DMX REFERENCE

Beam 2r MKII

Evolite



Manufacturer	Evolite
GDTF file	Evolite_Beam_2r_MKII_97262.gdtf
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1 About this manual

This document describes the Beam 2r MKII by Evolite. It was compiled from the GDTF file Evolite_Beam_2r_MKII_97262.gdtf from the GDTF-Share library.

File revision: “Beam 2r MKII”.

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 Evolite; 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	18 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
19 CH	19	26	1, 20, 39, 58, …

No light? Check these channels

- 19 CH: CH 6 Shutter at 252–255 “Shutter 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.

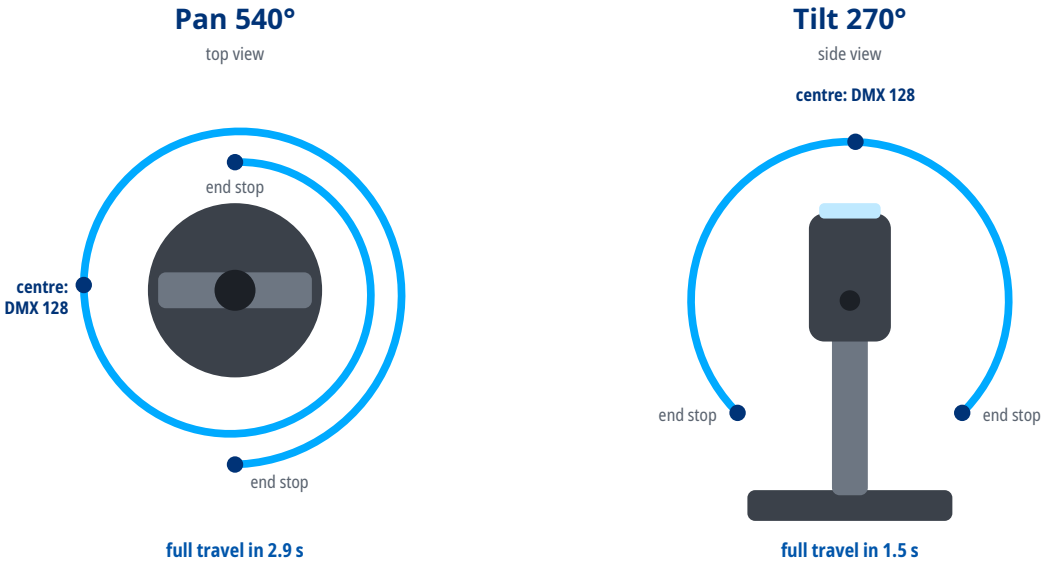
⚠ CAUTION

- 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.

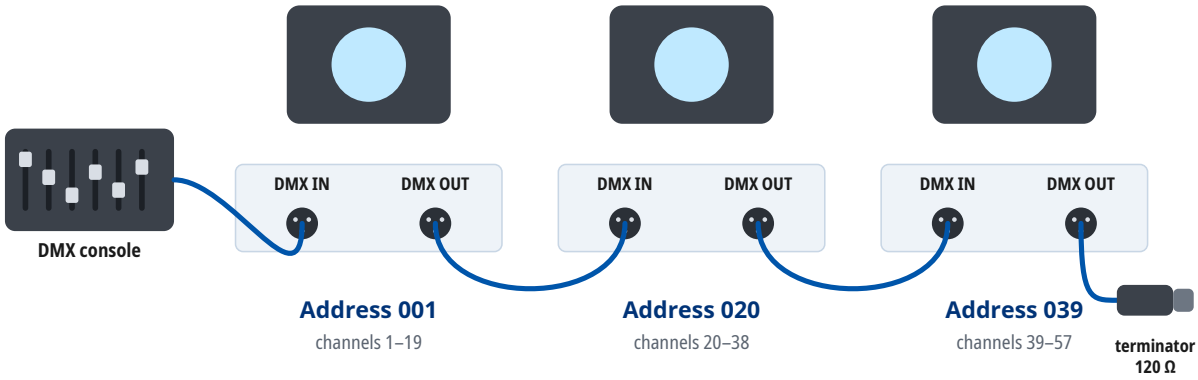
5 Installation

> ⚠ **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.
> - Weight of the device: 18 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: every unit occupies 19 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

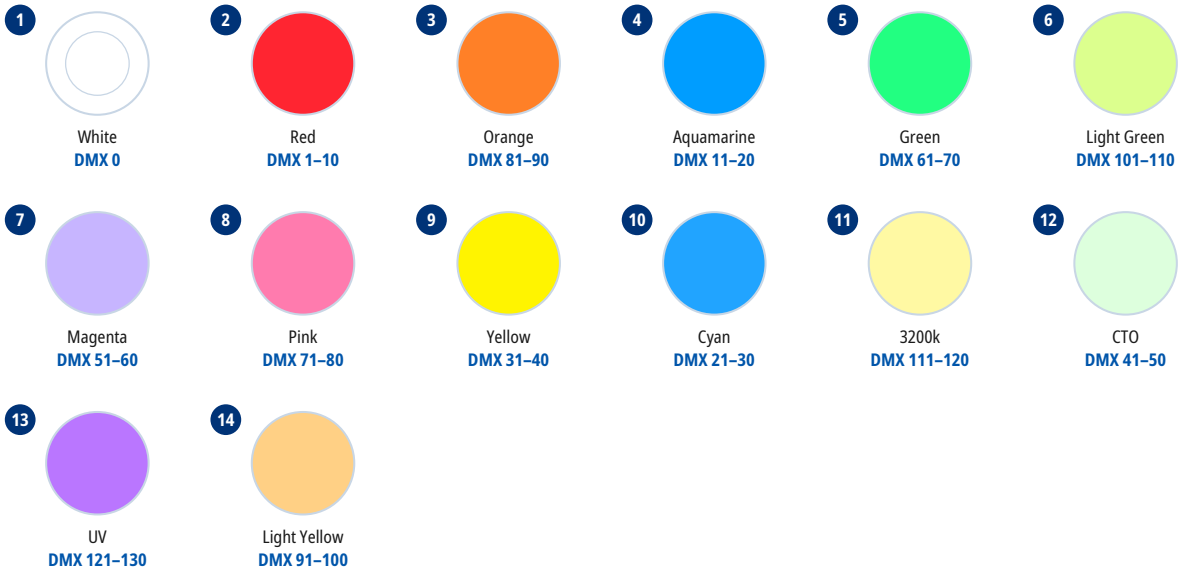
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “19 CH”: 19.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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”, you can use, for example, the start addresses 1, 20, 39, 58.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

8 Functions at a glance

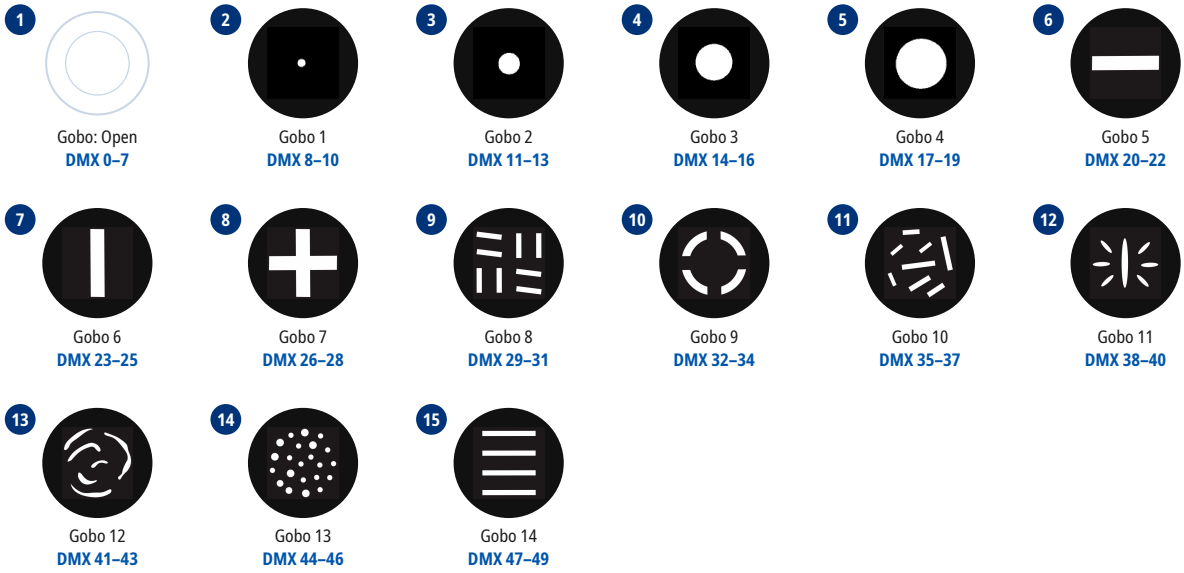
Functions in each DMX mode

	19 CH 19 channels
Pan / Tilt	1, 3
Dimmer	7
Shutter / strobe	6
Color wheel	8
Gobo wheel	9
Prism	11, 12
Frost	14
Focus	10
Animation wheel	13
Effects / macros	13

Color wheel

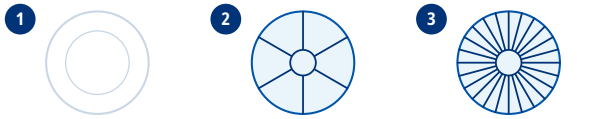


Gobo wheel



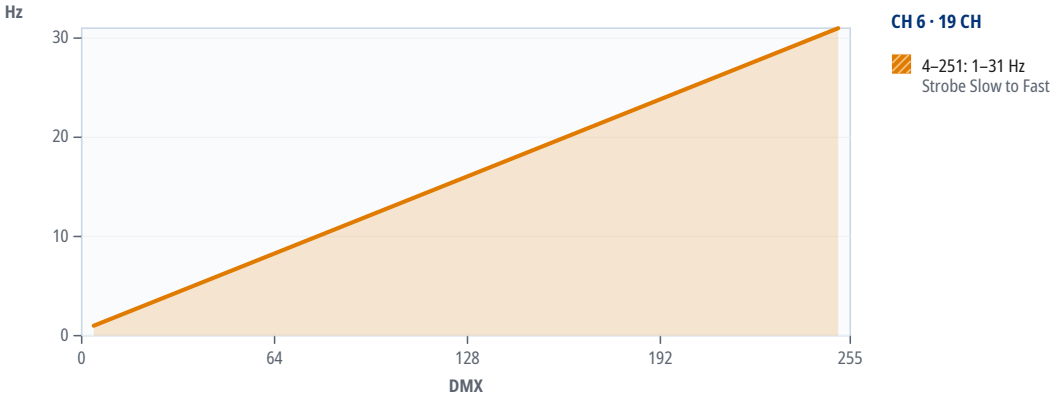
1 Gobo: Open — DMX 0–7
2 Gobo 1 — DMX 8–10
3 Gobo 2 — DMX 11–13
4 Gobo 3 — DMX 14–16
5 Gobo 4 — DMX 17–19
6 Gobo 5 — DMX 20–22
7 Gobo 6 — DMX 23–25
8 Gobo 7 — DMX 26–28
9 Gobo 8 — DMX 29–31
10 Gobo 9 — DMX 32–34
11 Gobo 10 — DMX 35–37
12 Gobo 11 — DMX 38–40
13 Gobo 12 — DMX 41–43
14 Gobo 13 — DMX 44–46
15 Gobo 14 — DMX 47–49

Prism



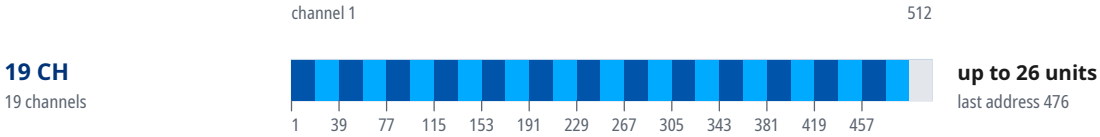
1 Open — DMX 0–128
2 6 facets — Prism 1 — DMX 128–255
3 24 facets — Prism 2 24 facet circular

Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “19 CH”

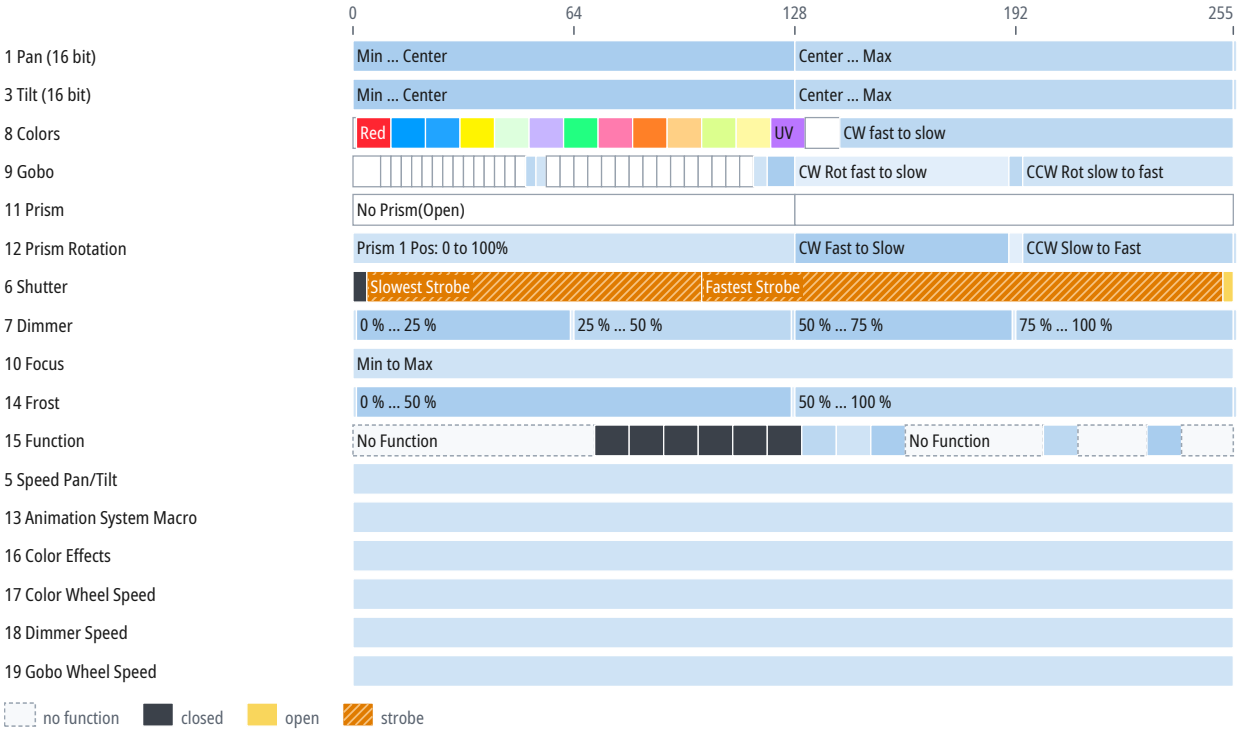
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	96	11	191	16	286
2	20	7	115	12	210	17	305
3	39	8	134	13	229	18	324
4	58	9	153	14	248	19	343
5	77	10	172	15	267	20	362

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 6 Shutter at 252–255 “Shutter Open”. The GDTF file gives these values for a console's Highlight function: CH 6 Shutter 255, CH 7 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–128	Min … Center
		128–255	Center … Max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–128	Min … Center
		128–255	Center … Max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0–255	
6	Shutter	0–3	Shutter Closed
		4–100	Slowest Strobe
		101–251	Fastest Strobe
		252–255	Shutter Open
7	Dimmer	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 %
8	Colors	0	White
		1–10	Red
		11–20	Aquamarine
		21–30	Cyan
		31–40	Yellow
		41–50	CTO
		51–60	Magenta
		61–70	Green
		71–80	Pink
		81–90	Orange
		91–100	Light Yellow
		101–110	Light Green
		111–120	3200k
		121–130	UV
		131–140	White
		141–255	CW fast to slow (up to 360 °/s (60 rpm))
9	Gobo	0–7	Gobo: Open
		8–10	Gobo 1

CH	Function	DMX	Description
9	Gobo (continued)	11–13	Gobo 2
		14–16	Gobo 3
		17–19	Gobo 4
		20–22	Gobo 5
		23–25	Gobo 6
		26–28	Gobo 7
		29–31	Gobo 8
		32–34	Gobo 9
		35–37	Gobo 10
		38–40	Gobo 11
		41–43	Gobo 12
		44–46	Gobo 13
		47–49	Gobo 14
		50–52	Gobo 15
		53–55	Gobo 16
		56–59	Gobo 1 Wheel Shake: Open (1–5 Hz)
		60–63	Gobo 1 Wheel Shake: Gobo 1 (1–5 Hz)
		64–67	Gobo 1 Wheel Shake: Gobo 2 (1–5 Hz)
		68–71	Gobo 1 Wheel Shake: Gobo 3 (1–5 Hz)
		72–75	Gobo 1 Wheel Shake: Gobo 4 (1–5 Hz)
		76–79	Gobo 1 Wheel Shake: Gobo 5 (1–5 Hz)
		80–83	Gobo 1 Wheel Shake: Gobo 6 (1–5 Hz)
		84–87	Gobo 1 Wheel Shake: Gobo 7 (1–5 Hz)
		88–91	Gobo 1 Wheel Shake: Gobo 8 (1–5 Hz)
		92–95	Gobo 1 Wheel Shake: Gobo 9 (1–5 Hz)
		96–99	Gobo 1 Wheel Shake: Gobo 10 (1–5 Hz)
		100–103	Gobo 1 Wheel Shake: Gobo 11 (1–5 Hz)
		104–107	Gobo 1 Wheel Shake: Gobo 12 (1–5 Hz)
		108–111	Gobo 1 Wheel Shake: Gobo 13 (1–5 Hz)
		112–115	Gobo 1 Wheel Shake: Gobo 14 (1–5 Hz)
		116–119	Gobo 1 Wheel Shake: Gobo 15 (1–5 Hz)
		120–127	Gobo 1 Wheel Shake: Gobo 16 (1–5 Hz)
		128–189	CW Rot fast to slow (360–10 °/s)
		190–193	No Rot
		194–255	CCW Rot slow to fast (10–360 °/s)
10	Focus	0–255	Min to Max
11	Prism	0–127	No Prism(Open)
		128–255	Prism 1
12	Prism Rotation	0–127	Prism 1 Pos: 0 to 100% (540°)
		128–189	CW Fast to Slow (360–10 °/s)
		190–193	No Rot

CH	Function	DMX	Description
12	Prism Rotation (continued)	194–254	CCW Slow to Fast (10–360 °/s)
		255	Prism 1 Pos Rotate
13	Animation System Macro	0–255	
14	Frost	0	0 %
		1–126	0 % … 50 %
		127	50 %
		128–254	50 % … 100 %
		255	100 %
15	Function	0–69	No Function
		70–79	Enable blackout while Pan/Tilt
		80–89	Disable blackout while Pan/Tilt
		90–99	Enable blackout while color changing
		100–109	Disable blackout while color changing
		110–119	Enable blackout while gobo changing
		120–129	Disable blackout while gobo changing
		130–139	Lamp On
		140–149	Reset XY
		150–159	Reset Effect
		160–199	No Function
		200–209	Reset All
		210–229	No Function
		230–239	Lamp Off
		240–255	No Function
16	Color Effects	0–255	
17	Color Wheel Speed	0–255	
18	Dimmer Speed	0–255	
19	Gobo Wheel Speed	0–255	

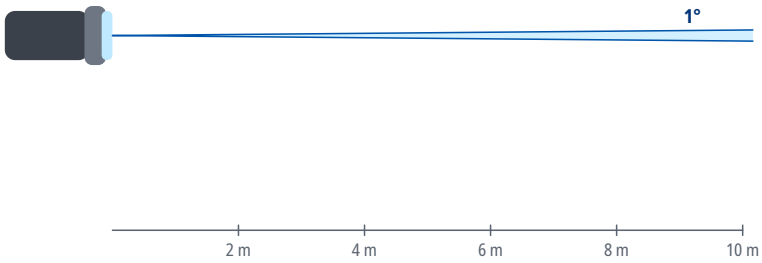
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	337 W
Luminous flux	9,406 lm
Color temperature	7,800 K
Color rendering index (CRI)	74
Optics	
Beam angle	1°
Movement	
Pan	540°
Tilt	270°
Dimensions and construction	
Weight	18 kg
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–31 Hz
Color wheel rotation	up to 360 °/s (60 rpm)
Gobo wheel rotation	up to 360 °/s (60 rpm)
Prism rotation	up to 360 °/s (60 rpm)

Spot diameter



Distance	Ø 1°
2 m	0.03 m
4 m	0.07 m
6 m	0.1 m
8 m	0.14 m
10 m	0.17 m
15 m	0.26 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.