DMX REFERENCE

Razer 440

Leding

Manufacturer	Leding
GDTF file	Leding_Razer_440_121778.gdtf
GDTF revision	v002 · 2025-12-19
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1 About this manual

This document describes the Razer 440 by Leding. It was compiled from the GDTF file Leding_Razer_440_121778.gdtf from the GDTF-Share library.

File revision: “v002”.

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
Mode 1	24	21	1, 25, 49, 73, ...
Mode 2	24	21	1, 25, 49, 73, ...
Mode 3	27	18	1, 28, 55, 82, ...

No light? Check these channels

- Mode 1: CH 22 Shutter at 104–107 “open” or 208–212 or 252–255; CH 23 Dimmer above 0
- Mode 2: CH 1 Shutter at 104–107 “open” or 208–212 or 252–255; CH 2 Dimmer above 0
- Mode 3: CH 1 Shutter at 104–107 “open” or 208–212 or 252–255; CH 2 Dimmer 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.

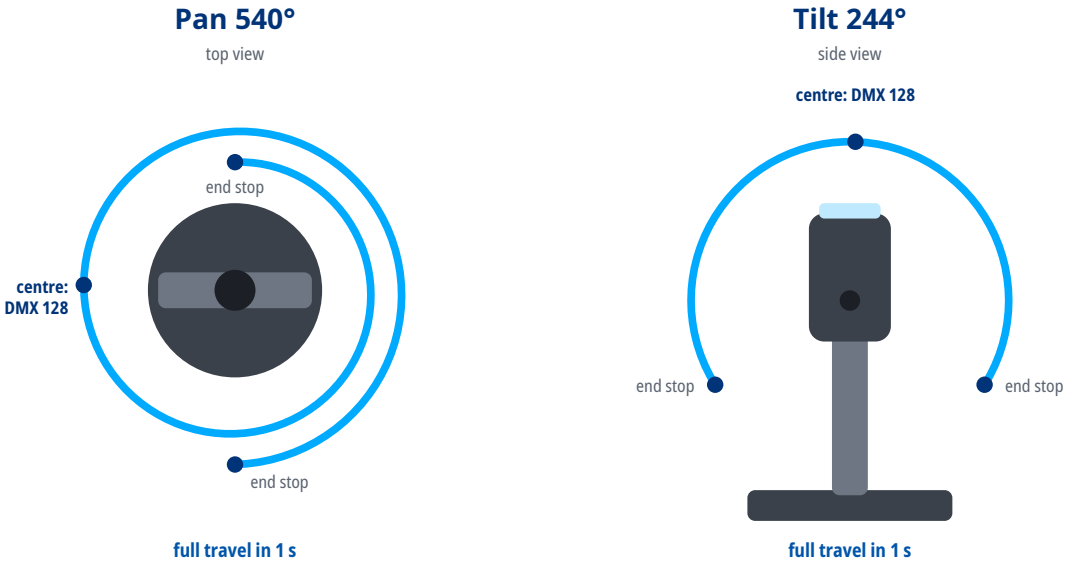
⚠ CAUTION

- 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

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.

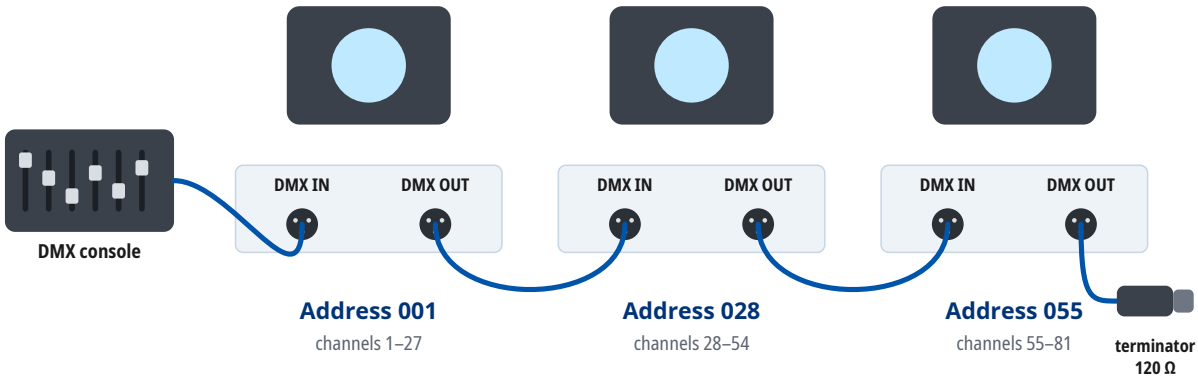
6 Connections

- 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 3: every unit occupies 27 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

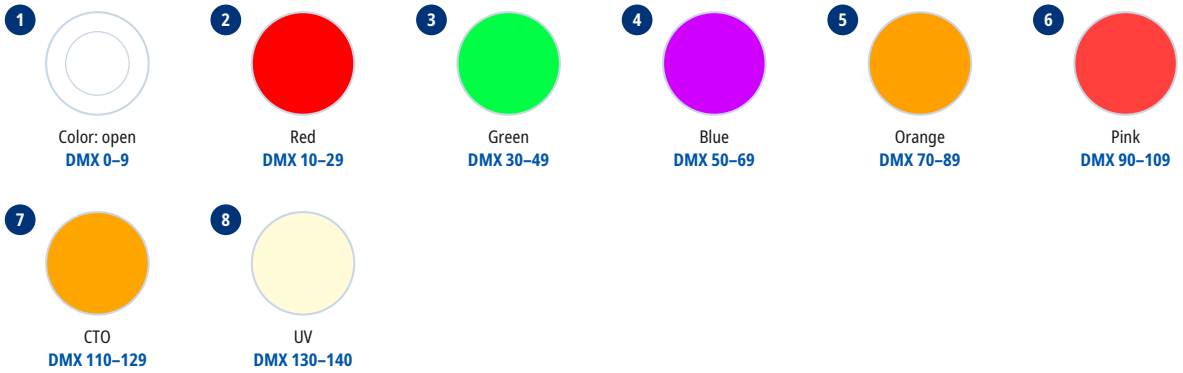
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Mode 3”: 27.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “Mode 3”, you can use, for example, the start addresses 1, 28, 55, 82.
- 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

	Mode 1 24 channels	Mode 2 24 channels	Mode 3 27 channels
Pan / Tilt	1, 3	20, 22	23, 25
Dimmer	23	2	2
Dimmer resolution	8 bit	8 bit	16 bit
Shutter / strobe	22	1	1
Color mixing	6–8	3–5	4–6
Color temperature	9	6	7
Color wheel	5	7	8
Gobo wheel	10, 13	8, 11	9, 12
Gobo rotation	11	9	10
Prism	14	15	16
Frost	16	14	15
Zoom	20	18	19
Focus	21	19	21
Iris	17	17	18
Animation wheel		13	14

Color wheel



Gobo wheel 1

1.
Gobo 1 Index: open
DMX 0–4

2. 
Gobo 1
DMX 5–7

3. 
Gobo 2
DMX 8–10

4. 
Gobo 3
DMX 11–13

5. 
Gobo 4
DMX 14–16

6. 
Gobo 5
DMX 17–19

7. 
zip it
DMX 20–24

Gobo wheel 2

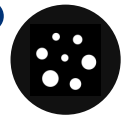
1.
Gobo: open
DMX 0–9

2. 
Gobo 1
DMX 10–19

3. 
Gobo 2
DMX 20–29

4. 
Gobo 3
DMX 30–39

5. 
Gobo 4
DMX 40–49

6. 
Gobo 5
DMX 50–59

7. 
Gobo 6
DMX 60–69

8. 
hammer time
DMX 70–80

Prism

1.
open
DMX 0–11

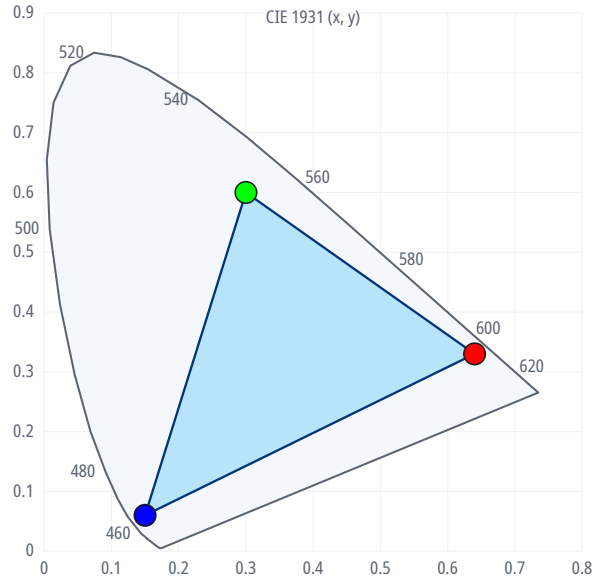
2. 
8 facets
8 facet prism
DMX 11–139

Animation wheel

1.
Open
DMX 0–127

2. 
Animation
DMX 128–255

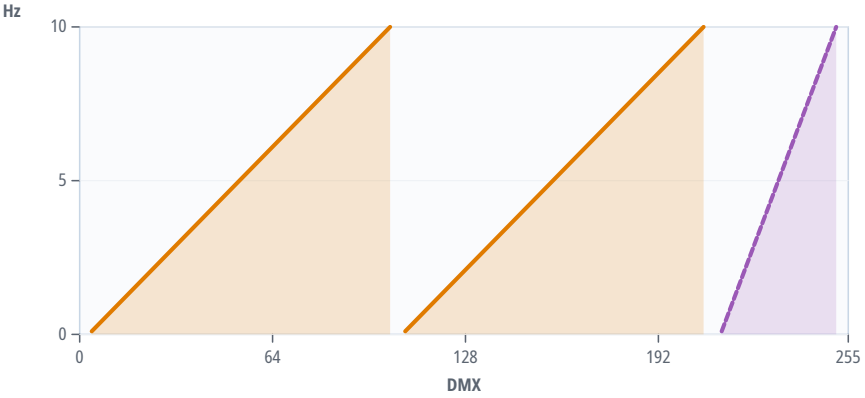
LED colors and the colors they mix



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

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

Strobe rate

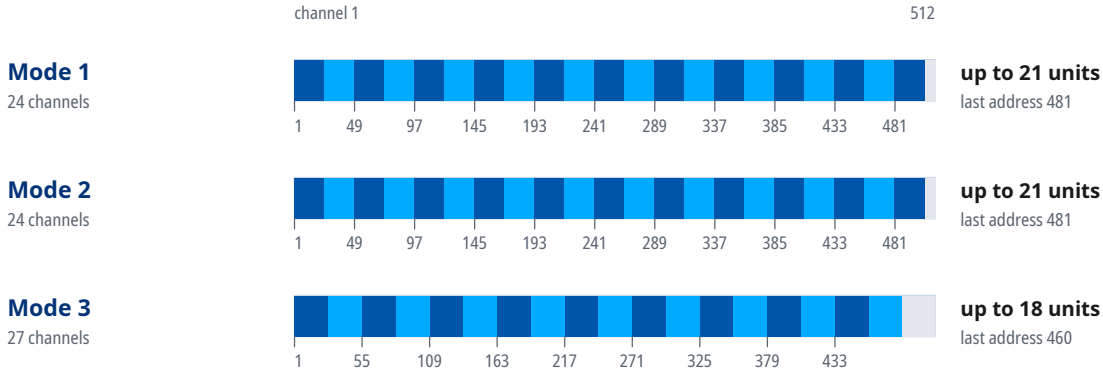


CH 22 · Mode 1

- 4–103: 0.1–10 Hz
  Shutter1Strobe 2
- 108–207: 0.1–10 Hz
  Shutter1StrobePulse 4
- 213–251: 0.1–10 Hz
  Shutter1StrobeRandom 6

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Mode 3”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	136	11	271	16	406
2	28	7	163	12	298	17	433
3	55	8	190	13	325	18	460
4	82	9	217	14	352	19	U2 · 1
5	109	10	244	15	379	20	U2 · 28

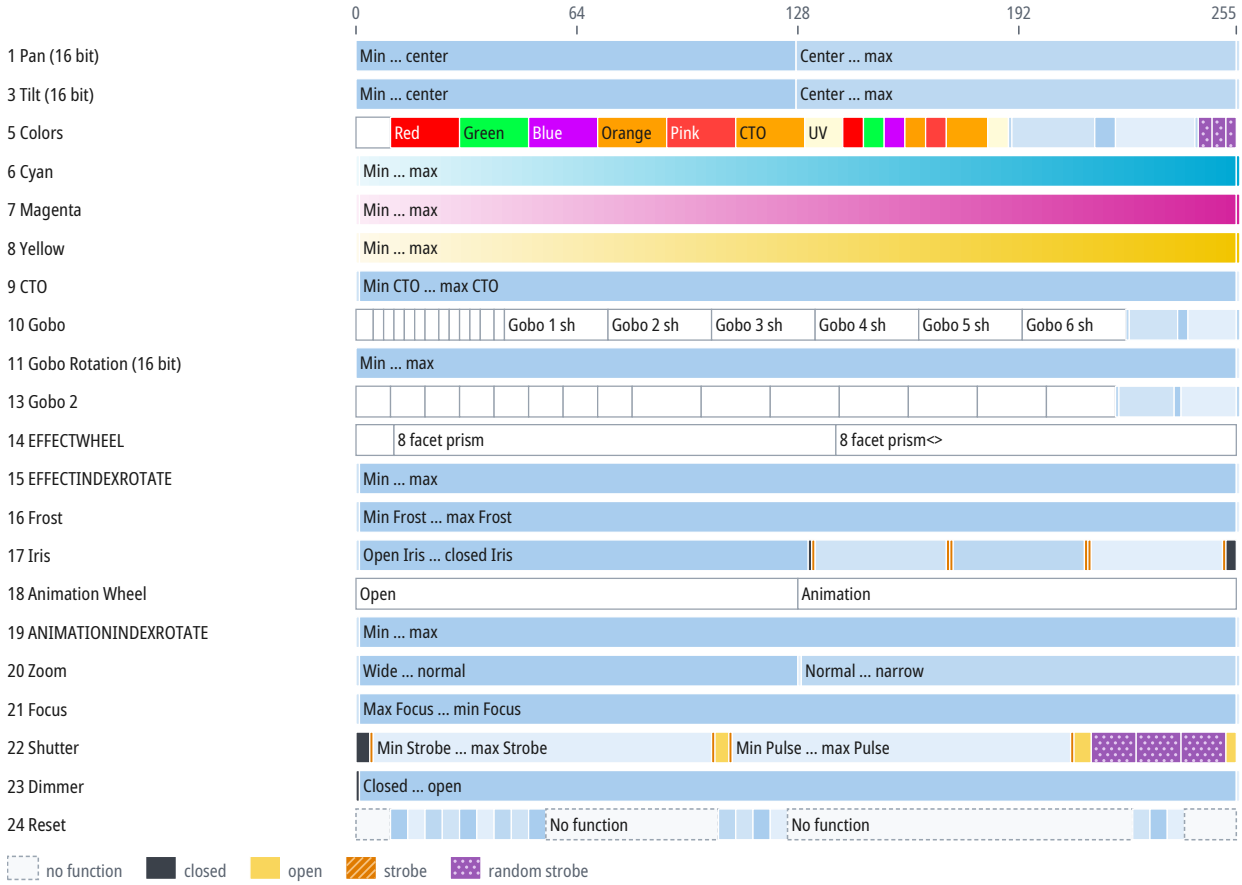
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 1

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 22 Shutter at 104–107 “open” or 208–212 or 252–255; CH 23 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 5 Colors 0, CH 6 Cyan 0, CH 7 Magenta 0, CH 8 Yellow 0, CH 22 Shutter 106, CH 23 Dimmer 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	Colors	0–9	Color: open
		10–29	Red
		30–49	Green
		50–69	Blue
		70–89	Orange

CH	Function	DMX	Description
5	Colors (continued)	90–109	Pink
		110–129	CTO
		130–140	UV
		141–146	Red (2)
		147–152	Green (2)
		153–158	Blue (2)
		159–164	Orange (2)
		165–170	Pink (2)
		171–182	CTO (2)
		183–188	UV (2)
		189	>>>
		190–213	Spin 100 1% (172.8–8.92 °/s)
		214–219	Color >>>: stop
		220–242	Spin -1 -100% (1.8–165.1 °/s)
		243	<<<
		244–247	Min Rnd
		248–251	Rnd 50%
		252–255	Max Rnd
6	Cyan		Color RGB_R 1
		0	Min
		1–254	Min ... max
		255	Max
7	Magenta		Color RGB_G 1
		0	Min
		1–254	Min ... max
		255	Max
8	Yellow		Color RGB_B 1
		0	Min
		1–254	Min ... max
		255	Max
9	CTO	0	Min CTO
		1–254	Min CTO ... max CTO
		255	Max CTO
10	Gobo	0–4	Gobo 1 Index: open
		5–7	Gobo 1
		8–10	Gobo 2
		11–13	Gobo 3
		14–16	Gobo 4
		17–19	Gobo 5
		20–23	Gobo 6
		24–26	Gobo 1 <>
		27–29	Gobo 2 <>

CH	Function	DMX	Description
10	Gobo (continued)	30–32	Gobo 3 <>
		33–35	Gobo 4 <>
		36–39	Gobo 5 <>
		40–42	Gobo 6 <>
		43–72	Gobo 1 sh
		73–102	Gobo 2 sh
		103–132	Gobo 3 sh
		133–162	Gobo 4 sh
		163–192	Gobo 5 sh
		193–222	Gobo 6 sh
		223	>>>
		224–237	Spin 100 1% (168–13.7 °/s)
		238–240	Gobo 1 >>>: stop
		241–254	Spin -1 -100% (1.8–156.2 °/s)
		255	<<<
11	Gobo Rotation	0–255	Min ... max
		255	Max
12	Gobo Rotation Fine	0–255	Fine adjustment of CH 11
13	Gobo 2	0–9	Gobo: open
		10–19	Gobo 1
		20–29	Gobo 2
		30–39	Gobo 3
		40–49	Gobo 4
		50–59	Gobo 5
		60–69	Gobo 6
		70–79	Gobo 7
		80–99	Gobo 1 sh
		100–119	Gobo 2 sh
		120–139	Gobo 3 sh
		140–159	Gobo 4 sh
		160–179	Gobo 5 sh
		180–199	Gobo 6 sh
		200–219	Gobo 7 sh
		220	>>>
		221–236	Spin2 100 1% (169.4–12.3 °/s)
		237–238	Gobo 2 >>>: stop
		239–254	Spin2 -1 -100% (1.8–159 °/s)
		255	<<<
14	EFFECTWHEEL	0–10	EFFECTWHEELSELECT: open
		11–138	8 facet prism
		139–255	8 facet prism<>
15	EFFECTINDEXROTATE	0	Min

CH	Function	DMX	Description
15	EFFECTINDEXROTATE (continued)	1–254	Min … max
		255	Max
16	Frost	0	Min Frost
		1–254	Min Frost … max Frost
		255	Max Frost
17	Iris	0	Open Iris
		1–130	Open Iris … closed Iris
		131	Closed Iris
		132	Min Strobe Pulse
		133–170	Min Strobe Pulse … max Strobe Pulse
		171	Max Strobe Pulse
		172	Max Strobe Pulse Open
		173–210	Max Strobe Pulse Open … min Strobe Pulse Open
		211	Min Strobe Pulse Open
		212	Max Strobe Pulse Close
		213–250	Max Strobe Pulse Close … min Strobe Pulse Close
		251	Min Strobe Pulse Close
		252–255	Closed Iris (2)
18	Animation Wheel	0–127	Open
		128–255	Animation
19	ANIMATIONINDEXROTATE	0	Min
		1–254	Min … max
		255	Max
20	Zoom	0	Wide
		1–127	Wide … normal
		128	Normal
		129–254	Normal … narrow
		255	Narrow
21	Focus	0	Max Focus
		1–254	Max Focus … min Focus
		255	Min Focus
22	Shutter	0–3	Shutter 1: closed
		4	Min Strobe
		5–102	Min Strobe … max Strobe
		103	Max Strobe
		104–107	Shutter 1: open
		108	Min Pulse
		109–206	Min Pulse … max Pulse
		207	Max Pulse
		208–212	Shutter 1: open (2)
		213–225	Min Rnd
		226–238	Rnd 50%

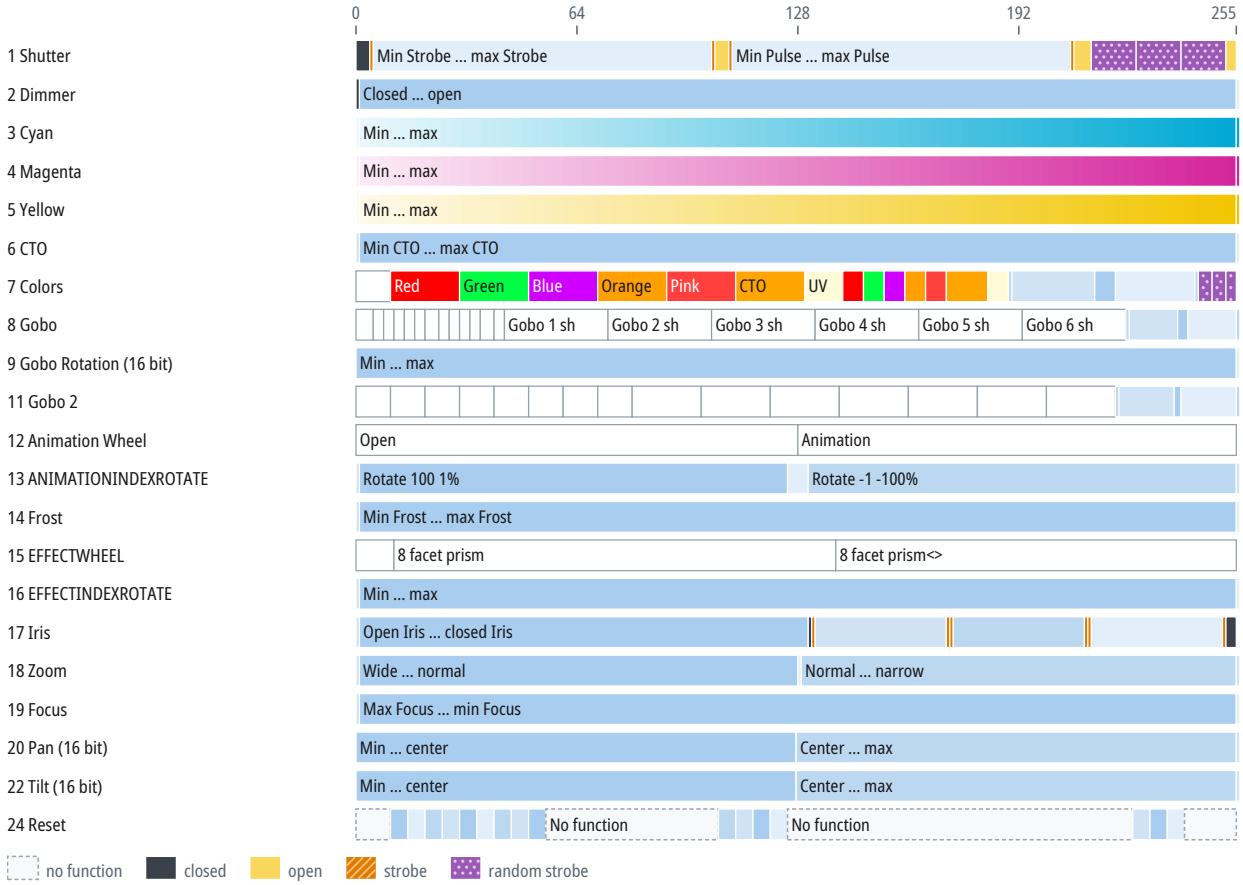
CH	Function	DMX	Description
22	Shutter (continued)	239–251	Max Rnd
		252–255	Shutter 1: open (3)
23	Dimmer	0	Closed
		1–254	Closed ... open
		255	Open
24	Reset	0–9	No function
		10–14	Reset
		15–19	ColMReset
		20–24	NonPosReset
		25–29	PosReset
		30–34	G1Reset
		35–39	Linear
		40–44	Gamma 1 5
		45–49	Gamma 2 0
		50–54	S curve
		55–104	No function
		105–109	Zoom focus linking disabled
		110–114	Zoom focus linking near
		115–119	Zoom focus linking enable
		120–124	Zoom focus linked far
		125–224	No function
		225–229	Auto focus priority gobo
		230–234	Auto focus priority FX wheel
		235–239	Auto focus priority iris
		240–255	No function

Mode 2

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 1 Shutter at 104–107 “open” or 208–212 or 252–255; CH 2 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Shutter 106, CH 2 Dimmer 255, CH 3 Cyan 0, CH 4 Magenta 0, CH 5 Yellow 0, CH 7 Colors 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Shutter		Same as CH 22 in the mode “Mode 1” (p. 14)
2	Dimmer		Same as CH 23 in the mode “Mode 1” (p. 15)
3	Cyan		Same as CH 6 in the mode “Mode 1” (p. 12)
4	Magenta		Same as CH 7 in the mode “Mode 1” (p. 12)
5	Yellow		Same as CH 8 in the mode “Mode 1” (p. 12)
6	CTO		Same as CH 9 in the mode “Mode 1” (p. 12)
7	Colors		Same as CH 5 in the mode “Mode 1” (p. 11)
8	Gobo		Same as CH 10 in the mode “Mode 1” (p. 12)
9	Gobo Rotation		Same as CH 11 in the mode “Mode 1” (p. 13)
10	Gobo Rotation Fine	0–255	Fine adjustment of CH 9
11	Gobo 2		Same as CH 13 in the mode “Mode 1” (p. 13)
12	Animation Wheel		Same as CH 18 in the mode “Mode 1” (p. 14)
13	ANIMATIONINDEXROTATE	0	>>>

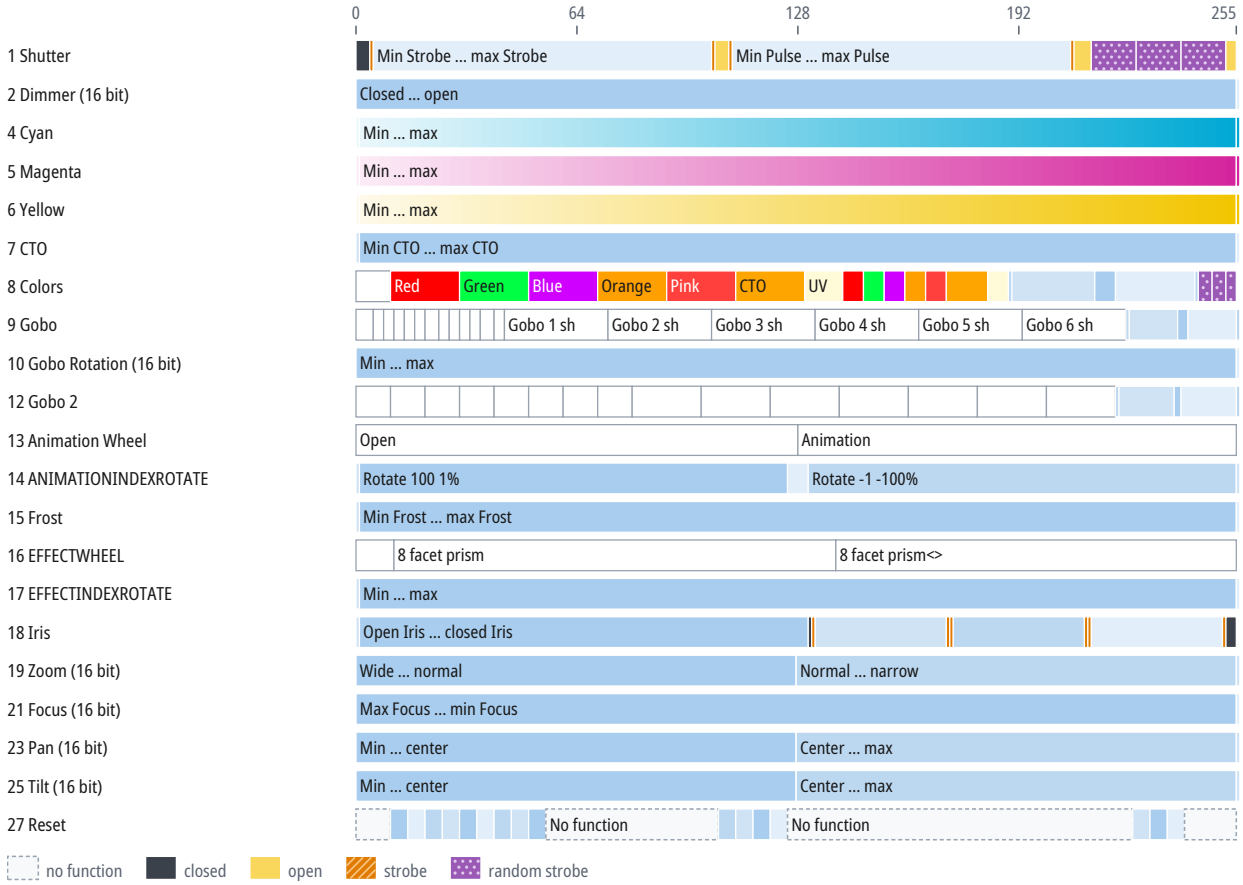
CH	Function	DMX	Description
13	ANIMATIONINDEXROTATE (continued)	1–124	Rotate 100 1% (178.5–3.23 °/s)
		125–130	Stop
		131–254	Rotate -1 -100% (1.8–177.1 °/s)
		255	<<<
14	Frost		Same as CH 16 in the mode “Mode 1” (p. 14)
15	EFFECTWHEEL		Same as CH 14 in the mode “Mode 1” (p. 13)
16	EFFECTINDEXROTATE		Same as CH 15 in the mode “Mode 1” (p. 13)
17	Iris		Same as CH 17 in the mode “Mode 1” (p. 14)
18	Zoom		Same as CH 20 in the mode “Mode 1” (p. 14)
19	Focus		Same as CH 21 in the mode “Mode 1” (p. 14)
20	Pan		Same as CH 1 in the mode “Mode 1” (p. 11)
21	Pan Fine	0–255	Fine adjustment of CH 20
22	Tilt		Same as CH 3 in the mode “Mode 1” (p. 11)
23	Tilt Fine	0–255	Fine adjustment of CH 22
24	Reset		Same as CH 24 in the mode “Mode 1” (p. 15)

Mode 3

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 1 Shutter at 104–107 “open” or 208–212 or 252–255; CH 2 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Shutter 106, CH 2 Dimmer 255, CH 4 Cyan 0, CH 5 Magenta 0, CH 6 Yellow 0, CH 8 Colors 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Shutter		Same as CH 22 in the mode “Mode 1” (p. 14)
2	Dimmer	0–255	Closed ... open
		255	Open
3	Dimmer Fine	0–255	Fine adjustment of CH 2
4	Cyan		Same as CH 6 in the mode “Mode 1” (p. 12)
5	Magenta		Same as CH 7 in the mode “Mode 1” (p. 12)
6	Yellow		Same as CH 8 in the mode “Mode 1” (p. 12)
7	CTO		Same as CH 9 in the mode “Mode 1” (p. 12)
8	Colors		Same as CH 5 in the mode “Mode 1” (p. 11)
9	Gobo		Same as CH 10 in the mode “Mode 1” (p. 12)
10	Gobo Rotation		Same as CH 11 in the mode “Mode 1” (p. 13)
11	Gobo Rotation Fine	0–255	Fine adjustment of CH 10
12	Gobo 2		Same as CH 13 in the mode “Mode 1” (p. 13)

CH	Function	DMX	Description
13	Animation Wheel		Same as CH 18 in the mode “Mode 1” (p. 14)
14	ANIMATIONINDEXROTATE		Same as CH 13 in the mode “Mode 2” (p. 16)
15	Frost		Same as CH 16 in the mode “Mode 1” (p. 14)
16	EFFECTWHEEL		Same as CH 14 in the mode “Mode 1” (p. 13)
17	EFFECTINDEXROTATE		Same as CH 15 in the mode “Mode 1” (p. 13)
18	Iris		Same as CH 17 in the mode “Mode 1” (p. 14)
19	Zoom	0–127	Wide ... normal
		128–255	Normal ... narrow
		255	Narrow
20	Zoom Fine	0–255	Fine adjustment of CH 19
21	Focus	0–255	Max Focus ... min Focus
		255	Min Focus
22	Focus Fine	0–255	Fine adjustment of CH 21
23	Pan		Same as CH 1 in the mode “Mode 1” (p. 11)
24	Pan Fine	0–255	Fine adjustment of CH 23
25	Tilt		Same as CH 3 in the mode “Mode 1” (p. 11)
26	Tilt Fine	0–255	Fine adjustment of CH 25
27	Reset		Same as CH 24 in the mode “Mode 1” (p. 15)

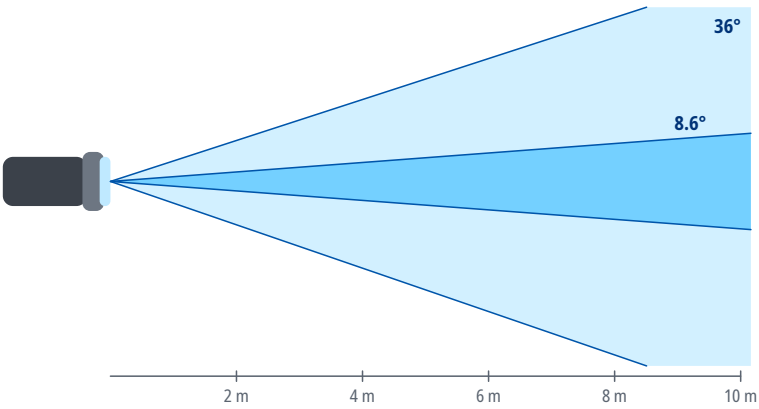
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	1,000 W
Luminous flux	10,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	100
Optics	
Zoom	8.6–36°
Movement	
Pan	540°
Tilt	244°
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.1–10 Hz
Color wheel rotation	up to 179.9 °/s (30 rpm)
Gobo wheel 1 rotation	up to 179.9 °/s (30 rpm)
Gobo wheel 2 rotation	up to 179.9 °/s (30 rpm)
Animation wheel rotation	up to 179.9 °/s (30 rpm)

Spot diameter



Distance	Ø 8.6°	Ø 36°
2 m	0.3 m	1.3 m
4 m	0.6 m	2.6 m
6 m	0.9 m	3.9 m
8 m	1.2 m	5.2 m
10 m	1.5 m	6.5 m
15 m	2.3 m	9.7 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.