DMX REFERENCE

WHALE BEAM

LIGHT SKY



Manufacturer	LIGHT SKY
GDTF file	LIGHT_SKY_Whale_Beam_116938.gdtf
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1 About this manual

This document describes the WHALE BEAM by LIGHT SKY. It was compiled from the GDTF file LIGHT_SKY_Whale_Beam_116938.gdtf from the GDTF-Share library.

File revision: “V1.6”.

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 LIGHT SKY; 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
Power consumption	850 W
Weight	26.2 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
21CH	21	24	1, 22, 43, 64, …

No light? Check these channels

- 21CH: CH 19 Shutter at 32–63 or 224–255 “Open”; CH 20 Dimmer above 0


Read the manual before use


Risk of electric shock


Do not stare into the light


Indoor use only

3 Safety instructions


Read the manual before use


Risk of electric shock


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

- Connect the device only to a properly installed mains outlet with a protective earth (ground) contact. The outlet or other means of disconnection must remain easily accessible.
- Power supply: 100–240 V, 50/60 Hz. Before connecting, make sure that the mains voltage matches this value and the value on the rating plate of the device.
- Do not connect the device to a dimmer or to a dimmed circuit.
- Use only the original power cable or a cable with identical ratings. Protect the cable from damage, do not run it over sharp edges, and never unplug it by pulling on the cable.
- When connecting several devices to one circuit, do not exceed its permitted load.
- Do not touch the device with wet hands.

⚠ 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

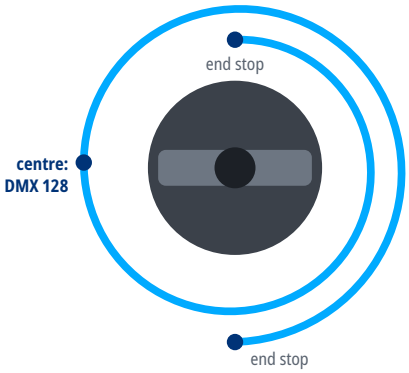
- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, 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

Pan 540°

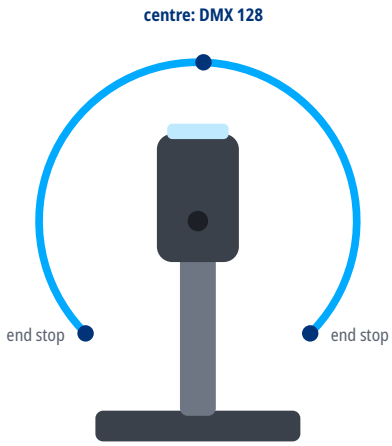
top view



full travel in 2.5 s

Tilt 270°

side view



full travel in 2 s

Full-travel times as stated in the GDTF file.

5 Installation

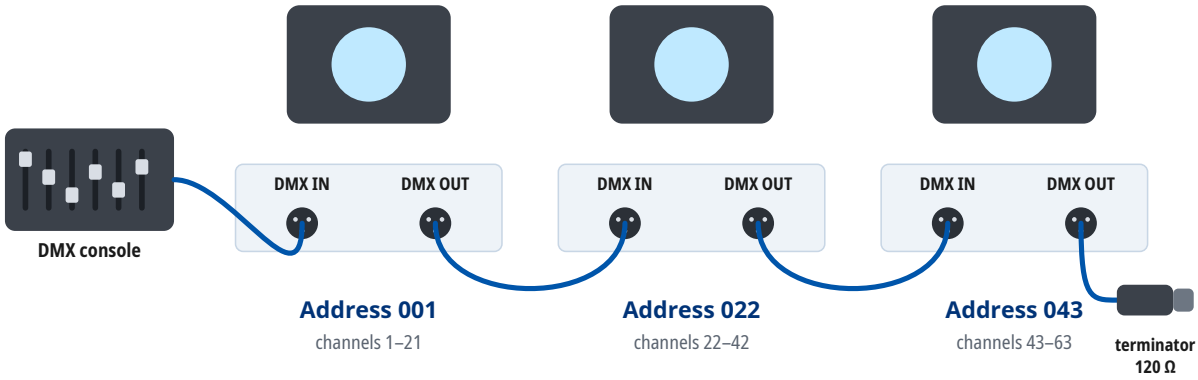
⚠ **WARNING**

- 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: 26.2 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 21CH: every unit occupies 21 channels from its address. At most 32 units on one line; for more units or longer runs use a DMX splitter. A 120 Ω terminator closes the last DMX OUT.

7 Operation

Setting the DMX address

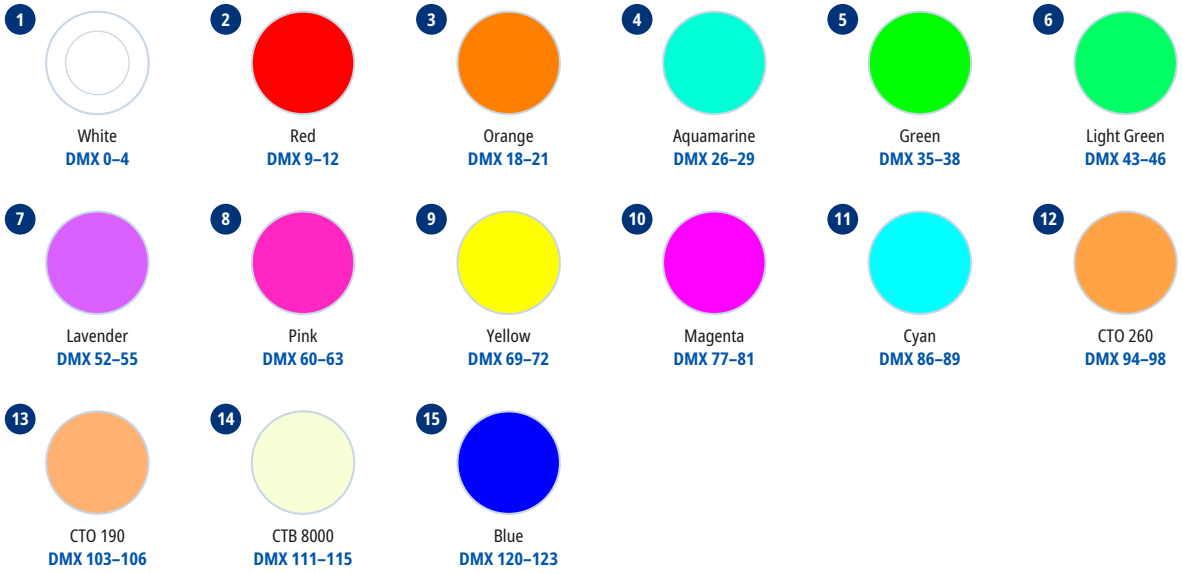
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “21CH”: 21.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “21CH”, you can use, for example, the start addresses 1, 22, 43, 64.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.
- The device supports RDM (Remote Device Management), two-way communication with the controller over the DMX line.

8 Functions at a glance

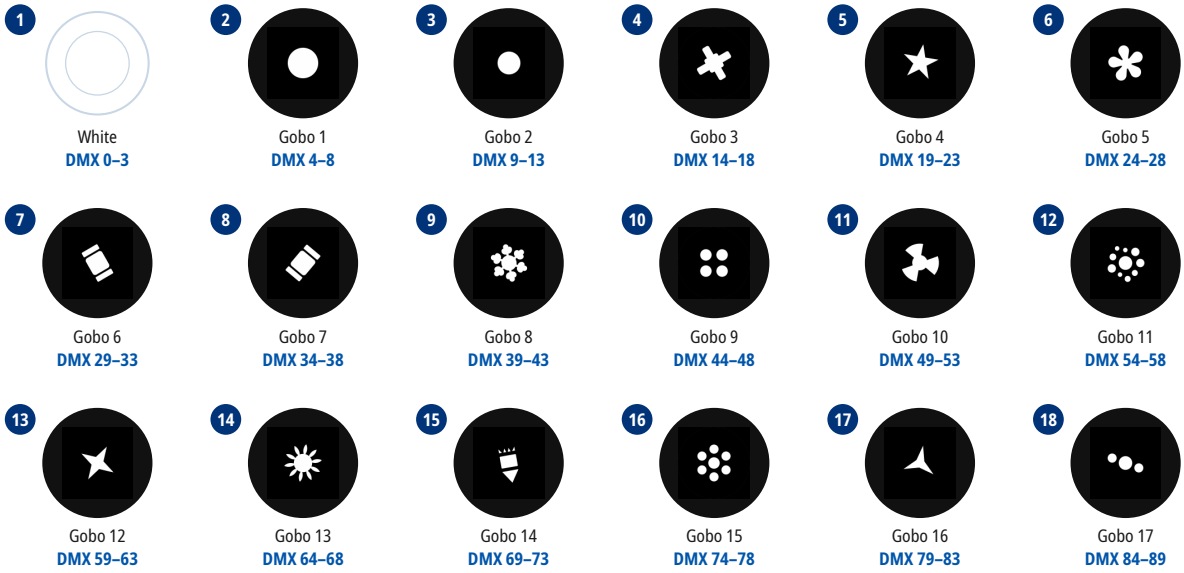
Functions in each DMX mode

	21CH 21 channels
Pan / Tilt	1, 3
Dimmer	20
Shutter / strobe	19
Color mixing	7–9
Color wheel	10
Gobo wheel	11
Prism	12–15
Frost	16
Focus	17

Color wheel



Gobo wheel



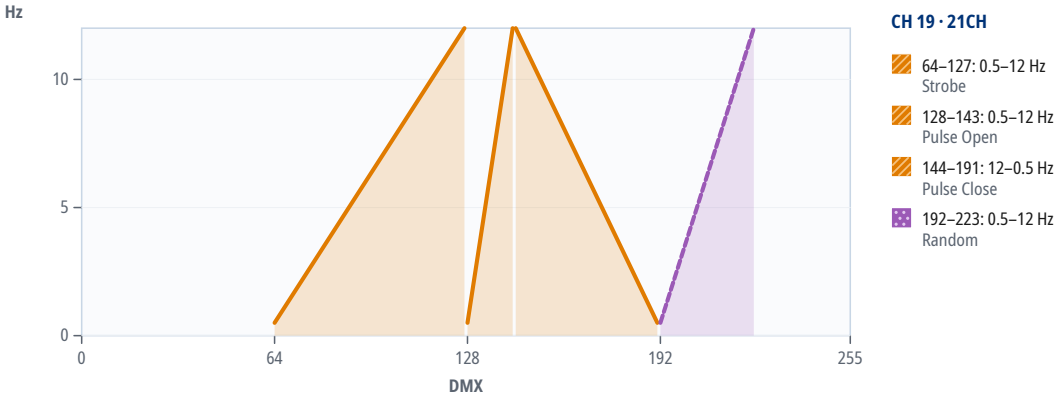
1 White DMX 0–3
2 Gobo 1 DMX 4–8
3 Gobo 2 DMX 9–13
4 Gobo 3 DMX 14–18
5 Gobo 4 DMX 19–23
6 Gobo 5 DMX 24–28
7 Gobo 6 DMX 29–33
8 Gobo 7 DMX 34–38
9 Gobo 8 DMX 39–43
10 Gobo 9 DMX 44–48
11 Gobo 10 DMX 49–53
12 Gobo 11 DMX 54–58
13 Gobo 12 DMX 59–63
14 Gobo 13 DMX 64–68
15 Gobo 14 DMX 69–73
16 Gobo 15 DMX 74–78
17 Gobo 16 DMX 79–83
18 Gobo 17 DMX 84–89

Prism



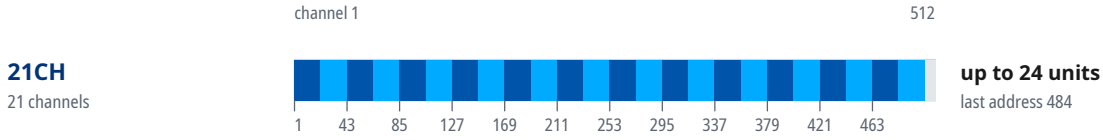
1 Open CH 12: DMX 0–3
2 8 facets Prism1 CH 12: DMX 4–255
3 24 facets Prism2 CH 14: DMX 4–255

Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “21CH”

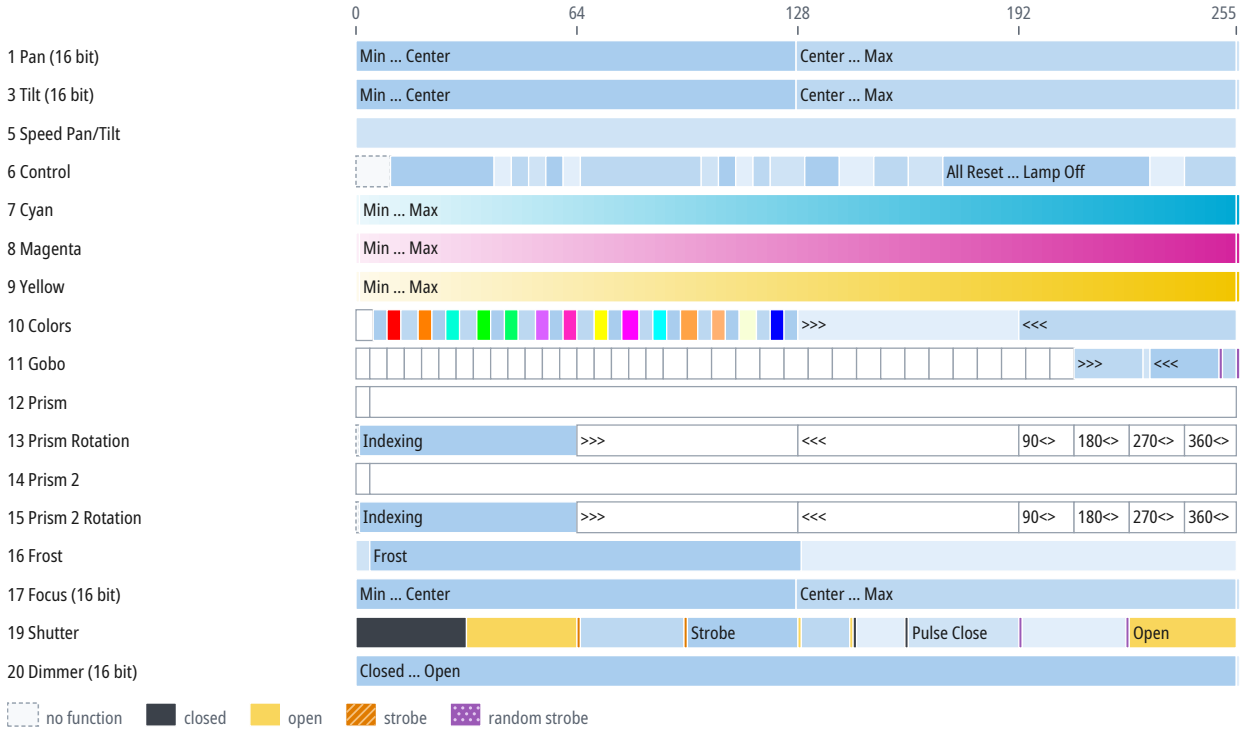
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	106	11	211	16	316
2	22	7	127	12	232	17	337
3	43	8	148	13	253	18	358
4	64	9	169	14	274	19	379
5	85	10	190	15	295	20	400

Mode 21CH

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 19 Shutter at 32–63 or 224–255 “Open”; CH 20 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 19 Shutter 255, CH 20 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	Speed Pan/Tilt	0–255	
6	Control	0–9	No Function
		10–39	No Function … Dis Blink Off
		40–44	Dis Blink Off
		45–49	Dis Blink On
		50–54	XY Normal
		55–59	XY Fast
		60–64	XY Precise
		65–99	XY Precise … P Invert Off
		100–104	P Invert Off
		105–109	P Invert On
		110–114	T Invert Off
		115–119	T Invert On
		120–129	T Invert On … Lamp On
		130–139	Lamp On
		140–149	XY Reset
		150–159	Head Reset
		160–169	All Reset
		170–229	All Reset … Lamp Off
		230–239	Lamp Off
		240–255	Control
7	Cyan	0	Min
		1–254	Min … Max
		255	Max
8	Magenta	0	Min
		1–254	Min … Max
		255	Max
9	Yellow	0	Min
		1–254	Min … Max
		255	Max
10	Colors	0–4	White
		5–8	White … Red

CH	Function	DMX	Description
10	Colors (continued)	9–12	Red
		13–17	Red ... Orange
		18–21	Orange
		22–25	Orange ... Aquamarine
		26–29	Aquamarine
		30–34	Aquamarine ... Green
		35–38	Green
		39–42	Green ... Light Green
		43–46	Light Green
		47–51	Light Green ... Lavender
		52–55	Lavender
		56–59	Lavender ... Pink
		60–63	Pink
		64–68	Pink ... Yellow
		69–72	Yellow
		73–76	Yellow ... Magenta
		77–81	Magenta
		82–85	Magenta ... Cyan
		86–89	Cyan
		90–93	Cyan ... CTO 260
		94–98	CTO 260
		99–102	CTO 260 ... CTO 190
		103–106	CTO 190
		107–110	CTO 190 ... CTB 8000
		111–115	CTB 8000
		116–119	CTB 8000 ... Blue
		120–123	Blue
		124–127	Indexing
		128–191	>>> (125–0.98 °/s)
		192–255	<<< (0.98–125 °/s)
11	Gobo	0–3	White
		4–8	Gobo 1
		9–13	Gobo 2
		14–18	Gobo 3
		19–23	Gobo 4
		24–28	Gobo 5
		29–33	Gobo 6
		34–38	Gobo 7
		39–43	Gobo 8
		44–48	Gobo 9
		49–53	Gobo 10

CH	Function	DMX	Description
11	Gobo (continued)	54–58	Gobo 11
		59–63	Gobo 12
		64–68	Gobo 13
		69–73	Gobo 14
		74–78	Gobo 15
		79–83	Gobo 16
		84–88	Gobo 17
		89–95	Gobo 1 Shake (0.2–7 Hz)
		96–102	Gobo 2 Shake (0.2–7 Hz)
		103–109	Gobo 3 Shake (0.2–7 Hz)
		110–116	Gobo 4 Shake (0.2–7 Hz)
		117–123	Gobo 5 Shake (0.2–7 Hz)
		124–130	Gobo 6 Shake (0.2–7 Hz)
		131–137	Gobo 7 Shake (0.2–7 Hz)
		138–144	Gobo 8 Shake (0.2–7 Hz)
		145–151	Gobo 9 Shake (0.2–7 Hz)
		152–158	Gobo 10 Shake (0.2–7 Hz)
		159–165	Gobo 11 Shake (0.2–7 Hz)
		166–172	Gobo 12 Shake (0.2–7 Hz)
		173–179	Gobo 13 Shake (0.2–7 Hz)
		180–186	Gobo 14 Shake (0.2–7 Hz)
		187–193	Gobo 15 Shake (0.2–7 Hz)
		194–200	Gobo 16 Shake (0.2–7 Hz)
		201–207	Gobo 17 Shake (0.2–7 Hz)
		208–227	>>> (125–9.15 °/s)
		228–229	Wheel Spin: Stop
		230–249	<<< (9.15–125 °/s)
		250	Random Fast
		251–254	Random Fast ... Random Slow
		255	Random Slow
12	Prism	0–3	Open
		4–255	Prism1
13	Prism Rotation	0	No Function
		1–63	Indexing
		64–127	>>> (360–10 °/s)
		128–191	<<< (10–360 °/s)
		192–207	90<> (up to 45 °/s (7.5 rpm))
		208–223	180<> (up to 90 °/s (15 rpm))
		224–239	270<> (up to 135 °/s (22 rpm))
		240–255	360<> (up to 180 °/s (30 rpm))
14	Prism 2	0–3	Open

CH	Function	DMX	Description
14	Prism 2 (continued)	4–255	Prism2
15	Prism 2 Rotation	0	No Function
		1–63	Indexing
		64–127	>>> (360–10 °/s)
		128–191	<<< (10–360 °/s)
		192–207	90<> (up to 45 °/s (7.5 rpm))
		208–223	180<> (up to 90 °/s (15 rpm))
		224–239	270<> (up to 135 °/s (22 rpm))
		240–255	360<> (up to 180 °/s (30 rpm))
16	Frost	0–3	Open
		4–128	Frost
		129–255	Frost 1 1
17	Focus	0–127	Min ... Center
		128–255	Center ... Max
		255	Max
18	Focus Fine	0–255	Fine adjustment of CH 17
19	Shutter	0–31	Shutter 1: Closed
		32–63	Shutter 1: Open
		64	Strobe Slow
		65–94	Strobe Slow ... Strobe Fast
		95	Strobe Fast
		96–127	Strobe
		128	Pulse Open Slow
		129–142	Pulse Open Slow ... Pulse Open Fast
		143	Pulse Open Fast
		144	Pulse Close Fast
		145–158	Pulse Close Fast ... Pulse Close Slow
		159	Pulse Close Slow
		160–191	Pulse Close
		192	Random Slow
		193–222	Random Slow ... Random Fast
		223	Random Fast
		224–255	Open
20	Dimmer	0–255	Closed ... Open
		255	Open
21	Dimmer Fine	0–255	Fine adjustment of CH 20

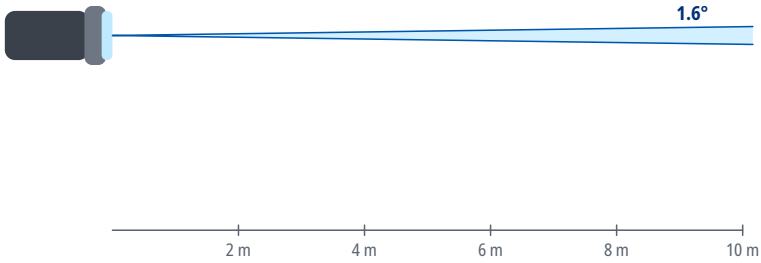
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	530 W
Luminous flux	910,000 lm
Color temperature	7,300 K
Color rendering index (CRI)	85
Optics	
Beam angle	1.6°
Movement	
Pan	540°
Tilt	270°
Control	
DMX connection	5-pin XLR IN/OUT, 3-pin XLR IN/OUT
RJ45 connectors	RJ45 IN
RDM	yes (manufacturer ID 0x3888, device model ID 0x0113)
Electrical	
Power supply	100–240 V, 50/60 Hz
Power consumption	850 W
Power connectors	powerCON TRUE1 IN/OUT
Dimensions and construction	
Weight	26.2 kg
Operating environment	
Operating temperature	-10 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.5–12 Hz
Color wheel rotation	up to 125 °/s (21 rpm)
Gobo wheel rotation	up to 125 °/s (21 rpm)
Prism rotation	up to 360 °/s (60 rpm)
Prism rotation	up to 360 °/s (60 rpm)

Spot diameter



Distance	Ø 1.6°
2 m	0.06 m
4 m	0.11 m
6 m	0.17 m
8 m	0.22 m
10 m	0.28 m
15 m	0.42 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.