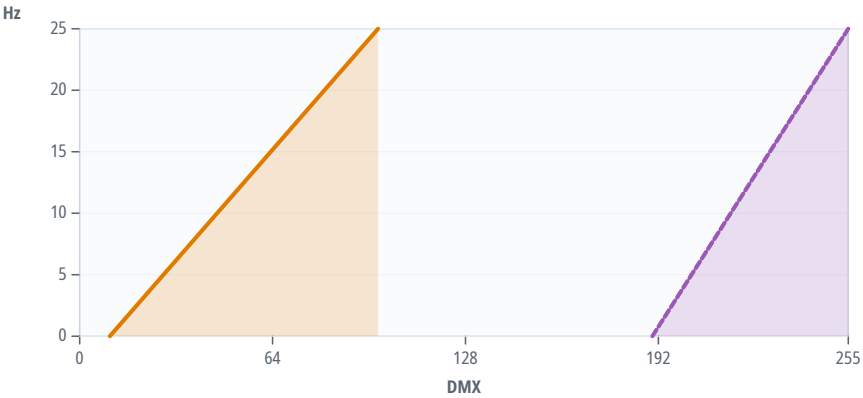
LED colors and the colors they mix



LED	x	y
R	0.640	0.330
G	0.300	0.600
B	0.150	0.060
Lime	0.364	0.445

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

Strobe rate



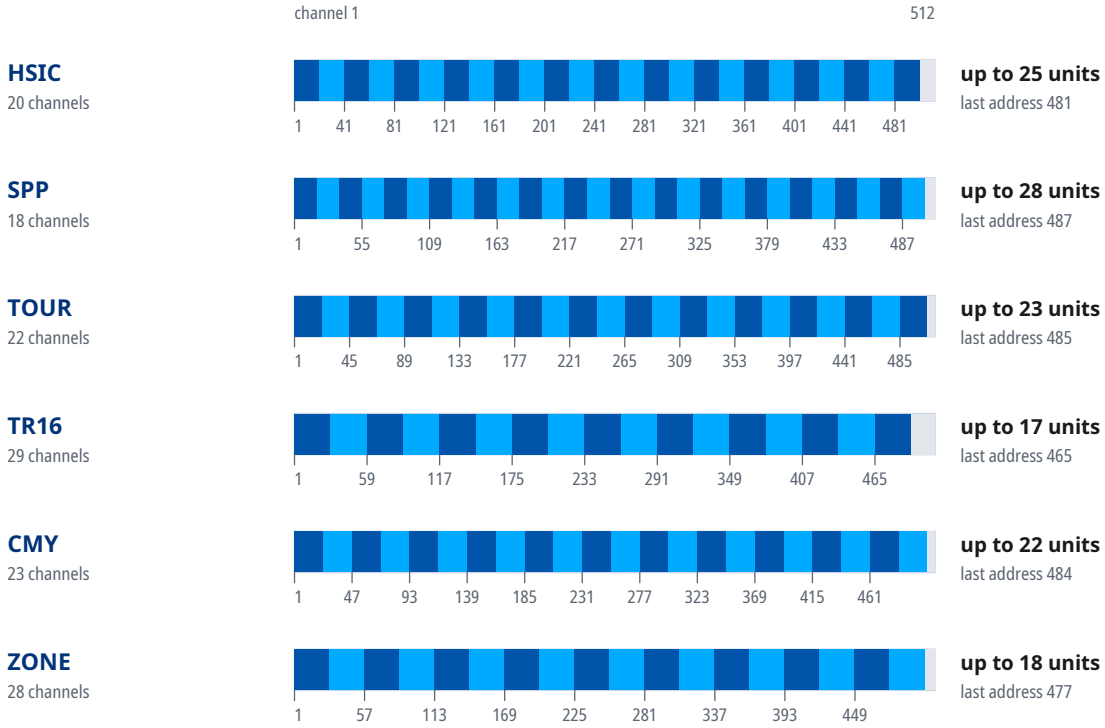
CH 16 · ZONE

10–99: 0–25 Hz
Shutter1Strobe 2

190–255: 0–25 Hz
Shutter1StrobeRandom 6

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “TR16”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	146	11	291	16	436
2	30	7	175	12	320	17	465
3	59	8	204	13	349	18	U2 · 1
4	88	9	233	14	378	19	U2 · 30
5	117	10	262	15	407	20	U2 · 59

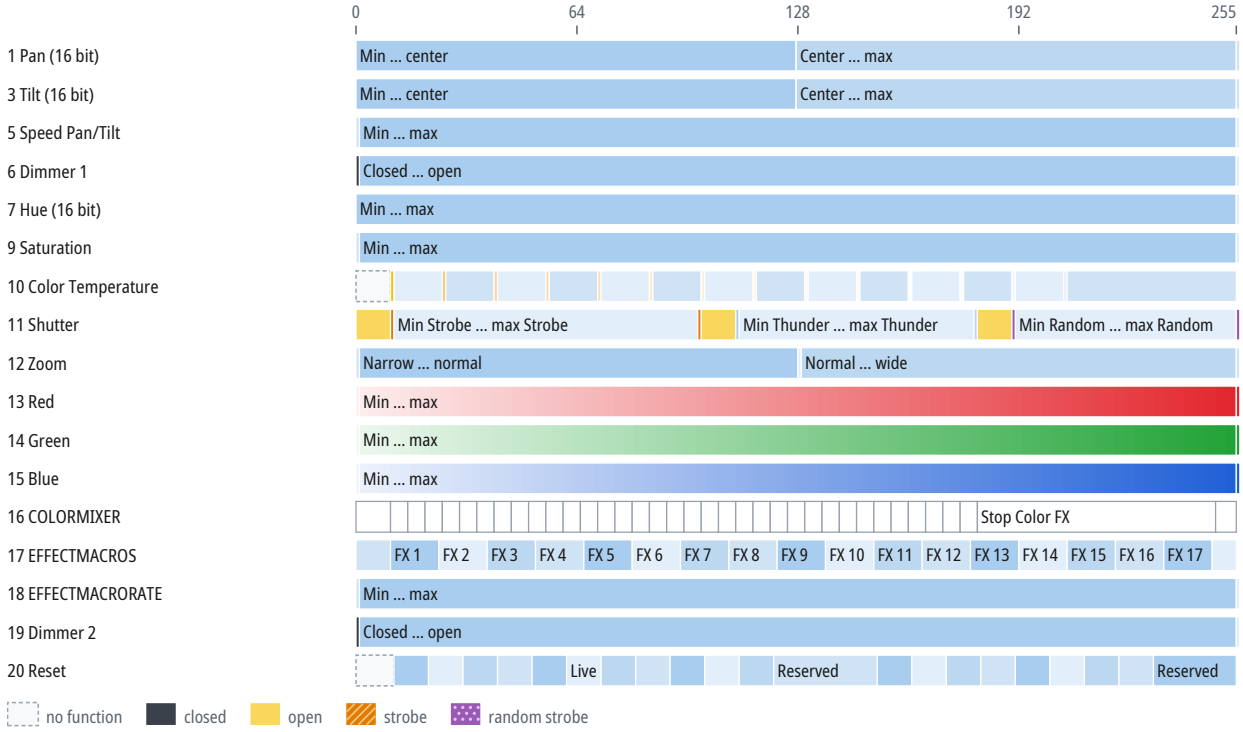
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode HSIC

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 6 Dimmer 1 above 0; CH 11 Shutter at 0–9, 100–109 or 180–189 “open”; CH 19 Dimmer 2 above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Dimmer 1 255, CH 10 Color Temperature 0, CH 11 Shutter 0, CH 13 Red 255, CH 14 Green 255, CH 15 Blue 255, CH 19 Dimmer 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Min ... center
		128–255	Center ... max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Min ... center
		128–255	Center ... max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt		Position MSeep 1
		0	Min
		1–254	Min ... max
		255	Max
6	Dimmer 1	0	Closed
		1–254	Closed ... open
		255	Open
7	Hue	0–255	Min ... max

CH	Function	DMX	Description
7	Hue (continued)	255	Max
8	Hue Fine	0–255	Fine adjustment of CH 7
9	Saturation	0	Min
		1–254	Min ... max
		255	Max
10	Color Temperature	0–9	No Function
		10	1800K
		11–24	1800K ... 2200K
		25	2200K
		26–39	2200K ... 2700K
		40	2700K
		41–54	2700K ... 3000K
		55	3000K
		56–69	3000K ... 3200k
		70	3200k
		71–84	3200k ... 4000K
		85	4000K
		86–99	4000K ... 4500K
		100	4500K
		101–114	4500K ... 5000
		115	5000
		116–129	5000 ... 5600K
		130	5600K
		131–144	5600K ... 6000K
		145	6000K
		146–159	6000K ... 6500K
		160	6500K
		161–174	6500K ... 7000K
		175	7000K
		176–189	7000K ... 8000K
		190	8000K
		191–204	8000K ... 10000K
		205	10000K
		206–255	CTC 1
11	Shutter	0–9	Shutter 1: open
		10	Min Strobe
		11–98	Min Strobe ... max Strobe
		99	Max Strobe
		100–109	Shutter 1: open
		110	Min Thunder
		111–178	Min Thunder ... max Thunder
		179	Max Thunder

CH	Function	DMX	Description
11	Shutter (continued)	180–189	Shutter 1: open
		190	Min Random
		191–254	Min Random ... max Random
		255	Max Random
12	Zoom	0	Narrow
		1–127	Narrow ... normal
		128	Normal
		129–254	Normal ... wide
		255	Wide
13	Red		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
14	Green		Color RGB_G 1
		0	Min
		1–254	Min ... max
		255	Max
15	Blue		Color RGB_B 1
		0	Min
		1–254	Min ... max
		255	Max
16	COLORMIXER	0–9	Open
		10–14	Red
		15–19	Green
		20–24	Blue
		25–29	Yellow
		30–34	Magenta
		35–39	Cyan
		40–44	White
		45–49	Violet Blue
		50–54	Light BLue
		55–59	Wine Red
		60–64	May Green
		65–69	Reseda Green
		70–74	Blue Lilac
		75–79	Moss Green
		80–84	Signal Violet
		85–89	Red Lilac
		90–94	Purple Red
		95–99	Green Brown
		100–104	Pale Green
		105–109	Ruby Red

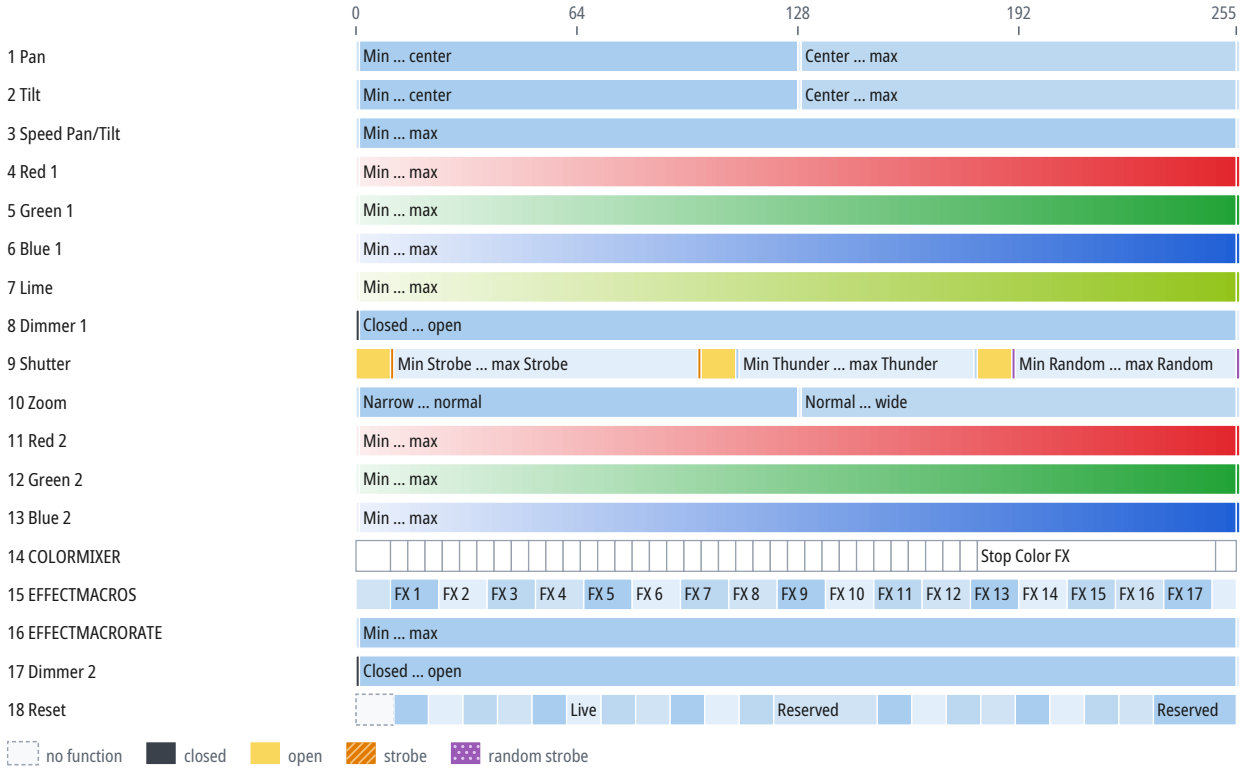
CH	Function	DMX	Description
16	COLORMIXER (continued)	110–114	Flame Red
		115–119	Red Orange
		120–124	Rose
		125–129	Honey Yellow
		130–134	Light Pink
		135–139	Deep Orange
		140–144	Lemmon
		145–149	Golden Yellow
		150–154	Pastel Orange
		155–159	Cream
		160–164	Melon Yellow
		165–169	Luminous Orange
		170–174	Luminous Yellow
		175–179	Open
		180–248	Stop Color FX
		249–255	Open
17	EFFECTMACROS	0–9	Open
		10–23	FX 1
		24–37	FX 2
		38–51	FX 3
		52–65	FX 4
		66–79	FX 5
		80–93	FX 6
		94–107	FX 7
		108–121	FX 8
		122–135	FX 9
		136–149	FX 10
		150–163	FX 11
		164–177	FX 12
		178–191	FX 13
		192–205	FX 14
		206–219	FX 15
		220–233	FX 16
		234–247	FX 17
		248–255	Open
18	EFFECTMACRORATE	0	Min
		1–254	Min ... max
		255	Max
19	Dimmer 2	0	Closed
		1–254	Closed ... open
		255	Open
20	Reset	0–10	No Function

CH	Function	DMX	Description
20	Reset (continued)	11–20	P/T Black On
		21–30	P/T Black Off
		31–40	Pan Invert
		41–50	Tilt Invert
		51–60	P/T Invert Off
		61–70	Live
		71–80	Studio
		81–90	Power
		91–100	Reserved
		101–110	Dimmer Off
		111–120	Dimmer 4
		121–150	Reserved
		151–160	1200Hz
		161–170	2400Hz
		171–180	4000Hz
		181–190	6000Hz
		191–200	25000Hz
		201–210	ALL Reset
		211–220	XY Reset
		221–230	Zoom Reset
		231–255	Reserved

Mode SPP

If the device receives DMX in this mode but gives no light, check these channels: CH 8 Dimmer 1 above 0; CH 9 Shutter at 0–9, 100–109 or 180–189 “open”; CH 17 Dimmer 2 above 0. The GDTF file gives these values for a console's Highlight function: CH 4 Red 1 255, CH 5 Green 1 255, CH 6 Blue 1 255, CH 7 Lime 255, CH 8 Dimmer 1 255, CH 9 Shutter 0, CH 11 Red 2 255, CH 12 Green 2 255, CH 13 Blue 2 255, CH 17 Dimmer 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0	Min
		1–127	Min ... center
		128	Center
		129–254	Center ... max
		255	Max
2	Tilt	0	Min
		1–127	Min ... center
		128	Center
		129–254	Center ... max
		255	Max
3	Speed Pan/Tilt		Same as CH 5 in the mode “HSIC” (p. 11)
4	Red 1		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
5	Green 1		Color RGB_G 1

CH	Function	DMX	Description
5	Green 1 (continued)	0	Min
		1–254	Min ... max
		255	Max
6	Blue 1		Color RGB_B 1
		0	Min
		1–254	Min ... max
		255	Max
7	Lime		Color RGB_GY 1
		0	Min
		1–254	Min ... max
		255	Max
8	Dimmer 1		Same as CH 6 in the mode “HSIC” (p. 11)
9	Shutter		Same as CH 11 in the mode “HSIC” (p. 12)
10	Zoom		Same as CH 12 in the mode “HSIC” (p. 13)
11	Red 2		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
12	Green 2		Color RGB_G 1
		0	Min
		1–254	Min ... max
		255	Max
13	Blue 2		Color RGB_B 1
		0	Min
		1–254	Min ... max
		255	Max
14	COLORMIXER		Same as CH 16 in the mode “HSIC” (p. 13)
15	EFFECTMACROS		Same as CH 17 in the mode “HSIC” (p. 14)
16	EFFECTMACRORATE		Same as CH 18 in the mode “HSIC” (p. 14)
17	Dimmer 2		Same as CH 19 in the mode “HSIC” (p. 14)
18	Reset		Same as CH 20 in the mode “HSIC” (p. 14)

Mode TOUR

If the device receives DMX in this mode but gives no light, check these channels: CH 8 Dimmer 1 above 0; CH 9 Shutter at 0–9, 100–109 or 180–189 “open”; CH 21 Dimmer 2 above 0. The GDTF file gives these values for a console's Highlight function: CH 4 Red 1 255, CH 5 Green 1 255, CH 6 Blue 1 255, CH 7 Lime 255, CH 8 Dimmer 1 255, CH 9 Shutter 0, CH 11 Color Temperature 0, CH 15 Red 2 255, CH 16 Green 2 255, CH 17 Blue 2 255, CH 21 Dimmer 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “SPP” (p. 16)
2	Tilt		Same as CH 2 in the mode “SPP” (p. 16)
3	Speed Pan/Tilt		Same as CH 5 in the mode “HSIC” (p. 11)
4	Red 1		Same as CH 4 in the mode “SPP” (p. 16)
5	Green 1		Same as CH 5 in the mode “SPP” (p. 16)
6	Blue 1		Same as CH 6 in the mode “SPP” (p. 17)
7	Lime		Same as CH 7 in the mode “SPP” (p. 17)
8	Dimmer 1		Same as CH 6 in the mode “HSIC” (p. 11)
9	Shutter		Same as CH 11 in the mode “HSIC” (p. 12)
10	COLORMIXER 1	0–10	No Function
		11–15	No Function ... R40
		16–20	R40

CH	Function	DMX	Description
10	COLORMIXER 1 (continued)	21–25	L24
		26–30	L164
		31–40	L164 ... L08
		41–45	L08
		46–50	L25
		51–55	L25 ... L237
		56–60	L237
		61–65	R321
		66–70	L652
		71–75	L652 ... L765
		76–80	L765
		81–85	L513
		86–105	L513 ... L90
		106–110	L90
		111–115	L90 ... R92
		116–120	R92
		121–135	R92 ... L728
		136–140	L728
		141–145	L117
		146–150	L354
		151–155	L354 ... L501
		156–160	L501
		161–165	L174
		166–180	L174 ... L142
		181–185	L142
		186–195	L142 ... L794
		196–200	L794
		201–205	L328
		206–215	L328 ... L127
		216–220	L127
		221–225	L192
		226–235	L192 ... L157
		236–240	L157
		241–245	R332
		246–255	COLORMIXMACROSELECT 1
11	Color Temperature	0–9	No Function
		10	1800K
		11–24	1800K ... 2200K
		25	2200K
		26–39	2200K ... 2700K
		40	2700K
		41–54	2700K ... 3000K

CH	Function	DMX	Description
11	Color Temperature (continued)	55	3000K
		56–69	3000K … 3200K
		70	3200K
		71–84	3200K … 4000K
		85	4000K
		86–99	4000K … 4500K
		100	4500K
		101–114	4500K … 5000
		115	5000
		116–129	5000 … 5600K
		130	5600K
		131–144	5600K … 6000K
		145	6000K
		146–159	6000K … 6500K
		160	6500K
		161–174	6500K … 7000K
		175	7000K
		176–189	7000K … 8000K
		190	8000K
		191–204	8000K … 10000K
		205	10000K
		206–255	CTC 1
12	EFFECTMACROS 1	0–10	No Function
		11–15	Zone 1
		16–20	Zone 2
		21–25	Zone 3
		26–30	Zone 1+2
		31–35	Zone 1+3
		36–40	Zone 2+3
		41–45	Zone FX 1
		46–50	Zone FX 2
		51–55	Zone FX 3
		56–60	Zone FX 4
		61–65	Zone FX 5
		66–70	Zone FX 6
		71–75	Zone FX 7
		76–80	Zone FX 8
		81–85	Zone FX 9
		86–90	Zone FX 10
		91–95	Zone FX 11
		96–100	Zone FX 12

CH	Function	DMX	Description
12	EFFECTMACROS 1 (continued)	101–105	Zone FX 13
		106–110	Zone FX 14
		111–115	Zone FX 15
		116–120	Zone FX 16
		121–125	Zone FX 17
		126–130	Zone FX 18
		131–135	Zone FX 19
		136–140	Zone FX 20
		141–145	Zone FX 21
		146–150	Zone FX 22
		151–155	Zone FX 23
		156–160	Zone FX 24
		161–165	Zone FX 25
		166–170	Zone FX 26
		171–175	Zone FX 27
		176–180	Zone FX 28
		181–185	Zone FX 29
		186–190	Zone FX 30
		191–195	Zone FX 31
		196–200	Zone FX 32
		201–205	Zone FX 33
		206–210	Zone FX 34
		211–215	Zone FX 35
		216–220	Zone FX 36
		221–225	Zone FX 37
		226–230	Zone FX 38
		231–235	Zone FX 39
		236–240	Zone FX 40
		241–245	Zone FX 41
		246–250	Zone FX 42
		251–255	No Function (1)
13	EFFECTMACRORATE 1	0	Min
		1–254	Min ... max
		255	Max
14	Zoom		Same as CH 12 in the mode “HSIC” (p. 13)
15	Red 2		Same as CH 11 in the mode “SPP” (p. 17)
16	Green 2		Same as CH 12 in the mode “SPP” (p. 17)
17	Blue 2		Same as CH 13 in the mode “SPP” (p. 17)
18	COLORMIXER 2	0–9	Open
		10–14	Red
		15–19	Green

CH	Function	DMX	Description
18	COLORMIXER 2 (continued)	20–24	Blue
		25–29	Yellow
		30–34	Magenta
		35–39	Cyan
		40–44	White
		45–49	Violet Blue
		50–54	Light BLue
		55–59	Wine Red
		60–64	May Green
		65–69	Reseda Green
		70–74	Blue Lilac
		75–79	Moss Green
		80–84	Signal Violet
		85–89	Red Lilac
		90–94	Purple Red
		95–99	Green Brown
		100–104	Pale Green
		105–109	Ruby Red
		110–114	Flame Red
		115–119	Red Orange
		120–124	Rose
		125–129	Honey Yellow
		130–134	Light Pink
		135–139	Deep Orange
		140–144	Lemmon
		145–149	Golden Yellow
		150–154	Pastel Orange
		155–159	Cream
		160–164	Melon Yellow
		165–169	Luminous Orange
		170–174	Luminous Yellow
		175–179	Open
		180–248	Stop Color FX
		249–255	Open
19	EFFECTMACROS 2		EFFECTMACROSELECT 1
		0–9	Open
		10–23	FX 1
		24–37	FX 2
		38–51	FX 3
		52–65	FX 4
		66–79	FX 5

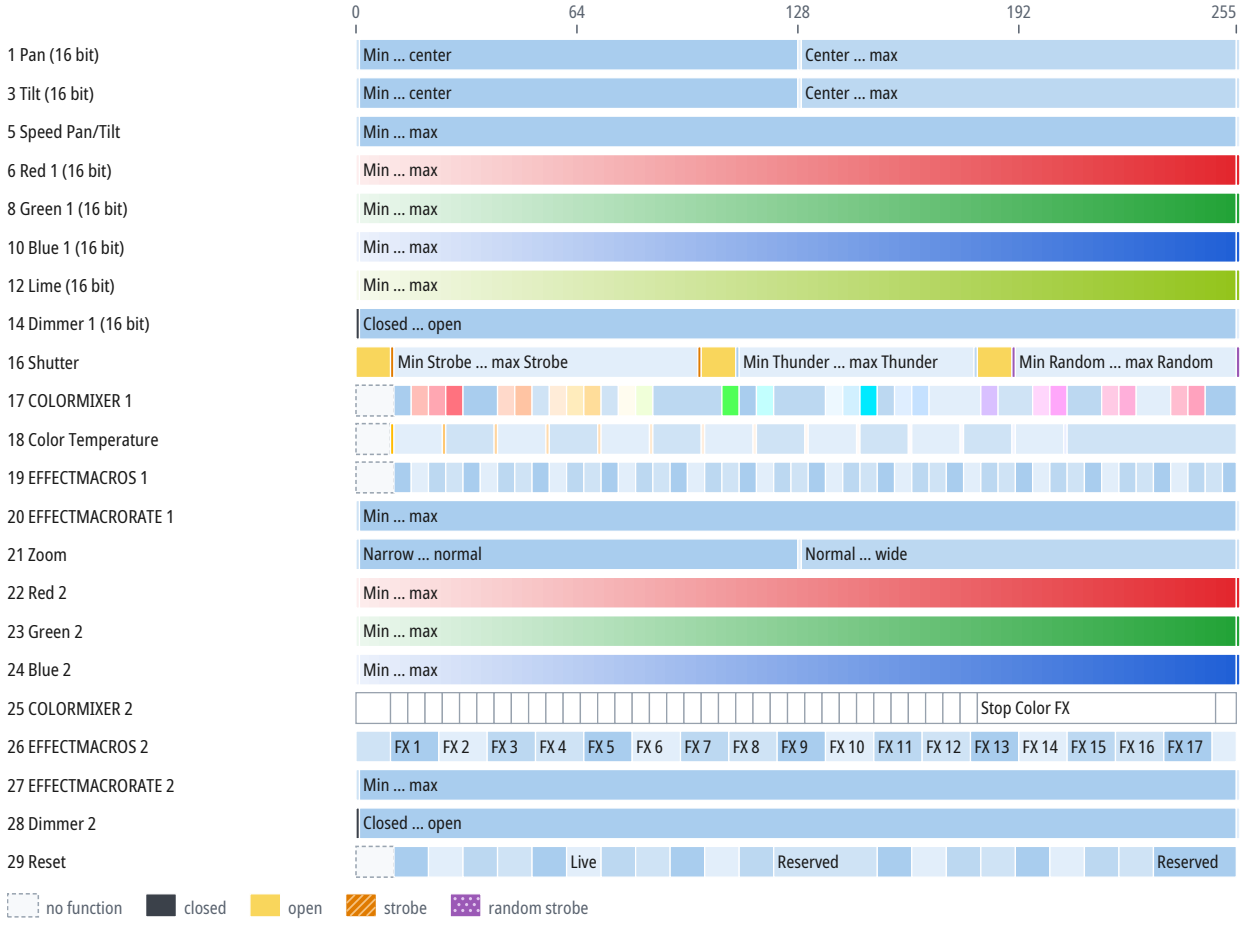
CH	Function	DMX	Description
19	EFFECTMACROS 2 (continued)	80–93	FX 6
		94–107	FX 7
		108–121	FX 8
		122–135	FX 9
		136–149	FX 10
		150–163	FX 11
		164–177	FX 12
		178–191	FX 13
		192–205	FX 14
		206–219	FX 15
		220–233	FX 16
		234–247	FX 17
		248–255	Open
20	EFFECTMACRORATE 2	0	Min
		1–254	Min ... max
		255	Max
21	Dimmer 2		Same as CH 19 in the mode “HSIC” (p. 14)
22	Reset		Same as CH 20 in the mode “HSIC” (p. 14)

Mode TR16

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 14 Dimmer 1 above 1; CH 16 Shutter at 0–9, 100–109 or 180–189 “open”; CH 28 Dimmer 2 above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 1 255, CH 8 Green 1 255, CH 10 Blue 1 255, CH 12 Lime 255, CH 14 Dimmer 1 255, CH 16 Shutter 0, CH 18 Color Temperature 0, CH 22 Red 2 255, CH 23 Green 2 255, CH 24 Blue 2 255, CH 28 Dimmer 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–1	Min
		1–128	Min ... center
		128–129	Center
		129–255	Center ... max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–1	Min
		1–128	Min ... center
		128–129	Center
		129–255	Center ... max
		255	Max

CH	Function	DMX	Description
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt		Same as CH 5 in the mode “HSIC” (p. 11)
6	Red 1		Color RGB_R 1
		0–1	Min
		1–255	Min ... max
		255	Max
7	Red 1 Fine	0–255	Fine adjustment of CH 6
8	Green 1		Color RGB_G 1
		0–1	Min
		1–255	Min ... max
		255	Max
9	Green 1 Fine	0–255	Fine adjustment of CH 8
10	Blue 1		Color RGB_B 1
		0–1	Min
		1–255	Min ... max
		255	Max
11	Blue 1 Fine	0–255	Fine adjustment of CH 10
12	Lime		Color RGB_GY 1
		0–1	Min
		1–255	Min ... max
		255	Max
13	Lime Fine	0–255	Fine adjustment of CH 12
14	Dimmer 1	0–1	Closed
		1–255	Closed ... open
		255	Open
15	Dimmer 1 Fine	0–255	Fine adjustment of CH 14
16	Shutter		Same as CH 11 in the mode “HSIC” (p. 12)
17	COLORMIXER 1		Same as CH 10 in the mode “TOUR” (p. 18)
18	Color Temperature		Same as CH 11 in the mode “TOUR” (p. 19)
19	EFFECTMACROS 1		Same as CH 12 in the mode “TOUR” (p. 20)
20	EFFECTMACRORATE 1		Same as CH 13 in the mode “TOUR” (p. 21)
21	Zoom		Same as CH 12 in the mode “HSIC” (p. 13)
22	Red 2		Same as CH 11 in the mode “SPP” (p. 17)
23	Green 2		Same as CH 12 in the mode “SPP” (p. 17)
24	Blue 2		Same as CH 13 in the mode “SPP” (p. 17)
25	COLORMIXER 2		Same as CH 18 in the mode “TOUR” (p. 21)
26	EFFECTMACROS 2		Same as CH 19 in the mode “TOUR” (p. 22)
27	EFFECTMACRORATE 2		Same as CH 20 in the mode “TOUR” (p. 23)
28	Dimmer 2		Same as CH 19 in the mode “HSIC” (p. 14)
29	Reset		Same as CH 20 in the mode “HSIC” (p. 14)

Mode CMY

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 9 Dimmer 1 above 0; CH 10 Shutter at 0–9, 100–109 or 180–189 “open”; CH 22 Dimmer 2 above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 1 0, CH 7 Green 1 0, CH 8 Blue 1 0, CH 9 Dimmer 1 255, CH 12 Color Temperature 0, CH 16 Red 2 255, CH 17 Green 2 255, CH 18 Blue 2 255, CH 22 Dimmer 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–1	Min
		1–127	Min ... center
		128–129	Center
		129–255	Center ... max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–1	Min
		1–127	Min ... center
		128–129	Center
		129–255	Center ... max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3

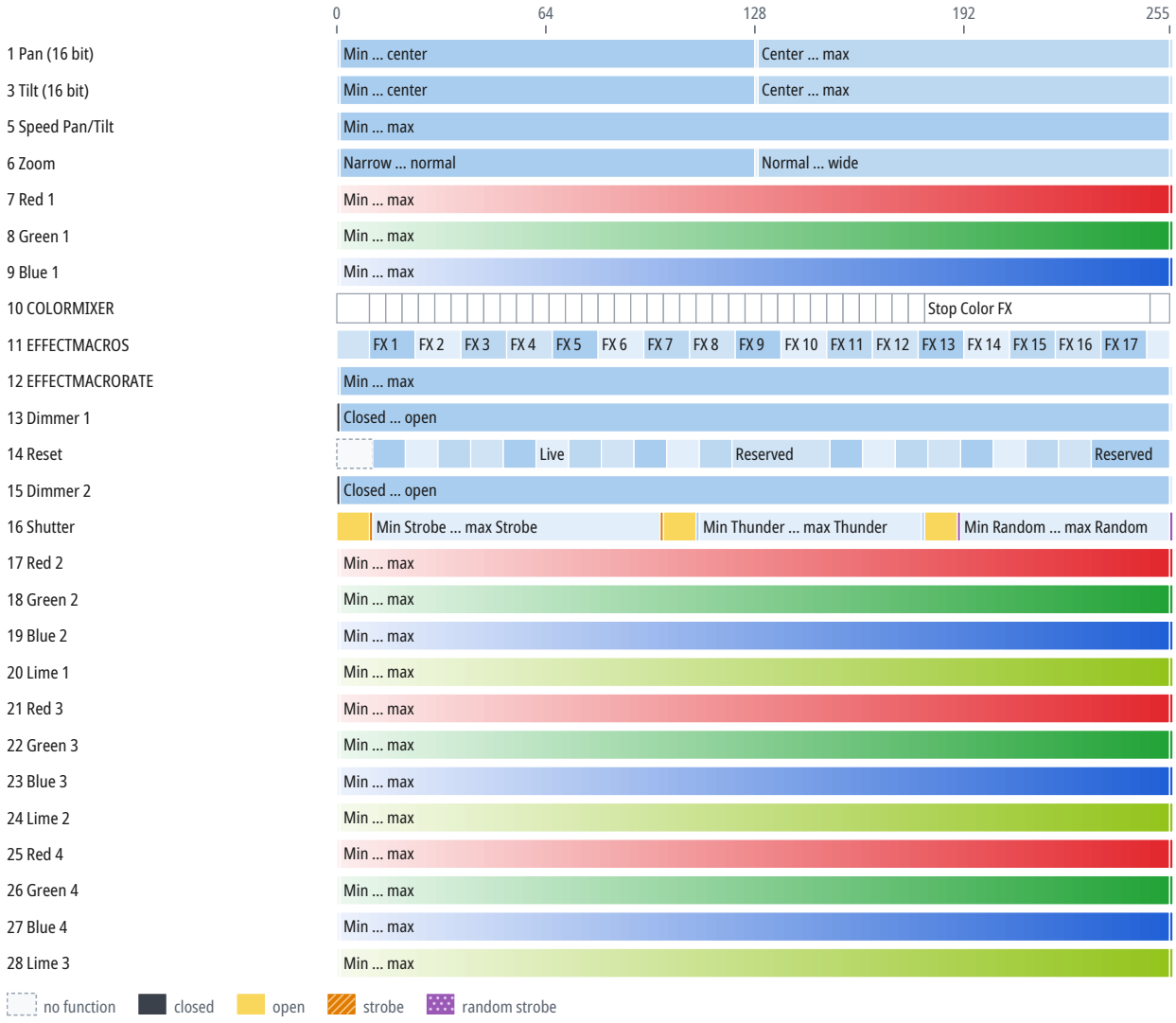
CH	Function	DMX	Description
5	Speed Pan/Tilt	0	Min
		1–254	Min ... max
		255	Max
6	Red 1		Same as CH 4 in the mode “SPP” (p. 16)
7	Green 1		Same as CH 5 in the mode “SPP” (p. 16)
8	Blue 1		Same as CH 6 in the mode “SPP” (p. 17)
9	Dimmer 1		Same as CH 6 in the mode “HSIC” (p. 11)
10	Shutter		Same as CH 11 in the mode “HSIC” (p. 12)
11	COLORMIXER 1		Same as CH 10 in the mode “TOUR” (p. 18)
12	Color Temperature		Same as CH 11 in the mode “TOUR” (p. 19)
13	EFFECTMACROS 1		Same as CH 12 in the mode “TOUR” (p. 20)
14	EFFECTMACRORATE 1		Same as CH 13 in the mode “TOUR” (p. 21)
15	Zoom		Same as CH 12 in the mode “HSIC” (p. 13)
16	Red 2		Same as CH 11 in the mode “SPP” (p. 17)
17	Green 2		Same as CH 12 in the mode “SPP” (p. 17)
18	Blue 2		Same as CH 13 in the mode “SPP” (p. 17)
19	COLORMIXER 2		Same as CH 18 in the mode “TOUR” (p. 21)
20	EFFECTMACROS 2	0–9	Open
		10–23	FX 1
		24–37	FX 2
		38–51	FX 3
		52–65	FX 4
		66–79	FX 5
		80–93	FX 6
		94–107	FX 7
		108–121	FX 8
		122–135	FX 9
		136–149	FX 10
		150–163	FX 11
		164–177	FX 12
		178–191	FX 13
		192–205	FX 14
		206–219	FX 15
		220–233	FX 16
		234–247	FX 17
		248–255	Open
21	EFFECTMACRORATE 2		Same as CH 20 in the mode “TOUR” (p. 23)
22	Dimmer 2		Same as CH 19 in the mode “HSIC” (p. 14)
23	Reset		Same as CH 20 in the mode “HSIC” (p. 14)

Mode ZONE

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 13 Dimmer 1 above 0; CH 15 Dimmer 2 above 0; CH 16 Shutter at 0–9, 100–109 or 180–189 “open”. The GDTF file gives these values for a console's Highlight function: CH 7 Red 1 255, CH 8 Green 1 255, CH 9 Blue 1 255, CH 13 Dimmer 1 255, CH 15 Dimmer 2 255, CH 17 Red 2 255, CH 18 Green 2 255, CH 19 Blue 2 255, CH 20 Lime 1 255, CH 21 Red 3 255, CH 22 Green 3 255, CH 23 Blue 3 255, CH 24 Lime 2 255, CH 25 Red 4 255, CH 26 Green 4 255, CH 27 Blue 4 255, CH 28 Lime 3 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “TR16” (p. 24)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “TR16” (p. 24)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt		Same as CH 5 in the mode “HSIC” (p. 11)
6	Zoom		Same as CH 12 in the mode “HSIC” (p. 13)
7	Red 1		Same as CH 4 in the mode “SPP” (p. 16)

CH	Function	DMX	Description
8	Green 1		Same as CH 5 in the mode “SPP” (p. 16)
9	Blue 1		Same as CH 6 in the mode “SPP” (p. 17)
10	COLORMIXER		Same as CH 16 in the mode “HSIC” (p. 13)
11	EFFECTMACROS		Same as CH 17 in the mode “HSIC” (p. 14)
12	EFFECTMACRORATE		Same as CH 18 in the mode “HSIC” (p. 14)
13	Dimmer 1		Same as CH 6 in the mode “HSIC” (p. 11)
14	Reset		Same as CH 20 in the mode “HSIC” (p. 14)
15	Dimmer 2		Same as CH 19 in the mode “HSIC” (p. 14)
16	Shutter		Same as CH 11 in the mode “HSIC” (p. 12)
17	Red 2		Same as CH 11 in the mode “SPP” (p. 17)
18	Green 2		Same as CH 12 in the mode “SPP” (p. 17)
19	Blue 2		Same as CH 13 in the mode “SPP” (p. 17)
20	Lime 1		Color RGB_GY 1
		0	Min
		1–254	Min ... max
		255	Max
21	Red 3		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
22	Green 3		Color RGB_G 1
		0	Min
		1–254	Min ... max
		255	Max
23	Blue 3		Color RGB_B 1
		0	Min
		1–254	Min ... max
		255	Max
24	Lime 2		Color RGB_GY 1
		0	Min
		1–254	Min ... max
		255	Max
25	Red 4		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
26	Green 4		Color RGB_G 1
		0	Min
		1–254	Min ... max
		255	Max
27	Blue 4		Color RGB_B 1
		0	Min

CH	Function	DMX	Description
27	Blue 4 (continued)	1–254	Min ... max
		255	Max
28	Lime 3		Color RGB_GY 1
		0	Min
		1–254	Min ... max
		255	Max

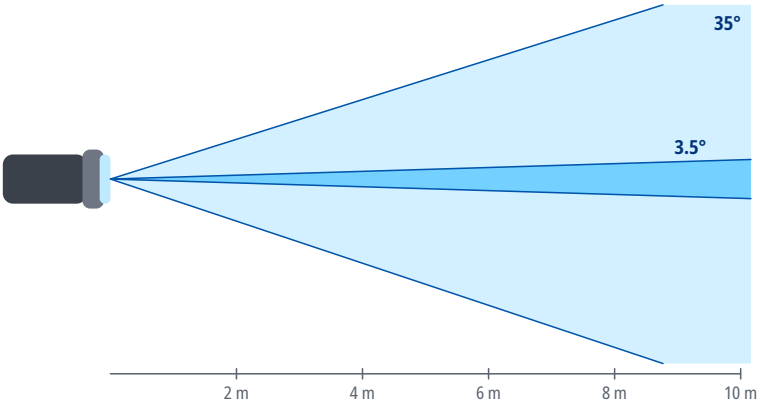
10 Technical specifications

Parameter	Value
Light source	LED
Zoom	3.5–35°
Pan	540°
Tilt	220°
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	1800–10000 K
Strobe frequency	0–25 Hz

Spot diameter



Distance	Ø 3.5°	Ø 35°
2 m	0.12 m	1.3 m
4 m	0.24 m	2.5 m
6 m	0.37 m	3.8 m
8 m	0.49 m	5 m
10 m	0.61 m	6.3 m
15 m	0.92 m	9.5 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.
Movement is reversed	Check whether Pan/Tilt inversion is enabled in the device menu or in the controller.
Moving parts do not reach the correct position after power-on or transport	Switch the device off and on again to reset the position, and make sure the transport lock, if any, is released. If this does not help, contact a service center.
Movement is jerky	Check the value of the Pan/Tilt speed channel, if the device has one, and the stability of the DMX signal.

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.