DMX REFERENCE

7r 230w

Mantox



Manufacturer	Mantox
GDTF file	MANTOX_7r_230w_113431.gdtf
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1 About this manual

This document describes the 7r 230w by Mantox. It was compiled from the GDTF file MANTOX_7r_230w_113431.gdtf from the GDTF-Share library.

File revision: “cris”.

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 Mantox; 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 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Vector	12	42	1, 13, 25, 37, …

No light? Check these channels

- Vector: CH 5 Shutter at 104–107, 208–212 or 252–255 “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

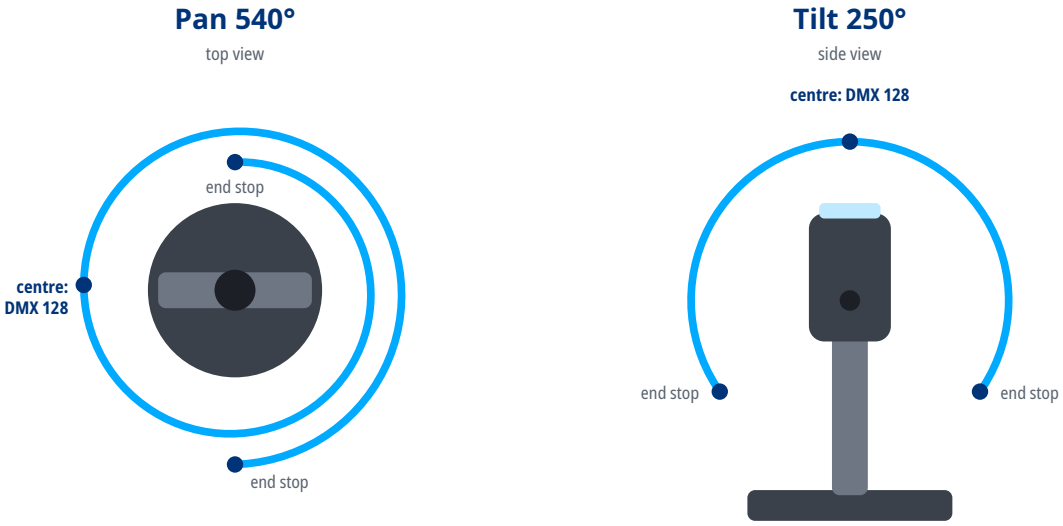
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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



5 Installation

⚠ WARNING

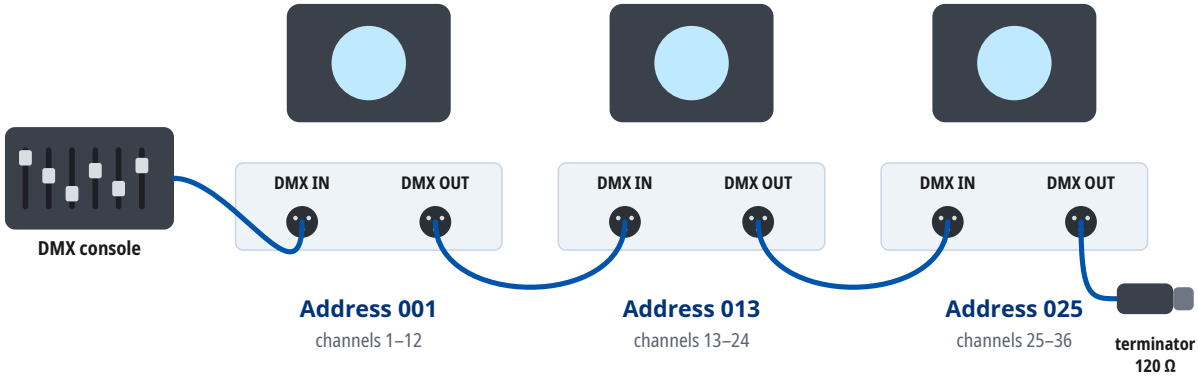
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 19 kg.
- 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 Vector: every unit occupies 12 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 “Vector”: 12.
- 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 “Vector”, you can use, for example, the start addresses 1, 13, 25, 37.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

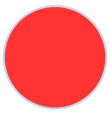
8 Functions at a glance

Functions in each DMX mode

	Vector 12 channels
Pan / Tilt	1, 2
Dimmer	6
Shutter / strobe	5
Color wheel	7
Gobo wheel	8
Prism	11, 12
Frost	4
Focus	10

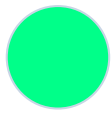
Color wheel

1
CH 5: DMX 104–108

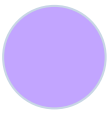
2 
White+Red->Red
CH 7: DMX 5–8

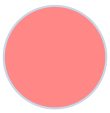
3 
Red+Orange->Orange
CH 7: DMX 13–17

4
Orange+Aquamarine->Aquamarine
CH 7: DMX 22–25

5 
Aquamarine+Deep Green->Deep Green
CH 7: DMX 30–34

6
Deep Green+Light Green->Light Green
CH 7: DMX 39–42

7 
Light Green+Lavender->Lavender
CH 7: DMX 47–51

8 
Lavender+Pink->Pink
CH 7: DMX 56–59

9
Pink+Yellow->Yellow
CH 7: DMX 64–68

10 
Yellow+Magenta->Magenta
CH 7: DMX 73–76

11 
Magenta+Cyan->Cyan
CH 7: DMX 82–85

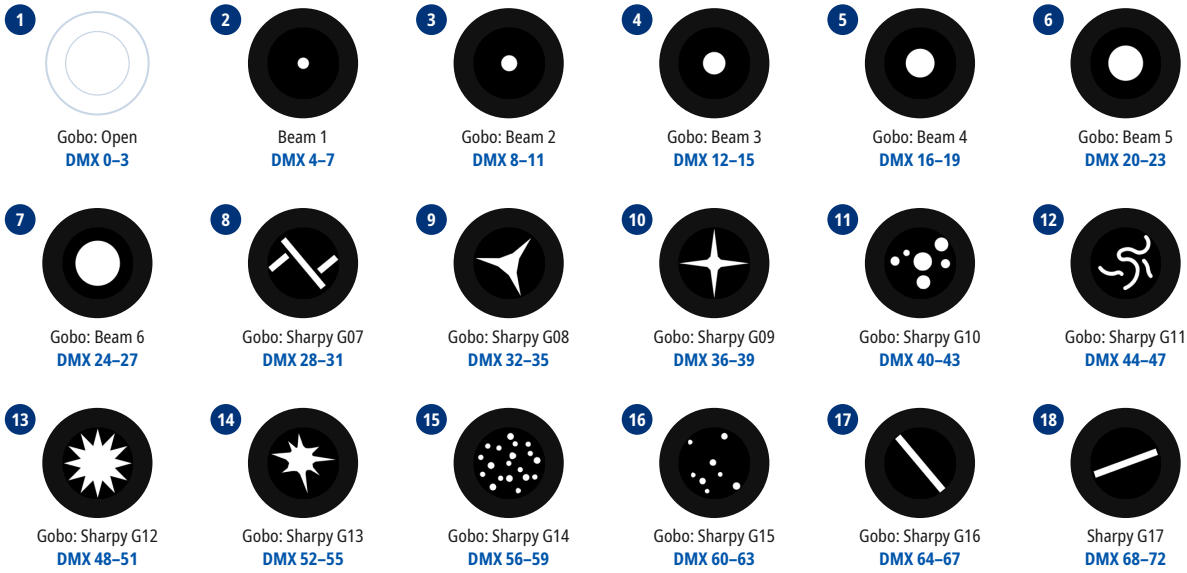
12
Cyan+CTO 260->CTO 260
CH 7: DMX 90–93

13
CTO 260+CTO 190->CTO 190
CH 7: DMX 99–102

14
CTO 190+CTB 8000->CTB 8000
CH 7: DMX 107–110

15 
CTB 8000 + Blue->Blue
CH 7: DMX 116–119

Gobo wheel



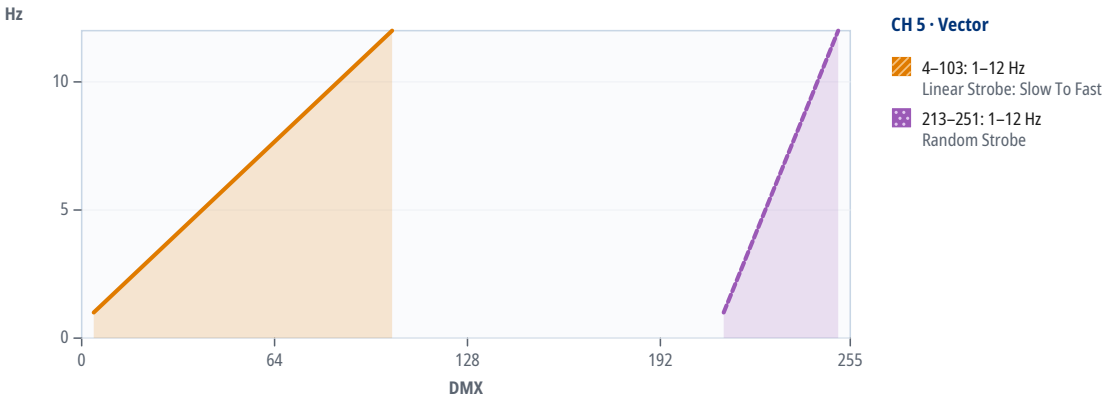
1. Gobo: Open — DMX 0–3
2. Beam 1 — DMX 4–7
3. Gobo: Beam 2 — DMX 8–11
4. Gobo: Beam 3 — DMX 12–15
5. Gobo: Beam 4 — DMX 16–19
6. Gobo: Beam 5 — DMX 20–23
7. Gobo: Beam 6 — DMX 24–27
8. Gobo: Sharpy G07 — DMX 28–31
9. Gobo: Sharpy G08 — DMX 32–35
10. Gobo: Sharpy G09 — DMX 36–39
11. Gobo: Sharpy G10 — DMX 40–43
12. Gobo: Sharpy G11 — DMX 44–47
13. Gobo: Sharpy G12 — DMX 48–51
14. Gobo: Sharpy G13 — DMX 52–55
15. Gobo: Sharpy G14 — DMX 56–59
16. Gobo: Sharpy G15 — DMX 60–63
17. Gobo: Sharpy G16 — DMX 64–67
18. Sharpy G17 — DMX 68–72

Prism



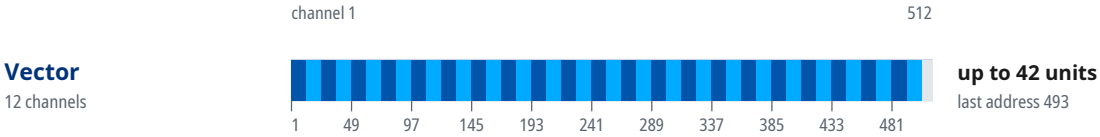
1. Open — DMX 0–127
2. Prism Inserted — DMX 128–255

Strobe rate



9 DMX channels

Units in one DMX universe



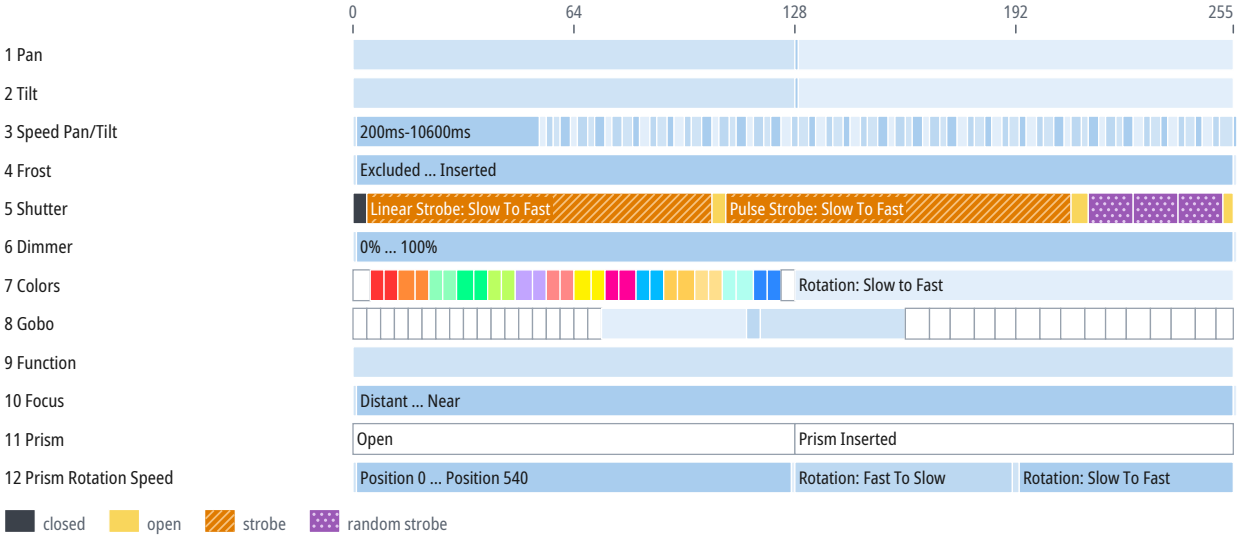
Start addresses of 20 units in the mode “Vector”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	61	11	121	16	181
2	13	7	73	12	133	17	193
3	25	8	85	13	145	18	205
4	37	9	97	14	157	19	217
5	49	10	109	15	169	20	229

Mode Vector

If the device receives DMX in this mode but gives no light, check these channels: CH 5 Shutter at 104–107, 208–212 or 252–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 5 Shutter 105, CH 6 Dimmer 255, CH 7 Colors 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan
		128	Home
		129–255	Pan
2	Tilt	0–127	Tilt
		128	Home
		129–255	Tilt
3	Speed Pan/Tilt	0	Full: Open

CH	Function	DMX	Description
3	Speed Pan/Tilt (continued)	1–53	200ms-10600ms
		54–55	11s
		56–57	12s
		58–59	13s
		60–62	14s
		63–64	15s
		65–67	16s
		68–69	17s
		70–72	18s
		73–74	19s
		75–77	20s
		78–80	21s
		81–82	22s
		83–85	23s
		86–87	24s
		88–90	25s
		91–92	26s
		93–95	27s
		96–97	28s
		98–100	29s
		101–103	30s
		104–105	31s
		106–108	32s
		109–110	33s
		111–113	34s
		114–115	35s
		116–118	36s
		119–120	37s
		121–123	38s
		124–126	39s
		127–128	40s
		129–131	41s
		132–133	42s
		134–136	43s
		137–138	44s
		139–141	45s
		142–143	46s
		144–146	47s
		147–148	48s
		149–151	49s
		152–154	50s
		155–156	51s

CH	Function	DMX	Description
3	Speed Pan/Tilt (continued)	157–159	52s
		160–161	53s
		162–164	54s
		165–166	55s
		167–169	56s
		170–171	57s
		172–174	58s
		175–177	59s
		178–179	60s
		180–182	65s
		183–184	70s
		185–187	75s
		188–189	80s
		190–192	85s
		193–194	90s
		195–197	95s
		198–199	100s
		200–202	110s
		203–205	120s
		206–207	130s
		208–210	140s
		211–212	150s
		213–215	160s
		216–217	170s
		218–220	180s
		221–222	190s
		223–225	200s
		226–228	210s
		229–230	220s
		231–233	230s
		234–235	240s
		236–238	250s
		239–240	260s
		241–243	270s
		244–245	280s
		246–248	290s
		249–250	300s
		251–254	310s
		255	Cue Data: Open
4	Frost	0	Excluded
		1–254	Excluded ... Inserted
		255	Inserted

CH	Function	DMX	Description
5	Shutter	0–3	Closed
		4–103	Linear Strobe: Slow To Fast (1–12 Hz)
		104–107	Open
		108–207	Pulse Strobe: Slow To Fast
		208–212	Open
		213–225	Random Strobe: Slow
		226–238	Medium
		239–251	Random Strobe: Fast
		252–255	Open
6	Dimmer	0	0%
		1–254	0% ... 100%
		255	100%
7	Colors	0–4	White->White+Red
		5–8	White+Red->Red
		9–12	Red->Red+Orange
		13–17	Red+Orange->Orange
		18–21	Orange->Orange+Aquamarine
		22–25	Orange+Aquamarine->Aquamarine
		26–29	Aquamarine->Aquamarine+Deep Green
		30–34	Aquamarine+Deep Green->Deep Green
		35–38	Deep Green->Deep Green+Light Green
		39–42	Deep Green+Light Green->Light Green
		43–46	Light Green->Light Green+Lavender
		47–51	Light Green+Lavender->Lavender
		52–55	Lavender->Lavender+Pink
		56–59	Lavender+Pink->Pink
		60–63	Pink->Pink+Yellow
		64–68	Pink+Yellow->Yellow
		69–72	Yellow->Yellow+Magenta
		73–76	Yellow+Magenta->Magenta
		77–81	Magenta->Magenta+Cyan
		82–85	Magenta+Cyan->Cyan
		86–89	Cyan->Cyan+CTO 260
		90–93	Cyan+CTO 260->CTO 260
		94–98	CTO 260->CTO 260+CTO 190
		99–102	CTO 260+CTO 190->CTO 190
		103–106	CTO 190->CTO 190+CTB 8000
		107–110	CTO 190+CTB 8000->CTB 8000
		111–115	CTB 8000->CTB 8000 + Blue
		116–119	CTB 8000 + Blue->Blue
		120–123	Blue->Blue+White
		124–127	Blue+White->White

CH	Function	DMX	Description
7	Colors (continued)	128–255	Rotation: Slow to Fast (1.2–947.4 °/s)
8	Gobo	0–3	Gobo: Open
		4–7	Beam 1
		8–11	Gobo: Beam 2
		12–15	Gobo: Beam 3
		16–19	Gobo: Beam 4
		20–23	Gobo: Beam 5
		24–27	Gobo: Beam 6
		28–31	Gobo: Sharpy G07
		32–35	Gobo: Sharpy G08
		36–39	Gobo: Sharpy G09
		40–43	Gobo: Sharpy G10
		44–47	Gobo: Sharpy G11
		48–51	Gobo: Sharpy G12
		52–55	Gobo: Sharpy G13
		56–59	Gobo: Sharpy G14
		60–63	Gobo: Sharpy G15
		64–67	Gobo: Sharpy G16
		68–71	Sharpy G17
		72–113	Rotation: Fast to Slow (360–30 °/s)
		114–117	Rotation: Stop
		118–159	Rotation: Slow to Fast (30–360 °/s)
		160–166	Shake: Beam 2
		167–172	Shake: Beam 3
		173–179	Shake: Beam 4
		180–185	Shake: Beam 5
		186–191	Shake: Beam 6
		192–198	Shake: Sharpy G07
		199–204	Shake: Sharpy G08
		205–211	Shake: Sharpy G09
		212–217	Shake: Sharpy G10
		218–223	Shake: Sharpy G11
		224–230	Shake: Sharpy G12
		231–236	Shake: Sharpy G13
		237–243	Shake: Sharpy G14
		244–249	Shake: Sharpy G15
		250–255	Shake: Sharpy G16
9	Function	0–255	
10	Focus	0	Distant
		1–254	Distant … Near
		255	Near
11	Prism	0–127	Open

CH	Function	DMX	Description
11	Prism (continued)	128–255	Prism Inserted
12	Prism Rotation Speed	0	Position 0
		1–126	Position 0 … Position 540
		127	Position 540
		128–190	Rotation: Fast To Slow (258–0.108 °/s)
		191–192	Rotation: Stop
		193–255	Rotation: Slow To Fast (0.108–258 °/s)

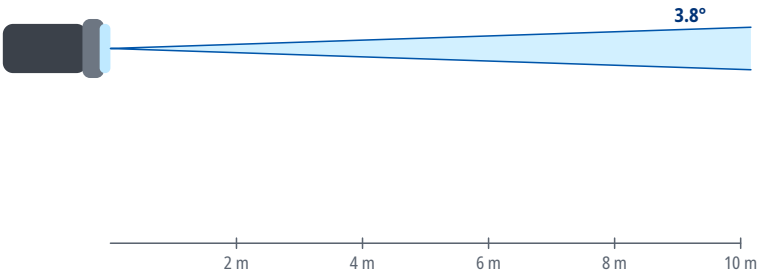
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	189 W
Luminous flux	7,940 lm
Color temperature	8,000 K
Optics	
Beam angle	3.8°
Movement	
Pan	540°
Tilt	250°
Dimensions and construction	
Weight	19 kg
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–12 Hz
Color wheel rotation	up to 947.4 °/s (158 rpm)
Gobo wheel rotation	up to 360 °/s (60 rpm)
Prism rotation	up to 258 °/s (43 rpm)

Spot diameter



Distance	Ø 3.8°
2 m	0.13 m
4 m	0.27 m
6 m	0.4 m
8 m	0.53 m
10 m	0.66 m
15 m	1 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.