DMX REFERENCE

Katana

DTS Lighting



Manufacturer	DTS Lighting
GDTF file	DTS_Lighting_Katana_149112.gdtf
GDTF revision	REV1 · 2026-07-01
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1 About this manual

This document describes the Katana by DTS Lighting. It was compiled from the GDTF file DTS_Lighting_Katana_149112.gdtf from the GDTF-Share library.

File revision: “REV1”.

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 DTS 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
Weight	19.5 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
16CH	16	32	1, 17, 33, 49, ...
64ch	20	25	1, 21, 41, 61, ...
24ch	24	21	1, 25, 49, 73, ...

No light? Check these channels

- 16CH: CH 5 Shutter at 10–19 “Open” or 230–255; CH 6 Dimmer above 0
- 64ch: CH 5 Shutter at 230–255 “Open”; CH 6 Dimmer above 0
- 24ch: CH 5 Shutter at 10–19 “Open” or 230–255; CH 6 Dimmer above 0; CH 20 chase dimmer above 0; CH 24 chase dimmer 2 above 0


Read the manual before use


Do not stare into the light


Indoor use only

3 Safety instructions



Read the manual before use



Do not stare into the light



Indoor use only

⚠ WARNING

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

⚠ WARNING

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

⚠ CAUTION

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

⚠ CAUTION

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

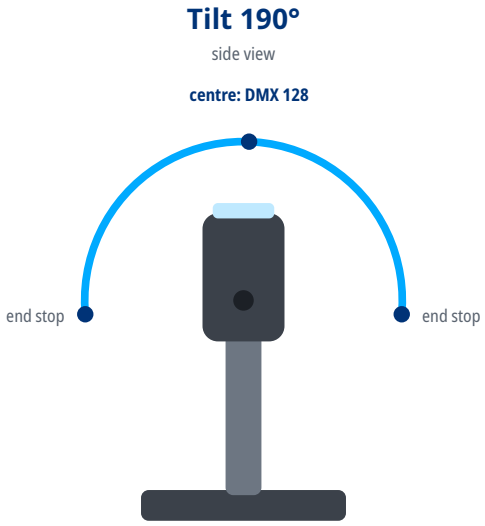
> ⚠ **WARNING**
>
> - The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
> - Keep yourself and any objects out of the range of movement. While the device is switched on, do 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

Description in the GDTF file

“KATANA is a high-performance LED bar with advanced color mixing and a wide range of dynamic effects. Ideal for scenic applications, it provides precise beam control and unique optical flexibility. Perfect for creating immersive atmospheres and enhancing every detail of lighting design.”

Range of movement



Full-travel times as stated in the GDTF file.

5 Installation

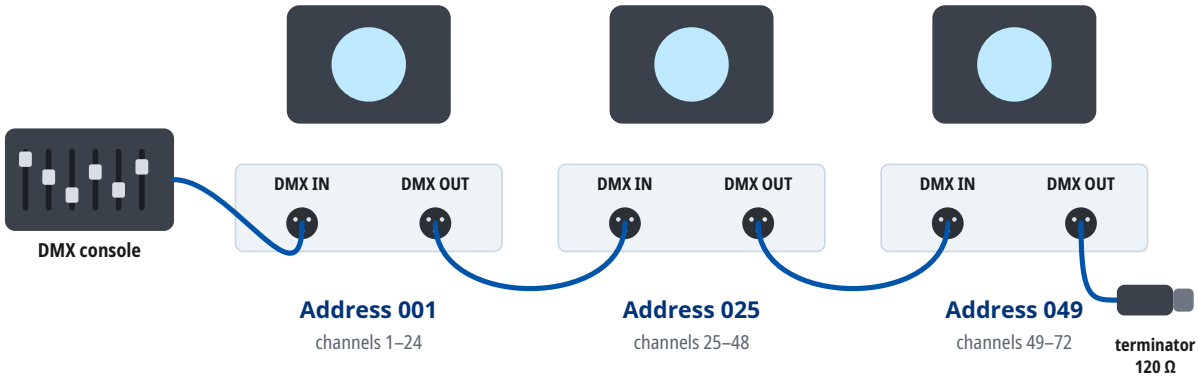
⚠ **WARNING**

- 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.
- Weight of the device: 19.5 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.

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 24ch: every unit occupies 24 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 “24ch”: 24.
- 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 “24ch”, you can use, for example, the start addresses 1, 25, 49, 73.
- 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

	16CH 16 channels	64ch 20 channels	24ch 24 channels
Pan / Tilt	10	10	10
Dimmer	6, 14	6	6, 14
Shutter / strobe	5	5	5
Color mixing	1–4	1–4, 17–64	1–4
Color temperature	8	8	8
Color wheel	9	9	9
Zoom	15	15	15

Color wheel

1 RED
DMX 15–24

2 Orenge
DMX 25–34

3 LightOrange
DMX 35–44

4 Yellow
DMX 45–54

5 Yellow Green
DMX 55–64

6 Lime
DMX 65–74

7 Green
DMX 75–84

8 Emerald Green
DMX 85–94

9 Sea Green
DMX 95–104

10 Cyan
DMX 105–114

11 Aqua
DMX 115–124

12 LightBlue
DMX 125–134

13 Blue
DMX 135–144

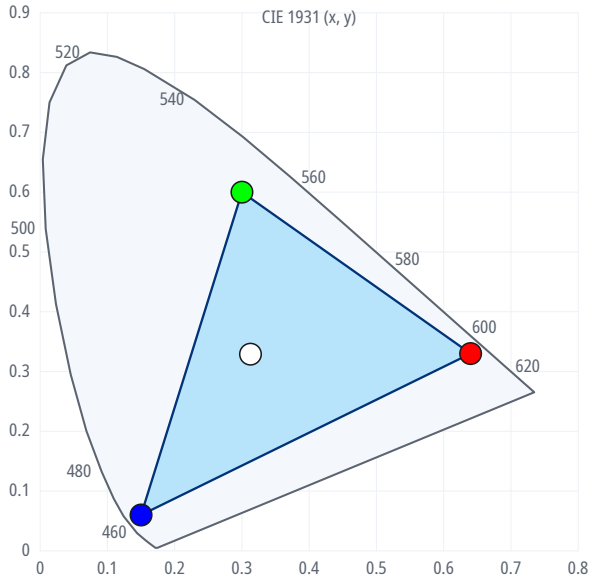
14 Purple
DMX 145–154

15 Violet
DMX 155–164

16 Magenta
DMX 165–175

17 White

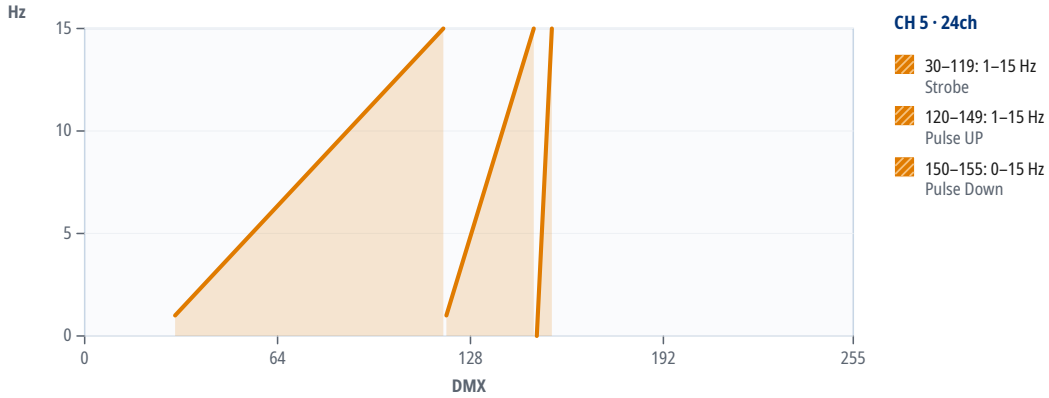
LED colors and the colors they mix



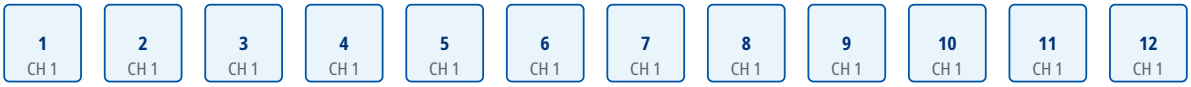
LED	x	y
R	0.640	0.330
G	0.300	0.600
B	0.150	0.060
W	0.313	0.329

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

Strobe rate



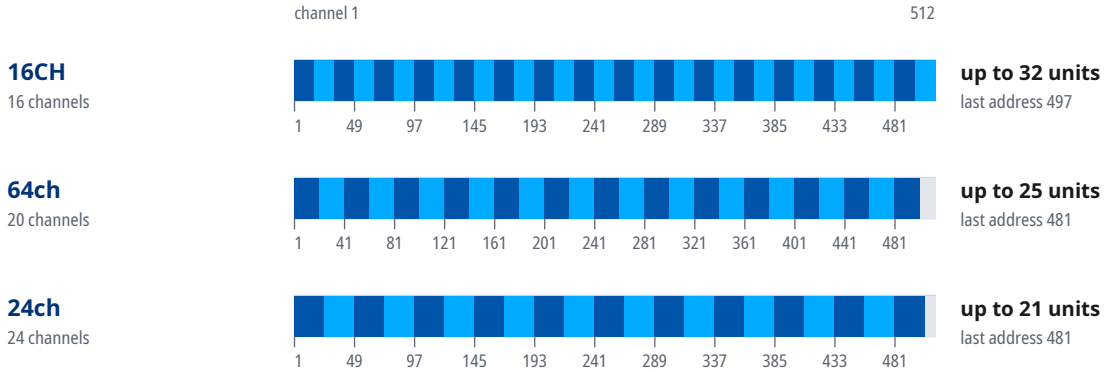
Cells (pixels)



12 cells where the GDTF file places them (seen from above), numbered by their first DMX channel (CH) in the mode “24ch”.

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “24ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	121	11	241	16	361
2	25	7	145	12	265	17	385
3	49	8	169	13	289	18	409
4	73	9	193	14	313	19	433
5	97	10	217	15	337	20	457

Mode 16CH

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 5 Shutter at 10–19 “Open” or 230–255; CH 6 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Red 255, CH 2 Green 255, CH 3 Blue 255, CH 4 White 0, CH 6 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Red	0	Min
		1–254	Min … Max
		255	Max
2	Green	0	Min
		1–254	Min … Max
		255	Max
3	Blue	0	Min
		1–254	Min … Max
		255	Max
4	White	0	Min
		1–254	Min … Max
		255	Max
5	Shutter	0–9	Closed
		10–19	Open
		20–29	Close
		30	Min Strobe
		31–118	Min Strobe … max Strobe
		119	Max Strobe
		120	Min Pulse
		121–148	Min Pulse … max Pulse
		149	Max Pulse
		150–155	Pulse Down (0–15 Hz)
		156	Min Rnd
		157–228	Min Rnd … max Rnd
		229	Max Rnd
		230–255	Open 3
6	Dimmer	0–255	Closed … Open
		255	Open
7	Dimmer Fine	0–255	Fine adjustment of CH 6
8	CTO	0	No function
		1–27	2800K
		28–55	3200K
		56–83	3600K
		84–111	4500K
		112–139	5000K
		140–167	5600K
		168–195	6200K
		196–223	6800K
		224–251	7500K
		252–255	8000K
9	Colors	0–14	Open

CH	Function	DMX	Description
9	Colors (continued)	15–24	RED
		25–34	Orenge
		35–44	LightOrange
		45–54	Yellow
		55–64	Yellow Green
		65–74	Lime
		75–84	Green
		85–94	Emerald Green
		95–104	Sea Green
		105–114	Cyan
		115–124	Aqua
		125–134	LightBlue
		135–144	Blue
		145–154	Purple
		155–164	Violet
		165–174	Magenta
		175	Rainbow: Slow
		176–254	Rainbow: Slow ... Fast
		255	Rainbow: Fast
10	Tilt	0–127	Min ... center
		128–255	Center ... max
		255	Max
11	Tilt Fine	0–255	Fine adjustment of CH 10
12	Speed Pan/Tilt	0–10	Normal
		11–25	Maximum
		26–127	From maximum to minimum speed
		128–246	Fast to Slow
		247–255	Slow
13	Reserved	0–244	Reserved 1
		245–255	Function ON
14	Control	0	No function
		1–14	No Function
		15–23	SMOOTH OFF
		24–64	SMOOTH 1-20
		65–74	GAMMA QUAD
		75–85	GAMMA LINEAR
		86–134	OUTPUT FREQUENCY 610-20000
		135–144	BOOST ON
		145–154	BOOST OFF
		155–204	Reserved
		205–214	TILT Normal
		215–224	TILT Reverse

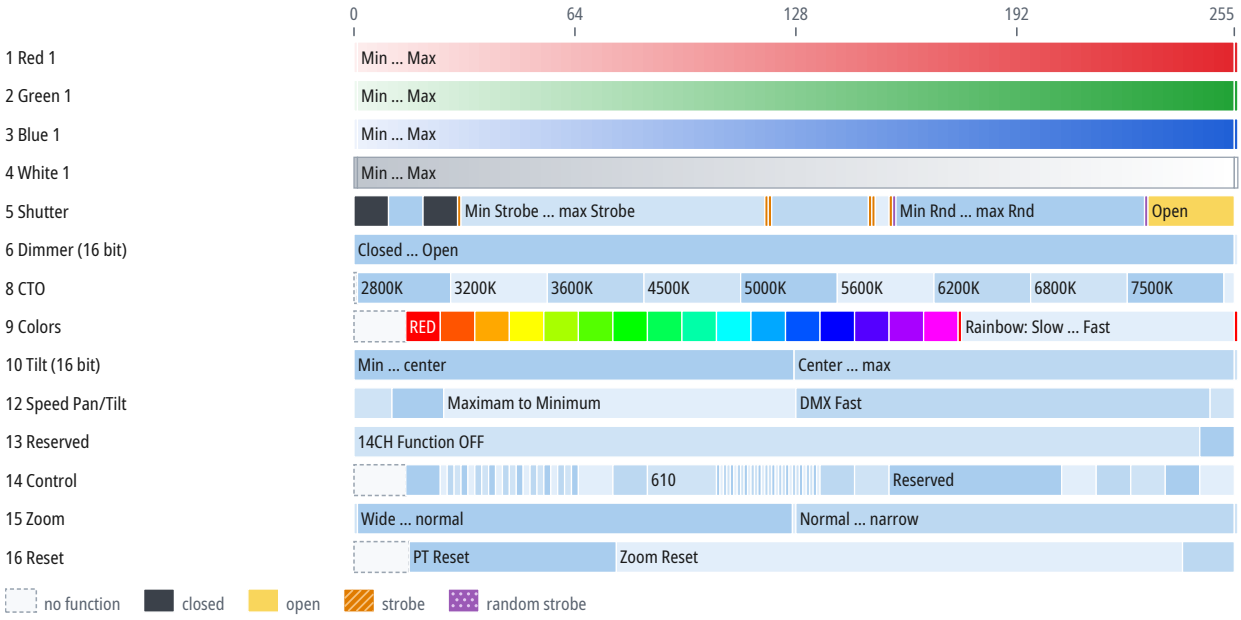
CH	Function	DMX	Description
14	Control (continued)	225–234	Reserved 1
		235–244	FAN Studio
		245–255	FAN Live
15	Zoom	0	Wide
		1–126	Wide ... normal
		127	Normal
		128–254	Normal ... narrow
		255	Narrow
16	Reset	0–15	No Function
		16–75	PT Reset
		76–239	Zoom Reset
		240–255	ALL Reset

Mode 64ch

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 5 Shutter at 230–255 “Open”; CH 6 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Red 1 255, CH 2 Green 1 255, CH 3 Blue 1 255, CH 4 White 1 0, CH 6 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Red 1	0	Min
		1–254	Min ... Max
		255	Max
2	Green 1	0	Min
		1–254	Min ... Max
		255	Max
3	Blue 1	0	Min

CH	Function	DMX	Description
3	Blue 1 (continued)	1–254	Min ... Max
		255	Max
4	White 1	0	Min
		1–254	Min ... Max
		255	Max
5	Shutter	0–9	Closed
		10–19	Empty Channel Set
		20–29	Close
		30	Min Strobe
		31–118	Min Strobe ... max Strobe
		119	Max Strobe
		120	Min PulseUP
		121–148	Min PulseUP ... max PulseUP
		149	Max PulseUP
		150	Min PulseDW
		151–154	Min PulseDW ... MAX PulseDw
		155	MAX PulseDw
		156	Min Rnd
		157–228	Min Rnd ... max Rnd
		229	Max Rnd
		230–255	Open
6	Dimmer		Same as CH 6 in the mode “16CH” (p. 11)
7	Dimmer Fine	0–255	Fine adjustment of CH 6
8	CTO		Same as CH 8 in the mode “16CH” (p. 11)
9	Colors	0–14	No Function
		15–24	RED
		25–34	Orenge
		35–44	LightOrange
		45–54	Yellow
		55–64	Yellow Green
		65–74	Lime
		75–84	Green
		85–94	Emerald Green
		95–104	Sea Green
		105–114	Cyan
		115–124	Aqua
		125–134	LightBlue
		135–144	Blue
		145–154	Purple
		155–164	Violet
		165–174	Magenta
		175	Rainbow: Slow

CH	Function	DMX	Description
9	Colors (continued)	176–254	Rainbow: Slow ... Fast
		255	Rainbow: Fast
10	Tilt		Same as CH 10 in the mode “16CH” (p. 12)
11	Tilt Fine	0–255	Fine adjustment of CH 10
12	Speed Pan/Tilt		TILT Speed
		0–10	Normal
		11–25	Maximam
		26–127	Maximam to Minimum
		128–247	DMX Fast
		248–255	DMX Low
13	Reserved	0–244	14CH Function OFF
		245–255	14CH Function ON
14	Control	0–14	No function
		15–24	Smooth OFF
		25–26	Smooth1
		27–28	Smooth2
		29–30	Smooth3
		31–32	Smooth4
		33–34	Smooth5
		35–36	Smooth6
		37–38	Smooth7
		39–40	Smooth8
		41–42	Smooth9
		43–44	Smooth10
		45–46	Smooth11
		47–48	Smooth12
		49–50	Smooth13
		51–52	Smooth14
		53–54	Smooth15
		55–56	Smooth16
		57–58	Smooth17
		59–60	Smooth18
		61–62	Smooth19
		63–64	Smooth20
		65–74	GAMMA QUAD
		75–84	GAMMA LINEAR
		85–104	610
		105	800
		106	1000
		107	1500
		108	2000
		109	2500

CH	Function	DMX	Description
14	Control (continued)	110	3000
		111	3500
		112	4000
		113	4500
		114	5000
		115	5500
		116	6000
		117	6500
		118	7000
		119	7500
		120	8000
		121	8500
		122	9000
		123	9500
		124	10000
		125	11000
		126	12000
		127	13000
		128	14000
		129	15000
		130	16000
		131	17000
		132	18000
		133	19000
		134	20000
		135–144	BOOST ON
		145–154	BOOST OFF
		155–204	Reserved
		205–214	TILT Normal
		215–224	TILT Revarse
		225–234	Reserved 1
		235–244	FAN Studio
		245–255	FAN Libe
15	Zoom		Same as CH 15 in the mode “16CH” (p. 13)
16	Reset		Same as CH 16 in the mode “16CH” (p. 13)
17	Red 2	0	MIN
		1–254	MIN ... MAX
		255	MAX
18	Green 2	0	Min
		1–254	Min ... Max
		255	Max
19	Blue 2	0	Min

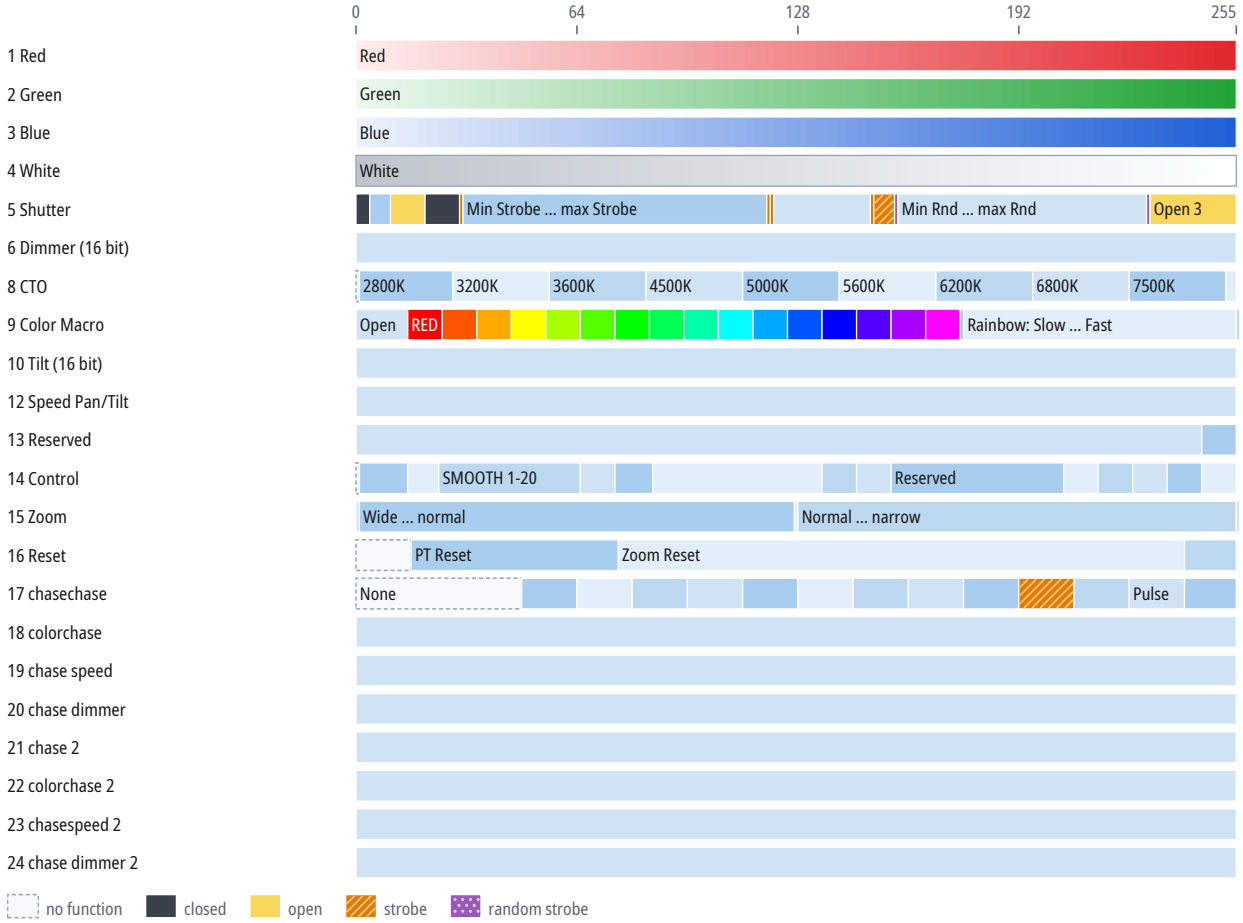
CH	Function	DMX	Description
19	Blue 2 (continued)	1–254	Min … Max
		255	Max
20	White 2	0	Min
		1–254	Min … Max
		255	Max

Mode 24ch

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 5 Shutter at 10–19 “Open” or 230–255; CH 6 Dimmer above 0; CH 20 chase dimmer above 0; CH 24 chase dimmer 2 above 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Red	0–255	Red
2	Green	0–255	Green
3	Blue	0–255	Blue
4	White	0–255	White
5	Shutter		Same as CH 5 in the mode “16CH” (p. 11)
6	Dimmer	0–255	

CH	Function	DMX	Description
7	Dimmer Fine	0–255	Fine adjustment of CH 6
8	CTO		Same as CH 8 in the mode “16CH” (p. 11)
9	Color Macro	0–14	Open
		15–24	RED
		25–34	Orenge
		35–44	LightOrange
		45–54	Yellow
		55–64	Yellow Green
		65–74	Lime
		75–84	Green
		85–94	Emerald Green
		95–104	Sea Green
		105–114	Cyan
		115–124	Aqua
		125–134	LightBlue
		135–144	Blue
		145–154	Purple
		155–164	Violet
		165–174	Magenta
		175	Rainbow: Slow
		176–254	Rainbow: Slow ... Fast
		255	Rainbow: Fast
10	Tilt	0–255	
11	Tilt Fine	0–255	Fine adjustment of CH 10
12	Speed Pan/Tilt	0–255	
13	Reserved		Same as CH 13 in the mode “16CH” (p. 12)
14	Control		Same as CH 14 in the mode “16CH” (p. 12)
15	Zoom		Same as CH 15 in the mode “16CH” (p. 13)
16	Reset		Same as CH 16 in the mode “16CH” (p. 13)
17	chasechase	0–47	None
		48–63	Background
		64–79	Seq on left to righ
		80–95	Seq on right to left
		96–111	Rainbow seq on left to right
		112–127	Rainbow seq on right to left
		128–143	Seq chase right to left
		144–159	Seq chase left to right
		160–175	Rainbow chase right to left
		176–191	Rainbow chase left to right
		192–207	Rnd Strobe
		208–223	Rnd str col
		224–239	Pulse

CH	Function	DMX	Description
17	chasechase (continued)	240–255	Rnd chose
18	colorchase	0–255	
19	chase speed	0–255	
20	chase dimmer	0–255	
21	chase 2	0–255	
22	colorchase 2	0–255	
23	chasespeed 2	0–255	
24	chase dimmer 2	0–255	

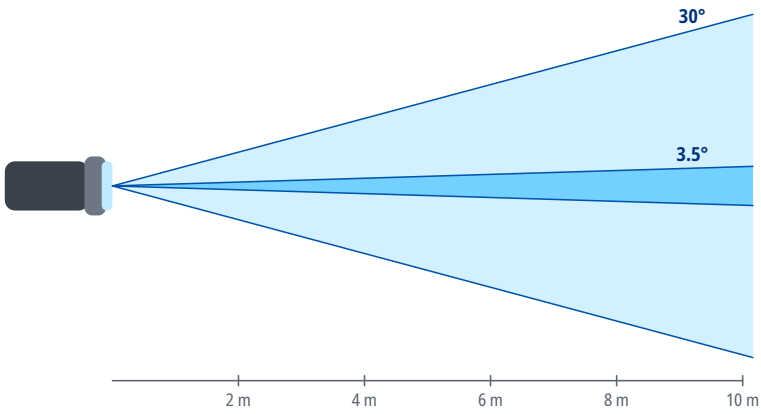
10 Technical specifications

Parameter	Value
Light source	LED
Zoom	3.5–30°
Tilt	190°
Weight	19.5 kg
Operating temperature	-10 to 45 °C

Speeds and ranges

Parameter	Value
Color temperature range	2800–8000 K
Strobe frequency	1–15 Hz
Color wheel rotation	up to 20 °/s (3.3 rpm)

Spot diameter



Distance	Ø 3.5°	Ø 30°
2 m	0.12 m	1.1 m
4 m	0.24 m	2.1 m
6 m	0.37 m	3.2 m
8 m	0.49 m	4.3 m
10 m	0.61 m	5.4 m
15 m	0.92 m	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.
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.